Ministry of Defence

Defence Standard 00-970 Part 0

Issue 23 **Date:** **14th March 2021**

Certification Specifications for Airworthiness

Part 0: PROCEDURES FOR USE, CONTENT AND DEFINITIONS

Section 1
Foreword

Defence Standard Structure

Section 1 (Generated by the StanMIS toolset)

- Revision Note
- Historical Record
- Warning
- Standard Clauses

Section 2 (Technical information provided by Subject Matter Expert)

- Title
- Introduction (optional)
- Table of Contents
- Scope
- Technical Information to include Tables and Figures
- Annexes (as required)

Section 3 (Generated by StanMIS toolset)

- Normative References
- Definitions
- Abbreviation

REVISION NOTE

Up-issue to record changes to Parts 0, 3, 5, & 7, as a result of authorised changes identified by the regulated community and changes resulting from EASA CS amendments.

HISTORICAL RECORD

This standard supersedes the following:

Defence Standard (Def Stan) 00-970 Part 0 Issue 22 dated 28 Aug 2020
Defence Standard (Def Stan) 00-970 Part 0 Issue 21 dated 28 Mar 2019
Defence Standard (Def Stan) 00-970 Part 0 Issue 20 dated 14 Oct 2018
Defence Standard (Def Stan) 00-970 Part 0 Issue 19 dated 14 May 2018
Defence Standard (Def Stan) 00-970 Part 0 Issue 18 dated 28 Sep 2017
Defence Standard (Def Stan) 00-970 Part 0 Issue 17 dated 19 Sep 2016
Defence Standard (Def Stan) 00-970 Part 0 Issue 16 dated 13 July 2015
Defence Standard (Def Stan) 00-970 Part 0 Issue 15 dated 30 January 2015
Defence Standard (Def Stan) 00-970 Part 0 Issue 14 dated 30 September 2014
Defence Standard (Def Stan) 00-970 Part 0 Issue 13 dated 11 July 2014
Defence Standard (Def Stan) 00-970 Part 0 Issue 12 dated 10 January 2014
Defence Standard (Def Stan) 00-970 Part 0 Issue 11 dated 05 July 2013
Defence Standard (Def Stan) 00-970 Part 0 Issue 10 dated 07 January 2013
Defence Standard (Def Stan) 00-970 Part 0 Issue 9 dated 06 July 2012
Defence Standard (Def Stan) 00-970 Part 0 Issue 8 dated 31 October 2011
Defence Standard (Def Stan) 00-970 Part 0 Issue 7 dated 31 January 2011
Defence Standard (Def Stan) 00-970 Part 0 Issue 6 dated 29 January 2010
Defence Standard (Def Stan) 00-970 Part 0 Issue 5 dated January 2007
Defence Standard (Def Stan) 00-970 Part 0 Issue 4 dated January 2006
Defence Standard (Def Stan) 00-970 Part 0 Issue 3 dated October 2003
Defence Standard (Def Stan) 00-970 Part 0 Issue 2 dated 1 December 1999
Defence Standard (Def Stan) 00-970 Part 0 Issue 1 dated 12 December 1983

WARNING

The Ministry of Defence (MOD), like its contractors, is subject both to United Kingdom law and any EU-derived law that has been retained under the European Union (Withdrawal) Act 2018 regarding Health and Safety at Work. Many Defence Standards set out processes and procedures that could be injurious to health if adequate precautions are not taken. Adherence to those processes and procedures in no way absolves users from complying with legal requirements relating to Health and Safety at Work.

STANDARD CLAUSES

a) This standard has been published on behalf of the MOD by UK Defence Standardization (DStan).

b) This standard has been reached following broad consensus amongst the authorities concerned with its use and is intended to be used whenever relevant in all future designs, contracts, orders etc and whenever practicable by amendment to those already in existence. If any difficulty arises which prevents application of the Defence Standard, DStan shall be informed so that a remedy may be sought.

c) Please address any enquiries regarding the use of this standard in relation to an invitation to tender or to a contract in which it is incorporated, to the responsible technical or supervising authority named in the invitation to tender or contract.

d) Compliance with this Defence Standard shall not in itself relieve any person from any legal obligations imposed upon them.

e) This standard has been devised solely for the use of the MOD and its contractors in the execution of contracts for the MOD. To the extent permitted by law, the MOD hereby excludes all liability whatsoever and howsoever arising (including, but without limitation, liability resulting from negligence) for any loss or damage however caused when the standard is used for any other purpose.

SECTION 2

CERTIFCATION SPECIFICATIONS FOR AIRWORTHINESS

PART 0: PROCEDURES FOR USE, CONTENT AND DEFINITIONS

2.0.1 PREFACE

a) This Defence Standard provides requirements, means of compliance and guidance for the design of Air Systems to meet the Airworthiness requirements for UK military operation. The requirements stated herein shall be applied by the MOD and the contractor as agreed and defined in the contract.

b) This Standard has been produced on behalf of the Military Aviation Authority (MAA), Certification Division, MOD Abbey Wood.

c) The appropriate Parts of this Standard are to be used, when called up in the Contract, for all future designs, and whenever practicable for amendments to existing designs. If any difficulty arises which prevents application of this Standard, the MAA shall be informed so that a remedy may be sought: e-mail: DSA-MAA-Cert-ADSGroup@mod.gov.uk

d) Where the requirements of other Standards are considered applicable, the relevant standards are referenced by this Part of the Standard.

e) Issue 23 of this part of Def Stan 00-970 incorporates changes to Parts 3, 5 & 7.

Note 1: Where a design to the requirements of this document may result in an adverse environmental impact the MOD Accountable Person shall be advised. Refer to DSA 02.

2.0.2 Changes incorporated in this issue

Requirement		Change	Page
01	As Required	Up issue to record changes to Part 0, 3, 5 & 7	
02	As Required	Up issue to record changes to Part 3	
03	As Required	Up issue Part 5 to record changes to UK25.785b	
03	As Required	Up issue to record changes to Part 7 S2.4	
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2.0.3 CONTENTS

2.1 Introduction

Part 0 provides guidance for the use and application of the Standard and details its relationship with other Standards. The Parts List of the Standard is shown at **Table 1** to enable the user to select the appropriate Parts.

2.2 Scope

Part 0 provides guidance and content information, together with definitions of terms used throughout this Standard.

2.3 References

2.3.1 The applicable Standards, Specifications & Agreements used within Def Stan 00-970 are listed in **Annex A**.

2.4 Definitions

2.4.1 All definitions specific to this Standard are listed in **Annex B**, common use definitions are listed in the MAA Master Glossary MAA02.

2.5 Format of Def Stan 00-970

2.5.1 This Standard is used as a baseline in establishing appropriate Type Design and Airworthiness requirements taking account of the procurement strategy to be adopted. Maximum use has been made of EASA Regulations and Certification Specifications where these are applicable to both military and civil roles.

2.5.2 The Standard provides a modular set of requirements that define the fundamental design considerations necessary to produce an Air Systems that is considered airworthy. These are the minimum requirements associated with Airworthiness and do not represent a standard specification. Use of the Standard is considered in Para 6.

2.5.3 The Standard comprises of 7 Parts, each focused on a different application of UK military-registered Air Systems and based upon a different suite of primary civil and NATO Standards, as described below and shown at **Figure 1**:

Table 1 - Structure of 00-970

Part	Applicability
1	**FIXED WING COMBAT AIR SYSTEMS** High-performance, fixed-wing, combat Air Systems. EASA CS-25 requirements are adopted as the basis of Part 1; however, where these requirements are not appropriate for Part 1 Air Systems (eg for high agility design) CS-23 requirements either supplement, or replace, CS-25 requirements. Where neither CS-25 nor CS-23 requirements are insufficient or inappropriate, military-specific requirements either supplement, or replace, CS-25 requirements.
3	**SMALL AND MEDIUM TYPE AIR SYSTEMS** Fixed-wing Air Systems, fulfilling roles similar to aeroplanes designed to CS-23 (such as primary trainers and light observation/utility) that retain a significant degree of commonality with similar civilian aircraft. Accordingly, EASA CS-23 requirements are adopted as the basis of Part 3; however, where more-stringent requirements are required (eg Birdstrike) CS-25 requirements either supplement, or replace, CS-23 requirements. Furthermore, where the civil EASA CS are either insufficient or inappropriate, military-specific requirements either supplement, or replace, CS-23 requirements.

Part	Applicability
5	**LARGE TYPE AIR SYSTEMS** Fixed-wing Air Systems fulfilling roles similar to aeroplanes designed to CS-25, albeit with military-specific capabilities such as air-to-air refuelling tankers, ISTAR air systems and tactical transport Air Systems. Accordingly, EASA CS-25 requirements are adopted as the basis of Part 5; however, where the civil EASA CS are either insufficient or inappropriate, military-specific requirements either supplement, or replace, CS-25 requirements.
7	**ROTORCRAFT** Rotary-wing Air Systems fulfilling roles similar to rotorcraft designed to CS-29, albeit with military-specific capabilities such as attack, anti-submarine and airborne early warning helicopters. Accordingly, EASA CS-29 requirements are adopted as the basis of Part 7; however, where the civil EASA CS are either insufficient or inappropriate, military-specific requirements either supplement, or replace, CS-29 requirements.
9	**Remotely Piloted Air Systems** Fixed- and rotary-wing Remotely Piloted Air Systems (RPAS). NATO STANAG RPAS[1] requirements are adopted as the basis of Part 9; however, where these are either insufficient or inappropriate, military-specific requirements either supplement, or replace, the NATO STANAG requirements.
11	**ENGINES** Main and auxiliary engines. EASA CS-E requirements are adopted as the basis of Part 11; however, where the civil EASA CS are either insufficient or inappropriate, military-specific requirements either supplement, or replace, CS-E requirements.
13	**MILITARY COMMON FIT EQUIPMENT** Military equipment, common to both fixed- and rotary-wing Air Systems, but not referenced in EASA Certification Specifications. Typical examples are air-to-air refuelling and armament equipment/systems. All Part 13 systems shall comply with the appropriate certification requirements of the parent Air System, unless specified differently within Part 13. Accordingly, Part 13 only contains military-specific requirements without reference to any EASA CS.
15	**Withdrawn**

2.5.4 Within the Standard, there are Parts, Sections, and Clauses. Each Clause of the Standard has been structured into 3 columns to contain information regarding Requirements, Acceptable Means of Compliance (AMC) and Guidance Material (GM), as follows:

2.5.4.1 REQUIREMENTS: Requirements are the certification specification that affect Airworthiness and safety, they will therefore contain the executive verb **shall** and this is the only place where this particular executive verb will be used. All Requirements are to be considered in the procurement of UK military Air Systems and subsequent design changes.

Note: EASA use the imperative verb **must** in the Airworthiness Requirements within their Certification Specifications; this is to be considered equivalent to the executive verb **shall** used within this Standard.

[1] Comprising of the following NATO STANAGs: 4671 Unmanned Aerial Vehicles System Airworthiness Requirements (USAR); 4702 Rotary Wing Unmanned Aerial Systems Airworthiness Requirements; 4703 Light Unmanned Aircraft Systems Airworthiness Requirements; 4746 Unmanned Aerial Vehicle System Airworthiness Requirements for Light Vertical Take Off and Landing Aircraft (To be published).

A UK Requirement (eg UK25.901a) with no written text indicates that additional Military Compliance and Guidance is necessary to meet the existing EASA Certification Specification (eg CS 25.901).

2.5.4.2 COMPLIANCE: AMC illustrate the preferred means by which Requirements can be met. AMC are written in the permissive sense, using the verb **should**, in order to allow the Regulated Community to consider alternative approaches to meet the Requirement, in this case approval from the MAA must be sought.

> **Note:** EASA also use the permissive verb **should** in the AMC within their Certification Specifications; this is to be considered equivalent to the permissive verb **should** as used within this Standard.

2.5.4.3 GUIDANCE: GM contains the technical justification for the requirement and additional information considered useful in achieving compliance with the Requirement. GM may include appropriate references, advice on issues that require consideration or on typical design solutions that have been applied in the past. The use of the verbs **must**, **will**, **may** or **could** within GM is in accordance with the definitions provided in MAA002 – MAA Master Glossary.

Where within the Requirements column there is a UK requirement with no text ie (Intentionally Blank), this indicates that additional Military Compliance and/or Guidance has been included as to satisfy the military intent of the EASA Certification Specification.

