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 Design[2]. 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].

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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)

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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 a 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 Assessment[7], 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) publications[9].

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[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.

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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 TAA[10], the key criterion being that any equipment which necessitates change to the Air System[11] 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 ENBAS[12]. 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 Design[2].

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 Equipment[17].

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 apply[2].

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 5012[18] 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.

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Human Factors Integration for equipment operation or safe separation from the Aircraft for hand launched ordnance[19].

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 TIES[20], 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&E[19] 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 website►◄. Also, Aviation Duty Holder / AM(MF) are required to publish orders for use of PEDs[14] 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 considered[22], 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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