



Ministry
of Defence



ANNEX A – STATEMENT OF REQUIREMENT
HELICOPTER UNDERWATER ESCAPE TRAINING MODULES

CONTRACT NUMBER
700261343

SCHEDULE A

STATEMENT OF REQUIREMENT

PART 1 – BACKGROUND

Introduction

1. This Statement of Requirement (SOR) describes the requirement for Underwater Escape Training (UET) Modules. The modules are required as a fundamental part of the Royal Navy Centre of Maritime SERE and Underwater Escape Training (RNCMSUET) facility at Royal Naval Air Station (RNAS) Yeovilton. Two new Modules are required to replace the existing UET modules.

Single statement of User need

2. The Authority requires a supported solution [Modules] that will deliver UET at RNAS Yeovilton.

Context

3. The RNCMSUET has a requirement to train circa 7000 personnel per year and provide representative training for all in-Service Rotary Wing (RW) aircrew until 2047¹.

System boundary

4. The potential scope of the contracted element of the UET Modules is:

- a. The provision of fit for purpose² Modules to meet Authority requirements as stated at Part 2.
- b. All scheduled maintenance, provision of spares, repair / overhaul activity and fault rectification on site.
- c. Provision of technical advice, information, publications and other activities (fault investigation and ad hoc tasking as requested by the Authority).
- d. Modifications.

5. Not in scope:

- a. Daily maintenance and preparing the Modules for use shall always be the responsibility of the Authority.

In Service Date (ISD)

6. The target ISD is seven months after contract award.

¹ Forecast out of service date (OSD) for the RNCMSUET facility. This does not necessarily establish a requirement for an individual Module to be in-Service for the entire period; e.g. multiple Modules could be procured throughout the facility's life.

² Fit for purpose is a balance between availability, reliability and maintainability. It also includes evidence of safety to ensure a system is ready to use Forward.

Requirement definitions

7. Definitions used within the requirement set are:
 - a. **The System.** A set of interrelated items, equipment or services which collectively fulfil a requirement; use of the term 'System' is not necessarily exclusive to an individual piece of equipment or service and should be interpreted within the context of the requirement; in the majority of cases with respect to this SOR, the System should be read as the Module(s).
 - b. **The Module.** Reference to 'the Module' is used to focus the requirement context solely to the training equipment which is being procured as part of the System. Its boundary stops at the connection point to the crane and covers only that which is suspended below, including jettisonable items.
 - c. **The User.** The MOD; owners of the requirement and users of the System.
 - d. **The Authority.** The Merlin Delivery Team (MDT); MOD enablers of the System.
 - e. **Forward.** Those logistic processes and functions that are focused on, and/or provide immediate support to, the operating environment or are optimised effectively best at the point of use. This is best summarised as within the security fence surrounding the RNCMSUET facility.
 - f. **Depth.** Those logistic processes and functions that underpin the support of Platforms and associated equipment, or by their nature, are optimised best not in the location of use, and includes all logistic elements not in Forward support.
 - g. **Required Activity Level (RAL).** This is the required number of training places per year in order meet demand across the MOD. The number is established in the yearly issue of the Statement of Training Requirement (SOTR).

Assumptions

8. The Project's Master Data and Assumptions List (MDAL) provides the list of assumptions and will be populated with the selected bidders agreed assumptions.

Structure of Requirement Document

9. This SOR shall adhere to the following structure:
 - a. **Part 1.** Background
 - b. **Part 2.** Statement Of Requirements.
 - c. **Part 3.** Context Documents.
 - d. **Part 4.** Glossary.
 - e. **Appendix 1:** Interface Control Document (ICD)

PART 2 – STATEMENT OF REQUIREMENTS

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 01-00	CAPABILITY				
X1	EXAMPLE: The System shall consist of 2 Modules; one [large] to represent Merlin Mk2 and Mk4 / 4A, and one [small] to represent Wildcat Mk1 and Mk2 rotary wing aircraft to a sufficient level to enable underwater escape training (UET).	The following aspects of the Modules are to be accurately represented for in-scope aircraft: -Seat position -Harness -Location of escape exits -Size of escape exits -Operation of exit release mechanism -Merlin Mk2 mission booth egress bar and mission console.	As Threshold plus representative internal layout, and external and internal snagging hazards.	Assumption: use TNA that was created for the RNCMSUET facility (system-of-systems approach). In-scope aircraft in order of priority: Merlin Mk2 / Mk4 / Mk4A Wildcat Mk1 and Mk2 SRD meeting 04/23 - as direct by NCHQ URD review. 'Representative' is to be agreed by the Authority prior to contract award.	The Contractor shall provide 2 modules, one [large] to represent Merlin Mk2 and Mk4 / 4A, and one [small] to represent Wildcat Mk1 and Mk2 rotary wing aircraft. The modules shall comply with LOLER and include accurate representation of: -Seat position -Harness -Location of escape exits -Size of escape exits -Operation of exit release mechanism -Merlin Mk2 mission booth egress bar and mission console
SRD 01-01	The System shall consist of 2 Modules; one [large] to represent Merlin Mk2 and Mk4 / 4A, and one [small] to represent Wildcat Mk1 and Mk2 rotary wing aircraft to a sufficient level to enable underwater escape training (UET).	The following aspects of the Modules are to be accurately represented for in-scope aircraft: -Seat position -Harness -Location of escape exits -Size of escape exits -Operation of exit release mechanism -Merlin Mk2 mission booth egress bar and mission console.	As Threshold plus representative internal layout, and external and internal snagging hazards.	In-scope aircraft in order of priority: Merlin Mk2 / Mk4 / Mk4A Wildcat Mk1 and Mk2 'Representative' is to be agreed by the Authority prior to contract award. The Module design shall comply with the current Lifting Operations & Lifting Equipment Regulations (LOLER).	[Tenderer to provide contractual requirement statement of what they will provide along with supporting evidence linked to the SR in an electronic folder]
SRD 01-02	The Module [large] shall be able to accommodate up to a maximum of X trainees seated for concurrent UET in the large Module.	X = 16.	X = 28.	UET Staff numbers are covered in SR 01-04. The Module should therefore be capable of accommodating total trainees and staff (when considering structural strength - seats / representative elements are not required by staff). Weight per trainee is assumed to be 90kgs.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
				Merlin Mk4 / 4A troop carrying capacity is 24. Plus, a minimum of 4 aircrew = 28. The numbers reflected in the MOE does not include UET staff.	
SRD 01-03	The Module [small] shall be able to accommodate up to a maximum of X trainees seated for concurrent UET in the small Module.	X = 8.	X = 12.	UET Staff numbers are covered in SR 01-04. The Module should therefore be capable of accommodating total trainees and staff (when considering structural strength - seats / representative elements are not required by staff). Weight for trainees is assumed to be 90kgs. Wildcat troop carrying capacity is 6. Plus, a maximum of 2 aircrew = 8. The number reflected in the MOE does not include UET staff.	
SRD 01-04	The Module shall be able to accommodate 2 UET staff.	As Requirement.	N / A.	Not seated; standing only required.	
SRD 01-05	The System shall enable submersed escape from all exits at no less than 1 metre below the surface of the water at all roll angles.	As Requirement.	N / A.	To ensure the system can represent realistic scenarios and to provide high value training of clearing the aircraft correctly when egressing. Regardless of system orientation, crane interface, system depth, etc., the uppermost point of exit cannot be less than 1 metre deep. E.g. the uppermost part of a window exit, regardless of orientation, must be capable of submerging greater than 1 metre below the surface of the water.	
SRD 02-01	The System shall be able to be controlled to provide representative	Roll control from 000 degrees to 180 degrees	N / A.	To enable controller to represent a realistic ditching	

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	ditching characteristics.	and any point in between in either direction.		scenario. Roll speed control is linked at SRD 02-02.	
SRD 02-02	The System shall be able to roll 180 degrees within 5 seconds.	As Requirement.	N / A.	To enable controller to represent a realistic ditching scenario. Policy: Students must be able to commence escape procedure between 5 - 8 seconds. Up to 3 individuals must be able to escape from a single exit within 5 - 8 seconds. Current training policy is for trainees to wait for all motion to cease prior to commencing their egress; therefore, the system must have reached the controllers demanded position within 5 seconds to ensure up to 3 trainees can egress within 8 seconds.	
SRD 02-03	The System shall be capable of sustaining an impact with the surface of the water at a speed representative of a rotary wing aircraft in an autorotative flared landing.	31 metres per minute.	N / A.	Linked to crane speed (31m/min).	
SRD 02-04	The System shall be capable of being submersed at a speed of 31 metres per minute.	As Requirement.	N / A.	To enable the Module to be controlled during submersion and raising. To ensure Module does not float or remain on the surface - out of control. To enable progressive training - semi-submerged through to a rapid full submersion. Maximum submersion speed linked to crane speed at SRD 02-03. The rate of water ingress (as measured against the speed	

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				the system 'fills' up internally) shall be consistent at any angle of roll and regardless of escape exit covering.	
SRD 02-05	The System shall allow water ingress at a rate equal to the speed of controlled submersion. The ingress speed of water shall be consistent at any angle of roll.	As Requirement.	N / A.	<p>Safety.</p> <p>Controllability - repeatability of training and swift descent to allow required pace of training.</p> <p>Reduce risk of 'build-up of pressure' against the exits.</p> <p>As the Module descends below the water line, the cabin area shall fill to match the depth below the surface. There should not be more than half a second delay or disparity of water line between the pool surface and the water within the Module.</p>	
SRD 02-06	The System shall allow water to egress at a rate equal to the depth and speed of surfacing. The egress speed of water shall be consistent at any angle of roll.	As Requirement.	N / A.	<p>Safety - water must egress quickly in an emergency raise.</p> <p>Controllability and to allow required pace of training.</p> <p>Water egress must be sufficient to ensure the Module, when clear of the surface of the water, does not exceed 50% of the crane safe working load - linked to SR17-02.</p>	
SRD 02-07	The System shall enable escape training when partially submerged, fully submerged and at any selectable depth to the maximum.	As Requirement.	N / A.	<p>Instructor defined training.</p> <p>Flexibility to allow evolvement of training procedures and trials.</p>	
SRD 03-01	The Module shall be compatible with in-Service Aircrew Equipment Assemblies (AEA).	As Requirement.	N / A.	AEA: Aircrew helmet, body armour, gloves, boots, flying suits, immersion suits, FACs, LCJs (all mks),	

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				<p>rubber pistols.</p> <p>As shown in ICD Annex C</p>	
SRD 03-02	The Module shall be compatible with in-Service passenger Personal Protective Equipment (PPE).	As Requirement.	N / A.	<p>PPE: Troops helmet, body armour, gloves, boots, immersion suits, rubber pistols / rifles, Short Term Air Supply System (STASS), Passenger - STASS and working dress, as shown in Appendix A to this document (Interface Control Document)</p> <p>Route to include future PPE must be simple, only the introduction of PPE which would require significant modification to the Module shall be cost-able.</p>	
SRD 03-03	The Module shall be able to represent in-scope aircraft Chemical, Biological, Radiological and Nuclear (CBRN) PPE / AEA stowage.	As Requirement.	N / A.	<p>Increased representativeness.</p> <p>Removable stowage and connecting assemblies to enable training flexibility.</p>	
SRD 03-04	The Module shall be compatible with aircraft specific Survival Equipment (SE).	MS10 / 5, Emergency Egress Lighting System (EELS) or similar representative.	N / A.	<p>Increased representativeness.</p> <p>EELS is an electrically powered and operated luminescence set of strips which aid egress from the aircraft at night. Where possible, the location of EELS is to be replicated; however, they do not need to be electrically operated. Any EELS replica shall operate, or be supported, until the out of service date (e.g. changing illuminated strips during scheduled servicing, or, an illuminated strip which can last until the out of service date without replacement are acceptable).</p>	

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SRD 03-05	The System shall be able to represent aircraft specific role equipment.	Dispatcher harness securing points.	As Threshold including (as many as possible): Crew Served Weapons (M3M, GPMG), internal cargo nets (including loads secured by nets), fast ropes, sonobouy A-frames.	Increased representativeness.	
SRD 04-01	The System shall be able to be reconfigured to represent escape exit size and location for the following aircraft types:	Merlin all Mks, Wildcat all Mks,	N / A.	Increased representativeness and minimum standard required for training in order to achieve ALARP / Tolerable. Aircrew and passengers require normal aircraft operating locations to be as comparable to their respective aircraft type as possible.	
SRD 04-02	The Module shall be able to be reconfigured to represent escape exit operating mechanism action and location for the following aircraft types:	Merlin all Mks, Wildcat all Mks,	N / A.	Increased representativeness and minimum standard required for training in order to achieve ALARP / Tolerable. Aircrew and passengers require normal aircraft operating locations to be as comparable to their respective aircraft type as possible.	
SRD 04-03	The Module shall be able to be reconfigured to represent the seat harnesses for the following aircraft types:	Merlin all Mks, Wildcat all Mks,	N / A.	Increased representativeness and minimum standard required for training in order to achieve ALARP / Tolerable. Aircrew and passengers require normal aircraft operating locations to be as comparable to their respective aircraft type as possible.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 04-04	The System shall be able to be reconfigured to represent each aircraft type within X hrs.	X = 4.	X = 2.	To achieve schedule underpinning the Training Plan. Link to SRs 04-01, 02, 03.	
SRD 04-05	The System shall be able to be reconfigured between aircraft type representation by 2 trained and qualified RNCMSUET staff members.	As Requirement.	N / A.	To align with RNCMSUET manning levels and achieve a level of supervision with regards to standards and practices.	
SRD 04-06	The System shall be able to change between different Modules within 30 minutes.	As Requirement	N / A.	The Module needs to be designed such that a pre-configured Module change (on-the-hook to on-the-hook) can be conducted within 30 mins.	
SRD 05-00	OPERABILITY				
SRD 05-01	The System shall be able to be stopped during training at any point and returned to the starting configuration.	As Requirement.	N / A.	Standard training requirement -flexibility required for Instructor controlled training. The 'starting configuration' refers to harnesses, escape mechanisms, exits, role equipment and other training aids at a configuration to commence training with the module above the water in the upright position.	
SRD 05-02	The Modules' jettisonable elements must sink to the pool floor but able to be recovered and re-fitted by 1 x UET staff diver.	As Requirement.	N / A.	Realism. Safety - jettisonable items should not float and cause risk of injury to personnel. To enable timely transition (SR05-04) between training events.	
SRD 05-03	The Modules' jettisonable elements must be able to be re-fitted easily and quickly whilst in or above the pool or on the pool-side.	As Requirement.	N / A.	Enable training programme to be completed in required time, with minimum time between training runs. 'Quickly' = Achieving SR 05-04	
SRD 05-04	The System shall be able to be reset to starting configuration in X minutes between training runs.	X = 2.	X = 1.	The 'starting configuration' refers to harnesses, escape mechanisms, exits, role	

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				equipment and other training aids at a configuration to commence training with the module above the water in the upright position.	
SRD 05-05	The System shall be able to be reset to the starting configuration by 1 x UET instructor between training runs.	As Requirement.	N / A.	The 'starting configuration' refers to harnesses, escape mechanisms, exits, role equipment and other training aids at a configuration to commence training with the module above the water in the upright position. 'Resetting' the System in this context does not include the winch controlling staff. Assumption: The jettisonable elements will sink to the pool floor and be collected by UET staff diver(s) for re-setting between runs.	
SRD 05-06	The System shall be able to be locked, at the selected roll angle for the run and when lifting between training runs.	As Requirement.	N / A.	Safety feature to prevent roll during lifting. During an emergency raise the module needs to maintain its attitude and not right itself until it has been evacuated and is clear of the water. This also needs to be the case during air supply failure therefore the brakes need to fail on.	
SRD 05-07	The System shall use gravity-driven self-righting.	As Requirement.	N / A.	Instructor control of resetting Module is desirable. The System shall be manually returned to the upright position between training runs. All Modules self-right due to weight distribution. Controlled by winch position and speed of raise.	
SRD 06-01	The emergency release seat harness (SR 24-01) System must be able to be reset between training runs.	As Requirement.	N / A.	This should not significantly increase times specified in SR 05-04.	

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SRD 07-01	The UET staff shall be provided with secure hand-holds and good visibility to all students inside the Module.	2 specific internal UET Staff positions.	N / A.	Safety of instructors and trainees within the System.	
SRD 08-01	The UET Staff (not including those in the water or System) shall be able to remotely monitor training within the Module.	Pool-mounted cameras to provide monitoring within Module.	Internal cameras to provide remote view and recording of training.	Safety of instructors and trainees within the System.	
SRD 09-01	The System will allow UET staff to communicate effectively with the staff at the control position.	By voice while above water.	As Threshold plus emergency raise light signal from submerged System.	Safety of instructors and trainees within the System.	
SRD 10-00	AVAILABILITY				
SRD 10-01	The System shall be able to support the Required activity level (RAL).	RAL = 7000 training places per year.	N / A.	Statement of training requirement (SOTR), training year 2019 / 20.	
SRD 11-01	The System shall ensure that each configured Module is available for training for 5 consecutive or non-consecutive working days per week.	As Requirement.	N / A.	In order to achieve RAL.	
SRD 11-02	The System shall be available for 5 consecutive or non-consecutive hours per working day.	As Requirement.	N / A.	In order to achieve RAL.	
SRD 11-03	The System shall be available for 45 weeks per year.	As Requirement.	N / A.	In order to achieve RAL.	
SRD 12-01	The System be able to support surged training requirements by increasing availability (hours per day) by X% per day for up to Y weeks.	X = 100% including training outside normal working week hours and weekends. Y = 2 weeks.	X = 100% including training outside normal working week hours and weekends. Y = 4 weeks.	To meet surge requirements. Normal working hours means Mon – Fri 0800 – 1700. Average Evolutions per day = 6; an Evolution is 1 Module 'dunk'.	
SRD 13-01	In the event the Authority hold title of the System [Module], they shall be required to conduct representative UET until RNCMSUET OSD 2047.	As Requirement.	N / A.	To maintain ALARP / Tolerable mitigation for RTL. Training systems are required until RMCSUET OSD 2047. Therefore the design and manufacture of the modules should be capable of supporting this OSD	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 14-00	RELIABILITY				
SRD 14-01	The System shall be reliable and able to meet Availability requirements with minimum maintenance.	As Requirement.	N / A.	In order to achieve Availability for RAL.	
SRD 14-02	The System shall be constructed of materials suitable for the demands of UET.	As Requirement.	N / A.	In order to achieve Availability for RAL.	
SRD 15-00	MAINTAINABILITY				
SRD 15-01	The System shall require minimal maintenance on a daily and weekly basis Forward, maintenance activity should not impact training availability.	As Requirement.	N / A.	In order to ensure the System remains suitably reliable. Minimal maintenance is as close to no maintenance as is possible – any daily and weekly maintenance proposed by the Contractor must be justified prior to contract award.	
SRD 15-02	The System shall be able to be maintained with appropriate access to first line spares.	As Requirement.	N / A.	In order to ensure the System remains suitably reliable.	
SRD 15-03	The System shall be maintained by standard tooling or supplied with any specialist tooling.	As Requirement.	N / A.	In order to ensure the maintenance activity can be conducted Forward.	
SRD 15-04	The System shall be supplied with Technical publications to support maintenance.	As Requirement.	N / A.	In order to ensure the maintenance activity can be conducted Forward.	
SRD 15-05	The System shall be supplied with movement instructions and data.	As Requirement.	N / A.	In order to ensure the maintenance activity can be conducted Forward.	
SRD 15-06	The System's daily maintenance shall be conducted within the RNCMSUET facility.	As Requirement.	N / A.	In order to ensure the maintenance activity can be conducted Forward.	
SRD 16-01	The System's daily maintenance requirements shall be carried out by a maximum of 2 RNCMSUET Staff.	As Requirement.	N / A.	In order to ensure the maintenance activity can be conducted Forward.	
SRD 16-02	The System's scheduled maintenance requirements shall be conducted by X.	X = Staff specified by the User.	X = System Contractor staff.	In order to ensure the maintenance activity can be conducted Forward.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 16-03	Any System fault rectification shall be conducted by X.	X = Staff specified by the User.	X = System contractor staff.	In order to ensure the maintenance activity can be conducted Forward.	
SRD 16-04	Fault rectification shall be completed within a timescale which does not adversely affect training output.	5 working days.	3 working days.	In order to achieve Availability for RAL. Only applies to Contractor-delivered fault rectification.	
SRD 17-00	INTERFACE				
SRD 17-01	The Module must not yaw to the extent that any part of it comes within X of the pool side.	X = 2m.	X = 2.5m.	The Modules must not contact the poolside or trap any person or object against the poolside. Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-02	The System shall be compatible with the current facility infrastructure; HP air Systems, electrical power and lifting equipment.	As Requirement.	N / A.	In order to ensure the System can integrate with existing infrastructure. Appendix A to this document (Interface Control Document) specifies the connections required.	
SRD 17-03	The Module shall be able to sink at a rate that is compatible with the supporting cable.	As Requirement.	N / A.	Tension must be maintained on the cable to prevent loading issues with the cable and crane. Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-04	The Module shall not pitch beyond set limits irrespective of unevenly-distributed student placement.	20 degrees from horizontal.	10 degrees from horizontal.	Minimum depth limits for UET and floor impact prevention. Training requires rear troop drills only and front seat aircrew only leading to uneven internal weight distribution. Refer to: Appendix A to this document (Interface Control Document)	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 17-05	The Module shall not yaw beyond set limits.	30 degrees of centreline.	15 degrees of centreline.	Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-06	The Module shall descend to no closer than 1 metre from the bottom of the pool.	As Requirement.	N / A.	Safety - personnel cannot be trapped beneath the System. To prevent damage to the facility. Refer to: Appendix A to this document (Interface Control Document) This does not include jettisonable items which are permitted to descend to the bottom of the pool so long as there is no possibility of damage to either the pool or the jettisonable item.	
SRD 17-07	The System shall have a selectable manual locking System to prevent the crane connection point moving when powered off in storage on the poolside.	As Requirement	N / A.	For storage and runs. Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-08	The System shall be able to connect and disconnect the Modules from a position accessible at ground level, to avoid Working At Height restrictions during Module changes.	As Requirement.	N / A.	To remove working at height restrictions. Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-09	The System shall be able to be stored within the facility storage area.	As Requirement.	N / A.	In order to provide protection from the effects of weather and to facilitate easy transition between training events. Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-10	The System shall be able to be manoeuvred around the storage area safely by 2 staff.	As Requirement.	N / A.	Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-11	The System shall be able to enter and exit the building via the existing doors and clear any height restrictions in the pool hall.	As Requirement.	N / A.	In order to ensure the Module can enter the building.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
				Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-12	The System shall be constructed of materials suitable for long term use in the RNCMSUET facility pool environment.	As Requirement.	N / A.	Refer to: Appendix A to this document (Interface Control Document)	
SRD 17-13	The System shall not contaminate the RNCMSUET pool.	As Requirement.	N / A.	Refer to: Appendix A to this document (Interface Control Document)	
SRD 18-00	SUPPORTABILITY				
SRD 18-01	The System shall be supported by provision of System-specific spares at a scale suitable to meet the availability and required activity level.	As Requirement.	N / A.	In order to achieve Availability for RAL	
SRD 18-02	The System-specific tooling shall be supported.	As Requirement.	N / A.	In order to achieve Availability for RAL. Only applies if the contractor is supplying specific tooling. SR 15-03.	
SRD 18-03	The System shall be supplied with Ground Support Equipment (GSE) if required.	As Requirement.	N / A.	For example; storage, transportation, movement.	
SRD 19-00	TRAINING				
SRD 19-01	The RNCMSUET Staff shall be trained in the operation of the System.	A training course for all required UET Staff to be delivered at the RNCMSUET facility, with supporting course material, to enable subsequent train-the-trainer.	All staff trained on delivery of the System, at the RNCMSUET facility, and any subsequent new staff while the System is in-Service.	Safe and efficient operation of the System.	
SRD 19-02	RNCMSUET Staff will be trained to conduct reconfiguration of the System between representative aircraft types.	A training course for all required UET Staff to be delivered at the RNCMSUET facility, with supporting course material, to enable subsequent train-the-trainer.	All staff trained on delivery of the System, at the RNCMSUET facility, and any subsequent new staff while the System is in-service.	Safe and efficient operation of the System.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 19-03	The RNCMSUET staff shall be trained in the ground handling of the System.	A training course for all required UET Staff to be delivered at the RNCMSUET facility, with supporting course material, to enable subsequent train-the-trainer.	All staff trained on delivery of the System, at the RNCMSUET facility, and any subsequent new staff while the System is in-service.	Safe and efficient operation of the System.	
SRD 19-04	The RNCMSUET Staff shall be trained in the attachment and disconnection of the System to the crane.	A training course for all required UET Staff to be delivered at the RNCMSUET facility, with supporting course material, to enable subsequent train-the-trainer.	All staff trained on delivery of the System, at the RNCMSUET facility, and any subsequent new staff while the System is in-service.	Safe and efficient operation of the System.	
SRD 20-01	RNCMSUET Staff will be trained to conduct first line maintenance (to include limited fault rectification) of the System.	A training course for all required UET Staff to be delivered at the RNCMSUET facility, with supporting course material, to enable subsequent train-the-trainer.	All staff trained on delivery of the System, at the RNCMSUET facility, and any subsequent new staff while the System is in-service.	Safe and efficient operation of the System.	
SRD 31-00	QUALITY				
SRD 31-01	The Contractor shall demonstrate compliance to ISO9001:2015 (quality management System) in the relevant fields to the System.	ISO9001:2015 complaint.	ISO9001:2015 certified.		
SRD 31-02	The Contractor shall provide the Authority, prior to contract award, a quality assurance management plan.	As Requirement.	N / A.		
SRD 31-03	The Contractor shall provide the Authority, prior to contract award, an operating safety management plan.	As Requirement.	N / A.		
SRD 21-00	HUMAN FACTORS				
SRD 21-01	The System shall accommodate the anthropometric and physical characteristics of the specified user population.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the design of the System accommodates the physical dimensions and	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
				physical abilities of the target users. It includes both the 'static' dimensions and the 'dynamic' range of movement of body parts and how these must be accommodated in design. It also includes human capabilities and limitations in terms of strength, dexterity and physical workload.	
SRD 21-02	The System shall accommodate the communication needs of the specified user population.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the System is designed to support human means of communicating (including verbal and non-verbal means).	
SRD 21-03	The System shall provide appropriate working spaces for humans in the System.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that both the immediate working area (workspace) and the wider working environment is designed to accommodate the physical characteristics of the users (e.g. fit, comfort, visibility of displays) and to support the overall layout of the area for a range of aspects such as access, emergency egress and the need for team working. The physical environment, including thermal and lighting needs are also included.	
SRD 22-01	The System shall provide appropriate means for the human to make control inputs to the System.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the System is designed to provide the most appropriate means of	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
				making control inputs and the configuration of the control device, whether mediated through a physical device or through a graphical user interface. The focus of this requirement is on the transmission of user intent to the System and the feedback that the System provides to the user.	
SRD 22-02	The System shall facilitate the human contribution to maintenance and support operations.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the System design accommodates the need for maintenance activities that will be conducted through its lifecycle (e.g. access to compartments and units) and to ensure that support activities (e.g. the provision of resupply routes on board naval vessels) have been adequately addressed.	
SRD 23-01	The System shall protect the human from the effects of workplace hazards.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the needs of workplace health and safety are addressed, including working at height, manual handling and all other aspects of the Health and Safety Act.	
SRD 24-01	The System shall integrate humans in ways which minimise the opportunity for human error.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the System is designed so that it does not induce either human errors or behavioural violations and allows the System to recover from those errors where they are committed.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
SRD 25-01	The System shall optimise manpower numbers and structures required to deliver the capability across its lifecycle.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the System is designed to address the capability need in terms of manpower provision.	
SRD 25-02	The System shall be coherent with the development of the training solution.	As Requirement.	N / A.	DEFSTAN 00-251 Part 3 Human factors integration for Defence Systems. This requirement ensures that the design of the System is coherent with the design of the training solution (e.g. does not impose additional training burden) and that the training solution itself is designed in accordance with human factors principles.	
SRD 24-00	HEALTH, SAFETY & ENVIRONMENTAL				
SRD 24-02	All seat harnesses need to have an emergency release mechanism separate to the QRF.	As Requirement.	N / A.	Safety of trainees within the System.	
SRD 26-01	The System shall ensure that Short Term Air Supply System (STASS) - assisted submerged escape are from a depth no more than 1.5 metres.	As Requirement.	N / A.	Medical Standards - BR1750A Information leaflet 12.	
SRD 26-02	The System shall comply with all relevant Health and Safety regulations.	As Requirement.	N / A.	Defence Safety Authority 01.1.	
SRD 27-01	The System shall be supplied with Health and Safety documentation.	Safety documentation supplied as stated in the latest version of DEFSTAN 00-056. Currently Issue 7, Part 1, paragraph 7.6.	N / A.	DEFSTAN 00-056. Defence Safety Authority 01.1.	
SRD 28-01	The System shall comply with all relevant Environmental regulations.	As Requirement.	N / A.	Defence Safety Authority 01.1. DEFSTAN 00-035, 00-051.	
SRD 29-00	SECURITY				
SRD 29-01	The System shall comply with all relevant security regulations.	As Requirement.	N / A.	DEF CON 659A – Security Measures.	

