

NPA/25/17

Title of Proposal: Release To Service and Equipment Not Basic to the Air System

RA(s) or Manual Chapter(s): RA 1300 and RA 1340

Organizations and / or business sectors affected: Whole Defence Air Environment
Regulatory Community

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N/A	N/A	N/A	Choose an item.

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: The MAA has reviewed and amended this regulation to ensure the RAs remain aligned with changes to the Regulated Community, coherent with the rest of the MRP, removed potential confusion, are a step forward, are leaner, and apply learning.

Changes made: The changes made to RA 1300 include:

- Updating RPAS terminology to UAS terminology,
- Correcting reference errors,
- Removing reference to DLoDs,
- Addition of electronic Information Systems paragraph,
- Removing reference to the DAP108B-0001-1,
- RTS Template – Changing Section A.6.2's name to "In-Service Design Changes" (in line with RA 5305),
- RTS Template – Updating the OC Handling Squadron reference to "OC DAPS", and
- RTS Template – Updating the OEC definition.

The changes made to RA 1340 include:

- Addition of the RAFCAM lumbar supports in the ENBAS list, and
- Removal of the CAA website footnote for EFBs.

Impact Assessment: Low

Consultation Period Ends: 22 August 2025

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
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RA 1300 - Release To Service

Rationale

The Release To Service (RTS) authorizes Military Operated (In-Service) Defence Air Environment (DAE) Operating Category¹ flying on behalf of the responsible Senior Duty Holder (SDH). Failure to observe RTS limitations may result in unacceptable Hazards. The RTS is based on the RTS Recommendation (RTSR). It defines permitted as-flown configurations and the permitted operating envelope. RTS limitations are the definitive limits for the Air System and apply in all conditions, from peacetime training to ►all operational activities◄². Air Systems will be operated iaw an RTS or a Military Permit To Fly (MPTF), however this RA only deals with the RTS requirements.

Contents

- 1300(1): Requirement
- 1300(2): Release To Service Recommendation
- 1300(3): Limitations
- 1300(4): Operational Emergency Clearance
- 1300(5): Clearance with Limited Evidence
- 1300(6): Authorization
- 1300(7): Configuration Control and Audit Trail

Regulation 1300(1)

Requirement

- 1300(1) An RTS **shall** be prepared for all Air Systems that are operated within the Military Operated (In-Service)►◄ DAE Operating Category³, except for:
- a. ►UAS◄ operating in the Open category,
 - b. ►UAS◄ operating in the Specific S1 sub-category, and
 - c. Air Systems with an MPTF.

Acceptable Means of Compliance 1300(1)

Requirement

1. The RTS **should** be an integrated document with all limitations and associated Warnings, Cautions, and Notes detailed in the appropriate parts iaw Annex A and:
 - a. Define the ►permitted◄ as-flown configuration(s) of the Air System.
 - b. Detail the permitted ►operating◄ envelope of the Air System including limitations⁴.
 - c. Detail any limitations, Warnings, Cautions, or Notes required as a result of ►initial Certification or◄ Type Design changes, ►including Military Type Certificate (MTC) or Approved Design Change Certificate (ADCC) restrictions◄ (eg Air Launched Weapons)^{4, 5}.
 - d. Include all Equipment authorized to be carried in, despatched from, or fitted to the Air System^{6, 7, 8}.

¹ The RTS may also be used by the Sponsor to authorize flying in the Civilian Operated (In-Service) DAE Operating Category for Air Systems temporarily allotted in accordance with (iaw) RA 1164. Refer to RA 1164 – Transfer of UK Military Registered Air Systems.

² For guidance on operations outside of any existing RTS, refer to RA 1020 – Aviation Duty Holder ►– Roles and Responsibilities; and RA 1032 –◄ Aviation Duty Holder-Facing Organizations ►and Accountable Manager (Military Flying)-Facing Organizations◄ – Roles and Responsibilities.

³ ►Uncrewed Air Systems (UAS)◄ operating in the Open category and Specific S1 sub-category do not have an RTS but rely on a Letter of Endorsed Categorization which, for the purposes of this Regulation, is the equivalent to an RTS; Refer to RA 1600 – Remotely Piloted Air Systems.

⁴ Refer to RA 5810 – Military Type Certificate (MRP Part 21 Subpart B).

⁵ Refer to RA 1350 – Air Launched Weapon Release.

⁶ Refer to RA 1340 – Equipment Not Basic to the Air System.

⁷ Refer to the RA 1700 Series: Airborne Equipment.

⁸ This RA is not applicable to items properly classified as cargo. Cargo is regulated by the Movement and Transport Safety Regulator as directed by JSP 800: Defence Movements and Transportation Safety ►Policy◄.

Acceptable Means of Compliance 1300(1)

- e. If applicable⁹, reference an MEL from Annex A Part A7.
 - f. Be subject to a formal review, by the RTS Authority (RTSA)¹⁰, on a 5-yearly basis against Annex A and the recommendations leading to amendment of the RTS.
 - g. Where there are differing levels of limitations, detail the most restrictive.
 - h. ▶◀
2. The content of the RTS **should** be:
 - a. Auditable and traceable back to the source data.
 - b. Maintained by the RTSA throughout the life of the Air System and appropriate data retained¹¹.

Guidance Material 1300(1)

Requirement

3. ▶ Where limitations have been placed by the MAA in the MTC or ADCC, these will be duplicated exactly in the RTS. ◀

Regulation 1300(2)

Release To Service Recommendation

- 1300(2) The Type Airworthiness Authority (TAA) **shall** prepare the RTSR to the satisfaction of the RTSA.

Acceptable Means of Compliance 1300(2)

Release To Service Recommendation

4. The RTSR is the evidenced argument supporting the RTS which **should** include ▶ Military Air System Certification Process (MACP) ◀ completion as demonstrated by the ▶ MTC or ADCC. ◀ Any limitations or restrictions imposed by the MAA **should** be detailed in the RTS.
5. The TAA **should** ensure that the RTSR provides all clearances and associated limitations in a format consistent with the RTS structure.
6. The initial RTSR and subsequent amendments and re-issue of the RTSR **should** be prepared by the TAA. The TAA can delegate authority to approve amendments to, or re-issues of, the RTSR. Such delegations **should** be to a competent individual of OF5 level (or equivalent).
7. The RTSR and supporting documentation, for new Air Systems and Major Changes that result in a new Mark number, **should** be approved by the appropriate 2* Operating Centre Director (OCD)¹², then submitted to the RTSA for Authorization and independent Assurance; and to the MAA for independent Assurance¹³.
8. The TAA **should** ensure that the RTSR demonstrates an acceptably safe operating envelope, in line with the context of the Air System Safety Case (ASSC).
9. The TAA **should** review all documents, presented as evidence in the RTSR on amendment, for potential impact on limitations in the RTS.
10. The content of the RTSR **should** be:
 - a. Auditable and traceable back to the source data.
 - b. Maintained by the TAA throughout the life of the Air System and appropriate data retained¹¹.
11. Air Systems and Type Design changes **should** be introduced to service by completion of the MACP. CLEs **should not** be used to mitigate for lack of MACP completion.

⁹ The inclusion of the Minimum Equipment List (MEL) is applicable where the Master MEL forms part of the Type Certification Basis of the Air System.

¹⁰ Where RTSA is used in this RA, this also includes the Sponsor responsible for authorizing the MPTF (In-Service) or the Type Airworthiness Manager responsible for approving the MPTF (Special Case Flying) for Civilian Operated Air Systems, as detailed at RA 1305 – Military Permit to Fly (In-Service), (Special Case Flying) and (Single Task).

¹¹ Refer to RA 1225 – Air Safety Documentation Audit Trail.

¹² Refer to RA 1013 – Air Systems Operating Centre Director – Provision of Airworthy and Safe Systems.

¹³ For other Major Changes; the TAA will consult with the MAA and the RTSA to agree the requirement for Assurance activities.

Acceptable Means of Compliance 1300(2)

12. The MAA independent Audit of the RTSR ►◄ scope **should** include (but is not limited to):
- Compliance of design with appropriate standards (this will normally be based on the results of Type Certification).
 - Review of build concessions.
 - Build quality.
 - RTSR content.
 - Independent Safety Auditor and Independent Technical Evaluator scrutiny.
 - Maturity of the Air Safety Management System.
 - Review of Audit observations.
 - Type Airworthiness arrangements¹⁴.
 - Continuing Airworthiness arrangements¹⁵.
 - Personnel Competence.
13. TAAs **should** liaise with Equipment / Commodity Delivery Teams (DT) to ensure the Hazards posed to the Air System or crew by the carriage, interfacing, and operation of equipment is addressed in the Type Airworthiness Safety Assessment (TASA)¹⁶, which will be reflected in the ASSC and in the RTS by including all limitations applicable to the airborne carriage of stores or equipment on that Air System. In cases where common equipment, weapons, and AE ►need◄ to be fitted to several Air System types, the Equipment / Commodity DT **should** produce a Safety Assessment covering the Safety features of the equipment and the achievement of the Design Safety Target (DST).