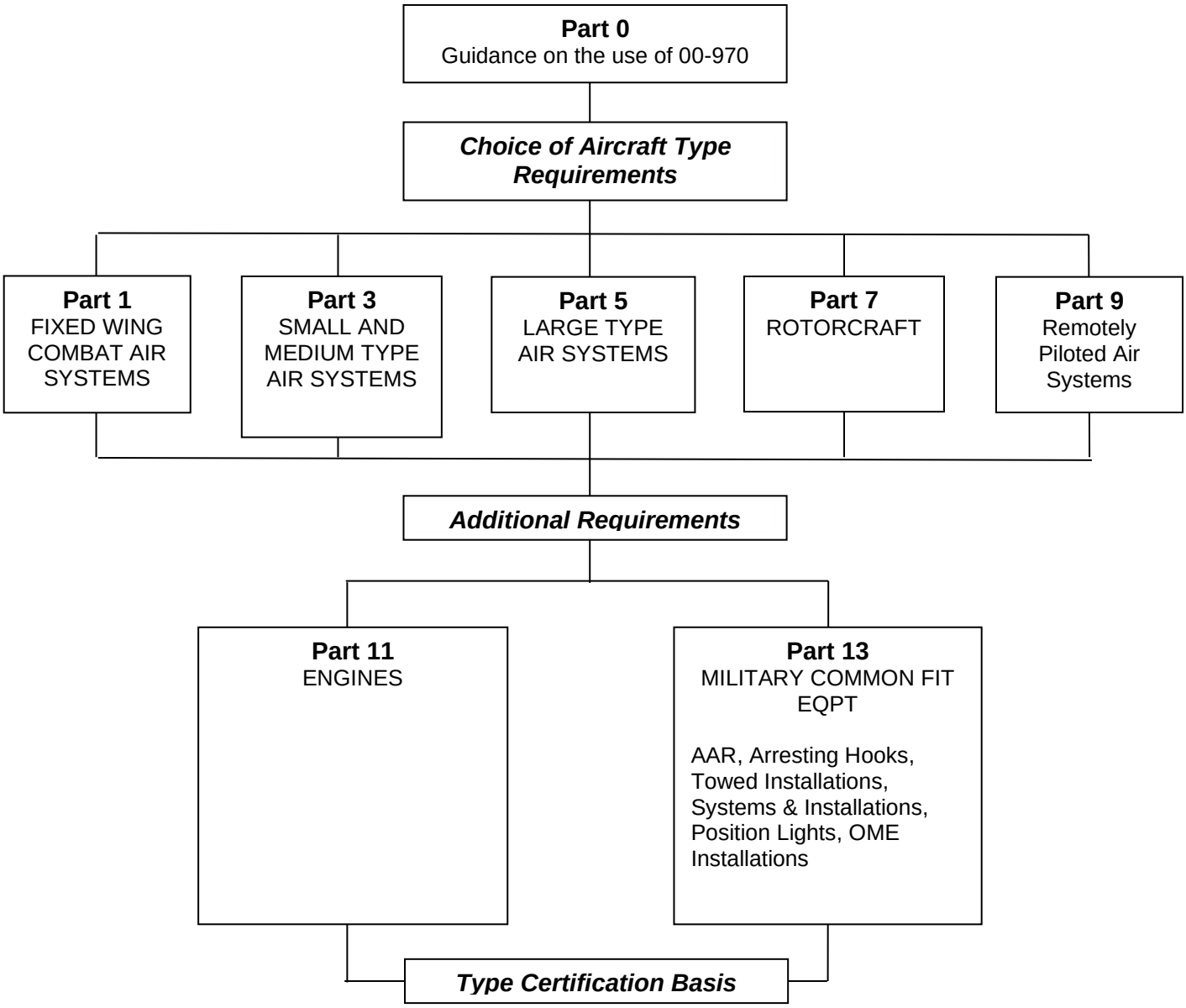

Figure 1 - Structure of 00-970

2.6 USE OF DEF STAN 00-970

2.6.1 Def Stan 00-970 is the UK MOD's benchmark certification specification for Airworthiness for all new Air Systems, and for Major Changes to the Type Designs of such systems, on the UK Military Register. It has been formulated as a set of Airworthiness requirements aimed at achieving designs that deliver the required level of safety. MAA Regulatory Article (RA) 5810 and RA 5820 contain further information regarding the Military Air System Certification Process (MACP).

2.6.2 The requirements of Def Stan 00-970 must be interpreted intelligently. TAAs and DHs are not absolved of their responsibility to ensure the safety of Air Systems and personnel solely by delivering Type Designs or Major Changes that comply with the requirements of this Standard.

2.6.3 A key aspect to assessing the operating basis is understanding the underlying differences between civil and military regulations. This is particularly important given the adoption of EASA CS requirements and compliance within the Def Stan 00-970 Parts.

2.6.4 A comparison of the operational capability, functional and physical configurations is illustrated in Figure 2. The pertinent points to note with this comparison are as follows:

2.6.4.1 Military regulation looks at delivering the capability safely for the assigned role, where invariably other tasks are to be performed by the aircrew whilst flying the Air System; whereas civil regulation mostly, with the exception of those aeroplanes performing specialised operations, looks at flying safely from point A to point B.

2.6.4.2 Civil regulation is based on the Air System being flown in accordance with EASA Air Operations Regulation (EU) no 965/2012[2] and the underpinning Parts, which typically involves smooth, benign flying conditions, operating well within the available performance limits to ensure passenger comfort. There is no military equivalent of EASA Air Operations Regulation as each platform has a different role to perform. Moreover, military operations and training requires frequent use of the full performance limits.

2.6.4.3 The military specific regulation differences are arranged in 3 distinct groupings:

Table 2 – Military Specific Regulation Differences

Mp/f	**Military Physical and Functional differences**. The requirements for this group are easy to recognise but the systems require integration into the whole aeroplane and attention paid to functions that cross system boundaries.
Mcc	**Military Complex and Critical differences**. The requirements for this group are more difficult to identify as they include operational, functional and physical requirements.
Mo	**Military Operational differences**. There are few physical configurations to consider as the requirements stem from operational/functional configurations. The military operational environment considerations extend further than pure flying attributes and includes the important aspects of aircrew workload and situational awareness.

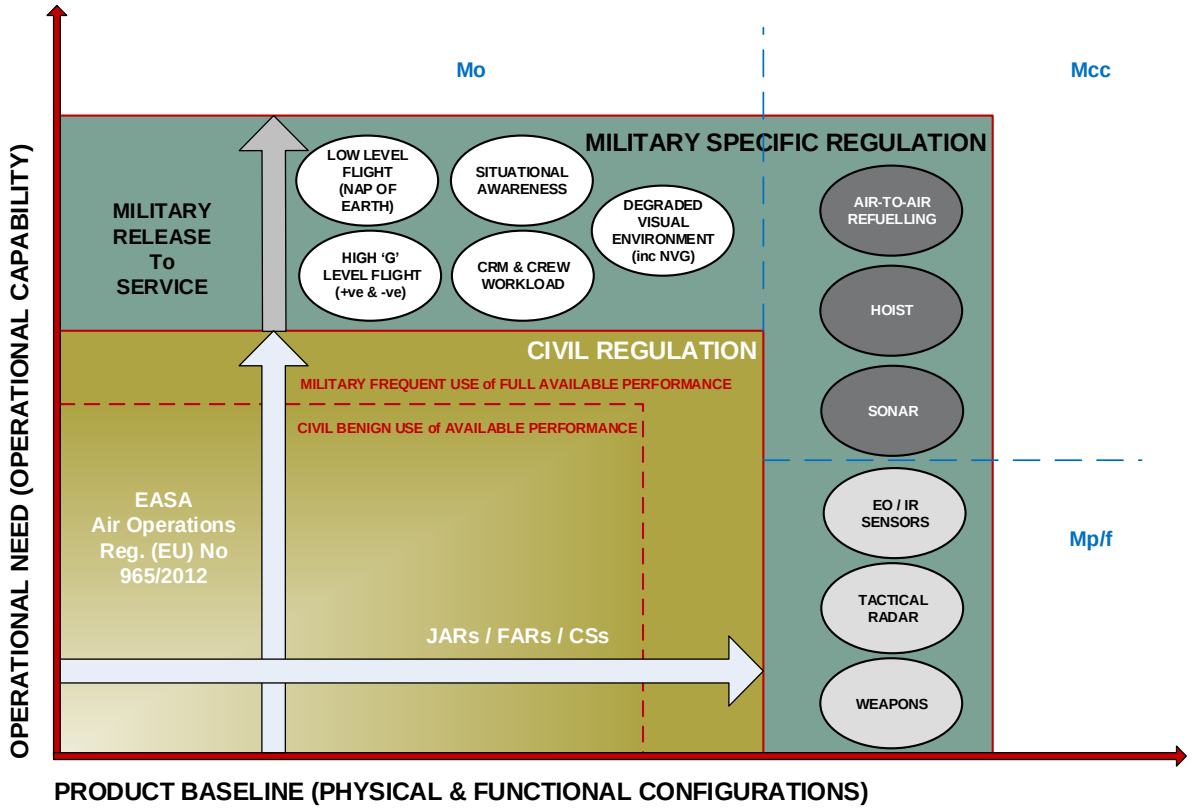

Figure 2 – Comparison of Military and Civil Regulation

2.6.4.5 The military difference in operating basis is important to establish in order to enable a complete and accurate Type Certification Basis (TCB), and subsequent Type Certification Exposition, to be developed so that any non-compliances can be assessed to identify and manage the risks to Airworthiness.

6.5 Flight Envelopes

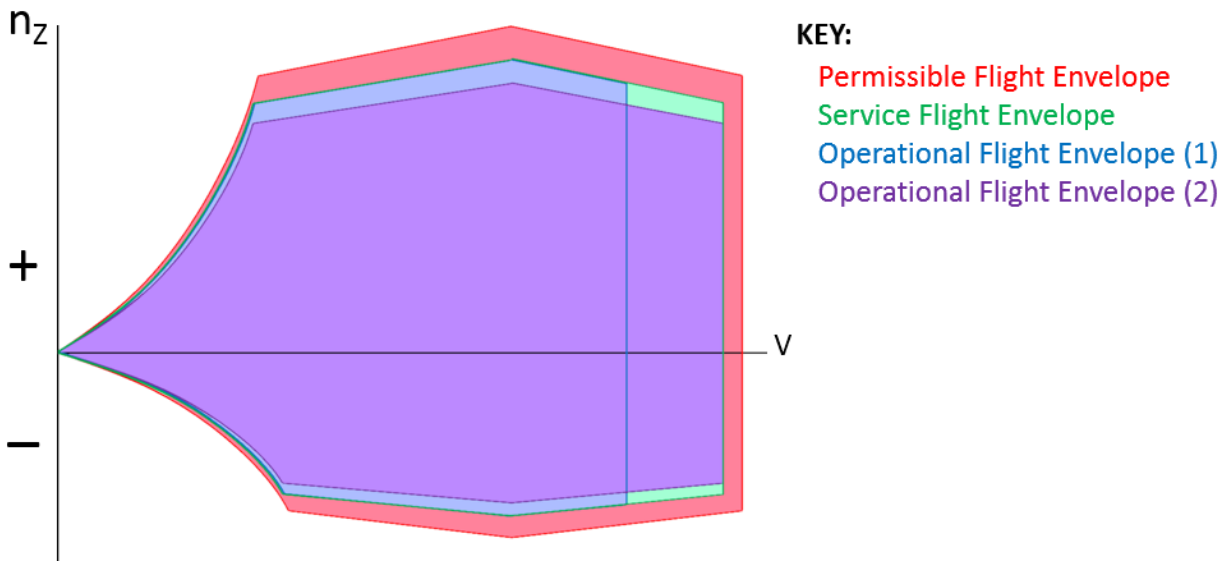

Figure 3 – Flight Envelopes

2.6.5.1 Permissible Flight Envelope

The Permissible Flight Envelope denotes the absolute limits to which the Air System may be flown. Flight beyond these limits may result in damage to the Air System or in unacceptable flying qualities. The Permissible Flight Envelope is therefore contained by the structural design envelope and any other restrictions and is the equivalent of the EASA/FAA 'flight envelope' definition.

2.6.5.2 Operational Flight Envelopes

Operational Flight Envelopes are regions defined in terms of speed, altitude and normal acceleration factor in which it is necessary for an Air System, in the configuration and mass associated with a given flight phase, to have very good flying qualities, as opposed, for example, to regions in which it is only necessary to ensure that the Air System can be controlled without undue concentration. Operational flight envelopes are also germane to the carriage, release and jettison of weapons, stores, droptanks and the firing of guns, missiles etc.

Operational Flight Envelopes are intended to permit the design task to be more tightly defined. The required boundaries of the Operational Flight Envelopes for a particular Air System will be given in the Air System Specification.

If significant penalties (in terms of performance, cost, system complexity, or reliability) would be incurred to provide Level 1 flying qualities, consideration is given to restricting the Operational Flight Envelope toward the minimum consistent with the requirement of the flight phase concerned. Similarly, if penalties would be incurred to provide Level 2 flying qualities after a failure, a more restrictive post-failure Operational Flight Envelope could be specified, provided that this is consistent with the requirement of the flight phase concerned.