ID	System Requirement	Threshold MOE	Objective MOE	Remarks	Tenderer's response
				DEF CON 660 – Official-Sensitive Security Requirements.	
SRD 30-01	The System shall comply with all relevant Cyber Security regulations.	As Requirement.	N / A.	DEFSTAN 05-138 – Cyber Security for Defence Suppliers. DEF CON 658 (Cyber). Detail any Cyber risks posed by the system.	

PART 3 – CONTEXT DOCUMENTS

ID	Document	Reference
08	UK Defence Standardization	STANMIS Toolset
09	Defence Standard 00-003, Design Guidance for the Transportability of Equipment	DEF STAN 00-003 Issue 6, dated 28 Feb 17
10	Defence Standard 00-251, Part 0 - Human Factors Integration for Defence Systems, Contracting for Human Factors Integration in Defence Systems	DEF STAN 00-251 Part 0, Issue 1, dated 05 Feb 16
11	Defence Standard 00-251, Part 1 - Human Factors Integration for Defence Systems, Early Lifecycle Human Factors Integration Process Requirements	DEF STAN 00-251 Part 1, Issue 1, dated 05 Feb 16
12	Defence Standard 00-251, Part 2 - Human Factors Integration for Defence Systems, Human Factors Integration Process Requirements for the Solution Provider	DEF STAN 00-251 Part 2, Issue 1, dated 05 Feb 16
13	Defence Standard 00-251, Part 3 - Human Factors Integration for Defence Systems, Human Factors System Requirements	DEF STAN 00-251 Part 3, Issue 1, dated 05 Feb 16
14	Defence Standard 00-056, Part 1 – Safety Management for Defence Systems, Requirements & Guidance	DEF STAN 00-056 Part 1, Issue 7, dated 28 Feb 17
15	Defence Standard 00-600, Integrated Logistic Support. Requirements for MOD Projects	DEF STAN 00-600, Issue 4, dated 28 Nov 16
16	Defence Standard 01-005, Fuels, Lubricants and Associated Products	DEF STAN 01-005, Issue 18, dated 31 Aug 16
17	Defence Standard 05-057, Configuration Management of Defence Materiel	DEF STAN 05-057, Issue 6, dated 7 Mar 14
18	Defence Standard 05-061, Part 1 - Quality Assurance Procedural Requirements, Concessions	DEF STAN 05-061 Part 1, Issue 6, dated 31 Mar 16
19	Defence Standard 05-061, Part 4 - Quality Assurance Procedural Requirements, Contractor Working Parties	DEF STAN 05-061 Part 4, Issue 3, dated 25 Oct 02
20	Defence Standard 05-135, Avoidance of Counterfeit Material	DEF STAN 05-135 Issue 1, date 10 Jul 14
21	Defence Standard 05-138, Cyber Security for Defence Suppliers	DEF STAN 05-138 Issue 1, dated 21 Aug 15
22	Defence Standard 81-041, Part 1 - Packaging of Defence Materiel, Introduction to Defence Packaging Requirements	DEF STAN 81-041 Part 1, Issue 9, dated 14 Dec 16
23	Defence Standard 81-041, Part 2 - Packaging of Defence Materiel, Design	DEF STAN 81-041 Part 2, Issue 9, dated 14 Jan 17

24	Defence Standard 81-041, Part 3 - Packaging of Defence Materiel, Environmental Testing	DEF STAN 81-041 Part 3, Issue 6, dated 12 Jun 14
25	Defence Standard 81-041, Part 4 - Packaging of Defence Materiel, Service Packaging Instruction Sheet (SPIS)	DEF STAN 81-041 Part 4, Issue 8, dated 16 Oct 15
26	Defence Standard 81-041, Part 5 - Packaging of Defence Materiel, Packaging Processes	DEF STAN 81-041 Part 5, Issue 8, dated 14 Jan 17
27	Defence Standard 81-041, Part 6 - Packaging of Defence Materiel, Package Marking	DEF STAN 81-041 Part 6, Issue 9, dated 9 Oct 15
30	NATO STANdardisation AGreement	STANAG Index
31	NATO STANdardisation AGreement (STANAG) 1414 – Guidelines to Ensure that Contractors Design and Supply New Equipment Capable of Using Standardized Fuels, Lubricants & Associated Products	STANAG 1414, Edition 3, dated 25 May 09
32	Acquisition System Guidance (ASG)	ASG Website
33	ASG Defence Conditions	ASG DEF CONs
34	ASG Human Factors (HF)	ASG HF Integration Management System
35	Defence Condition 117 – Supply of Information for NATO Codification & Defence Inventory Introduction	DEF CON 117, dated Oct 13 (Edn. 11/17 SC2)
36	Defence Condition 129 - Packaging (For Articles Other Than Munitions)	DEF CON 129, dated 18 Nov 16 (Edn. 07/19)
37	Defence Condition 602B – Quality Assurance (with Deliverable Quality Plan)	DEF CON 602B (Edn. 12/06)
38	Defence Condition 608 – Access & Facilities To Be Provided By The Contractor	DEF CON 608, dated Oct 14 (Edn. 10/14)
39	Defence Condition 611 – Issued Property	DEF CON 611, dated Feb 16 (SC2 Edn. 02/16)
40	Defence Condition 627 – Quality Assurance - Requirement for a Certificate of Conformity	DEF CON 627, dated Dec 10 (Edn. 12/10)
41	Defence Condition 659A – Security Measures	DEF CON 659A, dated Feb 17 (Edn. 02/17)
42	Defence Condition 660 – Official-Sensitive Security Requirements	DEF CON 660, dated Dec 15 (Edn. 12/15)
43	Defence Condition 661 - Issued Property	DEF CON 661, dated Feb 16 (Edn. 10/06)
44	Defence Condition 694 – Accounting For Property Of The Authority	DEF CON 694, dated Mar 16 (Edn. 08/18 SC2)
47	Aircrew Equipment Assemblies: General & Technical Information.	DAP108B-0001-1.
48	Quality Management System.	ISO9001:2015.

PART 4 – GLOSSARY

Acronym	Description
AESAS	Air Engineering Support and Airfield Services
AEA	Aircrew Equipment Assemblies
ASG	Acquisition Support Guidance
AH	Attack Helicopter
CAP	Capability
CSAV	Carrier Strike Aviation
CtS	Commitments
DACOS(AV)	Deputy Assistant Chief of Staff (Aviation)
DEFSTAN	Defence Standard
DEF CON	Defence Condition
DE&S	Defence Equipment and Support
DH	Duty Holder
FOC	Full Operating Capability
HF	Human Factors
HUET	Helicopter Underwater Escape Trainer
Hels OC	Helicopters Operating Centre
ISD	In Service Date
ICD	Interface Control Document
IT	Information Technology
JHC	Joint Helicopter Command
JSP	Joint Service Publication
MDT	Merlin Delivery Team
MK	Mark
MOD	Ministry of Defence
NDT	Non-Destructive Testing
NCHQ	Navy Command Headquarters
NVG	Night Vision Goggles
OSD	Out of Service Date
PPE	Personal Protective Equipment
RAL	Required Activity Level
RNCMSUET	Royal Navy Centre of Maritime SERE and Underwater Escape Trg

RtL	Risk to Life
RNAS	Royal Naval Air Station
RW	Rotary Wing
SERE	Survive Evade Resist Extract
SE	Survival Equipment
SOTR	Statement of Training Requirement
SRD	Systems Requirements Document
SSON	Single Statement Of (User) Need
STASS	Short Term Air Supply System
TAA	Typed Airworthiness Authority
TL	Team Leader
Trg	Training
UET	Underwater Escape Training
URD	User Requirements Document

Appendix 1 – Interface Control Document



Ministry
of Defence



Appendix 1 to RNCMSUET_SOR_V2.0

Interface Control Document (ICD)

for the

Helicopter Underwater Escape Training Modules (HUETM) Project



Project Number 100855.1

Doc No: HUETM 100855.1 – ICD - 001

Effective Date: 10 Mar 2020

Revision: 2.0

V2.0

Appendix 1 page 1

Record of Revision

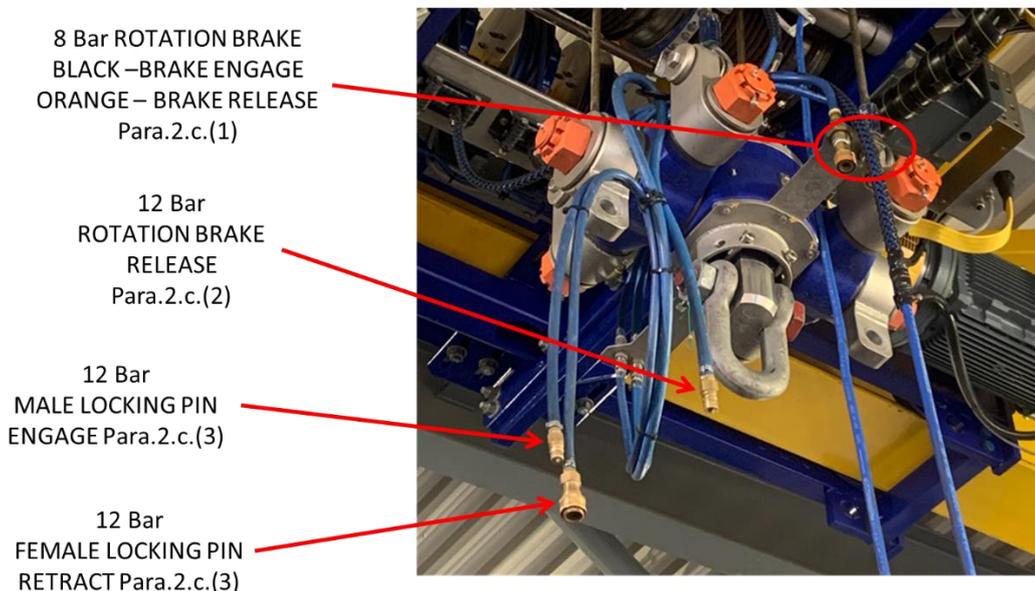
Revision No.	Revision Date	Brief Revision Description	Change Control
0.1	05-Jun-2019	Initial Draft	Not Required
1.0	24-Jul-2019	Initial issue	Not Required
2.0	10-Mar-2020	Update for ITT re-issue	

Introduction

1. **Purpose of the ICD.** This ICD is provided as part of the HUETM tender pack to aid the decision-making process for potential bidders. It contains information regarding the facility, aircraft and human interfaces but does not necessarily contain the full comprehensive details required to design the modules.
2. The winning bidder will have the opportunity to obtain/verify all the detailed design dimensions to produce modules during the design and manufacture phase post contract award.
3. **Module interface, control and operating conditions.** Annex A provides details of the facility size, crane connections, limits etc.
4. **Aircraft represented.** Annex B provides some details of the Aircraft to be represented.
5. **Aircrew Equipment Assemblies (AEA) and Personal Protective Equipment (PPE).** Annex C provides details of AEA and PPE commonly used.

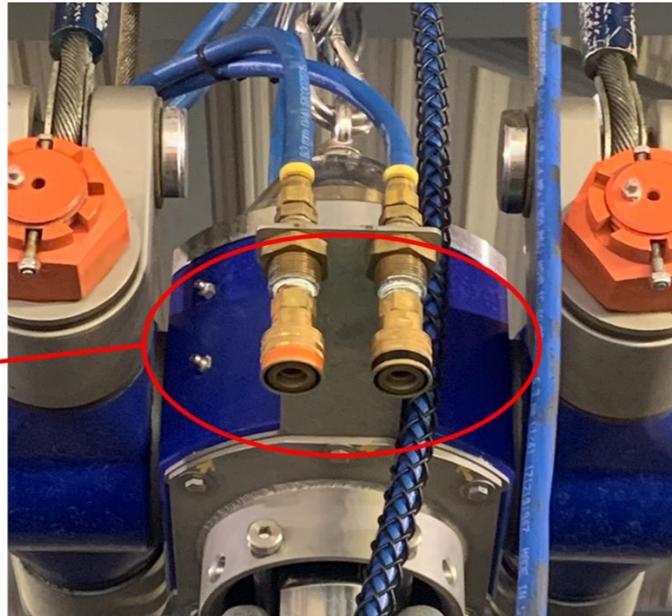
SECTION A – MODULE INTERFACE, CONTROL AND OPERATING CONDITIONS.

1. The HUET modules will be stored and operated at RNCMSUET (RNAS Yeovilton) being hoisted and dunked by the facility UET crane. No alterations or modifications to the crane system or interface are possible due to OEM certification and warranty implications. The crane is certified under the Lifting Operations & Lifting Equipment Regulations (LOLER) 1998 every 6 months. The crane system has a fail safe which will raise the module out of the water if there is a failure of the air and power supplies.
2. The interface points to the UET crane are as follows:
 - a. Main (primary) crane block connection: 17T anchor bolt shackle. (the module is supported from the saddle).
 - b. Secondary safety connections available at crane block: 2 points rated 5,000 kg (1" diameter hole in 1" thick plate, each).
 - c. Three types of pneumatic brake control options are available at the crane block, controlled by UET crane remote for operation.
 - (1) Double acting, (Normally ON), press to hold OFF, 8 Bar connection via Swagelok B-QC6-D-6PMK1 & B-QC6-D-6PMK2 quick connects. (crane has female connections, pictures 1 & 2).
 - (2) Single acting, (spring return), toggle to pressure ON, 12 Bar connection via Parker 7241 (Snap-Tite) Series 1/2" connection. (UET crane has male connection on a 1m length hose available to reach the module connections, picture 1).
 - (3) Double acting, toggle, 12 Bar connection via Parker 7241 (Snap-Tite) Series 3/8" connections. (crane has one male, one female connection, both on 1m length hoses, available to reach module connections, pictures 1 & 3).



Picture 1

8 Bar ROTATION BRAKE
BLACK –BRAKE ENGAGE
ORANGE – BRAKE RELEASE
Para.2.c.(1)



Picture 2

12 Bar
MALE LOCKING PIN
ENGAGE Para.2.c.(3)

12 Bar
FEMALE LOCKING PIN
RETRACT Para.2.c.(3)



Picture 3

3. The UET crane limits are as follows:
 - a. Maximum weight of HUET module and passengers, including instructors is 5,000 kg.
 - b. The crane has variable ditching simulation speeds, from 15m/min to 30m/min.
 - c. Fast raise from a submerged position is between 15m/min to 30m/min.
 - d. 15° maximum limit in any direction from cable vertical.
4. The UET pool conditions and chemistry are as follows:
 - a. The UET pool dimensions are 15m long by 10m wide by 5m deep.
 - b. Ambient conditions are 20 to 32°C.
 - c. The pool is a chlorinated water system with PH levels between 7.0 and 7.5, with water temperatures ranging from 20 to 25°C.

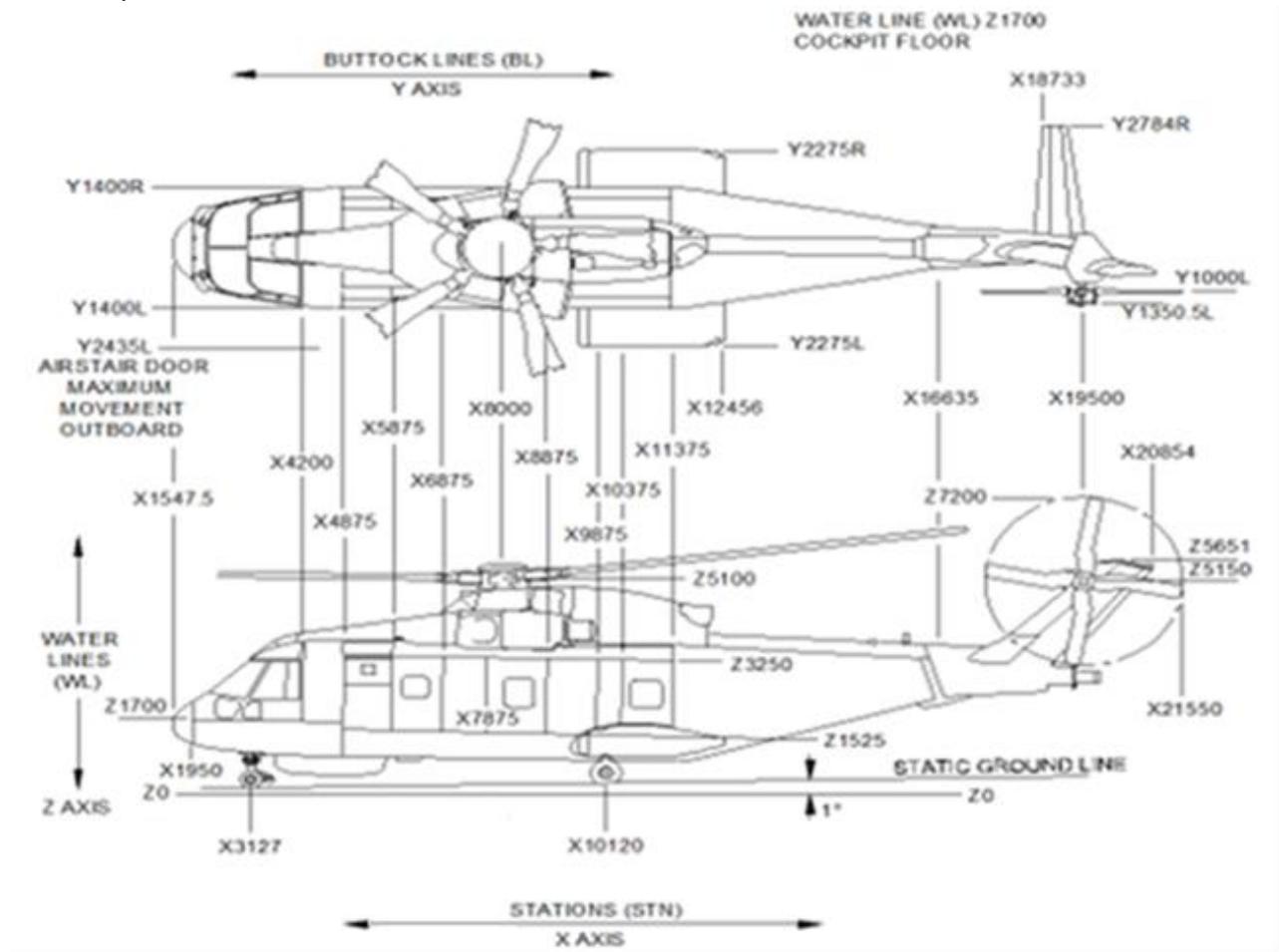
-
5. Module storage and movement surface conditions are as follows:
 - a. Floor level module storage and movement surface is non-slip painted concrete.
 - b. Mezzanine floor storage and movement surface is non-slip painted steel.

 6. Facility size limits are as follows:
 - a. Entrance door to UET hall is 6.3 m wide by 4.1 m high.
 - b. UET hall floor to mezzanine deck clearance 4.0m.
 - c. Mezzanine deck to ceiling clearance 5.8m.

SECTION B – AIRCRAFT REPRESENTED

Merlin

The locations of some features have been designated, in mm's, using the aircraft axes across the X, Y and Z planes as shown below.

