

## DEF STAN 00-970 NOTICE OF PROPOSED AMENDMENT (Def Stan 00-970-NPA)

### TITLE OF PROPOSAL:

Def Stan 00-970 Part 3 Issue 1 incorporating EASA CS 23 amendment 4

### Stage of Amendment:

Release of Issue one.

Def Stan 00-970  
 NPA Serial No: 2016-002

Unsatisfactory  
 Report Serial No: n/a

MAA Originator:	Grade/Rank	Name	Post
	C2	[REDACTED]	DSA-MAA-Cert-ADS1b

Affected Part:  
 (including paragraphs) Def Stan 00-970 Part 3 (New Issue)

Cross-reference to other  
 relevant amendment n/a  
 proposals or documents:

### ADS Point of Contact details

Rank/Grade and Name: As above

Telephone Number mil/civ; 9679 35379 030 679 35379

Civilian Email address: DSA-MAA-Cert-ADS1b@mod.gov.uk

### Part 1 (for issue to User Community)

#### INTRODUCTION (*Not more than 250 words*)

In order to comply with current regulation (RAs 5810 and 5820) this part of Defence Standard 00-970 applies the requirements of EASA CS 23 Amendment 4 and additional Military Certification Specifications to enable an aeroplane certified in accordance with this standard to be entered onto the UK Military Register for operations in the UK Military Operating Environment.

## SUMMARY OF PROPOSED AMENDMENT

**Change:** *New Issue.*

Defence Standard 00-970 Part 3 Design and Airworthiness Requirements for Service Aircraft – Small and Medium Aeroplanes.

In order to enable new designs and significant changes (modifications) to comply with European Certification Specifications (CS), this Standard has been based on CS 23 amendment 4 (extant at time of Part 3 development). Additional military certification requirements have been applied to enable an aeroplanes designed and certified in accordance with this standard to be entered onto the UK Military Register and also provide the military certification specifications for acceptance of applicable civil conversions to be certified for military use.

### Impact Assessment:

#### Objective:

This standard will provide design certification requirements for the design of new small and medium aeroplanes and major changes to existing air systems in the small and medium aeroplane category, for operation in the UK military environment. It will also enable designs to be compliant with European civil legislation, negating the current need for special conditions and waivers for operations in the European civil environment.

### Risk Assessment:

The impact of not incorporating the recommended changes is the probability of misinterpretation of the requirement in that all fixed wing design requirements would remain in the current Def-Stan 00-970 Part 1. With the Standard being cited by regulation as baseline Type Certification Basis for aeroplanes to be certified for operation in the UK military environment i.a.w. RAs 5810 and 5820.

The increasing complexity and diversity of aircraft specifications make it necessary to raise separate requirements for the different types of aircraft to be operated i.e. helicopters, small and medium sized aeroplanes and large transport type aeroplanes therefore the current system is about to become obsolete through update and change via the 00-970 Transformation Project and a new standard is therefore essential.

### Courses of Action.

1. **Do nothing.** *Not an option for reasons stated above.*
2. **Partial Amendment.** *Not an option.*
3. **Full Amendment.** *Provides a standard tailored for this category of aeroplane saving in cost and time.*

**Preferred Course of Action.** New Issue

**Costs and Benefits:**

1. ***Do nothing.*** *Not an Option.*
2. ***Partial Amendment.*** *Not an Option.*
3. ***Full Amendment.*** *Provides a standard tailored for this category of aeroplane saving in cost and time.*

**Consultation period ended: 01/02/2017**

The consultation period for this proposed amendment ends on the stated date. Please send your feedback via email to [DSA-MAA-Cert-ADSGroup@mod.gov.uk](mailto:DSA-MAA-Cert-ADSGroup@mod.gov.uk).

## Part 2 (for MAA internal use)

**Log of Comments** (to be completed once the consultation period has ended).

Comment reference	Date	From (name)	Post	Précis or Topic of Comment	MAA Response
See attached NPA feedback. Annex A					

**Recap of Proposal:** *Produce and release a first issue of the Defence Standard 00-970 Part 3 Design and Airworthiness Requirements for Service Aircraft – Small and Medium Type Aeroplanes.*

### Recommendation.



*The recommendation is for the relevant Head of Division to approve the proposal.*

**Approval.** *This section will detail exactly what has been approved and by whom, and confirm the date for the amendment to be incorporated as well as the date the NPA should be reviewed to determine what the effects of the amendment were in terms of meeting the objective of the change, if there were any unintended consequences and establishing whether the estimated costs were correct.*

