

NPA/25/34

Title of Proposal: 5000 Series bi-annual up-issue

RA(s) or Manual Chapter(s): RA5012, RA5405, RA5726, RA5810, RA5850.

Organizations and / or business sectors affected: Delivery Teams & Design Organizations.

RFC Serial No: RFC_2024_195, 2025_011, 2025_043, 2025_050, 2025_053, 2025_077, 2025_086, 2025_114.

MAA Author

Post	Name	Rank	Signature
DSA-MAA-Reg-Eng-5000	Redacted	Redacted	Redacted - Original Signed

MAA Supervisor

Post	Name	Rank	Signature
DSA-MAA-Reg-Eng	Redacted	Redacted	Redacted - Original Signed

MAA Independent

Post	Name	Rank	Signature
DSA-MAA-Reg-Eng-1000	Redacted	Redacted	Redacted - Original Signed

MAA LegAd (if required)

Post	Name	Rank	Signature
N/A	N/A	N/A	N/A

Cross-references to Other Documents or Relevant Sources

Other MRP Amendments: N/A

Service Inquiry Recommendations: N/A

AAIB Recommendations: N/A

Other Investigation Recommendations: N/A

Any Other Document: N/A

Feedback Notes for the Regulated Community

The Regulated Community are invited to offer feedback about the proposed amendment in the following areas:

- Air or Flight Safety impact
- Operational impact
- Errors or omissions

- Timescale for implementation
- Cost of implementation
- Amendment to internal processes/orders
- Resourcing the outcome of change
- (Contract amendments because of the change)

The format for feedback is available within a single Excel Template file on both internal and external MAA websites; it is important to use this format to ensure that your responses are considered and answered correctly.

Summary of Proposed Amendment

Objective: Enhance clarity and update terminology.

Changes made:

RA 5012 – Terminology updates. Better clarity with regard to ITE. New para 29. Para numbering changed from para 29 (2 paragraphs).

RA 5405 – Terminology updates. Minor admin updates. No change in para numbering. Footnote numbering changed throughout.

RA 5726 – Terminology updates. Minor admin updates. Para numbering changed from para 21.

RA 5810 – Terminology updates. Minor admin updates. Para numbering changed from para 50.

RA 5850 – Minor admin updates. Introduction of ‘Substantial Major’ and ‘Significant Major’ changes in para 71.d.(2).

Impact Assessment: Minor

Consultation Period Ends: 4 weeks

The consultation period for this proposed amendment ends on the stated date. Please send your feedback, using the Response Form, via email to DSA-MAA-MRPEnquiries@mod.gov.uk

MAA Approval

Post	Name	Rank	Signature
DSA-MAA-OpAssure-Eng-DepHd	Redacted	Redacted	Redacted - Original Signed

RA 5012 - Type Airworthiness Safety Assessment

Rationale

Type Airworthiness (TAW) is a key element of an Air System Safety Case (ASSC)¹. A TAW Safety Assessment (TASA) will provide a reasoned and evidenced argument that the Air System is safe to operate in a clearly defined context. Failure to articulate a comprehensive argument supported by evidence is likely to undermine the ASSC. This RA sets out the specific requirements for a TASA to include claims, arguments and evidence, subject to independent evaluation and Assurance, in support of the ASSC.

Contents

5012(1): Type Airworthiness Safety Assessment

Regulation 5012(1)

Type Airworthiness Safety Assessment

5012(1) The TAW Authority (TAA) or TAW Manager (TAM)² **shall** own and manage a TASA.

Acceptable Means of Compliance 5012(1)

Type Airworthiness Safety Assessment

1. The TAA or TAM **should** initiate and maintain a TASA for each Air System type they have responsibility for³.
2. Under arrangements for Civilian Operated Air Systems which invoke a TAA and TAM⁴, the TAA **should** maintain the TASA and produce the necessary TASA **► Report ◀** (TASAR). Under arrangements for Special Case Flying², the TAM **should** maintain the TASA and produce the necessary TASAR.
3. The TASA **should** consist of a claim (or number of claims), a structured and explicit argument, and supporting body of evidence, that together provide a compelling, comprehensible and valid case in support of the ASSC that the Air System is safe to operate within defined limits.
4. The TAA or TAM **should** ensure that regardless of structure, the TASA:
 - a. Defines the Configuration and operating environment (referencing the Statement of Operating Intent / Statement of Operating Intent and Usage⁵) of the applicable Air System.
 - b. Has scope and boundaries aligned with those defined in the TAW Strategy⁶.
 - c. Describes the Safety requirements, targets and attributes.
 - d. Provides a justification for the Airworthiness of the design.
 - e. Is supported by Safety analysis⁷.
 - f. Identifies the limitations and procedures⁸ necessary to achieve the required level of Safety for the subject Configuration.
 - g. Takes account of the Minimum Equipment List if applicable⁹.

Type Airworthiness Safety Assessment Report

5. The TASA **should** be summarized in a TASAR.
6. The TASAR **should** be produced to support the ASSC¹ as part of the Military Aircraft Registration activation request.

¹ Refer to RA 1205 – Air System Safety Cases.

² Refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems.

³ A single TASA can be maintained to cover variations in the Type Design providing the assessment of each variation is clear, whether using a compatibility matrix or other method.

⁴ Refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems.

⁵ Refer to RA 5726 – Integrity Management.

⁶ Refer to RA 5010 – Type Airworthiness Strategy.

⁷ Refer to Def Stan 00-056 – Safety Management Requirements for Defence Systems.

⁸ Including where appropriate reference to the Support Policy Statement. Refer to RA 5407 – Support Policy Statement.

⁹ Refer to RA 1300 – Release To Service.

Acceptable Means of Compliance 5012(1)

7. The TASAR **should** be updated as a complete new issue:
 - a. At least every 5 years for an In-Service Air System.
 - b. Following Major Type Design Change (TDC)¹⁰.
 - c. Additionally, as determined by the TAA or TAM.
8. For all other Air System changes, the TASAR **should** be reviewed and updated with an Addendum to the previous Report, ensuring that the content of the addendum does not alter the validity of the claims, arguments and evidence within the TASAR main body.
9. The TAA or TAM **should** make a declaration regarding the validity of the TASAR and any addenda at the Type Airworthiness Safety Panel (TAWSP)¹¹. If this declaration cannot be made then a new issue of the TASAR **should** be produced.

Independent Evaluation and Audit

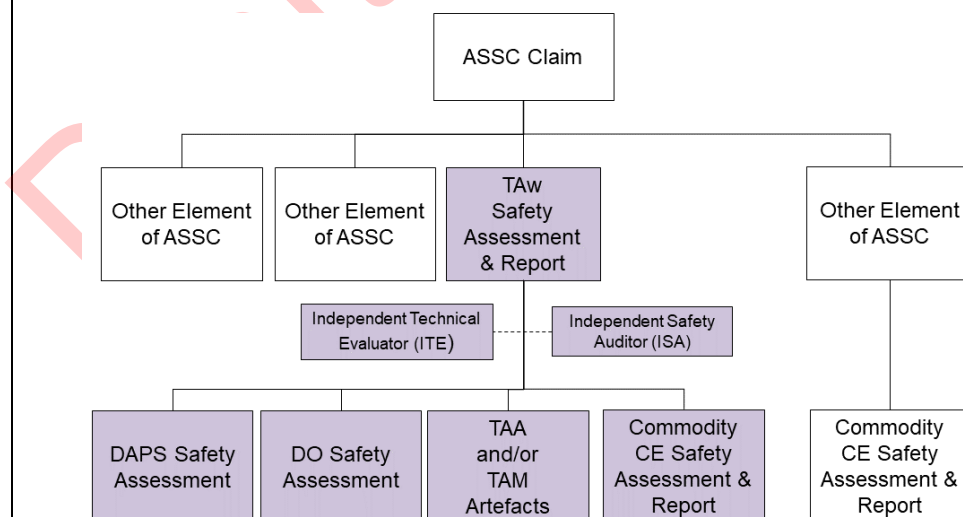
10. The TAA or TAM **should** ensure that the TASA is subjected to evaluation by a Competent and suitably qualified Independent Technical Evaluator (ITE), independent of the outcome or processes they are reviewing, and recognized by the TAA or TAM as a Subject Matter Expert in the field which is being reviewed.
11. The TAA or TAM **should** ensure that the TASA is subjected to Audit in accordance with Defence Standard (Def Stan) 00-056, by a Competent and suitably qualified Independent Safety Auditor (ISA), independent of the outcome or processes they are reviewing.

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Type Airworthiness Safety Assessment

12. The TASA will need to be treated as Airworthiness information¹².
13. The TAw Strategy will define the TASA boundaries and articulate commodity items that are controlled by the TAw Safety Management System. Therefore, the claim(s), arguments and supporting body of evidence within the TASA can include Equipment Not Basic to the Air System (ENBAS)¹³; Air Launched Weapons (ALW)¹⁴; and Commodity Delivery Team¹⁵ Safety Assessments and integration evidence, in addition to TAA-sourced Type Design Artefacts and other externally provided assessments, such as those provided by Defence Aircrew Publications Squadron (DAPS)¹⁶ or ▶ an ◀ ITE. This relationship of artefacts is shown in Figure 1.

Figure 1. Relationship of ASSC



¹⁰ By exception, agreement for the use of the TASAR addendum procedure may be gained from the MAA as part of the Form 30 process. Refer to RA 5820 – Changes in Type Design (MRP 21 Subpart D).

¹¹ Refer to RA 5011 – Type Airworthiness Safety Management System.

¹² Refer to RA 1225 – Air Safety Documentation Audit Trail.

¹³ Refer to RA 1340 – Equipment Not Basic to the Air System.

¹⁴ Refer to RA 1350 – Air Launched Weapon Release.

¹⁵ Refer to RA 5013 – Air Safety Management of Equipment and Commodity Items.

¹⁶ A Safety Assessment provided by DAPS is an example of an appropriate independent operator evaluation.

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14. Figure 1 highlights that it is possible for some commodity items to be excluded from the TAw Strategy. In these cases the Commodity Delivery Team Safety Management System (SMS) will interact directly with the ASSC (and hence the Aviation Duty Holder / Accountable Manager (Military Flying) Air Safety Management System) without recourse to the TAw SMS.

TASAR

15. The initial TASAR supports the ASSC to enable activation on the Military Aircraft Register. The TASAR does not then require reissue prior to each ASSC review. Reviewing the TASAR for continued validity at the TAwSP provides the basis for the TAw input to the ASSC.

16. In addition to the requirements listed in this RA, the TAA or TAM may choose to update the TASAR with an Addendum, including a declaration that the content of the Addendum does not alter the validity of the claims, arguments or evidence within the TASAR main body. Such an update may be required following counter-evidence identified through Fault Reporting and Data Exploitation activities¹⁷, or a change of information from TAwSP review or other source of evidence, as long as the circumstances are not listed in this RA as requiring a complete new issue.

17. Following a major TDC, it is expected the TASAR will be uplifted. By exception, if the change has minimal impact to the TASAR, the TAA / TAM may request the Safety Assessment for the change is captured in an addendum rather than a re-issue of the TASAR. This request will be submitted as part of the Form 30 process¹⁰.

18. The guidance provided within Def Stan 00-056 is one method of achieving a suitable TASAR structure.

Safety Analysis

19. The TAA or TAM will need to ensure that, where applicable, the TASA:

- a. Addresses any differences in the operating environment and usage from those in the Certification basis of the Competent certifying body.
- b. Addresses the Risks and mitigations of not complying with UK legislation and standards.

20. Safety analysis will be carried out on new Air Systems and subsequent changes, in support of claims and arguments within a TASA, by the equipment DO, or by specialist agencies Contracted by the TAw organization.

21. The justification of the TAw of the design requires addressing both new equipment and systems, and the effect of subsequent changes to the Type Design¹⁸.

22. The evidence for demonstration of TAw may include design analysis, successful application of specified procedures and standards (such as Def Stan 00-970²⁰) with any shortfalls addressed and agreed by the MAA, historical evidence of successful use of particular design features, and results of tests and trials carried out by the DO and ITE organizations, to arrive at an overall assessment of Airworthiness.

Commercial Off The Shelf (COTS) Systems and Software

23. The TAA or TAM for projects involving the use of COTS systems or software will need to ensure that the Safety Assessment contains an adequate Safety justification for the COTS components.

24. Guidance on the Safety Assessment of COTS systems is contained in Def Stan 00-056⁷. Guidance on the assessment of Programmable Elements of Unknown Pedigree is available within the Knowledge in Defence portal¹⁹. Ultimately, Def Stan 00-970²⁰ refers to acceptable standards for Programmable Elements.

¹⁷ Refer to RA 1207 – Air Safety Data Management and Exploitation.

¹⁸ Refer to RA 5810 – Military Type Certificate (MRP Part 21 Subpart B).

¹⁹ Knowledge in Defence Portal: <https://www.gov.uk/guidance/knowledge-in-defence-kid>.

²⁰ Refer to Def Stan 00-970 – Certification Specifications for Airworthiness.

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5012(1)****Independent Evaluation and Audit**

25. ITE Assurance will ►be a proportionate◄ independent analysis of the data evidence supporting the TASA, including, where appropriate²¹, a qualitative assessment of Air System handling, Human Machine Interface (HMI) and crew workload ►as determined by the TAA.◄
26. Care will need to be taken to ensure that independent auditing of the TASA is undertaken by Suitably Qualified and Experienced Person(s) or organization(s) that are not unduly influenced by commercial, peer or rank / status pressures.
27. Multiple ITEs may be employed to provide evaluation of different aspects of a TASA.
28. Where a Contractor is employed as ►an◄ ITE, it is important that this is exclusively by the TAA or TAM to act on their behalf and not via the Prime Contractor and / or DO; with any advice the ITE may have about the design and / or Safety directed to TAA or TAM. ►◄
29. ►Where an MOD organization or individual is employed as an ITE, the TAA will satisfy themselves that they have the required technical Competence and are independent of the outcome they are evaluating. The ITE provides an additional layer of independent Assurance, which will generally exclude any individual concurrently employed in a normal business role providing technical advice or support for the same Air System. However, individuals deemed Competent through previous roles, but now employed outside the TAA's Airworthiness delegation, would not be similarly excluded.◄
30. It is acceptable for the ISA and ITE to be involved in the joint working environment between the TAw organization and DO; for example, in a Hazard Log Working Group or in a Combined Test Team approach. Duplication of effort will be avoided if the ISA and ITE work collaboratively with the MOD and DO so that their assessments can be incorporated in the overall project schedule.

²¹ As decided by the Senior Responsible ►Owner◄ (SRO) or receiving Operating Duty Holder (ODH).

RA 5405 – Special Instructions (Technical)

Rationale

When a Fault or potential Fault impairs the Safety, serviceability or operational capability of an Air System¹, temporary Instructions are issued to authorize remedial action. ► *Without timely intervention, the Fault may lead to a degradation in Airworthiness, increasing the Risk to Life or compromising mission effectiveness.* ◄ These Instructions, known as Special Instructions (Technical) (SI(T)), are approved and issued by the Type Airworthiness Authority (TAA)² or the Commodity Chief Engineer (CE). An SI(T) provides the authority to undertake a work package to identify, monitor, Repair or prevent the potential Occurrence or re-Occurrence of a Fault.

Contents

5405(1): Special Instructions (Technical)

Regulation 5405(1)

Special Instructions (Technical)

5405(1) The TAA or Commodity CE **shall** raise an SI(T) when a work package is needed to identify, monitor, Repair or prevent the Occurrence or re-Occurrence of a Fault.

Acceptable Means of Compliance 5405(1)

Special Instructions (Technical)

Delivery Team Responsibilities

1. Prior to issuing an SI(T), the TAA or Commodity CE **should** assess:
 - a. The effect of the Fault or potential Fault on the Type Airworthiness Safety Assessment / Equipment Safety Assessment and, if required, consult with the Operating Duty Holder (ODH) / Accountable Manager (Military Flying) on the effect on the Air System Safety Case.
 - b. Any effect that SI(T) compliance itself could introduce (for example, an SI(T) that requires the frequent disturbance of a critical Aircraft system could itself introduce a Risk to Airworthiness).
2. When an SI(T) is raised, the TAA or Commodity CE **should** notify the Design Organization (DO) and / or the Original Equipment Manufacturer.
3. The TAA or Commodity CE **should** take responsibility for:
 - a. Consulting with the Military Continuing Airworthiness Manager (Mil CAM)³ to ensure the Maintenance organizations are able to fulfil the requirements of an instruction and the implications of applying the instructions to stored equipment.
 - b. Ensuring that SI(T)s comply with the applicable Type Certification Basis.
 - c. Promulgation of SI(T)s.
 - d. Maintaining registers for all SI(T)s, including an index of applicable SI(T)s in the Orders and Instructions issued by the TAA (Topic 2(N/A/R)1).
 - e. Ensuring that SI(T)s remain extant for the minimum required period and issuing clear instructions when they are superseded, time expired, fully completed, or otherwise cancelled.
 - f. Initiating appropriate follow up action as required, such as Modifications or Instructions for Sustaining Type Airworthiness (ISTA)⁷ amendment.

