SFG20

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Maintenance Task Schedules

London Underground Engineering Library – Printed: 24/06/2016

Service Model : M&E Systems Maintenance Specification

Prepared by
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1 Introduction

This document has been prepared by **London Underground Engineering Library** to assist in the specific planned maintenance for carrying out service tasks, tendering, service level re-modelling and auditing. The safety of persons working with plant and equipment and the environment it is situated within is a fundamental part of good maintenance practice and should be taken into account at all times.

2 SFG20 Overarching Introduction

It is EXTREMELY IMPORTANT that you have read and understood the SFG20 Overarching Introduction which is the first schedule included in this Book of Standards and provides essential guidance concerning:

- Statutory Compliance
- Safety
- Points to Consider during Maintenance Works
- Maintenance of Systems
- Proprietary Equipment
- Records
- Efficiency and Emissions
- Catering

3 Modelling (as shown at the top of each schedule page)

All intervals of service and inspection are expressed as D (Day) W (Week) M (Month) i.e. 1D, 1W, 3M, 6M, and 12M.

SKILLING KEY							
AA	Not-specified	AE	Authorising Engineer	AF	Authorising Engineer (Fire)	AH	Authorised Person (HV)
AL	Authorised Person (LV)	AP	Authorised Person	BL	Building Trade	CE	Controls Engineer
CF	Competent Person (Fire)	CH	Competent Person (HV)	CL	Competent Person (LV)	CO	Contractor
CP	Competent Person	DP	Designated Person	E	Electrical	FO	Fire Officer
FS	Fire Safety Manager	GS	Gas Safe	IC	Infection Control Officer	LO	Locksmith
M	Mechanical	ME	M&E	MN	Manager	MS	Multi-skilled
OP	Operator	PA	Plant Attendant	PN	Painter	PO	Prison Officer
PP	Plumber	PT	Pool Attendant	RE	Refrigeration Engineer	SP	Specialist
TE	Technician	U	User				

ASSET CRITICALITY KEY		
	Statutory	To ensure legal compliance
	Mandatory	To ensure regulatory and sector/organisation compliance
	Function Critical	To maintain business critical assets and avoid under/over maintaining applicable assets
	Discretionary	To maintain non-critical assets sufficient to protect value and meet sustainability commitments

UNIT OF MEASURE KEY			
Nr	Number	System	System
M^2	Metre Squared	Not Specified	Not Specified

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SUMMARY INFORMATION
Asset Profile including Service Timings

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Schedule Title : Overarching Introduction

Schedule Ref : 00-01
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

1 Standard Maintenance Specification

1.1 The original Standard Maintenance Specification was produced in 1990. Up until then, there had been no standard document covering the maintenance of heating, cooling and ventilation plant in buildings. The specification has continually evolved and been updated to meet the requirements of new equipment, good practises and Legislation.

1.2 In 1990, the Building Engineering Services Association (BESA) in association with the Chartered Institute of Building Engineers (CIBSE), the Building Research Energy Conservation Support Unit (BRECSU) and what was then the Energy Efficiency Office at the Department of Energy, developed the Standard Maintenance Specification which was aimed at maintenance contractors and organisations, by providing a standard against which to evaluate and audit adequate maintenance works. BESA members use the Specification as a standard both for tendering and in carrying out the work and those organisations going out for tender also use the Specification as an integral part of the tender specification to ensure comparable tenders received and evaluated.

1.3 In 2015, BESA Publications Ltd in conjunction and assistance with the Catering Equipment Suppliers Association (CESA) included a specialist services section specifically for Catering. Please ensure you have read and understood the full introduction including section 8 if the maintenance you are undertaking includes any elements of commercial kitchen equipment.

1.4 This Specification is also now used extensively by government bodies and Local Authorities as the minimum maintenance requirements for the mechanical and electrical plant and equipment on their estates.

1.5 The revised Specification is produced in alphabetic order under a number of service equipment headings, each having the same format and covering major elements in Building and Public Health Services. Newly included in this latest version are changes in statutory requirements, easier referencing to the frequency of checks and references to the statutory requirements.

1.6 The Specification has been produced as a generic guide to maintenance of building services equipment. It is used to match tasks to assets. However, it should be remembered that the user must consider all elements to be maintained rather than the headline item. As an example, if an air handling unit is to be maintained, the tasks associated with air handling units, motors, controls, dampers, heat exchangers etc. must all be selected in order that all elements of the AHU are maintained.

1.7 It is also important to tailor the maintenance to the individual site. Sites and Buildings can vary in complexity and importance. The user must therefore understand what is required on the site/building and this is reflected in the maintenance and frequencies. As an example, the frequency of maintenance visits to the air conditioning system serving a commercial bank data centre, may be significantly different to the maintenance frequency of an air conditioning unit in an unoccupied office. The task in SFG20 will have the same frequencies as it is a generic guide. The user must therefore adjust the frequency to suit.

2 Statutory Compliance Guidance

2.1 There are many Statutory Instruments, Regulations and Approved Codes of Practice that apply to the work undertaken within the service and maintenance industry. It should be noted that no piece of legislation stands alone as they all interact with each other. They stipulate minimum standards for safe working but also have absolute requirements in respect to particular areas of the legislation. All persons involved with the operation and maintenance works must ensure that the associated regulations are fully understood.

2.2 SFG20 has been produced to provide Engineers, Building Owners and Building Managers with a maintenance specification covering the majority of equipment found in a typical commercial building.

2.3 This Specification represents the maintenance practice in general terms. It is anticipated that this standard will be used not only by maintenance engineers carrying out the maintenance but also by managers as a means of checking that the work has been carried out and that they conform to the tender requirements. It is also envisaged that Building Owners and Managers will start using the Specification to identify the maintenance works required on their individual buildings.

2.4 Where, in the opinion of the Building and Engineering Services Association, a task would assist the user of the specification to discharge their legal duties under a Statutory Instrument, Regulation or an Approved Code of Practice the task has been designated and

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colour coded RED. It should also be noted that the Specification deals with maintenance tasks only. Tasks to ensure plant is operated safely have not been included in this current version of the Specification.

2.5 This Specification is provided as generic guidance to Engineers and Management. While the specification identifies tasks that will assist the user to discharge their legal responsibilities, the user of the Specification will still need to assess each individual building to ensure equipment not currently listed in SFG20 is maintained and any statutory operational tasks are undertaken.

2.6 The relevant Legislation has been included at the end of each task which has been deemed to be RED - this is not an exhaustive list and before carrying out any tasks within SFG20, the correct statutory requirements must always be checked and applied.

3 Safety

3.1 The safety of persons working with plant and equipment and the environment in which it is situated is a fundamental part of good maintenance practice and should be taken into account at all times.

3.2 Prior to carrying out tasks within SFG20, Risk Assessments must be produced and where it is identified from them Method Statements for safe working. Some tasks due to the nature of the works will require Permits to Work and a Method Statement as a matter of course. This will ensure a safe system of working has been adopted prior to work commencing.

3.3 There are a number of different types of tasks that require specific training and registration with the required registered body. Any enterprise or person working to SFG20 must ensure they are competent to do so and that they have the correct accreditation and/or registration appertaining to the works being undertaken - appropriate to the country or region where the work is being carried out.

3.4 Points to Consider during Maintenance Works

- **Carbon Monoxide** - Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down. NB in domestic premises, consider the installation of a CO detector that complies with BS EN 50291 and BS EN 50292. Correct combustion entails the adequate mixing of the fuel with air to ensure that the fuel is completely burnt without producing excessive smoke or diluting the combustion gases with excess air both of which cause energy wastage. With all fossil fuels, insufficient air produces carbon monoxide, a safety and health hazard, as undetected CO is poisonous and could be fatal.
- **Asbestos** - Check for asbestos containing material prior to dismantling any equipment, if any asbestos is found or suspected STOP WORK and close off the area. Have a sample of the suspected material certified as safe before any works can re-start, if asbestos is identified, take actions in accordance with the Asbestos Regulations. Refer to www.hse.gov.uk for detail.
- **Personal Protective Equipment (PPE)** - Ensure all necessary PPE is worn during any maintenance task. The appropriate Personal Protective Equipment (PPE), will be detailed in the Method Statement and should be worn at all times. All PPE must be selected by a competent person as suitable for the purpose and must fit the individual operative properly (Health & Safety (PPE) Regulations).
- **Reports and Worksheets** - Reports should be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out. Depending on the nature/urgency of the fault and the type of premises the report may be verbal.
- **Waste** – Ensure that any waste as a result of maintenance works is correctly disposed of. This will include ensuring that any necessary storage requirements are met (i.e. Fluorescent tube coffins). It should also be noted that some used panel and bag filters could be classed as hazardous waste and Waste Disposal Licensing Regulations may apply.
- **Confined Spaces** - A risk assessment and method statement must be undertaken in accordance with the Confined Spaces Regulations, before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases. Great care must be taken when entering brick or concrete drainage pits because of the possible presence of harmful gases. They must be vented to ensure the chamber cannot be pressurised over 0.1 bar g. (1.5 psig). Where entry into confined spaces is necessary, compliance is required with Guidance note L101 - Safe Work in confined spaces approved code of practice, regulations and guidance and INDG 258 - Work in confined spaces. Staff training must be up to date including the possibility of using breathing apparatus in some areas.
- **Permits to Work** - Depending on the Establishment, a Permit to Work system may be in operation. The Authorised Person should be approached for the issue of the permit before the commencement of any maintenance or remedial works. The permit system may require the maintenance Engineer to undertake additional training to satisfy the Establishments requirements for Competent Person roles.
- **COSHH** - The Buildings Health and Safety file will normally define any such likely or known hazards in accordance with COSHH Regulations and contractors have a duty to satisfy themselves that hazards are known and accounted for. Specific risk assessments should be carried out and particular method statements provided to deal with hazardous contamination. Note: Other personnel on site (Cleaners, Ground Maintenance etc.) may also be using COSHH materials on the same site.
- **Electrical Equipment** - All electrical equipment should be capable of local isolation in accordance with the regulations of the Institute of Engineering and Technology (IET) – Regulations for Electrical Installation (IET Wiring Regulations Current Edition), BS 7671, and as detailed in guidance note No 2, Isolation of switching. All electrical equipment should be safely isolated, and where necessary locked off, before any maintenance work is undertaken, especially where the equipment is remote to the isolation point. There are also

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stringent requirements and guidance in the Electricity at Work Regulations, and of particular importance is Regulation 12 – “Means for cutting off the supply and for isolation”. In this Regulation, isolation means the disconnection and separation of the electrical equipment from every source of electrical energy in such a way that this disconnection and separation is secure. The word ‘secure’ is specifically mentioned in the Electricity at Work Regulations and requires the means of isolation to be such that it is not likely to fail, become loose, etc. by the action of vibration, mechanical shock or knocks, or be accidentally or inadvertently operated. Padlocking is a widely used means, with clear labelling and warning notices.

3.5 All maintenance tasks within SFG20 are the series of tasks required to carry out maintenance of a piece of equipment. All statutory requirements and safety practices must be adhered to in respect to the method of completing the task and the requirements of the specific Acts, Regulations, Standards and Guidance Notes currently in force and applicable to the country or region where the work is being carried out.

4 Maintenance of Systems

4.1 The specification is presented in a checklist format describing specific maintenance activities applied to generic types of plant. The responsible agent, either as a contractor or Building Owner/Manager is responsible for maintaining the entire system, not just groups of components.

4.2 Regarding the maintenance activity in respect of a system, care should be taken to ensure that maintenance tasks are carried out by suitably qualified and experienced staff capable of exercising professional standards of judgement and discretion in relation to individual systems. The specification is a statement of typical standards and further reference to manufacturer’s guidance should be sought to supplement the specification.

4.3 It should also be noted that the Specification is not intended to replace the Manufacturers guidance but rather supplement it. For the avoidance of doubt, the manufacturer’s guidance will always take precedence over the Specification. This is especially relevant where plant and equipment is still in its warranty period.

5 Proprietary Equipment

5.1 SFG20 represents the maintenance practice in general terms. For specific items of plant it is essential that the maintenance engineer should be familiar with the equipment manufacturer’s maintenance manual and comply with the instructions contained therein. It is anticipated that this standard will be used not only by maintenance engineers carrying out the maintenance but also by managers as a means of checking that the work has been carried out.

6 Records

6.1 It is essential that a manual should be kept on site which should record the clearly defined responsibilities of:

(a) Plant Attendants
(b) Operators
(c) Supervisors

6.2 Together with a list detailing the equipment and normal settings and the location of operating and maintenance manuals relating to specific plant and control equipment. A record should be kept of all events and changes related to the equipment, the various settings of controls and valve positions. In addition, the manual should also contain the contact details of the relevant person to provide an emergency response to the building.

7 Efficiency and Emissions

7.1 European Directives and UK law require Carbon emissions from the combustion process to be controlled in order to achieve low fuel consumption and assist in the reduction of Carbon Foot print thus greater overall efficiency.

7.2 Nitrogen Oxides (NOx) are also produced during combustion. When oxides of nitrogen combine with water in the upper atmosphere, acidic compounds are formed which then lead to the acid rain formation, which can cause damage to plants, aquatic life and buildings. Low NOx boilers are available to counter this effect and to comply with European Directives and UK law, the aim of which is to reduce the permitted NO2 emissions from new fossil fuel heat generators to 180mg/Nm3 (normal cubic metres).

8 Catering

The purpose of the 'Catering' schedules is to provide operators, manufacturers, service companies and facilities managers with an industry recognised structured approach to managing commercial kitchen equipment of all types and in all situations. Recognition is given to the fact that foodservice operations vary significantly in terms of: the food and beverage offered; the consumer requirements; the

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volume of food served; site and environmental conditions and the operating times and periods.

The schedules have been designed to provide a full service schedule for equipment based on 6 monthly service intervals. Additional visits may be required on key equipment or heavily used water fed items.

It must be recognised that equipment servicing schedules will be affected by such things as:

- the equipment specification, use and suitability in relation to the tasks required
- the age of the equipment
- the type of equipment
- hours of operation
- its use of gas, water and electricity
- staff use of equipment and cleaning regimes
- volume of meals prepared using the equipment
- how well the equipment has been looked after
- gas appliances are serviced in accordance to gas safety guidance at least once every 12 months (ref manufacturer's instructions).
- suitable service plan (planned preventative maintenance) program in place and operation.

As a result the service schedules should be used in conjunction with the above parameters to define the optimum approach in each situation. For some equipment an annual service may be sufficient although this should be the minimum requirement. Equipment subjected to heavy use is likely to require the full schedule outlined in the documents.

Manufacturers' service recommendations should be followed and used in conjunction with these schedules.

Electrical testing is undertaken as part of the standard servicing schedule and documented on the scope of works ensuring safety compliance. PAT testing, if appropriate, should be treated as an additional requirement and contracted exercise and it should be noted that the PAT test only covers the electrical security and not the mechanical operational aspect. This element of the schedules should be treated as indicative that the essential requirements of product safety and test are met in relation to the equipment and mandatory requirements associated to safe operation and maintenance.

The effective maintenance of equipment is an essential requirement in order to ensure the:

- safety of staff
- effective and safe operation of equipment
- longevity of the equipment
- energy efficiency of the equipment throughout its lifecycle
- duty of care
- compliance to respective regulatory requirements.

It has been demonstrated that well maintained equipment will have a longer serviceable life and that it will provide optimum resource efficiency.

These schedules will comprise an effective planned preventative maintenance strategy and will be updated to ensure relevance and compliance with current standards.

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Schedule Title : Overarching Introduction

Schedule Ref : 00-01
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

1 Standard Maintenance Specification

1.1 The original Standard Maintenance Specification was produced in 1990. Up until then, there had been no standard document covering the maintenance of heating, cooling and ventilation plant in buildings. The specification has continually evolved and been updated to meet the requirements of new equipment, good practises and Legislation.

1.2 In 1990, the Building Engineering Services Association (BESA) in association with the Chartered Institute of Building Engineers (CIBSE), the Building Research Energy Conservation Support Unit (BRECSU) and what was then the Energy Efficiency Office at the Department of Energy, developed the Standard Maintenance Specification which was aimed at maintenance contractors and organisations, by providing a standard against which to evaluate and audit adequate maintenance works. BESA members use the Specification as a standard both for tendering and in carrying out the work and those organisations going out for tender also use the Specification as an integral part of the tender specification to ensure comparable tenders received and evaluated.

1.3 In 2015, BESA Publications Ltd in conjunction and assistance with the Catering Equipment Suppliers Association (CESA) included a specialist services section specifically for Catering. Please ensure you have read and understood the full introduction including section 8 if the maintenance you are undertaking includes any elements of commercial kitchen equipment.

1.4 This Specification is also now used extensively by government bodies and Local Authorities as the minimum maintenance requirements for the mechanical and electrical plant and equipment on their estates.

1.5 The revised Specification is produced in alphabetic order under a number of service equipment headings, each having the same format and covering major elements in Building and Public Health Services. Newly included in this latest version are changes in statutory requirements, easier referencing to the frequency of checks and references to the statutory requirements.

1.6 The Specification has been produced as a generic guide to maintenance of building services equipment. It is used to match tasks to assets. However, it should be remembered that the user must consider all elements to be maintained rather than the headline item. As an example, if an air handling unit is to be maintained, the tasks associated with air handling units, motors, controls, dampers, heat exchangers etc. must all be selected in order that all elements of the AHU are maintained.

1.7 It is also important to tailor the maintenance to the individual site. Sites and Buildings can vary in complexity and importance. The user must therefore understand what is required on the site/building and this is reflected in the maintenance and frequencies. As an example, the frequency of maintenance visits to the air conditioning system serving a commercial bank data centre, may be significantly different to the maintenance frequency of an air conditioning unit in an unoccupied office. The task in SFG20 will have the same frequencies as it is a generic guide. The user must therefore adjust the frequency to suit.

2 Statutory Compliance Guidance

2.1 There are many Statutory Instruments, Regulations and Approved Codes of Practice that apply to the work undertaken within the service and maintenance industry. It should be noted that no piece of legislation stands alone as they all interact with each other. They stipulate minimum standards for safe working but also have absolute requirements in respect to particular areas of the legislation. All persons involved with the operation and maintenance works must ensure that the associated regulations are fully understood.

2.2 SFG20 has been produced to provide Engineers, Building Owners and Building Managers with a maintenance specification covering the majority of equipment found in a typical commercial building.

2.3 This Specification represents the maintenance practice in general terms. It is anticipated that this standard will be used not only by maintenance engineers carrying out the maintenance but also by managers as a means of checking that the work has been carried out and that they conform to the tender requirements. It is also envisaged that Building Owners and Managers will start using the Specification to identify the maintenance works required on their individual buildings.

2.4 Where, in the opinion of the Building and Engineering Services Association, a task would assist the user of the specification to discharge their legal duties under a Statutory Instrument, Regulation or an Approved Code of Practice the task has been designated and

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colour coded RED. It should also be noted that the Specification deals with maintenance tasks only. Tasks to ensure plant is operated safely have not been included in this current version of the Specification.

2.5 This Specification is provided as generic guidance to Engineers and Management. While the specification identifies tasks that will assist the user to discharge their legal responsibilities, the user of the Specification will still need to assess each individual building to ensure equipment not currently listed in SFG20 is maintained and any statutory operational tasks are undertaken.

2.6 The relevant Legislation has been included at the end of each task which has been deemed to be RED - this is not an exhaustive list and before carrying out any tasks within SFG20, the correct statutory requirements must always be checked and applied.

3 Safety

3.1 The safety of persons working with plant and equipment and the environment in which it is situated is a fundamental part of good maintenance practice and should be taken into account at all times.

3.2 Prior to carrying out tasks within SFG20, Risk Assessments must be produced and where it is identified from them Method Statements for safe working. Some tasks due to the nature of the works will require Permits to Work and a Method Statement as a matter of course. This will ensure a safe system of working has been adopted prior to work commencing.

3.3 There are a number of different types of tasks that require specific training and registration with the required registered body. Any enterprise or person working to SFG20 must ensure they are competent to do so and that they have the correct accreditation and/or registration appertaining to the works being undertaken - appropriate to the country or region where the work is being carried out.

3.4 Points to Consider during Maintenance Works

- **Carbon Monoxide** - Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down. NB in domestic premises, consider the installation of a CO detector that complies with BS EN 50291 and BS EN 50292. Correct combustion entails the adequate mixing of the fuel with air to ensure that the fuel is completely burnt without producing excessive smoke or diluting the combustion gases with excess air both of which cause energy wastage. With all fossil fuels, insufficient air produces carbon monoxide, a safety and health hazard, as undetected CO is poisonous and could be fatal.
- **Asbestos** - Check for asbestos containing material prior to dismantling any equipment, if any asbestos is found or suspected STOP WORK and close off the area. Have a sample of the suspected material certified as safe before any works can re-start, if asbestos is identified, take actions in accordance with the Asbestos Regulations. Refer to www.hse.gov.uk for detail.
- **Personal Protective Equipment (PPE)** - Ensure all necessary PPE is worn during any maintenance task. The appropriate Personal Protective Equipment (PPE), will be detailed in the Method Statement and should be worn at all times. All PPE must be selected by a competent person as suitable for the purpose and must fit the individual operative properly (Health & Safety (PPE) Regulations).
- **Reports and Worksheets** - Reports should be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out. Depending on the nature/urgency of the fault and the type of premises the report may be verbal.
- **Waste** – Ensure that any waste as a result of maintenance works is correctly disposed of. This will include ensuring that any necessary storage requirements are met (i.e. Fluorescent tube coffins). It should also be noted that some used panel and bag filters could be classed as hazardous waste and Waste Disposal Licensing Regulations may apply.
- **Confined Spaces** - A risk assessment and method statement must be undertaken in accordance with the Confined Spaces Regulations, before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases. Great care must be taken when entering brick or concrete drainage pits because of the possible presence of harmful gases. They must be vented to ensure the chamber cannot be pressurised over 0.1 bar g. (1.5 psig). Where entry into confined spaces is necessary, compliance is required with Guidance note L101 - Safe Work in confined spaces approved code of practice, regulations and guidance and INDG 258 - Work in confined spaces. Staff training must be up to date including the possibility of using breathing apparatus in some areas.
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stringent requirements and guidance in the Electricity at Work Regulations, and of particular importance is Regulation 12 – “Means for cutting off the supply and for isolation”. In this Regulation, isolation means the disconnection and separation of the electrical equipment from every source of electrical energy in such a way that this disconnection and separation is secure. The word ‘secure’ is specifically mentioned in the Electricity at Work Regulations and requires the means of isolation to be such that it is not likely to fail, become loose, etc. by the action of vibration, mechanical shock or knocks, or be accidentally or inadvertently operated. Padlocking is a widely used means, with clear labelling and warning notices.

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7.2 Nitrogen Oxides (NOx) are also produced during combustion. When oxides of nitrogen combine with water in the upper atmosphere, acidic compounds are formed which then lead to the acid rain formation, which can cause damage to plants, aquatic life and buildings. Low NOx boilers are available to counter this effect and to comply with European Directives and UK law, the aim of which is to reduce the permitted NO2 emissions from new fossil fuel heat generators to 180mg/Nm3 (normal cubic metres).

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volume of food served; site and environmental conditions and the operating times and periods.

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It must be recognised that equipment servicing schedules will be affected by such things as:

- the equipment specification, use and suitability in relation to the tasks required
- the age of the equipment
- the type of equipment
- hours of operation
- its use of gas, water and electricity
- staff use of equipment and cleaning regimes
- volume of meals prepared using the equipment
- how well the equipment has been looked after
- gas appliances are serviced in accordance to gas safety guidance at least once every 12 months (ref manufacturer's instructions).
- suitable service plan (planned preventative maintenance) program in place and operation.

As a result the service schedules should be used in conjunction with the above parameters to define the optimum approach in each situation. For some equipment an annual service may be sufficient although this should be the minimum requirement. Equipment subjected to heavy use is likely to require the full schedule outlined in the documents.

Manufacturers' service recommendations should be followed and used in conjunction with these schedules.

Electrical testing is undertaken as part of the standard servicing schedule and documented on the scope of works ensuring safety compliance. PAT testing, if appropriate, should be treated as an additional requirement and contracted exercise and it should be noted that the PAT test only covers the electrical security and not the mechanical operational aspect. This element of the schedules should be treated as indicative that the essential requirements of product safety and test are met in relation to the equipment and mandatory requirements associated to safe operation and maintenance.

The effective maintenance of equipment is an essential requirement in order to ensure the:

- safety of staff
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- longevity of the equipment
- energy efficiency of the equipment throughout its lifecycle
- duty of care
- compliance to respective regulatory requirements.

It has been demonstrated that well maintained equipment will have a longer serviceable life and that it will provide optimum resource efficiency.

These schedules will comprise an effective planned preventative maintenance strategy and will be updated to ensure relevance and compliance with current standards.

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Schedule Title : Introductory Procedures - Actuators

Schedule Ref : 01-01
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

The following procedures apply to all types of actuator and require that before any maintenance is undertaken all safety precautions must be strictly adhered to. Care must be taken to ensure that any maintenance does not unduly interfere with the system's environmental conditions.

Consideration should be given to the discharge of secondary energy i.e. steam, pressurised water, hot oil, hot surfaces, spring pressures etc.

When working on equipment it should be noted that any auxiliaries fitted may have supplies fed from a separate circuit to that of the actuator. Therefore should the actuator supply be disconnected it should not be taken for granted that the auxiliary supply has also been disconnected.

To check that the actuator is performing its correct task, it is immaterial as to whether it is mounted on a damper, louvre, valve or any other piece of equipment. Its purpose is to control to a position between two limits, by either opening, closing or moving appropriate pieces of equipment.

Other Actuator Types

The function of an actuator can be split into two main categories: ON/OFF or MODULATING. Falling within these two categories are the types listed in the SFG20 menu for Actuators.

Although the majority of actuator types are covered in the menu, new developments may mean that the engineer is not fully aware of the operating characteristics of the device under scrutiny. If any doubt arises it would be preferred if the manufacturer were questioned prior to any checks or adjustments being carried out.

An example of the above is the VAV actuator sensor controller. This is a type of actuator that has the controller built into the actuator housing. The sensor is connected via a length of cable and will commonly be sensing air velocity or pressure. The controller will have been set to the required VAV box demand and these settings should not be altered without prior consultation with the client, the VAV box manufacturer and the actuator manufacturer. In this example, cross-referencing should be made between the Actuators, Controllers and Sensors sections (SFG 01, SFG 14 and SFG 50).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Pre-Maintenance Procedures - Actuators

Schedule Ref : 01-02
Schedule Type : Core
Schedule Date : 05 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Should any discrepancies occur with the following checks the client should be informed as soon as possible to avoid the possible uneconomical running of his plant.

The frequency of checks should be used as a minimum in the event that the actuator is performing a safety function (i.e. on a fire and smoke damper). Lives and property could depend upon this actuator working properly.

1. Cables. Check for signs of heat, damage, chafing or water ingress.

2. Mounting. Check mounting is in accordance with the manufacturer's recommendation.

3. Anchor points. Check security.

4. Mechanical protection. Check for soundness.

5. Earth bonding. Check connection.

6. Actuator torque. Check torque with a torque wrench. This check is of particular importance on spring return type actuators because the spring will have a maximum life span. Elasticity of the spring and hence the torque will reduce with time, if the torque is insufficient to complete the action, this could be a hazard to life and property.

7. Working conditions. Check actuator is operating within its design ambient conditions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Thermal Actuators

Schedule Ref : 01-03
Schedule Type : Core
Schedule Date : 05 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (6 mins)	12M (10 mins)			
1				
	2 3 4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
34

SCHEDULE INTRODUCTIONS

If the actuators perform a safety function e.g. fitted to a fire/smoke damper, the frequency of checks should be taken as the maximum time between checks and reference should be made to the particular manufacturer's recommended frequencies. It should be remembered that people's lives and property could depend on the actuators functioning correctly.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Reaction to safety signal i.e. fire/smoke	3M	If applicable and the actuator is used as part of the fire/smoke system within the building, check that the actuator assumes correct position.	The signal could be in any form from a fusible link in the supply or gear box to an independent signal from a control. If the actuator is integrated into the fire alarm circuit, checks may have to be made whilst a fire drill is in operation. See manufacturer's recommendations and relevant Control and/or Sensor sections (SFG 14 and/or SFG 50).	M&E
2	Electricity Supply	12M	Where applicable, check supply voltage and that polarities are correct.	If supply voltages are not found, check to see if supply is via a controller. Refer to manufacturer's recommendations.	M&E
3	Control Signal	12M	Where applicable, check for presence and that polarity is correct.	If supply voltages are not found, check to see if supply is via a controller. Refer to manufacturer's recommendations.	M&E
4	Auxiliary Control Functions i.e. on/off switches, frost protection, position	12M	Check operation.	See relevant manufacturer's recommendations and auxiliary section.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
	indicators				
5	Manual Operation (if fitted)	12M	Check to prove actuator will mechanically open/close valve or damper to its working limits.	Ensure that the actuator is returned to the 'auto' position after check is completed.	M&E
6	Actuator position on Power Failure	12M	Check for correct position for application when power fails.	This will entail interrupting the power to the actuator at a convenient point. Do not forget to reconnect the supply when the check is complete.	M&E
7	Reaction to Control Signal	12M	Check for correct response to signal.	See relevant Controls section (SFG 14).	M&E
8	Running Time (if applicable)	12M	Check.	See manufacturer's recommendations.	M&E
9	Leakage	12M	Check for signs of leakage of fluid around actuator seals. Change seals if necessary.	See manufacturer's recommendations.	M&E

SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Pneumatic Actuators

Schedule Ref : 01-04
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (6 mins)	12M (10 mins)			
1				
	2 3 4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
34

SCHEDULE INTRODUCTIONS

If the actuators perform a safety function e.g. fitted to a fire/smoke damper, the frequency of checks should be taken as the maximum time between checks and reference should be made to the particular manufacturer's recommended frequencies. It should be remembered that people's lives and property could depend on the actuators functioning correctly.

Pneumatic actuators do not have an electrical supply but function by air pressure alone. Therefore should there be any loss in pressure, the performance of the actuator (and thus the whole system) will be impaired making it inefficient.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Electro/pneumatic controllers will have an electrical supply to them and therefore all necessary precautions will need to be taken to isolate supplies.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Reaction to safety signal i.e. fire/smoke	3M	If applicable and the actuator is used as part of the fire/smoke system within the building, check that the actuator assumes correct position.	The signal could be in any form from a fusible link in the supply or gear box to an independent signal from a control. If the actuator is integrated into the fire alarm circuit, checks may have to be made whilst a fire drill is in operation. See manufacturer's recommendations and relevant Control and/or Sensor sections (SFG 14 and/or SFG 50).	M&E
2	Pressure / Leakage / Seizure	12M	Check operation between actuator and controller.	With a variance in pressure from the controller, the actuator will modulate.	M&E
3	Pipe Connections	12M	Check condition of glands and seals. Check pipework for	Replace defective glands and seals.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			deterioration.		
4	Air Quality	12M	Check that any filters are clear of water and oil (filter may not be local to the actuator).	If water and/or oil is present, trace pipework back to identify the source of the water or oil and rectify the problem.	M&E
5	Manual Operation (if fitted)	12M	Check to ensure actuator achieves stroke limits. Check for minimum/maximum setting.	Ensure manual override is reset to correct automatic position.	M&E
6	Linkage Assembly, i.e. nuts bolts, spring, valve stem or damper assembly.	12M	Check: a) wear b) security c) corrosion	Lubricate/replace/tighten, as necessary.	M&E
7	Lubrication and Cleaning	12M	Refer to manufacturer's recommendations.	Only use manufacturer's recommended cleaning agents and lubricants.	M&E
8	Actuator Function	12M	Check calibration - controller output to actuator position. More than one actuator may be fed from the control supply.	Note control pressure operation range is correct (could be sequenced control).	M&E
9	Auxiliary Control Units. e.g. positioners, electrical feedback units and end switches	12M	Check operation.	Refer to manufacturer's recommendations.	M&E

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Schedule Title : Hydraulic Actuators

Schedule Ref : 01-05
Schedule Type : Core
Schedule Date : 05 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	12M (15 mins)			
1				
	2 3 4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
75

SCHEDULE INTRODUCTIONS
Ensure the correct grade and type of hydraulic oil is used for any topping up purposes. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Reaction to Safety Signal i.e. Fire/Smoke	3M	If applicable and the actuator is used as part of the fire/smoke system within the building, check that the actuator assumes correct position.	The signal could be in any form from a fusible link in the supply or gear box to an independent signal from a control. If the actuator is integrated into the fire alarm circuit, checks may have to be made whilst a fire drill is in operation. See manufacturer's recommendations and relevant Control and/or Sensor sections (SFG 14 and/or SFG 50).	M&E
2	Electricity supply	12M	Where applicable, check supply voltage and that polarities are correct.	If supply voltages are not found, check to see if supply is via a controller. Refer to manufacturer's recommendations.	M&E
3	Control signal	12M	Where applicable, check for presence and that polarity is correct.	Refer to manufacturer's recommendations. The previous note can also apply to the control signal.	M&E
4	Auxiliary control functions i.e. on/off switches, frost protection and feedback potentiometers	12M	Check operation.	See relevant manufacturer's recommendations and auxiliary section.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
5	Manual operation (if fitted)	12M	Check to prove actuator will mechanically open/close valve or damper to its working limits.	Ensure that the actuator is returned to the 'auto' position after check is completed.	M&E
6	Actuator position on power failure	12M	Check for correct position for application when power fails.	This will entail interrupting the power to the actuator at a convenient point. Do not forget to reconnect the supply when the check is complete.	M&E
7	Reaction to control signal	12M	Check for correct response to signal.	See the relevant controls section.	M&E
8	Running time (if applicable)	12M	Check.	Refer to manufacturer's recommendations.	M&E
9	Leakage	12M	Check for signs of leakage of hydraulic fluid around actuator seals. Change seals if necessary. On completion of the works, bleed through the system to ensure there is no air trapped in the pipework.	Refer to manufacturer's recommendations.	M&E

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Schedule Title : Motor Driven Actuators

Schedule Ref : 01-06
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	12M (10 mins)			
1				
	2 3 4 5 6 7 8			

ANNUAL TIMING (MINUTES)
50

SCHEDULE INTRODUCTIONS

If the actuators perform a safety function e.g. fitted to a fire/smoke damper, the frequency of checks should be taken as the maximum time between checks and reference should be made to the particular manufacturer's recommended frequencies. It should be remembered that people's lives and property could depend on the actuators functioning correctly.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Reaction to safety signal i.e. fire/smoke	3M	If applicable and the actuator is used as part of the fire/smoke system within the building, check that the actuator assumes correct position.	The signal could be in any form from a fusible link in the supply or gear box to an independent signal from a control. If the actuator is integrated into the fire alarm circuit, checks may have to be made whilst a fire drill is in operation. See manufacturer's recommendations and relevant Control and/or Sensor sections (SFG 14 and/or SFG 50).	M&E
2	Electricity supply	12M	Check supply voltage and that polarities are correct.	If supply voltages are not found, check to see if supply is via a controller. Refer to manufacturer's recommendations.	M&E
3	Control signal	12M	Check for presence and that polarity is correct.	Refer to manufacturer's recommendations. The previous note can also apply to control signal.	M&E
4	Auxiliary control functions i.e. on/off switches, frost protection and position indicators	12M	Check operation.	See relevant manufacturer's recommendations and auxiliary section.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
5	Manual operation (if fitted)	12M	Check to prove actuator will mechanically open/close valve or damper to its working limits.	Ensure that the actuator is returned to the 'auto' position after check is completed. If the actuator is of the direct coupled type, ensure that the clamp assembly is not worn and the fixings are tight.	M&E
6	Actuator position on power failure	12M	Check for correct position for application when power fails.	This will entail interrupting the power to the actuator at a convenient point. Do not forget to reconnect the supply when the check is complete.	M&E
7	Reaction to control signal	12M	Check for correct response to signal.	See the relevant Controls section (SFG 14).	M&E
8	Running time (if applicable)	12M	Check.	See manufacturer's recommendations.	M&E

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Schedule Title : Power Fail - Motor Return Actuators

Schedule Ref : 01-07
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (6 mins)	6M (5 mins)	12M (10 mins)		
1				
	2	3 4 5 6 7 8 9 11 12 13 14		

ANNUAL TIMING (MINUTES)
44

SCHEDULE INTRODUCTIONS

Power fail - Motor return actuators are commonly enabled to return to the desired position by means of an electricity supply independent from the rest of the building. Care should be taken to monitor the amount of operations left in the batteries and they should be replaced according to the manufacturer's instructions. The disposal of batteries calls for special arrangements, which should conform to all environmental and Health and Safety requirements.

If the following actuators perform a safety function e.g. fitted to a fire/smoke damper, the frequency of checks should be taken as the maximum time between checks and reference should be made to the particular manufacturer's recommended frequencies. It should be remembered that people's lives and property could depend on the actuators functioning correctly.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Reaction to Safety Signal, e.g. fire/smoke	3M	If applicable and the actuator is used as part of the fire/smoke system within the building, check that the actuator assumes correct position.	The signal could be in any form from a fusible link in the supply or gear box to an independent signal from a control. If the actuator is integrated into the fire alarm circuit, checks may have to be made whilst a fire drill is in operation. See manufacturer's recommendations and relevant Control and/or Sensor sections (SFG 14 and/or SFG 50).	M&E
2	Battery	6M	Check condition.	Note use by date and consider life expectancy of battery. See heading note above regarding disposal.	M&E
3	Electricity Supply	12M	Check supply voltage and that polarities are correct.	If supply voltages are not found, check to see if supply is via a controller. Refer to manufacturer's recommendations.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
4	Control signal	12M	Check for presence and that polarity is correct.	Refer to manufacturer's recommendations. The previous note can also apply to the control signal.	M&E
5	Auxiliary Control Functions i.e. on/off switches, frost protection and feedback potentiometers	12M	Check operation.	See relevant manufacturer's recommendations and auxiliary section.	M&E
6	Manual Operation (if fitted)	12M	Check to prove actuator will mechanically open/close valve or damper by moving to its working limits.	Ensure that the actuator is returned to the 'auto' position after check is completed.	M&E
7	Actuator position on Power Failure	12M	Check for correct position for application when power fails.	This check must be performed before power is restored to the system or actuator.	M&E
8	Reaction to Control Signal	12M	Check for correct response to signal.	See relevant Controls section (SFG 14).	M&E
9	Running Time (if applicable)	12M	Check.	See manufacturer's recommendations.	M&E
10	**Auxiliaries**				
11	Switches	12M	Check to ensure that the switches are made to make or break at the correct position and that they perform their correct function.		M&E
12	Feedback potentiometers	12M	Check to ensure that: a) winding/tracking is not dirty or broken b) wiper is making contact and is not dirty c) potentiometer performs its correct function.	If the winding is broken, do not attempt to repair. Provide a replacement. If the wiper is not making correct contact, gently bend it until smooth contact is attained.	M&E
13	Linkages - Visual	12M	Check for: a) corrosion b) deformed or bent component c) wear on moving parts and mounting brackets.	Where required, clean and lubricate parts i.e. ball joints and sockets and moving parts. Refer to manufacturer should any item deem to be in need of replacement. Refer to manufacturer's recommendations.	M&E
14	Linkages - Physical Check	12M	Ensure that the actuator achieves the required stroke limits. Adjust if necessary.		M&E

SCHEDULE LEGISLATION
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Schedule Title : Power Fail - Spring Return Actuator

Schedule Ref : 01-08
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (6 mins)	12M (10 mins)			
1				
	2 3 4 5 6 7 8 10 11 12 13			

ANNUAL TIMING (MINUTES)
34

SCHEDULE INTRODUCTIONS

If the actuators perform a safety function e.g. fitted to a fire/smoke damper, the frequency of checks should be taken as the maximum time between checks and reference should be made to the particular manufacturer's recommended frequencies. It should be remembered that people's lives and property could depend on the actuators functioning correctly.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Reaction to safety signal, e.g. fire smoke	3M	If applicable and the actuator is used as part of the fire/smoke system within the building, check that the actuator assumes correct position.	The signal could be in any form from a fusible link in the supply or gear box to an independent signal from a control. If the actuator is integrated into the fire alarm circuit, checks may have to be made whilst a fire drill is in operation. See manufacturer's recommendations and relevant Control and/or Sensor sections (SFG 14 and/or SFG 50).	M&E
2	Electricity Supply	12M	Check supply voltage and that polarities are correct.	If supply voltages are not found, check to see if supply is via a controller. Refer to manufacturer's recommendations.	M&E
3	Control Signal	12M	Check for presence and that polarity is correct.	Refer to manufacturer's recommendations. The previous note can also apply to the control signal.	M&E
4	Auxiliary Control Functions i.e. on/off switched, frost protection, feedback potentiometers	12M	Check operation.	See relevant manufacturer's recommendations and auxiliary section.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
5	Manual Operation (if fitted)	12M	Check to prove actuator will mechanically open/close valve or damper to its working limits.	The actuator may be fitted with the facility to manually wind up the spring, if so the spring must be wound up with the recommended tool. See manufacturer's recommendations. If the tool is capable of being removed, do so at the end of the test and ensure that the actuator is left in the original position. Ensure that the actuator is returned to the 'auto' position (if fitted) after the check is completed. Care must be taken in winding up the mechanism to ensure the spring is not over tensioned.	M&E
6	Actuator position on Power Failure	12M	Check for correct position for application when power fails.	This check must be performed before power is restored to the system or actuator.	M&E
7	Running times of Spring and Motor	12M	Check.	Times should be within the tolerances specified in the manufacturer's recommendations.	M&E
8	Reaction to Control Signal	12M	Check for correct response to signal.	See manufacturer's recommendations.	M&E
9	**Auxiliaries**				
10	Switches	12M	Check to ensure that the switches are made to make or break at the correct position and that they perform their correct function.	See manufacturer's recommendations.	M&E
11	Feedback Potentiometers	12M	Check to ensure that: a) winding/tracking is not dirty or broken b) wiper is making contact and is not dirty c) potentiometer performs its correct function.	If the winding is broken, do not attempt to repair. Provide a replacement. If the wiper is not making correct contact, gently bend it until smooth contact is attained.	M&E
12	Linkages - Visual	12M	Check for: a) corrosion b) deformed or bent component c) wear on moving parts and mounting brackets.	Where required, clean and lubricate parts i.e. ball joints and sockets and moving parts. Refer to manufacturer should any item deem to be in need of replacement. Refer to manufacturer's recommendations.	M&E
13	Linkages - Physical Check	12M	Ensure that the actuator achieves the required stroke limits. Adjust if necessary.		M&E

SCHEDULE LEGISLATION

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Schedule Title : Introductory Procedures - Air Conditioning

Schedule Ref : 02-01
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Air conditioning systems range from the single wall/window mounted unit to large installations having compressor drives of several hundred kw. The maintenance requirements of the various systems will differ widely in complexity and skill requirements and this is reflected in the breakdown of this document. Two environmental problems associated with air conditioning plant, namely the potential depletion of the ozone layer through the release of refrigerants and Legionnellosis from untreated water systems, demonstrates the need for maintaining plant at the highest standard as is outlined in this Standard Maintenance Specification.

Care is also required in the disposal of refrigerants. Any practice which releases refrigerants into the atmosphere must not be used. Specialist contractors will have refrigeration engineers who have been trained and certified in the handling of refrigerants and will have access to and use proper recovery equipment. These contractors must belong to an Approved Certified Scheme provider, in accordance with the "F" Gas and Building Regulations. It is in the building owners' interest to ensure that plant is properly maintained to ensure environmental conditions in the building are acceptable to the staff and that energy is not wasted.

In a subject as complicated as the maintenance of air conditioning plant an approach has been selected which breaks the systems down into their component parts such as compressors, condensers, evaporators or chillers and refrigerant distribution systems with their associated controls. Central and room air conditioning plant are examined in the appropriate detail as Air Handling Units, Humidifiers and Heat Rejection Systems. It must be emphasised that although this modular approach has been adopted it is the system as a whole, which must be maintained on a regular basis using this Standard Maintenance Specification.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Air Pressure Relief Damper

Schedule Ref : 02-02
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
6M	12M			
1	2 3 4			

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'.

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Blade movement	6M	Ensure that the blade moves freely within the housing by applying light finger pressure to the bottom edge of the blade when viewed from the high pressure side. Tighten bolts if needed. Any stickiness in the movement should be investigated and rectified.		M&E
2	Damper mechanism	12M	Check activating mechanism for dirt or foreign matter and clean the obstructions. Check damper arm and weights for loose bolts and tighten if necessary.		M&E
3	Blades	12M	Dismount the damper and clean the insides of the damper from any dirt and obstacles. If a suitable maintenance hatch is available the damper can be cleaned without dismounting. Clean the blade using a damp lint free cloth to remove any build-up of dust. The damper should be cleaned		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			from inside and outside. Check the balancing components for any signs of failure and replace if needed. Check and oil the bearings. Mount the damper if it was dismounted. The functionality of the damper should be tested on completion.		
4	Operating pressure	12M	If the operating pressure is suspected as being incorrect this should be checked using a calibrated manometer.		M&E

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Schedule Title : Air Handling Units - General (mod)

Schedule Ref : 03-01
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : System
Core Schedule Ref : 03-01

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (20 mins)	6M (30 mins)	12M (120 mins)		
1 2 3 4 5 6 7 8	9 10	11 12 13 14 15 16 17 18		

ANNUAL TIMING (MINUTES)
260

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Filter	3M	Check manometer reading and renew filter media as indicated.	Check the pressure differential across the filters. It should be noted that checking the filter should be carried out more regularly.	M&E
2	Guide vane actuators and modulating dampers	3M	Check operation.		M&E
3	Condensate drains	3M	Check for condensate carry-over and that drains are clear.		M&E
4	Humidifier pumps, sprays and water supply to tank	3M	Check operation.	The user should note that SFG20 schedules for Humidifiers (SFG 33-05 and 33-08) should also be used for cleaning and disinfections tasks required by L8.	M&E
5	Vent air	3M	Air should be vented from heating and cooling coils where fitted.		M&E
6	Drive belts	3M	Check tension, alignment and condition.	Re-tension or replace as necessary. For more detailed maintenance procedures see Belt Drives (SFG 04-01).	M&E
7	Damper and guide vane pivots and linkages	3M	Lubricate lightly.		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
8	Motorised damper	3M	Check to see that louvres are clear and not obstructed, couplings are secure and that motor runs without excessive noise or vibration.	For detailed maintenance see Actuators (SFG 01).	M&E
9	Frost protection, boost thermostat and controls	6M	Check operation. For more detailed maintenance information refer to Sensors and Switching Devices (SFG 50).	This check should be carried out in September and February in Great Britain.	M&E
10	Fans	6M	Check operation of fan in accordance with the relevant section of Fans (SFG 20).		M&E
11	Drive pulleys	12M	Check alignment and security.		M&E
12	Drive couplings	12M	Check alignment and for excessive clearance.	Wear is indicated by excessive clearance and couplings should be replaced.	M&E
13	Heating and cooling coils	12M	Check condition and clean. Check air and water pressure drops across coils. Check operation of the heating and cooling coil in accordance with Heat Exchangers - Coils (SFG 29-01).	Even when filters are fitted, dirt can build-up causing loss of machine output.	M&E
14	Controls and electrical connections	12M	Check operation and condition.	Calibration/Interrogation/Control Adjustment. See relevant sections Control Panels and Controllers (SFG 14) and Sensors and Switching Devices (SFG 50).	M&E
15	Valves	12M	Fully open and close and then reset at the original setting.		M&E
16	Air handling unit	12M	Thoroughly clean interior and check for corrosion. On reassembly check for air tightness.	Include heating and cooling coils, fan impeller, eliminator plates and other fittings.	M&E
17	Motors	12M	Check all motors in accordance with Motors - Drive Elements (SFG 39-01).	This should not exceed data plate value. Measure shaft float and end play.	M&E
18	Anti-vibration mountings and ductwork flexible connections	12M	Check condition.		M&E

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Schedule Title : Belt Drives

Schedule Ref : 04-01
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (12 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
48

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Tension	3M	Check and adjust as necessary.	The correct tensioning of V-belts prevents excessive bearing wear. Motor position should be adjusted so that only a slight 'bow' appears on the slack side of the belt when in operation. Recommended tensions are given in the installations instructions. After a few days running, check tension.	M&E
2	Alignment	3M	Check and adjust as required.	Poor alignment of the pulleys will cause excessive wear on the sides of the belt and shorten their lives.	M&E
3	Bearings	3M	Check for wear and lubricate at frequencies recommended by the manufacturer. Where oil filled, drain, strip and clean bearing assembly, reassemble and fill with clean oil.	'Sealed for life' bearings should not normally require attention.	M&E
4	Guards	3M	Check for secure mounting and positioning.	Belt replacement, as necessary. New and used V-belts should not be run together on the same set. Replace drive belts using manufacturer's replacement belts. If the drive has more than one belt, ensure all belts are changed at the same time. Do not apply belt dressing.	M&E

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Schedule Title : Introductory Procedures - Boilers/Heat Generators

Schedule Ref : 05-01
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

In this section on the maintenance of heat generators, the specification is aimed at establishing best maintenance practice, but this is not intended to replace the statutory insurance inspection required by Health and Safety regulations. The term heat generators is a generic one used within the European Community to cover all appliances which burn fuel or convert energy to produce heat.

This section covers firstly the general requirements which are common to a group of appliances such as hot water heat generators and then examines the maintenance needs within each group. It must be emphasised that it is still necessary to refer to manufacturer's maintenance schedules for specific makes of appliances.

A detailed breakdown of the contents of this section is given in the Index but the format of each subsection is in the form of tables providing details on the item to be maintained, the frequency of maintenance, the action to take and where appropriate informative notes about the action to be taken. It should be noted that the frequency of maintenance relates to average conditions in terms of use and the environment in which the equipment is working. In cases where operating regimes are severe or the environment dirty or corrosive the frequency of maintenance should be increased to meet those conditions.

Sections include:

a) Hot water heat generators including condensing heat generators
b) Steam raising heat generators
c) Oil fired heat generators
d) Coal fired heat generators
e) Gas fired heat generators, direct fired, warm air heaters and radiant systems are found in Heat Emitters (SFG 28)
f) Electrode heat generators
g) Electric heat generators
h) Waste/Wood Burning heat generators. Controls relating to actual pieces of equipment are covered in Control Panels and Controllers (SFG 14) but more sophisticated controls are covered in the relevant sections.
i) Heat generator types

The term heat generator covers a wide range of energy conversion appliances which involve a heating source, usually a fossil fuel burner or an electrical resistance element, which applies heat at one side of a metal surface. On the other side is a heating fluid, usually water or air, which absorbs energy from the heat source. This operation is termed heat transfer and anything which hinders that transfer, wastes energy.

In the case of hot water it can either be circulated at near atmospheric pressure or circulated at higher pressures and temperatures above the normal boiling point. Alternatively the water can be evaporated as steam and the steam circulated as the heating medium.

Warm air can be used as a heating medium and if it contains the products of combustion it is said to be direct fired. Alternatively uncontaminated warm air can be provided by passing the burner gases through a heat exchanger. In some cases the combustion gases are passed at high temperature through radiant tubes which provide radiant heat. In most cases, air movement is fan assisted.

This section (Boilers/Heat Generators - SFG 05) covers all the important aspects of heat generator maintenance including safety controls, combustion, the combustion chamber and heat generator controls.

Combustion

Correct combustion entails the adequate mixing of the fuel with air to ensure that the fuel is completely burnt without producing excessive smoke or diluting the combustion gases with excess air, both of which cause energy wastage. With all fossil fuels, insufficient air produces carbon monoxide, a health and safety hazard, as undetected CO is poisonous; and a visible smoke plume which should lead to prompt corrective action. With gas combustion, no smoke is produced when insufficient air is used and hence the situation can go unnoticed for long periods, leading to significant energy waste unless regular flue gas analyses are carried out and the condition corrected.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the

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task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Pre-Maintenance Procedures - Boilers/Heat Generators

Schedule Ref : 05-02
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

A fundamental element of good practice for the operator or attendant should be to carry out a visual inspection of the heat generator at regular intervals as part of the day-to-day routine. This should include checking for leaks and correct burner flame shape i.e. it should be uniform in shape, 'sit' on the burner and should not hit the walls or back of the combustion chamber.

Prior to carrying out the planned maintenance of the heat generator the following pre-maintenance procedures should be followed:

(a) Check equipment status (i.e. on or off) and follow any specific site procedures (including safety).
(b) Carry out a general inspection of heat generator casing for signs of damage or breakage.
(c) Inspect for loose fittings or connections or any signs of leaks, smells or unusual noises.
(d) Record work which will require repair, adjustment or replacement during the routine services.
(e) Record existing services – (combustion/efficiency analysis should be recorded before and after maintenance completion).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Atmospheric Gas Burner - Free Standing Boiler

Schedule Ref : 05-03
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (90 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19				

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

Boiler room ventilation should comply with BS 5440 -2 for boilers not exceeding 70kW and BS 6644 for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

Consider the installation of a CO detector that complies with BS EN 50291-1 and BS EN 50292.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Before proceeding with dismantling of boiler	12M	Check casing for damage or breakages. Inspect for loose fittings or connections and any sign of leaks.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations. Refer to www.hse.gov.uk.	Gas Safe
2	Test fire	12M	Record settings.		Gas Safe
3	Gas electrical and ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator should be fitted. Supply to the boiler must be direct, i.e. not fed through a time switch.	Gas Safe
4	Isolate boiler for gas and electrical supplies	12M	Record any work which needs rectification or replacement.		Gas Safe
5	Gas valve	12M	Disconnect thermocouple and pilot tube from burners.		Gas Safe
6	Remove burners and pilot assembly, plus baffles if fitted	12M	Brush all accessible flueways thoroughly from top to bottom, clean all deposits from the burner box, refit baffles and flue	Cleaning should be thorough and carried out as per the manufacturer's instructions.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			cover - checking cover seal. Check for cracking and wear.		
7	Pilot assembly	12M	Remove.		Gas Safe
8	Pilot head	12M	Remove and clean ports.		Gas Safe
9	Pilot injection	12M	Remove and clean.	Clean by blowing through or washing. Do not use pin as this will damage the injector.	Gas Safe
10	Thermocouple tip	12M	Replace/clean with fine wire brush, reassemble pilot.	Make sure head lines up with the pilot flame.	Gas Safe
11	Oxy-pilot assembly	12M	Replace.		Gas Safe
12	Lint filter (if fitted)	12M	Remove from burners and clean.		Gas Safe
13	Filters	12M	Refit.		Gas Safe
14	Burners, Gas valve, thermocouple and pilot tube	12M	Check adjust and refit along with main burner.		Gas Safe
15	Boiler and installation	12M	Open gas cock and test for gas soundness, reconnect electrical services. Test controls operation, relight pilot and run up boiler.	Test flame setting, thermocouple sensitivity and check manifold gas pressure against manufacturer's settings, adjust if required. If in doubt check gas supply standing pressure at the meter.	Gas Safe
16	Safety Check - Productions of Combustion	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	The checks should be carried out in line with the requirements of the Gas Safety (installations and Use) regulations.	Gas Safe
17	Safety Check - Electrical	12M	Check electrical installation for safety and that local isolator is fitted.	If not, provide written report to client.	Gas Safe
18	Documentation	12M	Provide written report.	The report should be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out. Depending on the nature/urgency of the fault and the type of premises this report may be verbal. Gas work must be carried out by a competent engineer qualified as required by the Gas Safety (Installation and Use) Regulations.	Gas Safe
19	Unsafe Installations	12M	Recommendations.	If after servicing the appliance it is considered unsafe, the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				appliance and a written report must be signed by the client/responsible person/clients representative. Both the gas supplier and a supervisor/manager must be informed.	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Atmospheric Gas Burner - Condensing Boiler

Schedule Ref : 05-04
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (90 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26				

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with the appropriate British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Before proceeding with dismantling of boiler, test fire	12M	Check casing for damage or breakages. Inspect for loose fittings or connections and any sign of leaks. Record settings.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.	Gas Safe
2	Pre-service checks. Condensate flow	12M	Check that there is a steady fall back to the boiler from the flue to allow condensate to run back. With the boiler operating at low return temperature (less than 50º C) check that condensate flows freely from the drain pipe.	Risk Assessment may be required. Waste Disposal Licensing Regulations may apply.	Gas Safe
3	Gas electrical & ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator should be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
4	Condensate level probe (if fitted)	12M	Clean and inspect.		Gas Safe
5	Secondary head exchanger (if fitted)	12M	Clean with water and a soft brush.		Gas Safe
6	Neutralising unit	12M	Check crystal level and top up if necessary.		Gas Safe
7	Condensate drain pipe and U-siphon trap	12M	Clean, inspect and flush.	Ensure trap contains water to act as a seal.	Gas Safe
8	Fan	12M	Check operation and clean any deposits off blades.		Gas Safe
9	Isolate boiler for gas and electrical supplies	12M	Record any work which needs rectification or replacement.		Gas Safe
10	Gas valve	12M	Disconnect thermocouple and pilot tube from burners.		Gas Safe
11	Remove burners, pilot assembly and baffles if fitted	12M	Brush all accessible flue ways thoroughly from top to bottom, clean all deposits from the burner box, refit baffles and flue cover - checking cover seal. Check for cracking and wear.	Cleaning should be thorough and carried out as per the manufacturer's instructions.	Gas Safe
12	Pilot assembly	12M	Remove.		Gas Safe
13	Pilot head	12M	Remove and clean ports.		Gas Safe
14	Pilot injection	12M	Remove and clean.	Clean by blowing through or washing. Do not use pin as this will damage the injector.	Gas Safe
15	Thermocouple tip	12M	Replace and clean with fine wire brush. Reassemble pilot.	Make sure head lines up with the pilot and not the burner.	Gas Safe
16	Oxy-pilot assembly	12M	Replace.		Gas Safe
17	Lint filter (if fitted)	12M	Remove from burners and clean.		Gas Safe
18	Filters	12M	Refit.		Gas Safe
19	Burners, gas valve, thermocouple and pilot tube	12M	Check adjust and refit along with main burner.		Gas Safe
20	Water treatment. LOW NOX Boilers	12M	Check treatment regime is correct.	Some condensing boilers contain aluminium.	Gas Safe
21	Kanthal bars/rods	12M	Inspect and clean with compressed air.	If there are any signs of bending, replace. For all condensing boilers, manufacturer's specific service instructions take precedence.	Gas Safe
22	Boiler and installation	12M	Open gas cock and test for gas soundness, reconnect electrical services. Test controls operation, relight pilot and run up	Test flame setting and thermocouple sensitivity and check manifold gas pressure against manufacturer's settings,	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			boiler.	adjust if required. If in doubt check gas supply standing pressure at the meter.	
23	Safety check - productions of combustion	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	The checks should be carried out in line with the requirements of the Gas Safety (installations and use) regulations.	Gas Safe
24	Safety check - electrical	12M	Check electrical installation for safety and that local isolator is fitted.	If not provide written report to client.	Gas Safe
25	Documentation	12M	Provide written report.	The report must be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out by a competent engineer, qualified as required by the Gas Safety Regulations. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	Gas Safe
26	Unsafe installations	12M	Recommendations.	If, after servicing, the appliance is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Coal Fired Boilers - Bunkers and Conveyors

Schedule Ref : 05-05
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (60 mins)	12M (480 mins)			
1 2	3 4			

ANNUAL TIMING (MINUTES)
1200

SCHEDULE INTRODUCTIONS

The burning of coal is a complex operation involving the storage, handling and combustion of solid material, plus the handling, disposal of gaseous and solid waste. The materials are abrasive with the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. The maintenance of each section of the coal burning operation is examined in sequence.

WARNING. A risk assessment and method statement must be undertaken in accordance with the Confined Spaces Regulations, before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	1M	Check and isolate and Lock Off from electricity supply, remove fuses if used.	Depending on the Establishment, a Permit to Work system may be in operation. The Authorised Person should be approached for the issue of the permit.	Mechanical
2	Screw conveyor	1M	Grease outrigger bearing on worm shaft and tube rotation guide.		Mechanical
3	Bunkers	12M	Inspect for wear and corrosion and repair as necessary.		Mechanical
4	Belt conveyors	12M	Inspect, renew worn sections, check and replace joints as necessary.	Lubrication of rollers, idlers and drums should be carried out frequently as part of the client's regular routine.	Mechanical

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Schedule Title : Coal Fired Boilers - Coal Storage Handling and Feed Mechanisms, Automatic Ash Removal (where fitted)

Schedule Ref : 05-06
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (60 mins)	6M (120 mins)	12M (240 mins)		
		6 7 8 9 10 11 12 13		
1 2	3 4 5			

ANNUAL TIMING (MINUTES)
720

SCHEDULE INTRODUCTIONS

The burning of coal is a complex operation involving the storage, handling, combustion of solid material, together with the handling, disposal of gaseous and solid waste. The materials are abrasive and the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. The maintenance of each section of the coal burning operation is examined in sequence. (See also Motors SFG 39).

WARNING. A risk assessment and method statement must be undertaken before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	3M	Prior to any maintenance works: Check and isolate and Lock Off from electricity supply. Remove fuses, if used. Replace fuses when works complete and ready to bring back on line.	Depending on the Establishment, a Permit to Work system may be in operation. The Authorised Person should be approached for the issue of the permit.	Mechanical
2	Pneumatic system. (Applies to both coal feed and ash removal, where fitted)	3M	Inspect and replace items listed under notes. Check for air tightness.	(a) air seals on each outlet cyclone (b) clean blades of fan (c) ensure timing sequence (d) check 'bags' (e) check bag shaker and lubricate as appropriate It is essential to maintain air tightness on pneumatic systems otherwise the coal feed cannot be maintained, output is reduced and energy wasted.	Mechanical
3	Coal feed lines	6M	Rod through and replace worn	Check for erosion and thinning	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			components.	on bends.	
4	Screw elevators and feeders	6M	Inspect tooth type drive belt for wear. Replace if necessary. Check for wear.		Mechanical
5	Crusher and gearbox	6M	Check oil level and replenish if necessary.		Mechanical
6	Silo	12M	Empty and check for signs of wear or corrosion.	Paint all internal components exposed to coal. If remedial work necessary, report to client.	Mechanical
7	Static electricity discharge mechanism	12M	Check effectiveness.		Mechanical
8	Fans	12M	Check low level switches, fuses and action of fan emergency safety switch in OFF position.	Insufficient air can lead to blockage of feed pipes whilst excessive air can cause degradation of the coal and produce fines.	Mechanical
9	Coal flow	12M	Check working of vibrator, fan rotation, bunker filters.		Mechanical
10	Coal conveying	12M	Check suction nozzle entrainment point, action of air control valves and discharge valve.		Mechanical
11	Lubrication	12M	Lubricate fan and motor bearings.	Use manufacturer's recommended lubricants. In a dirty environment more frequent lubrication will be necessary.	Mechanical
12	Electrical	12M	Check all electrical trips.	These should be set for manual reset.	Mechanical
13	Cyclone	12M	Clean separator of any fines which have built up on internal surfaces.	Regular monthly checks of air tightness should be made.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1998/2307/contents/made Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

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Schedule Title : Coal Feed Mechanisms - Under Feed Stokers

Schedule Ref : 05-07
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (240 mins)				
1 2 3 4 5 6 7 8 9 10 11 12				

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS

The burning of coal is a complex operation involving the storage, handling, combustion of solid material, together with the handling, disposal of gaseous and solid waste. The materials are abrasive and the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. The maintenance of each section of the coal burning operation is examined in sequence. (See also Motors SFG 39).

WARNING. A risk assessment and method statement must be undertaken before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	6M	Check and isolate and Lock Off from electricity supply. Remove fuses, if used.	Depending on the Establishment, a Permit to Work system may be in operation. The Authorised Person should be approached for the issue of the permit.	M&E
2	Tuyere hole	6M	Check and clean out.	Report on condition.	Mechanical
3	Retort	6M	Check end feedscrew and refractory brickwork.		Mechanical
4	Fly ash	6M	Remove from retort plenum chamber.		Mechanical
5	Belts and chains	6M	Examine and report condition. Check pickup screw high tension bolt.	Advise client if replacement necessary. Refit safety guards after service.	Mechanical
6	Smoke elimination tube	6M	Clean air hole and refit.		Mechanical
7	Overfire jet outlet	6M	Clean if fitted.		Mechanical
8	Stauffers	6M	Grease and lubricate.		Mechanical
9	Gearbox or angle stoker gear unit	6M	Drain oil and refill with new oil.	Check for leaks before and after	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				'running in' on return to operation.	
10	Dampers and linkages	6M	Check, free if necessary, and lubricate.		Mechanical
11	Shear pin alignment and bunker screw	6M	Check and adjust shear pin alignment if necessary.	Free rotary tube if jammed and grease tube joint.	Mechanical
12	Return to operation	6M	Close isolator switch. Run stoker and check sequence.	Visually check pressure gauge and boiler thermostat. Report on condition of plant.	Mechanical

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Schedule Title : Coal Feed Mechanisms - Chain Grate Stokers

Schedule Ref : 05-08
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (480 mins)				
1 2 3 4 5 6 7 8 9 10 11 12				

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS

The burning of coal is a complex operation involving the storage, handling, combustion of solid material, together with the handling, disposal of gaseous and solid waste. The materials are abrasive and the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. The maintenance of each section of the coal burning operation is examined in sequence. (See also Motors SFG 39).

WARNING. A risk assessment and method statement must be undertaken before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	12M	Check and isolate and Lock off from electricity supply. Remove fuses, if used.	Depending on the Establishment, a Permit to Work system may be in operation. The Authorised Person should be approached for the issue of the permit.	Mechanical
2	Coal silo	12M	Empty and check internal and external coatings.	If there are signs of deterioration consult the manufacturer.	Mechanical
3	Level probes on coal surge bunkers	12M	Check and clean as necessary.	When plant put back on line prove operation of plant under all plant operating conditions.	Mechanical
4	Drain sump	12M	Ensure excess water can be drained off. Check coal auger supports. Remove augers and check for wear and distortion. Reassemble and recoat coal tube, using bituminised sealant or similar protective coating.	Clean and unblock drain as necessary. Repair or replace coal auger supports, as necessary.	Mechanical
5	Grit arrestors and internal baffles	12M	Check internally for signs of wear and rectify as necessary.		Mechanical
6	Access doors	12M	Check security.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Insulation	12M	Check condition, security and make good as required.		Mechanical
8	Stoker	12M	Withdraw and inspect for wear. Check condition of rear skid plate.	Drain oil in gear cases, clean and refill, grease bearings on the force draught fan.	Mechanical
9	Stoker grate	12M	Renew rear side steel bars and any links showing signs of burning.	Remove a section of chain to inspect inside of air box and interior seals.	Mechanical
10	Stoker air box	12M	Check bottom plate and chassis for distortion.		Mechanical
11	Stoker ignition arch	12M	Repair or replace arch and if necessary fire door lining.	Replace any short (worn) link rods.	Mechanical
12	Electrical	12M	Examine and renew switchgear contacts where necessary. Replace any worn or damaged regulator parts.		Electrical

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Schedule Title : Ash Handling System

Schedule Ref : 05-09
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (60 mins)	3M (180 mins)	6M (120 mins)	12M (240 mins)	
1	6 7 8	2 9	3 4	

ANNUAL TIMING (MINUTES)
1920

SCHEDULE INTRODUCTIONS

The burning of coal is a complex operation involving the storage, handling, combustion of solid material, together with the handling, disposal of gaseous and solid waste. The materials are abrasive and the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. The maintenance of each section of the coal burning operation is examined in sequence. (See also Motors SFG 39).

WARNING. A risk assessment and method statement must be undertaken before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Crusher	1M	Grease inner bearing, grease nipples and jaw crusher outrigger bearing assembly.	Under no circumstances should an excess of grease be applied to the bearing assemblies.	Mechanical
2	Ash line	6M	Check for wear and report if remedial work required.		Mechanical
3	Ash line valve	12M	Check and isolate and Lock off from electricity supply. Remove fuses, if used. Check operation and wear on seals.		Mechanical
4	Ash skip	12M	Check for holes or distortion.	Examine rubber tubing to ash skip for wear.	Mechanical
5	**Spray Chamber (if fitted)**				
6	Water solenoid valve	3M	Check operation.		Mechanical
7	Spray jets	3M	Check operation and adjust nozzles for correct spray pattern if necessary.		Mechanical
8	Winch unit (if fitted)	3M	Grease pulleys, cable guides and winch unit.		Mechanical
9	Ash conditioner	6M	Clean paddles shaft and end bearing housing of any build up		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			of ash.		

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Schedule Title : Blown Gas Burner Condensing Boiler

Schedule Ref : 05-10
Schedule Type : Core
Schedule Date : 12 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (20 mins)	12M (90 mins)	48M (240 mins)		
2	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17			
1		18		

ANNUAL TIMING (MINUTES)
130

SCHEDULE INTRODUCTIONS

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Neutralizing Unit (if fitted)	6M	Check crystal level and top up if necessary.	Unit can be separate to boiler.	Gas Safe
2	General	6M	Check security of mechanical parts and secure mounting of appliances.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification.	Gas Safe
3	Check Operation	12M	Note any visible defects.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations. Refer to www.hse.gov.uk.	Gas Safe
4	Safety test	12M	Carry out and note any visual defects, record results.		Gas Safe
5	Gas, electrical and ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator should be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
6	Pre service checks - Condensate flow	12M	Where applicable, check that there is a steady fall back to the boiler from the flue to allow condensate to run back. With the boiler operating at low return, temperature [less than 50ºC], check that condensate flows freely from the drain pipe.	Risk Assessment may be required. Waste Disposal Regulations may apply.	Gas Safe
7	Isolate from electricity and gas supply	12M	Switch off, remove fuses and/or lock off and turn off gas supply at main cock.	Before starting any dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Gas Safe
8	Fan/mix chamber, gas train and controller assembly	12M	Remove and thoroughly clean with a soft brush. Lubricate if necessary.		Gas Safe
9	Fan scroll	12M	Clean and check air passages.	Ensure air passages are clear to pressure switch.	Gas Safe
10	HT & flame probe details	12M	Inspect for soundness.	If probe is bent or shows signs of oxidation it should be replaced.	Gas Safe
11	Burner	12M	Reassemble and fire, check air and gas settings, carry out combustion efficiency test.	It is important that reference is made to the boiler and burner manufacturer's specifications.	Gas Safe
12	Air pressure switch	12M	Test under no air conditions.		Gas Safe
13	Flame failure	12M	Test and take probe readings.		Gas Safe
14	Boiler flue ways and connecting flues	12M	Open and remove by brushing and/or vacuuming all soot and scale. Reseal, check for air leaks and reseal as necessary.		Gas Safe
15	Boiler tube module - annual	12M	Drain down, remove and thoroughly clean with wire brush.		Gas Safe
16	Recommendation	12M	Provide written report which should be signed by the service engineer and kept by client.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with Health and Safety requirements and possess accreditation in accordance with the Gas Safety Regulations.	Gas Safe
17	Unsafe installations	12M	Recommendations	If after servicing, the appliance is considered unsafe, the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				representative. Both the gas supplier and a supervisor/manager must be informed.	
18	Boiler tube module - 4 yearly	48M	Clean and descale module in accordance with manufacturer's instructions.	Always follow recommendations from manufacturer. Waste Disposal Regulations may apply.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Blown Gas Burner Modular Boiler

Schedule Ref : 05-11
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (20 mins)	12M (120 mins)	48M (180 mins)		
1	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
		17		

ANNUAL TIMING (MINUTES)
160

SCHEDULE INTRODUCTIONS

Can comprise several modules, each having separate controls. Each module must be isolated and work carried out consecutively.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kw and for boilers with a capacity between 70kw and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	6M	Check security of mechanical parts and secure mounting of appliances.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification.	Gas Safe
2	Check Operation	12M	Note any visible defects.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations. Refer to www.hse.gov.uk.	Gas Safe
3	Safety test	12M	Carry out and note any visual defects, record results.		Gas Safe
4	Gas, electrical and ventilation systems	12M	Check that all are in accordance with current Codes of Practice.		Gas Safe
5	Blown burner	12M	Test fire and record settings.		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
6	Isolate from electricity and gas supply	12M	Switch off, remove fuses and/or lock off and turn off gas supply at main cock.	Before starting any dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Gas Safe
7	Fan/mix chamber, gas train and controller assembly	12M	Remove and thoroughly clean with a soft brush. Lubricate if necessary.		Gas Safe
8	Fan scroll	12M	Clean and check air passages.	Ensure air passages are clear to pressure switch.	Gas Safe
9	HT & flame probe details	12M	Inspect for soundness.	If probe is bent or shows signs of oxidation it should be replaced.	Gas Safe
10	Burner	12M	Reassemble and fire, check air and gas settings, carry out combustion efficiency test.	It is important that reference is made to the boiler and burner manufacturer's specifications.	Gas Safe
11	Air pressure switch	12M	Test under no air conditions.		Gas Safe
12	Flame failure	12M	Test and take probe readings.		Gas Safe
13	Boiler flue ways and connecting flues	12M	Open and remove all soot and scale by brushing and/or vacuuming. Reseal, check for air leaks, make good as required.		Gas Safe
14	Boiler tube module - annual	12M	Drain down, remove and thoroughly clean with wire brush.		Gas Safe
15	Recommendation	12M	Provide written report which should be signed by the service engineer and kept by client.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with Health and Safety requirements and possess accreditation in accordance with the Gas Safety Regulations.	Gas Safe
16	Unsafe installations	12M	Recommendations.	If after servicing, the boiler is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe
17	Boiler tube module - 4 yearly	48M	Clean and descale module in accordance with manufacturer's instructions.	Always follow recommendations from manufacturer. Waste Disposal Regulations may apply.	Gas Safe

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SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Forced Draught Gas Condensing Boiler

Schedule Ref : 05-12
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)	12M (60 mins)			
1 2 3 4 5 6 7 8 9 10 11 12	13 14 15 16 17 18 19			

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Burner	6M	Switch on, carry out safety check of flame failure.	Note any visible defects.	Gas Safe
2	Safety check	6M	Carry out safety check and note any visible defects.	Pay particular attention to carbon monoxide (CO) as presence is poisonous and life threatening and indicates waste energy.	Gas Safe
3	Isolate from electricity and gas supply	6M	Switch off, remove fuses and turn off gas supply at main cock.	Before starting and dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Gas Safe
4	Fan motor	6M	Remove, thoroughly clean and lubricate if necessary.	Before starting and dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Gas Safe
5	Fan scroll	6M	Clean and check air passages.	Ensure air passages are clear to pressure switch.	Gas Safe
6	Removal of UV cell	6M	Clean, adjust electrode and if	UV cells should be replaced	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
	and head assembly		required isolation probe.	after a life of 10,000 hours.	
7	HT & probe details	6M	Inspect for soundness.	UV cells should be replaced after a life of 10,000 hours.	Gas Safe
8	Burner	6M	Reassemble and fire, check air and gas settings and carry out combustion efficiency test. Check high/low flame conditions.	It is important that reference is made to the boiler and burner manufacturer's specifications.	Gas Safe
9	Air pressure switch	6M	Test under no air conditions.		Gas Safe
10	Flame failure	6M	Test and take probe or UV cell readings.		Gas Safe
11	Neutralizing unit (if fitted)	6M	Check crystal level and top up if necessary.	Unit can be separate to boiler.	Gas Safe
12	General	6M	Check security of mechanical parts and secure mounting of appliance.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification.	Gas Safe
13	Before proceeding with dismantling of boiler	12M	Check casing for damage or breakages. Inspect for loose fittings or connections and any sign of leaks.		Gas Safe
14	Test fire	12M	Record settings.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.	Gas Safe
15	Pre-service checks. Condensate flow	12M	Check that there is a steady fall back to the boiler from the flue to allow condensate to run back. With the boiler operating at low return temperature (less than 50ºC) check that condensate flows freely from the drain pipe.	Risk Assessment may be required. Waste Disposal Regulations may apply.	Gas Safe
16	Gas, electrical & ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator should be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Gas Safe
17	Safety check - Gas	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	Undetected CO is life threatening (poisonous) and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation with no excessive noises occurring when the burner ignitor shuts down.	Gas Safe
18	Safety check - Electric	12M	Check electrical installation for safety and that local isolator is fitted.	If not provide written report to client.	Gas Safe
19	Unsafe installations	12M			Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			Recommendations.	If after servicing the boiler is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person representative and both the gas supplier and a supervisor/manager informed.	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Forced Draught (Pressure Jet) Oil Condensing Boiler

Schedule Ref : 05-13
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)	12M (60 mins)			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22 23 24			

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Oil electrical & ventilation systems	6M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator should be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Mechanical
2	Burner	6M	Switch on and carry out safety check of flame failure.	Note any visible defects.	Mechanical
3	Safety check	6M	Carry out and note any visible defects.	Pay particular attention to carbon monoxide (CO) as presence is poisonous and life threatening and indicates waste energy.	Mechanical
4	Isolate from electricity and oil supply	6M	Switch off, remove fuses and turn off oil supply at main valve.	Before starting and dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Mechanical
5	Jet arm assembly	6M	Remove, clean combustion head, ignition electrodes and		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			inspect HT leads.		
6	Nozzle and filter - 6 monthly	6M	Clean filter and inspect nozzle for wear.	Erosion or surface defects on the nozzle can affect the profile of the emerging jet of oil and lead to a poor flame shape and bad combustion.	Mechanical
7	Burner	6M	Reassemble and set heat to manufacturer's recommendations.		Mechanical
8	Motor and fan	6M	Remove, clean and lubricate as required, clean fan scroll.	Inspect oil pump flexible drive coupling before reassembly. See Motors (SFG 39).	Mechanical
9	Oil pump filter	6M	Remove, clean and inspect pump seals for signs of wear.		Mechanical
10	Reassembling burner	6M	Inspect flexible oil line coupling, clean and renew oil line filter, clean photocell and adjust position.		Mechanical
11	Burner	6M	Switch on and check flame shape and appearance if visible.		Mechanical
12	Oil pressure	6M	Test and record oil pressure.		Mechanical
13	Safety check - smoke and combustion	6M	Carry out safety check and check for smoke.	On larger systems, combustion test should be carried out regularly to monitor performance and avoid energy waste.	Mechanical
14	Flame failure device	6M	Test for satisfactory operation.		Mechanical
15	Condensate level prove (if fitted)	6M	Clean and inspect.		Mechanical
16	Secondary heat exchanger (if fitted)	6M	Clean with water and a soft brush.		Mechanical
17	Neutralising unit (if fitted)	6M	Check crystal level and top up if necessary.	Unit is normally separate to boiler.	Mechanical
18	Condensate drain pipe and U-siphon trap	6M	Clean, inspect and flush.		Mechanical
19	General	6M	Check security of mechanical parts and secure mounting of appliance.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification.	Mechanical
20	Recommendation	6M	Provide written report which should be signed by the service engineer and kept by client.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with Health and Safety requirements. All service and maintenance works must be	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				carried out by a competent engineer in accordance with current Codes of Practice for oil firing.	
21	Before proceeding with dismantling of boiler	12M	Check casing for damage or breakages. Inspect for loose fittings or connections and any sign of leaks.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.	Mechanical
22	Test fire	12M	Record settings.		Gas Safe
23	Pre-service checks	12M	Check that there is a steady fall back to the boiler from the flue to allow condensate to run back. With the boiler operating at low return temperature (less than 50ºC) check that condensate flows freely from the drain pipe.	Risk Assessment may be required. Waste Disposal Regulations may apply.	Mechanical
24	Nozzle and filter - annual	12M	Renew.		Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/2001/2954/contents/made Control of Pollution (Oil Storage) (England) Regulations 2001
http://www.legislation.gov.uk/uksi/2006/438/contents/made Management of Health and Safety at Work Regulations 1999 and 2006 amendment
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Boilers MTHW up to 120ºC

Schedule Ref : 05-14
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (480 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15				

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS

Applies to boilers manufactured by casting or fabrication.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Check operation, in particular safety controls (prv)	12M	Note any visible defects.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations. It is likely that a Permit to Work will be required from the Authorised Person before any works can be undertaken on a pressurised system. Ensure system is full of water and the circuits are open. It is essential for low water content boilers that flow rates can be maintained at or above manufacturer's recommended levels.	Gas Safe
2	Efficiency check	12M	Start up system and carry out tests.		Gas Safe
3	Thermostats,	12M	Check for correct operation and		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
	pressure sensors & controls, altitude gauges and vacuum breaks		settings.		
4	Electrical services	12M	Shut down, disconnect and lock off or remove fuses.	Local electrical isolator should be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Gas Safe
5	Boiler return temperature and associated controls	12M	Check if appropriate.	See Sensors and Switching Devices (SFG 50).	Gas Safe
6	Booster pumps	12M	Check interlocks between controls.		Gas Safe
7	Boiler flueways, combustion chamber and connecting flues	12M	Open and remove by brushing and/or vacuuming all soot and scale.		Gas Safe
8	Refractory linings	12M	Check condition and report.		Gas Safe
9	Boiler flueways and chamber	12M	Reseal, check for air leaks, seal as necessary.		Gas Safe
10	Flue	12M	Carry out smoke test.	Only if flue problem is suspected.	Gas Safe
11	Water quality	12M	Check system water quality and inhibitor type and concentration. Top up if necessary. If water quality check shows regime is incorrect refer to specialist.	Where system water quality is controlled, water treatment and dosing plant should be maintained according to the manufacturer's instructions.	Gas Safe
12	Fan (if provided)	12M	Check operation and clean blades.	Build-up of deposits on the blades can reduce their efficiency and lead to poor combustion.	Gas Safe
13	Boiler	12M	Reconnect and test fire, carry out efficiency test, refit casing and thoroughly clean down.	A boiler is capable of exploding if safety controls fail and blocked flues will cause flue gas to leak into surrounding areas, causing damage and risks to life and to health through carbon monoxide poisoning.	Gas Safe
14	Gas trains	12M	Test for soundness.		Gas Safe
15	Boiler house cleanliness	12M	Inspect.	Boiler house cleanliness is important. Concrete floors should be sealed to keep dust down.	Gas Safe

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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http://shop.bsigroup.com/SearchResults/?q=BS%20EN%2012952 BS EN 12952-1 to 8:2002 to 2015 Water-tube Boilers and auxiliary installations
http://shop.bsigroup.com/Browse-by-Sector/Manufacturing/Pressure-Vessels--Equipment/Shell-boilers/ BS EN 12953- 1 to 13:2001 to 2012 Shell Boilers

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Schedule Title : Multiple Boilers - Sequence Controls

Schedule Ref : 05-15
Schedule Type : Core
Schedule Date : 06 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (30 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS
All notes referring to sequence controls apply to individual boilers (not burner modules) in multiple installations. This task should be issued with the relevant boiler maintenance task. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Lead/Lag Control	12M	Check operation. Check the set point (and differential).	Check the frequency of operation if hours run are fitted.	M&E
2	Sequencing control	12M	Check operation.		M&E
3	Controller	12M	Check operation and confirm the set point.	The step controller will have mechanical switching using micro-electronic or solid state switching.	M&E
4	Step Controller	12M	Check operation.		M&E
5	Boiler return butterfly valves	12M	Check operation.	Check valve opening proving circuit and ensure that valve on leading boiler is open at all times.	M&E
6	Boiler diverting valves	12M	Check operation.		M&E
7	Boiler shunt pump	12M	Confirm operation.	Is there a water proving circuit? Check operation if part of sequence controls. See Pumps - Circulating Pumps - General (SFG 45-02).	M&E
8	Non return valves	12M	Check operation.		M&E
9	Return/flow sensor / Controller / Step controller	12M	Confirm correct.		M&E

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Schedule Title : Boiler Controls - Single Boiler: On/off

Schedule Ref : 05-16
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (10 mins)	12M (30 mins)			
1	2 3 4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
50

SCHEDULE INTRODUCTIONS

On/Off overall control can be remote from the boiler plant.

Certain common maintenance procedures should be carried out for all controls. These are: -

1. All common items, e.g. thermostats and the like, that have switching contacts – where they can be seen, ensure contacts make and break easily and that there is no arcing or pitting.
2. Inspect thermostat phial and capillaries for mechanical damage.
3. Inspect thermostat pockets for corrosion and leakage.
4. Ensure immersion thermostats are secure in their pockets (and that the sensor is in contact with the end of the pocket and covered with heat conductive compound).
5. Inspect motorised valves for leakage and damage to linkage.

For more detailed information regarding the maintenance of motorised valves, checking of gland seals, stroking, etc. refer to Valves - Automatic Control (SFG 62).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Time switch	6M	Check operation. Confirm time settings.	Time of day. (Keep setting at GMT all year unless specifically requested by client.) Day of week. Manual override.	M&E
2	Manual switch	12M	Check operation.		M&E
3	Boiler control and high limit thermostats - Manual - Electronic	12M	Check operation. Confirm set points and temperatures.	Thermal no longer conforms to current insurance requirements.	M&E
4	Room thermostat	12M	Check operation. Confirm set point.	Ensure correct location and no air movement restrictions. Advise client of any faults.	M&E
5	HWS thermostat	12M	Check operation. Confirm set point.		M&E
6	Frost protection thermostat	12M	Check operation. Confirm set point.	This may be outside the building on older systems, ideally North	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				facing free from any heat gains.	
7	Flow switch	12M	Check operation.		M&E
8	Boiler pressure switch	12M	Check operation. Confirm set point.		M&E
9	Temperature Sensors and Optimum Start Controllers	12M	Check operation and confirm time settings. Check performance.	Time of day. Day of week. Manual override. Summer/Winter.	M&E

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Schedule Title : Boiler Protection Controls

Schedule Ref : 05-17
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Pump overrun timer	12M	Check operation. Confirm time setting.		Mechanical
2	Pump overrun thermostat	12M	Check operation. Confirm set point.		Mechanical
3	Return water thermostat	12M	Check operation. Confirm set point.		Mechanical

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Schedule Title : Boilers - Space Temperature Controls

Schedule Ref : 05-18
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Room thermostat	12M	Check operation and confirm set point(s).	Direct switching of boiler or pump on/off.	Mechanical
2	Room thermostat - zone valve operation	12M	Check operation and confirm set point(s).	Check if auxiliary switch controls boiler or pump on/off.	Mechanical
3	Flow sensor controller	12M	Check operation and confirm set point(s).	Variable temperature controller (compensator) of boiler on/off.	Mechanical
4	Space sensor controller	12M	Check operation and confirm set point(s).		Mechanical

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Schedule Title : Steam Boilers Pre-Maintenance Check

Schedule Ref : 05-19
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (90 mins)				
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	12M	Check operating status.	Before proceeding with maintenance programme check with client that boiler can be taken off-line. These works to be carried out in accordance with the current Pressure Systems Safety Regulations and Safe Systems of Work.	Mechanical
2	Condition	12M	Check exterior for signs of damage, leakage from valves, manholes and any loose fittings.	Leakage can lead to corrosion with subsequent costly refurbishment or replacement of equipment.	Mechanical
3	Safety circuits	12M	Check operation.	Safety system includes low and high level alarms and pressure relief valves.	Mechanical
4	Combustion Check	12M	Ensure system on load and carry out combustion tests.	Test should include smoke, draught chamber and flue, flue gas temperature, CO, CO^2 and O^2. Readings should be checked with boiler instrumentation and noted.	Mechanical
5	Thermostats, pressure sensors, gauges and thermometers	12M	Check for correct operation and settings.		Mechanical
6	Shut down	12M	Shut off and isolate steam, water, fuel and electrical	Purge fuel lines and vent boiler to ensure safe conditions. Steam	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			services.	line should be isolated with either two separate valves or a single valve and spade.	
7	Ventilation	12M	Check that ventilation fans and louvres are functioning properly.	Check that there is adequate ventilation in the boiler house and the conditions comply with the relevant regulations and standards. Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.	Mechanical

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Schedule Title : Steam Boilers Maintenance Schedule

Schedule Ref : 05-20
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1D (60 mins)	1W (45 mins)	12M (1200 mins)		
1 2 3 4 5 6 7 8 9 10	11 12 13 14	15 16 17 18 19 20 21 22 23 24		

ANNUAL TIMING (MINUTES)
25440

SCHEDULE INTRODUCTIONS
The yearly tasks shown below are generally carried out at the same time as the Annual Statutory (Insurance) Inspection. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.** Notes: Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water gauge test	1D		Record time test carried out, log results with the operator's name, date of test plus any corrective action taken.	Plant Attendant
2	Water level left hand gauge	1D	Manually blow down.	Record time test carried out.	Plant Attendant
3	Water level right hand gauge	1D	Manually blow down.	Record time test carried out.	Plant Attendant
4	Water level control	1D	Test low water level cut-out and lock-out.	At no time during a test should the water be lowered to the extent that it disappears from the gauge glass. Record time test carried out.	Plant Attendant
5	Feed pump start/stop or modulation	1D	Check operation.	Record time test carried out.	Plant Attendant
6	Pressure reading	1D	Record pressure gauge reading.	Record time test carried out.	Plant Attendant
7	Feed water and condensate check	1D	Check the feed tank level is adequate and there are no contaminants. Check that the chemical dose metering device is functioning and there are adequate chemical	Record time test carried out, log results with the operator's name, date of test plus any corrective action taken.	Plant Attendant

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Display Order	Item	FQ	Action	Notes	Skilling
			stocks in the tanks. Check that the in-house routine sample results are within their given parameters provided by the water treatment specialist and take remedial action when necessary. Check the temperature is above the required level for the treatment doses specified for oxygen scavenging.		
8	TDS water test	1D	Carry out TDS water quality test, record the result and make adjustments where necessary.	Record time test carried out.	Plant Attendant
9	pH water test	1D	Carry out pH water quality test, record the result and make adjustments where necessary.	Record time test carried out.	Plant Attendant
10	Blow down	1D	Record quantity of water blown down.	Record time test carried out.	Plant Attendant
11	Flame failure	1W	Test flame failure lock-out. This may not be present on non self-monitoring boilers.	Record time test carried out.	Plant Attendant
12	Failure to ignite	1W	Test failure to ignite lock out.	Record time test carried out.	Plant Attendant
13	Water level 1st	1W	Test by lowering water level to 1st low water level, by evaporation and controlled blowdown, and check burner locks out and the alarm is sounded.	Discharge temperature to drain should not exceed permissible limits. Record time test carried out. At no time during a test should the water be lowered to the extent that it disappears from the gauge glass.	Plant Attendant
14	Water level 2nd	1W	Test by lowering water level to 2nd low water level, by evaporation and controlled blowdown, and check burner locks out and the alarm is sounded.	Discharge temperature to drain should not exceed permissible limits. Record time test carried out. At no time during a test should the water be lowered to the extent that it disappears from the gauge glass.	Plant Attendant
15	Boiler flueways, combustion chamber and connecting flue	12M	Open and remove by brushing and/or vacuuming all soot and scale.	Soot, ash and other fouling deposits impede heat transfer thus wasting energy and putting up costs.	Mechanical
16	Fire tubes	12M	Open boiler end doors and clean fire tubes by brushing or rotary scouring equipment.	In multipass boilers it is important to clean all passes.	Mechanical
17	Refractory linings	12M	Check condition and report.		Mechanical
18	Boiler flueways, doors and chamber	12M	Reseal, check for air leaks, seal as necessary.		Mechanical
19	Flue	12M	Carry out smoke test.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
20	Waterside	12M	Remove manholes, clean out scale and residues. Replace, reseal and ensure bolts are tight.	If there are considerable deposits of sludge and scale, this indicates poor water treatment which if allowed to continue will lead to boiler failure and energy wastage. Waste Disposal Regulations may apply.	Mechanical
21	Boiler	12M	Refill, reconnect and bring on line.	Refit casing if necessary and thoroughly clean down.	Mechanical
22	Instrumentation and flame monitoring	12M	Check for operation and accuracy.	Recalibrate and reset if necessary.	Mechanical
23	Combustion check	12M	Bring up to full load and carry out tests.	On larger systems, combustion tests should be carried out on a regular basis to monitor performance. The test should include smoke, draught chamber and flue, flue temperature, carbon dioxide, oxygen and carbon monoxide.	Mechanical
24	Blow down tank	12M	For maintenance procedures see Sanitary and Waste Water Plumbing (SFG 48-04).	HSE document PM60 applies.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/wsi/2002/3182/pdfs/wsi_20023182_mi.pdf Air Quality (Wales) Regulations 2000 and 2002 amendment
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/2012/632/contents/made Control of Asbestos Regulations 2012
http://www.legislation.gov.uk/uksi/2012/811/contents/made Controlled Waste (England and Wales) Regulations 2012 and Amendments
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.hse.gov.uk/pubns/books/l143.htm HSE Managing and working with Asbestos. Guide L143: Control of Asbestos Regulations 2012. Approved Code of Practice and Guidance
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Electric Boilers

Schedule Ref : 05-21
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)	24M			
1 2 3 4 5 6	7 8			

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

These boilers provide heat to LTHW and Domestic Hot Water systems. Electricity supply can be off-peak/on-peak or a combination of both.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Isolation from electricity supplies	12M	Switch and lock off. Remove fuses from both supplies.	The boilers have two supplies. The permanent large capacity supply and the restricted hours signal supply. Report to the client if not capable of isolation.	M&E
2	Heavy current connections in the control box	12M	Remove control box cover. Check all heavy current connections for tightness and signs of overheating, also check element relay contacts for damage.		M&E
3	Heavy current connections in boiler	12M	Remove top of boiler casing. Check all heavy current connections for tightness & signs of overheating.		M&E
4	Fan cooling air duct	12M	Remove button front casing, clean duct through casing and remove the rear end fan motor which is exposed when the casing is removed.	Report if fan motor or pump are noisy. Advise the customer that the louvres on the outside of the casing should be vacuumed at intervals if the environment of the boiler is unclean.	M&E
5	Water connections	12M	Check for leaks.		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
6	Water treatment	12M	Ask if the system has been drained since last visit and if it was retreated with inhibitor.	If system does not contain inhibitor advise it is treated, as this is part of the manufacturer's instructions.	M&E
7	Unit condition	24M	Check physical condition of unit.		M&E
8	Thermal link	24M	Replace.		M&E

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Schedule Title : Electrode Boilers

Schedule Ref : 05-22
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	12M (60 mins)			
1 2 3	4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

In hard water areas maintenance may require to be carried out more frequently.

BEWARE: High water conductivity in the boiler circulated water can damage the boiler pressure vessel, only work within the boiler manufacturer's values of conductivity. See manufacturer's information on recommended values.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	3M	Check and isolate by removing fuse links.		Electrical
2	Water drain unit	3M	Check for free flow of water by operating the valve. Repair any valve gland leaks.		Electrical
3	Boiler circulated water	3M	Test for correct conductivity at 20/25ºC.	This is to be within the boiler makers recommendation.	Electrical
4	Electrical connections	12M	Check all electrical connections in the cubicle and on the boiler electrodes for soundness and correct any defects.		Electrical
5	Porcelain insulators	12M	Examine for defects and replace if necessary. Clean with non-abrasive material.		Electrical
6	Drain pipe	12M	Check for free flow and actuate main drain if necessary.		Electrical
7	Feed solenoid (if fitted)	12M	Clean solenoid, manifold and strainer.	Modern boilers have the load control driven by an electric motor. See Motors (SFG 39).	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
8	Load control system	12M	Examine mechanism and lubricate.	Comply with manufacturer's recommendations for lubrication of the gear box, motor and control shaft and nut.	Electrical
9	Boiler sequence	12M	Replace all covers and reinstate electrical supply.	Ensure all electrical and mechanical covers are in their correct places.	Electrical

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Schedule Title : Boilers LTHW Up to 95ºC

Schedule Ref : 05-23
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Applies to boilers manufactured by casting or fabrication.

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation with no excessive noise occurring when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturer's Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Check operation, in particular safety controls	12M	Note any visible defects.	Ensure system is full of water and the circuits are open. It is essential for low water content boilers that flow rates can be maintained at or above manufacturer's recommended levels.	Gas Safe
2	Efficiency check	12M	Start up system and carry out tests.	On larger systems efficiency tests should be carried out on a regular basis to monitor performance. The test should include smoke, draught chamber and flue, flue	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				temperature, fuel input and gas analysis including carbon monoxide.	
3	Thermostats, pressure sensors, altitude gauges and thermometers	12M	Check for correct operation and settings.		Gas Safe
4	Electrical services	12M	Shut down and disconnect or remove fuses.	Locate isolation switch, if not in accordance with IEE regulations report to building owner.	Gas Safe
5	Boiler return temperature and associated controls	12M	Check if appropriate.	See Sensors and Switching Devices (SFG 50).	Gas Safe
6	Boiler flueways, combustion chamber and connecting flues	12M	Open and remove by brushing and/or vacuuming all soot and scale.	Waste Disposal Regulations may apply.	Gas Safe
7	Refractory linings	12M	Check condition and report.	Waste Disposal Regulations may apply.	Gas Safe
8	Boiler flueways and chamber	12M	Reseal, check for air leaks, seal as necessary.	Waste Disposal Regulations may apply.	Gas Safe
9	Flue	12M	Carry out smoke test.	Only if flue blockage is suspected.	Gas Safe
10	Water quality	12M	Check system water quality and inhibitor type and concentration. Top up if necessary. If water quality check shows regime is incorrect refer to specialist.	Where system water quality is controlled, water treatment and dosing plant should be maintained according to the manufacturer's instructions.	Gas Safe
11	Fan (if provided)	12M	Check operation and clean blades.	Build-up of deposits on the blades can reduce their efficiency and lead to poor combustion.	Gas Safe
12	Boiler	12M	Reconnect and test fire, carry out efficiency test, refit casing and thoroughly clean down.	A boiler is capable of exploding if safety controls fail and blocked flues will cause flue gas to leak into surrounding areas, causing damage and risks to life and to health through carbon monoxide poisoning.	Gas Safe
13	Gas trains	12M	Test for soundness.		Gas Safe
14	Boiler house cleanliness	12M	Inspect.	Boiler house cleanliness is important. Concrete floors should be sealed to keep dust down.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996

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http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Boilers - Fire and Safety Circuits

Schedule Ref : 05-24
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS

Is the plant safe?

It should be noted that fire prevention and fire alarms are not included in the scope of this document. Any persons working on such equipment should be registered with the Loss Prevention Council or should be the Manufacturer's nominated fire prevention provider.

It is essential that the operation of all indicator lights should be checked regularly and that any malfunctions should be corrected as soon as possible. Boiler and Plant Rooms should not contain loose combustible materials.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Oil - fire valve	12M	Check valve and associated couplings for positive oil shut off.	It is essential that the system will provide a positive shut off of the oil supply in an emergency. The valve should comply with current legislation.	Mechanical
2	Oil - quick release mechanism	12M	Actuate and check that any dead weight or solenoid valves operate correctly.		Mechanical
3	Oil - valve and quick release system	12M	Reset.	Check that all interconnecting tension wire, fusible links fire buttons and pulleys are free for operation.	Mechanical
4	Gas - manually operated valves	12M	Check valve action.		Mechanical
5	Gas - pressure switches on gas boosters	12M	Check for operation and sensitivity.		Mechanical
6	Gas - detection unit	12M	Test sensitivity. Determine if a test is possible, if not, refer to specifier.	Determine if a test is possible, if not, refer to specifier. It may be necessary to recalibrate, if so carry out strictly according to the	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				manufacturer's instructions.	
7	Gas - manual quick release mechanism	12M	Actuate and recheck operation of the dead weight valve or solenoid.		Mechanical
8	Gas - valves and quick release mechanism	12M	Reset.	Check all interconnecting tension wire, fusible links fire buttons and pulleys for free operation.	Mechanical
9	Solid Fuel - fusible links, inter-connecting tension wire and pulleys	12M	Inspect.	Check that all are free for operation.	Mechanical
10	Solid Fuel - quick release mechanism	12M	Operate to ensure that fuel feed system stops.	Reset as necessary.	Mechanical
11	Boiler control and high limit thermostats (thermal or manual reset)	12M	Ensure these are set correctly. Check operation of pressure switches.	Operation should be within the manufacturer's switching differential. Adjust if necessary. This note should be read in conjunction with the task below for smoke/heat detection.	Mechanical
12	Pressure switches	12M	Check operation.		Mechanical
13	Foam inlets	12M	Ensure foam inlet pipes are free from blockage.	Inspect diffuser nozzles for damage.	Mechanical
14	Smoke/heat detection	12M	Check operation.	Refer to current Codes of Practice.	Mechanical
15	General	12M	Check all fuel supply valves for free operation.	Ensure that each fuel supply value is complete with own wheel or key.	Mechanical
16	Combustion air source into plant room	12M	Check that original provision has been left clear of any obstruction dirt.	Inadequate combustion air provisions can create a hazard to both the equipment and the occupants of the plant room. Notify responsible person.	Mechanical

SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Waste and Wood Burning Appliances (Including Boilers) - Fire and Boiler Safety Circuits

Schedule Ref : 05-25
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (30 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Regular cleaning of flues is essential when burning waste and wood because tars and other residues may not be fully burned in the combustion chamber and condensation of combustion products can lead to blockage and fires in the flues.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Fusible links, interconnecting tension wire and pulleys	3M	Inspect.	Replace fusible links if damaged.	Mechanical
2	Quick release mechanism	3M	Operate to ensure that fuel feed system stops.	Reset as necessary.	Mechanical
3	Boiler controls and high limit stats	3M	Ensure these are set correctly.	Operation should be within the manufacturer's switching differential. Adjust if necessary. This note should be read in conjunction with the task below for smoke/heat detection.	Mechanical
4	Foam inlets	3M	Ensure foam inlet pipes are free from blockage.	Inspect diffuser nozzles for damage.	Mechanical
5	Smoke/heat detection	3M	Check operation.	Refer to current Codes of Practice and Fire Alarm System (SFG 22-01).	Mechanical
6	General	3M	Check all fuel supply valves for free operation.	Ensure that each fuel supply valve is complete with its own wheel or key.	Mechanical

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SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Waste and Wood Burning Appliances (Including Boilers) - Combustion Chamber

Schedule Ref : 05-26
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (240 mins)				
1 2 3 4 5 6 7 8				

ANNUAL TIMING (MINUTES)
960

SCHEDULE INTRODUCTIONS

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Fuel Feed - mechanical	3M	Inspect, check for broken parts and clean conveyors, feeders, etc.	Waste can be a very variable type of fuel and may contain stones, metal and other materials which can cause damage and breakage of the feed mechanism.	Mechanical
2	Fuel Feed - pneumatic	3M	Inspect and check for wear.	In pneumatic systems wear mainly occurs on the bends and wear plates are usually fitted. Any badly worn plates should be replaced.	Mechanical
3	Fire grate	3M	Clean off any clinker and report to client if any repairs required.	Uneven combustion is a feature of waste burning and this can lead to local overheating within the fuel bed. Clinker formation can occur together with distortion or failure of the fire grate bars.	Mechanical
4	Ash removal	3M	Inspect for wear and where operation automatic reset controls.	Always follow recommendations from manufacturer. Waste Disposal Regulations may apply.	Mechanical
5	Refractory linings	3M	Check condition and report.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
6	Automatic ignition	3M	Clean and check operation and reset.	Refer to current Codes of Practice.	Mechanical
7	Combustion check	3M	Carry out and adjust primary and secondary and tertiary (if any) air for optimum combustion.	Because of the variable nature of the fuel, allowance for some excess air is necessary. With starved air (two phased combustion) tests should be carried out after each stage and should include CO.	Mechanical
8	General	3M	Check all fuel supply valves for free operation.	Ensure that each fuel supply valve is complete with its own wheel or key.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments
http://shop.bsigroup.com/ProductDetail?pid=000000000030079931 BS EN 12170:2002 Heating systems in buildings. Procedure for the preparation of documents for operation, maintenance and use. Heating systems requiring a trained operator
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Waste and Wood Burning Appliances (Including Boilers) - Boiler (if fitted)

Schedule Ref : 05-27
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (240 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
960

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner. Notes: Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Check operation, in particular the safety controls	3M	Note any visible defects.	Ensure system is full of water and the circuits are open.	Mechanical
2	Combustion check	3M	Start up system and carry out tests.	Because of the variable nature of the fuel, combustion tests should be carried out on a regular basis to monitor performance. The test should include smoke, draught chamber and flue gases which should include CO.	Mechanical
3	Thermostats, pressure sensors, altitude gauges and thermostats	3M	Check for correct operation and settings.		Mechanical
4	Electrical services	3M	Shut down, disconnect or remove fuses.		Mechanical
5	Boiler flueways, tubes and connecting flue	3M	Open and remove by brushing and/or vacuuming all soot and scale.	When burning waste, the hot surfaces of fire or water tubes (if water tube boiler) can foul up very quickly and mechanical techniques of removing scale should be used. Waste Disposal Regulations may apply.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
6	Refractory linings	3M	Check condition and report.		Mechanical
7	Boiler flueways and chamber	3M	Reseal, check for air leaks, seal as necessary.		Mechanical
8	Boiler return temperature and associated controls	3M	Check if appropriate.	Check manufacturers specification.	Mechanical
9	Boiler	3M	Reconnect and test fire, carry out combustion test, refit casing and thoroughly clean down.	A boiler is capable of exploding if safety controls fail and blocked flues will cause flue gas to leak into surrounding areas, causing damage and risks to life and health through carbon monoxide poisoning.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments
http://shop.bsigroup.com/ProductDetail?pid=000000000030079931 BS EN 12170:2002 Heating systems in buildings. Procedure for the preparation of documents for operation, maintenance and use. Heating systems requiring a trained operator

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Schedule Title : Atmospheric Gas Burner Boiler - Small and/or Wall Hung for Domestic/Light Commercial Installation

Schedule Ref : 05-28
Schedule Type : Core
Schedule Date : 07 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Before proceeding with dismantling of boiler	12M	Check casing for damage or breakages. Inspect for loose fittings or connections and any sign of leaks. Record settings.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations.	Gas Safe
2	Check firing	12M	Observe the main burner. Use a combustion analyser to measure CO & CO^2 content of flue gas. Check Gas pressure. Record settings.	Dark mauve flame and excessive lifting off, indicate poor combustion.	Gas Safe
3	Gas electrical and ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator must be fitted. Supply to the boiler must be direct, i.e. not fed through a	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				time switch.	
4	Isolate boiler for gas and electrical supplies	12M	Record any work which needs rectification or replacement.		Gas Safe
5	Gas valve	12M	Disconnect thermocouple and pilot tube from burners.		Gas Safe
6	Remove burners, pilot assembly and baffles if fitted	12M	Brush all accessible flueways thoroughly from top to bottom, clean all deposits from the burner box, refit baffles and flue cover - checking cover seal. Check for cracking and wear.	Cleaning should be thorough and carried out as per the manufacturer's instructions.	Gas Safe
7	Pilot assembly	12M	Remove.		Gas Safe
8	Pilot head	12M	Remove and clean ports.		Gas Safe
9	Pilot injection	12M	Remove and clean.	Clean by blowing through or washing. Do not use pin as this will damage the injector.	Gas Safe
10	Thermocouple tip	12M	Replace/clean with fine wire brush, reassemble pilot.	Make sure head lines up with the pilot and not the burner.	Gas Safe
11	Oxy-pilot assembly	12M	Replace.		Gas Safe
12	Lint filter (if fitted)	12M	Remove from burners and clean.		Gas Safe
13	Filters	12M	Refit.		Gas Safe
14	Burners, Gas valve, thermocouple and pilot tube	12M	Check adjust and refit along with main burner.		Gas Safe
15	Boiler and installation	12M	Open gas cock and test for gas soundness, reconnect electrical services. Test controls operation, relight pilot and run up boiler.	Test flame setting and thermocouple sensitivity and check manifold gas pressure against manufacturer's settings, adjust if required. If in doubt check gas supply standing pressure at the meter.	Gas Safe
16	Safety check - Gas	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	Undetected CO is life threatening (poisonous) and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignition shuts down. In domestic premises consider the installation of a BS approved CO detector.	Gas Safe
17	Safety check - Electric	12M	Check electrical installation for safety and that local isolator is fitted.	If not provide written report to client.	Gas Safe
18	Documentation	12M	Provide written report.	The report must be signed by the servicing engineer and the	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				client/responsible person/clients representative . Premature failure of the plant will result if a satisfactory service is not carried out, by a competent engineer qualified as required by the Gas Safety Regulations. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	
19	Unsafe installations	12M	Recommendations.	If after servicing, the appliance is considered unsafe, the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Combination Atmospheric Burner Gas Boiler

Schedule Ref : 05-29
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

These boilers provide central heating and on demand domestic hot water without the need for a hot water storage cylinder.
See Atmospheric Gas Burner/Boiler (SFG 05-30).

