



GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION

TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI

**CIVIL AVIATION REQUIREMENTS
SECTION 2 - AIRWORTHINESS**

**SERIES 'F', PART X
20TH MARCH '1992**

EFFECTIVE: FORTHWITH

Subject: Airworthiness of Ageing Aircraft

1. PURPOSE

Rule 50 and 50(a) of the Aircraft Rules, 1937 lays down the condition for issue of Certificate of Airworthiness (C of A) to an aircraft and also its continued validity. To ensure continued validity of the C of A, the operators are required to maintain their aircraft to prescribed/approved maintenance schedules wherein inspections are required to be carried out on flight hour/ calendar period basis. The maintenance programmes have been prescribed by the manufacturers taking into account the normal utilization of aircraft and its operational environment. Aircraft which have reached their design economic life, a number of associated problems due to age creep in because of fatigue, environmental corrosion and accidental damage are experienced during the service. These damages if not properly detected and repaired in time, can cause catastrophic failures. To ensure continued airworthiness of aircraft, manufacturers of aircraft have issued documents prescribing additional structural inspections beyond design economic life:

- a) Service Bulletins (SBs) requiring structural inspection of specific areas at certain intervals,
- b) Supplemental Structural Inspection Document (SSID)
- c) Ageing Aircraft Repair and Modification Program
- d) Corrosion Prevention and Control Program (CPCP)
- e) Repair Assesment Programme (RAP), etc.

This part of the CAR is applicable to ageing aircraft and details the procedure which will be followed for complying with the normal maintenance program and supplemental inspection program to ensure the continued airworthiness of ageing aircraft. This CAR further provides the guidelines for the maintenance of all aircraft including private aircraft which have reached their design economic life as specified by the manufacturer.

2. DEFINITIONS

- 2.1. Accidental Damage – A damage caused to an aircraft structure due to discreet sources caused by birds, uncontained engine failure, damage due to wrong handling of ground equipment occurring during routine inspection of the aircraft.

- 2.2. Ageing Aircraft - Aircraft which have completed their design economic life are classified as Ageing Aircraft.
- 2.3. Damage Tolerant - Ability of structure to sustain regulatory fail-safe loads in the presence of damage, such as fatigue cracks or corrosion, until the damage is detected through inspection or malfunction and repaired.
- 2.4. Design Economic Life - Most of the transport category aircraft are designed keeping in view their economic maintenance and trouble free operation in their expected life cycle. The design substantiation document etc. is also produced and tests carried out to confirm the life cycle. Generally, this is known as design economic life and maintenance of aircraft in airworthy condition beyond this may be possible with greater attention which may not be economical for an airline.
- 2.5. Environmental Damage - Damage due to environment in the form of corrosion and stress corrosion which may or may not be time and/or usage dependent.
- 2.6. Fatigue Damage - Fatigue damage is damage caused to a metal structure characterized by initiation of a crack and its subsequent propagation as a result of continuous dynamic stresses with cumulative effects in the aircraft life cycle.

3. REQUIREMENT:

- 3.1. To ensure continued airworthiness of the aircraft, owners/operators shall comply with the Service Bulletins (SBs) and Airworthiness Directives requiring structural inspection of specific areas at certain intervals, Supplemental Structural Inspection Document (SSID), Ageing Aircraft Repair and Modification Program, Corrosion Prevention and Control Program (CPCP), Repair Assessment Program (RAP), etc.
- 3.2. The AMO/ Operator shall have appropriately trained and qualified personnel with adequate knowledge, experience and skill on the subject of ageing aircraft and related SBs, ADs, CPCP, SSID and other relevant programs.
- 3.3 All structural inspections required to be complied as per SSID, CPCP, Ageing Aircraft Program, continued airworthiness program, Airworthiness Directives, SBs etc. shall be carried out as per the relevant documents.
- 3.4 Life of major components shall be closely monitored to ensure that the life as laid down in the maintenance program approved by DGCA is achieved. If it is observed that there is a wide variation between the approved life and the average life achieved, the approved life should be down graded to the average life achieved. If poor workmanship is identified as a cause for initiation of fatigue damage, refresher training of personnel to improve the quality of workmanship should be undertaken so that the desired structural life is achieved.
- 3.5 All minor and major defects should be thoroughly analyzed and exact reason as to the cause of the defect established. Appropriate corrective action should be taken to ensure that the defects are not repeated and the occurrence of defects minimized. Major defects should be promptly reported to DGCA.



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