¹ ► In this RA, the use of "Air System" includes, but is not limited to, Airborne Equipment, Air Launched Weapons, Survival Equipment, and Aircrew Equipment Assemblies. ◄

² Where the Air System is not UK MOD owned, Type Airworthiness (TAW) management regulatory responsibility by either the TAA or Type Airworthiness Manager (TAM) needs to be agreed within the Sponsor's approved model; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAW responsibilities TAM may be read in place of TAA as appropriate throughout this RA.

³ Refer to RA 4947 – Continuing Airworthiness Management – MRP Part M Sub Part G.

Acceptable Means of Compliance 5405(1)

- g. Liaising with other TAA or Commodity CEs and Service Non-Destructive Testing (NDT) organizations.
 - h. Retaining an Audit trail of all actions relating to the SI(T).
 - i. Conducting periodic summaries, at least every 6 months, of all instructions issued, extended or cancelled during the previous period.
 - j. Issuing the periodic summaries to all parties as appropriate.
 - k. Agreeing categories for the instruction from those listed at Annex A.
4. When an Airworthiness Directive (AD) or Service Bulletin (SB)⁴ for a civil derivative Air System is received, the TAA or Commodity CE **should** utilize the SI(T) process to initiate corrective action in the same way they would with a military Air Systems.
5. The TAA or Commodity CE **should** engage with the Release To Service (RTS) Authority (RTSA) or Sponsor⁵ during the production of an SI(T) to ensure sufficient evidence is made available to enable changes to be incorporated into the RTS, Military Permit to Fly (MPTF) (In-Service) or MPTF (Special Case Flying (SCF)) or the letter of release for ship-borne operations.
6. When an NDT technique is required to satisfy an SI(T), the relevant TAA or Commodity CE **should** engage the appropriate NDT organization as early as possible to enable development of the required technique.
7. The TAA **should** provide Officer Commanding Defence Aircrew Publications Squadron (OC DAPS) or a competent contractor with a draft copy of the SI(T) to enable DAPS or the competent contractor to determine whether operation or handling are affected.
8. **Armament Safety.** Special clearance procedures **should** be identified before an SI(T) is issued which affects Air System weapons or equipment, which have an RTS or MPTF (In-Service) or MPTF (SCF) covering an armament capability.

Design Organization Responsibilities

9. When tasked, the DO **should** be responsible for the following:
- a. Retaining an audit trail of all actions relating to the SI(T).
 - b. Maintaining registers for all SI(T)s.
 - c. Conducting periodic summaries, at least every 6 months, of all instructions issued, extended or cancelled during the previous period.
 - d. Issuing the periodic summaries to all parties as appropriate.
 - e. Preparing a draft SI(T) for submission to the Delivery Team (DT) as required.
 - f. Advising the TAA or Commodity CE of the need for NDT.
 - g. Recommending acceptance of an SI(T) drafted by other DOs.
 - h. Initiating Modification⁶, drawing amendment, ISTA amendment⁷ or other action to enable cancellation of the SI(T).
 - i. Providing technical advice.
 - j. Obtaining TAA or Commodity CE approval.
10. These procedures **should not** be used to circumvent more formal action. An SI(T) **should** remain extant until the TAA or Commodity CE withdraws it for one of the following reasons:

⁴ Refer to RA 5805 – Airworthiness Directives and Service Bulletins (MRP Part 21 Subpart A).

⁵ Refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems or RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems.

⁶ For modifications the DO will be tasked by the TAA or Commodity CE.

⁷ Refer to RA 5815 – Instructions for Sustaining Type Airworthiness.

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- a. Issue of a superseding SI(T).
- b. Issue of an over-riding publication amendment or design change.
- c. When further application is not required.

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Special Instructions (Technical)

General

11. SI(T) are of two types:
 - a. Urgent Technical Instructions (UTI) where remedial action is necessary within 14 days / 25 flying hours.
 - b. Routine Technical Instructions (RTI) for less urgent actions.
12. DO input into SI(T)s is at the discretion of the TAA or Commodity CE, noting DO activity may result as a means of investigating or resolving the identified issue.
13. When the TAA considers that it is neither practicable nor cost-effective to convert an AD or SB into SI(T) format the AD or SB may be issued under cover of an SI(T). This also applies to civil-issued directives, assessed by the DO as applicable to Service Air Systems.
14. The UTI / RTI can be used to disseminate information of a technical, administrative or policy nature.

Layout and Content

15. The SI(T) Generic Template layout and content⁸ includes the prescribed paragraph numbering and paragraph headings. All content will be completed, except when a paragraph has no relevant content; then it will be annotated "Not Applicable" or as instructed in the detail for the paragraph heading.
16. Amendments that do not require the SI(T) to be re-satisfied are identified by the addition of a suffix letter to the original number. When amendments require the Instruction to be re-satisfied, a superseding Instruction will be issued using a new number.

TAA or Commodity CE Responsibilities

17. The TAA or Commodity CE is responsible for the following:
 - a. Ensuring that an RTI or UTI has been raised with the appropriate level of urgency.
 - b. Determining whether any extension may be applied locally to single-application or repetitive instructions. Where no latitude is permitted, a statement to that effect will be included in the instruction.
 - c. Ensuring that appropriately authorized staff⁹ approve release of SI(T).
 - d. Ensuring any issues regarding Health and Safety at Work, Control of Substances Hazardous to Health etc have been dealt with appropriately.
 - e. Ensuring action is taken to initiate updating of Airworthiness Information Systems¹⁰ on generation and cessation of instructions.
 - f. Ensuring the details of the equipment quoted are accurate and the availability of items required from stock is verified. For equipment managed in the MOD supply system, the details required are: The North Atlantic Treaty Organization (NATO) Stock Number, part number and NATO Commercial and Government Entity code. For equipment not managed in the MOD supply system, the required details are part number and manufacturer or supplier.

⁸ The SI(T) generic template is available on the MAA website.

⁹ Refer to RA 1003 – Delegation of Airworthiness Authority and Notification of Air Safety Responsibility.

¹⁰ Refer to RA 1223 – Airworthiness Information Management.

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- g. Ensuring the requirements and implications of applying the instruction to equipment fitted to flight simulators and synthetic trainers, fatigue test specimens, not-in-use equipment and equipment in store are met.
 - h. Ensuring the relevant approval(s) details have been included in the SI(T).
18. In addition, unless the Airworthiness Risk precludes it, the appropriate Mil CAM will be contacted in order to give advanced notification of the SI(T) to ensure that the instruction can be complied with and that any impact on availability and operational capability is understood. The following will be considered as a minimum:
- a. Availability of any spares required (including Fuels, Lubricants and Associated Products) and any specialist tooling.
 - b. The requirement for any specialist skills or training.
 - c. The potential impact on deployed operations and overseas exercises.
 - d. The potential impact on UK training.
19. Where a Commodity CE is the Engineering Authority for an equipment with multi-Air System applicability and has a requirement to issue an SI(T) against this equipment, the issuing TAA will request an SI(T) reference number from the appropriate Commodity CE. The Air System TAA will be responsible for distributing the SI(T) and ensuring the Commodity DT is copied on any SI(T) returns.

ANNEX A
SI(T) - CATEGORIES

Equipment Category	Air System / Equipment Sponsor	Remarks
Aerial Targets	Trials Evaluation Services and Targets (TEST) Team	
Aircraft (by type)	Air System DT	
Air Cargo Equipment	Air Commodities DT	
Aircraft Assisted Escape Systems	Crew Escape Systems Team	
Airborne Equipment ¹¹	C17 Command Support Team - Airborne Equipment	Sponsor requirement: SI(T) category – AD & AFE to form part of reference number, ie RTI/AD&AFE/0001
Airborne Night Vision Goggles	Air Commodities DT	
Air Refuelling	Voyager DT	See Note 1
Armaments	Hawk DT: Armament Support and Role Equipment (ASRE) for Hawk & Merlin Air System DT International Guns, Missiles & Rockets (IGMR): 70 mm Rockets (unguided), Hellfire missile (guided), Paveway (guided), 3 kg practice bomb (unguided), M60D Machine Gun, M134 Minigun & M3M Heavy Machine Gun Attack Helicopter DT: Apache gun	See Note 2 Includes Special-to-Type Test Equipment (STTE) Includes CRV7, Mauser, Aden and helicopter guns, other than Apache
Defence General Munitions	Defence General Munitions (DGM) DT: Depth Charge (unguided), Air Countermeasures (chaff / flare), Cartridge Electrically Operated Fire Extinguisher (not all, some sponsored by platform, ERU Cartridges, Misc – small explosive devices	
Electrical	Air Commodities DT	
Electronic Warfare	Air Platform Systems DT	
Engines (by type)	Air System DT	For engines fitted to more than one Aircraft type, lead will be taken by the nominated DT
General Purpose Automated Test Equipment	Air Commodities DT	
General Systems	Air Commodities DT	

¹¹ As defined in MAA02 – Military Aviation Authority Master Glossary.

Equipment Category	Air System / Equipment Sponsor	Remarks
Ground Support Equipment	Air Commodities DT	Includes Armament Ground Support Equipment (GSE)
Guided Air-Launched Weapons (by type)	Lightweight and Medium Attack Systems Team (LMAS): Brimstone (guided) and Lightweight Multi-role Missile (guided) Long Range Precision: Storm Shadow Air to Air Missiles (AAM). Meteor, AMRAAM and ASRAAM	See Note 2 Includes STTE
Helicopter Under-Slung Load Equipment	Air Commodities DT	
Instruments	Air Commodities DT	
NDT Equipment	Air Commodities DT	
Photographic Equipment	Air Commodities DT	
Personal Aircrew Equipment and Oxygen Systems	Air Commodities DT	
Propellers	Air System DT	
Radio – Airborne	Air Commodities DT Electronic warfare and identification equipment: Air Platform Systems Team	See Note 2
Rescue Hoists	Air System DT	
Simulators (by type)	Flight Simulation & Synthetic Trainers (FsAST) Team	
Survival Equipment (by type)	Air Commodities DT	See Note 1
Test and Measuring Equipment	Operational Infrastructure Programme Team (OIP) – Test Equipment Management	See Note 1
Air Launched Torpedoes	Torpedoes, Tomahawk and Harpoon (TTH) DT (Sting Ray, Spearfish and Mark 54)	
► Uncrewed Air System (UAS)	UAS ◀ DT	
► Aircrew Equipment Assemblies	Air Commodities DT	See Note 1 ◀

Notes:

1 Where STTE / Special to Type Airfield Support Equipment (STTASE) has been procured, the Air System / equipment sponsor procuring the equipment will be the Engineering Authority (EA) unless other arrangements have been agreed.

2 Multiple Air System / Equipment Sponsors may use a four-element reference number to clearly identify SI(T) DT and equipment to ensure there is no reference number duplication by different equipment sponsors. For example: SI(T)/DT/Equipment/001.

RA 5726 – Integrity Management

Rationale

The technical and organizational uncertainties associated with military aviation contribute to a complex range of Hazards that may compromise Air System Integrity. ► *Failure to satisfactorily manage Air System Integrity may compromise Airworthiness, potentially increasing Risk to Life and reduced operational effectiveness.* ◄ A comprehensive, through-life, Integrity Management (IM) approach enables these potential Airworthiness threats to be managed. Whilst support from various stakeholders is needed for effective IM, the overall Responsibility is assigned to the Type Airworthiness Authority's (TAA)¹. This Regulatory Article (RA) details these TAA IM Responsibilities and will be read in conjunction with the Manual of Air System Integrity Management (MASIM)².

Contents

Definitions Relevant to this RA

5726(1): Integrity Management

5726(2): Establishing Integrity Management

5726(3): Sustaining Integrity Management

5726(4): Validating Integrity

5726(5): Recovering Integrity

5726(6): Exploiting Integrity

Definitions

Definitions Relevant to this RA

1. **Integrity.** The ability of an Air System to retain its design intended properties and function throughout its Service Life when maintained and operated in accordance with (iaw) the Air System Document Set (ADS).
2. **Integrity Baseline.** The Artefacts that define the Design Organization's (DO) contribution to the ADS for an Integrity discipline. In a Claim-Argument-Evidence approach, the Integrity Baseline (the 'Claim') is underpinned by Integrity Assertions (the 'Argument') of the Integrity Evidence (the 'Evidence'). Integrity Baselines are established prior to entry of the Air System to service and are updated through-life.
3. **Integrity Assertions.** Declarations made in the Integrity Baseline that a feature of the design has Integrity. The Integrity Assertions within the Integrity Baseline (the 'Claim') are the outcome of an assessment (the 'Argument') of the Integrity Evidence (the 'Evidence').
4. **Integrity Evidence.** The design and Certification products that underpin the Integrity Assertions stated explicitly / implicitly in the Integrity Baseline. In the first instance Integrity Evidence is produced to support the Air System entering service and may be based upon design assumptions and / or service operating intent. When In-Service, the Integrity Evidence is continuously updated according to analysis of Service Data. It is captured in an Integrity Evidence record.
5. **Service Data.** The information relating to the usage, condition, failures or loads experienced by an Air System that, when collected and analysed, needs to be tested against the Integrity Evidence to support the Integrity Baseline.
6. **IM Systems.** The IM programmes, tools and processes, established by the TAA, that are necessary to assure the Integrity of the Air System. These Systems capture and assess Service Data to better understand the usage of the Air System, the failures of systems, and / or the loads that it experiences. Programmes are established to better understand the condition of the Air System.

¹ Where the Air System is not UK MOD-owned, Type Airworthiness (TAA) management regulatory responsibility by either the TAA or Type Airworthiness Manager (TAM) needs to be agreed within the Sponsor's approved model; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems, or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAA responsibilities TAM may be read in place of TAA as appropriate throughout this RA.

² Refer to the Manual of Air System Integrity Management (MASIM).

Definitions

7. **Independent Airworthiness Advisor (IAA).** An IAA is a Competent individual, independent of the DO, who provides independent Air System technical advice to the TAA³. To be considered a Suitably Qualified and Experienced Person (SQEP), they will be a Chartered Engineer and have a minimum of 5 years' experience in Air System design, Safety Assessment, IM or Maintenance; relevant to both the Air System type and the specialization for which advice will be given.

8. **Independent Structural Airworthiness Advisor (ISAA).** An ISAA is a competent individual, independent of the DO, who acts as the specialist IAA⁴ to the TAA regarding Aircraft Structures and Structural Integrity Management.

**Regulation
5726(1)****Integrity Management**

5726(1) The TAA **shall** be responsible for IM, for all Air System types within their Area of Responsibility, to maintain Integrity.

**Acceptable
Means of
Compliance
5726(1)****Integrity Management**

9. As a key enabler of the Air System Safety Case⁵, the TAA **should** ensure an IM programme is in place prior to the Air System In-Service Date (ISD) and is maintained throughout the life of the Air System.

10. The Establish-Sustain-Validate-Recover-Exploit management framework **should** be used to confirm the Integrity Assertions to provide confidence in the Integrity Baseline and counter threats to Integrity identified by evolving Integrity Evidence.

11. The TAA **should** consider the most effective and efficient strategy for managing IM activities. As a minimum, consideration **should** be given to the need for separate activities for the three most commonly used Integrity disciplines (Structural, Systems and Propulsion), including Integrity Working Groups (IWG). The overall approach **should** be recorded in the Air System Integrity Strategy Document (AISD).

12. Where threats to Integrity are identified, they **should** be managed and continually reviewed in response to In-Service developments and service data.

13. All those with responsibilities which impact on, or which contribute to Integrity **should** identify to the TAA at the earliest opportunity any decision, activity or change in circumstances that has the potential to pose a threat to Integrity.

14. Delivery Team (DT) personnel with specific Integrity responsibilities **should** be identified by the TAA and attend the appropriate Integrity course⁶.

15. IM for ► **Uncrewed** ◄ Air Systems **should** be iaw the Remotely Piloted Air System Manual (RPASM)⁷.

**Guidance
Material
5726(1)****Integrity Management**

16. For guidance on all aspects of IM, refer to the MASIM².

**Regulation
5726(2)****Establishing Integrity Management**

5726(2) The TAA **shall** establish IM to demonstrate that the Air System is airworthy to operate through all conditions detailed in the Release To Service (RTS), Military Permit To Fly (MPTF) (In-Service) or MPTF (Special Case Flying) and reflect the usage set out in the Statement of Operating Intent (SOI).

³ The IAA is not to be confused with the Independent Technical Evaluator or Independent Safety Auditor.

⁴ ► Refer to paragraph 7. ◄

⁵ Refer to RA 1205 – Air System Safety Cases.

⁶ For further training details see RA 1440 – Air Safety Training.

⁷ Refer to RPASM.