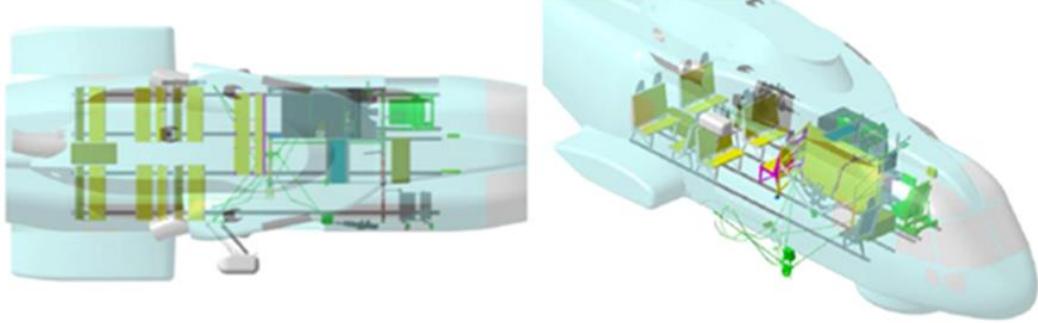
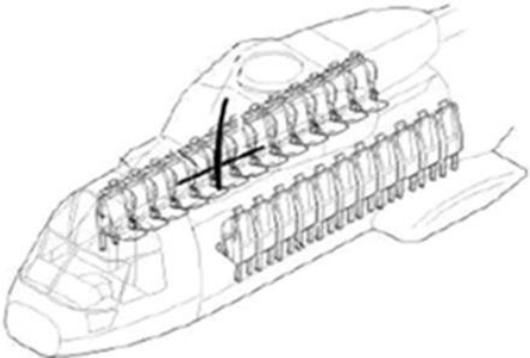


Cabin

Principle Dimensions

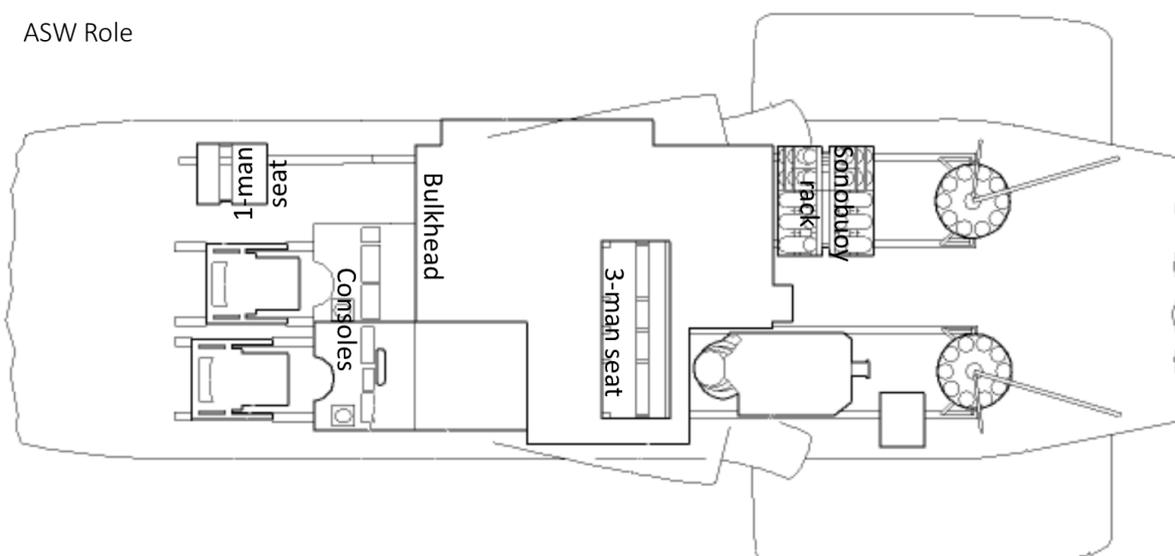
Overall Cabin Floor Dimensions			
Mk2	6500(L) x 2690(W)	Mk4/4a	6500(L) x 2690(W)

Seating - configurations, sizes and operation

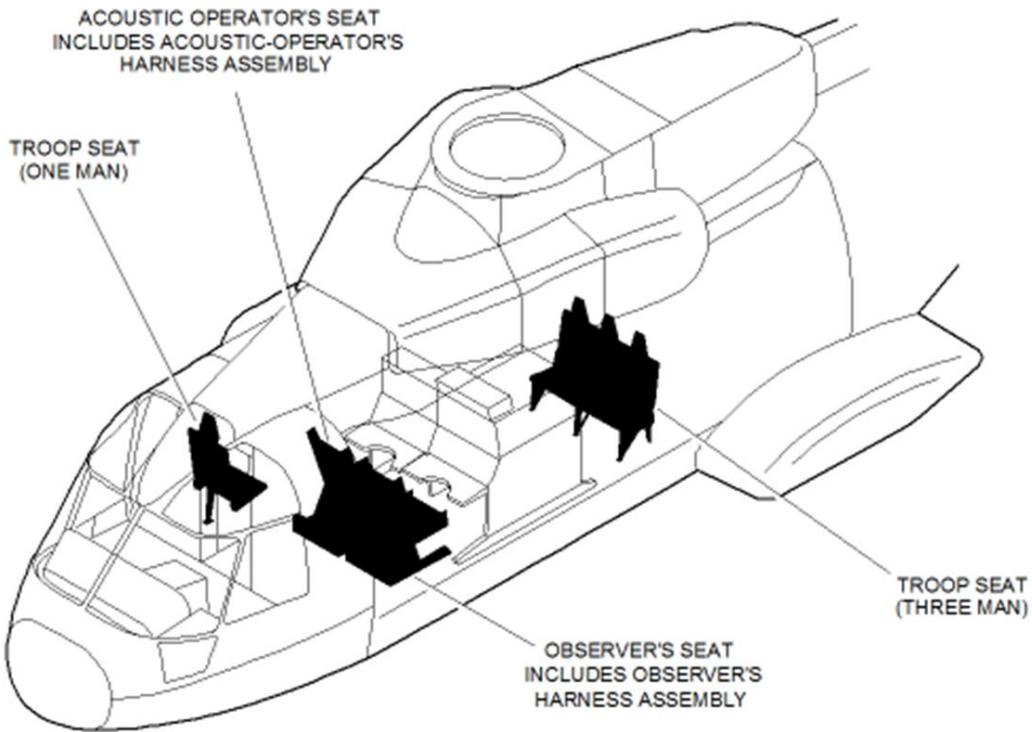
Seating Configurations	
Mk2	
Mk4/4a	<p>The troop seating configuration for this aircraft can be identified within the latest issue of the Merlin Mk4 and Mk3a RTS. Note: The seating configurations detailed within the Mk3a RTS can be considered identical to the Mk4a.</p> <p>The permitted configurations for Mk4/4a allow a maximum of 24 troop seats, P/N EA2500V078, to be installed within the cabin. All troop seating is attached at points on the Y1252.58 axis on both the STBD and PORT side.</p> <p>On the STBD side, 2 troop seats are permitted within each metre bay, equally spaced between X4859.0 and X11393.0. The PORT side allows 2 troop seats per metre bay, equally spaced between X5875.0 and X11393.0. In the instance of the half metre bay, 1 troop seat is allowable on both sides of the cabin.</p> <p>In addition to the troop seats, 2 aircrew seats can also be installed in the aft end of the cabin on both the STBD and PORT side. The attachment points for these seats are located at X11977.0 and X11545.3, on the Y1186.0 axis.</p> 