Guidance Material 1300(2)

Release To Service Recommendation

14. ►Management of Type and Continuing Airworthiness arrangements will include an assessment of the maturity of electronic Information Systems used¹⁷.◄
15. To facilitate delivery of the Air System into service it might be necessary to clear certain aspects of the Air System in advance of others. In such cases, the RTS will proceed in stages. The priority of each stage will be agreed between the appropriate Front Line Command (FLC) Capability organization, the RTSA and the TAA.
16. The following will apply to the use of limitations in the RTS:
- Safety limits are those that are overriding and ensure that the Air System can be operated safely within its intended role. They, in some cases, may represent the boundaries of the evaluated envelope where, in the context of the planned operational role of the Air System and without prejudice to Safety, it was not cost-effective or a requirement to explore in full the possible operating envelope.
 - Unless the system is credibly 'self-limiting' in use, the limits to which the TAA has approved the system will be presented within the RTS.
17. The TAA and RTSA decision on inclusion of degraded mode limitations will need to take account of the probability of encountering the degraded mode and of the severity of any Hazards specifically associated with that mode. In some cases the general advice within the Aircrew Manual (AM) and normal standards of ►airpersonship◄ will be sufficient to deal with degraded modes. Only in unusual circumstances will it be necessary to consider presenting limitations for multiple independent failures or for second failures in the same system. It may be necessary to distinguish between the deliberate use of degraded modes (ie no actual failure), usually for training purposes, and operation in the presence of real failures. Indeed, in

¹⁴ Refer to RA 1015 – Type Airworthiness ►Management◄ – Roles and Responsibilities.

¹⁵ Refer to RA 1016 – Military Continuing Airworthiness Management.

¹⁶ Refer to RA 5012 – Type Airworthiness Safety Assessment.

¹⁷ ►Refer to RA 1223 – Airworthiness Information Management.◄

Guidance Material 1300(2)

some cases, deliberate use of a degraded mode may have to be prohibited because of the severity of the associated Hazards.

18. For new Air Systems and for Major Type Design changes the TAA will have agreed an Integrated Test, Evaluation and Acceptance Plan¹⁸ with the FLC Capability organization, based on meeting the requirements of the User Requirements Document.

19. The RTSR approval will be recorded in Part A.1 of the RTS.

20. The RTSR will be submitted to the MAA for independent Audit / Assurance as follows:

a. The initial RTSR for new Air Systems needs to be submitted to the MAA for independent Assurance. For Major Changes, the MAA, in consultation with the RTSA and TAA, will decide during MACP Phase 3 if the MAA will carry out an RTSR Audit.

b. Liaison with the RTSA(s) is mandated for new Air Systems and Major Changes that result in a new Mark number.

21. The RTSR submission will demonstrate clear Audit trails and specific reference to evidence and describe any further work to be completed.

22. The MAA independent Audit of the RTSR will examine ► Risks and any associated Risk to Life (RtL), the communication of those Risks to the RTSA and Operating Duty Holder (ODH) and, where appropriate, proposed mitigations.

Regulation 1300(3)

Limitations

1300(3) The RTS **shall** state the limitations and restrictions for the Air System.

Acceptable Means of Compliance 1300(3)

Limitations

23. The limitations in the RTS **should** be reflected in the appropriate elements of the Air System Document Set (ADS)¹⁹.

24. Any limits in the RTS to be applied by Aircrew **should** be:

a. Expressed so that they are observable using the controls and displays in the Air System and / or by following Standard Operating Procedures (SOPs).

b. Set with a consideration of the accuracy, precision and legibility of cockpit and crew station displays and the Aircrew's ability to interpret this information given the prevailing workload.

Guidance Material 1300(3)

Limitations

25. The limitations in the RTS will be used in the formulation of the Air System's operating envelope as well as contingency and ► all operational activities ◄ plans, flying and operating orders.

26. Within the RTS, if a system or equipment is part of the configuration in the RTS, but no limitations for it are detailed in Parts B to D, then it will be cleared for its intended use - as expressed in the ADS - without further limitation. It is sufficient for the RTS to use the phrase "Information and procedures contained within Air System publications".

27. In order to provide the Aircrew with the complete set of limitations for the Air System, it may be necessary to provide the limitations that apply when certain failures have occurred.

28. The need for completeness demands that the limitations of individual systems are revealed, but there is potential for confusion over the precise operating limits.

¹⁸ ► The Integrated Test, Evaluation and Acceptance Plan will include assessment of offboard Information Systems which are included as part of the new Air System (see MAA02 definition). ◄

¹⁹ Refer to RA 1310 – Air System Document Set.

Guidance Material 1300(3)

Such situations will be discussed with the ADS Publication Organization so that the information in the RTS and AM is presented in a coherent fashion.

- a. The overarching release, in Parts A or B, will reflect the most restrictive limit for the whole Air System and needs to be annotated to show the system or characteristic which applies. Individual systems' limits need to be reflected in Parts C or D, but they will be cross-referred to the most restrictive limit in order that there is no doubt about the precise operating envelope of the Air System.
- b. Basic limits will be represented in Parts B and C (only if these limits are changed will mention be made in Part D).
- c. Role-related limits will be represented in Part D. It is quite possible that role limits (in Part D) will affect what is defined within the basic Air System parts (Parts B and C).

29. Limitations identified as Operational Emergency Clearances ('OECs'), 'pre-mod / post-mod', 'Installation only' and 'Switch on only' are Safety limitations because they represent procedural Risk mitigations, **▶rather than◀** as management limitations. The situation with respect to a limitation designated 'Normal Operating' may be different. There will be circumstances in which a limitation designated 'Normal Operating' may also represent a procedural mitigation that reflects the way in which Aircrew are trained and hence **▶will◀ not ▶◀** be exceeded.

30. Cross-referencing of limitations will reduce the potential for inconsistencies. However, in some cases, a system that would otherwise restrict the whole Air System might not be vital for flight, or special operating procedures might be invoked, to ensure Safety and thus avoid damage to equipment. In such cases, which will be supported by the TASA, the limitation in Part B will be relaxed accordingly. This will require full and explicit reference to the relevant system limitations, in Parts C or D, and to the operating procedures in other parts of the ADS.

31. Where different limitations apply to different Modification states of the Air System or equipment (for example when Air Systems are being progressively modified in-Service) then split limitations will be stated. These will normally be of the form "pre-mod nnn...; post-mod nnn..." and the Modification identified within Section A.6. When appropriate, and when the TAA has confirmed with the Military Continuing Airworthiness Manager that all Air Systems are of the same Modification standard, the RTS will be amended to remove the split limitation.

32. When setting limitations, the ability of the Aircrew to observe the limit has to be considered. It is important to note that the only means Aircrew have to respect limitations are by reference to the controls and displays in or from the Air System and / or by following SOPs. Where a limit is unobservable, an alternative approach may be by means of a procedure to ensure that the limits are observed.

Regulation 1300(4)

Operational Emergency Clearance

1300(4) An OEC **shall** be raised when there is likely to be an increased Rtl associated with the Air System's usage, compared to the Risk identified within the DST.

Acceptable Means of Compliance 1300(4)

Operational Emergency Clearance

33. An OEC **should** be identified when the Air System operates outside of its DST.
34. An OEC **should** be authorized by the RTSA and only enabled at ODH level for a given activity and defined period following the ODH review of their Safety statement.
35. Where appropriate, the ODH **should** declare, in their Safety statement, to which operation (including training for said Operation) or to which trial the OEC applies. In the absence of a named operation, the ODH **should** state the operational or force generation imperative for the OEC.
36. OEC review periodicities **should not** exceed 12 months.
37. The TAA **should** subject the proposed OEC to a Safety analysis and update the existing TASA¹⁶ as appropriate.

Guidance Material 1300(4)

Operational Emergency Clearance

38. An OEC will only be used for flight under either of the following circumstances:
- In conditions of actual or potential hostile enemy action, other life-threatening emergency situations, or associated training.
 - In the evaluation of options needed for contingency planning, including any Test and Evaluation trials.
39. Although the TAA might not be the instigator of an OEC, they are expected to submit the RTSR. The TAA will then ensure that a clear explanation of the applicable Type Airworthiness Hazards²⁰ and related operating instructions to support the OEC are incorporated in the ADS.
40. The ODH will ensure that the procedures required for an OEC to be enabled, guidance on the Risk involved, and related operating instructions are specified in appropriate flying orders.

Regulation 1300(5)

Clearance with Limited Evidence

- 1300(5) A CLE **shall** be raised when a fully substantiated TASA is not available to support a full RTS clearance but, on the balance of available evidence, the clearance is judged to remain within the required Design Safety Target.

Acceptable Means of Compliance 1300(5)

Clearance with Limited Evidence

41. A CLE **should** be used when a fully substantiated TASA is not available to support an RTS clearance but, on the balance of available evidence, the Air System continues to operate within its Design Safety Target.
42. CLE review periodicities **should not** exceed 12 months.
43. A CLE **should** have a maximum life of 5 years.
44. Where a CLE involves a change to Type Design, the MACP requirements^{4, 21} **should** be met.