Acceptable Means of Compliance 5726(2)

Establishing Integrity Management

Integrity Governance

17. The TAA **should** establish an IM Strategy that is:
 - a. Communicated to stakeholders through the AISD prior to Full Business Case Approval of the project.
 - b. Managed through an IM Plan (IMP) initiated prior to ISD.
 - c. Implemented through a 6-monthly IWG initiated prior to the ISD.
 - d. Implemented with defined boundaries and interfaces between various IM disciplines.
 - e. Implemented with defined mechanisms for reporting on the status of Integrity of the Air System within Defence Equipment & Support and to the Aviation Duty Holder (ADH) / Accountable Manager (Military Flying) (AM(MF)).
18. The AISD **should** be owned by the TAA and endorsed on first release and following any significant amendment.
19. The IWG **should** be chaired by the TAA or a holder of a delegated Letter of Airworthiness Authority (LoAA) that refers specifically to the role of IWG Chair, who is at least OF4 (or equivalent).
20. The IWG Chair **should** ensure that the IWG comprises a quorum of SQEP stakeholders (identified below), and additional stakeholders as necessary.
 - a. DO / Coordinating DO.
 - b. DT⁸ member(s) responsible for IM.
 - c. Service provider / Support Contractor (if applicable).
 - d. Continuing Airworthiness Management Organization (CAMO) member responsible for IM.
 - e. Civil Aviation Authority for military registered Aircraft subject to civil oversight⁹.
 - f. DT Safety Manager.
 - g. IAA(s) with the requisite SQEP¹⁰.
 - h. RTS Authority or Sponsor representative.
 - i. ▶◀
21. ▶ The MAA **should** be invited to the IWG although the MAA **should not** form part of the quorate SQEP stakeholders list. ◀

Integrity Evidence and Baseline

22. The TAA **should** identify the Integrity Baseline, including the underpinning Integrity Evidence and Integrity Assertions.
23. The SOI (AP101X-XXXX-15S or equivalent) **should** be owned and authorized by the ADH or AM(MF) and **should** include requirements for all relevant disciplines, to be published in the ADS no later than the issue of the Type Certification Basis¹¹. The TAA and ADH or AM(MF) **should** ensure that an SOI for all new Air System types and significant Marks, is developed in consultation with, and formally conveyed to, the Air System DO. In turn, the Air System DO **should** communicate this information to the Type Certified Product DOs (ie Propulsion System DO).
24. Where an Air System is operated, or intended to be operated, by multiple Operating Duty Holders (ODH) / AM(MF), the SOI **should** be owned and authorized

⁸ Where the term DT or Commodity DT is used in this RA, this may include the TAM and organizations supporting the TAM where appropriate.

⁹ Refer to RA 1165 – UK Civil Aviation Authority Oversight of UK Military Registered Aircraft.

¹⁰ Recognizing the long-standing requirement for the ISAA role to support IM, an experienced ISAA may be regarded as SQEP in pan-discipline IM matters from a regulatory compliance perspective, but an IAA in the required field **should** address specific issues in disciplines other than structures where the TAA requires that SQEP.

¹¹ Refer to RA 5810 – Military Type Certificate (MRP Part 21 Subpart B).

Acceptable Means of Compliance 5726(2)

by the lead end-user ADH or AM(MF) and ►◄ encompass the full scope of activities to be conducted by all ODH / AM(MF).

25. The TAA **should**, in consultation with the DO, ensure that the design static and fatigue loads and Design Usage Spectrum (DUS), obtained during design substantiation and Certification of the Air System, is available as part of the Integrity Baseline. The DUS **should** include the intended usage and associated loads developed in the design of the Air System. Where the DUS has not been derived from a UK specific SOI, the TAA **should**, in consultation with the DO, use the SOI to identify the implications of any deviation between the design assumptions and expected In-Service usage.

26. The TAA **should** ensure that all critical or significant items², eg Structural Significant Items or Functionally Significant Items, have appropriate associated Maintenance activities derived by suitable methodology, in consultation with the DO, as part of the Integrity Baseline.

27. The TAA **should** authorize the component lives (Critical and Non-Critical) and, where applicable exchange rates identified by the DO, and promulgate these in AP101X-XXXX-5A1 or equivalent Maintenance schedule.

28. The TAA **should** ensure that Commodity DT Chief Engineers (DT CE) establish the lifing details and Continuing Airworthiness requirements of components for which they are responsible and present their Integrity Evidence and Integrity Assertions to the TAA for final Authorization.

IM Systems

29. The TAA, in consultation with the DO, **should** identify any IM Systems requirements necessary to assure the Integrity of the Air System.

30. The TAA **should** establish:

- a. Health monitoring and usage monitoring systems and ensure that thresholds for acceptable capture rate of usage data are defined, to enable inspection and replacement of components to be scheduled with adequate confidence.
- b. An Individual Aircraft Tracking (IAT) system to capture usage against sortie profiles throughout the life of the Air System, and a means to quantify unmonitored sorties.
- c. An approach to validate the usage data In-Service usage¹² against the DUS through engagement with the DO during the design and introduction to service of the Air System.
- d. In consultation with the DO, an exceedance monitoring system in order to capture events that may be a threat to the Integrity of the Air System.
- e. An Air System Fault Reporting, Analysis and Corrective Action System.
- f. A Configuration Status Record (CSR)¹³ for the Air System.

31. The CSR **should** detail the Configuration of each Air System Type Design and its components in sufficient detail to maintain Configuration Control (CC) and to support Integrity decisions.

32. The TAA **should** ensure that IM programmes, or the capability to conduct them, are in place in order to understand the condition of the Air System In-Service. The nature of these programmes of activity are likely to be particular to an Integrity discipline.

33. The TAA **should** agree with the CAMO and DO stakeholder, access to, and the means of providing, Service Data from the Forward and Depth domains.

34. The TAA **should** define limits for investigation / urgent action on any data loss from monitoring systems and implement a process to monitor and react. Limits may differ depending on the complexity, reliability and criticality of the monitoring system.

¹² Usage including In-Service loads and engine usage.

¹³ Refer to RA 5301 – Air System Configuration Management.

**Acceptable
Means of
Compliance
5726(2)**

35. The TAA **should** ensure that an Environmental Damage (ED) Prevention and Control (EDPC) programme, including measures to manage the Risk to Airworthiness arising from ED, is established in cooperation with the DO.
36. The TAA **should** ensure IM is supported by an Examination Programme (EP), established prior to the ISD, which **should** include:
- Classification of significant items as either At Risk (AR) or Not at Risk (NAR) from Accidental Damage (AD) or ED.
 - Scheduled examinations based on this classification, and examination and retirement of components according to their fatigue clearances or component lives.
 - A Sampling Programme (SP), for components not normally inspected during scheduled examinations, which includes any requirements for teardown¹⁴ to inform the Maintenance schedule.
 - An inspection of all critical or significant items, iaw the Preventive Maintenance and EP / SP programmes, before the fleet leader reaches 80% of its original design life (or revised life, if less).
37. The TAA or Commodity DT Leader (DTL) **should** ensure appropriate arrangements are in place for the SP with the DO. The DO **should**:
- Notify the TAA or Commodity DT CE of the date, time and location scheduled for the tests and / or strip examination of SP materiel subject to fault action.
 - Submit a report to the TAA or Commodity DTL, covering the following points:
 - The deterioration in performance and / or the degree of wear which has occurred.
 - The recommended future Service Life for this type of item and whether further sampling is required.
 - Those features of design which limit life extension and whether Modification action is feasible and economic.
38. The TAA **should** ensure, where appropriate, that experience and data from other operators of the same Air System type, or Air Systems in similar roles, is used to inform the IM of their Air System.

**Guidance
Material
5726(2)**

Establishing Integrity Management

39. For guidance refer to the MASIM².

**Regulation
5726(3)**

Sustaining Integrity Management

- 5726(3) The TAA **shall** ensure that IM is sustained, and In-Service Data used, to continuously monitor and counter threats to Integrity.

**Acceptable
Means of
Compliance
5726(3)**

**Sustaining Integrity Management
Integrity Governance**

40. The TAA **should** review and monitor outputs from the IM Systems and report key issues to the IWG.
41. The AISD and the IMP **should** be reviewed by all stakeholders prior to every IWG and both ►◄ be ratified by the quorate members of the IWG.

¹⁴ Refer to Military Aircraft Structures Airworthiness Advisory Group (MASAAG) Paper 105 Guidance and Best Practice for Teardown Inspections.

Acceptable Means of Compliance 5726(3)

42. The TAA **should** identify any unmitigated or unquantified Airworthiness Risks, associated with IM which have been accepted by the relevant IWG, and raise them to the Type Airworthiness Safety Panel¹⁵ and / or the Air System Safety Working Group.

Integrity Evidence and Baseline

43. All changes to component lives, Maintenance thresholds or intervals **should be**:

- a. Supported by a Risk Assessment.
- b. Conveyed to the IWG and reviewed periodically.
- c. Considered within the Type Airworthiness Safety Assessment.
- d. Authorized by personnel with the appropriate delegated authority supported by independent assessment as required.

44. Stakeholders **should** report any significant changes in usage or operation to the IWG.

IM Systems

45. The TAA **should**:

- a. Ensure that IM systems created in the Establishing phase are implemented correctly and periodically reviewed, with significant findings, including data loss, unmonitored sorties and CC issues, reported to the IWG.
- b. Maintain IM systems in an effective condition in order to maximize the capture, use and monitoring of Service Data by the CAMO, the DT and the IWG, respectively.
- c. Ensure that lost usage data is restored if possible; if not, a technical assessment of the loss **should** be carried out. The TAA / TAM **should** ensure that procedures, or appropriate fill-in rates for lost usage data, are in place and applied as required.
- d. Ensure that the Air System Airworthiness Information¹⁶ reflects the 'as flown' Configuration is maintained for the life of the Air System and is populated with all relevant arisings that have the potential to impact Integrity.
- e. Ensure that any IM Programmes created in the Establishing phase are implemented correctly and periodically reviewed, and a summary of the results reported to each IWG.

Guidance Material 5726(3)

Sustaining Integrity Management

46. For guidance refer to the MASIM².

Regulation 5726(4)

Validating Integrity

5726(4) The TAA **shall** ensure that Integrity Evidence, Assertions and Baseline are periodically validated.

Acceptable Means of Compliance 5726(4)

Validating Integrity

Integrity Governance

47. The TAA **should** use the IWG to validate the Integrity Baseline against the most up to date Service Data and analysis available.

48. The TAA **should** ensure that the validity of the Integrity Baseline is confirmed on completion of the IWG.

Integrity Evidence, Assertions and Baseline

49. The Integrity Evidence and Baseline **should** be reviewed and updated, with the support of the DO, in response to findings occasioned by validating activities.

¹⁵ The Type Airworthiness Safety Panel may have different naming conventions within different programmes.

¹⁶ Refer to RA 1223 – Airworthiness Information Management.

**Acceptable
Means of
Compliance
5726(4)**

50. The TAA **should** ensure that cleared life is reviewed in response to changes to fleet planning assumptions.

51. The TAA **should** ensure that component lifing, recording processes and metrics, are periodically reviewed.

52. The TAA **should** ensure that the Maintenance schedule is reviewed¹⁷ ►◄.

IM Systems

53. The TAA, with the assistance of the Military Continuing Airworthiness Manager and DO, **should** review and validate Maintenance processes.

54. The TAA **should** support the ADH or AM(MF) to ensure that the first usage data Validation (conversion of the SOI into an SOI and Usage (SOIU)), which forms the baseline for comparison against future Validation data, is undertaken once usage is considered to be stable or no later than 3 years after ISD. The ADH or AM(MF) **should** authorize the amendment to each issue of SOIU.

55. The TAA **should** support the ADH or AM(MF) review of the SOI / SOIU and make the results available to the IWG. These reviews **should** be undertaken by the ADH or AM(MF) as follows:

a. A basic annual review by the appropriate ADH or AM(MF), to confirm that the SOI or SOIU (as appropriate) remains an accurate record.

b. A detailed qualitative and quantitative triennial review is conducted using Aircrew interviews, data obtained via the Aircraft log, on-board Systems and / or instrumented flights to confirm future intent and validate usage against the DUS assumptions.

c. Establishing the implications to Air System integrity to anticipated changes in future usage intent.

d. The review confirms that the expected and validated usage is within the RTS, MPTF (In-Service) or MPTF (Special Case Flying) limits.

56. Following SOI / SOIU reviews:

a. The TAA **should** task DO support to determine the effect of any SOI / SOIU changes on the Integrity Baseline and their recommended operating limitations and Maintenance instructions.

b. The TAA **should** retain an Audit trail of all changes made to any of their TAw limitations, instructions or arrangements as a result of the SOI / SOIU review iaw current Regulations¹⁸.

c. The ADH or AM(MF) **should** make Aircrew familiar with the changes that have been made to sortie profile codes within the SOI / SOIU and the need for both accurate recording and efficacy of reporting of any changes in usage.

57. The ADH or AM(MF) **should** ensure that the SOI / SOIU (AP101X-XXXX-15S or equivalent) is updated in the ADS.

58. The TAA **should** ensure that results from the EP (including scheduled examinations, and where necessary, the SP and teardown¹⁴ and forensic examination) are collated, reviewed and subjected to trend analysis to inform Maintenance Schedule Reviews, update the IWG on the efficacy of the EP and permit the DO to update lifing predictions.

59. The TAA **should** verify the ability of a system or component to: retain its function within defined limits, function without undue frequency of failure and function without adverse effect on other Systems or components.

60. The TAA **should** ensure that where a Safety-critical system relies upon measurement of a parameter (such as temperature or pressure) this system **should** have an appropriate calibration policy and procedure defined in the ADS.

¹⁷ Refer to RA 5320 – Air System Maintenance Schedule – Design and Validation.

¹⁸ Refer to RA 1225 – Air Safety Documentation Audit Trail.

Acceptable Means of Compliance 5726(4)

61. A programme for Validation of the In-Service usage against the DUS demonstrated fatigue capability **should** be conducted through engagement with the DO. A system **should** be developed to:
- Obtain operational loads and usage data that can be used for comparison with the DUS,
 - Identify In-Service usage changes that necessitate re-evaluation of the Integrity Baseline evidence,
 - Provide the data needed to establish or update fatigue clearances and support any Life Extension Programmes.
62. Each IAT system **should** obtain sufficient data to validate the DUS by means of a Structural Health Monitoring System, Health and Usage Monitoring System or similar system accepted by the DO. Where an IAT system does not deliver sufficient data, or requires its own Validation programme, then an Operational Loads Measurement / Operational Data Recording Programme **should** be conducted on a representative sample of In-Service Air Systems.
63. The TAA **should** ensure the timing of usage Validation programmes is being determined by its aims. The requirement to carry out the Validation **should** be reviewed at least every 6 years by the TAA (concurrently with a triennial SOIU review) with the decision and rationale supported by evidence and documented in the AISD.
64. The usage Validation programme **should** be considered following any Major Change in usage or rate of life consumption or in conjunction with any plans for a Major Type Design change, significant change in usage or life extension, ie where re-Validation of significant parameters is necessary, decisions on usage data Validation requirements **should** be documented in the AISD.
65. The TAA **should** initiate an Ageing Air System Audit¹⁹.

Guidance Material 5726(4)

Validating Integrity

66. For guidance refer to the MASIM².

Regulation 5726(5)

Recovering Integrity

- 5726(5) The TAA **shall** ensure that any loss or potential compromise of Integrity is recovered.

Acceptable Means of Compliance 5726(5)

Recovering Integrity Integrity Governance

67. The TAA **should** treat a loss or potential compromise of Integrity as an Airworthiness Issue and act to recover Integrity.
68. Any recommendations at an IWG to amend inspection intervals **should** be ratified by the LoAA holder prior to incorporation in the Maintenance schedule.

Integrity Evidence, Assertions and Baseline

69. The TAA **should** ensure that IM Systems are established and implemented where the Integrity Evidence and Assertions no longer supports the Integrity Baseline.
70. The TAA **should** ensure that the need for measures to conserve life is considered where life may be insufficient to reach the planned Out of Service Date.
71. The TAA **should** consider the need for design change, Reconditioning or component replacement to mitigate fatigue damage in order to meet fleet planning objectives.
72. The TAA **should** ensure that Repairs are:
- Developed by an approved DO.

¹⁹ Refer to RA 5723 – Ageing Air System Audit.

**Acceptable
Means of
Compliance
5726(5)**

b. Assessed against the appropriate Design Standard, with lifing and inspection requirements clearly established, and consideration given to the effect of adjacent and / or previous Repairs.

c. Recorded in the Air System Airworthiness Information¹⁶.

73. Remedial action **should** be taken, and the IWG notified, if significant deviation in individual Air System weight and balance is identified by the CAMO.

**Guidance
Material
5726(5)**

Recovering Integrity

74. For guidance refer to the MASIM².

**Regulation
5726(6)**

Exploiting Integrity

5726(6) The TAA **shall** ensure that Integrity is exploited to make best use of the inherent capabilities of the Air System.

**Acceptable
Means of
Compliance
5726(6)**

Exploiting Integrity

75. The TAA **should** ensure activities are put in place to record, report and, if required, act where the Service Data and analysis suggests there may be an opportunity to relax requirements within the Integrity Baseline without introducing new threats to Integrity.

76. Any recommendations at an IWG to relax requirements within the Integrity Baseline **should** be ratified by the LoAA holder prior to incorporation in the Maintenance schedule.

**Guidance
Material
5726(6)**

Exploiting Integrity

77. For guidance refer to the MASIM².

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RA 5810 - Military Type Certificate (MRP Part 21 Subpart B)

Rationale

It is necessary to demonstrate that an Air System's Type Design meets appropriate Safety requirements. Failure to complete a systematic, independent Certification process for new UK military registered Air Systems may lead to Air Systems entering service with design deficiencies which introduce unacceptable Hazards. The award of a Military Type Certificate (MTC) demonstrates that the military Air System Type Design has been shown to meet appropriate Airworthiness Requirements through satisfactory completion of the Military Air System Certification Process (MACP).

