

## RA 1350 - Air Launched Weapon Release

### Rationale

*The Carriage, Release and Jettison (CR&J) of Air Launched Weapons<sup>1</sup> (ALW) from aircraft presents equipment risk and Risk to Life (RtL), additional to those from the Air System, to users, the public, military personnel and other aircraft. Not having all ALW limitations and clearances identified and understood could result in the Air System's stakeholders incorrectly utilizing the ALW. The ALW Release<sup>2</sup> allows the stakeholders to understand all the limitations and clearances applicable to the use of the ALW.*

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### Regulation

#### 1350(1)

#### UK MOD In-Service Air Launched Weapons

1350(1) The Air System's Type Airworthiness Authority (TAA) and the ALW Delivery Team (DT) Letter of Air Safety Notification (LoAN) holder **shall** authorize all UK MOD In-Service ALWs<sup>3</sup> for aircraft CR&J.

### Acceptable Means of Compliance

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#### UK MOD In-Service Air Launched Weapons

1. The ALW Release is a living body of evidence and **should** be tailored and proportionate to the complexity of the ALW and the associated hazards.
2. UK MOD In-Service ALWs **should** be authorized through the issuance of an ALWRC prior to RtL being incurred through CR&J and prior to first flight.
3. The ALWRC **should**:
  - a. Conform to the ALWRC template held on the MAA websites.
  - b. Be signed by the ALW DT LoAN holder.
  - c. Be issued by the ALW DT.
  - d. Be accepted by the Air System's TAA, including any limitations and clearances, by formal acknowledgement (template held on the MAA websites) to the ALW DT LoAN holder.
  - e. Be reviewed by the ALW DT LoAN holder in line with the Statement of Operating Intent/Usage (SOI/U) review process<sup>4</sup>, the Safety and Environmental Case Report<sup>5</sup> (SECR) and on change to the "Ordnance, Munitions and Explosives" (OME) Safety Review Panel Assurance Statement<sup>5</sup> (OAS). If the ALWRC is not reviewed, then it becomes invalid, and the ALW DT LoAN holder **should** inform the Air System's TAA and Aviation Duty Holder (ADH)/Accountable Manager (Military Flying) (AM(MF)).
  - f. Be reissued when a change affecting the limitations and/or clearances of the ALWRC is identified.
  - g. Document the ALW's limitations (eg Service Life, structural, environmental, altitude, Electro-Magnetic Compatibility, etc) and the information required (eg interface control documentation) to allow its safe integration and operation on any specified aircraft.
  - h. State unambiguously the applicability of various marks or variants of the ALW on each aircraft type (and mark, if applicable). If the ALW is utilized on multiple aircraft types, then there **should** be a single ALWRC for the ALW, with separate Part 3s (eg Part 3 – Typhoon, followed by Part 3 – Lightning II, followed by Part 3 – Reaper, etc) for each aircraft type it is applicable to.

<sup>1</sup> Refer to MAA02: Military Aviation Authority Master Glossary.

<sup>2</sup> An ALW Release is a living body of evidence that supports either an ALW Release Certificate (ALWRC) or a Military Permit To Fly (MPTF).

<sup>3</sup> "UK MOD In-Service" refers to ALWs that are of cleared capability on the UK MOD inventory.

<sup>4</sup> Refer to ► [RA 5726 – Integrity Management](#). ◀

<sup>5</sup> Refer to DSA02.OME – Defence Ordnance, Munitions and Explosives (OME) Regulations.

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4. The ALW DT LoAN holder **should** ensure that:
  - a. The Air System's TAA is provided with the applicable ALW SECR(s) and OAS(s).
  - b. An auditable trail is provided and maintained for all changes to Air Safety documentation and ensure the equipment and the associated reference documents are trackable and preserved<sup>6</sup>.
  - c. Staged releases of the Air Safety documentation or significant changes such as the introduction of a new host Air System are appropriately authorized.
  - d. The Air System's TAA and ADH/AM(MF) are kept informed of all emergent hazards or equipment changes that might affect the Air System's Release To Service (RTS).
5. The Air System's TAA **should** ensure that:
  - a. The ALW DT employs robust Safety Management processes ► **fully supporting the Safety Panel reviews.** ◀
  - b. The SECR and OAS are robust, fully recorded and accepted.
  - c. That RTS Recommendations<sup>7</sup> (RTSR) include all ALW limitations and clearances.
  - d. Evidence is provided to the ALW DT LoAN holder of any Air System limitations or clearances applying to the ALW for CR&J of the ALW.
  - e. An auditable trail is provided and maintained for all changes to Air Safety documentation and ensure the equipment and the associated reference documents are trackable and preserved<sup>6</sup>.
  - f. The ALW DT LoAN holder is provided any information (such as a change to the usage or environment for which the Air System or ALW is cleared) which may affect the Airworthiness of the weapon when carried, released or jettisoned from the aircraft.
6. The ADH/AM(MF) **should** ensure that CR&J of any ALW are addressed in the relevant Air System Safety Case (ASSC)<sup>8</sup>.