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturer's Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Before proceeding with dismantling of boiler	12M	Check central heating system for leaks.	Flame must cover all flame parts and be light blue in colour.	Gas Safe
2	Test firing	12M	Set appliance to DHW highest flow rate to observe the main burner. Use a combustion analyser to measure CO and CO^2 content of flue gas. Check gas pressure, water volume and pressure. Record settings.	Dark mauve flame and excessive lifting off indicate poor combustion. If appliance is fitted in a hard water area (above 200 ppm) a suitable water treatment device should be fitted.	Gas Safe
3	Gas electrical and ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator must be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Gas Safe
4	Isolate boiler for gas	12M	Record any work which needs		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
	and electrical supplies		rectification or replacement.		
5	Gas valve	12M	Disconnect thermocouple and pilot tube from burners.		Gas Safe
6	Remove burners, pilot assembly and baffles if fitted	12M	Brush all accessible flueways thoroughly from top to bottom, clean all deposits from the burner box, refit baffles and flue cover - checking cover seal. Check for cracking and wear.	Cleaning should be thorough and carried out as per the manufacturer's instructions.	Gas Safe
7	Internal Pipework	12M	Examine connections for water leaks and rectify as necessary.		Gas Safe
8	Heat exchanger	12M	Brush away deposits using a soft brush.	If in hard water area and water treatment device is not fitted, the HW heat exchanger should be descaled.	Gas Safe
9	Fan	12M	Check for free running, mechanical drainage and clean with a soft brush.		Gas Safe
10	Lint filter (if fitted)	12M	Remove from burners and clean.		Gas Safe
11	Filters	12M	Refit.		Gas Safe
12	Burners, gas valve, thermocouple and pilot tube	12M	Check, adjust and refit along with main burner.		Gas Safe
13	Boiler and installation	12M	Open gas cock and test for gas soundness, reconnect electrical services. Test controls operation, relight pilot and run up boiler.	Test flame setting and thermocouple sensitivity and check manifold gas pressure against manufacturer's settings, adjust if required. If in doubt, check gas supply standing pressure at the meter.	Gas Safe
14	Safety check - Gas	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	Undetected CO is life threatening (poisonous) and also causes energy waste. This can be achieved in domestic premises - consider the installation of a BS approved CO detector. Flames must be bluish and burning in a stable manner. The burner should be quiet in operation and no excessive noise should occur when the burner ignition shuts down.	Gas Safe
15	Safety check - Electric	12M	Check electrical installation for safety and that local isolator is fitted.	If not provide written report to client.	Gas Safe
16	Sealed system - pre-charged	12M	Check pressure in system is being maintained and that expansion vessel pressure conforms to the pre-charged		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			setting.		
17	Documentation	12M	Provide written report.	The report must be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out by a competent engineer, qualified as required by the Gas Safety Regulations. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	Gas Safe
18	Unsafe installations	12M	Recommendations.	If after servicing, the appliance is considered unsafe, the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Atmospheric Gas Burner/Condensing Combination Boiler

Schedule Ref : 05-30
Schedule Type : Core
Schedule Date : 20 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (75 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20				

ANNUAL TIMING (MINUTES)
75

SCHEDULE INTRODUCTIONS

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that water is produced which has to be removed from the system.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturer's Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Before proceeding with dismantling of boiler	12M	Check central heating system for leaks.	Flame must cover all flame parts and be light blue in colour.	Gas Safe
2	Test firing	12M	Set appliance to DHW highest flow rate to observe the main burner. Use a combustion analyser to measure CO and CO^2 content of flue gas. Check gas pressure, water volume with the boiler operating at low return temperatures (less than 50ºC) and check that condensate flows freely from the drain pipe. Record settings.	Dark mauve flame and excessive lifting off indicate poor combustion. If appliance is fitted in a hard water area (above 200 ppm) a suitable water treatment device should be fitted.	Gas Safe
3	Gas, electrical and ventilation systems	12M	Check that all are in accordance with current Codes of Practice.	Local electrical isolator must be fitted. Supply to the boiler must be direct i.e. not fed through a time switch.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
4	Isolate boiler for gas and electrical supplies	12M	Record any work which needs rectification or replacement.		Gas Safe
5	Gas valve	12M	Disconnect thermocouple and pilot tube from burners.		Gas Safe
6	Remove burners, pilot assembly and baffles (if fitted)	12M	Brush all accessible flueways thoroughly from top to bottom, clean all deposits from the burner box, refit baffles and flue cover - checking cover seal. Check for cracking and wear.	Cleaning should be thorough and carried out as per the manufacturer's instructions.	Gas Safe
7	Internal pipework	12M	Examine connections for water leaks and rectify as necessary.		Gas Safe
8	Condensate drain	12M	Clean, inspect and flush.		Gas Safe
9	Heat exchanger	12M	Brush away deposits using a soft brush.	If in hard water area and water treatment device is not fitted, the heat exchanger should be descaled.	Gas Safe
10	Fan	12M	Check for free running, mechanical drainage and clean with a soft brush.		Gas Safe
11	Lint filter (if fitted)	12M	Remove from burners and clean.		Gas Safe
12	Condensate	12M	Check that condensate flows freely at low boiler return temperatures.		Gas Safe
13	Filters	12M	Refit.		Gas Safe
14	Burners, gas valve, thermocouple and pilot tube	12M	Check, adjust and refit along with main burner. Check that condensate flows freely at low boiler return temperatures.		Gas Safe
15	Boiler and installation	12M	Open gas cock and test for gas soundness, reconnect electrical services. Test controls operation, relight pilot and run up boiler.	Test flame setting and thermocouple sensitivity and check manifold gas pressure against manufacturer's settings, adjust if required. If in doubt check gas supply standing pressure at the meter.	Gas Safe
16	Safety check - gas	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	Undetected CO is life threatening (poisonous) and also causes energy waste. This can be achieved in domestic premises - consider the installation of a BS approved CO detector. Flames should be bluish and burning in a stable manner. The burner should be quiet in operation, no excessive noise should occur when the burner ignition shuts down.	Gas Safe
17	Safety check -	12M	Check electrical installation for	If not provide written report to	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
	electric		safety and that local isolator is fitted.	client.	
18	Sealed system	12M	Check pressure in system is being maintained and that expansion vessel pressure conforms to the pre-changed setting.		Gas Safe
19	Documentation	12M	Provide written report.	The report must be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out by a competent engineer, qualified as required by the Gas Safety Regulations. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	Gas Safe
20	Unsafe installations	12M	Recommendations.	If, after servicing, the appliance is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Air to Water Heat Pump

Schedule Ref : 05-31
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (90 mins)	Not Specified			
	1 2			
3 4 5 6 7 8 9 10 11 12 13 14				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Chiller units may be operated remotely and it is essential that the equipment be isolated at source before commencing any maintenance work. These notes should be read in conjunction with the manufacturer's recommended maintenance procedures and in particular supplementary work may be required in the case of larger units above 50kW. Many packaged water chillers have microprocessor controls that can be interrogated using passwords. The password is usually at two levels, level one for interrogation and level two for alterations. For service work, access to level one is required. These processors can be used for diagnostic purposes and coupled to pressure transducers can also give pressure readings.

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the current Pressure Systems Safety Regulations.

Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas Regulations on fluorinated gases.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

For additional information, see manufacturer's instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 1 or task 2 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

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Display Order	Item	FQ	Action	Notes	Skilling
1	Refrigeration Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
2	Refrigeration Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer
3	Status	6M	Isolate electrically.	Isolation of electrical equipment should be carried out in accordance with HASAWA requirements.	M&E
4	Compressor	6M	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
5	Condenser and evaporator fins	6M	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable. training given	Refrigeration Engineer
6	Condenser - general	6M	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Refrigeration Engineer
7	Evaporator and drains, drip tray and pump	6M	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Check that drainpipe is properly attached. Sterilisation of drip tray and drain may be required	Mechanical
8	Compressor capacity control and unloaded start valves (if fitted)	6M	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Refrigeration Engineer
9	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Refrigeration Engineer
10	Water loop connections	6M	Check for leaks.		M&E
11	Electrical wiring and terminals	6M	Check integrity.		M&E
12	Return to service	6M	Place on heating cycle, isolate from water loop, check high-pressure safety device stops refrigeration compressor.	Follow by opening water loop connection and resetting high pressure cut out.	M&E
13	Controls	6M	Return to standard settings.		M&E
14	External cleaning	6M	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	M&E

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Water to Water Heat Pump

Schedule Ref : 05-32
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (90 mins)	Not Specified			
	1 2			
3 4 5 6 7 8 9 10 11 12 13 14				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Heat Pump units may be operated remotely and it is essential that the equipment be isolated at source before commencing any maintenance work. These notes should be read in conjunction with the manufacturer's recommended maintenance procedures and in particular supplementary work may be required in the case of larger units above 50kW. Many packaged water chillers have microprocessor controls that can be interrogated using passwords. The password is usually at two levels, level one for interrogation and level two for alterations. For service work, access to level one is required. These processors can be used for diagnostic purposes and coupled to pressure transducers can also give pressure readings.

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the current Pressure Systems Safety Regulations.

Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas Regulations on fluorinated gases.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold.

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

For additional information, see manufacturer's instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 1 or task 2 of this schedule depending on the refrigerant used in the system.

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SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	Refrigeration Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
2	Refrigeration Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes co2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations. If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer
3	Status	6M	Isolate electrically.	Isolation of electrical equipment should be carried out in accordance with HASAWA requirements.	M&E
4	Compressor	6M	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
5	Condenser and evaporator fins	6M	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Refrigeration Engineer
6	Condenser - general	6M	Check all nuts, (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Refrigeration Engineer
7	Evaporator and drains, drip tray and pump	6M	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Refrigeration Engineer
8	Compressor capacity control and unloaded start valves (if fitted)	6M	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Refrigeration Engineer
9	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Refrigeration Engineer
10	Water loop connections	6M	Check for leaks.		M&E
11	Electrical wiring and terminals	6M	Check integrity.		M&E
12	Return to service	6M	Place on heating cycle, isolate from water loop, check high-pressure safety device stops refrigeration compressor.	Follow by opening water loop connection and resetting high pressure cut out.	M&E
13	Controls	6M	Return to standard settings.		M&E
14	External cleaning	6M	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Note defects and report to client. Remove any dirt or rubbish from vicinity of plant.	M&E

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Brine to Water Heat Pump

Schedule Ref : 05-33
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (120 mins)	Not Specified			
	1 2			
3 4 5 6 7 8 9 10 11 12 13 14 15 16				

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS

Heat Pump units may be operated remotely and it is essential that the equipment be isolated at source before commencing any maintenance work. These notes should be read in conjunction with the manufacturer's recommended maintenance procedures and in particular supplementary work may be required in the case of larger units above 50kW. Many packaged water chillers have microprocessor controls that can be interrogated using passwords. The password is usually at two levels, level one for interrogation and level two for alterations. For service work, access to level one is required. These processors can be used for diagnostic purposes and coupled to pressure transducers can also give pressure readings.

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the current Pressure Systems Safety Regulations.

Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas Regulations on fluorinated gases.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
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	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

For additional information, see manufacturer's instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 1 or task 2 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

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Display Order	Item	FQ	Action	Notes	Skilling
1	Refrigeration Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
2	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations. If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer
3	Status	6M	Isolate electrically.	Note: Isolation of electrical equipment should be carried out in accordance with HASAWA requirements.	M&E
4	Compressor	6M	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load		Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			condition.		
5	Condenser and evaporator fins	6M	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable.training given	Refrigeration Engineer
6	Condenser - general	6M	Check all nuts, (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Refrigeration Engineer
7	Fans and motors and damper drive motors (if fitted)	6M	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight.	Refrigeration Engineer
8	Evaporator and drains, drip tray and pump	6M	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Refrigeration Engineer
9	Compressor capacity control and unloaded start valves (if fitted)	6M	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Refrigeration Engineer
10	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Technician
11	Water loop connections	6M	Check for leaks.		M&E
12	Brine loop connections	6M	Check for leaks.		M&E
13	Electrical wiring and terminals	6M	Check integrity.		M&E
14	Return to service	6M	Place on heating cycle, isolate from water loop, check high-pressure safety device stops refrigeration compressor.	Follow by opening water loop connection and resetting high pressure cut out.	M&E
15	Controls	6M	Return to standard settings.		M&E
16	External cleaning	6M	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as	Note defects and report to client. Remove any dirt or rubbish from vicinity of plant.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			found necessary.		

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Packaged Steam Generators

Schedule Ref : 05-34
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1D (60 mins)	1W (45 mins)	12M (1200 mins)		
1 2 3 4 5 6 7 8 9 10	11 12 13 14	15 16 17 18 19 20 21 22 23 24		

ANNUAL TIMING (MINUTES)
25440

SCHEDULE INTRODUCTIONS

The yearly tasks shown below are generally carried out at the same time as the annual statutory (insurance) inspection.

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the asbestos regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water gauge test	1D		Record time test carried out, log results with the operator's name, date of test plus any corrective action taken.	Mechanical
2	Water level left hand gauge	1D	Manually blow down.	Record time test carried out.	Mechanical
3	Water level right hand gauge	1D	Manually blow down.	Record time test carried out.	Mechanical
4	Water level control	1D	Test low water level cut-out and lock-out.	At no time during a test should the water be lowered to the extent that it disappears from the gauge glass. Record time test	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				carried out.	
5	Feed pump start/stop or modulation	1D	Check operation.	Record time test carried out.	Mechanical
6	Pressure reading	1D	Record pressure gauge reading.	Record time test carried out.	Mechanical
7	Feed water and condensate check	1D	Check the feed tank level is adequate and there are no contaminants. Check that the chemical dose metering device is functioning and there are adequate chemical stocks in the tanks. Check that the in-house routine sample results are within their given parameters provided by the water treatment specialist and take remedial action when necessary. Check the temperature is above the required level for the treatment doses specified for oxygen scavenging.	Record time test carried out, log results with the operator's name, date of test plus any corrective action taken.	Mechanical
8	TDS water test	1D	Carry out TDS (total dissolved solids) water quality test, record the result and make adjustments where necessary.	Record time test carried out.	Mechanical
9	pH water test	1D	Carry out pH water quality test, record the result and make adjustments where necessary.	Record time test carried out.	Mechanical
10	Blow down	1D	Record quantity of water blown down.	Record time test carried out.	Mechanical
11	Flame failure	1W	Test flame failure lock-out. This may not be present on non self-monitoring boilers.	Record time test carried out.	Mechanical
12	Failure to ignite	1W	Test failure to ignite lock out.	Record time test carried out.	Mechanical
13	Water level 1st	1W	Test by lowering water level to 1st low water level, by evaporation and controlled blowdown. Check burner locks out and the alarm is sounded.	Discharge temperature to drain should not exceed permissible limits. Record time test carried out. At no time during a test should the water be lowered to the extent that it disappears from the gauge glass.	Mechanical
14	Water level 2nd	1W	Test by lowering water level to 2nd low water level, by evaporation and controlled blowdown. Check burner locks out and the alarm is sounded.	Discharge temperature to drain should not exceed permissible limits. Record time test carried out. At no time during a test should the water be lowered to the extent that it disappears from the gauge glass.	Mechanical
15	Boiler flue ways, combustion chamber and connecting flue	12M	Open, remove by brushing and/or vacuuming all soot and scale.	Soot, ash and other fouling deposits impede heat transfer thus wasting energy and putting	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				up costs.	
16	Fire tubes	12M	Open boiler end doors and clean fire tubes by brushing or rotary scouring equipment.	In multipass boilers it is important to clean all passes.	Mechanical
17	Refractory linings	12M	Check condition and report.		Mechanical
18	Boiler flue ways, doors and chamber	12M	Reseal, check for air leaks, seal as necessary.		Mechanical
19	Flue	12M	Carry out smoke test.		Mechanical
20	Waterside	12M	Remove manholes, clean out scale and residues. Replace, reseal and ensure bolts are tight.	If there are considerable deposits of sludge and scale, this indicates poor water treatment which if allowed to continue will lead to boiler failure and energy wastage. Waste Disposal Regulations may apply.	Mechanical
21	Boiler	12M	Refill, reconnect and bring on line.	Refit casing if necessary and thoroughly clean down.	Mechanical
22	Instrumentation and flame monitoring	12M	Check for operation and accuracy.	Recalibrate and reset if necessary.	Mechanical
23	Combustion check	12M	Bring up to full load and carry out tests.	On larger systems combustion tests should be carried out on a regular basis to monitor performance. The test should include smoke, draught chamber and flue, flue temperature, carbon dioxide, oxygen and carbon monoxide.	Mechanical
24	Blow down tank	12M	For maintenance procedures see Sanitary and Waste Water Plumbing (SFG 48-04).	HSE document PM60 applies.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l122.htm ACOP L122 – HSE (2014): Safety of Pressure Systems. Pressure Systems Safety Regulations 2000
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000
http://www.legislation.gov.uk/uksi/1994/3098/contents/made Simple Pressure Vessels (Safety) Regulations 1991 and 1994 amendment

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Schedule Title : Packaged Steam Generators - Electric

Schedule Ref : 05-35
Schedule Type : Core
Schedule Date : 08 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (30 mins)	12M (240 mins)			
	4 5 6 7 8 9			
1 2 3				

ANNUAL TIMING (MINUTES)
360

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	3M	Check and isolate by removing fuse links.		Electrical
2	Water drain unit	3M	Check for free flow of water by operating the valve. Repair any valve gland leaks.		Electrical
3	Boiler circulated water	3M	Test for correct conductivity.	This is to be within the boiler makers recommendation.	Electrical
4	Electrical connections	12M	Check all electrical connections in the cubicle and on the boiler electrodes for soundness and correct any defects.		Electrical
5	Porcelain insulators	12M	Examine for defects and replace if necessary. Clean with non-abrasive material.		Electrical
6	Drain pipe	12M	Check for free flow, actuate main drain if necessary.		Electrical
7	Feed solenoid (if fitted)	12M	Clean solenoid, manifold and strainer.	Modern boilers have the load control driven by an electric motor. See Motors - Drive Elements (SFG 39-01).	Electrical
8	Load control system	12M	Examine mechanism and lubricate.	Comply with manufacturer's recommendations for lubrication of the gear box, motor and control shaft and nut.	Electrical
9	Boiler sequence	12M	Replace all covers and reinstate electrical supply.	Ensure all electrical and mechanical covers are in their	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				correct places.	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l122.htm ACOP L122 – HSE (2014): Safety of Pressure Systems. Pressure Systems Safety Regulations 2000
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000
http://www.legislation.gov.uk/uksi/1994/3098/contents/made Simple Pressure Vessels (Safety) Regulations 1991 and 1994 amendment

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Schedule Title : Steam Boiler Report - Periodic Examination

Schedule Ref : 05-36
Schedule Type : Core
Schedule Date : 08 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

This task is generally carried out annually and incorporates the yearly maintenance schedule Boilers - Heat Generators - Steam Boilers Maintenance (SFG 05-20).

A written scheme of examination [WSE] for all steam boilers is a legal requirement under the current Pressure Systems Safety Regulations.

The WSE sets out the nature and frequency of examination and should adequately describe the system, including all the pipework, vessels, safety devices and any other parts that could give rise to danger. It will also specify any special measures necessary to prepare the system for the examination.

The scheme must be certified by a competent person and be available on site at all times. The client/owner of the system is responsible for ensuring that a scheme has been drawn up and that the competent person who certifies it has sufficient relevant knowledge and experience to carry out this task.

The periodic examination as identified by the WSE for a steam boiler should include an out-of-service examination (cold, offline, open for inspection) followed by an in-service examination at normal operating pressure to check that all protective and control devices are working properly.

The competent person does not need to be the same one who compiled the written scheme of examination so the current or a controlled copy of the scheme should always be available on site.

The client/owner of the system is responsible for arranging for the competent person to carry out the examination in accordance with the written scheme of examination.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Records

The following documentation and records need to be retained: -

- The report of the last examination under the written scheme of examination
- Any details of repairs or modifications to the system (including changes to the operating parameters)
- Any previous reports containing information relating to the safe operation of the system
- Routine testing records for the previous two years
- Technical documentation supplied by the manufacturer and installer of the boiler and associated equipment. These documents must be available to the boiler operator, the competent person and any new user or owner of the pressure equipment.

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Schedule Title : Boiler Superheater

Schedule Ref : 05-37
Schedule Type : Core
Schedule Date : 03 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (480 mins)				
1 2 3 4 5 6 7 8				

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS

The yearly tasks shown below are generally carried out at the same time as the Annual Statutory (Insurance) Inspection.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the Asbestos Regulations. Refer to www.hse.gov.uk.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Internal and external areas	12M	Carry out an internal and external examination of the heater.		Mechanical
2	Headers	12M	Inspect all weld sections for any signs of cracking. Check for deposits that have accumulated in the header, clean out as required.	Thermal cracking at the headers due to high stresses set up across the thick welded section is possible.	Mechanical
3	Safety valve and stop valve	12M	Check for leakage, corrosion and manually operate.		Mechanical
4	Drain and vent valves	12M	Inspect and repair as necessary		Mechanical
5	Manhole openings	12M	Check all contact surfaces for pitting. Clean any scale/deposits.		Mechanical
6	Screen plates	12M	Check condition and clean as necessary.		Mechanical
7	Tubes	12M	Check for signs of thermal fatigue and scale. In the case of scale being present this should be cleaned off. It is important to clean all passes.	Oxide scaling inside or outside may cause tube failure and at the worst case a hydrogen fire which is when iron burns in steam at above 700°C in an	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				exothermic reaction. Sodium and vanadium compounds present in the deposits proved very corrosive to superheater tube causing frequent repeated failure.	
8	Walk-in spaces	12M	Check the supports of the horizontal super heater tubes for signs of thermal damage and potential failure. Clean all deposits from the spaces. Check the condition of the tubes special attention to be paid to tubes through which there still exists gas paths as they operate under excessive metal temperature.	A build-up of deposits is a most troublesome defect in a super heater. These may result in high furnace pressure, loss of super heater and poor combustion.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.legislation.gov.uk/wsi/2002/3182/pdfs/wsi_20023182_mi.pdf Air Quality (Wales) Regulations 2000 and 2002 amendment
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/2012/632/contents/made Control of Asbestos Regulations 2012
http://www.legislation.gov.uk/uksi/2012/811/contents/made Controlled Waste (England and Wales) Regulations 2012 and Amendments
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.hse.gov.uk/pubns/books/l143.htm HSE Managing and working with Asbestos. Guide L143: Control of Asbestos Regulations 2012. Approved Code of Practice and Guidance
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Biomass Boiler

Schedule Ref : 05-38
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (20 mins)	1M (5 mins)	3M (180 mins)	6M (40 mins)	12M (10 mins)
1	2	3 4 5 6 7 8 9 10 11 12 13	15 16 17	18 19
24M (15 mins)	Not Specified			
20				
	14			

ANNUAL TIMING (MINUTES)
1910

SCHEDULE INTRODUCTIONS

The burning of biofuels is a complex operation involving the storage, handling and combustion of solid material, plus the handling, disposal of gaseous and solid waste. The materials can be abrasive with the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. The maintenance of each section of the biomass boiler is examined in sequence.

Maintenance levels of all biomass boilers will vary according to the type of system and fuel being burnt, for instance a pellet system strongly differs from a woodchip system in terms of frequency.

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Weekly check	1W	Inspect boiler and fuel feed system. Listen for noisy fan operation. Check flue gas temperature and the colour out of the stack. Record in log. Check boiler temperature and record in log. Function test back-burn devices		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			and negative pressure indicators. Check pressure switches. Check emergency stops for both bunker and auger operate.		
2	Hydraulic aggregate, if fitted	1M	Check oil level and top up as required. Check that the pressure and operational temperature are as per the manufacturer's guidelines. Check for any oil leaks from the seals and hoses.		Mechanical
3	Operational status	3M	Check and isolate and Lock Off from electricity supply. Remove fuses, if used.	Depending on the Establishment, a Permit to Work system may be in operation. The Authorised Person should be approached for the issue of the permit.	Mechanical
4	Multicyclone	3M	Clean the mulitcyclone using an industrial vacuum cleaner.		Mechanical
5	Rost	3M	Remove ash from the rost.		Mechanical
6	Combustion Chamber	3M	Clean retort, fire bricks, combustion surface and combustion chamber.		Mechanical
7	Burning Grate	3M	Remove ash from the combustion space and clean grate. Ensure all ash from beneath the step grate is removed.		Mechanical
8	Heat exchanger	3M	Clean the tubes in the heat exchanger with the appropriate brush.		Mechanical
9	Fans	3M	Clean suction blower from ash using an industrial vacuum cleaner. Check low level switches, fuses and action of fan emergency safety switch in OFF position.	Pay attention to the flue gas sensor when cleaning the flue gas pipe.	Mechanical
10	Flue and chimney	3M	Clean.		Mechanical
11	Auger	3M	Lubricate the worm bearings. Inspect for wear.	Use only lubricants as detailed by the manufacturer's guidelines.	Mechanical
12	Ash conveying system, if fitted	3M	Lubricate the ball bearings.	Use only lubricants as detailed by the manufacturer's guidelines.	Mechanical
13	Pneumatic system - applies to both feed and ash removal, where fitted	3M	Inspect and replace items listed under notes. Check for air tightness.	(a) air seals on each outlet cyclone (b) clean blades of fan (c) ensure timing sequence (d) check 'bags'	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				(e) check bag shaker and lubricate as appropriate. It is essential to maintain air tightness on pneumatic systems otherwise the coal feed cannot be maintained, output is reduced and energy wasted.	
14	Ash container		Clean out ash content in the container, empty it when necessary.	This frequency will depend on the type of system and the hours the system is used.	Mechanical
15	Igniters	6M	Clean igniter and igniter tube.		Mechanical
16	Compressor, if fitted	6M	See Air Compressors and Receivers (SFG 40-08) for full Compressor tasks.		Mechanical
17	Motors	6M	Clean motors. See Motors - Drive Elements (SFG 39-01).		Mechanical
18	Boiler room ventilation	12M	Check that all are in accordance with current Codes of Practice.		Mechanical
19	Electrical	12M	Check all electrical trips.	These should be set for manual reset.	Electrical
20	Silo discharge	24M	Grease gears.		Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.legislation.gov.uk/wsi/2002/3182/pdfs/wsi_20023182_mi.pdf Air Quality (Wales) Regulations 2000 and 2002 amendment
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/2012/811/contents/made Controlled Waste (England and Wales) Regulations 2012 and Amendments
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Gas Booster Sets

Schedule Ref : 05-39
Schedule Type : Core
Schedule Date : 08 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	12M (45 mins)	60M (60 mins)		
1 2 3 4	5 6	7 8		

ANNUAL TIMING (MINUTES)
85

SCHEDULE INTRODUCTIONS
Before carrying out any maintenance on the Booster, all Electrics and gas pressure should be turned off. Maintenance should be carried out in full accordance with the manufacturers instructions and using only replacement parts supplied or authorised by the manufacturer. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	3M	Check for leaks and general condition. Check for excessive noise or vibration and ensure that the mountings are secure and in good condition.		Gas Safe
2	Air fan inlets	3M	Check that the air fan inlets are not obstructed by dust or dirt and clean out if necessary.		Gas Safe
3	Glands and seals	3M	Ensure that all glands and seals on gas boosters are sound and that there is no smell of gas in the area.		Gas Safe
4	Warning notices	3M	Ensure that warning notices are correctly displayed.		Gas Safe
5	Motors	12M	The bearings generally are sealed for life and usually left in service until their replacement is required.		Gas Safe
6	Drive belts	12M	Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	a) Isolate the electricity supply. b) Remove the belt guard. c) Remove the existing belt. d) Clean the pulley running surfaces. e) Lift the motor platform and position a new belt on both	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				pulleys. The smooth side of the belt should be in contact with the pulley surfaces. f) Ensure the belt will run centrally on the pulley faces. g) Replace the belt guard.	
7	Booster bearing assemblies	60M	Replace bearing assemblies irrespective of perceived bearing condition.	A rise in noise level or vibration indicates that the bearings are in need of replacement. With the belt guard removed a further check can be made for radial or axial movement of the shaft within the bearing housing.	Gas Safe
8	Flexible connectors	60M	Replace flexible connectors.		Gas Safe

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : Gas Governor or Gas Regulator

Schedule Ref : 05-40
Schedule Type : Core
Schedule Date : 08 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Diaphragms	12M	Individual appliance governors should be examined to ensure that diaphragms are sound and in good condition.		Gas Safe
2	Valves and seatings	12M	Valves and seatings should be cleaned and any rust or dust deposits removed.		Gas Safe
3	Impulse pipes	12M	Check that impulse pipes are clear, sound and secure.		Gas Safe
4	Outlet pressure	12M	Check that the outlet pressure should be reasonably constant between low and high fire rates.		Gas Safe

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : Gas Incinerator

Schedule Ref : 05-41
Schedule Type : Core
Schedule Date : 08 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (240 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14				

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS

A risk assessment and method statement must be undertaken in accordance with the confined spaces regulations, before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Have sample Certified as safe before any works can re-start, if asbestos, take actions in accordance with the asbestos regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Outer case/panels	12M	Remove as required	If a leak is detected, shutdown the gas source, reduce pressure to atmospheric, and tighten or redo the leaking connection. Retest.	Mechanical
2	Grate/Ash pan	12M	Riddle the grate, check for freedom of movement, clear primary chamber of ash. Remove and empty ash draw or pan.		Mechanical
3	Pilot burner	12M	Remove and clean pilot burner.		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
4	Primary and secondary burners	12M	Remove and clean primary and secondary burners. Check that injectors are clear, burner tunnel clear and ports are free from blockage.		Gas Safe
5	Refractory lining, combustion chambers and flue ways	12M	Examine condition of refractory lining to primary chamber. Clear any dust from secondary chamber and check that the flue ways are clear.	Report any problems to the client.	Mechanical
6	Door mechanism	12M	Clean and check door mechanism.		Mechanical
7	Linkages and interlocks	12M	Clean linkages and interlocks and adjust if necessary.		Mechanical
8	Gas control cocks	12M	Check gas control cocks, ease and grease if required.		Gas Safe
9	Gas burners	12M	Rebuild and install in reverse as sequence dictates.		Gas Safe
10	Gas system	12M	Check gas soundness.		Gas Safe
11	Ignition	12M	Light the appliance and check any ignition device. Check pilot flare is stable and correctly positioned. Check burner pressures or gas rate at the meter if necessary.		Gas Safe
12	Flue	12M	Check flue for pull and spillage.		Gas Safe
13	Controls	12M	Check controls – flame protection device – timer set correctly – any other control devices.		Gas Safe
14	Sequence timer	12M	Check that the timer returns to zero, shutting down the appliance at the end of the combustion cycle.		Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Waste Incinerator

Schedule Ref : 05-42
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1H (20 mins)	1D (60 mins)	1W (60 mins)	2W (30 mins)	1M (40 mins)
		12		28
1 2	3 4 5 6 7 8 9	10 11 13 14 15 16 17	18 19 20 21	22 23 24 25 26 27
6M (60 mins)	12M (480 mins)			
	31 32 33 34 35 36 37 38 39 40 41 42 43 44			
29 30				

ANNUAL TIMING (MINUTES)
202080

SCHEDULE INTRODUCTIONS

A risk assessment and method statement must be undertaken in accordance with the confined spaces regulations, before entering any confined space such as a hopper, flue chamber or boiler to ensure that there is adequate ventilation and an absence of any fumes or flue gases.

The essential feature of a condensing boiler is that to increase the efficiency the flue gases are cooled below their dew point with the result that condensate is produced which has to be removed from the flue via drainage pipework.

Boiler room ventilation should comply with current British Standards for boilers not exceeding 70kW and for boilers with a capacity between 70kW and 1.8MW.

Undetected CO is poisonous, life threatening and also causes energy waste. The burner should be quiet in operation, no excessive noise should occur when the burner ignites or shuts down.

In domestic premises, consider the installation of a CO detector that complies with current Statutory Requirements, Regulations and Manufacturers' Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Have sample Certified as safe before any works can re-start, if asbestos, take actions in accordance with the asbestos regulations.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Ash removal conveyor	1H	Inspect and clean as required.		Mechanical
2	Water quench pit	1H	Inspect water level and fill as required.		Mechanical
3	Opacity monitor	1D	Check operation of the opacity	Record time test carried out.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			monitor and check exhaust for visible emissions.		
4	Oxygen monitor	1D	Check operation.	Record time test carried out.	Mechanical
5	Thermocouples	1D	Check operation.	Record time test carried out.	Mechanical
6	Underfire air ports	1D	Inspect and clean as required.		Mechanical
7	Limit switches	1D	Inspect for freedom of operation and potential obstructing debris.		Mechanical
8	Door seals	1D	Inspect for wear, closeness of fit, and air leakage.		Mechanical
9	Ash pit/internal dropout sump	1D	Clean after each shift.	This applies to units that do not have a continuous ash conveyor cleaning system.	Mechanical
10	Heat recovery boiler tubes	1W	Inspect and clean as required.		Mechanical
11	Blower intakes	1W	Inspect for accumulations of lint, debris. Clean as required.		Mechanical
12	Burner flame rods (gas fired units)	1W	Inspect and clean as required.		Gas Safe
13	U.V. Scanner flame sensors	1W	Inspect and clean as required.		Mechanical
14	Swing latches and hinges	1W	Lubricate.		Mechanical
15	Hopper door support pins	1W	Lubricate.		Mechanical
16	Ram feeder carriage wheels	1W	Lubricate.		Mechanical
17	Heat recovery induced-draft fans	1W	Inspect and clean fan housing as required. Check for corrosion and V-belt drives and chains for tension and wear.	Replace drive belts using manufacturer's replacement belts. If the drive has more than one belt, ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
18	Hydraulic systems	2W	Check hydraulic fluid level and add the proper replacement fluid as required. Investigate sources of fluid leakage as required.		Mechanical
19	Ash removal conveyor bearings	2W	Lubricate.		Mechanical
20	Fuel trains and burners	2W	Inspect and clean as required.		Mechanical
21	Control panels	2W	Inspect and clean as required.	Keep panel securely closed and free of dirt.	Electrical
22	External surface of incinerator and stack	1M	Inspect external "hot" surfaces.	White spots or discolouration may indicate loss of refractory.	Mechanical
23	Refractory	1M	Inspect and repair minor wear		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			areas.		
24	Internal ram faces	1M	Inspect for wear.	Stainless steel faces may wear out and require replacement in 1 to 5 years depending on service.	Mechanical
25	Upper/secondary combustion chamber	1M	Inspect and vacuum any particulate matter that has accumulated on the chamber floor.		Mechanical
26	Combustion air blowers and heat recovery induced draft fans	1M	Lubricate.	Some of these bearings are 'sealed for life' so do not need lubricating.	Mechanical
27	Hydraulic cylinder clevis and trunnion attachments to all moving components	1M	Lubricate.		Mechanical
28	Burner pilots	1M	Inspect and adjust as required.		Gas Safe
29	Hot external surfaces	6M	Inspect for signs of damage.		Mechanical
30	Chains	6M	Inspect and brush clean as required. Lubricate.		Mechanical
31	Outer case/panels	12M	Remove as required	If a leak is detected, shutdown the gas source, reduce pressure to atmospheric, and tighten or redo the leaking connection. Retest.	Mechanical
32	Grate/Ash pan	12M	Riddle the grate, check for freedom of movement, primary chamber clear of ash. Remove and empty ash drawer or pan.		Mechanical
33	Pilot burner	12M	Remove and clean pilot burner.		Gas Safe
34	Primary and secondary burners	12M	Remove and clean primary and secondary burners. Check that injectors are clear, burner tunnel is clear and ports are free from blockage.		Gas Safe
35	Refractory lining, combustion chambers and flue ways	12M	Examine condition of refractory lining to primary chamber. Clear any dust from secondary chamber and check that the flue ways are clear.	Report any problems to the client.	Mechanical
36	Door mechanism	12M	Clean and check door mechanism.		Mechanical
37	Linkages and interlocks	12M	Clean linkages and interlocks and adjust if necessary.		Mechanical
38	Gas control cocks	12M	Check gas control cocks, ease and grease if required.		Gas Safe
39	Gas burners	12M	Reinstall as sequence dictates.		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
40	Gas system	12M	Check gas soundness.		Gas Safe
41	Ignition	12M	Light the appliance and check any ignition device. Check pilot stable is correctly positioned. Check burner pressures or gas rate at the meter if necessary.		Gas Safe
42	Flue	12M	Check flue for pull and spillage.		Gas Safe
43	Controls	12M	Check controls - flame protection device - timer set correctly - any other control devices.		Gas Safe
44	Sequence timer	12M	Check that the timer returns to zero, shutting down the appliance at the end of the combustion cycle.		Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Wet Scrubber System

Schedule Ref : 05-43
Schedule Type : Core
Schedule Date : 08 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1D (20 mins)	1W (10 mins)	1M (30 mins)	6M (60 mins)	
1 2 3 4 5 6	7 8 9	10 11 12 13 14 15 16 17 18	19 20 21 22	

ANNUAL TIMING (MINUTES)
8300

SCHEDULE INTRODUCTIONS

Legionellosis (Legionnaires Disease and Associated Illnesses)

Approved Code of Practice - Legionnaires disease: The control of legionella bacteria in water systems: Approved Code of Practice, L8, 2013 sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The L8 has a special legal status, Part 1 being regulatory and HSG274 parts 1, 2 and 3 being the guidance documents.

The client must ensure that one person of adequate status is appointed as being responsible for overseeing the assessment and implementation of the precautions. Responsibility and lines of communication must be properly defined and personnel must be properly trained.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Scrubber liquid pump	1D	Check for proper operation and leakage. Investigate sources of fluid leakage and repair as required.		Mechanical
2	Variable throat activator	1D	Check for proper operation and leakage.		Mechanical
3	Scrubber liquid lines	1D	Check for leakage. Repair as required.		Mechanical
4	Mist eliminator pressure lines	1D	Check for leakage. Repair as required.		Mechanical
5	Reagent feed system	1D	Check for leakage. Repair as required.		Mechanical
6	Fan, fan bearings and fan belt	1D	Check for vibration and proper operation. Check for abnormal noise.		Mechanical
7	Fan	1W	Check oil level, oil colour, oil		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			temperature and lubricate.		
8	Scrubber liquid pump	1W	Check oil level and lubricate pump motor bearings.		Mechanical
9	Damper air purge system	1W	Check for proper operation.		Mechanical
10	Ductwork	1M	Check for leakage. Repair as required.		Mechanical
11	Fan and motor bearings	1M	Inspect for leaks, cracks and loose fittings.		Mechanical
12	Fan blades and internal housing	1M	Inspect for material build-up and clean as required. Inspect for abrasion and corrosion and repair as required.		Mechanical
13	Drain chain drive mechanism	1M	Check chain tension, sprocket wear and alignment and oil level.		Mechanical
14	Pipes and manifolds	1M	Inspect for plugging/leaking and clean/repair as required.		Mechanical
15	Dampers	1M	Check for leakage.		Mechanical
16	Spray bars	1M	Inspect for nozzle wear and plugging and clean as required.		Mechanical
17	Pressure gauges	1M	Check for accuracy.		Mechanical
18	Main body of scrubber	1M	Inspect for material build-up and clean as required. Inspect for abrasion and corrosion and repair as required.		Mechanical
19	Fan, pump, motor and drag chain bearings and gear reducers	6M	Inspect clearances and wear, pitting and scoring. Inspect for leaks, cracks and loose fittings.		Mechanical
20	Flow meters	6M	Check for accuracy.		Mechanical
21	Damper drive mechanism	6M	Check for proper operation and alignment.		Mechanical
22	Damper seals, bearings, blades and blowers	6M	Check for wear and leakage.		Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Sanitary Incinerator - Electrical

Schedule Ref : 05-45
Schedule Type : Core
Schedule Date : 03 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (5 mins)	12M (15 mins)			
1 2	3 4 5 6			

ANNUAL TIMING (MINUTES)
275

SCHEDULE INTRODUCTIONS
Always ensure that the main external electricity supply is switched off before attending to servicing of the unit. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Ash draw	1W	Empty the ash draw.	The ash drawer must not be allowed to overfill. If the incinerator is in constant use it should be emptied weekly or more often if it should appear necessary.	Mechanical
2	Ventilation	1W	The incinerator should have a 13mm gap between it and the wall to which it is fixed for ventilation purposes. Check that the gap is clean and unobstructed.		Mechanical
3	Wiring	12M	Check the supply wiring fuse is of the correct rating. Check for soundness and ensure terminal connections are secure. Check integrity of electrical insulation.	Some units are fitted with sheathed wire elements and it is a feature of such an element that small amounts of water can be absorbed from the atmosphere if the unit is not in regular use. It is possible that this will decrease the earth leakage resistance which can cause the earth leakage cut-out to trip.	Electrical
4	Test operation	12M	Insert the towel by fully opening the door flap at the top of the unit. This operation is all that is required and automatically starts the burning cycle. Do not fill above the lower level of the door		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			opening.		
5	Time switch	12M	Check that the timer returns to zero, shutting down the appliance at the end of the combustion cycle.	The time switch should cut out 20 minutes after the door is closed but the charge will continue to burn.	Electrical
6	Flue	12M	• Check flue for pull • Clean flue and ensure that the flue cleaning trap gasket is sealed when put back in operation • Mark positions and clean any branch run dampers and return to set positions • Ensure that the cone cap is in place on the flue system • Check and clean any in-line fan units • Check operation hours of the building and ensure that any time switch controlling the fan is running continuously during these hours plus a run on time of one to two hours.		Electrical

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Schedule Title : Oil Fired Space Heaters

Schedule Ref : 05-46
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (20 mins)	6M (20 mins)	12M (90 mins)	Not Specified	
		9 10 11 12 13 14 15 16 17 26 27 28 29 30 31 32 33 34 35 36 37		
3 4 5 20 21 22 23	6 7 8 24 25		2 19	

ANNUAL TIMING (MINUTES)
210

SCHEDULE INTRODUCTIONS
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations. In certain applications the frequency of servicing will have to be increased, this to a large extent is governed by the working environment and should be established following a site specific unit by unit risk assessment being carried out to establish the correct frequency of maintenance. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Oil Fired Unit Heater**				
2	Oil fired unit heater		Before any maintenance or servicing work is carried out the heater must be shut down, allowed to cool and have the oil and electric supplies to it turned off at the supply valve and isolator respectively.		M&E
3	Burner	3M	Visually inspect the burner.		M&E
4	Electrode	3M	Clean and check spark electrode.		M&E
5	Photocell	3M	Clean and check photocell.		M&E
6	Overheat device	6M	Check overheat safety is operational.		M&E
7	Combustion check	6M	Carry out combustion test and check efficiency of combustion and levels of pollutant gases – adjust burner in accordance with results.		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
8	Smoke test	6M	Carry out smoke test in accordance with manufacturer's recommendations.		M&E
9	Heat exchanger and combustion chamber	12M	The heat exchanger and combustion chamber should be visually inspected for signs of splits, cracks, and distortion. Remove any accumulated deposits from the tubes by pushing through the full length with a flue brush. The flue brush should be withdrawn so as to pull any deposits back into the bottom of the flue box where they can then be removed by using a vacuum cleaner. Particular attention should be paid to the upper internal surfaces of the tubes where, through convection, heavier deposition is likely to occur. Any deposits which may have accumulated within the combustion chamber can be removed with a vacuum cleaner once the burner is removed. All gaskets should be checked to ensure that they continue to provide a gas tight seal, if there is an element of doubt then they should be replaced.	It is most important that a build-up of deposits is not allowed to occur as this can have an adverse effect upon the efficiency of the heater and reduce the life of the heat exchanger.	M&E
10	Electrical connections	12M	Check electrical connections to ensure they are secure and free from corrosion. Terminals and connections should also be checked to ensure that no stray strands are bridging terminals.		M&E
11	Main fan motor assembly	12M	Remove dust and other foreign matter by blowing off with compressed air or through the use of a soft bristle brush. Check that the bearings do not show signs of excessive wear. It should be noted that generally these bearings do not require lubricating - check manufacturer's recommendations.		M&E
12	Oil supply including filter	12M	The oil supply pipework, tank and fittings should all be inspected to ensure they are free	Any waste oil or sludge must be disposed of correctly. Never dispose of it by dumping or	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			from corrosion and to ensure that where brackets have been fitted these remain secure and offer adequate support. The oil filter should be replaced with a new one and the system should be checked for leaks. If the oil level is such to allow removal of any sludge or other contaminants from the tank this too should be undertaken, particularly if there have been problems of poor firing associated with contaminants reaching the burner.	tipping it down drains or into watercourses where ground water can become polluted and environmental damage caused.	
13	Burner	12M	Service burner in accordance with manufacturer's instructions.		M&E
14	Air delivery system	12M	A visual inspection should be undertaken to ensure that the air delivery system is in good order, that it remains adequately supported and that the various joints are effectively sealed.		M&E
15	Flue	12M	A visual inspection should be carried out to ensure that the flue remains adequately supported, both internally as well as externally, and that the various joints are effectively sealed. Inspection covers, where fitted, should be removed and the flue checked to see whether cleaning is required. If inspection covers are not fitted the flue gas exit duct and flue spigot will provide not only an indication of the cleanliness of the flue but will also enable access for cleaning. The presence of the flue terminal should be checked. If a condensate trap and drain facility is fitted this should be checked to ensure that it continues to function correctly and the drainage of condensates is not impaired.		M&E
16	Re-Commission	12M	Following completion of the above 12M works, the heater should be re-commissioned in accordance with the manufacturer's instructions.		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
17	Recommendation	12M	Provide written report which should be signed by the service engineer and kept by client.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with Health and Safety requirements. All service and maintenance works must be carried out by a competent engineer in accordance with BS Codes of Practice for oil firing.	M&E
18	**Oil Fired Cabinet Heaters**				
19	Oil fired cabinet heaters		Before any maintenance or servicing work is carried out, the heater must be shut down, allowed to cool and have the oil and electric supplies to it turned off at the supply valve and isolator respectively.	Oil fired equipment must be installed and maintained in accordance with the current OFTEC Regulations for oil fired products. Due account should also be taken of any obligations arising from the Health and Safety at Works Act or relevant codes of practice. In addition, the installation must be carried out in accordance with the current IEE wiring regulations (Industrial & Commercial) and any other relevant British Standards and Codes of Practice by a qualified installer. All external wiring MUST comply with the current IEE wiring regulations.	M&E
20	Burner	3M	Visually inspect the burner.		M&E
21	Electrode	3M	Clean and check spark electrode.		M&E
22	Photocell	3M	Clean and check photocell.		M&E
23	Overheat device	3M	Check overheat safety is operational.		M&E
24	Combustion check	6M	Carry out combustion test and check efficiency of combustion and levels of pollutant gases – adjust burner in accordance with results.		M&E
25	Smoke test	6M	Carry out smoke test in		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			accordance with manufacturer's recommendations.		
26	Heat exchanger and combustion chamber	12M	The heat exchanger and combustion chamber should be visually inspected for signs of splits, cracks and distortion. Remove any accumulated deposits from the tubes by pushing through the full length with a flue brush. The flue brush should be withdrawn so as to pull any deposits back into the bottom of the flue box where they can then be removed by using a vacuum cleaner. Particular attention should be paid to the upper internal surfaces of the tubes, where through convection, heavier deposition is likely to occur. Any deposits which may have accumulated within the combustion chamber can be removed with a vacuum cleaner once the burner is removed. All gaskets should be checked to ensure that they continue to provide a gas tight seal. If there is an element of doubt then they should be replaced.	It is most important that a build-up of deposits is not allowed to occur as this can have an adverse effect upon the efficiency of the heater and reduce the life of the heat exchanger.	M&E
27	Electrical connections	12M	Check electrical connections to ensure they are secure and free from corrosion. Terminals and connections should also be checked to ensure that no stray strands are bridging terminals.		M&E
28	Main fan motor assembly	12M	Remove access panel. Dust and other foreign matter should be cleaned by blowing over with compressed air and through the use of a soft bristle brush and cloth. Solvent wipes may be used to remove heavy soiling from the motor casing. Traces of surplus lubricants spreading from the bearings should also be cleaned away. Where motors are fitted with grease nipples, bearings should		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			be lubricated with the correct grade of lubricant. Motors which do not have grease nipples feature sealed bearings which are lubricated during manufacture for their life. The electrical connections should be checked for signs of corrosion and tightness and ensure that there are no stray strands which could form a short circuit. Clean, tighten and replace as necessary. Replace cover and secure.		
29	Main fan assembly	12M	Remove dust and other foreign matter by blowing off with compressed air or through the use of a soft bristle brush. Check that the bearings do not show signs of excessive wear. It should be noted that these bearings generally do not require lubricating. If the bearings require replacing the following procedure should be followed: (a) Remove belt(s). (b) Loosen set screw on eccentric collar and tap collar in the opposite direction to fan rotation. (c) Remove collar and bearing. (d) Check shaft for alignment and straightness. (e) Locate the bearing in its seat and place on the shaft with the cam facing outwards. (f) Fit the eccentric collar and engage the cams. (g) Tighten initially by rotating, then by tapping in the direction of the fan rotation. (h) Replace fasteners and secure. (i) Turn by hand to ensure free fan rotation.		M&E
30	Pulleys	12M	Check pulleys for alignment using a straight edge, if necessary, reposition either or both of the pulleys and the fan motor. Check for excessive wear within the root and sides of the grooves		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			and check for any other signs of wear or damage. If necessary, replace the pulley as follows: (a) Release tension on belts and remove. (b) Release the taper locks by slackening the securing screws by several complete turns. (c) Fully remove one screw from the taper lock and having oiled it, insert into the threaded jacking point. (d) Tighten screw until the taper lock is free. (e) Remove taper lock and pulley. (f) Fit taper lock in new pulley and provisionally position on the shaft. (g) Remove the screw from the jacking point and tighten both screws in their clamping points until the pulley can just be moved on the shaft by hand. (h) Align pulleys using a straight edge and by gradual alternate tightening of the screws clamp in position. (i) Refit belts and check for the correct amount of tension.		
31	Fan belts	12M	Check belts for signs of wear. Frayed or split belts must be replaced using belts with a common batch code. Belt tension must be checked and if, on multi-belt units it is found that one belt contains more slack than its accompanying belts, then all the belts on the unit must be replaced, again using a common batch code.		M&E
32	Oil supply including the filter	12M	The oil supply pipework, tank and fittings should all be inspected to ensure that they are free from corrosion and to ensure that where brackets have been fitted these remain secure and offer adequate support. The oil filter should be replaced with a new one and the system should be checked for leaks. If the oil level is such to allow removal of any sludge or other contaminants from the tank, this too should be undertaken,	Any waste oil or sludge must be disposed of correctly. Never dispose of it by dumping or tipping it down drains or into watercourses where ground water can become polluted and environmental damage caused.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			particularly if there have been problems of poor firing associated with contaminants reaching the burner.		
33	Burner	12M	Service burner in accordance with manufacturer's instructions.		M&E
34	Air delivery system	12M	A visual inspection should be undertaken to ensure that the air delivery system is in good order, that it remains adequately supported and that the various joints are effectively sealed.		M&E
35	Flue	12M	A visual inspection should be carried out to ensure that the flue remains adequately supported, both internally as well as externally, and that the various joints are effectively sealed. Inspection covers, where fitted, should be removed and the flue checked to see whether cleaning is required. If inspection covers are not fitted, the flue gas exit duct and flue spigot will provide not only an indication of the cleanliness of the flue but will also enable access for cleaning. The presence of the flue terminal should be checked. If a condensate trap and drain facility is fitted this should be checked to ensure that it continues to function correctly and the drainage of condensates is not impaired.		M&E
36	Re-Commission	12M	Following completion of the above 12M works the heater should be re-commissioned in accordance with the manufacturer's instructions.		M&E
37	Recommendation	12M	Provide written report which should be signed by the service engineer and kept by the client.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with Health and Safety requirements.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				All service and maintenance works must be carried out by a competent engineer in accordance with BS Codes of Practice for oil firing.	

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.legislation.gov.uk/ukpga/1985/70/contents Landlord and Tenant Act 1985
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/2001/2954/contents/made Control of Pollution (Oil Storage) (England) Regulations 2001
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Kiln - Electric

Schedule Ref : 05-47
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
4M	12M	Not Specified		
6 7	8 9 10 11	1 2 3 4 5		

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'.

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Depending upon whether the equipment being maintained falls under the appliances criteria, the electrical testing should be carried out in accordance with PAT testing reference: Portable Equipment - Portable Appliance Testing (SFG 42-01).

Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Good housekeeping around kilns is essential and combustible materials should never be stored near the kiln or allowed to accumulate around it.

It is advisable to keep an up-to-date record of the nature and extent of all maintenance and repair work carried out on the kiln, including any servicing documentation.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General area inspection		**Before each firing:** Inspect the area around the kiln and ensure there are no combustible materials near to it. If there are any combustible materials found they should be moved away immediately.		M&E
2	Electrical feed - before firing		**Before each firing:** Inspect the cable feeding the kiln and any socket (if fitted) for signs of damage or heat discolouration. If faults are found, the kiln and installation should be taken out of service until the faults can be corrected.		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
3	Vacuuming kiln		**After every firing:** Vacuum The Kiln - Debris like brick dust and glaze particles can settle on the elements and element holders and breakdown the protective coating surrounding them. This can drastically reduce the life span of the elements. Use a vacuum to clean the element grooves, lid and slab before loading the kiln. Be careful to NOT put the motor from the vacuum cleaner inside the kiln - rather use the hose and attachments to reach inside the kiln. Replace the contaminated holder if you cannot clean it. Always unplug the kiln or turn off at breaker.	Remove any glaze that has splattered on the firebrick or shelves. (USE SAFETY GLASSES WHEN DOING THIS BECAUSE GLAZE CAN BE LIKE BROKEN GLASS). Vacuum afterward. VACUUMING NOTE: It is possible to build-up a strong static electricity charge when you are vacuuming. If this somehow manages to discharge into the control it can ruin the electronic circuit. Make sure the vacuum is earthed and periodically touch some earthed metal surface away from the kiln to discharge the energy.	M&E
4	Firebricks		**After every firing:** Check the condition of the firebricks within the kiln. Measure cracks and log findings in order to keep an accurate note of changes to the brickwork.		M&E
5	Electrical feed - after firing		**After 10 firings:** Check temperatures of the main power cord at the main receptacle and the main kiln breaker while the kiln is at its hottest. If these are hotter than normal, it could be a sign of a loose or corroded connection, or possibly the wire gauge used in the power hook-up is the wrong size for the amount of current being drawn by the kiln. Immediately diagnose and fix this because it could cause a fire. If you have a plug on your kiln, unplug it from the receptacle and check for oxidation, any burn marks, discoloration or melted spots on the plug. If you see this, replace the plug (and the receptacle) before using the kiln again. Make sure the receptacle feels tight when you press the plug into the outlet. A loose receptacle indicates worn springs which will lead to		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			overheating.		
6	Door safety interlock	4M	The door safety interlock should be regularly inspected and tested.		M&E
7	Emergency stops	4M	Check operation of all emergency stops.		M&E
8	Bands and screws	12M	Tighten Bands & Screws - A kiln expands and contracts as it heats up and cools down. This coupled with leaning into it during loading can cause the bands and screws to loosen up over a period of time. At least once a year go around the kiln with a screwdriver and make sure everything is tight. Be sure not to overtighten screws and cause them to strip.		M&E
9	Electrical	12M	Check main control switch contacts and check cable connections are tight, renew as necessary. Check main electrical isolator for condition and operation. If plug top fitted, check any PAT test labelling to ensure it is current. If not, REPORT. Carry out Earth Continuity Test (reading should be less than 0.5 ohms). Carry out insulation resistance test (reading should not be less than 0.5 M.ohms). Record details of insulation, earth continuity and earth loop impedance readings.		M&E
10	Thermocouple	12M	Thermocouples will drift in reading over time. This could potentially lead to an overfiring before the thermocouple actually fails. Although you can not easily check thermocouple calibration, the general accuracy of the entire kiln system can be checked by firing with witness cones.		M&E
11	Ventilation system (if fitted)	12M	Check the ductwork for leaks or corrosion (especially if a clay with a high sulphur, phosphorus or fluorine content is used). Clean fan of all dust and deposits.		M&E

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Schedule Title : Introductory Procedures - Building Management Systems

Schedule Ref : 06-01
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Development

Building Management Systems (BMS) or Building Energy Management Systems (BEMS) have developed from the simple applications of the 1970's to complex integrated systems involving outstations and central units whose operation relies on computer interactive management backed by detailed and often complex software which provides total management of the environmental conditions in a building. It is an ever changing field and systems currently in operation can include lighting, security, lifts, fire alarms, access and other interfaces.

Monitoring Operation

The basic components of a BMS include sensors, actuators, controllers, communication systems and a central unit which can be either **passive** i.e. monitor and rely upon the outstations to act as local control centres, or **active** and provide a central control function.

Where Building Management Systems are installed, it is essential that the client should be aware of the need for continuous monitoring of performance. Switching off because of a malfunction or lack of data update represents a negation of the investment and can give rise to poor environmental conditions and energy wastage.

Energy Saving and Maintenance

Building Energy Maintenance Systems offer considerable energy and cost savings when compared with more simple equipment but represent a considerable investment by the building owner or lessee. If the equipment is not properly commissioned and/or maintained by specialist trained personnel who have had training on such equipment and are supported by the manufacturer, the benefits of such investment could be lost, energy will be wasted and costs rise.

Building Owner or Lessee

Building owners or lessees should ensure that their operators have had the appropriate training to ensure that routine but important daily and weekly maintenance tasks are carried out satisfactorily. Such tasks could include monitoring and changing time schedules, set points, environmental control settings and simple routine maintenance of the computer hardware. Where changes are made to the software routines it is essential that back-up copies are made to safeguard the changes.

Software

The owner or lessee should be aware that software is normally covered by copyright and the licence conditions covering its use can be very restrictive. The penalties for infringing that copyright can be considerable. The licence may relate to the use of the software or may be restrictive and apply only to a particular application or building.

If there is any doubt regarding the above, the manufacturer should be contacted for advice.

Maintenance Provider

For the regular maintenance of the equipment the client should be satisfied that the maintenance provider employs BMS specialists who:

a) have had the necessary training;
b) have knowledge of the installed system;
c) maintain an up to-date awareness of the manufacturers equipment including computer hardware and software;
d) have access to up to-date diagnostic equipment;
e) have good technical support;
f) are supported by adequate stocks of spares.

The tasks and frequencies given in the following schedules represent good practice and are typically applied for sites with five or seven-day operation with plant and controls less than 10 years old. The frequencies suggested may be varied to meet on-site conditions

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(extremes of dust or heat), age of plant and controls, acceptance of risk of failure.

Sites with critical areas such as computer suites or operating theatres may require increased frequency of maintenance of selected elements. Sites where risk of failure of services is acceptable may be more selective about the maintenance frequency of certain elements. However, care should be taken to ensure that energy savings continue to be achieved.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Central Operator Station

Schedule Ref : 06-03
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)	12M (60 mins)			
2 3 4 5 6	7 8 9 10 11 12 13 14 16 17 18 19			

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS
Care should be taken with regard to the system status. Where necessary arrange co-ordination with building occupiers. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**PC/Micro Based System**				
2	Diagnostic routine on computer (where appropriate)	6M	Perform diagnostic tasks and check computer operation.	This routine will check all aspects of computer hardware and software.	M&E
3	Clock and calendar	6M	Check real-time clock and date settings.		M&E
4	Cooling fans	6M	Check condition, clean and lubricate if necessary.	Do not lubricate if 'sealed for life' bearings. Wipe off any excess lubricant as it will attract dust which will stick to it.	M&E
5	Filters	6M	Inspect and clean or change as necessary.		M&E
6	Software archives	6M	a) Take back-up copy of site specific data files. b) Verify operating programmes and functionality.	Ensure that security is retained and that any updating of files is incorporated. It is recommended that a copy of the back-up data is stored in a fire proof safe or off-site.	M&E
7	Cables and connectors	12M	Check security, integrity and for physical damage.		M&E
8	Disc drives	12M	Clean according to the manufacturer's instructions.		M&E
9	Clock battery	12M	Check and replace if necessary.	Battery disposal should be in accordance with Environmental Requirements.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
10	Mouse	12M	Check for smooth operation and clean ball as necessary.	Client may ask for more frequent maintenance of mouse.	M&E
11	Visual Display Unit (VDU)	12M	Check: a) focus b) contrast c) brightness d) for correct operation.		M&E
12	Monitor(s)	12M	Check: a) focus b) contrast c) brightness d) for correct operation e) degauss.	With most VDU's the screen is automatically degaussed when equipment is switched on.	M&E
13	Keyboard	12M	Check for correct operation and clean.		M&E
14	Cleaning	12M	Clean with approved cleanser.	Treat with anti-static compound. Depending on use and location more frequent cleaning may be necessary.	M&E
15	**Printers**				
16	Cables and connectors	12M	Check security, integrity and for physical damage.		M&E
17	Cleaning	12M	Use recommended cleaning agent.	Remove paper or tape debris.	M&E
18	Test sequence	12M	Check, adjust and replace if necessary: a) paper feed b) transport system c) printer cartridge.		M&E
19	Consumables (where applicable)	12M	Check stocks.		M&E

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Schedule Title : Communications

Schedule Ref : 06-04
Schedule Type : Core
Schedule Date : 19 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Care should be taken with regard to the system status, where necessary arrange co-ordination with building occupiers. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Data communications	12M	Check integrity of data flow in both directions.	If more than one path exists all must be verified.	M&E
2	Central station units	12M	Check operation and visually inspect. Check environmental conditions of all equipment are within prescribed limits.	To include modems, line drivers, telemetry cables and interface units.	M&E
3	Central Station/Remote Printer	12M	Check operation and visually inspect.		M&E
4	Central Station/Outstations	12M	Check integrity of data flow in both directions.	If more than one data path exists all must be verified. **Caution** - there may be interaction with specialist applications.	M&E
5	Connectors	12M	Check security, integrity and for damage.		M&E
6	Alarms - receiving	12M	Confirm that all critical alarms are received by the central supervisor. Check spurious alarms and report faults (as incurred).		M&E
7	Alarms - generating	12M	Check generation of alarms from all input and output devices.		M&E
8	Network	12M	Check communications between central supervisory computer and outstations and other		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			networked devices.		

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Schedule Title : Outstations

Schedule Ref : 06-05
Schedule Type : Core
Schedule Date : 19 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6 7 8 9 10				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Care should be taken with regard to the system status. Where necessary, arrange co-ordination with building occupiers. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Outstation hardware	12M	Check mechanical and environmental condition.	Environmental conditions e.g. temperature and humidity should be within manufacturer's recommended limits.	M&E
2	Connectors	12M	Check security, integrity and for damage.	Includes security of incoming cables, prevention of ingress of moisture, door seals etc.	M&E
3	Power supplies	12M	Carry out voltage check on all power supplies.	Check automatic restart and re-booting of software programme.	M&E
4	Stand-by batteries/ uninterrupted power supplies (UPS).	12M	Check against manufacturer's specification. Replace as necessary. Interrupt electrical supply to each outstation, reinstate and ensure system restarts satisfactorily.		M&E
5	Digital inputs	12M	Check by activating (fixed sensing/control device).	Care should be taken to isolate local operation.	M&E
6	Digital outputs	12M	Check operation of output by stopping the operating routine (where appropriate). Check switching by software interlocks.	Should include starting and stopping operations. Does not apply to connected devices.	M&E
7	Analogue inputs	12M	Read and check calibration of analogue inputs.		M&E
8	Analogue outputs	12M	Check for accuracy of output		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			signal.		
9	Manual override (physical)	12M	Check status.	Review and report to client.	M&E
10	Installed programme	12M	Check integrity, alarms, interlocks and optimisation.	See Building Management Systems - Software Functions (SFG 06-06).	M&E

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Schedule Title : Software Functions

Schedule Ref : 06-06
Schedule Type : Core
Schedule Date : 19 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (120 mins)	12M (240 mins)	Not Specified		
1 14	2 3 4 5 6 7 8 9 10 11 12 13 15 16	17		

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS
Different manufacturers have adopted different approaches to software development. This task maintenance schedule shows some typical functions and the actions which should be taken. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Control loops	6M	Check integrity of the installed programme. Check sequence, operation of control, outputs and check stability of plant. Undertake as necessary fine tuning of control loops. Adjust settings in conjunction with the building manager to achieve the required internal environmental conditions.	Frequency should be agreed with client. This action should be related to the critical nature of the operation.	M&E
2	Optimised start/stop	12M	Verify operation by interrogating software/hardware copy.	Building layouts and occupational requirements are seldom of a static nature. Therefore control strategies and their suitability need to be reassessed on a regular basis.	M&E
3	Time clock	12M	Check real time clock and date for accuracy throughout system.		M&E
4	Time switching	12M	Review current operating parameters according to clients needs.	e.g. Time settings and schedules.	M&E
5	Data logging	12M	Review need for existing data logs. Delete/archive logs as required.	Report to client on the need to review existing arrangements.	M&E
6	Alarms - faults, out of limit alarms	12M	Check that plant alarms and software interlocks with safety	The checking of possible reactions to certain critical	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			implications are operating correctly. Check alarm priorities, routings and reactions. Check alarm priorities are appropriate.	alarms and programmes must be carefully co-ordinated with other trades and building tenants. Where there are safety implications, verify alarm integrity. Review system of reporting outstanding alarm conditions and report discrepancies.	
7	Alarm management and report	12M	Review frequencies of generated alarms. Review alarm log records for indication of untoward conditions.	Report as appropriate to client.	M&E
8	Power failure and restoration	12M	Check plant start up sequence.	Report as appropriate to client.	M&E
9	Generator loading programme	12M	Check plant start up sequence.	Report as appropriate to client.	M&E
10	Maximum demand/load shedding	12M	Check sequence and operation.	Report as appropriate to client.	M&E
11	Load cycling	12M	Check operation.	Report as appropriate to client.	M&E
12	Software interlocks	12M	Verify operation.	Report as appropriate to client.	M&E
13	Manual status review	12M	Check manual overrides and effect on system, and effect on system operation.	At client access, level review parameters, lockouts, changes, all points in manual override and forced analogue values. Review findings with client.	M&E
14	Outstations	6M	Back up all outstation files. Make two copies. Store one on site and one off site.		M&E
15	Operations and Maintenance	12M	Advise where control strategy descriptions in operating and maintenance manuals are incorrect. Ensure, where appropriate, additional documentation meets all quality assurance procedures.		M&E
16	Schematics	12M	Check schematics indicate correctly.		M&E
17	Log Books		Maintain a log book of all changes made to the system.	As Necessary.	M&E

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Schedule Title : Atmospheric Gas Burners

Schedule Ref : 07-01
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

These burners operate by mixing air and gas to provide an efficient combustion flame. This principle is used mainly for domestic and small commercial equipment. Before commencing any work check the installation for asbestos, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	12M	Check and note any defects.	Annual maintenance should be enough but refer to manufacturer's specification.	Gas Safe
2	Gas, electrical and ventilating systems	12M	Check that all are in accordance with current Codes of Practice.		Gas Safe
3	Burner	12M	Isolate electrically, disconnect or remove fuses, turn off and isolate gas supply.		Gas Safe
4	Thermocouple, probe pilot assembly, spark electrode and main burners	12M	Disconnect and remove from boiler, clean pilot and main burner.	Cleaning should be thorough and carried out as per the manufacturer's instructions.	Gas Safe
5	Oxy pilot assembly	12M	Remove and replace as manufacturer's recommendations.		Gas Safe
6	Spark electrode and thermocouple/probe	12M	Check, adjust and refit along with main burner.		Gas Safe
7	Wiring to ignition and/or probe, gas valve and boiler thermostats	12M	Check.		Gas Safe
8	Flame failure and associated controls	12M	Turn on gas, check and adjust pilot flame to envelope		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			thermocouple/probe test flame failure device.		
9	Electricity	12M	Switch on.	Make sure boiler thermostat is in off position.	Gas Safe
10	Gas	12M	Check and adjust pressure to main burner.	Make sure boiler thermostat is in off position.	Gas Safe
11	Safety check	12M	Ensure that no products of combustion are entering the area of the building where the boiler is situated.	The report must be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out by a competent engineer. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	Gas Safe
12	Documentation	12M	Provide written report.	The report must be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out by a competent engineer. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	Gas Safe
13	Unsafe installations	12M	Recommendations.	If after servicing the burner is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j
Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Blown Gas Burner

Schedule Ref : 07-02
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
1	2 3 4 5 6 7 8 9 10 11 12 13 14			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

A fan assisted type in which the gas and air is pre-mixed before the fan. This is not a pressure jet type burner. The air/fuel ration is controlled by an orifice plate and monitored by a pre-set differential pressure switch.

Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	6M	Check security of mechanical parts and secure mounting of appliance.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification.	Gas Safe
2	Operating status of burner	12M	Check whether plant operating or not.	For safety and operational reasons the status of the plant should be checked.	Gas Safe
3	Electrical and Ventilating Systems	12M	Check that all are in accordance with current Codes of Practice.		Gas Safe
4	Burner	12M	Switch on, carry out safety check of flame failure.	Note any visible defects.	Gas Safe
5	Combustion check	12M	Carry out and note any visual defects. Arrange for record of test to be sent to the client.	Pay particular attention to carbon monoxide (CO) as presence is dangerous and life threatening and indicates waste energy.	Gas Safe
6	Isolation from electricity and gas supply	12M	Switch off, remove fuses and turn off gas supply at main cock.	Before starting any dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Gas Safe
7	Fan/mix chamber, gas train and	12M	Remove, thoroughly clean, with a soft brush. Lubricate if		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
	controller assembly		necessary.		
8	Fan scroll	12M	Clean and check air passages.	Ensure air passages are clear to pressure switch.	Gas Safe
9	HT & probe details	12M	Inspect for soundness.	If probe is bent or shows signs of oxidation it should be replaced.	Gas Safe
10	Burner	12M	Reassemble and fire, check air and gas settings, carry out combustion efficiency test.	It is important that reference is made to the boiler and burner manufacturer's specifications.	Gas Safe
11	Air pressure switch	12M	Test under no air conditions.		Gas Safe
12	Flame failure	12M	Test and take probe readings.		Gas Safe
13	Recommendation	12M	Provide written report. The report should be signed by the service engineer and the client/clients representative/responsible person.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer complying with Health and Safety requirements and possess accreditation in accordance with the Gas Safety Regulations.	Gas Safe
14	Unsafe installations	12M	Recommendations	If, after servicing, the burner is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Forced Draught Gas Burner

Schedule Ref : 07-03
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

A fan assisted nozzle mix type with fully automatic operation creating an expanding flame.

Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating status of burner	6M	Check whether plant operating or not.	For safety and operational reasons the status of the plant should be checked.	Gas Safe
2	Gas, electrical and ventilating systems	6M	Check that all are in accordance with current Codes of Practice.		Gas Safe
3	Burner	6M	Switch on and carry out safety check of flame failure.	Note any visible defects.	Gas Safe
4	Combustion check	6M	Carry out and note any visual defects. Arrange for record of test to be sent to the client.	Pay particular attention to carbon monoxide (CO) as presence is poisonous and life threatening and indicates waste energy.	Gas Safe
5	Isolation from electricity and gas supply	6M	Switch off, remove fuses and turn off gas supply at main cock.	Before starting any dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Gas Safe
6	Fan and motor	6M	Remove, thoroughly clean and lubricate if necessary.	See Motors - Drive Elements (SFG 39-01).	Gas Safe
7	Fan scroll	6M	Clean and check air passages.	Ensure air passages are clear to pressure switch.	Gas Safe
8	Automatic gas valves	6M	Check for gas tightness.		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
9	Removal of UV cell and head assembly	6M	Clean, adjust electrode and if required isolate probe.	UV cells should be replaced after a life of 10,000 hours.	Gas Safe
10	HT & probe details	6M	Inspect for soundness.	Consideration should be given to replacing HT lead every 12 months.	Gas Safe
11	Burner	6M	Reassemble and fire. Check air and gas settings. Carry out combustion efficiency test.	It is important that reference is made to the boiler and burner manufacturer's specifications.	Gas Safe
12	Air pressure switch	6M	Test under no air conditions.		Gas Safe
13	Flame failure	6M	Test and take probe or UV cell readings.		Gas Safe
14	General	6M	Check security of mechanical parts and secure mounting of appliance.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification.	Gas Safe
15	Recommendation	6M	Provide written report. The report should be signed by the service engineer and the client/clients representative/responsible person.	Premature failure and excessive fuel costs will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer complying with Health and Safety requirements and possess accreditation in accordance with the Gas Safety Regulations.	Gas Safe
16	Unsafe installations	6M	Recommendations.	If, after servicing, the burner is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j
Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Fuel Oil Distribution and Pipework using Medium (220/960 Sec) Oil

Schedule Ref : 07-04
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

There are four basic fuel systems, which can be subdivided into those used for distillate and those for residual oils.

The use of residual oils necessitates the inclusion of equipment for pre-heating the fuel oil prior to the burner. This includes preheater coils in the storage tank, line tracing and final preheater either before or right at the burner nozzle. The oil supply temperature at the burner inlet must be sustained at the burner pump inlet as follows:

Class F (960 sec Redwood No 1 - 20cSt @ 100ºC in SI units) 43ºC-55ºC, at burner nozzle 104ºC.
Class E (220 sec Redwood No 1 - 8cSt @ 100ºC in SI units) 10ºC-21ºC, at burner nozzle 82ºC.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Immersion heater/steam coils and thermostat	12M	Check condition and test action of thermostat.	Examine condition of wiring and control temperature of thermostat.	Mechanical
2	Preheater tank	12M	Inspect for soundness. Drain water from drain valve at base of tank.	These tanks should be insulated and should be checked for damage. If outside attention should be paid to waterproofing and checking for the presence of corrosion of the tank under the damaged insulation. Drain water from tank frequently.	Mechanical
3	Trace heating	12M	Check thermostat setting and adjust if necessary.	If electrical, check on current drawn and if different from norm, investigate and report to client. Check and record the transformer output voltage.	Mechanical
4	Insulation	12M	Examine and replace or repair as necessary.	Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
5	Filters	12M	Clean and change if necessary.	Sludge in medium fuel oil can be a major fault in a burner operation and regular checking of filters and cleaning of tanks may be necessary if oil is only used intermittently.	Mechanical
6	Steam traps and drain valves (steam heated systems)	12M	Check operation, repair or adjust as necessary.		Mechanical
7	General	12M	Report on condition.	Include any recommendations for future action in the report.	Mechanical

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Schedule Title : Forced Draught (Pressure Jet) Oil Burner

Schedule Ref : 07-05
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (60 mins)	6M (30 mins)			
1 2 3 4 5 6 7 8 9 10 11 12 13 14	15 16			

ANNUAL TIMING (MINUTES)
300

SCHEDULE INTRODUCTIONS
A fan assisted nozzle oil air mix fully automatic. Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating status of burner	3M	Check whether plant operating or not. A combustion test may be necessary.	For safety and operational reasons the status of the plant should be checked.	Mechanical
2	Oil, electrical and ventilating systems	3M	Check that all are in accordance with current Codes of Practice.		Mechanical
3	Burner	3M	Switch on, carry out safety check of flame failure.	Note any visible defects.	Mechanical
4	Safety check	3M	Carry out and note any visual defects.	Leakage of all products of combustion (CO, CO^2, SO^2) should be sought. Pay particular attention to carbon monoxide (CO) as its presence can be dangerous and wastes energy.	Mechanical
5	Isolation from electricity and oil supply	3M	Switch off, remove fuses and turn off oil supply.	Before starting any dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Mechanical
6	Blast tube assembly	3M	Remove and clean combustion head, ignition electrodes and inspect HT leads.		Mechanical
7	Nozzle and filter	3M	Clean filter and inspect nozzle for wear. Renew annually.	Erosion or surface defects on the nozzle can affect the profile of the emerging jet of oil and	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				lead to a poor flame shape and bad combustion.	
8	Burner	3M	Reassemble and set head to manufacturer's requirements.		Mechanical
9	Motor and fan	3M	Remove, clean and lubricate as required, clean fan scroll.	Inspect oil pump flexible drive coupling before re-assembling. See Motors (SFG 39-01).	Mechanical
10	Oil pump filter	3M	Remove and clean, inspect pump seals for signs of wear.		Mechanical
11	Reassembling burner	3M	Inspect flexible oil line coupling, clean and renew oil line filter, clean photo cell and adjust position.		Mechanical
12	Burner	3M	Switch on and check flame shape and appearance if visible.		Mechanical
13	Oil pressure	3M	Test and record oil pressure.		Mechanical
14	Flame failure device	3M	Test for satisfactory operation.		Mechanical
15	Combustion tests	6M	Carry out combustion tests and check efficiency of combustion and levels of pollutant gases - adjust burner in accordance with results.	On larger systems combustion tests should be carried out regularly to monitor performance and avoid energy waste.	Mechanical
16	General	6M	Check security of mechanical parts and secure mounting of appliance.	A maintenance check should be carried out on this type of burner twice a year but refer to manufacturer's specification. All service and maintenance works must be carried out by a competent engineer in accordance with BS Codes of Practice for oil firing.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Light Oil Vaporising Pot Burner

Schedule Ref : 07-06
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (60 mins)	6M (30 mins)			
1 2 3 4 5 6 7 8 9	10			

ANNUAL TIMING (MINUTES)
300

SCHEDULE INTRODUCTIONS

A simple oil burner.

Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating status of burner	3M	Check whether plant operating or not. A combustion test may be necessary.	For safety and operational reasons the status of the plant should be checked.	Mechanical
2	Oil, electrical and ventilating systems	3M	Check that all are in accordance with current Codes of Practice.		Mechanical
3	Burner	3M	Switch on and note level of float chamber.	Note any visible defects.	Mechanical
4	Safety check	3M	Carry out and note any visual defects.	Leakage of all products of combustion (CO, CO^2, SO^2) should be sought. Pay particular attention to carbon monoxide (CO) as its presence can be poisonous and wastes energy.	Mechanical
5	Isolation from electricity and oil supply	3M	Switch off, remove fuses and turn off oil supply.	Before starting any dismantling of equipment it is essential for safety reasons that the plant be isolated from incoming services.	Mechanical
6	Burner	3M	Remove, if possible clean and trim/replace the wick.		Mechanical
7	Float chamber and filter (if fitted)	3M	Clean filter and set float chamber level in accordance with manufacturer's instructions.		Mechanical
8	Burner	3M	Assemble and switch on in order		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			to check the flame shape.		
9	Recommendations	3M	Provide written report, which should be signed by the service engineer and kept by the client.	Premature failure will result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with HSAWA requirements and in accordance with BS Codes of Practice for Oil Firing.	Mechanical
10	Combustion tests	6M	Carry out combustion tests and check efficiency of combustion and levels of pollutant gases - adjust burner in accordance with results.	On larger systems combustion tests should be carried out regularly to monitor performance and avoid energy waste.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1993/11/introduction Clean Air Act 1993
http://www.legislation.gov.uk/ukpga/1974/40/introduction Control of Pollution Act 1974
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Gas/Oil Burners - Dual Fuel

Schedule Ref : 07-07
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (45 mins)	6M (20 mins)	12M (30 mins)		
2 3 4 5		7 8 9 10 22 23		
1 12 13	19 20 21	14 15 16 17		

ANNUAL TIMING (MINUTES)
250

SCHEDULE INTRODUCTIONS

Burners of this type should be serviced every three months, certain operations require a lesser frequency and this is noted in the frequency column. These units are specialised and should only be serviced by trained personnel. This does not apply to the filters which should be cleaned by the customer at least once per week.

Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating status of burner	3M	Check whether plant operating or not.	For safety and operational reasons the status of the plant should be checked.	Mechanical
2	Gas, oil, electrical and ventilating systems	3M	Check that all are in accordance with current Codes of Practice.	Check interlock switches - adjust if necessary.	Gas Safe
3	Ignition	3M	Check.		Gas Safe
4	General	3M	Check security of mechanical parts and secure mounting of appliance.		Gas Safe
5	Efficiency / Combustion checks on both fuels	3M	Carry out and note any visual defects.	Pay particular attention to carbon monoxide (CO) as its presence can be poisonous and wastes energy.	Gas Safe
6	**Gas**				
7	Joints	12M	Carry out leak test of all joints downstream of interlock isolator.		Gas Safe
8	Main gas valve	12M	Check operation of leak test equipment.		Gas Safe
9	Gas throughput	12M			Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			If practical - check.	If not practical, check gas manifold.	
10	Vent pipework	12M	Check integrity.		Gas Safe
11	**Oil**				
12	Burner	3M	Fire if possible and carry out safety check of flame failure device.	Note any visible effects.	Mechanical
13	Linkages	3M	Check and adjust if necessary.		Mechanical
14	Oil metering system	12M	Renew seals and gaskets if necessary.		Mechanical
15	Main shaft on burner	12M	Lift bearings.		Mechanical
16	Atomisers and spray tip if fitted	12M	Check.		Mechanical
17	Drive belts	12M	Check.		Mechanical
18	**Electrical**				
19	Wiring	6M	Check panel, junction box and terminals.		M&E
20	Fuses	6M	Check rating.		M&E
21	Overload relays	6M	Check settings.		M&E
22	Report and recommendations	12M	Should be signed by service engineer and kept by the client.	Premature failure may result if satisfactory service is not carried out. All service and maintenance must be carried out by a registered engineer in accordance with current HSAWA requirements.	Gas Safe
23	Unsafe installations	12M	Recommendations.	If, after servicing, the burner is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and both the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/all?title=Boiler%20%28Efficiency%29 Boiler (Efficiency) Regulations 1993 and 2006 Amendment
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995

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http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Introductory Procedures - Chillers - Water

Schedule Ref : 09-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Refrigeration equipment may come in discrete packages where a particular unit operation can be identified with a single piece of equipment, conversely a number of unit operations can be combined into a single 'package'. These packages may be small as a wall mounted versa temp type unit or they may be large free standing units of 100 kW or more often placed on the roofs or in basements of buildings.

Items of plant in the cooling system include package chillers, absorption type units, refrigerant compressors, evaporators, refrigeration condensers and refrigeration distribution systems with their associated controls. More detailed maintenance procedures for controls and refrigeration distribution systems are to be found in relevant SFG sections.

Commercial air conditioning and refrigeration equipment traditionally used ozone depleting refrigerants in the refrigeration process. Care should be exercised to check the type of refrigerant currently in use in each system before service is carried out.

European and UK legislation was introduced controlling the use of HCFC refrigerants for servicing and phased out their use in servicing by 2015. This action ensures compliance with statute and avoids environmental damage. Refrigerants R134a, R407C and R410a are typical of those currently in use.

These providers must belong to a Certified Scheme provider in accordance with the "F" Gas and Building Regulations.

ALL REFIGERANTS MUST BE RECOVERED FOR RECYCLING OR DESTRUCTION.

ALWAYS UPDATE RECORDS.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Packaged Chiller Units

Schedule Ref : 09-02
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (120 mins)	12M (180 mins)	Not Specified		
1 2 5 6 7 8 9 10 11 12 13 14 15 16 17	18 19 20	3 4		

ANNUAL TIMING (MINUTES)
660

SCHEDULE INTRODUCTIONS

WARNING

Chiller units may be operated remotely and it is essential that the equipment be isolated at source before commencing any maintenance work. These notes should be read in conjunction with the manufacturer's recommended maintenance procedures and in particular supplementary work may be required in the case of larger units above 50kW. Many packaged water chillers have microprocessor controls that can be interrogated using passwords. The password is usually at two levels, level one for interrogation and level two for alterations. For service work, access to level one is required. These processors can be used for diagnostic purposes and coupled to pressure transducers can also give pressure readings.

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the current Pressure Systems Safety Regulations.

Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas Regulations on fluorinated gases.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

ALWAYS UPDATE RECORDS.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 3 or task 4 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

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Display Order	Item	FQ	Action	Notes	Skilling
1	Status	3M	Check operating status.	Before undertaking the work, check with the building manager that the system does not serve a heat sensitive area such as a computer room. If it does, confirm with the building occupants that they are aware that work is being carried out. Do not only rely on the microprocessor readouts, always check against calibrated equipment if in doubt.	Refrigeration Engineer
2	Refrigeration circuits	3M	Check circuit pressures and superheat temperatures. Check alarm and run lights and remote alarm lights associated with packs.	Refrigeration chillers should be alternated at least every three months by means of the 'lead/leg' selector switch. Where operating information is displayed on central console, check that no discrepancies exist between display and master gauges, if these do occur report and change transducer(s). For non-electronic systems check installed gauges against master gauges.	Refrigeration Engineer
3	Refrigerant Leak Testing (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective Do no overlook remote condensers and pay particular attention to bolted joints, sight glass stands and atmospheric relief valve vent.	Refrigeration Engineer
4	Refrigerant Leak Testing (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are	Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	Regulations. If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	
5	Expansion valves	3M	Adjust if necessary.	Only by a competent technician.	Specialist
6	Chilled water supply	3M	Check supply and return water temperatures.	Abnormal temperatures can be a sign of low refrigerant or poor heat rejection.	Refrigeration Engineer
7	Glycol	3M	Check glycol concentration in chilled water.	If concentration has fallen check pipework for leaks as per item for 'Leakage'.	Refrigeration Engineer
8	Chiller water flow rate	3M	Check that this is in accordance with the manufacturer's recommended figure.		Refrigeration Engineer
9	Leakage	3M	Check all equipment and pipework for oil and water leaks and rectify.	Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.	Refrigeration Engineer
10	Refrigerant pipework	3M	Inspect and check for vibration,	Vibration is usually the result of	Refrigeration

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Display Order	Item	FQ	Action	Notes	Skilling
			chaffing, security and leakage.	loose or inadequate fixing of pipe supports and can give rise to leakage of refrigerant.	Engineer
11	Standby circuits	3M	Check operation.		Refrigeration Engineer
12	Flood alarm	3M	Check operation.	If serving computer facilities, check that alarm is not connected to computer shut-down system.	Refrigeration Engineer
13	Digital readouts	3M	Check operation.		Refrigeration Engineer
14	Controls	3M	Check operation of temperature control thermostats. Inspect electrical panel and components for wear especially the compressor contactor(s). Check operation of safety thermostats and timers.		Specialist
15	Hours run meter	3M	Check and record.		Refrigeration Engineer
16	Insulation	3M	Check condition and make good any defects however small.	Poor or faulty insulation can lead to loss of efficiency and energy wastage.	Refrigeration Engineer
17	Condensers	3M	Carry out routine maintenance.	For further guidance see Condensers - Water Cooled (SFG 13-01).	Refrigeration Engineer
18	Electrical	12M	Check for damage to flexible conduits. Tighten all terminal connections. Isolate control panel and inspect for signs of overheating. Check integrity of electrical insulation.	Include pump motors, see Motors (SFG 39-01).	Electrical
19	Safety cut-outs	12M	Check all safety cut-outs including high and low pressure safety cut-outs and the antifreeze thermostat cut-out for operation and correct calibration.	Individual machines vary, cut-outs could include: i) oil differential switches ii) oil, high and low temperature iii) water temperature differential switches on chillers and evaporators.	Refrigeration Engineer
20	Pump strainers	12M	Check condition.	Check waterside pressure drop across the heat exchanger(s) for fouling.	Refrigeration Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Lithium Bromide/Water Absorption Chillers

Schedule Ref : 09-03
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (30 mins)	2M (30 mins)	6M (30 mins)	12M (360 mins)	24M (120 mins)
1 2 3 4 5 6	7 8	9 10	11 12 13	14

ANNUAL TIMING (MINUTES)
960

SCHEDULE INTRODUCTIONS

This is a specialised field and requires suitably competent engineers to maintain this type of equipment.

The most important feature of an absorption system is the need to maintain as required by the manufacturer, especially the specific gravity. These machines require daily recorded checks of machine performance which are compared with the previous readings. Changes must be noted.

Lithium bromide/water units use water as the refrigerant. The water inside the unit will be boiling at temperatures around 3ºC, and condensing at temperatures only a little above ambient. To achieve this, the units are under a high vacuum.

If the vacuum degrades, the unit will cease to function properly. Thus it is advisable to monitor the vacuum level closely, and restore it using a vacuum pump when necessary. After any service work that requires the unit to be opened, the vacuum must always be restored, and the unit resealed.

A Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

ALWAYS UPDATE RECORDS.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Specific gravity of solution	1M	Check as per manufacturer's instructions.	Record and note changes in specific gravity for given conditions.	Mechanical
2	Non condensable accumulation rate	1M	Determine as per manufacturer's instructions.	Note leak rate and compare with manufacturer's maximum rate. If higher, this indicates that machine has a leak and action must be taken to trace and rectify.	Mechanical
3	Solution and refrigerant pumps	1M	Inspect according to manufacturer's recommended frequency.		Mechanical
4	Insulation	1M	Check condition and make good	Poor or faulty insulation can lead	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			any defects however small.	to loss of efficiency, energy wastage and the formation of condensation.	
5	General inspection	1M	Visually inspect for corrosion, erosion and deformities.		Mechanical
6	Pressure relief device	1M	Any pressure relief device should be checked if fitted.		Mechanical
7	Dilution controls	2M	Check as per manufacturer's instructions.	Reset if necessary.	Mechanical
8	Low temperature cut out	2M	Check as per manufacturer's instructions.	Reset if necessary.	Mechanical
9	Evaporator water charge	6M	Check as per manufacturer's instructions.	Record results and check with last reading.	Mechanical
10	Capacity control valve	6M	Check as per manufacturer's instructions.	Record results.	Mechanical
11	Absorber and condenser	12M	Check for scale, action to be determined by findings.	When chemical cleaning is carried out ensure that competent company and personnel are used.	Mechanical
12	Solution sample	12M	Take as per manufacturer's instructions. Add amounts of chemicals as advised by chemist i.e. inhibitor octyl-alcohol etc.	Record results and compare with last set of readings. Record details of action, compare with last report and file.	Mechanical
13	Absorber loss / Decrystallisation - as required	12M	Determine as per manufacturer's instructions. Experience is vital in determining the significance of any loss.	Recorded loss should not be greater than 3b0 F. Measure and record: i. refrigerant temperature ii. temperature and specific gravity of solution iii. temperature at the outlet of the solution pump. Early resolution of any crystallisation problems is important as damage to pumps may occur.	Mechanical
14	Diaphragms of service valves	24M	Replace as per manufacturer's specifications.	Inspect diaphragms and record condition.	Mechanical

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Schedule Title : Gas Fired Absorption Chiller Up to 18kw Cooling Capacity

Schedule Ref : 09-04
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
4M (90 mins)	6M (120 mins)			
1 2 3 4 5 6 7 8 9 10 11 12	13			

ANNUAL TIMING (MINUTES)
510

SCHEDULE INTRODUCTIONS

These units are direct gas fired and maintenance of the gas burners should be carried out in line with the relevant specification. They are available in cooling only or heat pump versions.

Care should be taken as the refrigeration system contains Ammonia Solutions. Only tools which are capable of handling Ammonia should be used. There are a number of Laws and British Standards that must be observed when working on ammonia systems.

A Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

ALWAYS UPDATE RECORDS.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	4M	Check that unit is level and on good foundations. Visually inspect for corrosion, erosion and deformities.		Mechanical
2	Condenser fins	4M	Visually check and clean when required the condenser fins.	Comb any damaged areas of fins.	Mechanical
3	Absorber	4M	Check absorber visually.		Mechanical
4	Condenser fan	4M	Check that condenser fan height is at design setting.	Adjust according to instruction manual. See also Fans (SFG 20).	Mechanical
5	Water pan	4M	Check water level in water pan.		Mechanical
6	Chilled water flow rate	4M	Check and adjust chilled water flow rate (fountain height) see instruction manual.	Adjust according to instruction manual.	Mechanical
7	Hydraulic pump	4M	Check and top up fluid if necessary.		Mechanical
8	Drive belt	4M	Check or replace if necessary.	For further maintenance procedures see Belts (SFG 04).	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	Solution pump	4M	Visually check solution pump.		Mechanical
10	Sealed system	4M	Purge pressure check high side and low side pressure.		Mechanical
11	Ammonia charge	4M	Measure and record ammonia charge.	Refer to manufacturer's instructions.	Mechanical
12	Oil analysis	4M	Take a sample of oil for analysis.	If excessive moisture is found appropriate action should be taken to correct the balance. If the oil is PAG (or similar) great care should be taken to ensure that the sample itself is not contaminated during handling.	Mechanical
13	Compressors, condensers and evaporators	6M	Undertake maintenance on compressors.	For further guidance see Compressors (SFG 12), Condensers (SFG 13) and Evaporators (SFG 19).	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : Solar Thermal Absorption Chillers

Schedule Ref : 09-05
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (15 mins)	2M (5 mins)	6M (10 mins)	12M (45 mins)	24M
3 4 13 14 15 16	5 6	7 8	9 10 11 21 22 23 24 29 30 31	12
		20 27 28		
36M	Not Specified			
25 32	2 18			

ANNUAL TIMING (MINUTES)
275

SCHEDULE INTRODUCTIONS

This is a specialised field and requires suitably competent engineers to maintain this type of equipment.

A Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.
ALWAYS UPDATE RECORDS.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

Absorption refrigeration can also be used to provide cooling using heat from a solar energy source. Potential solar sources are flat-plate collectors (water or air), evacuated tube collectors and parabolic concentrators.

Typical COPs for single-effect absorption chillers are 0·7 to 0·8, while double-effect chillers produce COPs of 1·0 to 1·2. However, to achieve this level of performance, a heat supply temperature of 80ºC to 100ºC will be required for single-effect chillers, while double-effect chillers will require a temperature of around 150ºC.

Flat-plate collectors can provide a temperature of 60ºC to 90ºC.

With selective-surface flat-plate collectors the temperature can be increased to 120ºC, although the collector efficiency will be low at this level.

Evacuated tube solar collectors can provide 80ºC to 120ºC (higher temperatures are possible but at lower flow rates).