Merlin Mk2

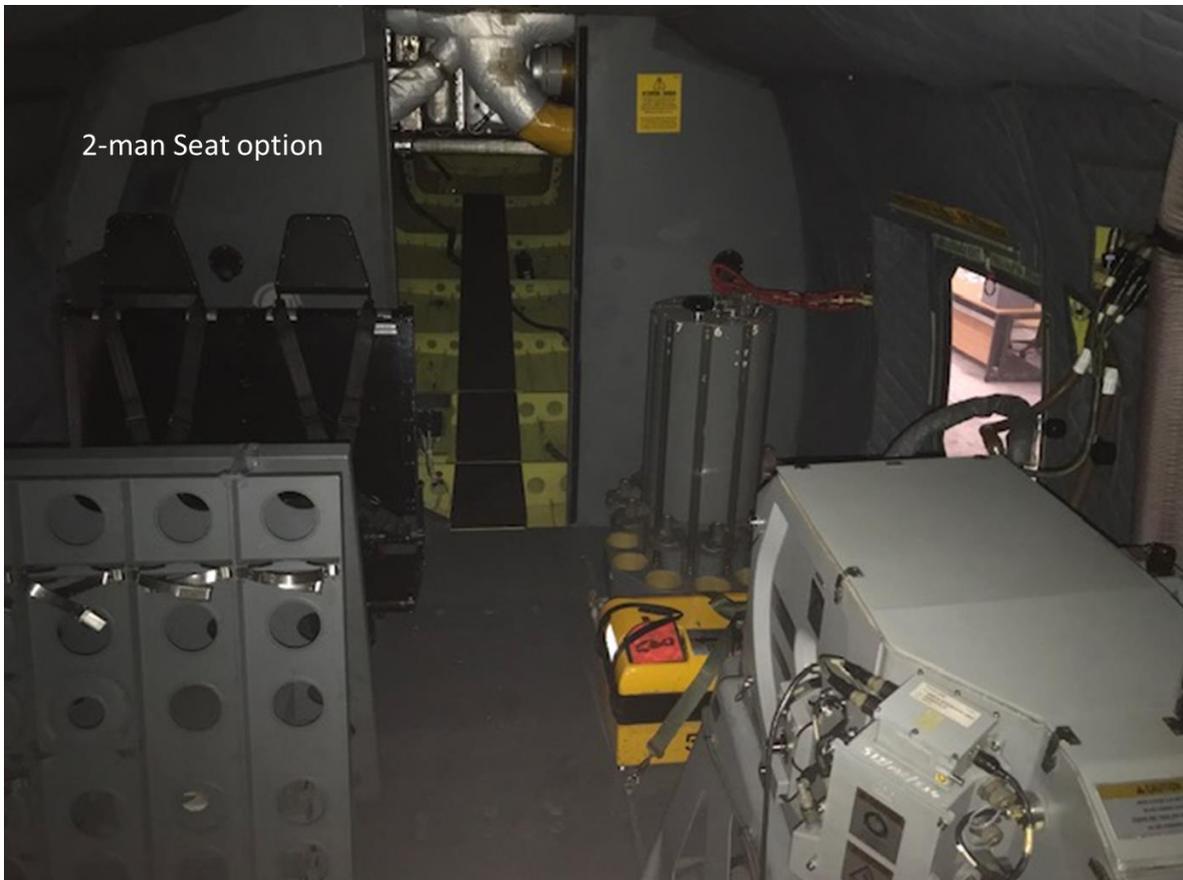
ASW Role



V2.0

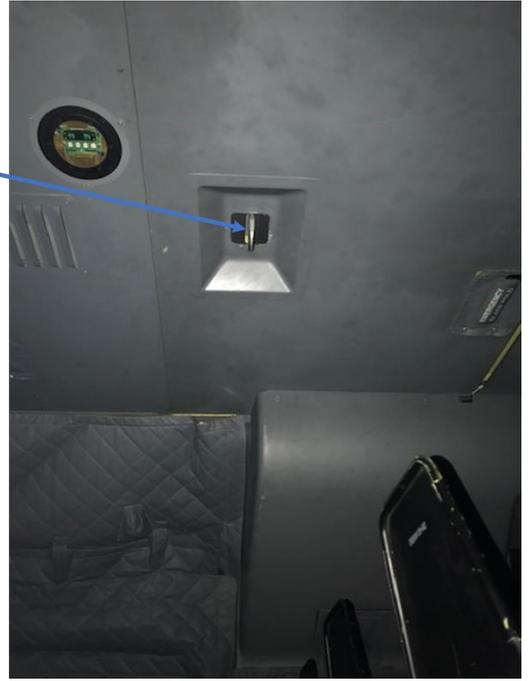


ANTI-SUBMARINE WARFARE ROLE



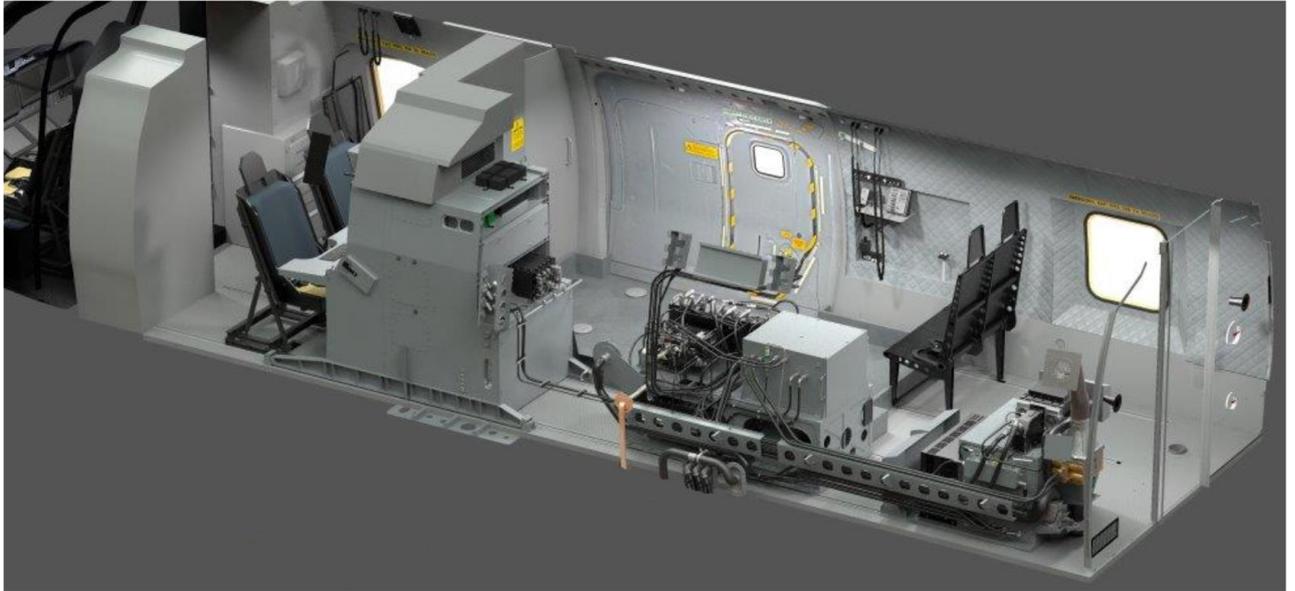


Dispatcher Points

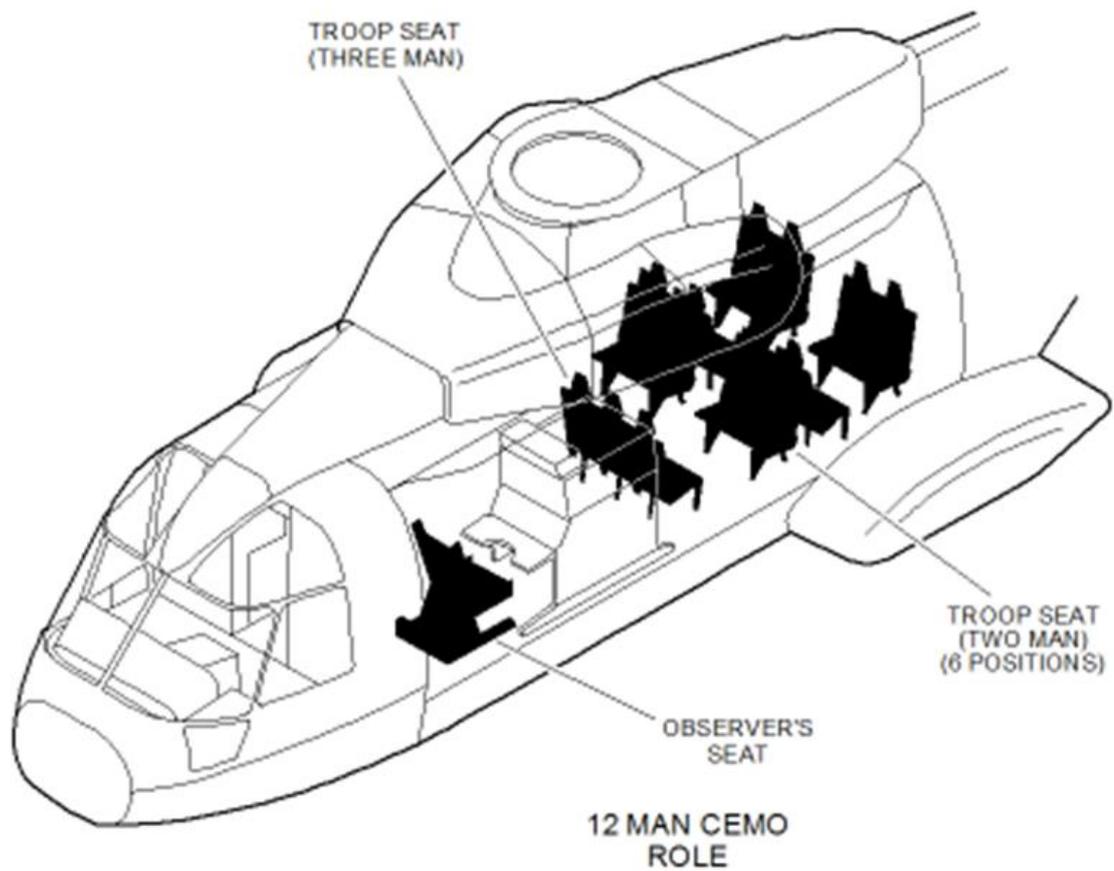


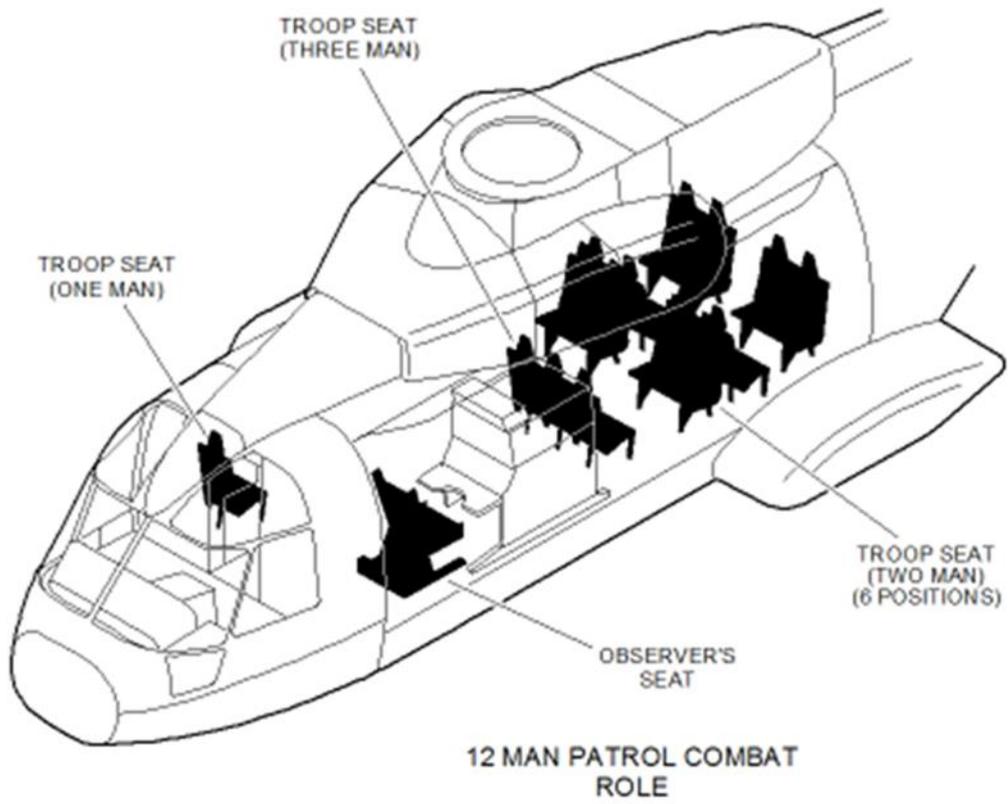
Bulkhead between
cabin & consoles

Crowsnest Role

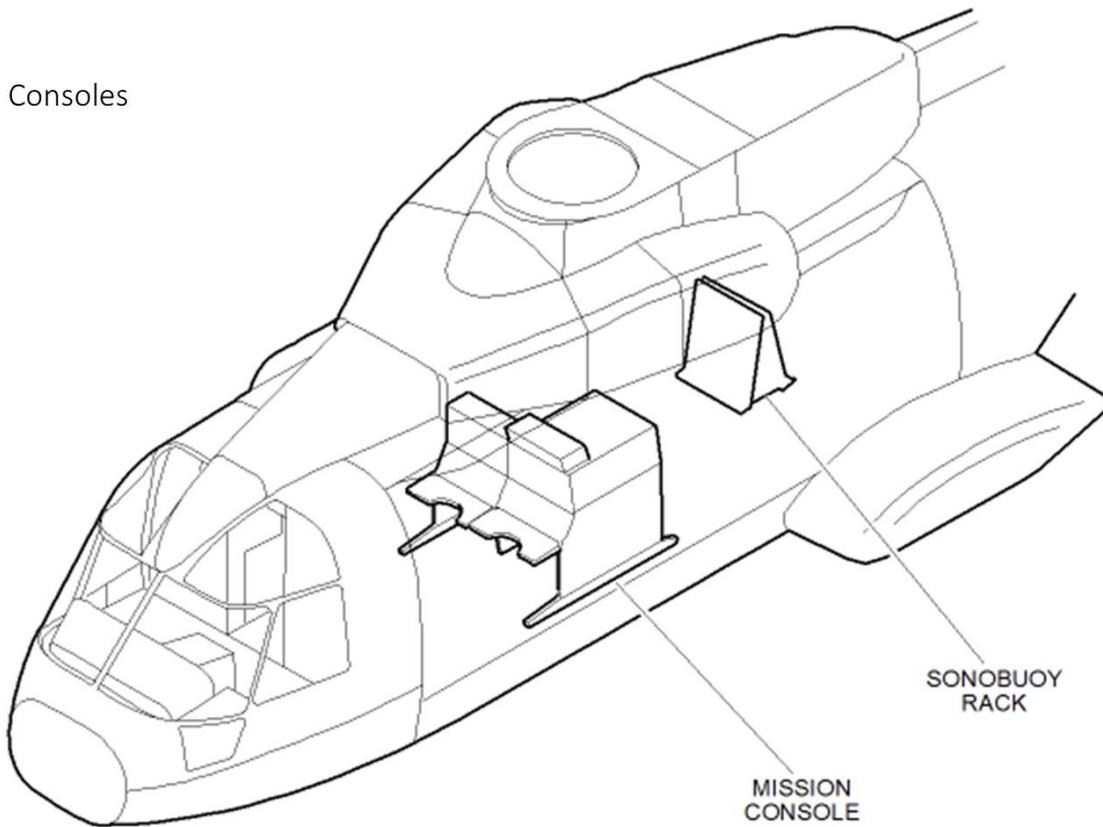


Combat Equipped Marching Order (CEMO) Role





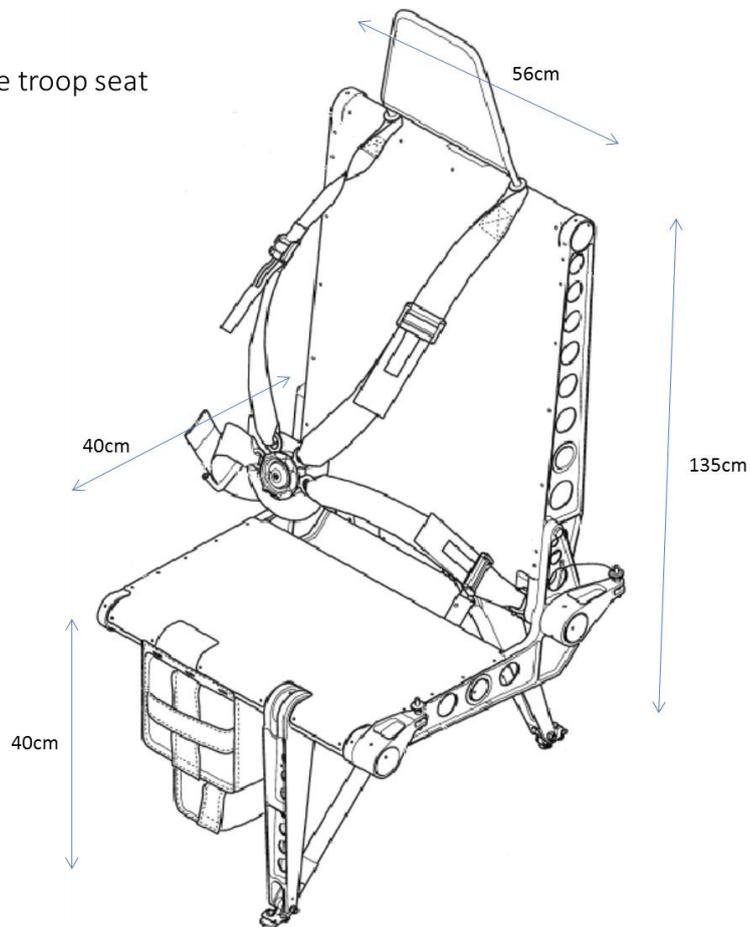
Consoles



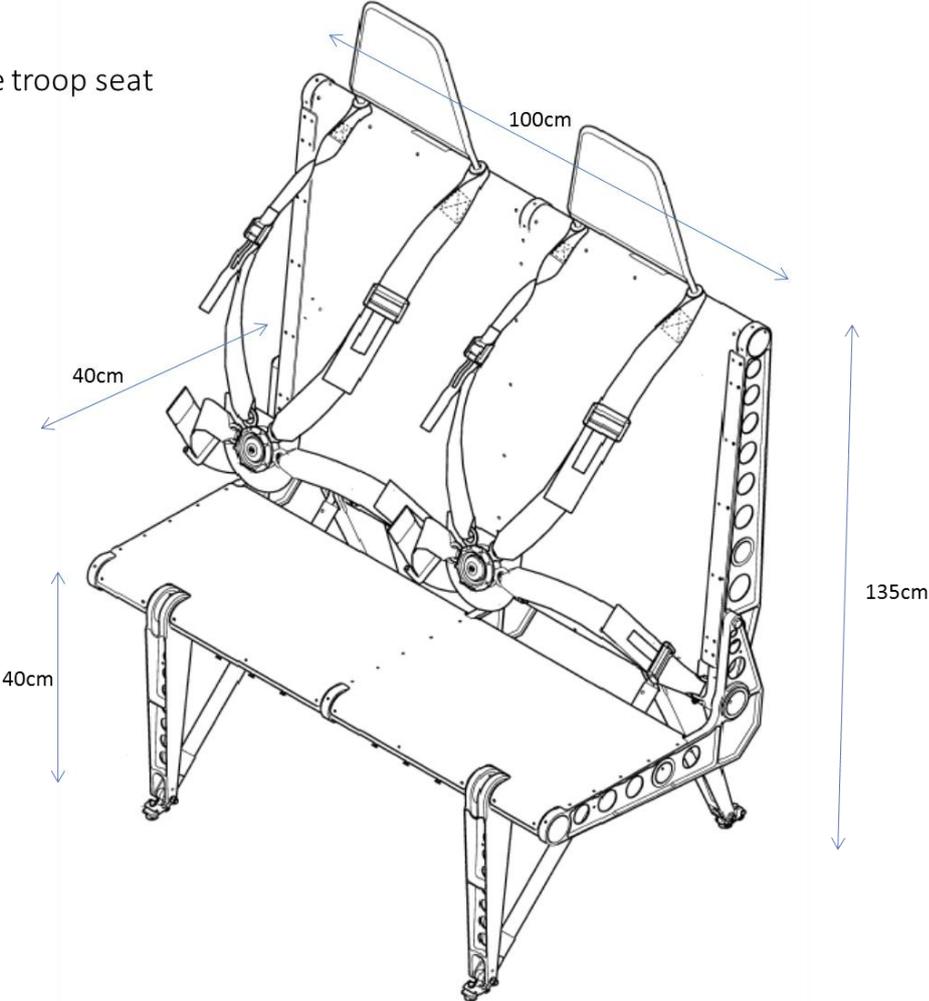
Mission Consoles



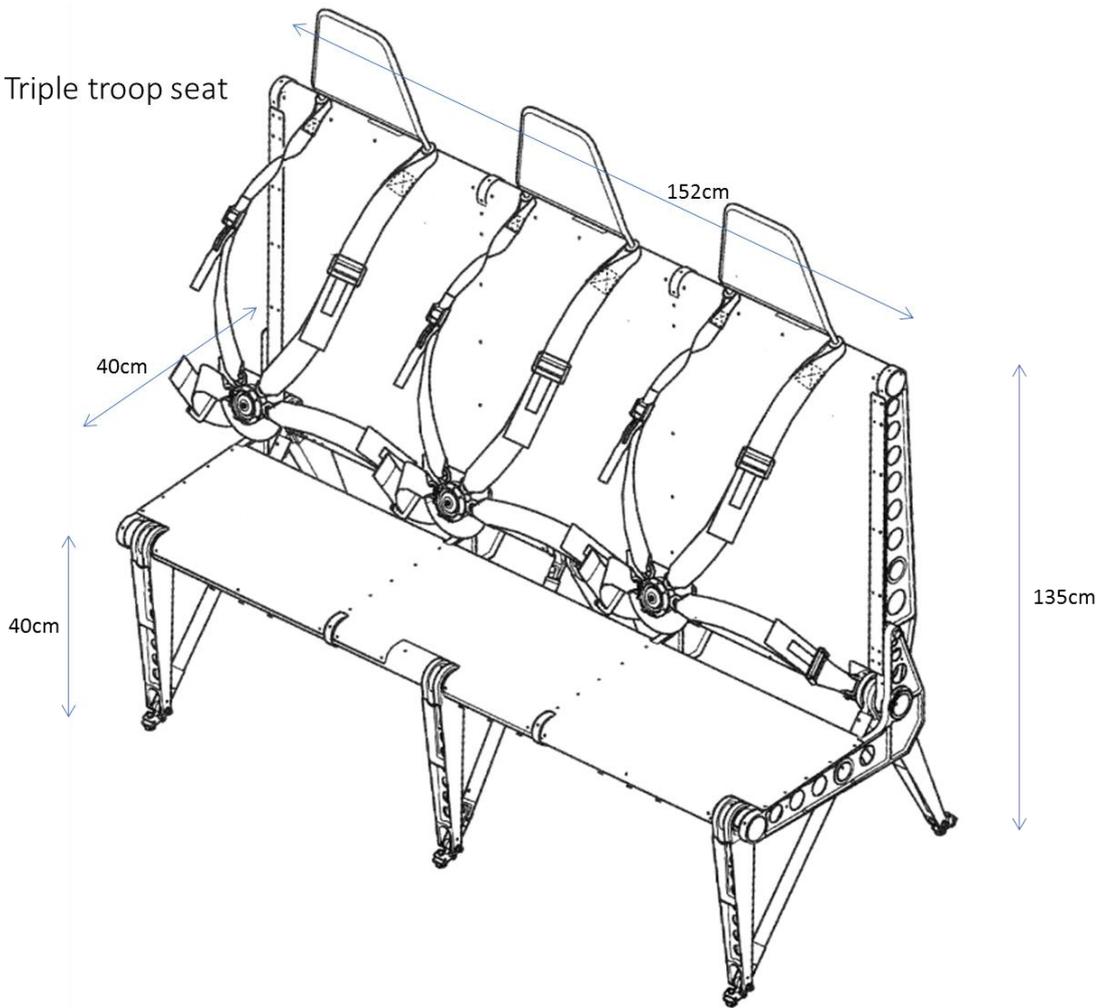
Mk2 Single troop seat



Mk2 Double troop seat

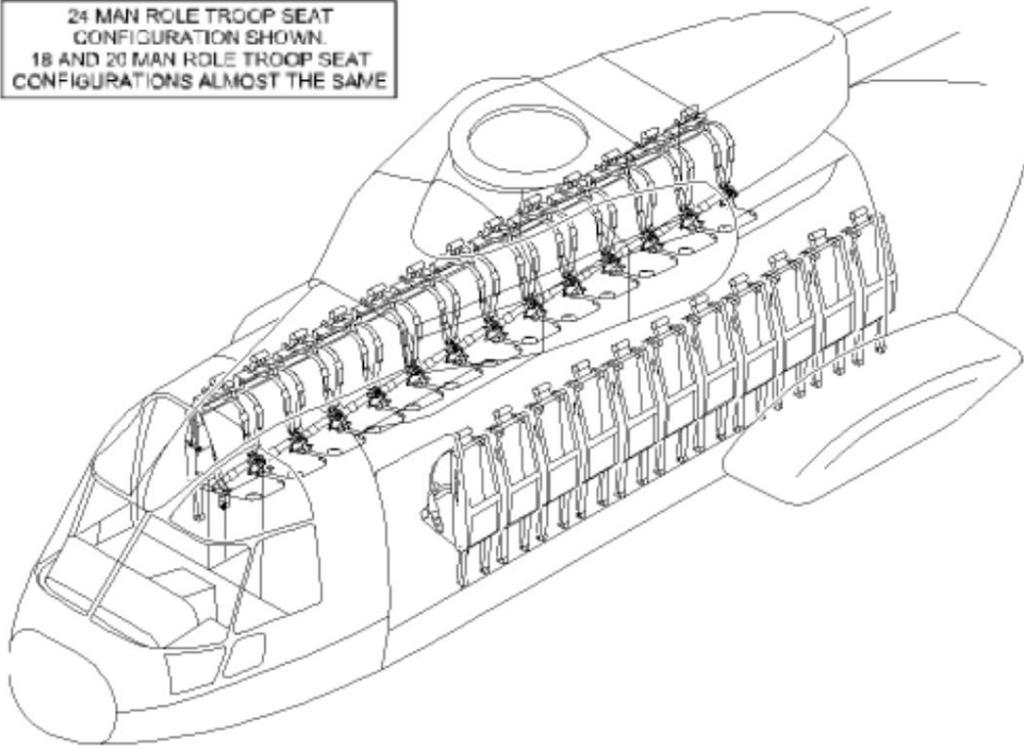


Mk2 Triple troop seat

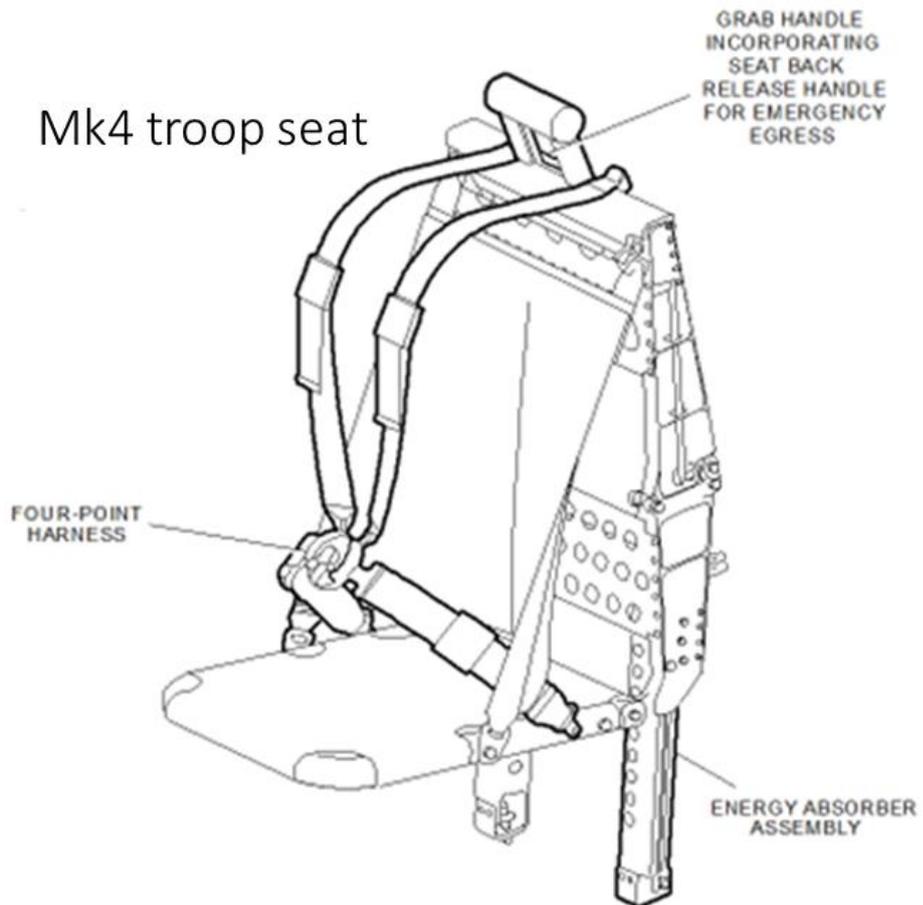


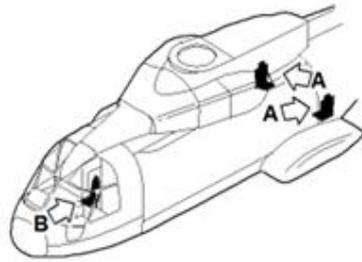
Merlin Mk4

24 MAN ROLE TROOP SEAT
CONFIGURATION SHOWN.
18 AND 20 MAN ROLE TROOP SEAT
CONFIGURATIONS ALMOST THE SAME

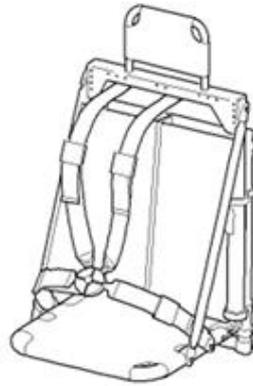


Mk4 troop seat

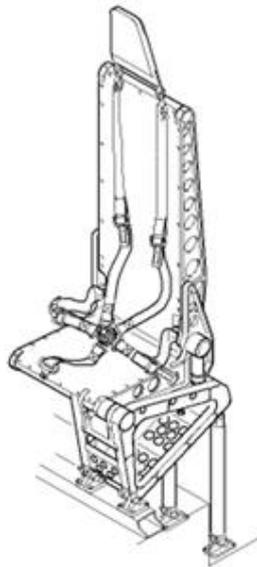




Cabin Crew seats



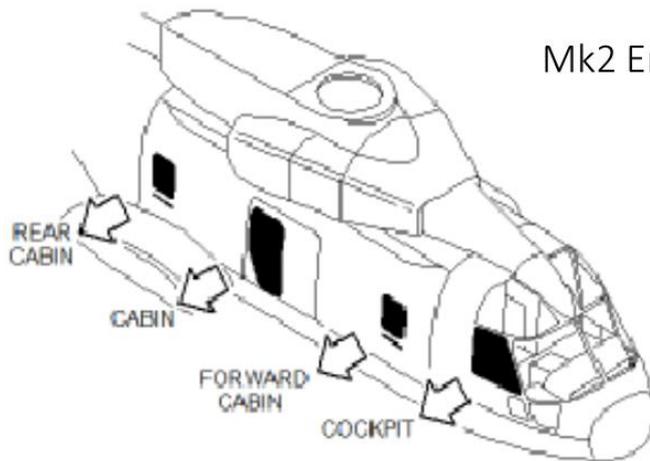
A
REAR CABIN CREW SEAT



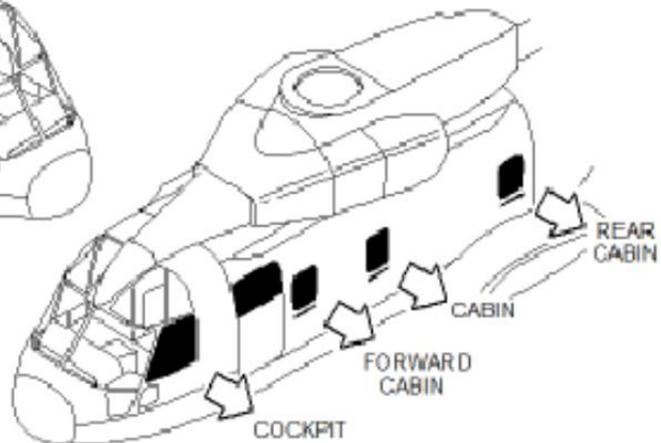
B
JUMP SEAT

Emergency exits - sizes and locations

Mk2 Emergency exits

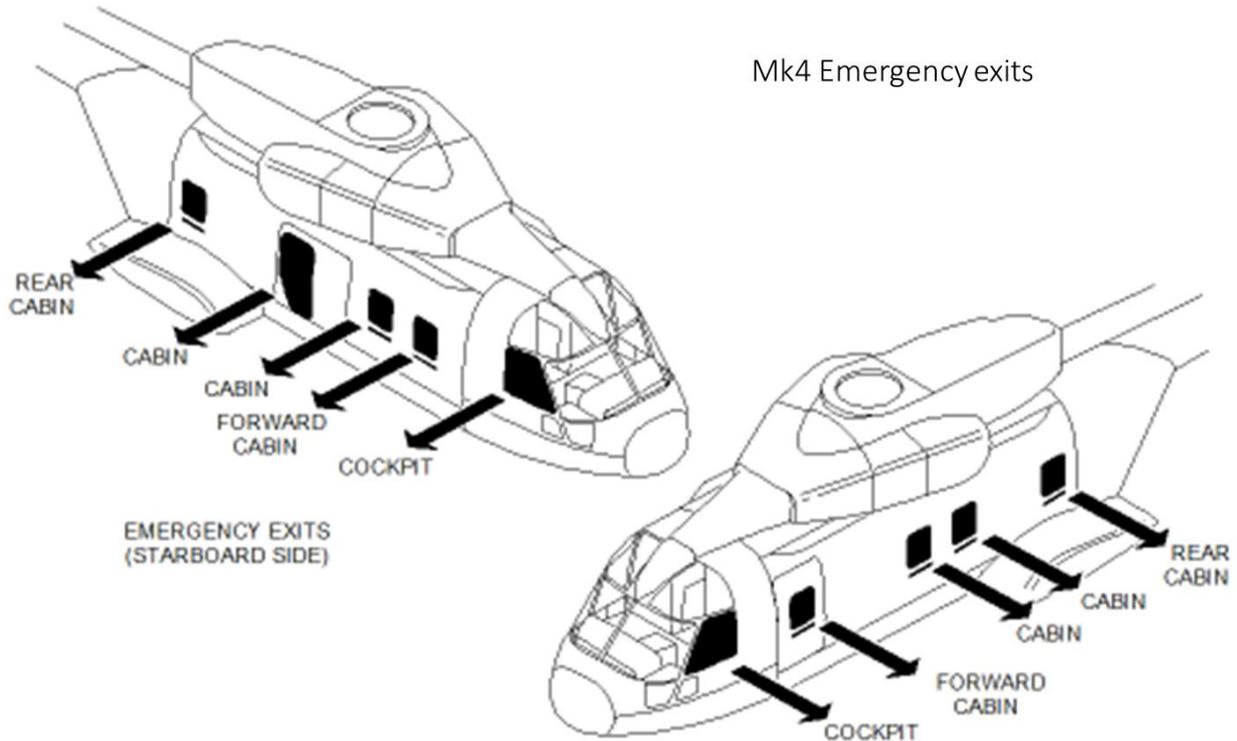


EMERGENCY EXITS
(STARBOARD SIDE)



EMERGENCY EXITS
(PORT SIDE)

Mk4 Emergency exits



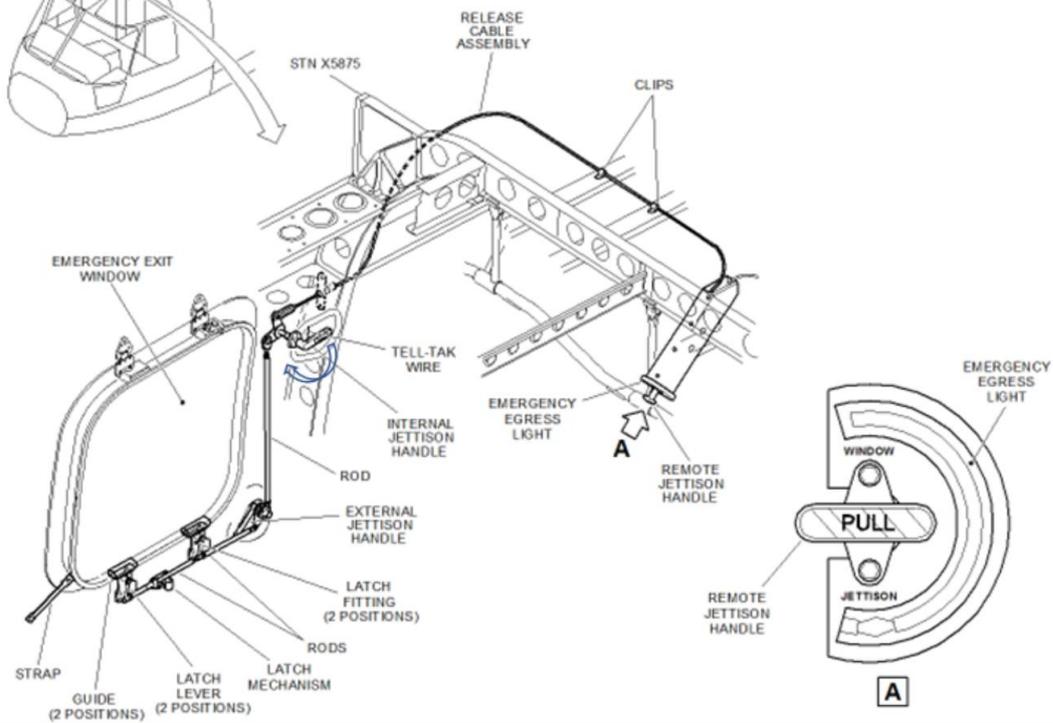
It should be considered that the following cabin exit dimensions, all in millimetres (mm), are estimates and are subject to manufacturing and assembly tolerances. The location of each feature has been designated using the aircraft axes across the X and Z plane - curvature is not identified. Note: All window apertures possess corner radii of 120.5mm.

Mk2 – Window and Door Apertures			
Port Side		Starboard	
Airstair Door Hatch Ref: EB5210B100	Aperture Dimensions: 610(H)x925(W) Centre Line: X5370 Water Line: Z2585	Window X4859-X5875 Ref: EB5620B049	Aperture Dimensions: 675(H)x610(W) Centre Line: X5375 Water Line: Z2113
Window X5875-X6875 Ref: EB5620B049	Aperture Dimensions: 505(H)x500(W) Centre Line: X6320 Water Line: Z2280	Cargo Door Ref: EB5230B010	Aperture Dimensions: 1632(H)x1918(W) Centre Line: X7875 Water Line: Z1518
Window X7875-X8875 Ref: EB5620B049	Aperture Dimensions: 675(H)x610(W) Centre Line: X8375 Water Line: Z2110	Cargo Door Hatch Ref: EB5230B010	Aperture Dimensions: 1209(H)x680(W) ¹ Centre Line: X8264 Water Line: Z2847
Window X10375-X11393 Ref: EB5620B049	Aperture Dimensions: 675(H)x610(W) Centre Line: X10875 Water Line: Z2110	Window X10375-X11393 Ref: EB5620B049	Aperture Dimensions: 675(H)x610(W) Centre Line: X10875 Water Line: Z2110
Mk4/4a – Window and Door Apertures			
Port Side		Starboard	
Sliding Door X4859-X5875 Ref: EU5210B001	Aperture Dimensions: 1675(H)x1003(W) Centre Line: X5370 Water Line: Z1485	Window X4859-X5875 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X5375 Water Line: Z2110
Window X4859-X5875 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X5340 Water Line: Z2110	Window X5875-X6875 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X6375 Water Line: Z2110
Window X6875-X7875 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X7375 Water Line: Z2110	Window X10375-X11393 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X10875 Water Line: Z2110
Window X7875-X8875 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X8375 Water Line: Z2110	Cargo Door Ref: EU5333B090	Aperture Dimensions: 1632(H)x1918(W) Centre Line: X7875 Water Line: Z1518
Window X10375-X11393 Ref: EU5210B003	Aperture Dimensions: 675(H)x610(W) Centre Line: X10875 Water Line: Z2110	Cargo Door Hatch Ref: EC5230B014	Aperture Dimensions: 1209(H)x680(W) ¹ Centre Line: X8264 Water Line: Z2847

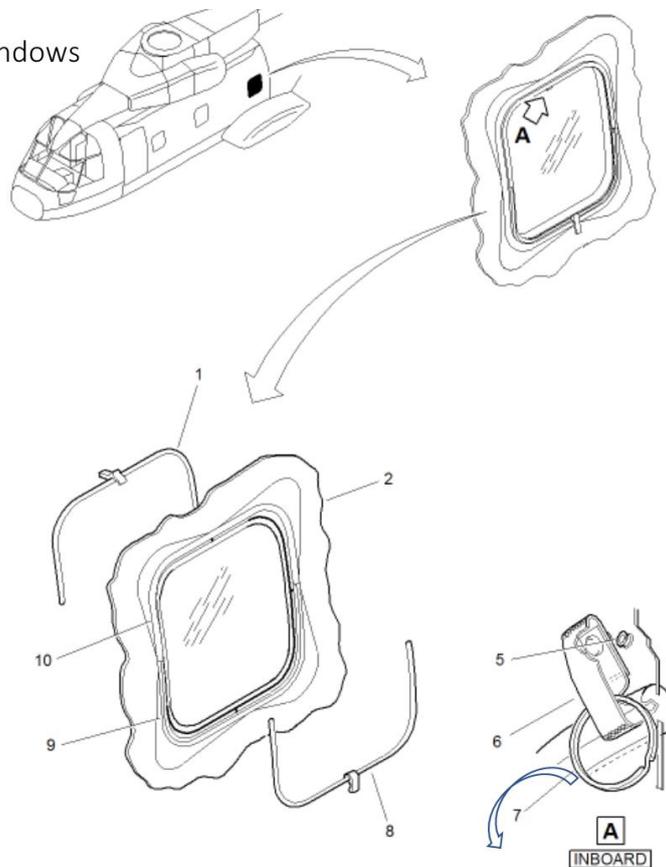
¹The cargo door hatch aperture tapers down to approximately 490mm over the lower 520mm.