Accepted changes will be authorised at the following levels:

- Changes to be retrospectively mandated: 2\* Director Technical
- Changes introducing novel or contentious requirements or resulting in major change to requirements but not retrospectively mandated: 1\* Head Reg/Cert.
- Changes having a significant engineering impact but not retrospectively mandated: OF5/B1 Dep Head Reg & Cert
- Changes having a Minor engineering impact but not retrospectively mandated: OF4/B2 SO1 S and ADS
- Changes which are editorial or administrative but not retrospectively mandated: OF3/C1. ADS1/2


Approved by:

Signature:	
Name:	
Rank/Grade:	Captain RN
Post:	DSA-MAA-Cert-Dep Hd
Date signed:	12/6/17
Date for amendment to be incorporated:	June 2017

**Part 3 - NOTIFICATION OF AUTHORIZED AMENDMENT (Def Stan 00-970 NAA)**

Document Part:	<i>3</i>	Sub-Part:	<i>all</i>
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Unsatisfactory Report Reference:	<i>n/a</i>	NPA Reference:	<b>2016- 002</b>
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Originator:		Date:	<b>09/05/2017</b>
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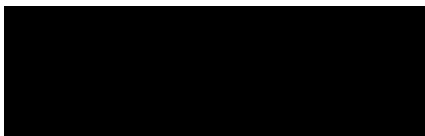
Amendment to be Incorporated on:	<b>June 2017</b>
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**APPROVAL**

*This Def Stan 00-970 NAA has been approved by the 00-970 Working Group on behalf of Director MAA*

**INCORPORATION**

*New Issue*



***Signed (IAW with part 2).***

**For D MAA**

Serial No.	Pt3 Section 2 Ref	Req	Raised By	Comment	MAA Decision	Action Taken	Status
<b>NPA 2016/002 /001</b>	UK23.1445a-j	Oxygen distribution system CBRN compatibility requirements.	DSA-Maa-cert-asd2RW	UK23.1445a to j should be moved to section 3 as they do not relate to the content of the CS requirements.	Accepted	See RFC action these requirements to be removed as transfer to Pt13 complete wef next up-issue.	Closed
<b>NPA 2016/002 /002</b>	UK23.473c & UK23.721c	Trampling of Aerodrome Arresting Gear Hook Cables	DSA-Maa-cert-asd2RW	Both requirements are identically worded	Not Accepted	n/a	Closed
<b>NPA 2016/002 /003</b>	All	n/a	DAT 20161114 -- NPA comments - 3	There is no consistent use of full stops at the end of sentences.	Accepted	Full Stops removed from all Titles and punctuation reviewed ADS1b 20170222	Closed
<b>NPA 2016/002 /004</b>	All	n/a	DAT 20161114 -- NPA comments - 3	Many subpart titles are not numbered	Accepted	Dstan have issued a requirement to reformat all standards, this has had the effect of addressing this issue. ADS1b 20170222.	Closed
<b>NPA 2016/002 /005</b>	All	all	DAT 20161114 -- NPA comments - 3	Remove references to other Def Stans and include requirement in the Part 3. - What will happen when Part 1 gets transformed? - Use links to data in DOORS.	Partial Accept	Some references have been removed and replaced where the text of the other DefStan is paragraph size. Otherwise it will be carried out during Transformation. ADS1b 20170208	Closed
<b>NPA 2016/002 /006</b>	All	all	DAT 20161114 -- NPA comments - 3	Remove references to Team Leader/TAA	Partial Accept	<b>S&amp;ADS Review 20170403</b> Ageed that in the short term, reference should in the main be to the TAA dependent on the context of the requirement. Needs to be re-visited during transformation.	Closed

<b>NPA 2016/002 /007</b>	All	all	DAT 20161114 -- NPA comments - 3	Use amdts when referring to other specifications	Not Accepted	n/a	Closed
<b>NPA 2016/002 /008</b>	UK23.3a	Aeroplane Classification.	DAT Cert 1	UK23.1a Applicability refers to small, light aeroplanes and medium weight and to meet the requirements of CS23.1 which limits the aeroplane to 5670Kg or, 8618Kg for propeller-driven twin-engined aeroplanes, so is it realistic to refer to aeroplanes in Class III?	Accepted	Wording agreed by S&ADS 20170419 Part 3 master updated	Closed
<b>NPA 2016/002 /009</b>	UK23.45a	Performance External Loads	DAT Cert 1	Part 1 Section 7 Clause 7.1.7 states: 'All external load combinations appropriate to the tasks as defined in the Aeroplane Specification or as required by the Project Team Leader (PTL) shall be considered.'	Accepted	Reference removed and Pt 1 text inserted BJ 20170309	Closed
<b>NPA 2016/002 /010</b>	UK23.45b	Range, Combat Radius and Endurance	DAT Cert 1	Part 1 Section 7 Clause 7.3.15 states: The range of the aeroplane in level cruising flight shall be evaluated for the atmospheric conditions, configuration, external load and Powerplant conditions as specified in Clause 7.2 for all appropriate combinations of altitude, speed or Mach Number, mass and stores configuration.	Accepted	Requirement text added and reference removed. BJ 20170301	Closed