Compound parabolic concentrators can operate at temperatures between 100ºC and 165ºC.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Lithium Bromide/Water Absorption Chillers**				
2	Lithium Bromide/Water Absorption Chillers		See (SFG 09-03) Lithium Bromide/Water Absorption Chillers		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
3	Specific Gravity of Solution	1M	Check as per manufacturer's instructions.	Record and note changes in specific gravity from given conditions.	Mechanical
4	Non Condensable Accumulation Rate	1M	Determine as per manufacturer's instructions.	Note leak rate and compare with manufacturer's maximum rate. If higher, this indicates that machine has a leak and action must be taken to trace and rectify.	Mechanical
5	Dilution Controls	2M	Check as per manufacturer's instructions.	Reset if necessary.	Mechanical
6	Low Temperature Cut Out	2M	Check as per manufacturer's instructions.	Reset if necessary.	Mechanical
7	Evaporator Water Charge	6M	Check as per manufacturer's instructions.	Record results and check last reading.	Mechanical
8	Capacity Control Valve	6M	Check operation as per manufacturer's instructions.	Record results.	Mechanical
9	Absorber and Condenser	12M	Check for scale. Action to be determined by findings.	When chemical cleaning is carried out, ensure that competent company and personnel are used.	Mechanical
10	Solution Sample	12M	Take as per manufacturer's instructions. Add amounts of chemicals as advised by chemist (i.e. inhibitor octyl-alcohol etc.).	Record results and compare with last set of readings. Record details of action, compare with last report and file.	Mechanical
11	Absorber Loss/ Decrystallisation (as required)	12M	Determine as per manufacturer's instructions. Experience is vital in determining the significance of any loss.	Recorded loss should not be greater than 3b0 F. Measure and record: i. refrigerant temperature ii. temperature and specific gravity of solution iii. temperature at the outlet of the solution pump. Early resolution of any crystallisation problems is important as damage to pumps may occur.	Mechanical
12	Diaphragms of Service Valves	24M	Replace as per manufacturer's specifications.	Inspect diaphragms and record condition.	Mechanical
13	Solution and Refrigerant Pumps	1M		Inspect according to manufacturer's recommended frequency.	Mechanical
14	Insulation	1M	Check Condition and make good any defects, however small.	Poor or faulty insulation can lead to loss of efficiency, energy wastage and the formation of condensation.	Mechanical
15	General Inspection	1M	Visually inspect for corrosion,		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			erosion and deformities.		
16	Pressure Relief Device	1M	Any pressure relief device should be checked if fitted.		Mechanical
17	**Solar Thermal Panels**				
18	Solar Thermal Panels		See (SFG 53-01) Solar Hot Water Panels and similar COLLECTING DEVICES.	Working at heights should be in strict accordance with the Work at Height Regulations.	Mechanical
19	**Plate Type Collectors**				
20	Glass Cover Plate	6M	Check condition and clean all dirt from surfaces of the unit (take precautions to prevent inhalation of bird droppings - COSHH Regulations) with stiff (not wire) brush. Report condition if cracked. A safe method of gaining height may be required; operatives are to be fully trained.	Frequency will depend on location and local atmospheric condition. Dirt causes loss of collector efficiency. Cracked glass should be replaced.	Electrical
21	Seals	12M	Check condition and make good if necessary.	Poor seals lead to internal condensation and loss of efficiency. If there are signs of internal algae growth on underside of glass plate, it should be removed, cleaned and resealed. Care should be taken not to damage absorber plate as it may have a special coating.	Electrical
22	Anti-freeze Solution	12M	Check condition and top up to required concentration.	Anti-freeze solution should be replaced every 3 years.	Electrical
23	Controls	12M	Check operation of thermostat and pump control.	For more detailed maintenance of controls, see relevant SFG20 sections.	Electrical
24	Pipework and Connections	12M	Check for leaks and signs of corrosion and make good as necessary.		Electrical
25	Anti-freeze Solution	36M	Replace anti-freeze solution.		Electrical
26	**Vacuum Tube Type**				
27	Tubes	6M	Check condition and clean all dirt from surfaces of the tubes (take precautions to prevent inhalation of bird droppings - COSHH Regulations) with stiff (not wire) brush. Report condition if cracked. A safe method of gaining height may be required; operatives are to be fully trained.	Frequency will depend on location and local atmospheric condition. Dirt causes loss of collector efficiency. Cracked tubes should be replaced.	Electrical
28	Reflectors	6M	A safe method of gaining height may be required; operatives are	Frequency will depend on location and local atmospheric	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			to be fully trained.	condition. Dirt causes loss of collector efficiency. Care should be taken to avoid damaging the reflector surface.	
29	Anti-freeze Solution	12M	Check condition and top up to required concentration.	Anti-freeze solution should be replaced every 3 years.	Electrical
30	Controls	12M	Check operation of thermostat and pump control.	For more detailed maintenance of controls, see relevant SFG20 sections.	Electrical
31	Pipework and Connections	12M	Check for leaks and signs of corrosion and make good as necessary.	For more detailed maintenance of controls, see relevant SFG20 sections.	Electrical
32	Anti-freeze Solution	36M	Replace anti-freeze solution.		Electrical

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Schedule Title : Condensers - Water Cooled

Schedule Ref : 13-01
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 5.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (180 mins)	Not Specified			
	10 11 12			
1 2 3 4 5 6 7 8				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

Service providers must be registered to an Approved Certified Scheme provider, in accordance with the F Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 11 or task 12 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Compressor full load operation	12M	Record inlet and outlet temperature on water side. Pressure drop across condenser, head pressure and condensing temperature.	Any marked difference to the design figures could indicate internal fouling of the condenser and may require additional work.	Mechanical
2	Flow protection devices	12M	Check.		Mechanical
3	Pump	12M	Check and record pressure drop		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			across pump. Check for leakage, bearing noise and unusual bearing temperature. Lubricate according to manufacturer's instructions. Check motor current.		
4	Isolating valves	12M	Check external condition, leak tightness of glands and seats, operational spindles and hand wheels.	Repack as necessary.	Mechanical
5	Water strainers	12M	Check and clean.	On open systems more frequent cleaning will be necessary. Check that condenser water is sterile before opening any drains and valves. System could contain legionella bacterium. Provider should take suitable precautions.	Mechanical
6	Condenser tubes	12M	Check condition, if dirty open. If necessary clean with a correctly sized brush through the tubes. If brushing does not successfully clean the condenser, consider acid treatment. Regular use of acid will reduce the working life of the tubes. Inspect for alkaline deposits and/or corrosion.	If tubes are heavily scaled, refer to water treatment provider for explanation as to why system is not effective. Acid can be used for scale removal by specialist if absolutely necessary but can reduce the thickness of the tube walls and hence reduce life expectancy.	Mechanical
7	Condenser shell	12M	Check for presence of non-condensable gases, purge or vent if necessary, but only if legally qualified via approved scheme.	Presence of non-condensable gases will indicate a possible leak on the vacuum side of the refrigerant circuit. Do not release refrigerant to atmosphere.	Mechanical
8	Winter shutdown	12M	Isolate condensers and drain down.	Seek advice from water treatment provider to protect from freezing. Only shut down condensers where the refrigeration and air conditioning system has been shut down for the winter.	Mechanical
9	**Leaks**				
10	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	comply with the F-Gas Regulations.	
11	Refrigerant Leak Tests)HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
12	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Condenser - Air Cooled

Schedule Ref : 13-02
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (60 mins)	6M (5 mins)	12M (15 mins)	Not Specified	
			13 14 15	
1 2 3 4 5 6	7	8 9 10 11		

ANNUAL TIMING (MINUTES)
265

SCHEDULE INTRODUCTIONS

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

Service providers must be registered to an Approved Certified Scheme provider, in accordance with the F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 14 or task 15 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating pressure	3M	Check pressure and pressure switches using gauges.		Mechanical
2	Solenoid valves	3M	Ensure that they do not by-pass.	Compressor should not cycle on low pressure switch.	Mechanical
3	Head pressure control devices (fan speed and sequencing)	3M	Check operation.	These could be three phase.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
4	Condenser coil	3M	Inspect and clean. Test for refrigerant leak and oil staining on the end of the coils.	Check for damage to fins, comb out. Blow out with dry, oxygen free nitrogen. The unit can be chemically clean if necessary, however, this should be at the last resort as the fins may be damaged further by the acid. Only fully competent trained staff can do this work.	Mechanical
5	Casing	3M	Clean and secure.	Remove any rust spots and treat. Check fan guards. Ensure all bolts/screws etc. are in place and tight.	Mechanical
6	Alignment and wear of belt drives, where applicable	3M	Check pulley alignment and belt wear.	Drive belt replacement intervals need to be established.	Mechanical
7	Head pressure control damper	6M	Lubricate control damper bearings.		Mechanical
8	Motor mountings	12M	Check for security and tightness.	See also Motors - Drive Elements (SFG 39-01).	Mechanical
9	Flexible connections	12M	Check and repair/replace as necessary.	Report faults to client.	Mechanical
10	Electrical connections	12M	Check and tighten as necessary. Check condition of flexible conduits, wiring and insulation.		Electrical
11	Pipework	12M	Inspect connections, pipes and supports for damage, loose or missing fittings. Repair as necessary.	Report faults to client.	Mechanical
12	**Leaks**				
13	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F Gas Regulations.	Refrigeration Engineer
14	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used,	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	
15	Refrigerant Leak Testing (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F*Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Condenser - Air Cooled

Schedule Ref : 13-02+1
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 13-02

TASK FREQUENCIES (SERVICE TIMINGS)				
1W	8W	6M (5 mins)	12M (15 mins)	Not Specified
				13 14 15
1 3 4	2 5 6	7	8 9 10 11	

ANNUAL TIMING (MINUTES)
25

SCHEDULE INTRODUCTIONS

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

Service providers must be registered to an Approved Certified Scheme provider, in accordance with the F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 14 or task 15 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating pressure	1W	Check pressure and pressure switches using gauges.		Mechanical
2	Solenoid valves	8W	Ensure that they do not by-pass.	Compressor should not cycle on low pressure switch.	Mechanical
3	Head pressure control devices (fan speed and	1W	Check operation.	These could be three phase.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	sequencing)				
4	Condenser coil	1W	Inspect and clean. Test for refrigerant leak and oil staining on the end of the coils.	Check for damage to fins, comb out. Blow out with dry, oxygen free nitrogen. The unit can be chemically clean if necessary, however, this should be at the last resort as the fins may be damaged further by the acid. Only fully competent trained staff can do this work.	Mechanical
5	Casing	8W	Clean and secure.	Remove any rust spots and treat. Check fan guards. Ensure all bolts/screws etc. are in place and tight.	Mechanical
6	Alignment and wear of belt drives, where applicable	8W	Check pulley alignment and belt wear.	Drive belt replacement intervals need to be established.	Mechanical
7	Head pressure control damper	6M	Lubricate control damper bearings.		Mechanical
8	Motor mountings	12M	Check for security and tightness.	See also Motors - Drive Elements (SFG 39-01).	Mechanical
9	Flexible connections	12M	Check and repair/replace as necessary.	Report faults to client.	Mechanical
10	Electrical connections	12M	Check and tighten as necessary. Check condition of flexible conduits, wiring and insulation.		Electrical
11	Pipework	12M	Inspect connections, pipes and supports for damage, loose or missing fittings. Repair as necessary.	Report faults to client.	Mechanical
12	**Leaks**				
13	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F Gas Regulations.	Refrigeration Engineer
14	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	
15	Refrigerant Leak Testing (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F*Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Condenser - Air Cooled

Schedule Ref : 13-02+8
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 13-02

TASK FREQUENCIES (SERVICE TIMINGS)				
8W	6M (5 mins)	12M (15 mins)	Not Specified	
			13 14 15	
1 2 3 4 5 6	7	8 9 10 11		

ANNUAL TIMING (MINUTES)
25

SCHEDULE INTRODUCTIONS

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

Service providers must be registered to an Approved Certified Scheme provider, in accordance with the F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

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6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 14 or task 15 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operating pressure	8W	Check pressure and pressure switches using gauges.		Mechanical
2	Solenoid valves	8W	Ensure that they do not by-pass.	Compressor should not cycle on low pressure switch.	Mechanical
3	Head pressure control devices (fan speed and	8W	Check operation.	These could be three phase.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	sequencing)				
4	Condenser coil	8W	Inspect and clean. Test for refrigerant leak and oil staining on the end of the coils.	Check for damage to fins, comb out. Blow out with dry, oxygen free nitrogen. The unit can be chemically clean if necessary, however, this should be at the last resort as the fins may be damaged further by the acid. Only fully competent trained staff can do this work.	Mechanical
5	Casing	8W	Clean and secure.	Remove any rust spots and treat. Check fan guards. Ensure all bolts/screws etc. are in place and tight.	Mechanical
6	Alignment and wear of belt drives, where applicable	8W	Check pulley alignment and belt wear.	Drive belt replacement intervals need to be established.	Mechanical
7	Head pressure control damper	6M	Lubricate control damper bearings.		Mechanical
8	Motor mountings	12M	Check for security and tightness.	See also Motors - Drive Elements (SFG 39-01).	Mechanical
9	Flexible connections	12M	Check and repair/replace as necessary.	Report faults to client.	Mechanical
10	Electrical connections	12M	Check and tighten as necessary. Check condition of flexible conduits, wiring and insulation.		Electrical
11	Pipework	12M	Inspect connections, pipes and supports for damage, loose or missing fittings. Repair as necessary.	Report faults to client.	Mechanical
12	**Leaks**				
13	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F Gas Regulations.	Refrigeration Engineer
14	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	
15	Refrigerant Leak Testing (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F*Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
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Schedule Title : Introductory Procedures - Control Panels & Controllers

Schedule Ref : 14-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

When working on or testing control panels it is essential that all local and national statutory regulations must be observed at all times. In the United Kingdom the Health and Safety at Work Act, the Electricity at Work Regulations and current British Standards requirements for Electrical Installations - IEE Wiring Regulations are particularly relevant.

It should be noted that control panels having equipment operating above a nominal 415 Volts are excluded from this specification. This does not imply that safety precautions are not be taken when working on equipment above 415 volts.

Care must be taken to make sure that all remote circuits associated with the switchgear are positively isolated before any work is carried out. The isolation must be 'secure', that is it must either be at the point of work or precautions must be taken to prevent anyone else switching on again when work is in progress. A circuit, whether power or control must never be assumed to be 'dead'. Voltage tests must always be carried out with proven test equipment, i.e. a voltage tester must first be checked on a known live source immediately before use and again after use. Care must also be taken as capacitors can discharge high voltages when all other circuits have been isolated.

Whenever cables are disconnected from switchgear in the course of maintenance or replacement, ensure that the cables are suitably insulated and marked for identification for reconnection.

Visually inspect to ensure plant is operating as expected. Check that any meters fitted show a correct reading and any timers are set at the correct times for operation. Check readings against a known certified source.

Controllers, Electrical and Pneumatic Control Equipment.

Electronic controllers and pneumatic equipment may be found in control panels and details regarding maintenance schedules can be found in the appropriate sections of this schedule.

Appropriate safety guidance can be found in HSE Guidance Notes and Electrical Test Equipment for use by Electricians.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Electrical Services (excluding Electrical Controllers and Pneumatic Relays)

Schedule Ref : 14-02
Schedule Type : Core
Schedule Date : 06 Apr 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M	6M (30 mins)	12M (60 mins)	36M (15 mins)	
1		6		
	2 3 4 5	7 8 9 10 11 12 13 14	15	

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

This task does not cover electrical controllers and pneumatic relays.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Residual Current Devices (RCD) - 3 Monthly	3M	Test using test button. Where external influences may affect the integrity of the device then a full electrical test as detailed in the 12M task for RCD's should be undertaken.	Responsibility for this check should be agreed with the client.	Electrical
2	Panel exterior	6M	Check for any physical or mechanical damage. Door locks should be checked.	Any damaged equipment mounted on the front should be made safe and replaced as soon as possible. Locks should be checked for correct security and locking arrangements.	Electrical
3	Mains isolator (also cubicle isolator)	6M	Inspect for correct mechanical and electrical operation. Lubricate any moving parts as required. Check correct operation of door interlock mechanism and adjust if necessary. Clean out interior.	Physically check for security all mains connections. Examine both fixed and moving contacts for wear or 'pitting'. Use only manufacturer's recommended lubricants. Redress or replace contacts according to the manufacturer's instructions. Ensure that any mains 'shrouding' is refitted after the	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				completion of the work.	
4	Fuses - ensure circuits are dead before carrying out actions	6M	Inspect fuse carrier/fuse holder for signs of overheating. Check fuse rating and terminations for tightness. Apply grease to fuse holder if required.	Replace if necessary, establish cause of overheating and rectify. Value of fuse should be checked against the circuit application and electrical load.	Electrical
5	Circuit breakers	6M	Inspect for signs of overheating and replace if necessary. Inspect connections and tighten if necessary. Check operation by tripping or 'test' facility, if fitted.	Establish cause of overheating and rectify. Ensure value of breaker corresponds with circuit application and electrical load.	Electrical
6	Residual current devices (RCD) - 12 Monthly	12M	The test is made on the load side of the RCD between the phase conductor of the protected circuit and the associated cpc. The load should be disconnected during the test. For each of the tests, readings should be taken on both positive and negative half cycles and both recorded on the RCD test sheet: a) with a leakage current flowing equivalent to 50% of the rated tripping current of the RCD, the device should not open. b) with a leakage current flowing equivalent to 100% of the rated tripping current of the RCD, the device should open in less than 200ms. c) where the RCD incorporates an intentional time delay it should trip within a time range from 50% of the rated time delay plus 200ms to 100% of the rated time delay plus 200ms. d) with a leakage current flowing equivalent to 5 times of the rated tripping current of the RCD, the device should open in less than 40ms.		Electrical
7	Power contactors	12M	Check contact for correct mechanical and electrical operation.		Electrical
8	Starters	12M	Carry out maintenance as for power contactors.		Electrical
9	Various Types	12M		Direct on line, star delta two	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				speed-dual, wound two speed-pole change reversing auto transformer.	
10	Thermal overloads	12M	Inspect for signs of overheating.	Replace if necessary after having established the cause and rectified it.	Electrical
11	Magnetic overloads	12M	Inspect for signs of overheating.		Electrical
12	Busbar systems	12M	Isolate supplies, inspect for signs of overheating, or damage or burnt out cables. Inspect mechanical support systems and adjust fixings if necessary.	Check all cable crimps for security and fraying. Inspect crimp fasteners for correct torque rating.	Electrical
13	Incoming power supplies	12M	Measure each line to earth and each line to neutral.	Record readings and check that measured values are within electricity supplier's specification.	Electrical
14	Panel wiring	12M	Inspect for signs of overheating or burn marks.		Electrical
15	Flash test	36M	Carry out within 1.5kV - 3.0kV range to detect potential deterioration of the system.	CAUTION - Care should be taken to isolate sensitive equipment.	Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Lamps, Meters, Alarms etc

Schedule Ref : 14-03
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	3M (10 mins)	6M (20 mins)	12M (10 mins)	Not Specified
2		3 4 6 11 12 13 15 16 17	7 8 9 19 20 23 24 26	22
	28 29			

ANNUAL TIMING (MINUTES)
150

SCHEDULE INTRODUCTIONS
Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Indicator Lamps**				
2	Circuit	1M	Check and energise to ensure that the indicator is operational. Replace any blown or discoloured bulbs as required.	Replacement bulbs should be of the correct type and voltage, the power rating must be as per the manufacturer's specification.	Electrical
3	Holder assembly	6M	Inspect for signs of overheating or electrical burn marks.		Electrical
4	Mains/low voltage transformer (if fitted)	6M	Examine for signs of overheating or insulation breakdown.		Electrical
5	**Low Voltage Power Packs - AC or DC Types**				
6	Associated safety or trip devices	6M	Check for correct operation.		Electrical
7	Condition	12M	Inspect for signs of overheating.		Electrical
8	Voltage input and output tests	12M	Carry out and compare with manufacturer's tolerance and operational specifications.	Check polarity of outputs where necessary.	Electrical
9	Load measurements	12M	Carry out, record and ensure that the load taken from the unit is within the manufacturer's specification.		Electrical
10	**Metering (Voltmeter)**				
11	Instrument	6M	Inspect and check for correct mechanical and electrical	Check actual reading, record and compare with a reference	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			operation.	voltmeter applied across the same circuit.	
12	Needle (pointer)	6M	Check for free and correct movement.		Electrical
13	Zero setting	6M	Check and adjust if necessary.		Electrical
14	**Metering (Ammeter)**				
15	Instrument	6M	Inspect and check for correct mechanical and electrical operation.		Electrical
16	Needle (pointer)	6M	Check for free and correct movement.		Electrical
17	Zero setting	6M	Check and adjust if necessary.		Electrical
18	**Alarm Integrator**				
19	Operation	12M	Inspect and check operation of each input channel.		Electrical
20	Audible and visual alarms	12M	Check operation and indications including alarm circuits if fitted.		Electrical
21	**Smoke Alarm Unit**				
22	Maintenance		Carry out manufacturer's 'testing and maintenance' procedures as required at stipulated frequencies.		Electrical
23	Unit	12M	Inspect. Check operation by adjusting or operating alarm test facility (if fitted).		Electrical
24	Alarm setting	12M	Reduce setting and note operation of 'smoke condition'.		Electrical
25	**General**				
26	Cleaning	12M	The interior of the control panel should be cleaned.		Electrical
27	**Ventilation**				
28	Grilles	3M	Inspect and check that all grilles are free of any obstructions, clean as required.		Electrical
29	Fans (forced ventilation)	3M	Inspect and check operation of fan unit. Clean and replace filter unit as required.	All power and control circuits should be checked for functional operation against the wiring diagrams relevant to the installation.	Electrical

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Schedule Title : Optimiser

Schedule Ref : 14-04
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Outside air temperature sensor	12M	Check outside sensor for calibration and display accuracy.	This should be on a northerly wall away from any direct or reflected heat gains. Where this is not possible, the sensor should be mechanically shaded to give the best result.	Electrical
2	Inside air temperature sensor	12M	Check inside sensor for calibration and display accuracy.	This should be placed in the coldest chosen representative location, ensure that it is free from any heat gains or air movement restrictions. The design of the system may incorporate more than one inside sensor where an average temperature is used for the optimiser.	Electrical
3	Programme setting	12M	Check programme setting is correct.		Electrical
4	Optimum stop/start operation	12M	Check operation by simulation.	Refer to manufacturer's simulation procedures.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				Any ongoing problems can be highlighted by the use of a thermograph.	
5	Battery	12M	Check condition and change as required.	Note the life expectancy (use by date) and change at manufacturer's recommendation. All batteries should be disposed of only in accordance with H&S and Environmental regulations.	Electrical
6	Output devices	12M	Check that output devices respond to command signals.		Electrical
7	Energy savings	12M	Agree any changes with system operator that may enhance energy savings.		Electrical

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Schedule Title : Heating Compensator

Schedule Ref : 14-05
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Flow temperature sensor	12M	Check.	Refer to sensor checking procedure.	Electrical
2	Outside air temperature sensor	12M	Check.	This should be on a northerly wall away from direct or reflected heat gains. Where not possible, it should have a mechanical shade.	Electrical
3	Settings	12M	Check that settings are correct.		Electrical
4	Output signal	12M	Check output signal and output device operation.		Electrical
5	Controllers	12M	Check and calibrate for correct relationship between outside and flow temperatures.	Refer to manufacturer's recommended simulation procedures.	Electrical
6	System operation	12M	Check system under control for proper operation.		Electrical

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Schedule Title : Single Input Controller

Schedule Ref : 14-06
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signal	12M	Measure value.	Check that signal is representative of the condition being monitored.	Electrical
2	Settings	12M	Check for correct settings.		Electrical
3	Output signal	12M	Check output signal and output device operation.		Electrical
4	Controllers	12M	Check and calibrate.	Refer to manufacturer's recommended simulation procedures.	Electrical
5	Operation	12M	Check for correct operation.		Electrical
6	Parameters	12M	Review as necessary.		Electrical

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Schedule Title : Unit Controllers and Sensor Controllers

Schedule Ref : 14-07
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (25 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
25

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signal	12M	Check.	Refer to sensor checking procedure.	Electrical
2	Settings	12M	Check for correct settings.		Electrical
3	Output signal	12M	Check output signal and output device operation.		Electrical
4	Operation	12M	Check operation and calibrate.	Refer to manufacturer's recommended simulation procedures.	Electrical
5	Parameters	12M	Review as necessary.		Electrical

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Schedule Title : Controller Timers

Schedule Ref : 14-08
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
2 3 5 6 7				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Timers are often built into the control panel. They can take the form of delay, run on, interval or combinations of all three. The timer should be checked with reference to the control strategy.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Electromechanical**				
2	Time settings	12M	Check time taken to complete operation against setting and adjust if required.		Electrical
3	Operation	12M	Inspect and check operation.	Adjust time to the required time setting for the particular application and put into operation.	Electrical
4	**Electronic**				
5	Time settings	12M	Check time taken to complete operation against setting and adjust if required.		Electrical
6	Operation	12M	Inspect and check operation.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Battery	12M	Check condition and change as required.	Note the life expectancy (use by date) and change as per manufacturer's recommendation. All batteries should be disposed of only in accordance with H&S and Environmental regulations.	Electrical

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Schedule Title : Step Controllers

Schedule Ref : 14-09
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
2 3 4 5 6 7 9 10				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Electromechanical**				
2	Operation	12M	Inspect and check both mechanical and electrical operation.		Electrical
3	Cam setting/switch assembly	12M	Inspect and check each cam setting/switch assembly.	Adjust if necessary to suit the particular application.	Electrical
4	Angular limit switches	12M	Inspect and check.		Electrical
5	Drive motor/gear box	12M	Check operation in both directions.	Where actuators are involved see relevant section Actuators (SFG 01-01).	Electrical
6	Feedback potentiometer (if fitted)	12M	Inspect and check.		Electrical
7	Electrical interlocks	12M	Check any interlocks which disable outputs.	Include recycling where appropriate.	Electrical
8	**Electronic**				

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Display Order	Item	FQ	Action	Notes	Skilling
9	Signal range	12M	Inspect and check each step throughout its signal range.		Electrical
10	Step	12M	Check operation of each step and the differential.		Electrical

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Schedule Title : Time Switches

Schedule Ref : 14-10
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (10 mins)	12M (15 mins)			
2 9	3 4 5 6 7 10 11 12 13			

ANNUAL TIMING (MINUTES)
35

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Electromechanical**				
2	Clocks	6M	Check for satisfactory operation and correct time.	Adjust for British Summer Time/Greenwich Mean Time as necessary.	Electrical
3	Operation	12M	Inspect and check both mechanical and electrical operation.		Electrical
4	Tappets	12M	Inspect and adjust to required on/off operations.		Electrical
5	Dial	12M	Rotate through one revolution and check for free operation of the levers at the correct time.	Reset to correct day.	Electrical
6	Monthly dial settings e.g. for solar time switches	12M	Inspect and check.	Replace battery as per manufacturer's recommendations. Batteries should be disposed of in accordance with H&S Environmental regulations.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Reserve time facility (battery if fitted)	12M	Inspect and check.		Electrical
8	**Electronic**				
9	Time clocks	6M	Check for satisfactory operation and correct time.	Adjust time for British Summer Time/Greenwich Mean Time as necessary.	Electrical
10	Electrical operation	12M	Inspect and check.		Electrical
11	Time settings in unit memory	12M	Check settings and adjust if necessary.	Settings could be time of day, month or year.	Electrical
12	Time switch settings	12M	Check for correct installation within the memory for particular application. Add, delete or adjust if necessary.		Electrical
13	Battery back-up (if fitted)	12M	Check condition and change as required.	Note the life expectancy (use by date) and change as per manufacturer's recommendation. All batteries should be disposed of only in accordance with H&S and Environmental regulations.	Electrical

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Schedule Title : Multi-Input Controllers

Schedule Ref : 14-11
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signals	12M	Check.		Electrical
2	Settings	12M	Check for correct settings.		Electrical
3	Output signals	12M	Check output signal and output device operation.		Electrical
4	Operation	12M	Check and calibrate controller for relationship between input and output signals.	Refer to manufacturer's instructions and recommended simulation procedures.	Electrical
5	System	12M	Check system under control for correct operation.		Electrical
6	Parameters	12M	Review as necessary.		Electrical

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Schedule Title : Indicators and Displays

Schedule Ref : 14-12
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signals	12M	Check.		Electrical
2	Switching differentials	12M	Check.		Electrical
3	Calibration	12M	Check.	Refer to manufacturer's instructions and recommended simulation procedures.	Electrical

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Schedule Title : Alarm Modules

Schedule Ref : 14-13
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signals	12M	Check.		Electrical
2	Switching differentials	12M	Check.		Electrical
3	Calibration	12M	Check.	Refer to manufacturer's instructions and recommended simulation procedures.	Electrical

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Schedule Title : Level Controllers

Schedule Ref : 14-14
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operation (if test facility fitted)	12M	Inspect and check.		Electrical
2	Media level	12M	Adjust level under control and note operation of: a) low level condition b) high level condition, if fitted c) calibrate as required.		Electrical
3	Maintenance	12M	Carry out manufacturer's maintenance procedures as required.		Electrical

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Schedule Title : Speed Controllers

Schedule Ref : 14-15
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
2 3 5 6 7 8 10 11 12 13 15 16 17 18 20 21 22				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Pre-Maintenance Procedures

This schedule applies to all types of controllers and requires that all safety precautions and safe working practices be observed.

1. Note all set points found.
2. Check mechanically for security of fixings, incoming cables, pneumatic pipework and terminal connections for tightness.
3. Visually check controller for signs of damage (i.e. ingress of dust or moisture).
4. Check all power supply tolerances as per manufacturer's recommendation and adjust as necessary.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Electronic Inverter Type - WARNING

Due to the very high voltages present within this type of controller it is essential that all safety precautions are strictly followed. The equipment must only be serviced by competent and qualified personnel. The manufacturer's testing and maintenance procedures including all safety precautions must be strictly followed.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Electromechanical**				
2	Overheating	12M	Check for signs of overheating.	Report any signs of overheating to the client with proposed remedial works.	Electrical
3	Speed setting	12M	Adjust and note speed variation of the drive in the particular application.		Electrical
4	**Auto-Transformer**				
5	Transformer	12M	Inspect for signs of overheating and insulation breakdown.		Electrical
6	Speed selector	12M	Operate and observe variation in		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	switch		the speed of the drive in the particular application.		
7	Air vents	12M	Check that they are clear.		Electrical
8	Maintenance	12M	Carry out manufacturer's maintenance procedures.	Frequency may vary according to manufacturer's recommendations.	Electrical
9	**Variable Transformer**				
10	Transformer	12M	Inspect for signs of overheating and insulation breakdown.		Electrical
11	Variable setting	12M	Adjust variable setting of transformer and observe variation in the speed of the drive in the particular application.		Electrical
12	Air vents	12M	Check that they are clear.		Electrical
13	Maintenance	12M	Carry out manufacturer's maintenance procedures.	Frequency may vary according to manufacturer's recommendations.	Electrical
14	**Eddy Current Type**				
15	Controller	12M	Inspect and check for signs of overheating and insulation breakdown.	Frequency may vary according to manufacturer's recommendations.	Electrical
16	Input signal	12M	Adjust and observe speed change in the drive under the particular application.	Frequency may vary according to manufacturer's recommendations.	Electrical
17	Settings	12M	Check for both minimum and maximum settings. Adjust as required.	Frequency may vary according to manufacturer's recommendations.	Electrical
18	Maintenance	12M	Carry out maintenance procedures strictly in accordance with the manufacturer's instructions.	Frequency may vary according to manufacturer's recommendations.	Electrical
19	**Inverter Type**				
20	Controller	12M	Inspect and check for any signs of overheating and breakdown of electronic components.		Electrical
21	Signal	12M	Adjust in either manual or automatic mode and observe speed change of the drive in this particular application.		Electrical
22	Settings	12M	Check for minimum and maximum speeds, adjust if necessary.		Electrical

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Schedule Title : Transducers - Pneumatic to Electronic and Electronic to Pneumatic

Schedule Ref : 14-16
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signal	12M	Check.		Electrical
2	Output signal	12M	Check output signal and output device operation.		Electrical
3	Operation	12M	Check and calibrate for correct relationship between input and output signal.	Refer to manufacturer's recommended simulation procedures.	Electrical

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Schedule Title : Direct Current (DC) Drives

Schedule Ref : 14-17
Schedule Type : Core
Schedule Date : 16 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Drive	12M	Clean all dust and foreign material that can cause cooling problems, cause corrosion and cause problems with arcing.		Electrical
2	Motor	12M	Check motor resistance and connections. See Motors - Drive Elements (SFG 39-01).	Motors often exhibit changes in resistance prior to failing.	Electrical
3	Wiring	12M	Check and tighten (if loose) all wiring connections.		Electrical
4	Test	12M	Test that the power supplies have not drifted out of tolerance. Check the output waveforms at the reference and feedback signals.		Electrical
5	5. Signal wiring.	12M	Verify signal wiring shielding is properly terminated and the connections are all tight.	Improper shielding can cause erratic and intermittent behaviour of drive equipment. Loose signal wiring is a primary cause of drive equipment downtimes.	Electrical

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Schedule Title : Emergency Stop Buttons

Schedule Ref : 14-18
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (5 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

Test all emergency stop devices. A wiring error or other problems may not be apparent until the emergency stop device is tested. Push all buttons. Pull all pull cords, activate all emergency stop devices. If any fail to create the emergency stop condition, count this as a failed test.

Once control power is back on and any faults cleared, pressing the START button should result in the machine/equipment restarting. This is correct and the test has been passed.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Emergency Stop buttons	3M	Check correct operation of Emergency Stop Buttons in accordance with requirements of PUWER Regulations. If resetting the emergency stop device results in control power being re-applied, count this as a failed test.	If you break or damage the machine/equipment while testing the emergency stop system, count this as a failed test. Advise Client.	Multi-skilled
2	Start function test	3M	Once the emergency stop device has been activated, control power is normally lost. Pressing any START function on the control panel, except POWER ON or RESET should have no effect. If any aspect of the machine/equipment starts, count this as a failed test. Facilitate immediate repair.	Advise Client.	Multi-skilled
3	Power on or reset test	3M	Pressing POWER ON or RESET before the activated emergency stop device has been reset should have no effect (i.e. the e-stop button has been pulled out to the 'operate' position). If you can turn the power back on	Advise Client.	Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
			before you reset the emergency stop device, count this as a failed test. Facilitate immediate repair.		
4	Machine/ Equipment restart test	3M	Once the emergency stop device has been reset, pressing POWER ON or RESET should result in the control power being restored. This is acceptable. The machine/equipment should not restart. If the machine restarts normal operation, count this as a failed test. Facilitate immediate repair.	Advise Client.	Multi-skilled

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1998/2306/contents/made Provision and Use of Work Equipment Regulations 1998 (PUWER)

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Schedule Title : Introductory Procedures - Ducting and Air Distribution

Schedule Ref : 16-01
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Ducting and Air Distribution

When installed, new ductwork must be certified clean and therefore not normally require internal cleaning. However during use over a period, subject to use, a build-up of deposits will occur particularly at points where the velocity of the air reduces. Where filters are faulty, poorly installed or maintained more rapid build-up of dirt will occur.

In normal circumstances, internal cleaning of ducts would not be part of this specification but where the situation calls for remedial action, say for example when previous maintenance was faulty or non-existent, there has been a system usage change or the plant has been left idle for a considerable period, the client should be informed, with a recommendation that specialist cleaning should be undertaken as detailed in the B&ES Guide to Good Practice for Ventilation Hygiene.

Special cleaning requirements such as are necessary in the pharmaceutical, food and process industries are outside the scope of this specification and should be covered by special arrangements.

In kitchen extracts systems where access doors have been specifically provided for duct cleaning purposes, the method and frequency of cleaning should be established and agreed with the client. See Ductwork Cleaning - Hygiene, Inspections and Monitoring (SFG 17-01).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Ductwork System - General

Schedule Ref : 16-02
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
Special requirements are necessary in the food and process industries, clean room applications and kitchens. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Access doors	12M	Inspect for any loose panels and secure.		Mechanical
2	Flexible connections	12M	Check for condition, leaks and secure fittings.	Where provisions are made for access.	Mechanical
3	Insulation	12M	Inspect for any damage or deterioration.	Report to client if remedial work required.	Mechanical
4	Anti-vibration mounts	12M	Inspect for permanent set (in springs).	If renewal required, report to client. If replaced ensure that the correct type is used.	Mechanical
5	Internal cleanliness	12M	Check internal condition through sampling points (test points) where fitted.	Report to client if remedial work required.	Mechanical
6	Ductwork support	12M	Check all ductwork supports and hangers to ensure they are secure and not loose.	Report to client if remedial work required.	Mechanical
7	Hit hazards	12M	Inspect duct run where it runs across or parallel to a personnel access route. Highlight any low points with the appropriate hazard tape or paint.		Mechanical

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Schedule Title : Ducting - Volume Control Dampers and Fire/Smoke Dampers

Schedule Ref : 16-03
Schedule Type : Core
Schedule Date : 06 Apr 2016
Schedule Version : 2.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
1W	3M (10 mins)	6M (10 mins)	12M	
1	2		7 8	
		3 4 5 6		

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

Caution

All volume dampers are set up during commissioning and should not normally be subject to further adjustment unless modifications are made to the ductwork distribution system. If it is essential to move the damper for maintenance purposes extreme care should be taken to ensure that the damper is returned to the position as set when commissioned. In the event of a ductwork modification, the system should then be re-commissioned.

Refer to the BESA Publications:

- TR/19 for access requirements and for specific considerations
- DW145 for Fire Damper detail.

Typically a log of all dampers should be kept to record the results of the inspection, any recommendations and any remedial work carried out.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Smoke dampers - weekly	1W	Actuation of the system should be simulated. It should be ensured that the smoke dampers close (or open in some systems).		Mechanical
2	Smoke dampers - 3 monthly	3M	1) Visual check on condition. If damper is shut confirm that this is a requirement of normal operation (it is possible that the fire damper may have shut during a fire alarm activation and has not yet been reset). 2) Check action and proper operation. Inspect all dampers, apply a few drops of oil to the mechanism. Replace fusible links if required.	These may be subject to the requirements of the local fire brigade. Maintain a log of all dampers tested, record faults and any remedial action taken. This will provide proof to the local fire brigade that regular checks are maintained. If any fire dampers are inaccessible advise client. The dampers can accumulate dirt	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				which can affect their operation and may require access panels added to one or both sides to allow full cleaning and surface restoration.	
3	Volume control dampers	6M	1) Visual check on condition. 2) Check position and ease of movement and security of locking devices.	The dampers should have the 'as found' setting marked indelibly to aid re-setting. Ensure that damper opens and closes to desired positions.	Mechanical
4	Linkages on motorised dampers	6M	1) Visual check on condition. 2) Check for wear and lubricate if appropriate.	Ensure that blades on shaft are secure and are correctly aligned.	Mechanical
5	Controls	6M	Check condition and operation.		Mechanical
6	Electrical	6M	1) Check for damage to flexible conduits. 2) Tighten all terminal connections. 3) Isolate control panel and inspect for signs of overheating. 4) Check integrity of electrical insulation.	For more detailed maintenance information see Introductory Procedures - Control Panels and Controllers (SFG14-01).	Electrical
7	Spring-operated fire dampers	12M	Spring-operated fire dampers should be tested annually. Arrangements should be made for periodic maintenance of any smoke detector system used to operate fire dampers and for such system(s) to be tested by a competent person after installation to determine whether detection occurs at the appropriate design smoke density. Any smoke detector system that is found to be faulty should be either repaired or replaced immediately.	Fire dampers situated in dust-laden and similar atmospheres should be tested much more frequently, at periods suited to the degree of pollution.	Specialist
8	Smoke dampers - 12 monthly	12M	Arrangements should be made for annual inspections and tests of the smoke control system to be carried out by competent persons, for any defects to be logged and the necessary action taken, and for certificates of testing to be obtained.		Specialist

SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Ducting - Attenuators

Schedule Ref : 16-04
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (10 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
10

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Attenuators	12M	Inspect internally where access for inspection is provided. Repair surfaces of sound insulation where necessary.	The facings should be inspected to ensure that any loose fibre does not enter the system. Report on further action needed.	Mechanical
2	Support fixings	12M	Check and ensure that all fixings are secure.		Mechanical
3	Attenuators (external surfaces)	12M	Clean, descale and repaint as required.		Mechanical

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Schedule Title : Ductwork Cleaning - Hygiene, Inspections and Monitoring

Schedule Ref : 17-01
Schedule Type : Core
Schedule Date : 26 Jan 2016
Schedule Version : 5.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (90 mins)	Not Specified			
2 3	1			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

A variety of specifically hazardous contaminants may be found in the ventilation systems, especially in industrial or laboratory Local Exhaust Ventilation systems (LEV) whose performance falls under COSHH regulations. Reference Health and Safety at Work Regulations.

Any maintenance carried out on the equipment should be in accordance with the manufacturer's recommendations.

Consideration should be given to the discharge of secondary energy i.e. steam, pressurised water, hot oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task. Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Kitchen Extract Ductwork			For tasks specific to Kitchen Extract Ductwork, please refer to Kitchen Extract/Ventilation System (SFG 17-02). Extraction systems for **commercial solid fuel appliances** must be thoroughly examined and tested at least once every 14 months. You must also have an appropriate regular cleaning and maintenance programme to ensure that your extraction system continues to function properly. Maintenance, examination and testing should be carried out by a competent person. Depending on the nature of the extraction system you may also need to use a competent specialist contractor for cleaning. You will find specific	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
				guidance in the BESA Publication TR/19 *Guide to good practice – Internal cleanliness of ventilation systems.*	
2	Ductwork	12M	Ascertain age and date of last inspection.		Mechanical
3	Ductwork Hygiene	12M	Check internal condition by a deposit thickness test or vacuum test.	Frequency to be determined by risk assessment and testing regime as per BESA Publications 'Cleanliness of Ventilation Systems' ref. TR/19 and current BS EN Standards both of which itemise the testing methods to be adopted. If inspection indicates a full cleaning regime is required, inform client. If inspection reveals a build-up of moisture, identify the potential source of moisture, inform client and seek additional guidance from a qualified Environmental Specialist.	Mechanical

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Schedule Title : Kitchen Extract/Ventilation System

Schedule Ref : 17-02
Schedule Type : Core
Schedule Date : 26 Jan 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (120 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS

Any maintenance carried out on the equipment should be in accordance with the manufacturer's recommendations.

Consideration should be given to the discharge of secondary energy i.e. steam, pressurised water, hot oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task. Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Kitchen extract systems as defined and referred to in this schedule include but are not limited to the following:

i) Canopy Extract plenum
ii) Ductwork
iii) Fans
iv) All plant and ancillaries associated with the extract system
v) Other systems that may be affected by grease/oil deposits e.g. dish wash, pot wash, general kitchen extract ventilation
vi) Fire dampers (where fitted) and attenuators.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Kitchen extract system - inspection	3M	Ascertain age and date of last inspection. The frequency of cleaning should be adjusted by means of system testing (inspection/monitoring). Measurements should be taken at the following locations where practicable: • Canopy Extract plenum behind filters • Duct 1 metre from canopy • Duct 3 metres from canopy • Duct midway between canopy and fan	The mean measurement is calculated by dividing the total of the test results by the number of testing locations. The second category of any single measurement above 500pm is provided to cater for local "hot spots" which should be cleaned even where the whole system does not require complete cleaning. Examples might be immediately local to a canopy or a fan. Any cleaning regime should be	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			• Duct upstream of fan • Discharge duct downstream of fan Surface grease deposit limits **Wet Film Thickness Test Measurement** 200µm as a mean across the system **Recommended Action** Complete cleaning required. **Wet Film Thickness Test Measurement** Any single measurement above 500µm **Recommended Action** Urgent local cleaning required. The buildings insurance company should be consulted to ensure that the cleaning regime is compliant with the terms of their specific warranty. Extraction systems for **commercial solid fuel appliances** must be thoroughly examined and tested at least once every 14 months. You must also have an appropriate regular cleaning and maintenance programme to ensure that your extraction system continues to function properly. Maintenance, examination and testing should be carried out by a competent person. Depending on the nature of the extraction system you may also need to use a competent specialist contractor for cleaning. You will find specific guidance in the BESA publicationTR/19 Guide to good practice – Internal cleanliness of ventilation systems.	justified by a considered risk assessment. (The latest Fire Precautions Workplace and Management of Health & Safety at Work Regulations apply).	
2	Kitchen extract system - cleaning	3M	The need for specialist cleaning of extract systems will depend on the level of usage of the cooking equipment, types and quantity of cooking and other factors such as vulnerability of the system to ignition and of the building and its occupant/user to system fire, hygiene, vermin and mechanical hazards. Clean in accordance with TR/19 section 7.28 and 7.34.	Frequency to be determined by risk assessment and testing regime as per BESA Publication 'Cleanliness of Ventilation Systems' ref. TR/19 and current BS EN Standards both of which itemise the testing methods to be adopted. If inspection indicates a full cleaning regime is required, inform client. If the inspection	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			This is minimum cleaning interval: • heavy use, i.e. 12-16 hours per day will necessitate a 3 monthly clean • moderate use, i.e. 6-12 hours per day will necessitate a 6 monthly clean • light use, i.e. 2-6 hours per day will necessitate a 12 monthly clean. The canopy and canopy/extract plenum is an area of higher fire risk and consideration should be given to more frequent cleaning in accordance with insurers' requirements.	reveals a build-up of moisture, identify the potential source of moisture, inform client and seek additional guidance from a qualified Environmental Specialist. Periodic specialist cleaning should be accompanied by daily or weekly cleaning of canopies, filters and associated drains and traps in accordance with manufacturer's recommendations, typically carried out by the kitchen operator. The exact timing will depend on a range of factors, a new system needs to be monitored to establish the suitable minimum period.	
3	Post-clean verification of cleanliness	3M	The primary method of assessment is visual. For cleaned system verification, the surface should be visibly clean and capable of meeting the level of cleanliness specified. The level of cleanliness is that no single measurement should exceed 50µm.	On completion a report should be provided containing the following: 1) The system(s) cleaned 2) Pre-clean measurements (as per system testing) 3) Post-clean measurements 4) Photographic records 5) Additional works carried out (if any) 6) COSHH data on any chemicals used 7) Recommendations for future cleaning requirements 8) Observations on the condition of the ductwork system 9) A sketch or schematic of the system indicating access panel and testing locations and highlighting any uncleaned areas with a written explanation as to why the area could not be accessed/cleaned.	Specialist
4	Recommissioning	3M	Recommission in accordance with the requirements of IGEM/UP/19.		Specialist

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Schedule Title : Introductory Procedures - Electrics in Buildings

Schedule Ref : 18-01
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

1. Specification

The specification covers the subjects of power supplies and associated electrical equipment up to 1,000V ac, lighting, security and fire alarms, small scale power generation and communication systems and provides an authoritative maintenance specification for these types of equipment. Regular preventative maintenance is essential on electrical equipment as breakdowns can affect production, environmental conditions and energy wastage.

The maintenance frequencies shown in the task maintenance schedules represent the intervals as recommended by BESA and ECA. The actual frequencies will depend upon the particular application and should be agreed with the client where appropriate. It may be appropriate that certain elements of the maintenance programme should coincide with planned shutdowns.

2. Safety

Fire prevention - Where electric cables pass through cabinets or walls it is standard practice to fit seals to prevent the passage of smoke or flame. When maintaining cables, cabinets or junction boxes it is essential that the integrity of the seals is maintained. Where a seal is replaced, it should comply with the latest regulations.

Calibration of test equipment - The maintenance contractor should ensure that any test equipment has been checked in accordance with the relevant British Standards.

3. Electrical Equipment

Attention is drawn to the necessity to comply with the requirements of the current Electricity at Work Regulations in all aspects of work associated with the maintenance of electrical apparatus.

All electrical equipment must be capable of local isolation and should be selected and erected in accordance with current British Standards for Wiring Regulations.

4. Maintenance of Systems

The maintenance activity in respect of a system should be carried out by suitably qualified and experienced providers, capable of exercising professional standards of judgement and discretion in relation to individual systems. The specification is a statement of typical standards and further reference to manufacturers should be sought for detailed guidance to supplement the specification. While it is not always possible to rigidly follow a set procedure in every situation, guidance is given in "Electricity at Work safe working practices" the following sequence is recommended as a guide.

Identification - For most circuits and equipment correct labelling is important, but it should never be assumed that labelling is correct and that work can be started without having first proved that the equipment or circuit is dead. In some special cases e.g. underground cables, cable locating techniques using specialised instruments may be necessary and it may also be necessary to identify the cable both before and after switching operations and cable spiking.

Disconnection - Disconnect the equipment from every source of electrical energy before working on, or near, any part which has been live or is likely to be live.

Secure Isolation - To ensure adequate isolation, the disconnecting device should have an isolating gap sufficient for the voltage levels present or likely to occur. Make sure that any switch disconnector or other means of disconnection is secure. Switches should preferably be locked in the OFF position using a ‘safety’ lock i.e. a lock having a unique key. If a plug has been withdrawn, make sure that it cannot be reconnected to the electrical supply while work is taking place on the circuits or apparatus. If a fuse is removed, make sure that it or a similar one cannot be reinserted by taking it away or by locking the box or enclosure until work is completed.

Post Notices - Put a notice or label at the place of disconnection so everyone else knows that work is being done.

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Proving Dead - Having isolated the circuit or equipment, check at the point of work that the parts to be worked on, or near, really are dead, even if the isolation has been achieved automatically through an interlocking system. If it is a three phase system or equipment with more than one supply, prove that all supply conductors are dead. The device used for proving dead should itself be proved immediately before and after testing.

Earthing - Ensure all the conductors are earthed using properly designed earthing devices or earthing leads, usually applied to all points where the circuit or equipment is isolated from the supply.

Adjacent Parts - When the circuit or equipment to be worked on has been made dead or where the work is non-electrical, it may still be necessary to protect against inadvertent contact with other live parts nearby.

There may be circumstances where maintenance is required on plant where operation is continuous i.e. industrial processes, ventilation equipment, environmental control, computer installations or special situations. It is essential that in these circumstances control circuits etc. should not be isolated or operated until specific instructions are received from the client.

Although polychlorinated biphenyls (PCB's) (e.g. Pyrachlor and Askeral) are no longer used in modern electrical equipment they may be present in older equipment, such as transformers and capacitors. Extreme care should be taken with regard to their disposal and the appropriate statutory regulations must be strictly followed.

Asbestos – On older types of switchgear there is a risk that the arcshields may contain asbestos. The asbestos register should be checked to see if there is any reference to the particular piece of equipment due to be maintained. ALWAYS check for asbestos containing material prior to dismantling any equipment. If asbestos, take actions in accordance with the Asbestos Regulations.

5. Maintenance in Hazardous Areas

Certain areas such as those containing flame proof equipment, pharmaceutical laboratories, locations subject to possible contamination by radiation, clean rooms, high risk fume cupboards and inflammable risk situations call for specialist maintenance procedures which should be negotiated individually with the client.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Refrigeration Evaporators

Schedule Ref : 19-01
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 5.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (45 mins)	12M (75 mins)	Not Specified		
		20 21 22		
13 14 15 16 17 18	2 3 4 5 6 7 8 9 10 11			

ANNUAL TIMING (MINUTES)
165

SCHEDULE INTRODUCTIONS

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

Service providers must be registered to an Approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 21 or task 22 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Shell and Tube**				
2	Compressor full load operation	12M	Record inlet and outlet temperature on water side. Pressure drop across evaporator, refrigerant pressures or superheat temperatures and evaporator temperature.	Any marked difference to the design figures could indicate internal fouling of the condenser and may require additional work.	Refrigeration Engineer
3	Flow protection devices	12M	Check for chilled water flow in the system and correct		Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			operation.		
4	Pump	12M	Check and record pressure drop across pump. Check for leakage, bearing noise and unusual bearing temperature. Lubricate according to manufacturer's instructions. Check motor current.	For further guidance see Pumps - General (SFG 45-01).	Refrigeration Engineer
5	Automaticisolating valves	12M	Check external condition, leak tightness of glands and seats, operational spindles and solenoid.	Some chillers have the ability to automatically pump down refrigerant to the evaporators in the event of a refrigerant leak or other fault. For further guidance see the manufacturer's instructions.	Refrigeration Engineer
6	Tank/Shell	12M	Check external and internal condition including baffles and covers.	Liquid level for water cooling, brine or glycol systems should be noted and any leaks investigated and repaired.	Refrigeration Engineer
7	Valves and drains	12M	Check external condition, leak tightness of glands and seats. Ensure valve caps are tight and secure. Check operation.	For further guidance see Valves (SFG 61).	Refrigeration Engineer
8	Pipes and connections	12M	Check external condition and leak tightness.		Refrigeration Engineer
9	Bearers, supports and holding down bolts	12M	Check for security and tighten as necessary.		Refrigeration Engineer
10	Insulation	12M	Check for damage.	Repair as required.	Refrigeration Engineer
11	Frost protection	12M	Check regime including cables and thermostats. Where fitted check that the defrost system is operating satisfactorily.		Refrigeration Engineer
12	**Coil Direct Expansion (DX)**				
13	Filter-Dryers	6M	Where fitted, replace the filter dryer(s) as required.	Check in line sight glass for indication of moisture in system.	Refrigeration Engineer
14	Coil	6M	Check condition and clean fins.	Use a sterilising solution.	Refrigeration Engineer
15	Condensate tray and drain	6M	Check and ensure drain clear. Flush and sterilise if necessary.		Refrigeration Engineer
16	Condensate pump (if applicable)	6M	Check operation.	Often this equipment may be contaminated, clean and flush, sterilise if necessary.	Refrigeration Engineer
17	Electric heaters	6M	Check condition and operation.		Refrigeration Engineer
18	Fans (if applicable)	6M	Check for correct operation and clean fan blades as required.	For further guidance see Fans (SFG 20).	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
19	**Leaks**				
20	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas Regulations on fluorinated gases. ALWAYS UPDATE RECORDS	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant equivalent to or charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
21	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
22	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			threshold • Quantities of commonly used HFC's equal to each threshold.		

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Introductory Procedures - Fans

Schedule Ref : 20-01
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Movement of air, other than by natural circulation, is achieved by means of fans which are mechanically driven, hence before working on any fan the drive must be electrically isolated in accordance with Health and Safety legislation.

The isolator should be locked in the off position when maintenance takes place.

Types of fan covered in this section include ventilating, centrifugal, axial, propeller, mixed flow, bifurcated and fire and smoke extract units. Because of their specialist nature and the hazardous circumstances of use, fans associated with fume cupboards, radioactive and nuclear facilities and biological and clinical areas require specialist attention which is outside the scope of this specification.

General

If the system incorporates two fans, one for regular use and the second for back-up use if the primary unit should fail, it is essential that both units be used and that similar levels of maintenance are applied to both units.

After cleaning and servicing the fan, a label should be placed on the fan housing with details of the current service date and any relevant contact information. The label should also indicate the date at which the next routine maintenance inspection is due.

Health and Safety

1. Access and Guards

It is dangerous to remove or open access doors, shaft guards or belt guards or remove any section of the fan casing whilst the fan is running. It should be noted that any fans which are supplied as bare shaft units must be guarded according to British Standards before start-up.

2. Fan Rotation

It is essential to note that even when electrically isolated, some fans can have a tendency to rotate under the action of the ventilation. It is therefore recommended that impellers are locked with integral brakes (if fitted) or other means if no brake exists.

3. Erosion and/or Corrosion

Where fans operate in an erosive or corrosive atmosphere, the fan rotating assembly must be inspected at regular intervals (not exceeding six months) as dictated by plant operating conditions to ensure safe operating conditions.

In addition to checking for component wear, an additional visual check should cover welds. If cracking appears or is suspected, detailed non-destructive testing (NDT) of all impeller welds should be carried out immediately. If cracking is confirmed, the wheel should be removed from service for repair or replacement.

4. Access

Where fan access cannot be readily obtained, it is the responsibility of the client to provide access facilities which comply in full with the requirements of any Health and Safety at Work legislation.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Ventilating Fans - General

Schedule Ref : 20-02
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (10 mins)	6M (10 mins)			
1 2	3 4 5 6 7 8 9 10 11 12 13			

ANNUAL TIMING (MINUTES)
140

SCHEDULE INTRODUCTIONS

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Drives, guards and belts	1M	Inspect and check condition and alignment of drive and shaft. Adjust or replace if condition warrants it. Check all guards are secure and in place.	When a new belt (or a new fan) has been installed, the belt should be re-tensioned after two weeks in order to take up any slackness resulting from stretching. Guards should be painted a suitable colour so that they stand out. Replace drive belts using manufacturer's replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	M&E
2	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
3	Bearings	6M	'Sealed for life' bearings should	Check bearings for end play and	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			not be serviced. Inspect and lubricate as necessary. Where applicable, all set-screws in bearings should be checked and tightened.	wear. Report any faults to the client. If lubricators are provided, re-lubrication should not exceed a period of two years. When carrying out re-lubrication it is essential that every trace of water and dirt is removed from around the grease nipple. If the operating temperature is over 60ºC a shorter re-lubricating period will be necessary. Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
4	Housing	6M	Clean and inspect for looseness and corrosion.	Re-paint with a suitable corrosion resistant paint as required.	M&E
5	Fan wheels	6M	Check and clean. Inspect for tightness.	Check fan rotation.	M&E
6	Sheaves and bearing collar	6M	Check tightness.		M&E
7	Mounting bolts	6M	Check and tighten as necessary.		M&E
8	Anti-vibration mountings	6M	Check effectiveness.	The rubber/neoprene can degrade with age and use. Report any faults to the client.	M&E
9	Guide vanes	6M	Check operation and adjust as necessary.		M&E
10	Automatic change over control (where standby fan installed)	6M	Check operation of control switch.		M&E
11	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of any motor. Clean fan blades. Check for excessive imbalance.	If dirt builds up on a motor it can act as insulation which causes the motor to operate at elevated temperatures. This can result in a shortened motor life and motors commonly burn-out. An excessive build-up of dust or damage to the fan blade can add imbalance causing excessive vibration. This can lead to fatigue and dangerous	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				failure. Dirt should be removed by cleaning with suitable equipment. Fan blades and louvres can be cleaned with a brush and detergent. The fan motor casing must be totally enclosed to prevent water from damaging motor windings. If the motor is not totally enclosed, then it must be removed and cleaned separately before the housing is cleaned. If using a brush or high-pressure washer, care must be taken not to damage the impeller blades.	
12	Motors - electrical	6M	Check the electrical and thermal overload protection for the motor and if the motor has a resettable overload protection, check that it is fully operational.		M&E
13	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E

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Schedule Title : Centrifugal Fans

Schedule Ref : 20-03
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (3 mins)	6M (15 mins)	12M (5 mins)		
	2 3 4 5	9 10		
1	6 7 8			

ANNUAL TIMING (MINUTES)
71

SCHEDULE INTRODUCTIONS

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
2	Bearings	6M	'Sealed for life' bearings should not be serviced. Inspect and lubricate as necessary. Where applicable, all set-screws in bearings should be checked and tightened.	Check bearings for end play and wear. Report any faults to the client. When carrying out lubrication it is essential that every trace of water or dirt is removed from around the grease nipple. See Motors (SFG 39-01). Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
3	Fan bearings	6M	Lubricate/grease as necessary.	For continuous running, more frequent servicing may be required. Do not overpack with grease.	Mechanical
4	Belt drive and guards (if fitted)	6M	Check tension and adjust if necessary. Replace if condition warrants it. Check all guards are secure and in place.	Ensure motor, drive and pulley are correctly aligned otherwise excessive wear will occur on the sides of the belt. Guards should be painted a suitable colour so that they stand out. Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
5	'Triggering' device i.e. humidistat or vane type flow switch	6M	Check for satisfactory functioning.	Vane type flow switch can be activated by restricting airflow through the motor side inlet of the unit.	Mechanical
6	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of any motor. Clean fan blades. Check for excessive imbalance.		M&E
7	Motors - electrical	6M	Check the electrical and thermal overload protection for the motor and if the motor has a resettable overload protection, check that it is fully operational.		M&E
8	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E
9	Impeller and inlet venturi	12M	Clean and ensure no build-up of dirt.	In very dusty environments or where contaminants are present, more frequent cleaning may be necessary. If possible avoid scraping but if necessary carry out lightly. With plastic impellers, soapy water is the most effective cleaner.	Mechanical
10	Motor assembly	12M	Inspect and check for any loose connections, fixings or cables.		Mechanical

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Schedule Title : Axial Fans

Schedule Ref : 20-04
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (3 mins)	3M (10 mins)	6M (10 mins)	12M (3 mins)	
		5 6 7 8	12	
1	2 3 4	9 10 11		

ANNUAL TIMING (MINUTES)
99

SCHEDULE INTRODUCTIONS

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
2	Impeller	3M	Clean and ensure no build-up of dirt.	In very dusty environments or where contaminants are present, more frequent cleaning may be necessary. If possible avoid scraping but if necessary carry out lightly. With plastic impellers soapy water is the most effective cleaner.	Mechanical
3	Bearings	3M	'Sealed for life' bearings should not be serviced. Inspect and lubricate as necessary. Where applicable, all set-screws in bearings should be checked	Check bearings for end play and wear. Report any faults to the client. When carrying out lubrication it is essential that every trace of	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			and tightened.	water or dirt is removed from around the grease nipple. See Motors (SFG 39-01). Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
4	Belt drive (if fitted)	3M	Check tension and adjust if necessary. Replace if condition warrants it.	Ensure motor, drive and pulley are correctly aligned. Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
5	Flexible conduit connections and wiring	6M	Check for soundness and ensure terminal connections are secure. Check integrity of electrical insulation.		Mechanical
6	Belt guards (where fitted)	6M	Check these are free from dirt build-up, if necessary, clean. Check all guards are secure and in place.	Guards should be painted a suitable colour so that they stand out.	Mechanical
7	Impeller, variable pitch mechanism	6M	Check that there is no excessive movement at the wing root.	There should be no loss of grease from wing roots. If there is, dismantle impeller and seals and replace after lubricating bearings.	Mechanical
8	Non-return flap (where fitted)	6M	Check operation.		Mechanical
9	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of any motor. Clean fan blades. Check for excessive imbalance.		M&E
10	Motors - electrical	6M	Check the electrical and thermal overload protection for the motor and if the motor has a resettable overload protection, check that it is fully operational.		M&E
11	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E
12	Adjustable pitch	12M	Check correct operation.	The impeller should operate with	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	actuation			smooth movement over the full pitch angle range with the fan running. If faulty, report to client for further action.	

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Schedule Title : Propeller Fans

Schedule Ref : 20-05
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (3 mins)	6M (15 mins)			
	2 3 4 5 6			
1	7 8 9			

ANNUAL TIMING (MINUTES)
66

SCHEDULE INTRODUCTIONS

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
2	Impeller	6M	Clean and ensure no build-up of dirt.	In very dusty environments or where contaminants are present, more frequent cleaning may be necessary.	Mechanical
3	Bearings	6M	'Sealed for life' bearings should not be serviced. Inspect and lubricate as necessary. Where applicable, all set-screws in bearings should be checked and tightened.	Check bearings for end play and wear. Report any faults to the client. If lubricators are provided, re-lubrication should not exceed a period of two years. When carrying out re-lubrication it is essential that every trace of water and dirt is removed from around the grease	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				nipple. See Motors (SFG 39-01). If the operating temperature is over 60ºC, a shorter re-lubricating period will be necessary, see manufacturer's instructions. Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
4	Mountings and fittings	6M	Check security of fixing.		Mechanical
5	Flexible conduit connections and wiring	6M	Check for soundness and ensure terminal connections are secure. Check integrity of electrical insulation.		Mechanical
6	Non-return flap (where fitted)	6M	Check operation.		Mechanical
7	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of any motor. Clean fan blades. Check for excessive imbalance.		M&E
8	Motors - electrical	6M	Check the electrical and thermal overload protection for the motor and if the motor has a resettable overload protection, check that it is fully operational.		M&E
9	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E

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Schedule Title : Mixed Flow Fans

Schedule Ref : 20-06
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (3 mins)	6M (15 mins)			
	2 3 4 5 6 7 8			
1	9 10 11			

ANNUAL TIMING (MINUTES)
66

SCHEDULE INTRODUCTIONS

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
2	Impeller and inlet venturi	6M	Clean and inspect.	Take care not to disturb impeller balance weights. Cleaning is best carried out with warm soapy water using soft brush. Other cleaners may be used provided they are not harmful to the paint or galvanised finish.	Mechanical
3	Bearings	6M	'Sealed for life' bearings should not be serviced. Inspect and lubricate as necessary. Where applicable, all set-screws in bearings should be checked and tightened.	Check bearings for end play and wear. Report any faults to the client. If lubricators are provided, re-lubrication should not exceed a period of two years.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				When carrying out re-lubrication it is essential that every trace of water and dirt is removed from around the grease nipple. If the operating temperature is over 60ºC, a shorter re-lubricating period will be necessary, see manufacturer's instructions. See Motors (SFG 39-01). Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
4	Drive belts	6M	Check tension and examine for wear. Replace if necessary.	Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
5	Protection guards and automatic shutters	6M	Clean and check shutter blades for ease of action.	In dirty or moist laden environments more frequent inspection and cleaning may be necessary. Guards should be painted a suitable colour so that they stand out.	Mechanical
6	Flexible conduit connections and wiring	6M	Check for soundness and ensure terminal connections are secure. Check integrity of electrical insulation.		Mechanical
7	Roof cowl intake/wall entry louvre (where applicable)	6M	Clean and check mounting.	Where maintenance requires working at height, ensure all necessary precautions are taken to prevent falls from a height. Working at Height Regulations apply.	Mechanical
8	Non-return flap	6M	Check operation.		Mechanical
9	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of any motor. Clean fan blades. Check for excessive imbalance.		M&E
10	Motors - electrical	6M	Check the electrical and thermal overload protection for the motor and if the motor has a resettable		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			overload protection, check that it is fully operational.		
11	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E

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Schedule Title : Bifurcated Fans

Schedule Ref : 20-07
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (3 mins)	3M (6 mins)	6M (15 mins)	12M (15 mins)	
		7 8	11 12 13 14 15	
1	2 3 4 5 6	9 10		

ANNUAL TIMING (MINUTES)
105

SCHEDULE INTRODUCTIONS

This type of fan, axial with the motor outside of the airstream, is normally used for fume extracts e.g. kitchens, fire and smoke extraction and for fume removal, particularly where corrosive.

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
2	Unit	3M	Check operation.		Mechanical
3	Fan impeller	3M	Check condition and clean.	If handling abrasive or corrosive materials, examine the blades for wear or damage. In kitchen operations, e.g. fat and oil frying, more regular cleaning will be required.	Mechanical
4	Bearings	3M	'Sealed for life' bearings should not be serviced. Inspect and lubricate as necessary.	Check bearings for end play and wear. Report any faults to the client.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Where applicable, all set-screws in bearings should be checked and tightened.	If lubricators are provided, re-lubrication should not exceed a period of two years. When carrying out re-lubrication, it is essential that every trace of water and dirt is removed from around the grease nipple. If the operating temperature is over 60ºC a shorter re-lubricating period will be necessary, see manufacturer's instructions. Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
5	Standby motor (where provided)	3M	Check and rotate a few turns by hand or electrically.	Units designed for emergency use should be test operated for no longer than twenty minutes. See Motors (SFG 39-01).	Mechanical
6	Flexible conduit connections and wiring	3M	Check for soundness and ensure terminal connections are secure. Check integrity of electrical insulation.		Mechanical
7	Belt drive and guards (if fitted)	6M	Check wear, alignment and tension. Check all guards are secure and in place.	Replace if cording becomes visible. Guards should be painted a suitable colour so that they stand out. Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
8	Automatic shutters (usually fitted on roof units)	6M	Clean and check operation.	In moist or dirty environments, more frequent servicing may be required. Where maintenance requires working at height, ensure all necessary precautions are taken to prevent falls from a height. Working at Height Regulations apply.	Mechanical
9	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			any motor. Clean fan blades. Check for excessive imbalance.		
10	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E
11	Anti vibration mountings	12M	Check condition.		Mechanical
12	Ductwork including fixings and insulation (where fitted)	12M	Inspect external condition and report.	With kitchen extracts, heavy deposits of grease may be encountered and more frequent inspection will be necessary. The client should be informed of fire risk and a schedule of cleaning drawn up. See Ductwork Cleaning - Hygiene, Inspections and Monitoring (SFG 17-01).	Mechanical
13	Motor	12M	Check full load current and log. Check the electrical and thermal overload protection for the motor and if the motor has a resettable overload protection, check that it is fully operational.		Mechanical
14	Bearings	12M	Check for wear. Remove oil/grease and clean.	Report if replacement bearings necessary.	Mechanical
15	Micro switches on automatic shutters	12M	Check operations and reset if necessary.		Mechanical

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Schedule Title : Extract Fans - Including Fire/Smoke Extract Units

Schedule Ref : 20-08
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (3 mins)	6M (15 mins)	12M (5 mins)		
	2 3 4 5 6 7 8	12		
1	9 10 11			

ANNUAL TIMING (MINUTES)
71

SCHEDULE INTRODUCTIONS

Ensure to read health and safety notes shown on Introductory Procedures - Fans (SFG 20-01) before undertaking the following tasks.

The instructions in this task maintenance schedule refer to all air handling fans including exhaust, make up, recirculation and small air handlers. Before working on any moving machinery switch off and ensure that the equipment is isolated electrically in accordance with Health and Safety at Work Regulations.

The isolator should ideally be locked in the off position when maintenance takes place.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrics - Monthly	1M	Check circuit breakers manually each month. Examine wiring and other electrical system components for signs of deterioration, loose connections and damage. Check all connections are tight.		M&E
2	Controls	6M	Check correct action.	For more detailed maintenance refer to Control Panels & Controllers (SFG 14).	M&E
3	Motorised control dampers	6M	Check operation.	Refer to design manual for details.	M&E
4	Electrical connections	6M	Check all flexible connections and electrical insulation.		M&E
5	Bearings	6M	'Sealed for life' bearings should not be serviced. Inspect and lubricate as necessary. Where applicable, all set-screws in bearings should be checked and tightened.	Check bearings for end play and wear. Report any faults to the client. If lubricators are provided, re-lubrication should not exceed a period of two years.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				When carrying out re-lubrication it is essential that every trace of water and dirt is removed from around the grease nipple. See Motors (SFG 39-01). Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	
6	Fan impeller and scroll	6M	Check condition.		M&E
7	Anti vibration mountings (where fitted)	6M	Check mountings, belts and fixings for security.		M&E
8	Non-return flap (where fitted)	6M	Check operation.		M&E
9	Motor and fan blade cleaning	6M	Clean and inspect all grilles. Clean all dirt from the outside of any motor. Clean fan blades. Check for excessive imbalance.		M&E
10	Motors - electrical	6M	Check the electrical and thermal overload protection for the motor and if the motor has a resettable overload protection, check that it is fully operational.		M&E
11	Electrics - 6 Monthly	6M	Clean any sensors and re-calibrate if found to be inaccurate.		M&E
12	Motor casing and louvres	12M	Check condition and clean.		M&E

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Schedule Title : Ammonia Extract Fan

Schedule Ref : 20-09
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
1M	6M	12M		
1	2 3 4 5 6 7 8	9		

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'.

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational test - monthly	1M	Check operation of fan unit by switching local control panel to test position. Check operation of damper and control circuit. Dampers should open quickly under spring pressure and close slowly under motor operation of actuator. Check fan for any unusual noise or vibration. Reset fan unit to automatic operation on completion of tests.	With the electrical supply restored, carry out the described tests.	M&E
2	Motor	6M	Check motor fins and clean as necessary.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check.	M&E
3	Fan	6M	Fan impeller – check for cleanliness and clean as required. Check tightness of all blades and that the running clearance between the blade tip and the fan housing is constant.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check.	M&E
4	Mountings	6M	Check mountings for security.	The electrical supply to the	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check.	
5	Electrical - 6 monthly	6M	Check all electrical cabling for signs of damage. Check electrical terminations for security and signs of overheating. Check lamps on local control panel operate.	With the electrical supply restored, carry out the described tests.	M&E
6	Operational test - 6 monthly	6M	in addition to the monthly operational test carry out the following; Check that ambient temperature control operates correctly. This can be checked by adjustment of the room temperature set-point and checking of local room temperature using thermometer.	With the electrical supply restored carry out the described operational tests.	M&E
7	Damper arm	6M	Lubricate fresh air damper actuating arms as required.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check.	M&E
8	End of maintenance	6M	Ensure fan is left in stand-by condition on completion of maintenance.	With the electrical supply restored.	M&E
9	Electrical - 12 monthly	12M	Check main electrical isolator for condition and operation. Carry out Earth Continuity Test (reading should be less than 0.5 ohms). Carry out insulation resistance test (reading should not be less than 0.5 M.ohms). Carry out continuity check of motor thermistor.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check. Note a megger should not be used for this test to prevent damage to the thermistor.	M&E

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Schedule Title : Hazardous Area Extract Fan

Schedule Ref : 20-10
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
1M	6M	12M		
1	2 3 4 5	6		

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'.

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
It is essential that any maintenance work in hazardous areas is only carried out by specialist personnel. Extreme care should be taken when carrying out such maintenance and it is very important that equipment such as electric motors, flameproof switchgear and lighting should be returned to service in a safe condition.

This task is intended to be applied where there can be a risk due to the presence of explosive gas or dust mixtures with air or combustible dust layers under normal atmospheric conditions. It does not apply to:

• underground mining areas,
• areas where a risk can arise due to the presence of hybrid mixtures,
• dusts of explosives that do not require atmospheric oxygen for combustion,
• pyrophoric substances.

Hazardous areas are classified into three zones.

GAS

Zone 0 - an explosive gas atmosphere is present continuously or for long periods or frequently.
Zone 1 - an explosive gas atmosphere is likely to occur in normal operation occasionally.
Zone 2 - an explosive atmosphere is not likely to occur in normal operation but if it does occur, will persist for a short period only.

DUST

Zone 20 - a place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is present continuously or for long periods or frequently.
Zone 21 - a place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is likely to occur in normal operation occasionally.
Zone 22 - a place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is not likely to occur in normal operation but if it does occur, will persist for a short period only.

During maintenance in such areas the following points should be noted:

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a) all flameproof lighting fittings should be examined for incipient cracks;
b) when equipment is returned to service the gap for a particular joint should not exceed that specified by the manufacturers;
c) damage to machined flanges must be avoided;
d) joints should be wiped clean and non-setting grease or BASEEFA/HSE(M) approved compound as appropriate applied. Excess grease is not a substitute for containing the flamepath gap;
e) cover bolts are in accordance with the standard requirements of specific minimum strength and should not be replaced by screws other than those obtained from the manufacturer for that specific purpose.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational test	1M	Carry out visual check of fan unit to ensure unit is running without undue noise or vibration. Use BMS to change over duty fan to test run stand-by fan unit. On completion revert system status to normal operation.	These fans are designed for use in a zone 2 area containing potentially explosive gas. All due precautions should be taken to prevent the risk of sparks whilst working on this equipment. With the electrical supply on carry out the following tests.	Specialist
2	Air flow sensing tubes	6M	Disconnect air flow sensing tubes from duty unit and ensure stand-by fan unit starts. Reconnect air flow sensing tubes.	With the electrical supply on carry out the following tests.	Specialist
3	Fan	6M	Remove front cover and inspect fan impeller. Clean unit using stiff brush and damp cloth. If unit requires further cleaning the fan unit must be removed from casing and cleaned outside of hazardous area.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check.	Specialist
4	Mountings and casings	6M	Check mountings for security. Check condition of painted surfaces. If any corrosion or damage to the finish is identified, prepare surface and repaint as required.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check.	Specialist
5	Electrical - 6 monthly	6M	Check all electrical cabling for signs of damage. Check condition of electrical connections for security and signs of overheating/arcing. Check lamps on local control panel operate. Check condition of sealing rings etc. Ensure that any seals are correctly in place. Restore electrical supplies to unit. Reset controls and restart duty unit.	With the electrical supply restored carry out the following tests. Any cable gland, stopping gland or plug, reducer or adapter must be BASEEFA approved for use with the apparatus.	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
6	Electrical - 12 monthly	12M	Check main electrical isolator for condition and operation. Carry out Earth Continuity Test (reading should be less than 0.5 ohms). Carry out insulation resistance test (reading should not be less than 0.5 M.ohms). Carry out continuity check of motor thermistor.	The electrical supply to the equipment must be isolated, unplugged and confirmed safe before carrying out this PPM check. The integrity of the earthing should be checked at the initial inspection by measurement of resistance. The measurement may be made using an intrinsically safe resistance measuring instrument (within the procedure specified by the manufacturer). Subsequent sample inspections may also be carried out using an intrinsically safe resistance measuring instrument. Non-intrinsically safe measuring equipment may be used if a safe work procedure (see IEC 60079-14) has been conducted and if the locations where potentially incendive sparking could occur, in case of dust hazards, can be guaranteed to be free from an explosive dust atmosphere and dangerous dust layers by those responsible for the area. Note a megger should not be used for this test to prevent damage to the thermistor.	Specialist

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Schedule Title : Introductory Procedures - Filters

Schedule Ref : 21-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Removal of dust and other non-gaseous matter in airborne streams is carried out by some form of filter or device such as electrostatic precipitation. Where the air passes through the filter a back pressure is set up which increases as the pores of the filtration medium become filled with the particles removed from the air stream, the dirtier the air stream the more quickly the back pressure builds up and the more frequently the filter has to be cleaned or changed. The maintenance periods given in the tables below refer to average air conditions. In a dirty environment more frequent maintenance will be required.

When replacing filters the same grade of filter should be used unless the client specifies differently. Failure to do this or fitting filters of a lower specification will lead to poor performance e.g. black markings on ceilings and near grilles. Ineffective filters will mean that FAN COILS will require more frequent cleaning and accumulation of dust and debris in the ventilation system could give rise to a fire hazard and clog automatic fire dampers.

Filter replacements should comply with current BS EN Standards for primary and secondary filters.

In normal use, air filters do not present a health and safety hazard. However used air filters do contain quantities of dust which, unless precautions are taken, may expose maintenance personnel to a 'nuisance dust hazard', as defined by the Control of Substances Hazardous to Health (COSHH) Regulations.

A risk assessment must be carried out before the work starts and a method statement produced. Used filters must be regarded as Controlled Waste and appropriate safeguards taken for their disposal.

Types of filters covered in this section include roll band, disposable panel, re-usable/disposable, bag, cartridge and electrostatic.

Because of their specialist nature and the hazardous circumstances of their use certain filters require specialist attention which is outside the scope of this specification. These include active carbon, cyclonic and inertia filters, wet, dry dust collectors and filters associated with fume cupboards, radioactivity, nuclear facilities, biological and clinical areas.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Air Filters (mod)

Schedule Ref : 21-02
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 21-02

TASK FREQUENCIES (SERVICE TIMINGS)				
3M	6M (45 mins)	12M (45 mins)		
8	16 17 19 20 21 22 24 26	2 3 4 5 6 10 11 13 14		

ANNUAL TIMING (MINUTES)
135

SCHEDULE INTRODUCTIONS

In normal use air filters do not present a health and safety hazard. However used air filters do contain quantities of dust which, unless precautions are taken, may expose maintenance personnel to a 'nuisance dust' hazard, as defined by the 'Control of Substances Hazardous to Health (COSHH) Regulations'. A risk assessment must be carried out before the work starts and a method statement produced. Used filters should be sealed into plastic bags for disposal. Controlled Waste Regulations apply.

Visual inspection of air filters is the basic first action. If they are clearly dirty then they can be changed and form part of a preventative planned maintenance program (PPM). A better method for filter change is based on filter change by noting increased operating pressure across the filter. When the filter pressure is twice the initial value it is time to change. Where possible Low Energy Air Filters should be selected so that running costs and energy use are minimised. Regular monitoring and recording of pressure drop readings and recording of filter changes is to be encouraged.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The frequency of duct cleaning will depend upon the degree of contamination. BS EN Standards give three levels of cleanliness for typical applications:

- Low - rooms with only intermittent occupancy e.g. storage rooms, technical rooms
- Medium - offices, hotels, restaurants, schools, theatres, residential homes, shopping areas, exhibition buildings, sport buildings, general areas in hospitals and general working areas in industries
- High - Laboratories, treatment areas in hospitals high quality offices.

Filter recommended inspection intervals according to the above cleanliness quality classes are:

- Low and Medium - 12 months
- High - 6 months.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Filters (Common Procedures)**				
2	Air flow	12M	Stop any air flow to filter by turning off the AHU system fan.		Mechanical
3	Removal	12M	On removal take care that trapped dust remains in the filter medium.		Mechanical
4	Filter housing	12M	Thoroughly vacuum and clean		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			including surrounding ductwork and floor.		
5	Housing	12M	Inspect for damage and/or corrosion.		Mechanical
6	Replacement	12M	Ensure that filter header frames are adequately sealed when fitted to the mounting frames to prevent bypass of dirty unfiltered air. Keep a record card on each AHU recording filter change time and operating pressure drop at regular intervals. Ensure that the filter is installed the correct way around to face the direction of the air flow. Bag filters should have pockets in vertical orientation.	Air filters should be selected to deliver clean Indoor Air Quality (Minimum F7, refer to current BS EN Standards) in inhabited environments. To minimise energy usage, filters should have a low operating pressure drop. Filter media should have a consistent particulate efficiency. Spare filters should remain sealed, packed and in a dry environment until required. Replacement is advised when the initial operating pressure drop of the filter doubles (assuming constant volume flow) e.g. initial pressure drop 110Pa. Change at 220Pa.	Mechanical
7	**Box & Bag Filters**				
8	Filter Elements	3M	Clean or replace as required	Filters may have to be removed more frequently depending upon site conditions and operating hours. Change filters on pressure drop where possible. After removal, used filters should be sealed into plastic bags for disposal. Do not attempt to wash or clean out and reuse.	Mechanical
9	**Filters (Disposable)**				
10	Filter elements	12M		Filters may have to be removed more frequently depending upon site conditions and operating hours. Change filters on pressure drop where possible. After removal, used filters should be sealed into plastic bags for disposal. Do not attempt to wash or clean out and reuse.	Mechanical
11	Seals and/or fasteners	12M	Ensure that any damaged seals or fasteners are replaced.		Mechanical
12	**Reusable (Cleanable) Filters**				
13	Filter elements	12M	Clean and replace as per manufacturer's recommendations.	Filters may require more frequent cleaning where the atmosphere is heavily contaminated with dust or fumes.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
14	Kitchen extract grease filters	12M	Remove and clean as per manufacturer's recommendations.	Frequency of cleaning can vary from daily to weekly intervals. Generally, for grease filter panels, the use of a commercial dishwasher is possible. Failure to change/clean filters when loaded with grease may result in the carry-over of grease into the ducting - thus leading to an increased hazard of a flash over fire to the main ductwork. See Ductwork Cleaning - Hygiene, Inspections and Monitoring (SFG 17-01).	Mechanical
15	**Absorption Type**				
16	Damage and corrosion	6M	Check and report if found.		Mechanical
17	Filter cartridge	6M	a) check fitting which should be tight. b) replace if necessary.	Frequency of changing will depend upon the environment in which the filter is used.	Mechanical
18	**Automatic Roll Band Type**				
19	Mechanism	6M	Check roller mechanism is operational.	Consider conversion to bag filters.	Mechanical
20	Damage	6M	Check and report if found. Try and attribute damage to a cause.	If found to be high this may indicate either band velocity is too low or wrong specification.	Mechanical
21	Differential pressure	6M	Measure using an accurate and easy to read and maintain instrument.	Take the opportunity to cross reference readings and calibrate pressure measuring device regularly.	Mechanical
22	Operation	6M	Check for correct operation. Look for any splitting lacerations in the media.	Sudden changes in operational pressure drop across filters need investigation.	Mechanical
23	**Grease Filters**				
24	Condition	6M	Check and clean. Differentiate between disposable grease filters and those that are made to be cleaned and reused.	The frequency of cleaning will depend upon the degree of contamination. Failure to change/clean filters when loaded with grease may result in the carry-over of grease into the ducting - thus leading to an increased hazard of a flash over fire to the main ductwork. See Ductwork Cleaning - Hygiene, Inspections and Monitoring (SFG 17-01).	Mechanical
25	**High Efficiency - HEPA**				
26	Condition	6M	Make sure air from supply system is adequately filtered	The maintenance activities for these depend on the individual	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			before reaching the HEPA filters ensuring a longer operating life. Regular validation of the system may be required depending on purpose of system.	installation operating conditions. Reference should be made to the design/operating manuals for the building.	

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Schedule Title : Electrostatic Filters

Schedule Ref : 21-03
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (10 mins)				
2 3 4 5 7				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

In normal use air filters do not present a health and safety hazard. However used air filters do contain quantities of dust which, unless precautions are taken, may expose maintenance personnel to a 'nuisance dust' hazard as defined by the 'Control of Substances Hazardous to Health (COSHH) Regulations'. Used filters should be sealed into plastic bags for disposal - Controlled Waste Regulations apply.

A risk assessment must be carried out before the work starts and a method statement produced.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Electrical**				
2	Powerpack	1M	Check for correct operation.	This should be a daily task for the operator.	M&E
3	Rectifiers	1M	Check for operation and follow manufacturer's instructions.	Rectifiers fail either through filament burn out or loss of vacuum when the current will flow in both directions leading to shorting.	M&E
4	Isolation	1M	Isolate electrically in accordance with HSAWA recommendations.		M&E
5	Ionising wires	1M	Check condition and if broken replace immediately.	Broken wires can cause a short circuit.	M&E
6	**Mechanical**				
7	Cells	1M	Wash according to manufacturer's instructions.	Frequency of cleaning will depend upon the dirt picked up, every 4 to 6 weeks is suggested. If the cells are not cleaned regularly dust will eventually build-up to a thickness where some is dislodged and blown over.	M&E

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Schedule Title : Flues (All Combustible Fuels)

Schedule Ref : 24-01
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	12M (60 mins)			
	2 3 4 5 6 7 8 9 10 11 12			
1				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

These notes should be read in conjunction with relevant sections Boilers - Heat Generators (SFG 05-01 to 05-33).

Only GAS SAFE registered service providers are permitted to work on flues. Ensure that flues conform to relevant guidance in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations. External dampers/economisers can infringe manufacturer's guarantees and also HASAWA Regulations.

Soot can be found in flues burning oil and coal. Soot is classified as a hazard and should be disposed of in accordance with the Hazard Waste and COSHH Regulations.

It is essential to ensure that any discharge point does not endanger others, these must be proved safe.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Drain plugs at the base of the flue	1M	Remove, allow any accumulated condensate to drain away and replace.	This should be part of the routine maintenance carried out by in-house staff.	Mechanical
2	Supports	12M	Inspect security of supports and condition of paintwork. Treat any signs of rust or corrosion.	Particular attention should be paid to the condition of the base of the supports.	Mechanical
3	Flue terminals	12M	Where possible, check flue terminals at roof level.	It is very important that flue terminals must be undamaged and free from any obstruction.	Mechanical
4	Boiler flue and vertical chimneys	12M	Clean thoroughly with custom made flue brushes and tools.	Use access doors provided and reseal after operation. Remove all soot, fly ash and scale. N.B. when burning wood, coal, heavy oil and volatile waste, more frequent cleaning will be necessary and two monthly checks are advised.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
5	Balanced flue terminals	12M	Check for obstruction and corrosion. If fan assisted check safety circuit.	Obstruction of the flueways can be caused by leaves and any other airborne debris.	Mechanical
6	Induced draught/fan assisted	12M	Check for obstruction and condition of bearings.		Mechanical
7	Fan dilution units	12M	Check pressure/vane switch action for correct operation. Check pressure/boiler interlock for correction operation.	If not correct operation, shut down burner.	Mechanical
8	Dampers	12M	Check action and control switches interlocks.		Mechanical
9	Condensing boilers	12M	Check for obstruction and corrosion. If fan assisted check safety circuit.		Mechanical
10	Stabilisers (explosion doors)	12M	Check condition and ensure movement is free.		Mechanical
11	Structural stability	12M	Check condition and if free standing examine condition of guy ropes.	After periods of severe weather examine the chimney structure and supports for damage.	Mechanical
12	Smoke test	12M	Check for flue pull and deterioration.		Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments
http://http://shop.bsigroup.com/ProductDetail?pid=000000000030150794 BS 5440-1:2008 Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases). Specification for installation of gas appliances to chimneys and for maintenance of chimneys
http://shop.bsigroup.com/ProductDetail?pid=000000000030190871 BS 5440-2:2009 Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases). Specification for the installation and maintenance of ventilation provision for gas appliances

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Schedule Title : Grilles and Diffusers

Schedule Ref : 26-01
Schedule Type : Core
Schedule Date : 09 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (1 mins)	12M (1 mins)			
	2 3			
1				

ANNUAL TIMING (MINUTES)
3

SCHEDULE INTRODUCTIONS

Where possible these should be removed for cleaning. Washing to remove grease and staining may be required.

Diffuser/grille locations and orientation should be marked or recorded if they are to be taken away for washing, so that they can be returned to the correct location. Opposed blade dampers should have the 'as found' setting marked to aid resetting.

Certain grille and diffuser arrangements may be installed such that they cannot be practicably removed for cleaning e.g. linear diffusers or those trapped by partition walls. In situ cleaning by air line and extraction to capture dislodged deposits may be used.

Diffusers may have plenum boxes, possibly containing dampers behind them, which also require cleaning. Access will be required to permit cleaning or air jetting and extraction methods.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Grilles - External	6M	Examine, check mountings and clean. Replace if holed.	Where significant bird contamination or mould problems are encountered, a preliminary disinfection before starting work may be required and appropriate protection provided for cleaning operatives.	Mechanical
2	Grilles - Internal	12M	Examine, check fitting and clean.		Mechanical
3	Diffusers	12M	Examine, check fitting and clean.		Mechanical

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Schedule Title : Louvres, Bird and Insect Screens

Schedule Ref : 26-02
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (2 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
4

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Louvres	6M	Clean and remove any debris. Check for damage.	Where significant bird contamination or mould problems are encountered, a preliminary disinfection before starting work may be required and appropriate protection provided for cleaning operatives.	Mechanical
2	Bird screens	6M	Clean and check for any damage. Replace if holed.		Mechanical
3	Insect screens	6M	Clean and check for any damage. Replace if holed.	When cleaning, care should be taken to avoid damage to the fine mesh. A low pressure water jet from behind should clear insect remains.	Mechanical

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Schedule Title : Introductory Procedures - Hazardous Areas (Electrics)

Schedule Ref : 27-01
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

It is essential that any maintenance work in hazardous areas is only carried out by specialist personnel. Extreme care should be taken when carrying out such maintenance and it is very important that equipment such as electric motors, flameproof switchgear and lighting should be returned to service in a safe condition.

This maintenance task schedule is intended to be applied where there can be a risk due to the presence of explosive gas or dust mixtures with air or combustible dust layers under normal atmospheric conditions. It does not apply to:

• underground mining areas;
• areas where a risk can arise due to the presence of hybrid mixtures;
• dusts of explosives that do not require atmospheric oxygen for combustion;
• pyrophoric substances.

Hazardous areas are classified into three zones:

GAS
Zone 0 an explosive gas atmosphere is present continuously or for long periods or frequently.
Zone 1 an explosive gas atmosphere is likely to occur in normal operation occasionally.
Zone 2 an explosive atmosphere is not likely to occur in normal operation but if it does occur, will persist for a short period only.

DUST
Zone 20 A place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is present continuously or for long periods or frequently.
Zone 21 A place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is likely to occur in normal operation occasionally.
Zone 22 A place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is not likely to occur in normal operation but if it does occur, will persist for a short period only.

During maintenance in such areas the following points should be noted:

a) all flameproof lighting fittings should be examined for incipient cracks;
b) when equipment is returned to service the gap for a particular joint should not exceed that specified by the manufacturers;
c) damage to machined flanges must be avoided;
d) joints should be wiped clean and non-setting grease or BASEEFA/HSE (M) approved compound as appropriate applied. Excess grease is not a substitute for containing the flamepath gap;
e) Cover bolts are in accordance with the standard requirements of specific minimum strength and should not be replaced by screws, other than those obtained from the manufacturer for that specific purpose.

Before commencing any maintenance work on control panels, read Introductory Procedures - Control Panels and Controllers (SFG 14-01) very carefully and follow all the safety procedures.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Hazardous Areas - Flameproof Equipment

Schedule Ref : 27-02
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (5 mins)	6M (5 mins)			
1	2 3 4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS

Before commencing any maintenance work on Flameproof equipment, read Introductory Procedures - Hazardous Areas (Electrics) (SFG 27-01) very carefully and follow all the safety procedures.

Replacement parts should be in accordance with the safety documentation. Alterations to equipment should not be carried out without appropriate authorisation where they adversely affect the safety of the equipment as stated in the safety documentation. Repairs and reclamation of equipment should be carried out in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations.

Definition - flameproof enclosure “d”, an enclosure in which the parts which can ignite an explosive gas atmosphere are placed and which can withstand the pressure developed during an internal explosion of an explosive mixture and which prevents the transmission of the explosion to the explosive gas atmosphere surrounding the enclosure.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer’s recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	RCD's (if fitted)	3M	Test the tripping operation.	Responsibility for this check should be agreed with the client.	Electrical
2	Condition	6M	Check for mechanical damage or signs of corrosion.	Where bolts or other types of fastenings are used check that numbers are correct and that they are secure.	Electrical
3	Electrical connections	6M	Check integrity.		Electrical
4	Mechanical faces	6M	Check for damage.	Report to client if damage to faces requires replacement of equipment.	Electrical
5	Seals	6M	Check condition and replace as necessary.		Electrical
6	Cable and conduit entries	6M	Check condition of seals.	Ensure compliance with current BS EN Standards.	Electrical
7	Earth fault loop impedance	6M	Check.	This applies to every socket outlet, lighting switch and	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				luminaire.	
8	Labels and notices	6M	Check for presence, clean and check security of fixing.		Electrical
9	Return to service	6M	Ensure that any seals are correctly in place and the correct number and type of cover bolts are used.		Electrical

SCHEDULE LEGISLATION
http://shop.bsigroup.com/ProductDetail/?pid=000000000030268609 BS EN 60079-17:2014 Explosive atmospheres. Electrical installations inspection and maintenance

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Schedule Title : Hazardous Areas - Lighting

Schedule Ref : 27-03
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS

Before commencing any maintenance work on Flameproof equipment, read Introductory Procedures - Hazardous Areas (Electrics) (SFG 27-01) very carefully and follow all the safety procedures.

Replacement parts should be in accordance with the safety documentation. Alterations to equipment should not be carried out without appropriate authorisation where they adversely affect the safety of the equipment as stated in the safety documentation. Repairs and reclamation of equipment should be carried out in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Integrity	6M	Check installation for mechanical damage.	The etching, painting or screening of light transmitting parts or the incorrect positioning of the luminaires may lead to excessive temperatures.	Electrical
2	Fitting and cover	6M	Clean and check condition. Examine for incipient cracks in glass or retaining cement.	Where the glass is cracked or broken, no attempt should be made to re-cement a new glass in place. A replacement unit should be obtained from the original manufacturer.	Electrical
3	Lamp	6M	Replace on a planned basis as appropriate.	When replacing lamps the correct rating and type ONLY should be used, or excessive temperatures may result. Maintenance contract should be specific with regard to the responsibility for the provision and replacement of lamps and also for the disposal of spent lamps as per statutory regulations.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
4	Cable and conduit entries	6M	Check condition of sealing rings etc. and ensure that any seals are correctly in place.	Any cable gland, stopping gland or plug reducer or adapter must be BASEEFA approved for use with the apparatus.	Electrical
5	Return to service	6M	Ensure that any seals are correctly in place and the correct number and type of cover bolts are used.	Labels should be inspected to ensure that they are legible and to ensure that the equipment actually fitted and the source of supply is as that specified.	Electrical

SCHEDULE LEGISLATION
http://shop.bsigroup.com/ProductDetail/?pid=000000000030268609 BS EN 60079-17:2014 Explosive atmospheres. Electrical installations inspection and maintenance

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Schedule Title : Hazardous Areas - Earthing

Schedule Ref : 27-04
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (90 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Before commencing any maintenance work on Flameproof equipment, read Introductory Procedures - Hazardous Areas (Electrics) (SFG 27-01) very carefully and follow all the safety procedures.

Replacement parts shall be in accordance with the safety documentation. Alterations to equipment shall not be carried out without appropriate authorisation where they adversely affect the safety of the equipment as stated in the safety documentation. Repairs and reclamation of equipment shall be carried out in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Fault loop impedance or earthing resistance	6M	The integrity of the earthing shall be checked at the initial inspection by measurement of resistance. The measurement may be made using an intrinsically safe resistance measuring instrument (within the procedure specified by the manufacturer). Subsequent sample inspections may also be carried out using an intrinsically safe resistance measuring instrument.	Non-intrinsically safe measuring equipment may be used if a safe work procedure (see IEC Standards) has been conducted and if the locations where potentially incendive sparking could occur, in case of dust hazards, can be guaranteed to be free from an explosive dust atmosphere and dangerous dust layers by those responsible for the area.	Electrical
2	Earth Loop Impedance	6M	Earth connections to maintain the integrity of the intrinsic safety safe system (such as transformer screen earth, barrier relay frame earth) shall be measured. There is no requirement to measure the earth loop impedance of mains powered equipment associated with intrinsically safe circuits other		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			than that required for normal control room instrumentation to protect against electric shock. Since, in some equipment, the intrinsic safety earthing is internally connected to the equipment frame, any impedance measurements (such as between the earth pin of the plug and the equipment frame, or the equipment frame and the control panel) shall be made using a tester specifically designed for use on intrinsically safe circuits.		
3	Earthing Resistance Testing	6M	Intrinsically safe circuit earthing and/or insulation. The insulation testing of intrinsically safe circuits is necessary to confirm that they are earthed or insulated from earth throughout, whichever of these conditions is required by the original design. This requirement may be unnecessary if an earth fault is self-revealing, for example, if a circuit "fails safe" as result of an earth fault or the circuit uses an earth leakage monitoring device. Insulation testing of intrinsically safe systems or circuits shall only be carried out using a test device specifically approved for connection to such circuits. Where, in order to carry out these tests, the common earth connection to a group of barriers is disconnected, the tests can only be made if either the plant is free from hazard, or if power is removed completely from all the circuits which depend upon that common earth connection. This test is only required on a sample basis.		Electrical

SCHEDULE LEGISLATION
http://shop.bsigroup.com/ProductDetail/?pid=000000000030268609 BS EN 60079-17:2014 Explosive atmospheres. Electrical installations inspection and maintenance

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Schedule Title : Heat Emitters

Schedule Ref : 28-01
Schedule Type : Core
Schedule Date : 21 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	6M (5 mins)	12M (10 mins)		
	4 5 18 19	6 7 8 9 11 12 13 14 20 21 22 23 26 27 28 29 30 32 33 34 35 37		
2 3 16 17 25				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

Fan Convectors, Unit Heaters and Perimeter (Skirting) Heating.

Maintenance of heat emitters can be divided into two main areas, namely the fixtures and fittings directly associated with the supply of heat and the grilles, the heat exchange surfaces through and over which the air passes. The efficiency of the grilles and heat exchange surfaces can be affected by fluff and fibres, the severity of which depends upon the location and the environment.

Thus a dusty carpeted room with perimeter skirt heating will require much more frequent cleaning of grilles and heating surfaces than a lino covered floor in a clean environment.

The frequencies shown in this task maintenance schedule refer to a clean environment but in extreme cases it may be necessary to clean grilles and heat exchangers as often as once a fortnight.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

Pressurised Systems

Heat Emitters that are included on a pressurised system e.g. steam will require inspection under the Pressure Regulations and will therefore be Red Statutory tasks. Consequently the Legislation links concerning Pressure Regulations have been included on this task maintenance schedule.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Fan Convectors (LTHW or Steam)**				
2	Filters	3M	When fitted remove, examine and check for damage. Clean or replace.	Check if filter is cleanable or disposable type. The frequency of cleaning depends upon the dirtiness of the air. Normally cleaning should be every three months but more frequent cleaning may be necessary.	Mechanical
3	Heat Exchanger	3M	Inspect and clean. Purge air	Clean using an industrial	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			from hot water units.	vacuum cleaner. Draw air through the heat exchanger in the opposite direction to the normal air flow. In exceptional cases a high pressure air hose may be required. In a dirty environment more frequent cleaning will be needed, e.g. quarterly, six weekly or even monthly.	
4	Controls	6M	Check all thermostats and other controls operate satisfactorily and are set in accordance with specification.	If heater battery is fitted with a low temperature cut out (LTC) and hot water is not available, it may be necessary to insert a temporary link in the electrical control circuit to operate the unit.	M&E
5	Motor/fan assembly	6M	Remove from heater casing if practical. Inspect and lubricate fan bearings and resilient mounts where applicable. Clean fans and motor. Examine wiring and connectors.	Check fans are secure, motors operate silently and that bearings are in good order.	M&E
6	Casing	12M	Examine condition of casing, access panels and grilles. Check unit is secure.	Check parts are securely fastened and free from 'rattles'. Check condition of access panels. Clean inside of casing. If unit has loose grilles, check seal between unit and grilles to ensure no air leakage or short circuiting occurs.	Mechanical
7	Pipework, valves, steam traps and associated equipment	12M	Examine for corrosion or leaks. Where applicable clean steam traps, strainers, non-return valves and scale pockets.	Check operation of steam traps.	Mechanical
8	TRV`s	12M	Check air temperature calibration against surface temperature of heat emitter. Advise client if air flow around sensor is restricted or affected by any reflected or other thermal gains. Check operation of thermostatic radiator valves.	Low temperature surfaces for heat emitters are desirable in homes for senior citizens / disabled.	Mechanical
9	General	12M	Leave unit in good working order.	Report on any further work considered necessary.	Mechanical
10	**Fan Convectors [Electric]**				
11	Casing	12M	Examine condition of casing, access panels and grilles. Check unit is secure, free from dust and dirt especially at air inlet and discharge grilles.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
12	Controls	12M	Check all thermostats and other controls operate satisfactorily and are set in accordance with specification.		Mechanical
13	Fan	12M	Inspect air circulation fan set(s), check fan/motor assembly for damage and for correct alignment. Check for wear at any resilient mounts.		Mechanical
14	Heat Exchanger	12M	Examine heater battery/element, clean and comb as required.		Mechanical
15	**Unit Heaters**				
16	Heat Exchanger	3M	Inspect and clean. Purge air from hot water units.	Clean using an industrial vacuum cleaner. Draw air through the heat exchanger in the opposite direction to the normal air flow. In exceptional cases a high pressure hose may be required. In a dirty environment more frequent cleaning will be needed, e.g. quarterly, six weekly or even monthly. Vent coil at local air vent. If automatic air vent provided, check for correct operation.	Mechanical
17	Filters	3M	When fitted remove, examine and check for damage. Clean or replace.	Check if filter is cleanable or disposable type. The frequency of cleaning depends upon the dirtiness of the air. Normally cleaning should be every three months but more frequent cleaning may be necessary.	Mechanical
18	Controls	6M	Check all thermostats and other controls operate satisfactorily and are set in accordance with the specification.	If heater battery is fitted with a low temperature cut out (LTC) and hot water is not available, it may be necessary to insert a temporary link in the electrical control circuit to operate the unit. Where applicable, check starter overloads are set to suit full load current.	Mechanical
19	Motor/fan assembly	6M	Check fan/motor bearings for abnormal wear. Clean all surfaces, particularly fan impeller and motor casing vents. Lubricate fan/motor bearings where grease nipples/lubricators are fitted, taking care not to over -grease. Lightly grease fan	Check security of fans and condition of resilient mounts. If applicable: • Check condition, tension and alignment of drive belts and pulleys. • Renew drive belts as necessary.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			motor slide rails.	• Check drive guard is in good repair and securely fixed, providing correct cover of all moving parts.	
20	Casing	12M	Examine condition of casing, discharge louvres and inlet guards. Check unit is secure and that all bolts, nuts, setscrews etc. are secure. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary. Ensure all access doors for fit and can be made secure. When shut, ensure for air tight seal.	Where applicable, check condition of any flexible ducting connections. Check security of mounting brackets or drop rods. Check that any discharge louvres are correctly set to give the desired air spread pattern.	Mechanical
21	Pipework, valves, steam traps and associated equipment	12M	Examine for corrosion or leaks. Where applicable clean steam traps, strainers, non-return valves and scale pockets.	Check operation of steam traps.	Mechanical
22	Electrical	12M	Heater Unit. Check function & operation of local isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure. Take and log motor current and compare with nameplate details. Check all temperature control devices for correct operation and function.		Electrical
23	General	12M	Leave unit in good working order. After maintenance, carry out a general operational check, and check for excessive noise, vibration and temperature.	Report on any further work considered necessary.	Mechanical
24	**Natural Convectors and Perimeter (Skirting) Heating**				
25	Heat Exchanger	3M	Inspect and clean. Purge air from hot water units. Where applicable, examine condition of expansion joints, guides and anchors.	Clean using an industrial vacuum cleaner. Draw air through the heat exchanger in the opposite direction to the normal air flow. In exceptional cases a high pressure hose may be required. In a dirty environment more frequent cleaning will be needed,	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				e.g. quarterly, six weekly or even monthly.	
26	Casing	12M	Examine condition of casing, access panels and grilles. Where applicable, check condition of damper seal. Check unit is secure.	Check parts are securely fastened and free from 'rattles'. Check condition of access panels. Clean inside of casing. If unit has loose grilles, check seal between unit and grilles to ensure no air leakage or short circuiting occurs.	Mechanical
27	Pipework, valves, steam traps and associated equipment	12M	Examine for corrosion or leaks. Where applicable clean steam traps, strainers, non-return valves and scale pockets.	Check operation of steam traps.	Mechanical
28	Controls	12M	When fitted examine condition of damper seals.	When fitted, check damper operates smoothly.	Mechanical
29	TRV's	12M	Check air temperature calibration against surface temperature of heat emitter. Advise client if air flow around sensor is restricted or effected by any reflected or other thermal gains. Check operation of thermostatic radiator valves.	Low temperature surfaces for heat emitters are desirable in homes for senior citizens / disabled.	Mechanical
30	General	12M	Leave unit in good working order.	Report on any further work considered necessary.	Mechanical
31	**Radiant Strip**				
32	Panels and insulation	12M	Examine condition of panels and insulation.	Clean panels and insulation, check that insulation is fitted and secured.	Mechanical
33	Pipework, valves, steam traps and associated equipment	12M	Examine for corrosion or leaks. Where applicable clean steam traps, strainers, non-return valves and scale pockets. Examine condition of expansion joints.	Check operation of steam traps.	Mechanical
34	Suspension	12M	Check condition and security of drop rods, hangers and related equipment.		Mechanical
35	General	12M	Leave unit in good working order.	Report on any further work considered necessary.	Mechanical
36	**Heat Emitters - Safety**				
37	All items	12M	Cleaning and maintenance.	Due to possible difficulties of access, cleaning and maintenance should only be undertaken by a competent person. When applicable, isolate units(s) from electrical supply by removing fuses or locking main	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				switch in OFF position. Always refer to the manufacturer's instructions/recommendations before undertaking any cleaning or maintenance.	

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Gas Fired Ceramic Plaque Infra-Red Heaters

Schedule Ref : 28-02
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

These heaters are usually placed high up in a building and consequently are not easily accessible. A risk assessment and method statement should be carried out. Access by stepladders is not recommended. Regular maintenance is essential and whilst annual maintenance may be adequate in a clean environment, dusty conditions will require more frequent maintenance. In very dusty environments e.g. textile factories, it may be more desirable to duct a direct combustion air line to the heater.