Emergency exit handles – operation & position

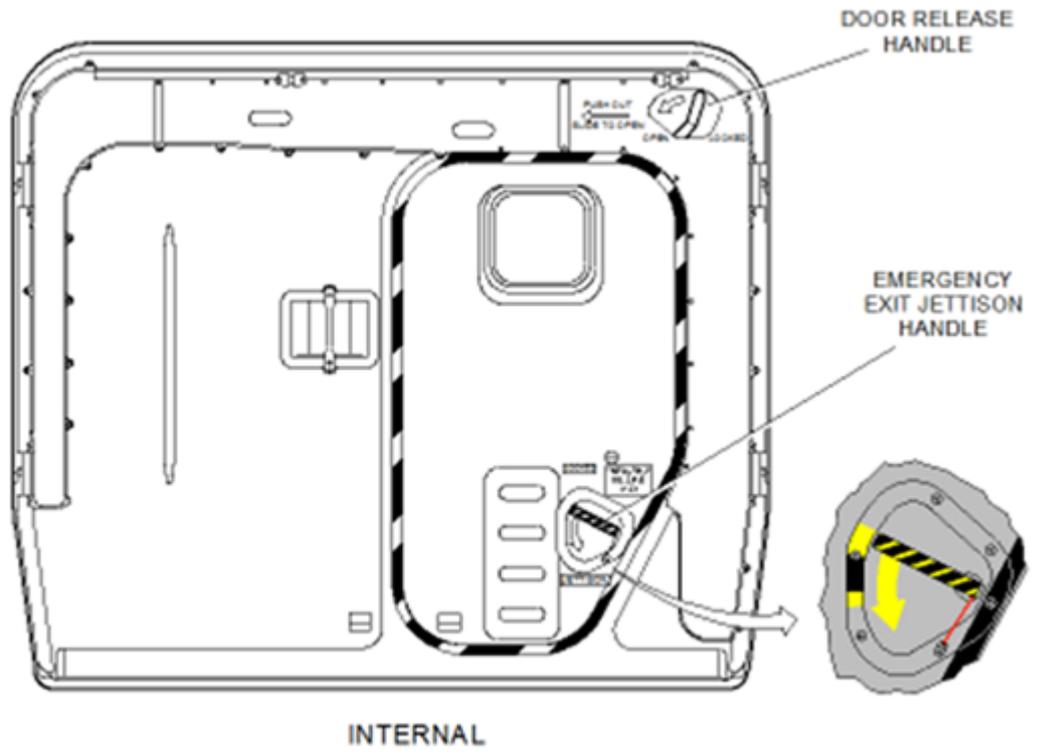
Cabin front windows

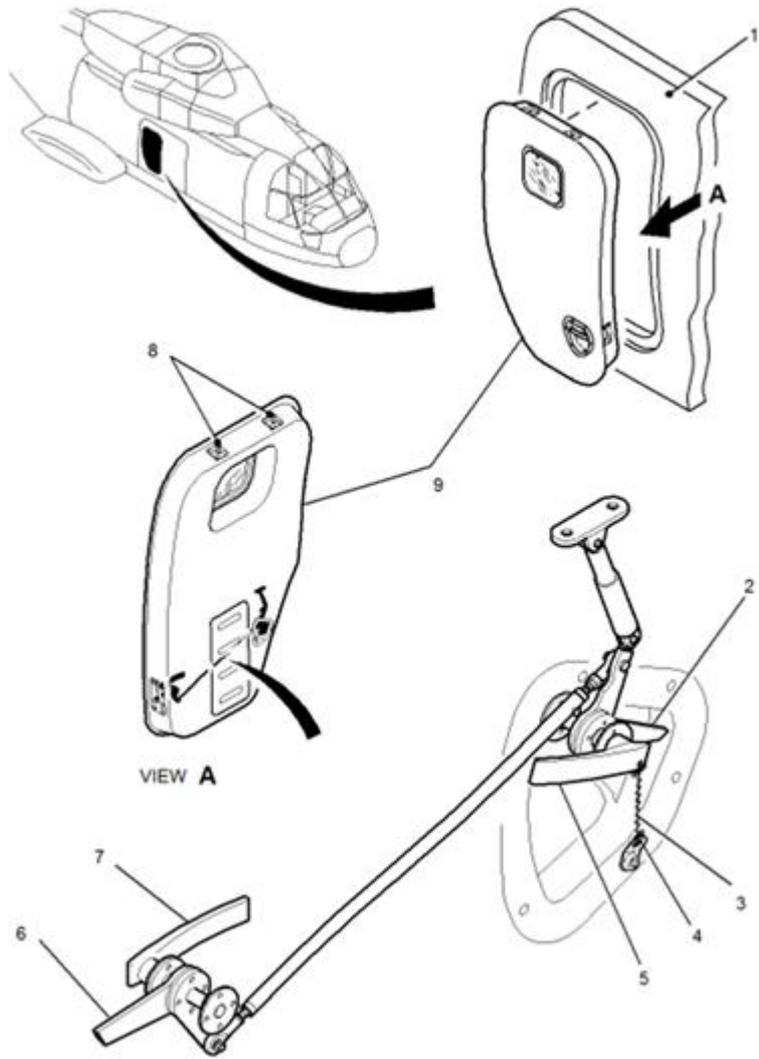


Cabin mid & rear windows



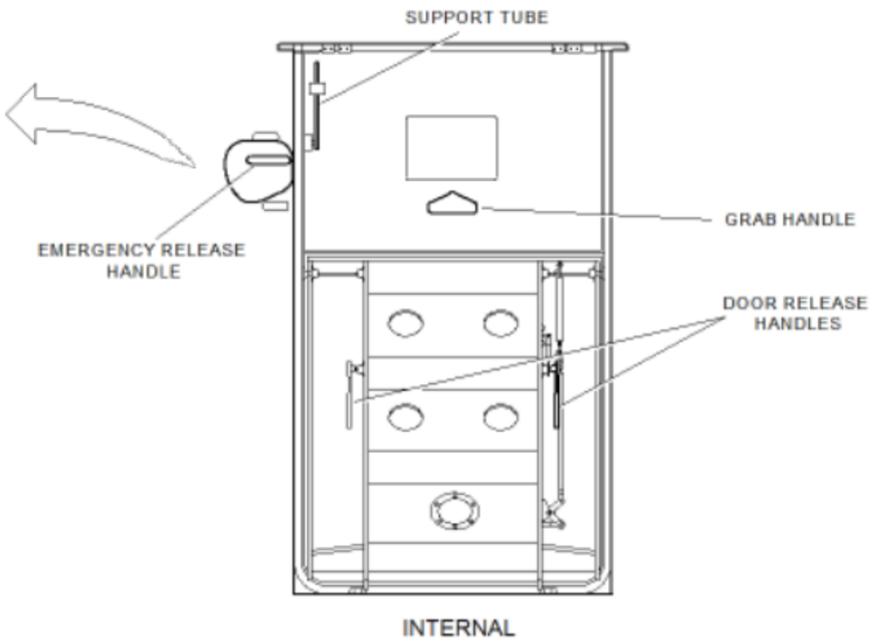
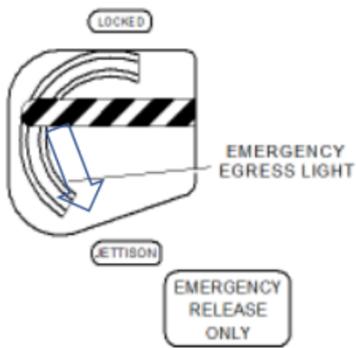
Cabin
emergency
exit cargo
door

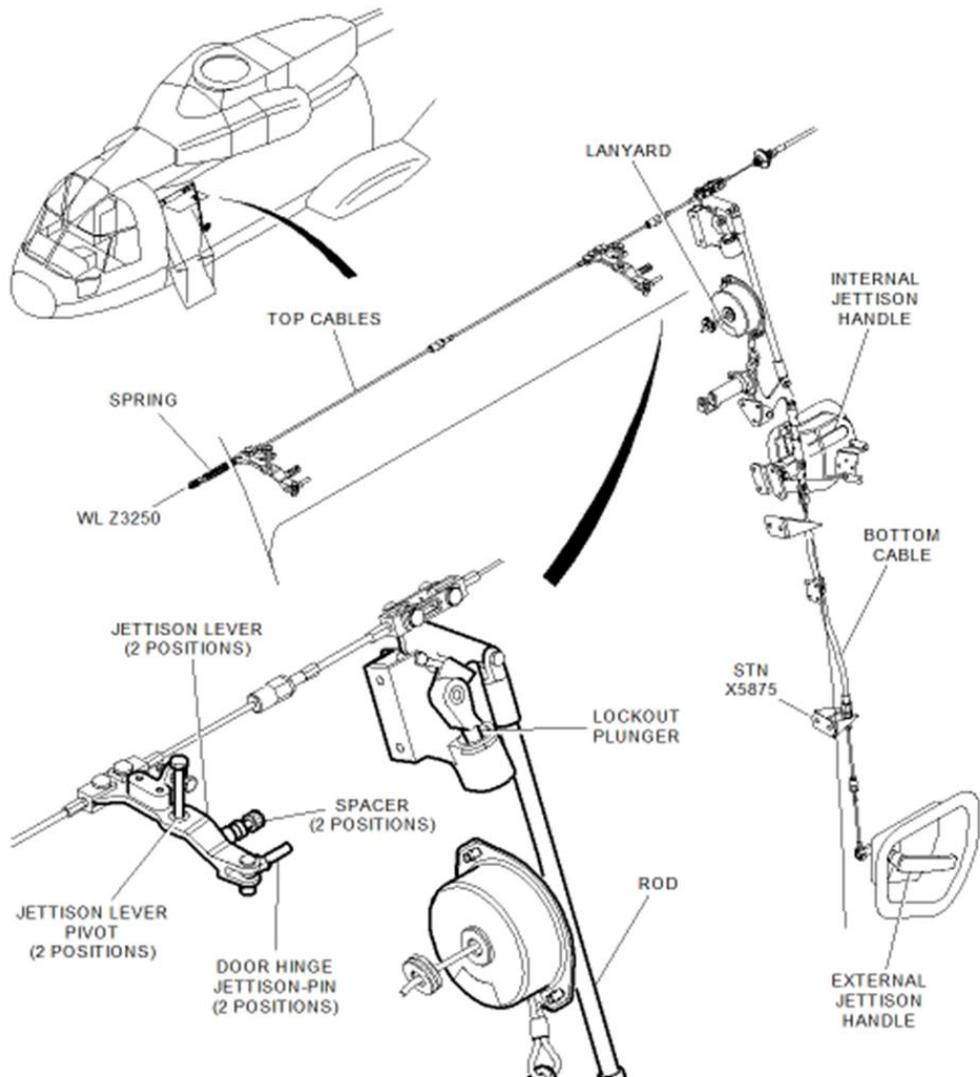




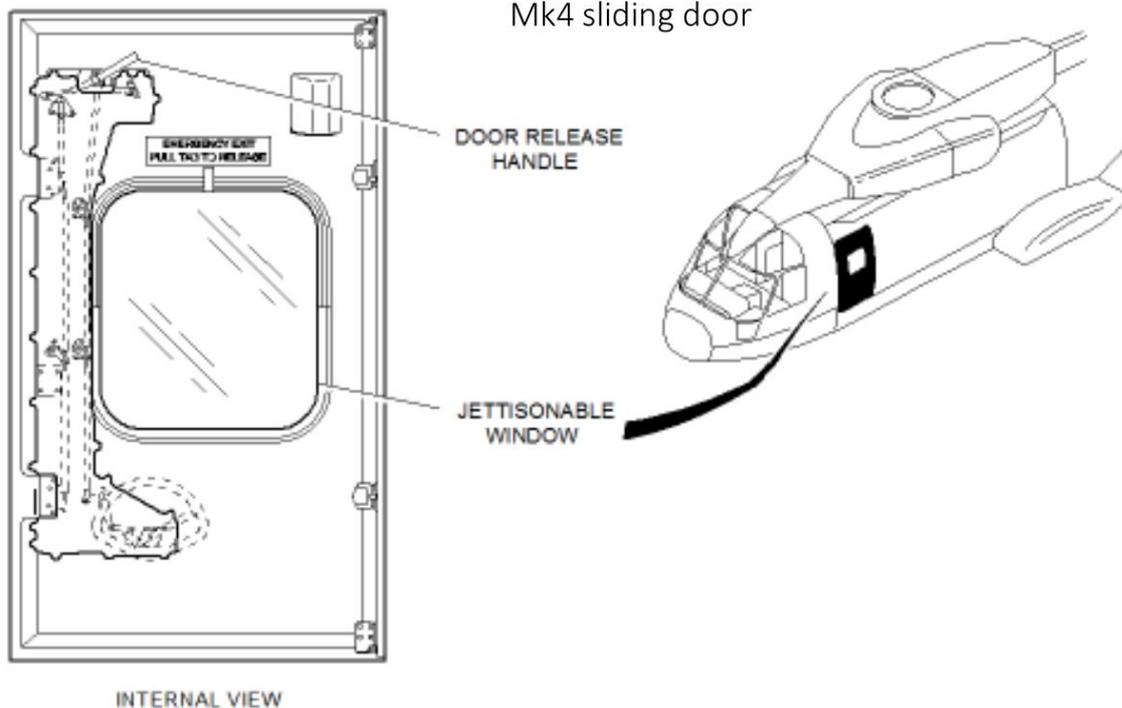
VIEW A

Mk2 Airstair door



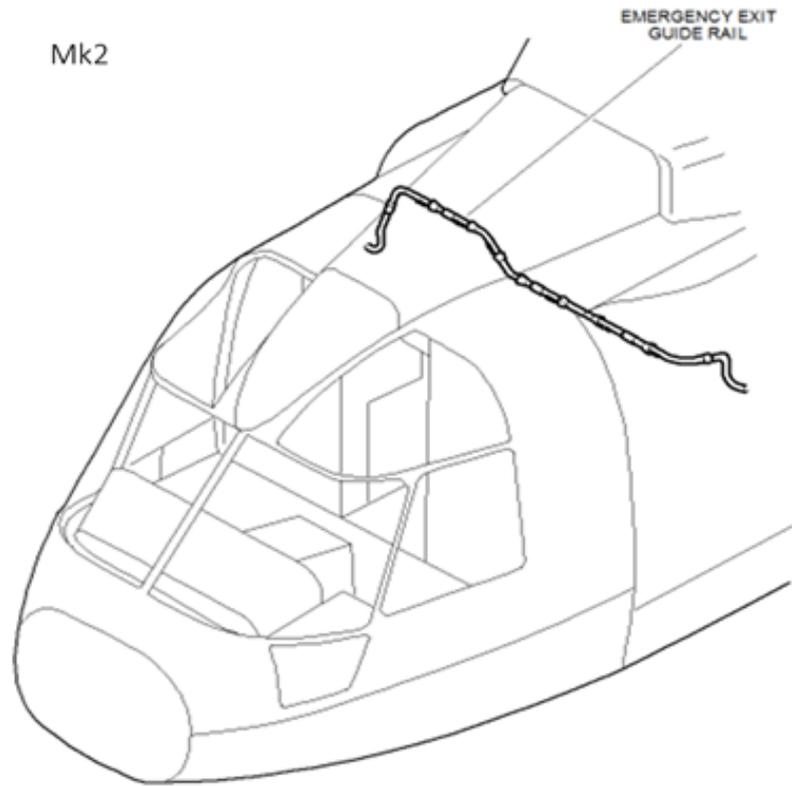


Mk4 sliding door



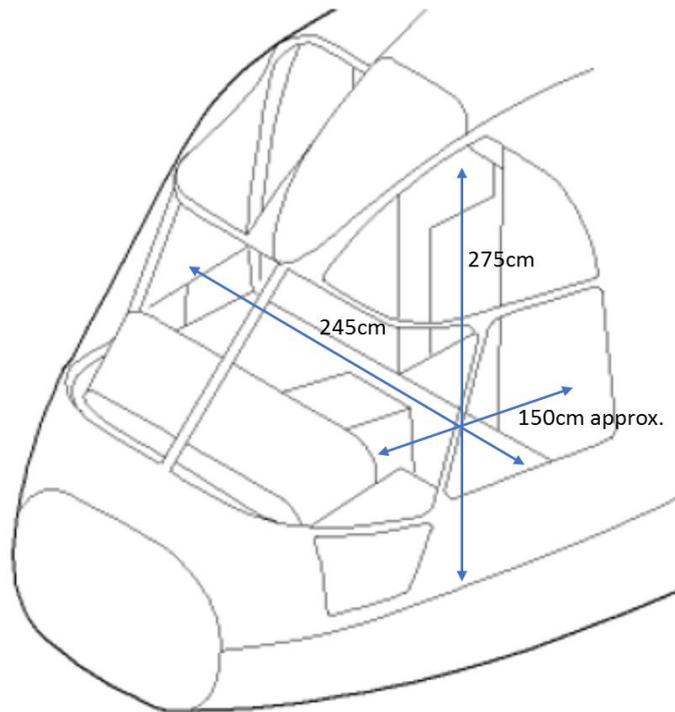
INTERNAL VIEW

Mk2



Cockpit

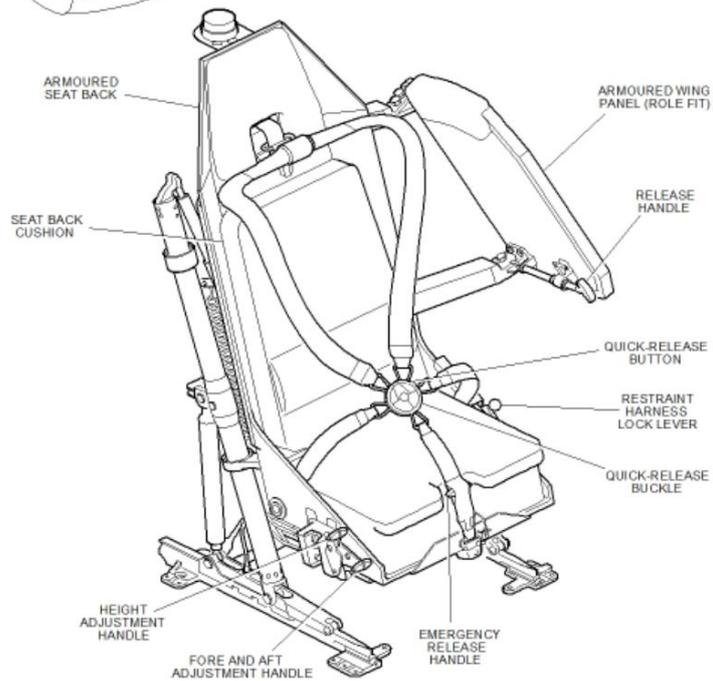
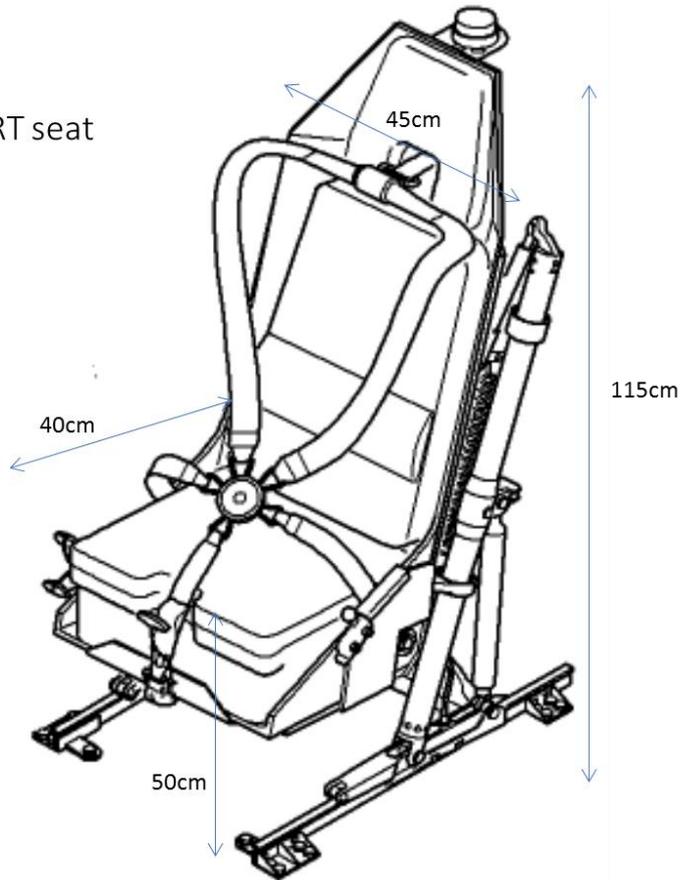
Principle Dimensions