Guidance Material 1300(5)

Clearance with Limited Evidence

45. While unusual, an Air System can be flown on the basis of a whole Air System CLE. However, this approach requires early engagement with the MAA and will require authorization by the Secretary of State for Defence.
46. There is an expectation that a CLE will be incorporated as a full RTS clearance within 5 years. It is recognized that factors may mitigate against obtaining sufficient evidence to be able to underpin an upgrade to a full RTS clearance. In this case the procedures outlined in MAA03²² must be followed. All CLEs with a life beyond 5 years, and those due to go beyond the 5 years prior to the next Air System Safety Working Group (ASSWG), will be articulated at the ASSWG.
47. For the avoidance of doubt, the use of a CLE does not in itself obviate the need for Certification of the Design Change / Air System iaw the MACP detailed in RA 5810⁴. If the TAA proposes to make an RTS Recommendation prior to full completion of the MACP, then a Waiver must be sought against the application of RA 5810⁴.

Regulation 1300(6)

Authorization

- 1300(6) The RTS and subsequent changes **shall** be authorized by the RTSA.

²⁰ Refer to RA 5011 – Type Airworthiness Safety Management System.

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

²² Refer to MAA03: Military Aviation Authority Regulatory Processes.

**Acceptable
Means of
Compliance
1300(6)**

Authorization

48. The RTSA **should** conduct independent Assurance of the ASSC prior to authorization of the initial RTS²³.

49. The initial issue and subsequent changes to the RTS **should** be authorized by the RTSA with delegated authority from the appropriate SDH. The RTSA has the right to delegate authority to authorize changes to a Delegated RTSA (DRTSA) who **should** be OF5 (or equivalent) or above.

**Guidance
Material
1300(6)**

Authorization

50. The RTSA will assure that all organizations that have a long term role and involvement with the RTS and the ASSC are kept informed of changes to the design standard. The ODH will assure that any changes to the usage In-Service are reflected in the Statement of Operating Intent and Usage²⁴ and that the RTSA and TAA are informed of such changes.

**Regulation
1300(7)**

Configuration Control and Audit Trail

1300(7) The RTS **shall** be amended and maintained to reflect the Aircrew related configuration(s) of the Air System.

**Acceptable
Means of
Compliance
1300(7)**

Configuration Control and Audit Trail

51. The RTS **should** be amended to reflect any changes to limitations arising from changes in design, operation, or the conditions in which the Air System is used throughout the Air System's In-Service life.

52. The Air System's TAA **should** ensure all changes to limitations of the Air System are recorded in the RTSR.

53. The RTSA **should** provide and maintain an auditable trail for all changes to the RTS¹¹.

**Guidance
Material
1300(7)**

Configuration Control and Audit Trail

54. The full Audit trail need not be produced in Part G of the RTS.

55. Amendments to the RTS will be required when limitations or restrictions are removed, revised or introduced. These may occur as a result of:

- a. Modifications which alter the design standard;
- b. Where other changes affecting limitations or restrictions are authorized;
or
- c. When documents referenced in the RTS are raised in issue or amendment number.

²³ Refer to RA 1205 – Air System Safety Cases.

²⁴ Refer to RA 5726 – Integrity Management.

Annex A

Release To Service

Structure and Instructions For Use

Presentation of RTS Text

1. In this Annex (Page ►11◄ onwards) the following conventions are used:
 - a. All normal text, including headings, will be used as shown.
 - b. Italic text within brackets *{example}* is used to show where text appropriate to a specific RTS is required.

c. *Italic text presented within shaded boxes is not required in the RTS; rather it provides guidance on the required RTS content.*

d. Normal text shown within double-line boxes is where mandatory content is defined, but the presentation is not specified.

- e. A table shaded and italic text used, as below, indicates that it is an example of an acceptable format.

<i>Mod N^o</i>	<i>Description</i>	<i>Affects RTS or not fully integrated into Air System Document Set (ADS)</i>	<i>RTS Reference</i>	<i>Review Date</i>

Non-Applicable Sections

2. The Parts of the RTS (A to G) are mandatory for all Air Systems.
3. The sections within each Part are also mandatory, and each heading ►**should**◄ exist within all RTS.
4. Some Sections will not be applicable to some Air Systems (eg ►Uncrewed Air System (UAS)◄), C.1 Aircrew Equipment, or C.3 Auxiliary Power Units); in such cases, the section heading **should** be used, with the text 'This section is not applicable to the {Air System type and mark number}'.
5. There may be occasions where the Section is applicable, but there are no limitations that need to be expressed (eg C.10 - Undercarriage). In such situations, the section heading **should** be used with the text 'Information and procedures within Air System publications'.

Sub-Section Titles

6. Each RTS section may be divided into as many sub-sections as required for each individual Air System. The layout of these sub-sections is at the discretion of the RTSA. Part D of the RTS is Air System specific, and therefore no detailed guidance can be given on its content or layout. However, the principles detailed above will be used to define how Part D will be used.

Sub-Section Numbering

7. The numbering of sub-sections will follow the same format as that used within the RTS. Therefore, in Section A of the RTS, Level 1 is an 'A' followed by a single digit (eg 'A.n'), Level 2 is 'A' followed by 'n.n' (eg 'A.n.n'), etc.

Classification

8. The Classification of an Air System RTS **should** be in line with the guidance provided within JSP 440²⁵ Part 4 Section 1: Classification Policy. If information of a higher classification than OFFICIAL – SENSITIVE ►**should**◄ be included in the RTS, rather than in another part of the ADS (such as the Tactics Manual), or a classified part of the Aircrew Manual, this will be presented as a separate 'Classified Supplement' to the RTS. In these circumstances, both the main and supplementary parts of the RTS have their own Preliminary Pages and RTS Statement. The supplement uses the same numbering system for Parts and sub-sections as the main, but to keep it to the minimum number of pages, the supplement need only include those Parts and sub-sections that are directly relevant.

Configuration Control

²⁵ Refer to JSP 440 – The Defence Manual of Security, Resilience and Business Continuity.

9. All pages in the RTS (including the Preliminary Pages and any blank pages) ► **should** ◄ show their Issue and Amendment status.
10. If a 'Classified Supplement' is used it will need to be under separate configuration control (ie with its own Issue and Amendment Status). The RTSA ► **should** ◄ ensure that the main RTS and a supplement are always coherent and both the main RTS and the supplement ► **should** ◄ be cross-referenced to the Issue and Amendment status of the other.

Electronic Formats

11. The RTS may be provided solely in electronic format.

Content Appropriate to the RTS

12. The RTS is the primary document of the ADS and, where appropriate to provide supporting detail, it will contain cross-references to other documents within the ADS.
13. In judging what content is appropriate to the RTS, and how to handle Safety information, authors need to consider 5 principles:
- Relevance. Is the information relevant to the aim of the RTS? Does it help define the Safety envelope of the Air System?
 - Completeness. If the information is relevant, it needs to be presented without omissions.
 - Target Audience. Is the information relevant to the target audience?
 - Coherence. The RTS ► **should** ◄ be coherent with the other documents in the ADS. Early liaison with other ADS authors is essential to ensure that the whole ADS is a coherent and seamless source of Safety information.
 - Responsibility. Authors need to be aware of their overarching responsibility for providing Safety information. Where an author decides not to include information, they ► **should** ◄ take positive steps to provide an auditable trail to show why the information has not been included and bring this to the attention of the Air System DT.

Procedures

14. It is common for procedures to find their way into the RTS; however, only those procedures that are directly essential to enable compliance with a limitation **should** be included. All other procedures **should** be placed in the Aircrew Manual or SOPs issued by ODHs, Force SOPs or a Technical Publication.

Placing Information in Parts

15. Although the Part and section headings can be defined for the RTS, it can be rather more difficult to decide in which Part a specific Air System limit needs to be placed. It is recommended that the technique used to derive the Part headings (see Table below) is used for deciding in which particular RTS Part information needs to be placed.

Table 1. Placing Information in Parts of the RTS.

Question	Response	Action
1. Is the information supported by a fully substantiated Safety Assessment that has been accepted by the Type Airworthiness Authority (TAA and RTSA)?	No	Cannot be included in the RTS, unless as a CLE or an Operational Emergency Clearance, is placed in Parts B-D as appropriate; it ► should ◄ be recorded in Part F
	Yes	Go to Q2
2. Is the information of a temporary nature?	Yes	Place in Part E
	No	Go to Q3
3. Is the topic an actual limitation that the Aircrew ► should ◄ obey?	Yes	Go to Q5
	No	Go to Q4
4. Is the topic engineering information?	Yes	Place in Part A (directly or by explicit cross-reference)
	No	Not legitimate RTS content, place elsewhere in the ADS
5. Does the limitation apply whenever the Air System is flown, regardless of configuration?	Yes	Go to Q6
	No	Place in Part D
6. Does the limitation affect the overall Air System flight envelope or handling?	Yes	Place in Part B
	No	Go to Q7
7. Does the limitation relate to an Air System?	Yes	Place in Part C
	No	Not legitimate RTS content, place elsewhere in the ADS

16. Where different limitations apply to different Modification states of the Air System or equipment (for example when Air Systems are being progressively modified In-Service) then split limitations ► **should** ◄ be stated. These will normally be of the form 'pre-mod nnn...; post-mod nnn...' and the Modification identified at Part A within Section A.6. When appropriate, and when the TAA has confirmed that all Air Systems are ► **to** ◄ the same Modification standard, the RTS ► **should** ◄ be amended to remove the split limitation.