Correct combustion entails the adequate mixing of the fuel with air to ensure that the fuel is completely burnt without producing excessive smoke or diluting the combustion gases with excess air both of which cause energy wastage. With all fossil fuels, insufficient air produces carbon monoxide, a safety and health hazard, as undetected CO is poisonous.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	12M	Check unit and all bolts, nuts, setscrews etc. are secure. Check and clean surfaces of unit, check for corrosion, repair and treat as found necessary.		Gas Safe
2	Ceramic plaques	12M	Clean using an air supply.	The direction of air flow should be opposite to that of the gas flow.	Gas Safe
3	Electrical spark plug	12M	Clean with wire brush, replace if there are any signs of corrosion. Check spark electrode gap for satisfactory setting. Refer to manufacturer's manual.		Gas Safe
4	Wiring and controls	12M	Check for satisfactory operation of local electrical isolation switch. Check function and operation of all control switches and temperature controls. Examine and report condition of all associated wiring, ensure security of all terminations and		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		
5	Gas pressure, gas pipework and cocks	12M	Check with rated value and adjust if necessary. Check gas cocks are free to turn, lubricate as necessary. Inspect gas pipework system, check for leaks, loose brackets and supports, repair as necessary. Report all findings.	The rated value will be found on the identification plate or in the operating instructions.	Gas Safe
6	Performance check	12M	Switch on and stable plaque should present a uniform cherry red appearance.	If the unit does not perform correctly the plaques should be cleaned. If the specified output is not obtained the unit should be replaced and returned to the manufacturer. Under certain conditions e.g. broken plaque, the heater may light back i.e. gas may ignite at the injector resulting in flames being vented from the exhaust of the heater. Apart from the lack of radiant effect light back will cause blockage of the plaque with carbon.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Gas Radiant Tube Heaters

Schedule Ref : 28-03
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

These heaters are usually placed high up in a building and consequently are not easily accessible. A risk assessment and method statement should be carried out. Access by stepladders is not recommended. Regular maintenance is essential and whilst annual maintenance may be adequate in a clean environment, dusty conditions will require more frequent maintenance. In very dusty environments e.g. textile factories, it may be more desirable to duct a direct combustion air line to the heater.

Correct combustion entails the adequate mixing of the fuel with air to ensure that the fuel is completely burnt without producing excessive smoke or diluting the combustion gases with excess air both of which cause energy wastage. With all fossil fuels, insufficient air produces carbon monoxide, a safety and health hazard, as undetected CO is poisonous.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General and isolation of heater from electrical and gas supply	12M	Switch off, remove fuses and turn off gas supply. Inspect emitter tube and brush any dust from the exterior of the emitter tube. Inspect the emitter tube internally, clean with a vacuum cleaner as found necessary. Inspect and clean injector using a soft brush. Inspect and clean as necessary the burner fresh air duct (where fitted) and air inlet terminal. Inspect radiant tubes and fittings internally. If there is any appreciable build-up of dust or deposits the tubes should be cleaned internally. If corrosion is present replace as necessary. Inspect for evidence of holes and cracks to tube	For safety reasons it is essential that the equipment is isolated from electricity and gas before servicing.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			couplers and replace if necessary.		
2	Burner	12M	Disconnect gas union and remove complete burner unit.	Clean the combustion chamber, inspect for damage and corrosion.	Gas Safe
3	Pilot burner jet	12M	Remove, clean and refit.	Only the manufacturer's approved seals or jointing compounds must be used.	Gas Safe
4	Main burner jet	12M	Remove, clean, inspect and refit.	A competent engineer qualified as required by the Gas Safety Regulations must be used for this work.	Gas Safe
5	Air filter	12M	Remove, clean and refit.	Cleaning should be carried out using a soft brush or blowing with air. Use new gaskets and renew filter if necessary.	Gas Safe
6	Spark plug and burner electrode assembly	12M	Remove, clean and refit. Check spark electrode gap for satisfactory setting, refer to manufacturer's manual. Inspect burner electrode assembly, check electrodes for build-up of carbon or cracks. Check the spark distance and position of electrodes relative to the burner head. Renew electrode assembly if not in good condition.	Check ceramic for cracks or breakage. Renew if necessary.	Gas Safe
7	Pilot burner orifices	12M	Inspect and clean.		Gas Safe
8	Burner grid	12M	Inspect and clean, removing all dust on back of ceramic block.	Check ceramic block and fireclay for signs of cracking. Renew if necessary.	Gas Safe
9	Observation windows	12M	Clean combustion chamber viewing window.		Gas Safe
10	Vacuum switch	12M	Examine and check switching differentials for correct operation.		Gas Safe
11	Acoustic joints	12M	Inspect acoustic joints for damage and replace if necessary.	Renew if necessary.	Gas Safe
12	Condensate traps	12M	Inspect condensate trap for blockages, dirt and scale, clean if necessary.		Gas Safe
13	Vacuum motor pump	12M	If fitted, examine mountings. Inspect vacuum fan and flue ductwork for any contamination.	Lubricate pump motor if applicable.	Gas Safe
14	Reflectors	12M	Inspect to ensure correct fitting and clean with soft cloth and detergent in water.		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
15	Gas pressure, gas pipework and cocks	12M	Pressure drop test back to nearest gas cock to ensure soundness. Check gas cocks are free to turn, lubricate as necessary. Inspect gas pipework system, check for leaks, loose brackets and supports, repair as necessary, report all findings.		Gas Safe
16	General	12M	After cleaning and adjustment, re-assemble, cleaning the reflector plate. Check all auxiliary controls/gas shut-off devices. Undertake heat test.	With heater(s) switched on and system stabilised carry out a heat test in accordance with the manufacturer's recommendations. Check all burner units for correct ignition sequence, pilot and main burner flames for stability and correct aeration, adjust if necessary. The following readings are to be taken and the system adjusted to meet the manufacturer's recommendations: • vacuum at each end vent • maximum and minimum pressure • gas consumption.	Gas Safe
17	Wiring and controls	12M	Check for satisfactory operation of local electrical isolation switch. Check function and operation of all control switches and temperature controls. Examine and report condition of all associated wiring, ensure security of all terminations and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		Electrical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Gas Fired Natural and Fan Assisted Heaters - Conventional and Balanced Flue

Schedule Ref : 28-04
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

These heaters are usually placed high up in a building and consequently are not easily accessible. A risk assessment and method statement should be carried out. Access by stepladders is not recommended. Regular maintenance is essential and whilst annual maintenance may be adequate in a clean environment, dusty conditions will require more frequent maintenance. In very dusty environments e.g. textile factories, it may be more desirable to duct a direct combustion air line to the heater.

Correct combustion entails the adequate mixing of the fuel with air to ensure that the fuel is completely burnt without producing excessive smoke or diluting the combustion gases with excess air both of which cause energy wastage. With all fossil fuels, insufficient air produces carbon monoxide, a safety and health hazard, as undetected CO is poisonous.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Protection guards	12M	Remove internal guard.	Check the condition of both internal and external guards.	Gas Safe
2	Heating casing	12M	Remove and inspect for damage.		Gas Safe
3	Stub ducts (if fitted)	12M	Clean grille.		Gas Safe
4	Burner	12M	Disconnect gas union, remove burner assembly complete.	Clean the combustion chamber internally and externally, inspecting closely for signs of corrosion.	Gas Safe
5	Ignition	12M	Check operation of ignition assembly.	Clean and adjust electrode as required.	Gas Safe
6	Thermocouple	12M	Clean with fine wire brush, reassemble pilot and test.	Renew with manufacturer's approved thermocouple if necessary.	Gas Safe
7	Burner controls	12M	Check operation and condition of all burner controls including combustion fan if fitted.	Check gas pressure to burner and pilot, adjust if required. Lubricate diaphragms to manufacturer's specification.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				Check safety interlocks associated with combustion fan. A competent engineer qualified as required by the Gas Safety Regulations must be used for this work.	
8	Flueways	12M	Inspect flue and flueways.	Clean as necessary.	Gas Safe
9	Gaskets	12M	Renew flue gaskets, 'O'-rings and joints.		Gas Safe
10	Heat exchanger	12M	Inspect for corrosion.		Gas Safe
11	Room air distribution fan assembly (if fitted)	12M	Inspect fan bearings, fan wheel(s) or blades and check speed.	Examine for cleanliness and freedom of operation.	Gas Safe
12	Gas pressure, gas pipework and cocks	12M	Check with rated value and adjust if necessary. Check gas cocks are free to turn, lubricate as necessary. Inspect gas pipework system, check for leaks, loose brackets and supports, repair as necessary. Report all findings.	The rated value will be found on the identification plate or in the operating instructions.	Gas Safe
13	Wiring and controls	12M	Check for satisfactory operation of local electrical isolation switch. Check function and operation of all control switches and temperature controls. Examine and report condition of all associated wiring, ensure security of all terminations and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		Electrical
14	General	12M	Check settings and correct operation of thermostats and time clocks.	Make necessary corrections if required.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Gas Fire

Schedule Ref : 28-05
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (30 mins)				
1 2 3 4 5 6 7 8 9 10 11				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS
Carbon Monoxide (CO) is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The fire should be quiet in operation, no excessive noise should occur when the fire ignites or shuts down. Consider the installation of a CO detector that complies with current BS EN Standards. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Vent and Flu	12M	Check ventilation arrangements are adequate and not blocked. Check flue termination and that it is compliant.		Gas Safe
2	General	12M	Remove the outer case and the radiants or fuel. Check for soot and rubble behind the closure plate and clean out if necessary (excessively large quantities can block the fuel spigot and cause spillage). Reseal the closure plate if required, ensuring that the relief opening is clear. Clear dirt and lint from the base of the fire where the cool air enters from the room.		Gas Safe
3	Burner and injectors	12M	Clean dust and lint from the burner and the injectors.		Gas Safe
4	Heat Exchanger	12M	Check the heat exchanger for corrosion damage and clean the visible flueway.		Gas Safe
5	Gas tap	12M	Check shut off. Grease gas tap if it is stiff to turn.		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
6	Refit fire	12M	Reconnect the fire and check for gas soundness. Ensure fire is level and secure.		Gas Safe
7	Ignition	12M	Test the ignition, clean or renew any batteries or parts as necessary. Check any electrical components; wires should be properly insulated, connections clean and sound. Test any spark gap and reset if necessary.		Gas Safe
8	Burner pressure	12M	Check gas rate by burner pressure and adjust governor if required.		Gas Safe
9	Controls	12M	Check the operation of any flame supervision device, if fitted. Check that thermostat phial is correctly located and that thermostat operates satisfactorily.		Gas Safe
10	Radiants and case	12M	Replace radiants and case.		Gas Safe
11	Flue	12M	Check flue pull.		Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Gas Fired Unit Heaters

Schedule Ref : 28-06
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
The frequency will change depending on the amount of dust in the atmosphere. Carbon Monoxide (CO) is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The fire should be quiet in operation, no excessive noise should occur when the fire ignites or shuts down. Consider the installation of a CO detector that complies with current BS EN Standards. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Burner assembly	12M	Remove the burner assembly and clean thoroughly. Check the condition of the ignitor and clean to remove all deposits. Check spark gap and adjust as required to the manufacturer's guide. Check the sensor and clean as necessary. Remove any soot deposits from the burner with a wire brush. Clean the ports with a degreaser or acetone. Wipe the inside of the burner tube clean (cleaning thoroughly with a degreaser as recommended will retard future build-up of dirt). Inspect burner for any damage or deterioration. If the burner is damaged or corroded it will need to be replaced.	Stubborn deposits on the burners are often best cleaned using "acetone" as a solvent. A vacuum cleaner or compressed air may assist in this cleaning operation.	Gas Safe
2	Heat Exchanger	12M	Examine the heat exchanger tubes internally and externally for any sign of deterioration. Remove any dust and grease	The heat exchanger should remain clean unless a problem has developed due to poor combustion.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			deposits. Clean the inner surfaces of the heat exchanger with a flue brush and remove all deposits.		
3	Fan	12M	Clean the axial fan blades, fan guard and fan motor to remove all external dirt. Check the security of the fan on the motor. Most fan motors are lubricated for life and do not require lubricating but check manufacturer's guidelines.		Gas Safe
4	Venter Fan	12M	Remove any dirt and/or grease that may have accumulated on the venter fan motor and its housing. Most venter fan motors are lubricated for life and do not require lubricating but check manufacturer's guidelines.		Gas Safe
5	Control valve	12M	Clean the exterior of the gas control valve and check the condition of the wire connections. Test pressure as manufacturer's instructions.		Gas Safe
6	Flue/combustion air	12M	Check the flue/combustion air system for soundness. Reseal/replace any parts that are not sound.		Gas Safe
7	Wiring	12M	Check all wiring connections. Check wiring for any signs of damage. Replace any suspect wiring with equivalent specification.		Gas Safe
8	Controls	12M	Check operation of the thermal fan control and control relay.		Gas Safe
9	Recommission unit	12M	When the service is complete carry out full commissioning as per manufacturer's commissioning procedure.		Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j
Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Gas Fired Radiant Heaters

Schedule Ref : 28-07
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9 10 11				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
The frequency will change depending on the amount of dust in the atmosphere. Carbon Monoxide (CO) is poisonous, life threatening and also causes energy waste. Flames should be bluish and burning in a stable manner. The fire should be quiet in operation, no excessive noise should occur when the fire ignites or shuts down. Consider the installation of a CO detector that complies with current BS EN Standards. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Vent and Flue	12M	Check ventilation arrangements are adequate and not blocked. Check flue termination and that it is compliant. Inspect and clean as necessary the burner fresh air duct (where fitted) and air inlet terminal.		Gas Safe
2	Burner, injectors and pilots	12M	Clean the burner, injectors and the pilots. Check burner electrodes for build-up of carbon or cracks. Check the spark distance and position of electrodes relative to the burner head. Check condition of burner head insert and flame retention grid and replace if necessary. Replace filter unit if contaminated with dirt. Clean combustion chamber viewing window.		Gas Safe
3	Gas tap and pipework	12M	Check shut off. Grease gas tap if it is stiff to turn. Inspect gas pipework system, check for leaks, loose brackets		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			and supports, repair as necessary, report all findings.		
4	Ignition	12M	Test the ignition, clean or renew any parts as necessary. Check any electrical components; wires should be properly insulated, connections clean and sound. Test any spark gap and reset if necessary.		Gas Safe
5	Burner pressure	12M	Check gas rate by burner pressure and adjust governor if required.		Gas Safe
6	Controls and wiring	12M	Check for satisfactory operation of local electrical isolation switch. Check function and operation of all control switches and temperature controls. Check the operation of any flame supervision device, if fitted. Check that thermostat phial is correctly located and that thermostat operates satisfactorily. Examine and report condition of all associated wiring, ensure security of all terminations and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		Gas Safe
7	Reflectors	12M	Clean and polish reflectors.		Gas Safe
8	Ceramic plaques	12M	Clean ceramic plaques.	Dust from the atmosphere builds up on the rear face of the ceramic plaques and can cause local overheating and light-back. It may be removed by a fine jet of compressed air at a pressure of about 5.5 bar. This should be directed first into the holes in the plaque and then into the venturi and finally into the holes again. Care must be taken not to damage the plaque or dislodge the sealing material holding it to the burner body. Some manufacturers recommend washing the plaques using a detergent. It may be necessary to replace	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				damaged or badly linted plaques. This is best done on a bench. The new plaque must be sealed by the material appropriate to the particular model which may be metal strips, fireproof cement or insulating material.	
9	Combustion air fan	12M	Inspect heater's fan assembly, strip and clean as found necessary. Check operation, check wiring and clean casing and blades if possible. Lubricate bearings in accordance with manufacturer's recommendations using the correct type of oil they specify.		Gas Safe
10	Suspension chains, brackets etc.	12M	Check they are secure.		Specialist
11	Emitter tube	12M	Inspect emitter tube and brush any dust from the exterior of the emitter tube. Inspect the emitter tube internally, clean with a vacuum cleaner as found necessary.		Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Heat Exchangers - Coils

Schedule Ref : 29-01
Schedule Type : Core
Schedule Date : 02 Dec 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	6M (5 mins)	12M (120 mins)		
	17	12 13 14 19 20 21 22		
11	4	2 5 6 7 8 9 15		
		18		

ANNUAL TIMING (MINUTES)
190

SCHEDULE INTRODUCTIONS
When cleaning, ensure that system fans are off to avoid dirt disturbed during cleaning entering into the system. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Water to Air**				
2	Drain pans	12M	Inspect for corrosion and clear obstructions (if any) in condensate drain piping on cooling side.	Check that condensate traps on cooling coils are filled with water.	Mechanical
3	**Coils**				
4	Coil vent	6M	Check operation, condition of filters and sight glasses.		Mechanical
5	External surface air side	12M	Clean coils by blowing through with dry, oxygen free, nitrogen from the opposite side to the air flow. Comb out fins. Where Nitrogen is used, a Risk Assessment must be done prior and suitable training given.	Where necessary clean with appropriate sterilising solution, especially when coils operated under moist air conditions or act as a dehumidifier. Particularly dirty coils should be reported to the client as the filter changing regime may need to be amended.	Mechanical
6	Water side	12M	Flush out coils to remove sediment.	On heating coils, any scale build up which restricts water flow should be reported for further action.	Mechanical
7	Coil casing	12M	Inspect for rust and clean and repaint as required.		Mechanical
8	Coil mounting bolts	12M	Check for tightness and secure if	Corroded bolts should be	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			necessary.	replaced.	
9	Pipework	12M	Inspect connections, pipes and supports for damage, loose or missing fittings. Repair as necessary.		Mechanical
10	**Steam to air**				
11	Operation of steam traps	1M	Check operation, condition of filters and sight glasses.	For full details of maintenance requirements see Pipework Systems - Steam Services (SFG 40-11).	Mechanical
12	Coils - External surface air side.	12M	Clean coils by blowing through with dry, oxygen free nitrogen from the opposite side to the air flow. Comb out fins. Where nitrogen is used, a Risk Assessment must be done prior and suitable training given.	Where necessary clean with appropriate sterilising solution. Particularly dirty coils should be reported to the client as the filter changing regime may need to be amended.	Mechanical
13	Coil casing	12M	Inspect for rust and clean and repaint as required.		Mechanical
14	Coil mounting bolts	12M	Check for tightness and secure if necessary.	Corroded bolts should be replaced.	Mechanical
15	Pipework	12M	Inspect connections, pipes and supports for damage, loose or missing fittings. Repair as necessary.		Mechanical
16	**Indirect Gas Fired to Air**				
17	Heat exchanger - flue gas side	6M	Clean surfaces where access is provided.	Report to client any deterioration of heating surface which requires further attention.	Gas Safe
18	Heat exchanger - air side	12M	Clean coils air-side surfaces by blowing through with dry, oxygen free nitrogen from the opposite side to the air flow. Where nitrogen is used, a Risk Assessment must be done prior and suitable training given.	Comb fins if appropriate. Where necessary clean with appropriate sterilising solution. Particularly dirty coils should be reported to the client as the filter changing regime may need to be amended.	Gas Safe
19	Heat exchanger casing	12M	Inspect for rust and clean and repaint as required.		Gas Safe
20	Heat exchanger mountings	12M	Check for tightness and secure if necessary.	Corroded bolts should be replaced and any leaking joints between the heat exchanger and discharge of products of combustion must be rectified before the heater is put back into service.	Gas Safe
21	Gas burners and associated equipment	12M	Service.	For detailed information on maintenance of gas fired heater see relevant Burners (SFG 07).	Gas Safe
22	Flues	12M	Service.	For detailed information on	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				maintenance, see Flues (SFG 24-01).	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Electric/Air Heater

Schedule Ref : 29-02
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
When cleaning ensure that system fans are off to avoid dirt disturbed during cleaning entering into the system. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Air side	12M	Clean coils air-side surfaces by blowing through with dry, oxygen free nitrogen from the opposite side to the air flow. Where Nitrogen is used, a Risk Assessment must be done prior and suitable training given.	Comb fins if appropriate. Where necessary clean with appropriate sterilising solution. Particularly dirty coils should be reported to the client as the filter changing regime may need to be amended.	Mechanical
2	Terminal Box - external surfaces	12M	Inspect for rust, clean and repaint as required.		Mechanical
3	Terminal Box - lid retaining screws	12M	Check for tightness and secure if necessary.	Missing screws should be replaced.	Electrical
4	Terminal Box - internal connections	12M	Check that terminal screws are tight. Check the integrity of the internal wiring.	Before opening lid isolate electrical supply in accordance with HSAWA requirements.	Electrical
5	Elements within terminal box	12M	Check insulation resistance of each element. Check continuity.	Replace if below 1 meg ohm resistance. Replace if open circuit.	Electrical
6	Elements within casing	12M	Clean elements (comb out if finned type).	Where necessary clean with appropriate sterilising solution.	Electrical
7	Casing	12M	Inspect for rust, clean and repaint as required.		Mechanical
8	Mounting bolts	12M	Check for tightness and secure as necessary.	Examine casing mounting flanges for air tightness where appropriate.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	Thermostats / Controls	12M	Check operation.	For more detailed maintenance see Sensors and Switching Devices (SFG 50).	Electrical

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Schedule Title : Plate Recuperator

Schedule Ref : 29-03
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	6M (20 mins)			
	2 3 4 5 6 7 8 9			
1				

ANNUAL TIMING (MINUTES)
80

SCHEDULE INTRODUCTIONS
The frequency of cleaning will depend upon the working environment. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Filters	3M	Clean or replace as necessary.	Filters are fitted on both inlet and extract to keep the heat exchangers clean. In normal use, air filters do not present a health and safety hazard. However used air filters do contain quantities of dust which, unless precautions are taken, may expose maintenance personnel to a 'nuisance dust hazard', as defined by the Control of Substances Hazardous to Health (COSHH) Regulations. A risk assessment must be carried out before the work starts and a method statement produced. Used filters must be regarded as Controlled Waste and appropriate safeguards taken for their disposal.	Mechanical
2	External surfaces	6M	Inspect for rust and clean and repaint as required.		Mechanical
3	Internal surfaces	6M	Check and remove any dirt,	Do not use wire brush for dirt	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			inspect for rust and repaint as necessary.	removal, blow off with dry nitrogen or compressed air. Where Nitrogen is used, a Risk Assessment must be done prior and suitable training given.	
4	Leakage	6M	Check for both internal and external leaks.	Cross leakage between the two air streams is undesirable as cross contamination could occur.	Mechanical
5	Mountings	6M	Check for tightness and secure as necessary.		Mechanical
6	Fans	6M	Service and lubricate.	For further guidance see Fans (SFG 20).	Mechanical
7	By-pass control	6M	Check operation.	Check summer/winter by-pass operation.	Mechanical
8	Heaters	6M	Check operation.	Check action of thermostat in air supply side. Setting should be 'air to room' at room temperature.	Mechanical
9	Drains	6M	Check operation, clean and sterilise.		Mechanical

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Schedule Title : Thermal Wheels - Rotary Heat Regenerators

Schedule Ref : 29-04
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (5 mins)	12M (45 mins)			
1	2 3 4 5			

ANNUAL TIMING (MINUTES)
55

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Bearings	6M	Lubricate according to the manufacturer's instructions.	'Sealed for life' bearings should not need any maintenance.	Mechanical
2	Exterior surfaces	12M	Clean and check for rust. If necessary prepare and repaint rusty areas.		Mechanical
3	Interior surfaces	12M	Clean, examine, treat and repaint any rusty areas.	Note: do not scrape as surfaces may have special coatings.	Mechanical
4	Heat exchange mesh	12M	Clean, taking care not to damage the mesh.	Low pressure hot water containing detergent is the best cleaning agent but if the system is designed with a hygroscopic surface to recover latent heat refer to manufacturer for cleaning instructions.	Mechanical
5	Seals	12M	Check condition and renew if necessary.		Mechanical

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Schedule Title : Run Around Heat Recovery Coils

Schedule Ref : 29-05
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (10 mins)				
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
10

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Pump	12M	Inspect bearings for wear. Check flow rates/speed and leak tightness. Check electrical connections.	Frequency should be in accordance with the manufacturer's instructions. Observe correct safety procedures as required under the Electricity at Work Regulations. For further guidance see Pumps (SFG 45).	Mechanical
2	Antifreeze	12M	Check that concentration is correct for the application.		Mechanical
3	Water	12M	Check for leaks.	Remedy if possible. If there is a major problem, refer to client.	Mechanical
4	Operating pressure	12M	Check and record.	Confirm pressure vessel operating conditions. A written scheme of examination may be required for the system.	Mechanical
5	Coils	12M	Clean with recommended cleaning compound and flush with water.		Mechanical
6	Air	12M	Check for leaks.	Rectify as required providing new seals etc.	Mechanical
7	Condensate traps	12M	Inspect for rust, clean and clear any debris. Recoat. Check traps are filled with water on return to service.		Mechanical

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Schedule Title : Plate Heat Exchangers

Schedule Ref : 29-06
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Inspection	12M	Inspect the plate pack for deformed or damaged edges or for leakage.	Gaskets extruding from the plate pack normally indicate a damaged plate or failed gasket. The most common cause of such failure is working at excess pressure which has to be corrected. A major overhaul is necessary if the pack is deformed.	Mechanical
2	Cleaning frame	12M	The exterior finish of the heat exchanger frame (not the plate pack) should be washed down and rubbed dry, then a thin film of cleaner applied.	The correct type of cleaner as recommended by the manufacturer should be used and this will normally provide lasting protection provided the treated services are not subject to high temperature.	Mechanical
3	Top bar	12M	Clean all surfaces and check tightness of fixing screws.	Depending upon the make of heat exchanger, lubricate plate and follower hanger surface each time the plate is opened.	Mechanical
4	Bottom bar	12M	Check tightness of fixing screws.	Depending upon the type of exchanger, smear surfaces with a thin film of grease when plate pack is open.	Mechanical
5	Liquid connections	12M	Check tightness of flanged or pipe union fittings on header.		Mechanical
6	Rubber bush linings (where fitted)	12M	Check for splits, signs of		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			cracking or other deterioration.		
7	Port rings (where fitted)	12M	Check for collapsed peaks, splits or hardening.		Mechanical
8	Connector grid boss fixing (where fitted)	12M	Check security of connector grid boss fixings when plate pack is exposed.		Mechanical
9	Tie bars	12M	Coat all exposed threads with appropriate lubricant.		Mechanical
10	Tightening screws (where fitted)	12M	Grease threads with maker's recommended grease or paste.		Mechanical
11	Hinge bar thrust pad (where fitted)	12M	Clean and apply maker's recommended grease.	Inspect for serious wear and replace as necessary.	Mechanical
12	Spray screens (where fitted)	12M	Always ensure that spray screens are properly attached when the heat exchanger is operating.		Mechanical
13	Exchanger operation (where suitable gauges have been fitted)	12M	Check temperatures on inlet/outlet and pressure drop.	Fluctuating outlet temperatures could indicate a perforated plate allowing intermixing of primary and secondary fluids. Low output pressure could possibly be due to scale deposits on the plates, a blockage in the plate pack or inlet pipeline, all of which cause energy waste. If de-scale or hygienic cleaning is necessary, it should be carried out strictly in accordance with the heat exchanger manufacturer's recommended procedure.	Mechanical
14	Check safety controls	12M	Check safety valve operation.		Mechanical

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Schedule Title : Heating Calorifiers - MTHW, HTHW or Steam

Schedule Ref : 29-08
Schedule Type : Core
Schedule Date : 12 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (240 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15				

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS

Most MTHW, HTHW and Steam Calorifiers will be under the control of an Authorised Person. A permit to Work must be issued by the Authorised Person before any work can commence on a Calorifier

If insulation looks damaged - STOP WORK- this may be Asbestos - Appropriate action must be taken prior to further works. If the insulation is known or CERTIFIED not to be Asbestos, continue as follows: -

See Introductory Procedures - Hot Water Supply (SFG 32-01) for further information on temperatures etc.

Prior to carrying out the planned maintenance of the calorifier, the pre-maintenance procedure detailed below should be followed:

(a) At the entrance to the Plant room, Stop and Listen for a steam leak (High Pressure steam will be invisible and only the sound of a leak may be present).
(b) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety.
(c) Inspect calorifier insulation and/or shell for signs of damage.
(d) Inspect all manholes, mounting and joints for signs of leaks.
(e) Report any necessary remedial work where repairs, adjustment or replacement will be required during routine maintenance.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Check operation, in particular safety controls	12M	Check, note and report any visible defects.	Ensure secondary is full of water and circuits are open. If safety controls are defective take equipment out of service.	Mechanical
2	Safety valves	12M	Check for corrosion and manually operate.	If calorifier was in use, the secondary water will be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
3	Thermostats, pressure sensors, altitude gauges and thermometers	12M	Check for correct operation and settings, set against Certified masters.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
4	Auto controls and primary side	12M	Shut down primary heat source taking all necessary precautions to prevent unauthorised use.	Check safe operation of temperature controls and high limit cut-outs. This may include obtaining a Permit to Work from an Authorised Person.	Mechanical
5	Drain valve/drain cock on secondary side	12M	Draw off a small quantity of water to remove any sediment.	If calorifier was in use, the secondary water will be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
6	Heating surface and internal surfaces of shell	12M	Drain down secondary side, remove manhole covers and inspect for scale formation and corrosion.	The formation of scale reduces heat transfer and causes energy wastage. Client's attention should be drawn to the presence of excessive scale which indicates the need for water treatment. Corrosion will cause metal failure and leakage. Remember Waste Disposal Legislation. If scale is extensive, refer to client for further instructions.	Mechanical
7	Gaskets	12M	Check gaskets on steam chest for leakage, replace as necessary.	Steam leaks are dangerous to personnel and cause wastage of energy.	Mechanical
8	Sacrificial anode	12M	Check status.	Replace as necessary.	Mechanical
9	Steam trap/sight glass (on primary connections)	12M	Clean and overhaul steam trap.	Faults can lead to steam and energy wastage.	Mechanical
10	Strainer on primary pipework	12M	Remove strainer, clean and refit.	Blocked strainers reduce performance.	Mechanical
11	Internal Inspection	12M	Arrange for an internal inspection to be carried out by a Competent Person as required by the Written Scheme of Examination.	Current Pressure Systems Safety Regulations will apply.	Mechanical
12	Primary heating coil	12M	Test primary heating coil.		Mechanical
13	Return to operation	12M	After completion of maintenance, refit all manhole covers and put back into operation.	Check that all controls are working correctly.	Mechanical
14	Check insulation for damage	12M	Repair or renew as necessary.	Damaged lagging reduces efficiency, wastes heat, and if the calorifier is in the open air, can become waterlogged and lead to hidden corrosion. Asbestos Regulations may apply.	Mechanical
15	Hydraulic pressure test	12M	If a pressurised system, test to 110% of working pressure.	Current Pressure Systems Safety Regulations will apply.	Mechanical

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SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Introductory Procedures - Heat Rejection Systems

Schedule Ref : 30-01
Schedule Type : Core
Schedule Date : 09 Feb 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

This section covers those items of plant associated with the removal of heat from the equipment producing the cooling. It covers evaporative/wet cooling towers, dry coolers and condensers. Where cooling towers have been, or appear to have been poorly maintained in the past, there is a danger that Legionella bacteria may be present, it is therefore essential that appropriate safety procedures as listed in ACOP L8, 2013 and HSG274 part 1 must be followed.

The cooling system may consist of a cooling tower, evaporative condenser or other cooling element, the recirculating pipework, the heat exchanger, pumps and ancillary items such as supply tanks and pre-treatment equipment. All of these items should be subject to the management and control system.

Cooling systems and towers should be kept in regular use wherever possible. Where a system is used intermittently or is required at short notice, it should be run once a week and, at the same time, be dosed with water treatment chemicals and water quality monitored. The whole system should be run for long enough to thoroughly distribute treated water. If a system is out of use for a week or longer (up to a month), in addition to the above, the water should be treated with biocide immediately on reuse.

If it is out of use for longer than a month and there are continued management/monitoring arrangements in place, the system should be kept full of treated water which should be checked (for biocide levels and water quality) and circulated once a week. If it is not possible to ensure regular monitoring and circulation (for example, if a building falls out of use) the system should be drained and sealed, with a desiccant left in the system to reduce the effects of corrosion. Full recommissioning will be required before the system can be brought back into reuse. Cooling systems that do not operate continuously, such as cooling towers that cycle on and off automatically or those on regular standby duty, require particular attention with regard to the biocide programme to ensure that effective levels of biocide are maintained at all times.

Waterside fouling will vary with the hardness of the water, amount of bleed off and the quantity of make up. In hard water areas or where heavy air pollution occurs it may be necessary to increase the maintenance frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Cooling Towers - Precautions against Legionnaires Disease (Legionella Pneumophila)

Schedule Ref : 30-02
Schedule Type : Core
Schedule Date : 12 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (20 mins)	1M (30 mins)	6M (240 mins)	12M (60 mins)	Not Specified
30 37 38	39 41	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29		
33 34 35 36	32 40 42		43 44	
				2 3

ANNUAL TIMING (MINUTES)
1940

SCHEDULE INTRODUCTIONS

Approved Code of Practice - Legionnaires disease:

The control of legionella bacteria in water systems: Approved Code of Practice, L8, 2013 sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The ACOP L8, 2013 has a special legal status, guidance is now given in HSG274 part 1 for cooling towers.

If you are prosecuted for breach of Health & Safety law, and it is proved that you did not follow the relevant provisions of the code, you will need to show that you have complied with the law in some other way or a court will find you at fault. Health and Safety inspectors seek to secure compliance with the law and may refer to the ACOP L8, 2013 and accompanying Guidance Documents as illustrating good practise. It is therefore important to comply with it.

Action to be taken prior to the visit.

1. Notify appropriate local and/or water authority/company, prior to discharging water drained from the cooling tower as the contaminated water could enter sewers.

2. Advise client that cooling tower will be out of action during period of visit.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Towers that have not been regularly maintained must be treated as HAZARDOUS and must not be maintained by personnel who may be susceptible to LEGIONELLA.

Appropriate Personal Protective Equipment (PPE), as detailed in the Method Statement, must be worn at all times. All PPE must be selected by a competent person as suitable for the purpose and must fit the individual operative properly (Health & Safety (PPE) Regulations).

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Tower Hygiene**				

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Display Order	Item	FQ	Action	Notes	Skilling
2	Initial Safety Precautions		Ensure competent fully trained maintenance personnel read ACOP L8, 2013 and HSG274 part 1. a) Select personnel who are less susceptible to the disease. b) Protective clothing and positive pressure respirators. c) Cooling water analysis.	Before starting work on cleaning cooling towers it is essential that certain preliminary safety precautions are taken. These are listed under 'Action'. Personnel must wear positive pressure respirators when contamination is suspected or the condition is not known. Note:- respirator seal may not work with beards. Sample and send to a UKAS accredited laboratory for total viable colony count (TVC). Dipslides should be taken weekly.	Not-specified
3	Cleansing and Disinfection Procedures			Disinfection, cleaning and manual desludging of cooling towers should be undertaken at least twice a year, but more frequent cleaning may be necessary depending on local environmental conditions such as dirty atmospheres and the conclusions reached in the risk assessment. Cooling systems that have a short operating period may only need to be cleaned at the beginning and end of that period. If on inspection the system shows signs of a significant build -up of deposits or slime, then disinfection and cleaning should be carried out.	Not-specified
4	Site liaison	6M	Advise client that you are on site.	Report to security personnel where appropriate.	Multi-skilled
5	Warning notices	6M	Post at approaches to cooling tower and enclosure.	It is essential that anyone approaching the cooling tower is warned and notices must state: 'Restricted Area - Do Not Enter'.	Multi-skilled
6	Windows and air inlets	6M	Close any in the vicinity of the work.		Multi-skilled
7	Close down system	6M	Isolate chillers(s), cooling towers and circulating pumps.	If this involves entering vicinity of cooling tower and if tower is not regularly maintained, don protective clothing including positive pressure respirators.	Multi-skilled
8	Electrical equipment	6M	Ensure that all electrical		Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
			equipment is isolated except pumps and fans.		
9	Automatic dosing equipment, continuous drains and water supply	6M	Close water supply, circulate for fifteen minutes, isolate pumps and drain to waste.		Multi-skilled
10	Bio-dispersant	6M	Add at a recommended concentration.	Use of the bio-dispersant breaks down the bio-film which is usually present on most surfaces.	Multi-skilled
11	Hardness of water	6M	Check pH which should be between 7 and 8. If higher, contact water treatment specialist for advice.	If chlorine is used as the disinfectant, its efficacy is reduced if the system pH value is greater than pH 8. To achieve the same disinfection effect, its residual needs to be increased 3 -4 times, i.e. in place of 5mg/l for 5 hours, 15-20 mg/l is required for the same period. Generally this is not recommended, so if the system water is above pH 8 adopt one of the following procedures to compensate, without increasing the chlorine residual: a) introduce a heavy bleed-off for several hours to both reduce the pH of the system water and its chlorine demand before carrying out disinfection; b) reduce system pH by adding an acid; c) augment chlorine dosage with sufficient sodium bromide to change the disinfectant from chlorine to bromine.	Multi-skilled
12	Disinfection	6M	Add oxidising biocide such as chlorine, bromine or chlorine dioxide in conjunction with a suitable bio-dispersant.	Any action taken must conform to the requirements of CIBSE TM13, HSE ACOP L8, HSG274 part 1 and other H&S regulations. At 5 mg/l the system should be run for at least five hours, at 25mg/l for 2 hours and at 50mg/l for 1 hour. If chlorine is used as the disinfectant, its efficacy is reduced if the system pH value is greater than pH 8. To achieve the same disinfection effect, its	Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
				residual needs to be increased 3–4 times, i.e. in place of 5 mg/l for 5 hours, 15–20 mg/l is required for the same period. Generally, this is not recommended, so if the system water is above pH 8 adopt one of the following procedures to compensate, without increasing the chlorine residual: a) introduce a heavy bleed-off for several hours to both reduce the pH of the system water and its chlorine demand before carrying out disinfection; b) reduce system pH by adding an acid; c) augment chlorine dosage with sufficient sodium bromide to change the disinfectant from chlorine to bromine. If bromine or chlorine dioxide is used in systems where the pH is above 8, the reserves do not need to be increased or the pH adjusted as these disinfectants remain effective at higher pH.	
13	Cooling water pumps and fans	6M	Replace fuses to pumps, switch on and run to allow the required concentration of the free disinfectant to be established and circulated throughout the cooling system for an initial period with the fans off to ensure thorough mixing of the disinfectant throughout the system. Once this is achieved (usually after 15 minutes), the fan(s) should be switched on for the remainder of the process to ensure that disinfectant reaches all internal surfaces that become wet during normal operation of the tower and which potentially could be contaminated.	The disinfecting solution is to be monitored periodically and maintained in the cooling system throughout the disinfection period by adding more disinfectant as required. The normal disinfectant level required depends on the minimum circulation period adopted. A continuous minimum residual of 5 mg/l as free chlorine, for a minimum period of 5 hours, should be maintained, but if time available to conduct the operation is limited, using a higher disinfectant concentration for a shorter time may be acceptable. This will, however, increase the risk of damage to the fabric of the system. Excessive disinfectant levels should be avoided.	Multi-skilled
14	Drain system	6M	Switch off pumps, remove fuses and drain complete system.	When starting to drain, open water supply to assist in neutralising system, then shut off	Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
				water supply and allow to drain. It is essential that the whole system is completely drained. Check for drain cocks on pipework serving chiller.	
15	Tower packing and drift eliminators etc	6M	Dismantle so far as is practicable and clean. See comment in next action (All surfaces).	If packing shows signs of deterioration - replace. When replacing drift eliminators, ensure that these are correctly fitted and secured.	Multi-skilled
16	All surfaces	6M	All accessible surfaces to be cleaned with a wire brush. To remove all deposits thoroughly, chemical cleaning may be necessary.	Accessible areas of the tower and its pack should be adequately washed but cleaning methods that create excessive spray, for example high-pressure water jetting, should be avoided. If this is not possible, the operation should be carried out when the building is unoccupied or, in the case of permanently occupied buildings, windows in the vicinity should be closed, air inlets blanked off and the area that is being water-jetted should be tented. The area should be isolated and consideration should also be given to other occupied premises in the immediate areas as well as members of the public who may be in the vicinity during cleaning. Ensure all scale, rust and other mineral and organic deposits are removed. Any rust areas should be treated and repainted.	Multi-skilled
17	All components	6M	Every part of the system must be cleaned i.e. feed tank, ball valve, softener etc.	If any part of the system is left uncleaned, contamination of the whole system may result.	Multi-skilled
18	Disposal of loosened deposits	6M	Sweep out all loosened deposits and place in plastic sacks with the tops securely fastened.	Ensure safe removal of sacks from site. Waste Disposal Regulations may apply.	Multi-skilled
19	Wash down	6M	Clean with low pressure hose.	If possible close valves from tower to chiller during wash down. If a high pressure hose has to be used, tent tower to prevent any spray drift.	Multi-skilled
20	Chlorination	6M	Close drain valves, open water supply, fill system and chlorinate to 5 ppm. Replace pump fuses, switch on pumps and run system for six hours. The use of a bio-	While the maintenance of a continuous minimum residual of 5 mg/l of free chlorine for a minimum period of 5 hours is considered the best practice, if	Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
			dispersant will enhance the effectiveness of this chlorination. If the system volume is greater than 5m3, the water should be dechlorinated, drained, flushed and refilled with fresh water and dosed with the appropriate start-up level of treatment chemicals, including the biocides.	the downtime to conduct such a lengthy operation is not viable, some compromise may be necessary. Under such circumstances it may be acceptable to shorten the pre- and post- chlorination times and to increase the free chlorine level, e.g. 50 mg/l for 1 hour or 25 mg/l for 2 hours. This should only be done if the operators are trained in this process because, at these levels, there is a greater risk of damaging the fabric of the system.	
21	Drain system	6M	Repeat actions detailed above for draining the system.	If returning the system to immediate service, the disinfectant level can be allowed to decay over the first few hours of operation and a start-up level of the normal water treatment chemicals added. If, however, the system is going to be left idle before restarting, dechlorinate the water, drain and flush the system and leave it empty. On start-up, the system should be refilled with fresh water and the water treatment programme immediately reinstated with a dosage of the appropriate start-up level of treatment chemicals, including biocides. Before water containing high residuals of chlorine, bromine, chlorine dioxide etc is discharged to drain, neutralise the disinfectant. The usual procedure is to add sodium thiosulphate, sodium sulphite or sodium bisulphite as a neutraliser. The effluent from any disinfection and/or chemical cleaning process, neutralised or not, may be regarded by the effluent receiver as trade effluent and may require a ‘consent to discharge’. Therefore, permission to discharge may be required from the effluent receiver.	Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
22	Re-fill system	6M	Re-fill the system.	If chlorine concentration exceeds 2 ppm prior to activating water treatment regime, drain and refill.	Multi-skilled
23	Attenuators	6M	Clean, derust and repaint as required.		Multi-skilled
24	Activation of water treatment and dosing	6M	Contact water treatment organisation.	Water treatment organisation will activate system and take samples for analytical tests.	Multi-skilled
25	Protective clothing	6M	Remove and bag before returning through occupied parts of the building.		Multi-skilled
26	Complete system	6M	Restart. Check frost protection is operational.		Multi-skilled
27	Windows and air inlets	6M	Re-open windows and restart ventilation fans.	Remove warning notices.	Multi-skilled
28	Records	6M	Record all activities carefully in the form of duplicate job sheets.	Give client one copy of the report and retain the other.	Multi-skilled
29	Completion	6M	Advise client on completion of work.	Check out at security.	Multi-skilled
30	Bacterial checks	1W	Take sample for TVC count.	Note: Weekly dip slides will indicate bacteria levels. A high bacterial level does not necessarily mean the Legionella bacteria are present. Bacterial checks should be undertaken weekly. The water treatment analysis should be undertaken on a 3 monthly basis as a minimum, not 6 monthly.	Multi-skilled
31	**Tower Maintenance**				
32	Fans and Motors	1M	Check the condition of the fan motor through temperature or vibration analysis and compare to baseline values. Assure that all bearings are lubricated per the manufacturer's recommendation. Check for excessive wear and secure fastening. Aligning the motor coupling allows for efficient torque transfer.		Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
33	Strainers	1W	Physically clean screen(s) of all debris.		Multi-skilled
34	Drain and Overflow	1W	Check that drain and overflow are clear from blockage.		Multi-skilled
35	Float Switches	1W	Operate switch manually to ensure proper operation.		Multi-skilled
36	Tower Structure	1W	Check for excessive vibration in motors, fans and pumps. Check for loose fill, connections, leaks, etc.		Multi-skilled
37	Water Treatment	1W	Check that water treatment automatic dosing equipment is functional.	For further guidance see Water Treatment (SFG 65).	Multi-skilled
38	Test water samples (open system)	1W	Test for proper concentrations of dissolved solids, and microbiological quality of the pond water by undertaking a dip slide test. Adjust blowdown and chemicals as necessary. Record the result. Undertake additional water quality tests such as pH, conductivity and tests for hardness salts as determined by risk assessment.	Refer to ACOP L8, 'Table 1 - Typical on-site monitoring checks recommended for good operating practice'.	Multi-skilled
39	Test water samples (closed system)	1M	Test for proper concentrations of dissolved solids, and microbiological quality of the pond water by undertaking a dip slide test. Adjust blowdown and chemicals as necessary. Record the result. Undertake additional water quality tests such as pH, conductivity and tests for hardness salts as determined by risk assessment.	Refer to ACOP L8, 'Table 1 - Typical on-site monitoring checks recommended for good operating practice'.	Multi-skilled
40	All internal areas	1M	Check internal surfaces for algae, scale, rust and limescale accumulation.		Multi-skilled
41	Drift eliminators, louvres, tubes and fill	1M	Look for proper positioning and scale build-up. Clean as needed.	The frequency of the task can vary depending on the water quality. The Risk Assessment may give greater or lesser frequencies for this task.	Multi-skilled
42	Sparge Pipe	1M	Make sure water is flowing through nozzles to ensure even distribution over the fill.		Multi-skilled
43	Bearings	12M	Inspect bearings and drive belts for wear. Adjust, repair, or		Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
			replace as necessary.		
44	Motors	12M	Undertake annual maintenance. For further guidance see Motors (SFG 39-01).		Multi-skilled

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
Local Act

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Schedule Title : Dry Coolers

Schedule Ref : 30-03
Schedule Type : Core
Schedule Date : 03 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (70 mins)				
1 2 3 4 5 6 7 8 9 10				

ANNUAL TIMING (MINUTES)
140

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	6M	Isolate from electrical and other services.	Isolate electrical supply in accordance with H&S requirements.	Mechanical
2	Fans	6M	Clean fan blades and lubricate if required. 'Sealed for life' bearings should not be serviced. See Fans (SFG 20).	Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	Mechanical
3	Fins - external	6M	Clean by blowing through with dry, oxygen free nitrogen.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given. Any discharged refrigerant must be recovered and not released to atmosphere. Any persons working on these systems must be registered to an approved Certified Scheme provider, in accordance with the "F" Gas and Building Regulations.	Specialist
4	Fins - internal	6M	Blow through with dry, oxygen free nitrogen.	Do not use refrigerant for cleaning fins, use dry nitrogen or compressed air. Where Oxygen	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	
5	Coil vent	6M	Check operation.		Mechanical
6	Anti-vibration mountings	6M	Check - visual condition - effectiveness.	There should be no transfer of vibration or visible deterioration.	Mechanical
7	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		Electrical
8	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
9	General cleanliness	6M	Clean surfaces and components of unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
10	System operation	6M	Check function and operation of all automatic sensors/detectors (flow/temperature). Check for correct operation/shut-down of plant. Ensure all devices are returned to their correct settings. Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. When shut, ensure for air tight seal.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical

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Schedule Title : Adiabatic Coolers

Schedule Ref : 30-04
Schedule Type : Core
Schedule Date : 10 Dec 2015
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (15 mins)	1M (35 mins)	3M (45 mins)	6M (145 mins)	12M (45 mins)
1	2 3	5 6	9 10 17 18 19	21
	4		7 8 12 13 14 15 16	20
24M (15 mins)	Not Specified			
22	11			

ANNUAL TIMING (MINUTES)
1745

SCHEDULE INTRODUCTIONS

Introductory Information - Adiabatic Cooling

The effectiveness of air cooled heat rejection systems depend on the difference between the air dry bulb temperature and the refrigerant condensing temperature. The greater this difference the better the heat rejection. Traditionally, large heat rejection systems use cooling towers or evaporative coolers to reduce the size of the heat rejection equipment as well as the overall energy consumption due to lower condensing temperatures than those which would be obtained using dry air cooled condensers. Unfortunately, the water based corrosion, maintenance and health risks such as legionella have driven the industry towards the use of less efficient dry heat rejection systems. However, the need to reduce carbon emissions and energy waste has resulted in a resurgence in the use of evaporative systems.

As an alternative to conventional cooling towers and evaporative condensers, adiabatic dry air coolers can reduce the refrigerant condensing temperature by lowering the dry bulb temperature of the air entering the cooler. This is done by spraying a fine mist of water, usually from the town mains supply, into the airstream prior to it entering the cooler. As the water is evaporated the airstream is cooled. Ideally the temperature of the air would be reduced to that of the entering wet bulb. However, the cooling process is probably some 70% effective and so the dry bulb temperature of the air entering the cooler is likely to be reduced by about 70% of the wet bulb depression. For example, if the ambient air is at a dry bulb of 30°C and the wet bulb at 20°C ie. a wet bulb depression of 10K, the dry bulb temperature of the air entering the coil would be 30°C-0.7x10 K, or 23°C. For a given cooling duty this could result in a saving of some 15% in the power required by the chiller. This degree of saving is only possible during the mid summer for as the dry bulb temperature reduces so does the wet bulb depression. Nevertheless, such savings at a time of maximum load are a considerable advantage. Although there is some runoff from the cooler due to not all the water supplied being evaporated, it is much less than the blowdown from a cooling tower of the equivalent duty.

The use of tank fed water can produce a risk of proliferation of legionella within the system and so mains water is preferred with timed discharges prior to use to drain away static water and added protection to remove bacterial formation including legionella.

The potential for energy saving and carbon emission reduction for industry as a whole is significant and this can be achieved by simply using the tap water.

Maintenance

The general guidance is normally to ensure mains water is used. The spray nozzles must be kept clean and in good working order. Periodic water testing is taken and independently analysed for bacterial content including legionella. A disinfection device is normally used and a filter system may be incorporated thus requiring periodic maintenance in accordance with the manufacturer's instructions. It is also likely that a discharge solenoid valve is used to ensure only fresh water is used which must be included in the maintenance procedures. Also wet pads may be used and these need to be kept clean.

If fitted in health care settings, permission for use must be obtained from infection control.

All maintenance must be logged and signed for within the site water logbook.

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Approved Code of Practice- Legionnaires disease:

Specific details relating to the risk of Legionellosis are given in the Health and Safety ACOP L8 and HSG274 part 1, CIBSE publication TM13 and HTM 04-01 parts A & B.

The control of legionella bacteria in water systems: Approved Code of Practice, L8, sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The ACOP L8 has a special legal status, guidance is now given in HSG274 Part 1 for evaporative cooling systems.

If you are prosecuted for breach of Health & Safety law, and it is proved that you did not follow the relevant provisions of the code, you will need to show that you have complied with the law in some other way or a court will find you at fault. Health and Safety inspectors seek to secure compliance with the law and may refer to the ACOP L8 and accompanying Guidance Documents as illustrating good practise. It is therefore important to comply with it.

Action to be taken prior to the visit.

1. Notify appropriate local and/or water authority/company, prior to discharging water drained from the cooling tower as the contaminated water could enter sewers.

2. Advise client that cooling system will be out of action during period of visit.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

Towers that have not been regularly maintained must be treated as HAZARDOUS and must not be maintained by personnel who may be susceptible to LEGIONELLA.

Appropriate Personal Protective Equipment (PPE), as detailed in the Method Statement, must be worn at all times. All PPE must be selected by a competent person as suitable for the purpose and must fit the individual operative properly (Health & Safety (PPE) Regulations).

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Mains supply to unit and farthest spray outlet - Weekly	1W	Take dipslides and incubate at 30º C for 48 hours. Record readings on a graph.		Mechanical
2	System protection unit, associated filter and solenoid discharge valve	1M	Check for scale deposits, clean as necessary and check operation. Replace filter as required.	Filter may only require cleaning if non disposable. Water softening plant, if fitted, requires maintenance under separate sheet.	Mechanical
3	Ultra violet generation unit	1M	Check system is operational and clean quartz glass sleeve if wipers are fitted.		Specialist
4	UV system cartridge	1M	Change UV system cartridge.	Frequency will depend upon water quality.	Mechanical
5	Mains supply to unit and farthest spray outlet - 3 Monthly	3M	Take samples and submit to UKAS accreditated laboratory for the presence of legionella. Testing should be in accordance with ISO guidance.	The frequency of 3 months is the maximum period between testing. More frequent sampling should	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				be carried out when commissioning a system and establishing a treatment programme. Sampling should be carried out on a monthly basis until it can be shown that the system is under control. Action required if >100 CFU per litre, refer to table 2 in the ACOP L8.	
6	Spray nozzles	3M	Check for scale deposits and biofilm. Clean as necessary including replacement of damaged items.	Ensure all nozzles discharge equally and efficiently.	Mechanical
7	Electrical equipment	6M	Ensure that all electrical equipment is isolated except pumps.	Cooling fans and any adjacent air intake fans must be isolated in accordance with H&S requirements.	Mechanical
8	Fans	6M	Clean fan blades and lubricate if required. 'Sealed for life' bearings should not be serviced. See Fans (SFG 20).	Ensure that the correct oils and/or greases and quantities are used. It is particularly important that lubricants of the correct working range are used. Oil attracts dust and as a consequence any excess should be wiped clear (e.g. fan blades) see manufacturer's instructions.	Mechanical
9	Fins - external	6M	Clean by initially blowing through with dry oxygen free or nitrogen. All accessible surfaces to be cleaned with a proprietary comb. It may be necessary to carry out additional cleaning or descaling to remove all scale deposits thoroughly. Chemical cleaning may be necessary.	Use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Specialist
10	Water distribution	6M	Check that the water distribution system is free of dirt and debris. All nozzles, troughs etc. need to be in place and clean. In case of contamination, clean the water distribution system as per manufacturer's instructions. Replace damaged or missing nozzles, as well as any nozzles which cannot be cleaned.		Mechanical
11	General cleanliness		Clean and disinfect all wetted surfaces and components of unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found	Remove any dirt or rubbish from vicinity of plant. The frequency of cleaning is indicated by the Risk Assessment.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			necessary.		
12	Coil vent	6M	Check operation.		Mechanical
13	Anti-vibration mountings	6M	Check visual condition and effectiveness.	There should be no transfer of vibration or visible deterioration.	Mechanical
14	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		Electrical
15	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
16	System operation	6M	Check function and operation of all automatic sensors/detectors (flow/temperature). Check for correct operation/shut-down of plant. Ensure all devices are returned to their correct settings. Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. When shut, ensure for air tight seal.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
17	Ultraviolet lamp	6M	Check the effectiveness of the lamp (check to see if within working life) and clean filters.	Replacement interval will depend upon type of lamp: • medium pressure lamps - six months • low pressure lamps - twelve months.	Mechanical
18	Protection device - 6 Monthly	6M	Maintenance task to protection unit as per manufacturer's instructions.		M&E
19	Disinfection	6M	Carry out full disinfection of the Cooler.	Frequency of disinfection is dependant on the Risk Assessment. Procedure as laid down in HSG274 part 1 and HTM 04-01 parts A & B.	Mechanical
20	Electrical safety	12M	Check security of connections and condition of wiring.		Electrical
21	Protection device - annually	12M	Maintenance task to protection unit as per manufacturer's instructions.		M&E
22	Sediment removal	24M	Remove, clean and replace	If feed water contains iron or	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	pre-filter		quartz glass sleeve or thimble.	organic matter, quartz glass may require more frequent cleaning.	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Introductory Procedures - Hot and Cold Water Services

Schedule Ref : 31-01
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Hot and Cold Water Services including Drinking Water

This section covers the maintenance procedures associated with the provision of hot and cold water.

Legionellosis (Legionnaires Disease and Associated Illnesses)

Approved Code of Practice - Legionnaires disease:
The control of legionella bacteria in water systems: Approved Code of Practice, L8, 2013 sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The L8 has a special legal status, Part 1 being regulatory and part 2 guidance which has now been replaced by a Health and Safety Guide which is in three parts (HSG274 parts 1, 2 and 3).

In healthcare premises HTM 04-01 part A & B now supersedes the old HTM 2027 and HTM 2040 and has been revised in line with changes to relevant regulations, standards and other guidance, and also technical developments including the ACOP L8, 2013. For this reason in healthcare establishments HTM 04-01 is to be followed. This will automatically satisfy the requirements of ACOP L8, 2013.

The Standard Maintenance Specifications should be adequate for the majority of well engineered low risk systems outside of healthcare premises conforming to the requirements of ACOP L8, 2013. Additional work may be required for less ideal systems and these should be specified as part of the prevention/control scheme.

The client must ensure that one person of adequate status is appointed as being responsible for overseeing the assessment and implementation of the precautions. Responsibility and lines of communication must be properly defined and personnel must be properly trained.

For guidance the following statements are taken from the **ACOP L8, 2013:**

1. This Approved Code of Practice gives practical advice on the requirements of the Health and Safety at Work etc. Act 1974 (HSWA) and the Control of Substances Hazardous to Health Regulations 2002 (COSHH) concerning the risk from exposure to legionella bacteria. In particular it gives guidance on sections 2, 3, 4 and (as amended by the Consumer Protection Act 1987) of HSWA and regulations 6, 7, 8, 9 and 12 of COSHH. The Code also gives guidance on compliance with the relevant parts of the Management of Health and Safety at Work Regulations 1999 (MHSWR).

2. This publication replaces two separate documents: the 1995 Approved Code of Practice and the technical guidance, HSG7O. This has allowed information to be consolidated, with the aim of making it easier to read and understand the duties under the law. Since the last revision, the Health and Safety Executive (HSE) and others have funded research to assess the efficacy of new and alternative control strategies. This new document incorporates the findings of that research and explains how such strategies can be used safely and effectively.

3. This Code applies to the risk from legionella bacteria (the causative agent of legionellosis including Legionnaires' disease) in circumstances where the Health and Safety at Work etc. Act 1974 applies.

4. To comply with their legal duties, employers and those with responsibilities for the control of premises should:

a) identify and assess sources or risk— this includes checking whether conditions are present which will encourage bacteria to multiply, e.g. is the water temperature between 20º-45ºC, there is a means of creating and disseminating breathable droplets, e.g. the aerosol created by a shower or cooling tower; and if there are susceptible people who may be exposed to the contaminated aerosols;

b) prepare a scheme for preventing or controlling the risk;

c) implement, manage and monitor precautions - if control measures are to remain effective, then regular monitoring of the systems and the control measures is essential. Monitoring of general bacterial numbers can indicate whether microbiological control is being

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achieved. Sampling for legionella is another means of checking that a system is under control;

d) keep records of the precautions; and

e) appoint a person to be managerially responsible.

5. The Code and guidance also set out the responsibilities of suppliers of services such as water treatment and maintenance as well as the responsibilities of manufacturers, importers, suppliers and installers.

The following conditions can all increase the rate of growth of Legionella:

a) Water temperatures in the range 20º - 45ºC;
b) Presence of sediment, sludge, scale or organic material;
c) Certain non-approved construction materials;
d) Rust;
e) Commonly encountered water organisms such as algae, amoeba, slimes and biofilms.

Metering

Metering of potable water supplies by the Statutory Water Undertakings is being introduced more widely and is now required for all new premises and consideration will have to be given to the maintenance of such meters.

Risk Assessment

A site survey of all the water systems should be carried out and should include an asset register of all associated plant, pumps, strainers and other relevant items. This should include an up-to-date drawing/diagram showing the layout of the plant or system, including parts temporarily out of use.

The assessment should be reviewed regularly (at least every two years) and whenever there is reason to suspect that it is no longer valid. An indication of when to review the assessment and what needs to be reviewed should be recorded. This may result from, for example:

a) changes to the water system or its use;
b) changes to the use of the building in which the water system is installed;
c) the availability of new information about risks or control measures;
d) the results of checks indicating that control measures are no longer effective;
e) a case of Legionnaires' disease/legionellosis is associated with the system.

Calorifier maintenance (where appropriate) comes under the Pressure Systems Safety Regulations. A written scheme of examination drawn up by a 'competent person' must be in place for all plant and equipment which is subject to these regulations. Most pressure systems carrying a relevant fluid will require written schemes and regular inspection.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Introductory Procedures - Hot Water Supply

Schedule Ref : 32-01
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

The provision of hot water entails two important safeguards, namely the avoidance of scalding and the prevention of legionellosis or Legionnaires' disease. It is imperative that the client is aware of these problems and that steps are taken both by the site staff and the maintenance provider to prevent their occurrence. Specific details relating to the risk of Legionellosis are given in the Health and Safety ACOP L8, 2013, HSE Technical Guidance HSG274 parts 1, 2 and 3, CIBSE publication TM13 and HTM 04-01 Parts A & B.

Operating Temperature

HSG274 part 2 recommends that water services should operate at temperatures that prevent the proliferation of legionella, that is:

a) hot water storage (calorifiers), 60°C;

b) hot water distribution, at least 50°C (55°C in healthcare premises) attainable at the taps within one minute of running, health care under HTM 04-01 Part B states 55°C;

c) cold water storage temperature, 20°C or below.

Client's staff should check temperatures monthly as required by HSG274 part 2 and HTM 04-01 Part B.

It has been common practice to operate hot water systems in the range 45° to 50°C. At those temperatures there is little risk of scalding, but there is a risk of legionellosis. The bacteria remains active up to approximately 50°C and is only effectively killed at temperatures approaching 60°C.

At water temperatures above 50°C there is a risk of scalding, which increases with temperature and time of contact. In premises used by persons at risk, e.g. old people, sick persons, people with reduced mental capacity, reduced mobility, anyone with sensory impairment and children, fail safe thermostatically controlled mixing valves must be used. Department of Health, HTM 04-01 Part A sets out the safe water temperatures and appropriate delivery devices (TMV`s) over a range of areas/activities. HSG220 (2nd Edition published 2014) Health and safety in care homes recommends that where vulnerable people are at risk from scalding during whole body immersion, water temperatures do not exceed 44°C. This should be checked by client's staff at least monthly. NHS Model Engineering Specification (MES) D08 applies.

Where the water temperatures advocated in HSG274 part 2 cannot be maintained, alternative control measures will need to be considered. These could include ongoing low level disinfection using Chlorine Dioxide or Silver Copper Ions. These systems are briefly explained in ACOP L8, 2013 and HTM 04-01 Part A.

Distribution Pipework

The pipework system should be free of any points where dirt, slime or sediment may accumulate to ensure that there are no deposits, which could provide a source of nutriment to sustain the legionella bacteria. Where this is not possible the system should be continually disinfected as in the previous paragraph. This also applies where pipe replacement or alterations take place and disinfection procedure must be strictly followed. The pipework should be well insulated to prevent heat loss between calorifier and outlet.

Hot Water Supply

Pressurised Systems

It should be recognised that danger can arise during the maintenance of pressurised systems if steps are not taken to relieve any residual pressure before opening valves, joints or vessels to atmospheric pressure.

Air Venting

Air is a poor conductor of heat and it should be eliminated from primary hot water systems using the air vents on the system. These are to be found at the top of the towel rails and in pressurised systems where automatic air venting valves are provided. It is essential that

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these are checked and maintained at the proper frequencies. Under no circumstances should air be allowed to disturb the system in domestic services as this will disturb natural biofilm and lead to providing a food source for the Legionella bacteria. Also towel rails are not permitted on domestic hot water systems.

Allocated times on Legionella control are not accurate as times are dependent on access and numbers of systems to be checked. The assessment should be detailed enough to give reasonable information to estimate times of maintenance.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Hot Water Services General

Schedule Ref : 32-02
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (15 mins)	1M (5 mins)	12M (10 mins)	Not Specified	
2	3 4	5 6	1	

ANNUAL TIMING (MINUTES)
850

SCHEDULE INTRODUCTIONS
A log book describing these services should be maintained and details entered about the various maintenance activities and results of all the tests. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Disinfection		If there is a need to disinfect whole system, advise client.	Refer to HSG274 part 2. Frequency is indicated by risk assessment.	Mechanical
2	Outlet flushing	1W	Flush little used outlets to remove stagnant water.	To be carried out in a safe manner ensuring that aerosols do not occur.	Mechanical
3	Cold water temperature (at outlet of cistern or tank and farthest outlet from cistern)	1M	Monitor to ensure compliance with HSG274 part 2 and HTM 04 -01 part B requirements.	Responsibility for this test should be agreed with client. Advise client if temperature outside HSG274 part 2 requirements for any remedial work to be put in hand.	Mechanical
4	Hot water temperature (at outlet of calorifier)	1M	Monitor to ensure compliance with HSG274 part 2 requirements.	Responsibility for this test should be agreed with client. Advise client if temperature outside HSG274 part 2 requirements for any remedial work to be put in hand.	Mechanical
5	Complete system	12M	Check for corrosion, sludge and slime/algae.	Frequency to be agreed with client who should be advised of any remedial work.	Mechanical
6	Drain valves	12M	Open to ensure blow-down of collected sediment. To be carried out in a safe manner. Requires method statement for minimal aerosolisation.	This is particularly applicable in vacant buildings where services are left running and more frequent opening of drain valves is recommended.	Mechanical

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SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://shop.bsigroup.com/ProductDetail/?pid=000000000030200074 BS EN 806-5:2012 Specifications for installations inside buildings conveying water for human consumption. Operation and Maintenance
Local Act

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Schedule Title : Introductory Procedures - Calorifier Types

Schedule Ref : 32-03
Schedule Type : Core
Schedule Date : 09 Feb 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

In the context of Building Services the term calorifier is used to describe a closed vessel with a cylindrical shell fitted with heat transfer surface. The water in the calorifier is heated indirectly by the tubular primary heater with hot water, steam or electrical immersion heating elements. A calorifier is used for the supply of a hot water service, for central heating purposes and for industrial applications.

ACOP L8, 2013 also defines calorifiers in the glossary.

(a) Non-storage, normally used for heating systems or where there is low demand for hot water.

(b) Storage, normally used for hot water supply systems where demand usually varies.

This section covers the maintenance of calorifiers including calorifier mountings and unvented hot water systems but is not intended to cover the opening up of calorifiers for statutory insurance inspection which requires a separate procedure, which may be carried out at the same time as the maintenance.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Technical

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Schedule Title : Pre-Maintenance Procedures - Calorifiers

Schedule Ref : 32-04
Schedule Type : Core
Schedule Date : 09 Feb 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

In accordance with good practice the operator should carry out a visual inspection of the calorifier at regular intervals and this should include checking for leaks.

Prior to carrying out the planned maintenance of the calorifier, the pre-maintenance procedure detailed below should be followed:

(a) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety. This includes obtaining any necessary Permit to Work's from the Authorised Person;

(b) Inspect calorifier insulation and/or shell for signs of damage;

(c) Inspect all manholes, mounting, and joints for signs of leaks;

(d) Report any necessary remedial work where repairs, adjustment or replacement will be required during routine maintenance.

Where necessary, hot and cold water services should be cleaned, flushed and disinfected in the following situations, as specified in BS 8558:

- on completion of a new water installation or refurbishment of a hot and cold water system
- on installation of new components, especially those which have been pressure tested using water by the manufacturer (see manufacturer's instructions)
- where the hot and cold water is not used for a prolonged period and has not been flushed as recommended or the control measures have not been effective for a prolonged period. For example, this could be as little as two or three weeks, but will depend on the ambient temperature, condition of the water system, potential for exposure to aerosols and the susceptibility of users considered in a specific risk assessment.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Technical

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Schedule Title : Calorifiers Heated by LTHW

Schedule Ref : 32-05
Schedule Type : Core
Schedule Date : 22 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (240 mins)				
1 2 3 4 5 6 7 8 9 10				

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS

Warning – Insulation may contain Asbestos.

Low temperature hot water systems (LTHW or LPHW) are heating systems operating up to 95°C.

Prior to carrying out the planned maintenance of the calorifier, the pre-maintenance procedures for Calorifiers (SFG 32-04) should be followed:

(a) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety;
(b) Inspect calorifier insulation and/or shell for signs of damage;
(c) Inspect all manholes, mounting and joints for signs of leaks;
(d) Report any necessary remedial work where repairs, adjustment or replacement will be required during routine maintenance.

Domestic Hot Water Calorifiers

All secondary systems used to provide a hot water service must be disinfected after a period of shutdown or standby over a one week period in accordance with HSG274 part 2 and HTM 04-01 Parts A & B. This includes shutdown to inspect calorifiers.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operation and safety controls	12M	Check, note and report any visible defects. Ensure an anti-stratification pump has been fitted on the secondary side of the calorifier and it is operational.	Ensure both secondary and primary circuits are full of water and circuits are open.	Mechanical
2	Safety valves/PRV	12M	Check operation of safety.	If manually operated for test purposes, leakage could occur after test.	Mechanical
3	Thermostats, pressure sensors, altitude gauges and thermometers	12M	Check for correct operation and settings; set against Certified masters.	N.B. Temperature settings should be in accordance with HSE guidance note HSG274 part 2 for Hot Water Services.	Mechanical
4	Auto controls and	12M	Shut down primary heat source.	Check operation of temperature	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	primary side			controls and high limit cut-outs.	
5	Drain valve/drain cock on secondary side	12M	Ensuring secondary valves are closed, draw off a small quantity of water to remove any sediment.	N.B. If calorifier was in use, the secondary water will be hot so care must be taken in carrying out this action. If the secondary side of the calorifier is at a high temperature, the system must be allowed to cool before drain is opened.	Mechanical
6	Heating surface and internal surfaces of shell	12M	Drain down secondary side, remove manholes and inspect for scale formation and corrosion and report. Remove sludge.	The formation of scale reduces heat transfer and causes energy wastage. Corrosion will cause metal failure and leakage. Remember Waste Disposal Regulations apply. If scale is extensive refer to client for further instructions.	Mechanical
7	Bursting discs (where fitted)	12M	Check condition.	Report findings.	Mechanical
8	Sacrificial anode	12M	Check status.	Replace as necessary.	Mechanical
9	Put back into operation	12M	Refit all manholes and refill secondary side. Hydraulic pressure test. Put primary side into operation.	Check operation of all temperature controls as detailed above.	Mechanical
10	10. Disinfection.	12M	Carry out a full disinfection of the calorifier.	Procedure as laid down in British Standards and HTM 04-01 Part B.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://shop.bsigroup.com/ProductDetail/?pid=000000000030200074 BS EN 806-5:2012 Specifications for installations inside buildings conveying water for human consumption. Operation and Maintenance
Local Act

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Schedule Title : Hot Water Calorifiers - Heated by MTHW, HTHW or Steam

Schedule Ref : 32-06
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (180 mins)	24M (10 mins)			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15				
	16 17			

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Most MTHW, HTHW and Steam Calorifiers will be under the control of an Authorised Person. A permit to Work must be issued by the Authorised Person before any work can commence on a Calorifier.

WARNING - If insulation looks damaged - **STOP WORK** - this may be Asbestos - Appropriate action must be taken prior to further works. If the insulation is known or CERTIFIED not to be Asbestos, continue as follows:

In the interests of safety and the prevention of scalding, water temperatures and the operation of blending valves should be checked at least once a month by the caretaker or operator. See Introductory Procedures - Hot Water Supply (SFG 32-01) for further information on temperatures etc.

WARNING - **WATER AND STEAM LEAKS ARE DANGEROUS**

Prior to carrying out the planned maintenance of the calorifier, the pre-maintenance procedure detailed below should be followed:

(a) At the entrance to the Plant room, Stop and Listen for a steam leak (High Pressure steam will be invisible and only the sound of a leak may be present);
(b) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety;
(c) Inspect calorifier insulation and/or shell for signs of damage;
(d) Inspect all manholes, mounting and joints for signs of leaks;
(e) Report any necessary remedial work where repairs, adjustment or replacement will be required during routine maintenance.

Disinfection - Domestic Hot Water Calorifiers

All secondary systems used to provide a hot water service must be disinfected after a period of shutdown or standby over a one week period in accordance with HSG274 part 2 and HTM 04-01 Parts A & B. This includes shutdown to inspect calorifiers.

Frequencies should be confirmed on ALL tasks in conjunction with written scheme of examination.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Check operation, in particular safety controls	12M	Check, note and report any visible defects. Ensure an Antistratification pump has been	Ensure secondary is full of water and circuits are open. If safety controls are defective take	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			fitted on the secondary side of the calorifier and it is operational.	equipment out of service.	
2	Safety valves	12M	Check for corrosion and manually operate.	NB: If calorifier was in use, the secondary water will be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
3	Thermostats, pressure sensors, altitude gauges and thermometers	12M	Check for correct operation and settings, set against Certified masters.	Temperature settings for Hot Water Services should be in accordance with HSE ACOP L8.	Mechanical
4	Auto controls and primary side	12M	Shut down primary heat source taking all necessary precautions to prevent unauthorised use.	Check safe operation of temperature controls and high limit cut-outs. This may include obtaining a Permit to Work from an Authorised Person.	Mechanical
5	Drain valve/drain cock on secondary side	12M	Draw off a small quantity of water to remove any sediment.	NB: If calorifier was in use, the secondary water will be hot, and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
6	Heating surface and internal surfaces of shell	12M	Drain down secondary side, remove manhole covers and inspect for scale formation and corrosion.	The formation of scale reduces heat transfer and causes energy wastage. Client's attention should be drawn to the presence of excessive scale which indicates the need for water treatment. Corrosion will cause metal failure and leakage. Remember Waste Disposal Legislation. If scale is extensive, refer to client for further instructions.	Mechanical
7	Gaskets	12M	Check gaskets on steam chest for leakage and replace as necessary.	Steam leaks are dangerous to personnel and cause wastage of energy.	Mechanical
8	Sacrificial anode	12M	Check status.	Replace as necessary.	Mechanical
9	Steam trap/sight glass (on primary connections)	12M	Clean and overhaul steam trap.	Faults can lead to steam and energy wastage.	Mechanical
10	Strainer on primary pipework	12M	Remove strainer, clean and refit.	Blocked strainers reduce performance.	Mechanical
11	Internal Inspection	12M	Arrange for an internal inspection to be carried out by a Competent Person as required by the Written Scheme of Examination.	Pressure Systems Safety Regulations will apply.	Specialist
12	Return to operation	12M	After completion of maintenance,	Check that all controls are	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			refit all manhole covers, refill secondary side and put primary side back into operation.	working correctly. Ensure Item 6 has been carried out.	
13	Disinfection	12M	Carry out a full disinfection of the calorifier.	Procedure as laid down in current British Standards and HTM 04-01 Part B.	Mechanical
14	Check insulation for damage	12M	Repair or renew as necessary.	Damaged lagging reduces efficiency, wastes heat, and if the calorifier is in the open air, can become waterlogged and lead to hidden corrosion. Asbestos Regulations may apply.	Mechanical
15	Hydraulic pressure test	12M	If it is a pressurised system, test to 110% of working pressure.	Pressure Systems Safety Regulations will apply.	Mechanical
16	Anti-vacuum valve (where fitted)	24M	Check operation and service as appropriate.		Mechanical
17	Bursting discs (where fitted)	24M	Check condition.	Report findings.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://www.legislation.gov.uk/uksi/2012/632/contents/made Control of Asbestos Regulations 2012
http://www.hse.gov.uk/pubns/books/l143.htm HSE Managing and working with Asbestos. Guide L143: Control of Asbestos Regulations 2012. Approved Code of Practice and Guidance
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000
http://shop.bsigroup.com/ProductDetail/?pid=000000000030200074 BS EN 806-5:2012 Specifications for installations inside buildings conveying water for human consumption. Operation and Maintenance

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Schedule Title : Hot Water Supply Calorifiers

Schedule Ref : 32-07
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	12M (60 mins)	24M (60 mins)		
1	2 3 4 5 6 7 8			
		9 10 11		

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Prior to carrying out the planned maintenance of the calorifier, read and follow the Pre-Maintenance Procedures - Calorifiers (SFG 32-04):

(a) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety;
(b) Inspect calorifier insulation and/or shell for signs of damage;
(c) Inspect all manholes, mounting and joints for signs of leaks.

Hot Water Calorifiers

All secondary systems used to provide a hot water service must be disinfected after a period of shutdown or standby over a one week period in accordance with HSG274 part 2 and HTM 04-01 Parts A & B. This includes shutdown to inspect calorifiers.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Storage Temperature	1M	Check and record the calorifier water storage temperature.	It is recommended that the hot water should be stored at 60ºC (HSG274 part 2). Where temperatures are recorded below 60ºC, increase set point to achieve the desired temperature. If the temperature cannot be maintained, report to Client.	Mechanical
2	Operation and safety controls	12M	Check, note and report any visible defects. Ensure an Antistratification pump has been fitted on the secondary side of the calorifier, where it is required, and it is operational and does not run continuously.	Ensure both secondary and primary circuits are full of water and circuits are open.	Mechanical
3	Safety valves	12M	Check for corrosion and	If calorifier was in use, the	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			manually operate.	secondary water will be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	
4	Thermostats, pressure sensors, altitude gauges and thermometers	12M	Check for correct operation and settings, set against Certified masters.	Temperature settings for Hot Water Services should be in accordance with HSG274 part 2. With direct acting valves hot water storage temperatures should not exceed those laid down in the above guidance notes or scalding could occur.	Mechanical
5	Auto controls and primary side	12M	Shut down primary heat source.	Check operation of temperature controls and high limit cut-outs.	Mechanical
6	Drain valve/drain cock on secondary side	12M	Draw off a small quantity of water to remove any sediment.	If calorifier was in use, the secondary water will be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
7	Sacrificial anode	12M	Check status.	Replace as necessary.	Mechanical
8	Disinfection	12M	Carry out a full disinfection of the calorifier.	Procedure as laid down in current British Standards and HTM 04-01 Part B.	Mechanical
9	Heating surface and internal surfaces of shell	24M	Drain down secondary side, remove manhole covers and inspect for scale formation and corrosion and report.	The formation of scale reduces heat transfer and causes energy wastage. In hard water areas scale can be very difficult to remove if left to build up and more frequent maintenance is recommended. Corrosion will cause metal failure and leakage.	Mechanical
10	Bursting discs (where fitted)	24M	Check condition.	Report findings.	Mechanical
11	Put back into operation	24M	Refit all manhole covers, refill secondary side. Put primary side back into operation.	Check operation of all temperature controls.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Calorifier and Heat Exchange Controls

Schedule Ref : 32-08
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (30 mins)				
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS

Certain common maintenance procedures should be carried out for all controls. These are:

1. All control items e.g. thermostats and the like, that have switching contacts. Ensure contacts make and break easily and that there is no arcing or pitting;
2. Inspect thermostat phial and capillaries for mechanical damage;
3. Inspect thermostat pockets for corrosion and leakage;
4. Ensure immersion thermostats are secure in their pockets (and that the sensor is in contact with the end of the pocket);
5. Inspect motorised valves for leakage and damage to linkage.

For more detailed information regarding the maintenance of motorised valves, checking of gland seals, stroking, etc. refer to relevant sections.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Control thermostat	12M	Check operation and confirm set point.	Thermostat in-built as part of calorifier or installed in/on secondary pipework.	M&E
2	High limit thermostat (if fitted)	12M	Check operation and confirm set point.		M&E
3	Temperature sensor controller - motorised valve	12M	Check operation and confirm set point(s).	For guidance on motorised valves see Valves - Automatic Control (SFG 62).	M&E
4	Power fail return - motorised valve	12M	Check operation.	Ensure valve shuts off supply to calorifier and does not have let-by. See Actuators (SFG 01-07 and 01-08).	M&E
5	Direct acting control valve	12M	Check operation and confirm set point.	For guidance on motorised valves see Valves - Automatic Control (SFG 62).	M&E
6	Direct acting control valve - high limit	12M	Check operation and confirm set point.	For guidance on motorised valves see Valves - Automatic	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				Control (SFG 62).	
7	Temperature sensor, controller, motorised valve and power fail return motor	12M	Check performance.		M&E

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Schedule Title : Hot Water Cylinders

Schedule Ref : 32-09
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	6M (5 mins)	12M (60 mins)		
1	2	3 4 5 6 7 8 9 10 11		

ANNUAL TIMING (MINUTES)
130

SCHEDULE INTRODUCTIONS

Prior to carrying out the planned maintenance of the cylinder, read and follow Pre-Maintenance Procedures - Calorifiers (SFG 32-04):

(a) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety.
(b) Inspect calorifier insulation and/or shell for signs of damage.
(c) Inspect all manholes, mounting and joints for signs of leaks.
(d) Report any necessary remedial work where repairs, adjustment or replacement will be required during routine maintenance.

DISINFECTION

All secondary systems used to provide a hot water service must be disinfected after a period of shutdown or standby over a one week period in accordance with HSG274 part 2 and HTM 04-01 Parts A & B. This includes shutdown to inspect calorifiers.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Storage Temperature	1M	Check and record the calorifier water storage temperature.	It is recommended that the hot water should be stored at 60ºC (HSG274 part 2). Where temperatures are recorded below 60ºC, increase set point to achieve the desired temperature. If the temperature cannot be maintained, report to client.	Mechanical
2	Integral Cold Water Storage (if Combination Cylinder)	6M	Inspect cold water storage, clean as necessary.	See Storage Tanks - Cold Water Storage Tanks and Cisterns (SFG 56-02) for detailed maintenance schedule of cisterns. Where these units are used infrequently or low usage the cold water storage is likely to rise above 20ºC therefore promoting the likelihood of Legionella proliferation.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				For this reason integral cisterns should be kept clean and conform to the Water Supply (Water Fittings) Regulations. HTM 04-01 for health care recommends that these units are not used.	
3	Cylinder	12M	Inspect visible seams and bosses for leaks or signs of corrosion.	Report adverse findings.	Mechanical
4	Connections	12M	Check connecting pipe unions for leaks.	If found, drain down, clean and remake joint.	Mechanical
5	Insulation	12M	Inspect for deterioration.	Refer to client if repairs or renewal required.	Mechanical
6	Immersion Heater	12M	Check operation and examine for scale on element.	Client's attention should be drawn to the presence of excessive scale, which indicates the need for water treatment.	Mechanical
7	Cold Water Storage Cistern (if Combination Cylinder)	12M	Inspect seams and bosses for leaks.	Report adverse findings.	Mechanical
8	Float Operated Valve and Float (if Combination Cylinder)	12M	Check operation and adjust water level to maximum storage level. Check float for leakage and security.	Re-washer or replace if necessary.	Mechanical
9	Disinfection	12M	Carry out a full disinfection of the calorifier.	Procedure as laid down in current British Standards and HTM 04-01 Part B.	Mechanical
10	Water Temperature	12M	Check water outlet temperature and operation of automatic temperature controls.	Temperature setting for Hot Water Services should be in accordance with HSG274 part 2 and HTM 04-01 Part A.	Mechanical
11	Temperature Sensor	12M	Ensure that the temperature sensor has a good surface to surface contact with the cylinder.		Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Unvented Hot Water Systems

Schedule Ref : 32-10
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	3M (15 mins)	6M (5 mins)	12M (30 mins)	
1	2 3	4	5 6 7 8 9 10 11	

ANNUAL TIMING (MINUTES)
160

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Control thermostat	1M	Check temperature setting.	Temperature settings for Hot Water Services should be in accordance with HSG274 part 2 and HTM 04-01 Part A.	Mechanical
2	Expansion relief valve	3M	Manually operate.	Check that the valve seats satisfactorily, water flow ceased on valve closure and water runs through tundish and discharge pipes.	Mechanical
3	Temperature relief valve	3M	Manually operate.		Mechanical
4	High limit thermostat	6M	Check operation.	Should be non self-setting. Thermal cut out should be 85°C.	Mechanical
5	Complete unit	12M	Examine water storage vessel, expansion vessel, pipework and fittings.	Check for any signs of corrosion and water leaks. Reseal pipework joints if necessary.	Mechanical
6	Discharge pipework	12M	Examine discharge pipes, ensure that air gap is clear and that there is no blockage in the pipes.	Discharge pipe should be visible and in a safe place. It should be of metal and connected to the tundish.	Mechanical
7	Diaphragm expansion tank	12M	Check pressure.	See Hot Water Supply - Expansion Vessels (SFG 32-12).	Mechanical
8	Motorised valve (if fitted)	12M	Check operation.	Ensure no water flows through valves during shut down part of the cycle. For further guidance see Valves - Automatic Control (SFG 62).	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	In-line strainer	12M	Inspect and clean as required.		Mechanical
10	Back flow prevention device	12M	Check operation and ensure that non-return valve is seating properly.	The operation can be checked by observing any changes in the upstream level of a vessel preceding the device when the incoming supply is isolated.	Mechanical
11	Electrical element	12M	Check for scale on element.	Client's attention should be drawn to presence of excessive scale which indicates a possible need for water treatment or water conditioning.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Thermal Storage Cylinder (Individual Dwellings for DHWS)

Schedule Ref : 32-11
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	12M (60 mins)			
1	8 9			
	2 3 4 5 6 7 10			

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

DISINFECTION

All secondary systems used to provide a hot water service must be disinfected after a period of shutdown or standby over a one week period in accordance with HSG274 part 2 and HTM 04-01 Parts A & B. This includes shutdown to inspect calorifiers.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Storage Temperature	1M	Check and record the calorifier water storage temperature.	It is recommended that the hot water should be stored at 60ºC (HSG274 part 2). Where temperatures are recorded below 60ºC, increase set point to achieve the desired temperature. If the temperature cannot be maintained, report to client.	Mechanical
2	Cylinder	12M	All secondary systems used to provide a hot water service must be disinfected after a period of shutdown or standby over a one week period in accordance with HSG274 part 2 and HTM 04-01 Parts A & B. This includes shutdown to inspect calorifiers.	Report adverse findings.	Mechanical
3	Connections	12M	Check connecting pipe unions for leaks.	If found, drain down, clean and remake joint.	Mechanical
4	Insulation	12M	Inspect for deterioration.	Refer to client if repairs or renewal required.	Mechanical
5	Immersion heater	12M	Check operation and examine	Clients attention should be	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			for scale on element.	drawn to the presence of excessive scale which indicates the need for water treatment.	
6	Feed and expansion cistern (if fitted)	12M	Inspect seams and bosses for leaks.	Report adverse findings. Ensure tanks meet the requirements of BS 8558 regarding cleanliness, lids, screens etc.	Mechanical
7	Float operated valve and float (if fitted)	12M	Check operation and adjust water level to minimum make up level. Check float for leakage.	Re-washer or replace if necessary. Water level adjustments should only be carried out when the heating system and cylinder are cold. Replace if necessary.	Mechanical
8	Disinfection	12M	Carry out a full disinfection of the calorifier.	Procedure as laid down in BS 8558 and HTM 04-01 Part B.	Mechanical
9	Domestic hot water thermostatic blender	12M	Check operation. Check water outlet temperature and operation of automatic temperature controls.	NB: Temperature settings for Hot Water Services should be in accordance with HSG274 part 2 and HTM 04-01 Part A.	Mechanical
10	Temperature sensor	12M	Ensure that the temperature sensor has a good surface to surface contact with the cylinder.		Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Expansion Vessels

Schedule Ref : 32-12
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (5 mins)	3M (15 mins)	12M (15 mins)		
6	4 5	1 2		

ANNUAL TIMING (MINUTES)
335

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Condition	12M	Examine for damage or corrosion.	If replacement necessary report to client.	Mechanical
2	Diaphragms	12M	Check condition and pressure.	Ensure diaphragms are sound and cushion pressure is correct. Top up as necessary, preferably with oxygen free nitrogen.	Mechanical
3	**DHWS Calorifier**				
4	Diaphragm expansion tank/s	3M	Check.	Ensure gas cushion pressure is correct, if necessary top up, preferably with oxygen free nitrogen. Remove diaphragm from shell, check and report on condition of both. Ensure cushion pressure is correct when re-commissioned. A risk assessment must be done prior to its use, suitable training must also be given prior.	Mechanical
5	Non-return valve. (Cold water service (CWS) to calorifier)	3M	Check.	Ensure that valve is seating properly.	Mechanical
6	Drain	1W	Discharge by flushing.	In most installations the vessel will be a source of contamination by acting as a dead leg.	Mechanical

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Schedule Title : Direct Fired Water Heaters

Schedule Ref : 32-13
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)	Not Specified			
2 3 4 5 6 7 8 11 12 13 14 15 16 17 18				
	10			

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Heater generation maybe by electricity, light oil pressure jet burners, forced draught but usually atmospheric gas burners. For specific maintenance instructions on heat generators see appropriate Boilers/Heat Generators (SFG 05).

Special note:

Certain heaters called 'Energy saver water heaters' will have an electrically operated damper in the flue to reduce ventilation losses through the heater. The operation sequence is when the thermostat calls for more heat, the damper opens changing the contacts on a microswitch. This then provides power to the heat generation equipment.

WARNING: To avoid the possible risk of scalding, Thermostatic Mixing Valves (TMV's) must be considered in line with a risk assessment where vulnerable persons are likely to use the outlets. All other outlets not blended should have hot water warning signs. Client should carry out monthly checks of the outlet temperature where blended.

Department of Health, HTM 04-01 Part A sets out the safe water temperatures and appropriate delivery devices (TMV`s) over a range of areas/activities.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Flueways**				
2	Heat generation equipment	12M	Remove and carry out necessary maintenance.	See Boilers/Heat Generators (SFG 05) for maintenance.	Gas Safe
3	Fluepipe	12M	Remove at slip collar and clean.		Gas Safe
4	Draught diverter (where applicable)	12M	Remove and clean.		Gas Safe
5	Flue baffles	12M	Remove and clean.	Note: All debris should be removed with a vacuum cleaner.	Gas Safe
6	Flue tubes	12M	Clean with suitable brush.		Gas Safe
7	Reassembly	12M	Reassemble in reverse order.	Ensure that on reassembly the flue is sealed in an air tight	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
				manner.	
8	Smoke test	12M	Carry out a smoke test on flue.	See Flues (SFG 24-01).	Gas Safe
9	**Waterways**				
10	Waterways			It is recommended that this operation is carried out at the same time as flueway maintenance.	Not-specified
11	Isolation	12M	Turn off, isolate and remove heat generator. Where applicable, switch off electricity and remove fuses. Turn off water supply.		Gas Safe
12	Drain down heater	12M	Drain down using drain valve on side of heater.		Gas Safe
13	Casing cover	12M	Remove to gain access to inspection plate.		Gas Safe
14	Waterways	12M	Remove inspection plate and check for scale build-up.	If scale build-up is excessive, chemical descaling will be necessary.	Gas Safe
15	Sacrificial anodes (magnesium)	12M	Check for condition and replace if necessary.	Do not replace copper and aluminium anodes but replacement of magnesium anodes may be necessary in steel vessels.	Gas Safe
16	Gasket	12M	After inspection of internal surfaces a new gasket should be fitted to inspection plate before reassembly.	Note: Ensure that the heater is thoroughly flushed out and that any deposits are removed. Waste Disposal Regulations may apply.	Gas Safe
17	Reassembly and test	12M	Fill up and test for soundness. Refit heat generator in accordance with the manufacturer's instructions. Test fire.		Gas Safe
18	Disinfection	12M	Carry out a full disinfection of the calorifier.	Procedure as laid down in current British Standards and HTM 04-01 Part B.	Gas Safe

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996

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http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.gov.uk/government/publications/combustion-appliances-and-fuel-storage-systems-approved-document-j Building Regulations 2010 Approved Document J 2010 edition - Combustion appliances and fuel storage systems incorporating 2010 and 2013 amendments

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Schedule Title : Instantaneous Electric Water Heaters (Non Drinks Type)

Schedule Ref : 32-14
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	12M (30 mins)			
1	2 3 4 5			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water temperature	1M	Check water outlet temperature and operation of automatic temperature controls. OR Check that the installation has a high turnover.	NB: Temperature settings should be in accordance with HSG274 part 2 for Hot Water Services i.e. 60°C. Frequencies are Monthly/Six Monthly or as indicated by the Risk Assessment.	Mechanical
2	Visual inspection for leaks and damage	12M	Report any remedial work needed to client and isolate if unsafe.	If switched off, the unit is classed as a 'dead-leg' if still connected to the supply. In this case (weekly) flushing should be carried out and logged (twice weekly) in health care establishments.	Mechanical
3	Inbuilt filter (if fitted)	12M	Isolate electric supply, turn off water inlet drain unit, remove filter/strainer and clean filter as necessary.		Mechanical
4	Operation after filter replacement	12M	After a filter replacement, check operation of heater and set flow as appropriate.		Mechanical
5	Scale	12M	In hard water areas descale.		Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems

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http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://shop.bsigroup.com/ProductDetail/?pid=000000000030200074 BS EN 806-5:2012 Specifications for installations inside buildings conveying water for human consumption. Operation and Maintenance

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Schedule Title : Packaged Electric Water Heaters - Cistern Type (Non Drinks)

Schedule Ref : 32-15
Schedule Type : Core
Schedule Date : 16 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	6M (20 mins)	12M (30 mins)	Not Specified	
2	3	4 5 6 7 8 9 10 11	1	

ANNUAL TIMING (MINUTES)
130

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General			The exact maintenance procedure will depend upon the make and configuration as most packaged units have different design arrangements.	Unknown
2	Water temperature controls	1M	Measure temperature and check against thermostat settings. Adjust thermostat as necessary.	Temperature settings should be in accordance with HSG274 part 2 for Hot Water Services i.e. 60°C.	Mechanical
3	Integral cold storage	6M	Inspect cold water storage, clean and disinfect as necessary.	Where these units are used infrequently or low usage the cold water storage is likely to rise above 20°C therefore promoting the likelihood of Legionella proliferation. For this reason integral cisterns should be kept clean and conform to the Water Supply (Water Fittings) Regulations. If evidence shows that the unit regularly overflows hot water into the integral cold water header tank, instigate a temperature monitoring regime to determine the frequency and take precautionary measures as determined by the findings of this monitoring regime.	Mechanical
4	Operating status	12M	Check, if unit out of service ask client for reasons.	If electrically defective, ensure equipment is left disconnected	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				and isolated. Ensure water supply is isolated at spur to avoid 'dead-legs'.	
5	External case and pipework connections	12M	Visual inspection for leaks and damage.		Mechanical
6	High temperatures cut-outs	12M	Check temperature setting.	Check operation of temperature controls and high limit cut-outs.	Mechanical
7	Electrical supply	12M	Isolate, remove fuse and check rating is correct.	Units must not be left with electrical element if incoming water supply is isolated.	Electrical
8	Ball valve operation	12M	Check if ball valve needs new washers, isolate water supply and repair ball valve. Check for leakage and security.	A defective ball valve will cause the cistern to overflow.	Mechanical
9	Presence of scale	12M	Drain down unit, remove inspection covers and inspect for scale and corrosion. De-scale as appropriate or replace heating element.	The formation of scale affects heat transfer and increases energy consumption. It also causes overheating of the electrical element leading to failure. Corrosion will cause the bare electrical element to be exposed to water and hence will be unsafe.	M&E
10	Return to operation	12M	Refit all inspection covers, refill heater and cistern. Turn on water supply to unit and check for leaks. Fit fuse and turn on electrical supply.	Check operation of all temperature controls and leave in full operation. Thermal disinfection to be carried out, logged and certificated as per L8 Part 2 guidance if having been out of action, unused for over 1 week or is new.	M&E
11	Disinfection	12M	Prior to reinstatement, carry out a full disinfection of the calorifier.	Procedure as laid down in BS 8558 and HTM 04-01 Part B.	M&E

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://shop.bsigroup.com/ProductDetail/?pid=000000000030200074 BS EN 806-5:2012 Specifications for installations inside buildings conveying water for human consumption. Operation and Maintenance

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Schedule Title : Vented Hot Water Systems

Schedule Ref : 32-16
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	3M (5 mins)	6M (5 mins)	12M (45 mins)	
1	2	3	4 5 6 7 8 9	

ANNUAL TIMING (MINUTES)
135

SCHEDULE INTRODUCTIONS

It is recommended that the hot water should be stored at 60ºC (HSG274 part 2).

Where temperatures are recorded below 60ºC, increase set point to achieve the desired temperature.

If the temperature cannot be maintained, report to Client.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Control thermostat	1M	Check temperature setting.	Temperature settings for Hot Water Services should be in accordance with HSG274 part 2 and HTM 04-01 Part A.	Mechanical
2	Temperature relief valve	3M	Manually operate.		Mechanical
3	High limit thermostat	6M	Check operation.	Should be non self-setting. Thermal cut out should be 85°C.	Mechanical
4	Complete unit	12M	Examine water storage vessel, pipework and fittings.	Check for any signs of corrosion and water leaks. Reseal pipework joints if necessary.	Mechanical
5	Discharge pipework	12M	Examine discharge pipes, ensure that air gap is clear and that there is no blockage in the pipes.	Discharge pipe should be visible and in a safe place. It should be of metal and connected to the tundish.	Mechanical
6	Motorised valve (if fitted)	12M	Check operation.	Ensure no water flows through valves during shut down part of the cycle. For further guidance see Valves - Automatic Control (SFG 62).	Mechanical
7	In-line strainer	12M	Inspect and clean as required.		Mechanical
8	Back flow prevention	12M	Check operation and ensure that	The operation can be checked	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	device		non-return valve is seating properly.	by observing any changes in the upstream level of a vessel preceding the device when the incoming supply is isolated.	
9	Electrical element	12M	Check for scale on element.	Client's attention should be drawn to presence of excessive scale which indicates a possible need for water treatment or water conditioning.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Humidifiers - Cold Water Evaporator, Drum Type

Schedule Ref : 33-01
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (25 mins)	12M (60 mins)			
1 2 3 4 5 6 7 8	9 10 11			

ANNUAL TIMING (MINUTES)
160

SCHEDULE INTRODUCTIONS

Any action taken must conform to HSE requirements, the control of Legionella bacteria in water systems – ACOP L8, HSG274 part 3 and HEVAC Association code of best practice for commissioning and planned maintenance.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

In hard water areas more frequent maintenance may be required.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	3M	Isolate electrically and hydraulically.	Electrical isolation should meet HSAWA requirements.	Mechanical
2	Rotor filter pads	3M	Closely inspect. Replace filter pads as necessary. On reassembly use new gaskets where necessary.	Report condition. If filter pads need replacement it is necessary to first clean the rotor.	Mechanical
3	Water reservoir tank	3M	Flush and clean if necessary.	Flush and clean in accordance with current British Standards.	Mechanical
4	Connections and joints	3M	Check for leakage and make good any defects.		Mechanical
5	Wiring and flexible conduits	3M	Check for soundness.		Mechanical
6	Control and indicator lights	3M	Check for correct functioning.		Mechanical
7	Deposits and sludge	3M	Clean up and remove.	Any sludge solids removed should be in sealed bags and any solutions used for cleaning must be flushed away before returning the unit to operation.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				Waste Disposal Regulations apply.	
8	Moving parts	3M	Check that all moving parts can move freely.		Mechanical
9	Motor gear box	12M	Change oil.	See also Motors - Drive Elements (SFG 29-01).	Mechanical
10	Chain drives	12M	Lubricate.		Mechanical
11	Return to service	12M	Check operation.	Ensure compliance with HSE ACOP L8.	Mechanical

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Schedule Title : Humidifiers - Direct Steam Injection Type

Schedule Ref : 33-02
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	3M (60 mins)	12M (45 mins)		
1	2 3 4 5 6 7 8 9 10 11	12 13 14 15 16 17 18		

ANNUAL TIMING (MINUTES)
345

SCHEDULE INTRODUCTIONS

Any action taken must conform to HSE requirements. The control of Legionella bacteria in water systems – ACOP L8, HSG274 part 3 and HEVAC Association code of best practice for commissioning and planned maintenance.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

Note: When in operation, there is intermittent live steam injected from manifold within. **DO NOT ATTEMPT TO SERVICE WITHOUT ISOLATING STEAM AND ELECTRICITY SUPPLIES FIRST.**

If the system has been out of operation for more than 3 months then the system should undertake a yearly maintenance and then be subject to a re-commission.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	System	1M	Check any flange bolts for tightness and adjust as required. Check all gland seals and adjust as required. Visually inspect all pipework and joints for leaks.		Mechanical
2	Status	3M	Isolate electrically.	Electrical isolation should meet HSAWA requirements.	Mechanical
3	Removal of deposits	3M	Clean and flush out the steam cylinder.	If automatic time controlled flush out valve is fitted, check correct operation by overriding timer. It may be necessary from time to time to adjust between automatic flushing depending upon humidification requirements which can vary with the weather conditions.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
4	Ball valve	3M	Check operation. Clean and renew washer.	See Valves (SFG 61).	Mechanical
5	Water level	3M	Check level in gauge glass corresponds with indicator plate.		Mechanical
6	Humidistat	3M	Check operation and clean if necessary. For further Guidance see Sensors and Switching Devices (SFG 50-04 and 50-05).	Use a hand held hydrometer to check accuracy of operation.	Mechanical
7	Misting sprays	3M	Observe spray pattern, clean if necessary.	Clean with compressed air. Do not use wire or pointed objects as these will enlarge the orifices and lead to a poor misting pattern.	Mechanical
8	Control and indicator lights	3M	Check for correct functioning.		Mechanical
9	Steam traps	3M	Check operation, condition of filters and sight glasses.	Ensure condensate drain is clear.	Mechanical
10	Steam pressure	3M	Check.		Mechanical
11	Strainer (where fitted)	3M	Check strainer on steam supply. Clean or replace as necessary.		Mechanical
12	Water supply	12M	Turn off at ball valve and empty via drain cock. Disconnect the water supply and remove the fill valve from the humidifier. Remove the inlet strainer. Clean the fill valve and inlet strainer using the same solution as used to clean the steam cylinder.		Mechanical
13	Steam chamber	12M	Remove outer casing lid baffles. Remove any scale either physically or by using suitable chemical descaling agent. If the electrodes are deteriorated, replace the steam cylinder rather than cleaning it.	Ensure that any sludge or scale deposits are removed from the bottom of the steaming chamber. Additional access may be provided on the side of the vessel to facilitate cleaning. Waste Disposal Regulations may apply.	Mechanical
14	Feed water line	12M	Check that it is clear.		Mechanical
15	Valves	12M	Inspect all valves for wear or scale deposits. Worn or damaged parts should be replaced as well as the gland seal packaging. Check for complete isolation and free movement.	Graphite packaging is subject to wear. It is therefore recommended to replace such items.	Mechanical
16	Reassembly	12M	Ensure all joint faces are clean		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			and reassemble using new gaskets. If the unit does not restart and go to normal operation, then the electrodes may be too badly deteriorated to be reused and the cylinder must be replaced.		
17	Re-commission	12M	Put back into service and check: • water level in gauge glass corresponds with indicator plate • ball valve operates correctly • controls and indicator lights function properly.		Mechanical
18	Switch-off devices	12M	Check the function of the switch-off devices e.g. the max hygrostat.		Mechanical

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Schedule Title : Humidifiers - Electrode Boiler

Schedule Ref : 33-03
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (30 mins)	12M (30 mins)			
1 2 3 4	5 6 7 8			

ANNUAL TIMING (MINUTES)
150

SCHEDULE INTRODUCTIONS

In hard water areas maintenance may require to be carried out more frequently. If output is decreased due to heavy scaling renewal of the cylinder will be required, refer to client.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

High water conductivity in the boiler circulated water can damage the boiler cylinder vessel, only work within the boiler manufacturers values of conductivity.