NPA 2016/002 /011	UK23.77a	Crosswind landings	DAT Cert 1	CS23.55 implies that means other than wheel brakes can be used. <a href="#">CS23 Book 2 29 PARAGRAPH 23.75 LANDING</a> 'Demonstration of landing with an adverse crosswind of at least 0.2 VS0 will be acceptable and operation on wet (but not contaminated) runway surfaces may be simulated by disconnecting nosewheel steering.' Also Chapter 6 (14) Landing Distance. The landing distance from a height of 15 m (50 ft.) should be presented together with associated ambient temperature, altitude, wind conditions, and weights up to the maximum landing weight. Operational landing distance data should be presented for smooth, dry, and hard surfaced runways. With concurrence by the Agency, additional data may be presented for wet or contaminated runways, and for other than smooth, hard surfaced runways. Suggest this is guidance?		Bullet points typo corrected BJ 20170309. S&ADS review 20170403 Place statement in sect 2.1 that the CS.23 FTG provides guidance on test aspects??? More work required.  <a href="#">See revised Section 2 para.1.2.2 BJ 20170410</a> "Unless otherwise specified in this Standard, the certification requirements of EASA CS23 including related AMC, Appendices and <a href="#">Flight Test Guide</a> shall be applied. "  Wording agreed S&ADS 20170419 Closed	Closed
NPA 2016/002 /012	UK23.145a	Longitudinal Control	DAT Cert 1	Why are Pt 1 Section 2 clauses 2.6.1 to 2.6.26 being referenced? Question clause 2.6.26 - should this refer to 2.1.26 and if so is it now covered under UKCS23.145	Not Accepted	n/a	Closed
NPA 2016/002 /013	UK23.149a	Effect of Engine Failure	DAT Cert 3	CS 23 appears to capture the intent of Part 1 section 2.14 guidance on what specific paragraphs are considered to be important beyond the CS 23.149 requirement.	Accepted	Removed BJ 20170315	Closed



<b>NPA 2016/002 /014</b>	UK23.153a	Circuit, Approach. Landing and Overshoot	DAT Cert 3	Part 1 section 2.5 refers out to section 2.22 Lateral And Directional Flying Qualities and CS 25.125 , CS 25.149. guidance on what specific paragraphs are considered to be important beyond the CS 23.153 / CS 23.149 requirements.	Not Accepted	n/a	Closed
<b>NPA 2016/002 /015</b>	UK23a.155a	Inceptor Feel and Stability in Manoeuvring Flight	DAT Cert 3	Part 1 section 2.21.9-13 refers to Leaflet 44, which in turn refers to leaflet 43. Clearly there is additional technical information within the clauses and leaflets , however it is unclear how they are required beyond a normal CS 23 certification activity. Clarification is required as what the military delta beyond CS 23 operations is so that an assessment can be made to include in TCB or not.	Not Accepted	n/a	Closed
<b>NPA 2016/002 /016</b>	UK23.207a	Stall Warning	DAT Cert 3	It is unclear how CS 25.207 will improve the safety of the platform - guidance is required to identify where the risk lies to allow analysis to be carried out	Not Accepted	S&ADS review 20170403 Agreed to reject	Closed
<b>NPA 2016/002 /017</b>	UK23.233b	Directional Stability	DAT Cert 1	The requirement clearly differs from the CS , however it is unclear whether this falls into the "capability" area of a requirements specification as the aircraft will be airworthy if it remains inside the CS25 envelope and may not be required to operate at the 00-970 Levels	Not Accepted	n/a	Closed
<b>NPA 2016/002 /018</b>	UK23.301a	Loads	DAT Cert 1	The only delta from the information within CS 23.301 to CS 23.307 related to proof load tests is covered later in UK303a.	Not Accepted	n/a	Closed