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Regulation 5810(1)

Certification of UK Military Registered Air Systems (MRP Part 21.A.11)

- 5810(1)** The Type Airworthiness Authority (TAA)¹ **shall** ensure that new UK Military Air Systems, intended to be operated on the UK Military Aircraft Register (MAR), are certified prior to their Release To Service (RTS)^{2, 3}.

¹ Where the Air System is not UK MOD-owned, Type Airworthiness (TAW) management regulatory responsibility by either the TAA or Type Airworthiness Manager (TAM) needs to be agreed within the Sponsor's approved model; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAW responsibilities TAM may be read in place of TAA as appropriate throughout this RA.

² Where RTS is used in this RA, this also includes Military Permit To Fly (MPTF) (In-Service) and MPTF (Special Case Flying), both analogous to the RTS, as detailed at RA 1305 – Military Permit to Fly (MPTF) (In-Service), (Special Case Flying) and (Single Task).

³ Refer to RA 1300 – Release To Service.

Acceptable Means of Compliance 5810(1)

Certification of UK Military Registered Air Systems (MRP Part 21.A.11)

1. The TAA **should** set out the approach to Certification in their Certification Strategy or a Certification section within their Air System Airworthiness Strategy⁴.
2. The TAA responsible for the introduction of new UK Military Air Systems, except for ► **Uncrewed Air System (UAS)** ◀ Category exemptions detailed in the RA 1600 series⁵, **should** ensure that they are certified in accordance with (iaw) the MACP, comprising the following 6 phases:
 - a. Phase 1 – Identify the requirement for, and obtain, organizational Approvals.
 - b. Phase 2 – Establish and agree the Type Certification Basis (TCB).
 - c. Phase 3 – Agree the Certification Programme (CP).
 - d. Phase 4 – Demonstrate compliance with the TCB.
 - e. Phase 5 – MAA review of Certification evidence.
 - f. Phase 6 – Post Certification activities.
3. The TAA **should** use the output of the MAA Type Certification Report (TCR) (delivered at Phase 5) in response to the Type Certification Exposition (TCE) (submitted at Phase 4), in framing their initial RTS Recommendations (RTSR)⁶.
4. An MTC **should not** be issued until the Air System is brought Under Ministry Control (UMC)⁷.
5. Where a TAA proposes to request credit for Certification activities undertaken by another Airworthiness Regulator, the TAA **should** complete a structured 2-part Type Design Examination process to agree the scope of the credit to be awarded, and the residual CP, with the MAA⁸.
6. Delivery Team personnel supporting the TAA with Certification Responsibilities **should** be identified by the TAA and attend the appropriate Certification course⁹.

Guidance Material 5810(1)

Certification of UK Military Registered Air Systems (MRP Part 21.A.11)

7. Successful completion of the MACP for a new Air System will result in the MAA issuing an MTC to the TAA. An MTC will cover the entire Air System, including engines and propellers, where applicable¹⁰. The MTC will certify that:
 - a. The Air System has been designed by an approved organization(s);
 - b. The Air System meets the approved TCB;
 - c. In cases in which the applicable TCB requirement cannot be literally complied with, either fully or in part, the MAA accepts a suitable alternative which provides an Equivalent Level of Safety (ELoS) through the use of compensating factors; or
 - d. The MAA accepts that Alternative Means of Compliance (AltMoC) with the Essential Requirements for Airworthiness¹¹ have been demonstrated.
 - e. The Air System is supported by appropriate RTSR, an approved Air System Document Set (ADS) containing instructions for safe operation and

⁴ Refer to RA 5010 – Type Airworthiness Strategy.

⁵ Refer to RA 1600 series: ► **Uncrewed Air Systems**. ◀

⁶ Refer to RA 1300 – Release To Service. Where RTS Recommendation (RTSR) is used in this RA, this also includes MPTF (In-Service) Recommendations.

⁷ Refer to RA 5301 – Air System Configuration Management.

⁸ Refer to Manual of Military Air System Certification (MMAC) Chapter 5: Certification Credit within the MACP.

⁹ As determined by the TAA.

¹⁰ Successful completion of the MACP for a change to Type Design for a Legacy Air System will result in the MAA issuing an Approved Design Change Certificate (ADCC) to the TAA. An ADCC only covers the certified change(s) to the Type Design as opposed to the whole Air System. Refer to RA 5820 – Changes in Type Design (MRP Part 21 Subpart D) and MMAC Chapter 3: Changes to Type Design (MRP Part 21 Subpart D).

¹¹ Refer to MMAC Annex A to Chapter 2.

**Guidance
Material
5810(1)**

sustaining Type Airworthiness and a comprehensive Type Airworthiness Safety Assessment¹².

Relationship with RTSR

8. The initial RTSR for new Air Systems needs to be approved by the relevant Defence Equipment and Support (DE&S) Operating Centre Director (OCD) and submitted to the MAA for independent Assurance⁶. For Major Changes, the MAA, in consultation with the RTS Authority (RTSA)¹³ and TAA, will decide during MACP Phase 3 if the MAA will carry out an RTSR Audit in addition to producing the TCR.

Requesting Certification credit

9. To be eligible to request Certification credit within the MACP, the TAA will need to successfully complete a structured 2-part Type Design Examination which is comprehensive, fully documented, auditable and involves the MAA. Detailed guidance regarding this process can be found in the MMAC⁸.

Further Guidance

10. Refer to the MMAC¹⁴ for further related Guidance Material.

**Regulation
5810(2)**

Demonstration of Capability (MRP Part 21.A.14)

5810(2) The TAA **shall** ensure that prior to any application for an MTC, the organization responsible for the design of the Air System and producing the associated Certification evidence can demonstrate its capability by holding an appropriate Design Organization (DO) Approval or is in the process of applying for such an Approval.

**Acceptable
Means of
Compliance
5810(2)**

Demonstration of Capability (MRP Part 21.A.14)

11. The DO **should** hold an approval from the MAA under the Design Approved Organization Scheme (DAOS) or an acceptable alternative covering the relevant scope of activities issued by the MAA¹⁵.

**Guidance
Material
5810(2)**

Demonstration of Capability (MRP Part 21.A.14)

12. Refer to the MMAC¹⁴ for further related Guidance Material.

**Regulation
5810(3)**

Application (MRP Part 21.A.15)

5810(3) An application for an MTC **shall** be made by the TAA using MAA Form 30.

**Acceptable
Means of
Compliance
5810(3)**

Application (MRP Part 21.A.15)

13. The MAA Form 30 submission **should** include:

- a. Preliminary descriptive data of the Air System, the intended use of the Air System, and the kind of operations for which Certification is requested.
- b. Details of the Type Design aspects that are considered to be novel technology and for which existing Certification Specifications do not provide adequate standards.
- c. The intended standards which will demonstrate compliance against Programmable Elements (PE) and / or Cyber Security for Airworthiness (CSA) requirements.

¹² Refer to RA 5012 – Type Airworthiness Safety Assessment.

¹³ Where RTS Authority (RTSA) is used in this RA, this also includes the Sponsor responsible for authorizing the MPTF (In-Service) or the TAM responsible for approving the MPTF (Special Case Flying) for Civilian Operated Air Systems, as detailed at RA 1305 – Military Permit to Fly (MPTF) (In-Service), (Special Case Flying) and (Single Task).

¹⁴ Refer to MMAC Chapter 2: Certification of Air System Type Designs (MRP Part 21 Subpart B) and the MACP.

¹⁵ Refer to RA 5850 – Military Design Approved Organization (MRP Part 21 Subpart J).

Acceptable Means of Compliance 5810(3)

14. Where Operational Suitability Data (OSD) is available for the Air System, the application for an MTC or changes in Type Design **should** include, or be supplemented after the initial application by, an assessment of the implications on the OSD resulting from military operation.
15. An application for a change in Type Design **should** be made under RA 5820¹⁶.

Guidance Material 5810(3)

Application (MRP Part 21.A.15)

16. When the application for an MTC is based on a Type Certificate (TC) issued by a civil regulator (such as the European Union Aviation Safety Agency (EASA)), such a TC may contain OSD as Approved Data. The OSD available will depend upon the class of Air System based around the following defined constituents:
 - a. Minimum syllabus of pilot type rating training, including the determination of type rating.
 - b. Definition of scope of the Air System Validation source data to support the objective qualification of simulator(s) associated to the pilot type rating training, or provisional data to support their interim qualification.
 - c. Minimum syllabus of Maintenance certifying staff type rating training, including determination of type rating.
 - d. Determination of type specific data for cabin crew training.
 - e. The Master Minimum Equipment List (MMEL).
 - f. Other type-related operational suitability elements.
17. An assessment of the implications on the OSD is required in the scope of the proposed military operation(s), taking in to account the difference in assumptions that were the basis for the OSD in the civil TC and compatibility with training for military pilots, other Aircrew and Maintenance certifying staff.
18. Refer to the MMAC for further related Guidance Material.

Regulation 5810(4)

Type Certification Basis (MRP Part 21.A.15)

- 5810(4) The OCD or TAA **shall** propose the TCB consisting of applicable Airworthiness Requirements and Military Certification Review Items (MCRIs) to include proposed Special Conditions, ELoS, Deviations and 'elect to comply' items as applicable.

Acceptable Means of Compliance 5810(4)

Type Certification Basis (MRP Part 21.A.15)

19. Defence Standard (Def Stan) 00-970¹⁷ series **should** be used as the default Certification Specifications for Airworthiness Requirements.
20. Formal Approval **should** be sought from the MAA for the use of alternative Certification Specifications ▶8◀.
21. Certification Specifications used **should** be annotated with a clear statement as to which versions will be applied.
22. If the TAA elects to comply with an amendment to a Certification Specification that is effective after the filing of the application for an MTC, the TAA **should** also comply with any other amendment that the MAA finds is directly related.
23. Special detailed technical specifications, named Special Conditions, for an Air System, **should** be approved by the MAA if the related Certification Specifications do not contain adequate or appropriate Safety standards for the Air System or an element of its design, in any of the following circumstances:

¹⁶ Refer to RA 5820 – Changes in Type Design (MRP Part 21 Subpart D).

¹⁷ Refer to Defence Standard 00-970 – Certification Specifications for Airworthiness.

Acceptable Means of Compliance 5810(4)

- a. The Air System has or may have novel or unusual design features relative to the design practices on which the applicable Certification Specifications are based.
 - b. The Air System design usage assumptions do not match the intended military usage.
 - c. Experience from other similar In-Service Air Systems or having similar design features, has shown that Unsafe Conditions¹⁸ may develop.
 - d. Suitable Certification Specifications do not exist for the concerned Air System or specific design feature.
24. For new Air Systems, the TCB **should** be proposed by the relevant DE&S OCD¹⁹.
25. The TCB will be effective for a period of 5 years from the date of MTC application. If MTC / Restricted MTC (RMTC) is not achieved within that timescale, the TAA **should** undertake a review of the Certification Specifications used to define the TCB to assess any shortfalls against Airworthiness Requirements in the latest Issue.
26. The TCB, and all amendments to it during the Certification process, **should** be agreed by the MAA. Any Equivalent Safety Finding (ESF) or Deviations issued by the MAA **should** be incorporated into the TCB.
27. The TAA **should** maintain a register and adequate Configuration Control of all MCRIs applicable to the TCB.

Guidance Material 5810(4)

Type Certification Basis (MRP Part 21.A.15)

28. The MTC certifies that the Air System meets the TCB, including any applicable ESFs and Deviations¹⁴, otherwise an RMTC may be issued (see RA 5810(9)).
29. In line with relevant Certification Specifications, Instructions for Sustaining Type Airworthiness (ISTA) will be prepared iaw the TCB²⁰.
30. Any proposed alternative Certification Specifications will be sufficiently detailed and specific, such that the case for their use is clear.
31. Any Special Conditions will contain such Safety standards that the TAA finds necessary to establish a level of Safety that is acceptable to the MAA.
32. Where the MAA has previously approved a Specification(s) to support Certification of the Air System (or sub-system changes), it may be appropriate to use the same Specification(s) to identify Airworthiness Requirements for changes to Type Design. Justification for this choice would have to demonstrate that, with respect to the proposed change, the rationale underpinning the MAA's previous Approval remained valid and that the Certification Specification(s) provide adequate Airworthiness Requirements. Designation of applicable Certification Specifications for changes to Type Design is regulated by RA 5820¹⁶.
33. Refer to the MMAC¹⁴ for further related Guidance Material.

Regulation 5810(5)

Certification Programme (MRP Part 21.A.15)

- 5810(5) The TAA **shall** propose to the MAA a CP that ► includes ◀ the means to demonstrate compliance.

Acceptable Means of Compliance 5810(5)

Certification Programme (MRP Part 21.A.15)

34. The CP **should** include:
- a. A project schedule including major milestones.

¹⁸ The ► phrase 'Unsafe Conditions' is ◀ used in RA 5805 – Airworthiness Directives and Service Bulletins (MRP Part 21 Subpart A) to justify the basis for an Airworthiness Directive or Service Bulletin.

¹⁹ Refer to RA 1013 – Air Systems Operating Centre Director - Provision of Airworthy and Safe Systems.

²⁰ Refer to RA 5815 – Instructions for Sustaining Type Airworthiness.

**Acceptable
Means of
Compliance
5810(5)**

- b. Identification of relevant personnel making decisions affecting Airworthiness.
 - c. A detailed description of the Type Design, including all the Configurations to be certified; proposed operating characteristics and limitations where available; and the intended use of the Air System and the kind of operations for which Certification is requested.
 - d. The TCB, as established and agreed at Phase 2, with a proposal for the Means of Compliance (MC) and related compliance document(s) for each applicable Airworthiness Requirement.
 - e. A proposal for a breakdown of the CP into meaningful groups of compliance demonstration activities and data, including a proposal for MC and related compliance document(s) against each group.
 - f. A proposal for the TAA and MAA Levels of Involvement (LoI) in the Verification of compliance demonstration activities and data.
35. The CP **should** be agreed by the MAA before compliance demonstration commences and updated as necessary during the Certification process.

**Guidance
Material
5810(5)**

Certification Programme (MRP Part 21.A.15)

36. Refer to the MMAC¹⁴ for related Guidance Material.

**Regulation
5810(6)**

Changes Requiring a New Military Type Certificate (MRP Part 21.A.19)

- 5810(6) The TAA **shall** apply for a new MTC if it is determined that any proposed change in design, Configuration, power, thrust or mass is so extensive that a substantially complete investigation of compliance with the applicable TCB is required.

**Acceptable
Means of
Compliance
5810(6)**

Changes Requiring a New Military Type Certificate (MRP Part 21.A.19)

37. Applications for a new MTC **should** demonstrate compliance with RA 5810(3).

**Guidance
Material
5810(6)**

Changes Requiring a New Military Type Certificate (MRP Part 21.A.19)

38. Changes in Type Design are addressed in RA 5820¹⁶ including guidance on when it may be necessary to apply for a new MTC.
39. Refer to the MMAC¹⁴ for further related Guidance Material.

**Regulation
5810(7)**

Compliance with the Type Certification Basis (MRP Part 21.A.20)

- 5810(7) The TAA **shall** demonstrate compliance with the TCB following the means approved in the CP.

**Acceptable
Means of
Compliance
5810(7)**

Compliance with the Type Certification Basis (MRP Part 21.A.20)

40. The TAA **should** submit a TCE to the MAA that includes:
- a. Access to all compliance documents referenced in the CP, updated to include justifications of compliance.

**Acceptable
Means of
Compliance
5810(7)**

- b. Detail of any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on Air System Safety or related Risk to Life (RtL).
- c. Identification of any Airworthiness Requirements not complied with that are compensated for by controls, factors, or mitigations that provide an ELoS.
- d. Identification of any Airworthiness Requirements not complied with that are compensated for by AltMoC to demonstrate compliance with Essential Requirements for Airworthiness¹¹.
- e. A statement from the TAA declaring:
 - (1) Compliance with the TCB following the means approved in the CP.
 - (2) No feature or characteristic has been identified that may make the Air System unsafe for the uses for which Certification is requested.

**Guidance
Material
5810(7)**

Compliance with the Type Certification Basis (MRP Part 21.A.20)

- 41. Where the MAA is satisfied that an ELoS has been demonstrated, an ESF will be issued.
- 42. Where the MAA is satisfied that AltMoC demonstrate compliance with the Essential Requirements for Airworthiness, a Deviation will be issued.
- 43. The MAA may elect to place a time limit on the validity of an ESF or Deviation, where appropriate, to enable full compliance with the applicable Certification Requirement(s) to be demonstrated.
- 44. Refer to the MMAC¹⁴ for related Guidance Material.

**Regulation
5810(8)**

Issue of Military Type Certificate (MRP Part 21.A.21)

- 5810(8) The TAA **shall** be issued with an MTC when the MAA has accepted that the requirements of the MACP have been fully satisfied and the TAA has confirmed that their organization is appropriately placed in terms of resourcing, contractual position and access to design information to manage the MTC.