Any action taken should conform to the HSE requirements. The control of Legionella bacteria in water systems – ACOP L8 and HEVAC Association code of best practice for commissioning and planned maintenance.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	3M	Check and isolate both water and electricity supplies.	Electrical isolation should meet HSAWA safety requirements.	M&E
2	Steam cylinder	3M	Check all electrical connections on the cylinder for soundness and correct any defects. If the electrodes are deteriorated, replace the steam cylinder.		M&E
3	Cylinder exchange	3M	As per manufacturer's instructions.	Cylinder exchange times will vary: • hard water areas 3 months • soft water areas 12 months. The procedure for changing a cylinder can be found in the manufacturer's manual, but also if the cylinder is to be re-used check that the electrodes have not rotated within the cylinder and check that the seal or "O"	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				ring is still in place.	
4	Water drain pump	3M	Check for free flow of water by operating the pump. Repair any gland leaks. Check manual drain switch actuation.	This may require the removal of the cylinder.	M&E
5	Drain pipe	12M	Check for free flow and actuate drain if necessary.	This may require the removal of the cylinder.	M&E
6	Feed valve	12M	Clean strainer. Disconnect the water supply and remove the fill valve from the humidifier. Remove the inlet strainer. Clean the fill valve and inlet strainer using the same solution as used to clean the steam cylinder.	Always replace the strainer after cleaning to prevent material lodging in the valve.	M&E
7	Unit testing after cylinder exchange	12M	Set the controls to 'start' and operate humidifier in its normal mode. Ensure the functions are correct and humidistat is functioning.	Ensure all electrical and mechanical covers are in their correct places.	M&E
8	Fully automatic modulating type humidifier	12M	Check output modulation.	As per manufacturer's instructions.	M&E

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Schedule Title : Humidifiers - Compressed Air Type

Schedule Ref : 33-04
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	3M (20 mins)	6M (5 mins)	12M (20 mins)	
1	2 3 4	5	6 7 8	

ANNUAL TIMING (MINUTES)
170

SCHEDULE INTRODUCTIONS

This schedule should be read in conjunction with those on air compressors and Pressure Regulations may apply.

Any action taken should conform to the HSE. The control of Legionella bacteria in water systems – ACOP L8, HSG274 part 3 and HEVAC Association code of best practice for commissioning and planned maintenance.

Systems that generate an aerosol must be tested for Legionella every six months. In certain applications, such as food retailers, it is recommended the same water is also tested for E.coli and coliform bacteria.

Where systems do not incorporate some of the design features outlined above, or where ambient temperatures exceed 20°C, or where the risk of aerosol inhalation or infection is greater, more regular sampling will be required. These might be using dipslides for TVC or more frequent testing for Legionella.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Airline components	1M	Visually check inlet and outlet compressed air and water supply pressures. Visually inspect the compressed air filter to check on air quality. Visually inspect the sprays.		Mechanical
2	Status	3M	Inspection of the compressed air filter to check on air quality and visual inspection of the sprays.	Electrical isolation should meet HSAWA requirements.	Mechanical
3	Nozzles	3M	Clean dust and debris from outside of nozzles.	It is advisable to remove the air caps annually to clean thoroughly. Take care not to damage the protective PTFE coating.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
4	`Y` strainer	3M	Inspect and replace strainer screen.		Mechanical
5	Water line components	6M	Water line components in the control panel are subject to greater wear and tear particularly in hard water areas and sediment filter elements prior to the control panel should be changed.		Mechanical
6	Water pressure regulator	12M	Check condition and carry out maintenance in accordance with the manufacturer's instructions.	Items which may need periodic maintenance include: • 2-way air solenoid valve • 3-way water solenoid valve • air pressure regulator.	Mechanical
7	Airline components	12M	Airline components in the control panel, such as pressure regulators, pressure switches and solenoid valves, will require annual inspection and cleaning. According to compressed air quality, air filters immediately prior to the control panel will need cleaning or replacing between six months and a year.		Mechanical
8	UV lamps (if fitted)	12M	Change UV lamps.	Weekly inspection of UV-lamp operation is recommended, although many compressed air systems using this technology incorporate failsafe systems to shut down the humidifier in the event of reduced effectiveness or failure.	Mechanical

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Schedule Title : Humidifiers - Ultrasonic

Schedule Ref : 33-05
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (10 mins)	3M (15 mins)	6M (5 mins)	12M (45 mins)	Not Specified
				8
1	3 4		6	
2		5	7	

ANNUAL TIMING (MINUTES)
235

SCHEDULE INTRODUCTIONS

Any action taken must conform to the HSE requirements. The control of Legionella bacteria in water systems – ACOP L8, HSG274 part 3 and HEVAC Association code of best practice for commissioning and planned maintenance.

Systems that generate an aerosol must be tested for Legionella every six months. In certain applications, such as food retailers, it is recommended the same water is also tested for E.coli and coliform bacteria.

Where systems do not incorporate some of the design features outlined above, or where ambient temperatures exceed 20°C, or where the risk of aerosol inhalation or infection is greater, more regular sampling will be required. These might be using dipslides for TVC, or more frequent testing for Legionella.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water tank	1M	Clean out and refill.	Unlike the humidifiers that boil water, water droplets can contain any impurities that are in the reservoir, including minerals from hard water (which then forms a difficult to remove white dust on nearby objects and furniture) and pathogens growing in a stagnant water tank.	Mechanical
2	Sediment removal	1M	Remove as necessary from top of reservoir.	Waste Disposal Regulations apply.	Mechanical
3	Status	3M	Isolate electrically and hydraulically.	Electrical isolation must meet HSAWA requirements.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
4	Ultrasonic diaphragms	3M	Clean carefully with soft non-scratch cloth.		Mechanical
5	UVC lamps	6M	Check lamps to ensure the effectiveness of the lamp. Change lamps where necessary.	UVC lamps in general have a life of approximately 8,000 hours, however due to the nature of their construction, the degradation in output accelerates towards the end of its useful life.	Mechanical
6	Ultrasonic generator	12M	Check operational efficiency as per manufacturer's instructions. Replace if necessary.	The life of the ultrasonic generator will depend on type of manufacture and the water quality.	Mechanical
7	Automatic shutdown and alarm system	12M	Check that the alarm system (both audible and visual) works when the automatic shutdown system operates. Check that the equipment shuts down correctly and drains the water reservoir.		Mechanical
8	Disinfection		Carry out a full disinfection of the calorifier.	Procedure as laid down by BS 8558 and HTM 04-01 Part B. Frequency is indicated by Risk Assessment.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Humidifiers - Resistance Heater Type

Schedule Ref : 33-06
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	6M (2 mins)	12M (60 mins)		
	2	3 4 5 6 7		
1				

ANNUAL TIMING (MINUTES)
104

SCHEDULE INTRODUCTIONS

In hard water areas more frequent maintenance may be required.

Any action taken should conform to the HSE requirements. The control of Legionella bacteria in water systems – ACOP L8, HSG274 part 3 and HEVAC Association code of best practice for commissioning and planned maintenance.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Inbuilt step controller (where fitted)	3M	Check for correct operation.		Mechanical
2	Control indicator lights (where part of humidifier)	6M	Check for correct functioning.		Mechanical
3	Status	12M	Isolate electrically and hydraulically.	Electrical isolation must meet HSAWA requirements.	Mechanical
4	Water boiling chamber	12M	Drain. Check all electrical connections on the cylinder for soundness and correct any defects.		Mechanical
5	Resistance heater element	12M	Inspect and descale as necessary.		Mechanical
6	Scale collecting bag (where fitted)	12M	Change as necessary.	Waste disposal regulations apply.	Mechanical
7	Float valve or solenoid valve on make-up line	12M	Check operation.		Mechanical

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Schedule Title : Humidifiers - Spray

Schedule Ref : 33-08
Schedule Type : Core
Schedule Date : 28 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (10 mins)	6M (20 mins)			
1	2 3			

ANNUAL TIMING (MINUTES)
560

SCHEDULE INTRODUCTIONS

Systems that generate an aerosol must be tested for Legionella every six months. In certain applications, such as food retailers, it is recommended the same water is also tested for E.coli and coliform bacteria.

Where ambient temperatures exceed 20°C, or where the risk of aerosol inhalation or infection is greater, more regular sampling will be required. These might be using dipslides for TVC, or more frequent testing for Legionella.

Persons responsible for maintenance should record who the competent persons are for the maintenance of: water sampling frequency; tests and results; routine maintenance; cleaning and disinfection dates and details, as per the HSE's Code of Practice L8.

In hard water areas maintenance may require to be carried out more frequently. If output is decreased due to heavy scaling renewal of the cylinder will be required, refer to client.

Any action taken should conform to the HSE requirements. The control of Legionella bacteria in water systems – ACOP L8 and HEVAC Association code of best practice for commissioning and planned maintenance.

All monitoring and maintenance activity should be recorded in a log, particularly that relating to Legionella monitoring and control.

Frequency will change depending on the level of contamination and should be subject to local risk assessment.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Non-chemical water treatment	1W	Confirm the operation of non-chemical water treatment (if present).		Mechanical
2	Status	6M	Isolate electrically and hydraulically, if not already isolated.	Isolation of electrical supply should be in accordance with HSAWA requirements.	Mechanical
3	Humidifier	6M	Carry out a full disinfection of the calorifier in accordance with BS 8558.	Humidifiers and air washers - atomising humidifiers and spray-type air washers may use water from reservoirs or tanks where the water temperature exceeds 20°C. Unless they are regularly cleaned and maintained they	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				can become heavily contaminated, especially in industrial environments. The risk can be prevented by using humidifiers which do not create a spray i.e. steam humidifiers. 'Portable' or 'room' humidifiers of the type that have a water supply that is sprayed or atomised into the room are not recommended for use in NHS premises.	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Introductory Procedures - Lighting

Schedule Ref : 36-01
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Luminaires are usually placed high up in a building and consequently are not easily accessible. A risk assessment and method statement should be carried out. Access by stepladders is not recommended.

The design and installation of lighting systems should be in accordance with the CIBSE Code for Interior Lighting and to ensure that the design conditions are maintained, regular maintenance is necessary. Failure to carry out that maintenance will lead to reduced lighting levels, lower efficiency and energy wastage.

Maintenance routines can improve lighting efficiency by using a regular programme of cleaning for lighting diffusers and by replacing luminaires as they become less efficient with age. There may also be advantages in replacing older type tubular fluorescent lamps with modern, improved efficiency units with an equivalent lighting output. In a dirty environment more frequent cleaning will be necessary.

The maintenance of lighting installations covers four main sectors, these are:-

A) Local wiring and cabling i.e. at entry and/or exit of fitting or control
B) Fittings including luminaries
C) Lamps
D) Controls

Normally for wiring and cabling little maintenance is required unless alterations or temporary arrangements have been made.

For luminaires and fittings the cleanliness of the environment is an important factor dictating the frequency of cleaning, in a dirty environment more frequent cleaning may be necessary.

Dirty reflectors, diffusers, lamps and tubes cause loss of light with the consequent effect on the ‘task’ for which the luminaire was initially installed and the accuracy of the ‘task’ being carried out. Most lamps should be changed at the end of their useful life which is usually before they fail. While continuing to consume the same power as when new, a lamp’s output may decline by 50% or more before it fails. Aim to replace SON and metal halide lamps as soon as they fail. The lamp igniter will continue to try to restart the failed lamp. This can use more energy than if the lamp was working normally and in addition, puts strain on the ballast, causing it to fail in extreme cases.

Manufacturers quote a rated life for Lamps and Tubes. The rated life is the best average of life for a manufactured batch.

A note should be made where lamps with different colour temperatures are used in different parts of a building to avoid a combination of colours in the same room. It is equally important to ensure that lamps/tubes are replaced with like for like types of the correct colour rendition.

There is also another factor which may dictate replacement frequency and that is accessibility. Often it is cost effective to replace lamps on a regular basis based on the recommended life of the lamps. Clearly in certain situations such as retail stores or hospitals, or where access is very difficult, a regular replacement schedule may be the most sensible option and this should be agreed with the service provider.

The environmental factors of the disposal of items must be considered together with the type of replacement used. Fluorescent tubes and other mercury containing discharge lamps together with low and high pressure sodium lamps waste are now classified as hazardous under the Hazardous Waste Regulations.

See Hazardous Areas (Electrics) (SFG 27) for any lighting works in explosive areas or where intrinsically safe fittings are installed.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer’s recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Lighting - Switches - Internal and External

Schedule Ref : 36-02
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (2 mins)	12M (2 mins)			
1	2 3 4 5 6			

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Automatic switching controls e.g. timers	6M	Check operation and time settings.	Adjustments for BST should be made by the service provider on the appropriate dates. For external lighting, regular adjustments should be made to compensate for changes in daylight hours.	Electrical
2	Operation	12M	Check action.	This includes pull switches and remote operated sensor i.e. infra -red switches.	Electrical
3	Earth bonding	12M	Check and correct if defective.		Electrical
4	Dimming switches	12M	Check operation.		Electrical
5	Solar operated switches (external and internal)	12M	Clean detector surface. Check switching function.		Electrical
6	Fireman's switch (external display lighting)	12M	Check action.		Electrical

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Schedule Title : Lighting Fittings including Luminaires General

Schedule Ref : 36-03
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (5 mins)				
1 2 3 4 5 6 7 8 9 10				

ANNUAL TIMING (MINUTES)
5

SCHEDULE INTRODUCTIONS
Please see Introductory Procedures - Lighting (SFG 36-01) before commencing. Wear cotton gloves on highly reflective luminaire diffusers and when changing tungsten capsule lamps. See Hazardous Areas (Electrics) (SFG 27) for any lighting works in explosive areas or where intrinsically safe fittings are installed. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Cleanliness	12M	Check each lamp for build-up of dust and dirt and clean as required.	Frequency of cleaning will depend on environment, in dirty areas more frequent cleaning may be necessary.	Electrical
2	Lamps - tungsten filament	12M	Check for failed lamps or signs of deterioration. Replace as required.		Electrical
3	Lamps - fluorescent	12M	Check for failed or flickering lamps or signs of deterioration. Replace as required.	Care should be taken in handling as broken glass from broken tubes/lamps can be dangerous. Disposal of tubes/lamps should be in accordance with H&S COSHH and Environmental Regulations.	Electrical
4	Lamps - discharge	12M	Clean and replace any failed or suspect lamps.	In readily accessible areas failed lamps should be replaced as soon as possible to avoid damage to control gear. Maintenance contract should be specific with regard to the responsibility for the provision and/or replacement of lamps.	Electrical
5	Security of fitting	12M	Check security fixings and		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			suspensions.		
6	Cable connections	12M	Check externally for security and signs of arcing or overheating.	Renew or re-fix as necessary.	Electrical
7	Flexible down leads and connectors	12M	Check for deterioration and renew if necessary.	Tighten or secure as necessary.	Electrical
8	Diffusers and reflectors	12M	Clean and correctly adjust before re-assembly.		Electrical
9	Lamp control gear	12M	Check operation and compatibility with lamp.		Electrical
10	Switches and control contactors	12M	Check operation of all switches. Check function and operation of any lighting control contactors. Ensure that lamp circuits operate at correct times, both for normal operation and for extended on/off periods.	Replace if faulty.	Electrical

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Schedule Title : External Lighting including Illuminated Signs

Schedule Ref : 36-04
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (5 mins)	12M (5 mins)			
2 3 10 11	4 5 6 7 8 12 13 14 15 16			

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS

Please see Introductory Procedures - Lighting (SFG 36-01) before commencing.

Wear cotton gloves on highly reflective luminaire diffusers and when changing tungsten capsule lamps.

See Hazardous Areas (Electrics) (SFG 27) for any lighting works in explosive areas or where intrinsically safe fittings are installed.

WARNING: Equipment may operate at voltages above 400v.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**External Fittings**				
2	General	6M	Clean and check: • For physical damage • Signs of water ingress or condensation, if present check seals and report to client. • Check mounting brackets/supports/columns etc. for corrosion, damage and security. • Report all findings.	Frequency of cleaning will depend on environment, in dirty areas more frequent cleaning may be necessary.	Electrical
3	Earth continuity	6M	Check earth continuity, all measurements are to be less than 0.5 ohms. Remedy if necessary.		Electrical
4	Lamps	12M	Check for failed or flickering lamps or signs of deterioration. Replace as required.	Care should be taken in handling as broken glass from broken tubes/lamps can be dangerous. Disposal of tubes/lamps should be in accordance with H&S and Environmental regulations.	Electrical
5	Cable connections	12M	Check externally for security and	Renew or re-fix as necessary.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			signs of arcing or overheating.		
6	Lamp control gear	12M	Check operation and compatibility with lamp.		Electrical
7	Switches and control contactors	12M	Check operation of all switches. Check function and operation of any lighting control contactors. Ensure that lamp circuits operate at correct times, both for normal operation and for extended on/off periods.	Replace if faulty.	Electrical
8	Electrical wiring	12M	Check integrity and report to client if renewal necessary.		Electrical
9	**Signage**				
10	Condition	6M	Clean and check: • For physical damage • Signs of water ingress or condensation, if present check seals and report to client.	On plastic surfaces avoid a build -up of static which will re-attract dirt. Cleaning materials should be compatible with sign fabric. If evidence of need for re-painting observed, notify client.	Electrical
11	Earth continuity	6M	Check earth continuity, all measurements are to be less than 0.5 ohms. Remedy if necessary.		Electrical
12	Electrical wiring	12M	Check integrity and report to client if renewal necessary.		Electrical
13	Lamps or tubes	12M	Check for failed or blackened tubes or lamps. Replace as necessary.	Replacement procedures should be agreed with the client as recommended life can vary with type of luminaire. Tube or lamp colour should conform with original colour specification. Disposal of tubes should be in accordance with H&S COSHH and Environmental regulations.	Electrical
14	Cold cathode tubes	12M	Check for faulty tubes of low brightness. Replace or re-process as necessary.	Disposal and re-processing of tubes (particularly mercury tubes) should be in accordance with statutory regulations. Where replacement of a single tube reveals a loss of brightness in the remaining tubes, consideration should be given to block replacement or re-processing. In-fill gas mixture of replacement tubes must be compatible with the circuit design which should conform to current British Standards.	Electrical
15	Control gear	12M	Check for correct operation.	Replacement equipment should	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				be compatible with that removed. Replacement cold cathode transformers should be re-calibrated to the design mA output.	
16	Security of fittings	12M	Check condition and security.	If corrosion has occurred, inform client of need for re-painting or replacement.	Electrical

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Schedule Title : Emergency Lighting - Self Contained

Schedule Ref : 37-01
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (1 mins)	12M (240 mins)			
1	2 3			

ANNUAL TIMING (MINUTES)
252

SCHEDULE INTRODUCTIONS

Tasks should be carried out in accordance with current Statutory Requirements, Regulations and Manufacturers Recommendations. All tests should be logged.

In addition to the tasks detailed in this task maintenance schedule, please note the following:

- The emergency lighting record logbook or monitoring system should be checked in order that recorded faults may be rectified.
- All emergency and escape lighting systems should be inspected daily.

In particular, it should be ensured that:

a) every lamp is lit if the system is maintained;
b) the control panel for any central battery system or generator indicates normal operation; this is a visual inspection of indicators to identify that the system is in a ready condition and does not require a test of operation.
c) any fault found is logged and the appropriate action(s) taken.

Because of the possibility of a failure of the normal lighting supply occurring shortly after a period of testing of the emergency lighting system or during the subsequent recharge period, all full duration tests should wherever possible be undertaken preceding time of low risk to allow for battery recharge. Alternatively, suitable temporary arrangements should be made until the batteries have been recharged.

The following minimum inspections and tests should be carried out at the intervals recommended below. The regulating authority may require specific tests.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Test - Monthly	1M	If automatic testing devices are used, the results of the short duration tests should be recorded. Switch on in the emergency mode each luminaire and each internally illuminated exit sign from its battery by simulation of a failure of the supply to the normal lighting for a period	The period of simulated failure should be sufficient for the purpose of this clause whilst minimising damage to the system components e.g. lamps. Any luminaires or exit signs that do not function correctly should be repaired or replaced. Responsibility for monthly	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			sufficient to ensure that each lamp is illuminated. During this period, all luminaires and signs should be checked to ensure that they are present, clean and functioning correctly. At the end of this test period, the supply to the normal lighting should be restored and any indicator lamp or device checked to ensure that it is showing that the normal supply has been restored.	checks should be agreed with the client.	
2	Test - Annually	12M	If automatic testing devices are used, the results of the full rated duration test should be recorded. For all other systems the monthly inspection should be carried out and the following additional tests made: • Each luminaire and internally illuminated sign should be tested as per the monthly test detailed above but for its full rated duration in accordance with the manufacturer's information; • The supply of the normal lighting should be restored and any indicator lamp or device checked to ensure that it is showing that normal supply has been restored; • The charging arrangements should be checked for proper functioning; • The date of the test and its results should be recorded in the system logbook.	Any luminaires or exit signs that do not function correctly should be repaired or replaced. The once per year test is for the full duration of the battery.	Electrical
3	Battery	12M	Check condition and date of expected life. Renew if necessary.	Normal life expectancy is five years. Batteries must be disposed of in accordance with H&S and Environmental Regulations.	Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1971/40/contents Fire Precautions Act 1971
http://www.legislation.gov.uk/uksi/1999/1877/contents/made Fire Precaution (Work Force) Regulation 1997 and 1999 amendment
http://www.legislation.gov.uk/uksi/1996/341/contents/made Health & Safety (Safety Signs and Signals) Regulations 1996

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http://www.legislation.gov.uk/uksi/2006/438/contents/made Management of Health and Safety at Work Regulations 1999 and 2006 amendment
http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005
http://www.legislation.gov.uk/uksi/1992/3004/contents/made Workplace (Health, Safety and Welfare) Regulations 1992 (WHSWR)
http://shop.bsigroup.com/ProductDetail?pid=000000000030331554 BS 5266-1:2016 Emergency Lighting. Code of Practice for the emergency lighting of premises
http://shop.bsigroup.com/ProductDetail?pid=000000000030154613 BS EN 50172:2004, BS 5266-8:2004 Emergency escape lighting systems
http://shop.bsigroup.com/ProductDetail?pid=000000000030201399 BS EN 62034:2012 Automatic test systems for battery powered emergency escape lighting

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Schedule Title : Emergency Lighting - Externally Powered

Schedule Ref : 37-02
Schedule Type : Core
Schedule Date : 20 Jan 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (25 mins)	3M (20 mins)	12M (60 mins)		
1	2 3	4		

ANNUAL TIMING (MINUTES)
440

SCHEDULE INTRODUCTIONS

Tasks should be carried out in accordance with current Statutory Requirements, Regulations and Manufacturers Recommendations. All tests should be logged.

In addition to the tasks detailed in this task maintenance schedule, please note the following:

- The emergency lighting record logbook or monitoring system should be checked in order that recorded faults may be rectified.
- All emergency and escape lighting systems should be inspected daily.

In particular, it should be ensured that:

a) every lamp is lit if the system is maintained;
b) the control panel for any central battery system or generator indicates normal operation; this is a visual inspection of indicators to identify that the system is in a ready condition and does not require a test of operation.
c) any fault found is logged and the appropriate action(s) taken.

Because of the possibility of a failure of the normal lighting supply occurring shortly after a period of testing of the emergency lighting system or during the subsequent recharge period, all full duration tests should wherever possible be undertaken preceding time of low risk to allow for battery recharge. Alternatively, suitable temporary arrangements should be made until the batteries have been recharged.

The following minimum inspections and tests should be carried out at the intervals recommended below. The regulating authority may require specific tests.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Test - Monthly	1M	If automatic testing devices are used, the results of the short duration tests should be recorded. Switch on in the emergency mode each luminaire and each internally illuminated exit sign from its battery by simulation of a failure of the supply to the normal lighting for a period	The period of simulated failure should be sufficient for the purpose of this clause whilst minimising damage to the system components e.g. lamps. Any luminaires or exit signs that do not function correctly should be repaired or replaced. Responsibility for monthly	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			sufficient to ensure that each lamp is illuminated. During this period, all luminaires and signs should be checked to ensure that they are present, clean and functioning correctly. At the end of this test period, the supply to the normal lighting should be restored and any indicator lamp or device checked to ensure that it is showing that the normal supply has been restored. **Central battery system** - In addition to the above, the correct operation of system monitors should be checked. **Generator** - In addition to the above, refer to ISO requirements.	checks should be agreed with the client.	
2	Battery	3M	Ensure terminals are clean and check electrolyte level. Check condition of battery case(s). In accordance with the manufacturer's requirements the inspection should include a check of: • voltage setting on the charger • cell or monobloc battery voltages • specific gravity (SG) and electrolyte level, if appropriate • cleanliness, leakage • tightness of connectors, if required • ventilation • vent plugs or valves • battery temperature.	Follow manufacturer's instructions at all times and advise client if battery replacement is required.	Electrical
3	Battery Charger	3M	Check operation and proper functioning.	If engine driven generator used, check electrical operation and connections. For prime mover refer to specialist maintenance engineer.	Electrical
4	Test - Annually	12M	If automatic testing devices are used, the results of the full rated duration test should be recorded. For all other systems the monthly inspection should be carried out and the following additional tests made: • Each luminaire and internally	Any luminaires or exit signs that do not function correctly should be repaired or replaced. The once per year test is for the full duration of the battery.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			illuminated sign should be tested as per the monthly tests detailed above but for its full rated duration in accordance with the manufacturer's information; • The supply of the normal lighting should be restored and any indicator lamp or device checked to ensure that it is showing that normal supply has been restored. • The charging arrangements should be checked for proper functioning; • The date of the test and its results should be recorded in the system logbook. **Generator** - In addition to the above, refer to the ISO requirements.		

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1971/40/contents Fire Precautions Act 1971
http://www.legislation.gov.uk/uksi/1999/1877/contents/made Fire Precaution (Work Force) Regulation 1997 and 1999 amendment
http://www.legislation.gov.uk/uksi/1996/341/contents/made Health & Safety (Safety Signs and Signals) Regulations 1996
http://www.legislation.gov.uk/uksi/2006/438/contents/made Management of Health and Safety at Work Regulations 1999 and 2006 amendment
http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005
http://www.legislation.gov.uk/uksi/1992/3004/contents/made Workplace (Health, Safety and Welfare) Regulations 1992 (WHSWR)
http://shop.bsigroup.com/ProductDetail?pid=000000000030331554 BS 5266-1:2016 Emergency Lighting. Code of Practice for the emergency lighting of premises
http://shop.bsigroup.com/ProductDetail?pid=000000000030154613 BS EN 50172:2004, BS 5266-8:2004 Emergency escape lighting systems
http://shop.bsigroup.com/ProductDetail?pid=000000000030201399 BS EN 62034:2012 Automatic test systems for battery powered emergency escape lighting

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Schedule Title : Lightning Conductor and Earth

Schedule Ref : 38-01
Schedule Type : Core
Schedule Date : 08 Feb 2016
Schedule Version : 2.0.0-2016
Unit of Measure : System

TASK FREQUENCIES				
Not Specified				
1 2 3 4				

SCHEDULE INTRODUCTIONS

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The Lightning Protection System should be visually inspected at least annually. In some areas where severe weather changes and extreme weather conditions occur, it is advisable to visually inspect the system more often than indicated.

The Maximum period between inspections of a Lightning Protection System is provided below:

Protection Level	**Visual Level** Year	**Complete Inspection** Year	**Critical Situations a,b Complete Inspection** Year
I and II	1	2	1
III and IV	2	4	1

Where the System is a requirement of the building insurers, the system may be required to be fully tested annually.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Visual inspections		Visual inspections should be made to check that: • the design conforms to BS 62305 Parts 1 - 4 • the LPS is in good condition • there are no loose connections and no accidental breaks • no part of the system has been weakened by corrosion • all visible earth connections are intact • all visible conductors and system components are fastened to the mounting surfaces and components which provide mechanical protection are intact and in the right place • there have not been any additions or alterations to the protected structure which	Look for evidence of corrosion in the material. This is more likely to occur where there is contact between two dissimilar metals or where the atmosphere has the potential for a high degree of chemical pollution. If renewal required, report as necessary.	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			would require additional protection and there has been no indication of damage to the System • correct equipotential bonding has been established for any new services or additions which have been made to the interior of the structure since the last inspection and that continuity tests have been performed for these new additions • bonding conductors and connections inside the structure are present and intact • separation distances are maintained • bonding conductors, joints, shielding devices and cable routing have been checked and tested.		
2	Electrical Continuity Tests		Carry out a continuity test of the system. It is particularly important to check the continuity of those parts of the system which were not visible during the inspection of the system.		Specialist
3	Earth Terminations		Carry out a resistance test to earth of the system. Each local earth electrode should be measured with the test joint between the down conductor and earth electrode disconnected. Advise the client if the whole of the lightning protection system has a resistance to earth of over 10 ohms. The 10ohms requirement is not applicable in areas of rocky soil.	The resistance to earth of each local electrode should be tested and where reasonable practicable, the complete earth termination system.	Specialist
4	Documentation and report		The inspector should compile an LPS inspection report, which should be kept together with the LPS design report and the previously compiled LPS maintenance and inspection reports.	After inspection, all defects noted should be corrected without delay. If necessary the technical documentation should be updated. If the earth-termination system does not conform, the earth-termination system should be improved by installing extra earth electrodes or installing a new earth-termination system.	Specialist

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SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail?pid=000000000030322344 BS 7430:2011+A1:2015 Code of practice for protective earthing of electrical installations
http://shop.bsigroup.com/SearchResults/?q=bs%20en%2062305 BS EN 62305 (parts 1 to 4):2011/2012 Protection against Lightning
Local Act

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Schedule Title : Motors - Drive Elements

Schedule Ref : 39-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	12M (10 mins)			
1 2 3	4 5 6 7 8			

ANNUAL TIMING (MINUTES)
50

SCHEDULE INTRODUCTIONS
Note: Before carrying out any work, check status and isolate in accordance with HASAWA and Electricity at Work requirements. This may require the engineer to follow a permit to work system. Dual motor systems should be treated as one. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Mountings	3M	Check condition.	Motor should run without any excessive vibration.	Mechanical
2	Motor casing	3M	Check ventilating louvres are clear.		Mechanical
3	Bearings	3M	Lubricate where external nipples or lubricators are fitted.	Annually check bearing wear by measuring shaft float and end play and replace lubricant in motor bearings.	Mechanical
4	Brushes	12M	Check condition and replace if necessary.		Mechanical
5	Windings	12M	Clean and test.		Mechanical
6	Terminals and connections	12M	Check and ensure that they are secure.		Mechanical
7	Rating	12M	Check motor running current.	The running current should not exceed the full load value (FLC) shown on the motor data plate.	Mechanical
8	Variable speed drives and other solid state controls	12M	Refer to manufacturer.	Faults and any special maintenance requirements should be referred to the manufacturer as specialised skills are needed to deal with this type of equipment. See Control Panels & Controllers - Speed Controllers (SFG 14-15).	Mechanical

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Schedule Title : Pipework Systems - General

Schedule Ref : 40-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	12M	Check all pipework for signs of leaks, if possible repair and stem leak.		Mechanical
2	Supports and brackets	12M	Check and tighten as necessary.		Mechanical
3	Valves and stopcocks (where normally open)	12M	Check operation. Valves should be fully closed and then fully opened. Lubricate as necessary.	N.B. Carefully note the number of turns to fully close so that valve can be reset to its original position. If operation of valve stiff, repeat operation until clear and then return valve to its original position. See Valves (SFG 61).	Mechanical
4	Regulating valves	12M	Do not adjust unless alterations or additions to pipework have been made.	If alterations to the pipework have been made it will be necessary to recommission the system.	Mechanical
5	Double regulating valves	12M	Check operation.	Settings should not be altered but they can be used for regulation.	Mechanical
6	Glands.=	12M	Check all valves within pipework run for gland leakage where possible, at time of inspection adjust or repack as required. Ensure packing is the correct size and material in accordance with manufacturer's recommendations.	For severe leakage immediate emergency action will be necessary.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Expansion bellows	12M	Check condition and alignment of expansion bellows/compensators.	Report any defects.	Mechanical
8	Sensors, gauges and detectors	12M	Ensure all pipeline mounted detectors/sensors and gauges are in good repair.		Mechanical
9	Hit hazards	12M	Inspect pipework run and where it runs across or parallel to a personnel access route. Highlight any low points where heads could be hit with the appropriate hazard tape or paint.		Mechanical
10	ID tags	12M	Check identification tags are provided for all pipeline mounted equipment, valves etc.		Mechanical
11	Insulation	12M	Report on condition of all insulation and coverings paying particular attention to integrity of any vapour seals.	See Thermal Insulation (SFG 35 -01).	Mechanical
12	Anchor points and guide assemblies	12M	Check for security of fittings.		Mechanical
13	Strainers	12M	Clean strainers.		Mechanical

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Schedule Title : Pipework Systems - Mountings

Schedule Ref : 40-02
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (30 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Slackness in nuts, screws and bolts	3M	Check and tighten as necessary.	Loose mountings can lead to undue strain on joints and vibration can result.	Mechanical
2	Fastenings	3M	Check for corrosion.	Replace any bolts that show signs of corrosion or where corrosion has made the nut a loose fit.	Mechanical
3	Screw heads	3M	Lubricate where exposed.	Lubrication prevents corrosion and facilitates the removal of plant for overhaul and repair.	Mechanical
4	Anti-vibration mountings	3M	Inspect for permanent set (in springs). Renew as a matched pair.	Report to client if replacement is necessary. If replaced, ensure that the correct type is used.	Mechanical
5	Rubber blocks and mat	3M	Check for shearing and cracking under load.	Report to client if replacement is necessary.	Mechanical
6	Alignment of plant, ducts or pipe connections	3M	If any mountings are found to be suspect check alignment.		Mechanical

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Schedule Title : Trace Heating - Electrical

Schedule Ref : 40-03
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 2.0.0-2016
Unit of Measure : System

TASK FREQUENCIES				
3M	6M	12M		
1	2	3		

SCHEDULE INTRODUCTIONS

'Service Timings' - TBC

It is necessary to provide for a routine maintenance program for inspection, recording of the condition, and the repair as required. Significant aspects of an adequate maintenance program include establishing a suitable frequency of inspection, documenting all maintenance operations, and conducting visual inspections, periodic operational checks, and reviews of the electrical protection system.

As with any electrical equipment or wiring installation operating at line voltages, heating cable and component damage or incorrect installation that allows the penetration of moisture or contamination can lead to electrical tracking, arcing and potential fire hazard.

Do not connect heating cable conductors together or this will result in a short circuit.

Not all of the following procedures are applicable for every installation, depending on the complexity of the application.

The frequency of the inspections is a function of the specific location, the type of trace heating system, and the criticality of the application. When electrical trace heating is used for freeze protection, the inspection should occur prior to the winter season. Type II systems should be inspected at least annually, and Type III systems semi-annually or more frequently as required.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Type I control is for applications where the temperature is maintained above a minimum point. Large blocks of power may be controlled by means of a single control device, such as ambient sensing, and an electrical distribution panel board. Heat input may be provided unnecessarily at times and wide temperature excursions should be tolerable. Energy efficiency may be improved through the use of dead -leg control techniques.

Type II control is for applications where the temperature should be maintained within a moderate band. Control by pipe-sensing mechanical thermostats is typical.

Type III control is for applications where the temperature should be controlled within a narrow band. Electronic pipe-sensing controllers using thermocouple or resistance temperature detector (RTD) units facilitate field (work site) calibration and provide maximum flexibility in the selection of temperature alarm and monitoring functions. Heat input capability may be provided to preheat an empty pipe or raise the fluid temperature, or both, within a specified range and time interval. Type III systems require strict adherence to flow patterns and thermal insulation systems To prevent fire or explosion in hazardous areas, verify that the maximum sheath temperature of the heating cable is below the auto-ignition temperature of the gases in the area. For further information, see design documentation.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Local Isolator and connections	3M	Check operation. Check all connections are clean and tight. Check condition of weatherproof		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			seals and remake as necessary.		
2	Visual Inspection	6M	The system should be visually examined for possible damage, by inspecting the exposed components of the trace heating system. Specific areas to be reviewed include: cable entries, junction boxes, exposed trace heating and electrical cables, seal fittings at each affected power connection, tee, splice and end termination, absence of moisture and proper sealing of thermostats and control cabinets, thermal insulation and weather barrier, indications of overheating, presence of leaks, corrosion, and foreign matter. Junction boxes should be checked to verify that they are free of moisture and water. Check for damaged or wet thermal insulation; damaged, missing or cracked lagging and weather-proofing. The thermal insulation and weather barrier should be replaced or repaired as needed. Check that end seals, splices, and tees are properly labelled on insulation cladding. Weatherproof seals - Check condition and remake as necessary. Check Control and Monitoring system for moisture, corrosion, set point, switch operation and capillary damage. Check local isolator and check the operation of the isolator. Check all connections are clean and tight. Check to ensure no signs of overheating, corrosion or moisture. Damaged heating cable must be replaced.	An Inspection Record should be filled out during all maintenance and repair work, and kept for future reference. The frequency of the inspections is a function of the specific location, the type of trace heating system, and the criticality of the application. When electrical trace heating is used for freeze protection, the inspection should occur prior to the winter season. Type II systems should be inspected at least annually, and Type III systems semi-annually or more frequently as required.	Electrical
3	Electrical testing	12M	All circuits and controls should be checked for proper operation during inspections. Each circuit	The frequency of the inspections is a function of the specific location, the type of trace	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			should be checked for normal current and properly applied voltage. Earth-fault equipment protective devices should be tested at least once per year with the trace heating system energised. When the trace heating is used for critical process control, operational checks should be carried out on a more frequent basis. The electrical insulation resistance and trace heater continuity should be checked after any mechanical maintenance has been performed on pipelines, vessels, or equipment that has been heat traced. After the trace heater or total system is completely isolated from the electrical supply, insulation resistance should be measured from the trace heater conductors to the metallic covering with a minimum 500 V d.c. test voltage. The measured insulation resistance shall not be less than 20 Mega ohm [as shown in BS 6235 - 2]. For Type III applications, the trace heater performance should be verified by measuring the current draw for each circuit at 2 min to 5 min after energisation and at 15 min after energisation. This value should be recorded along with the local pipe temperature. If possible, the measured value should be compared to the trace heating supplier's output rating at the measured pipe temperature. Discrepancies in measured values to prescribed values should be resolved. Check all connections to earthing systems, to verify that the connections are tight and have not corroded. Check the integrity of the earthing by the measurement of resistance. Check all controls (thermostats, indicating lights, meters,	heating system, and the criticality of the application. When electrical trace heating is used for freeze protection, the inspection should occur prior to the winter season. Type II systems should be inspected at least annually, and Type III systems semi-annually or more frequently as required.	

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Display Order	Item	FQ	Action	Notes	Skilling
			controllers, etc.) for proper operation and indication. It is necessary to check that protective devices are set as originally specified. Check all control devices (thermostats, indicating lights, meters, controllers, etc.), controller set points, system alarm limits, and the proper operation of the controller should be checked according to the specification of the trace heating supplier. Check for the correct operation of all isolators and interlocks. If the current drawn differs from the normal value investigate and report to client.		

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Schedule Title : Pneumatic Equipment/Compressed Air Systems

Schedule Ref : 40-07
Schedule Type : Core
Schedule Date : 04 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

There are specific statutory requirements for the examination and maintenance of pressure systems including air receivers. Users should be familiar with the statutory requirements applying to compressed air systems and air receivers. These are principally contained in the Pressure Systems and Transportable Gas Containers Regulations. Additional recommendations are given in the Approved Code of practice safety of pressure systems. In addition to the specific requirements, general requirements are set out in the HSW Act and PUWER.

There are many ways in which compressed air can be dangerous, for example:

1. it can enter body orifices such as the mouth, ears and anus, causing severe and often fatal injuries:
2. at high pressure it can penetrate the skin;
3. particles or oil carried in an air jet can damage the eyes;
4. oil-coke deposits in a system can spontaneously ignite and cause an explosion;
4. vessels containing compressed air, even at comparatively low pressure, can explode violently once their integrity is lost; and
5. dirty or 'wet' air can lead to corrosion and blocked valves which may make the system unsafe.

It should be noted that air receivers operating above 0.5 bar gauge pressure are subject to mandatory periodical certification. No work should be carried out on an uncertified vessel and the client should be informed of the position.

Before any pressurised components are dismantled they should be effectively isolated from all pressure sources and completely vented to atmosphere. Precautions should also be taken to guard against the possibility of injury through sudden release of trapped springs.

When components, especially valves, are found to be worn and service kits of seals are used to rebuild them, care should be taken to check thoroughly the function of the rebuilt valve before placing it in the equipment. Incorrect seal replacement can completely alter the valve's function and if replaced in the equipment could present a serious hazard.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Air Compressors and Receivers

Schedule Ref : 40-08
Schedule Type : Core
Schedule Date : 12 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
1D (5 mins)	1W (5 mins)	1M (10 mins)	3M (5 mins)	6M (60 mins)
1 2 3 4 5 6 7 8	9	10	11	12
12M (240 mins)	24M (60 mins)			
19 26	29			
13 14 15 16 17 18 20 21 22 23 24 25 27 28				

ANNUAL TIMING (MINUTES)
2705

SCHEDULE INTRODUCTIONS

WARNING – All maintenance work, other than routine checks to filters designed for cleaning in-service, should be undertaken only when the compressor has been stopped, disconnected and locked off from the power supply and all internal pressure dissipated. Other precautions may also be necessary: for example, the compressor may have to be scotched to prevent movement of the mechanism.

Under no circumstances should flammable liquids be used for cleaning. Appropriate safety precautions should be taken against any toxic vapours liberated during usage of any cleaning or degreasing liquids.

It should be noted that to ensure dry, clean and oil free air, there are a number of daily and weekly tasks which the plant operator must carry out as part of his duties. These include condensate drainage, pressure drop checks across filters, oil contamination checks and audible leaks.

The major hazard associated with compressors is over pressurisation, which may arise from:

(a) a blocked outlet or some other restriction to flow:
(b) failure of automatic controls combined with low air consumption;
(c) compressor malfunction, e.g. over speeding;
(d) an external fire near the pressure system: and
(e) overheating and the build-up of carbonaceous deposits, both of which can lead to fires or explosions. Although they are rare, fires and explosions can also occur as a result of oil or oil vapour being ignited in the pressure system.

Where receiver is fitted with automatic condensate drain valve, check for correct operation. Where manual valves are provided, drain condensate.

Dirty or `wet` air can cause a system to fail e.g. by causing fine particles of debris to agglomerate, blocking safety related valves.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Cooling Water	1D	The cooling water should be visually checked to make sure that it is circulating properly by		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			observing the flow outlet or flow indicator.		
2	Oil level	1D	The level of the oil in the crank chamber should be checked using a dipstick, level gauge or other device. Any excessive usage of lubricating oil should be investigated.		Mechanical
3	Oil pressure	1D	Oil pressure should be checked.		Mechanical
4	Oil feed	1D	Check oil feed to the cylinders to make sure that it is adequate but not excessive. Oil consumption should be recorded, as excessive consumption can often lead to explosions downstream of the compressor.		Mechanical
5	Air pressure & temperature	1D	Check and record the outlet air pressure and temperature.		Mechanical
6	General	1D	Check the compressor performance by listening for any unusual noises during running.		Mechanical
7	Defects	1D	Defects found should be rectified and a record kept.		Mechanical
8	Air receiver	1D	Any accumulation of oil and water should be drained from the air receiver, the intercooler, the aftercooler and main supply pipes.		Mechanical
9	Safety valves	1W	Safety valves (where design allows) should be checked by easing them by hand.		Mechanical
10	Air filter	1M	Inspect air filter, clean/replace as found necessary.	The condition of the inlet air filters should be checked and thoroughly cleaned or replaced. The interval between successive replacements will be determined by local circumstances but is, to a certain extent, controlled by the capacity of the filter and the cleanliness of the atmosphere in the vicinity. Where oil wetted viscous filters are used, spare units should be provided and excess oil should be drained from the filter units for at least four to eight hours before the units are replaced, except where the manufacturer advises otherwise.	Mechanical
11	Oil - 3 Monthly	3M	Check the quality of oil in the crank case according to the manufacturer's	600 hours or 3M (whichever is the sooner).	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			recommendations. Replace if necessary.		
12	Delivery Ports and pipework	6M	Where oil coke deposits are liable to occur, check the delivery ports and pipework. Clean as required.	The period between inspections can be modified in the light of experience gained from operating a particular installation.	Mechanical
13	Capacity Test	12M	Pump up receiver from zero atmospheric pressure to working pressure and note time taken.	Any marked difference from the manufacturer's specification may indicate leakage or compressor faults.	Mechanical
14	General Conditions	12M	Check the following: • condition of guards • inter-stage cooler drains • bearers and holding down bolts • hand operated valves • moisture traps. Clean down all external surfaces. Inspect air receiver; check all valves, seals etc. operate correctly	Check for tightness of glands and seats.	Mechanical
15	Status	12M	Electrical Check for satisfactory operation of local electrical isolation device (stoplock/isolator).	Note: Electrical isolation should be carried out according to the HSAWA. Where receivers are subject to Statutory Tests and Examinations for purposes of insurance, major overhauls should coincide with such tests and examinations. Any recommendations made by the Insurance Inspector must be completed before the receiver is returned to service.	Mechanical
16	Oil - Annual	12M	Drain and change the lubricating oil using recommended lubricating oil.		Mechanical
17	Belts, Guards and Drive	12M	Check condition, tension and alignment of drive belts and pulleys. Renew drive belts as necessary. Check drive guard is in good repair and securely fixed, providing correct cover of all moving parts. Change lubricant in motor bearings.	Ensure spare belts are available. a) Isolate the electricity supply. b) Remove the belt guard. c) Remove the existing belt. d) Clean the pulley running surfaces. e) Lift the motor platform and position a new belt on both pulleys. The smooth side of the belt should be in contact with the pulley surfaces. f) Ensure the belt will run centrally on the pulley faces. g) Replace the belt guard.	Mechanical
18	Condensate removal	12M	Check condensate drainage	This should be checked daily as	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			system and clean as necessary.	part of the normal in house maintenance procedures. The condition of the condensate is an indication of the condition of the compressor.	
19	Pressure relief valve and protective devices	12M	Test safety valve and where fitted, LP relief valve. The condition of protective devices should be checked and tested to determine that they operate correctly. Fusible pellets or complete plugs should be replaced.		Mechanical
20	Electrical	12M	Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure. Take and log motor current and compare with nameplate details.	For associated equipment see: • Motors - Drive Elements (SFG 39-01) • Pumps - General (SFG 45-01) • Introductory Procedures - Fans (SFG 20-01).	Mechanical
21	Gauges	12M	Check operation.	Defective gauges should be reported with a recommendation that they be replaced.	Mechanical
22	Pipes and connections	12M	In the case of oil lubricated compressors, the delivery valves, ports and all the pipework, vessels and fittings between the delivery port and that point in the system at which the air temperature can be confidently expected to be below 80ºC should be inspected. Any carbonaceous deposit should be effectively removed. Check external condition and leak tightness. Tighten connections as necessary.	With soldered or brazed joints, these may have to be remade. To prevent internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process.	Mechanical
23	Controls	12M	Check that the regulating system operates correctly. Check operation of pressure switches and auto change over solenoids. Check and log settings of high limit pressure switch(es).		Mechanical
24	Offloaders, mechanical and electrical	12M	Check operation.		Mechanical
25	Main air intake air quality	12M	Check air source for possible contamination and dangerous	If air quality affected by location of intake, report to client.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			gases.	Repositioning may be necessary.	
26	Valves - various	12M	Check condition of the valves. Inspect and clean the non-return/unloader valve assembly. Remove and inspect the crankcase breather valve.	After each 2000 hours of running or annually (whichever is the sooner). See Valves (SFG 61).	Mechanical
27	Cooler section	12M	Clean the intercooler and aftercooler sections.	After each 2000 hours of running or annually (whichever is the sooner).	Mechanical
28	Radiator	12M	The radiator should be drained and washed out.	After each 2000 hours of running or annually (whichever is the sooner).	Mechanical
29	Air Receiver	24M	Prepare for and assist with insurance inspection. The air receiver should be thoroughly cleaned and examined internally.	Frequency will be set by Insurance inspector.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Air Compressors Compressed Air Dryers

Schedule Ref : 40-09
Schedule Type : Core
Schedule Date : 04 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (30 mins)	12M (60 mins)	36M	Not Specified	
	5 6 8 20 21 22 23 24 25 26		17	
2 3 4 10 11 12 13 18 19		15		

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

The chambers of air dryers are pressure vessels and should conform with PD 5500 “Specifications for unfired fusion- welded pressure vessels” or to a standard providing equal integrity. If means are provided for isolating the dryer (and it is good practice to provide means of isolation for all equipment), either the chambers should be constructed to withstand the maximum pressure that can be generated by the compressor or a suitable pressure reducing valve and a safety valve should be fitted to prevent the safe working pressure of the chambers from being exceeded.

Where there is no means of isolating the dryer from a suitable safety valve, e.g. on the receiver, and where non-return valves are fitted to the dryer outlet (to protect it from stored energy in the system), no safety valves are needed.

Maintenance operations should only be conducted when the system has been shut down, isolated and fully depressurised. All connections must be undone with care, paying particular attention to the areas that become pressurised. Do not modify or adjust control settings. Check all connections for leakage and secure seating. Ensure all loose parts are removed or secured to the dryer before operation.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer’s recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Refrigeration Type**				
2	Pipe connections	3M	Check for leak tightness, remedy as necessary.		Mechanical
3	Condensate trap bowl	3M	Drain, clean with soapy water and replace.		Mechanical
4	Evaporator fins	3M	Clean and straighten.	Report any severe damage.	Mechanical
5	Electrical wiring and conduits	12M	Check condition.		Mechanical
6	Discharge air dewpoint	12M	Measure and record.	Compare with manufacturer's recommended figures.	Mechanical
7	**Water Cooled After Coolers**				
8	Pipe connections	12M	Check for leaks.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	**Water Absorption Type**				
10	Drying medium	3M	Remove from container, check condition and treat as necessary.	Desiccants such as anhydrous calcium chloride, silica gel types or activated alumina, may require different treatment.	Mechanical
11	Cleaning	3M	A risk Assessment must be done and training given prior to use. Where applicable, dismantle and clean with dry oxygen free nitrogen. Examine, test, refit or renew items listed under notes.	Examine, test, refit or renew the following Items: • Insert casing • felt pads • perforated discs • spring • gauzes • strainers • cotton wool • U pin • external casing • desiccant as directed.	Mechanical
12	Discharge air quality	3M	Check and record: a) air dewpoint, b) air temperature.	Too high a temperature can cause break-up of desiccants.	Mechanical
13	Re-activation drying time	3M	Time change-over period.	Compare with manufacturer's recommendation.	Mechanical
14	**Water Absorption Type**				
15	Cartridge	36M	Change complete container.		Mechanical
16	**Compressed Air Network Distribution**				
17	Compressed Air Network Distribution			Note: The Pressure Systems and Transportable Gas Containers Regulations will apply to the complete system.	Mechanical
18	Filter and pressure reducing station	3M	Check particle filters and change as required. Check oil filter and change as required. Check pressure reducing valve settings. Check low pressure safety valve.	Presence of excessive oil indicates a need for a thorough examination of the compressor. Client should be advised.	Mechanical
19	Moisture drain	3M	Check operation	If autotype, check level valve opens and closes outlet. If manual, check valve is not blocked.	Mechanical
20	Valves	12M	Check external condition, operation, leak tightness of glands and seats, spindles and handwheels.		Mechanical
21	Safety and reducing valves	12M	Examine external condition check operation, settings and leak tightness.		Mechanical
22	Drains and trap	12M	Check external condition, operation and leak tightness.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
23	Filters and strainers	12M	Check external condition, operation and leak tightness.		Mechanical
24	Gauges	12M	Check operation, condition and leak tightness.	Any defective gauges should be reported with a recommendation that they be replaced.	Mechanical
25	Pipes and connections	12M	Check external condition, and leak tightness. Ensure correct sign-writing (colour coding).	Pay particular attention to supports, hangers and brackets. Uncontrolled vibration can lead to pipe breakage.	Mechanical
26	Pipe insulation	12M	Check condition of insulation on drain legs, etc. and make good if defective.		Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Pipework for Low Pressure Natural Gas, Liquefied Petroleum Gas (LPG) or Oil

Schedule Ref : 40-10
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
The following tasks are to be carried out to all pipework within the designated area. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Pipework - LPG	12M	Your inspection and maintenance strategy will be dependent on various factors including: • whether parts of the pipework are buried • the pipework material is metallic/non-metallic • if there is corrosion protection and its type • the condition and age of the pipework and whether people are likely to be affected if there is an incident. Other factors to be considered include spaces under or within the building where gas may accumulate and the risk of pipework being vulnerable to disturbance from vehicle movements and excavations of buried services. A competent person should review the state of the pipework and establish the length of time for which it can be used safely before its next inspection, taking into account the time since it was last checked and any action	The competent person should review the outcome of the inspection and make recommendations for changes to the strategy as required. Replace buried metallic pipework with pipes constructed to current standards using materials that are resistant to corrosion, for example polyethylene (PE0). LPG pipework may, under certain conditions, deteriorate and could eventually leak. Such a leak may result in a fire or explosion if the LPG accumulates and an ignition source is present. Do not forget hidden pipework where access is provided. Gas detection instruments having a scale that can detect to less than 10% of the lower explosive limit of the gas in air in the pipework should be used.	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			taken at that time. For buried pipework, the only really effective inspection method currently available is to excavate the pipe for examination, particularly if it is metallic. Care should be taken when excavating pipe to prevent damage to the pipe or its corrosion protection. For metallic buried pipework that is likely to corrode, a specialised expert in corrosion of metal pipework would be required to assess its state on excavation. Regular excavation of the pipework will be required to enable its assessment including visual checks of all parts of metal buried pipework. Leak and pressure tests will only tell you if the pipework is leaking at the particular time of the test. The timescale of these tests will depend on site-specific conditions above. Pipework, flanges and fittings should be inspected for corrosion and damage. Particular care should be paid to pipework where it passes through supports and walls. Pipework supports should be checked to ensure that they are secure and in satisfactory condition. Thermal insulation should be inspected for damage. Suspect areas should be removed to allow inspection of the pipe. Gas detector tests should be carried out in areas where gas can accumulate and linger e.g. enclosed spaces, ducts and voids and around the pipework entry to buildings. Gas detector tests may also be carried out on joints and over known routes of underground pipework. Leak detection fluid may be used to check exposed joints for	Check lists should be used as an aid to ensuring that inspection and tests have been carried out in accordance with the strategy.	

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Display Order	Item	FQ	Action	Notes	Skilling
			leakage. Soundness and leakage tests may be carried out as specified in current British Standards or LPGA Codes of Practice as appropriate.		
2	Pipework - Oil	12M	Visible oil feed pipes should be inspected annually: • Check for leaks. • Check sleeves and physical soundness. • Check all ends are suitably plugged/capped. Pipework made from plastic, copper and steel will need different types of testing as will different sized pipes. The EA recommend you adopt the same method used for non-oil firing applications, such as refuelling facilities. Ensure the fill point drip-tray is clean, free of water, debris and oil before and after any oil delivery.	Some regional requirements mean some systems should be pressure tested every 5 years where there are joints in the system or every 10 years where there are no joints. In environmentally sensitive areas an alternative is to have a 'pipe within a pipe' system incorporating a leak detection and alarm system. Underground pipework must be tested for leaks every 5 or 10 years depending on whether there are mechanical joints.	Mechanical
3	Valves - LPG	12M	Check for soundness and leakage. Emergency control valves should be checked for accessibility and operation.	See also Valves (SFG 61).	Gas Safe
4	Valves - Oil	12M	Check for soundness and leakage. Check all fire valves for cut-off in the event of a fire alarm, fire or overheating.		Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1974/37/contents Health and Safety at Work Act 1974 (HSWA)
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : Steam Services

Schedule Ref : 40-11
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (60 mins)	3M (30 mins)	12M (480 mins)		
1 2 3	4	5 6 7 8 9 10 11 12 13		

ANNUAL TIMING (MINUTES)
1320

SCHEDULE INTRODUCTIONS
The following tasks are to be carried out to all pipework within the designated area. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Insulation	1M	Check for damage and loss of protection. Renew if necessary.	Damage is often caused by ladders, feet or emergency repairs. In open air, insulation can become waterlogged and ineffective. Asbestos Regulations may apply. See Thermal Insulation (SFG35-01).	Mechanical
2	Operation of steam traps	1M	Inspect steam trap sets and ensure correct function and operation. Check isolating valves shut off. Clean trap set strainers.	Faults can lead to steam wastage, excessive condensate and poor heat transfer in associated equipment and energy wastage.	Mechanical
3	Condensate services	1M	Check for pressure of continuous discharge of steam. If present check steam traps.	Condensate if uncontaminated is valuable and should not be allowed to run to waste but should be returned to the boiler if economical to do so. Where this is not possible or is contaminated it must be taken to a foul drain or soakaway.	Mechanical
4	General	3M	Check all pipework for signs of leaks, if possible repair and stem leak.	Do not forget hidden pipework where access is provided.	Mechanical
5	Hangers and	12M	Check for breakages or damage.	Undetected broken hangers can	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	supports			lead to undue strain on pipes and possible breakage or sagging which can lead to waterlogging.	
6	Valves, steam valves and flanges	12M	Check all valves within pipework run for gland leakage, where possible at time of inspection, adjust or repack as required. Ensure packing is the correct size and material in accordance with manufacturer's recommendations. Take all valves (excluding regulating valves) through total travel and return to correct position.	Wisps of steam escaping soon lead to bigger leaks which cause scoring of stems and flanges leading to early replacement.	Mechanical
7	Valves on drain legs of mains	12M	Check operation.	If not working can lead to waterlogging of steam mains, slow start-ups and overloading of steam traps and poor heat transfer.	Mechanical
8	Vents on steam lines	12M	Check operation.	Presence of air in steam reduces efficiency of heat exchangers.	Mechanical
9	Pressure reducing devices	12M	Check PRD valve(s) for correct function and operation. Log upstream and downstream pressures.		Mechanical
10	Expansion bellows	12M	Check condition and alignment of expansion bellows / compensators.	Report any defects.	Mechanical
11	Sensors, gauges and detectors	12M	Ensure all pipeline mounted detectors/sensors and gauges are in good repair.		Mechanical
12	Hit hazards	12M	Inspect pipework run and where it runs across or parallel to a personnel access route. Highlight any low points where heads could be hit with the appropriate hazard tape or paint.		Mechanical
13	ID tags	12M	Check identification tags are provided for all pipeline mounted equipment, valves etc.		Mechanical

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Schedule Title : Flash Steam Vessel

Schedule Ref : 40-12
Schedule Type : Core
Schedule Date : 16 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (30 mins)	12M (240 mins)			
	5			
4 8 9 12	1 2 6 10 13			

ANNUAL TIMING (MINUTES)
360

SCHEDULE INTRODUCTIONS

If insulation looks damaged - STOP WORK - this may be asbestos. If suspected close off the area and take actions in accordance with the Asbestos Regulations.

If the insulation is known or certified not to be asbestos - Prior to carrying out the planned maintenance on the flash steam vessel, the pre -maintenance procedure detailed below should be followed:

(a) At the entrance to the Plant room, stop and listen for a steam leak (high pressure steam will be invisible and only the sound of a leak may be present);
(b) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety.

Before starting maintenance be sure that the equipment is not pressurised or hot. If any of the socket connections are not being used they must be closed with an appropriate carbon steel plug.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Vessel and pipework connections	12M	Inspect for any leaks.	The estimated lifetime under satisfactory working conditions is 5 years. After this period, it is recommended a wall thickness examination is carried out using appropriate inspection equipment. Poor quality water or corrosive fluids will reduce this period.	Mechanical
2	Check insulation for damage	12M	Repair or renew as necessary.	Damaged lagging reduces efficiency and wastes heat. If the vessel is in the open air it can become waterlogged and lead to hidden corrosion.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				Asbestos regulations may apply.	
3	**Safety Valve**				
4	Safety valve - operational status	3M	Check by raising gagging lever to discharge steam or air. Release gagging lever to reseat. Check for dirt or damage.	Check that discharge is to free space or if piped, that pipe outlet is not directed to personnel. Check with insurance company for frequency of mandatory checks.	Mechanical
5	Safety valve - inspection	12M	Strip down, overhaul and then rebuild to comply with the competent persons requirements under the Pressure Regulations and the written scheme of examination.	The competent person may require additional testing on completion of the rebuild.	Mechanical
6	Bursting discs (if fitted)	12M	Check condition and report.	The competent person should be contacted for the routine replacement frequency for the bursting discs.	Mechanical
7	**Isolating valve(s)**				
8	Operational status	3M	Check by rotating hand wheel sufficiently to ensure freedom of movement. When fully open, close valve ½ turn to ensure valve does not jam.		Mechanical
9	Gland leakage	3M	Ensure correct packing material is used for the fluid in the pipeline.	After installation or replacement, check for gland leakage daily for one week. Early signs of slight leaks are due to 'bedding in' or drying out and are usually cured by tightening of gland nuts. Continuous leakage can lead to erosion or corrosion of the valve stem.	Mechanical
10	Overall condition	12M	Inspect for external deterioration due to leaks at end flanges or aggressive environment.	Leakage from end flanges can be due to pipe strains, poor joints or pipe supports.	Mechanical
11	**Float & thermostatic steam trap**				
12	Test	3M	Test that steam trap is working.	Test methods include listening devices, optical sight glasses, temperature monitoring and ultrasonic techniques.	Mechanical
13	Cleaning	12M	Clean and ensure float is not leaking. Check seat of trap. If damaged renew seat.		Mechanical

SCHEDULE LEGISLATION

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http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Emergency Solenoid Fuel Valves

Schedule Ref : 40-13
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)				
1				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Emergency solenoid fuel valves	3M	Check operation and function of emergency shut-off valves. Ensure 100% shut-off. Check valve operation at each emergency shut-off device (knock-off electro-thermal link, fire detector etc.). Ensure valve(s) is reset after maintenance.		Mechanical

SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings
http://shop.bsigroup.com/ProductDetail/?pid=000000000030177381 BS 6173:2009 Specification for installation and maintenance of gas-fired catering appliances for use in all types of catering establishments (2nd and 3rd family gases)

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Schedule Title : Pressure Reducing Valves

Schedule Ref : 40-15
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (20 mins)	12M (20 mins)			
1 2 3 4	5 6 7			

ANNUAL TIMING (MINUTES)
100

SCHEDULE INTRODUCTIONS
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK and close off the area. Take actions in accordance with the Asbestos Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Steam pressure reducing valves	3M		The written scheme of examination may require the valves to be stripped down, overhauled and then rebuilt to comply with the Competent Persons requirements under the Pressure Regulations. If this is the case it would make the task red.	Mechanical
2	General operation	3M	Check unit operates without undue noise or vibration.		Mechanical
3	Pipework	3M	Check all pipework supports are secure.		Mechanical
4	Strainer and steam traps	3M	Remove, examine and clean upstream strainer. Check operation of all steam traps.		Mechanical
5	Main valve seat and valve head	12M	Isolate and reduce pressure to zero. Remove screen and clean. Clean gasket faces and renew gasket.	The actual maintenance requirements may vary with the type of valve and the manufacturer's instructions should be followed carefully.	Mechanical
6	Pilot valve chamber assembly	12M	Isolate and reduce air pressure to zero. Check dimensions of plunger gap and adjust if necessary.	The dimension of the plunger gap is critical and it may be necessary to grind or machine the top of the plunger.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Pilot and main diaphragms	12M	Thoroughly clean upper and lower diaphragm chambers. Ensure contact faces are clean and reassemble.	When refitting diaphragms make sure that they are replaced the same way round as when they were removed.	Mechanical

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Schedule Title : Water Buffer/Surge Tanks

Schedule Ref : 40-16
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (5 mins)	6M (5 mins)	12M (90 mins)		
1	2	3 4 5		

ANNUAL TIMING (MINUTES)
160

SCHEDULE INTRODUCTIONS

In the context of Building Services the term surge or buffer tank is used to describe a closed vessel which is used to increase the volume of LTHW or chilled water in a system and may be designed in accordance with the Pressure Equipment Directive.

This section covers the maintenance of the buffer tanks including mountings but is not intended to cover the opening up of tanks for statutory insurance inspection (where required). This requires a separate procedure which may be carried out at the same time as the maintenance.

In accordance with good practice the operator should carry out a visual inspection of the buffer tank at regular intervals and this should include checking for leaks.

Prior to carrying out the planned maintenance of the buffer tank, the pre-maintenance procedure below should be followed:

a) Check equipment operating status (i.e. whether in operation or not in use, whether isolated from system) including safety;
b) Inspect buffer tank insulation and/or shell for signs of damage;
c) Inspect all manholes, mounting and joints for signs of leaks;
d) Report any necessary remedial work where repairs, adjustment or replacement will be required during routine maintenance.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Air vents	1M	Where fitted, check the operation of the automatic air vent. Where manual vents are fitted, open until water is seen then close the vent	If buffer tank was in use, the water may be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
2	Drain valve/drain cock	6M	Draw off a small quantity of water to remove any sediment.	If buffer tank was in use, the water may be hot and can be under pressure, so care must be taken in carrying out this item of the schedule.	Mechanical
3	Thermostats, pressure sensors, altitude gauges and thermometers	12M	Check for correct operation and settings set against Certified masters.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
4	Internal surfaces of shell and sacrificial anode	12M	Isolate the buffer tank from the system and drain down. Remove manhole covers and inspect for scale formation and corrosion. Where fitted, check status.	Replace as necessary. The calorifier will have to be drained and opened up before the anode can be inspected therefore it cannot be a pre-maintenance check.	Mechanical
5	Put back into operation	12M	Refit all manhole covers, refill and vent off air as required.		Mechanical

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Schedule Title : Water Mains - Above Ground

Schedule Ref : 40-17
Schedule Type : Core
Schedule Date : 23 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (20 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
40

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water mains	6M	Check external water main for signs of leaks, damage or deterioration of pipework and supports.		Mechanical
2	Valves	6M	Rotate isolation valves through one complete turn to detect leakage, via valve spindle stuffing box. When fully open, close valve ½ turn to ensure valve does not jam.		Mechanical
3	Insulation	6M	Ensure valves and pipework are properly protected/insulated.	Report any problems to the client.	Mechanical
4	Filter	6M	Remove and clean water main inlet filter.		Mechanical

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Schedule Title : Boiler Water Deaerator

Schedule Ref : 40-18
Schedule Type : Core
Schedule Date : 06 Apr 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
1M	6M	12M	Not Specified	
			8	
1 2 3	4	5 6 7		

SCHEDULE INTRODUCTIONS
TBC - 'Service Timings' Boiler feedwater usually contains two harmful dissolved gases; oxygen and carbon dioxide. The purpose of deaeration is to remove these gases before they are liberated in the boiler. This reduces corrosion in the boiler, steam lines, condensate lines and heat transfer equipment. The deaerator conditions feedwater so that it has less than 0.005 CC oxygen per litre. This is termed “zero oxygen” and is the practical limitation of current chemical testing equipment. Carbon dioxide is, for all practical purposes, eliminated. Water delivered to the boiler is pre-heated. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer’s recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.** Notes: Exhaust steam must be free of oils and other contaminants, be of continuous supply, and at the required pressure. Care must be taken to avoid problems with the equipment from which steam is extracted.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water quality	1M	The water softness should be checked where a water softener is not fitted.	If the water hardness exceeds 50ppm, a water softener should be installed.	Mechanical
2	Controls	1M	Float Operated controls should be blown down or drained to assure against build-up of sediment.		Mechanical
3	Valves and strainers	1M	Check and clean all drain valves. Strainers in all lines should be cleaned.	The frequency at which the strainers are cleaned should be determined by conditions and usage.	Mechanical
4	Pump and back-up pump - 6 Monthly	6M	Carry out the maintenance on the pump and back-up pump in accordance with Pumps - General (SFG20 45-01).		Mechanical
5	Pump and back-up pump - 12 Monthly	12M	Carry out the maintenance on the pump and back-up pump in accordance with Pumps - General (SFG20 45-01).		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
6	Water tank	12M	The interior of the tank and the spray assembly should be inspected at least annually for any evidence of corrosion, scaling or other damage. In the event there is an accumulation of sediment, sand, gravel etc. in the bottom of the tank, it should be removed, analysed and an effort made to eliminate the source.	Should scale be present, the method of cleaning, either mechanical or chemical, will be governed by the composition of the scale and its location. If cleaning is required, it is suggested that the cleaning problem be referred to a company that is versed in this type of cleaning. They will be able to determine the composition of the scale and will select the proper chemicals to be employed in the cleaning process.	Mechanical
7	Controls	12M	It is suggested that the heads be removed for visual inspection during the annual boiler inspection. At the same time, remove the pipe plugs from the tees or crosses to verify that the cross connecting piping is clean and free of obstructions. Check that the controls are mounted in a plumb position for proper performance. The water gauge glass should be kept clean. Check while cool for etching thinning or damage. If any deterioration is found, replace glass immediately to avoid the possibility of breakage in service. The glass should be replaced periodically as part of the maintenance program. Check try-cocks and gauge cocks for freedom of operation and clean as required.		Mechanical
8	Degasser		The unit is to be inspected by a competent person in accordance with the written scheme of examination. The frequency will be as required by written scheme of examination.		Specialist

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Solenoid Gas/Oil Shut-off (Safety) Valves

Schedule Ref : 40-22
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
3M	12M			
1				
	2 3			

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Consideration should be given to the discharge of secondary energy - i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Solenoid gas/oil shut -off (safety) valve - 3 Monthly	3M	Check operation and function of the solenoid valves. Ensure 100% shut off. Check valve operation at each emergency shut-off device (knock off, electro-thermal link, fire detector etc.). Ensure valve(s) is reset after test.	These valves can be found on both oil and gas systems.	Mechanical
2	Operation status	12M	Operate and check for correct linear travel. Check for solenoid noise i.e. buzzing.	Check by operation of the solenoid. Check supply voltage and that polarities are correct - refer to manufacturer`s instructions. Noise can be due to dirty pole faces, remove coil and clean pole faces.	Multi-skilled
3	Solenoid gas/oil shut -off (safety) valve - 12 Monthly	12M	This procedure applies to all types of automatic control valves and requires that before any maintenance is undertaken all Health and Safety precautions must be adhered to including system isolation. Care must be taken to ensure that any		Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
			maintenance does not unduly interfere with environmental operating conditions: 1. Inspect and check that valve is not letting by. 2. keep a note of any settings made i.e. min/max travel balancing valve setting etc. 3. Check valve body and fixings for any signs of corrosion or mechanical damage. Inspect for gland leakage, refer to manufacturer's maintenance instructions. Adjust or replace seals as necessary. 4. Check that pipe flange or screw connections are not leaking. 5. Where fitted, check that the actuator yoke and linkages are secure and not bent or damaged. 6. Check correct installation of valve with reference to both type and manufacturer. 7. Check that control cables have been installed with the correct polarity. There are a large number of valve manufacturers who each call for specific maintenance and lubrication procedures for their products please ensure you refer to the Manufacturer's maintenance instructions and the Manufacturer's lubrication instructions.		

SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings
http://shop.bsigroup.com/ProductDetail/?pid=000000000030177381 BS 6173:2009 Specification for installation and maintenance of gas-fired catering appliances for use in all types of catering establishments (2nd and 3rd family gases)

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Schedule Title : Pneumatic Relays

Schedule Ref : 41-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS

Electric to pneumatic, pneumatic to electric and pneumatic to pneumatic.

Before any pressurised components are dismantled they should be effectively isolated from all pressure sources and completely vented to atmosphere. Precautions should also be taken to guard against the possibility of injury through sudden release of trapped springs.

If relays are found to be worn and service kits of seals are used to rebuild them, care should be taken to check thoroughly the function of the rebuilt relay before placing it in the equipment. Incorrect seal replacement can completely alter the function and if replaced in the equipment could present a serious hazard.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Input signal(s)	6M	Check.		Specialist
2	Output signal(s)	6M	Check.		Specialist
3	Operation	6M	Check for correct relationship between input and output signals.		Specialist

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Schedule Title : Portable Appliance Testing (PAT)

Schedule Ref : 42-01
Schedule Type : Core
Schedule Date : 11 Feb 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
Not Specified				
1 2 3 4 5 6				

SCHEDULE INTRODUCTIONS

It is a requirement of the current Electricity at Work Regulations that "all systems shall be maintained so as to prevent, so far as is reasonably practicable, danger". Portable electrical equipment must be tested regularly (PAT testing) and records kept and equipment identified and marked accordingly. See also ECA document, A GUIDE ON HOW TO INSPECT AND TEST PORTABLE APPLIANCES SAFELY AND EFFECTIVELY.

The term 'portable appliance' can be considered to be an appliance that is intended to be moved while in operation or an appliance which can easily be moved from one place to another while connected to the supply e.g. vacuum cleaner, drill, hair dryer.

The intervals between both inspection and testing can be determined initially by assessing the risk (the likelihood of danger arising), and will vary with the type of equipment, usage, and the nature of the environment in which it is used. Also, the age of the equipment and previous test results need to be considered. The frequency of inspection can be determined by experience and will generally be more frequent than testing. More onerous conditions will demand more frequent inspection and testing while less onerous conditions (and good inspection and test results) can lead to a reduced frequency.

The IET's Code of Practice for In-Service Inspection of Electrical Equipment should be consulted for an initial frequency of inspection and testing and can be used until sufficient experience is built up to establish what is appropriate to the circumstances.

If the Class of equipment is not known and it is not possible to determine its construction type from the manufacturer, it is to be treated as Class 1.

Before inspection and testing is carried out, the test operative should obtain a copy of the previous test results, if available, so that any deterioration can be assessed and advice given accordingly.

N.B. For full details of tests to be carried out reference should be made to the IET'S Code of Practice.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Earth Continuity Test		One of the following two tests should be carried out: **Hard Test** - A Continuity measurement should be made with a test current not less than 1.5 X the rating of the fuse, up to a maximum of 26A for a period of between 5 and 20m seconds. The continuity test should be made between accessible earthed metal parts of the	This test can only be carried out on Class 1 equipment or a flexible cable. The measured resistance should not exceed the following values: • Appliances with a supply	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			equipment and the earth pin of the plug. The resistance measurement should be taken while flexing the cable. The terminations should be inspected for any evidence of deterioration, poor contact, corrosion etc. **Soft Test** - A continuity measurement should be made as above but with a short-circuit test current within the range of 20mA to 200mA. The continuity test should be made between accessible earthed metal parts of the equipment and the earth pin of the plug. The resistance measurement should be taken while flexing the cable. The terminations should be inspected for any evidence of deterioration, poor contact, corrosion etc. A continuity test should be made to all exposed-conductive parts. This may require multiple continuity tests on a single appliance.	cable - (0.1ohm + R) where R is the resistance of the protective conductor of the supply cable • Appliances without a supply cable - 0.1 ohm, 3-core appliance lead sets - (0.1ohm + R) where R is the resistance of the protective conductor of the supply cable, extension leads, multiway adaptors • RCD adaptors - (0.1ohm + R) where R is the resistance of the protective conductor of the supply cable.	
2	Insulation Resistance Test		Insulation resistance is normally measured by applying a test voltage of 500V dc and measuring resistance. This test may not always be suitable because it may damage IT equipment or other equipment containing electronic components. Therefore, a more appropriate alternative may be one of the following: • The insulation resistance test at a reduced voltage such as 250V dc • The protective conductor/touch current measurement or the substitute/alternative leakage current test.	Before the test, the suitability of fuses in the equipment to be tested should be checked and power switches put in the 'ON' position. All covers should be in place. • Insulation resistance of 0.3 M ohms for Class 1 heating and cooking equipment with a rating of > 3kW • 1.0M ohms for all other Class 1 appliances • 2.0M ohms for a class II appliance • 250M ohms for Class III equipment. Dielectric strength testing (also known as hi-pot or flash testing) should be performed only where it will not weaken insulation or create a hazard. Dielectric strength tests should not be used for in-service inspection and testing. In some cases equipment returned to service after general repair and maintenance may require a dielectric strength test. If in	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				doubt seek advice from the manufacturer of the appliance.	
3	Protective conductor/touch current measurement		The protective conductor current/touch current is measured from the internal live parts to Earth for Class I equipment or from the internal live parts to accessible surfaces of Class II equipment. For practical purposes, the test voltage is the supply voltage.	The protective conductor current or touch current should be measured within 5 seconds after the application of the test voltage (the supply voltage) and should not exceed the following values: • Portable or hand held Class I equipment - 0.75mA • Class I heating Appliances - 0.75mA or 0.75mA per kW whichever is the greater, with a maximum of 5mA • Other Class I equipment - 3.5mA • Class II equipment - 0.25mA • Class III equipment - 0.5mA	M&E
4	Appliance Lead Sets		An appliance with a detachable power lead should be tested with the lead plugged into the appliance. The lead should be labelled and then tested separately from the appliance as follows: • 3 core leads should be tested as a Class I appliance. • 2 core leads should be tested as a Class II appliance.		M&E
5	Extension Leads, Multiway Adaptors and RCD Adaptors		The length of the extension lead should be checked to ensure that it is not so long that the appliance performance is affected by voltage drop. Carry out a visual inspection: • For Class I extension leads, carry out earth continuity, polarity and insulation checks. • For Class II extension leads, carry out a polarity and insulation check. Test the RCD for operation and carry out a test with a RCD test instrument. The device must operate within the times identified in the IET Code of Practice for an RCD not exceeding 3.	Maximum recommended lengths for site manufactured extension leads: • 1.25mm 2 cores - 12m. • 1.5mm core - 15m. • 2.5mm cores - 25m.	M&E
6	Labels		After each item of equipment is tested mark it individually indicating if it has passed or failed and the date of the test.		M&E

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SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/hsg107.htm HSG107 - HSE (2013 3rd edition): Maintaining portable electrical equipment
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://www.legislation.gov.uk/uksi/1998/2306/contents/made Provision and Use of Work Equipment Regulations 1998 (PUWER)
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Introductory Procedures - Power Generators

Schedule Ref : 43-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Many premises have standby power generation equipment to provide back up in the event of incoming power failures and there has been a tendency to 'fit and forget' with the result that the equipment may fail to operate just when it is needed. These units comprise a mechanical prime mover, usually an oil or gas powered internal combustion engine, an electrical generator with associated equipment and may include mains synchronisation. This specification covers primarily the electricity generation and control equipment and except for simple tasks, the maintenance of the prime mover should be carried out by specialist contractors.

A similar position arises with small scale combined heat and power units which are being introduced to many sites. Here the equipment can be divided into three sections:

- the prime mover
- electrical generation
- heat recovery.

This section covers the electrical generation equipment and the equipment used for utilising the recovered heat is covered within Heat Emitters (SFG28). Again the prime mover should be maintained by specialist firms.

Generating plant, in particular the engine system requires regular attention to ensure reliability, optimum performance and long life. All maintenance procedures should be fully in accordance with the generator set operating and maintenance instructions. A maintenance log book should be established upon accepting the plant after commissioning. This should include a full record of hours-run readings and a summary of all servicing and repairs carried out, together with fuel and lubricating oil consumption totals.

Whatever the mode of operation, the generating plant must operate when called upon to do so. Failure of the battery starting system will prevent the generator set starting and hence this needs regular and frequent checking. Periodic maintenance recommendations from the supplier will normally cover routine checks on a frequent basis (possibly after 100 hours of use or at monthly intervals) depending upon various operating factors.

More detailed maintenance, including replacement of items such as lubricants, filters, belts and coolant can be expected, every say 500 hours. Major maintenance activities are required typically after 5000 hours. This may involve a complete strip-down of the engine and inspection and replacement of worn or defective parts.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Power Generation - Stand-by Generator

Schedule Ref : 43-02
Schedule Type : Core
Schedule Date : 16 Jun 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (5 mins)	1M (360 mins)	6M (240 mins)	12M (60 mins)	24M (240 mins)
1			20	
	2 3 4 5 6 7 8	9 10 11 12 13 14 15 16 17 18 19	21 22 23	
				24

ANNUAL TIMING (MINUTES)
5600

SCHEDULE INTRODUCTIONS

Frequent running and testing of stand-by power generation equipment is essential to ensure immediate availability at time of need. It is recommended that plant should be run on load for a minimum of four hours on a regular basis or as required by client.

A risk assessment should be carried out to see what systems the generator covers, the type of people who are reliant on the generator system starting and the age and condition of the plant. The outcome of the risk assessment will define a frequency for all future tests and length of run.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General - Weekly	1W	Check the fuel, oil and coolant levels of the standby generators are correct, topping up as necessary.	This is a requirement as part of BS 9999.	Electrical
2	General - Monthly by client	1M	Visually inspect for oil leaks, loose guards etc. Check coolant level and oil level.	These checks should be carried out monthly by client's operators.	M&E
3	Engine Heater	1M	Check that the engine heater is working.		M&E
4	Oil	1M	Check oil in sump using the dipstick and top-up oil if necessary.	Ensure correct grade and type of oil is used in accordance with the manufacturer's recommendations.	M&E
5	Coolant	1M	Check water level in the radiator and top-up if necessary. Check operation of low water switch.	pH (acidity) and S.G. (specific gravity) should be checked regularly by the operator.	M&E
6	Fuel tank	1M	Check that fuel tank is full.	Top-up as required.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			Drain off any water see also: Storage Tanks- Oil (SFG 56-05) Underground Oil Storage Tanks (SFG 56-06) and Pipework for Low Pressure Natural Gas, Liquefied Petroleum Gas (LPG) or Oil (SFG 40-10).		
7	General - Monthly	1M	Run engine and check that oil pressure is correct, if not trace and repair fault. Check the electrical output on the generator control panel. Examine for any leaks of coolant, fuel or lubricating oil, rectify as necessary.	Where practicable, generator should be started under mains failure conditions. Run generator on load for 6 hours per month. Test run should be at least 50% load for a minimum of 2-4 hours. On completion of test: a) Shut down plant and examine all components for excessive temperatures. b) Ensure that all switches are in the "ready" position. c) Check fuel, oil and water levels. Top-up if necessary.	M&E
8	Starter battery	1M	Check starter batteries are fully charged. Top-up with distilled water as necessary. Inspect cells, ensure that vent holes in filter caps are clear. Check that conducting bars and cable connections are clean and tight. Any trace of verdigris to be cleaned off and connections to be coated with petroleum jelly. Take random test or specific gravity and cell voltage. A battery should be fully discharged and re-charged every six months.	Charge batteries as necessary (in accordance with instructions in operating log). Top-up electrolyte using pure distilled water, ensure that cells are gassing freely whilst charging. Charge batteries to 1250 s.g. and 2.1 volts per cell, or otherwise as specified. Re-check specific gravity. a). Electrolyte should be kept to 12 mm above plates, only pure distilled water to be used for this purpose. b). Topping up should be carried out before charging to ensure good mixing. c). Ventilation holes in filter caps must be kept clean. d). A lead acid battery is fully charged when s.g. is 1250 and all cells are at 2.4 volts. The battery cells should not be allowed to fall below 1150 s.g. or 1.8 volts. e). When the charging rate is in doubt, a long slow charge is better than a short sharp one.	M&E
9	Oil Filter and oil	6M	Change oil filter elements and clean oil filter bowls. Drain the	Ensure correct grade and type of oil is used in accordance with	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			sump and refill with fresh clean oil. Check operation of sump heater.	the manufacturer's recommendations.	
10	Breather and air cleaners	6M	Examine and clean if necessary.		M&E
11	Bearings and moving parts	6M	Lightly grease the water pump bearings and the clutch and power take off bearings (if fitted). Check all moving parts for smooth operation, lubricate any pivoting spindles as necessary.		M&E
12	Drive belts	6M	Check belts for slackness and alignment or wear, Adjust as necessary.	Replace drive belts using manufacturer's replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	M&E
13	Battery charger	6M	Check condition of battery charger, inspect for damage. Open and check on condition of wiring and transformer insulation. Check on all electrical connections, clean or blow out. Test operation of any ON/OFF or selector switches, test accuracy of meters. Inspect or renew if damaged any flying leads, terminals or clips. Take insulation and earth impedance test.		M&E
14	Antifreeze	6M	Add antifreeze to cooling system or check specific gravity as applicable.		M&E
15	Fuel filter	6M	Change the fuel filter element and clean the filter bowl.		M&E
16	Air intake grilles - alternator	6M	Check that air intake grilles on alternator are clean and unobstructed. Remove cover from non-drive and remove any fluff or dirt that may have accumulated around diode plates and exciter assembly.		M&E
17	Electrical - 6 Monthly	6M	Check all electrical connections for security. Examine brush gear in the dynamo and starter and clean commutator, renew brushes as necessary. Check operation of low oil and high coolant shutdown switches.		M&E
18	Operation and auto-	6M	Check engine starter and		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
	change facility (where applicable)		solenoid for good strong operation. Check operation and starting sequence.		
19	Instruments	6M	Check that instruments are functioning correctly and that glass is clean.		M&E
20	Test Run	12M	Start the standby generator by simulating failure of the normal power supply, and allow the generator to energise the system for at least 1 hour, while the system is monitored for any malfunctioning caused by the use of the generator. After restoring the normal supply, the charging arrangements for the generator starting battery should be tested and the appropriate action should be taken if they are found not to be functioning correctly. Top up the oil and coolant levels and the fuel tanks filled.		Electrical
21	Injector Pump	12M	Check injector pump drive belts for wear and tightness. Adjust or replace as necessary.		M&E
22	Electrical - Annual	12M	Open all composite control panels and associated switchgear. Clean out interior of all panels. Inspect all wiring for condition. Inspect all terminations for security and overheating. Visually check that an efficient earth is being maintained. Open, inspect and clean any changeover switches on emergency supply system. Check overloads are functional and are set to correct value. Ensure fuses of correct size and type are fitted. Examine all contacts for arcing and pitting, dress or replace contacts as applicable. Lightly lubricate all contact faces with pure petroleum jelly. Check relays for correct function, replace any defective components. Examine switch-blades in isolators, ensure they are free to move. Lubricate pivots lightly with grease, ensuring no grease		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			comes into contact with a conducting surface. Check for smooth operation and that switches are clearly marked. Before carrying out the following test disconnect L.V. circuits i.e. rotating rectifier diodes and A.V.R. circuits etc. Carry out the following test: a). Insulation Resistance Test on alternator and wiring. A figure of 1 megohm or above is acceptable. b). Earth Loop Impedance Test on alternator frame. Supply voltage = maximum allowed 3 X rating of fuse in amps, impedance in ohms.		
23	Fuel transfer pump	12M	Check operation.		M&E
24	Load bank testing	24M	Carry out a load test of the generator including a 110% overload and 50% drop test.	It should be reviewed and decided why do this type of testing and what are its benefits, versus the risks of not doing this type of testing. 1). Can the facility's critical load be taken off line or placed onto a generator backup in order to have this type of testing performed? 2). Where will the load banks be staged? What type of heat will be generated and how will the added heat affect the building? When doing large system tests there will be a large amount of heat generated and that can affect sprinkler systems if the load banks are staged inside of the building. 3). Are doors going to have load bank cables run through them so that the doors cannot be locked or used for normal use, this may require extra security personnel during testing? **In addition**, on some older systems it can make perfect sense to do a system test with load banks in order to recalibrate the system and the modules. On some of these older systems that use calibration potentiometers, these	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				potentiometers can drift out of calibration over the years and by performing a recalibration it will ensure that the system is operating at peak performance.	

SCHEDULE LEGISLATION
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Batteries - Lead Acid - Unsealed

Schedule Ref : 43-03
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (2 mins)	6M (2 mins)	12M (10 mins)		
1 2 3	4 5	6 7 8 9 10		

ANNUAL TIMING (MINUTES)
38

SCHEDULE INTRODUCTIONS

Caution: Lead acid batteries give off inflammable gases which can be explosive in confined spaces therefore battery spaces must be well ventilated. Extinguish all naked lights before entering, DO NOT SMOKE and PPE will be required. Refer to the COSHH Regulations for details.

Refer to current British Standards for information relating to Safety Requirements for Secondary Batteries, Battery Installations and Safer Batteries.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	1M	Check for cleanliness and leakage.		Electrical
2	Cells	1M	Test and record specific gravity of electrolyte and top up if necessary. Check cell or monobloc battery voltages.	Cells should normally be checked on a monthly basis. Cell and connector covers should be replaced immediately work is completed.	Electrical
3	Battery charger	1M	Check voltage setting on the charger.		Electrical
4	Battery	6M	Check temperature of battery.		Electrical
5	Vent plugs or valves	6M	Check.		Electrical
6	Connections	12M	Clean, check for tightness and correct termination.		Electrical
7	Fuses	12M	Check that rating is correct.		Electrical
8	Capacity test	12M	Carry out test in accordance with manufacturer's instructions.	Record details of test.	Electrical
9	Ventilation	12M	Check that ventilation of battery space is adequately working and clear of blockages etc.	Report to client if remedial action is required.	Electrical
10	Battery stand(s), if	12M	Check condition.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	applicable				

SCHEDULE LEGISLATION
http://shop.bsigroup.com/ProductDetail/?pid=000000000019984534 BS EN 50272-2:2001 Safety requirements for secondary batteries and battery installations. Stationary batteries

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Schedule Title : Battery Charging Equipment

Schedule Ref : 43-04
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Condition	12M	Clean all external and internal dust from the equipment. Check paintwork for damage or corrosion, clean and repaint as necessary. Check security of door fastenings and lock.	All ventilation holes and slots should be clear to prevent overheating. Cause of any corrosion should be determined.	Electrical
2	Insulation	12M	Inspect for damage or signs of overheating and make good.		Electrical
3	Equipment	12M	Check for damage or signs of overheating. Check all items are securely fixed.		Electrical
4	Contacts	12M	Clean and smear lightly with petroleum jelly. Clean shrouds (if fitted).	Renew any contacts showing signs of overheating.	Electrical
5	Cable terminations	12M	Check for tightness.		Electrical
6	Earth connections	12M	Check for tightness.		Electrical
7	Conduit and gland terminations	12M	Check for tightness.		Electrical
8	Indicator lamps	12M	Check operation and functions.		Electrical
9	Ammeter and voltmeter	12M	Check operation.		Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2006/438/contents/made Management of Health and Safety at Work Regulations 1999 and 2006 amendment

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Schedule Title : Uninterruptible Power Supplies

Schedule Ref : 43-05
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (240 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 15 16				

ANNUAL TIMING (MINUTES)
480

SCHEDULE INTRODUCTIONS

Because of the vital nature of uninterruptible power supplies the frequency of maintenance should be agreed with the client, a minimum frequency of at least six months is recommended. It is emphasised that this is specialist equipment which should be maintained strictly in accordance with the manufacturer's instruction.

As this equipment is for use in emergencies, check with the client that it is safe to proceed with maintenance.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	6M	Check load does not exceed rating of equipment. Check indicator lamps, meters and controls.		Electrical
2	Cubicle	6M	Check condition and clean. Check integrity of doors and panels, including locks. Check for ease of operation of switches, isolators and circuit breakers. Check condition of contactors - see Power Supplies (SFG 44).	All dirt and foreign bodies should be removed.	Electrical
3	Fuses and MCB's	6M	Check for correct rating of fuses and settings and operation of MCB's.		Electrical
4	Relays, contactors and wiring	6M	Check for burn marks and tightness of connections.	Replace as necessary.	Electrical
5	Earthing	6M	Ensure all sub-assemblies with electrical components mounted are adequately earthed.	Where star washers are used for earth connections make sure earth connection is good.	Electrical
6	Rectifier	6M	Switch on and check battery trickle charge voltage and	Check and record calibration of all meters on the equipment.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			battery charge voltage level.		
7	Rectifier alarms	6M	Check and record 'pick-up' and 'drop-out' voltages of all alarm relays.		Electrical
8	Rectifier waveform	6M	Check and record.		Electrical
9	Inverter	6M	Switch on and check the Inverter Control Unit control voltage. When operating correctly, check and record the output voltage and frequency.	Compare with voltages recorded on test certificate. Record the results and report any significant differences. Check and record the calibration of all meters.	Electrical
10	Inverter alarms	6M	Check for correct operation and check 'pick-up' and 'drop-out' voltages of all AC and DC alarm relays.		Electrical
11	Inverter wave forms	6M	Check and record the output waveform.		Electrical
12	Static power switch	6M	Check operation with both rectifier and inverter switched on.		Electrical
13	Output	6M	Check inverter output voltage and frequency, bypass voltage and frequency. Check load transfer. Restore AC supply and check operation. Adjust where necessary.		Electrical
14	**Batteries**				
15	Lead acid batteries	6M	Check condition.	See Power Generators - Batteries - Lead Acid (SFG 43-03).	Electrical
16	Other types of batteries	6M	Check condition and report to client if replacement is required.	Batteries should be disposed of only in accordance with H&S COSHH and Environmental Regulations recommendations.	Electrical

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Schedule Title : Photovoltaics

Schedule Ref : 43-06
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (10 mins)	1M (20 mins)	3M (20 mins)	12M (60 mins)	
1 2	3	4	5 6	

ANNUAL TIMING (MINUTES)
900

SCHEDULE INTRODUCTIONS

Many photovoltaic systems power critical loads, such as communication or warning lights. Be sure to get permission from the appropriate authority to disconnect such loads before doing so. In some cases, an auxiliary power supply may be necessary to operate the load while it is being inspected.

Working at heights should be in strict accordance with the Work at Height Regulations.

Before maintenance is carried out, each component of the system should be isolated. This would involve switching off circuit breakers to and from the battery bank and the solar panels.

Battery banks, even at low voltages, can produce potentially lethal amounts of current. Always be careful when working around them.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Be sure to open and disconnect switches during any operation involving wiring.

Photovoltaic modules produce electricity whenever they are exposed to light. When working on their wiring, cover them with an opaque material, turn them face down on a clean soft surface or work at night.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Battery inspection	1W	Inspect systems batteries. Check for any electrolyte leak, cracks in the batteries or corrosion at the terminals or connectors.	Do not smoke or light fire near batteries. Batteries produce hydrogen gas which is highly flammable.	Electrical
2	Inverter/battery charger and charge controller	1W	This component can be maintained by minimising dust accumulation. A dry cloth should be used to wipe away any accumulated dirt/dust. A visual inspection should be done to ensure that all the indicators such as LED lights are working and that the wires		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			leading to and from this device are not loose. Note that the charge controller should indicate that the system is charging when the sun is up.		
3	Battery - electrolyte level	1M	The cells should be watered back to the original acid level which is "¼ - ½" below the bottom of the vent well (the tube inside the battery cell with slots on each side). Test the specific gravity of the electrolyte and compare the state of charge of each individual cell.	Do not smoke or light fire near batteries. Batteries produce hydrogen gas which is highly flammable. Do not use the same hydrometer for testing lead acid batteries and niCad batteries. The niCad batteries will be destroyed by traces of acid. Use only distilled water to top up the batteries.	Electrical
4	Battery cleaning	3M	Battery cleaning procedures are as follows: 1. Switch off/disconnect all loads on the system. Turn off or disconnect the solar charge. Then turn off the circuit breaker to and from the battery bank. 2. Ensure that the caps on the batteries are sealed tight to keep any dirt from entering the battery. Wipe the top and outside of the battery with a (damp) cloth. If corrosion is present at the terminals, mix baking soda with fresh water and apply the solution to the affected area. Stubborn areas should be scrubbed with a metal brush. After cleaning, rinse the terminals with water. If available, apply petroleum jelly or grease to the connected terminal to prevent future corrosion. 3. Maintenance of gel cell and AGM batteries relates only to the battery terminals and connections. The terminals and posts should be wiped until they are shiny. If corroded, clean them properly with Bi-carbonate soda and water. If available, apply petroleum jelly or grease to the connected terminals.	Do not smoke or light fire near batteries. Batteries produce hydrogen gas which is highly flammable.	Electrical
5	PV panels	12M	Clean panels using hot water, no chemicals or cleaning agents and a telescopic cleaning pole to allow cleaning from a safe	The solar array (a number of solar panels connected together) is often thought to be maintenance free. However,	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			foothold. Do not use a metal brush to clean solar panel surface. A visual inspection of the modules can then be done to check for defects in the modules such as cracks, chips, de-lamination, fogged glazing, water leaks and discoloration. If any obvious defects are found, note their location in the system logbook, so they can be monitored in the future in case further deterioration affects the modules' output. The condition of the array mounting frame should also be noted. Items to observe should include the array mounting bolts (e.g. bolt rusting) and checks to ensure that the frame and modules are firmly secured. The junction boxes should also be checked to ensure that the wires are not chewed by rodents or insects.	occasional maintenance and inspection of the solar array must be performed to ensure the optimal use of the solar panels. This can be done by keeping the surface (glass) area of the module clean from any excess dirt. The frequency of cleaning will vary, particularly if the panels are located near a large tree (sap & bird droppings).	
6	Wiring and connections	12M	Wiring installations should be checked for any cracks, breaks or deterioration in the insulation/conduits. Inspect panel boxes to ensure that they have not become a home for rodents and insects. Also inspect connections for any corrosion and/or burning. Switches should not spark when turned on or off. The following sections of conduit and wiring should be checked for any signs of damage: a) Solar panels to the charge controller b) Charge controller to the battery bank c) Inverter/charger to the battery bank d) Generator to Inverter/charger e) Inverter/charger and Generator to the AC outlets f) Battery bank to the DC outlets/load. If damage is found report as soon as possible.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			All earthing cables should be checked to ensure they are not broken.		

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Schedule Title : Combined Heat and Power (CHP) - Diesel Fuel Engine

Schedule Ref : 43-07
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1D (10 mins)	1W (10 mins)	1M (20 mins)	6M (80 mins)	12M (30 mins)
1	2 3	4	17 18 19 20 21 22 23	24
Not Specified				
5 6 7 8 9 10 11 12 13 14 15 16				

ANNUAL TIMING (MINUTES)
4600

SCHEDULE INTRODUCTIONS

Frequency is normally set on an hours run basis and below the main engine tasks are set using engine hours run. Each machine should be reviewed in terms of site conditions, priority, criticality etc. and the frequency for each task established.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Before carrying out any work, check status and isolate in accordance with HASAWA and Electricity at Work requirements. This may require the engineer to follow a permit to work system.

The actual frequencies/run hours will vary according to the cleanliness of the combustion air, cleanliness of the engine room, engine manufacturer's recommendations, number of engine starts and stops and lubricating conditions indicated by oil analysis. With some engines and some operating conditions, the intervals between procedures listed below may be extended or reduced as the frequencies given are generic and need firming to the specific conditions and manufacturer's recommendations of the actual engine in question.

The maintenance frequencies below are based on the number of hours run.

Engine/daily log books should be kept on all pertinent operating parameters, such as:
- Water and lubricating oil temperatures
- Individual cylinder compression pressures, which are useful in indicating blow-by
- Changes in valve tappet clearance, which indicate the extent of wear in the valve system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Daily inspection	1D	Wipe down the engine which will help show any leaks. Pay attention to abnormal sounds and odours. Check for any unaccountable speed changes.	Operational Task.	M&E
2	Flexible connections	1W	Check all flexible connections for leaks.	Operational Task.	M&E
3	Air inlet louvre	1W	Check that the air inlet louvre is	Operational Task.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			clear of any debris that would impede airflow.		
4	Lubricating oil	1M	Take lubricating oil sample.		M&E
5	Lubricating oil filter		Change lubricating oil filters.	This task should be carried out at least every 6 months. Frequency: 350-750 hours.	M&E
6	Air filter		Clean or replace air filters.	Frequency: 350-750 hours.	M&E
7	Fuel filter		Clean fuel filters.	Frequency: 500-750 hours.	M&E
8	Lubricating oil		Change lubricating oil.	Frequency: 500-1000 hours. This task should be carried out at least every 6 months. Additionally take sample at each oil change. Lubricating analysis should be completed by a commercial laboratory. The analysis should measure the concentration of various elements found in the lubricating oil, such as bearing metals, silicates and calcium. It should also measure the dilution of the oil, suspended and non-suspended solids, water and oil viscosity.	M&E
9	Crankcase breather		Clean crankcase breather.	Frequency: 350-700 hours.	M&E
10	Tappet Valves		Adjust valves.	Frequency: 1000-2000 hours.	M&E
11	Bearings		Lubricate tachometer, fuel priming pump and auxiliary drive bearings.	Frequency: 1000-2000 hours.	M&E
12	Lubricating oil system		Flush lubrication oil piping system.	Frequency: 3000-5000 hours.	M&E
13	Air filter		Change air filter.	Frequency: 2000-3000 hours.	M&E
14	Turbocharger		Replace turbocharger seals and bearings.	Frequency: 4000-8000 hours.	M&E
15	Engine		Replace piston rings, cylinder liners (if applicable), connecting rod bearings and cylinder heads. Recondition or replace turbochargers. Replace gaskets and seals.	Frequency: 8000-12000 hours.	M&E
16	Engine		Replace piston rings, cylinder liners (if applicable), connecting rod bearings and cylinder heads. Recondition or replace	Frequency: 24000-36000 hours.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			turbochargers. Replace gaskets and seals. Recondition or replace crankshaft. Replace all bearings.		
17	Controls	6M	Check the operation of all alarm and shutdown controls.	• Speed control (under and over speed) • Lubrication (low oil pressure, high oil temperature) • Heat removal (high coolant temperature or lack of coolant flow) • Combustion process (fuel, ignition) • Lubricating oil level • Water level	M&E
18	Batteries	6M	Check starter batteries are fully charged. Top up with distilled water as necessary. Inspect cells and ensure that vent holes in filter caps are clear. Check that conducting bars and cable connections are clean and tight, any trace of verdigris to be cleaned off and connections to be coated with petroleum jelly. Take random test or specific gravity and cell voltage.	Charge batteries as necessary (in accordance with instructions in operating log). Top up electrolyte using pure distilled water, ensure that cells are gassing freely whilst charging. Charge batteries to 1250 s.g. and 2.1 volts per cell or otherwise as specified. Re-check specific gravity: a. Electrolyte should be kept to 12 mm above plates, only pure distilled water to be used for this purpose. b. Topping up should be carried out before charging to ensure good mixing. c. Ventilation holes in filter caps must be kept clean. d. A lead acid battery is fully charged when s.g. is 1250 and all cells are at 2.4 volts. The battery cells should not be allowed to fall below 1150 s.g. or 1.8 volts. e. When the charging rate is in doubt, a long slow charge is better than a short sharp one.	M&E
19	Lead acid batteries	6M	Check condition.	See Power Generators - Batteries - Lead Acid (SFG 43-03).	M&E
20	Other types of batteries	6M	Check condition and report to client if replacement is required.	Batteries should be disposed of only in accordance with H&S and Environmental Regulations recommendations.	M&E
21	Electrical - 6 Monthly	6M	Check all electrical connections		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			for security. Examine brush gear in the dynamo and starter and clean commutator, renew brushes as necessary. Check operation of low oil and high coolant shutdown switches.		
22	Air intake grilles - alternator	6M	Check that air intake grilles on alternator are clean and unobstructed. Remove cover from non-drive and remove any fluff or dirt that may have accumulated around diode plates and exciter assembly.		M&E
23	Instruments	6M	Check that instruments are functioning correctly and that glass is clean.		M&E
24	Electrical - 12 Monthly	12M	• Open all composite control panels and associated switchgear • Clean out interior of all panels • Inspect all wiring for condition • Inspect all terminations for security and overheating • Visually check that an efficient earth is being maintained • Open, inspect and clean any changeover switches on emergency supply system • Check overloads are functional and are set to correct value • Ensure fuses of correct size and type are fitted • Examine all contacts for arcing and pitting, dress or replace contacts as applicable • Lightly lubricate all contact faces with pure petroleum jelly • Check relays for correct function, replace any defective components • Examine switch-blades in isolators, ensure they are free to move • Lubricate pivots lightly with grease, ensuring no grease comes into contact with a conducting surface • Check for smooth operation and that switches are clearly marked. Disconnect L.V. circuits i.e. rotating rectifier diodes and A.V.R. circuits etc. before		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			carrying out the following tests: a. Insulation Resistance Test on alternator and wiring. A figure of 1 megohm or above is acceptable. b. Earth Loop Impedance Test on alternator frame. Supply voltage = Maximum allowed 3 X rating of fuse in amps, impedance in ohms.		