Recording of Modifications

17. Air System Modifications will be recorded by the TAA in the ADS under their configuration control. The RTS is not the repository of all Modifications embodied on the Air System, however, some Modifications need to be identified to Aircrew. A Modification affects the RTS when it is necessary to identify different limitations and / or procedures for the pre-mod and / or post-mod conditions of the Air System or equipment. Those Modifications affecting the RTS **should** be recorded in ► ◄ Part A.6.2 ► **utilizing the heading "In-Service Design Changes"**. ◄ Modifications may be listed numerically or by system (Engines, airframe, avionics, etc). Once a Modification has been superseded (Fleet embodiment, subsequent Modification, etc) it **should** be removed from the RTS.

Contents of the RTS

Preliminary Pages

Part A - Airworthiness and Document Management

Part B - Air System Design and Handling Limitations

Part C - System Limitations and Constraints

Part D - Role Limitations and Constraints

Part E - Temporary Information

Part F - Clearances with Limited Evidence / Operational Emergency Clearances

Part G - RTS History

Preliminary pages

Classified Supplement: When the document is a Classified Supplement the following statement will be inserted at the head of this page; it is vital that the Supplement and main document are coherent at all times:

This document is the Classified Supplement to the RTS for the {Air System identifier}. This Supplement will be read in conjunction with the main document {document reference} at {Issue} and {amendment}.

The preliminary pages of the RTS ► **should** ◀ contain the following sections:

List of Contents

List of Amendments

List of Effective Pages

List of Abbreviations

Definition of Terms

Distribution

Note: Conventionally each of the above elements of the Preliminary pages would start on a new page.

List of Contents

A List of Contents will be provided, to a level of detail defined by the RTSA. The following represents the minimum list:

Preliminary pages

Part A - Airworthiness and Document Management

Part B - Air System Design and Handling Limitations

Part C - System Limitations and Constraints

Part D - Role Limitations and Constraints

Part E - Temporary information

Part F - Clearances with Limited Evidence / Operational Emergency Clearances

Part G - RTS History

Classified Supplement: When there is a Classified Supplement, the following statement will be inserted at the end of the List of Content, and the reference included at A.7.4:

Classified Supplement – There is a Classified Supplement to this RTS. It is issued under a separate distribution.

List of Amendments

An amendment list ► should ◄ be provided to record all amendments made to the RTS, eg:		
Amendment number	Date	Detail of Changes

List of Effective Pages

An important element of document control is a correct and auditable amendment procedure. To achieve this the RTS will have a 'List of Effective Pages' which will be updated by every amendment eg:			
Page	Issue / Amendment	Page	Issue / Amendment

List of Abbreviations

The RTS ► **should** ◄ provide a consolidated list of the abbreviations used throughout the document as an aid to the reader. Where appropriate, this list will include specific labels and / or captions in the Air System that are used to define limitations (in which case they ► **should** ◄ reproduce the presentation in the Air System exactly in relation to (mis-) spelling and capitalisation and not follow any particular style conventions in use in the RTS). No further expansion of abbreviations need be used throughout the document.

Definition of Terms

It is important to the use of the RTS and the overall Airworthiness of the Air System, that there is a clear and common understanding of the terms used within the RTS. Therefore, every RTS will have a section dealing with the definition of terms.

Many of the terms used within an RTS are common to all Air Systems, and hence ► **should** ◄ be defined in all RTS. The following ► **should** ◄ be included in all RTS:

Term	Definition
Airworthiness	The ability of an Air System or other Airborne Equipment or system to be operated in-flight and on the ground without significant Hazard to Aircrew, ground crew, Passengers or to third parties; it is a technical attribute of materiel throughout its lifecycle.
TAA-approved Design Standard	The Standard is the standard to which the RTS applies. The TAA has the discretion to use a reference design standard that is other than the Design Organization (DO) Configuration Status Record (CSR). The TAA ► should ◄ be satisfied that there is a Safety Assessment for this reference design standard and that configuration control procedures are equivalent to those required for a CSR.
CAUTION	When the consequence of not respecting a limitation might be damage to the Air System or equipment.
Installation only	The equipment may be fitted but ► should ◄ not be operated in-flight. It will be isolated iaw a defined scheme unless it has been shown that inadvertent operation represents an acceptable Hazard.
Note	To clarify the reason for a limitation.
Operational Emergency Clearance (OEC)	A clearance within ► an Air System's RTS for when there is likely to be an increased Rtl associated with the Air System's usage, compared to the Risk identified within the Design Safety Target. ◄ This judgement may be ► substantiated by an appropriate Safety Assessment or based ◄ on limited available evidence. An OEC will only be authorized by the RTS Authority once it is assured that any operating Risks have been communicated to, and accepted by, the appropriate Aviation Duty Holder (ADH).

Clearance with Limited Evidence (CLE)	A clearance within ►an Air System's RTS or MPTF (In-Service) for◄ when a fully substantiated TASA is not available to support a full RTS ►or MPTF (In-Service)◄ clearance but, on the balance of available evidence, the clearance is judged to remain within the required ►◄ Design Safety Target.
Prohibited	Operation in the manner described, or of the equipment specified (as appropriate), is prohibited because the associated Risk is unacceptable. The Risk may be judged unacceptable because it is either too high or because there is insufficient knowledge to determine the likelihood of encountering a severe Hazard.
Switch-on only	Operation of the equipment does not interfere with the proper operation of any other equipment or system fitted to the Air System. The equipment may be fitted and may be operated in flight within the limitations defined (which may therefore restrict such operation to specific phases of flight and parts of the flight envelope) but cannot be relied upon to function correctly (which may include incorrect functioning of any failure indications). The Air System will not be operated in any way that places any reliance whatsoever on the proper functioning of this equipment.
"Cannot be Relied Upon" and "Not to be Relied Upon"	"Cannot be Relied Upon" – correctly forms part of the definition of "Switch on only" which applies to phased clearances as defined in Reg(3). However, "Cannot be Relied Upon" and "Not to be Relied Upon" may also be used more widely to provide limitations on a system in a Special or Full Clearance. These limitation(s) should provide direction on how the system may be used ²⁶ , and / or which parts or elements of the system, its information or envelope are unreliable and when ²⁷ . It follows that a "Cannot be Relied Upon" or "Not to be Relied Upon" clearance may provide limitations for conditional or partial reliance rather than prohibiting "any reliance whatsoever" as is the case for "Switch on only".
Temporary Information	Temporary Information includes: Temporary Clearances, Temporary Restrictions, and Temporary Information Notices. The details of Temporary Information will be located in Part E of the RTS. Within Temporary Information, where a Temporary Clearance is used, it ► should ◄ be of a genuinely transitory nature (eg the clearance of a Modification for a short duration trial after which it will be removed, test equipment for short term use only, etc). Temporary Clearances with a fully substantiated and evidenced Safety Assessment would be included in Part E of the RTS as stand-alone entries (not covered by an OEC or CLE); if the Safety Assessment is not fully substantiated or does not meet the Design Safety Target, the Temporary Clearance would also need to be covered by either an OEC or CLE and listed / cross-referenced in Part F. Temporary Clearances will be expected to reference the specific Air System tail numbers or other applicability restrictions (eg Aircrew requirements, software loads, operating restrictions, etc) it is applicable to.
WARNING	When the consequence of not respecting a limitation might be death and / or injury.

*In addition to these there may be other terms that are specific to the Air System type; these **should** all be clearly defined.*

Presentation of WARNINGS, CAUTIONS and Notes

*The convention used for presenting **WARNINGS**, **CAUTIONS**²⁸ and Notes within the RTS needs to be explained. The appropriate statement will be selected from the following:*

The **WARNINGS**, **CAUTIONS** and Notes are placed as close as practicable to the relevant limitation / procedure.

or

²⁶ For example – Not to be used as the sole source of reference for position - for a particular moving map system.

²⁷ For example – **Should not** be relied upon to provide altitude information of the target - for a particular Traffic Advisory System.

²⁸ **WARNINGS** and **CAUTIONS** are written in upper case and bold.

The **WARNINGS, CAUTIONS** and Notes are called out and numbered within each sub-section, and placed at the end of the relevant sub-section within each Part.

or

The **WARNINGS, CAUTIONS** and Notes are called out and numbered within each Part and placed at the end of the relevant Part.

Distribution²⁹

Necessary to ensure amendments are promulgated to all document holders

Action:

Mandatory:

RTSA	<i>Master copy and to promulgate the RTS</i>
ODH	
TAA	
MAA	<i>For independent assurance of new Air Systems and Major Changes to existing Air Systems only</i>

Information:

Mandatory:

DT Safety Manager / RTS Manager	
DO	<i>For comparison with Air System design assumptions and limits.</i>
Delivery Duty Holder (DDH)	
Officer Commanding Defence Aircrew Publications Squadron (OC DAPS)	<i>For comparison with Aircrew documentation data.</i>
Operating Data Manual (ODM) Agency	
Military Continuing Airworthiness Management Organization (Mil CAMO)	

²⁹ The RTSA may add other addressees to the distribution list.