**Acceptable
Means of
Compliance
5810(8)**

Issue of Military Type Certificate (MRP Part 21.A.21)

- 45. The TAA **should** make a declaration when appropriate that their organization is ready to manage the MTC. The declaration **should** include confirmation that the Air System is UMC²¹.

**Guidance
Material
5810(8)**

Issue of Military Type Certificate (MRP Part 21.A.21)

- 46. Refer to the MMAC¹⁴ for related Guidance Material.

**Regulation
5810(9)**

Issue of Restricted Military Type Certificate (MRP Part 21.A.21)

- 5810(9) The TAA **shall** be issued with a RMTC where compliance with the TCB, including appropriate ESFs and Deviations, has not been fully demonstrated, but the Certification evidence has been assessed, by the MAA, to demonstrate a level of Safety which is adequate with regard to the intended use.

²¹ Refer to RA 5301 - Air System Configuration Management.

**Acceptable
Means of
Compliance
5810(9)**

Issue of Restricted Military Type Certificate (MRP Part 21.A.21)

47. Alternative Means to demonstrate a level of Safety which is adequate with regard to the intended use **should** be agreed with the MAA, via an MCRI, supported by Aviation Duty Holder²² acceptance of any elevated RtL when compared to full compliance with the TCB requirements.
48. When shortcomings are identified in the Certification evidence provided in the TCE or RTSR, the TAA **should** progress the resultant MACP Actions to closure with MAA agreement or to a level deemed acceptable by the MAA.
49. Any restrictions identified in the RMTTC, or Restricted Approved Design Changes Certificate (RADCC)¹⁴, **should** be copied verbatim into the RTS by the RTSA.

**Guidance
Material
5810(9)**

Issue of Restricted Military Type Certificate (MRP Part 21.A.21)

50. Refer to the MMAC¹⁴ for further related Guidance Material.

**Regulation
5810(10)**

Type Design (MRP Part 21.A.31)

- 5810(10) The TAA **shall** ensure through Configuration Management that the certified Type Design is defined, identified and controlled by drawings, specifications, manufacturing processes and Airworthiness limitations.

**Acceptable
Means of
Compliance
5810(10)**

Type Design (MRP Part 21.A.31)

51. The Type Design **should** consist of:
- The drawings and specifications (or equivalent), and a listing of those drawings and specifications, necessary to define the Configuration and the design features of the Air System shown to comply with the applicable TCB.
 - Information on materials and processes, and on methods of manufacture and assembly necessary to ensure the conformity of the Air System.
 - An approved Airworthiness limitations section of the ISTA²⁰ as defined by the applicable Certification Specifications.
 - Any other data necessary to allow, by comparison, the determination of the Airworthiness of later Configurations of Air Systems of the same type.

**Guidance
Material
5810(10)**

Type Design (MRP Part 21.A.31)

52. Refer to the MMAC¹⁴ for related Guidance Material.

**Regulation
5810(11)**

Inspections and Tests (MRP Part 21.A.33)

- 5810(11) The TAA **shall** assure themselves that for inspections and tests undertaken to demonstrate compliance with the TCB, the test specimens adequately conform to the specifications of the proposed Type Design and the Test and Measuring Equipment to be used are adequate and appropriately calibrated.

**Acceptable
Means of
Compliance
5810(11)**

Inspections and Tests (MRP Part 21.A.33)

53. The TAA **should** assure themselves that, before inspections or tests are undertaken to demonstrate compliance with the TCB, the DO has ensured:

²² or Accountable Manager (Military Flying) (AM(MF)) if appropriate.

**Acceptable
Means of
Compliance
5810(11)**

- a. That materials and processes adequately conform to the specifications for the proposed Type Design.
- b. Those parts of the Air System adequately conform to the drawings in the proposed Type Design.
- c. That the manufacturing processes, construction and assembly adequately conform to those specified in the proposed Type Design.
- d. That the test equipment and all measuring equipment used for tests are adequate and appropriately calibrated.
- e. That a statement of conformity is issued listing any non-conformity, together with a justification that this will not affect the test results.

54. Where identified in the Lol agreed in the CP, the TAA **should** make provisions for the MAA to:

- a. Review any data and information related to the demonstration of compliance.
- b. Witness or carry out any test or inspection conducted for the purpose of the demonstration of compliance.

**Guidance
Material
5810(11)**

Inspections and Tests (MRP Part 21.A.33)

55. The DO's statement of conformity is intended to ensure that: the manufactured test specimen adequately represents the proposed Type Design; the Test and Measuring Equipment conform to its purpose; and that the sensors and measuring system are appropriately calibrated. Any non-conformity will be assessed for justification that it will not compromise the test purpose and results. This can be achieved either in the statement of conformity or by cross reference to other documents (test minutes of meetings, test notes etc).

56. Type Certification is typically an iterative process in which the design is under continuous evolution. If the Type Design evolves after the time of the inspection or test, then the final Type Design will be checked against the proposed Type Design (as it was at the time of the inspection or test), and the differences (if any) analyzed to ensure that the inspection or test results are representative of the final Configuration. However, such changes made to the Type Design may lead to the invalidation of the inspection or test results and a need to repeat the inspection or test. The DO will need to have a robust Configuration Management process to track the evolving Type Design.

57. The Lol agreed in the CP will need to be considered by the TAA as this is where the MAA will have determined the inspections and tests they wish to witness.

58. The scope of these requirements is not limited to inspections and tests, they refer to any data or information related to demonstration of compliance with the TCB.

59. Refer to the MMAC¹⁴ for further related Guidance Material.

**Regulation
5810(12)**

Flight Tests (MRP Part 21.A.35)

5810(12) Flight testing for the purpose of obtaining an MTC or RMTC **shall** be conducted iaw RA 5880²³.

**Acceptable
Means of
Compliance
5810(12)**

Flight Tests (MRP Part 21.A.35)

60. The TAA **should** ensure that all necessary flight tests are conducted to determine compliance with the applicable TCB.

61. For civil-derived Military Registered Air Systems, the TAA **should** ensure that any flight testing undertaken for the civil Certification satisfies the requirements of MOD usage or makes provision to demonstrate compliance.

²³ Refer to RA 5880 – Military Permit to Fly (Development) (MRP Part 21 Subpart P).

Guidance Material 5810(12)	Flight Tests (MRP Part 21.A.35) 62. Nil.
Regulation 5810(13)	Responsibilities of the Holder (MRP Part 21.A.44) 5810(13) The TAA, as the MTC or RMTC holder, shall fulfil the responsibilities detailed in RA 1015 ²⁴ .
Acceptable Means of Compliance 5810(13)	Responsibilities of the Holder (MRP Part 21.A.44) 63. Nil.
Guidance Material 5810(13)	Responsibilities of the Holder (MRP Part 21.A.44) 64. Nil.
Regulation 5810(14)	Transferability (MRP Part 21.A.47) 5810(14) If an MTC or RMTC is transferred, the transfer shall be made only to a TAA within the UK Defence Air Environment and who is able to fulfil the responsibilities detailed in RA 1015 ²⁴ .
Acceptable Means of Compliance 5810(14)	Transferability (MRP Part 21.A.47) 65. The transfer of the MTC or RMTC should only be made with the agreement of the MAA.
Guidance Material 5810(14)	Transferability (MRP Part 21.A.47) 66. Refer to the MMAC ²⁵ for related Guidance Material.
Regulation 5810(15)	Duration and Continued Validity (MRP Part 21.A.51) 5810(15) An MTC, or RMTC shall remain valid subject to the TAA remaining in compliance with RA 1015 ²⁴ , and providing the certificate has not been suspended or revoked.
Acceptable Means of Compliance 5810(15)	Duration and Continued Validity (MRP Part 21.A.51) 67. Upon notification of suspension or revocation, the MTC or RMTC should be surrendered to the MAA Certification Division and the appropriate RTSA, Operating Duty Holder (ODH), and AM(MF) informed. 68. The TAA should inform the MAA, RTSA, ODH and AM(MF) as soon as practicable when they are no longer able to meet the Responsibilities defined by RA 1015 ²⁴ , for one or several types of Air System under their Responsibility.
Guidance Material 5810(15)	Duration and Continued Validity (MRP Part 21.A.51) 69. Refer to the MMAC ²⁵ for related Guidance Material.

²⁴ Refer to RA 1015 – Type Airworthiness Management – Roles and Responsibilities.

²⁵ Refer to MMAC Chapter 4: MTC and ADCC Explained.

**Regulation
5810(16)**

Record Keeping (MRP Part 21.A.55)

5810(16) The TAA **shall** ensure that all significant documents supporting Certification are retained and are available to the MAA in order to provide an Audit trail of evidence supporting Air Safety decision-making.

**Acceptable
Means of
Compliance
5810(16)**

Record Keeping (MRP Part 21.A.55)

70. Procedures **should** be applied to ensure that:

- a. An Audit trail of significant documents supporting Certification, and information necessary to ensure the continued Airworthiness and continued validity of the OSD, is maintained correctly²⁶.
- b. Any significant document supporting Certification can be made available to the MAA on request.

**Guidance
Material
5810(16)**

Record Keeping (MRP Part 21.A.55)

71. International or collaborative projects will be required to co-ordinate custodianship of appropriate documentation; however, the TAA will still need to agree suitable access.

72. Significant documents supporting Certification include any document supporting decision-making or evidence submitted as part of the MACP such as relevant design information, drawings, test reports, including inspection records for the Air System tested, meeting records, Safety Assessments, independent analysis etc.

73. It is acceptable that significant documents supporting Certification are held by the appropriate DO ► **providing that contractual arrangements are in place for UK MOD access to these documents when required.** ◀

74. Refer to the MMAC¹⁴ for further related Guidance Material.

**Regulation
5810(17)**

Manuals (MRP Part 21.A.57)

5810(17) The TAA **shall** ensure that all master copies of manuals required by the applicable TCB are produced, maintained and updated by the appropriate DO and are available to the MAA on request.

**Acceptable
Means of
Compliance
5810(17)**

Manuals (MRP Part 21.A.57)

75. The contents of the manuals **should** be Validated by the appropriate DO. For manuals generated by non-DO entities, the TAA **should** assume Responsibility for Validation.

**Guidance
Material
5810(17)**

Manuals (MRP Part 21.A.57)

76. Nil.

²⁶ Refer to RA 1225 – Air Safety Documentation Audit Trail.

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RA 5850 – Military Design Approved Organization (MRP Part 21 Subpart J)

Rationale

The Design Approved Organization Scheme (DAOS) is a mechanism by which the Competence of a Design Organization (DO) can be assessed. The use of a non-DAOS organization for design services may introduce design errors to the Design. Approval under DAOS is subject to adherence with the established procedures and rules governing the Responsibilities and privileges for Military Design Approved Organizations.

Contents

5850(1): Responsibilities of a Design Organization
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5850(7): Investigations and Inspections (MRP Part 21.A.257)
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5850(9): Findings (MRP Part 21.A.258)
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5850(11): Privileges (MRP Part 21.A.263)
5850(12): Designs using Government Furnished Equipment
5850(13): Record Keeping

Regulation 5850(1)

Responsibilities of a Design Organization

5850(1) A DO or Co-ordinating DO (CDO) **shall** fulfil the defined design and development Responsibilities under their Terms of Approval.

Acceptable Means of Compliance 5850(1)

Responsibilities of a Design Organization

1. For Civilian-Owned or Civilian Operated Air Systems the Air System Sponsor can split Type Airworthiness (TAW) Responsibility between the Type Airworthiness Authority (TAA) and a Type Airworthiness Manager (TAM), the TAA **should** provide advice to the Sponsor on the most appropriate split of Responsibilities¹. Dependant on the agreed split of TAW design Responsibilities TAM may be read in place of TAA as appropriate throughout this RA.
2. The DO **should** review this RA in its entirety, noting the term DO throughout includes DO, CDO and Air System CDO. Therefore, CDO and Air System CDO may be read in place of DO as appropriate throughout this RA.
3. The DO **should**:
 - a. Meet the Responsibilities as defined².
 - b. Maintain its DO Exposition (DOE) in conformity with the Design Management System (DMS).
 - c. Ensure that the DOE references the basic working documents within the organization.

¹ Where the Air System is not UK MOD-owned, TAW management regulatory Responsibility by either the TAA or TAM needs to be agreed within the Sponsor's approved model; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems, or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAW Responsibilities TAM may be read in place of TAA as appropriate throughout this RA.

² Refer to RA 1014 – Design Organizations and Co-ordinating Design Organizations – Airworthiness Responsibilities.

Acceptable Means of Compliance 5850(1)

- d. Determine that the design of Products, Parts, Appliances, Airborne Equipment (AE) and Air Launched Weapons (ALW) or changes or Repairs thereof, comply with applicable Airworthiness requirements or Contracted specifications and have no feature that can lead to an Unsafe Condition.
- e. Provide to the TAA or Commodity Chief Engineer (CE) associated documentation confirming compliance, and when applicable a Certificate of Design (CofD)^{3, 4, 5}.
- f. Ensure TAA or Commodity CE is provided access to the Design data, including instructions associated with Unsafe Conditions such as Airworthiness Directives⁶ (AD), Service Bulletins⁶ (SB) for civil-derived Air Systems, or Special Instructions (Technical) (SI(T))⁷ for military designed Air Systems.

Guidance Material 5850(1)

Responsibilities of a Design Organization

4. The role of the DO, CDO or Air System CDO to meet the Airworthiness Responsibilities of RA 1014² will be established by the TAA.

Regulation 5850(2)

Scheme Inclusion and Approval Award

- 5850(2) An organization **shall** be included in the DAOS and awarded Approval for a defined range of Products, Parts, Appliances, AE and ALW, only when the organization has been assessed and approved by the Military Aviation Authority (MAA).

Acceptable Means of Compliance 5850(2)

Scheme Inclusion and Approval Award

5. An organization seeking inclusion in the scheme **should** apply using MAA DAOS Form 80, which can be found on the MAA website under Approval Schemes⁸, through the MOD sponsor to the MAA.
6. Before a review of the organization's design, development and post-design support arrangements is undertaken, the DO **should** satisfy the MAA that:
 - a. It is in the interests of MOD to include the organization in the Scheme.
 - b. The organization holds Quality Management System (QMS) Certification to AS/EN 9100, or to ISO 9001 providing the scope of the Certification covers the proposed DO Terms of Approval.

Guidance Material 5850(2)

Scheme Inclusion and Approval Award

7. Inclusion in DAOS is normally an essential pre-requisite for the award of design and development contracts for Air Systems⁹. Although it is understood that an organization may wish to bid for a contract, it is the TAA or Commodity CE's Responsibility to consider whether, in this case, the organization is capable of holding a DAOS Approval. The DAOS Approval is recognition that the MOD accepts that an organization has demonstrated an appropriate standard of compliance and that a specified performance attribute or objective has been achieved.
8. When evidence presented by the organization demonstrates that it satisfies the requirements of RA 5850, a DAOS Approval will be issued by the MAA.
9. A list of organizations that have been granted Approval is published by the MAA¹⁰.

³ Refer to RA 5103 – Certificate of Design.

⁴ Refer to RA 5820 – Changes in Type Design (MRP Part 21 Subpart D).

⁵ Refer to RA 5865 – Repairs (MRP Part 21 Subpart M).

⁶ Refer to RA 5805 – Airworthiness Directives and Service Bulletins (MRP Part 21 Subpart A).

⁷ Refer to RA 5405 – Special Instructions (Technical).

⁸ Refer to <https://www.gov.uk/government/publications/design-approved-organization-scheme-daos>.

⁹ ► In this RA, the use of "Air System" includes, but is not limited to, Airborne Equipment, Air Launched Weapons, Survival Equipment, and Aircrew Equipment Assemblies. ◀

¹⁰ Refer to <https://www.gov.uk/government/publications/list-of-maa-approved-organisations>.

**Guidance
Material
5850(2)**

Terms of Approval

10. The Terms of Approval will identify the types of design work, categories of Air Systems ►◄ for which the designer can operate as a DO, and the functions and duties that the organization is approved to perform. Those terms will be issued as part of the DO Approval.
11. The Terms of Approval encompass the Certificate and Schedule issued by the MAA:
- a. The Certificate identifies the approved organization and its primary design location.
 - b. The Schedule includes:
 - (1) The scope of work (development, design changes and / or Repair and Post Design Services unless otherwise stated), with any appropriate limitations against which the Approval has been granted.
 - (2) The categories of Products, Parts, Appliances, AE and ALWs.
 - (3) Airworthiness and design signatories.
 - (4) Military Permit to Fly (MPTF) signatories.
 - (5) Approved TAM.
 - (6) Privileges that can be invoked by the relevant TAA or Commodity CE by contract.
 - (7) TAM Responsibilities.
 - (8) Reference to the DOE, provided in accordance with (iaw) RA 5850(4).

Changes to the Terms of Approval

12. An application for a change to the Terms of Approval will be made on MAA DAOS Form 82, which can be found on the MAA website under Approval Schemes⁸.
13. Approval of a change in the Terms of Approval will be confirmed by an appropriate amendment of the Certificate and Schedule as appropriate.