2.6.5.2 Service Flight Envelope

The Service Flight Envelope encompasses the various Operational Flight Envelopes for the Air System; its larger volume denotes the extent of flight conditions that can be encountered without significant risk of exceeding the Permissible Flight Envelope. Safe margins between the Permissible and Service Flight Envelope are established by simulation or flight test.

The Service Flight Envelope is intended to ensure that any deterioration of flying qualities will be gradual as flight progresses out from the limits of the various Operational Flight Envelopes. This serves 2 purposes. Firstly, it provides some degree of mission effectiveness for possible unforeseen alternative uses of the Air System, and secondly, it allows for flight outside the Operational Flight Envelopes; however, mission effectiveness and/or pilot workload may be compromised even with no failure.

2.6.6 Key Differences between EASA CS and Def Stan 00-970

2.6.6.1 The operation of Air Systems on the Military Register means that a number of civil EASA requirements are either insufficient, or not appropriate, for military certification; this has resulted in 'military deltas' being included in Def Stan 00-970 to address any shortfall, or ambiguity, in EASA Requirements, AMC or GM. Whilst the majority of these 'military deltas' will be specific to Def Stan 00-970 Parts, there are a number of generic differences that are applicable to all manned Air System Parts:

Table 3 – Key Differences between EASA CS and Def Stan 00-970

Factor	Def Stan 00-970 interpretation of EASA CS
Anthropometric	EASA CS use a standard 77kg human for design calculations, including survivability crash cases; this boarding mass is inappropriate for Military aircrew. TAAs should consider the relevant technical guides supporting Def Stan 00-251, the anthropometric range specified within the platform Target Audience Description (TAD) and the clothing and equipment detailed in the Aircrew Equipment Assembly (AEA) Schedule appropriate to their Air System. (ADS-RFC-2019/39).
Aircrew	EASA CS specifies requirements for pilots. Where this is specified the same requirement should be considered for all aircrew.

2.6.6.2 Additional EASA Requirements and AMC

Table 4 – Additional EASA Requirements and AMC

EASA	Implementation
CS22	EASA CS22 will normally be applied to Sailplanes & Powered Sailplanes procured as Commercial off the Shelf (COTS) items. ISSUE 23
AMC-20	EASA's Acceptable Means of Compliance Part 20 (AMC-20) contains pan-applicable AMC for all EASA CS. Individual EASA CS Parts refer to AMC-20 within their respective AMC.
CS-ACNS **CS-AWO**	EASA's Certification Specifications for Airborne Communications, Navigation and Surveillance (CS-ACNS) are applicable to Air Systems for the purpose of complying with EASA's ACNS carriage requirements. EASA's Certification Specifications for All Weather Operations (CS-AWO) includes the requirements and AMC for Air System operations in all weather. These certification specifications are in addition to the EASA CS Part applicable for the Air System Type under certification (para 5.3 refers) and should supplement the Air System Type Certification Basis where applicable.
EASA Air Operations Regulation Series	EASA's Air Operations Regulations details the rules for air operations with aeroplanes and helicopters. These requirements, which vary by the type of Airspace used, size and type of Air System, and terrain over which flight will occur, are not included within the transformed Def Stan 00-970 Parts unless the MOD requirement is more stringent than the corresponding EASA IR Ops requirement.

2.7 TYPE OF AEROPLANES

2.7.1 For the purpose of the requirements of Def Stan 00-970, an aeroplane shall be placed in one of the following Types:

Table 5 – Type of Aeroplanes

Type	Description
1	High manoeuvrability aeroplanes (Part 1 – FIXED WING COMBAT AIR SYSTEMS), including: fighter/interceptor; ground attack; tactical reconnaissance; and trainers for Type 1.
3	Small, light aeroplanes (Part 3 – SMALL AND MEDIUM TYPE AIR SYSTEMS), including: light utility, primary trainer; and light observation.
5	Large, heavy, low to medium manoeuvrability aeroplanes (Part 5 - LARGE TYPE AIR SYSTEMS), including: heavy transport; air-to-air refuelling tanker; heavy bomber; maritime patrol; ISTAR; and trainers for Type 5.
Note	Medium weight, low to medium manoeuvrability aeroplanes are to be defined at MACP Phase 2 as either Type 3 or Type 5. Such aeroplanes may include; tactical transport, heavy utility, search & rescue, trainers and tactical ISTAR.

2.7.2 Flying qualities requirements recognise the need to specify different values of parameters for aeroplanes of different sizes and different missions. Some aeroplanes are not readily categorised, eg small, lightweight trainers with a high normal acceleration factor, which could be in either Type 1 or 3. The categorisation of these aeroplanes should be based on more detailed information about their intended use and the TCB should detail requirements selected from both Types as required.

2.8 QUALIFICATION OF EQUIPMENT FOR USE ON AIR SYSTEMS

2.8.1 This Standard makes reference to the incorporation of components and equipment onto Air Systems. Any items for installation on an Air System shall be qualified and/or certified in accordance with the applicable requirements of the Military Aviation Authority's Regulations.

2.9 STATUS OF ISSUE

2.9.1 Current Status - The current configuration status of the individual Parts and Sections comprising this Defence Standard are as listed in **Table 6**.

Table 6 – Current Configuration

PART	TITLE	TRANSFORMED	ISSUE STATUS
PART 0	**PROCEDURES FOR USE, CONTENT AND DEFINITIONS**	Yes.	Issue 23
PART 1	**FIXED WING COMBAT AIR SYSTEMS**	Yes. Based on EASA CS-25 Amendment 25 and EASA CS-23 Amendment 5.	Issue 17
PART 3	**SMALL AND MEDIUM TYPE AIR SYSTEMS**	Yes. Based on EASA CS-23 Amendment 4.	Issue 2
PART 5	**LARGE TYPE AIR SYSTEMS**	Yes. Based on EASA CS-25 Amendment 25	Issue 8
PART 7	**ROTORCRAFT**	Yes. Based on EASA CS-29 Amendment 8.	Issue 10
PART 9	**Remotely Piloted Air Systems**	No. Based on STANAG 4671, STANAG 4702, and STANAG 4703.	Issue 14
PART 11	**ENGINES**	Yes. Based on CS-E Amendment 6.	Issue 8
PART 13	**MILITARY COMMON FIT EQUIPMENT**	Yes. All requirements with an EASA CS basis have been moved to Parts 1, 3, 5 and 7 as appropriate.	Issue 14

2.9.2 Status of Previous Issues – For additions and deletions of previous issues see Issue 21 of this part.

2.10 AMENDMENT PROCEDURE

2.10.1 This Standard shall be reviewed annually by the technical sponsors (DSA-MAA-Cert-ADS1) and updated where necessary. Authority for the update shall be the Defence Aviation Safety Board.

2.10.2 The Request for Change Form at **Annex C** is to be used to notify the Editorial Team, and for the Editorial team to document subsequent actions relating to proposed amendments or textual reviews to Def Stan 00-970, it may also be used to notify the editorial team of requirements not covered by the Def Stan. Where there is a perceived discrepancy in the text, the originator can forward details to DSA-MAA-Cert-ADSGroup@mod.gov.uk - where responsibility is held by the editorial team for ensuring that the proposal is assessed and, where approved, incorporated in the next relevant up-issue.

ANNEX A

Normative and Informative References

The Normative and Informative standards referred to by this Standard are as detailed below.

Table 7 – Normative References

Reference	Title	Document Type
AP 101A-0005-1	EWIS	RAF Manual
AP 101A-0006-1	Fibre Optics	RAF Manual
AP 3456	Manual of Flying	RAF Manual
ASTM D1322	Standard Test Method for Smoke Point of Kerosene and Aviation Turbine Fuel	American Society for Testing and Materials
ASTM D3338	Standard Test Method for Estimation of Net Heat of Combustion of Aviation Fuels	American Society for Testing and Materials
ASTM D3701	Standard Test Method for Hydrogen Content of Aviation Turbine Fuels by Low Resolution Nuclear Magnetic Resonance Spectrometry	American Society for Testing and Materials
ASTM D4529	Standard Test Method for Estimation of Net Heat of Combustion of Aviation Fuels	American Society for Testing and Materials
ASTM D4809	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)	American Society for Testing and Materials
BRd 766	Embarked Aviation Orders	Naval Aviation Orders
BS 2C 4	Specification for coupling dimensions for aero-engine refrigerant pressure replenishment connections	British Standard
BS 2000-355	Methods of test for petroleum and its products. Estimation of net specific energy of aviation turbine fuels using hydrogen content data	British Standard
BS 381C	Specification for colours for identification, coding and special purposes	British Standard
BS 3G 100	Specification for general requirements for equipment for use in aircraft. All equipment. Environmental conditions. Fluid contamination	British Standard
BS 4C 14	Specification for aircraft pressure refuelling connectors	British Standard
BS 5306	Fire protection installations and equipment on premises. Guide for selection, use and application of fixed firefighting systems and other types of fire equipment	British Standard
BS 7867	Specification for portable fire extinguishers for use in aircraft	British Standard

Reference	Title	Document Type
BS EN 3-7	Portable fire extinguishers. Characteristics, performance requirements and test methods	British Standard
BS ISO 12103-1	Tracked Changes. Road vehicles. Test contaminants for filter evaluation. Arizona test dust	British ISO Standard
BS ISO 3324-2	Aircraft tyres and rims. Test methods for tyres.	British ISO Standard
CAP 999	Helicopter Search and Rescue (SAR) in the UK National Approval Guidance	CAA Document
CAST-32A	Multi-core Processors	Certification Authorities Software Team (CAST)
CLM-R-163	Culham Laboratory Report	Technical Report Lightning Strikes
CS-E	Certification Specifications for Engines	EASA Certification Specification
CS-23	Certification Specifications for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes	EASA Certification Specification
CS-25	Certification Specifications for Large Aeroplanes	EASA Certification Specification
CS-27	Certification Specifications and Acceptable Means of Compliance for Small Rotorcraft	EASA Certification Specification
CS-29	Certification Specifications and Acceptable Means of Compliance for Large Rotorcraft - Incorporates Amendment 8	EASA Certification Specification
CS-P	Certification Specification for Propellers	Certification Specifications for Propellers
DAP119A-0601	Aircraft Painting and Marking.	Digital RAF Manual
Def Stan 00-055	Requirements for Safety of Programmable Elements (PE) in Defence Systems	Defence Standard
Def Stan 00-056	Safety Management Requirements for Defence Systems	Defence Standard
Def Stan 00-251	Human Factors Integration for Defence Systems	Defence Standard
Def Stan 00-970 Pt 1	Certification Specifications for Airworthiness – FIXED WING COMBAT AIR SYSTEMS	Defence Standard
Def Stan 00-970 Pt 3	Design and Airworthiness Requirements for Service Aircraft – SMALL AND MEDIUM TYPE AIR SYSTEMS	Defence Standard
Def Stan 00-970 Pt 5	Certification Specifications for Airworthiness – LARGE TYPE AIR SYSTEMS	Defence Standard
Def Stan 00-970 Pt 7	Certification Specifications for Airworthiness – ROTORCRAFT	Defence Standard
Def Stan 00-970 Pt 11	Certification Specifications for Airworthiness - ENGINES	Defence Standard
Def Stan 00-970 Pt 9	Design and Airworthiness Requirements for Service Aircraft – Remotely Piloted Air Systems	Defence Standard
Def Stan 00-970 Pt 13	Certification Specifications for Airworthiness - MILITARY COMMON FIT EQUIPMENT	Defence Standard
Def Stan 05-018	Symbol Markings of Servicing and Safety/Hazard Points on Aircraft, Ground Support Equipment and Guided Weapons Systems	Defence Standard