Part A – Airworthiness and Document Management**A.1 RTS Statements³⁰**

All RTS statements ► **should** ◄ use a common standard of wording.

A.1.1 Approval of Initial RTSR Issue

I recommend the initial issue of the RTSR for the {Air System type and mark} to the RTSA.

{signature}

{name}

{Post of the 2* Operating Centre Director (OCD) with appropriate delegated airworthiness authority}

{date}

A.1.2 Authorization of Initial Issue

The {Air System type and mark} is released for flight subject to the limitations stated in this initial issue RTS.

The limitations of the RTS are the definitive limits for the Air System in Service. Where any conflict arises between this RTS and any other Air System documentation, the limitations in the RTS are overriding.

Authorized holders of the RTS ► **should** ◄ ensure that all RTS documents that define current flight limitations are kept with this authority under one cover.

The authority for authorizing changes to this RTS is vested in {appropriate post title} as my DRTSA for the {Air System type and mark}.

{signature}

{name}

{rank}

{RTSA}

{date}

³⁰ On initial Issue for new Air Systems and Major Changes that result in the Mark Number for the Air System changing, the RTSR ► **will** ◄ be approved by the 2* OCD and the RTS ► **will then** ◄ be authorized by the RTSA. Subsequent (routine) amendments of the RTS can be delegated for authorization by the Delegated RTSA (DRTSA).

A.1.3 Certification of Safety and Airworthiness

I certify that the {Air System type and mark}, when operated iaw the RTS at Issue {number} amendment {number}, including those CLEs listed in Part F.1, is airworthy and that the overall Risk is in the order of the Project Safety Target.

Clearances which carry a higher level of Safety Risk are identified as OECs and their use, once authorized by the RTSA, requires specific Approval by the relevant ODH iaw RA 1300 ► Regulation 4 ◄.

Clearances in Part E and F that are not supported by a fully substantiated Air System Safety Case (ASSC) or TASA are authorized for inclusion in the RTS by the RTSA.

The authority for the exposure to, and the ownership and management of, the residual Risk associated with the clearances in Part E and F lies with the ADH chain.

{Signature}

{name}

{Type Airworthiness Authority for the {Air System Identifier}}

{Date}

A.1.4 Authorization of Amendment (not required for initial issue)

As the Delegated Release To Service Authority, I authorize amendment {number} to issue {number} of the {Air System type and mark} RTS.

The following wording is required if not included in the initial Authorization statement for legacy RTS (delete this sentence when populated)

The limitations of the RTS are the definitive limits for the Air System in Service. Where any conflict arises between this RTS and any other Air System documentation, the limitations in the RTS are overriding.

Authorized holders of the RTS ► **should** ◄ ensure that all RTS documents that define current flight limitations are kept with this authority under one cover.

{signature}

{name}

{rank}

DRTSA {Service}

{date}

A.2 Introduction

A.2.1 Purpose: The initial RTSR is the statement by the TAA approved by the OCD, to the RTSA that an acceptable TASA has been prepared for the Air System and its equipment, and forms the basis for the initial RTS of the Air System.

The RTS describes the approved Air System configuration(s), the operating envelope, limitations, Design Standard, standard of operational software and the parameters within which the ASSC has been established, and to which the Air System or equipment may be flown in Service regulated flying. It also includes the approved OECs and CLEs, and advice on their application.

A.2.2 Structure: This RTS comprises RTS statements and 7 supporting parts:

Part A covers the purpose and management of the RTS and any other relevant information that does not appear as a flying limitation.

Part B covers limitations on the handling and use of the basic Air System.

Part C covers those additional limitations and constraints that may be imposed by systems integral to the Air System.

Part D covers those limitations and constraints imposed when the Air System is operating in a particular role.

Part E details Temporary Clearances and the management of temporary information.

Part F details Clearances with Limited Evidence and Operational Emergency Clearances.

Part G enables the production, content and evolution of the RTS to be audited.

The limitations in Parts B to E may be either: for normal use (ie in peace and ►all operational activities◄), or for operational emergency use only.

All permanent information that has been derived from the ASSC will be included within the main Parts B to D, of the RTS, with temporary information, also having been derived from the ASSC, being covered by Part E.

A.2.3 Amendment: Amendments will be promulgated automatically to the agencies detailed within the distribution list. Suggestions for amendment ►should◄ be forwarded to:

{Contact details of the RTSA Desk Officer}

A.3 Description

The *{Air System identifier}* is an *{Air System description}*, procured against *{reference to agreed characteristics against which contract was let}* for use by *{service operator}* in the following roles:

{Primary Roles}

{Secondary Roles}

{Tertiary Roles}

The *{Air System identifier}* was designed to meet the requirements of *{Type Certification Basis (TCB), Design Standard eg EASA, JAR, FAR, Def Stan (including anthropometric considerations)}*. It is manufactured in *{country of origin}* by *{manufacturer}* under *{arrangements to ensure manufacture will meet the design}*.

The DO(s) for various elements of the Air System are listed below:

This list will highlight all DOs who have a role in maintaining the Configuration Control of the Air System.

Air System: *{Air System DO}*

Engine: *{Engine DO}*

Equipment or major system: *{Equipment or Co-ordinating DOs}*

The MAA has examined compliance with the Type Certification Basis (TCB) and has issued a Military Type Certificate / Statement of Type Design Assurance / Approved Design Change Certificate *{delete as appropriate}* file reference ###.

A.4 Air System Life and Fatigue

The limitations in Parts B, C and D are valid for the life of the Air System. The Air System life is {eg x hours or assessed on condition}. This life and elements of the maintenance and servicing schedule are based on the following assumed spectrum:

{Design Usage Spectrum}

A.5 Statement of Operating Intent and Usage (SOI / SOIU)

The use of the {Air System identifier} has been reviewed by the ADH and TAA within the roles and fleets as detailed below:

{List of all Marks, Roles or fleets (groupings) of Air System that operate to different usage spectrum.}

The Statement of Operating Intent / Statement of Operating Intent and Usage (SOI / SOIU) {delete as appropriate} for {Air System identifier} has been issued at {SOI / SOIU reference} and has been passed to {Air System DO} for comparison against the assumed design spectrum. Any perceived differences between the Air System use described by the SOI / SOIU and the way in which the Air System is actually being operated ► **should** ◄ be highlighted to {SOI / SOIU issuing authority} for resolution or SOI / SOIU amendment.

{SOI / SOIU executive summary}

A.6 Air System Configuration

The Design Standard of {Air System identifier} to which this RTS applies is given below:

Users of the RTS ► **should** ◄ note that, unless listed or referenced below, a Modification / item of equipment is not authorized to be fitted or used. In case of doubt, refer to {Contact details of the Delivery Team EA}

Within section A6 the Air System Configuration will be built up through the sub-sections of:

A.6.1 Basic Design Standard

The initial design of the manufacturer. If there are several DOs, then multiple entries will be required.

Production Design Standard(s). Configuration Status Record {number and issue state}

A.6.2 In-Service Design ► **Changes** ◄

This will provide a cross-reference to a list that is under the Configuration Control of the TAA, all In-Service ► **Design Changes** ◄ introduced since the initial design.

► **Design Changes** ◄ affecting the RTS:

► **In-Service Design Changes** ◄ affecting RTS

Mod N ^o	Title	RTS Reference

A.6.3 Other equipment

Subject to RTSA / TAA's discretion, Modifications or Authorizations for any equipment that is fitted to, or carried in, the Air System but is not covered by sub-sections A.6.1 or A.6.2 (ie Equipment Not Part of the Type Design). Everything listed under 'Other Equipment' ► **should** ◄ have a Safety Assessment to determine the Safety impact and any associated limitations incorporated in the ADS. Such Safety Assessments may be integral to (or supplements to) the TASA, or can be based on the equipment's own Safety Assessment, provided specific consideration of the Air System integration aspects is added.

Freight carried iaw standard rules is not included.

Aircrew Equipment Assemblies (AEA)

This section **should** detail the AEA that has been specifically cleared for use with the Air System. ► ◄
The limitations for AEA will be given at C.1.

The following further sub divisions are suggested, but others may be used at the discretion of the TAA.

Role Equipment (when applicable)

The limitations for Role Equipment will be given at C.21 or Part D, as appropriate.

Armament and non-armament stores (when applicable).

The limitations for armament and non-armament stores will be given at C.20 or Part D, as appropriate.

Airborne Equipment (AE) (when applicable).**Helicopter Under-Slung Load Equipment (HUSLE)** (when applicable).**Cleared Carry-on Equipment** (when applicable).

The limitations for AE, HUSLE and Miscellaneous Items of Carry-on Equipment will be given at Part D. Where an OEC or CLE is provided it is referenced in Part F.

A.7 Related Documents

A.7.1 The production design is airworthy when operated by qualified Aircrew within the limitations promulgated in Parts B, C, D and E of this RTS and iaw the information and provisions contained in the following related documents:

Enter in the form given below for all Airworthiness related documents, including: AM, ODM, FRCs, Tech Pubs, MOD F700, etc.