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Schedule Title : Combined Heat and Power (CHP) - Gaseous Fuel Engine

Schedule Ref : 43-08
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1D (10 mins)	1W (10 mins)	1M (20 mins)	6M (60 mins)	12M (80 mins)
				26 27 28 29 30 31
1	2 3	4	18 19 20 21 22 23 24	25
Not Specified				
5 6 7 8 9 10 11 12 13 14 15 16 17				

ANNUAL TIMING (MINUTES)
4610

SCHEDULE INTRODUCTIONS

A type of internal-combustion engine using a flammable gas such as coal gas, LPG or natural gas, as fuel.

Frequency is normally set on an hours run basis and below the main engine tasks are set using engine hours run. Each machine should be reviewed in terms of site conditions, priority, criticality etc. and the frequency for each task established.

Certain procedures will require compliance of gas safety (installation and use) regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
Before carrying out any work, check status and isolate in accordance with HASAWA and Electricity at Work requirements. This may require the engineer to follow a permit to work system.

The actual frequencies/run hours will vary according to the cleanliness of the combustion air, cleanliness of the engine room, engine manufacturer's recommendations, number of engine starts and stops and lubricating conditions indicated by oil analysis. With some engines and some operating conditions, the intervals between procedures listed below may be extended or reduced as the frequencies given are generic and need firming to the specific conditions and manufacturer's recommendations of the actual engine in question.

The maintenance frequencies below are based on the number of hours run.

Engine / daily log books should be kept on all pertinent operating parameters, such as:
- Water and lubricating oil temperatures
- Individual cylinder compression pressures, which are useful in indicating blow-by
- Changes in valve tappet clearance, which indicate the extent of wear in the valve system.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Daily inspection	1D	Wipe down the engine which will help show any leaks. Pay attention to abnormal sounds and odours. Check for any unaccountable speed changes.	Operational Task.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
2	Flexible connections	1W	Check all flexible connections for leaks.	Operational Task.	M&E
3	Air inlet louvre	1W	Check that the air inlet louvre is clear of any debris that would impede airflow.	Operational Task.	M&E
4	Lubricating oil	1M	Take lubricating oil sample.	Additionally, take sample at each oil change. Lubricating analysis should be completed by a commercial laboratory. The analysis should measure the concentration of various elements found in the lubricating oil, such as bearing metals, silicates and calcium. It should also measure the dilution of the oil, suspended and non-suspended solids, water and oil viscosity.	M&E
5	Lubricating oil filter		Change lubricating oil filters.	This task should be carried out at least every 6 months. Frequency: 500-1000 hours.	M&E
6	Air filter		Clean or replace air filters.	Frequency: 350-750 hours.	M&E
7	Lubricating oil		Change lubricating oil.	This task should be carried out at least every 6 months. Frequency: 1000-2000 hours. Additionally take sample at each oil change. Lubricating analysis should be completed by a commercial laboratory. The analysis should measure the concentration of various elements found in the lubricating oil, such as bearing metals, silicates, and calcium. It should also measure the dilution of the oil, suspended and non-suspended solids, water and oil viscosity.	M&E
8	Crankcase breather		Clean crankcase breather.	Frequency: 350-700 hours.	M&E
9	Tappet valves		Adjust valves.	Frequency: 1000-2000 hours.	M&E
10	Bearings		Lubricate tachometer and auxiliary drive bearings.	Frequency: 1000-2000 hours.	M&E
11	Ignition system		Service ignition system. Adjust breaker gap, timing, spark plug gap and magneto.	Frequency: 1000-2000 hours.	M&E
12	Magneto		Check transistorised magneto.	Frequency: 6000-8000 hours.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
13	Lubricating oil system		Flush lubrication oil piping system.	Frequency: 3000-5000 hours.	M&E
14	Air filter		Change air filter.	Frequency: 2000-3000 hours.	M&E
15	Turbocharger		Replace turbocharger seals and bearings.	Frequency: 4000-8000 hours.	M&E
16	Engine		Replace piston rings, cylinder liners (if applicable), connecting rod bearings and cylinder heads. Recondition or replace turbochargers. Replace gaskets and seals.	Frequency: 8000-12000 hours.	M&E
17	Engine		Replace piston rings, cylinder liners (if applicable), connecting rod bearings and cylinder heads. Recondition or replace turbochargers. Replace gaskets and seals. Recondition or replace crankshaft. Replace all bearings.	Frequency: 24000-36000 hours.	M&E
18	Controls	6M	Check the operation of all alarm and shutdown controls.	• Speed control (under and over speed) • Lubrication (low oil pressure, high oil temperature) • Heat removal (high coolant temperature or lack of coolant flow) • Combustion process (fuel, ignition) • Lubricating oil level • Water level	M&E
19	Batteries	6M	Check starter batteries are fully charged. Top up with distilled water as necessary. Inspect cells and ensure that vent holes in filter caps are clear. Check that conducting bars and cable connections are clean and tight, any trace of verdigris to be cleaned off and connections to be coated with petroleum jelly. Take random test or specific gravity and cell voltage.	Charge batteries as necessary (in accordance with instructions in operating log). Top up electrolyte using pure distilled water, ensure that cells are gassing freely whilst charging. Charge batteries to 1250 s.g. and 2.1 volts per cell, or otherwise as specified. Re-check specific gravity: a. Electrolyte should be kept to 12 mm above plates, only pure distilled water to be used for this purpose. b. Topping up should be carried out before charging to ensure good mixing. c. Ventilation holes in filter caps must be kept clean. d. A lead acid battery is fully	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
				charged when s.g. is 1250 and all cells are at 2.4 volts. The battery cells should not be allowed to fall below 1150 s.g. or 1.8 volts. e. When the charging rate is in doubt, a long slow charge is better than a short sharp one.	
20	Lead acid batteries	6M	Check condition.	See Power Generators - Batteries - Lead Acid (SFG 43-03).	M&E
21	Other types of batteries	6M	Check condition and report to client if replacement is required.	Batteries should be disposed of only in accordance with H&S and Environmental Regulations recommendations.	M&E
22	Electrical - 6 Monthly	6M	• Check all electrical connections for security • Examine brush gear in the dynamo and starter and clean commutator, renew brushes as necessary • Check operation of low oil and high coolant shutdown switches.		M&E
23	Air intake grilles - alternator	6M	Check that air intake grilles on alternator are clean and unobstructed. Remove cover from non-drive and remove any fluff or dirt that may have accumulated around diode plates and exciter assembly.		M&E
24	Instruments	6M	Check that instruments are functioning correctly and that glass is clean.		M&E
25	Electrical - 12 Monthly	12M	• Open all composite control panels and associated switchgear • Clean out interior of all panels • Inspect all wiring for condition • Inspect all terminations for security and overheating • Visually check that an efficient earth is being maintained • Open, inspect and clean any changeover switches on emergency supply system • Check overloads are functional and are set to correct value • Ensure fuses of correct size and type are fitted • Examine all contacts for arcing and pitting, dress or replace contacts as		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
			applicable • Lightly lubricate all contact faces with pure petroleum jelly • Check relays for correct function, replace any defective components • Examine switch-blades in isolators, ensure they are free to move • Lubricate pivots lightly with grease, ensuring no grease comes into contact with a conducting surface • Check for smooth operation and that switches are clearly marked. Disconnect L.V. circuits i.e. rotating rectifier diodes and A.V.R. circuits etc. before carrying out the following tests: a. Insulation Resistance Test on alternator and wiring. A figure of 1 megohm or above is acceptable. b. Earth Loop Impedance Test on alternator frame.		
26	Safety check	12M	Ensure that no exhaust products are entering the area of the building where the CHP is situated.	The report must be signed by the servicing engineer and the client/responsible person/clients representative. Premature failure of the plant will result if a satisfactory service is not carried out by a competent engineer. Depending on the nature/urgency of the fault and the type of premises this report may be verbal.	Gas Safe
27	Gas	12M	Open gas cock and test for gas soundness, reconnect electrical services. Test controls operation and run up engine.	Check manifold gas pressure against manufacturer's settings, adjust if required. If in doubt, check gas supply standing pressure at the meter.	Gas Safe
28	Valves gas	12M	Check for soundness and leakage. Emergency control valves should be checked for accessibility and operation.	Also see Valves (SFG 61).	Gas Safe
29	Gas pipework	12M	Gas detector tests should be carried out in areas where gas can accumulate and linger e.g. enclosed spaces, ducts and voids and around the pipework entry to buildings. Gas detector tests may also be carried out on	Also see Pipework Systems - Pipework for Low Pressure Natural Gas - Liquefied Petroleum Gas (LPG) or Oil (SFG 40-10).	Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
			joints and over known routes of underground pipework. Leak detection fluid may be used to check exposed joints for leakage. Soundness and leakage tests may be carried out as specified in current BS or LPGA Codes of Practice, as appropriate.		
30	Gas governor	12M	Individual appliance governors should be examined to ensure that diaphragms are sound and in good condition. Check that the outlet pressure should be reasonably constant between low and high rev. rates. Check manifold gas pressure against manufacturer's settings, adjust if required. If in doubt check gas supply standing pressure at the meter.	See also Boilers/Heat Generators - Gas Governor or Gas Regulator (SFG 05-40).	Gas Safe
31	Unsafe installations	12M	Recommendations.	If after servicing, the unit is considered unsafe the recommendation to the client is that it must be taken out of use. If approval for this action is refused an appropriate label must be attached to the appliance and a written report must be signed by the client/responsible person/clients representative and the gas supplier and a supervisor/manager informed.	Gas Safe

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1994/3260/contents/made Electrical Equipment (Safety) Regulations 1994
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : Introductory Procedures - Power Supplies

Schedule Ref : 44-01
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

This section on Power Supplies covers all those aspects of providing power to the point of use and includes switchgear, cables and outlets operating at 1000 volts ac and below. Areas needing particular attention are contacts, starters, phase loading, maximum demand control and power factor correction equipment. The latter two are particularly relevant in terms of energy saving and controlling electricity costs where a client is on a maximum demand tariff.

Unbalanced loading of phases often occurs where the site electricians make or alter connections to plant and equipment using the nearest available power source. Unbalanced currents lead to overheating of conductors, energy wastage and in extreme cases can be the cause of fires.

Dirty, pitted or worn contacts can lead to overheating of starters, equipment failure, and cause interference on communications equipment. Lack of attention may result in fusing together of the contacts which could prevent a shut down in an emergency. Specialist advice and service providers should be sought for supplies above 400 Volts.

Check arc shields for the presence of asbestos containing material prior to dismantling any equipment, if suspected STOP WORK. Take actions in accordance with the Asbestos Regulations.

Refer to www.hse.gov.uk.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Main Switch Panel at Supply Intake

Schedule Ref : 44-02
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	12M (240 mins)	24M (60 mins)	36M	
1	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21	22	

ANNUAL TIMING (MINUTES)
280

SCHEDULE INTRODUCTIONS

The frequencies for the tasks given below are guidelines only and should be individually assessed per site. Suitable isolation to be undertaken prior to commencement of work.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	3M	Carry out a visual inspection and operational checks: a) All contacts, fuse bridges, phase barriers etc. for signs of arcing/burning where accessible without interrupting the supply. b) Time clocks, timing relays etc. are at correct time/setting. c) Where provided, all indicator lamps are working, replace lamps as required. d) Check that all trunking, conduit cable gland terminations are secure, adjust accordingly. e) Check all indicator gauges and meters, check for cracked glass/covers, replace as found. f) Check correctness of labelling. g) Check enclosures for holes and damage. h) Check for signs of overheating.	Check arc shields for the presence of asbestos containing material prior to dismantling any equipment, if suspected STOP WORK. Take actions in accordance with the Asbestos Regulations.	Electrical
2	General - thermal imaging	12M	Check using thermal imaging and inspect for signs of hot spots and overheating. Record any areas which show a		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			temperature reading 20 degrees centigrade above the ambient and investigate.		
3	Panel exterior	12M	Check for physical or mechanical damage. Touch up paintwork after removing signs of corrosion.		Electrical
4	Panel doors	12M	Check all door and cover gaskets. Inspect door hinges and locks. Lightly lubricate as found necessary. Ensure all doors and access panels can be securely closed and locked.		Electrical
5	Busbars	12M	Check for visible signs of overheating,where feasible, loose connections etc. Check interior of busbar compartments clean out dust and dirt.		Electrical
6	Phase balance and loading	12M	Check and report if phases are unbalanced or overloaded.	Unbalanced phases and overloading can lead to overheating of switchgear and cabling.	Electrical
7	Main air circuit breaker (ACB)	12M	Check switching mechanism.	Clean and lubricate as necessary. Check operation of incomer circuit breakers, both manually and where possible by simulating a fault via an injection device.	Electrical
8	Main fuse switch	12M	Check switching mechanism. Service, clean and lubricate.	As per manufacturer's recommendations.	Electrical
9	Main MCCB	12M	Check cable and busbar connections. Check for remote trip, under voltage etc. is as appropriate.	Use torque spanner to panel manufacturer's settings. Check electrical impedance with approved test instrument. Check operation of incomer circuit breakers, both manually and where possible by simulating a fault via an injection device.	Electrical
10	Main isolator	12M	Check switching mechanism. Service, clean and lubricate.	As per manufacturer's recommendations. Report any variation.	Electrical
11	Instrumentation	12M		For specialised maintenance of instrumentation see Control Panels and Controllers (SFG 14).	Electrical
12	Ammeter/Voltmeter	12M	Check for accuracy and operation.		Electrical
13	Selector switches	12M	Check for operation.		Electrical
14	Indicator lamps	12M	Replace failed indicator lamps.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
15	Protective relays	12M	Check settings against records.	Report any variations.	Electrical
16	Insulated phase barriers	12M	Ensure that they are in place and free from contamination.		Electrical
17	Cabling terminations	12M	Check all neutral, earth and auxiliary connections,where feasible, and terminations.		Electrical
18	Earth bars	12M	Check all connections and bonding to earth bars. Check earth bars and insulators for security.		Electrical
19	General - 12 Monthly	12M	Check for presence of moisture. Remove any build-up of dirt or other contaminants. Check that appropriate labels and warning notices are clean and in place. Look for obvious signs of malfunction such as overheating, unusual odours, discolouration and noise. Check fuse rating against switch rating and/or circuit chart: Renew if incorrect rating is in use.	Report to the client if significant.	Electrical
20	Generator Changeover System	12M	Check operation and for signs of overheating (where fitted).		Electrical
21	Main connections	24M	Check all connections using infra -red equipment (thermal imaging).	Must be on normal load.	Electrical
22	General - 36 Monthly	36M	MAIN SWITCH PANEL AT SUPPLY INTAKE - Busbars - Use torque spanner to manufacturer's settings if required. Check electrical impedance with approved test instrument. MAIN SWITCH PANEL AT SUPPLY INTAKE - Main A.C.B. - Check both mechanical and electrical interlocks: Clean and lubricate as necessary. Check isolation and withdrawal carriage if applicable. Check condition of isolatable contacts: Clean and lubricate as necessary. Check operation of shutter mechanism: Clean and lubricate as necessary. Check dashpot oil levels: Top-up or renew as necessary.		Electrical

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SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Maximum Demand and Power Factor Correction

Schedule Ref : 44-03
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1 2				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Where electricity is purchased under a tariff incorporating maximum demand (kVA) charges, attention should be paid to the half hourly maximum demand indicator usually incorporated within the electricity supply meter. Control of maximum demand should be considered where there is evidence of excessive peaks as this will reduce the need to bring on line inefficient peak load plant which leads to energy wastage.

Apart from bringing on loads at peak times a further contribution to a high maximum demand could be a poor power factor usually caused by inductive loads such as electric motors, fluorescent lamps, inverters etc. To avoid this unnecessary waste, power factor correction equipment is normally installed.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Maximum demand controller (if fitted)	12M	Check operation.	This action should normally be carried out in the summer months when maximum demand charges are not incurred.	Electrical
2	Power factor correction equipment (if fitted)	12M	Check each capacitor bank is working. Check installed capacity is adequate for installed load.	This may be a central facility or attached to individual large machines. A check should be made for additional electric loads which have been installed since the original equipment was introduced or upgraded as the power factor correction equipment may no longer be adequate to give the required power factor.	Electrical

SCHEDULE LEGISLATION

http://www.legislation.gov.uk/uksi/1989/635/contents/made
Electricity at Work Regulations 1989

http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893
BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Armoured Cables and Conduits

Schedule Ref : 44-04
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (60 mins)				
1 2				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Armoured cables	12M	Check for physical damage and signs of corrosion.	Overstressing of the conductor can occur if the radius of curvature at a bend in the cable is too great.	Electrical
2	Conduits	12M	Check: • Condition and signs of corrosion • Security of fastenings • Attachment of earth tags • Earth continuity • Sealing where conduit penetrates wall, cable box or cabinet.		Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Power Distribution Unit (PDU)

Schedule Ref : 44-05
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (90 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15				

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

Caution:

1. Before commencing any maintenance work on PDU's read Introductory Procedures - Power Supplies (SFG 44-01).
2. Work must only be carried out by skilled persons as defined in current British Standards.
3. All work must be subject to risk assessment and formal method statements.
4. Prior to testing, ensure to isolate voltage sensitive equipment.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The frequencies in this maintenance task schedule are guidelines only and should be individually assessed per site. Suitable isolation to be undertaken prior to commencement of work.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Panel exterior	12M	Check for physical or mechanical damage. Touch up paintwork after removing signs of corrosion.		Electrical
2	General - thermal imaging.	12M	Check using thermal imaging and inspect for signs of hot spots and overheating. Record any areas which show a temperature reading 20 degrees centigrade above the ambient and investigate.		Electrical
3	Mains isolator/door isolator	12M	Check for correct operation and interlock.		Electrical
4	Busbars	12M	Check for visible signs of overheating, loose connections etc.		Electrical
5	Insulating barriers	12M	Check that insulating barriers are in place, particularly over		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			incoming terminals.		
6	Power contactors.	12M	Check contactor for correct mechanical and electrical operation. Strip and clean interior. Inspect and clean magnetic pole faces. Check moving contacts for wear or 'pitting'. Check coil for overheating or insulation breakdown. Clean out arc chutes.	Damaged contacts should be redressed or replaced as necessary. Use approved contact lubricant as recommended by manufacturer. On re-assembly check all electrical connections.	Electrical
7	Starters	12M		Frequency of maintenance will vary depending on starting duty/frequency of unit but in no circumstances should it exceed twelve months.	Electrical
8	Starters - Direct On Line	12M	Carry out maintenance as for power contactors.		Electrical
9	Starters - Star Delta, Two Speed-Dual Wound, Two Speed-Pole Change, Reversing, Auto Transformer	12M		See relevant sections in Starters (SFG 55).	Electrical
10	Thermal overloads	12M	Inspect for signs of overheating. Check electrical connections for tightness and security.	Replace if necessary after having established the cause and rectify it.	Electrical
11	Magnetic overloads	12M	Inspect for signs of overheating. Check electrical connections for tightness and security. Check oil levels in dashpots. If cloudy or sludge has formed, clean out dashpot with solvent and refill. Check 'time' delay mechanism. Operate 'test' facility to ensure switchgear de-energises in a clean and positive operation. Inspect trip settings.	Use only manufacturer's recommended fresh oil. Select correct dashpot drain hole if necessary. Adjust if necessary to give correct protection for connected load.	Electrical
12	Panel wiring	12M	Inspect for signs of overheating or burn marks. Replace any suspect conductors. Check all connections, terminations, earth cables and links for security and tightness. Ensure cable connections are tight and correctly terminated. Check that the panel is correctly bonded to earth. Check earth continuity, all measurements are to be less than 0.5 ohms.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
13	Fuses and/or Miniature Circuit Breakers (MCB)	12M	Check for damage. Check for correct rating. Check tightness of fuse link connections. Check free operation of MCB mechanisms. Check for evidence of overheating.	Ensure spare fuses are not 'blown' and replace with correct rating schedule, if necessary. Renew where necessary.	Electrical
14	General	12M	Check for presence of moisture. Remove any build-up of dust or any other contamination.	Report to the client if significant.	Electrical
15	Instrumentation: Ammeters, Voltmeters and Selector Switches	12M	Check for accuracy and correct operation. Check for operation. Test for operation.	Compare with Certified test instrument applied to same circuit. Replace as necessary.	Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Earthing

Schedule Ref : 44-06
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 3.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (2 mins)	12M (120 mins)	24M (2 mins)	60M	
1	2 3 4 5 9	6 7 8	10 11	

ANNUAL TIMING (MINUTES)
128

SCHEDULE INTRODUCTIONS
Danger can arise when removing a conductor connected to earth unless suitable precautions are taken. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Residual current devices (RCD) - 3 Monthly	3M	Test using test button. Where external influences may affect the integrity of the device then a full electrical test as per the annual task below is to be undertaken.	Responsibility for this check should be agreed with the client.	Electrical
2	Residual current devices (RCD) - 12 Monthly	12M	The test is made on the load side of the RCD between the phase conductor of the protected circuit and the associated cpc. The load should be disconnected during the test. For each of the tests, readings should be taken on both positive and negative half cycles and both recorded on the RCD test sheet: a) with a leakage current flowing equivalent to 50% of the rated tripping current of the RCD, the device should not open. b) with a leakage current flowing equivalent to 100% of the rated tripping current of the RCD, the device should open in less than 200ms. c) where the RCD incorporates		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			an intentional time delay it should trip within a time range from 50% of the rated time delay plus 200ms to 100% of the rated time delay plus 200ms. d) with a leakage current flowing equivalent to 5 times of the rated tripping current of the RCD, the device should open in less than 40ms.		
3	Earth electrodes	12M	Check: • Integrity of conductor • Associated connections • Condition of electrode and soil • Test in Accordance with method in accordance with current British Standards.	Record details and compare with earlier records as any deterioration may be gradual. Resistivity of electrode may be affected by corrosion, damage or soil condition. Refer to current British Standards IET wiring regulations. Where reliance is placed on the mass of earth for the return path under fault condition and an earth electrode is incorporated (TT), it is therefore necessary to measure and record the resistance. It is recommended that the earth fault loop impedance for TT installation does not exceed 200 ohms.	Electrical
4	Earth fault loop impedance test	12M	Frequency testing varies with location: • Origin of the installation • Sub main switchboards/ distribution boards • Final circuit distribution boards • Socket outlet circuits.	In certain circumstances there are statutory/local frequencies for testing. Test random selection with a minimum of two per circuit of which one should be the socket-outlet which is electrically the most remote from the distribution board.	Electrical
5	Main equipotential bonds	12M	Check visually and physically. Any connections showing signs of deterioration by chemical or electrolytic causes should be re-terminated and the new connection checked with a 'Ductor' test instrument.	Connections onto the main earth bar should be checked and tightened up if necessary, with an approved torque spanner. Use torque spanner to manufacturer's settings if required.	Electrical
6	Earth fault relays	24M	Check.	Represents maximum interval, actual dictated by environmental conditions.	Electrical
7	Earth fault relays - electromechanical	24M	Check availability of auxiliary trip supply (if applicable). Check magnetic gaps for dirt and clean.	Attention should be paid to fuses in tripping supplies particularly where no fuse supervision is provided.	Electrical
8	Earth fault relays -	24M	Routine maintenance not	Regular checks on power	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	electronic		generally required.	available for tripping should be made.	
9	Visual inspection of 11kv substation earthing systems	12M	Inspect the above-ground earth conductors, connections, guards etc. for evidence of corrosion, decay, signs of burning, vandalism or theft. Visually check all earthing and bonding electrodes and connectors, particularly noting the condition of any bi-metallic connectors looking for corrosion damage and missing connections. The inspection should include: a) the main HV earth electrode termination, normally connected either to the case of a transformer, HV switchgear or within the LV distribution board; b) the bonding connection between any plant items which are situated adjacent to each other; c) the LV earth termination, where this terminates at the substation; d) if the substation has separated HV/LV earthing, that the separation is maintained; e) the connection to any earth mats which are installed adjacent to 11kv switchgear; f) the bonding connection to metallic fencing; and g) the bonding connection to any metal enclosure.	The visual inspection is usually carried out annually as part of the substation inspection.	Electrical
10	Routine maintenance and examination of 11kv substation earthing systems	60M	This should include the visual inspection plus, where necessary, excavation to examine buried earth conductor, earth rods and earth plates. As part of the maintenance testing carried out, the tests should include: a) resistance tests across joints using the micro-ohmmeter;		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			b) checking the integrity of the bonding of all normally accessible metalwork (such as the tank of a transformer) to the substation earth or grid; c) measurement of the substation earth value (to be compared with the design specification); and d) for substations with segregated earthing, checking the integrity of the segregation.		
11	Records of inspection, examination and testing of 11kv substation earthing systems	60M	Records of inspection, examination and testing should be taken and made available for subsequent maintenance visits. The examination should be in four parts: 1) **Inspection**. The inspection under examination should cover the same items as listed in the visual inspection task detailed above. However, at normal substation inspection, the inspector is only looking for obvious defects. Under inspection, as part of the examination, the inspector should determine whether the conductor or connections are in a good enough state to last until the next examination. Where any real doubt exists, sections of the conductor and/or connections should be remade. The results of the inspection and any remedial work should be recorded. 2) **Joints.** A resistance measurement should be taken across all exposed accessible joints/connections using a micro-ohmmeter. The value should be compared with table 13 of BS 7430 (Acceptable bonding readings within distribution substations). Any joint where the resistance value is excessive should be broken down, cleaned and remade or replaced. 3) **Bonding Checks.** The integrity of bonding of each item		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			on site, as listed in the visual inspections task detailed above, should be checked using a micro -ohmmeter and be compared with the values in table 13 of BS 7430 (Acceptable bonding readings within distribution substations). 4) **Substation Earthing Resistance.** On completion of all other testing the final check that should be carried out is the measurement of the substation earth values (HV and LV where appropriate). Where the HV and LV earths are separate then the resistance between the two earths should be measured as this gives an indication of the effective separation.		

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Distribution Boards

Schedule Ref : 44-07
Schedule Type : Core
Schedule Date : 19 Apr 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (2 mins)	12M (60 mins)			
1	2 3 4 5 6 7 8 9 10 11			

ANNUAL TIMING (MINUTES)
68

SCHEDULE INTRODUCTIONS
Confirm details of any pre-agreed disruption to electrical supplies. It is essential to maintain the integrity of enclosures against the ingress of dust and vermin, the latter can cause severe damage to cables and thus create a fire hazard. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Residual Current Devices (RCD) - 3 Monthly	3M	Check operation via test button.	Responsibility for this check should be agreed with the client.	Electrical
2	Distribution board case	12M	Check for physical and mechanical damage, touch up paintwork after removing signs of corrosion. Check that door can be securely closed.	If moisture present check source and report.	Electrical
3	Residual Current Devices (RCD) - 12 Monthly	12M	The test is made on the load side of the RCD between the phase conductor of the protected circuit and the associated cpc. The load should be disconnected during the test. For each of the tests, readings should be taken on both positive and negative half cycles and both recorded on the RCD test sheet: a) with a leakage current flowing equivalent to 50% of the rated tripping current of the RCD, the device should not open. b) with a leakage current flowing		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			equivalent to 100% of the rated tripping current of the RCD, the device should open in less than 200ms. c) where the RCD incorporates an intentional time delay it should trip within a time range from 50% of the rated time delay plus 200ms to 100% of the rated time delay plus 200ms. d) with a leakage current flowing equivalent to 5 times of the rated tripping current of the RCD, the device should open in less than 40ms.		
4	General	12M	• Locally isolate incoming electrical supply • Open cover panels/access doors • Check for signs of overheating, unusual odours and noises during operation • Remove any build-up of dirt and dust on insulating components • Clean equipment generally • After all tasks have been completed, securely refix cover panels/access doors.		Electrical
5	Cable insulation	12M	Check condition and inspect for signs of overheating.	If possible identify cause of overheating and report.	Electrical
6	Fuse carriers and MCB's	12M	Check for damage. Check rating(s). Check free operation of MCB mechanisms.	Ensure fuses are not 'blown'. Any fuses that are blown should be replaced with correct rating as per schedule.	Electrical
7	Circuit charts	12M	Check for accuracy of descriptions. Ensure labels are securely fixed to exterior of door.		Electrical
8	Cable terminations	12M	Check all phase, neutral and earth connections and termination.		Electrical
9	Conduit and cable gland terminations	12M	Check for tightness.		Electrical
10	Integrity/Thermal Check	12M	An integrity/thermal check is to be carried out in the distribution board including, but not limited to the following: Phasing, Connections, Load, Terminations, Busbars and Linkages.	Industry practice suggests that thermal imaging/scanning is an effective way to carry out this check but other methods can be utilised.	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			Record any areas which show a temperature reading 20 degrees centigrade above the ambient and investigate.		
11	Earth fault loop impedance test	12M	Frequency of testing varies with location. In certain circumstances there are statutory/local frequencies for testing: a) Origin of the installation, Sub main switchboards/distribution boards, Final circuit distribution boards, Socket outlet circuits: Test random selection with a minimum of two per circuit of which one should be the socket-outlet which is electrically the most remote from the distribution board. b) Lighting circuits, Isolating switches/control devices for fixed appliances, Exposed conductive parts of fixed appliances.		Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Electrical Installation - Generally

Schedule Ref : 44-08
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 3.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (2 mins)	12M (10 mins)			
1	2 3			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS

Carry out all work and provide all services required to all areas specified. Routine inspection work includes inspection of installations generally in accordance with IET Regulations. Refer to current British Standards.

Testing should be carried out in the following sequence to the relevant items:

- Continuity of protective conductors, main and supplementary bonding.
- Continuity of ring final circuits.
- Insulation resistance.
- Site applied insulation.
- Protection by separation of circuit.
- Protection by barriers or enclosures provided during erection.
- Insulation of non-conducting floor and walls.
- Polarity.
- Earth electrode resistance.
- Earth fault loop impedance.
- Operation or residual current devices.

Electrical testing should be carried out by a Skilled Person fully versed in the system installed. The incoming supply to distribution switch boards must be isolated by locking off LV circuit breakers, fuse switches and supplies from other distribution switchboards as detailed on record drawings, as determined on site by the provider and as instructed by the client before any work commences.

Installation should be checked with suitable, reliable test equipment. Precautions must be taken to ensure tripped circuit devices cannot be accidentally closed, by either padlocking in the 'OFF' position or withdrawing the device as applicable. Where incoming supplies have been isolated, certain auxiliary/control supplies may be 'LIVE' due to external sources e.g. battery units.

It is essential that results from installation testing are recorded and the records are maintained and updated annually.

Any electrical systems found to deviate from regulatory recommendation should be identified and appropriate repair action taken.

Frequency shown is a guideline, actual frequencies will vary according to the type of installation, type and use of building and the findings of any previous inspection.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Small power	3M	Check operation of RCD	Responsibility for this check	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	circuits/outlets - RCD's - 3 Monthly		protected socket outlets by utilising test button. Reset RCD following Test.	should be agreed with the client.	
2	Small power circuits/outlets	12M	Examine all small power outlets within designated area. Check for damage and ensure any disconnection switches operate correctly, isolating the electrical supply.		Electrical
3	Small power circuits/outlets - RCD's - 12 Monthly	12M	The test is made on the load side of the RCD between the phase conductor of the protected circuit and the associated cpc. The load should be disconnected during the test. For each of the tests, readings should be taken on both positive and negative half cycles and both recorded on the RCD test sheet: a) with a leakage current flowing equivalent to 50% of the rated tripping current of the RCD, the device should not open b) with a leakage current flowing equivalent to 100% of the rated tripping current of the RCD, the device should open in less than 200ms c) where the RCD incorporates an intentional time delay it should trip within a time range from 50% of the rated time delay plus 200ms to 100% of the rated time delay plus 200ms. d) with a leakage current flowing equivalent to 5 times of the rated tripping current of the RCD, the device should open in less than 40ms.		Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Three Phase Circuits

Schedule Ref : 44-09
Schedule Type : Core
Schedule Date : 06 Apr 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (2 mins)	12M (15 mins)			
1	2 3 4 5			

ANNUAL TIMING (MINUTES)
23

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Residual Current Devices (RCD's) - 3 Monthly	3M	Check operation via test button.	Responsibility for this check should be agreed with the client.	Electrical
2	Residual Current Devices (RCD's) - 12 Monthly	12M	The test is made on the load side of the RCD between the phase conductor of the protected circuit and the associated cpc. The load should be disconnected during the test. For each of the tests, readings should be taken on both positive and negative half cycles and both recorded on the RCD test sheet: a) with a leakage current flowing equivalent to 50% of the rated tripping current of the RCD, the device should not open. b) with a leakage current flowing equivalent to 100% of the rated tripping current of the RCD, the device should open in less than 200ms. c) where the RCD incorporates an intentional time delay it should trip within a time range from 50% of the rated time delay plus 200ms to 100% of the rated time delay plus 200ms.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			d) with a leakage current flowing equivalent to 5 times of the rated tripping current of the RCD, the device should open in less than 40ms.		
3	Power Outlet - Condition	12M	Examine for physical damage.		Electrical
4	Socket Outlet - Condition	12M	Check for physical damage.		Electrical
5	Socket Outlet - Fuse rating	12M	If fused, check rating for connected load.		Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Isolators/Starters/Fuse Switches

Schedule Ref : 44-10
Schedule Type : Core
Schedule Date : 10 Mar 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (3 mins)	12M (10 mins)			
1	2 3 4 5			

ANNUAL TIMING (MINUTES)
22

SCHEDULE INTRODUCTIONS

The frequencies for the tasks given below are guidelines only and should be individually assessed per site. Suitable isolation to be undertaken prior to commencement of work.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	General	3M	Carry out a visual inspection and operational check: a) Check all contacts, fuse bridges, phase barriers etc. for signs of arcing/burning, where accessible and without interrupting the supply. b) Check that all trunking, conduit cable gland terminations are secure, adjust accordingly. c) Check correctness of labelling. d) Check enclosures for holes and damage. e) Check enclosures and confirm IP rating is suitable for location. f) Check for correctness of labelling.	Check arc shields for the presence of asbestos containing material prior to dismantling any equipment, if suspected STOP WORK. Take actions in accordance with the Asbestos Regulations.	Electrical
2	General - thermal imaging	12M	Check using thermal imaging and inspect for signs of hot spots and overheating. Record any areas which show a temperature reading 20 degrees centigrade above the ambient and investigate.		Electrical
3	Isolating mechanism	12M	Check switching mechanism. Service, clean and lubricate.	As per manufacturer's recommendations. Report any	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
				variation.	
4	Fault handling	12M	Check equipment to confirm fault handling capabilities.		Electrical
5	General - internal	12M	Check interior of device, clean out dust and dirt.		Electrical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Electrical Periodic Inspection and Testing - 3 Yearly

Schedule Ref : 44-20-3S
Schedule Type : Custom
Schedule Date : 01 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : System

TASK FREQUENCIES				
3Y				
1 2 3 4 5 6 7 8 9 10 11				

SCHEDULE INTRODUCTIONS

Carry out all work and provide all services required to all areas specified. Routine inspection work includes inspection of installations generally in accordance with IEE Regulations. Refer to current British Standards.

Testing should be carried out in the following sequence to the relevant items:

- Continuity of protective conductors, main and supplementary bonding.
- Continuity of ring final circuits.
- Insulation resistance.
- Site applied insulation.
- Protection by separation of circuit.
- Protection by barriers or enclosures provided during erection.
- Insulation of non-conducting floor and walls.
- Polarity.
- Earth electrode resistance.
- Earth fault loop impedance.
- Operation of residual current devices.

Electrical testing should be carried out by a Skilled Person fully versed in the system installed. The incoming supply to distribution switch boards must be isolated by locking off LV circuit breakers, fuse switches and supplies from other distribution switchboards as detailed on record drawings, as determined on site by the provider and as instructed by the client before any work commences.

Installation should be checked with suitable, reliable test equipment. Precautions must be taken to ensure tripped circuit devices cannot be accidentally closed, by either padlocking in the 'OFF' position or withdrawing the device as applicable. Where incoming supplies have been isolated, certain auxiliary/control supplies may be 'LIVE' due to external sources e.g. battery units.

It is essential that results from installation, testing and inspection are recorded and the records are maintained and updated.

Any electrical systems found to deviate from regulatory recommendation should be identified and appropriate action taken.

Frequency shown is a maximum, actual frequencies may vary according to the type of installation, type and use of building and the findings of any previous inspection.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Isolation and test Plan	3Y	Generate Isolation Plan identifying all activities that will result in the isolation of electrical supplies of critical systems supporting the operation of the		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			building and/or railway		
2	visual inspection	3Y	A visual inspection of 100% of the electrical installation is to be undertaken where reasonably practical to do so without dismantling the building fabric. Clean dust and swarf from within all distribution equipment Where there is a need to dismantle the building fabric (e.g. removing ceiling/floor tiles) a visual inspection of 25% of the S.I.D. codes is to be carried out initially. If there are any unsafe electrical installations discovered then the matter is to be referred to the Authorities DER for further action/investigation as deemed necessary.	To include but not be limited to : i. Cables (including joints & terminations) ii. Cable identification markers iii. Cable management systems iv. Cable segregation v. Protection against Direct & Indirect contact vi. Fuse-switches, Isolators, Change-over contactors vii. 110V transformers viii. Tunnel Lighting/Power Supplies to Control Panels ix. Luminaires x. Distribution/MCB Boards, Bus bar chambers xi. CPDs, Fuses xii. Earthing / Bonding Conductors xiii. Equipment Identification Labels xiv. Statuatory notices & Signs Where there is a need to dismantle the building fabric (e.g. removing ceiling/floor tiles) a visual inspection of 25% of the S.I.D. codes is to be carried out initially. If there are any unsafe electrical installations discovered then the matter is to be referred to the Authorities DER for further action/investigation as deemed necessary. The Contractor shall be responsible for the removal, safe storage, and subsequent re-installation of all louvres, grids, ceiling panels, lids, covers, and manhole covers etc during the work. Any damage to the foregoing incurred by the Contractor whilst undertaking the services shall be reported to the Authorities DER and rectified at the Contractor's expense and within a timescale agreed with the Authority.	Electrical
3	power circuits testing	3Y	test 100% of all power circuits at a location Clean dust and swarf from within all distribution equipment		Electrical
4	Change-over Contactors	3Y	Undertake an operational test of all change-over contactors		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	Operational Test				
5	lighting circuits testing	3Y	test 20% of all lighting circuits on each distribution board at each location to be undertaken. a different 20% of lighting circuits to be tested during each testing cycle.		Electrical
6	equipotential bonding	3Y	impedance measurement of simultaneously accessible exposed-conductive-parts and extraneous conductive-parts within reach of staff and passengers	to be undertaken within all areas	Electrical
7	normal operating & emergency illumination levels	3Y	measurement of the normal operating illumination levels measurement of the emergency operating illumination levels	measure in all Station public areas in accordance with LU standard S1066	Not-specified
8	Thermal Imaging	3Y	carry out Thermal Imaging of all Distribution boards and associate switchgear any hot spots are to be recorded, checked and rectified immediately		Electrical
9	Main supply intake voltage and load measurements	3Y	48hour measurement, at each supply intake into the location, recording Voltage per phase & Current per phase		Electrical
10	Record Drawings	3Y	Red Line mark-up of existing station schematics and include within Report		Electrical
11	Report	3Y	provide a BS7671 Electrical Installation Condition Report for each location which shall include the following: • Completed BS7671 Electrical Installation Condition Report certificate and a BS7671 Schedule of Test Results including all circuits at the location, tested or omitted. • A description of identified defects, their location, categorised classification of danger and non-compliance, photograph(s) of the defect and proposed action required. Classification to be in-line with BS7671. • Results of operational testing of all change-over contactors • 48hour measurement, at each supply intake into the		Technician

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Display Order	Item	FQ	Action	Notes	Skilling
			location, recording Voltage per phase & Current per phase • Existing location electrical schematic clearly overmarked detailing information missing from the schematic and any required alterations to the existing. Where no existing electrical schematic is available for a location, provide a clear sketch of the existing arrangement. • Normal operating illumination levels, measured in accordance with LU standard S1066, of all public areas individually itemised in accordance with S.I.D. codes. • Evidence of impedance testing in the form of a marked up Location layout identifying the locations of tests and the results.		

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail?pid=000000000030331554 BS 5266-1:2016 Emergency Lighting. Code of Practice for the emergency lighting of premises
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Electrical Periodic Inspection and Testing - 5 Yearly

Schedule Ref : 44-20-5F
Schedule Type : Custom
Schedule Date : 01 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : System

TASK FREQUENCIES				
5Y				
1 2 3 4 5 6 7 8 9 10				

SCHEDULE INTRODUCTIONS

Carry out all work and provide all services required to all areas specified. Routine inspection work includes inspection of installations generally in accordance with IEE Regulations. Refer to current British Standards.

Testing should be carried out in the following sequence to the relevant items:

- Continuity of protective conductors, main and supplementary bonding.
- Continuity of ring final circuits.
- Insulation resistance.
- Site applied insulation.
- Protection by separation of circuit.
- Protection by barriers or enclosures provided during erection.
- Insulation of non-conducting floor and walls.
- Polarity.
- Earth electrode resistance.
- Earth fault loop impedance.
- Operation of residual current devices.

Electrical testing should be carried out by a Skilled Person fully versed in the system installed. The incoming supply to distribution switch boards must be isolated by locking off LV circuit breakers, fuse switches and supplies from other distribution switchboards as detailed on record drawings, as determined on site by the provider and as instructed by the client before any work commences.

Installation should be checked with suitable, reliable test equipment. Precautions must be taken to ensure tripped circuit devices cannot be accidentally closed, by either padlocking in the 'OFF' position or withdrawing the device as applicable. Where incoming supplies have been isolated, certain auxiliary/control supplies may be 'LIVE' due to external sources e.g. battery units.

It is essential that results from installation, testing and inspection are recorded and the records are maintained and updated.

Any electrical systems found to deviate from regulatory recommendation should be identified and appropriate action taken.

Frequency shown is a maximum, actual frequencies may vary according to the type of installation, type and use of building and the findings of any previous inspection.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Isolation and test Plan	5Y	Generate Isolation Plan identifying all activities that will result in the isolation of electrical supplies of critical systems supporting the operation of the		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			building and/or railway		
2	visual inspection	5Y	A visual inspection of 100% of the electrical installation is to be undertaken where reasonably practical to do so without dismantling the building fabric. Where there is a need to dismantle the building fabric (e.g. removing ceiling/floor tiles) a visual inspection of 25% of the S.I.D. codes is to be carried out initially. If there are any unsafe electrical installations discovered then the matter is to be referred to the Authorities DER for further action/investigation as deemed necessary.	To include but not be limited to : i. Cables (including joints & terminations) ii. Cable identification markers iii. Cable management systems iv. Cable segregation v. Protection against Direct & Indirect contact vi. Fuse-switches, Isolators, Change-over contactors vii. 110V transformers viii. Luminaires ix. Distribution/MCB Boards, Bus bar chambers x. CPDs, Fuses xi. Earthing / Bonding Conductors xii. Equipment Identification Labels xiii. Statuatory notices & Signs Where there is a need to dismantle the building fabric (e.g. removing ceiling/floor tiles) a visual inspection of 25% of the Site is to be carried out initially. If there are any unsafe electrical installations discovered then the matter is to be referred to the Authorities DER for further action/investigation as deemed necessary. The Supplier shall be responsible for the removal, safe storage, and subsequent re-installation of all louvres, grids, ceiling panels, lids, covers, and manhole covers etc during the work. Any damage to the foregoing incurred by the Contractor whilst undertaking the services shall be reported to the Authorities DER and rectified at the Contractor's expense and within a timescale agreed with the Authority.	Electrical
3	power circuits testing	5Y	test 100% of all power circuits at a Site		Electrical
4	Change-over Contactors Operational Test	5Y	Undertake an operational test of all change-over contactors		Electrical
5	lighting circuits testing	5Y	test 20% of all lighting circuits on each distribution board at each		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			location to be undertaken. a different 20% of lighting circuits to be tested during each testing cycle.		
6	equipotential bonding	5Y	impedance measurement of simultaneously accessible exposed-conductive-parts and extraneous conductive-parts within reach of staff and customers	to be undertaken within all areas	Electrical
7	Thermal Imaging	5Y	carry out Thermal Imaging of all Distribution boards and associate switchgear any hot spots are to be recorded, checked and rectified immediately		Electrical
8	Main supply intake voltage and load measurements	5Y	48hour measurement, at each supply intake into the location, recording Voltage per phase & Current per phase		Electrical
9	Record Drawings	5Y	Red Line mark-up of existing or generation of ne Site schematics and include within Report		Electrical
10	Report	5Y	provide a BS7671 Electrical Installation Condition Report for each location which shall include the following: • Completed BS7671 Electrical Installation Condition Report certificate and a BS7671 Schedule of Test Results including all circuits at the location, tested or omitted. • A description of identified defects, their location, categorised classification of danger and non-compliance, photograph(s) of the defect and proposed action required. Classification to be in-line with BS7671. • Results of operational testing of all change-over contactors • 48hour measurement, at each supply intake into the location, recording Voltage per phase & Current per phase • Existing location electrical schematic clearly overmarked detailing information missing from the schematic and any required alterations to the		Technician

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Display Order	Item	FQ	Action	Notes	Skilling
			existing. Where no existing electrical schematic is available for a location, provide a clear sketch of the existing arrangement. • Evidence of impedance testing in the form of a marked up Location layout identifying the locations of tests and the results.		

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail?pid=000000000030331554 BS 5266-1:2016 Emergency Lighting. Code of Practice for the emergency lighting of premises
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Electrical Periodic Inspection and Testing - 5 Yearly

Schedule Ref : 44-20-5S
Schedule Type : Custom
Schedule Date : 01 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : System

TASK FREQUENCIES				
5Y				
1 2 3 4 5 6 7 8 9 10 11				

SCHEDULE INTRODUCTIONS

Carry out all work and provide all services required to all areas specified. Routine inspection work includes inspection of installations generally in accordance with IEE Regulations. Refer to current British Standards.

Testing should be carried out in the following sequence to the relevant items:

- Continuity of protective conductors, main and supplementary bonding.
- Continuity of ring final circuits.
- Insulation resistance.
- Site applied insulation.
- Protection by separation of circuit.
- Protection by barriers or enclosures provided during erection.
- Insulation of non-conducting floor and walls.
- Polarity.
- Earth electrode resistance.
- Earth fault loop impedance.
- Operation of residual current devices.

Electrical testing should be carried out by a Skilled Person fully versed in the system installed. The incoming supply to distribution switch boards must be isolated by locking off LV circuit breakers, fuse switches and supplies from other distribution switchboards as detailed on record drawings, as determined on site by the provider and as instructed by the client before any work commences.

Installation should be checked with suitable, reliable test equipment. Precautions must be taken to ensure tripped circuit devices cannot be accidentally closed, by either padlocking in the 'OFF' position or withdrawing the device as applicable. Where incoming supplies have been isolated, certain auxiliary/control supplies may be 'LIVE' due to external sources e.g. battery units.

It is essential that results from installation, testing and inspection are recorded and the records are maintained and updated.

Any electrical systems found to deviate from regulatory recommendation should be identified and appropriate action taken.

Frequency shown is a maximum, actual frequencies may vary according to the type of installation, type and use of building and the findings of any previous inspection.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Isolation and test Plan	5Y	Generate Isolation Plan identifying all activities that will result in the isolation of electrical supplies of critical systems supporting the operation of the		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			building and/or railway		
2	visual inspection	5Y	A visual inspection of 100% of the electrical installation is to be undertaken where reasonably practical to do so without dismantling the building fabric. Clean dust and swarf from within all distribution equipment Where there is a need to dismantle the building fabric (e.g. removing ceiling/floor tiles) a visual inspection of 25% of the S.I.D. codes is to be carried out initially. If there are any unsafe electrical installations discovered then the matter is to be referred to the Authorities DER for further action/investigation as deemed necessary.	To include but not be limited to : i. Cables (including joints & terminations) ii. Cable identification markers iii. Cable management systems iv. Cable segregation v. Protection against Direct & Indirect contact vi. Fuse-switches, Isolators, Change-over contactors vii. 110V transformers viii. Tunnel Lighting/Power Supplies to Control Panels ix. Luminaires x. Distribution/MCB Boards, Bus bar chambers xi. CPDs, Fuses xii. Earthing / Bonding Conductors xiii. Equipment Identification Labels xiv. Statuatory notices & Signs Where there is a need to dismantle the building fabric (e.g. removing ceiling/floor tiles) a visual inspection of 25% of the S.I.D. codes is to be carried out initially. If there are any unsafe electrical installations discovered then the matter is to be referred to the Authorities DER for further action/investigation as deemed necessary. The Contractor shall be responsible for the removal, safe storage, and subsequent re-installation of all louvres, grids, ceiling panels, lids, covers, and manhole covers etc during the work. Any damage to the foregoing incurred by the Contractor whilst undertaking the services shall be reported to the Authorities DER and rectified at the Contractor's expense and within a timescale agreed with the Authority.	Electrical
3	power circuits testing	5Y	test 100% of all power circuits at a location Clean dust and swarf from within all distribution equipment		Electrical
4	Change-over Contactors	5Y	Undertake an operational test of all change-over contactors		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	Operational Test				
5	lighting circuits testing	5Y	test 20% of all lighting circuits on each distribution board at each location to be undertaken. a different 20% of lighting circuits to be tested during each testing cycle.		Electrical
6	equipotential bonding	5Y	impedance measurement of simultaneously accessible exposed-conductive-parts and extraneous conductive-parts within reach of staff and passengers	to be undertaken within all areas	Electrical
7	normal operating & emergency illumination levels	5Y	measurement of the normal operating illumination levels measurement of the emergency operating illumination levels	measure in all Station public areas in accordance with LU standard S1066	Not-specified
8	Thermal Imaging	5Y	carry out Thermal Imaging of all Distribution boards and associate switchgear any hot spots are to be recorded, checked and rectified immediately		Electrical
9	Main supply intake voltage and load measurements	5Y	48hour measurement, at each supply intake into the location, recording Voltage per phase & Current per phase		Electrical
10	Record Drawings	5Y	Red Line mark-up of existing station schematics and include within Report		Electrical
11	Report	5Y	provide a BS7671 Electrical Installation Condition Report for each location which shall include the following: • Completed BS7671 Electrical Installation Condition Report certificate and a BS7671 Schedule of Test Results including all circuits at the location, tested or omitted. • A description of identified defects, their location, categorised classification of danger and non-compliance, photograph(s) of the defect and proposed action required. Classification to be in-line with BS7671. • Results of operational testing of all change-over contactors • 48hour measurement, at each supply intake into the		Technician

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Display Order	Item	FQ	Action	Notes	Skilling
			location, recording Voltage per phase & Current per phase • Existing location electrical schematic clearly overmarked detailing information missing from the schematic and any required alterations to the existing. Where no existing electrical schematic is available for a location, provide a clear sketch of the existing arrangement. • Normal operating illumination levels, measured in accordance with LU standard S1066, of all public areas individually itemised in accordance with S.I.D. codes. • Evidence of impedance testing in the form of a marked up Location layout identifying the locations of tests and the results.		

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://shop.bsigroup.com/ProductDetail?pid=000000000030331554 BS 5266-1:2016 Emergency Lighting. Code of Practice for the emergency lighting of premises
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Pumps - General

Schedule Ref : 45-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (10 mins)	12M (15 mins)			
1 2 3 4 5	6 7 8 9 10 11 12			

ANNUAL TIMING (MINUTES)
35

SCHEDULE INTRODUCTIONS
Checks on pumps should only be carried out by trained personnel. LPHW pumps should be checked frequently (typically weekly) for excessive noise or vibration, excessive seal leakage and that the pressure differential is as required and that the casing is free from air. It may be appropriate to change over duty and standby pumps at the same time. Belt drives should be checked and adjusted as necessary (typically once per month), together with anti-vibration mountings and flexible pipe couplings. Grease lubricated bearings intended for replenishments, these should be greased as recommended (typically every six months), taking care not to overfill. All maintenance activities should be logged. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Noise, vibration and overheating	6M	Check, rectify if possible and report. Check all holding down bolts, tighten if required. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion.		Mechanical
2	Lubrication	6M	Lubricate bearings and motors. Where suitable lubrication points are provided – do not lubricate bearings and motors that are fitted with 'sealed for life' varieties. Seek advice from manufacturer if in doubt.	Use only oil/grease that is in accordance with manufacturer's recommendations.	Mechanical
3	Drives, pulleys, belts, AV mounts and drive couplings	6M	On belt driven pumps - inspect and adjust as required. Replace belts if condition warrants it.	Replace drive belts using manufacturer's replacement belts. If the drive has more than one belt ensure all belts are	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Ensure motor, drive and pulley are correctly aligned.	changed at the same time. Do not apply belt dressing.	
4	Glands	6M	Inspect and adjust if necessary. Repack if required.		Mechanical
5	Suction line strainers	6M	Clean.		Mechanical
6	Pressure switches and level controls	12M	Check settings and test functionally.		Mechanical
7	Electrical	12M	Check motor electrical terminals and tighten as required. Check electrical connections. Check and record full load running current and compare with nameplate details. Check function & operation of local isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.		Electrical
8	Motor vent slots	12M	Clear.	Under certain conditions e.g. a dusty environment, more frequent cleaning may be required. See Motors (SFG 39).	Mechanical
9	Drive guards	12M	Check they are in place and secure.		Mechanical
10	Valves isolation, regulation and non-return valves	12M	Check operation. Tighten glands or repack if necessary.	See Valves (SFG 61).	Mechanical
11	Drain and tundish (where fitted)	12M	Check for blockage and clean.		Mechanical
12	Pump Pressures	12M	Check and record.		Mechanical

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Schedule Title : Circulating Pumps - General

Schedule Ref : 45-02
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Noise, vibration and overheating	3M	Check, rectify if possible and report. Check all holding down bolts, tighten if required. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion.		Mechanical
2	Bearings and glands	3M	Inspect for wear, lubricate bearings and motors, repack glands as required. Where suitable lubrication points are provided – do not lubricate bearings and motors that are fitted with 'sealed for life' varieties. Seek advice from manufacturer if in doubt.	Use only oil/grease that is in accordance with manufacturer's recommendations. Report if defective.	Mechanical
3	Bolts, pulleys, couplings and belts	3M	Inspect and adjust as required. Replace belts if worn.	Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
4	Pump pressures	3M	Check and record.		Mechanical
5	Strainers	3M	Inspect and clean as required.		Mechanical
6	Ball valves, float pressure and temperature	3M	Check for proper operation and calibration.	Check and record all temperatures.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	switches				
7	Electrical	3M	Check function & operation of local isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure. Take and log motor current and compare with nameplate details.	See Motors (SFG 39).	Mechanical
8	Full load running current	3M	Check and record.		Mechanical
9	Pulley(s) if fitted	3M	Check and realign if necessary.		Mechanical
10	Valves isolation, regulation and non-return valves	3M	Check operation. Tighten glands or repack if necessary.	See Valves (SFG 61).	Mechanical
11	Drain and tundish	3M	Check for blockage and clean.		Mechanical
12	Anti-vibration mounts	3M	Check and clean.	Generally report any defects to the client.	Mechanical
13	Drive guards.(where fitted)	3M	Check they are in place and secure.		Mechanical

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Schedule Title : Centrifugal Pumps

Schedule Ref : 45-03
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)				
3				
1 2 4 5 6 7 8 9 10 11 12				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing general - noise, vibration and overheating	3M	Inspect for external condition and signs of leaks. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion. Check all holding down bolts, tighten if required. Check, rectify if possible and report.		Mechanical
2	Isolation of pump from electrical and mechanical power	3M	Remove circuit supply fuses.	For safety reasons pump should be isolated before commencing work.	Mechanical
3	Electrical	3M	Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure. Take and log motor current and compare with nameplate details.		Electrical
4	Glands and mechanical seals	3M	Check external condition and leak rate.	If there are signs of leaks, tighten nuts or repack gland. Caution - do not over tighten.	Mechanical
5	Valves, cocks and drains	3M	Check externally for leaks.	Rotate spindles and handwheels to check freedom of operation,	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				examine drains for signs of gland leakage. See Valves (SFG 61).	
6	Strainers and exhausters	3M	Check external condition and freedom of flow.	Check self-priming action where fitted.	Mechanical
7	Belt drives	3M	Check for condition and alignment. Replace belts if condition warrants it.	Correct tensioning where necessary. Replace drive belts using manufacturer's replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
8	Couplings, pulleys, guards and holding down bolts	3M	Inspect and rectify any faults.		Mechanical
9	Pump	3M	Drain down and where applicable, strip, test and adjust parts listed in `notes` column. Lubricate and grease.	Parts to be tested and adjusted include: • glands and packing • gland compression springs • lantern rings • seals • throwers • couplings • rubber sleeves and pins • nuts and spring washers.	Mechanical
10	Reassembly	3M	Test functionally.		Mechanical
11	Drain and tundish (where fitted)	3M	Check for blockage and clean.		Mechanical
12	Pump pressures	3M	Check and record.		Mechanical

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Schedule Title : Pressurisation Pumps

Schedule Ref : 45-04
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)				
1 2 3 4 5 6 7 8 9 10 11 12 13				

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing general - noise, vibration and overheating	3M	Ensure pump base is level and pipework not strained. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion. Check all holding down bolts and tighten if required. Check, rectify if possible and report.	Check that anti-vibration mountings are satisfactory and vibration is not being transferred to the pipework.	Mechanical
2	Strainer elements	3M	Inspect and clean as required.		Mechanical
3	Pump and motor alignment	3M	Check and adjust if necessary.	Examine couplings for tightness.	Mechanical
4	Motors and bearings	3M	Oil or grease where external nipples or lubricators are fitted.	Use recommended grade of lubricant. Motor should be overhauled annually. See also Motors (SFG 39).	Mechanical
5	Drain holes, pipes and tank	3M	Clean and ensure that all blockages are cleared.		Mechanical
6	Guards and shields	3M	Check for security and safety.	Adjust if necessary.	Mechanical
7	Valves isolation, regulation and non-return	3M	Check externally for leaks.	Rotate spindles and handwheels to check freedom of operation. Examine drains for signs of gland leakage. See Valves (SFG 61).	Mechanical
8	Electrical	3M	Examine and report condition of		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			all associated wiring. Ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure. Take and log motor current and compare with nameplate details.		
9	Control and safety switches	3M	Inspect and check.	These include low water level cut-out switches, high and low pressure sensing switches, electrodes, connector caps and contacts. Report any defects to the client.	Mechanical
10	Control, pressure relief and reducing valves, air vents, purgers and constant flow regulators	3M	Test for correct operation and rectify any faults.	Report any defects to the client.	Mechanical
11	Diaphragm expansion tanks	3M	Inspect where possible.	Ensure diaphragms are sound and air cushion pressure is correct.	Mechanical
12	Test run pressure booster sets, pressurising units and filling pump	3M	Carry out adjustments to ensure satisfactory operation.	Check operation of all automatic controls and change-over switches.	Mechanical
13	Pump pressures	3M	Check and record.		Mechanical

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Schedule Title : Rotary Hand Pumps

Schedule Ref : 45-05
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing, fixings and hoses	12M	Check security and leak tightness. Remedy any faults. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion.		Mechanical
2	Operation	12M	Check functionally.	Examine external condition and remedy any defects.	Mechanical
3	Inlets and outlets	12M	Check for obstruction and clear if necessary.		Mechanical
4	Dismantle	12M	Examine for wear and corrosion.	Clean, repair or replace as necessary: • clack and ball valves • springs • diaphragms • seals • washers • gaskets • rotor • body and front plate.	Mechanical
5	Re-assembly and testing	12M	Check operation.		Mechanical

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Schedule Title : Secondary Hot Water Circulating Pumps

Schedule Ref : 45-06
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (10 mins)	12M (15 mins)			
	8 9 10			
1 2 3 4 5 6 7				

ANNUAL TIMING (MINUTES)
35

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing general - noise, vibration and overheating	6M	Inspect and clean as required. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion. Check, rectify if possible and report.		Mechanical
2	Bearings, glands and seals	6M	Inspect for wear, lubricate bearings and motors, repack glands as required. Where suitable lubrication points are provided – do not lubricate bearings and motors that are fitted with 'sealed for life' varieties. Seek advice from manufacturer if in doubt.	Use only oil/grease that is in accordance with manufacturers recommendations. Report if defective.	Mechanical
3	Bolts, pulleys, couplings and belts (where fitted)	6M	Inspect and adjust as required. Replace belts if condition warrants it.	Ensure motor, drive and pulley are correctly aligned. See Motors (SFG 39). Replace drive belts using manufacturers replacement belts. If the drive has more than one belt ensure all belts are changed at the same time. Do not apply belt dressing.	Mechanical
4	Pump pressures	6M	Check and record.		Mechanical
5	Strainers	6M	Inspect and clean as required.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
6	Isolation, regulation and non-return valves	6M	Check operation. Tighten glands or repack if necessary.	See Valves (SFG 61).	Mechanical
7	Drain and tundish (where fitted)	6M	Check for blockage and clean.		Mechanical
8	Anti-vibration mounts	12M	Check and clean.	Generally report any defects to the client.	Mechanical
9	Motor electrical terminals	12M	Inspect and tighten as required.		Mechanical
10	Electrical	12M	Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure. Take and log motor current and compare with nameplate details.		Electrical

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Schedule Title : Sewage or Drainage Pumps Submersible

Schedule Ref : 45-07
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)				
1 2 3 4 5 6 7 8				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Risk assessment and method statements are very important when carrying out maintenance of equipment contaminated by sewage especially in terms of disinfection procedures, PPE, equipment and tools. Staff Training must be up to date.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing general - noise, vibration and overheating	6M	Isolate pump(s) and withdraw form sump. Visually inspect pump for physical or mechanical damage. Check pump intake is clear and unobstructed. Clean pump casing as required. Touch up paintwork after removing signs of corrosion. Check, rectify if possible and report.		Mechanical
2	Pump motor(s)	6M	Check insulation value of motor windings.	For more detailed maintenance information see Motors (SFG 39). Advise the client if further investigation is required.	Mechanical
3	Pump(s)	6M	Check pumping performance of all pumps. Check impeller for wear and blockages. Check seal chamber oil. Drain sample of oil from pump, check for moisture and replenish/replace as required. Check pump mountings.	Visually observe if changing levels are satisfactory. Clean and report as necessary. Renew if necessary.	Mechanical
4	Electrical	6M	Remove motor terminal covers,		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			check connections for tightness and terminal block for damage or dampness. Open starter and check condition of wiring and contacts, clean and blow out. Ensure that overload devices are operational and set for correct loading. Carry out the following tests to all pumps and record results: a). Insulation resistance test on wiring and motors b). Earth loop impedance test on case or frame of units c). Load test on motors (start and run current). Compare results with manufacturer's specification. Check that power leads at motors are undamaged and are securely held.		
5	Valves	6M	Check satisfactory operation of all isolating and non-return valves.	For more detailed information see Valves (SFG 61).	Mechanical
6	Controls (operational)	6M	Inspect and check. Check operation of float/level switch controls.	Report any defects to the client.	Mechanical
7	Building management system controls	6M	Simulate every function to ensure satisfactory operation.	Reset after test. Ensure that alarm and operational information is transmitted to delegated terminal. For more detailed information about the maintenance see Building Management Systems (SFG 06).	Mechanical
8	Return pump to service	6M	Check sump is free of debris and clean as required. Replace pump(s) and check operation before closing sump.		Mechanical

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Schedule Title : Sewage and Drainage Pumps: Dry Well

Schedule Ref : 45-08
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)				
1 2 3 4 5 6 7 8				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
Risk assessment and method statements are very important when carrying out maintenance of equipment contaminated by sewage especially in terms of disinfection procedures, PPE, equipment and tools. Staff training must be up to date. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Dry well	6M	Check for seepage, if necessary pump out.	Report any excessive seepage to the client.	Mechanical
2	Dry well high level alarm	6M	Check for correct operation.	If defective, report to the client as soon as possible.	Mechanical
3	Casing general - noise, vibration and overheating	6M	Isolate pump(s) and withdraw form sump. Visually inspect pump for physical or mechanical damage. Check pump intake is clear and unobstructed. Clean pump casing as required. Touch up paintwork after removing signs of corrosion. Check, rectify if possible and report.		Mechanical
4	Valves	6M	Check for satisfactory operation of all isolating and non-return valves.	For more detailed information see Valves (SFG 61).	Mechanical
5	Pump(s)	6M	Check pumping performance of all pumps. Check impeller for wear and blockages. Check seal chamber oil. Drain sample of oil from pump and check for moisture. Replenish/replace as required.	For more detailed information see Pumps (SFG 45).	Mechanical
6	Electrical and pump	6M	Check pump mountings.	For more detailed information	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	motor(s)		Remove motor terminal covers. Check connections for tightness and terminal block for damage or dampness. Open starter and check condition of wiring and contacts. Clean and blow out. Ensure that overload devices are operational and set for correct loading. Carry out the following tests to all pumps and record results: a). Insulation resistance test on wiring and motors b). Earth loop impedance test on case or frame of units c). Load test on motors (start and run current). Compare results with manufacturer's specification. Check that power leads at motors are undamaged and are securely held.	see Motors (SFG 39). Advise the client if further investigation is required.	
7	Level or pressure controls	6M	Check settings and test functionally.	Report any defects to the client.	Mechanical
8	Building management system controls	6M	Simulate every function to ensure satisfactory operation.	Reset after test. Ensure that alarm and operational information is transmitted to delegated terminal. For more detailed information about the maintenance see Building Management Systems (SFG 06).	Mechanical

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Schedule Title : Sewage Pumps: Compressed Air

Schedule Ref : 45-09
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)	12M (120 mins)			
1 2 3 4 5 6	7			

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS
Risk assessment and method statement are very important when carrying out maintenance of equipment contaminated by sewage especially in terms of disinfection procedures, PPE, equipment and tools. Staff training must be up to date. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Air compressors	6M	Carry out maintenance and if necessary pump out.	For more detailed information see Pipework Systems - Air Compressors and Receivers (SFG 40-08).	Mechanical
2	Air receivers	6M	Carry out inspection and maintenance.	Pressure Systems Safety Regulations apply.	Mechanical
3	Valves	6M	Check for satisfactory operation of all isolating and non-return valves.	For more detailed information see Valves (SFG 61).	Mechanical
4	Ejector/diaphragm pump - 6 Monthly	6M	Lubricate all bearings and check pumping performance of all pumps.	Visually observe that changing levels are satisfactory. Clean and report condition as necessary.	Mechanical
5	Controls (operational)	6M	Check settings and test functionally.	Report any defects to the client.	Mechanical
6	Building management system controls	6M	Simulate every function to ensure satisfactory operation.	Reset after test. Ensure that alarm and operational information is transmitted to delegated terminal. For more detailed information see Building Management Systems (SFG 06).	Mechanical
7	Ejector/diaphragm pump - 12 Monthly	12M	Withdraw pump from pit and check diaphragm for wear or damage.	Visually observe that changing levels are satisfactory. Clean and report condition as necessary.	Mechanical

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Schedule Title : Sump Pumps: Extended Shaft

Schedule Ref : 45-10
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (60 mins)	6M (30 mins)	12M (120 mins)		
1 2	3 4 5 6	7 8		

ANNUAL TIMING (MINUTES)
420

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Grease points for extension shaft	3M	Check, rectify if possible and report.	Note and report any excessive bearing noise.	Mechanical
2	Pump(s)	3M	Check pumping performance of all pumps. Check impeller for wear and blockages. Check seal chamber oil. Drain sample of oil from pump and check for moisture, replenish/replace as required. Check pump mountings.	Visually observe that changing levels are satisfactory. Clean and report condition as necessary.	Mechanical
3	Valves	6M	Check satisfactory operation of all isolating and non-return valves.	For more detailed maintenance information see Valves (SFG 61).	Mechanical
4	Controls (operational)	6M	Inspect and check. Check operation of float/level switch controls.	Report any defects to the client.	Mechanical
5	Return pump to service	6M	Check sump is free of debris and clean as required. Replace pump(s) and check operation before closing sump.		Mechanical
6	Building management system controls	6M	Simulate every function to ensure satisfactory operation.	Reset after test. Ensure that alarm and operational information is transmitted to delegated terminal. For more detailed maintenance information see Building Management Systems (SFG 06).	Mechanical
7	Casing general -	12M	Isolate pump(s) and withdraw		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	noise, vibration and overheating		form sump. Visually inspect pump for physical or mechanical damage. Check pump intake is clear and unobstructed. Clean pump casing as required. Touch up paintwork after removing signs of corrosion. Check, rectify if possible and report.		
8	Electrical and pump motor(s)	12M	Remove motor terminal covers, check connections for tightness and terminal block for damage or dampness. Open starter and check condition of wiring and contacts, clean and blow out. Ensure that overload devices are operational and set for correct loading. Carry out the following tests to all pumps and record results: a. Insulation resistance test on wiring and motors b. Earth loop impedance test on case or frame of units c. Load test on motors (start and run current). Compare results with manufacturer's specification. Check that power leads at motors are undamaged and are securely held. Check insulation value of windings, clean ventilation slots and lubricate.	For more detailed maintenance information see also Motors (SFG 39). Advise the client if further investigation is required.	Electrical

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Schedule Title : Domestic Hot Water Accelerators

Schedule Ref : 45-11
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (10 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
10

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing	12M	Check for damage and clean.		Mechanical
2	Motor electrical terminals	12M	Inspect and tighten as required.		Mechanical
3	Circulation	12M	Check for water circulation and correct direction of flow.	Ensure rotor/impeller is free to turn. This is particularly relevant when returning the system to service.	Mechanical
4	Glands and seals	12M	Check for leaks. Tighten glands etc. if necessary.		Mechanical
5	Flap valves	12M	Check location and operation.	Applies to twin headed pumps only.	Mechanical

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Schedule Title : Water Booster Pumps

Schedule Ref : 45-12
Schedule Type : Core
Schedule Date : 19 Feb 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (120 mins)	12M (10 mins)			
1 2 3 4 5 6 7 8 9 10 11 12	13			

ANNUAL TIMING (MINUTES)
490

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Casing general - noise, vibration and overheating	3M	Ensure pump base is level and pipework not strained. Check casing for physical or mechanical damage. Touch up paintwork after removing signs of corrosion. Check all holding down bolts, tighten if required. Check, rectify if possible and report.	Check that anti-vibration mountings are satisfactory and vibration is not being transferred to pipework.	Mechanical
2	Strainer elements	3M	Inspect and clean as required.		Mechanical
3	Pump and motor alignment	3M	Check and adjust if necessary.	Examine couplings for tightness.	Mechanical
4	Motors and bearings	3M	Oil or grease where external nipples or lubricators are fitted.	Use recommended grade of lubricant. Motor should be overhauled annually. See Motors (SFG 39).	Mechanical
5	Drain holes, pipes and tank	3M	Clean and ensure that all blockages are cleaned. Check water level in break tank.		Mechanical
6	Guards and shields	3M	Check for security and safety.	Adjust if necessary.	Mechanical
7	Control and safety switches	3M	Inspect and check.	These include low water level cut-out switches, high and low pressure sensing switches, electrodes, connector caps and contacts. Report any defects to the client.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
8	Control, pressure relief and reducing valves & constant flow regulators	3M	Test for correct operation and rectify any faults.	Report any defects to the client.	Mechanical
9	Hydraulic accumulator (if fitted)	3M	Inspect and check gas cushion pressure and adjust as necessary.	Ensure diaphragms are sound. Use oxygen free nitrogen for topping up pressure as necessary. Ensure any discharge cannot endanger others.	Mechanical
10	Test pressure booster sets	3M	Run and carry out adjustments to ensure satisfactory operation.	Check operation of all automatic controls and change-over switches. Ensure any discharge of Oxygen free Nitrogen cannot endanger others.	Mechanical
11	Valves	3M	Check operation. Tighten glands or repack if necessary.	For more detailed information refer to Valves (SFG61).	Mechanical
12	Building management system controls	3M	Simulate every function to ensure satisfactory operation.	Reset after test, ensure that alarm and operational information is transmitted to delegated terminal. See Building Management Systems (SFG 06).	Mechanical
13	Electrical	12M	Check condition of local isolator, open and clean if required. Remove motor terminal covers, check connections for tightness and terminal block for damage or dampness. Open starter and check condition of wiring and contacts, clean and blow out. Ensure that overload devices are operational and set for correct loading. Carry out the following tests to all pumps and record results: a. Insulation resistance test on wiring and motors b. Earth loop impedance test on case or frame of units c. Load test on motors (start and run current). Compare results with manufacturer's specification. Check that power leads at motors are undamaged and are securely held.		Electrical

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Schedule Title : Ogden Steam Pump

Schedule Ref : 45-13
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (180 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS
Check for asbestos containing material prior to dismantling any equipment, if suspected STOP WORK, close off the area. Take actions in accordance with the asbestos regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operation check	12M	Carry out operation check in accordance with manufacturer's instructions.		Mechanical
2	Vent and drain lines	12M	Ensure all drain lines and vent pipes are clear.		Mechanical
3	Pump	12M	Strip, clean and overhaul pump, check inlet, outlet and exhaust valves and seats. Inspect float and fulcrum pin assembly, check for wear/damage, renew as required.	Refer to manufacturer's hand book before stripping down unit.	Mechanical
4	Steam traps and pipework	12M	Examine interconnecting pipework and steam trap/strainer assemblies, check for correct operation, clean/replace strainer baskets as required.		Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Refrigerant Distribution System

Schedule Ref : 46-01
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : m²

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (60 mins)	12M (60 mins)	Not Specified		
	8 9	1 2 3		
4 5 6 7				

ANNUAL TIMING (MINUTES)
300

SCHEDULE INTRODUCTIONS

Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for Leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

Plants with an F-Gas charge equivalent to or greater than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 300 kg threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

ALWAYS UPDATE RECORDS.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 2 or task 3 of this schedule depending on the refrigerant used in the system.

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SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
2	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
3	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes co2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			threshold • Quantities of commonly used HFC's equal to each threshold.		
4	Sight glass(es)	3M	Check operation and cleanliness. Test for refrigerant leaks.	Sight glasses, which should be fitted on any system, indicate refrigerant level and the presence of moisture. Faults which may be observed are: a) bubbles in sight glass indicating a shortage of refrigerant or a restriction in the liquid line. b) a change in the colour of the moisture monitor from green to yellow indicates the presence of moisture in the system.	Refrigeration Engineer
5	Superheat setting of thermostatic expansion valve (TEV)	3M	Check operation following the sequence outlined in the `notes` column. To adjust, remove valve cap at base of valve, turn adjusting stem counter clockwise to lower the superheat or clockwise to increase the superheat. CAUTION: Only make one turn of the stem at a time.	a) Measure temperature of the suction line at the point where the TEV bulb is clamped b) Read gauge pressure at compressor suction valve c) Add estimated pressure drop between bulb location and suction valve d) Convert the sum of the pressures to the equivalent temperature and subtract this from the actual suction line temperature. This difference is the superheat. It can take thirty minutes for a new balance to be achieved. Record new setting, it should be between 8º & 10ºC.	Refrigeration Engineer
6	Glycol concentration	3M	Check, if low, restore to recommended concentration.	A fall in concentration may be the result of leakage and pipework should be checked.	Refrigeration Engineer
7	Insulation	3M	Check external condition. Check soundness of vapour barrier and/or waterproof finish. Check condition of flange and valve boxes including internal linings and fasteners.	It cannot be stressed too heavily that ingress of water vapour has to be minimised otherwise efficiency will be reduced and energy wasted. Pay particular attention to seals round hangers and supports. Look for damage due to leaks. Check paintwork and identification bands.	Refrigeration Engineer
8	Oil separators	12M	Inspect: a) External condition of shell b) Leak tightness of connections c) Operation of valves and drains d) Operation of float valves	Many small units are sealed and the sight glass is on the oil separator.	Refrigeration Engineer
9	High and low	12M	Check on operation of pressure	Apply correct pressure or	Refrigeration

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Display Order	Item	FQ	Action	Notes	Skilling
	pressure switches		switch contacts and re-adjust to correct operating pressures as necessary. On completion of tests: • disconnect air pressure or vacuum equipment and alarm test set • remake electrical supply and alarm cables • test functionally • return to service.	vacuum reading to coincide with pressure switch operating limits, note pressure or vacuum reading at which pressure switch contacts make on both upper and lower limits. Pressure switch isolation valves to be opened, where fitted.	Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Room Air Conditioners

Schedule Ref : 47-01
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (30 mins)	12M (6 mins)	Not Specified		
		13 14 15		
1 2 3 4 5 6 7 8 9 10	11			

ANNUAL TIMING (MINUTES)
66

SCHEDULE INTRODUCTIONS

Room air conditioners [unitary reverse cycle heat pump terminal units with electrical heating and reversing valve]

Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for Leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

Plants with the equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 300 kg threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 14 or task 15 of this schedule depending on the refrigerant used in the system.

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SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	Status	6M	Isolate electrically.	Note: Isolation of electrical equipment should be carried out in accordance with HSAWA (www.hse.gov.uk) requirements.	Mechanical
2	Heating/cooling coil	6M	Remove air entry filter, inspect coil for dirt and clean as required. Comb any area of fins that are damaged.	Remainder of unit should be cleaned annually.	Mechanical
3	Condensate drain pan and pump	6M	Check pan and drain are clear.	Check that drainpipe is properly attached.	Mechanical
4	Air filter	6M	Wash, dry and refit, renew if required.	In a dirty environment more frequent cleaning may be required.	Mechanical
5	Water loop connections	6M	Check for leaks.		Mechanical
6	Refrigeration circuit	6M	Check for leaks. For more details on checking for leaks see below.	Indicated by oil smears at joints.	Mechanical
7	Electrical wiring and terminals	6M	Check integrity.		Mechanical
8	Return to service	6M	Place on cooling cycle, isolate from water loop, check high-pressure safety device stops refrigeration compressor.	Follow by opening water loop connection, resetting high pressure cut out and after changing to heating cycle check that unit provides heat.	Mechanical
9	Controls	6M	Return to standard settings. Check date and times.	On any hand-held controllers check battery and replace as required. All batteries should be disposed of only in accordance with H&S and Environmental requirements.	Mechanical
10	External Cleaning	6M	Clean unit externally.	Note defects on report to client.	Mechanical
11	Fan and motor bearings	12M	Lightly oil.	Rotate by hand to check wear.	Mechanical
12	**Leaks**				
13	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
14	Refrigerant Leak		The equipment must be checked	The use of HCFCs in new	Refrigeration

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Display Order	Item	FQ	Action	Notes	Skilling
	Tests (HCFC Gases)		for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Engineer
15	Refrigerant Leaks (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	Refrigeration Engineer

SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Interceptors - Petrol and Oil

Schedule Ref : 48-03
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (240 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS

Petrol filling stations are outside the scope of this specification.

Where entry into confined spaces is necessary, compliance with current regulations and guidance for Safe Work in confined spaces and INDG 258 Work in confined spaces - is required.

Staff training must be up to date.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Condition of tankage	12M	Check and report any significant deterioration.		Mechanical
2	Water	12M	Clean surface and remove any floating solids. Any surface contamination by oily substances to be removed by vacuum separately from sedimentary solids.	Any liquid or solids removed during the cleaning process must be disposed of in accordance with H&S and Environmental and water byelaw regulations.	Mechanical
3	Chamber interconnectors	12M	Check that these are not obstructed.		Mechanical
4	Vent pipes	12M	Check that all vents and vent pipes are clear and unobstructed.		Mechanical

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Schedule Title : Pre-Maintenance Procedures - Sensors and Switching Devices

Schedule Ref : 50-01
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

This procedure applies to all types of sensors and thermostats and requires that all safety precautions and safe working practices be observed.

1. Check security of mountings.
2. Inspect for physical damage.
3. Check for cleanliness. Obscuration of sensors with dust can reduce sensitivity and affect the signal.
4. Check termination for tightness and corrosion:
- a) Electric Cable
- b) Pneumatic Pipework.
5. Check cable/pipework locally for fixing and condition.
6. Verify correct location and installation as per manufacturer's instructions and check for any extraneous influences.
7. Note settings prior to commencing maintenance.
8. Check for element deterioration.
9. Pneumatics - Particular attention should be paid to the quality of the instrument air. Check for contamination by dirt, oil or water.
10. All sensors should be maintained in accordance with the manufacturer's recommendations.
11. Special sensors such as are used for glycol concentration, detection of smoke and gas, together with sensors used in water treatment may require specialist attention.

When cleaning or working in ducts it is essential that all sensors should be withdrawn from the duct to prevent damage. Care should also be taken to prevent any damage to linkages or other control devices.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Pressure Measurement Sensors - Static and Differential

Schedule Ref : 50-02
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (6 mins)	12M (6 mins)			
1	2 3 4			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operation	6M	Check for correct operation.	Check contact condition if a pressure switch. Refer to manufacturer's recommended inspection procedures.	M&E
2	Sampling pipework and connections	12M	Inspect for leakage and corrosion. Check for correct configuration.		M&E
3	Water sampling lines	12M	Purge to remove any air.		M&E
4	Calibration	12M	Check against Certified instrument and reset as required.	Refer to manufacturer's recommended calibration procedures.	M&E

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Schedule Title : Temperature Measurement Sensors

Schedule Ref : 50-03
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)	Not Specified			
2 3 4 5 6 9 10 11 12 14 15 16 17 19 20 21 22 24 25 26	8			

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Space Temperature Sensor**				
2	Sampling	12M	Check for any obstruction. Also ensure the sensor is away from any other form of heat source (radiator, kettle, photocopier) which may affect temperature readings.	Report any abnormal findings to the client.	M&E
3	Cleanliness	12M	Check sensor is clean and free from dirt.		M&E
4	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
5	Calibration	12M	Check against Certified instrument and reset as required.		M&E
6	Frost Protection	12M	Check operation. Confirm set point.	This may be outside the building on older systems.	M&E
7	**Outside Temperature Sensor**				
8	Outside Temperature Sensor		This should be on North Facing surface or mechanical shaded if not, but away from heat sources.	Report if not.	M&E
9	Sampling	12M	Check for any obstruction.		M&E
10	Location influence	12M	Check effect.	Examples are solar gain, proximity to warm extract vents, cooling towers, etc.	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
11	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
12	Calibration	12M	Check against Certified instrument and reset as required.		M&E
13	**Duct Mounted Sensors**				
14	Cleanliness	12M	Check sensing element for cleanliness where possible.	Clean as appropriate, refer to manufacturer's instructions.	M&E
15	Sampling	12M	Check for any obstruction to airflow at sensing element.		M&E
16	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
17	Calibration	12M	Check against Certified instrument and reset as required.		M&E
18	**Immersion Sensor**				
19	Sensor pocket	12M	Check for leaks.		M&E
20	Sensor	12M	Check for good quality thermal contact.	Use of heat transfer grease, spring systems etc. as per manufacturer's recommendations.	M&E
21	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
22	Calibration	12M	Check against Certified instrument and reset as required.		M&E
23	**Clamp-On Sensor and Surface Sensor**				
24	Surface contact	12M	Check for good surface contact.	Use heat transfer grease as per manufacturer's recommendations.	M&E
25	Operation	12M	Check for correct operation.		M&E
26	Calibration	12M	Check against Certified instrument and reset as required.	Refer to manufacturer's recommended calibration procedures.	M&E

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Schedule Title : Relative Humidity Sensors

Schedule Ref : 50-04
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (6 mins)	12M (6 mins)			
2 3 7 12 13	4 5 8 9 10 14 15			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Space Humidity Sensor**				
2	Sampling	6M	Check for any obstruction. Also ensure the sensor is away from any other source of humidity (kettle, washing machine etc.) which may affect humidity readings.	Report any abnormal findings to the client.	M&E
3	Cleanliness	6M	Check sensor is clean and free from dirt.		M&E
4	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
5	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E
6	**Outside Humidity Sensor**				
7	Sampling	6M	Check for any obstruction.		M&E
8	Location influence	12M	Check effect.	Examples are solar gain, proximity to warm extract vents, cooling towers etc.	M&E
9	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
10	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E
11	**Duct Mounted Sensors**				

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Display Order	Item	FQ	Action	Notes	Skilling
12	Cleanliness	6M	Check sensing element for cleanliness where possible.	Clean as appropriate, refer to manufacturer's instructions.	M&E
13	Sampling	6M	Check for any obstruction to airflow at sensing element.		M&E
14	Operation	12M	Check for correct operation.	Refer to manufacturer's recommended inspection procedures.	M&E
15	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E

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Schedule Title : Absolute Humidity Sensors

Schedule Ref : 50-05
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (6 mins)	12M (6 mins)			
2 3 4 8 9 10	5 6 11 12			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Space Sensor**				
2	Sampling pipework	6M	Check for any obstruction.		M&E
3	Sensor	6M	Check that sensor is clean and free from dirt.		M&E
4	Environment	6M	Check for signs of condensation and a saturated environment.		M&E
5	Operation	12M	Check operation.	Refer to manufacturer's recommended inspection procedures.	M&E
6	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E
7	**Duct Sensor**				
8	Sampling pipework	6M	Check for any obstruction.		M&E
9	Sensor	6M	Check that sensor is clean and free from dirt.		M&E
10	Environment	6M	Check for signs of condensation and a saturated environment.		M&E
11	Operation	12M	Check operation.		M&E
12	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E

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Schedule Title : Air Quality Sensors

Schedule Ref : 50-06
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (6 mins)	12M (6 mins)			
2 3 6 7	4 8			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Space Air Quality Sensor**				
2	Sampling	6M	Check for any obstruction.		M&E
3	Sensor	6M	Check sensor is clean and free from dirt.		M&E
4	Operation	12M	Check operation.	Refer to manufacturer's recommended inspection procedures.	M&E
5	**Duct Air Quality Sensor**				
6	Cleanliness	6M	Check sensing element for cleanliness.		M&E
7	Sampling	6M	Check for any obstruction.		M&E
8	Operation	12M	Check operation.		M&E

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Schedule Title : Carbon Dioxide Sensors

Schedule Ref : 50-07
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (6 mins)	12M (6 mins)			
2 3 7 8	4 5 9 10			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Space Carbon Dioxide Sensor**				
2	Sampling	6M	Check for any obstruction.		M&E
3	Sensor	6M	Check sensor is clean and free from dirt.		M&E
4	Operation	12M	Check operation.	Refer to manufacturer's recommended inspection procedures.	M&E
5	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E
6	**Duct Carbon Dioxide Sensor**				
7	Cleanliness	6M	Check sensing element for cleanliness.		M&E
8	Sampling	6M	Check for any obstruction.		M&E
9	Operation	12M	Check operation.		M&E
10	Calibration	12M	Check against Certified instrument and reset as necessary.		M&E

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Schedule Title : Velocity Sensors

Schedule Ref : 50-08
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (6 mins)	12M (6 mins)			
1 2	3 4			

ANNUAL TIMING (MINUTES)
18

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Cleanliness	6M	Check sensing element for cleanliness where applicable.		M&E
2	Sampling	6M	Check for any obstruction.		M&E
3	Operation	12M	Check operation.	Refer to manufacturer's recommended inspection procedures.	M&E
4	Calibration	12M	Check against Certified instrument and reset as necessary.	Refer to manufacturer's recommended calibration procedures.	M&E

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Schedule Title : Occupancy and Light Sensors

Schedule Ref : 50-09
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
2 3 4 6 7 8 9				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Occupancy**				
2	Cleanliness	12M	Clean as per manufacturer's instructions.		M&E
3	Operation	12M	Test for correct operation.		M&E
4	Location	12M	Check that sensor is not affected by extraneous effects (i.e. shadows from trees etc.).		M&E
5	**Light Level Sensors**				
6	Cleanliness	12M	Clean as per manufacturer's instructions.	In dirty environments more frequent cleaning of the sensor may be necessary.	M&E
7	Sampling	12M	Check for any interference or obstruction.	e.g. shadows or reflections.	M&E
8	Operation	12M	Test for correct operation.		M&E
9	Calibration	12M	Check against Certified instrument and reset as necessary.	Refer to manufacturer's recommended calibration procedures.	M&E

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Schedule Title : Smoke Detectors

Schedule Ref : 50-10
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
1 2				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Cleanliness	12M	Check sensing device and where appropriate sampling system for cleanliness and possible obstructions.	Special attention should be paid to areas that have had any building works carried out to ensure smoke heads have not been left `bagged off` or covers left in place. In addition where areas have been subject to any dusty conditions the heads should be cleaned. Refer to the manufacturer's instructions for cleaning procedures.	Specialist
2	Operation	12M	Test for correct response and operation.	Refer to manufacturer's instructions for recommended testing procedures. Some types of sensors have a finite life cycle and need to be replaced at intervals specified by the manufacturer. Certain devices such as ionisation detectors have no serviceable components and should not be exposed as a radioactive risk may occur. Always refer to manufacturer's instructions and follow all recommended safety procedures. For further guidance on testing	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
				Smoke Detectors see Fire Alarm Systems (SFG 22-01) and ensure testing is carried out in accordance with current British Standards.	

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1971/40/contents Fire Precautions Act 1971
http://www.legislation.gov.uk/uksi/1999/1877/contents/made Fire Precaution (Work Force) Regulation 1997 and 1999 amendment
http://www.gov.uk/government/publications/fire-safety-approved-document-b Building Regulations 2010 Approved Document B 2006 edition - Fire Safety volume 2: Buildings other than dwelling houses incorporating 2007, 2010 and 2013 amendments
http://shop.bsigroup.com/ProductDetail?pid=000000000030260279 BS 5839-1:2013 Part 1 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises
http://shop.bsigroup.com/ProductDetail?pid=000000000030260281 BS 5839-6:2013 Fire detection and fire alarm systems for buildings. Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in domestic premises
http://shop.bsigroup.com/ProductDetail?pid=000000000030301830 BS 9991:2015 Fire safety in the design, management and use of residential buildings Code of Practice
http://shop.bsigroup.com/ProductDetail?pid=000000000030011142 DD CEN/TS 54-14:2004 Fire detection and fire alarm systems. Guidelines for planning, design, installation, commissioning, use and maintenance
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Gas Detector Sensors/Carbon Monoxide Sensors

Schedule Ref : 50-11
Schedule Type : Core
Schedule Date : 13 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)	Not Specified			
4 5	2			

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS

Gas detectors are specialist devices and are often designed to detect a specific gas or family of gases e.g. propane or butane. It is essential to refer to the manufacturer's instructions before commencing any maintenance work on them.

Refer to current BS EN Standards for detailed guidance on the maintenance of Gas Detectors in an explosive Atmosphere.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Flammable Gases and Oxygen Sensors**				
2	Flammable Gases and Oxygen Sensors		It is assumed that the operational staff will undertake the routine visual inspections of the installation. Before proceeding with any maintenance task, the operative is to check the faults log for any outstanding faults/conditions. Fixed gas detectors should be included in the plant maintenance schedule. The performance of most detectors deteriorates with time, the rate depending on the type of sensor and the operating conditions, for example a dusty, corrosive or damp environment. These factors will affect the frequency of inspection, maintenance and calibration. Repair or maintenance of fixed apparatus (whether incorporating single-point sensors, open path sensors, a combination of these, or	Before any work is undertaken on any sensor in a hazardous area, ensure the notes in Hazardous Area (Electrics) - (SFG 27) are read and fully understood. Ensure all necessary local Permit to Work procedures are fully complied with.	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			sampling systems) should be carried out under a controlled procedure. Defective apparatus should be removed for repair in a workshop outside the area being protected. If a replacement apparatus cannot be provided immediately, then transportable apparatus should be used as a temporary substitute.		
3	**Carbon Monoxide Sensors**				
4	Cleanliness	12M	Check sensing device and where appropriate sampling system for cleanliness and possible obstructions.	Refer to the manufacturer's instructions for cleaning procedures.	Specialist
5	Operation	12M	Test for correct response and operation.	For further guidance see Fire Alarm Systems (SFG 22-01).	Specialist

SCHEDULE LEGISLATION
http://shop.bsigroup.com/ProductDetail?pid=000000000030267377 BS EN 60079-29-2:2015 Explosive atmospheres. Gas detectors. Selection, installation, use and maintenance of detectors for flammable gases and oxygen.

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Schedule Title : Showers

Schedule Ref : 51-01
Schedule Type : Core
Schedule Date : 10 Dec 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	Not Specified			
4 5 6				
8 9 10				
	2			

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

Legionellosis (Legionnaires Disease and Associated Illnesses)

Approved Code of Practice - Legionnaires disease: The control of legionella bacteria in water systems: Approved Code of Practice, L8, sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The L8 has a special legal status, Part 1 being regulatory and Part 2 guidance which has been replaced by a separate Technical Guidance publication, HSG274 parts 1, 2 and 3.

The client must ensure that one person of adequate status is appointed as being responsible for overseeing the assessment and implementation of the precautions. Responsibility and lines of communication must be properly defined and personnel must be properly trained.

Before carrying out the following procedures, consideration should be given to removing infrequently used showers. If they are removed, the redundant supply pipework should be cut back, as far as possible to a common supply, for example to the recirculating pipework or the pipework supplying a more frequently used upstream fitting.

Where it is difficult to carry out weekly flushing, the stagnant and potentially contaminated water from within the shower and associated 'dead-leg' needs to be purged to drain before the appliance is used. It is important that this procedure is carried out with minimum production of aerosols e.g. additional piping may be used to purge contaminated water to drain.

Frequency of maintenance will depend upon use and the quality of the water and should be agreed with the client.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Valves and Thermostatic Mixing Valves**				
2	Valves and thermostatic mixing valves			See Valves - Combination Tap Assemblies, Mixing Valves/Taps and Shower Valves (SFG 61-04 and 61-05).	Not-specified
3	**Spray Fittings**				

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Display Order	Item	FQ	Action	Notes	Skilling
4	Outlet sprays	3M	Dismantle, clean and descale removable parts, heads, inserts and hoses (where fitted). Check adjustable sprays (if fitted). Quarterly or as necessary.	Take care not to damage spray outlet holes. More often in hard water areas. Frequency is quarterly or as indicated by the rate of fouling or other risk factors e.g. areas with high risk patients.	Mechanical
5	Body jets	3M	Dismantle, clean jet heads and descale body jets. Adjust water flow rates. Quarterly or as necessary.	More often in hard water areas.	Mechanical
6	Flexible hoses	3M	Dismantle, clean and descale hoses. Check joints and flexible covering for damage. Quarterly or as necessary.	Report to client if replacement recommended. More often in hard water areas.	Mechanical
7	**Shower Enclosures and Trays**				
8	Seals	3M	Check for leaks on seals of doors and screens. Rectify or replace as appropriate.	Operate shower with door closed and carry out visual inspection.	Mechanical
9	Waste outlet	3M	Clean and unblock waste outlet trap as necessary.	If possible fit top access waste trap. More frequent maintenance may be necessary depending upon frequency of use.	Mechanical
10	Internal surfaces: Tiles and silicone joints	3M	Check internal surfaces for cracks in the tiles or grouting. Check all silicone joints and seals. Rake out damaged grout or silicone and repair as necessary.	Generally, the day to day cleaning of the internal surfaces should be undertaken by the clients staff. Cracks or chips in the surfaces can be a breeding ground for bacteria.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Showers Booster Pumps

Schedule Ref : 51-02
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (15 mins)			
1	2 3 4 5 6 7 8			

ANNUAL TIMING (MINUTES)
45

SCHEDULE INTRODUCTIONS

Legionellosis (Legionnaires Disease and Associated Illnesses) - Approved Code of Practice

The control of legionella bacteria in water systems: Approved Code of Practice L8, sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The L8 has a special legal status, Part 1 being regulatory and Part 2 guidance which has been replaced by a separate Technical Guidance publication, HSG274 parts 1, 2 and 3.

The client must ensure that one person of adequate status is appointed as being responsible for overseeing the assessment and implementation of the precautions. Responsibility and lines of communication must be properly defined and personnel must be properly trained.

Before carrying out the following procedures, consideration should be given to removing infrequently used showers. If they are removed, the redundant supply pipework should be cut back, as far as possible, to a common supply, for example to the recirculating pipework or the pipework supplying a more frequently used upstream fitting.

Where it is difficult to carry out weekly flushing, the stagnant and potentially contaminated water from within the shower and associated 'dead-leg' needs to be purged to drain before the appliance is used. It is important that this procedure is carried out with minimum production of aerosols e.g. additional piping may be used to purge contaminated water to drain.

Frequency of maintenance will depend upon use and the quality of the water and should be agreed with the client.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Water filters	6M	Remove, clean and descale. Replace as necessary.	Or as manufacturer's specification.	Mechanical
2	Casing	12M	Check for damage and clean.		Mechanical
3	Electrical	12M	Check condition of local isolator, open and clean if required. Remove motor terminal covers, check connections for tightness and terminal block for damage or dampness.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Carry out the following tests to all pumps and record results: a. Insulation resistance test on wiring and motors b. Earth loop impedance test on case or frame of units c. Load test on motors (start and run current). Compare results with manufacturer's specification. Check that power lead at motor are undamaged and are securely held.		
4	Motor	12M	Clean and check.	See Motors (SFG 39).	Mechanical
5	Anti-vibration pad(s)	12M	Check for wear and movement out of position. Replace as necessary.		Mechanical
6	Flow switches (where fitted)	12M	Check operation.	The two switches fitted to a twin impeller pump for separate hot and cold water supplies should be checked separately.	Mechanical
7	Air pressure switches (where fitted)	12M	Check operation.	Air switches should be used only where a low static head is present.	Mechanical
8	Ventilation	12M	Check clearance round pump for proper motor ventilation.		Mechanical

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Schedule Title : Introductory Procedures - Smoke Extract

Schedule Ref : 52-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

In many shopping malls, warehouses, staircases and other similar areas openable ventilators are installed to relieve smoke natural vents and/or to provide natural ventilation.

The actual fire prevention equipment does not come within the scope of these task maintenance schedules and its maintenance should be carried out by specialist contractors.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Smoke Relief - Natural Smoke and Heat Exhaust Ventilators

Schedule Ref : 52-02
Schedule Type : Core
Schedule Date : 27 May 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (5 mins)	12M (30 mins)			
1	2 3 4 5			

ANNUAL TIMING (MINUTES)
290

SCHEDULE INTRODUCTIONS

Maintenance and testing for smoke relief ventilators should conform to current Statutory Requirements, Regulations and Manufacturer's Recommendations and should also be in accordance with local authority requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Smoke vents	1W	Check condition, test weekly and record as required by British Standards, Regulatory Reform (Fire Safety) Order and the Fire Precaution (Work force) Regulations.	Client to advise if weekly tests are to be included within maintenance contract.	Mechanical
2	Fixing and weathering	12M	Check condition and clean all dirt from internal and external weathering channels and surfaces of the ventilator (take precautions to prevent inhalation of bird droppings with stiff (not wire) brush (COSHH Regulations).	In very dirty or aggressive environments more frequent attention may be necessary.	Mechanical
3	Louvres/flaps or dampers	12M	Clean bearings and lubricate as necessary.	Only use lubricant as recommended by manufacturer.	Mechanical
4	External hand control where fitted	12M	Check and adjust.		Mechanical
5	Operating mechanism	12M	Check action for smooth operation and to ensure they open and close correctly. Lubricate all linkages in accordance with manufacturer's recommendations.	Only use lubricant as recommended by manufacturer. Report to client if repairs or replacement required.	Mechanical

SCHEDULE LEGISLATION

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http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005
http://shop.bsigroup.com/ProductDetail?pid=000000000030026978 BS EN 12101-2:2003 Smoke and heat control systems. Specification for natural smoke and heat exhaust ventilators
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Smoke Relief - Powered Smoke and Heat Exhaust Ventilators

Schedule Ref : 52-03
Schedule Type : Core
Schedule Date : 27 May 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (5 mins)	12M (30 mins)	Not Specified		
1	2 3 4 5 6 7 8 9 10 11	12		

ANNUAL TIMING (MINUTES)
290

SCHEDULE INTRODUCTIONS
Frequency of maintenance and testing for smoke relief ventilators should conform to current Statutory Requirements, Regulations and Manufacturer's Recommendations and should also be in accordance with local authority requirements. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Test and run	1W	Test weekly and record same as required by British Standards.	Ensure client is aware that the system or part of system is inoperative during execution of maintenance.	Mechanical
2	Electricity supply	12M	Isolate in accordance with HSAWA safety requirements.	Ensure client is aware that the system or part of system is inoperative during execution of maintenance.	Mechanical
3	Filters	12M	See Filters (SFG 21).		Mechanical
4	Fixing and weathering	12M	Check condition and clean all dirt from internal and external weathering channels and surfaces of the ventilator (take precautions to prevent inhalation of bird droppings with stiff (not wire) brush (COSHH Regulations).	Use brush for dirt removal.	Mechanical
5	Fan impeller of motor	12M	Clean impeller and rotor, check ease of rotation and correct direction of rotation.	It is important to check for correct clearance between fan shrouds and impeller. See Motors (SFG 39).	Mechanical
6	Fan discharge	12M	Check fan inlet and discharge are unobstructed.		Mechanical
7	Non-return flaps	12M	Check and adjust for correct operation.	Straighten any bent or distorted blades.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
8	Water cooling system (where fitted)	12M	Check: a) spray nozzles are clean and undamaged b) cleanliness c) that water system is available at the required pressure. Clean strainer where fitted.		Mechanical
9	Controls	12M	Check action.	For more detailed maintenance see Control Panels and Controllers (SFG 14).	Mechanical
10	Operating mechanism	12M	Check action for smooth operation and to ensure they open and close correctly. Lubricate all linkages in accordance with manufacturer's recommendations.	Only use lubricant as recommended by manufacturer. Report to client if repairs or replacement required.	Mechanical
11	Louvres/flaps or dampers	12M	Clean bearings and lubricate as necessary.	Only use lubricant as recommended by manufacturer.	Mechanical
12	Compressor (where applicable)		Carry out tasks as directed in relevant sections. Check rails are clear of any obstruction so that the curtain will drop into place when required.	The client should carry out this task as part of their fire alarm testing once every week to ensure that the system integrity is maintained. See Pipework Systems - Air Compressors and Receivers (SFG 40-08).	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005
http://shop.bsigroup.com/ProductDetail?pid=000000000030218111 BS EN 12101-3:2015 Smoke and heat control systems. Specification for powered smoke and heat control ventilators (fans)
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Smoke Curtains

Schedule Ref : 52-04
Schedule Type : Core
Schedule Date : 27 May 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (90 mins)	Not Specified			
2 3 4 5 6 8 9 10	11			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

Frequency of maintenance and testing for smoke relief ventilators should conform to current Statutory Requirements, Regulations and Manufacturer's Recommendations and should also be in accordance with local authority requirements.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Curtains**				
2	Control	12M	Ensure curtain control is isolated from independent control circuits e.g. smoke detectors.		Mechanical
3	Guide rails (where fitted)	12M	Check rails are clear of any obstruction so that the curtain will drop into place when required.	The client should carry out this task as part of their fire alarm testing once every week to ensure that the system integrity is maintained.	Mechanical
4	Fabric	12M	Check for damage and report.		Mechanical
5	High and low limits	12M	Check and adjust as necessary.		Mechanical
6	Zone operation	12M	Operate by zone.		Mechanical
7	**Electrical Services**				
8	Battery back-up and control	12M	Test operation.	Check battery condition and charge rate.	Mechanical
9	Earth and resistance	12M	Test at panel.		Mechanical
10	Amperage and voltage	12M	Check and note incoming voltage to controls.		Mechanical
11	Compressor (where applicable)		Carry out tasks as directed in relevant sections.	See Pipework Systems - Air Compressors and Receivers (SFG 40-08).	Mechanical

SCHEDULE LEGISLATION

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http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005
http://shop.bsigroup.com/ProductDetail?pid=000000000030205146 BS EN 12101-1:2005 + A1:2006 Smoke and heat control systems. Specification for smoke barriers
http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030158436 BS 9999:2008 Code of Practice for fire safety in the design, management and use of buildings

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Schedule Title : Solar Hot Water Panels and Similar Collecting Devices

Schedule Ref : 53-01
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (30 mins)	12M (60 mins)	36M (120 mins)		
	3 4 5 6 11 12 13	7 14		
2 9 10				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
Working at heights should be in strict accordance with the current Work at Height Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Plate Type Collectors**				
2	Glass cover plate	6M	Check condition and clean all dirt from surfaces of the unit (take precautions to prevent inhalation of bird droppings - COSHH Regulations) with stiff (not wire) brush. Report condition if cracked. A safe method of gaining height may be required; operatives are to be fully trained.	Frequency will depend on location and local atmospheric condition. Dirt causes loss of collector efficiency. Cracked glass should be replaced.	Electrical
3	Seals	12M	Check condition and make good if necessary.	Poor seals lead to internal condensation and loss of efficiency. If there are signs of internal algae growth on underside of glass plate, it should be removed, cleaned and resealed. Care should be taken not to damage absorber plate as it may have a special coating.	Electrical
4	Antifreeze solution	12M	Check condition and top up to required concentration.	Antifreeze solution should be replaced every three years.	Electrical
5	Controls	12M	Check operation of thermostat and pump control.	For more detailed maintenance information see Control Panels and Controllers (SFG 14).	Electrical
6	Pipework and connections	12M	Check for leaks and signs of corrosion and make good as	For more detailed maintenance information see Pipework	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			necessary.	Systems (SFG 40).	
7	Antifreeze solution	36M	Replace antifreeze solution.		Electrical
8	**Vacuum Tube Type**				
9	Tubes	6M	Check condition and clean all dirt from surfaces of the tubes (take precautions to prevent inhalation of bird droppings - COSHH Regulations) with stiff (not wire) brush. Report condition if cracked. A safe method of gaining height may be required; operatives are to be fully trained.	Frequency will depend on location and local atmospheric condition. Dirt causes loss of collector efficiency. Cracked tubes should be replaced.	Electrical
10	Reflectors	6M	A safe method of gaining height may be required; operatives are to be fully trained.	Frequency will depend on location and local atmospheric condition. Dirt causes loss of collector efficiency. Care should be taken to avoid damaging the reflector surface.	Electrical
11	Antifreeze solution	12M	Check condition and top up to required concentration.	Antifreeze solution should be replaced every three years.	Electrical
12	Controls	12M	Check operation of thermostat and pump control.	For more detailed maintenance information see Control Panels and Controllers (SFG 14).	Electrical
13	Pipework and connections	12M	Check for leaks and signs of corrosion and make good as necessary.	For more detailed maintenance information see Pipework Systems (SFG 40).	Electrical
14	Antifreeze solution	36M	Replace antifreeze solution.		Electrical

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Schedule Title : Introductory Procedures - Split Systems Including Heat Pumps

Schedule Ref : 54-01
Schedule Type : Core
Schedule Date : 09 Dec 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Unit type air coolers, generally known as unit type air conditioners are stand alone pieces of equipment, the bulk of the equipment being factory assembled. Sometimes they only need an electrical supply but in some instances they have water/drainage connections to make them work. Size can vary between 2kW and 100kW of cooling. It follows that such units will contain some or all of the elements covered in other sections of this specification and when maintenance is carried out reference should be made to the appropriate section(s). It may be efficient for small one piece free standing units to be serviced at a central workshop.