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7. The ALW Release is a living body of evidence and will be updated to reflect changes in any of the relevant information or evidence affecting the safe use of, or the limitations and clearances applied to, any of the aircraft which utilize the ALW.

**Limitations of the ALW Release Certificate**

8. The ALWRC is intended to encompass CR&J on the launch aircraft. The ALWRC will refer directly to all the limitations and clearances required by the SECR and OAS for the ALW. The ALW limitations and clearances apply only while the ALW is carried on its host aircraft, and up to a defined safe separation distance<sup>9</sup> after Release or Jettison (ie not all the way to target) from the host aircraft and to other aircraft in close proximity.
9. The chapter headings in the ALWRC template are mandatory. The lower-level topics and headings will be considered by the ALW DT LoAN holder, but only those appropriate to the ALW need be presented in the final document. The ALWRC will be used to support acceptance of the ALW and the generation of the Air System's RTS.
10. The ALWRC informs and/or restricts the Air System's RTS for each aircraft that is cleared to carry the ALW. Limitations and clearances are unlikely to be identical for different Air Systems.
11. An ALWRC supplements an Air System's RTS in 2 major areas:

<sup>6</sup> Refer to RA 1225 – Air Safety Documentation Audit Trail.

<sup>7</sup> Refer to RA 1360 – Release To Service Recommendations Preparation and Authorization.

<sup>8</sup> Refer to RA 1205 – Air System Safety Cases.

<sup>9</sup> Defined in AAP-06 as: "The distance from the delivery system or launcher to the munition beyond which the hazards to the users and/or the delivery system resulting from functioning of the munition system are acceptable".

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- a. It covers all aspects of an ALW build standard and operation in the Manufacture to Target/Disposal Sequence (MTDS), thus providing a link between the ALW SECR and OAS and the ASSC.
- b. It records the build standard that has been assessed for safe CR&J on each Air System with its associated Air System specific limitations and clearances.

12. The ALWRC will contain (or refer to) evidence which will be relevant to all actual and potential users<sup>10</sup> through the life of the ALW, not just that directly associated with the first aircraft which carried the ALW. It identifies the Air System the ALW is authorized for use on and reflects the differing build standards that apply to each Air System. Certificates of Design<sup>11</sup> (CofD) will be the primary source of such information and the ALWRC is to contain a record of all those issued. Clear and firm configuration control in accordance with (iaw) Def Stan 05-057<sup>12</sup> must be maintained.

13. Procedural limitations or clearances, in the form of instructions to aircrew and/or ground-crew, to enhance safety or achieve specified functions, may form part of the ALWRC.

14. The CR&J design envelope applicable to an ALW (eg the max/min speed, "g", altitude, etc) might be considerably different from that of the aircraft it is carried on.

### Safety Assessment

15. The ALWRC provides evidence towards the relevant ASSC and will include CR&J of the ALW on nominated aircraft. The ALWRC can provide details of what has been met (eg Compliance with regulations, standards and processes) to confirm the ALW is 'Safe to Operate' to the Air System's TAA and ADH/AM(MF).

16. Defence Ordnance Safety Group (DOSG) and MAA<sup>13</sup> armament specialists may be consulted in the preparation of the ALWRC and Air System's RTSR<sup>7</sup> to ensure that all ALW aspects of the Safety Assessment have been addressed as described in this RA and DSA 02.OME<sup>5</sup>. Advice and assistance may also be needed from independent organizations.

## Regulation 1350(2)

### Air Launched Weapons not requiring an Air Launched Weapon Release Certificate

1350(2) The Air System's TAA and the ALW DT LoAN holder **shall** authorize all ALWs not requiring an Air Launched Weapon Release Certificate for aircraft CR&J.

## Acceptable Means of Compliance 1350(2)

### Air Launched Weapons not requiring an Air Launched Weapon Release Certificate

17. All flying activity for the development or trials of ALW **should** be conducted iaw the limitations and clearances as articulated in either the Air System's MPTF<sup>14</sup> or Certificate of Usage (CofU)<sup>15</sup>.

18. The MPTF/CofU **should** appropriately detail all ALW limitations and clearances.

19. For ALWs destined for UK MOD In-Service use, ALW DTs **should** compile the evidence gathered during development or trialling into the ALWRC format.

20. The ALW Release is a living body of evidence and its content **should** be tailored and proportionate to the complexity of the ALW and the associated hazards.

21. The MPTF **should**:

- a. Be valid for the duration of the specified ALW trials.
- b. Document the ALW's limitations (eg Service Life, structural,

<sup>10</sup> Such as users that have the ALW cleared to use on their aircraft, but do not use it.

<sup>11</sup> Refer to RA 5103 – Certificate of Design.

<sup>12</sup> Refer to Def Stan 05-057 – Configuration Management of Defence Materiel.