Seating - configurations and sizes



Pilot/Copilot/SART seat

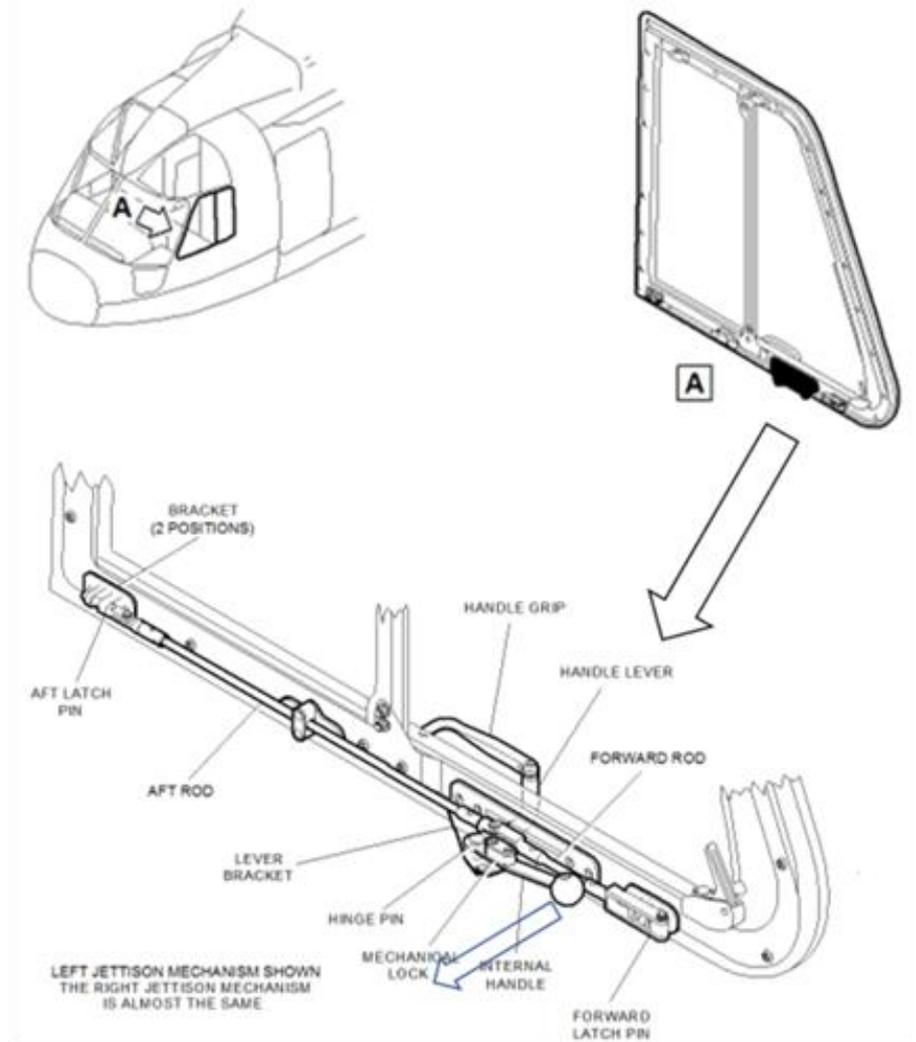


CO-PILOT'S SEAT SHOWN
THE PILOT'S IS SIMILAR

A

Emergency exit handles - operation, position

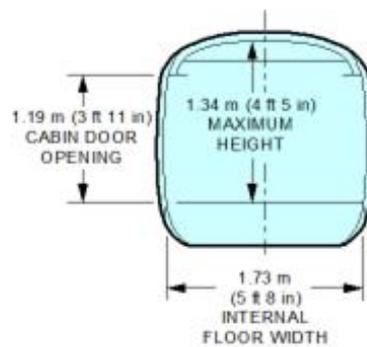
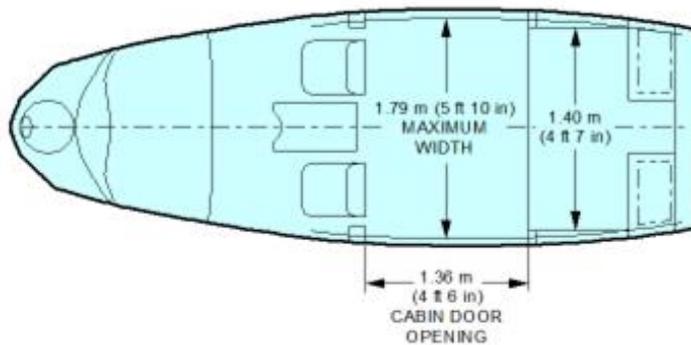
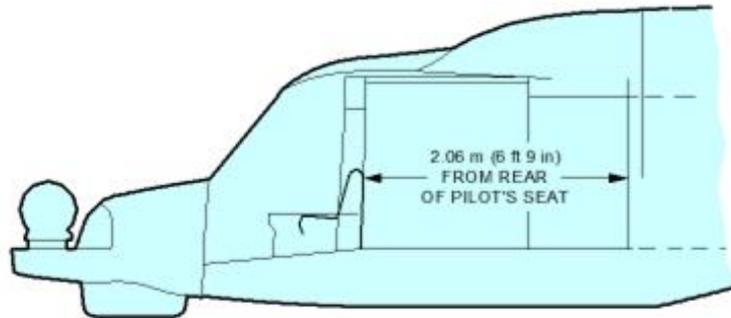
Cockpit window jettison



Wildcat

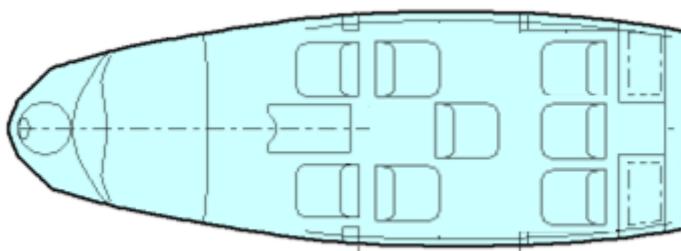
Cabin

Principle Dimensions



Seat configuration and sizes

Cabin Seat Configuration – Preference is for configurable seats

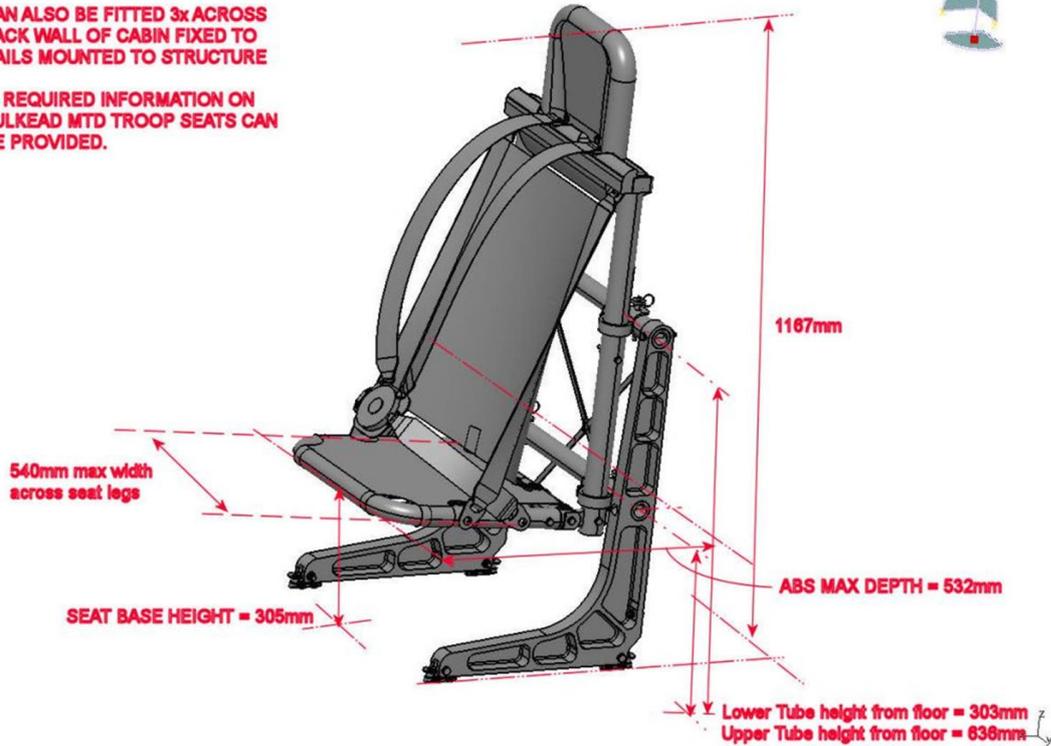


Note: Centre aft facing seat can be fitted with another 5 seats. All three aft facing seats are configurable along rails on the floor to position them further aft and also re-orientate them to face forwards. All seats have 5-point harnesses.

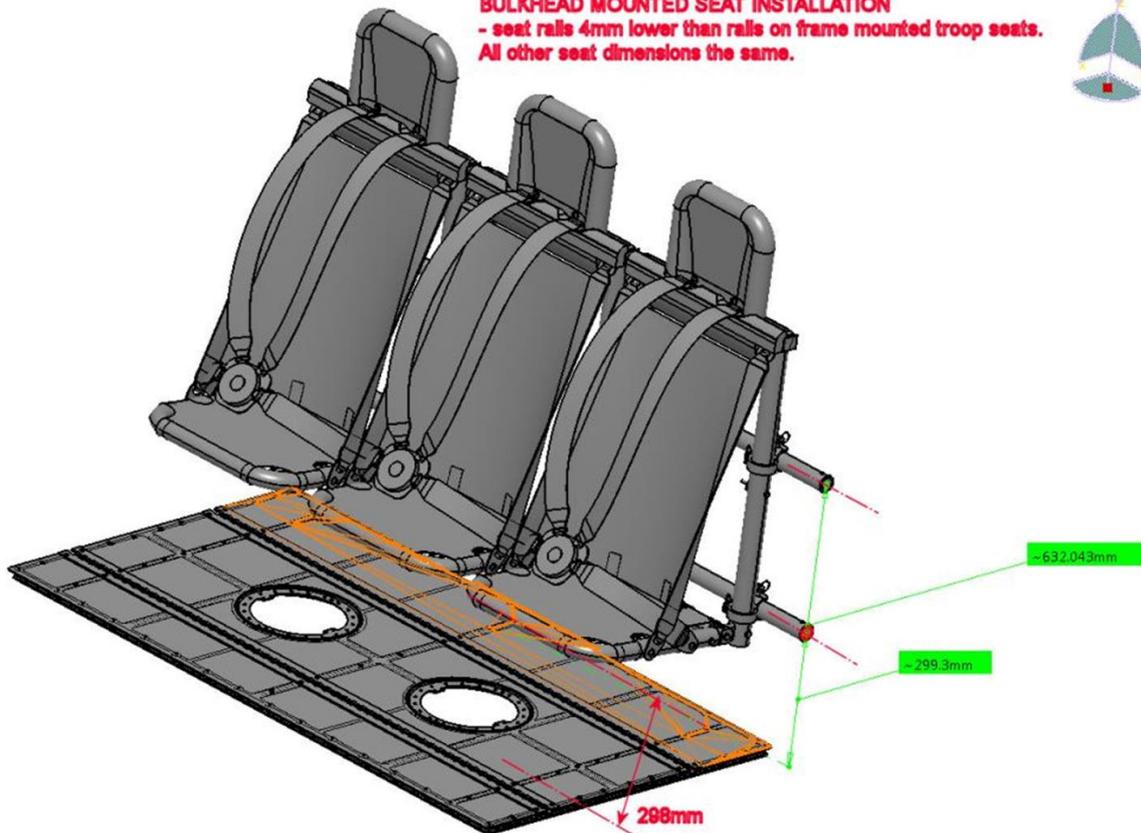
CABIN FITTED TROOP SEATS.

CAN ALSO BE FITTED 3x ACROSS BACK WALL OF CABIN FIXED TO RAILS MOUNTED TO STRUCTURE

IF REQUIRED INFORMATION ON BULKHEAD MTD TROOP SEATS CAN BE PROVIDED.

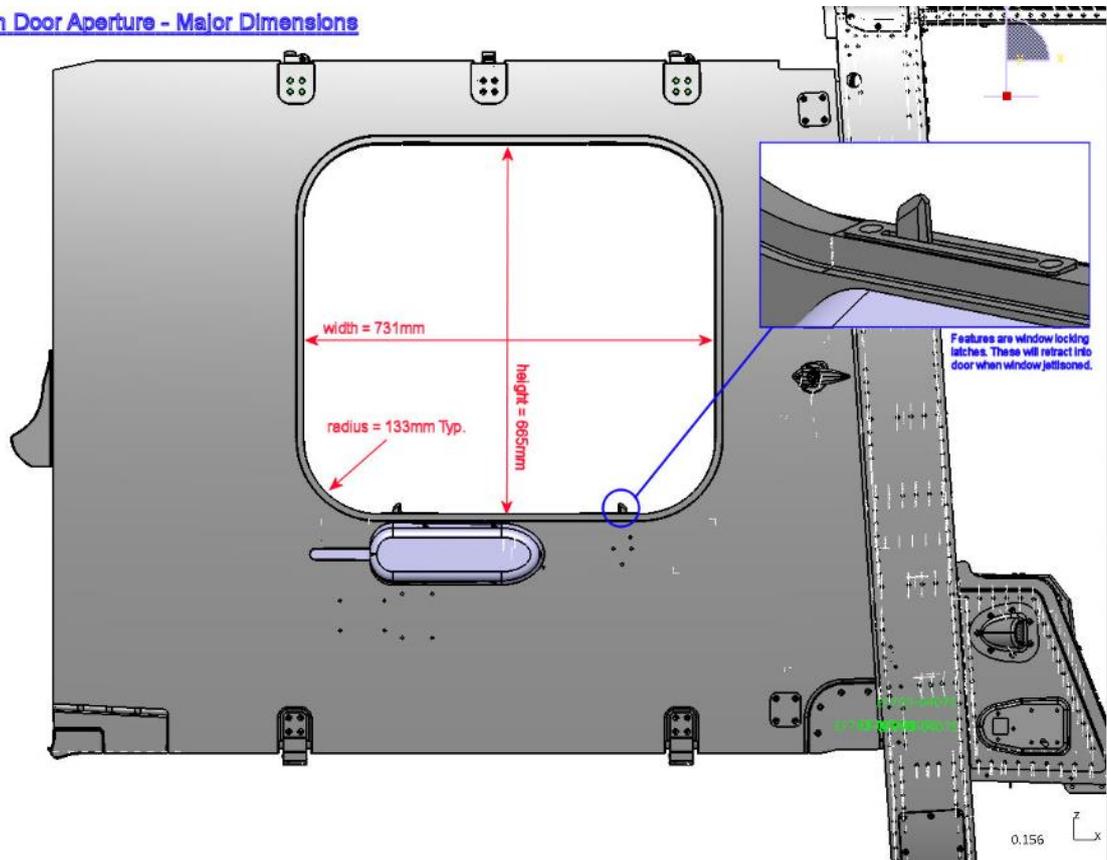


BULKHEAD MOUNTED SEAT INSTALLATION
- seat rails 4mm lower than rails on frame mounted troop seats.
All other seat dimensions the same.

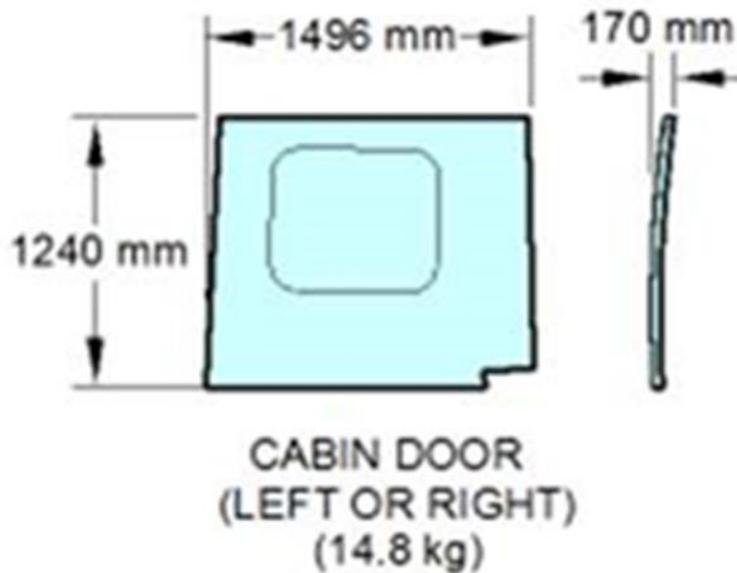


Emergency Egress Window

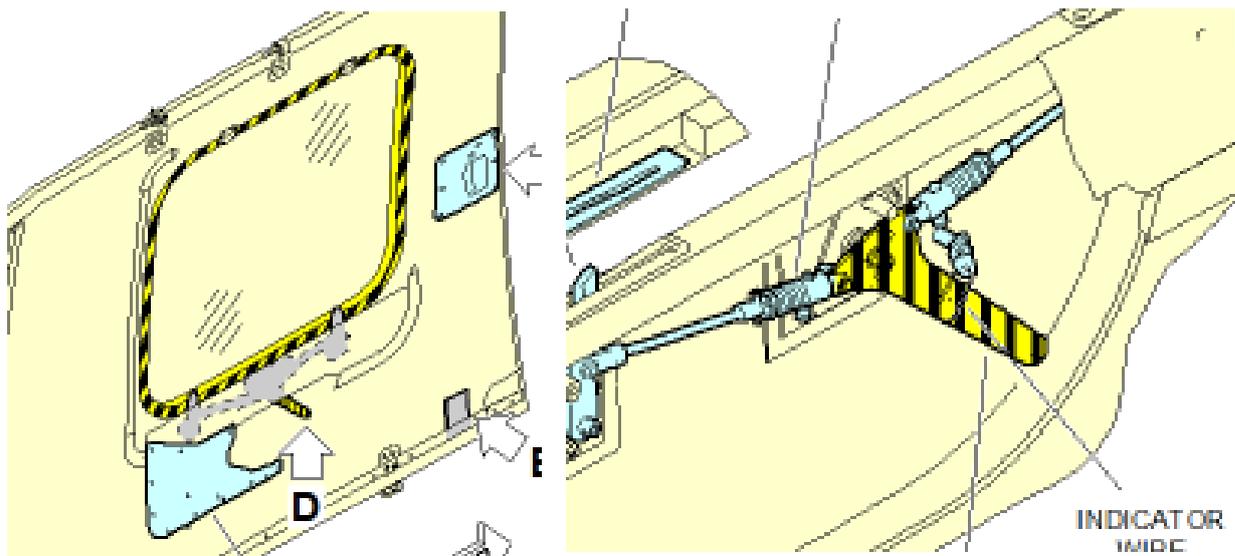
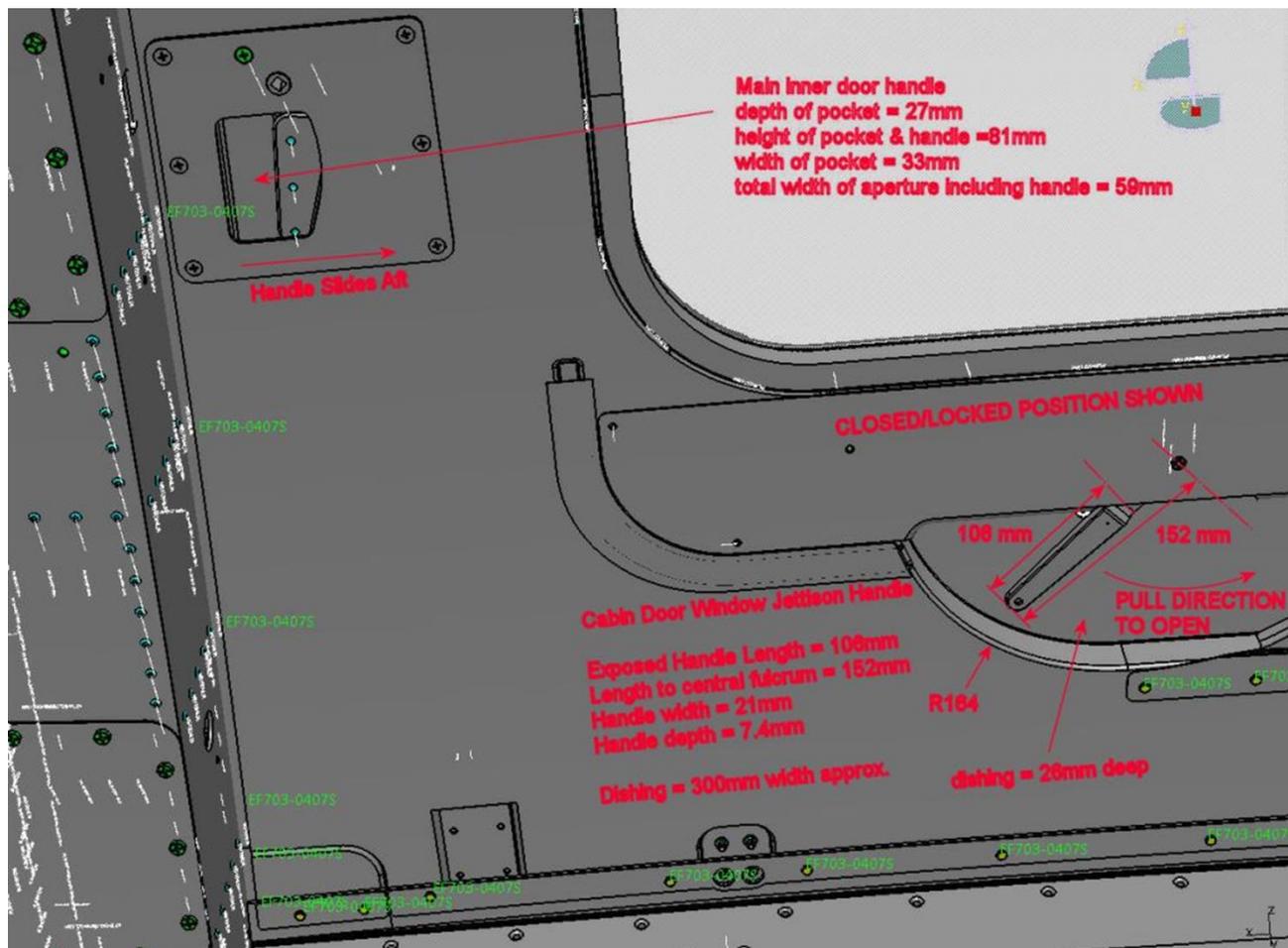
Cabin Door Aperture - Major Dimensions



Cabin window Location: the window is 420mm from the bottom of the door and 135mm from the top. ($420+665+155=1240$ mm shown below). Laterally the window is placed 465mm from the rear edge of the door and 300mm from the forward most edge.

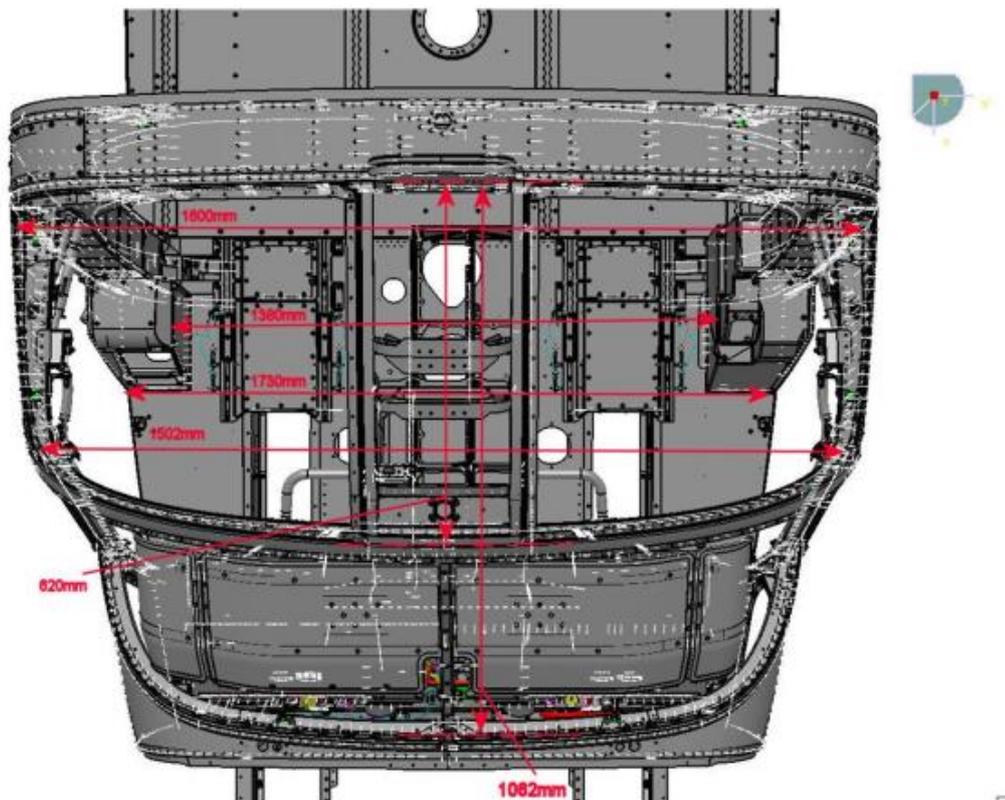
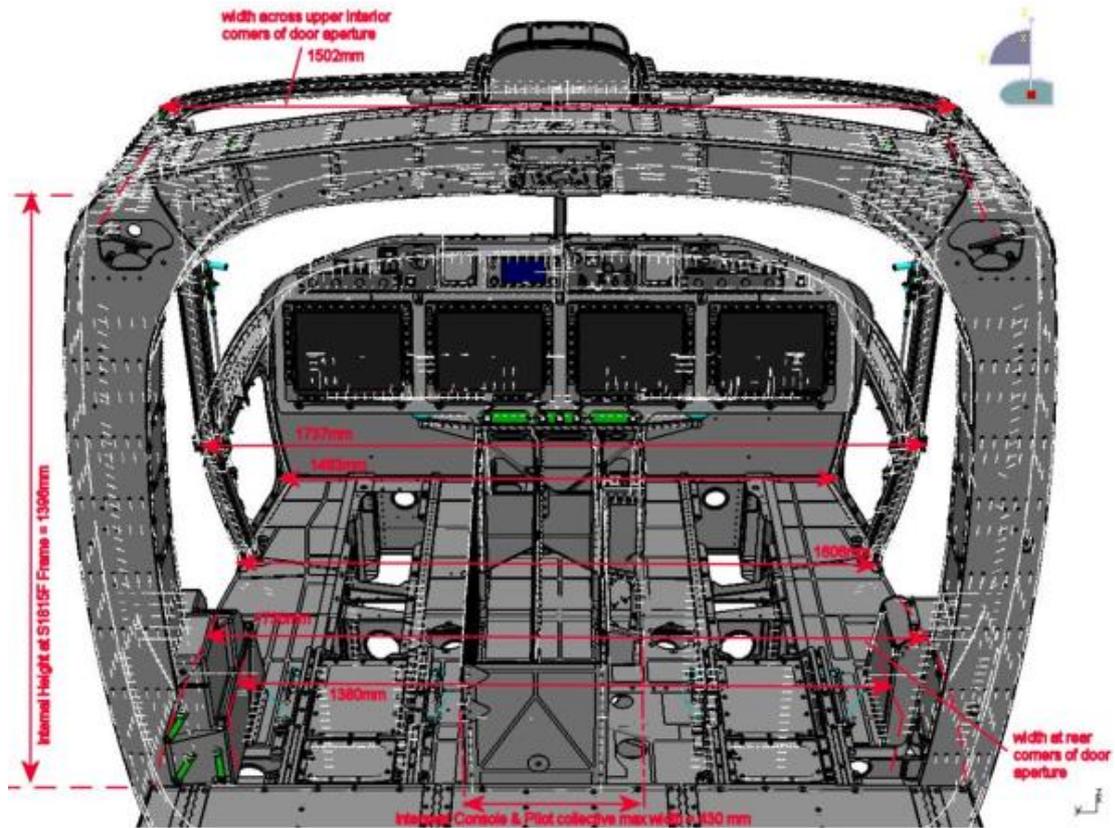


