

RA 4973 - Military Airworthiness Review Process - MRP Part M Subpart I

Rationale

Military Airworthiness Reviews (Mil AR) are structured to ensure consistency and completeness across all military registered Air Systems, regardless of their type. A mixture of physical and record reviews, including confirmation of the correlation of the two for certain Maintenance tasks, has proven to be the best process for determining Air System configuration and Airworthiness. Without a detailed, comprehensive and approved review process, Airworthiness cannot be sustained. ► This RA ◀ defines the Mil AR process ensuring the Military Continuing Airworthiness Manager (Mil CAM) achieves satisfactory Assurance of the Continuing Airworthiness of their Air Systems.

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Regulation 4973(1)

Military Airworthiness Review Process

- 4973(1) To satisfy the Mil AR process a Mil CAM **shall** ensure that:
- a. A documented review of the Air System's records is carried out.
 - b. A documented physical review of the Air System is carried out.

Acceptable Means of Compliance 4973(1)

Military Airworthiness Review Process

1. A review of the Air System records **should** provide ► Assurance to the Mil CAM ◀ that:
 - a. Air System usage data ► has been properly recorded. This **should include** ◀ airframe, engine and propeller flying hours and associated flight cycles ► ◀.
 - b. All the Maintenance due on the Air System according to the Aircraft Maintenance Programme has been carried out and appropriately managed in accordance with (iaw) the applicable Air System Document Set (ADS).
 - c. All known Faults have been corrected to the required standard or, where applicable, carried forward in a controlled manner.
 - d. All applicable Special Instructions (Technical) (SI(T)) or Airworthiness Directives (AD) ► (including any follow up action) have been fulfilled ◀, properly recorded and maintained.
 - e. All Modifications and Repairs applied to the Air System are approved according to the Design Approved Organization Scheme¹ or appropriate MOD procedures, embodied according to Approved Data and have been appropriately recorded.
 - f. All service life limited components installed on the Air System are properly identified and recorded and have not exceeded their approved service life limit iaw the applicable ADS.
 - g. All Maintenance has been planned and controlled, including the use of latitudes, deferrals or Concessions².
 - h. The current weight and moment statement:
 - (1) ► Reflects the configuration of the Aircraft.
 - (2) Is valid.
 - (3) Has been accurately calculated and recorded if there have been any changes to weight and moment since the last weigh. ◀

¹ Refer to RA 1005 – Contracting with Competent Organizations.

² Refer to RA 4947 – Continuing Airworthiness Management - MRP Part M Subpart G.

**Acceptable
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- i. The ► **Air System** ◀ configuration complies with the latest revision of its Release To Service, or Certificate of Usage and / or approved design.
2. ► The review of the Air System records **should** check the following categories of documents where applicable as a minimum:
 - a. The MOD Form 700 or technical / operators log system, including Maintenance Work Orders, limitations and deferred Faults, Minimum Equipment List, and configuration deviation list.
 - b. Any applicable Logistic Information System.
 - c. Local Maintenance requirements as directed by the Mil CAM³.
 - d. Maintenance Data including fatigue index data and condition monitoring data.
 - e. Relevant work packages - SI(T) / AD status.
 - f. Modification and Repair documentation.
 - g. List of service life limited components.
 - h. Weight and moment report and sheets.
 - i. Engineering Record Cards.
 - j. Aircraft, engine and propeller Type Certificate data sheets⁴, if applicable. ◀
3. The physical review **should** include a structured and thorough examination of the external and internal areas of the Air System, consisting of as a minimum:
 - a. Air System general condition⁵ and Husbandry.
 - b. Appropriate standards of Maintenance.
 - c. Appropriate Husbandry standards of wiring looms.
 - d. Appropriate Husbandry standards of pipes.
 - e. Sample checking of components against the ADS.
 - f. Evidence of damage, wear and Repairs to the Aircraft structure.
 - g. Sample checking of Modifications and Repairs.
 - h. Verification that all flight safety software⁶ is at the correct version or standard.
4. The physical review **should** ► provide Assurance to the Mil CAM ◀ that:
 - a. The Air System configuration complies with Approved Data.
 - b. The configuration as detailed in the Air System Technical Log / MOD Form 700 matches the actual configuration of the Air System.
 - c. No Fault can be found that could reasonably be expected to have been recorded and addressed iaw the MRP, including Husbandry defects.
 - d. No inconsistencies can be found between the Air System and the documented review of records.