Units can be divided into two main categories namely:

a) one piece
b) split two piece.

They are variously known as cassettes, ceiling, ceiling suspended, wall or window mounted, side blow, ducted, portable, multi-splits, console through wall or free standing.

With the split systems, pipework is necessary on site to connect the room unit to the condenser unit together with charging up and commissioning. Increased maintenance may be required with these compact units because of the density of the components.

Where there is a requirement to connect or disconnect, refrigerant lines including snap connections must have a suitable refrigerant handling qualification and the F-Gas regulations demand that only an engineer who is in possession of a full F-Gas certification is permitted to carry these works out.

The only difference between a heat pump and a split air conditioning unit is that a heat pump has a reversing valve to switch the unit from cooling mode to heating mode. The reversing valve changes the direction of refrigeration flow, making the outdoor condenser the evaporator and the indoor unit the condenser. The outdoor unit needs frost protection to switch back over when the condenser freezes.

Where Oxygen Free Nitrogen is used a risk assessment MUST be carried out prior to use and suitable training given.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : DX Split Systems (With Gas, Electric or Hot Water Heaters)

Schedule Ref : 54-02
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (90 mins)	Not Specified			
22	4 7 8 9			
2 3 5 10 11 12 13 14 15 16 17 18 19 20 23				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

These are primarily two units with either integral or remote air-cooled condensers working with direct expansion coolers, primarily for room air conditioning applications. The frequency of servicing or cleaning will depend upon the working environment and the amount of usage.

Service providers working on these systems must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

Plants with F-Gas equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

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SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Cooling**				
2	Compressor	6M	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		M&E
3	Compressor suction	6M	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant charge	6M	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective	Refrigeration Engineer
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at	If a system that automatically detects leaks is installed, the maximum interval between leak	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	
10	Condenser and evaporator fins	6M	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	6M	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	6M	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight. See also Motors (SFG 39).	Mechanical
13	Evaporator (indoor), drains, drip tray and pump	6M	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	6M	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical
15	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are	All pipework joints should be brazed or welded. To prevent	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			secure, not sagging, and are in good repair.	internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to using Nitrogen.	
16	Filters	6M	Check condition and replace as necessary.	Frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	6M	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed.	Electrical
20	System operation	6M	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
21	**Heating**				
22	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
23	Hot water supply	6M			Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.		

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-02+1
Schedule Type : Custom
Schedule Date : 17 May 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-02

TASK FREQUENCIES (SERVICE TIMINGS)				
1W	4W	8W	24W	6M (90 mins)
				22
2 3 5 10 11 12 13 16 18	19 20	15	14 17	
Not Specified				
4 7 8 9				
23				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

These are primarily two units with either integral or remote air-cooled condensers working with direct expansion coolers, primarily for room air conditioning applications. The frequency of servicing or cleaning will depend upon the working environment and the amount of usage.

Service providers working on these systems must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	0.2	0.3	1.6
6 Months	50	35	23.9	28.2	2.2	3.4	15.5
3 Months	500	350	239	282	22	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with F-Gas equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the

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task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Cooling**				
2	Compressor	1W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		M&E
3	Compressor suction	1W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant charge	1W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			with 300kg or more HCFCs	Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective	
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	1W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	1W	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	1W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight. See also Motors (SFG 39).	Mechanical
13	Evaporator (indoor), drains, drip tray and pump	1W	Check, flush and clean. Check condensate drain is clear and	Sterilisation of drip tray and drain may be required.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			clean. Check operation of condensate pump (if fitted).		
14	Compressor capacity control and unloaded start valves (if fitted)	24W	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical
15	Refrigerant pipework	8W	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to using Nitrogen.	Mechanical
16	Filters	1W	Check condition and replace as necessary.	Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	24W	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	1W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	4W	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed.	Electrical
20	System operation	4W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable. Frequency stated is mandatory where this item is contractually	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			settings. • Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	compulsory, otherwise frequency to be determined depending on conditions.	
21	**Heating**				
22	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
23	Hot water supply		See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.	N/A	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-02+12
Schedule Type : Custom
Schedule Date : 17 May 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-02

TASK FREQUENCIES (SERVICE TIMINGS)				
12W	24W	6M (90 mins)	Not Specified	
		22	4 7 8 9	
2 3 5 10 11 12 13 15 16 18 19 20	14 17		23	

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

These are primarily two units with either integral or remote air-cooled condensers working with direct expansion coolers, primarily for room air conditioning applications. The frequency of servicing or cleaning will depend upon the working environment and the amount of usage.

Service providers working on these systems must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	0.2	0.3	1.6
6 Months	50	35	23.9	28.2	2.2	3.4	15.5
3 Months	500	350	239	282	22	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with F-Gas equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Cooling**				
2	Compressor	12W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		M&E
3	Compressor suction	12W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant charge	12W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	12W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	12W	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	12W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight. See also Motors (SFG 39).	Mechanical
13	Evaporator (indoor), drains, drip tray and pump	12W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	24W	Check for correct operation. Check motor current against commissioning data or	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			nameplate.		
15	Refrigerant pipework	12W	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to using Nitrogen.	Mechanical
16	Filters	12W	Check condition and replace as necessary.	Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	24W	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	12W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	12W	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed.	Electrical
20	System operation	12W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. • When shut, ensure for air	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable. Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			tight seal. • Check that unit is maintaining space conditions.		
21	**Heating**				
22	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
23	Hot water supply		See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.	N/A	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-02+24
Schedule Type : Custom
Schedule Date : 17 May 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-02

TASK FREQUENCIES (SERVICE TIMINGS)				
24W	6M (90 mins)	Not Specified		
	22	4 7 8 9		
2 3 5 10 11 12 13 14 15 16 17 18 19 20		23		

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

These are primarily two units with either integral or remote air-cooled condensers working with direct expansion coolers, primarily for room air conditioning applications. The frequency of servicing or cleaning will depend upon the working environment and the amount of usage.

Service providers working on these systems must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	0.2	0.3	1.6
6 Months	50	35	23.9	28.2	2.2	3.4	15.5
3 Months	500	350	239	282	22	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with F-Gas equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Cooling**				
2	Compressor	24W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		M&E
3	Compressor suction	24W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant charge	24W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	24W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	24W	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	24W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight. See also Motors (SFG 39).	Mechanical
13	Evaporator (indoor), drains, drip tray and pump	24W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	24W	Check for correct operation. Check motor current against commissioning data or	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			nameplate.		
15	Refrigerant pipework	24W	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to using Nitrogen.	Mechanical
16	Filters	24W	Check condition and replace as necessary.	Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	24W	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	24W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	24W	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed.	Electrical
20	System operation	24W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. • When shut, ensure for air	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable. Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			tight seal. • Check that unit is maintaining space conditions.		
21	**Heating**				
22	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
23	Hot water supply		See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.	N/A	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-02+4
Schedule Type : Custom
Schedule Date : 17 May 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-02

TASK FREQUENCIES (SERVICE TIMINGS)				
4W	8W	24W	6M (90 mins)	Not Specified
			22	4 7 8 9
2 3 5 10 11 12 13 16 18 19 20	15	14 17		23

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

These are primarily two units with either integral or remote air-cooled condensers working with direct expansion coolers, primarily for room air conditioning applications. The frequency of servicing or cleaning will depend upon the working environment and the amount of usage.

Service providers working on these systems must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	0.2	0.3	1.6
6 Months	50	35	23.9	28.2	2.2	3.4	15.5
3 Months	500	350	239	282	22	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with F-Gas equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Cooling**				
2	Compressor	4W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		M&E
3	Compressor suction	4W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant charge	4W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	4W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	4W	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	4W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight. See also Motors (SFG 39).	Mechanical
13	Evaporator (indoor), drains, drip tray and pump	4W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	24W	Check for correct operation. Check motor current against commissioning data or	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			nameplate.		
15	Refrigerant pipework	8W	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to using Nitrogen.	Mechanical
16	Filters	4W	Check condition and replace as necessary.	Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	24W	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	4W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	4W	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed.	Electrical
20	System operation	4W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. • When shut, ensure for air	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable. Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			tight seal. • Check that unit is maintaining space conditions.		
21	**Heating**				
22	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
23	Hot water supply		See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.	N/A	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
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http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-02+8
Schedule Type : Custom
Schedule Date : 17 May 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-02

TASK FREQUENCIES (SERVICE TIMINGS)				
8W	24W	6M (90 mins)	Not Specified	
		22	4 7 8 9	
2 3 5 10 11 12 13 15 16 18 19 20	14 17		23	

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

These are primarily two units with either integral or remote air-cooled condensers working with direct expansion coolers, primarily for room air conditioning applications. The frequency of servicing or cleaning will depend upon the working environment and the amount of usage.

Service providers working on these systems must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
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	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	0.2	0.3	1.6
6 Months	50	35	23.9	28.2	2.2	3.4	15.5
3 Months	500	350	239	282	22	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with F-Gas equivalent to or more than 500 tonnes of CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Cooling**				
2	Compressor	8W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		M&E
3	Compressor suction	8W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant charge	8W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Refrigeration Engineer
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is fitted. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	8W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	8W	Check all nuts (including holding down bolts) bolts, setscrews, etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	8W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight. See also Motors (SFG 39).	Mechanical
13	Evaporator (indoor), drains, drip tray and pump	8W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	24W	Check for correct operation. Check motor current against commissioning data or	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			nameplate.		
15	Refrigerant pipework	8W	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling use dry, oxygen free nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to using Nitrogen.	Mechanical
16	Filters	8W	Check condition and replace as necessary.	Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	24W	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	8W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	8W	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed.	Electrical
20	System operation	8W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. Check all access doors for fit and can be made secure. • When shut, ensure for air	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable. Frequency stated is mandatory where this item is contractually compulsory, otherwise frequency to be determined depending on conditions.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			tight seal. • Check that unit is maintaining space conditions.		
21	**Heating**				
22	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
23	Hot water supply		See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.	N/A	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/1995/1629/contents/made Gas Appliances (Safety) Regulations 1995
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)

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Schedule Title : Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX)

Schedule Ref : 54-03
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (90 mins)	Not Specified			
21	4 7 8 9			
2 3 5 10 11 12 13 14 15 16 17 18 19 20 22 24 25 26				

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Engineers working on these systems must belong to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

Plants with an F-Gas charge equivalent to or greater than 500 tonnes CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system.

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SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Heating**				
2	Compressor	6M	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		Mechanical
3	Compressor suction	6M	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant Charge	6M	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Mechanical
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant equivalent to or charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at	If a system that automatically detects leaks is installed, the maximum interval between leak	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is installed. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	
10	Condenser and evaporator fins	6M	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	6M	Check all nuts (including holding down bolts) bolts, setscrews etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	6M	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight.	Mechanical
13	Evaporator and drains, drip tray and pump	6M	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	6M	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical
15	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			good repair.	free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	
16	Filters	6M	Check condition and replace as necessary.	Frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	6M	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed. Pay particular attention to contactors and terminals including all thermistor controls in compressor terminal box.	Electrical
20	System operation	6M	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. • Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
21	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe
22	Hot water supply	6M	See relevant Heat Emitter (SFG 28). Check for leaks.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Check anti-freeze protection on heating coil.		
23	**Cooling**				
24	Compressor suction	6M	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
25	Reversing valve	6M	Check operation of reversing valve to ensure the unit switches over affectively, from heating to cooling and back.		Mechanical
26	System operation - cooling	6M	Confirm that it is in accordance with design parameters.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-03+1
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-03

TASK FREQUENCIES (SERVICE TIMINGS)				
1W	12W	6M (90 mins)	Not Specified	
		21	4 7 8 9	
2 3 5 10 11 13 16 18 20 24 26	12 14	15 17 19 22 25		

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Engineers working on these systems must belong to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with an F-Gas charge equivalent to or greater than 500 tonnes CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

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The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Heating**				
2	Compressor	1W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		Mechanical
3	Compressor suction	1W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant Charge	1W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Mechanical
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant equivalent to or charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is installed. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	1W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	1W	Check all nuts (including holding down bolts) bolts, setscrews etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	12W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight.	Mechanical
13	Evaporator and drains, drip tray and pump	1W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	12W	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
15	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Mechanical
16	Filters	1W	Check condition and replace as necessary.	Frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	1W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed. Pay particular attention to contactors and terminals including all thermistor controls in compressor terminal box.	Electrical
20	System operation	1W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. • Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
21	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
22	Hot water supply	6M	See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.		Mechanical
23	**Cooling**				
24	Compressor suction	1W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
25	Reversing valve	6M	Check operation of reversing valve to ensure the unit switches over affectively, from heating to cooling and back.		Mechanical
26	System operation - cooling	1W	Confirm that it is in accordance with design parameters.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-03+12
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-03

TASK FREQUENCIES (SERVICE TIMINGS)				
12W	6M (90 mins)	Not Specified		
	21	4 7 8 9		
2 3 5 10 11 12 13 14 16 18 20 24 26	15 17 19 22 25			

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Engineers working on these systems must belong to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with an F-Gas charge equivalent to or greater than 500 tonnes CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

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The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Heating**				
2	Compressor	12W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		Mechanical
3	Compressor suction	12W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant Charge	12W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Mechanical
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant equivalent to or charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is installed. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	12W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	12W	Check all nuts (including holding down bolts) bolts, setscrews etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	12W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight.	Mechanical
13	Evaporator and drains, drip tray and pump	12W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	12W	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
15	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Mechanical
16	Filters	12W	Check condition and replace as necessary.	Frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	12W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed. Pay particular attention to contactors and terminals including all thermistor controls in compressor terminal box.	Electrical
20	System operation	12W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. • Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
21	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
22	Hot water supply	6M	See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.		Mechanical
23	**Cooling**				
24	Compressor suction	12W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
25	Reversing valve	6M	Check operation of reversing valve to ensure the unit switches over affectively, from heating to cooling and back.		Mechanical
26	System operation - cooling	12W	Confirm that it is in accordance with design parameters.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-03+4
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-03

TASK FREQUENCIES (SERVICE TIMINGS)				
4W	16W	6M (90 mins)	Not Specified	
		21	4 7 8 9	
2 3 5 10 11 13 16 18 20 24 26	12 14	15 17 19 22 25		

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Engineers working on these systems must belong to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with an F-Gas charge equivalent to or greater than 500 tonnes CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

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The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Heating**				
2	Compressor	4W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		Mechanical
3	Compressor suction	4W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant Charge	4W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Mechanical
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant equivalent to or charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is installed. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	4W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	4W	Check all nuts (including holding down bolts) bolts, setscrews etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	16W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight.	Mechanical
13	Evaporator and drains, drip tray and pump	4W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	16W	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
15	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Mechanical
16	Filters	4W	Check condition and replace as necessary.	Frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	4W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed. Pay particular attention to contactors and terminals including all thermistor controls in compressor terminal box.	Electrical
20	System operation	4W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. • Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
21	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
22	Hot water supply	6M	See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.		Mechanical
23	**Cooling**				
24	Compressor suction	4W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
25	Reversing valve	6M	Check operation of reversing valve to ensure the unit switches over affectively, from heating to cooling and back.		Mechanical
26	System operation - cooling	4W	Confirm that it is in accordance with design parameters.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact

Schedule Ref : 54-03+8
Schedule Type : Custom
Schedule Date : 23 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr
Core Schedule Ref : 54-03

TASK FREQUENCIES (SERVICE TIMINGS)				
8W	16W	6M (90 mins)	Not Specified	
		21	4 7 8 9	
2 3 5 10 11 13 16 18 20 24 26	12 14	15 17 19 22 25		

ANNUAL TIMING (MINUTES)
180

SCHEDULE INTRODUCTIONS

Engineers working on these systems must belong to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Check for leaks should be part of the routine servicing. "Checked for leakage" means that the joints, valves including stems, seals, including seals on replaceable driers and filters, parts of the system subject to vibration, connections to safety or operational devices of the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on refrigerant charge and system type.

These applications must also be checked for leakage within 14 days after a leak has been repaired to ensure that the repair has been effective.

Plants with an F-Gas charge equivalent to or greater than 500 tonnes CO2 must be fitted with a leakage detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection, alerts the operator". The detection system must be checked at least once a year to ensure proper functioning in line with manufacturers' recommendations.

For any plant fitted with a leakage detection system (including those below the mandatory 500 tonnes of CO2 threshold), the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:

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The person undertaking the leak test must determine whether the equipment is to be tested under task 8 or task 9 of this schedule depending on the refrigerant used in the system

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Heating**				
2	Compressor	8W	Check for undue noise or vibration. Check discharge and suction pressure and check superheat under full load condition.		Mechanical
3	Compressor suction	8W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
4	Refrigerant		Service providers must be registered to an approved Certified Scheme provider in accordance with the current F-Gas Regulations.		Refrigeration Engineer
5	Refrigerant Charge	8W	Check level in receiver and/or liquid line sight glass.	Any shortfall or frequent topping up may indicate leakage and must be reported to the client.	Mechanical
6	**Leaks**				
7	Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant equivalent to or charge greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
8	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
9	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming). The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is installed. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the www.gov.uk web site.	Refrigeration Engineer
10	Condenser and evaporator fins	8W	Check for damage and/or dust accumulation. Clean and comb coil fins, vacuum unit internally.	Do not use refrigerant for cleaning tubes, use dry nitrogen or compressed air. Sterilisation may be required. Where Oxygen Free Nitrogen is used, a Risk Assessment must be carried out prior to use and suitable training given.	Mechanical
11	Condenser - general	8W	Check all nuts (including holding down bolts) bolts, setscrews etc. for security. Check any drip tray for blockage/leaks etc. Remove any debris and clean.		Mechanical
12	Fans and motors and damper drive motors (if fitted)	16W	Check bearings and lubricate as necessary. Inspect and check on fan guard covers and inspection plates.	Where appropriate check drive belts for condition and tension. Adjust or replace as necessary. Ensure that all bolts, screws etc. are in place and tight.	Mechanical
13	Evaporator and drains, drip tray and pump	8W	Check, flush and clean. Check condensate drain is clear and clean. Check operation of condensate pump (if fitted).	Sterilisation of drip tray and drain may be required.	Mechanical
14	Compressor capacity control and unloaded start valves (if fitted)	16W	Check for correct operation. Check motor current against commissioning data or nameplate.	Compressor unload on start should reduce and increase capacity on demand.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
15	Refrigerant pipework	6M	Check entire refrigerant pipework run. Ensure pipes are secure, not sagging, and are in good repair.	All pipework joints should be brazed or welded. To prevent internal scaling, use dry, oxygen free, nitrogen (OFN) during the jointing process. A Risk Assessment must be done prior to use.	Mechanical
16	Filters	8W	Check condition and replace as necessary.	Frequency to be determined depending on conditions. It is however important to clean the filter prior to it becoming clogged. This can affect the energy efficiency of the unit by as much as 10% and can also allow dirt to become clogged into the evaporator coil.	Mechanical
17	Insulation	6M	Check condition. Repair and reseal as necessary.		Mechanical
18	General cleanliness	8W	Clean surfaces of compressor and components of condensing unit particularly fan impeller and motor casing. Check and clean surfaces of unit casing, check for corrosion, repair and treat as found necessary.	Remove any dirt or rubbish from vicinity of plant.	Mechanical
19	Electrical	6M	Check for satisfactory operation of local electrical isolation device (stoplock/isolator). Examine and report condition of all associated wiring, ensure security of all terminal connections and check for satisfactory condition of any flexible cables/conduits. Ensure plant has adequate earth conductor and bonding is secure.	If main fuse carrier connections to compressors show any discoloration they must be changed. Pay particular attention to contactors and terminals including all thermistor controls in compressor terminal box.	Electrical
20	System operation	8W	• Check function and operation of all automatic sensors/detectors (flow/temperature). • Check for correct operation/shut-down of plant. • Ensure all devices are returned to their correct settings. • Clean air inlet & discharge grilles. • Check all access doors for fit and can be made secure. • When shut, ensure for air tight seal. • Check that unit is maintaining space conditions.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical
21	Gas fired	6M	See relevant Burner (SFG 07).		Gas Safe

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Display Order	Item	FQ	Action	Notes	Skilling
22	Hot water supply	6M	See relevant Heat Emitter (SFG 28). Check for leaks. Check anti-freeze protection on heating coil.		Mechanical
23	**Cooling**				
24	Compressor suction	8W	Check for symptoms of 'wet' operation or excessive superheat.		Mechanical
25	Reversing valve	6M	Check operation of reversing valve to ensure the unit switches over affectively, from heating to cooling and back.		Mechanical
26	System operation - cooling	8W	Confirm that it is in accordance with design parameters.	i.e. Start/stops and capacity regulators should be in accordance with externally applied control systems if applicable.	Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/priced/l80.pdf L80 – HSE (2007 2nd edition): A guide to the Gas Safety (Management) Regulations 1996
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015

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Schedule Title : Starters - Drive Elements

Schedule Ref : 55-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Control unit relays, fuses & control lamps, starters overloads and transformers	12M	Check and inspect. Replace lamps as necessary.	Note hours run on plant and check that duty selection has been carried out.	Electrical
2	Wiring, conduits and flexible conduits	12M	Check condition and replace if necessary.	Ensure that all access covers and all screws and hinges are in place and secured.	Electrical
3	Panel	12M	Check internally for build-up of dirt and vacuum out.		Electrical

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Schedule Title : Starters - Star Delta

Schedule Ref : 55-02
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switchgear	12M	Carry out maintenance procedures as per power contactors.	See Control Panels and Controllers (SFG 14).	Electrical
2	Interlocks	12M	Inspect and check both electrical and mechanical interlocks between 'Star' and 'Delta' contactors.		Electrical
3	Start-up sequence	12M	Check for correct sequence from start up. Inspect, check and adjust setting of timer to match character of the connected load.	'Star' first then 'Delta' mode.	Electrical
4	Starter overload settings	12M	Check.	If overload is connected into the 'Delta' loop, the overload should be set to 0.58 of the line current.	Electrical

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Schedule Title : Starters -Two Speed - Dual Wound

Schedule Ref : 55-03
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switchgear	12M	Carry out maintenance procedures as per power contactors.	See Control Panels and Controllers (SFG 14).	Electrical
2	Interlocks	12M	Inspect and check both electrical and mechanical interlocks between 'high' and 'low' speed contactors.		Electrical
3	Timers	12M	Check and set.	Timers should be set between 'high to low' and 'low to high' operation to match the characteristics of the connected loads.	Electrical
4	Overloads	12M	Check both high and low overloads.	Overloads should be set to give the correct protection to the connected loads.	Electrical

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Schedule Title : Starters - Two Speed - Pole Change

Schedule Ref : 55-04
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switchgear	12M	Carry out maintenance procedures as per power contactors.	See Control Panels and Controllers (SFG 14).	Electrical
2	Interlocks	12M	Inspect and check both electrical and mechanical interlocks between the 'loop' and 'star' (high) contactors.		Electrical
3	Timers (if fitted)	12M	Check and set.	Timers should be set between the 'high to low' and 'low to high' operation to match the characteristics of the connected loads.	Electrical
4	Overloads	12M	Check both high and low overloads.	Overloads should be set to give the correct protection to the connected loads.	Electrical

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Schedule Title : Starters - Reversing

Schedule Ref : 55-05
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switchgear	12M	Carry out maintenance procedures as per power contactors.	See Control Panels and Controllers (SFG 14).	Electrical
2	Interlocks	12M	Inspect and check both electrical and mechanical interlocks between the 'forward' and 'reverse' starters.		Electrical
3	Timers (if fitted)	12M	Check and adjust between the two modes of operation to suit the application.	Inspect and check that the drive is operating in the correct directions.	Electrical
4	Overloads	12M	Check both high and low overloads.	Overloads should be set to give the correct protection to the connected loads.	Electrical

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Schedule Title : Starters - Autotransformer

Schedule Ref : 55-06
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS

Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switchgear	12M	Carry out maintenance procedures as per power contactors.	See Control Panels and Controllers (SFG 14).	Electrical
2	Interlocks	12M	Inspect and check both electrical and mechanical interlocks between the main transformer load, the load and the transformer by-pass contactors.		Electrical
3	Timers (if fitted)	12M	Check and adjust the timer setting between the transformer load and by-pass contactors to suit the connected load.		Electrical
4	Overloads	12M	Check both high and low overloads.	Overloads should be set to give the correct protection to the connected loads.	Electrical
5	Transformer	12M	Inspect and check for signs of overheating.		Electrical

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Schedule Title : Starters - Quick Transition Electric Heater

Schedule Ref : 55-07
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (30 mins)				
1 2 3 4 6 7				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switchgear	12M	Carry out maintenance procedures as per power contactors.	See Control Panels and Controllers (SFG 14).	Electrical
2	Interlocks	12M	Inspect and check both electrical and mechanical interlocks between the main run and transition contactors.		Electrical
3	Sequence Timers	12M	Check and adjust to suit the characteristics of the connected load.		Electrical
4	Overloads	12M	Check and set to give correct protection for the connected load.		Electrical
5	**Electric Heater Type**				
6	Electrical Connections	12M	Check.		Electrical
7	Heater Elements	12M	Inspect for signs of overheating or element breakdown.	Replace as necessary.	Electrical

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Schedule Title : Starters - Electrolyte Type

Schedule Ref : 55-08
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (15 mins)				
1 2				

ANNUAL TIMING (MINUTES)
15

SCHEDULE INTRODUCTIONS
Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Liquid level	12M	Check.		Electrical
2	Specific gravity	12M	Check against manufacturer's values.	Follow manufacturer's maintenance instructions.	Electrical

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Schedule Title : Starters - Air Break and Contactors

Schedule Ref : 55-09
Schedule Type : Core
Schedule Date : 10 Dec 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	12M (15 mins)			
	6 7 8 9 10 12 13 14 15 16 17 18			
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
75

SCHEDULE INTRODUCTIONS

Before carrying out any work on control panels, isolate mains supply at the distribution board.

Before carrying out any work on electrical equipment, check status and isolate in accordance with current HASAWA and Electricity at Work Regulations.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Switch contacts	3M	Examine for wear or overheating or burning. Renew as necessary.		Electrical
2	Latching contactors	3M	Check operation, adjust or renew worn parts as necessary.		Electrical
3	Arc chutes	3M	Clean insulation and renew any damaged parts.	Ensure arc chutes are precisely repositioned otherwise the moving parts of the contactor may be impeded and damage caused to the contacts, insulation and the chutes themselves.	Electrical
4	Auxiliary contacts	3M	Inspect for wear and correct operation. Renew or adjust as necessary.		Electrical
5	Push button contacts	3M	Inspect and renew any worn points.		Electrical
6	Enclosure	12M	Clean and remove any dirt or dust.	Use cloth free from loose fibres.	Electrical
7	Insulation	12M	Inspect for signs of tracking, blistering or delamination.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			Renew where necessary.		
8	Condition	12M	Inspect for corrosion, overheating or obstruction.		Electrical
9	Operating magnet	12M	Check for movement, clean dirt from pole faces.	If equipment noisy, check shading coils or rings for damage and renew parts as necessary.	Electrical
10	Resistance units incorporated in stator/rotor starters	12M	Clean and examine for connections.	If wear is evident, renew that part of the resistance.	Electrical
11	**Time Delay and Overload Devices**				
12	Thermal	12M	Check correct settings.	Renew to manufacturer's instructions.	Electrical
13	Oil Dashpot	12M	If oil is cloudy or sludge has formed, clean out dashpot with solvent and refill.	Refill with oil in accordance with manufacturer's recommendations.	Electrical
14	Air Dashpot (diaphragm or piston type)	12M	Check that air seals are intact. Renew unit if leaks are evident.		Electrical
15	Magnetic	12M	Check for free movement, if the magnetic spacer is damaged or excessively worn, renew.		Electrical
16	Fuses (if fitted)	12M	Check for correct rating and type.	e.g. check that rewirable fuses have not been installed in the carriers designed for cartridge fuses.	Electrical
17	Prior to return to service	12M	Carry out insulation test and carry out operational check.		Electrical
18	After return to service	12M	Check that any meters and indicator lights fitted function correctly.		Electrical

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Schedule Title : Introductory Procedures - Storage Tanks

Schedule Ref : 56-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Approved Code of Practice - Legionnaires Disease

The control of legionella bacteria in water systems: Approved Code of Practice, L8, sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The L8 has a special legal status, Part 1 being regulatory and Part 2 guidance which has been replaced by a separate Technical Guidance publication, HSG274 parts 1, 2 and 3.

The client must ensure that one person of adequate status is appointed as being responsible for overseeing the assessment and implementation of the precautions. Responsibility and lines of communication must be properly defined and personnel must be properly trained.

For guidance refer to 'Safe Work in Confined Spaces' - Approved Code of Practice, regulations and guidance.

Whilst legionella bacteria are most active in the temperature range 20°C to 45°C, occasions can occur where growth is promoted even in cold water systems. This can arise where the local temperature is raised by:

a) heat build-up due to solar gain or the proximity to hot water services, or
b) the storage capacity is far greater than is necessary. In general terms the storage capacity should not exceed one day's usage.
c) seasonal variations. In the summertime it is not unusual to have incoming mains supplies exceeding 20°C. When this occurs the systems should be reassessed with the likely outcome of increasing regular flushing to these outlets in a safe manner with minimal aerosolisation.

Cleanliness of the system is of primary importance to ensure that the legionella bacteria do not have any nutrients for growth and survival. Such nutrients can come from vegetable, animal and even mineral substances and it is for this reason that storage cisterns must be free from rust, dust, slime, mould, fungi and such items as dead birds, rats, mice, insects etc. and that non-metallic materials satisfy the requirements of current British Standards. Lists of materials approved by the water industry (WRAS) are published in the Water Fittings and Materials Directory (see Standards List). All new and replacement water fittings must satisfy current Water Supply (water fittings) Regulations requirements and be listed in the WRAS directory (WRAS Simple Steps to Approval).

Cleansing of tanks, cisterns and associated pipework must be followed by full disinfection in accordance with the procedures laid down in current British Standards and as per chemical manufacturer's specification.

Cisterns must have close fitting lids, which should not be of timber or other porous materials. Lids must have vent pipes of adequate cross section to prevent suction developing on water draw off. All vent pipes and overflows must be fitted with close mesh to prevent the ingress of foreign matter. These must be checked annually and cleaned if necessary.

The pipework system must be free of any points where pockets of dirt, slime or sediment can build up.

The need for full disinfection of Cisterns and associated down services is outlined in HSE's L8 Guidance and HSG274 part 2.

WARNING: Subject to age, there are still many items lagged with Asbestos, if uncertain - STOP WORK. A Certified Test Result MUST be obtained prior to consideration to proceed.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Cold Water Storage Tanks and Cisterns

Schedule Ref : 56-02
Schedule Type : Core
Schedule Date : 06 Apr 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	6M (20 mins)	12M (45 mins)		
	3 4 5 6 7 8	9 10 11 12 13 14		
1 2				

ANNUAL TIMING (MINUTES)
145

SCHEDULE INTRODUCTIONS

Approved Code of Practice - Legionnaires disease

The control of legionella bacteria in water systems: Approved Code of Practice, L8, sets out certain statutory requirements. In particular each water system must be identified and assessed for legionellosis risk. Once a risk has been identified and assessed a scheme must be prepared for preventing or controlling it, precautions implemented and managed records kept. The L8 has a special legal status, Part 1 being regulatory and Part 2 guidance which has been replaced by a separate Technical Guidance publication, HSG274 parts 1, 2 and 3.

The client must ensure that one person of adequate status is appointed as being responsible for overseeing the assessment and implementation of the precautions. Responsibility and lines of communication must be properly defined and personnel must be properly trained.

For guidance refer to 'Safe Work in Confined Spaces' - Approved Code of Practice, regulations and guidance.

Whilst legionella bacteria are most active in the temperature range 20°C to 45°C, occasions can occur where growth is promoted even in cold water systems. This can arise where the local temperature is raised by:

a) heat build-up due to solar gain or the proximity to hot water services, or
b) the storage capacity is far greater than is necessary. In general terms the storage capacity should not exceed one day's usage.
c) seasonal variations. In the summertime it is not unusual to have incoming mains supplies exceeding 20°C. When this occurs the systems should be reassessed with the likely outcome of increasing regular flushing to these outlets in a safe manner with minimal aerosolisation.

Cleanliness of the system is of primary importance to ensure that the legionella bacteria do not have any nutrients for growth and survival. Such nutrients can come from vegetable, animal and even mineral substances and it is for this reason that storage cisterns must be free from rust, dust, slime, mould, fungi and such items as dead birds, rats, mice, insects etc. and that non-metallic materials satisfy the requirements of British Standards. Lists of materials approved by the water industry (WRAS) are published in the Water Fittings and Materials Directory (see Standards List). All new and replacement water fittings must satisfy current Water Supply (water fittings) Regulations requirements and be listed in the WRAS directory (WRAS Simple Steps to Approval).

Cleansing of tanks, cisterns and associated pipework must be followed by full disinfection in accordance with the procedures laid down in current British Standards and as per chemical manufacturer's specification.

Cisterns must have close fitting lids, which should not be of timber or other porous materials. Lids must have vent pipes of adequate cross section to prevent suction developing on water draw off. All vent pipes and overflows must be fitted with close mesh to prevent the ingress of foreign matter. These must be checked annually and cleaned if necessary.

The pipework system must be free of any points where pockets of dirt, slime or sediment can build up.

The need for full disinfection of Cisterns and associated down services is outlined in HSE's L8 Guidance and HSG274 part 2.

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WARNING: Subject to age, there are still many items lagged with Asbestos, if uncertain - STOP WORK. A Certified Test Result MUST be obtained prior to consideration to proceed.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	General	3M	Check for adequate water level and, where provided, check tank warning pipe for signs of discharge. Inspect tank for evidence of leaks and corrosion.		M&E
2	Float operated ball valve	3M	Check operation, water level and shut off. Replace washer and/or defective parts if necessary. Check float for leakage and security.		Mechanical
3	Level control switches (if fitted)	6M	Check for scale deposits, clean as necessary and check function and operation of level switches, by simulating water level condition, ensure correct operation of associated plant.	For specialist maintenance of level control switches see Switches (SFG 58).	Mechanical
4	Cistern or tank body	6M	Check for leaks and any structural weaknesses.	Ensure that any brackets, etc. supporting the tank are firmly fixed.	Mechanical
5	Valves	6M	Note settings of tank valves (excluding DRV's). Check, rotate handwheel sufficiently to indicate that wedge is not seized in closed position nor jammed in open position. If normally open, close valve and reopen. When fully open, close valve ½ turn to ensure valve does not jam.	Ensure that any insulation or trace heating cable removed during inspection is replaced or frost damage could ensue. See Valves (SFG 61).	Mechanical
6	Air vents and overflow screens	6M	Check tank air vents are clean and unobstructed, where filters are provided remove, clean and/or replace as found necessary.	Clean when necessary. Report if replacement needed.	Mechanical
7	Insulation	6M	Check condition and replace if necessary.	Look for any damp patches, if necessary removing insulation to find cause.	Mechanical
8	Temperature Monitoring	6M	Check and record in logbook for water hygiene the incoming feed to the cistern storage at the ball valve and remote from the ball valve (that is farthest away from the incoming supply within the cistern) once in the summer and once in the winter.	Ensure temperature at ball valve is less than 3°C of the incoming supply to the building and similarly storage is less than 3°C from ball valve. Note maximum temperatures recorded by fixed max/min thermometers where fitted.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	Manlid and access covers	12M	Check condition of seals. Check lids, inspection cover(s) etc. can be correctly located and made secure.	If lid has been removed for inspection purposes ensure seals are effective.	Mechanical
10	Cistern or Tanks	12M	All cold water storage cisterns and cold feed cisterns must be examined at least annually, paying particular attention to the presence of foreign objects, biological material and excessive corrosion. Check the inside of the cistern/tank for structural integrity to ensure any structural members are in place and not corroding or are damaged. On completion of the examinations, the cisterns should be cleaned, if required, and any remedial work carried out. Before the cisterns and system are put back into use, they should be disinfected in accordance with British Standards. Carry out full biological testing of water and report. Check atmosphere within tank prior to entry.	Check overflow and warning pipes are unobstructed, sized correctly and that the ends are conspicuous and well above the flood over level of a gully and conform to the water regulations. If any remedial work needs to be carried out, advise client. If painting is required, any paint should be non-toxic and current WRC Water Byelaws Scheme/Water Supply (water fittings) Regulations WRAS approved. SEE HTM 04-01 Part A chapter 17. All cisterns should be internally cleaned to remove all visible dirt and debris. Cisterns and distributing pipework should be drained, filled with fresh water and then drained completely. The cisterns should then be refilled and the supply servicing valves closed. On re-fitting it is normal practice to add high doses of sodium hypochlorite to the water in the cisterns, for example to give a calculated chlorine concentration of 50 ± 10 mg/L (ppm) in the water, and leave the water to stand for one hour. Whatever disinfection method is used, the concentration should be adjusted if necessary. The use of a high dose ensures an adequate residual concentration to allow proper disinfection of the downstream services. Each tap or fitting should then be opened, progressively away from the cisterns, and water discharged until the disinfectant is detected. Each tap or fitting should then be closed, and the cistern and pipes left charged for a further hour. The tap(s) furthermost from the	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				cisterns should be opened, and the level of disinfectant in the water discharged from the taps measured. If the levels set are not achieved, the disinfection process should be repeated.	
11	Tanking	12M	Ensure drains are clear and check condition.	Check thoroughly for potential leakage. Report to client.	Mechanical
12	Associated pipework	12M	Check condition and rectify any faults.	Examine for corrosion, leaks and security of fittings and attachments.	Mechanical
13	Generally	12M	Check that all items of equipment comply with Legislation and guidance (L8), HTM 04-01 (NHS), WRAS the Water Supply (water fittings) Regulations.	Report to client where remedial action is required.	Mechanical
14	Earthing and bonding	12M	Where pipework, fittings or appliances are to be replaced, continuity of earthing and equipotential bonding shall be maintained. Where pipework has been used for earthing, alternative earthing arrangements shall be made in accordance with current British Standards by a competent person. Where there is no evidence of main equipotential bonding, which may be required, the installer should inform the responsible person that any bonding should be checked and remedied where necessary by a competent person.		M&E

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems
http://www.legislation.gov.uk/all?title=Water%20Supply%20%28Water%20Fittings%29%20Regulations%20 Water Supply (Water Fittings) Regulations 1999
http://shop.bsigroup.com/ProductDetail/?pid=000000000030200074 BS EN 806-5:2012 Specifications for installations inside buildings conveying water for human consumption. Operation and Maintenance

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Schedule Title : Ice Storage Systems

Schedule Ref : 56-03
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (10 mins)	3M (5 mins)	6M (30 mins)		
2	3	4 5 6 7 9 10 12 13 14 15		

ANNUAL TIMING (MINUTES)
200

SCHEDULE INTRODUCTIONS

Further guidance available in CIBSE Technical Memorandum for Ice Storage.

Air conditioning systems incorporating ice storage can need less general maintenance than conventional systems. However, they normally have heat exchangers and some additional instrumentation (flow meters etc.) and controls requiring maintenance. The tasks below should be supplemented by those given from the specific manufacturer/supplier of the store and the complexity of the particular system.

Care should be taken to prevent a control malfunction that would allow a total 'freeze solid' condition to occur at the ice store. Primary to secondary heat exchangers should be thoroughly tested especially in respect of low-temperature protection of secondary circuits.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Secondary Coolant Circuit**				
2	Glycol/Brine concentration	1M	Check percentage of glycol concentration in circuit.	Correct as necessary. If checks show continual need for topping up specific gravity, examine system for leaks.	Mechanical
3	Set points	3M	Check control set points for correct values and operation.		Mechanical
4	Valves	6M	Check operation of all isolating and control valves.	See Valves (SFG 61 and 62).	Mechanical
5	Coolant flow rates	6M	Check and log flow rates and pressure drops at appropriate loads and conditions and check against commissioning data.		Mechanical
6	Circulating pumps	6M	Check operation of pumps.	Take account of density of the secondary coolant. See Pumps (SFG 45).	Mechanical
7	Flow and return temperatures	6M	Check that the flow and return temperatures across the ice store are being achieved in both		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			ice charge and discharge modes.		
8	**Ice Store**				
9	Water level	6M	Check correct level of water in storage container.		Mechanical
10	Inventory device	6M	Check ice inventory device is correctly calibrated and operating to ensure correct glycol concentration levels.		Mechanical
11	**General**				
12	BMS	6M	Check that all temperatures, pressures, flow rates etc. are being received.	Check sensors for any not working.	Mechanical
13	Insulation and vapour barrier	6M	Check all insulation is in place.	Check to ensure the full record of operating conditions over a period of time is being saved.	Mechanical
14	System pressurisation unit (if used)	6M	Check operation.	Should any pipework be removed during maintenance and/or repairs, ensure that it is reinstated paying special attention to the quality of the vapour sealing. The system will need to be dried out prior to being reinsulated to avoid sealing in moisture which could corrode pipework.	Mechanical
15	Tank shut off unit (if fitted)	6M	Check operation.		Mechanical

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Schedule Title : Storage Tanks - Liquefied Petroleum Gas (LPG)

Schedule Ref : 56-04
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (25 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
25

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Under pressure valve	12M	Check normal position.	Condition of tanks is the responsibility of the gas supplier who will also check safety protection.	Gas Safe
2	Over pressure valve	12M	Check normal position.		Gas Safe
3	Pressure regulating valves	12M	Check action.		Gas Safe
4	Shut valve	12M	Check action.		Gas Safe
5	Valves on Multi Cylinder Installation	12M	Check change over.		Gas Safe

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/2776/contents/made Dangerous Substances & Explosive Atmospheres Regulation (DSEAR) 2002 HSE L136
http://www.legislation.gov.uk/uksi/1998/2451/contents/made Gas Safety (Installation & Use) Regulations 1998 (GSIUR)
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000
http://www.legislation.gov.uk/uksi/1998/2306/contents/made Provision and Use of Work Equipment Regulations 1998 (PUWER)

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Schedule Title : Storage Tanks - Oil

Schedule Ref : 56-05
Schedule Type : Core
Schedule Date : 06 Apr 2016
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	12M (30 mins)	60M	Not Specified	
3 4 5 6 7 8 9 10 11 12 13 14	15 16	17	2 19	

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS

The Control of Pollution (Oil Storage) (England) Regulations set minimum standards. They do not change other legislation under which it is an offence to cause water pollution. Variations in local conditions may mean more stringent standards are needed to prevent pollution.

If there is a spill, immediate action must be taken to stop the oil getting into any drains or watercourses. Soak up the spilt oil with the contents of the spill kit in accordance with the risk assessment. Don't hose the spillage down or use any detergents to try to get rid of it. Notify the Environment Agency by calling their Emergency Hotline.

If oil soaks into the ground, the soil soaked in oil should be removed, by a specialist company. Store any materials that are soaked in oil in containers that won't let the oil run away until it can be correctly and legally disposed of.

In addition to the tasks there are daily and weekly operational tasks to be carried out including visual checks of the oil tanks, pipework and bund. Please also see the section below (Bund - 3 monthly) which refers to the removal of rain water. This must be done every time there has been heavy rainfall.

Refer to the current Control of Substances Hazardous to Health (COSHH) Regulations. Staff to be competent and fully trained in COSHH. Risk Assessment/Method Statement requirements must be carried out before the work starts and a method statement produced.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Bulk Oil Storage (Heavy and Medium Oils)**				
2	Bulk Oil Storage (Heavy and Medium Oils)		If there is a spill, immediate action must be taken to stop the oil getting into any drains or watercourses. Soak up the spilt oil with the contents of the spill kit in accordance with the risk assessment. Don't hose the spillage down or use any detergents to try to get rid of it. Notify the Environment Agency by calling their Emergency Hotline.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
3	Tank, Bund and Surrounding Area	3M	Look for leakage and spillage from the tank resulting from filling or failure of tank soundness.	Report to client.	Mechanical
4	Strainer Basket(s)	3M	Remove and clean.		Mechanical
5	Balloon Vent	3M	In addition to the tasks there are daily and weekly operational tasks to be carried out including visual checks of the oil tanks, pipework and bund. Please also see the section below (Bund - 3 Monthly) which refers to the removal of rain water. This must be done every time there has been heavy rainfall.		Mechanical
6	Sludge Valve/Cocks	3M	Check operation and freedom of movement. Moving parts should be lightly oiled or greased.	If opened, Waste Disposal Regulations apply.	Mechanical
7	Outflow Heater(s)	3M	Refer to the Control of Substances Hazardous to Health (COSHH) Regulations. Staff to be competent and fully trained in COSHH. Risk Assessment/Method Statement requirements must be carried out before the work starts and a method statement produced.		Mechanical
8	Oil Log	3M	Check and log oil level. Log also any inspections, any repair work on the tanks and who has done the works.		Mechanical
9	Contents Gauge	3M	Dip tank to ensure gauge is working.		Mechanical
10	Valves and Pipework - 3 Monthly	3M	Check valves are locked. Check the hand wheels have not been removed (vandalism/theft). Pipework should be checked for leaks, corrosion, missing brackets etc. Check any trace heating and insulation is in place and working where appropriate.		Mechanical
11	Notices	3M	Check that the notice showing the product type, tank capacity and, where appropriate, tank number is clearly visible – clean or replace as necessary. Check all notices are clearly		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			visible and warn that all valves must be locked when not in use.		
12	Bund - 3 Monthly	3M	Bunds should be inspected regularly for signs of damage, e.g. missing bricks in walls and water in the bund. Inspect closely where any draw off/feed lines pass through the bund wall to ensure it remains fully sealed to retain oil. Check that any trigger guns and hoses are being kept within the bund or the secure cabinet, which should be locked shut when not in use.	Checked visually by the operator at least weekly or after any heavy rainfall. Open bund - check the bund after heavy rainfall. If there's no rainwater in the bund, it might not be sealed properly and you should have it inspected and repaired. Where rain water has collected in the bund, it will reduce the amount of oil it can contain. To remove accumulated rainwater, use a manually operated pump or by bailing from the sump. Any accumulated water, oil or debris should be removed and disposed of in line with waste management legislation. In all cases where wastes are removed, as the waste producer, you are obliged under Waste management, the Duty of Care, a code of practice to describe the waste accurately and dispose of it properly. Guidance on the disposal of condensate and bund water (Joint OFTEC/WaterUK/Environment Agency/ SEPA publication).	Mechanical
13	Overfill Prevention Devices	3M	Check that the device sounds the alarm, shows the visual warning or automatically stops the delivery – whatever applies.		Mechanical
14	Fill Points	3M	Check that the lockable fill cap and chain are in place and work. Clean the fill point drip tray.		Mechanical
15	Bund - 12 Monthly	12M	A more detailed annual check is required by a trained operator e.g. in the OFTEC registered scheme.		Specialist
16	Valves and Pipework - 12 Monthly	12M	Note settings of valves and take through total travel, returning to correct settings. Lock or remove hand wheel as appropriate.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Pipework should be checked for leaks, corrosion, missing brackets etc.		
17	Tank	60M	60M Bulk Oil Storage (Heavy Oil). Clean tank externally, derust and paint, as found necessary. Place 'No Smoking' signs, drain tank, open manholes and vent tank. Refer to Permit to Work and Safe Systems of Work before entering tank, internally inspect, clean and repair as found necessary.Check the inside of the tank for structural integrity to ensure any structural members are in place and not corroding or are damaged. Report condition before placing tank back on-line. After maintenance inspection, close all manholes and covers, recharge tank and check for leaks. Clean down exterior of outdoor tanks and repaint with bituminous paint. Inspect condition of any fixed ladders, handrails and catwalks. Check all fixings for security.		Specialist
18	**Daily (Small) Oil Storage**				
19	Daily (Small) Oil Storage		All tasks and frequencies are the same as for Bulk Oil Storage (Heavy and Medium Oils), as detailed above, without the task for 'Outflow Heaters'.		Mechanical

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Schedule Title : Underground Oil Storage Tanks

Schedule Ref : 56-06
Schedule Type : Core
Schedule Date : 23 May 2016
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
2M (120 mins)	3M (25 mins)	12M (120 mins)	36M (30 mins)	
16	8 13	17	18	
	1 2 3 4 5 6 7 9 10 11 12	14		

ANNUAL TIMING (MINUTES)
940

SCHEDULE INTRODUCTIONS

The Control of Pollution (Oil Storage) (England) Regulations and Groundwater Protection Code: Petrol stations and other fuel dispensing facilities involving underground storage tanks set minimum standards. They do not change other legislation under which it is an offence to cause water pollution. Variations in local conditions may mean more stringent standards are needed to prevent pollution.

If there is a spill, immediate action must be taken to stop the oil getting into any drains or watercourses. Soak up the spilt oil with the contents of the spill kit in accordance with the risk assessment. Don't hose the spillage down or use any detergents to try to get rid of it. Notify the Environment Agency by calling their Emergency Hotline.

If oil soaks into the ground, the soil soaked in oil should be removed, by a specialist company. Store any materials that are soaked in oil in containers that won't let the oil run away until it can be correctly and legally disposed of.

In addition to the tasks there are daily and weekly operational tasks to be carried out including visual checks of the oil tanks and pipework.

Refer to the current Control of Substances Hazardous to Health (COSHH) Regulations. Staff to be competent and fully trained in COSHH. Risk Assessment / Method Statement requirements must be carried out before the work starts and a method statement produced.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Tank, bund and surrounding area	3M	Look for leakage and spillage from the tank resulting from filling or failure of tank soundness.	Report to client.	Mechanical
2	Strainer basket(s)	3M	Remove and clean.		Mechanical
3	Balloon Vent	3M	Ensure that the vent is clear and free from obstruction.		Mechanical
4	Sludge valve/cocks	3M	Check operation and freedom of movement. Moving parts should be lightly oiled or greased.	If opened, Waste Disposal Regulations apply.	Mechanical
5	Outflow heater(s)	3M	Ensure that all electrical	If opened, Waste Disposal	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			connections remain clean, tight and dry. Check for liquid leakage around bolt-to-tank joint and element sheaths. When a drain connection is provided loosen drain valve and check for sludge build-up. If this is excessive, isolate heater and drain off quantity of sludge.	Regulations apply.	
6	Oil log	3M	Check and log oil level. Log also any inspections, any repair work on the tanks and who has done the works.		Mechanical
7	Contents Gauge	3M	Dip tank to ensure gauge is working and accurate.		Mechanical
8	Water detection	3M	Use a suitable paste on the dip stick/line and check for water.	Remove water and increase frequency of checks to ensure there is no leakage into the tank.	Mechanical
9	Valves and pipework - 3 Monthly	3M	Check valves are locked and that their hand wheels have not been removed (vandalism/theft). Pipework should be checked for leaks, corrosion, missing brackets etc. Check any trace heating and insulation is in place and working where appropriate.		Mechanical
10	Notices	3M	Check that the notice showing the product type, tank capacity and, where appropriate, tank number is clearly visible. Clean or replace as necessary. Check all notices are clearly visible warning that all valves must be locked when not in use.		Mechanical
11	Overfill prevention devices	3M	Check that the device sounds the alarm and shows the visual warning or automatically stops the delivery, whichever applies.		Mechanical
12	Fill points	3M	Check that the lockable fill cap and chain are in place and work. Clean the fill point drip tray.		Mechanical
13	Leakage detection	3M	Check that the system is operating correctly as per manufacturer's guidelines.	In addition to these tasks there are daily and weekly operational tasks to be carried out to check leakage detection.	Mechanical
14	Valves and pipework - 12 Monthly	12M	Note settings of valves and take through total travel, returning to correct settings. Lock or remove hand wheel as appropriate. Pipework should be checked for leaks, corrosion, missing brackets etc.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
15	**Cathodic protection devices**				
16	Impressed current	2M	Check condition and record results.	The results of the last three tests must be retained on site.	Specialist
17	Soil condition checks	12M	Check soil conditions in terms of moisture content, electrical conductivity, pH, sulphide concentration and chloride concentration.	Usually the corrosion of buried steel occurs as a result of electrochemical reactions with constituents of the enclosing soils. In order to assess the risk of corrosion failure, it is necessary to ascertain soil conditions such as moisture content, electrical conductivity, pH, sulphide concentration and chloride concentration. This data, once collected, can be analysed using a standard method to determine the probability of a leak caused by corrosion, both at present and in the future. Assessment of corrosion probability will help to decide if urgent action is required e.g. the fitting of cathodic protection, tank lining or the replacement of a tank.	Specialist
18	Sacrificial anode	36M	Check condition and record results.	This must be checked within 6 months of any new installation or repair to the sacrificial anode system. The results of the last two tests must be retained on site.	Specialist

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2001/2954/contents/made Control of Pollution (Oil Storage) (England) Regulations 2001
http://www.legislation.gov.uk/all?title=The%20Environmental%20Permitting Environmental Permitting (England and Wales) (Amendment) Regulations 2010, 2011, 2012 and 2013

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Schedule Title : Storage Silo - Wood Chip / Pellets

Schedule Ref : 56-07
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (30 mins)				
2				
1 3				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS

There are several hazards in entering and working in a silo.

The main hazards include:

- difficult access and egress, which makes entrapment, escape and rescue more problematic
- being engulfed in a free flowing material if the chips/pellets have blocked and bridged
- the accumulation of vapours, gases or fumes
- lack of ventilation.

Some of these hazards may be introduced into the silo by the nature of the maintenance work (e.g. welding work or cleaning work with solvents) or by incoming services.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Silos and storage rooms	12M	Chip silos and storage rooms should be cleaned out at the end of each heating season to avoid accumulation of dust, bacteria and fungi.	Chip reception pits should be equipped with a ladder (set into the wall) to facilitate entry and egress.	Mechanical
2	Burn back control	12M	Check the burn back control device is in place and that the sensor/wax seal is operational. Check that the water supply pressure is correct (normally in excess of 1 bar).		Mechanical
3	Rubber mat	12M	In case of bulk-blown pellet deliveries, check that the rubber mat is in place and that there is at least a 20mm air gap from a wall opposite the inlet to the store.		Mechanical

SCHEDULE LEGISLATION

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http://www.legislation.gov.uk/uksi/1997/1713/contents/made Confined Spaces Regulations 1997
http://www.legislation.gov.uk/uksi/2002/2776/contents/made Dangerous Substances & Explosive Atmospheres Regulation (DSEAR) 2002 HSE L136
http://www.legislation.gov.uk/all?title=Equipment%20%26%20Protective%20Systems%20Intended%20For%20Use%20In%20Potentially%20Explosive%20Atmospheres%20Regulations%20 Equipment & Protective Systems Intended For Use In Potentially Explosive Atmospheres Regulations 1996 with 2001 and 2005 amendments

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Schedule Title : Storage Silo - Coal

Schedule Ref : 56-08
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
The burning of coal is a complex operation involving the storage and handling of solid material. Coal is abrasive and the wear and tear on mechanical plant considerable, hence regular maintenance is vital to ensure continuous working and a clean environment. A risk assessment and method statement must be undertaken before entering any confined space such as a hopper/silo to ensure that there is adequate ventilation and an absence of any fumes or flue gases. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	12M	Empty and check internal and external coatings.	If there are signs of deterioration consult the manufacturer.	Mechanical

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Schedule Title : On/Off Switching Devices

Schedule Ref : 58-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
2 3 4 5 7 8 9 11 12 13 14 16 17 18 19 21 22 23 24 26 27 28				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Thermostats**				
2	Location	12M	Check that thermostat is not affected by local heat sources.	For example thermostats may be situated above radiators, affected by direct sunlight or in cold draughts. Report to client if change of location is needed.	Electrical
3	Condition	12M	Clean and check operation including contacts.		Electrical
4	Setting	12M	Check and report to client if significant variation in set point is found.	Wrong settings can cause energy wastage. If manual or auto-reset provided check operation.	Electrical
5	Calibration	12M	Check against standard.		Electrical
6	**Humidistats**				
7	Location	12M	Check that humidistat is not affected by local heat sources.	For example humidistats may be situated near moisture or heat sources. Report to client if change of location needed.	Electrical
8	Condition	12M	Clean and check operation, including contacts.		Electrical
9	Setting	12M	Check and report to client if significant variation in set point is found.	If manual or auto-reset provided check operation.	Electrical
10	**Pressure Switches**				
11	Condition	12M	Clean and check operation.		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
12	Setting	12M	Check and report to client if significant variation in set point is found.		Electrical
13	Sampling lines	12M	Check for damage or obstruction.		Electrical
14	Calibration	12M	Check against standard.		Electrical
15	**Differential Pressure Switches**				
16	Condition	12M	Clean and check operation.		Electrical
17	Setting	12M	Check and report to client if significant variation in set point is found.		Electrical
18	Sampling lines	12M	Check for damage or obstruction.		Electrical
19	Calibration	12M	Check against standard.		Electrical
20	**Vane Operated Flow Switches**				
21	Condition	12M	Clean and check operation.		Electrical
22	Setting	12M	Check and report to client if significant variation in set point is found.		Electrical
23	Sampling lines	12M	Check for damage or obstruction.		Electrical
24	Calibration	12M	Check against standard.		Electrical
25	**Level Switches**				
26	Condition	12M	Clean and check operation.		Electrical
27	Setting	12M	Check and report to client if significant variation in set point is found.	If manual or auto-reset provided check operation.	Electrical
28	Calibration	12M	Check against standard.		Electrical

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Schedule Title : Control Relays

Schedule Ref : 58-02
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
2 3 4 5 6 8 9 10 12 13 15 16				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**General**				
2	Mechanical wear	12M	Inspect for excessive wear.		Electrical
3	Contacts	12M	Check for wear, redress or replace as required.		Electrical
4	Coil	12M	Inspect for signs of overheating and insulation breakdown.		Electrical
5	Electrical operation	12M	Operate relay and check for clean operation of each set of operations.		Electrical
6	Pole faces	12M	Clean if noisy operation of relay.		Electrical
7	**Plug-in Type**				
8	General maintenance	12M	Carry out as per instructions given above.		Electrical
9	Relay connection pins	12M	Inspect for signs of burning.	Replace relay if necessary.	Electrical
10	Base unit	12M	Inspect for signs of overheating or arcing.	Replace base unit if necessary.	Electrical
11	**Mercury Switches**				
12	Mercury bulbs	12M	Inspect and check mechanical and electrical operation.		Electrical
13	Connections to bulb assembly	12M	Inspect for wear, assembly, breakdown of insulation or fraying of connections.		Electrical
14	**Latch Type**				

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Display Order	Item	FQ	Action	Notes	Skilling
15	General maintenance	12M	Carry out as per instructions given in Control Panels & Controllers (SFG 14).		Electrical
16	Latched states	12M	Check the mechanical and electrical operation of both latched states.		Electrical

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Schedule Title : Automatic Transfer Switch

Schedule Ref : 58-03
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
1M	12M			
1 2	3 4 5 6 7 8 9 10 11			

SCHEDULE INTRODUCTIONS
TBC - 'Service Timings'. Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations. Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc. The method statement and accompanying risk assessment should be read, understood and implemented during this task. Make sure there is a safe system of works in place when undertaking this PPM. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational test	1M	Carry out an electrical operation test. This is a test with load transfer.		Electrical
2	Visual inspection - monthly	1M	Inspect the outside of the transfer switch for any indication of wear, excessive vibration, leakage, high temperature, contamination or other deterioration. Verify all external components are in place, firm, tightened and not excessively worn.		Electrical
3	Switch casing	12M	Exterior surfaces of the switch should be cleaned as long as care is taken to prevent liquid from entering external switches or the interior of the cabinet. Verify external operating mechanism is clean and relubricate if found dirty.		Electrical
4	Clean and inspect switch	12M	De-energize all sources, then brush and vacuum away any excessive dust accumulation. Remove the transfer switch barriers and check contact	Never use air to blow out dirt. Subjecting the TS unit to compressed air may have a detrimental effect by forcing dirt and debris into the switch	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			condition. Replace contacts when pitted or worn excessively. Reinstall the barriers carefully. Inspect all main arcing contacts for excessive erosion. Arcing contacts are intended to be sacrificial by nature. They take the brunt of the energy when making or breaking the load. Careful attention should be paid to these contacts. Inspect all main current-carrying contacts for pitting and discoloration due to excessive heat.	mechanism.	
5	Test and recalibrate all trip-sensing and time-delay functions	12M	Depending on the manufacturer, the steps required here will vary. The focus should be to verify and record what the current settings are and to ensure the current adjustments meet the customer's needs and expectations. If adjustments are necessary, the means to make and verify those adjustments need to be examined. For example, a voltage pick-up or dropout adjustment may require the use of a variable source such as a variable ac transformer. The stand-by engine can be a source of variable frequency etc. In any case, the manufacturer is your source for information concerning these adjustments.		Electrical
6	Switch lubrication	12M	Ensure the transfer switch has been properly lubricated and under normal operating conditions no further lubricating is required. Renew factory lubrication if the switch is subjected to severe dust or abnormal operating conditions. Relubricate the operator if TS coil is replaced.		Electrical
7	Visual inspection - 12 monthly	12M	Inspect for moisture or signs of previous wetness or dripping.		Electrical
8	Thermography/Infra-red scan and	12M	Inspect all insulating parts for cracks or discoloration due to		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	inspection		excessive heat. Part of any complete maintenance program is an infra -red scan. This work is done prior to maintenance with normal loads applied to the gear being scanned. The resultant report should define problem areas.		
9	Manual operation	12M	Manually operate the main transfer movement to check proper contact alignment, deflection, gap and wiping action.		Electrical
10	Cables	12M	Check all cable and control wire connections to the transfer switch control and sensing panel and other system components and tighten if necessary. Retighten to specification if any loose wiring found. Check wiring and connections are tight with no discoloration of metal, melted plastic and odour indicating excessive heat. Check for any deterioration of wiring insulation such as cuts and abrasions. Replace or repair any damaged wiring.		Electrical
11	Test on completion	12M	Re-energise the switchgear and conduct a test by simulating a normal source failure. Test all indicators (LEDs) and all remote control systems for operation.		Electrical

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Schedule Title : Automatic Transfer Switches & Change-Over Contactors

Schedule Ref : 58-03-S
Schedule Type : Custom
Schedule Date : 01 Jun 2016
Schedule Version : 1.1.0
Unit of Measure : Nr

TASK FREQUENCIES				
12M				
1 2 3 4 5 6 7 8 9 10 11				

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'.

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational test	12M	Carry out an electrical operation test. This is a test with load transfer.		Electrical
2	Visual inspection - monthly	12M	Inspect the outside of the transfer switch for any indication of wear, excessive vibration, leakage, high temperature, contamination or other deterioration. Verify all external components are in place, firm, tightened and not excessively worn.		Electrical
3	Switch casing	12M	Exterior surfaces of the switch should be cleaned as long as care is taken to prevent liquid from entering external switches or the interior of the cabinet. Verify external operating mechanism is clean and relubricate if found dirty.		Electrical
4	Clean and inspect switch	12M	De-energize all sources, then brush and vacuum away any excessive dust accumulation. Remove the transfer switch barriers and check contact	Never use air to blow out dirt. Subjecting the TS unit to compressed air may have a detrimental effect by forcing dirt and debris into the switch	Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
			condition. Replace contacts when pitted or worn excessively. Reinstall the barriers carefully. Inspect all main arcing contacts for excessive erosion. Arcing contacts are intended to be sacrificial by nature. They take the brunt of the energy when making or breaking the load. Careful attention should be paid to these contacts. Inspect all main current-carrying contacts for pitting and discoloration due to excessive heat.	mechanism.	
5	Test and recalibrate all trip-sensing and time-delay functions	12M	Depending on the manufacturer, the steps required here will vary. The focus should be to verify and record what the current settings are and to ensure the current adjustments meet the customer's needs and expectations. If adjustments are necessary, the means to make and verify those adjustments need to be examined. For example, a voltage pick-up or dropout adjustment may require the use of a variable source such as a variable ac transformer. The stand-by engine can be a source of variable frequency etc. In any case, the manufacturer is your source for information concerning these adjustments.		Electrical
6	Switch lubrication	12M	Ensure the transfer switch has been properly lubricated and under normal operating conditions no further lubricating is required. Renew factory lubrication if the switch is subjected to severe dust or abnormal operating conditions. Relubricate the operator if TS coil is replaced.		Electrical
7	Visual inspection - 12 monthly	12M	Inspect for moisture or signs of previous wetness or dripping.		Electrical
8	Thermography/Infra-red scan and	12M	Inspect all insulating parts for cracks or discoloration due to		Electrical

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Display Order	Item	FQ	Action	Notes	Skilling
	inspection		excessive heat. Part of any complete maintenance program is an infra -red scan. This work is done prior to maintenance with normal loads applied to the gear being scanned. The resultant report should define problem areas.		
9	Manual operation	12M	Manually operate the main transfer movement to check proper contact alignment, deflection, gap and wiping action.		Electrical
10	Cables	12M	Check all cable and control wire connections to the transfer switch control and sensing panel and other system components and tighten if necessary. Retighten to specification if any loose wiring found. Check wiring and connections are tight with no discoloration of metal, melted plastic and odour indicating excessive heat. Check for any deterioration of wiring insulation such as cuts and abrasions. Replace or repair any damaged wiring.		Electrical
11	Test on completion	12M	Re-energise the switchgear and conduct a test by simulating a normal source failure. Test all indicators (LEDs) and all remote control systems for operation.		Electrical

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Schedule Title : Terminal Units Vav - Self Powered

Schedule Ref : 59-01
Schedule Type : Core
Schedule Date : 05 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	6M (15 mins)			
1	2 3			

ANNUAL TIMING (MINUTES)
70

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment it may be necessary to increase the frequency of maintenance above that recommended in this specification.

Detailed maintenance of the associated controls is covered in Controls (SFG 14).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Unit filter	3M	Check condition and clean or change if necessary.	If unit filter is very dirty, check condition of main filter.	Mechanical
2	Thermostat	6M	Check operation.	Air volume will increase/decrease depending upon thermostat position. Ensure space temperature is within thermostat range when testing.	Mechanical
3	Bellows	6M	Where fitted, check condition of bellows and replace as necessary.		Mechanical

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Schedule Title : Terminal Units Vav - Fan Powered

Schedule Ref : 59-02
Schedule Type : Core
Schedule Date : 05 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
30

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment it may be necessary to increase the frequency of maintenance above that recommended in this specification.

Detailed maintenance of the associated controls is covered in Controls (SFG 14).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Fan motor	6M	Grease or oil bearings.	For further guidance on maintaining fan motors, see Motors - Drive Elements (SFG 39-01).	Mechanical
2	Dampers	6M	Check operation and lubricate linkages if necessary.	For further guidance on maintaining damper actuators see Actuators (SFG 01).	Mechanical
3	LPHW and CW coils	6M	Check operation and clean. Comb any fin damaged areas.		Mechanical
4	Controls	6M	Check operation.	Calibration, Interrogation, Control adjustment. For further guidance on maintaining controls see Control Panels & Controllers (SFG 14).	Mechanical
5	Reheaters	6M	Check operation and carry out routine maintenance.	For further guidance on maintaining the reheaters see Heat Exchangers (SFG 29-01 and 29-02).	Mechanical

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Schedule Title : Terminal Units Vav - Pneumatic Powered

Schedule Ref : 59-03
Schedule Type : Core
Schedule Date : 05 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (10 mins)	12M (20 mins)			
1	2 3 4 5 6 7 8 9			

ANNUAL TIMING (MINUTES)
60

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment it may be necessary to increase the frequency of maintenance above that recommended in this specification.

Detailed maintenance of the associated controls is covered in Controls (SFG 14).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Filter	3M	Clean or replace as necessary.	Frequency of cleaning will depend upon the environment in which the unit operates.	Mechanical
2	Access to units	12M	Remove access panels or ceiling tiles as appropriate.	Where units are ceiling mounted, cover any machinery/office equipment situated below the unit. Seek prior permission before switching off any equipment which is to be covered. Take care not to stain ceiling tiles.	Mechanical
3	Control System - Pneumatic	12M	Disconnect pneumatic control pipe and check unit motors to alternative setting.	This is for information only. For details of maintenance, see relevant section.	M&E
4	Control System - Electrical	12M	Disconnect electrical control and check unit motors to alternative setting. Reconnect.	This is for information only. For details of maintenance, see relevant section.	M&E
5	Air leaks	12M	Check and if found rectify.		Mechanical
6	Insulation	12M	Check condition and make good		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			as necessary.		
7	Actuator	12M	If visible, check for dirt, lightly oil mechanism as described in Actuators (SFG 01).		Mechanical
8	Unit thermostat	12M	Operate and check that VAV unit moves in relation to change in setting. Restore to original setting.		Mechanical
9	Diffusers	12M	Clean, taking care not to stain ceiling.		Mechanical

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Schedule Title : Terminal Units - Constant Volume including Mixing

Schedule Ref : 59-04
Schedule Type : Core
Schedule Date : 05 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (20 mins)				
1 2 3 4 5 6				

ANNUAL TIMING (MINUTES)
20

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment it may be necessary to increase the frequency of maintenance above that recommended in this specification.

Detailed maintenance of the associated controls is covered in Controls (SFG 14).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Units	12M	Check operation.		Mechanical
2	Pneumatic thermostats	12M	Check operation by moving set point. Restore to original setting.		Mechanical
3	Control dampers	12M	Check operation. For high velocity mixing box, change over dampers. Check seals.	For more information on damper maintenance see Ducting (SFG 16).	Mechanical
4	Air grilles	12M	Clean, taking care not to dirty surround.		Mechanical
5	Electrical connections of controls systems	12M	Check soundness of wires and contacts.		Mechanical
6	Filter	12M	Clean or replace as necessary.	In a dirty environment it may be necessary to clean/change the filter more frequently.	Mechanical

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Schedule Title : Terminal Units - Induction Units

Schedule Ref : 59-05
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (20 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
40

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build-up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment it may be necessary to increase the frequency of maintenance above that of what is recommended in this specification.

Detailed maintenance of the associated controls is covered in Control Panels & Controllers (SFG 14).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Secondary air filter	6M	Clean washable filter and retain for re-use.		Mechanical
2	Coil block (where fitted)	6M	Inspect for dirt and/or obstructions, cleaning where necessary. Check also for water leaks and rectify as necessary.		Mechanical
3	Primary air nozzles	6M	Check condition, cleaning if necessary by brushing.		Mechanical
4	Nozzle air pressure	6M	Check with manometer.	Compare with commissioning data and correct any deviations.	Mechanical
5	Damper and/or pneumatic valves	6M	Check correct functioning and rectify any defects.	For further guidance see Actuators - Pneumatic Actuators (SFG 01-04).	Mechanical
6	Chilled water/LPHW control valves	6M	Check functioning.	For detailed maintenance see Valves - Automatic Control (SFG 62).	Mechanical
7	Control thermostats	6M	Check operation.	Setting should be 19ºC heating and 24ºC cooling. For detailed maintenance	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				see Switches (SFG 58-01).	
8	Isolation valves	6M	Check for leaks and rectify as necessary.	For detailed maintenance see Valves - Automatic Control (SFG 62).	Mechanical
9	Unit	6M	Clean internally and externally. Refit secondary air inlet filter. Replace any casing which was removed.	Ensure filter is correctly seated to prevent air by-passing. Note any defects on report.	Mechanical

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Schedule Title : Terminal Units - Fan Coil

Schedule Ref : 59-06
Schedule Type : Core
Schedule Date : 05 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (25 mins)	12M (15 mins)			
1 2 3 4 5 6 7	8 9 10 11			

ANNUAL TIMING (MINUTES)
65

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment it may be necessary to increase the frequency of maintenance above that recommended in this specification.

Detailed maintenance of the associated controls is covered in Controls (SFG 14).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Status	6M	Switch off and isolate.	Electrical isolation should be carried out in accordance with HSE Guidance. Where units are ceiling mounted, cover any office machinery/equipment situated below unit being serviced.	Mechanical
2	Condensate drain connection and pump	6M	Check connection is clear. Ensure condensate lift pump is operational and able to discharge condensate to the drainage pipework.	The check should also ensure that the condensate drainage pipework has the correct fall to allow water to flow to the drainage stack	Mechanical
3	Permanent filters	6M	Clean and refit, ensuring proper location.	See Filters (SFG 21-02) with regard to safety instructions.	Mechanical
4	Disposable type filters	6M	Replace, ensuring proper location.	See Filters (SFG 21-02) with regard to safety and disposal procedures.	Mechanical
5	Test unit	6M	Restore power supply and run unit. Check airflow is normal at correct speed setting.		Mechanical
6	Casing	6M	Clean.	Where units are above false	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				ceilings ensure that tiles are not left in a stained condition.	
7	Chilled water/LPHW control valves	6M	Check functioning.	For detailed maintenance see Valves (SFG 62).	Mechanical
8	Ductwork flexible couplings (if fitted)	12M	Check condition. Repair/refix any ductwork to the spigots as necessary.		Mechanical
9	Grilles and diffusers	12M	Clean using vacuum or alternatively, remove and clean.	Care should be taken to avoid damage to diffuser ceiling lights or ceiling.	Mechanical
10	Strainers	12M	Inspect and clean strainers as necessary.	Report any build up of sludge/filing to the client.	Mechanical
11	Thermostats	12M	Check operation by moving set point. Restore to original setting.	For detailed maintenance see Switches (SFG 58-01).	Mechanical

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Schedule Title : Terminal Units - VRV Systems

Schedule Ref : 59-07
Schedule Type : Core
Schedule Date : 13 Jun 2016
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (180 mins)	6M (55 mins)	Not Specified		
		6 7 8		
2 3 9 10 11 12 13 16 17 18 19 20	5 14			

ANNUAL TIMING (MINUTES)
830

SCHEDULE INTRODUCTIONS

The term Terminal Units covers those items of equipment relating to the ingress of ventilating or conditioned air into the working environment. Operationally their effectiveness may be impaired by the build-up of dust and related deposits, whilst visually, dirt will arise from the atmosphere.

In a dirty environment, it may be necessary to increase the frequency of maintenance above that recommended in this specification.

Detailed maintenance of the associated controls is covered in Controls (SFG 14).

VRV Systems are very specialist and should not be treated as a standard split system. They are set up on commissioning and the set points should not be disturbed.

Where the installed power on the refrigeration system exceeds 25kW, a Written Scheme of Examination may be required to comply with the Pressure Systems Safety Regulations.

Service providers must be registered to an Approved Certified Scheme provider in accordance with current F-Gas Regulations.

The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals.

The table below sets out the following information:

- F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified.
- Maximum allowed interval between leaks checks for equipment that meets each threshold
- Quantities of commonly used HFC's equal to each threshold

Maximum interval between leak checks:

	CO2 (tonnes)	HFC 134A (kg)	HFC 410A (kg)	HFC 407C (kg)	HFC 404A (kg)	HFC 23	HFC 227ea
1 Year	5	3.5	2.4	2.8	1.27	0.3	1.6
6 Months	50	35	23.9	28.2	12.7	3.4	15.5
3 Months	500	350	239	282	127	34	155

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The person undertaking the leak test must determine whether the equipment is to be tested under task 7 or task 8 of this schedule depending on the refrigerant used in the system.

SCHEDULE TASKS

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Display Order	Item	FQ	Action	Notes	Skilling
1	**Outdoor Unit**				
2	Unit casings	3M	Check condition.		Mechanical
3	Coils	3M	Clean and remove any debris. Comb any damaged areas of fin.		Mechanical
4	**Leaks**				
5	Oil Leaks	6M	Check for oil leaks. Any leak of refrigerant should be dealt with immediately.		Mechanical
6	Refrigerant Leaks		Personnel carrying out leak checking, gas recovery or other refrigerant handling activities such as plant installation and maintenance must have a suitable refrigerant handling qualification. These works are covered under the current F-Gas regulations on fluorinated gases. ALWAYS UPDATE RECORDS.	Check for leaks should be part of the routine servicing by Refrigeration Engineers. Where a system has a refrigerant charge equivalent to or greater than 500 tonnes of CO2, an automatic leak detection system must be installed on the system to comply with the F-Gas Regulations.	Refrigeration Engineer
7	Refrigerant Leak Tests (HCFC Gases)		The equipment must be checked for leaks: • every 12 months if it's 'charged' with (contains) 3kg or more HCFCs and isn't hermetically sealed • every 12 months if it's charged with 6kg or more HCFCs and is hermetically sealed • every 6 months if it's charged with 30kg or more HCFCs • every 3 months, if it's charged with 300kg or more HCFCs	The use of HCFCs in new equipment was banned in 2001. From 1 January 2015 the use of 'recycled' and 'reclaimed' HCFCs to top-up or service existing equipment is also banned. Old equipment can still be used, but no work that involves breaking into the refrigerant circuits can be carried out. Any leaks found must be repaired within 14 days and the equipment checked again within 1 month to ensure the repair has been effective.	Refrigeration Engineer
8	Refrigerant Leak Tests (HFC Gases)		The equipment that contains an F-Gas above a certain threshold is to be checked for leaks at specific intervals. The thresholds at which leak check intervals are specified are expressed in terms of CO2 equivalent. They take into account both the quantity of F-Gas in the equipment and the global warming potential of the F-Gas (how much the F-Gas contributes to global warming).	If a system that automatically detects leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains F-Gas equivalent to 5 tonnes CO2 only requires testing once every 2 years if a leak detection system is installed. You can find out global warming potentials of other F-Gases in the List of F-Gases regulated by the EU and use global warming potentials to calculate the CO2 equivalent of a F-Gas on the	Refrigeration Engineer

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Display Order	Item	FQ	Action	Notes	Skilling
			The table detailed in the Schedule Introduction sets out the following information: • F-Gas thresholds, in tonnes CO2 equivalent, at which leak check intervals are specified. • Maximum allowed interval between leaks checks for equipment that meets each threshold • Quantities of commonly used HFC's equal to each threshold.	www.gov.uk web site. If a leak is found during a check, you must repair it and repeat the test within a month to check the repair worked.	
9	PCB's	3M	Check for damage.		Electrical
10	Electrical components	3M	Check condition.		Electrical
11	Sensors	3M	Check for contact and correct location.		Mechanical
12	Running currents and voltage	3M	Check and record.		Electrical
13	System neutral and earth connections	3M	Check power supply to unit and neutral and earth connections. Record.		Electrical
14	Compressors	6M	Carry out Service of the compressor.	For further guidance see Compressors - Refrigeration (SFG 12-01).	Mechanical
15	**Indoor Unit**				
16	Hand controllers	3M	Check function.	Run units on heating and cooling cycles if heat pumps. Replace batteries on remote control units as necessary.	Mechanical
17	Air filter and indoor coils	3M	Clean.	Air filters may initially require monthly cleaning dependant on location. For further guidance see Filters (SFG 21-02).	Mechanical
18	Drain lines	3M	Check for free running.		Mechanical
19	Electrical and data cable connections	3M	Check condition.		Electrical
20	Change over valves and refrigerant control devices	3M	Check action.	If a shortage of refrigerant is suspected all should be removed, any leaks rectified and the refrigerant change weighed in after calculation change using the Manufacturer's literature. This work must only be carried out by a service provider registered with an authorised scheme provider.	Mechanical

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SCHEDULE LEGISLATION
http://http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/uksi/2015/310/contents/made Fluorinated Greenhouse Gases Regulations 2015
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Chilled Beams

Schedule Ref : 59-08
Schedule Type : Core
Schedule Date : 05 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (25 mins)	Not Specified			
3 4 5 6 7 10 11 12 13	2 9			

ANNUAL TIMING (MINUTES)
25

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Active Chilled Beams**				
2	Active Chilled Beams			The frequency of cleaning will be driven by the environment in which the beams are installed and the filter level in the AHU and this should be reviewed on a site by site basis.	M&E
3	Cooling/Heating Coil	12M	Vacuum all dirt clear to ensure air has a free path through the exchanger for maximum performance. If the fins are damaged, comb back into shape.	Please ensure that when vacuuming the coil, care is taken not to damage the aluminium fins as this will affect the performance of the unit.	M&E
4	Air Connection Spigot	12M	Check the air connection spigot is secure.		M&E
5	Unit Diffuser	12M	Clean the unit with a cloth wetted with detergent diluted with water.		M&E
6	Control Valves	12M	Check the operation of both the cooling and heating (as applicable) control valves. Take note of any signs of leaking and correct and/or report as appropriate.		M&E
7	Hoses	12M	Check condition and report any signs of rusting or leakage.		M&E
8	**Passive Chilled Beams**				
9	Passive Chilled			The frequency of cleaning will be	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
	Beams			driven by the environment in which the beams are installed and this should be reviewed on a site by site basis.	
10	Cooling/Heating Coil	12M	Vacuum all dirt clear to ensure air has a free path through the exchanger for maximum performance. If the fins are damaged, comb back into shape.	Please ensure that when vacuuming the coil, care is taken not to damage the aluminium fins as this will affect the performance of the unit.	M&E
11	Unit Diffuser Panel	12M	Clean the unit with a cloth wetted with detergent diluted with water.		M&E
12	Control Valves	12M	Check the operation of both the cooling and heating control valves, as applicable. Take note of any signs of leaking and correct and/or report as appropriate.		M&E
13	Hoses	12M	Check condition and report any signs of rusting or leakage.		M&E

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Schedule Title : Vacuum Systems - General

Schedule Ref : 60-01
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (120 mins)				
1 3 4 5 6 7 9 10 11 12				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
In addition to routine maintenance, examinations of some pressure vessels are required under the Pressure Systems Safety Regulations. Also refer to Pipework Systems - Air Compressors and Receivers (SFG 40-08). Maintenance should only be carried out by competent persons. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Motors	12M	Follow procedure given for Motors - Drive Elements (SFG 39-01).		Specialist
2	**Air Systems - Cleaning**				
3	Fans	12M	Follow procedure given for Fans (SFG 20).	As used in centralised vacuum cleaning systems.	Specialist
4	Seals	12M	Examine condition and check for leaks.		Specialist
5	Clips	12M	Check security and operation.		Specialist
6	Filters	12M	Check condition and change as necessary. See Air Filters (SFG 21-02).		Specialist
7	Hose connections	12M	Check condition and replace as necessary.		Specialist
8	**Liquid Systems**				
9	Pumps	12M	Follow procedure given for Pumps (SFG 45).	As used for swimming and hydrotherapy pools.	Specialist
10	Seals	12M	Examine condition and check for leaks.		Specialist
11	Filters	12M	Check condition and change as necessary. See Filters (SFG 21).		Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
12	Hose connections	12M	Check condition and replace as necessary.		Specialist

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Schedule Title : Vacuum Tubes - Cash Handling

Schedule Ref : 60-02
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)	12M (120 mins)			
2 3 4 5 6 8 9 10 18 19 20	12 13 14 16			

ANNUAL TIMING (MINUTES)
240

SCHEDULE INTRODUCTIONS
In addition to routine maintenance, examinations of some pressure vessels are required under the Pressure Systems Safety Regulations. Also refer to Pipework Systems - Air Compressors and Receivers (SFG 40-08). Maintenance should be carried out by only competent persons. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Central Station**				
2	Operation of door, door handle and switch	6M	Check operation and security of lock. Check electrical and mechanical adjustment.		Specialist
3	Sliding air seals and door lock solenoid	6M	Check efficacy. Check electrical and mechanical adjustment.	If renewal indicated, report to client.	Specialist
4	Indicator lights, LEDs, etc., keyswitch, air-valve and seals	6M	Check function and replace as necessary. Check operation and condition.		Specialist
5	Tube switch (if fitted), fixing and tube joints	6M	Check operation. Check security of fixings and integrity of tube joints.		Specialist
6	Station	6M	Clean inside and outside.		Specialist
7	**Cash Box - Local Station**				
8	Door locks	6M	Check operation for easy movement.		Specialist
9	Door fittings	6M	Check condition and security of hinges, door bars and transparent screen.		Specialist
10	Foam pad, tube switch, fixings and local station	6M	Check condition. Check operation. Check security of		Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			fixings. Check inside and outside.		
11	**Blower**				
12	Flexible coupling, mountings and overload setting	12M	Check condition. Check security. Check setting and adjust if necessary.	Report to client if replacement required.	Specialist
13	Contactors	12M	Check operation and condition.	For more detailed information on the maintenance of contactors see Power Supplies - Power Distribution Unit (PDU) (SFG 44-05).	Specialist
14	Earth continuity	12M	Check.	For more detailed information on the maintenance of earthing electrical equipment see Power Supplies - Earthing (SFG 44-06).	Specialist
15	**Controller**				
16	Running time of capsule and relay on capsule	12M	Check condition.		Specialist
17	**General**				
18	Runs	6M	Check flight time of shortest and longest runs.		Specialist
19	Vacuum	6M	Check vacuum on close circuit.	Compare with manufacturer's recommendations and report to client if significant variation.	Specialist
20	System filters (if fitted), carrier capsule(s), carrier velcro and lids	6M	Check pull. Check condition.	For more detailed information on the maintenance of system filters see Air Filters (SFG 21-02).	Specialist

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Schedule Title : Valves - In General

Schedule Ref : 61-01
Schedule Type : Core
Schedule Date : 04 Aug 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (6 mins)	3M (6 mins)	6M (6 mins)	12M (6 mins)	
			28 31 37 38 39	
19 22 23	2 3 4 7 8 11 12 15 16 20 24 27	36	5 9 13 17 25 29 32 33 34 40 42	

ANNUAL TIMING (MINUTES)
114

SCHEDULE INTRODUCTIONS
When opening valves (especially steam valves etc.) they must be done in such a way as to avoid the chances of 'water hammer' occurring. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Gate Valves**				
2	Gate Valves	3M		Preventative maintenance on this type of valve is best obtained by daily checks on gland or stem leakage and repairing these as they occur.	Mechanical
3	Operational status	3M	Check by rotating handwheel sufficiently to indicate that wedge is not seized in closed position nor jammed in open position. If normally open, close valve and reopen. When fully open, close valve ½ turn to ensure valve does not jam.	Action depends upon whether valve is normally closed or normally open. If valve is normally open, check closure performance in the event that corrosive deposits prevent wedge seating.	Mechanical
4	Gland leakage	3M	Ensure correct packing material is used for the fluid in the pipeline.	After installation or replacement, check for gland leakage daily for one week. Early signs of slight leaks are due to 'bedding in' or drying out and are usually cured by tightening of gland nuts. Continuous leakage can lead to erosion or corrosion of the valve stem.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
5	Overall condition	12M	Inspect for external deterioration due to leaks at end flanges or aggressive environment.	Leakage from end flanges can be due to pipe strains, ground settlement, poor joints or pipe supports.	Mechanical
6	**Globe Valves**				
7	Operational status	3M	Check by rotating handwheel sufficiently to ensure freedom of movement. When fully open, close valve ½ turn to ensure valve does not jam.		Mechanical
8	Gland leakage	3M	Ensure correct packing material is used for the fluid in the pipeline.	After installation or replacement, check for gland leakage daily for one week. Early signs of slight leaks are due to 'bedding in' or drying out and are usually cured by tightening of gland nuts. Continuous leakage can lead to erosion or corrosion of the valve stem.	Mechanical
9	Overall condition	12M	Inspect for external deterioration due to leaks at end flanges or aggressive environment.	Leakage from end flanges can be due to pipe strains, ground settlement, poor joints or pipe supports.	Mechanical
10	**Lubricated Plug Valves**				
11	Operational status	3M	Check by partially rotating plug to ensure freedom of movement.	Inject correct compound as recommended by the manufacturer to maintain smooth operation.	Mechanical
12	Stem leakage	3M	If evidence of leakage, inject correct compound, simultaneously rotating plug.	After installation or overhaul, check daily for one week and then at three monthly intervals.	Mechanical
13	Overall condition	12M	Inspect for external deterioration due to leaks at end flanges or aggressive environment.	Leakage from end flanges can be due to pipe strains, ground settlement, poor joints or pipe supports.	Mechanical
14	**Butterfly Valves**				
15	Operational status	3M	Check by partially rotating disc to ensure freedom of movement.	Close valve (if system condition allows) and check seat tightness, this tests the condition of the elastomeric seal.	Mechanical
16	Stem leakage	3M	Check for freedom from dirt particles. Tighten gland if adjustable type, if not, replace proprietary seals (e.g. 'O' rings).	After installation or overhaul, check for stem leakage daily for the first week.	Mechanical
17	Overall condition	12M	Check for deterioration externally or aggressive environment.	Wafer pattern unlikely to have flange leakage, provided that flange bolting has been tightened evenly.	Mechanical
18	**Float Operated Valves**				

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Display Order	Item	FQ	Action	Notes	Skilling
19	Overall condition	1M	Check.		Mechanical
20	Operational status	3M	Check for drips from valve indicating leaking seat.	Depress float to flush seat. If leak persists, check seat for damage or replace washer.	Mechanical
21	**Parallel Slide Valves**				
22	Parallel Slide Valves	1M	See Notes.	It is recommended that these valves be operated over their full travel once every four weeks.	Mechanical
23	Body leakage	1M	Check for body/cover joint leakage and tighten nuts to stop.	As a matter of routine any visible signs of leakage should be reported to the site supervisor.	Mechanical
24	Operational status	3M	Valve normally closed, rotate handwheel to ensure freedom of movement. When fully open, close valve ½ turn to ensure valve does not jam.	Close valve (if system allows) to check seat tightness. If valve normally closed, drop differential pressure to 1 bar or less (if system allows) and partially rotate to check for freedom from galling seats.	Mechanical
25	Overall condition	12M	Inspect for external deterioration due to leaks at end flanges or aggressive environment.	Leakage from end flanges can be due to pipe strains, ground settlement, poor joints or poor pipe supports.	Mechanical
26	**Steam Safety Valves**				
27	Operational status	3M	Check by raising gagging lever to discharge steam or air. Release gagging lever to reseat. Check for dirt or damage.	Important: Great care must be exercised to avoid injury to personnel. Check that discharge is to free space or if piped, that pipe outlet is not directed to personnel. Check with insurance company for frequency of mandatory checks.	Mechanical
28	Inspection	12M	Strip down, overhaul and then rebuild to comply with the Competent Persons requirements under the Pressure Regulations and the written scheme of examination.	The Competent Person may require additional testing on completion of the rebuild.	Mechanical
29	Bursting discs (if fitted)	12M	Check condition, report.	The Competent Person should be contacted for the routine replacement frequency for the bursting discs.	Mechanical
30	**Steam Pressure Reducing Valves**				
31	Steam Pressure Reducing Valves	12M		The written scheme of examination may require the valves to be stripped down, overhauled and then rebuilt to comply with the Competent Persons requirements under the Pressure Regulations.	Mechanical
32	Main valve seat and	12M			Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	valve head		Isolate and reduce pressure to zero. Remove screen and clean, clean gasket faces and renew gasket.	The actual maintenance requirements may vary with the type of valve and the manufacturer's instructions should be followed carefully.	
33	Pilot valve chamber assembly	12M	Isolate and reduce air pressure to zero. Check dimensions of plunger gap and adjust if necessary.	The dimension of the plunger gap is critical and it may be necessary to grind or machine the top of the plunger.	Mechanical
34	Pilot and main diaphragms	12M	Thoroughly clean upper and lower diaphragm chambers, ensure contact faces are clean and reassemble.	When refitting diaphragms, make sure they are replaced the same way round as when they were removed.	Mechanical
35	**Boiler Valves**				
36	Water level gauge (sight glasses)	6M	Refit sight glass, repack cock plugs and check for ease of operation and isolation.	Aggressive site conditions may require increased frequency of these items. Gauge glasses should be regularly replaced before they break.	Mechanical
37	Boiler Valves	12M		The written scheme of examination may require the valves to be stripped down, overhauled and then rebuilt to comply with the Competent Persons requirements under the Pressure Regulation.	Mechanical
38	Safety valve	12M	Lap seats, inspect for corrosion, reset valve at correct set pressure and carry out accumulation test.		Mechanical
39	Main stop valve	12M	Lap seat, repack gland and lubricate spindle, checking for ease of operation.		Mechanical
40	Sequencing valve	12M	Clean and lap seats, check for ease of operation.	See also Boilers/Heat Generators (SFG 05-01) for safety valves.	Mechanical
41	**Radiator Valves TRV's**				
42	Radiator Valves TRVs.	12M	Check air temperature calibration against surface temperature of heat emitter. Advise client if air flow around sensor is restricted or effected by any reflected or other thermal gains.	Low temperature surfaces for heat emitters are desirable in homes for senior citizens/disabled.	Mechanical

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/uksi/2002/1267/contents/made Pressure Equipment Regulations 1999 and 2002 amendment
http://www.legislation.gov.uk/uksi/2000/128/contents/made Pressure Systems Safety Regulations 2000

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Schedule Title : Tap and Outlet Fittings

Schedule Ref : 61-02
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (3 mins)				
2 3 4 6 7 8				

ANNUAL TIMING (MINUTES)
3

SCHEDULE INTRODUCTIONS

A large range of outlet fittings suitable for high and low pressure supplies are fitted in this country, most requiring little or no regular maintenance except for the replacement of leaking washers, ceramic disc cartridges or the repacking of spindle glands which should be done if warranted.

Other fittings which are available with a variety of special outlets, aerators, ball outlet joints, flow straightens, flexible hoses, jet sprays, hand sprays, time delays, dechlorinators, filters and the like, should be checked and cleaned in accordance with the manufacturer's instructions, using the manufacturer's recommended spares.

Special care against damaging finishes should be taken with all terminal fittings, especially where gold plating or powder coating has been used.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Stop Cocks and Stop Taps**				
2	Operational status	12M	Operate head to ensure the stop cock or tap is operating correctly. If normally open, close, check that the flow of fluid stops and then re-open. When fully open, close valve ½ turn to ensure valve does not jam.	Clean exposed stem prior to operation. If cock or tap fails to isolate water supply, re-washer and reset as necessary.	Mechanical
3	Gland leakage	12M	Check for weeping gland, slightly tighten gland nut if necessary. If weeping still occurs, replace gland seal.		Mechanical
4	Overall condition	12M	Inspect for external deterioration due to leaks.	Clean exposed stem prior to operation. If cock or tap fails to isolate water supply, re-washer and reset as necessary.	Mechanical
5	**Sluice Valves**				
6	Operational status	12M	Operate handwheel or stem to test that wedge is not seized in	To comply with the Water Bye-law, stop valves must not be less	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			closed position. If normally open, close valve and re-open. When fully open, close valve ½ turn to ensure valve does not jam.	suitable for the purpose than those which comply with current British Standards.	
7	Gland leakage	12M	Check for weeping gland, slightly tighten gland nut if necessary. If weeping still occurs, replace 'O' ring or packing.		Mechanical
8	Overall condition	12M	Inspect for external deterioration due to leaks.	Wire brush and paint as necessary.	Mechanical

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Schedule Title : Service Valves

Schedule Ref : 61-03
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
2 3 4 6 7 8				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Stop Cocks and Stop Taps**				
2	Operational status	12M	Operate head to ensure the stopcock or tap is operating correctly. If normally open, close and then re-open. When fully open, close valve ½ turn to ensure valve does not jam.	Clean exposed stem prior to operation. If cock or tap fails to isolate water supply, re-washer and reset as necessary.	Mechanical
3	Gland leakage	12M	Check for weeping gland, slightly tighten gland nut if necessary. If weeping still occurs, replace gland seal.		Mechanical
4	Overall condition	12M	Inspect for external deterioration due to leaks.		Mechanical
5	**Sluice Valves**				
6	Operational status	12M	Operate handwheel or stem to test that wedge is not seized in closed position. If normally open, close valve and re-open. When fully open, close valve ½ turn to ensure valve does not jam.	To comply with the Water Regulations, stop valves must be WRC approved and must not be less suitable for the purpose than those which comply with current British Standards.	Mechanical
7	Gland leakage	12M	Check for weeping gland, slightly tighten gland nut if necessary. If weeping still occurs, replace 'O' ring or packing.		Mechanical
8	Overall condition	12M	Inspect for external deterioration due to leaks.	Wire brush and paint as necessary.	Mechanical

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Schedule Title : Combination Tap Assemblies, Mixing Valves/Taps

Schedule Ref : 61-04
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (6 mins)	6M (6 mins)	12M (3 mins)	Not Specified	
3	4 5 6 7 8 9 10 11 12	14 15 16 17		
			2	

ANNUAL TIMING (MINUTES)
39

SCHEDULE INTRODUCTIONS
The frequency and extent of attention required will vary according to the prevailing site and operational conditions, however the following guideline schedule is suggested to cover average duty and site conditions. For higher risk environments e.g. Healthcare, more frequent checks may be appropriate. See B&ES (the Building & Engineering Services Association) publication, Domestic Central Heating Installation Specification for valves and ACOP L8 for Legionella information. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skilling
1	**Functional Checks**				
2	Functional Checks			If any of the functional checks fail to meet the set parameters, then refer to service checks, detailed below.	Mechanical
3	Spray heads (showers)	3M	Check spray pattern and flow rate. Clean and descale as appropriate.	ACOP L8 applies.	Mechanical
4	Inlet check-valves (if fitted)	6M	Check inlet pipework surface temperature for indication of crossflow.	A more effective test can be considered if appropriate, utilising drain points positioned between isolating and check-valves.	Mechanical
5	Temperature	6M		For thermostat and pressure balanced mixers, blend temperature should stabilise quickly and remain within 1°C to 2°C of set value. For manual mixers, refer to	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				commissioning data. At water temperatures above 50°C there is a risk of scalding, which increases with temperature and time of contact. In premises used by persons at risk e.g. old people, sick persons, people with reduced mental capacity, reduced mobility, anyone with sensory impairment and children, fail safe thermostatically controlled mixing valves must be used. Department of Health, HTM 04-01 Part A sets out the safe water temperatures and appropriate delivery devices (TMV`s) over a range of areas/activities. HSG Health and Safety in Care Homes recommends that where vulnerable people are at risk from scalding during whole body immersion, water temperatures do not exceed 44°C. This should be checked by client's staff at least monthly. NHS MES (Model Engineering Specification) applies.	
6	Temperature - locked	6M	Operate flow controls and check blend temperature. Check maximum and minimum blend temperature.		Mechanical
7	Temperature - adjustable/pre-set maximum	6M	Operate flow controls and check blend temperature. Check maximum and minimum blend temperature.		Mechanical
8	Thermal shutdown for thermostatic valves only	6M	Operate mixer at blend temperature, then isolate cold supply.	Valve must shut down in accordance with the manufacturer's recommendations.	Mechanical
9	Temperature control	6M	Operate mixer at blend temperature, then open other local cold outlets off common supply.	Check shift in blend temperature with reference data compiled at the commissioning stage. At water temperatures above 50°C there is a risk of scalding, which increases with temperature and time of contact. In premises used by persons at risk e.g. old people, sick	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				persons, people with reduced mental capacity, reduced mobility, anyone with sensory impairment and children, fail safe thermostatically controlled mixing valves must be used. Department of Health, HTM 04-01 Part A sets out the safe water temperatures and appropriate delivery devices (TMV's) over a range of areas/activities. HSG Health and Safety in Care Homes recommends that where vulnerable people are at risk from scalding during whole body immersion, water temperatures do not exceed 44°C. This should be checked by clients staff at least monthly. NHS MES (Model Engineering Specification) applies.	
10	Strainers	6M	Isolate, check visually and clean as necessary.		Mechanical
11	Flow control(s)	6M	Operate fully and check for effective closure.	If time delay is incorporated, check length of flow cycle.	Mechanical
12	Automatic drain valve (if fitted)	6M	Check effective operation.		Mechanical
13	**Service Checks**				
14	Mixing valve	12M	Carry out visual check of internal serviceable mechanisms. Clean or renew components as necessary. Lubricate as indicated in manufacturer's recommendations.	Refer to manufacturer's recommended procedures and cleaning agents/lubricants.	Mechanical
15	Temperature control, flow control(s), inlet check valves and automatic drain valve	12M	Operate mixing valve at blend temperature, then isolate cold supply. Operate fully and check for effective closure. Check effective operation.	Check shift in blend temperature with reference data compiled at the commissioning stage. At water temperatures above 50°C there is a risk of scalding, which increases with temperature and time of contact. In premises used by persons at risk e.g. old people, sick persons, people with reduced mental capacity, reduced mobility, anyone with sensory impairment and children, fail safe thermostatically controlled mixing valves must be used.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				Department of Health, HTM 04-01 Part A sets out the safe water temperatures and appropriate delivery devices (TMV`s) over a range of areas/activities. HSG Health and Safety in Care Homes recommends that where vulnerable people are at risk from scalding during whole body immersion, water temperatures do not exceed 44°C. This should be checked by clients staff at least monthly. NHS MES (Model Engineering Specification) applies.	
16	Supply pipework	12M	Visually check for damage, leaks etc. and rectify. Check that supply pressure and temperature agree with commissioning data.		Mechanical
17	Recommissioning	12M	On completion conduct functional checks.		Mechanical

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Schedule Title : Shower Valves

Schedule Ref : 61-05
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	6M (30 mins)			
9	2 3 4 5 6 7 10			

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS
Frequency of maintenance will depend upon use and the quality of the water and should be agreed with the client. For higher risk environments e.g. Healthcare, more frequent checks may be appropriate. See Domestic Central Heating Installation Specification (B&ES Publications) for values and ACOP L8 for Legionella information. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Thermostatic Mixing Valves**				
2	Controls	6M	Operate inlet valves and check individual flow rates of hot and cold water supplies.	If valve is stripped down and reassembled all parts should be greased as recommended in the manufacturer's maintenance instructions.	Mechanical
3	Thermostat	6M	Check mixed water outlet setting.	Ensure digital thermometer/sensor is immersed in flowing water, if measurement taken at shower head. It is a requirement that the sensing device is Certified as within calibration, a mercury thermometer must not be used.	Mechanical
4	Temperature limiter	6M	Check mixed water outlet temperature at limit safety stop.	Limiter setting should be set between 37°C and 46°C depending on the users. At water temperatures above 50°C there is a risk of scalding which increases with temperature and time of contact. In premises used by persons at risk e.g. old people, sick persons, people with reduced	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				mental capacity, reduced mobility, anyone with sensory impairment and children, fail safe thermostatically controlled mixing valves must be used. Department of Health, HTM 04-01 Part A sets out the safe water temperatures and appropriate delivery devices (TMV's) over a range of areas/activities. HSG Health and Safety in Care Homes recommends that where vulnerable people are at risk from scalding during whole body immersion, water temperatures do not exceed 44°C. This should be checked by clients staff at least monthly. NHS MES (Model Engineering Specification) applies.	
5	Strainers (where fitted)	6M	Check and clean.		Mechanical
6	Inlet check valves (where fitted)	6M	Check operation.	Non-return valves may have been removed if operating with balanced pressure supplies.	Mechanical
7	Fail-safe	6M	Operate thermostatic shower valve with cold water turned off to establish correct fail safe operation.		Mechanical
8	**Shower Valve Fittings**				
9	Push button shower timers	3M	Strip down, clean and reassemble.	3 Monthly represents the maximum interval, the actual frequency will depend upon the water quality and should be agreed with the client. Regular maintenance will save water and energy.	Mechanical
10	Auto drain valve (where fitted)	6M	Operate shower valve and check automatic operation of downstream drain valve.		Mechanical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Pre-Maintenance Procedures - Valves - Automatic Control

Schedule Ref : 62-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

This pre-maintenance procedure applies to all types of automatic control valves and requires that before any maintenance is undertaken all Health and Safety precautions must be adhered to including system isolation. Care must be taken to ensure that any maintenance does not unduly interfere with environmental operating conditions.