Reference	Title	Document Type
Def Stan 08-004	Nuclear Weapons Explosions Effects and Hardening	Defence Standard
Def Stan 59-113	Lightning Strike Protection Requirements for Service Aircraft	Defence Standard
Def Stan 59-114	Safety Principles for Electrical Circuits in Systems Incorporating Explosive Components	Defence Standard
Def Stan 59-411	Electromagnetic Compatibility	Defence Standard
Def Stan 68-284	Compressed Breathing Gases for Aircraft, Diving and Marine Life-Support Applications	Defence Standard
EASA CS-E	Engines	EASA Certification Specification
ETSO 123b	As Reference	European Technical Standard Order
ETSO 124b	As Reference	European Technical Standard Order
ETSO-C127A	As Reference	European Technical Standard Order
EUROCAE ED-112	MINIMUM OPERATIONAL PERFORMANCE SPECIFICATION FOR CRASH PROTECTED AIRBORNE RECORDER SYSTEMS	EUROCAE Guidance Document
EUROCAE ED-202A	AIRWORTHINESS SECURITY PROCESS SPECIFICATION	EUROCAE Guidance Document
EUROCAE ED-203A	AIRWORTHINESS SECURITY METHODS AND CONSIDERATIONS	EUROCAE Guidance Document
EUROCAE ED-204	INFORMATION SECURITY GUIDANCE FOR CONTINUING AIRWORTHINESS	EUROCAE Guidance Document
EUROCAE ED-62	MINIMUM OPERATIONAL PERFORMANCE STANDARD FOR AIRCRAFT EMERGENCY LOCATOR TRANSMITTERS 406 MHz	EUROCAE Guidance Document
IP 355	Petroleum products Estimation of net specific energy of aviation turbine fuels using hydrogen content data	Energy Institute (formerly Institute of Petroleum - IP)
ISO 482:1997	Methods of numbering propulsion units and components and describing their direction of rotation	ISO Standard
JSP 440	Defence Manual of Security, Resilience and Business Continuity	Joint Service Publication
JSSG 2007	ENGINES, AIRCRAFT, TURBINE	Joint Service Specification Guide
MAA02	Military aviation authority (MAA) master glossary	MAA Document
MIL-D-21625	Design and Evaluation of Cartridges for Cartridge Actuated Devices	Military Specification
Mil-Std-810D	ENVIRONMENTAL TEST METHODS AND ENGINEERING GUIDELINES	US Military Standard
RA 1029	Ship-Air Release - Roles and Responsibilities	Regulatory Article
RA 1395	Authorization to Permit Embarked Aviation in Her Majesty's/MOD Ships	Regulatory Article
RTCA DO-178B	Software Considerations in Airborne Systems and Equipment Certification	RTCA Publication
RTCA DO-178C	Software Considerations in Airborne Systems and Equipment Certification	RTCA Publication
RTCA DO-254	DESIGN ASSURANCE GUIDANCE FOR AIRBORNE ELECTRONIC HARDWARE	RTCA Publication

Reference	Title	Document Type
RTCA DO-254/EUROCAE ED-80	DESIGN ASSURANCE GUIDANCE FOR AIRBORNE ELECTRONIC HARDWARE	RTCA Publication
RTCA DO-326A	Airworthiness Security Process Specification	RTCA Publication
RTCA DO-330	Software Tool Qualification Considerations	RTCA Publication
RTCA DO-333	Certification Case Studies using Formal Methods	RTCA Publication
RTCA DO-355	Security DO-355 Information Security Guidance for Continuing Airworthiness	RTCA Publication
RTCA DO-355/EUROCAE ED-204	INFORMATION SECURITY GUIDANCE FOR CONTINUING AIRWORTHINESS	RTCA Publication
RTCA DO-356A	Airworthiness Security Methods and Considerations	RTCA Publication
SAE ARP 1256D	Procedure for the Continuous Sampling and Measurement of Gaseous Emissions from Aircraft Turbine Engines	SAE Standard
SAE ARP 1533B	Procedure for the Analysis and Evaluation of Gaseous Emissions from Aircraft Engines	SAE Standard
SAE ARP 4418	Procedure for Sampling and Measurement of Aircraft Propulsion Engine and APU Generated Contaminants in Bleed Air	SAE Standard
SAE ARP 4754A	Guidelines for Development of Civil Aircraft and Systems	SAE Standard
SAE ARP 4761	Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment	SAE Standard
SAE ARP 492	Aircraft Engine Fuel Pump Cavitation Endurance Test	SAE Standard
SAE ARP1179D	Aircraft Gas Turbine Engine Exhaust Smoke Measurement	SAE Standard
SAE AS50881G	Wiring Aerospace Vehicle	SAE Standard
SAE AS6254	Minimum Performance Standard for Low Frequency Underwater Locating Devices (Acoustic) (Self-Powered)	SAE Standard
SAE AS8045	Minimum Performance Standard for Underwater Locating Devices (Acoustic) (Self-Powered)	SAE Standard
STANAG 3105	PRESSURE REFUELLING CONNECTIONS AND DEFUELLING FOR AIRCRAFT	NATO Standardisation Agreement
STANAG 3198	FUNCTIONAL REQUIREMENTS OF AIRCRAFT OXYGEN EQUIPMENT AND PRESSURE SUITS	NATO Standardisation Agreement
STANAG 3200	MINIMUM REQUIREMENTS FOR G PROTECTIVE SYSTEMS	NATO Standardisation Agreement
STANAG 3441	DESIGN OF AIRCRAFT STORES	NATO Standardisation Agreement
STANAG 3558	LOCATIONS OF ELECTRICAL CONNECTORS FOR AIRCRAFT STORES	NATO Standardisation Agreement
STANAG 3605	COMPATIBILITY OF ARMING SYSTEMS AND EXPENDABLE AIRCRAFT STORES	NATO Standardisation Agreement
STANAG 3659	ELECTRICAL BONDING REQUIREMENTS FOR METALLIC AIRCRAFT SYSTEMS	NATO Standardisation Agreement

Reference	Title	Document Type
STANAG 3705	HUMAN ENGINEERING DESIGN CRITERIA FOR CONTROLS AND DISPLAYS IN AIRCREW STATIONS	NATO Standardisation Agreement
STANAG 7106	CHARACTERISTICS OF GASEOUS BREATHING OXYGEN, LIQUID BREATHING OXYGEN AND SUPPLY PRESSURES, HOSES AND REPLENISHMENT COUPLINGS	NATO Standardisation Agreement
STANAG 7187	ON BOARD OXYGEN GENERATING SYSTEMS (OBOGS) PERFORMANCE STANDARDS	NATO Standardisation Agreement

Table 8 – Informative References

Reference	Title	Document Type
AC 20-88	Guidelines on the Marking of Aircraft	FAA Advisory Circular
AC 29.1541	Marking and Placards – General	FAA Advisory Circular
AC 29.1543	Instrument Markings: General	FAA Advisory Circular
AC 29-2C	Certification of Transport Category Rotorcraft	FAA Advisory Circular
AFIC ADV PUB ASMG 4060	The Minimum Quality Criteria for On-Board Generated Oxygen	Air Force Interoperability Council Publication
AFIC ADV PUB ASMG 4069	Methodology for Evaluation of PBG Assembly for High-G Protection	Air Force Interoperability Council Publication
AFIC AIR STD ACS (ASMG) 1052	Minimal Protection for Aircrew Exposed to Altitude Above 50,000 Feet	Air Force Interoperability Council Standard
AFIC AIR STD ASMG 4083	Methodology of Partial Pressure Suit Evaluation for High Altitude Protection	Air Force Interoperability Council Standard
AFIC AIR-STD-4038	Physiological Evaluation of Aircraft Oxygen Delivery Systems	Air Force Interoperability Council Standard
AFIC AIR-STD-4039	Minimum Physiological Requirements for Aircrew Demand Breathing Systems	Air Force Interoperability Council Standard
AFIC AIR-STD-4068	Physiological Requirements for Aircrew Oxygen Masks for Use at High Breathing Pressures	Air Force Interoperability Council Standard
AGARD Report 657	Advisory Group for Aerospace Research and Development	Technical Report
AMERICAN NATIONAL STANDARDS INSTITUTE. Methods for Calculation of the Speech Intelligibility Index. ANSI/ASA 3.5-1997 (R2017).	As Reference	Technical Report
An Anthropometric Survey of 2,000 Royal Air Force Aircrew 1970/71	As Reference	Technical Report
Anthropometry Survey of UK Military Personnel 2006-07	As Reference	Technical Report

Reference	Title	Document Type
BS 2C13:1988	Specification for sizes of aircraft gravity filling orifices and associated replenishment nozzles (metric series)	British Standard
BS G 175:1959	Aircraft fuel nozzle grounding plugs and sockets	British Standard
Bullen, N.I. A note on test factors. Aeronautical Research Council R & M 3166, September 1956	As Reference	Technical Report
Cardrick, A.W. Meyer, M.L. Elastic and Plastic Interactions - their influence on the validity of the Palmgren-Miner hypothesis. Proc. IMechE Conference on Designing against Fatigue, London, October 1974	As Reference	Technical Report
Cardrick, A.W. Responding to the challenge - A short guide to the principles underlying some recent changes to the design requirements for British military aircraft. IMechE seminar on the Structural Integrity of Civil and Military Aircraft, Univ. Bristol, September 1990	As Reference	Technical Report
Cardrick, A.W., Pike, Vera J. On the use of Safe S-N procedures in the interpretation of fatigue tests. (R) DERA/AS/ASD/TR97324/1.0, December 1997	As Reference	Technical Report
EASA CS-Definitions	CS Definitions	Definitions used in EASA CS

Reference	Title	Document Type
Ellis, S.D. A combined range-mean-pairs rainflow count of load time histories for use in the formulation of structurally relevant cost functions and fatigue analysis. Royal Aircraft Establishment Technical Report 81122, October 1981	As Reference	Technical Report
FAP 108B-0001-1	Aircrew Equipment Assemblies – General and Technical Information	RAF Manual
HEALTH and SAFETY CONSULTATIVE DOCUMENT. Prevention of damage to Hearing from Noise at Work. Draft proposal for Regulation and Guidance. ISBN 011 883495 9, Pub HMSO 1987	As Reference	Technical Report
ICAO Volume 2 Annex 16	Environmental Protection, Aircraft Engine Emissions	International Civil Aviation Organization
MASAAG Paper 109	Guidance for Aircraft Operational Loads Measurement Programmes	Technical Report
Mil-Std-1290	Light Fixed And Rotary Wing Aircraft Crash Resistance	US Military Standard
Mil-Std-461G	Requirements For The Control Of Electromagnetic Interference Characteristics Of Subsystems And Equipment	US Military Standard
Mil-Std-464C	Electromagnetic Environmental Effects, Requirements For Systems	US Military Standard
Outcome of the Tri-Service anthropometric database validation study for aircrew applications, and the adjustment to data values representing the 2007 surrogate aircrew population	As Reference	Technical Report

Reference	Title	Document Type
Perrett, B.H.E: Fatigue endurance of structural elements in various materials under constant and variable amplitude loadings. Royal Aircraft Establishment Technical Report 77162, November 1977	As Reference	Technical Report
RTCA DO-178A	Software Considerations in Airborne Systems and Equipment Certification	RTCA Publication
RTCA DO-248C	Supporting Information for DO-178C and DO-278A	RTCA Publication
RTCA DO-331	Model-Based Development and Verification Supplement to DO-178C and DO-278A	RTCA Publication
RTCA DO-332	Object-Oriented Technology and Related Techniques Supplement to DO-178C and DO-278A	RTCA Publication
SAE AS50881	Wiring, Aerospace Vehicle	SAE Standard
Simpson, A Fatigue data for the derivation of Safe S-N curves - low-load- transfer joints and lug specimens. British Aerospace Report No BAe-MSM-R-GEN-0683, March 1988	As Reference	Technical Report
STANAG 3447	AIR-TO-AIR (AERIAL) REFUELLING EQUIPMENT: PROBE-DROGUE INTERFACE CHARACTERISTICS	NATO Standardisation Agreement
STANAG 3950	HELICOPTER DESIGN CRITERIA FOR CREW CRASH PROTECTION AND ANTHROPOMETRIC ACCOMMODATION	NATO Standardisation Agreement
STANAG 4327	LIGHTNING, MUNITION ASSESSMENT AND TEST PROCEDURES	NATO Standardisation Agreement
STANAG 4671	UNMANNED AIRCRAFT SYSTEMS AIRWORTHINESS REQUIREMENTS (USAR)	NATO Standardisation Agreement
STANAG 4702	ROTARY WING UNMANNED AIRCRAFT SYSTEMS AIRWORTHINESS REQUIREMENTS	NATO Standardisation Agreement
STANAG 4703	LIGHT UNMANNED AIRCRAFT SYSTEMS AIRWORTHINESS REQUIREMENTS	NATO Standardisation Agreement
STANAG 7191	AIR-TO-AIR (AERIAL) REFUELLING EQUIPMENT: BOOM-RECEPTACLE SYSTEM AND INTERFACE REQUIREMENTS	NATO Standardisation Agreement

Reference	Title	Document Type
STANAG 7207	AIR TRANSPORT (AT) AND AIR-TO-AIR REFUELLING (AAR) DOCTRINE	NATO Standardisation Agreement
STANAG 7215	AIR-TO-AIR REFUELLING SIGNAL LIGHTS IN HOSE AND DROGUE SYSTEMS	NATO Standardisation Agreement
The Relationship between the Seat Reference Point and the Eyeball Position of Subjects Strapped into Aircraft Type Seats	As Reference	Technical Report
USARTL-TR-79-22B	Aircraft Crash Survival Design Guide Vol 2	Design Guide
USARTC TR-79-22-5	Aircraft Crash Survival Design Guide Vol 1	Design Guide