{Document} to the latest standard, published and maintained by {publishing organization eg OC ▶ **DAPS** ◀, ODM Agency} on behalf of {Sponsor eg TAA / RTSA / ODH}.

A.7.2 To ensure the Air System retains its design Airworthiness it will be serviced and maintained iaw:

{Tech Pubs reference} to the latest standard, published and maintained by {publication organization} under the authority of {document sponsor}.

{Component lifing policy reference} to the latest standard, published and maintained by {publication authority} under the authority of {document sponsor}.

The following sub-section is used when appropriate.

A.7.3 Other documents referred to in this RTS which contain information relevant to the Airworthiness and operation this Air System are:

{Document Reference eg BRd766C} to the latest standard, published and amended by {publication organization} under the authority of {document Sponsor}.

The following sub-section is used when appropriate to a main RTS document that has a Classified Supplement, or to the Supplement itself.

A.7.4 The Classified Supplement {Document Reference}, {Issue}, {Amendment}.

or

The main RTS {Document Reference}, {Issue}, {Amendment}.

Part B – Air System Design and Handling Limitations

This part of the RTS contains Air System design and handling limitations that provide for airworthy operation of the Air System by qualified Service Aircrew. This part covers the information to Aircrew, for limitations that are basic to flying the Air System without external stores or other Role Equipment fitted. Thus it covers items such as: speed, Altitude, manoeuvres, environmental conditions, take-off and landing etc. They ►should◄ be expressed in a manner that allows them to be respected by the Aircrew. The conditions pertaining to a particular limit ►should◄ be expressed unambiguously. Where the meaning of a term is not formally defined it needs to be explained (eg ramp mass). Conflict, or perceived conflict, of information will be avoided. When operation is dependent on the Air System configuration this will be expressed unambiguously (eg including reference to the relevant Modification number).

Where an OEC or CLE is appropriate, it is referenced in Part F and the detail is placed in Part B.

B.1 Environmental Conditions

Snow, icing, cold weather limits; hot weather limits; operation in sandy or dusty environments.

B.2 Temperature Envelope

Maximum and minimum temperatures (ie with reference to International Standard Atmosphere see also Def Stan 00-970, Part 1, section 7) for ground operation and flight; dew point limits; hot and cold soak limits. To assist the Aircrew an indication needs to be provided as to where the temperature will be measured.

B.3 Flight Envelope

Altitude / Speed / All Up Mass limits expressed in written or (preferably) graphical form (eg flight velocity diagrams). Instrument Flying and degraded mode flight envelopes, Formation Flying, speeds limits for systems (eg flaps, undercarriage) and degraded systems (eg one hydraulic system) etc.

B.4 Mass and Centre of Gravity

Maximum all up mass (AUM) and any other AUM related limits eg maximum take-off mass if different to landing mass, maximum towing mass, jacking mass slinging mass. Longitudinal and lateral centre of gravity limits. This may be a graph with AUM and CG as the axes. For Fixed Wing Air Systems, it may include: ramp mass, maximum take-off mass, maximum overload take-off mass, maximum landing mass and maximum fuel mass. (Note that this document takes the scientific view that mass is not the same as weight).

B.5 Manoeuvre Limits

Angle of bank limits (may be a graph); G limits, incidence, stalling and spinning, roll limits, aerobatics and unusual manoeuvres. For Rotary Wing Air Systems, it may include: hovering and low speeds flight envelope; spot turn limits. Note any additional limits with external configurations by referring to roles (Part D).

B.6 Ground Operations, Take-Off and Landing

Airfield or alternative surface limitations; ground running restrictions; towing and taxiing; Air System tie down / restraint arrangements for engine ground runs; for Rotary Wing: rotor brake, rotor engaging and disengaging; cross wind take-off and landing; maximum rate of descent on landing; Air System arresting systems; sloping ground limits; undercarriage, tyres and brakes limits; taxiing limits; running take-off and running landing limits; engine off landings. Limitations on ship operations: ships from which operation is cleared or prohibited, airspeed and approach limits, landing spots etc.

B.7 Instrument and Night Flying

Limitations for unaided instrument or night flying (ie without Night Vision Goggles (NVG) etc). Any special to type limits which need to be observed only at night. Any external configurations which affect these and refer to Part D. Refer to Instrument Flying envelope at Paragraph 1. Helicopter Type Allowance (needs to state if pressure error is or is not included) and any special to type limits.

B.8 Electro-Optic Flying

*Air System / equipment combination related limits only; NOT equipment related limits for flying with NVG, Forward-Looking Infra Red (FLIR), visor displays etc. May include primary and reversionary modes. Equipment-related limitations (eg those relating to temperature storage of NVG) ► **should** ◄ not be included in the RTS but ► **should** ◄ appear in the appropriate equipment publication. Aircrew will be aware of equipment limitations by receiving the required training before they are authorized to use it.*

B.9 Electromagnetic Compatibility

Basic Air System High Intensity Radio Transmission Area (HIRTA) limits; reference to any additional limits due to role configuration (Part D).

B.10 Minimum Crew

*Minimum Crew. The minimum number of Certificate of Qualification on Type (CQT) Aircrew (Pilot and Non-Pilot) will be stated. Additionally, due to the nature of ► **UAS** ◄ operations, the minimum number of Ground Crew required during the launch and recovery phase will be stated.*

*Guidance Material. The minimum crew will be determined by the Design Organization. Stipulation of minimum Crew by task (eg take-off and landing) or Crew position (eg cockpit seat or ► **UAS Command Unit** ◄ position) may be required.*

Guidance Material. Operation of the Air System by non-CQT personnel (eg test flying, students, Passengers, Supernumerary Crew) as permitted within the MRP 2000 Series³¹, will be detailed in ADH ► ◄ Orders.

³¹ Refer to the 2000 Series: Flying Regulations (FLY).

Part C – System Limitations and Constraints

This part of the RTS covers those systems integral to the Air System and contains limitations that provide for airworthy operation of the Air System by qualified Service Aircrew. Only system limitations that have an impact on the airworthy operation of the Air System, to a required performance standard, by qualified Service Aircrew ►should◄ be included. They ►should◄ be expressed in a manner that allows them to be respected by the Aircrew. The conditions pertaining to a particular limit ►should◄ be expressed unambiguously. Where the meaning of a term is not formally defined (eg ejection mass) it needs to be explained. Conflict, or perceived conflict, of information will be avoided. When operation is dependent on the Air System configuration this will be expressed unambiguously (eg including reference to the relevant Modification number).

Where system limitations are wholly described in Part B they need not be repeated in Part C. Where this is not the case, system limitations need to be comprehensively covered under the relevant heading.

Role-related limitations (ie those covering different external stores configurations and specific roles) will appear in part D.

Where an OEC or CLE is appropriate, it is referenced in Part F and the detail is placed in Part C.

C.1 Aircrew Equipment

Where there are Air System limitations associated with the equipment / Air System combination they will appear here. Equipment limitations will only appear in the RTS when they need to be brought to the attention of the Aircrew and do not exist elsewhere. For RTS purposes Aircrew equipment includes Carry-on Equipment.

Any items specifically cleared for use need to be either listed in the AEA section of the Design Standard in Part A or covered by a Modification.

C.2 Fuels, Oils and Lubricants

List of all permitted fuels³², oils and lubricants, use of icing inhibitors, with associated limits if any.

C.3 Auxiliary Power Units

All APU and starter system limits; air and ground use; system temperature limits; starting limits; running time.

C.4 Electrical System

Any relevant limits including those associated with degraded modes or load shedding; battery limits. Limitations on the testing of warning systems in-flight.

C.5 Hydraulic System

System temperature and pressure limits. Any limits associated with degraded modes; ground use limits; limitations on any services provided by hydraulic system.

C.6 Fuel System

Minimum fuel for flight; Altitude limits associated with booster or fuel pump operation; any cross-feeding limitations; refuelling and de-fuelling limits; in-flight refuelling limitations.

C.7 Engines and Transmission

System temperature and pressure limits; starting limits; running time; limits on in-flight shut down or in-flight re-light. Torque; compressor speed; gas temperature; free turbine limits.

If required, sub-sections on: propellers; reheat; water injection; rotors etc.

C.8 Environmental Conditioning System

Associated system limits and operational constraints for Aircrew, Cargo and equipment, including oxygen system.

C.9 Canopy / Windscreen

Associated system limits; operational constraints.

³² Permitted fuels include synthetic fuels as detailed in RA 1910 – Quality Assurance of Aviation Fuel from non-UK MOD Sources.

C.10 Undercarriage

Associated system limits; operational constraints.

C.11 Emergency and Escape Systems

Needs to include any limits associated with escape systems, emergency avionics such as Cockpit Voice Recorders, sonar location beacons etc. Limitations on ejection mass and how mass is defined (eg walk out mass, total mass etc). Emergency lighting limitations.

C.12 Fire Protection System

All limitations associated with fire detection and fire fighting system for airframe and engine.

C.13 Ice Detection and Ice Protection Systems

All limitations associated with the functioning of the ice detection system and ice protection (de-icing, anti-icing) systems. Limitations on the operational envelope imposed by the capability of the ice detection / protection are expressed in Parts B1, B2, B3 and B6 as appropriate.