³ ► Refer to RA 4966 – Military Continuing Airworthiness Management Organization Instructions – MRP Part M Sub Para C.

⁴ The Type Certificate Data Sheet (TCDS) is a civil aviation document that defines the Aircraft, Engine or Propeller Operating Limits, Certification Basis, Manuals, etc. Only civil derived Air Systems will have a TCDS. ◀

⁵ When assessing the general condition of the Air System, the Mil AR Surveyor is to inspect for evidence of leaks, damage (dents, bumps and buckles), chaffing, corrosion, poor surface finish and cleanliness.

⁶ ► Flight Safety Software includes all software that has the potential to affect the safe operation of Air Systems in the air and on the ground. It is for the Type Airworthiness Authority (or Type Airworthiness Manager if applicable) and Mil CAM to determine the associated Risk level and what they deem to be in scope. ◀

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- e. All required safety markings and placards are properly installed iaw the applicable ADS.
5. ▶ The Mil CAM **should** develop procedures, detailed in the Continuing Airworthiness Management Exposition, for the Mil AR Surveyor to produce a compliance report that confirms the results of both record and physical reviews have been found to be in compliance with this Regulation.
6. The Maintenance organization **should** provide qualified personnel as required to assist the Mil AR Surveyor with Mil AR activity. However, the function of such personnel is limited to performing and certifying the Maintenance action requested by the Mil AR surveyor and not performing the physical survey of the Air System.
7. The Mil CAM **should**, as a minimum, specify sample checks within each category of both the Air System record and physical reviews to be carried out. ◀

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8. ▶◀
- a. ▶◀
- b. ▶◀
- c. ▶◀
- d. ▶◀
- e. ▶◀
- f. ▶◀
- g. ▶◀
- h. ▶◀
- i. ▶◀
- j. ▶◀
9. ▶◀
10. The physical review could require actions categorized as Maintenance (eg operational tests, tests of Emergency Equipment, crew escape and weapons systems, visual inspections requiring panel opening, etc). In this case, during the Mil AR process the correct Maintenance recording procedures must be followed, iaw 4000 Series RAs.
11. During the physical review it is entirely appropriate that, where necessary, the Mil AR surveyor ask for a sample amount of internal cladding to be removed to give visibility of the structure behind.
12. Inspection of mission system software is good practice and may be inspected at the direction of the Mil CAM.
13. ▶◀
14. Mil ARs may be conducted on ▶ Air Systems ◀ 'as flown' or during periods of Maintenance.
15. ▶◀
16. It is expected that the Mil AR process will have been completed within 21 days prior to the issue of the Military Airworthiness Review Certificate.

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17. ► For civil-derivative Air Systems where 'shadow' Airworthiness reviews are conducted, evidence from the Civil Aviation Authority (CAA) defined Airworthiness review process⁷ is acceptable, noting the Mil CAM requirements in RA 4971⁸.
18. Local Maintenance requirements may include Aviation Engineering Standing Orders, Aviation Engineering Routine Orders and Military Continuing Airworthiness Management Organization (Mil CAMO) Instructions, etc. ◀

⁷ ► Refer to CAA Civil Aviation Publication 562, Leaflet B-40, Airworthiness Review section.

⁸ Refer to RA 4971 - Military Airworthiness Review and Certification - MRP Part M Subpart I, Regulation 4971(1): Military Continuing Airworthiness Manager Responsibilities. ◀