ANNEX B

Definitions and Acronyms

B.1 DEFINITIONS

Table 8 – Definitions

Title	Definition
Absolute Humidity	The mass of water vapour per unit volume of air.
Active Control System (ACS)	A system in which commands to the control motivators are continuously computed from sensor inputs both with and without pilot inceptor inputs. A full-time ACS must operate continuously and without it, safe flight cannot be maintained.
Actuator	A device, usually powered by electrics or hydraulics which amplifies the command from an ACS computer to move the motivator(s).
Air distance	The distance along the runway surface from the point where the aeroplane passes the reference screen height to the point where the wheels first touch the landing surface.
Air distance to screen height (SA)	The distance in the reference plane between the lift off (unstick) point and that at which screen height is reached.
Aircraft Design Eye Position	A reference point, fixed with respect to the aircraft for the establishment of aircrew external and internal crew station vision and for crew station geometry.
Aircraft Neutral Design seat Position	A point, fixed with respect to the aircraft, which coincides with the seat reference point when the seat is adjusted so that the eye reference point for a 50th percentile pilot coincides with the aircraft design eye position.
Airship or Dirigible	An aircraft that can be lighter than air and is equipped with a means of steering and horizontal propulsion. Airships are normally ballasted to be close to neutral buoyancy, but without ballast are lighter than air. The word Dirigible means ‘able to be directed’ (ie steered). Some airships have a rigid primary structure; some depend on pressure within an envelope to maintain shape. Dirigibles are differentiated from a balloon because a balloon has no means of horizontal propulsion or steering.
Alarm Activation Time	The time taken from the initial emission of radiation or heat from a specified fire source and the activation of the fire warning.
Alighting	Descent and touchdown on any surface. Includes Normal, Heavy and Crash Landing, and both Precautionary Alighting on Water and Ditching.
Antenna	A device designed for the radiation or reception of electromagnetic wave energy.
Architecture	The structure of levels and/or branches that partition a system into its constituent parts or components. Architecture may consist of: (a) High level designs for the system to be built; (b) Definition of the principal components; (c) An overall system structure, showing the organisation of components and their interactions; (d) A model for the overall behaviour of the system; (e) A view of how the system will be laid out or assembled; (f) The basis for an integration strategy for the final product.
Armament Electrical Installation	Comprising those electrical circuits concerned with the carriage, presetting, monitoring, fuzing, arming firing, release and jettison of weapons pyrotechnics and other armament stores.
Armament Electrical Installation - Failure	The inability of a component to operate in the defined manner, ie a functional failure.
Army Equipment Support Publication (AESP)	Where identified in this Defence Standard, the term AESP refers to documentation used to support materiel, operated and maintained by the Army.
Assembly	A number of parts or sub-assemblies or any combination thereof, joined together to perform a specific function. The assembly may consist of either: (a) Parts which do not have their, elements welded, soldered, riveted or otherwise connected together in a permanent manner and which will not be stocked (though their elements may be), or

Title	Definition
	(b) Parts which have been fabricated and have their elements permanently connected together. The parts or their elements or both may be held in stock (See Def Stan 05-10).
Automated Take -off	Automated take-off is the ability of the air vehicle to be launched with a single command once planning and pre-flight checks have been conducted and permission to launch has been granted.
Automatic Flight Control System	A system which includes all equipment to control automatically the flight of an aircraft system to a path or attitude described by references internal or external to that aircraft.
Autonomous	The execution of processes or events that do not require direct RPAS crew intervention. The operation of a subsystem according to a predefined plan without recourse to RPAS crew control.
Autonomous - Flight	Independent real time flight of a RPAV – Without pilot control input.
Availability	The probability that the system or equipment used under stated conditions will be in an operable and committable state at any given time. Note: There are a variety of sub-definitions of availability that are meaningful in different operational and management situations. Further details can be found in Def Stan 00-49 and ARMP-7.
Bond	Metal parts that are connected together electrically so as to ensure adequate low impedance contact.
Burst Disc Failure Pressure (P_b)	The maximum pressure at which the Pressure burst disc is expected to operate including an allowance (normally 20% above nominal) for variability. A recommended value is 1.5 P_d (Types 1, 4 and 5).
Charging Pressure	The maximum permissible charging pressure at 20°C for which the system is designed.
Combat Ceiling	The altitude at which the maximum rate of climb has fallen to 2.5m/s.
Combat Radius	The distance, inclusive of the distance covered in climb(s) to the mid- point to a mission which consists of 2 equal segments in a flight from base to target and return. When the mission definition requires that stores or other payloads be dropped or off-loaded it shall be done at mid- point with no distance credit unless otherwise agreed. Distance covered in combat or manoeuvring at the mid-point shall not be included in the combat radius and no allowances shall be made for descent unless otherwise agreed with the Aeroplane Project Director.
Combat Range	The distance, inclusive of the distance covered in climb(s) which is attainable on a one-way flight carrying the specified mission payload for the whole of the distance and with the specified fuel reserves at landing. No allowance shall be made for distance covered in the descent, unless otherwise agreed with the Aeroplane Project Director.
Communication Links	Command, control and information links generated within or received by any element of the RPAS. They are the means of connecting one location to another for the purpose of transmitting and receiving data. RPAS communication links cover all communication, both within the system that may comprise of, but not limited to: Control Station(s); RPAV(s); Remote antenna(e); Launcher(s); Landing/Recovery Equipment; Operational personnel; and communication to/from equipment and agencies external to the RPAS that require access to data, or control of, the RPAS and/or its associated sub-systems and payload(s). Communication Links can be made by one or more of a variety of means such as, but not limited to: Audio; Visual; Video; RF; IR; UV; Microwave; and Fibre optic.
Component	A part or any combination of parts, sub-assemblies and assemblies mounted together, normally capable of independent operation in a variety of situations, and includes those assemblies that are regarded as complete units for storage.
Computer Software	A combination of associated computer instructions and computer data definitions required to enable the computer hardware to perform computational or control functions.
Computer Software Documentation	Technical data, including computer listings and printouts, in human readable form which documents the design or details of computer software, explains the capabilities of the software, or provides operating instructions for using the software

Title	Definition
	to obtain desired results from a computer. This includes relevant maintenance/support documentation.
Conducted Emission	Electromagnetic energy that is propagated along a conductor.
Conducted Interference	Impairment of the functioning of a device, equipment or system caused by conducted emissions.
Conducted Susceptibility	Assessment of the immunity of the equipment under test to potentially interfering signals propagated by conduction.
Continuous Built-in-Test (CBIT)	An on-aircraft test feature, whereby the correct functioning of the equipment is determined by continuously monitoring the modules within the equipment or by continual tests which do not interfere with the normal operation of the equipment.
Continuous Heat Detectors	Continuous heat detectors are those employing continuous lengths of heat sensing elements connected to a monitoring device.
Control Station	Part(s) of the RPAS that includes all the equipment that exercise control over the RPAV, its payload and associated elements, in all phases of operation. The Control Station includes all elements, from launch preparation to retrieval, that require system intervention and/or acknowledgement of system readiness.
Coupon	The simplest form of test specimen suitable for obtaining the properties of a material in a particular mode of failure.
Crash Landing	Any landing involving high vertical impact velocities arising from irrecoverable loss of control or impact from any other direction.
Critical engine failure speed (V_{EF})	The calibrated airspeed at which the critical engine speed, is assumed to fail where V_{EF} must not be less than the minimum control speed on the ground
Critical Part	A critical part is a part, the failure of which could have a catastrophic effect upon the aircraft, and for which critical characteristics have been identified which must be controlled to ensure the required level of integrity.
Dangerous Flight Conditions	Refer in general to flight outside the Permissible Flight Envelope
Data Link	A wireless communication channel between one or more Control Stations and one or more air vehicles, or between multiple air vehicles. It may be used to exchange any mix of command and control or payload data. A channel may be single or bi-directional, and more than one may exist at a time between a particular control station and air vehicle pair.
Defect Detection Probability	The ratio of the number of defects detected, by in-built test features, to the total number of defects occurring, expressed as a percentage taken over a statistically significant period of time.
Defect Location Probability	The ratio of the number of defects located to LRU/module level, by in- built test features, to the total number of defects occurring, expressed as a percentage taken over a statistically significant period of time.
Defect-Dormant	A defect, the effect of which is not apparent immediately it occurs, and which may remain undetected until a specific function is required, a subsequent defect occurs, or a servicing procedure/functional check is carried out which identifies the defect.
Defect-Primary	A defect which is attributable to the items and not caused by user maintenance or personnel factors, defect of related components, or foreign object damage.
Demonstration Stage	The stage in the Smart Acquisition lifecycle which aims to "produce sufficient evidence and material to down select to a single contractor on a low risk contract".
Deployable System	A deployable system is an operational group of deployable subsystems and deployable functional elements. These are the air vehicles, ground- based control and exploitation facilities, launch and recovery facilities, communications facilities and links, computers, software, vehicles and ancillary equipment that fulfil the operational requirements in theatre.
Design Charging Pressure (P_C)	The maximum permissible charging pressure at 20°C, for which the vessel is designed. (Types 1 and 5).
Design Diving Speed (V_D)	The speed accepted at the design stage as being the highest Equivalent Air Speed for which the particular aeroplane need be designed, the value being chosen on the basis of the intended use of the type, modified (if appropriate) by the characteristics of the individual design. It is denoted throughout the text by the symbol V_D.
Design Limit Load	The greatest load that is expected to occur during the specified life in any particular design case.
Design Pressure (P_D)	This includes the working pressure (Pw) plus the effect of any intensification of pressure during operation, or from external loading, and from transient peak pressures that may occur. The design pressure for a component or part of the

Title	Definition
	system. For static systems Pd = Pr + TPA For dynamic systems Pd = (Pc x R) + TPA or Pd = PW + TPA as appropriate.
Design Pressure Ratio (R)	The ratio of the pressure at maximum design temperature to the pressure at 20°C, obtainable from standard tables for the gas concerned. The temperature used to determine this ratio shall include an allowance for any local rise in temperature during normal operations caused by the position of the vessel in the aeroplane. (Type 1).
Design Proof Load	The product of the design limit load and the proof factor.
Design Review	A formal, documented engineering management process that is used to subject a design to a systematic critical study. Its purpose is to establish whether the design satisfies the specified requirement.
Design Spectrum	The spectrum of loads which is typical of the loads expected to occur under the operating conditions defined within the Aircraft Specification.
Design Ultimate Load	The product of the design limit load and the ultimate factor.
Designated Fire Zone	A designated fire zone is defined as a region in which a single failure of an installation or any part of it could result in a fire or breakout of an existing controlled fire (eg combustion chamber) into the aeroplane.
Developed Spin	That part of the post-stall aeroplane motion which is characterised by a sustained rotation in yaw. It may be erect or inverted, flat (low angle of attack - but stalled) or steep (high angle of attack) and the rotary motion may have super-imposed oscillations in pitch, roll and yaw.
Ditching	Alighting on the sea or any inland water following loss of power or loss of control and with the intention of abandoning the aeroplane. Note: Civil requirements define ditching as a controlled alighting on water. This is equivalent to the military precautionary alighting on water.
Data Reporting Analysis and Corrective Action System (DRACAS)	A documented closed-loop system for reporting, collecting, recording, analysing, categorizing, investigating and taking timely, effective corrective action on all discrepancies and failures relating to design, manufacturing and test processes that occur during any project activity whether conducted at the Contractor's premises or elsewhere. Operational and usage data together with operating conditions are also recorded. DRACAS should cover all materiel being procured under contract and provide for the reporting of suspected failures and discrepancies as well as observed failures, failure indications and discrepancies.
Durability	The ability of an item to perform a required function under given conditions of use and maintenance, until a limiting state is reached.
ECM Resistance	Electronic Countermeasures Resistance.
Effective Mass	In vertical crash cases: the mass of the body, clothing and equipment reacted by the seat. Normally assumed to be the sum of: 80% of body mass, plus 80% of the mass of clothing less boots, plus 100% of the mass of equipment carried on the body above the knees.
Electromagnetic Interference (EMI)	Impairment of the functioning of a device, equipment or system caused by an electromagnetic disturbance.
Electronic Cockpit Documentation System	A system for the electronic provision or display of information, previously used in textual paper copy form, within the cockpit of an aircraft. Examples of ECD Systems are those for display of aircrew checklists, aircraft operating data or aircraft manuals either on electronic displays or using voice systems.
Emergency Jettison	The jettison of all stores as rapidly as possible, in a safe condition (unless otherwise specified) and without danger to the aircraft. Emergency Jettison shall be implemented by high integrity electronic hardware that meets the requirements of Def Stan 00-056.
Equivalent Life	The safe life under the Service Spectrum which is equivalent in terms of fatigue damage to the safe life substantiated for the structure under the Design Spectrum.
Essential controls and services	Those controls and services essential for the safe operation of an aeroplane during and after the extinguishing of a fire and include: (a) Fire detection system. (b) Aerodynamic controls. (c) Controls needed for emergency services. (d) Fuel supply and controls. (e) Cooling air control and actuating gear.