1. Inspect. Where changes, disconnections or unrecorded settings are found report and discuss with client.

2. Keep note of any settings made i.e. min/max travel, balancing valve setting etc.

3. Check valve body and fixings for any signs of corrosion or mechanical damage.

4. Check that pipe flange or screw connections are not leaking.

5. Where fitted, check that the actuator yoke and linkages are secure and not bent or damaged.

6. Check correct installation of valve with reference to both type and manufacturer.

7. Check that control cables have been installed with the correct polarity.

There are a large number of valve manufacturers who each call for specific maintenance and lubrication procedures for their products, to avoid undue repetition in maintenance the following terms have been used in the SFG20 task maintenance schedules:

- Manufacturer`s maintenance instructions.
- Manufacturer`s lubrication instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Rotary Valves - Shoe or Slipper

Schedule Ref : 62-02
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS

This pre-maintenance procedure applies to all types of automatic control valves and requires that before any maintenance is undertaken all Health and Safety precautions must be adhered to including system isolation. Care must be taken to ensure that any maintenance does not unduly interfere with environmental operating conditions.

1. Inspect. Where changes, disconnections or unrecorded settings are found report and discuss with client.

2. Keep note of any settings made i.e. min/max travel, balancing valve setting etc.

3. Check valve body and fixings for any signs of corrosion or mechanical damage.

4. Check that pipe flange or screw connections are not leaking.

5. Where fitted, check that the actuator yoke and linkages are secure and not bent or damaged.

6. Check correct installation of valve with reference to both type and manufacturer.

7. Check that control cables have been installed with the correct polarity.

There are a large number of valve manufacturers who each call for specific maintenance and lubrication procedures for their products, to avoid undue repetition in maintenance the following terms have been used in the SFG20 task maintenance schedules:

- Manufacturer's maintenance instructions.
- Manufacturer's lubrication instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	12M	Operate and check for correct rotary travel. Refer to manufacturer's maintenance instructions.	Check by operation of the actuator. See - Actuators - Motor Driven (SFG 01-06).	M&E
2	Let by	12M	Check that the valve is not letting by excessively.	Normally 'O' ring seals are fitted and cannot be adjusted. Replace if leaking and inspect spindle for wear.	M&E
3	Glands/spindle	12M	Inspect for gland leakage.	For lubrication refer to	M&E

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Display Order	Item	FQ	Action	Notes	Skilling
	condition		Refer to manufacturer's maintenance instructions.	manufacturer's lubricating instructions.	
4	Overall condition	12M	Inspect for external deterioration.		M&E

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Schedule Title : Butterfly and Ball Valves

Schedule Ref : 62-03
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS

This pre-maintenance procedure applies to all types of automatic control valves and requires that before any maintenance is undertaken all Health and Safety precautions must be adhered to including system isolation. Care must be taken to ensure that any maintenance does not unduly interfere with environmental operating conditions.

1. Inspect. Where changes, disconnections or unrecorded settings are found report and discuss with client.

2. Keep note of any settings made i.e. min/max travel, balancing valve setting etc.

3. Check valve body and fixings for any signs of corrosion or mechanical damage.

4. Check that pipe flange or screw connections are not leaking.

5. Where fitted, check that the actuator yoke and linkages are secure and not bent or damaged.

6. Check correct installation of valve with reference to both type and manufacturer.

7. Check that control cables have been installed with the correct polarity.

There are a large number of valve manufacturers who each call for specific maintenance and lubrication procedures for their products, to avoid undue repetition in maintenance the following terms have been used in the SFG20 task maintenance schedules:

- Manufacturer's maintenance instructions.
- Manufacturer's lubrication instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	12M	Operate and check for correct rotary travel. Refer to manufacturer's maintenance instructions.	Check by operation of the actuator. See - Actuators - Motor Driven (SFG 01-06).	Mechanical
2	Let by	12M	Check that valve is not letting by excessively.		Mechanical
3	Glands/spindle condition	12M	Inspect for gland leakage, refer to manufacturer's maintenance instructions.	Normally 'O' ring seals are fitted and cannot be adjusted. Replace if leaking and inspect	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			For lubrication refer to manufacturer's lubrication instructions.	spindle for wear.	
4	4. Overall condition.	12M	Inspect for external deterioration.		Mechanical

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Schedule Title : Self Acting and Thermal Valves

Schedule Ref : 62-04
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS

This pre-maintenance procedure applies to all types of automatic control valves and requires that before any maintenance is undertaken all Health and Safety precautions must be adhered to including system isolation. Care must be taken to ensure that any maintenance does not unduly interfere with environmental operating conditions.

1. Inspect. Where changes, disconnections or unrecorded settings are found report and discuss with client.

2. Keep note of any settings made i.e. min/max travel, balancing valve setting etc.

3. Check valve body and fixings for any signs of corrosion or mechanical damage.

4. Check that pipe flange or screw connections are not leaking.

5. Where fitted, check that the actuator yoke and linkages are secure and not bent or damaged.

6. Check correct installation of valve with reference to both type and manufacturer.

7. Check that control cables have been installed with the correct polarity.

There are a large number of valve manufacturers who each call for specific maintenance and lubrication procedures for their products, to avoid undue repetition in maintenance the following terms have been used in the SFG20 task maintenance schedules:

- Manufacturer's maintenance instructions.
- Manufacturer's lubrication instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	12M	Check for correct travel. Check integrity of capillary. Refer to manufacturer's maintenance instructions.	Check by operation of the actuator. See Actuators - Motor Driven (SFG 01-06). In some cases manual override is only available by removal of actuating head.	Mechanical
2	Let by	12M	Check that the valve is not letting by excessively.		Mechanical
3	Glands/spindle	12M	Inspect for gland leakage. Refer	Adjust or replace seals as	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	condition		to manufacturer's maintenance instructions. For lubrication, refer to manufacturer's lubrication instructions.	necessary.	
4	Overall condition	12M	Inspect for external deterioration.		Mechanical

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Schedule Title : Solenoid Valves

Schedule Ref : 62-05
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS

This pre-maintenance procedure applies to all types of automatic control valves and requires that before any maintenance is undertaken all Health and Safety precautions must be adhered to including system isolation. Care must be taken to ensure that any maintenance does not unduly interfere with environmental operating conditions.

1. Inspect. Where changes, disconnections or unrecorded settings are found report and discuss with client.

2. Keep note of any settings made i.e. min/max travel, balancing valve setting etc.

3. Check valve body and fixings for any signs of corrosion or mechanical damage.

4. Check that pipe flange or screw connections are not leaking.

5. Where fitted, check that the actuator yoke and linkages are secure and not bent or damaged.

6. Check correct installation of valve with reference to both type and manufacturer.

7. Check that control cables have been installed with the correct polarity.

There are a large number of valve manufacturers who each call for specific maintenance and lubrication procedures for their products, to avoid undue repetition in maintenance the following terms have been used in the SFG20 task maintenance schedules:

- Manufacturer's maintenance instructions.
- Manufacturer's lubrication instructions.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operation status	12M	Operate and check for correct linear travel. Check for solenoid noise i.e. buzzing.	Check by operation of the solenoid. Check supply voltage and that polarities are correct - refer to manufacturer's instructions. Noise can be due to dirty pole faces, remove coil and clean pole faces.	M&E
2	Let by	12M	Check that valve is not letting by excessively.		M&E

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Display Order	Item	FQ	Action	Notes	Skilling
3	Glands/spindle condition	12M	Inspect for gland leakage, refer to manufacturer's maintenance instructions. For lubrication, refer to manufacturer's lubrication instructions.	Adjust or replace seals as necessary.	M&E
4	Overall condition	12M	Inspect for external deterioration.		M&E

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Schedule Title : Pressure Control Valves

Schedule Ref : 62-06
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)	24M (30 mins)			
1 2 3	4			

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Leakage	12M	Check and rectify. Refer to manufacturer's maintenance instructions.		Mechanical
2	Operation	12M	Check. Refer to manufacturer's maintenance instructions.		Mechanical
3	Setting	12M	Check.		Mechanical
4	Valve	24M	Strip and clean. Refer to manufacturer's maintenance instructions.		Mechanical

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Schedule Title : Seat Valves

Schedule Ref : 62-07
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (6 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
6

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational status	12M	Operate and check for correct linear movement.	Check by operation of the actuator. See - Actuators - Motor Driven (SFG 01-06).	M&E
2	Let by	12M	Check that valve is not letting by when in closed position.		M&E
3	Gland and spindle	12M	Check for gland leakage, spindle for wear and contamination.		M&E
4	Overall condition	12M	Inspect for external damage or deterioration.		M&E

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Schedule Title : Underfloor Heating Including Vehicle Access Ramps

Schedule Ref : 63-01
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
12M (45 mins)				
1 2 3 4				

ANNUAL TIMING (MINUTES)
45

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrical continuity	12M	Check for any faults.	Note current drawn and check with initial design date. Any significant shortfall may indicate a damaged or broken conductor.	Electrical
2	Earthing	12M	Check and ensure connection(s) are secure.		Electrical
3	Controls	12M	Check operation.	For more detailed maintenance instructions, see Control Panels & Controllers (SFG 14).	Electrical
4	Frost actuation	12M	Check sensor and replace if faulty. Check operation.		Electrical

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Schedule Title : Automatic Vehicle Barrier

Schedule Ref : 63-02
Schedule Type : Core
Schedule Date : 29 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)				
1 2 3 4 5 6 7 8 9				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

Inform client before withdrawing or restoring electricity supply to barrier.

Isolation electrically should be secure i.e. it should either be at the point of work or precautions should be taken to prevent anyone else switching on again when work is in progress. This may require a Permit To Work.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Barriers	6M	Check vertical and horizontal positions.		Electrical
2	Limit switches	6M	Inspect condition and adjust as necessary.		Electrical
3	Safety switch	6M	Check operation.		Electrical
4	Push button for barrier operation	6M	Check condition.		Electrical
5	Drive motor and brushes	6M	Check for correct operation.		Electrical
6	Motor overload	6M	Check for correct operation and adjust as necessary.	See also Motors - Drive Elements (SFG 39-01).	Electrical
7	Electrical terminations and wiring	6M	Check condition and make good if necessary.		Electrical
8	Mechanical items	6M	As agreed with client.	Responsibility for the maintenance of these items should be agreed with the client.	Mechanical
9	Induction loop	6M	Check operation.		Electrical

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Schedule Title : Introductory Procedures - Ventilation Ancillaries

Schedule Ref : 64-01
Schedule Type : Core
Schedule Date : 26 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Local Exhaust Ventilation (LEV) – Fume Extract

In bus and vehicle garages and many other work areas where the build-up of dangerous fumes may occur, special air extraction systems are often required/installed. These may be fixed, flexible or mobile installations often incorporating controls and sensors. It is important to observe that the maintenance examination and testing local exhaust ventilation applies under the COSHH Regulations. It is essential to ensure that any discharges do not cause harm to others, discharge areas are to be checked as safe.

Life Supporting Systems

This equipment is essential in hazardous areas and it is vital that it must be well maintained. Because of its importance maintenance of such equipment must be carried out by qualified specialist personnel.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Motor Driven Exhaust Hose Reel

Schedule Ref : 64-02
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
	9			
1	2 3 4 5 6 7 8			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Extract fans	6M	Carry out routine maintenance of the extract fans. For guidance see Fans - Extract Fans - including Fire/Smoke Extract Units (SFG 20-08).	Depending on what the fans are extracting, the maintenance frequencies may need to be increased.	Mechanical
2	Hose (both starter hose and extensions if fitted) and hose stop	12M	Check for flattening and damage. Check condition of hose stop and location on hose.		Mechanical
3	Control box and operation	12M	Check functions i.e. up, down, on/off fan, if RCR reel fitted with auto fan contractor.	With pendant control up/down only. Remote control reel (RCR) only has ability for on hose lowering fan which will start and on retraction will switch off only if reel either: a) combi-unit, or b) fitted with fan contactor.	Mechanical
4	Upper and lower switches	12M	Check function and condition of upper and lower limit switch.	Lower limit switch activates when reel has lowered its full length of hose.	Mechanical
5	Infrared transmitter	12M	Check functions and condition. Test battery and replace if necessary.	Applies to RCR only.	Mechanical
6	Main drive gear	12M	Check overall condition of gear for wear.	Gear will be visible on removal of control cover.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Swivel coupling and drive motor	12M	Check for free drive/rotation of reel.		Mechanical
8	Nozzle	12M	Check damper for damage and operation of spring. Check operation of grip and general condition of nozzle.	Mole grip type clamp only available on rubber/steel construction nozzle.	Mechanical
9	System	12M	Undertake a thorough test and Inspection of the system in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations. 'Thorough'' means careful, methodical, painstaking and complete. The task should only be carried out by a competent person.	The maximum time between tests of LEV systems is set down in COSHH Regulations and for most systems this is 14 months. In practice this is normally taken to mean annually. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests then thorough examinations and tests should be more frequent.	Specialist

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/guidance/ocm2.pdf HSE 'The maintenance, examination and testing of local exhaust ventilation (LEV)'
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)

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Schedule Title : Spring Recoil Hose Reel

Schedule Ref : 64-03
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
	8			
1	2 3 4 5 6 7			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Extract fans	6M	Carry out routine maintenance of the extract fans. For guidance see Fans - Extract Fans - including Fire/Smoke Extract Units (SFG 20-08).	Depending on what the fans are extracting, the maintenance frequencies may need to be increased.	Mechanical
2	Hose (both starter hose and extension if fitted) and hose stop	12M	Check for flattening and damage. Check condition of hose stop and location on hose.		Mechanical
3	Spring and ratchet	12M	Check recoiling action of reel and correct tensioning of spring. Check operation of ratchet.		Mechanical
4	Swivel coupling and drum	12M	Check for free movement/rotation of drum.		Mechanical
5	Auto on/off switch for fan, if fitted	12M	Check location and mounting of two switch trigger blocks on drum side. Check operation of switch for control fan.		Mechanical
6	Suspension / mounting bolts	12M	Check tension on mounting bolts and nip up if required.		Mechanical
7	Nozzle	12M	Check damper for damage and operation of spring. Check operation of grip and general condition of nozzle.	Mole grip type clamp only available on rubber/steel constructed nozzles.	Mechanical
8	System	12M	Undertake a thorough test and Inspection of the system in accordance with current	The maximum time between tests of LEV systems is set down in COSHH Regulations and for	Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			Statutory Requirements, Regulations and Manufacturer's Recommendations. 'Thorough'' means careful, methodical, painstaking and complete. The task should only be carried out by a competent person.	most systems this is 14 months. In practice this is normally taken to mean annually. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests then thorough examinations and tests should be more frequent.	

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/guidance/ocm2.pdf HSE 'The maintenance, examination and testing of local exhaust ventilation (LEV)'
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Mobile Dust Separator for Spot Extraction

Schedule Ref : 64-04
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
	8 9			
1	2 3 4 5 6 7			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Extract fans	6M	Carry out routine maintenance of the extract fans. For guidance see Fans - Extract Fans - including Fire/Smoke Extract Units (SFG 20-08).	Depending on what the fans are extracting, the maintenance frequencies may need to be increased.	Mechanical
2	Suction and interconnecting hoses	12M	Check condition for damage or flattening.	Frequency could be greater depending on the process that the LEV has been installed for. Refer to current regulations.	Mechanical
3	Mounting	12M	Check tension on mounting bolt between handle and dust collector, plus motor and filter housing.		Mechanical
4	Switch cable and motor	12M	Check full length of cable for damage and operation of switch. Check for smooth running of motor.		Mechanical
5	Pressure reduction hose	12M	Check condition and connections of small bore hose.		Mechanical
6	Gaskets and cyclone mounting rod	12M	Check top of cyclone for debris and correct location of mounting rod.	For access, unclip lid assembly from over-bin and unbolt cyclone plate. After replacing lid and cyclone arrangement check seating of gasket.	Mechanical
7	Filter	12M	Check condition and replace as necessary. On replacement of filter check condition of gasket.	Test pressure of supplies and ensure they conform to the manufacturer's	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				recommendations and record results on commissioning sheet.	
8	8. System	12M	Undertake a thorough test and Inspection of the system in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations. 'Thorough'' means careful, methodical, painstaking and complete. The task should only be carried out by a competent person.	The maximum time between tests of LEV systems is set down in COSHH Regulations and for most systems this is 14 months. In practice this is normally taken to mean annually. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests then thorough examinations and tests should be more frequent.	Specialist
9	Mobile Unit	12M	Undertake a test of the unit (Portable Appliance Test) in line with the requirements of the Electricity at Work Act. For guidance see Portable Equipment - Portable Appliance Testing (PAT) (SFG 42-01).		Electrical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/guidance/ocm2.pdf HSE 'The maintenance, examination and testing of local exhaust ventilation (LEV)'
http://www.legislation.gov.uk/uksi/2002/2776/contents/made Dangerous Substances & Explosive Atmospheres Regulation (DSEAR) 2002 HSE L136
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)
http://shop.bsigroup.com/ProductDetail/?pid=000000000030292893 BS 7671:2008+A3: 2015. Requirements for Electrical Installations. IET Wiring Regulations.

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Schedule Title : Mobile Electronically Controlled Cyclone Separator

Schedule Ref : 64-05
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
	8 9			
1	2 3 4 5 6 7			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Extract fans	6M	Carry out routine maintenance of the extract fans. For guidance see Fans - Extract Fans - including Fire/Smoke Extract Units (SFG 20-08).	Depending on what the fans are extracting, the maintenance frequencies may need to be increased.	Mechanical
2	Suction and interconnecting hoses	12M	Check condition for damage or flattening.		Mechanical
3	Mounting	12M	Check tension on mounting bolt to trolley and tighten as necessary.		Mechanical
4	Control box and cable	12M	Check functions of control box e.g. on/off. Check full length of cable for damage.	When running, check correct direction of rotation of fan.	Mechanical
5	Pre-filter	12M	Visually check condition of main gear wheel on filter and drive gear on cleaning handle. Visually check condition of pre-filter and seating of gasket.	For access, pull back rubber collar at the top of the filter housing, remove retaining screws and carefully remove filter cover.	Mechanical
6	Filter	12M	Check condition of flipstrip filter and replace if necessary. Ensure correct seating of gasket.	Discarded filter elements should be placed in sealed bags for disposal. Waste Disposal Regulations may apply.	Mechanical
7	Cone valve	12M	Check condition and operation of valve.	This valve should rise when the unit is switched on and lower as the vacuum decreases when the	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				unit is switched off.	
8	System	12M	Undertake a thorough test and Inspection of the system in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations. 'Thorough'' means careful, methodical, painstaking and complete. The task should only be carried out by a competent person.	The maximum time between tests of LEV systems is set down in COSHH Regulations and for most systems this is 14 months. In practice this is normally taken to mean annually. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests then thorough examinations and tests should be more frequent.	Specialist
9	Mobile Unit	12M	Undertake a test of the unit (Portable Appliance Test) in line with the requirements of the Electricity at Work Act. For guidance see Portable Equipment - Portable Appliance Testing (PAT) (SFG 42-01).		Electrical

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/guidance/ocm2.pdf HSE 'The maintenance, examination and testing of local exhaust ventilation (LEV)'
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)

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Schedule Title : Vehicle Exhaust Rail System

Schedule Ref : 64-06
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
	11			
1	2 3 4 5 6 7 8 9 10			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Extract fans	6M	Carry out routine maintenance of the extract fans. For guidance see Fans - Extract Fans - including Fire/Smoke Extract Units (SFG 20-08).	Depending on what the fans are extracting, the maintenance frequencies may need to be increased.	Mechanical
2	Hose on suction unit	12M	Check condition of hose for flattening and damage.	Examine both upper and lower hoses.	Mechanical
3	Safety break coupler	12M	Check overall condition of coupling. Check location of and condition of spring clips between retaining pins.	Access to spring clips is achieved by pulling back centre rubber collar.	Mechanical
4	Nozzle	12M	Check damper for damage and operation of spring. Check operation of grip and general condition of nozzle.	Mole grip type clamp only available on rubber/steel constructed nozzles.	Mechanical
5	Suction trolley	12M	Check trolley for free rolling without play movement.	Mole grip type clamp only available on rubber/steel constructed nozzles.	Mechanical
6	Auto disconnect system	12M	Check operation by clamping a small piece of steel or alternative between jaws of clamp. Slide trolley to disconnect position and ensure correct location.	Not fitted on manual disconnect units. Clamp jaws should open on ball assembly location in disconnection brackets.	Mechanical
7	Rubber seal	12M	Check overall condition.	May be lubricated with silicone spray.	Mechanical
8	Suspension / Mounting bolts	12M	Check tension on mounting bolts and nip up if required.	May be lubricated with silicone spray.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	Duct connections	12M	Check seal and condition of end caps and fan duct connection pipe.		Mechanical
10	Spring balancer	12M	Check condition of cord and free rotation and recoil of spring balancer.		Mechanical
11	System	12M	Undertake a thorough test and Inspection of the system in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations. 'Thorough'' means careful, methodical, painstaking and complete. The task should only be carried out by a competent person.	The maximum time between tests of LEV systems is set down in COSHH Regulations and for most systems this is 14 months. In practice this is normally taken to mean annually. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests then thorough examinations and tests should be more frequent.	Specialist

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/guidance/ocm2.pdf HSE 'The maintenance, examination and testing of local exhaust ventilation (LEV)'
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)

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Schedule Title : Wood Dust Extraction

Schedule Ref : 64-07
Schedule Type : Core
Schedule Date : 01 Jun 2016
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (15 mins)	12M (60 mins)			
	10 11 13			
1 2	3 4 5 6 7 8 9 12			

ANNUAL TIMING (MINUTES)
90

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Extract fans	6M	Carry out routine maintenance of the extract fans. For guidance see Fans - Extract Fans - including Fire/Smoke Extract Units (SFG 20-08).	Depending on what the fans are extracting, the maintenance frequencies may need to be increased.	Mechanical
2	2. System - General	6M	• Carry out operation check of unit and note any unusual noises, vibrations or odours. • Clean or replace filters as required. • Check filter retaining frames are in good condition. • Clean out any dust or shavings trapped within the system. • Wipe down fan impeller. • Check motor airways are clear. • Check ductwork and inlet guards are in good condition, free from leaks and allow unimpeded removal of dust. • Check all brackets, fixings and bolts are secure. • Check discharge area is clean and tidy. • Check bag shaker and bag securing clips. • Test control functions.		Mechanical
3	Suction and	12M	Check condition for damage or	Frequency could be greater	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
	interconnecting hoses		flattening.	depending on the process that the LEV has been installed for. Refer to current Regulations.	
4	Mounting	12M	Check tension on mounting bolt between handle and dust collector, plus motor and filter housing.		Mechanical
5	Switch cable and motor	12M	Check full length of cable for damage and operation of switch. Check for smooth running of motor. Check controls are in good condition. Check local isolator for signs of overheating and smooth operation. Open isolator and clean if required.		Electrical
6	Pressure reduction hose	12M	Check condition and connections of small bore hose.		Mechanical
7	Gaskets and cyclone mounting rod	12M	Check top of cyclone for debris and correct location of mounting rod.	For access, unclip lid assembly from over-bin and unbolt cyclone plate. After replacing lid and cyclone arrangement check seating of gasket.	Mechanical
8	Filter	12M	Check condition and replace as necessary. On replacement of filter check condition of gasket.	Test pressure of supplies and ensure they conform to the manufacturer's recommendations and record results on commissioning sheet.	Mechanical
9	Lighting	12M	Check illumination in booths and hoods if appropriate.		Electrical
10	System	12M	Undertake a thorough test and Inspection of the system in accordance with current Statutory Requirements, Regulations and Manufacturer's Recommendations. 'Thorough'' means careful, methodical, painstaking and complete. The task should only be carried out by a competent person.	The maximum time between tests of LEV systems is set down in COSHH Regulations and for most systems this is 14 months. In practice this is normally taken to mean annually. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests then thorough examinations and tests should be more frequent.	Specialist
11	Mobile Unit	12M	Undertake a test of the unit (Portable Appliance Test) in line with the requirements of the Electricity at Work Act. For guidance see Portable Equipment - Portable Appliance Testing (PAT (SFG 42-01).		Electrical
12	Hoods, canopies and duct interiors	12M	Check ductwork condition, especially flexible ducts and clean as appropriate.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Check cleanliness of hoods, especially canopies and clean as appropriate. Check the mechanical integrity e.g. corrosion, damage, seals, dampers, sash suspensions etc. Check the make-up air is working without draughts or blockages.		
13	Extract explosion suppression system	12M	Carry out annual service in strict accordance with manufacturer's instructions.	In accordance with British Standards - Explosion Suppression Systems.	Specialist

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/guidance/ocm2.pdf HSE 'The maintenance, examination and testing of local exhaust ventilation (LEV)'
http://www.legislation.gov.uk/all?title=Equipment%20%26%20Protective%20Systems%20Intended%20For%20Use%20In%20Potentially%20Explosive%20Atmospheres%20Regulations%20 Equipment & Protective Systems Intended For Use In Potentially Explosive Atmospheres Regulations 1996 with 2001 and 2005 amendments
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)

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Schedule Title : Laboratory Fume Cupboard

Schedule Ref : 64-08
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
1W	6M	12M	14M	Not Specified
			14	
1	2 3 4 5 6 7 8	9 10 11 13		12

SCHEDULE INTRODUCTIONS

TBC - 'Service Timings'.

Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations.

Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc.

The method statement and accompanying risk assessment should be read, understood and implemented during this task.

Make sure there is a safe system of works in place when undertaking this PPM.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
The COSHH regulations require employers to ensure that control measures are 'maintained in an efficient state, efficient working order, in good repair and in a clean condition'; therefore a regular, routine maintenance schedule in addition to the annual testing is recommended.

Individuals carrying out maintenance activities on fume cupboard systems must be made fully aware of the hazards they may encounter. Separate risk assessments (to include chemical and other hazards e.g. work from height, mechanical, electricity etc) of the maintenance work should be completed in consultation with the School representative and a safe system of work devised. Chemical hazard information should be provided by fume cupboard users from their COSHH records and/or fume cupboard logs.

Where maintenance is likely to interrupt the normal operation of the fume cupboard a permit to work may be required. This is essential when maintenance work is carried out on systems used for radiation work.

If maintenance work is likely to influence fume cupboard performance, suitable containment or face velocity tests should be carried out on completion of the work.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Function check	1W	Check that the fume cupboard is functioning correctly (this may not be required if the cupboard is fitted with a flow alarm). Carry out a visual check on all internal components to ensure: • All visible items are functioning correctly. • No signs of physical		Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			deterioration that could lead to impaired performance.		
2	Enclosure	6M	Carry out a visual examination to ensure integrity of enclosure, including seals around main panels, sinks and other services. Check storage voids underneath main aperture.		Specialist
3	Enclosure light - 6 monthly	6M	Check operation of enclosure light.		Specialist
4	On/Off switch	6M	Activate on/off switch to confirm operation and note operation of associated warning lights.		Specialist
5	Warning devices	6M	Operate any other warning devices i.e. sash height or low-flow switches, to confirm operation.		Specialist
6	Air flow indicator	6M	Check air flow indicator device. In case of liquid manometer, disconnect tubing and re-zero, then switch on fume cupboard and note movement of fluid column. Carry out face velocity checks.		Specialist
7	Sash - 6 monthly	6M	Repeated movement of the sash through its entire travel to confirm ease of operation (lubricate where necessary). Operation of working aperture stop and over-ride mechanism. Inspect sash screen for cracks, chemical attack or any other damage likely to adversely effect transparency of the screen.		Specialist
8	Fan - 6 monthly	6M	Check flexible coupling (including tie-clips) to ductwork for damage, wear or leakage. Visual examination of all external features for mechanical integrity. Examination of electrical supply cables, switch-gear, connectors and isolators for physical damage and continued electrical operation. Check condition and tension of drive belt, re-tighten or replace if necessary.	For guidance see Fans - Extract (SFG 20-08).	Specialist
9	Enclosure light - 12 monthly	12M	Replace enclosure light i.e. fluorescent tube.		Specialist
10	Sash - 12 monthly	12M	Check alignment of pulleys and condition of pulley wires. Replace any distorted or broken		Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			wire.		
11	Ducting	12M	Examine fume cupboard-to-ductwork connection to confirm seal and physical condition. Visual examination of entire ductwork run for mechanical damage and leaks, including internal sections where condensate or any other concentrations are likely to cause damage. Check the need for cleaning the interior of the ducting through the inspection ports, particularly at bends where substances may be impacted. Mechanical volume flow control dampers should be inspected to confirm freedom of movement and absence of internal obstruction. Fire dampers and release mechanism examined for corrosion and operated where possible. Flow sensing devices, or any other equipment located within the ductwork should be examined and replaced if damaged.		Specialist
12	Filters (where fitted)		Where fume cupboards have been fitted with special filters, these will need to be changed in accordance with manufacturers / suppliers recommendations. Who carries out the change of filter will depend on the complexity of the fume cupboard design etc.		Specialist
13	Fan - 12 monthly	12M	Visual examination of anti-vibration mountings. Visual examination of inside the fan casing to confirm physical integrity and absence from obstructions i.e. tissues, rubber-gloves, filter papers. Check rigidity of exhaust stack. Fit new drive belt. Check drive-shaft bearings for excess movement or other signs of wear. Re-grease bearings. Lubricate electrical motor in		Specialist

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Display Order	Item	FQ	Action	Notes	Skilling
			accordance with manufacturer's recommendations.		
14	Fume cupboard performance testing	14M	Carry out a performance test to confirm that the system and its individual engineering components are operating to a level necessary to provide the desired fume arrest, containment and dispersal. The regulations require that suitable records are produced and these records are maintained for at least five years from the date of last test. The approved Code of Practice (ACOP) in support of COSHH establishes the test requirements.	COSHH regulations established a duty on employers to carry out thorough examination and test of engineering control measures at least once every fourteen months. In cases where the risks associated with a particular experiment are high it will be necessary to increase the frequency of these examinations and tests. The decision on frequency can be determined by a risk assessment which should anticipate the likely outcome of a system failure. A fume cupboard where airflow velocities fall outside 20% of the mean or where edge losses are marked will have deemed to have failed.	Specialist

SCHEDULE LEGISLATION
http://www.legislation.gov.uk/ukpga/1974/37/contents Health and Safety at Work Act 1974 (HSWA)
http://www.legislation.gov.uk/all?title=Control%20of%20Substances%20Hazardous%20to%20Health%20Regulations Control of Substances Hazardous to Health Regulations 2002 (COSHH) and 2003 and 2004 amendments
http://www.legislation.gov.uk/uksi/1989/635/contents/made Electricity at Work Regulations 1989
http://www.legislation.gov.uk/uksi/1998/2306/contents/made Provision and Use of Work Equipment Regulations 1998 (PUWER)
http://shop.bsigroup.com/ProductDetail/?pid=000000000030042260 BS 7989:2001 Specification for recirculatory filtration fume cupboards. Maintenance, testing and examination of local exhaust ventilation HSG37:1993 – HSE publication
http://shop.bsigroup.com/ProductDetail/?pid=000000000030289995 BS EN 14175-4:2004 Fume cupboards. On-site test methods
http://www.hse.gov.uk/pubns/books/hsg258.htm HSG258:2011. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV)
http://www.hse.gov.uk/pubns/indg408.pdf INDG 408: Clearing the Air. A simple guide to buying and using local exhaust ventilation (LEV)

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Schedule Title : Ammonia Leak Detection System

Schedule Ref : 64-09
Schedule Type : Core
Schedule Date : 02 Dec 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES				
6M				
1 2 3 4				

SCHEDULE INTRODUCTIONS
TBC - 'Service Timings' Any maintenance carried out on the equipment should be in accordance with the manufacturers' recommendations. Consideration should be given to the discharge of secondary energy i.e. pressurised water, hydraulic oil, pressurised oil, hot surfaces etc. The method statement and accompanying risk assessment should be read, understood and implemented during this task. Make sure there is a safe system of works in place when undertaking this PPM. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Operational test	6M	Carry out operational check of ammonia detection system including control panel, sensors and alarms.		M&E
2	Buffering sensors	6M	Check and recalibrate sensors using calibration source of 1% ammonia.		M&E
3	Alarms and beacons	6M	Ensure audible alarms operate correctly. Check alarm level settings are correct. Ensure all warning beacons operate correctly.		M&E
4	Plant shut down	6M	Check interface connections to plant shut down shunt trips operate correctly.		M&E

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Schedule Title : Introductory Procedures - Water Treatment

Schedule Ref : 65-01
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Water may be used for a variety of purposes within buildings, some of the applications will require the water supplied to the building to be treated in order to render it suitable for the purpose for which it is to be used. The maintenance requirements for water treatment plants will vary and be specific to the equipment used and the nature of the application.

POTABLE OR DRINKING WATER

Public Water Supplies

Buildings in the UK are usually supplied with 'towns mains' potable water from a water supply undertaker (Water Companies in England, Regional Councils in Scotland and the Department of the Environment in Northern Ireland).

The quality of potable water is controlled by legislation and should require no further treatment before consumption, provided that the water is fed directly to the point of use. However point of use water treatment devices may be found on these supplies.

Private Water Supplies

Buildings may have their own water supply such as a borehole or a well, or may receive water from a private supply which services more than one building. These water supplies may require treatment in order to make them potable.

MAIN USES OF TREATED WATER

Hot Water and Steam Raising

Most water supplies require some form of treatment in order to avoid the scaling or corrosion of heat exchange surfaces caused by dissolved solids or impurities in the water.

Air Conditioning and Heating

In air-conditioned buildings treated water is used in the cooling system water. This is essential in order to ensure and maintain effective operation of the equipment. Proper treatment has a bearing on energy costs, the implementation of the HASAWA and legionellosis control. Cooling Towers that have not been maintained regularly must be considered as HAZARDOUS and must not be maintained by persons who may be susceptible to Legionella. (For more detailed information see Heat Rejection Systems - Cooling Towers - Precautions against Legionnaires Disease (Legionella Pneumophila) (SFG 30-02).

Circulatory heating and cooling systems may be provided with automatic or manual dosing equipment.

WATER TREATMENT AND CONDITIONING

Humidification

Certain types of humidification systems also have water treatment equipment which requires regular maintenance to ensure proper humidification performance. (For more detailed information see Humidifiers including Disinfection Procedures (SFG 33).

Cold Water Services

In certain buildings cold water used for non-portable cold water services may be treated.

Recreational and Therapeutic Applications

Facilities such as swimming pools, saunas, whirlpool, spa baths and hydrotherapy pools, all require treatment of the water to maintain microbiological and aesthetic conditions suitable for their purpose.

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TREATMENT CATEGORIES

Water treatment falls into the following categories:

A) Ion exchange:
1. Base exchange softening - commercial
2. Base exchange softening - domestic
3. De-ionisation (de-mineralisation) including de-alkalisation.

B) Filtration Conditioning and pH Treatment:
Central Plant:
1. Iron removal
2. pH correction
3. Active carbon filtration
4. Turbidity removal (clarification)

Point of use:
5. Active carbon filtration
6. Bacteria removal filters
7. Sediment removal filters
8. Reverse osmosis (see Section D)
9. Ultra violet disinfection (see Section E).

C) Chemical Dosing:
1. Chlorination
2. Bromination
3. Oxygen scavenging, corrosion and scale inhibitors
4. Phosphate dosing
5. Biocide
6. Salinity (Brine systems).

D) Reverse Osmosis:
1. Reverse osmosis purification

E) Ultraviolet

F) Ozonation

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Ion Exchange Plant - Base Exchange Softening - Commercial

Schedule Ref : 65-02
Schedule Type : Core
Schedule Date : 25 Nov 2015
Schedule Version : 4.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (180 mins)	12M (10 mins)	36M (60 mins)		
	13			
		14		
1 2 3 4 5 6 7 8 9 10 11 12				

ANNUAL TIMING (MINUTES)
370

SCHEDULE INTRODUCTIONS

Maintenance of water treatment plant is very important to avoid scaling of heat exchange surfaces in plant which can lead to deposits and subsequent blockage of outlet fittings, in addition it can lead to energy wastage and increased costs.

The operator should refer to and be familiar with the manufacturer's operator's handbook and follow the manufacturer's recommendations regarding the frequency at which the various maintenance functions should be carried out. These can vary depending on the type of plant and manufacturer.

In addition to the routine checks below the client's operator will undertake operational tasks including checking salt levels in the salt saturator/brine tank, check and record, in the log book, inlet water hardness and outlet (soft) water hardness. The operator will check for leaks and if present, locate source and report (leaks on control valves and vessel, manufacturer's advice should be sought).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Brine tank (where fitted separately)	6M	Clean as appropriate. Check with brineometer that brine is fully saturated.	If brine is not fully saturated, the brine system requires further investigation. Client should be advised and the matter referred to the manufacturer or equipment supplier.	Multi-skilled
2	Overflow and drain	6M	Clean and clear off debris and dirt.		Multi-skilled
3	Electrical control system (where fitted)	6M	Check condition of all electrical connections.	Refer to plant operator's manual.	Electrical
4	Regeneration sequence	6M	Put plant into regeneration sequence and check all stages of operation.	If system malfunctioning, refer to manufacturer or supplier.	Multi-skilled
5	Pressure drop over softener (where provision to measure	6M	Check and record in plant log.	A gradual build-up in back pressure could indicate fouling or breakdown of the ion	Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
	exists)			exchange medium.	
6	Booster pumps	6M	Carry out maintenance programme as detailed in Pumps - Water Pumping Pressure Booster Sets (SFG 45-12).		Multi-skilled
7	Ancillary controls and probes (where fitted): a) Conductivity b) Electro-Chlorination	6M	Inspect and check operation and report.		Multi-skilled
8	Plant	6M	Check overall condition and report.		Multi-skilled
9	Valves	6M	Overhaul individual valves as detailed in Valves - Service Valves (SFG 61-03).		Multi-skilled
10	Back flow prevention devices	6M	Check operation.	Where operation is between two tanks, check the task can be carried out by observing whether there is a change of levels of the two tanks.	Multi-skilled
11	Recommissioning	6M	Set up flow rates to suit.	Report details to client.	Multi-skilled
12	Water test	6M	Final water test to be taken.	Back pressure readings will give some indication of the condition of the resin bed. Take sample and send to laboratory if part of the service schedule which was agreed with the client.	Multi-skilled
13	Disinfection	12M	Carry out a full disinfection of the base exchange system.	Procedure as laid down in HSG274 part 3, BS 8558 and HTM 04-01 Part B. Check with the manufacturer what chemicals can be used to disinfect resin bed. Frequency as recommended by the manufacturer.	Multi-skilled
14	Major overhaul	36M	In accordance with manufacturer's recommendations.	Details should be agreed with the client.	Multi-skilled

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems

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http://www.hse.gov.uk/pubns/books/hsg274.htm
HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Ion Exchange Plant - Base Exchange Softening - Domestic (capacity usually below 50 litres)

Schedule Ref : 65-03
Schedule Type : Core
Schedule Date : 25 Nov 2015
Schedule Version : 3.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (45 mins)	12M (45 mins)	36M (120 mins)		
	11			
		12		
1 2 3 4 5 6	7 8 9 10			

ANNUAL TIMING (MINUTES)
135

SCHEDULE INTRODUCTIONS

Maintenance of water treatment plant is very important to avoid scaling of heat exchange surfaces in plant which can lead to deposits and subsequent blockage of outlet fittings, in addition it can lead to energy wastage and increased costs.

The operator should refer to and be familiar with the manufacturer's operator's handbook and follow the manufacturer's recommendations regarding the frequency at which the various maintenance functions should be carried out. These can vary depending on the type of plant and manufacturer.

In addition to the routine checks below, the client's operator will undertake operational tasks including checking salt levels in the salt saturator/brine tank, check and record, in the log book, inlet water hardness and outlet (soft) water hardness. The operator will check for leaks and if present, locate source and report (leaks on control valves and vessel, manufacturer's advice should be sought).

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Electrical control system (where fitted)	6M	Check condition of all electrical connections.		Electrical
2	Regeneration sequence	6M	Put plant into regeneration sequence and check all stages of operation.	A gradual reduction in service flow may indicate breakdown of the medium.	Multi-skilled
3	Booster pumps	6M	Carry out maintenance programme as detailed in Pumps - Water Pumping Pressure Booster Sets (SFG 45-12).		Multi-skilled
4	Ancillary controls and probes (where fitted): a) conductivity b) electro - chlorination.	6M	Inspect and check operation and report.		Multi-skilled

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Display Order	Item	FQ	Action	Notes	Skilling
5	Back flow prevention devices	6M	Check operation.	Where operation is between two tanks, check the task can be carried out by observing whether there is a change of levels of the two tanks.	Multi-skilled
6	Water test	6M	Take final water test.	Back pressure readings will give some indication of the condition of the resin bed. Take sample and send to laboratory if part of the service schedule agreed with the client.	Multi-skilled
7	Salt tank	12M	Inspect and clean tank and filter screens.		Multi-skilled
8	Overflow and drain	12M	Clean and clear off debris and dirt.		Multi-skilled
9	Injector screen and flow controller	12M	Clean injector screen and flow controller.	Where required by equipment manufacturer.	Multi-skilled
10	Recommissioning	12M	Set up flow rates to suit.	Report details to client.	Multi-skilled
11	Disinfection	12M	Carry out a full disinfection of the base exchange system.	Procedure as laid down in HSG274 part 3, BS 8558 and HTM 04-01 Part B. Check with the manufacturer what chemicals can be used to disinfect resin bed. Frequency as recommended by the manufacturer.	Multi-skilled
12	Major overhaul	36M	In accordance with manufacturer's recommendations.	Details should be agreed with the client.	Multi-skilled

SCHEDULE LEGISLATION
http://www.hse.gov.uk/pubns/books/l8.htm ACOP L8 - HSE (2013 4th edition): Legionnaires' disease. The control of legionella bacteria in water systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 1: The Control of Legionella Bacteria in Evaporative Cooling Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 2: The Control of Legionella Bacteria in Hot and Cold Water Systems
http://www.hse.gov.uk/pubns/books/hsg274.htm HSG274 Part 3: The Control of Legionella Bacteria in Other Risk Systems

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Schedule Title : Special Water Treatment Systems

Schedule Ref : 65-04
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

TASK FREQUENCIES				
Not Specified				
1 2 3				

SCHEDULE INTRODUCTIONS
This type of plant is normally serviced by the manufacturer or their agent. The frequency of maintenance is dependent on the equipment being serviced and should be accessed on an individual basis as the result of a Risk Assessment. **Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.**

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Deionisation (De-Mineralisation)			These are specialised items of plant. Refer to the manufacturer or supplier for advice on maintenance.	Specialist
2	Electrolytic Water Conditioners			These are generally of 'sealed' type construction, therefore no internal maintenance is possible. Some products do require reversal. However, this is specific to some models and should be referred to the manufacturer for advice.	Specialist
3	Ultra-Sonic Type			These are specialised items of plant. Refer to the manufacturer or supplier for advice on maintenance.	Specialist

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Schedule Title : Filtration, Conditioning and pH Correction - Central Plant

Schedule Ref : 65-05
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (90 mins)	24M (120 mins)	36M (120 mins)	Not Specified	
2 3 4 5 9 10 11 12 13 16 17 18 19 20 23 24 25 26	6	14 21 27 28	8	

ANNUAL TIMING (MINUTES)
360

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Iron Removal**				
2	Feed water and treated water iron levels	3M	Collect samples of feed and treated water and visually compare differences in clarity. It may be of benefit to compare samples against a white background.	If the maximum concentration of iron in the treated water is specified, send sample to laboratory for analysis.	Mechanical
3	Water leaks	3M	If present, trace source and repair.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
4	Control system	3M	Check function of electrical control system.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
5	Clean cycle	3M	Initiate a clean cycle and check for correct function.	Check operations with plant manual. Refer to manufacturer or supplier if there are any malfunctions.	Mechanical
6	Major overhaul and inspection	24M	Following a clean cycle,inspect medium bed for content and fouling.	Carry out medium replacement if necessary as per manufacturer's instructions. Ensure correct type of medium for the application is installed and recommission after medium is replenished or replaced.	Mechanical
7	**pH Correction**				
8	pH correction			Frequency to be agreed with the client.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
9	Feed water and treated water pH levels	3M	Collect samples of feed and treated water and measure pH.	If the pH in the treated water differs from the specification, investigate and report to the client.	Mechanical
10	Water leaks	3M	If present, trace source and repair.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
11	Control system	3M	Check function of control system.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
12	Back wash	3M	Initiate a clean cycle and check for correct function.	Check operations with plant manual. Refer to manufacturer or supplier if there are any malfunctions.	Mechanical
13	Medium inspection	3M	Following a clean cycle, inspect medium bed for content and fouling.	Carry out medium replacement if necessary as per manufacturer's instructions. Ensure correct type of medium for the application is installed and recommission after medium is replenished or replaced. Frequency should take into account usage and local conditions.	Mechanical
14	Major overhaul	36M	Carry out in accordance with manufacturer's instructions.	Carry out medium replacement if necessary as per manufacturer's instructions. Ensure correct type of medium for the application is installed and recommission after medium is replenished or replaced. Frequency should take into account usage and local conditions.	Mechanical
15	**Activated Carbon Filtration**				
16	Feed water and treated water	3M	Collect samples of feed and treated water and assess condition against agreed criteria.	Criteria of water quality should be agreed with the client.	Mechanical
17	Water leaks	3M	If present, trace source and repair.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
18	Control system	3M	Check function of control system.		Mechanical
19	Back wash	3M	Initiate a clean cycle and check for correct function.	Check operations with plant manual. Refer to manufacturer or supplier if there are any malfunctions.	Mechanical
20	Medium inspection	3M	Following a clean cycle, inspect medium bed for content and fouling. It is essential not to saturate carbon filter systems.	Carry out medium replacement if necessary as per manufacturer's instructions. Ensure correct type of medium for the application is installed and recommission after medium is replenished or	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
				replaced. Frequency should take into account usage and local conditions.	
21	Major overhaul	36M	Carry out in accordance with manufacturer's instructions.		Mechanical
22	**Turbidity Treatment**				
23	Feed water and treated water	3M	Collect samples of feed and treated water.	If the turbidity of the treated water is specified send samples to laboratory for analysis.	Mechanical
24	Water leaks	3M	If present, trace source and repair.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
25	Control system	3M	Check function of control system.	Any leaks on control valves or vessels should be referred to manufacturer or supplier.	Mechanical
26	Back wash	3M	Initiate a clean cycle and check for correct function.	Check operations with plant manual. Refer to manufacturer or supplier if there are any malfunctions.	Mechanical
27	Medium inspection	36M	Following a clean cycle, inspect medium bed for content and fouling.	Carry out medium replacement if necessary as per manufacturer's instructions. Ensure correct type of medium for the application is installed and recommission after medium is replenished or replaced.	Mechanical
28	Major overhaul	36M	Carry out in accordance with manufacturer's instructions.		Mechanical

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Schedule Title : Filtration and Conditioning - Point of Use

Schedule Ref : 65-06
Schedule Type : Core
Schedule Date : 04 Nov 2015
Schedule Version : 2.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
3M (15 mins)	6M (15 mins)	12M (15 mins)		
7 16 17	2 3 9 12 13	4 5 10 14 18 19		

ANNUAL TIMING (MINUTES)
105

SCHEDULE INTRODUCTIONS
Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Active Carbon Cartridge Filter**				
2	Cartridge	6M	Change cartridge.	Maintenance operatives must take suitable precautions to prevent contamination of potable water supply.	Mechanical
3	'O' ring seals	6M	Inspect and clean or replace as necessary.		Mechanical
4	Control isolating valve	12M	Check operation as described in Valves - Service Valves (SFG 61 -03).		Mechanical
5	Sealed type housing	12M	Remove and replace complete housing.	Timescale should be according to the manufacturer's recommendations. N.B. It is essential not to overrun the recommended timescales.	Mechanical
6	**Bacterial Removal Filters**				
7	Cartridge type	3M	Remove, clean and disinfect cartridge. Inspect for cracking or damage. Change cartridge.	If flow drops to an unacceptable level, earlier maintenance may be necessary. Disinfection may not be required, refer to manufacturer's instructions.	Mechanical
8	**Sealed or Combined Type**				
9	Cartridge	6M	Change cartridge.	The frequency may vary according to the quality and usage of the inlet water.	Mechanical
10	Control Isolating Valve	12M	Check operation as described in		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
			Valves - Service Valves (SFG 61 -03).		
11	**Sediment Removal Filters**				
12	Cartridge	6M	Change cartridge.	Frequency, which will depend upon the quality of the inlet water supply, should be agreed with the client.	Mechanical
13	'O' ring seals.	6M	Inspect and clean or replace as necessary.		Mechanical
14	Control isolating valve	12M	Check operation as described in Valves - Service Valves (SFG 61 -03).		Mechanical
15	**Magnetic Water Conditioners**				
16	Magnetic water conditioners	3M		Caution: Before servicing magnetic water conditioners it is advisable to remove watches, cassettes or articles which may be damaged by an intense magnetic field.	Mechanical
17	Strainers (where fitted)	3M	Clean, inspect and reassemble.		Mechanical
18	Internal surfaces (where accessible)	12M	Clean.	There are many differing designs of magnetic water conditioners but all will be adversely affected by iron particles adhering to the faces of the magnets.	Mechanical
19	'O' rings	12M	Inspect and replace as necessary.	Refer to manufacturer's instructions.	Mechanical

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Schedule Title : Reverse Osmosis

Schedule Ref : 65-07
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
6M (60 mins)				
1 2 3 4 5				

ANNUAL TIMING (MINUTES)
120

SCHEDULE INTRODUCTIONS

This type of plant comes in a wide variety of designs and reference should be made to the maintenance instructions provided by the manufacturer.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Inlet and outlet water samples	6M	Collect samples and submit for analysis.	If there are any significant differences from the design parameters notify client and refer to equipment manufacturer.	Specialist
2	Water leaks	6M	Check and rectify.	Any signs of cross leakage between inlet and outlet of unit should be referred to the manufacturer.	Specialist
3	Control system	6M	Check function of control system.		Specialist
4	Membrane(s)	6M	Check integrity. Need for replacement should be reported to the client.	The actual means of checking the integrity of the membrane will carry with the design of the unit and manufacturer's instructions should be followed.	Specialist
5	Valves	6M	Check action.	For more detailed information on maintenance see Valves - In General (SFG 61-01).	Specialist

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Schedule Title : Ultraviolet Disinfection Unit

Schedule Ref : 65-08
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (15 mins)	12M (15 mins)	24M (30 mins)		
	3 4	5		
1 2				

ANNUAL TIMING (MINUTES)
195

SCHEDULE INTRODUCTIONS

Caution: Ultraviolet radiation is dangerous to the eyes, avoid looking directly at the lamp when illuminated.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Ultraviolet generation unit	1M	Check the system is operational and clean quartz glass sleeve if wipers are fitted.	Normally this will be carried out by the client's operative and frequency of maintenance should be agreed with the client.	Mechanical
2	Cartridge	1M	Change.	See note above as frequency will depend upon water quality.	Mechanical
3	Ultraviolet lamp	12M	Replace and note date in plant log.	Replacement interval will depend upon type of lamp: • medium pressure lamps - six months • low pressure lamps - twelve months.	Mechanical
4	Electrical safety	12M	Check security of connections and condition of wiring.		Electrical
5	Sediment removal pre-filter	24M	Remove, clean and replace quartz glass sleeve or thimble.	If feed water contains iron or organic matter, quartz glass may require more frequent cleaning.	Mechanical

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Schedule Title : Ozonation Plant

Schedule Ref : 65-09
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (5 mins)	6M (480 mins)			
1	2 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18 19			

ANNUAL TIMING (MINUTES)
1220

SCHEDULE INTRODUCTIONS

This schedule applies to larger size plants producing more than 30 grammes of ozone per hour. Smaller sized plant should be checked weekly by client's staff.

There is a significantly greater risk of hazardous exposure from leaks from larger generators producing 2 gms or more ozone per hour. Adequate health and safety data including emergency procedures, in the event of human exposure above safe exposure limits, should be displayed near the generating equipment and any plant or equipment supplied by it.

A permit to work system may be in place. In which case, the Authorised person must be contacted and a Permit issued before any work can commence on the equipment.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Joints and unions	1W	All mechanical joints and unions exposed to ozone should be opened up and the rubber seals inspected to check if perishing or any wear and deformation is occurring. If found, the seals should be replaced before restarting the equipment again.		Mechanical
2	Dielectric tubes and electrode assemblies	6M	Remove ozone generating modules, inspect and clean dielectric tubes and electrode assemblies. All glass tube 'O' rings must be replaced and steel liners cleaned.	After cleaning and reassembly, vacuum test to ensure soundness of both the intermediate tubeplate and seals.	Mechanical
3	Filter cartridge in main airline from dryer	6M	Remove and replace. Inspect 'O' ring seals and replace if necessary.		Mechanical
4	Dew point monitor probe	6M	Check calibration.	Refer to manufacturer's instructions.	Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
5	Solenoid valves and proximity switches (where fitted)	6M	Remove and replace valve seals and clean valve seats. Check operation.	See Switches (SFG 58).	Mechanical
6	Suction and discharge piping	6M	Check condition. Remove and replace purge pump membrane and diaphragm.		Mechanical
7	Cooling water flow	6M	Check flow rate and operation of proximity switch.	Each module should be checked.	Mechanical
8	Ozone generator air flow	6M	Check rate and operation of airflow proximity switch.		Mechanical
9	High temperature protection circuit	6M	Check operation.		Mechanical
10	Internal pipework	6M	Check for leakage or damage.		Mechanical
11	Air dryer control unit	6M	Check the timing and adjust as necessary.		Mechanical
12	**Recommissioning Checks**				
13	Safety control circuits and interlocks	6M	Restart generator. Check operation.		Mechanical
14	Dew point of dried air	6M	Check with portable dew point monitor.	**Warning:** H.T. circuit must be isolated when carrying out this check which will test soundness of internal fittings and piping.	Mechanical
15	Chiller unit (if fitted)	6M	Check operation.	For more detailed maintenance of refrigeration and chilling unit see Chillers - Water (SFG 09).	Mechanical
16	Water traps	6M	Check water levels.		Mechanical
17	Active carbon unit	6M	Check level of activated carbon and top-up if necessary. Check operation.		Mechanical
18	Filter automatic level control valves	6M	Check.		Mechanical
19	General	6M	Check.	Report to client and manufacturer if further action required.	Mechanical

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Schedule Title : Chemical Dosing

Schedule Ref : 65-10
Schedule Type : Core
Schedule Date : 14 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Nr

TASK FREQUENCIES (SERVICE TIMINGS)				
1M (15 mins)	3M (15 mins)	6M (30 mins)	12M (60 mins)	
13	2	3 4 5 6 7 9 14	10 11	

ANNUAL TIMING (MINUTES)
360

SCHEDULE INTRODUCTIONS

Regular dosing of treated water may be carried out manually or automatically on a discrete or continuous basis. Certain maintenance operations are common for all types of chemical dosing but specific requirements may apply to individual treatments such as:

- Chlorination
- Bromination
- Oxygen scavenging, corrosion and scale inhibitors
- Phosphate dosing
- Biocides.

In all cases refer to the manufacturer's instructions. Care should be taken in the storage, handling, disposal of all chemicals; COSHH Regulations apply.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	**Dosing Pots - Manual Operation**				
2	Water Sample	3M	Take, analyse and assess need for further treatment.	On high temperature systems, sample should be cooled before analysis. Special safety procedures apply to taking of samples at high pressure.	Mechanical
3	Low pressure dosing pots and valves	6M	Overhaul to ensure correct operation and check for leaks.		Mechanical
4	Dosing pot	6M	Clean and thoroughly flush with water.		Mechanical
5	Chemicals	6M	If required, fill dosing pot to correct level with appropriate chemical or chemical solution for application.	Ensure correct type of chemical treatment is used for application. Care is required in the handling of chemicals which should be carried out in accordance with COSHH Regulations.	Mechanical
6	Dosing	6M	If required, manipulate valves to ensure correct dosing of the system.		Mechanical

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Display Order	Item	FQ	Action	Notes	Skilling
7	Water sample (final)	6M	Take and check system water conditions.	Sample should only be taken after time has elapsed for full circulation and mixing through the system.	Mechanical
8	**Dosing Pots - Automatic Operation**				
9	Chemical Dosing Pumps	6M	Strip down, clean and reassemble. Check dosing rate.		Mechanical
10	Refillable storage vessels	12M	Empty, clean and check for corrosion. Repair or repaint as necessary.	Electronically controlled dosing pumps may be affected by other electrical equipment and should be correctly isolated. These pumps are usually made of special steels but may be subject to corrosion. Seals and packing may require replacement.	Mechanical
11	Disposable Storage Vessels	12M	Check level.	Replace as appropriate; frequency to be agreed with client.	Mechanical
12	**Probes**				
13	Conductivity/Bromine Probes	1M	Isolate, remove and clean.		Mechanical
14	Other sensing and flow rate control devices	6M		Maintain in accordance with manufacturer's instructions.	Mechanical

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Schedule Title : Introductory Procedures - Chlorine Dioxide Dosing for Domestic Low Level Injection

Schedule Ref : 65-13
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : Not specified

SCHEDULE INTRODUCTIONS

Whilst legionella bacteria are most active in the temperature range 20°C to 45°C, occasions can occur where growth is promoted even in cold water systems.

This can arise where the local temperature is raised by:

a) heat build-up due to solar gain or the proximity to hot water services
b) the storage capacity is far greater than is necessary. In general terms the storage capacity should not exceed one day's usage.

Seasonal variation: In the summertime it is not unusual to have incoming mains supplies exceeding 20°C. When this occurs systems should be reassessed with the likely outcome of increasing regular flushing to these outlets in a safe manner with minimal aerosolisation.

Cleanliness of the system is of primary importance to ensure that the legionella bacteria do not have any nutrients for growth and survival. Such nutrients can come from vegetable, animal and even mineral substances and it is for this reason that storage cisterns should be free from rust, dust, slime, mould, fungi and such items as dead birds, rats, mice, insects etc. and that non-metallic materials satisfy the requirements of current British Standards.

Lists of materials approved by the water industry (WRAS) are published in the Water Fittings and Materials Directory (see Standards List). All new and replacement water fittings should satisfy Water Supply (water fittings) Regulations and the Scottish Water Bylaws requirements and be listed in the WRAS directory.

Cleansing of tanks, cisterns and associated pipework should be followed by full disinfection in accordance with current Statutory Requirements, Regulations and as per chemical manufacturer's specification.

The pipework system should be free of any points where pockets of dirt, slime or sediment can build up and stagnation can occur.

When temperature problems are encountered and remedial works are not practical in order to engineer out the problems, Chlorine Dioxide Dosing can be used.

Chlorine Dioxide is an oxidising biocide that is capable of reacting with a wide range of organic substances. In the inactivation of microorganisms, the chlorine dioxide molecule acts as a free radical (oxidising biocide) that readily bonds with the amino acids (the basic building blocks of proteins which form the living cells). This results in their destruction.

Chlorine Dioxide as a Control Measure

The use of chlorine dioxide as a control measure will depend on the design of the systems in use and their operational history. There are two aspects to be taken into consideration:

a). in the cold water distribution system chlorine dioxide will be injected into the system upstream of all parts of the distribution, storage and boosting equipment - that is, at the curtilage of the premises. Backflow prevention is required if chlorine dioxide is injected into a pipe connected to the mains supply.

b). in the case of hot water distribution systems with calorifiers/water heater operating conventionally (that is, at 60°C) there will be a tendency for chlorine dioxide to be lost by "gassing off", especially if the retention time in a vented calorifier/water heater is long. In most cases, however, some level of total oxidant should be found in the hot water, although at concentrations far less than the 0.5 mg/L injected. The calorifier/water heater should act as a barrier to dispersal of any pathogenic material by the hot water system (even if the cold water supply quality is not under control). Chlorine dioxide and its breakdown products chlorite and chlorate can be deleterious to neonates and renal dialysis patients and should be removed from the water supply to these units.

For all practical purposes in water, ppm = mg/L.

Maintenance of the Control Regimen

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This depends on four separate aspects as follows:

- ensuring that the dosing equipment is operating satisfactorily
- ensuring that the limit for total oxidant in the system is not exceeded
- ensuring that all the parts of cold and blended water systems are exposed to chlorine dioxide
- ensuring that a management system is in place to maintain these procedures
- ensuring that the dosing equipment is operating satisfactorily

It is normally the responsibility of the supplier of the dosing equipment who will seek to achieve the maximum available chlorine dioxide from the generation process. (Systems are not 100% efficient and the free available chlorine dioxide may be less than the permitted limit of total oxidant of 0.5 mg/L but should not be significantly less at the point of injection). When chemical treatment is introduced as part of a programme of remedial action of a colonised system, as the system is brought under control, it should be possible to measure increasing concentrations of available (active) chlorine dioxide. With a newly installed dosing system, this may not be possible for several weeks. If chlorine dioxide cannot be identified, tests for total oxidant should be performed.

It will be the responsible person or similar who should take responsibility to check that the equipment is operating and this should include routine checking of available "active" chlorine dioxide on a daily basis.

Tests for total oxidant are most easily accomplished by DPD1 tablets. The oxidising effect of chlorine can be removed by first adding glycine and the remaining total oxidants (including chlorine dioxide, chlorite and chlorate) can then be measured using the DPD1 tablets, following suppliers' instructions. DPD is an abbreviation for diethyl-p-phenylenediamine. DPD1 tablets are used for detecting oxidants in water ensuring that the limit for total oxidant in the system is not exceeded.

The available chlorine dioxide and total oxidant, therefore, will be the result of the disinfection process, general state of the system and water usage levels. Performance of the dosing equipment is normally the responsibility of the supplier/client. (Water quality overall is ultimately the responsibility of the owners of the system).

A representative number of outlets should be tested for total oxidant to ensure that the limits are not being exceeded. These should include proximal outlets and some distal outlets. (It is not necessary to check the hot water service). This ensures that all parts of cold and blended water systems are exposed to chlorine dioxide.

In addition to the above, it will be necessary to monitor the following:

- the quantity of chemicals in the reservoir;
- the rate of addition of chlorine dioxide to the water supply;
- on a monthly basis, the concentration of chlorine dioxide should be measured at the sentinel taps and should be at least 0.1 mg/L and no more than 0.5 mg/L;
- on an annual basis, the chlorine dioxide should be measured at a representative number of outlets and should be at least 0.1 mg/L and no more than 0.5 mg/L.

Prior to commissioning new equipment, a thorough disinfection of the services to be continually dosed with chlorine dioxide is required in order to remove as much biofilm as possible. This should be carried out in order for the new system to settle down in a reasonable time and to ensure levels are reached throughout the system without the need for overloading in order to reach acceptable levels at the farthest point in the system.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

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Schedule Title : Chlorine Dioxide Low Dosing Domestic Water Systems

Schedule Ref : 65-14
Schedule Type : Core
Schedule Date : 27 Oct 2015
Schedule Version : 1.0.0-2016
Unit of Measure : System

TASK FREQUENCIES (SERVICE TIMINGS)				
1W (15 mins)	1M (15 mins)			
1	2			

ANNUAL TIMING (MINUTES)
960

SCHEDULE INTRODUCTIONS

Sampling and maintenance of chlorine dioxide low dosing. All other requirements for operations and maintenance should be carried out as in the O & M Manual and normally carried out by the installer/supplier of the equipment.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

SCHEDULE TASKS

Display Order	Item	FQ	Action	Notes	Skilling
1	Sampling - Weekly	1W	Take sample from first outlet from the dosing system and test for Cl02 concentration. Top up chemical storage.	Adjust dosing according to results. Do not dose if the test results show levels greater than 0.5 mg/l in drinking water. In Cat' two fluid, dosage can be raised to 1 mg/l. Be aware of possible metal corrosion over time.	Mechanical
2	Sampling - Monthly	1M	Sample sentinel outlets for Cl02 and log in logbook.	Ensure dose level is maintained and in drinking water does not exceed 0.5 mg/l.	Mechanical

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Asset Profile

Service Timings are displayed in minutes in brackets

Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	00-01	Overarching Introduction		Not specified	0																							
SFG20	01-01	Introductory Procedures - Actuators		Not specified	0																							
SFG20	01-02	Pre-Maintenance Procedures - Actuators		Not specified	0																							
SFG20	01-03	Thermal Actuators	M&E	Nr	34												(6)			(10)								
SFG20	01-04	Pneumatic Actuators	M&E	Nr	34												(6)			(10)								
SFG20	01-05	Hydraulic Actuators	M&E	Nr	75												(15)			(15)								
SFG20	01-06	Motor Driven Actuators	M&E	Nr	50												(10)			(10)								
SFG20	01-07	Power Fail - Motor Return Actuators	M&E	Nr	44												(6)		(5)	(10)								
SFG20	01-08	Power Fail - Spring Return Actuator	M&E	Nr	34												(6)			(10)								
SFG20	02-01	Introductory Procedures - Air Conditioning		Not specified	0																							
SFG20	02-02	Air Pressure Relief Damper	M&E	Nr	0																							
Custom	03-01	Air Handling Units - General (mod)	M&E	System	260												(20)		(30)	(120)								
SFG20	04-01	Belt Drives	M&E	System	48												(12)											

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	05-01	Introductory Procedures - Boilers/Heat Generators		Not specified	0																							
SFG20	05-02	Pre-Maintenance Procedures - Boilers/Heat Generators		Not specified	0																							
SFG20	05-03	Atmospheric Gas Burner - Free Standing Boiler	Gas Safe	Nr	90															(90)								
SFG20	05-04	Atmospheric Gas Burner - Condensing Boiler	Gas Safe	Nr	90															(90)								
SFG20	05-05	Coal Fired Boilers - Bunkers and Conveyors	Mechanical	Nr	1200										(60)					(480)								
SFG20	05-06	Coal Fired Boilers - Coal Storage Handling and Feed Mechanisms, Automatic Ash Removal (where fitted)	Mechanical	Nr	720												(60)		(120)	(240)								
SFG20	05-07	Coal Feed Mechanisms - Under Feed Stokers	M&E / Mechanical	Nr	480														(240)									
SFG20	05-08	Coal Feed Mechanisms - Chain Grate Stokers	Mechanical / Electrical	Nr	480															(480)								
SFG20	05-09	Ash Handling System	Mechanical	Nr	1920										(60)		(180)		(120)	(240)								
SFG20	05-10	Blown Gas Burner Condensing Boiler	Gas Safe	Nr	130														(20)	(90)				(240)				
SFG20	05-11	Blown Gas Burner Modular Boiler	Gas Safe	Nr	160														(20)	(120)				(180)				
SFG20	05-12	Forced Draught Gas Condensing Boiler	Gas Safe	Nr	180														(60)	(60)								
SFG20	05-13	Forced Draught (Pressure Jet) Oil Condensing Boiler	Mechanical / Gas Safe	Nr	180														(60)	(60)								

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	05-14	Boilers MTHW up to 120ºC	Gas Safe	Nr	480															(480)								
SFG20	05-15	Multiple Boilers - Sequence Controls	M&E	Nr	30															(30)								
SFG20	05-16	Boiler Controls - Single Boiler: On/off	M&E	System	50														(10)	(30)								
SFG20	05-17	Boiler Protection Controls	Mechanical	System	15															(15)								
SFG20	05-18	Boilers - Space Temperature Controls	Mechanical	System	15															(15)								
SFG20	05-19	Steam Boilers Pre-Maintenance Check	Mechanical	Nr	90															(90)								
SFG20	05-20	Steam Boilers Maintenance Schedule	Plant Attendant / Mechanical	Nr	25440		(60)	(45)												(1200)								
SFG20	05-21	Electric Boilers	M&E	Nr	60															(60)								
SFG20	05-22	Electrode Boilers	Electrical	Nr	120												(15)			(60)								
SFG20	05-23	Boilers LTHW Up to 95ºC	Gas Safe	Nr	120															(120)								
SFG20	05-24	Boilers - Fire and Safety Circuits	Mechanical	Nr	15															(15)								
SFG20	05-25	Waste and Wood Burning Appliances (Including Boilers) - Fire and Boiler Safety Circuits	Mechanical	Nr	120												(30)											
SFG20	05-26	Waste and Wood Burning Appliances (Including Boilers) - Combustion Chamber	Mechanical	Nr	960												(240)											
SFG20	05-27	Waste and Wood Burning Appliances (Including Boilers) - Boiler (if fitted)	Mechanical	Nr	960												(240)											

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	05-28	Atmospheric Gas Burner Boiler - Small and/or Wall Hung for Domestic/Light Commercial Installation	Gas Safe	Nr	60															(60)								
SFG20	05-29	Combination Atmospheric Burner Gas Boiler	Gas Safe	Nr	60															(60)								
SFG20	05-30	Atmospheric Gas Burner/Condensing Combination Boiler	Gas Safe	Nr	75															(75)								
SFG20	05-31	Air to Water Heat Pump	Refrigeration Engineer / M&E / Mechanical	Nr	180														(90)								
SFG20	05-32	Water to Water Heat Pump	Refrigeration Engineer / M&E	Nr	180														(90)								
SFG20	05-33	Brine to Water Heat Pump	Refrigeration Engineer / M&E / Technician	Nr	240														(120)								
SFG20	05-34	Packaged Steam Generators	Mechanical	Nr	25440		(60)	(45)												(1200)								
SFG20	05-35	Packaged Steam Generators - Electric	Electrical	Nr	360												(30)			(240)								
SFG20	05-36	Steam Boiler Report - Periodic Examination		Not specified	0																							
SFG20	05-37	Boiler Superheater	Mechanical	Nr	480															(480)								
SFG20	05-38	Biomass Boiler	Mechanical / Electrical	Nr	1910			(20)							(5)		(180)		(40)	(10)		(15)						
SFG20	05-39	Gas Booster Sets	Gas Safe	Nr	85												(10)			(45)					(60)			

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	05-40	Gas Governor or Gas Regulator	Gas Safe	Nr	60															(60)								
SFG20	05-41	Gas Incinerator	Mechanical / Gas Safe	Nr	240															(240)								
SFG20	05-42	Waste Incinerator	Mechanical / Gas Safe / Electrical	Nr	202080	(20)	(60)	(60)	(30)						(40)				(60)	(480)								
SFG20	05-43	Wet Scrubber System	Mechanical	Nr	8300		(20)	(10)							(30)				(60)									
SFG20	05-45	Sanitary Incinerator - Electrical	Mechanical / Electrical	Nr	275			(5)												(15)								
SFG20	05-46	Oil Fired Space Heaters	M&E	Nr	210												(20)		(20)	(90)								
SFG20	05-47	Kiln - Electric	M&E	Nr	0																							
SFG20	06-01	Introductory Procedures - Building Management Systems		Not specified	0																							
SFG20	06-03	Central Operator Station	M&E	Nr	180														(60)	(60)								
SFG20	06-04	Communications	M&E	Nr	60															(60)								
SFG20	06-05	Outstations	M&E	Nr	20															(20)								
SFG20	06-06	Software Functions	M&E	Nr	480														(120)	(240)								
SFG20	07-01	Atmospheric Gas Burners	Gas Safe	Nr	60															(60)								
SFG20	07-02	Blown Gas Burner	Gas Safe	Nr	90														(15)	(60)								
SFG20	07-03	Forced Draught Gas Burner	Gas Safe	Nr	120														(60)									

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	07-04	Fuel Oil Distribution and Pipework using Medium (220/960 Sec) Oil	Mechanical	Nr	120															(120)								
SFG20	07-05	Forced Draught (Pressure Jet) Oil Burner	Mechanical	Nr	300												(60)		(30)									
SFG20	07-06	Light Oil Vaporising Pot Burner	Mechanical	Nr	300												(60)		(30)									
SFG20	07-07	Gas/Oil Burners - Dual Fuel	Mechanical / Gas Safe / M&E	Nr	250												(45)		(20)	(30)								
SFG20	09-01	Introductory Procedures - Chillers - Water		Not specified	0																							
SFG20	09-02	Packaged Chiller Units	Refrigeration Engineer / Specialist / Electrical	Nr	660												(120)			(180)								
SFG20	09-03	Lithium Bromide/Water Absorption Chillers	Mechanical	Nr	960										(30)	(30)			(30)	(360)		(120)						
SFG20	09-04	Gas Fired Absorption Chiller Up to 18kw Cooling Capacity	Mechanical	Nr	510													(90)	(120)									
SFG20	09-05	Solar Thermal Absorption Chillers	Mechanical / Electrical	Nr	275										(15)	(5)			(10)	(45)								
SFG20	13-01	Condensers - Water Cooled	Mechanical / Refrigeration Engineer	Nr	180															(180)								
SFG20	13-02	Condenser - Air Cooled	Mechanical / Electrical / Refrigeration Engineer	Nr	265												(60)		(5)	(15)								

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
Custom	13-02+1	Condenser - Air Cooled	Mechanical / Electrical / Refrigeration Engineer	Nr	25														(5)	(15)								
Custom	13-02+8	Condenser - Air Cooled	Mechanical / Electrical / Refrigeration Engineer	Nr	25														(5)	(15)								
SFG20	14-01	Introductory Procedures - Control Panels & Controllers		Not specified	0																							
SFG20	14-02	Electrical Services (excluding Electrical Controllers and Pneumatic Relays)	Electrical	Nr	120														(30)	(60)			(15)					
SFG20	14-03	Lamps, Meters, Alarms etc	Electrical	Nr	150										(5)		(10)		(20)	(10)								
SFG20	14-04	Optimiser	Electrical	Nr	20															(20)								
SFG20	14-05	Heating Compensator	Electrical	Nr	20															(20)								
SFG20	14-06	Single Input Controller	Electrical	Nr	20															(20)								
SFG20	14-07	Unit Controllers and Sensor Controllers	Electrical	Nr	25															(25)								
SFG20	14-08	Controller Timers	Electrical	Nr	20															(20)								
SFG20	14-09	Step Controllers	Electrical	Nr	20															(20)								
SFG20	14-10	Time Switches	Electrical	Nr	35														(10)	(15)								
SFG20	14-11	Multi-Input Controllers	Electrical	Nr	20															(20)								
SFG20	14-12	Indicators and Displays	Electrical	Nr	20															(20)								

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	14-13	Alarm Modules	Electrical	Nr	20															(20)								
SFG20	14-14	Level Controllers	Electrical	Nr	20															(20)								
SFG20	14-15	Speed Controllers	Electrical	Nr	20															(20)								
SFG20	14-16	Transducers - Pneumatic to Electronic and Electronic to Pneumatic	Electrical	Nr	20															(20)								
SFG20	14-17	Direct Current (DC) Drives	Electrical	Nr	20															(20)								
SFG20	14-18	Emergency Stop Buttons	Multi-skilled	Nr	20												(5)											
SFG20	16-01	Introductory Procedures - Ducting and Air Distribution		Not specified	0																							
SFG20	16-02	Ductwork System - General	Mechanical	m²	120															(120)								
SFG20	16-03	Ducting - Volume Control Dampers and Fire/Smoke Dampers	Mechanical / Electrical / Specialist	System	60												(10)		(10)									
SFG20	16-04	Ducting - Attenuators	Mechanical	m²	10															(10)								
SFG20	17-01	Ductwork Cleaning - Hygiene, Inspections and Monitoring	Specialist / Mechanical	m²	90															(90)								
SFG20	17-02	Kitchen Extract/Ventilation System	Specialist	Nr	480												(120)											
SFG20	18-01	Introductory Procedures - Electrics in Buildings		Not specified	0																							
SFG20	19-01	Refrigeration Evaporators	Refrigeration Engineer	Nr	165														(45)	(75)								

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SFG20	20-01	Introductory Procedures - Fans		Not specified	0																							
SFG20	20-02	Ventilating Fans - General	M&E	Nr	140										(10)				(10)									
SFG20	20-03	Centrifugal Fans	M&E / Mechanical	Nr	71										(3)				(15)	(5)								
SFG20	20-04	Axial Fans	M&E / Mechanical	Nr	99										(3)		(10)		(10)	(3)								
SFG20	20-05	Propeller Fans	M&E / Mechanical	Nr	66										(3)				(15)									
SFG20	20-06	Mixed Flow Fans	M&E / Mechanical	Nr	66										(3)				(15)									
SFG20	20-07	Bifurcated Fans	M&E / Mechanical	Nr	105										(3)		(6)		(15)	(15)								
SFG20	20-08	Extract Fans - Including Fire/Smoke Extract Units	M&E	Nr	71										(3)				(15)	(5)								
SFG20	20-09	Ammonia Extract Fan	M&E	Nr	0																							
SFG20	20-10	Hazardous Area Extract Fan	Specialist	Nr	0																							
SFG20	21-01	Introductory Procedures - Filters		Not specified	0																							
Custom	21-02	Air Filters (mod)	Mechanical	Nr	135														(45)	(45)								
SFG20	21-03	Electrostatic Filters	M&E	Nr	120										(10)													
SFG20	24-01	Flues (All Combustible Fuels)	Mechanical	Nr	120										(5)					(60)								
SFG20	26-01	Grilles and Diffusers	Mechanical	Nr	3														(1)	(1)								

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SFG20	26-02	Louvres, Bird and Insect Screens	Mechanical	Nr	4														(2)									
SFG20	27-01	Introductory Procedures - Hazardous Areas (Electrics)		Not specified	0																							
SFG20	27-02	Hazardous Areas - Flameproof Equipment	Electrical	Nr	30												(5)		(5)									
SFG20	27-03	Hazardous Areas - Lighting	Electrical	Nr	30														(15)									
SFG20	27-04	Hazardous Areas - Earthing	Electrical	Nr	180														(90)									
SFG20	28-01	Heat Emitters	Mechanical / M&E / Electrical	Nr	60												(10)		(5)	(10)								
SFG20	28-02	Gas Fired Ceramic Plaque Infra-Red Heaters	Gas Safe / Electrical	Nr	60															(60)								
SFG20	28-03	Gas Radiant Tube Heaters	Gas Safe / Electrical	Nr	120															(120)								
SFG20	28-04	Gas Fired Natural and Fan Assisted Heaters - Conventional and Balanced Flue	Gas Safe / Electrical	Nr	60															(60)								
SFG20	28-05	Gas Fire	Gas Safe	Nr	30															(30)								
SFG20	28-06	Gas Fired Unit Heaters	Gas Safe	Nr	60															(60)								
SFG20	28-07	Gas Fired Radiant Heaters	Gas Safe / Specialist	Nr	60															(60)								
SFG20	29-01	Heat Exchangers - Coils	Mechanical / Gas Safe	Nr	190										(5)				(5)	(120)								
SFG20	29-02	Electric/Air Heater	Mechanical / Electrical	Nr	20															(20)								
SFG20	29-03	Plate Recuperator	Mechanical	Nr	80												(10)		(20)									

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SFG20	29-04	Thermal Wheels - Rotary Heat Regenerators	Mechanical	Nr	55														(5)	(45)								
SFG20	29-05	Run Around Heat Recovery Coils	Mechanical	System	10															(10)								
SFG20	29-06	Plate Heat Exchangers	Mechanical	Nr	20															(20)								
SFG20	29-08	Heating Calorifiers - MTHW, HTHW or Steam	Mechanical	Nr	240															(240)								
SFG20	30-01	Introductory Procedures - Heat Rejection Systems		Not specified	0																							
SFG20	30-02	Cooling Towers - Precautions against Legionnaires Disease (Legionella Pneumophila)	Not-specified / Multi-skilled	Nr	1940			(20)							(30)				(240)	(60)								
SFG20	30-03	Dry Coolers	Mechanical / Specialist / Electrical	Nr	140														(70)									
SFG20	30-04	Adiabatic Coolers	Mechanical / Specialist / Electrical / M&E	Nr	1745			(15)							(35)		(45)		(145)	(45)		(15)						
SFG20	31-01	Introductory Procedures - Hot and Cold Water Services		Not specified	0																							
SFG20	32-01	Introductory Procedures - Hot Water Supply		Not specified	0																							
SFG20	32-02	Hot Water Services General	Mechanical	System	850			(15)							(5)					(10)								
SFG20	32-03	Introductory Procedures - Calorifier Types		Not specified	0																							

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SFG20	32-04	Pre-Maintenance Procedures - Calorifiers		Not specified	0																							
SFG20	32-05	Calorifiers Heated by LTHW	Mechanical	Nr	240															(240)								
SFG20	32-06	Hot Water Calorifiers - Heated by MTHW, HTHW or Steam	Mechanical / Specialist	Nr	180															(180)		(10)						
SFG20	32-07	Hot Water Supply Calorifiers	Mechanical	Nr	120										(5)					(60)		(60)						
SFG20	32-08	Calorifier and Heat Exchange Controls	M&E	System	30															(30)								
SFG20	32-09	Hot Water Cylinders	Mechanical	Nr	130										(5)				(5)	(60)								
SFG20	32-10	Unvented Hot Water Systems	Mechanical	Nr	160										(5)		(15)		(5)	(30)								
SFG20	32-11	Thermal Storage Cylinder (Individual Dwellings for DHWS)	Mechanical	Nr	120										(5)					(60)								
SFG20	32-12	Expansion Vessels	Mechanical	Nr	335			(5)									(15)			(15)								
SFG20	32-13	Direct Fired Water Heaters	Gas Safe / Not-specified	Nr	120															(120)								
SFG20	32-14	Instantaneous Electric Water Heaters (Non Drinks Type)	Mechanical	Nr	90										(5)					(30)								
SFG20	32-15	Packaged Electric Water Heaters - Cistern Type (Non Drinks)	Unknown / Mechanical / Electrical / M&E	Nr	130										(5)				(20)	(30)								
SFG20	32-16	Vented Hot Water Systems	Mechanical	Nr	135										(5)		(5)		(5)	(45)								
SFG20	33-01	Humidifiers - Cold Water Evaporator, Drum Type	Mechanical	Nr	160												(25)			(60)								

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SFG20	33-02	Humidifiers - Direct Steam Injection Type	Mechanical	Nr	345										(5)		(60)			(45)								
SFG20	33-03	Humidifiers - Electrode Boiler	M&E	Nr	150												(30)			(30)								
SFG20	33-04	Humidifiers - Compressed Air Type	Mechanical	Nr	170										(5)		(20)		(5)	(20)								
SFG20	33-05	Humidifiers - Ultrasonic	Mechanical	Nr	235										(10)		(15)		(5)	(45)								
SFG20	33-06	Humidifiers - Resistance Heater Type	Mechanical	Nr	104												(10)		(2)	(60)								
SFG20	33-08	Humidifiers - Spray	Mechanical	Nr	560			(10)											(20)									
SFG20	36-01	Introductory Procedures - Lighting		Not specified	0																							
SFG20	36-02	Lighting - Switches - Internal and External	Electrical	m²	6														(2)	(2)								
SFG20	36-03	Lighting Fittings including Luminaires General	Electrical	m²	5															(5)								
SFG20	36-04	External Lighting including Illuminated Signs	Electrical	Nr	15														(5)	(5)								
SFG20	37-01	Emergency Lighting - Self Contained	Electrical	Nr	252										(1)					(240)								
SFG20	37-02	Emergency Lighting - Externally Powered	Electrical	Nr	440										(25)		(20)			(60)								
SFG20	38-01	Lightning Conductor and Earth	Specialist	System	0																							
SFG20	39-01	Motors - Drive Elements	Mechanical	Nr	50												(10)			(10)								
SFG20	40-01	Pipework Systems - General	Mechanical	m²	20															(20)								
SFG20	40-02	Pipework Systems - Mountings	Mechanical	System	120												(30)											

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SFG20	40-03	Trace Heating - Electrical	Electrical	System	0																							
SFG20	40-07	Pneumatic Equipment/Compressed Air Systems		Not specified	0																							
SFG20	40-08	Air Compressors and Receivers	Mechanical	m²	2705		(5)	(5)							(10)		(5)		(60)	(240)		(60)						
SFG20	40-09	Air Compressors Compressed Air Dryers	Mechanical	Nr	180												(30)			(60)								
SFG20	40-10	Pipework for Low Pressure Natural Gas, Liquefied Petroleum Gas (LPG) or Oil	Gas Safe / Mechanical	m²	60															(60)								
SFG20	40-11	Steam Services	Mechanical	m²	1320										(60)		(30)			(480)								
SFG20	40-12	Flash Steam Vessel	Mechanical	Nr	360												(30)			(240)								
SFG20	40-13	Emergency Solenoid Fuel Valves	Mechanical	Nr	60												(15)											
SFG20	40-15	Pressure Reducing Valves	Mechanical	Nr	100												(20)			(20)								
SFG20	40-16	Water Buffer/Surge Tanks	Mechanical	Nr	160										(5)				(5)	(90)								
SFG20	40-17	Water Mains - Above Ground	Mechanical	Nr	40														(20)									
SFG20	40-18	Boiler Water Deaerator	Mechanical / Specialist	Nr	0																							
SFG20	40-22	Solenoid Gas/Oil Shut-off (Safety) Valves	Mechanical / Multi-skilled	Nr	0																							
SFG20	41-01	Pneumatic Relays	Specialist	Nr	30														(15)									
SFG20	42-01	Portable Appliance Testing (PAT)	M&E	Nr	0																							

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SFG20	43-01	Introductory Procedures - Power Generators		Not specified	0																							
SFG20	43-02	Power Generation - Stand-by Generator	Electrical / M&E	Nr	5600			(5)							(360)				(240)	(60)		(240)						
SFG20	43-03	Batteries - Lead Acid - Unsealed	Electrical	Nr	38										(2)				(2)	(10)								
SFG20	43-04	Battery Charging Equipment	Electrical	Nr	60															(60)								
SFG20	43-05	Uninterruptible Power Supplies	Electrical	Nr	480														(240)									
SFG20	43-06	Photovoltaics	Electrical	Nr	900			(10)							(20)		(20)			(60)								
SFG20	43-07	Combined Heat and Power (CHP) - Diesel Fuel Engine	M&E	Nr	4600		(10)	(10)							(20)				(80)	(30)								
SFG20	43-08	Combined Heat and Power (CHP) - Gaseous Fuel Engine	M&E / Gas Safe	Nr	4610		(10)	(10)							(20)				(60)	(80)								
SFG20	44-01	Introductory Procedures - Power Supplies		Not specified	0																							
SFG20	44-02	Main Switch Panel at Supply Intake	Electrical	Nr	280												(10)			(240)		(60)						
SFG20	44-03	Maximum Demand and Power Factor Correction	Electrical	Nr	120															(120)								
SFG20	44-04	Armoured Cables and Conduits	Electrical	System	60															(60)								
SFG20	44-05	Power Distribution Unit (PDU)	Electrical	Nr	90															(90)								
SFG20	44-06	Earthing	Electrical	System	128												(2)			(120)		(2)						
SFG20	44-07	Distribution Boards	Electrical	Nr	68												(2)			(60)								
SFG20	44-08	Electrical Installation - Generally	Electrical	System	18												(2)			(10)								

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SFG20	44-09	Three Phase Circuits	Electrical	Nr	23												(2)			(15)								
SFG20	44-10	Isolators/Starters/Fuse Switches	Electrical	Nr	22												(3)			(10)								
Custom	44-20-3S	Electrical Periodic Inspection and Testing - 3 Yearly	Electrical / Not-specified / Technician	System	0																							
Custom	44-20-5F	Electrical Periodic Inspection and Testing - 5 Yearly	Electrical / Technician	System	0																							
Custom	44-20-5S	Electrical Periodic Inspection and Testing - 5 Yearly	Electrical / Not-specified / Technician	System	0																							
SFG20	45-01	Pumps - General	Mechanical / Electrical	Nr	35														(10)	(15)								
SFG20	45-02	Circulating Pumps - General	Mechanical	Nr	60												(15)											
SFG20	45-03	Centrifugal Pumps	Mechanical / Electrical	Nr	60												(15)											
SFG20	45-04	Pressurisation Pumps	Mechanical / Electrical	Nr	60												(15)											
SFG20	45-05	Rotary Hand Pumps	Mechanical	Nr	15															(15)								
SFG20	45-06	Secondary Hot Water Circulating Pumps	Mechanical / Electrical	Nr	35														(10)	(15)								
SFG20	45-07	Sewage or Drainage Pumps Submersible	Mechanical / Electrical	Nr	120														(60)									
SFG20	45-08	Sewage and Drainage Pumps: Dry Well	Mechanical / Electrical	Nr	120														(60)									
SFG20	45-09	Sewage Pumps: Compressed Air	Mechanical	Nr	240														(60)	(120)								

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SFG20	45-10	Sump Pumps: Extended Shaft	Mechanical / Electrical	Nr	420												(60)		(30)	(120)								
SFG20	45-11	Domestic Hot Water Accelerators	Mechanical	Nr	10															(10)								
SFG20	45-12	Water Booster Pumps	Mechanical / Electrical	Nr	490												(120)			(10)								
SFG20	45-13	Ogden Steam Pump	Mechanical	Nr	180															(180)								
SFG20	46-01	Refrigerant Distribution System	Refrigeration Engineer	m²	300												(60)			(60)								
SFG20	47-01	Room Air Conditioners	Mechanical / Refrigeration Engineer	Nr	66														(30)	(6)								
SFG20	48-03	Interceptors - Petrol and Oil	Mechanical	Nr	240															(240)								
SFG20	50-01	Pre-Maintenance Procedures - Sensors and Switching Devices		Not specified	0																							
SFG20	50-02	Pressure Measurement Sensors - Static and Differential	M&E	Nr	18														(6)	(6)								
SFG20	50-03	Temperature Measurement Sensors	M&E	Nr	6															(6)								
SFG20	50-04	Relative Humidity Sensors	M&E	Nr	18														(6)	(6)								
SFG20	50-05	Absolute Humidity Sensors	M&E	Nr	18														(6)	(6)								
SFG20	50-06	Air Quality Sensors	M&E	Nr	18														(6)	(6)								
SFG20	50-07	Carbon Dioxide Sensors	M&E	Nr	18														(6)	(6)								
SFG20	50-08	Velocity Sensors	M&E	Nr	18														(6)	(6)								

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SFG20	50-09	Occupancy and Light Sensors	M&E	Nr	6															(6)								
SFG20	50-10	Smoke Detectors	Specialist	Nr	6															(6)								
SFG20	50-11	Gas Detector Sensors/Carbon Monoxide Sensors	Specialist	Nr	6															(6)								
SFG20	51-01	Showers	Not-specified / Mechanical	Nr	60												(15)											
SFG20	51-02	Showers Booster Pumps	Mechanical	Nr	45														(15)	(15)								
SFG20	52-01	Introductory Procedures - Smoke Extract		Not specified	0																							
SFG20	52-02	Smoke Relief - Natural Smoke and Heat Exhaust Ventilators	Mechanical	Nr	290			(5)												(30)								
SFG20	52-03	Smoke Relief - Powered Smoke and Heat Exhaust Ventilators	Mechanical	Nr	290			(5)												(30)								
SFG20	52-04	Smoke Curtains	Mechanical	Nr	90															(90)								
SFG20	53-01	Solar Hot Water Panels and Similar Collecting Devices	Electrical	Nr	120														(30)	(60)			(120)					
SFG20	54-01	Introductory Procedures - Split Systems Including Heat Pumps		Not specified	0																							
SFG20	54-02	DX Split Systems (With Gas, Electric or Hot Water Heaters)	M&E / Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)									

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Custom	54-02+1	DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact	M&E / Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-02+12	DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact	M&E / Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-02+24	DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact	M&E / Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-02+4	DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact	M&E / Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-02+8	DX Split Systems (With Gas, Electric or Hot Water Heaters) - Increased Environmental Impact/High Service Impact	M&E / Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
SFG20	54-03	Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX)	Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								

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Custom	54-03+1	Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact	Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-03+12	Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact	Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-03+4	Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact	Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
Custom	54-03+8	Split Systems/Heat Pumps - Air-Cooled with Direct Expansion Evaporator (DX) - Increased Environmental Impact/High Service Impact	Mechanical / Refrigeration Engineer / Electrical / Gas Safe	Nr	180														(90)								
SFG20	55-01	Starters - Drive Elements	Electrical	Nr	15															(15)							
SFG20	55-02	Starters - Star Delta	Electrical	Nr	15															(15)							
SFG20	55-03	Starters -Two Speed - Dual Wound	Electrical	Nr	15															(15)							
SFG20	55-04	Starters - Two Speed - Pole Change	Electrical	Nr	15															(15)							
SFG20	55-05	Starters - Reversing	Electrical	Nr	15															(15)							
SFG20	55-06	Starters - Autotransformer	Electrical	Nr	15															(15)							

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SFG20	55-07	Starters - Quick Transition Electric Heater	Electrical	Nr	30															(30)								
SFG20	55-08	Starters - Electrolyte Type	Electrical	Nr	15															(15)								
SFG20	55-09	Starters - Air Break and Contactors	Electrical	Nr	75												(15)			(15)								
SFG20	56-01	Introductory Procedures - Storage Tanks		Not specified	0																							
SFG20	56-02	Cold Water Storage Tanks and Cisterns	M&E / Mechanical	Nr	145												(15)		(20)	(45)								
SFG20	56-03	Ice Storage Systems	Mechanical	Nr	200										(10)		(5)		(30)									
SFG20	56-04	Storage Tanks - Liquefied Petroleum Gas (LPG)	Gas Safe	Nr	25															(25)								
SFG20	56-05	Storage Tanks - Oil	Mechanical / Specialist	Nr	90												(15)			(30)								
SFG20	56-06	Underground Oil Storage Tanks	Mechanical / Specialist	Nr	940											(120)	(25)			(120)			(30)					
SFG20	56-07	Storage Silo - Wood Chip / Pellets	Mechanical	Nr	30															(30)								
SFG20	56-08	Storage Silo - Coal	Mechanical	Nr	120															(120)								
SFG20	58-01	On/Off Switching Devices	Electrical	Nr	6															(6)								
SFG20	58-02	Control Relays	Electrical	Nr	6															(6)								
SFG20	58-03	Automatic Transfer Switch	Electrical	Nr	0																							
Custom	58-03-S	Automatic Transfer Switches & Change-Over Contactors	Electrical	Nr	0																							

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Type	Code	Title	Skilling	UoM	Annual Timing	1H	1D	1W	2W	4W	8W	12W	16W	24W	1M	2M	3M	4M	6M	12M	14M	24M	36M	48M	60M	3Y	5Y	0U
SFG20	59-01	Terminal Units Vav - Self Powered	Mechanical	Nr	70												(10)		(15)									
SFG20	59-02	Terminal Units Vav - Fan Powered	Mechanical	Nr	30														(15)									
SFG20	59-03	Terminal Units Vav - Pneumatic Powered	Mechanical / M&E	Nr	60												(10)			(20)								
SFG20	59-04	Terminal Units - Constant Volume including Mixing	Mechanical	Nr	20															(20)								
SFG20	59-05	Terminal Units - Induction Units	Mechanical	Nr	40														(20)									
SFG20	59-06	Terminal Units - Fan Coil	Mechanical	Nr	65														(25)	(15)								
SFG20	59-07	Terminal Units - VRV Systems	Mechanical / Refrigeration Engineer / Electrical	Nr	830												(180)		(55)									
SFG20	59-08	Chilled Beams	M&E	Nr	25															(25)								
SFG20	60-01	Vacuum Systems - General	Specialist	Nr	120															(120)								
SFG20	60-02	Vacuum Tubes - Cash Handling	Specialist	Nr	240														(60)	(120)								
SFG20	61-01	Valves - In General	Mechanical	Nr	114										(6)		(6)		(6)	(6)								
SFG20	61-02	Tap and Outlet Fittings	Mechanical	Nr	3															(3)								
SFG20	61-03	Service Valves	Mechanical	Nr	6															(6)								
SFG20	61-04	Combination Tap Assemblies, Mixing Valves/Taps	Mechanical	Nr	39												(6)		(6)	(3)								
SFG20	61-05	Shower Valves	Mechanical	Nr	120												(15)		(30)									

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SFG20	62-01	Pre-Maintenance Procedures - Valves - Automatic Control		Not specified	0																							
SFG20	62-02	Rotary Valves - Shoe or Slipper	M&E	Nr	6															(6)								
SFG20	62-03	Butterfly and Ball Valves	Mechanical	Nr	6															(6)								
SFG20	62-04	Self Acting and Thermal Valves	Mechanical	Nr	6															(6)								
SFG20	62-05	Solenoid Valves	M&E	Nr	6															(6)								
SFG20	62-06	Pressure Control Valves	Mechanical	Nr	6															(6)		(30)						
SFG20	62-07	Seat Valves	M&E	Nr	6															(6)								
SFG20	63-01	Underfloor Heating Including Vehicle Access Ramps	Electrical	Nr	45															(45)								
SFG20	63-02	Automatic Vehicle Barrier	Electrical / Mechanical	Nr	120														(60)									
SFG20	64-01	Introductory Procedures - Ventilation Ancillaries		Not specified	0																							
SFG20	64-02	Motor Driven Exhaust Hose Reel	Mechanical / Specialist	Nr	90														(15)	(60)								
SFG20	64-03	Spring Recoil Hose Reel	Mechanical / Specialist	Nr	90														(15)	(60)								
SFG20	64-04	Mobile Dust Separator for Spot Extraction	Mechanical / Specialist / Electrical	Nr	90														(15)	(60)								
SFG20	64-05	Mobile Electronically Controlled Cyclone Separator	Mechanical / Specialist / Electrical	Nr	90														(15)	(60)								

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SFG20	64-06	Vehicle Exhaust Rail System	Mechanical / Specialist	Nr	90														(15)	(60)								
SFG20	64-07	Wood Dust Extraction	Mechanical / Electrical / Specialist	Nr	90														(15)	(60)								
SFG20	64-08	Laboratory Fume Cupboard	Specialist	Nr	0																							
SFG20	64-09	Ammonia Leak Detection System	M&E	Nr	0																							
SFG20	65-01	Introductory Procedures - Water Treatment		Not specified	0																							
SFG20	65-02	Ion Exchange Plant - Base Exchange Softening - Commercial	Multi-skilled / Electrical	Nr	370														(180)	(10)			(60)					
SFG20	65-03	Ion Exchange Plant - Base Exchange Softening - Domestic (capacity usually below 50 litres)	Electrical / Multi-skilled	Nr	135														(45)	(45)			(120)					
SFG20	65-04	Special Water Treatment Systems	Specialist	Not specified	0																							
SFG20	65-05	Filtration, Conditioning and pH Correction - Central Plant	Mechanical	System	360												(90)					(120)	(120)					
SFG20	65-06	Filtration and Conditioning - Point of Use	Mechanical	Nr	105												(15)		(15)	(15)								
SFG20	65-07	Reverse Osmosis	Specialist	Nr	120														(60)									
SFG20	65-08	Ultraviolet Disinfection Unit	Mechanical / Electrical	Nr	195										(15)					(15)		(30)						
SFG20	65-09	Ozonation Plant	Mechanical	Nr	1220			(5)											(480)									

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SFG20	65-10	Chemical Dosing	Mechanical	Nr	360										(15)		(15)		(30)	(60)								
SFG20	65-13	Introductory Procedures - Chlorine Dioxide Dosing for Domestic Low Level Injection		Not specified	0																							
SFG20	65-14	Chlorine Dioxide Low Dosing Domestic Water Systems	Mechanical	System	960			(15)							(15)													

Total Annual Timing (mins): 328406

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