**Regulation
5850(3)**

Design Management System (MRP Part 21.A.239)

- 5850(3) The DO **shall** demonstrate that it has established and is able to maintain a DMS for the control and supervision of the design, and of design changes, of Products, Parts and Appliances, AE and ALWs covered by the application.

**Acceptable
Means of
Compliance
5850(3)**

Design Management System (MRP Part 21.A.239)

14. The DO **should** establish, implement and maintain a DMS that includes a Safety Management System and a design Assurance system with clear lines of Responsibility and accountability throughout the organization.
15. The DMS **should**:
- a. Correspond to the size of the organization and the nature and complexity of its activities, taking into account the Hazards and the associated Risks that are inherent in these activities; and
 - b. Be established under the direct accountability of a single manager according to Annex A of this RA.
16. The DMS **should** be such as to enable the organization:
- a. To ensure that the design of the Products, Parts and Appliances, AE and ALWs or the design change or Repair solution thereof, comply with the applicable Airworthiness requirements or Contracted specifications and establish the extent of compliance with the requirements by Inspection, Demonstration, Analysis and Test.

Acceptable Means of Compliance 5850(3)

- b. To ensure that its Responsibilities are properly discharged iaw the RA 5000 series as required by the organization's contract with MOD, and in particular:
 - (1) The appropriate provisions of RA 5800 series.
 - (2) The Terms of Approval issued under RA 5850(2).
 - (3) CofD³.
 - (4) Defence Air Safety Management¹¹.
 - (5) Configuration Management of design¹².
 - c. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring **should** include a feed-back system to a person or a group of persons having the Responsibility to ensure corrective actions are resolved.
17. The DO **should** hold regular design reviews to validate the design proposals, completion of which ►needs to◄ be checked as part of the DMS.
 18. The DMS **should** include an independent Verification function to validate that the compliance evidence meets Certification requirements, on the basis of which the organization submits a CofD and associated documentation to the TAA or Commodity CE.
 19. The DMS **should** ensure that complete Instructions for Sustaining Type Airworthiness (ISTA)¹³ and operating instructions (as required), are provided to the TAA or Commodity CE for the Air System ►◄. The DMS **should** ensure that support and updated ISTA and operating instructions are provided, as required, throughout the life cycle of the Air System.
 20. The DO **should** specify and document the manner in which the DMS accounts for the acceptability of the Products, Parts or Appliances, AE and ALWs designed and / or the tasks performed by partners or subcontractors.

Guidance Material 5850(3)

Design Management System (MRP Part 21.A.239)

21. The system monitoring function may be undertaken by the existing Quality Assurance organization when the DO is part of a larger organization. For an explanation of the terms used within a DMS refer to Annex A.
22. The independent Verification function is undertaken by Compliance Verification Engineers (CVE), as detailed within Annex A; this is a DO focussed role to ensure compliance with the applicable Certification requirements. This is not ►the same as◄ the role of the Independent Technical Evaluator (ITE), who is appointed by the TAA or Commodity CE, independent of the DO and will provide independent analysis of the DO evidence.
23. However, when the approved DO is introducing a Minor Change⁴ to the Air System under privilege¹⁴ the role of the ITE may, in agreement with the TAA, be satisfied by the independent assessment conducted by the CVE.

Regulation 5850(4)

Design Organization Exposition

- 5850(4) As part of the DMS the DO **shall** furnish a DOE to the MAA describing, directly or by cross-reference, the organization, the relevant procedures and the Products, Parts, Appliances, AE and ALWs to be designed, changed or Repaired.

¹¹ Refer to RA 1200 – Air Safety Management.

¹² Refer to RA 5301 – Air System Configuration Management.

¹³ Refer to RA 5815 – Instructions for Sustaining Type Airworthiness.

¹⁴ Refer to RA 5850(11): Privileges (MRP Part 21.A.263).

**Acceptable
Means of
Compliance
5850(4)**

Design Organization Exposition

24. The DOE **should** be produced and include the content detailed in Annex B. The DOE **should** be concise with sufficient information that is relevant to the Terms of Approval sought by the DO. If the DOE is completely or partially integrated into the company organization manual, identification of the information required by RA 5850(4) **should** be provided by giving appropriate cross references and these documents made available to the MAA.

25. Where any Products, Parts, Appliances, AE or ALWs or any changes to these are designed by partner organizations or subcontractors, the DOE **should** articulate how the DO is able to give, for all Products, Parts, Appliances, AE and ALWs, the Assurance of compliance required by RA 5850(3) above. The statement **should** contain, directly or by cross-reference, descriptions and information on the design activities and organization of those partners or subcontractors, as necessary to establish this statement.

26. To maintain DAOS Approval, the DOE **should** remain an accurate reflection of the organization with significant¹⁵ amendment submitted to the MAA for Approval. Amendment submission **should not** be taken to confer that Approval for the DAOS change is in place.

27. To demonstrate compliance with RA 5850(4), a DO with a European Union Aviation Safety Agency (EASA) or a UK Part 21 Subpart J Approval can use this in support of obtaining a DAOS Approval. In these instances, the DO **should** submit the handbook used in their civil Approval providing it covers the required Terms of Approval. In addition, the DO **should** provide the MAA with a supplementary Exposition that identifies the additional measures that have been put in place over and above those set down in its extant civil handbook and associated procedures, to account for the differences in complying with the MAA Regulatory Publications (MRP). For a DO with other civil Approvals, a justification **should** be submitted identifying why this is considered appropriate, and advice and agreement **needs to** be sought from the DAOS branch prior to submission of an application. This **should** demonstrate that the supplemental Exposition route is appropriate for the associated Products, Parts, Appliances, AE or ALW.

28. To obtain and maintain Approval of a TAM, a DO **should** submit a Type Airworthiness Management Supplement using the template hosted on the MAA Website.

Organization

29. The DOE **should** show that:

- a. The Head of the DO (HDO) for which an application for Approval has been made, has the direct or functional Responsibility for all departments of the organization which are responsible for the design of the Products, Parts and Appliances, AE and ALWs. If the departments responsible for design are functionally linked, the HDO still carries the ultimate Responsibility for compliance of the organization with this RA.
- b. The HDO has the direct or functional Responsibility for all departments of the organization which are involved in the design of changes to design or Repairs to Products, Parts, Appliances, AE and ALWs.
- c. An Office of Airworthiness, or equivalent function, has been established and staffed on a permanent basis to act as the focal point for co-ordinating Airworthiness matters; it reports directly to the HDO or is integrated into an independent Quality Assurance organization reporting to the HDO.
- d. Person(s) have been nominated to liaise with the Authority and to co-ordinate Airworthiness matters. Their position in the organization **should** allow direct reporting to the manager responsible for design.

¹⁵ Refer to paragraph 47.

Acceptable Means of Compliance 5850(4)

- e. Responsibilities for all tasks related to the design and Approval of changes to design or Repairs to Products, Parts, Appliances, AE and ALWs are assigned to ensure that all areas are covered.
- f. Responsibilities for all tasks related to Design Investigations are assigned in such a way that gaps in authority are excluded.
- g. The process for tailoring of the design system is dependent on complexity of design activities.
- h. Co-ordination between technical departments and the Head of Independent System Monitoring (HISM) has been established:
 - (1) To ensure quick and efficient reporting and resolution of difficulties encountered using the DO handbook and associated procedures.
 - (2) To maintain the DMS.
 - (3) To optimize auditing activities.

Guidance Material 5850(4)

Design Organization Exposition

30. A template Design Organization Exposition and Type Airworthiness Management Supplement are provided on the MAA website.

Regulation 5850(5)

Approval Requirements (MRP Part 21.A.245)

- 5850(5) The DO **shall** demonstrate that:
- a. Staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to discharge their allocated Responsibilities.
 - b. There is full and efficient coordination between departments and within departments in respect of Airworthiness.

Acceptable Means of Compliance 5850(5)

Approval Requirements (MRP Part 21.A.245)

General

31. The DO **should** ensure that the accommodation, facilities and equipment are adequate to enable the staff to satisfy the Airworthiness requirements or Contracted specifications for the Product, Part, Appliance, AE and ALWs.
32. The data submitted iaw RA 5850(4) **should** show that sufficient skilled personnel are available and suitable technical and organizational provisions have been made for carrying out the Design Investigation¹⁶ defined under RA 5850(3).

Personnel

33. The DO **should** show that the personnel available to comply with this RA are, due to their special qualifications and number, able to provide Assurance of the design, design change or Repair of Products, Parts, Appliances, AE and ALWs, as well as the compilation and Verification of all data needed to meet the applicable Certification Specifications.
34. Evidence of their qualifications and experience **should** be documented for the persons who accept the duties defined by the following roles:
- a. Chief Executive. A statement of the qualification and experience of the Chief Executive is normally not required unless they are also filling one of the other specified roles (paragraphs 34b-e).
 - b. HDO. The position of HDO, due to the nature of the role in the DO, can also hold additional roles such as the TAM where clear independence, sufficient capacity and clear separation of the Responsibilities can be demonstrated.

¹⁶ The term 'Design Investigation' means the tasks of the organization in support of the Military Type Certificate (MTC) or other Design Approval processes necessary to show and verify and to maintain compliance with the applicable Certification Specifications.

**Acceptable
Means of
Compliance
5850(5)**

- c. Head of Airworthiness (HoA).
- d. HISM. The position of the HISM, due to the nature of the role in independent system monitoring, **should not** be permitted to hold additional roles such as TAM, HDO, HoA or CofD Signatory.
- e. CVE.
- f. TAM.

35. The credentials of the, HDO, HoA, HISM and TAM **should** be provided to MAA using MAA DAOS Form 4.

36. Anyone who has authority to sign the CofD, or MPTF (Development) within the DO **should** also provide the MAA with a MAA DAOS Form 4.

37. For the CVE, no individual statement is needed. CVEs **should** be selected by the DO based on their knowledge, background and experience as defined in the DOE. When necessary, complementary training **should** be established to ensure that CVEs have sufficient background and knowledge in the scope of their Authorization.

38. The DO **should** maintain a record of the CVE personnel, which includes details of the scopes of their Authorizations. The CVE personnel **should** be given reasonable access on request to their own records. As part of its investigations, MAA **should** have the right to access the data held in such a system.

39. Where a TAM holds other roles in the DO, independence **should** be demonstrated.

40. The DO **should** maintain a record of anyone who has authority to sign the Flight Clearance Note for Non-Production Standard Propulsion Systems in support of a MPTF (Development)¹⁷. As part of its investigations, the MAA **should** be given access to the data held in such a system.

Technical

41. The Chief Executive **should** provide the necessary resources for the proper functioning of the DO.

42. The DO **should** have access to:

- a. Workshops and production facilities which are suitable for manufacturing prototype models and test specimens.
- b. Accommodation and test facilities which are suitable for carrying out tests and measurements needed to demonstrate compliance with the applicable Certification Specifications.

**Guidance
Material
5850(5)**

Approval Requirements (MRP Part 21.A.245)

Technical

43. The test Facilities may be subjected to additional technical conditions related to the nature of the tests performed.

44. Staff will be suitably qualified and with commensurate levels of experience appropriate for the role they have been assigned.

45. For smaller DOs, certain roles within the DO may be combined. Combinations of Responsibilities are acceptable where:

- a. The role of the HDO may be fulfilled by the Chief Executive of the legal entity;
- b. The HDO and the HoA are the same person, provided that the person has the Competence to fulfil both functions;
- c. The role of the HISM is an external person for all or part of the role;

¹⁷ Refer to RA 5880 – Military Permit to Fly (Development) (MRP Part 21 Subpart P).

**Guidance
Material
5850(5)**

- d. A part-time HoA, provided that the person is directly involved in the DO, and not by an agreement between two DOs, and provided that the availability of the person ensures that response times will be adequate.

**Regulation
5850(6)**

Changes in Design Management System (MRP Part 21.A.247)

- 5850(6) After the issue of a DO Approval, each change to the DMS that is significant to the showing of compliance or to the Airworthiness of the Product, Part, Appliance, AE and ALWs **shall** require Approval by the MAA.

**Acceptable
Means of
Compliance
5850(6)**

Changes in Design Management System (MRP Part 21.A.247)

46. An application for Approval of a change to the DO **should** be made using MAA DAOS Form 82 and submitted to the MAA. Before implementation of the change the DO **should** demonstrate to the MAA, on the basis of submission of proposed changes to the DOE, that it will continue to comply with this RA after implementation.

**Guidance
Material
5850(6)**

Changes in Design Management System (MRP Part 21.A.247)

Significant changes in the DMS

47. In addition to a change in ownership, the following changes to the DMS will be considered as 'significant' to the showing of compliance or to the Airworthiness of the Products, Parts, Appliances, AE and ALWs:

a. **Organization**

- (1) Change in the industrial organization (partnership, suppliers, design work-sharing) unless it can be shown that the independent checking function of the showing of compliance is not affected.
- (2) Change in the parts of the organization that contribute directly to the Airworthiness (independent checking function, Office of Airworthiness (or equivalent)).
- (3) Change to the independent monitoring principles.

b. **Responsibilities.** Change of the management staff assessed for Airworthiness Competence:

- (1) HDO;
- (2) HoA;
- (3) HISM;
- (4) Change of CofD or MPTF Signatory;
- (5) Or new distribution of Responsibilities affecting Airworthiness.

c. **Procedures.** Change to the principles of procedures related to:

- (1) The design Certification.
- (2) The classification of changes and Repairs as Major or Minor⁴.
- (3) The management of Major Changes and major Repairs.
- (4) The Approval of the design of Minor Changes and minor Repairs¹⁴.
- (5) The issue of information and instructions.
- (6) Documentary changes to the Aircraft Flight Manual.
- (7) Type Airworthiness.
- (8) The Configuration Control, when Airworthiness is affected.
- (9) The acceptance of design tasks undertaken by partners or subcontractors iaw RA 5850(4).
- (10) MPTF (Development).

d. **Resources.** Substantial change in the number and / or experience of staff.

**Regulation
5850(7)**

Investigations and Inspections (MRP Part 21.A.257)

5850(7) The DO **shall** make arrangements that allow the MAA to make any investigations, inspections, including investigations of partners and subcontractors, or review any report necessary to determine compliance with this RA.

**Acceptable
Means of
Compliance
5850(7)**

Investigations and Inspections (MRP Part 21.A.257)

48. Arrangements **should** be made to allow the MAA to make investigations of the DO including partners, subcontractors and suppliers. This includes assisting and co-operating with the MAA in performing inspections and Audits conducted during initial assessment and subsequent Assurance.

**Guidance
Material
5850(7)**

Investigations and Inspections (MRP Part 21.A.257)

49. Assistance to the MAA includes all appropriate means associated with the facilities of the DO to allow the MAA to perform these inspections and Audits, such as a meeting room and office support.

**Regulation
5850(8)**

Failures, Malfunctions and Defects

5850(8) The DO **shall** ensure that a robust process is in place for collecting, investigating and analysing reports of and information related to failures, malfunctions and defects, as identified by themselves, their partners or subcontractors.

**Acceptable
Means of
Compliance
5850(8)**

Failures, Malfunctions and Defects

Failures, Malfunctions and Defect Reporting

50. The DO **should** make appropriate arrangements to report to the TAA or Commodity CE any failure, malfunction, defect or other occurrence related to an Air System ►◄ and which has resulted in or may result in an Unsafe Condition.

51. The DO **should** ensure they have a system in place for the management and tracking of failure, malfunction and defect reporting for their Air System ►◄ that is agreed with the TAA or Commodity CE.

52. The DO **should** notify the TAA or Commodity CE of any potential need for a restriction on flying limitations (or Special Flying Instruction) arising from any reported failure, malfunction or defect.

53. The DO **should** raise and distribute a Narrative Fault Report when:

- a. A failure, malfunction or defect occurs which could affect the Safety of personnel, or materiel, or operational effectiveness, or availability of materiel, and which is not of sufficient urgency to require an urgent report being sent but is nevertheless sufficiently important to justify a detailed investigation.
- b. When required by a Service Inquiry or as directed by the TAA or Commodity CE.

Failures, Malfunctions and Defect Investigation and Closure

54. The DO **should** ensure they have a system in place for the investigation of failures, malfunctions and defects for their Air System ►◄, that is agreed with the TAA or Commodity CE.

55. In the case of a failure, malfunction or defect arising from a design or production deficiency, the relevant DO or Production Organization, as appropriate, **should** investigate the Cause and report the results to the TAA or Commodity CE.

56. When failures, malfunctions and defects are reported on materiel which has been procured as both Contractor Furnished Equipment and Government Furnished Equipment, a common investigation and reporting procedure **should** be used.

Acceptable Means of Compliance 5850(8)

57. On receipt of a request for an investigation, the DO **should** call forward all faulty materiel required for investigation.

58. The DO **should** ensure they have a system in place for the rectification and closure of reported failures, malfunctions and defects, that is agreed with the TAA or Commodity CE.

Quarantine

59. The DO **should** ensure that when they are in possession or control of materiel that is reported as faulty, it is quarantined and protected to prevent deterioration or disturbance which may hamper investigation and is disposed of in a controlled manner.

Guidance Material 5850(8)

Failures, Malfunctions and Defects

60. A Narrative Fault Report may be made on a MOD Form 760 Narrative Fault Report or equivalent.

61. Failure, malfunction and defect investigation priorities may be determined by the TAA or Commodity CE.

62. The DO will agree with the MOD individual authorizing the request the format and distribution of investigation reports resulting from data analysis requests.