<b>NPA 2016/002 /019</b>	UK23.351a	Cross Coupling Considerations	DAT Cert 1	Are the references to CS25 correct?	Accepted	S&ADS review 20170403 Agreed	Closed
<b>NPA 2016/002 /020</b>	UK23.397a	Control System Loads			Accepted	Corrected ADS1b 20170222	Closed
<b>NPA 2016/002 /021</b>	CS23.531	Hull and Main Float Landing Conditions		In CS23 this section is 'Hull and main float take-off condition'	Not Accepted	Pt 3 and Pt 5 utilise the Microsoft Office Title format.	Closed
<b>NPA 2016/002 /022</b>	UK23.603a	Marking of Aircraft Parts	DAT Cert 1		Not Accepted	n/a	Closed
<b>NPA 2016/002 /023</b>	UK23.609a	Dust and Sand Proofing	DAT Cert 1		Not Accepted	n/a	Closed

<p><b>NPA 2016/002 /024</b></p>	<p>UK23.671a</p>	<p>Reduction of Vulnerability to Failure</p>	<p>DAT Cert 1</p>	<p>Does CS23.1309 cover this requirement? Why has combat been removed?</p>	<p>Partial Accept</p>	<p>S&amp;ADS review 20170403 Reword this requirement but also place comment in 1309 BJ &amp; Struct 1a "Where an aeroplane may operate, carry or be fitted with hazardous equipment or materials (e.g. flares, munitions or high energy rotating components), consideration shall be given to minimise any damage to the essential controls (electrical, digital or mechanical) that are vital to the safety of the aeroplane should failure occur" Wording agreed S&amp;ADS 20170419.  <b>UK23.1309c change required.</b> "The requirements of CS23.1309 shall also be applied where the aeroplane in its military role will be required to operate, carry or be fitted with hazardous materials e.g. flares, munitions, items containing high energy electrical or rotating components etc. " S&amp;ADS agreed 20170424.</p>	<p>Closed</p>
<p><b>NPA 2016/002 /025</b></p>	<p>UK23.671b</p>	<p>Unconventional Controls</p>	<p>DAT Cert 1</p>		<p>Accepted</p>	<p>Ref placed in guidance BJ 20170315</p>	<p>Closed</p>

<b>NPA 2016/002 /026</b>	UK23.672a	Active Control Systems (where fitted)	DAT Cert 1	This was removed from Part 5 so why is it in Part 3	Not Accepted	n/a	Closed
<b>NPA 2016/002 /027</b>	UK23.735a	Parking Brake	DAT Cert 1	Is this really a cert requirement - more capability for 24 hours? Why are flying control locks mentioned?	Not Accepted	n/a	Closed
<b>NPA 2016/002 /028</b>	UK23.735b	Capacity of the Normal Power Supply	DAT Cert 1	Why 10? Isn't civil req't not good enough  MAA's comment on Pt 5 Recommend reject. Unclear where the requirement originates from however insufficient argument to reduce requirement.	Not Accepted	n/a	Closed
<b>NPA 2016/002 /029</b>	UK23.735c	Dissipation Of Brake Pressure	DAT Cert 1	MAA's comment on Pt 5 'This requirement is covered in CS 25.1435 and therefore this Def Stan 970 requirement can be removed.' The req't has not been removed from Part 5. Recommend removal from Pt 3 and Pt5 in time.  this is covered under CS 25.1435 and AMC 25.1309	Accepted	<b>Removed BJ 21070315</b>	Closed

<b>NPA 2016/002 /030</b>	UK23.735d	Anti-Skid System	DAT Cert 1	Does not reflect changes made to Pt5. CS23 states: (d) If anti-skid devices are installed, the devices and associated systems must be designed so that no single probable malfunction or failure will result in a hazardous loss of braking ability or directional control of the aeroplane. Is this appropriate for all aeroplanes in this class?	Accepted	ADS1b Change wording to 'Unless otherwise stated in the Aeroplane Specification, an anti-skid system approved by the Project Team Leader shall be provided for all braked wheels. CS23 and AMC Anti-Skid requirements shall be met.'  Wording changed BJ 20170315	Closed
<b>NPA 2016/002 /031</b>	UK23.771a	Colour Standards at Crew Stations	DAT Cert 1	MAA's comment on Pt 5 Not a structures requirement. However consideration should be given to the requirement being presented as "Crew station colour schemes shall be considered by the PTL with consideration to ergonomic, HF and use of NVG's . Requirements shall be agreed with the Design Organisation in determining the colour scheme to be applied at crew stations." Compliance should be as per Pt 1 sect 7.4.15-16 and STANAG 3701. Is reference to reference out to CS25.1322 correct?	Partial Accept	<b>Guidance para (b) corrected from Air Staff to PTL BJ 20170309</b>	Closed