C.14 Flying Control System

All limitations associated with flying controls, lifting surfaces etc.

C.15 Stability Augmentation / Autopilot System

Limitations associated with any form of stability augmentation or autopilot system, including degraded mode limits. Stability augmentation equipment autopilot modes including engagement / disengagement / mode failure constraints; any specific flying control limitations (eg any need to keep hands on stick); minimum operating height to allow for recovery from runaway.

C.16 Communication Systems

Limitation of the use of communication equipment; including homing equipment and data links (for example ► UAS ◄); operational performance constraints.

C.17 Navigation Systems and Sensors

Limitation associated with use of navigation equipment (eg Global Positioning System, Radar Altimeter, Tactical Air Navigation, digital maps, Performance Based Navigation, Reduced Vertical Separation Minima, etc); operational constraints which affect performance.

C.18 Mission Management Systems

Mission management systems include weapon aiming systems.

C.19 Operational / Mission Sensors

Any limitations or operational constraints associated with Electronic Signal Monitoring, optical, sonar, sonic sensor systems, Identification Friend or Foe system, radar: needs to include operating performance constraints such as areas of blanking etc.

C.20 Defensive Aids

Installed system limits where these form part of an integrated suite or are individual items.

C.21 Armament System

Identification of armament / stores management systems, stores and associated limits (eg HIRTA, RAD Haz) imposed on the Air System by its armament systems. Carriage, Release and Jettison limits may either be included here (where they can be simply expressed; for example where an Air System carries a single store type and which is not configuration dependent), or reference may be made to Part D (where there may be a number of different stores, configurations and other associated variables). RTS limitations need to be consistent with weapon aiming and mission management system limits. Limitations associated with the use of integral guns, as opposed to role fit guns, would appear here. Role fit guns would appear in Part D.

C.22 Role Equipment

Where the TAA and RTSA judge it convenient and appropriate, rather than using Part D, list equipment and respective limits for equipment which is related to a role or roles but is normally carried in or on the Air System as normal fit.

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Part D – Role Limitations and Constraints

*The Air System configuration(s) for each role needs to be listed including any Equipment Not Basic to the Air System, or ► **should** ◄ be removed from the basic Design Standard. Cleared equipment for each role fit ► **should** ◄ be listed (eg HUSLE). Any additional or different limits to those in Parts B and C which need to be observed as a result of these configurations ► **should** ◄ be detailed.*

Where equipment is role-related but not considered a role fit item (eg a hoist which is fitted all the time as opposed to solely during Search And Rescue (SAR) missions) this needs to be included in Section C.

*When operation is dependent on the Air System configuration this will be expressed unambiguously (eg including reference to the relevant Modification number). If necessary, compatibility matrices ► **should** ◄ be used.*

Where an OEC or CLE is appropriate, it is referenced in Part F and the detail is placed in Part D.

Part D is likely to be highly Air System specific.

The headings suggested are indicative and not prescriptive.

Examples of section headings for a Fixed Wing Air System include:

Authorized Configurations (with associated Carriage, Release and Jettison limits)

Air to Air Refuelling

Target Towing

Loading Limitations (including Passengers and freight)

Ferry Configurations

Air Drop

Parachuting

Reconnaissance

Examples of section headings for a Rotary Wing Air System include:

Underslung Load Operations

Winch Operations

Casevac

Anti-Submarine Warfare

Anti-Surface Warfare

Troop Carrying

SAR

Parachuting

Surveillance

Part E – Temporary information

Part E is reserved for the 'Management of Temporary Information'. Clearances included in this section **▶ should ◀** be of a genuinely transitory nature (eg the clearance of a SM for a short duration trial after which it will be removed); or included within this part through operational necessity as a temporary amendment, pending its inclusion in the appropriate part at the next formal amendment of the RTS and / or ADS. Each element of Part E will have been derived from a supplementary Safety Assessment, and provides information (limitations) on one or more aspects of Air System operation. This section may also be used to promulgate other urgent information to Aircrew pending formal amendment of Aircrew publications (eg operating data in support of a new clearance). This part may also be used for time-limited clearances (eg any that are specific to an operation or exercise), and where it is expected that they will not form part of the RTS in the longer term.

The RTSA has the option to place the Temporary Clearances entirely within Part E of the RTS, or to insert pages in the appropriate places throughout the ADS, or a combination, whichever method suits the particular circumstances.

This section may be subdivided into the following sections:

Record of Temporary Clearances.

Record of Temporary Restrictions.

Record of Temporary Information Notices.

The information within Part E **▶ should ◀** provide:

A record of all current Temporary Clearances;

The definition of the applicability of each Temporary Clearance (eg tail number, Operational Evaluation Unit (OEU) flying only, named exercise, named operation);

The arrangements for withdrawal of each Temporary Clearance (eg calendar, embodiment of a Modification);

A definition of the parts of the ADS affected by each Temporary Clearance;

The location of the information relating to the Temporary Clearance.

This **▶ should ◀** be done with a table of the following form:

Temporary Clearance N ^o	Title	Applicability	Arrangement for Withdrawal (to include duration)	Affected parts of ADS	Location of Temporary Clearance

If appropriate, specific Temporary Clearances may be included within Section E. It is suggested that this be presented under suitable sub-heading(s) below sub-section E.2 (eg 'E.2.1 Temporary Clearance {insert number} - Limitations for Operation {insert title}').

Part F – Clearances with Limited Evidence / Operational Emergency Clearances

The purpose of Part F ► **should** ◄ record where information has been included within the RTS that has not been derived from a fully substantiated Safety Assessment; such clearances are termed 'Clearances with Limited Evidence' (CLE). Each CLE will be integrated into the appropriate part of the RTS, and identified as a CLE through cross referencing to the Part F register. Such clearances are subject to periodic review, frequent amendment, and some may be applicable only to certain marks, operating units or even individual Air Systems. Following a periodic review or change to such clearance, the applicability and validity of the CLE may change.

An Operational Emergency Clearance (OEC) can be applied to a clearance residing in the main body of the appropriate section of the RTS and referenced in Part F (if appropriate). The RTS ► **should** ◄ present OECs in a separate sub section within the section to which they are applicable. The OEC ► **should** ◄ include an indication of the reason for identifying it as a high Risk clearance. A full explanation of the Risks ► **should** ◄ be retained by the TAA within the Audit trail.

The information within Part F.1 and F.2 ► **should** ◄ provide:

The title of the CLE / OEC.

A record of all current CLEs / OECs.

The definition of the applicability of each CLE / OEC (eg Tail Number, OEU flying only, named exercise, named operation).

The review period of the CLE / OEC is defined in RA 1300 Regulation 4 and Regulation 5.

The arrangements for withdrawal of each CLE / OEC (eg calendar, embodiment of a Modification).

The location within the RTS of the details of the CLE / OEC.

F.1 Record of Clearances with Limited Evidence

<i>Clearance with Limited Evidence N^o</i>	<i>Title</i>	<i>Applicability</i>	<i>Arrangement for Withdrawal</i>	<i>Location within RTS</i>	<i>Review Date</i>

F.2 Record of Operational Emergency Clearances

<i>Operational Emergency Clearance N^o</i>	<i>Title</i>	<i>Applicability</i>	<i>Arrangement for Withdrawal</i>	<i>Location within RTS</i>	<i>Review Date</i>

Part G – RTS History

Not part of promulgated RTS.

*This part covers the historical function required to ensure Airworthiness. It is a record of all the Safety Assessment data that has been used in compiling the RTS and provides justification for all elements of the RTS content. It is not required that the full Audit trail be produced in Part G, but rather that it defines what the Safety Assessment Audit trail is, and identifies where the information can be located. It will be maintained by the RTSA in conjunction with the TAA throughout the life of the Air System; after the Out of Service Date appropriate data ► **should** ◄ be retained for 5 years¹¹. Some elements may exist as databases in their own right. Careful consideration will be given to archiving such material and it ► **should** **not** ◄ be destroyed until at least 5 years¹¹ after the Air System is Out of Service.*

The minimum that is required in Section G is an index of where the following information can be found:

Attribution matrix specifying the source of every element of the earlier parts.

Design documentation (F100 Series Forms, MPTF³³ etc).

List of Trials and associated Reports not covered by the design documentation.

Details of any Safety Assessments relating to the Air System or its systems.

Details of sentencing of trial recommendations.

Other baseline data used in generating the first issue.

Details of all changes to the initial issue (amendments and subsequent issues) to include: their nature, the reason for their introduction and the individual authorizing their implementation.

Acceptable layouts for Part G include, but are not limited to:

A reference to one or more series of files held in particular locations. Thus it could be a list such as: RTSA RTS Safety Assessment files {file series reference}, TAA Modification files {file series reference}, and Independent Evaluation and Audit¹⁶ reports {reference to list of applicable reports}. Each of these groups of files could, and often will, be held in different locations which need to be specified³⁴.

A reference to an Airworthiness or Safety Assessment database. Many modern Air Systems will be developed with much, or all, of the information relevant to the RTS held on a Safety Assessment or configuration database. A reference to this database is acceptable, providing that the database references further source documents, or data¹⁹.