Regulation 5850(9)

Findings (MRP Part 21.A.258)

5850(9) After receipt of notification of findings, the DO **shall** demonstrate corrective action appropriate to the level of the finding.

Acceptable Means of Compliance 5850(9)

Findings (MRP Part 21.A.258)

63. After receipt of notification of findings under the administrative procedures established by the MAA, the DO **should** demonstrate corrective action to the satisfaction of the MAA within the agreed period¹⁸.

64. In the case of a significant finding resulting in the suspension or revocation of their DO Approval¹⁹, the DO **should** provide confirmation of receipt of this notice in a timely manner.

Guidance Material 5850(9)

Findings (MRP Part 21.A.258)

65. In case of a significant finding, the DO may be subject to a partial or full suspension or revocation of its Approval.

66. Details of Findings levels and Observations can be found in MAA03¹⁸.

67. The MAA will inform the relevant TAA(s) or Commodity CE and sponsor of any findings and Corrective Action Requirements (CAR).

Regulation 5850(10)

Validity of Approval (MRP Part 21.A.259)

5850(10) A DAOS Approval **shall** be issued for an unlimited duration and remain valid subject to:

- a. The DO remaining in compliance with applicable RAs;
- b. The MAA or its nominated representative being granted access to the organization to determine continued compliance with applicable RAs; and
- c. The Approval Certificate not being surrendered, suspended or revoked.

¹⁸ Refer to MAA03: MAA Regulatory Processes, Annex ►F◄ – MAA Assurance.

¹⁹ Refer to MAA01: MAA Regulatory Principles.

**Acceptable
Means of
Compliance
5850(10)**

Validity of Approval (MRP Part 21.A.259)

68. The DO **should** confirm in writing prior to any formal MAA assessment or not later than every 3 years from the last notification that the contents of their Approval Certificate and DOE remain valid. Failure to provide the required confirmation can result in the suspension of the Approval.

**Guidance
Material
5850(10)**

Validity of Approval (MRP Part 21.A.259)

69. Nil.

**Regulation
5850(11)**

Privileges (MRP Part 21.A.263)

5850(11) A DO **shall** operate privileges only when they have been invoked by the appropriate TAA or Commodity CE.

**Acceptable
Means of
Compliance
5850(11)**

Privileges (MRP Part 21.A.263)

Invoking specific privileges

70. The DO **should** only operate privileges when they have had their Competence assessed by the MAA, their Terms of Approval contain the relevant provision, and the privileges are invoked in writing by the TAA or Commodity CE.

71. Once invoked, the DO **should** be entitled, within its Terms of Approval and under the relevant procedures of the DMS, to operate the privilege to:

- a. Classify changes to design²⁰ and Repairs²¹ as Minor or Major.
- b. Approve Minor Changes²² and minor Repairs²³.
- c. Issue information and instructions, containing the following statement: "The technical content of this documentation is approved under the authority of MAA DAOS ref. [UK.MAA.DAOS.xxxx]," where 'xxxx' represents the reference number. NB: This privilege **should not** be used for instructions relating to an Unsafe Condition²⁴, including ADs⁶ and SI(T)s⁷.
- d. To approve the flight conditions under which a MPTF (Development) can be issued¹⁷, except for initial flights of:
 - (1) A new type of Air System; or
 - (2) An Air System modified by a ► change that is, or would be, classified as a Significant or Substantial Major Change²⁵ ◄; or
 - (3) An Air System whose flight and / or piloting characteristics have been modified; or
 - (4) An Air System dedicated to expanding the agreed flight envelope, as defined within an extant Release To Service²⁶ (RTS).
- e. Issue a MPTF (Development)¹⁷ for an Air System it has designed or modified, or for which it has approved the conditions under which the MPTF (Development) can be issued and when the DO itself is controlling the Configuration of the Air System under its scope of DO Approval, noting that the Privileged DO cannot issue the initial MPTF (Development).

72. The DO **should** develop its own internal procedures for the relevant privileges identified in paragraph 71, based on the requirements of Annex C.

73. The DO **should** assure the TAA or Commodity CE that any changes approved under the provision of any privilege that has been invoked are accurately classified.

²⁰ Refer to RA 5820(1): Classification of Changes in Type Design (MRP Part 21.A.91).

²¹ Refer to RA 5865(3): Classification of Repairs (MRP Part 21.A.435).

²² Refer to RA 5820(3): Approval of Minor Changes (MRP Part 21.A.95).

²³ Refer to RA 5865(5): Issue of a Repair Design Approval (MRP Part 21.A.435).

²⁴ Refer to RA 5825 – Fault Reporting and Investigation.

²⁵ ► Refer to the Manual of Military Air System Certification (MMAC). ◄

²⁶ Refer to RA 1300 – Release To Service.

Acceptable Means of Compliance 5850(11)

74. The DO **should** assure the TAA or Commodity CE that there is a robust mechanism for managing the Configuration Control of the Air System or equipment for any changes approved under the provisions of any privilege that has been invoked.
75. The DO **should** provide the TAA or Commodity CE or their authorized representative a declaration that the change or Repair has been approved.
76. The TAA or Commodity CE or their authorized representative **should** acknowledge receipt of declaration of Approval.
77. The TAA or Commodity CE **should** make appropriate arrangements for Configuration Management in conjunction with the DO, to ensure that the application of design changes, including any SI(T) or SB to the same Air System or equipment, is managed effectively and is transparent to the Operating Duty Holder.
78. The privileges invoked **should** remain valid until such time as they are surrendered, suspended or revoked. In the situation where the individual invoking the privileges departs their post, the privileges invoked **should** remain valid for a maximum period of 3 months until such time as the new incumbent can re-assess the award of privileges. The privileges **should** be automatically revoked if not re-awarded within the 3 month period.

Guidance Material 5850(11)

Privileges (MRP Part 21.A.263)

Invoking Specific Privileges

79. Whilst the TAA or Commodity CE has the ability to revoke privileges, the MAA holds the ultimate sanction of limiting the scope of an organization's Approval if it is deemed the DT, DO or organization is not fully compliant with the MRP.
80. The information and instructions, including the necessary data, are issued by the DO to the TAA or Commodity CE to implement a change, a Repair, or an inspection. Some are also issued to provide Maintenance organizations with all necessary Maintenance data for the performance of Maintenance, including implementation of a change, a Repair, or an inspection.
81. The preparation of this data involves design, production and inspection. As the overall Responsibility, through the privilege, is allocated to the DO, these aspects will be properly handled by the DO to obtain the privilege "to issue information and instructions containing a statement that the technical content is approved", and a procedure will exist.
82. In derogation to para 71 sub-paras a to d, for a military Air System derived from a civil type certified Air System, the holder of a MAA DAOS Approval may be entitled to declare to the TAA the applicability, through Validation of no impact to the military Certification basis and the intended use, of the following when it is has already been approved by an MAA agreed civil aviation authority or a DO²⁷ utilizing its civil-Approval privilege:
- A Minor design change; or
 - An ISTA; or
 - Revisions to the flight manual.

Regulation 5850(12)

Designs using Government Furnished Equipment

- 5850(12) The DO **shall** obtain the authority of the MOD before altering the design of any Government Furnished Equipment (GFE).

Acceptable Means of Compliance 5850(12)

Designs using Government Furnished Equipment

83. If the DO has any doubt about the design suitability of any item, or has proposals for design changes, they **should** advise the MOD at the earliest opportunity.

²⁷ Where an Alternative Acceptable Means of Compliance has been approved by the MAA for use of the civil Approval under RA 1005 – Contracting with Competent Organizations or RA 1014 – Design Organizations and Co-ordinating Design Organizations - Airworthiness Responsibilities.

**Guidance
Material
5850(12)****Designs using Government Furnished Equipment**

84. The installation, functional and environmental interface definitions documentation may be formally referred to as the Interface Control Documentation (ICD).

85. Where GFE is provided without the appropriate supporting Design Records (eg CofD, ICD), the DO will communicate the omission to the relevant TAA or Commodity CE for their decision to proceed with the design change.

**Regulation
5850(13)****Record Keeping**

5850(13) All relevant design information, drawings, test reports, including inspection records and Type Airworthiness Management information **shall** be held by the appropriate DO, and available if required.

**Acceptable
Means of
Compliance
5850(13)****Record Keeping**

86. Such documentation **should** be held in order to provide the information necessary to ensure the Type Airworthiness of an Air System and be retained²⁸.

**Guidance
Material
5850(13)****Record Keeping**

87. International or collaborative programmes will be required to co-ordinate custodianship of appropriate documentation.

²⁸ Refer to RA 1225 – Air Safety Documentation Audit Trail.

Annex A

Design Management System (DMS)

Definitions

1. The system monitoring function may be undertaken by the existing Quality Assurance organization when the DO is part of a larger organization.
2. The DMS is the organizational structure, Responsibilities, procedures and resources to ensure the proper functioning of the DO.
3. The DMS includes a Safety Management System and a design Assurance system with clear lines of Responsibility and accountability throughout the organization. Design Assurance means all those planned and systematic actions necessary to provide adequate confidence that the organization has the capability:
 - a. To design Products, Parts or Appliances iaw the applicable Certification Specifications.
 - b. To show and verify the compliance with the applicable Certification Specifications, or Product, Part, Appliance, AE and ALW specifications.
 - c. To demonstrate to the MAA this compliance for the purposes of DAOS Approval and to the TAA when required.

Design Management System

4. The complete process starts with the Certification Specifications and Product, Part and Appliance specifications that culminates in Type Certification. It establishes the relationship between the design, the Design Investigation and design Assurance processes.
5. Effective design Assurance demands a continuing evaluation of factors that affect the adequacy of the design for intended applications, in particular that the Product, Part or Appliance, complies with applicable Certification Specifications and will continue to comply after any change. Such changes include amendment to place of manufacture, manufacturing methods or material sources²⁹.
6. Two main aspects **should** therefore be considered:
 - a. How the planned and systematic actions are defined and implemented, from the very beginning of design activities up to Type Airworthiness activities;
 - b. How these actions are regularly evaluated and corrective actions implemented as necessary.

Design Management System - Independent checking function of the showing of compliance

7. The independent checking function of the showing of compliance **should** consist of the Verification by a person not creating the compliance data. Such person may work in conjunction with the individuals who prepare compliance data.
8. The Verification **should** be shown by signing compliance documents, including test programmes and data.
9. There is normally only one CVE nominated for each Certification Specification, or Product, Part and Appliance specifications for a given design activity.
10. A procedure **should** cover the non-availability of nominated persons and their replacement when necessary.

Planned and Systematic Actions

11. For the DO carrying out Design Investigation of Products, Parts, Appliances, AE and ALW, the subsequent tasks and procedures will be defined and put in place to cover the planned and systematic actions.

General

12. To issue or, where applicable, supplement or amend the DOE iaw RA 5850(6), in particular to indicate the initiation of design activities on a Product, Part, Appliance, AE and ALW.
13. To assure that all instructions of the DOE are adhered to.
14. To nominate staff as CVEs responsible to approve compliance documents.

²⁹ A change in place or method of manufacture or a change of explosive material or source of explosive material will require Independent Ordnance, Munitions and Explosives Safety Advisor advice; refer to DSA 02.OME(2) – Appointment of an Independent OME Safety Advisor.

15. To nominate personnel belonging to the Office of Airworthiness with appropriate Responsibilities.
16. To ensure full and complete liaison between the DO and related organizations having Responsibility for Products, Parts and Appliances manufactured to the specification.
17. To provide the Assurance to the TAA or Commodity CE that prototype models and test specimens adequately conform to the design.

Chief Executive and HDO (or their Deputy)

18. The Chief Executive will provide the necessary resources for the proper functioning of the DO.
19. The HDO, or an authorized representative, **should** sign a CofD³ stating compliance with the applicable Certification Specifications, or Product, Part, Appliance, AE and ALW specifications, after Verification of satisfactory completion of the Design Investigation. law RA 5810³⁰ and RA 5820⁴, their signature on the CofD confirms that the procedures as specified in the DOE have been followed.
20. The functions of Chief Executive and HDO may be performed by the same person.

Compliance Verification

21. Approval by signing of all compliance documents, including test programmes and data, necessary for the Verification of compliance with the applicable Certification Specifications as defined in the Certification Programme.
22. Internal Approval of the technical content (eg completeness, technical accuracy), including any subsequent revisions, of the manuals for the subsequent release by the TAA or Commodity CE.

Office of Airworthiness

23. Liaison between the DO and the TAA or Commodity CE with respect to all aspects of the Certification Programme.
24. Ensuring that a DOE is prepared and updated as required in RA 5850(4).
25. Co-operation with the MAA in developing procedures to be used for the design Certification process.
26. Issuing of guidelines for documenting compliance.
27. Co-operation in issuing guidelines to ensure compliance with the Regulations for the preparation of the manuals, SB, SI(T), design changes, drawings, specifications and standards.
28. Ensuring distribution of applicable Certification Specification and other specifications.
29. Co-operating with the TAA or Commodity CE in proposing the Type Certification Basis.
30. Interpretation of Certification Specification and requesting decisions of the TAA or Commodity CE.
31. Advising of all departments of the DO in all questions regarding Airworthiness Approvals and Certification.
32. Preparation of the Certification Programme and co-ordination of all tasks related to Design Investigation in concurrence with the TAA or Commodity CE.
33. Regular reporting to the TAA or Commodity CE about Design Investigation progress and announcement of scheduled tests in due time.
34. Ensuring co-operation in preparing inspection and test programmes needed for demonstration of compliance.
35. Establishing and maintaining the compliance checklist to provide evidence underpinning the Compliance Statement.
36. Checking that all compliance documents are prepared as necessary to show compliance with all Certification Specifications, as well as for completeness, and signing for release of the documents.
37. Checking the required design definition documents described in RA 5810 and ensuring that they are provided to the TAA or Commodity CE for Approval when required.
38. Preparation, if necessary, of a draft for a Type Certificate Data Sheet and / or Type Certificate Data Sheet Modification.
39. Providing Verification to the HDO that all activities required for Design Investigation have been properly completed.

³⁰ Refer to RA 5810 – Military Type Certificate (MRP Part 21 Subpart B).

40. Approving the classification of changes⁴ and granting the Approval for Minor Changes when appropriately privileged to do so.
41. Monitoring of significant events on other aeronautical Products, Parts, Appliances, AE and ALW as far as relevant to determine their effect on Airworthiness of Products, Parts, Appliances, AE and ALW being designed by the DO.
42. Ensuring co-operation in preparing SB, SI(T) and the Structural Repair Manual and subsequent revisions, with special attention being given to the manner in which the contents affect Certification Specifications for subsequent Approval by the TAA or Commodity CE.
43. Ensuring the initiation of activities as a response to failure (Air Safety Occurrences) evaluation and complaints from the operation and providing of information to the TAA or Commodity CE in case of Airworthiness impairment.
44. Advising the TAA or Commodity CE with regard to the issue of SI(T).
45. Ensuring that the manuals to be approved by the TAA or Commodity CE, including any subsequent revisions are checked to determine that they meet the respective requirements and that they are provided to the TAA or Commodity CE for Approval.

Maintenance and Operating Instructions

46. Ensuring the preparation and updating of all Maintenance and operating instructions needed to maintain Airworthiness iaw relevant Certification Specifications. For that purpose, the DO will:
- Establish the list of all documents it is producing; and
 - Define procedures and organization to produce and issue these documents to the TAA or Commodity CE.

Continued Effectiveness of the Design Management System

47. The organization **should** establish the means by which the continuing evaluation (system monitoring) of the DMS will be performed in order to ensure that it remains effective.

Annex B

Design Organization Exposition Requirements

Part 1 - Organization

1. Document title and Organizations document reference number.
2. Organization name, address, telephone, telex, facsimile numbers, e-mail address.
3. Index.
4. List of effective pages with revision / date / amendment identification for each page.
5. Distribution list.
6. Objective of DOE and binding statement.
 - a. The DOE **should** be signed by the Chief Executive and the HDO and declared as a binding instruction for all personnel charged with the development and Design Investigation of Products, Parts, Appliances, AE and ALW.
7. Responsible person(s) for administration of the DO handbook.
8. Amendments.
 - a. Amendment record sheet.
 - b. A system **should** be clearly laid down for carrying out amendments to the DOE, including how amendments are identified within the document.
9. Presentation of DO (including locations).
 - a. An introduction, or foreword, explaining the purpose of the document for the guidance of the organization's own personnel. Brief general information concerning the history and development of the organization and, if appropriate, relationships with other organizations which can form part of a group or consortium, **should** be included to provide background information for the MAA.
10. Scope of work (with identification of type and models of Products, Parts, Appliances, AE and ALW) according to the following classification:
 - a. General areas, eg type of Air Systems ▶◀.
 - b. Technologies handled by the organization (composite, wood or metallic construction, electronic systems, software, etc).
 - c. A list of types and models for which the design Approval has been granted and for which privileges can be exercised, supported by a brief description for each Products, Parts, Appliances, AE and ALW.
 - d. For Repair design, classification and (if appropriate) Approval activities it is necessary to specify the scope of activity in terms of Products, Parts, Appliances, AE and ALW.
11. Organization structure.
 - a. A description of the organization, its departments, their functions and the names of those in charge: a description of the line management.
 - b. A description of functional relationships between departments, including assigned Responsibilities and delegated authority of all parts of the organization which, taken together, constitute the organization's DMS.
 - c. A general description of the way in which the organization performs its functions in relation to the Airworthiness and continued operational suitability of the product it designs, including co-operation with the Production Organization when dealing with any Airworthiness actions that are related to production of the Product, Part, Appliance, AE and ALW as deemed applicable by the TAA or Commodity CE.
 - d. A chart indicating the functional and hierarchical relationship of the DMS to Management and to other parts of the organization within the DMS and the control of the work of all partners and subcontractors.
12. Human resources.
 - a. A description of the human resources, facilities and equipment, which constitutes the means for design and where appropriate, for ground and flight testing.