Title	Definition
	(f) Oil supply and control. (g) Propeller feathering system.
Failure	The inability of an item to perform within previously specified limits. As far as practicable when failure results from enemy action the spirit of the requirement should be met.
Fail-safe	Provision built into equipment so that the equipment does not cause hazardous consequences even if it or part of it fails to perform its design function.
Feedback	(in the context of man machine interaction) Information from equipment indicating the consequences of the RPAS crew's actions.
Field Strength	In radio wave propagation, the magnitude of the component of any specified polarization of the electric or magnetic field. These may be expressed in volts per metre or amps per metre respectively.
Fire resistant	Fire resistant with respect to components and equipment means the capability to withstand for a period of 5 minutes the application of heat by the standard flame. With respect to sheet materials and structural members, means the capacity to withstand the heat associated with fire at least as well as aluminium alloy in dimensions appropriate for the purposes for which they are used.
Fireproof	Fireproof with respect to components and equipment means the capability to withstand for a period of 15 minutes, the application of heat by the standard flame. In respect of materials and structural parts, means the capacity to withstand the heat associated with fire at least as well as steel in dimensions appropriate for the purpose for which they are used.
Flame Resistant	Flame resistant means not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed.
Flammable Materials	Flammable materials are materials which will ignite readily or explode.
Flash Resistant	Flash resistant means not susceptible to burning violently when ignited.
Flight Resident Software (FRS) (In Flight Software)	FRS forms the software programme to be implemented within the Active Control System and which is to fly.
Flight-path Vision Plane	The plane through an aircraft design eye position parallel to the aircraft flight path vector and perpendicular to the aircraft plane of symmetry.
Flight Termination System	System that effects the immediate cessation of flight. Flight termination may occur in response to the air vehicle being in an unsafe state, a potentially unsafe state or by command. Normal recovery or emergency recovery of the air vehicle may involve use of a flight termination system.
Fuel system	Comprises all those items, including fuel tanks and instrumentation required for fuel system management which are needed to meet the full range of fuel flow demand of the engine(s) and auxiliary power unit(s) using the fuel carried in the aeroplane fuel tanks
Fuel Tank Sump Capacity	The fuel tank sump capacity is equal to the difference between the unusable fuel capacity and the amount of undrainable fuel in the tank.
Full Time System	A system which must continue to operate at all times in order to ensure continuation of safe flight.
Fully Interchangeable	A fully interchangeable item is one which shall be capable of being installed without alteration being necessary to the item, its associated interfaces or its counterparts, other than by adjustment or replacement of shims, serrated washers, tab washers, seals or expendable locking devices (wire locking, split pins or tab washers). The item when installed shall be capable of meeting all the requirements of the original item it is replacing in all characteristics (physical and functional). Full interchange ability of an assembly does not normally imply that all details and components of that assembly are considered in themselves to be fully interchangeable.
Functional Characteristics	The designed scope ie sequence and essential qualities) of the operations to be performed by an item. Functional characteristics are expressed in terms of quantitative performance parameters such as range, speed, lethality, reliability, maintainability, safety; and operating and logistics parameters and their respective tolerances.
Ground run (S_G)	The distance from the starting point to the point at which the lift-off speed, V_{LOF}, is reached in the reference plane.
Ground run (Landing)	The distance along the runway surface from the point where the wheels of the aeroplane first touch the landing surface to the point where the aeroplane has come completely to a standstill.

Title	Definition
Hazardous Effects	An effect which may produce a dangerous increase in flight crew effects, work load, or dangerous degradation of performance or handling characteristics, or dangerous degradation of the strength of the aeroplane, or marginal conditions for, or injury to, occupants.
Hazardous Proximity of Potential Ignition Sources	Potential ignition sources in proximity to flammable fluid lines, containers or components such that fluid leakage could result in the development of a fire which would hazard the safety of the aeroplane.
Hazardous Situation	A situation where conditions arise which threaten the safety of the crew and/or the aeroplane.
Heavy Landing	Any landing above the design vertical velocity (V_V) of Part 1 in which control is retained. Some local yielding of structure. Possible collapse of the undercarriage above $1.2V_V$. No incapacitating injury to the crew. After a heavy landing the aeroplane may be able in emergency to take-off, fly back to base, and alight, with negligible risk of further injury to the occupants, depending on the state of the undercarriage.
High Lift Devices	Defined as those auxiliary surfaces such as leading and trailing edge flaps and slats which are used to augment or redistribute the basic lift of the wing either during take-off, approach and landing, or whilst the aeroplane is en-route or in combat.
Humidity Mixing Ratio	The weight of water vapour per unit weight of dry air.
Hydraulic Component	Any separate unit which is connected by the piping or hoses within the hydraulic system. Components include all classes of valves, hydraulic actuators, accumulators, manifold blocks, hydro-mechanical devices, filters etc.
Identification Marking	Markings applied to a part or its package for the purpose of engineering, manufacturing, traceability or inspection control. These markings can include: NATO Stock Number; Part Number and Issue Number; Material Batch Code; Serial Number; Foundry or Forge Marks; Inspection Marks; Radiological Examination Marks; Drawing Numbers; and any Other Special Markings.
Impact Point	The point on the aeroplane which will strike the surface or obstacle first in the attitude giving the velocity vector selected for analysis and test.
Inceptors	The means by which the pilot's demands are input to the system, eg control column, rudder pedals, etc.
Inflation	In service an inflation will be deemed to have taken place when, on charging the vessel, the pressure passes through a level of 80% of Pc for Type 1 vessels, once per engine start or per flight for Types 2 and 3 vessels and once per usage for Type 4 and 5 vessels. In tests a cycle is an inflation from zero to Pd to zero except in some Type 2 and 3 vessels
Integrity	The probability that the system will provide a specified level of safety.
Interface	A specifically defined physical or functional juncture between 2 or more configurable items.
Interface Control	The procedures and documentation, necessary for the identification and management of functional and physical characteristics between 2 or more systems/sub-systems/products to ensure compatibility.
Interface Control Document	Document used to manage, identify and define functional and physical characteristics between 2 or more systems/sub-systems or products to ensure compatibility.
Interoperability	The ability of systems, units or forces to provides services to and accept services from other systems, units or forces and to use the services so exchanged to enable the systems to operate effectively together.
Interruptive Built-in-Test (IBIT)	An on-aeroplane test sequence, initiated by a stimulus which will interfere with the normal operation of the system.
Instructions for Sustaining Type Airworthiness	The methods, inspections, processes, and procedures necessary to keep Air Systems and/or products airworthy.
Jettisonable Tanks	Fuel tanks which are capable of being dropped in flight.
Lateral Vision Reference Plane	The plane through an aircraft design eye position parallel to the aircraft fuselage plane (XY plane).
Launch	The process by which a prepared air vehicle leaves the ground, with or without assistance, and attains controlled flight.
Layered Software Architecture	A software architecture where direct communication is allowed between software objects within a layer, but communication between layers is via a standardised interface.

Title	Definition
Level of Maintenance	The level of maintenance is determined by the extent of the engineering content. It is measured in terms of the standard of repair, the time necessary to repair to the standard required and the complexity of the repair as measured by the engineering resources required.
Life Cycle	Generic term covering all phases throughout the life of an item or a product from concept to disposal.
Lift-Off Speed	The calibrated airspeed at which the aeroplane first becomes airborne.
Limit Of Expansion	The time at which, during a pressure test, the rate of change of volume drops to zero.
LRU Built-in-Test (LBIT)	The facility integrated into an LRU to measure and cheek out its serviceability to module level.
Maintainability	The economy in time, manpower, equipment and necessary materials with which potential or actual failures can be detected, diagnosed, prevented or corrected and with which routine handling, replenishment and servicing operations can be carried out. It may be measured as the ability of an item under stated condition of use to be retained in or restored to a specified condition, when maintenance is performed by personnel having specified skill levels under stated conditions and using prescribed procedures and resources.
Malfunction	The occurrence of a condition whereby the operation of an item is outside of specified limits.
Man-Machine Interface	The controls and displays that a RPAS crew member uses to control, monitor or otherwise interact with the system.
Maximum Cruise Speed	The highest speed that can be maintained at the unlimited time engine power setting and with the aeroplane flying at the specified altitude and in the specified configuration.
Maximum Endurance	The elapsed time of flight when the aeroplane is flown in the conditions appropriate to minimum fuel flow consistent with satisfactory flying qualities as defined in the relevant Requirements of Parts 1 and 11.
Maximum Normal Acceleration Coefficient (n1)	The maximum normal acceleration coefficient is the value of ‘n’ which is accepted at the design stage as being the highest positive value for which a particular aeroplane need be designed to cover symmetric flight manoeuvres, due allowance being made for any component of deflected thrust. The value is chosen on the basis of the intended use of the type, modified (if appropriate) by the characteristics of the individual design. It is denoted throughout by the symbol n1.
Maximum Speed	The highest speed attainable in steady level flight at a given altitude and with the aeroplane in a specified configuration. The Maximum Speed shall be the lower of the speed determined by the equality of thrust and drag in the specified condition or any speed limit imposed through structural, propulsive, aerodynamic hearing or operational restrictions.
Minimum Flying Mass	Take-off mass less bombs, ammunition and other items readily dropped or expended except for sufficient fuel for a normal descent and 30 minutes cruise at sea level at the engine conditions appropriate to maximum endurance.
Minimum Permissible Speed (V_S)	The minimum permissible speed and a basic reference in the statement of performance requirements for aeroplanes in conventional flight is defined for steady straight flight as the highest of: (a) the speed at which stalling occurs at a normal acceleration factor of 1.0; (b) the speed at which the nose up limit of pitch control is reached or at which the stall prevention device (if fitted) operates, at a normal acceleration factor of 1.0; (c) The minimum speed at which the aeroplane can develop an aerodynamic force perpendicular to the flight path equal to its weight.
Minimum Permissible Speed for STOL	The higher of: (a) The minimum speed at which the aeroplane can be flown with a normal acceleration factor of 1.0 while neither experiencing stalling as defined in Part 1, nor exceeding the maximum power authorised for this phase of flight. (b) The speed at which the rearward limit of the pitch inceptor is reached or at which (if fitted) a device to prevent entry into dangerous flight conditions operates, at a normal acceleration factor of 1.0
Minimum Unstick Speed	The calibrated airspeed at and above which the aeroplane may safely lift off the ground in the appropriate condition specified.
Mission	The task to be performed during a sortie.

Title	Definition
Mission Critical System.	A subsystem or functional element required to successfully complete a mission.
Mission Related System/Function	A system/function, the failure of which will result in a degraded level of mission performance, but not so much so as to necessitate aborting the mission.
Mission Failure	Any equipment failure that would prevent starting and completing a further mission from the time the incident occurred.
Mock-up	A mock up is a 3-dimensional full-scale replica of the physical characteristics of a system or sub-system. A mock up can be developed only after system drawings are produced, although these drawings may only be preliminary ones.
Mode	A discrete and selectable control law (function). A mode may be automatically and/or manually selected and deselected within an ACS- (cf Auto-pilot modes).
Motivators	The devices which produce forces or moments which affect the aeroplane motion, eg control surfaces, Nozzles, etc.
Mounting Stress Allowance (MSA)	The allowance required to take account of clamping and inertia forces and of their reactions. The value is to be agreed with the system designer for the aeroplane. For strapped vessels the allowance should be the pressure stress equivalent to the maximum local acceleration in the worst flight manoeuvre. For vessels mounted on bosses the local stress caused by this acceleration may be applied separately.
Mutual Interference	Impairment of the functioning of device, equipment or system caused by an electromagnetic disturbance that originates from within that device, equipment or system.
Nominal System Supply Working Pressure	Nominal System Pressures (Pw) shall be classified Working Pressure as follows: **Class Pressure** A 4000 kPa (40 bar) B 10500 kPa (105 bar) C 16000 kPa (160 bar) D 21000 kPa (210 bar) E 28000 kPa (280 bar) F 40000 kPa (400 bar) G 50000 kPa (500 bar).
Normal Acceleration Coefficient (n)	For structural design purposes the normal acceleration coefficient 'n' is the resultant of the total aerodynamic force acting perpendicularly to the aeroplane fore and aft datum, divided by the total weight. Where appropriate allowance should be made for the effect of deflected thrust which will contribute to the total normal acceleration experienced by the aeroplane.
Normal Landing	Any landing within the design requirements. No damage to the aeroplane. No injury to the occupants.
Nuisance Disconnect	An undesirable condition not due to a component defect, which is identified by a monitoring system as if it were a defect. The condition may or may not persist.
Open Systems Architecture	A system architecture composed of components that have well-defined interfaces conforming to standard interface specifications.
Operational Flight Envelope	The Operational Flight Envelopes are the flight regimes where the Air System meets the Handling Qualities for the Mission Task Elements defined in the SOI (and UK25.143(a)). Note: In civil aviation the Operational Regulations, especially regarding performance, define operational limits which can be lower than the certified flight envelope; this is analogous to the military Operational Flight Envelope.
Optical Surveillance Detectors	Optical Surveillance detectors are radiation sensing devices which operate in the ultra-violet and/or infra-red wave bands.
Part Number	A set of numbers, letters, symbols or some combination thereof, assigned by a manufacturer to identify uniquely the design of a specific part or item of materiel in his/her own inventory.
Payload	The device or equipment carried by an Air Vehicle, which performs the mission assigned. The payload comprises all elements of the air vehicle that are not necessary for flight but are carried for the purpose of fulfilling specific mission objectives. This may include such sub-systems as: · ISTAR assets; · Communication Relay equipment; · Transponders (including IFF);