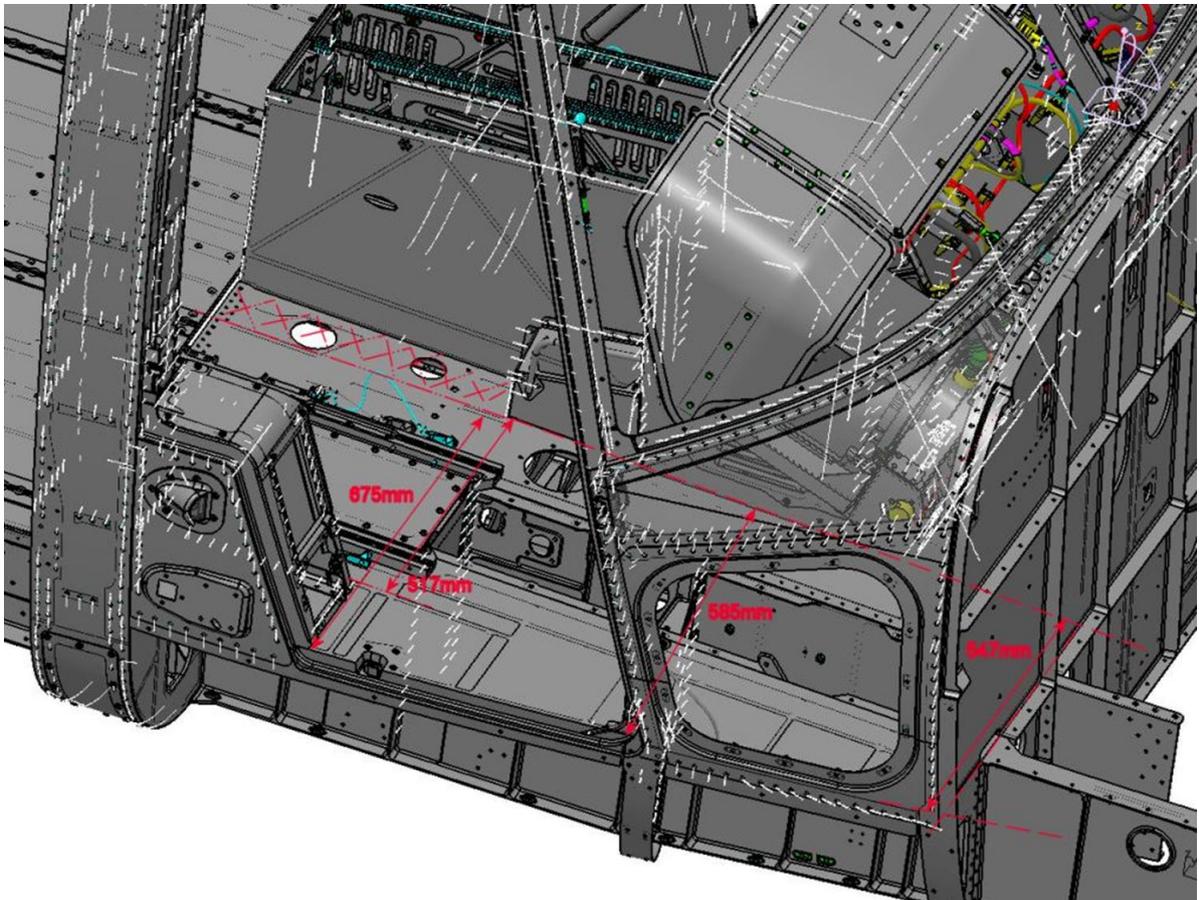
Emergency exit handles - operation, position and sizes

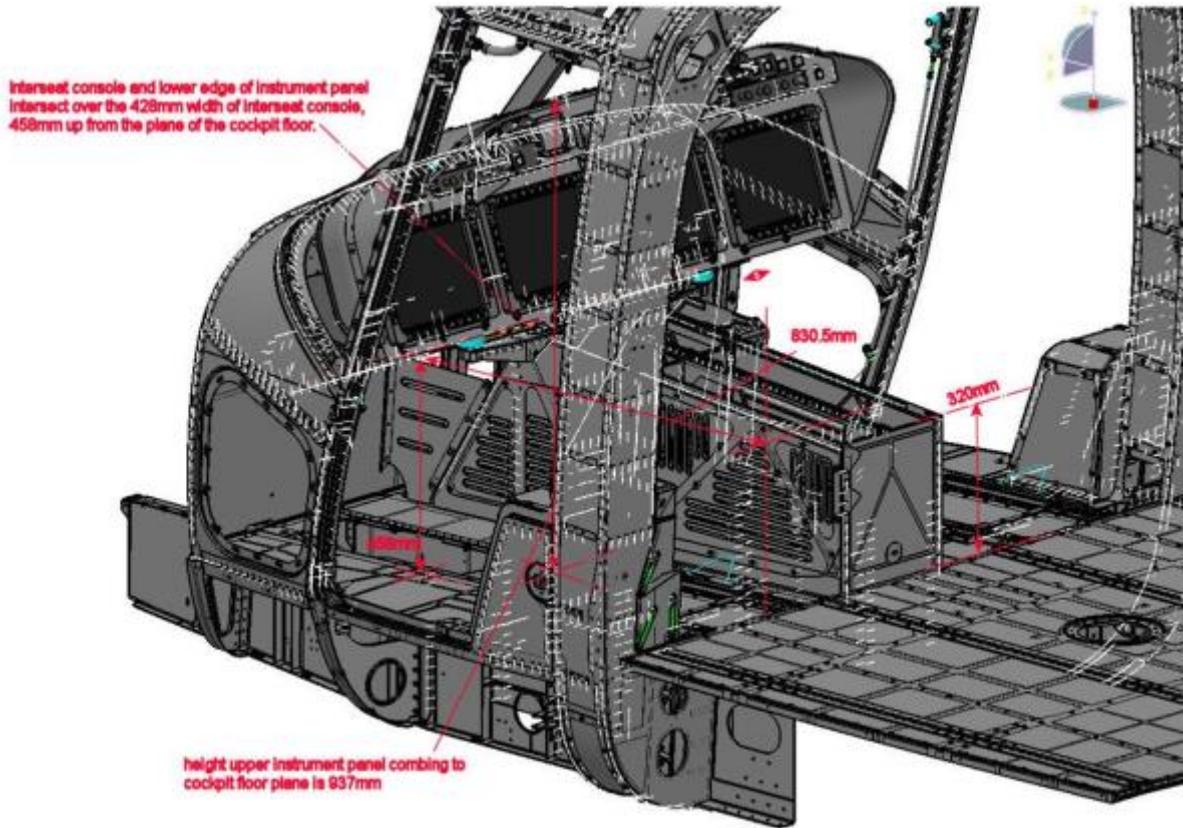
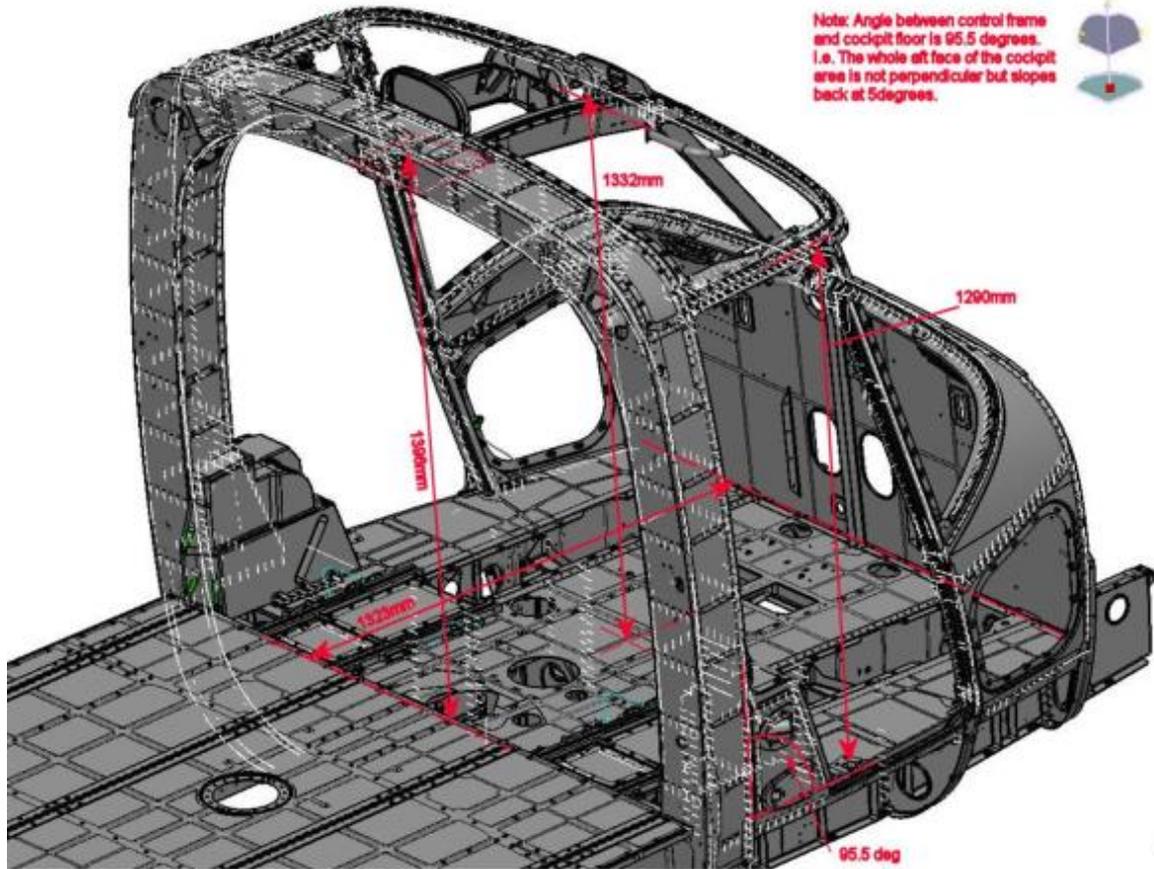


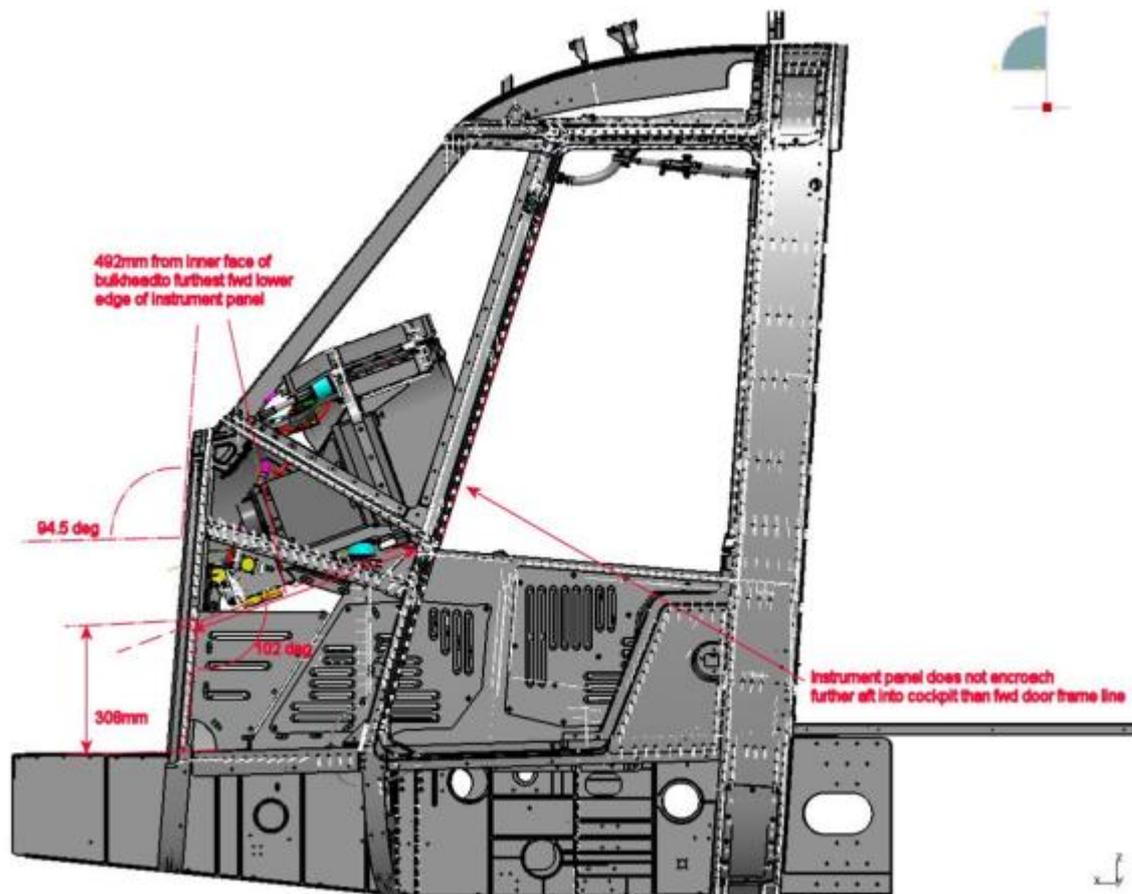
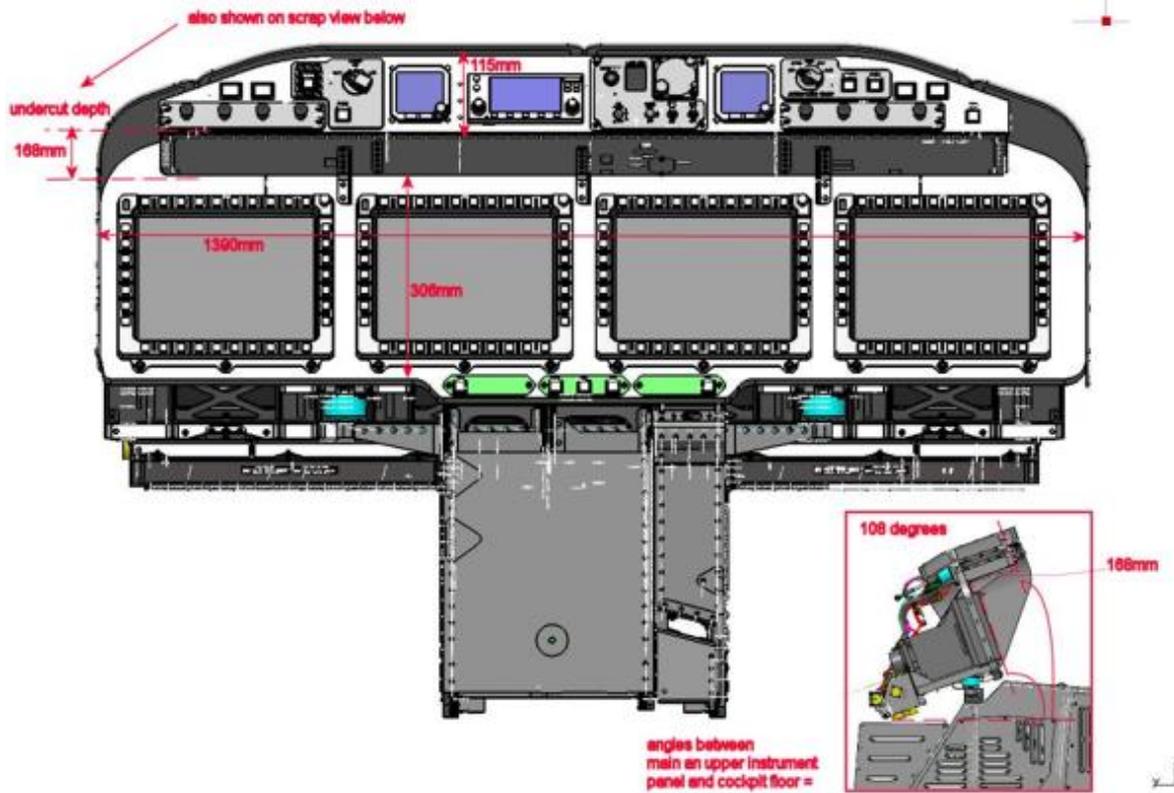
Cockpit

Principle Dimensions

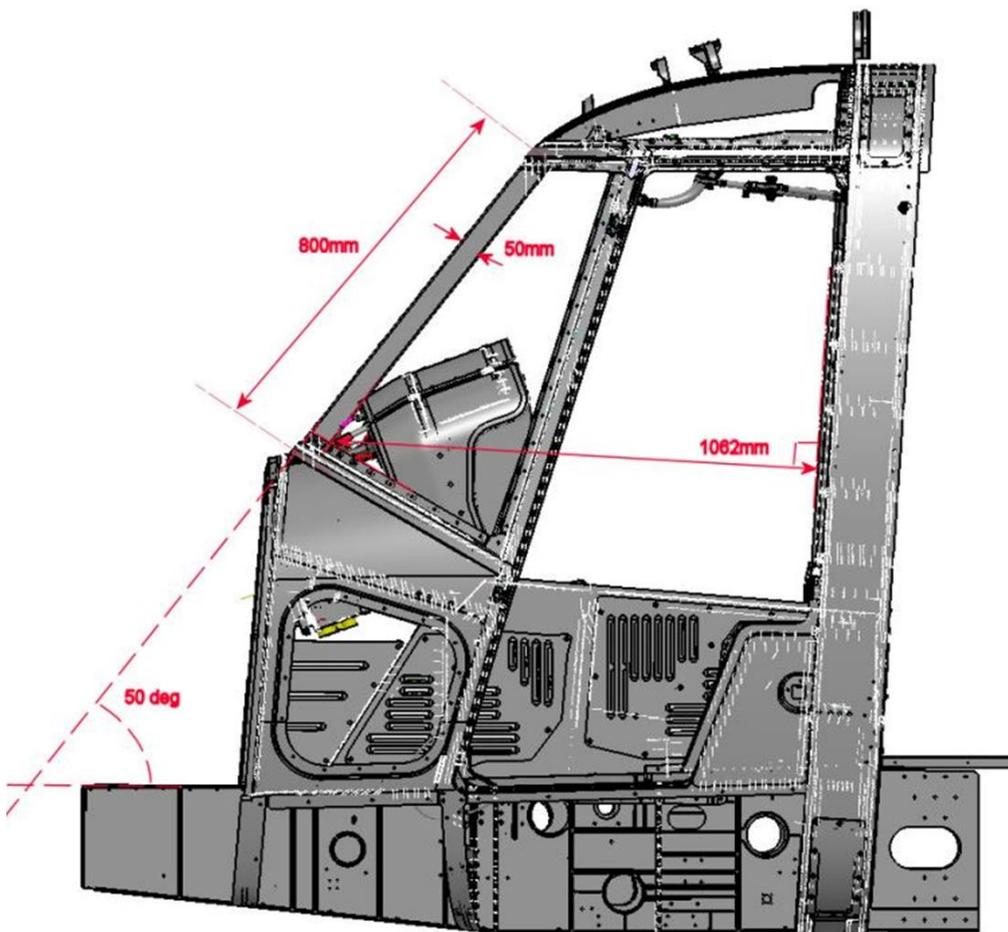
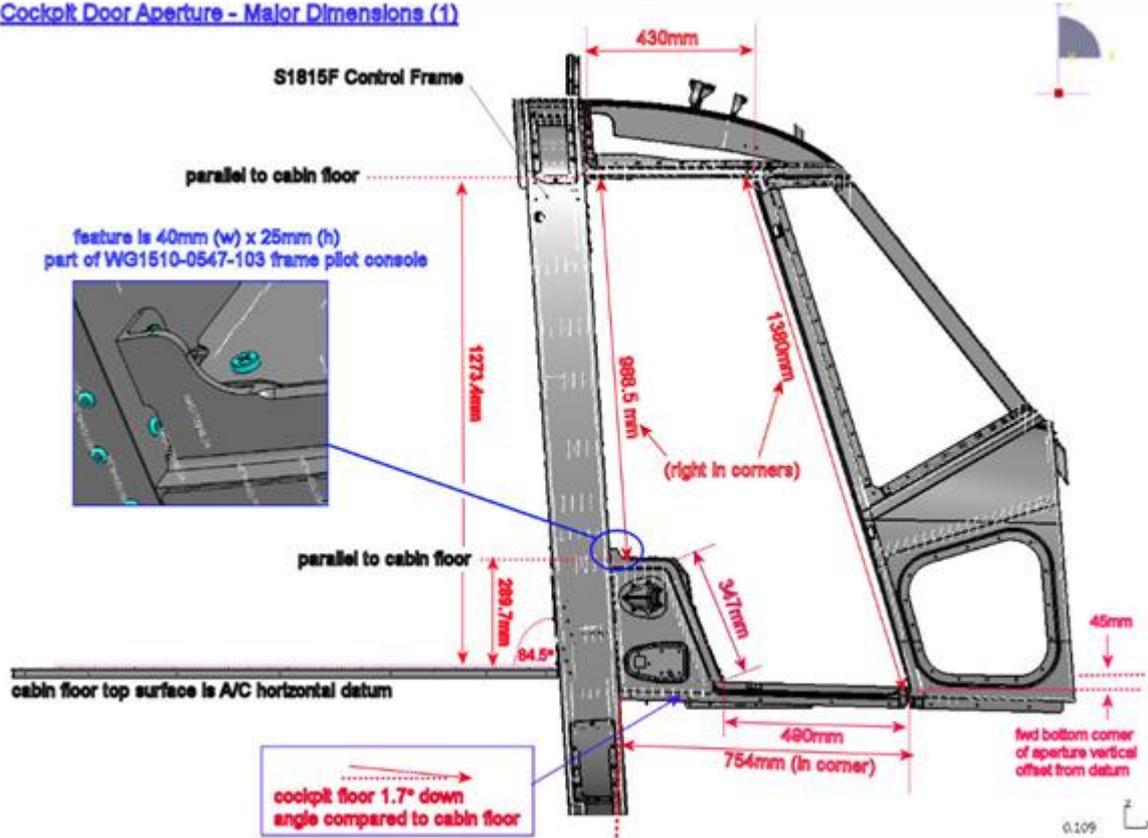