<b>NPA 2016/002 /032</b>	UK23.773e	Visual lookout facilities	DAT Cert 1	<p>MAA's comment on Pt 5 This requirement is dependant and ensures visual requirements for reconnaissance type aircraft is needed dependant on aircraft role,. Therefore reject recommendation. This is not a certification requirement as written, it's an operational requirement, in addition it is impossible to achieve compliance with the word 'good'; rewrite.</p> <p>Question whether this is a cert req't - Covered by UK23.773a?</p>	Accepted	<p>S&amp;ADS review 20170403 Requirement not needed <b>DELETED</b> BJ 20170410</p>	Closed
<b>NPA 2016/002 /033</b>	UK23.775a	Sun Blinds	DAT Cert 1	<p>MAA's comment on Pt 5 Agree remove Str4a 6/1/15. Endorsed Struc4 6/1/15.</p>	Partial Accept	<p>I tend to agree with BJ that some medium sized reconnaissance aircraft might require this particular delta for transparencies. Recommend it remains. MAC 06/03/2017</p> <p>ADS1bchanged wording</p>	Closed
<b>NPA 2016/002 /034</b>	UK23.785a	Crew restraint - Open door in Flight	DAT Cert 1	<p>MAA's comment on Pt5: Accept comment and re-write requirement to read "Open Doors in Flight, Crew Restraint - A suitable attachment point shall be provided for a suitable crew harness configuration when operations require crew members to stand near an open door in flight".</p>	Not Accepted		Closed

<b>NPA 2016/002 /035</b>	UK23.811a	Emergency Exit Marking Military	DAT Cert 1		Accepted	Suggested Wording (BJ) " dependent on the type and role of the aeroplane, the PTL/TAA shall, in consultation with MAA/CAA, decide the use of either CS23.811 or UK23.811a" Endorsed by MAC 21/3/17 Updated and closed BJ 20170321	Closed
<b>NPA 2016/002 /036</b>	UK23.841a	Pressurised Cabins	DAT Cert 3	<p>Agree to remove most of Def Stan reqmt. however certain Clause 3.7 reqmts. should be retained (in addition to CS25.841). Replacement wording for UK841 is below:</p> <p>UK841a - In addition to the requirements of clause CS25.841 (provision of cabin pressure altitude of not more than 2438 m (8000 ft.) at the maximum operating altitude under normal operating conditions), the maximum cabin differential pressure shall be as high as possible consistent with weight and other considerations. At least it shall be such that a cabin altitude of 1,850 m (6,060 ft.) is maintained at the maximum cruising altitude stated in the Aeroplane Specification. UK841b - Means shall be provided whereby the pressure differential can be reduced to zero at any altitude. Caution information must be provided to alert the crew when the aeroplane is under controlled depressurisation flight conditions above 8 000 ft. to remind them that oxygen supply for the crew and occupants is required.</p> <p>May need to consider types(class), i.e. fast jet vs. commuter - more work needed</p>	Partial Accept	Amended requirement incorporated into Master doc BJ 20170309 Closed.	Closed



<b>NPA 2016/002 /037</b>	UK23.851a	Hand Fire Extinguishers	DAT Cert 1	Is reference to CS25.851 correct?	Accepted	Reference changed ADS1b 20170222	Closed
<b>NPA 2016/002 /038</b>	UK23.999	Fuel Systems Drains	DAT Cert 1	In CS23 this section is 'Fuel system drains'	Not Accepted	Pt 3 and Pt 5 utilise the Microsoft Office Title format.	Closed
<b>NPA 2016/001 /039</b>	CS23.1306	Electrical and Electronic System Lightning Protection	DAT Cert 1	CS23 refers to AMC20-136 is this not applicable?	Not Accepted	UK1306a raised . BJ 20170321 Closed	Closed
<b>NPA 2016/001 /040</b>	UK23.FTG	Flight Test Guide, Military Requirements		states 'In addition to the CS23 Flight Test Guidance, the additional Military (UK23.nn ) requirements ..... '	Accepted	Re written as per MAA comments BJ 20170309 Pt1 Sect 2 reference to be resolved during Transformation.	Closed
<b>NPA 2016/001 /041</b>	UK23.321a	Operational Flight loads - General	DAT Cert1	This is not a certification requirement	Partial Accept	Pt3 Draft updated BJ 20170331	Closed