³³ Refer to RA 5880 – Military Permit to Fly (Development) (MRP Part 21 Subpart P).

³⁴ Refer to RA 1200 – Air Safety Management.

RA 1340 - Equipment Not Basic to the Air System

Rationale

Equipment Not Basic to the Air System (ENBAS)¹ comprises items which are carried onboard / attached to the Air System to support delivery of the required capability but are not included within either the Air System design drawings or Certification of the Type Design². Failure to properly identify and assess all ENBAS in the Air System Safety Case (ASSC)³ could lead to unmanaged Hazards and a lack of appropriate Risk mitigation. Therefore, all ENBAS requires a Safety Assessment prior to inclusion in the Release To Service (RTS)⁴ or appropriate Military Permit To Fly (MPTF)⁵.

Contents

1340(1): Equipment Not Basic to the Air System

Regulation 1340(1)

Equipment Not Basic to the Air System

1340(1) Operating Duty Holders (ODH) / Accountable Managers (Military Flying) (AM(MF)) **shall** ensure ENBAS is addressed in their ASSC and included in the RTS / appropriate MPTF.

Acceptable Means of Compliance 1340(1)

Equipment Not Basic to the Air System

1. ODHs / AM(MF)s **should** ensure that ASSC are supported by a Safety Assessment for carriage, fitment and operation of ENBAS.
2. The Type Airworthiness Authority (TAA)⁶ **should** ensure that an Safety Assessment has been completed prior to authorizing ENBAS for inclusion in the RTS Recommendations or appropriate MPTF.
3. The RTS Authority (RTSA) **should** ensure that all authorized ENBAS is included in the RTS **▶** and supported by an appropriate Safety Assessment.
4. The Safety Assessment **should** define the Configuration and approved operating environment for the equipment to which it applies. Where the ENBAS is supported by a Commodity Letter of Air Safety Notification (LoAN) holder Safety Assessment⁷, the TAA is responsible for ensuring **▶ the ◀** Air System provides an operating environment that meets the safe operating conditions identified in the Commodity Safety Assessment.
5. The Safety Assessment **should** identify the limitations and procedures necessary to achieve safe carriage (including secure stowage when not in use), fitment and operation of the intended Configuration.
6. Relevant detail from the Safety Assessment **should** be included in the Air System Document Set (ADS)⁸ and local orders.
7. The Safety Assessment **should** be reviewed on changes to the equipment or its operating context.
8. Troop Insertion and Extraction Systems (TIES), Helicopter Under-Slung Load Equipment (HUSLE) and Cargo restraint equipment **should** be selected from items included in Joint Air Delivery Test and Evaluation Unit (JADTEU) publications⁹.

¹ Examples of ENBAS are provided in Guidance Material.

² Type Design requirements are regulated via RA 5810 – Military Type Certificate (MRP Part 21 Subpart B). Changes to Type Design are regulated via RA 5305 – In-Service Design Changes. Making any permanent change to the Air System Structure or Systems is considered a design change.

³ Refer to RA 1205 – Air System Safety Cases.

⁴ Refer to RA 1300 – Release To Service.

⁵ Refer to RA 1305 – Military Permit To Fly (In-Service), (Special Case Flying) and (Single Task); and RA 5880 – Military Permit To Fly (Development) (MRP Part 21 Subpart P).

⁶ 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.

⁷ Refer to RA 5013 – Air Safety Management of Equipment and Commodity Items.

⁸ Refer to RA 1310 – Air System Document Set.

⁹ Refer to the publications on the JADTEU SharePoint site (organizations without SharePoint access **should** contact JADTEU direct). See also paragraph 14.

Guidance Material 1340(1)

Equipment Not Basic to the Air System

9. Due to the broad scope of potential ENBAS items it is not practical to list them all, but the following example categories will be sufficient to allow informed decisions to be made. The Responsibility for deciding whether an item of equipment requires a change to the Type Design lies with the TAA¹⁰, the key criterion being that any equipment which necessitates change to the Air System¹¹ cannot be ENBAS. Similarly, items which are carried internally but are not required to be used in flight, such as equipment to support Maintenance at the destination, is classified as Cargo and not ENBAS¹². Categories of ENBAS may include but are not limited to:

- a. Aero Medical Equipment (AME)¹³.
- b. Handheld viewing aids.
- c. Hand-launched ordnance.
- d. Personal weapons which can be used in flight.
- e. TIES, HUSLE and Cargo restraint equipment.
- f. Portable Electronic Devices (PED)¹⁴.
- g. Aircrew Equipment Assemblies (AEA) / Survival Equipment (SE) which are worn or carried onboard but are not included in the Type Design.
- h. ► Royal Air Force Centre of Aerospace Medicine manufactured lumbar supports. ◀

10. This RA is not applicable to:

- a. AEA / SE that is included within the Type Design².
- b. Items classified as Cargo (which are regulated by the Movement and Transport Safety Regulator as directed by Joint Service Publication (JSP) 800)¹⁵.
- c. Air Launched Weapons (ALW)¹⁶.
- d. Airborne Equipment¹⁷.
- e. Items of Role Equipment which may affect handling qualities or flight performance, or which necessitate permanent change to the Aircraft (such as fitting mounting frames or dedicated attachment points); these will be included within the Air System Type Design.
- f. Other equipment changes that would affect the Air System Type Design, or for which dedicated Type Certification requirements apply².

11. Each Safety Assessment will need to be sufficiently detailed to address the Hazards identified when the ENBAS is carried and operated in the context defined in the ASSC so that the required As Low As Reasonably Practicable and Tolerable assessment can be made by the ODH / AM(MF)³. The relationship of Safety Assessments to the ASSC is depicted in RA 5012¹⁸ Figure 1.

12. The RTS / appropriate MPTF will include limitations and procedures for safe operation of ENBAS (where necessary). Examples may include Aircraft ► altitude ◀ and speed for conduct of relevant operations; or phases of flight where operation of equipment (such as medical devices) is prohibited. Test and Evaluation (T&E) activity may be required to generate evidence to support the Safety Assessment, such as

¹⁰ Refer to RA 5301 – Air System Configuration Management.

¹¹ Such as by drilling holes for attachment points, updating onboard software or connecting equipment to a discrete power supply or the avionics system; these are changes to the Type Design. See paragraph 15 regarding temporary connection of carry-on items to existing sockets.

¹² Refer to RA 2309(9): Carriage of Loose Articles and Stores for Aircraft Commander Responsibilities to ensure safe stowage.

¹³ AME covers a broad range of equipment which may contain liquids or compressed gases, may be battery operated or require connection to auxiliary power sockets; detailed procedures for secure stowage and operating conditions will be required.

¹⁴ Refer to RA 2360 – Portable Electronic Devices.

¹⁵ Refer to JSP 800: Defence Movement and Transport ► Policy. ◀

¹⁶ Refer to RA 1350 – Air Launched Weapons Release.

¹⁷ Refer to RA 1700 series – Airborne Equipment.

¹⁸ Refer to RA 5012 – Type Airworthiness Safety Assessment.

**Guidance
Material
1340(1)**

Human Factors Integration for equipment operation or safe separation from the Aircraft for hand launched ordnance¹⁹.

13. Procedures will also need to consider safe restraint of equipment when not in use and dealing with potential emergencies such as battery fires in electronic equipment.

14. A comprehensive list of all TAA / Commodity Delivery Team (DT) approved TIES²⁰, HUSLE and Cargo restraint equipment are included within the appropriate publications^{9, 21}, including approved Configurations and procedures for their use. Any Safety Assessment will need to exploit the test reports and approved loading schemes which support these publications, referencing engagement with the authorizing authorities where applicable ENBAS items or schemes are not yet included. Additional T&E¹⁹ for the required operational environment and intended role may be required. Where equipment is included in JADTEU publications, the supplier of that equipment will not require Design Approved Organization Scheme (DAOS) Approval.

15. PEDs / Electronic Flight Bags (EFB) may be classified as ENBAS when their only connection to the Air System is via an existing auxiliary power supply and / or an existing fixed aerial connection; any dedicated wiring for connection to Air System avionics or power will make the equipment part of the Type Design. Guidance on mitigating the Hazards with PEDs / EFBs is available via the Civil Aviation Authority website²². Also, Aviation Duty Holder / AM(MF) are required to publish orders for use of PEDs¹⁴ to augment the limitations that will be required in the RTS / MPTF, based upon the relevant Safety Assessment.

16. The requirement for DAOS Approval will need to be considered²², addressing queries to DSA-MAA-OA-DAOSGroup@mod.gov.uk when clarification is required. If MAA confirm there is no DAOS requirement the Safety Assessment will need to state how the Competence of the organization will be assured.

¹⁹ Refer to RA 2370 – Test and Evaluation.

²⁰ Refer to RA 2357 – Troop Insertion and Extraction Systems.

²¹ DAP 105F-0706-1 - Internal Cargo Restraint Nets, ► **General and Technical Information General Orders and Modifications** ◀, details items approved by DE&S Air Commodities DT.

²² Refer to RA 1005 – Contracting with Competent Organizations.

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