- b. An outline of the system for controlling and informing the Staff of the organization of current changes in engineering drawings, specifications and design Assurance procedures.
- 13. Management staff.
 - a. A description of assigned Responsibilities and delegated authority of all parts of the organization which, taken together constitute the organization's DMS; also, the chains of Responsibilities within the DMS, and the control of the work of all partners and subcontractors.
- 14. Record Keeping.
 - a. A description of the recording system for:
 - (1) The design, including relevant design information, drawings and test reports, including inspection records of test specimens.
 - (2) The means of compliance.
 - (3) The compliance documentation (compliance check list, reports).
- 15. Certifying personnel.
 - a. The names of the DO authorized signatories. Nominated persons with specific Responsibilities **should** be listed.
 - b. A clear definition of the tasks, Competence and areas of Responsibility of the Office of Airworthiness.
 - c. A statement of Suitably Qualified and Experienced Person(s) (SQEP) Responsible for making decisions affecting Airworthiness in the organization.
- 16. Independent system monitoring.
 - a. A description of the means by which the continuing evaluation (system monitoring) of the DMS will be performed in order to ensure that it remains effective.
- 17. Evidence of a QMS Certification (as defined by the Defence Authority for Technical and Quality Assurance Mandatory Requirement for Appropriate Certification) to AS/EN 9100, or to ISO 9001 providing the scope of Certification covers the proposed DO Terms of Approval.
- 18. A description of the means by which the organization monitors and responds to problems affecting the Airworthiness or operational suitability of its product during design, production and In-Service.
- 19. A description of the procedures for the establishment and the control of the Maintenance and operating instructions as instructed by the TAA.

Part 2 - Procedures

- 20. A general description of the way in which the organization performs all the design functions in relation to Airworthiness, operational Approvals including:
 - a. The procedures followed and forms used in the design investigation process to ensure that the design of, or the change to the design of, the product as applicable is identified and documented and complies with the applicable Certification Specifications, including Contracted requirements.
 - b. The procedures for classifying design changes as 'Major' or 'Minor' and for the Approval of Minor Changes, if appropriately privileged to do so.
 - c. The procedures for classifying and approving unintentional deviations from the approved design data occurring in production (Concessions or non-conformances), if appropriate to do so³¹.
 - d. The procedures for re-establishing a Type Design definition for Parts and Appliances of orphaned Products or for obsolete Parts and Appliances, for which the original design drawings or data no longer exist.
 - e. The procedure for classifying and obtaining Approval for Repairs, if appropriately privileged to do so.
 - f. The procedures for the establishment and the control of the Maintenance and operating instructions.
 - g. The procedures for the establishment and the control of the MPTF (Development).

³¹ Refer to Def Stan 05-061 Part 1 – Quality Assurance Procedural Requirements – Concessions.

- h. The procedures and controls related to the utilization of Artificial Intelligence within the design and development process. The DOE **should** make clear where and how this is utilized in relation to the DOs Approval scope.
21. In addition, the organization controls and records the design documentation and means of compliance for:
- The basic Product, Part, Appliance, AE and ALW.
 - Design changes to the Product, Part, Appliance, AE and ALW.
 - The design schemes for Product, Part, Appliance, AE and ALW Repairs.
 - The reporting and response to Product, Part, Appliance, AE and ALW failures / malfunctions and defects.
22. The organization **should** identify (by reference or explicit description) the procedures it uses to select subcontractors and manage the design of Products, Parts, Appliances, AE and ALW produced.
23. The organization **should** identify (by reference or explicit description) the procedures it uses to control design production, including production by subcontractors charged with the design and production of Products, Parts, Appliances, AE and ALW and subcontractors charged with production of the approved design. Procedures **should** include:
- Changes in manufacturing location, method, source material.
 - Where novel production processes such as additive manufacturing are utilized.
24. Control of design subcontractors.
25. Co-ordination with production.
26. Sustained Airworthiness.
- A description of the way in which the organization performs its functions in relation to the Sustained Airworthiness of the Product, Part, Appliance, AE and ALW it designs.
27. Collecting / Investigating failures, malfunctions and defects.
- A description of the means by which the organization monitors and responds to problems affecting the Airworthiness of its Product, Part, Appliance, AE and ALW.

Guidance Material - Statement of Qualifications and Experience

28. Three different types of functions are named or implicitly identified, using qualified and experienced personnel:
- The Chief Executive.
 - The other management staff:
 - HDO.
 - HoA.
 - The HISM.
 - Personnel making decisions affecting Airworthiness:
 - CVE.
 - Personnel of the Office of Airworthiness making decisions affecting Airworthiness, especially those linked with the privileges identified in RA 5850(11) approving the classification of changes, Repairs and granting the Approval of Minor Changes.

Chief Executive

29. The Chief Executive **should** provide the necessary resources for the proper functioning of the DO. A statement of the qualification and experience of the Chief Executive is normally not required.

Other Management Staff

30. The person or persons nominated **should** represent the management structure of the organization and be responsible through the HDO to the Chief Executive for the execution of all functions as specified in RA 5850. Depending on the size of the organization, the functions can be subdivided under individual managers.

31. The nominated managers **should** be identified and their credentials furnished to the MAA on MAA DAOS Form 4 in order that they can be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the design activities as performed by the organization.

32. The Responsibilities and the tasks of each individual manager **should** be clearly defined, in order to prevent uncertainties about the relations, within the organization. Responsibilities of the managers **should** be defined in a way that all Responsibilities are covered.

Personnel making decisions affecting Airworthiness

33. For personnel making decisions affecting Airworthiness, no individual statement is required. The applicant **should** show to the MAA that there is a system to select, train, maintain and identify them for all tasks where they are necessary. The following guidelines for such a system are proposed:

- a. These personnel **should** be identified in the DO handbook, or in a document linked to the DO handbook. This and the corresponding procedures are there to enable them to carry out the assigned tasks and to properly discharge associated Responsibilities.
- b. The needs, in terms of quantity of these personnel to sustain the design activities, **should** be identified by the organization.
- c. These personnel **should** be chosen based on their knowledge, background and experience.
- d. When necessary, complementary training **should** be established, to ensure sufficient background and knowledge in the scope of their Authorization. The minimum standards for new personnel to qualify in the functions **should** be established. The training **should** lead to a satisfactory level of knowledge of the procedures relevant for the role.
- e. Training policy forms part of the DMS and its appropriateness forms part of the investigation by the MAA within the organization Approval process and subsequent surveillance of persons proposed by the organization.
- f. This training **should** be adapted in response to experience gained within the organization. The organization **should** maintain a record of these personnel which includes details of the scope of their Authorization. The personnel concerned **should** be provided with evidence of the scope of their Authorization.

34. The following minimum information **should** be kept on record:

- a. Name.
- b. Experience and training.
- c. Position in organization.
- d. Scope of the Authorization.
- e. Date of first issue of the Authorization.
- f. If appropriate, date of expiry of the Authorization.
- g. Identification number of the Authorization.

35. The record can be kept in any format and **should** be controlled:

- a. Persons authorized to access the system **should** be kept to a minimum to ensure that records are not altered in an unauthorized manner or that such confidential records do not become accessible to unauthorized persons.
- b. Personnel can be given access to their own record.
- c. Under the provision of RA 5850(7) the MAA **should** have access to the data held in such a system.
- d. The organization **should** keep the record for at least 2 years after a person has ceased employment with the organization or revocation of the Authorization, whichever is the sooner.

Annex C

Internal Procedures for Operating Specific Privileges

Classify changes to Design and Repairs as Minor or Major (refer to RA 5850 paragraph 71.a)

Intent

1. The DO **should** develop its own internal procedure for the classification of changes to design and Repairs as Minor or Major in order to obtain the associated privilege.

Content

2. The procedure **should** address the following points:
 - a. The identification of changes to design or Repairs.
 - b. Classification.
 - c. Justification of the classification.
 - d. Authorized signatories.
 - e. Supervision of changes to design or Repairs initiated by subcontractors.
3. For changes to design, criteria used for classification **should** be in compliance with RA 5820.
4. For Repairs, criteria used for classification **should** be in compliance with RA 5865⁵.

Identification of changes to design or Repairs

5. The procedure **should** indicate how the following are identified:
 - a. Major Changes to design or major Repairs.
 - b. Those Minor Changes to design or minor Repairs where additional work is necessary to show compliance with the applicable Certification Specifications.
 - c. Other Minor Changes to design or minor Repairs requiring no further showing of compliance.

Classification

6. The procedure **should** show how the effects on Airworthiness are analysed, from the very beginning, by reference to the applicable Certification requirements.
7. If no specific Certification Specifications are applicable to the change or Repairs, the above review **should** be carried out at the level of the Product, Part, Appliance or system where the change or Repair is integrated and where specific Certification Specifications are applicable.

Justification of the classification

8. All decisions of classification of changes to design or Repairs as Major or Minor **should** be recorded. These records **should** be easily accessible to the TAA for sample check.

Authorized signatories

9. All classifications of changes to design or Repairs **should** be accepted by an appropriate authorized Signatory.
10. The procedure **should** indicate the authorized signatories for the various Products, Parts, Appliances, AE and ALW listed in the Terms of Approval.
11. For those changes or Repairs that are handled by subcontractors, it **should** be described how the DO manages its classification Responsibility.

Supervision of changes to design or Repairs initiated by subcontractors

12. The procedure **should** indicate, directly or by cross-reference to written procedures, how changes to design or Repairs **should** be initiated and classified by subcontractors and are controlled and supervised by the DO.

Approve Minor Changes to design and minor Repairs (refer to RA 5850 paragraph 71.b)

Intent

13. The DO **should** develop its own internal procedure for the Approval of Minor Changes to design or minor Repairs in order to obtain the associated privilege.

Content

14. The procedure **should** address the following points:
- Compliance documentation.
 - Approval under the DO privilege.
 - Authorized signatories.
 - Supervision of Minor Changes to design or minor Repairs handled by subcontractors.

Compliance documentation

15. For those Minor Changes to design or minor Repairs where additional work to show compliance with the applicable Certification Specifications is necessary, compliance documentation **should** be established and independently checked as required by RA 5850(3).

16. The procedure **should** describe how the compliance documentation is produced and checked.

Approval under the DO privilege

17. For those Minor Changes to design or minor Repairs where additional work to show compliance with the applicable Certification Specifications is necessary, the procedure **should** define who the change is approved by under the DO privilege.

18. This document **should** include at least:
- Identification and brief description of the change or Repair and reasons for change or Repair.
 - Applicable Certification Specifications and methods of compliance.
 - Reference to the compliance documents.
 - Effects, if any, on limitations and on the approved documentation.
 - Evidence of the independent checking function of the showing of compliance.
 - Evidence of the Approval under the privilege of RA 5850(11) by an authorized Signatory.
 - Date of the Approval.
19. For the other Minor Changes to design or minor Repairs, the procedure **should** define a means to identify the change or Repair and reasons for the change or Repair and to formalise its Approval by the appropriate Engineering Authority under an authorized Signatory. This function can be delegated by the Office of Airworthiness but **should** be controlled by the Office of Airworthiness, either directly or through appropriate procedures of the DO Design Management System.

Authorized signatories

20. The persons authorized to sign for the Approval under privilege **should** be identified (name, signature and scope of authority) in appropriate documents that are linked to the DO handbook.

Supervision of Minor Changes to design or minor Repairs handled by subcontractors

21. For the Minor Changes to design or minor Repairs that are handled by subcontractors, the procedure **should** indicate, directly or by cross-reference to written procedures how these Minor Changes to design or minor Repairs are approved at the subcontractor level and the arrangements made for supervision by the DO.

Issue of information and instructions (refer to RA 5850 paragraph 71.c)**Intent**

22. The DO **should** develop its own internal procedure for the issue of information and instructions.

Content

23. For the information and instructions issued under this privilege, the DO **should** establish a procedure addressing the following points:
- Preparation.
 - Verification of technical consistency with corresponding approved change(s), Repair(s) or Approved Data, including effectivity, description, effects on Airworthiness, especially when limitations are changed.
 - Verification of the feasibility in practical applications.

- d. Authorized signatories.

24. The procedure **should** include the information and instructions prepared by subcontractors or vendors and declared applicable to its Products, Parts, Appliances, AE and ALW by the DO.

Statement

25. The statement provided in the information and instructions **should** also cover the information and instructions prepared by subcontractors or vendors and declared applicable to its Products, Parts and Appliances by the DO.

26. The technical content **should** be related to the Design Records and accomplishment instructions and its Approval **should** mean that:

- a. The Design Records has been appropriately approved.
- b. The instructions provide for practical and well-defined installation / inspection methods and, when accomplished, the Products, Parts, Appliances, AE and ALW are in conformity with the approved Design Records.

27. Where appropriate, this technical data **should** be clearly identified within the CofD for the TAA or Commodity CE.

28. Information and instructions related to required actions issued under an AD or SI(T) **should** be submitted to the TAA to ensure compatibility with the AD or SI(T) content and ►◄ contain a statement that they are, or soon to be, subject to an AD or SI(T) issued.

To approve the flight conditions under which a MPTF (Development) can be issued (refer to RA 5850 paragraph 71.d)

Intent

29. The DO **should** develop its own internal procedure to determine and approve that an Air System can fly under the appropriate restrictions compensating for the lack of an extant RTS.

Content

30. The procedure **should** address the following points:

- a. Decision to use the privilege.
- b. Management of the Air System Configuration.
- c. Determination of the conditions that **should** be complied with to perform safe flight.
- d. Documentation of flight conditions substantiations.
- e. Approval under the approved DO privilege, when applicable.
- f. Authorized signatories.

31. The procedure **should** include a decision to determine:

- a. Flights for which this privilege can be exercised.
- b. Flights for which the Approval of flight conditions by the TAA are required.

32. The procedure **should** indicate:

- a. How the Air System, for which an application for a MPTF (Development) is made, is identified and how changes to the Air System **should** be managed.

Determination of the conditions that should be complied with to perform safe flight

33. The procedure **should** describe the process used by the DO to justify that an Air System can perform the intended flight. The process **should** include:

- a. Identification of deviations from the extant RTS or applicable Airworthiness requirements.
- b. Analysis, calculations, tests or other means used to determine the conditions or restrictions under which the Air System can perform safe flight.
- c. The establishment of specific Maintenance instructions and conditions to perform these instructions.

- d. Independent technical Verification of the analysis, calculations, tests or other means used to determine under which conditions or restrictions the Air System can perform the intended flight(s) safely.
- e. Statement by the Office of Airworthiness (or equivalent), that the determination has been made iaw the procedure and that the Air System has no features and characteristics making it unsafe for the intended operation under the identified conditions and restrictions.
- f. Approval by an authorized Signatory.

Documentation of flight conditions substantiations

34. The analysis, calculations, tests, or other means used to determine the conditions or restrictions under which the Air System can perform in flight safely, **should** be compiled in compliance documents. These documents **should** be signed by the author and by the person performing the independent technical Verification.
35. Each compliance document **should** have a number and issue date. The various issues of a document **should** be controlled.

Authorized signatories

36. The person(s) authorized to sign the Approval form **should** be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the DOE.

Issue a MPTF (Development) iaw RA 5880 (refer to RA 5850 paragraph 71.e)**Intent**

37. The DO **should** develop its own internal procedure for the issue of a MPTF (Development)¹⁷ for an Air System it has designed or modified, or for which it has approved under privilege the conditions under which the MPTF (Development) can be issued and when the DO itself is controlling under its DO Terms of Approval the Configuration of the Air System and is attesting conformity with the design conditions approved for the flight.

Content

38. The procedure **should** address the following points:
- a. Conformity with approved conditions.
 - b. Issue of the MPTF (Development) under privilege in the scope of the DO Approval.
 - c. Authorized signatories.
 - d. Interface with the TAA for the flight.

Conformity with approved conditions

39. The procedure **should** indicate how conformity with approved conditions is made, documented and attested by an authorized person.

Issue of the MPTF (Development) under the DO privilege

40. The procedure **should** describe the process to prepare the MPTF (Development) and how compliance is established before signature of the MPTF (Development).

Authorized signatories

41. The person(s) authorized to sign the MPTF (Development) under the privilege in the scope of the DO Approval **should** be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the DOE.

Interface with the TAA for the flight

42. The procedure **should** include provisions describing the communication with the TAA for compliance with the local requirements which are outside the scope of the flight conditions.