Title	Definition
	· Offensive weapons; · EW systems; · C^4I assets; · Defensive Aid Suites.
Percentage Saturation	The ratio, expressed as a percentage, of the actual humidity mixing ratio to the saturation humidity mixing ratio at the same temperature. It is not always the same as relative humidity.
Permanent Marking	Markings which will ensure identification of the part during its normal service life.
Permissible Flight Envelope	The Permissible Flight Envelope denotes the maximum certified flight envelope. It is equivalent to the EASA Flight Envelope.
Pilots Eye Reference Point	The mid-point between the centres of the pilot's eyes.
Plastics	Material which consists of an organic polymeric substance, incorporating when appropriate stabilisers, anti-oxidants, fillers, fire retardants, plasticisers, particulate and short fibre reinforcement etc.
Post-Stall Gyrations	Post-stall gyrations, including incipient spins, are uncontrolled motions about one or more of the aeroplane's axes following departure from controlled flight. The incipient spin is the initial transient phase of the developed spin and may not be recognised by the pilot as the spin.
Powered Flying Control	A powered flying control system is one in which the whole or part of the power required to move the main flying control surface (or surfaces) concerned is supplied by an electric, hydraulic, or other non-human source.
Pressure Defueling	Refers to the off-loading of fuel by means of the aeroplane fuel system pumps or by pressure applied to the fuel tank ullage.
Pressure Refuelling	A method of on-loading fuel to the aeroplane tanks, using an external pumping unit which delivers fuel at a positive pressure from an external source, through a closed line to a refuelling connector on the aeroplane, from which it flows via a pipe system to the aeroplane fuel tanks.
Principle Structural Element	A principal structural element is an element of structure that contributes significantly to the carrying of flight, ground, or pressurisation loads and whose integrity is essential in maintaining the overall structural integrity of the aeroplane. When identifying PSEs, consideration should be given to the effect caused by partial or complete loss or failure of structure with respect to continued safe flight and landing, considering all flight phases including stability, control and aeroelasticity.
Programmable Element	Products, Services and/or Systems (PSS) that is implemented in software or programmable hardware, which includes any device that can be customised, eg ASICs, PLDs and FPGAs.
Proof Load	The product of limit load and the proof factor. Until the proof load is exceeded a structure or system shall not sustain deformation detrimental to safety and moving parts essential to safety shall function satisfactorily. After removal of the proof load no effects of loading shall remain that might reasonably cause the aeroplane to be deemed unserviceable.
Qualification	The process of carrying out tests/studies on components and equipment to ensure compliance with the requirements of the system specification for the particular component or equipment. Such specifications may include performance, Airworthiness and safety aspects. This process is carried out prior to issue of the Certificate of Design and is the responsibility of the Design Organisation/prime contractor.
Radar Installation	Comprises all those items of equipment necessary to radiate electromagnetic waves, and then to utilise the reflected, or automatically re-transmitted waves, to gain information concerning distant objects eg range and relative position, topographical features, meteorological conditions etc.
Radiated Emission	Signals and/or noise propagated by radiated fields.
Radiated Interference	Impairment of the functioning of a device, equipment or system caused by radiated emissions.
Radiated Susceptibility	Assessment of the immunity of the equipment under test to potentially interfering signals propagated by radiation.
Radio Installation	Comprises all those items of equipment necessary to communicate or receive information (eg speech, navigational data etc), via the medium of Electromagnetically radiated waves to/from a similar system with which it has no direct physical contact.

Title	Definition
Real-Time	A process or activity occurs in real-time if it responds within a short, tightly-specified time variant from an external source, typically a small fraction of a second. For instance, it may be tightly synchronised with a reference clock (such as time of day) or a simultaneous process of another system.
Recovery	The phase of a RPAS mission that involves the return of an air vehicle to the ground or to base and includes the approach to the landing platform and landing.
Redundancy	The provision of duplicate or additional facilities to increase availability at given levels of reliability and logistic delay.
Reference Plane For The View Angles To Left and The Right	The plane through aircraft design eye position parallel to the aircraft plane of symmetry (XZ plane).
Relative Humidity	The ratio, expressed as a percentage, of the partial pressure of the water vapour to the saturation vapour pressure at the same temperature.
Reliability	The probability that the system will achieve a specified level of performance.
Relief Pressure (P_R)	The relief pressure associated with a particular part of the system and fixed at a value which allows a reasonable margin above P_W. A value of 1.33 P_W is implied by the strength requirements of this standard and covers the effects of variability in maximum delivery pressure in service (nominally 10%), supply control failure, ingress of foreign matter, filter blockage, and temperature changes but not transients. In some projects a value of P_R greater than 1.33 P_W may be necessary to prevent excessive loss of gas from the system following a cold soak at altitude and a rapid descent to ground level in a high temperature.
Remotely Piloted Air Vehicle System Crew	All personnel associated with the deployment, operation and maintenance of the RPAV System.
Remotely Piloted Air Vehicle System Requirements Specification	A generic term within the context of Def Stan 00-970 Part 9 that refers to the requirements contained in any one or a combination of the: User Requirements Document; Systems Requirements Document; System Design Definition; System Technical Specification.
Replaceable	A replaceable item has similar characteristics to a fully interchangeable item, except that certain defined features may be subject to alteration to facilitate its installation. Note: Spares for these items may be supplied with trim allowances and/or in the undrilled condition but this must be stated on the spares drawing.
Retrieval	The phase of a RPAS mission that occurs after recovery where the RPAV is collected if necessary and returned to maintenance, operation or storage.
Safe Guard	Facility or function that ensures protection against danger or the occurrence of a hazardous situation.
Safe Life (Pressure Vessels)	The maximum number of inflation's permitted during the Service Life of the vessel. The safe life will be stated in the appropriate specification and shall be not less than the equivalent of 10 years' service use unless otherwise agreed with the Project Team Leader.
Safety Critical System	A system (or one of a collection of systems) of the aeroplane in which a disturbance (or combination of disturbances) could result in a direct hazard to the aeroplane, aircrew, people or property on the ground.
Safety Integrity	The likelihood of a safety critical system achieving its required safety features under all stated conditions within a stated measure of use.
Safety Related System/Function	A system/function the failure of (or disturbance in) which will result in a degraded level of safety, but not pose an immediate, direct hazard to the Air Vehicle or System, crew, people or property.
Saturation Humidity	The humidity when the air is saturated with water vapour. Saturation humidity increases with rise in temperature. At temperatures below 0°C the air can be saturated with respect to either ice or water, but the values are not identical. It is recommended that saturation with respect to water should be used in the temperature range 0°C to -15°C and with respect to ice at temperatures below -15°C. Air saturated with respect to water is super-saturated with respect to ice.
Screen Height	The height above the reference plane used to determine the air distance, S_A, and shall be; (a) 15.3m (50 ft) for Group (1) aeroplanes. (b) 10.7m (35 ft) for Groups (2) and (3) aeroplanes.
Selective Jettison	The jettison of selected individual or groups of stores, in a safe condition (unless otherwise specified).

Title	Definition
Self-Extinguishing	A substance is self-extinguishing if it ceases to burn within a given time after removal of the igniting source.
Sensors	Detecting devices; eg gyros, accelerometers, wind vanes, displacement pickoffs etc. that detects, and may indicate, and/or record objects and activities by means of energy or particles emitted, reflected or modified by objects.
Service Ceiling	The altitude at which the rate of climb has fallen to 0.5m/s (l00 ft/min).
Service Flight Envelope	The Service Flight Envelope is the combination of the Operational Flight Envelopes.
Service Spectrum	The spectrum of loads which is typical of the actual loads which occur under service usage.
Signal - Advisory	A signal used to indicate aircraft configuration, a condition of performance, the operation of essential equipment, or to attract attention for routine purposes.
Signal - Warning	(a) A signal indicating the existence of an imminent catastrophic condition requiring immediate action or a limitation to the flight envelope of the aeroplane. (b) A master warning signal may be used to indicate operation of any one of a number of warning signals.
Situational Awareness	The RPAV-pilot(s)/commander(s) understanding of the operational environment in the context of the mission (including the RPAS condition and activities within that environment). Situational awareness information comprises data on: (a) The condition, health, position and activities of the RPAS; own and enemy forces; neutral aspects; (b) The environment; (c) The population, (in particular the ground population over which the RPAV(s) fly and the activities of other airspace users); (d) The infrastructure; and (e) Other forces/elements in the area of operations.
Sortie	An operational flight by one aeroplane.
Specification	Defined as a document that explicitly states the essential technical attributes/requirements for a product and procedures to determine that the product performance meets its attributes/requirements.
Specific Excess Power	The steady state rate of change of total energy when the aeroplane is flying at a specified altitude and speed and in a specified configuration.
Specific Humidity	The weight of water vapour per unit weight of air. .In meteorology it is applied strictly to the weight per unit weight of moist air but in physics and engineering it is used on both a moist air and dry air basis.
Specified Life	The safe life required under the Design Spectrum.
Specified Threat Effects	Those Threat Effects referred to in the Aeroplane Specification.
Stalling	The stall is the flight condition corresponding, as speed is decreased or angle of attack is increased, to the onset of one or more of the following: (a) Loss of control by virtue of wing or nose drop; (b) Uncommanded, intolerable pitching, rolling or yawing motions; (c) Intolerable buffeting or structural vibrations. For a particular configuration and power setting the stalling flight condition shall be stated in terms either of weight, load factor and speed or of angle of attack.
Standard Flame Burner	A burner giving a nominal flame temperature of 1100°C and the characteristics specified in ISO/TR 2685.
Static Allowable Value of Stress	The 'B' value of stress for a structural detail under the most adverse loading and environmental conditions arising in the critical design case for the detail. For composites these conditions apply with the detail at the most adverse moisture level that is expected to occur during the life. (The 'B' value is that below which not more than 1 in 10 items will fail with 95% confidence).
Static Test Factor	The ratio between the load that an item is required to withstand under test and the design ultimate load. The factor also applies to the proof load.
Still Air Range	The distance that can be flown in still air on the usable fuel remaining after deducting from the initial content the quantity required for starting, warming and running up the engines, taxying, take-off, and climb at best climbing speed to the height stated. The horizontal distance flown during the climb is credited to the range, but the corresponding horizontal distance in descending from the stated height is not included.
Structural Detail	Part of a component such as a joint, panel or structural or mechanical assembly.

Title	Definition
Submarining	In a crash landing or ditching with high downward and forward accelerations the body will tend to sink into the seat and, almost simultaneously, slide forward. Unless the restraint system is correctly designed the inertia forces on the hips will pull the torso under the lap belt.
Suction Defueling	A method of extracting fuel from the aeroplane tanks through a pipe system to a defueling connector on the aeroplane, from which it flows through a closed line to a receiver, when a negative pressure is applied to the defueling connector by an external pumping unit.
Support Facilities	All those elements of the RPAS that; together are required for the operation of the RPAV and its on-board systems. They can include the: RPAV's control equipment; Data link systems; Launch and retrieval systems; Ground, Sea or Air Platforms; or other support equipment. Support facilities could be part of an aircraft or ship where these are used as a launch, retrieval or control platform. RPAS Support Facilities may vary widely in their level of complexity. The simplest facilities may use commercial radio control equipment and be capable of operation by one man, with the RPAV normally only operating within visual range. Complex facilities may be static or mobile with the capability to control multiple RPAVs flying beyond visual range and having the ability to receive, process and disseminate complex data signals from on-board sensors.
Surge	Stall or surge occurs when the smooth flow of air through the compressor is disturbed. Although the terms are used synonymously, there is a difference, which is mainly a matter of degree. A stall generally only affects one stage or group of stages whereas a surge refers to a complete flow breakdown through the compressor. Due to the loss of pressure rise capability across the compressor stages the high-pressure air in the combustion system may be expelled forward through the compressor resulting in a loss of engine thrust. Stall & surge cause blade vibration, which can induce rapid aerofoil failure and subsequent destruction of the compressor.
Survivability	The capability of an aeroplane to avoid and/or withstand the effects of a combat environment.
Survivable Crash	A crash in which the range of impact conditions (including jerk and the magnitude, direction, and duration of declarative forces transmitted to the occupants) does not exceed the limits of human tolerance and in which the structure supporting and surrounding personnel remains sufficiently intact during and after impact to permit survival.
Susceptibility	The degree to which an aeroplane, equipment or weapon system is open to effective attack from a threat or threats.
Symmetric Manoeuvres	The definitions given in the British Standard Glossary of Aeronautical Terms (BS Specification No. 185) are recommended for general use. To avoid confusion, it is particularly important that alternative and undefined terms should be avoided in Static and Fatigue type records, strength calculation and test reports submitted for official approval.
System Failure	An occurrence in which essential system function is lost and in the context of full-time ACS may lead to loss of the aeroplane or termination of mission.
System Requirement	An intermediate step between the user requirement and system design. An abstract, internally consistent definition of what the system will do, and how well it will do it, in order to meet the user need.
Target Threshold speeds	The target speeds, V_{ATO} and V_{ATI}, at which the aeroplane passes through the reference screen height with, respectively, all powerplants operating and the critical engine failed.
Telemetry Data	Real-time, recorded or statistical parameters transmitted by the air vehicle to report, for instance, the status, condition, position, behaviour, and performance of the air vehicle, its subsystems and its payload(s).
Temporary Marking	Markings which ensure identification of the part during handling, manufacture and storage prior to assembly if practical considerations preclude permanent marking at those stages. Under certain conditions these markings may exhibit the characteristics of permanent markings.