<sup>13</sup> [DSA-MAA-Cert-ES4-ArmSys@mod.gov.uk](mailto:DSA-MAA-Cert-ES4-ArmSys@mod.gov.uk).

<sup>14</sup> Refer to RA 5880 – Military Permit to Fly (MRP 21 Subpart P).

<sup>15</sup> Refer to RA 1123 – Certificate of Usage for Military Registered Civil-Owned Aircraft.

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environmental, altitude, Electro-Magnetic Compatibility, etc) and the information required (eg interface control documentation) to allow its safe integration and operation on any specified aircraft.

c. State unambiguously the applicability of various marks or variants of the ALW included in the trial.

22. The CofU **should**:

a. Appropriately reference the ALW's limitations (eg Service Life, structural, environmental, altitude, Electro-Magnetic Compatibility, etc) and the information required (eg interface control documentation) to allow its safe integration and operation on any specified aircraft.

b. State unambiguously the applicability of various marks or variants of the ALW included in the trial.

23. The ALW supplier/DT LoAN holder **should** ensure that:

a. The Air System's TAA is provided with the applicable ALW SECR(s) and OAS(s).

b. Staged releases of the Air Safety documentation or significant changes such as the introduction of a new host Air System are appropriately authorized.

c. An auditable trail is provided and maintained for all changes to Air Safety documentation and ensure the equipment and the associated reference documents are trackable and preserved<sup>8</sup>.

24. The Air System's TAA and the ADH/AM(MF) **should** ensure that:

a. The ALW supplier employs robust Safety Management processes ► **fully supporting the Safety Panel reviews.** ◀

b. The SECR and OAS are robust, fully recorded and accepted.

c. Evidence is provided to the ALW DT LoAN holder of any Air System limitations and clearances applying to the ALW for CR&J of the ALW.

d. An auditable trail is provided and maintained for all changes to Air Safety documentation and ensure the equipment and the associated reference documents are trackable and preserved<sup>6</sup>.

e. The ALW supplier/DT LoAN holder is provided any information (such as a change to the usage or environment of the Air System or ALW) which may affect the Airworthiness of the weapon when carried, released, or jettisoned from the aircraft.

25. The ADH/AM(MF) **should** ensure that the CR&J of any ALW are addressed in the relevant ASSC<sup>8</sup>.

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26. For ALWs not destined for UK MOD In-Service use, the ALW supplier/DT LoAN holder will ensure that appropriate evidence is retained and available to enable ALW integration Certification activity in case the ALW is brought into UK MOD In-Service use. ALW integration Certification activity will be conducted on the integration of every Air System ALW combination destined for UK MOD In-Service use.

**Limitations of the ALW Release**

27. The MPTF/CofU is intended to encompass CR&J on the launch aircraft. The MPTF/CofU document will refer directly to all the limitations and clearances required by the SECR and/or OAS for the ALW. The ALW limitations and clearances apply only while the ALW is carried on its host aircraft, up to a defined distance after Release or Jettison (ie not all the way to target) from the host aircraft and to other aircraft in close proximity.

28. The ALW Release will:

a. Cover all aspects of an ALW build standard and operation in the MTDS,

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thus providing a link between the ALW SECR, OAS and the MPTF/CofU.

b. Record the build standard that has been assessed for safe CR&J on the Air System with its associated Air System specific limitations.

29. The MPTF/CofU will contain (or refer to) the ALW limitations and clearances which will be relevant to one Air System ALW combination. CofDs will be the primary source of such information and the MPTF/CofU is to contain or reference a record of all those issued. Clear and firm configuration control iaw Def Stan 05-057 must be maintained.

30. Procedural limitations or clearances, in the form of instructions to aircrew and/or ground-crew, to enhance safety or achieve specified functions, may be issued. If the ALW enters UK MOD In-Service, these limitations and clearances may be transferred into the ALWRC and RTS.

31. The CR&J design envelope applicable to an ALW (eg the max/min speed, "g", altitude, etc) might be considerably different from that of the aircraft it is carried on.

**Safety Assessment**

32. The results of flight testing<sup>16</sup> provides ALW CR&J details for the ASSC. The ALWRC can provide details of what has been met (eg Compliance with regulations, standards and processes) to confirm the safety and Airworthiness of the ALW to the Air System's TAA and ADH/AM(MF).

33. DOSG and MAA<sup>13</sup> armament specialists may be consulted in the preparation of the MPTF/CofU to ensure that all ALW aspects of the Safety Assessment have been addressed as described in this RA and DSA 02.OME<sup>5</sup>. Advice and assistance may also be needed from independent organizations.

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<sup>16</sup> 'Flight testing' is the process (usually involving a number of test flights) by which the capabilities and performance of an aircraft (usually a new one or one which is substantially modified) are established. 'Test flight' refers to an individual flight which is used for testing purpose (eg post engine change).

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