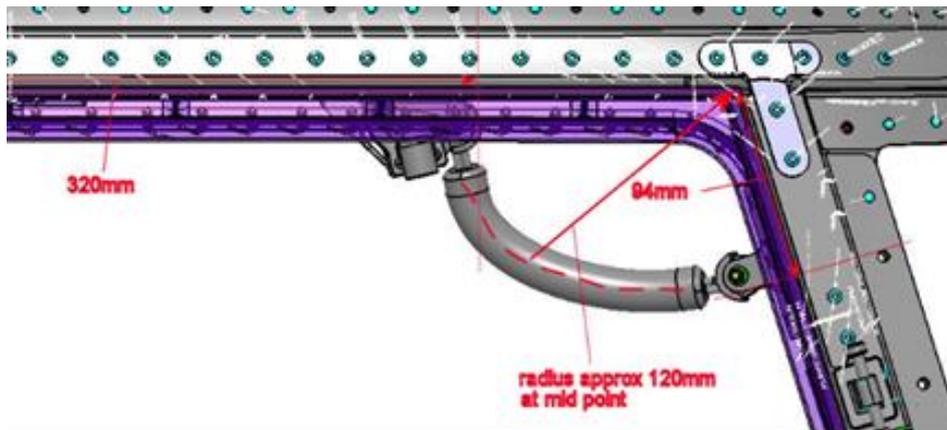






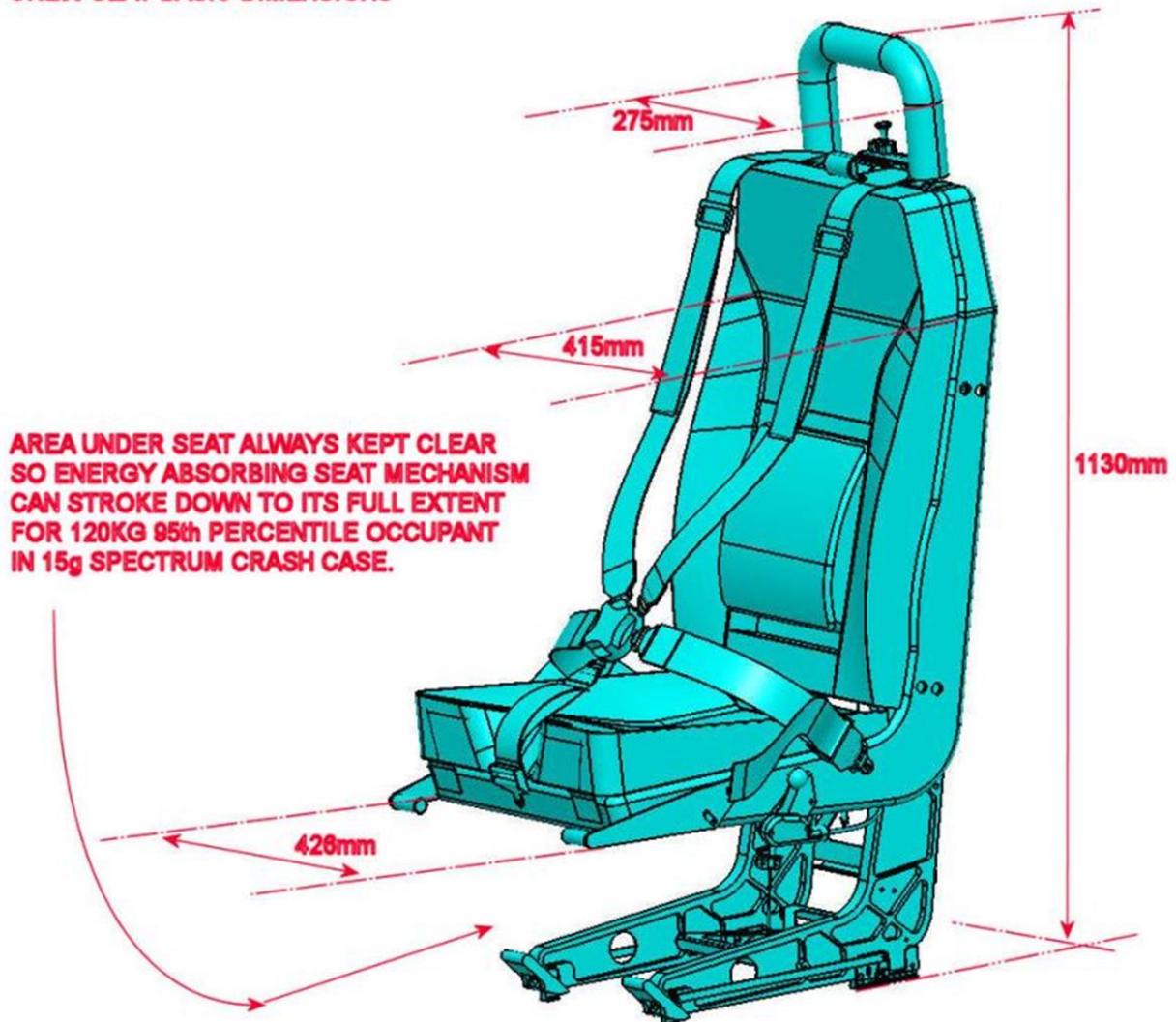
Cockpit Door Aperture - Major Dimensions (1)

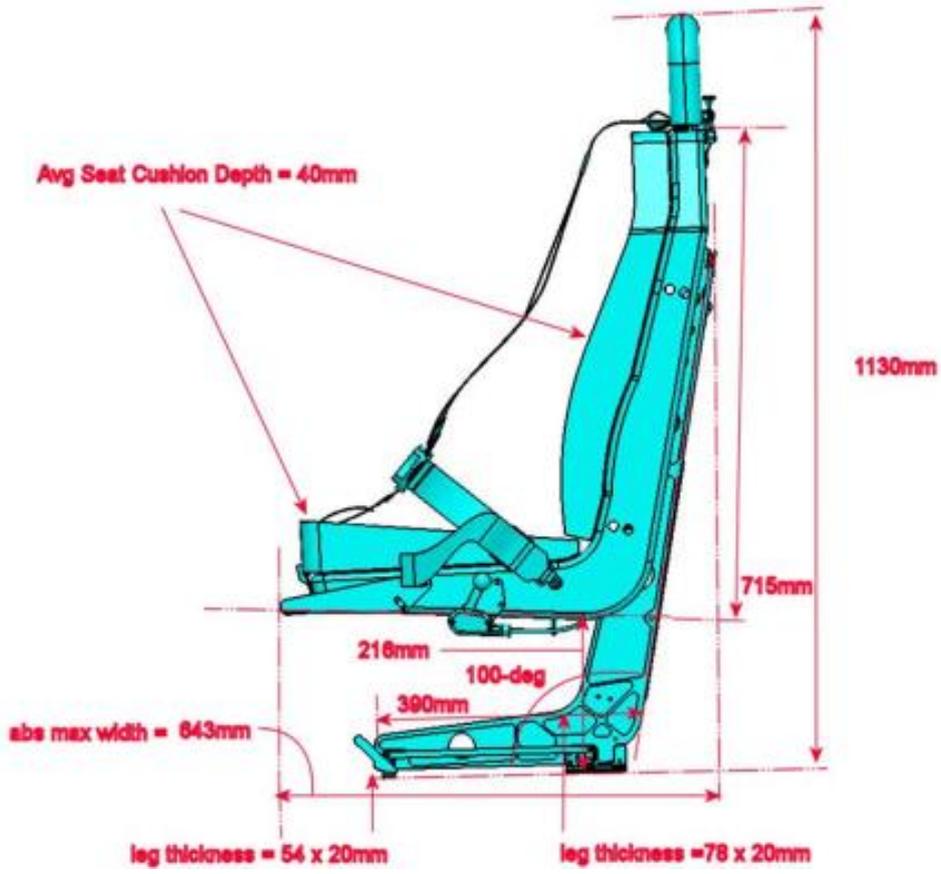




Seat configuration and sizes

CREW SEAT BASIC DIMENSIONS

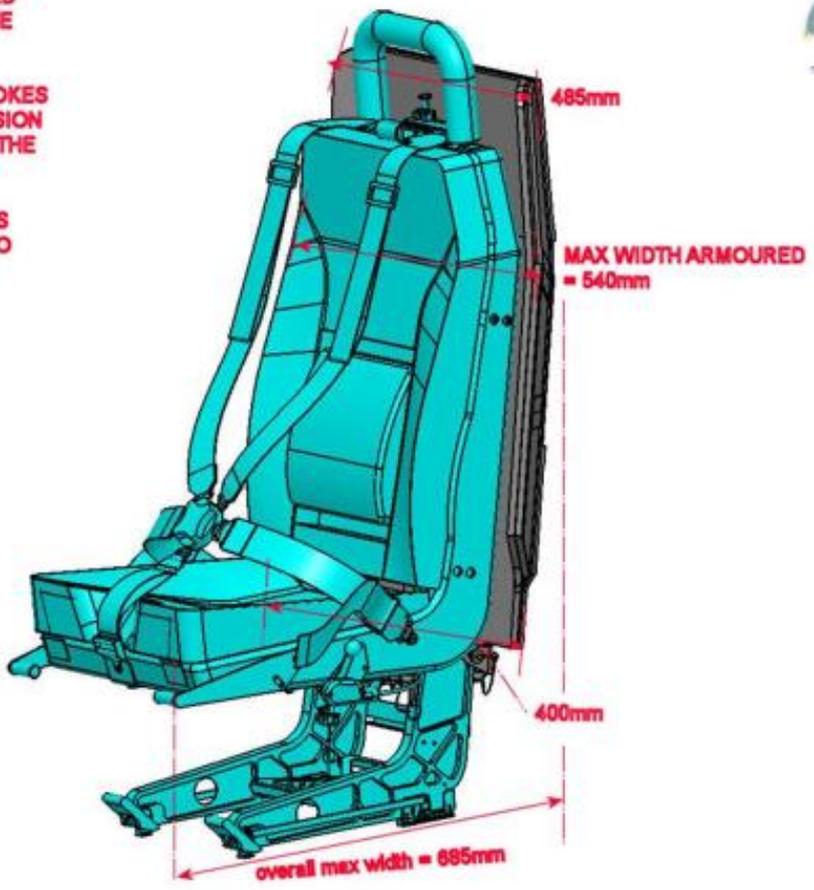


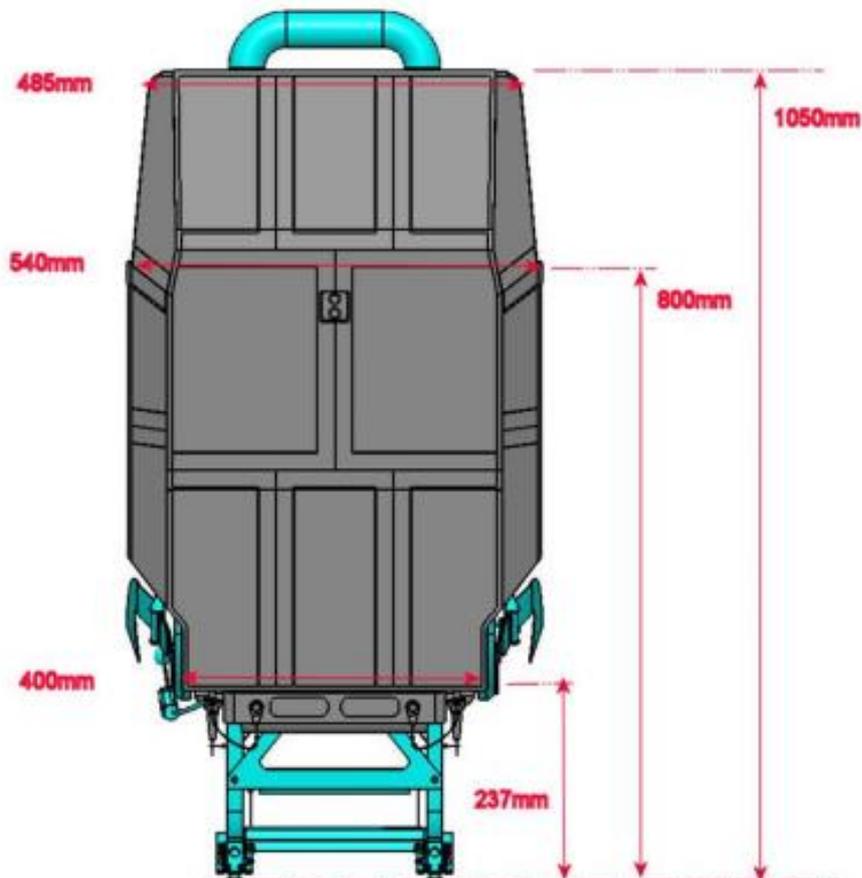
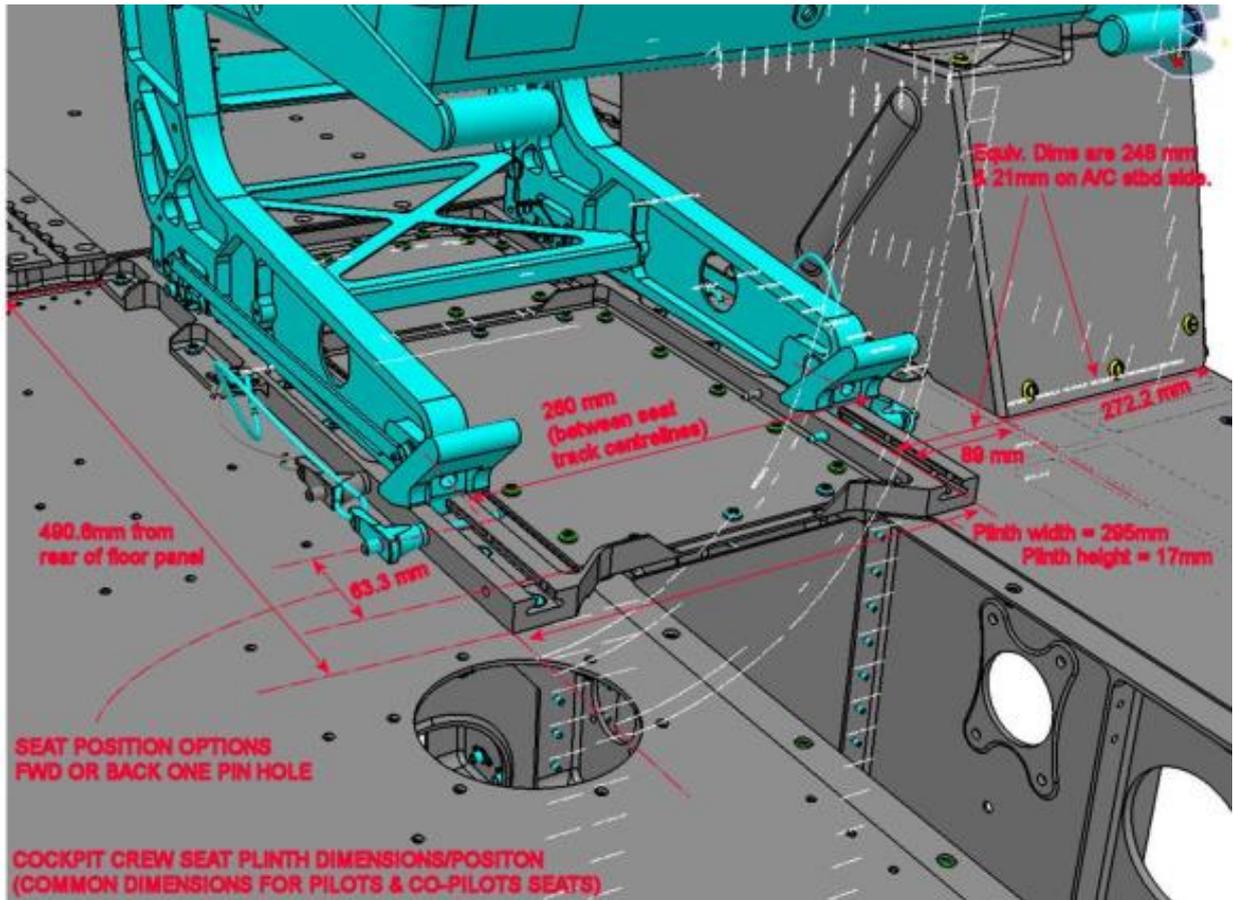


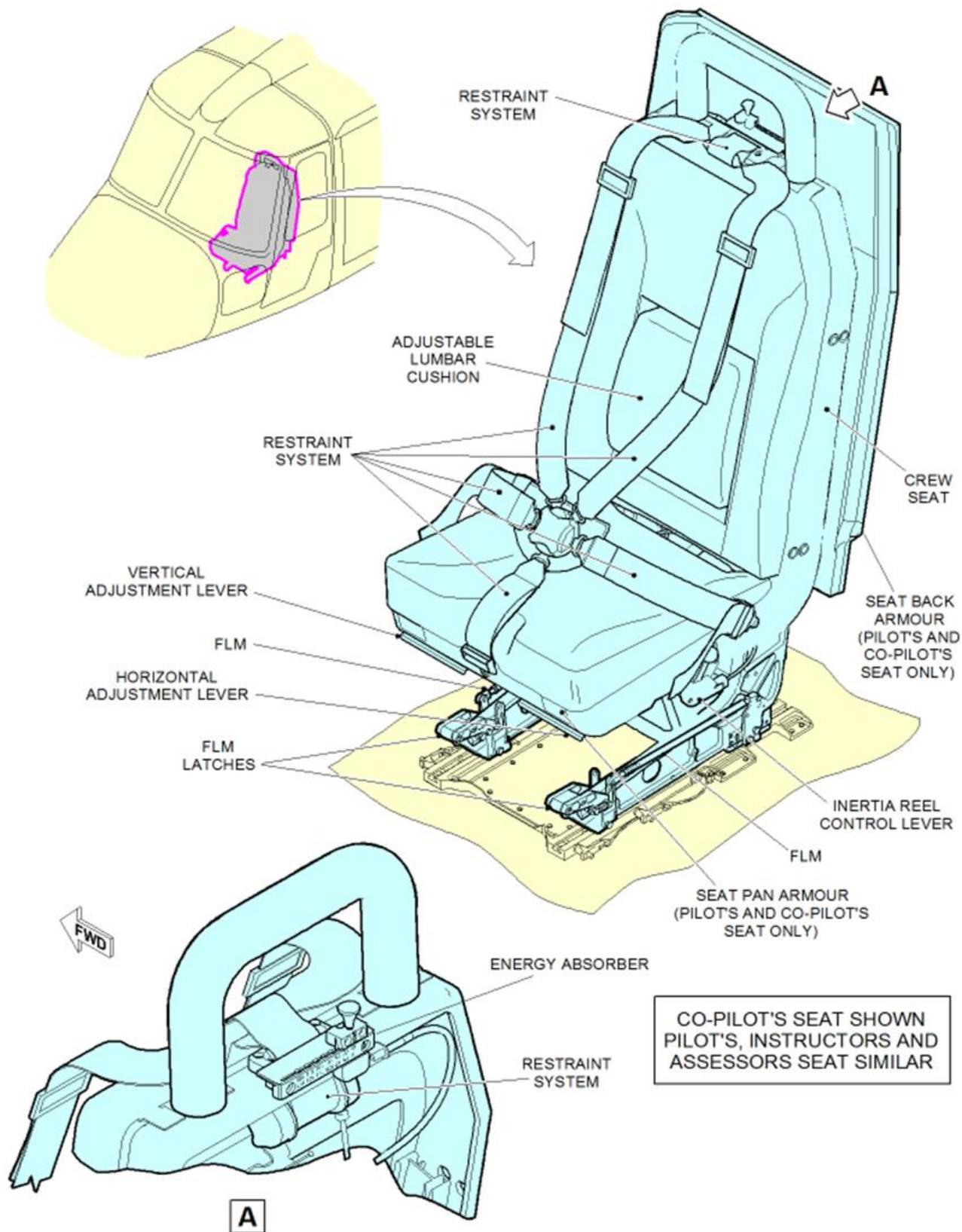
ARMoured PANELS ARE FITTED TO THE BACK AND BASE OF THE CREW SEAT.

SEAT PAN ARMOUR PANEL INVOKES NO SIGNIFICANT EXTRA DIMENSION PENALTY UNDER OR OUTSIDE THE SEAT SPACE ENVELOPE.

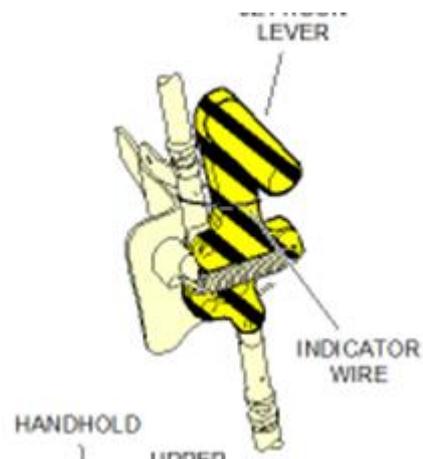
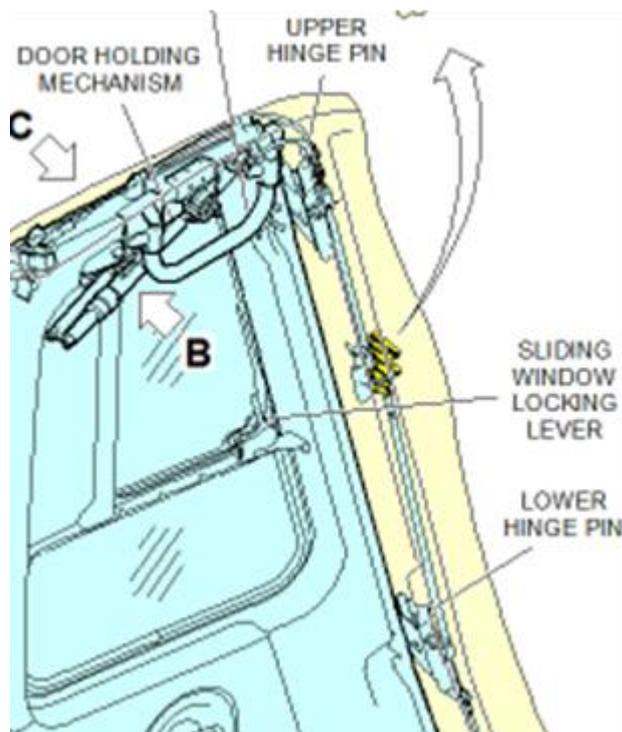
BACK PANEL ARMOUR INVOKES WIDTH AND DEPTH PENALTY TO SEAT SPACE ENVELOPE.







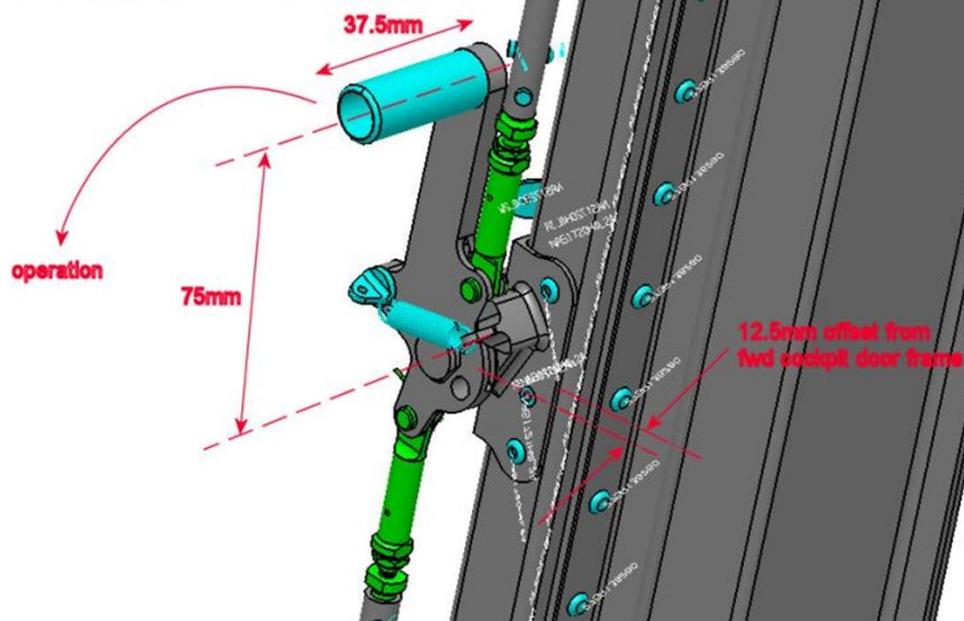
Door, Egress Handle and Emergency Egress Lever



COCKPIT DOOR JETTISON HANDLE

(does not need to be used in conjunction with main cockpit door handle. Allows whole door to be jettisoned from aircraft)

Force necessary to operate the jettison lever is between 111 and 178 N (11.3 and 18.2 Kgf) (25 and 40 lbf). The cockpit door must release from the aircraft in, or in less than, 120° of turn of the jettison lever.



SECTION C –

AIRCREW EQUIPMENT ASSEMBLIES (AEA) & PERSONAL PROTECTIVE EQUIPMENT (PPE).



BA PSP



4B4L A/C HELMET



MK 61 LIFE PRESERVER





DESPATCHER HARNESS

FACS COVERALL
PSTASS





CANOE HELMETS



BA PSP



HA PSP



P/STASS



DESPATCHER HARNESS



AIRCREW BOOTS