Title	Definition
Testability	Testability is an element of both producibility and maintainability. Therefore, testability refers to the ability of both equipment manufacturer and the maintainer to establish the correct performance characteristics of the system/equipment.
Threat Effect	The definition of a Threat in terms of those physical characteristics which affect aeroplane design.
Threats	Those hostile elements of a combat environment which could reduce the ability of an aeroplane, its systems, and crew, to perform its mission.
Torching Flame	A torching flame is defined as the flame characteristic of that breaking- out from the primary zone of a defective engine combustor and derived from the ignition of a rich mixture of kerosene and air. (See also BS 3G100 Part 2: Section 3 Section 3.13: 1973 Para 2 and 4.2).
Torching Flame Resistant	Components and Equipment to this grade shall be capable of withstanding for a period of at least 2 minutes, the application of heat by a torching flame without any malfunction that would jeopardise the safety of the aeroplane, or failure that would aggravate an existing hazard (BS 3G100).
Trade-Off	The determination of the optimum balance between system characteristics.
Training Needs Analysis (TNA).	The identification of training requirements and the most cost-effective means of meeting those requirements.
Transient Pressure Allowance (TPA)	The pressure allowance above Pr for short duration transient increases in pressure arising from solenoid operation in some systems and from explosive forces in others. The allowance should be based on relevant experimental evidence, if available. It should be not less than 50%
Ultimate Load	The product of the limit load and the ultimate factor. Until the ultimate load is exceeded a structure or system shall not collapse, and the stress in every element shall not exceed their allowable values.
Unusable Fuel	The unusable fuel quantity for each tank and its fuel system components shall be established. The unusable quantity in each tank is that quantity at which first evidence of engine malfunction occurs when fed from that tank. The flight condition used to establish the unusable fuel quantity shall be discussed and agreed with the Project Team Leader. The possibility of sustained flight in a banked attitude (eg after engine failure) shall be considered. Fuel system component failures need not be considered.
User Requirement	An expression of a single and unique user need.
Vulnerability	The degree to which the Defined and Specified Threat Effects will degrade flight or mission capability.
Working Pressure (P_W)	The normal working pressure for which a particular part of the system is designed, and which must not be less than the minimum pressure necessary for efficient functioning of that part of the system.

B.2 ACROYNMS

Table 9 – Acronyms

Symbol/ Abbreviation	Meaning
AB	Aerobatics
AD	Aerial Delivery
AEA	Aircrew Equipment Assembly
AGV	Anti-G Valve
APC	Aircraft-Pilot Coupling
ASL	Above See Level
ATPD	Ambient Temperature and Pressure Dry gas
BC	Biological & Chemical
BOS	Back-up Oxygen System
CBRN	Chemical Biological Radiological and Nuclear
CG	Centre of Gravity
CL	Lift Coefficient
CR	Cruise
D	Descent
DMAFT	Development Major Airframe Fatigue Test
EAS	Equivalent Air Speed
EO	Emergency Oxygen
EMP	Electromagnetic Pulse
FB	Inceptor Breakout Force
Fs/n	Gradient of the curve of steady state pitch inceptor force versus normal acceleration factor at constant speed
FF	Close Formation Flying
GA	Ground Attack
h_{max}	Maximum Service Altitude
h_{omax}	Maximum Operational Altitudes
h_{omin}	Minimum Operational Altitudes
ISA	International Standard Atmosphere published by the International Civil Aviation Organisation
ISTA	Instructions for Sustaining Type Airworthiness
L	Landing (includes arrested landing)
LO	Loiter
LP	low Pressure
M	Mach Number
MAT	Maximum Augmented Thrust (and/or power): maximum thrust (and/or power), augmented by all means available for the Flight Phase, at which the engine can be operated for a specified period
MCT	Maximum Continuous Thrust (and/or power): maximum thrust (and/or power) at which the engine can be operated continuously (NRT in MIL-F-8785C)
M_L	Design Landing Mass
MS	Maritime Search and Support
MSL	Mean Sea Level
MSOC	Molecular Sieve Oxygen Concentrator
MT	Maximum thrust (and/or power): maximum thrust (and/or power augmentation, at which the engine can be operated for a specified period (MRT in MHF-8785C)
MTE	Mission Task Elements
n	Normal Acceleration Factor: component normal to the flight path of the total force on the aeroplane divided by the total weight of the aeroplane
n_L	The normal acceleration factor corresponding to the symmetrical flight limit load factor (based on structural considerations) for a given Aeroplane Normal State
n_{max} , n_{min}	Maximum and Minimum Service Normal Acceleration Factors: for a given altitude, the upper and lower boundaries of the normal acceleration factor, in the V-n diagram for the Service Flight Envelope
NTP	Normal Temperature and Pressure (15°C at 1 Atmosphere)
n_α	The steady state normal acceleration factor change per unit change in angle of attack for a small deflection of the pitch inceptor at constant V (rad^{-1}) speed (rad^{-1})

	$n_\alpha = \frac{dn}{d\alpha}$ or $\frac{\Delta n}{\Delta \alpha}$ over the range of interest
OBOG	On-Board Oxygen Generator
OBOGS	On-Board Oxygen Generating System(s)
OME	Ordnance Munitions and Explosives - includes missiles, rockets and bullets
OS	Overshoot
PA	Approach (includes instrument approaches)
PAO_2	Partial pressure of oxygen in the alveolar gas
PBA	Pressure Breathing at Altitude
PBG	Pressure Breathing with G
PCD	Pump Case drains
PFL	Power for Level Flight
PMAFT	Production Major Airframe Fatigue Test
PSA	Pressure Swing Adsorption
RC	Reconnaissance
RF	Radio Frequency
RR	Air-to-Air Refuelling (receiver)
RT	Air-to-Air Refuelling (tanker)
SII	Speech Intelligibility Index
SL	Short Landing
SOI	Statement of Operating Intent
STO (or ST)	Short Take-Off
STOVL	Short Take-Off Vertical Landing
t	Time
T_2	Time to Double Amplitude
TAS	True Air Speed
TF	Terrain Following
TO	Take-Off
TT	Terminal Transition and steady flight between V_{CON} and V_X
V_A	Design Manoeuvring Speed
V_B	Design Speed for Maximum Gust Intensity (V_g in some texts)
V_{BL}	Baulked Landing Speed
V_{AT0}, V_{AT1}	Target Threshold Speed with all engines operating, one engine inoperative
VC	Maximum Speed for n1.
V_C	Design Cruise Speed
V_{CON}	Maximum Speed for VSTOL Flight
V_{CRIT}	critical Speed in aborted Take-Off
V_D	Maximum design diving Speed
V_{END}	Speed for Maximum Endurance
V_F	design Flap Speed
V_{FL}	Flap Limit Speed
V_{GLIDE}	Design Optimal Glide Speed
V_H	Maximum Speed in Level Flight at Maximum Continuous Power
VIFF	(thrust) Vectoring in Forward Flight
V_{MinD}	Speed for Minimum Drag Power in Level Flight (jet propelled aeroplanes)
V_{MinP}	Speed for Minimum Drag Power in Level Flight (propeller driven aeroplanes)
V_M	The Normal Sustained Speed required by the basic missions in the Air System Specification
VL	Vertical Landing
VMAT	Maximum Speed at MAT in level flight
VMCT	Maximum Speed at MCT in level flight
VMT	Maximum Speed at MT in level flight
V_{MAX}, V_{MIN}	Maximum and Minimum Service Speeds
V_{MCA}	Minimum Control Speed in Free Air
V_{MCG}	Minimum Control Speed On or Near the Ground
V_{MCL},	Minimum Control Speed During Landing Approach with all Engines
V_{MCL-1},	Operating, One Engine Inoperative
V_{MCL-2}	Operating, 2 Engines Inoperative
V_{Omax}	Maximum Operational Speeds

V_{Omin}	Minimum Operational Speeds
V_R	Rotation Speed
V_{range}	Speed for Maximum Range in Zero Wind
$V_{R/C}$	Speed for Maximum Rate of Climb
V_S	Minimum Permissible Speed in Steady Straight Flight
$^{V}S_0$	VS with Flaps in the Landing Position, Undercarriage DFown and Engine(s) throttled Back
V_{S1}	VS with the aeroplane in the Configuration Appropriate to the Case Under Consideration
V_{S2}	VS with Flaps and Undercarriage Retracted and Engine(s) Throttled Back
V_{TO}	design Take-Off speed
VSTOL	Vertical Short Take-Off Landing
VTO (or VT)	Vertical Take-Off
V_V	design Vertical Velocity
V_X	Speed which Establishes the Upper Limit of the Hover and Low Speed range of VSTOL Air Systems
WD	Weapon delivery/Launch
W, X, Y, Z	Standard Loadings
V_1	decision Speed for Continued Take-Off of multi-engine aeroplanes following sudden loss of thrust from one engine
V_2	Take-Off Safety Speed
α	Angle of Attack
α_s	Angle of Attack at V_S in Steady Straight Flight
β	Sideslip Angle at the Centre of Gravity
ζ_D	Dutch Roll Damping Ratio
ζ_P	Phugoid Damping Ratio
ζ_{sp}	Longitudinal Short Period Damping Ratio
τ_R	Roll Mode Time Constant (the approximate time taken to achieve 0.632 of the steady roll rate)
φ	Bank Angle
$\lvert\varphi\beta\rvert_D$	The Ratio of the Amplitude of the Bank Angle and Sideslip Angle envelopes in the Dutch Roll
ω	Temporal Frequency (rad/s)
ω_D	Dutch Roll Undamped Natural Frequency
ω_P	Phugoid Undamped Natural Frequency
$^{\omega}SP$	Longitudinal Short Period Undamped natural Frequency
NOTES:	Unless otherwise stated, air speeds are EAS. Maximum speeds are to be interpreted, at a given altitude, as the maximum air speed or the maximum Mach number, whichever is limiting

ANNEX C

ADS DEF STAN 00-970 REQUEST FOR CHANGE.

Reference	Def Stan 00-970 Part 0, Annex C.

Part 1 - Originator				
Title / Address		Reference		
		Contact number		
		e-mail		
Subject Text - Location Details				
Part	Section	Clause	Sub-Clause	Additional.
Subject title				
Subject Text *				
Proposed Text **				
Rationale ***				
Originator’s Signature	Name	Appointment	Date	

Part 2 - Editor		Date Received	
Accepted	Yes / No	ADS RFC Reference	
Reason if rejected			
Reply to Originator		Date Sent	
Internal resolution	Yes / No	Date Actioned	
Actioned SME		Date Sent	
		Date Returned	
External Resolution	Yes/No	Date Actioned	
Actioned SME		Date Sent	
		Date returned	
Resolution	Incorporation at Issue xx	Date Closed	
	NPA xxxx-xxx	Date transferred	

* Copy the selection of original text requiring review.

** Proposed new text if SME; this box can be left blank.

*** Narrative description of the issue with current text, reference to other documents if known.

Continuation sheets are acceptable and are to be referred to in each applicable area.

When completed send to DSA-MAA-Cert-ADSGroup@mod.gov.uk

SECTION 3

Due to the formatting and nature of Def Stan 00-970 the normative and informative references, abbreviations and definitions have been included in the Annexes of this document.

Defence Standards are published by and obtainable from:

Defence Equipment and Support

UK Defence Standardization

Kentigern House

65 Brown Street

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DStan Helpdesk

Internet e-mail: enquiries@dstan.mod.uk

File Reference

The DStan file reference relating to work on this standard is 01374/2020.

Contract Requirements

When Defence Standards are incorporated into contracts, users are responsible for their correct application and for complying with contractual and statutory requirements. Compliance with a Defence Standard does not in itself confer immunity from legal obligations.

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