



International Civil Aviation Organization

MIDANPIRG/20 and RASG-MID/10 Meetings

(Muscat, Oman, 14-17 May 2023)

Agenda Item 7: Any Other Business

AGING AIRCRAFT

(Presented by Oman)

SUMMARY

This paper presents some criteria on aged aircraft, Aircraft age is not a safety factor. However, if the aircraft is older (20+ years since year of manufacturer) and hasn't been refurbished properly, it may cause flyers some inconvenience.

In spite of older aircraft can offer better value for operators they can save as much as 20-50% when choosing an old aircraft over a newer one But they may spend more on its maintenance.

More important than an aircraft's age is its history. The maintenance of the plane should meet or exceed the manufacturer specifications.

REFERENCES

ICAO Annex 8 Airworthiness of Aircraft

Doc 9760 – Airworthiness Manual

CAAs Regulations regarding Aging aircraft such as FAA Part 26, EASA Regulation (EU) 2020/1159 and others

1. INTRODUCTION

1.1 The Economic barriers to the purchase of new aircraft have created an ageing aircraft fleet and placed even greater demands on efficient and safe maintenance and repair methods.

1.2 Even though the aged aircraft might perform as well -or better than-a new one, we will need to pay extra attention as our older airplane ages.

1.3 If it were valid that airplanes become less safe as they age, it is logical that confirmation would come from the civil aviation authorities and operators/owners to pay more attention on their maintenance- related aircraft accidents/incidents.

2. DISCUSSION

2.1 Just as human beings begin to age the day they are born, so do airplanes the day that they are produced. The question is, how old is too old? Professional aviation experts believe that if an aircraft is properly maintained on time, its chronological age won't matter as much in its ultimate performance rating.

2.2 But is this actually the case? we'll discuss an aircraft's age, related General safety factors, and more.

2.3 Concerns regarding the safety of aging air transport jet aircraft, due to corrosion, fatigue or widespread fatigue damage (WFD) should be taken in considerations.

2.4 There are a lot of Design/ Repair /Modifications /inspections studies and researches on aged Aircraft such as but not limited to Life of Validity (LOV) of the Maintenance program ,Widespread Fatigue Damage (WFD) Program, Repair Assessment Program (RAP), Fatigue Critical Structure (FCS) Corrosion Prevention and Control Program (CPCP), Damage Tolerance Inspection (DTI), Program, Supplemental Structure Inspection Document (SSID), Aircraft Maintenance Program Review (AMPR) and more.

2.5 In this paper, I am not here to discuss the above pure technical issues, But I am emphasizing on how to help civil aviation authorities and operators to take care about their aged aircraft and pay more attention on them.

2.6 Regulators shall add specific provisions of standards and recommended practices or another means of compliance or technical instructions or more surveillance regarding aged aircraft.

2.7 Here may be EASA Part 26/FAA 26 are good examples.

2.7.1 Operators /Owners should implement all extra technical requirements issued by authorities TC and STC holders related the aged aircraft on their operational and maintenance manuals as applicable In order to ensure that those data, procedures, instructions and manuals produced on the basis of those new requirements are also used when maintaining large aged aeroplanes.

2.7.2 Implementation is shared responsibility of Authorities CAAs, Design Approval Holders/Manufacturers and Operators.

2.7.3 Imposing an arbitrary age limit on aircraft may have an unintended chilling effect on public perception of the safety of aircraft. Over 10,000 aircraft originally certificated as airworthy over 10 years ago are still in safe operation.

3. CONCLUSION

3.1 To encourage member state to have additional oversight over operators handling of fatigue critical and structural programs by imposing additional regulations handling aging Aircraft.

3.2 Age is not a major issue if the airplane is maintained in an airworthy condition. Maintaining this philosophy and approach regarding aging airplanes will continue to ensure the operational safety of the aging fleet.

3.3 Note: Airworthy is defined as a airplane conforming to its type design or properly altered condition and is in condition for safe flight. Proper maintenance, performed at regularly scheduled intervals and by qualified personnel is a key element in assuring the continued airworthiness of airplanes.

3.4 Imposing an arbitrary age limit on aircraft may have an unintended chilling effect on public perception of the safety of aircraft. Over 10,000 aircraft originally certificated as airworthy over 10 years age are still in safe operation.

3.5 As aircraft are safely operated around the globe that exceed 10, 20 or even 30 years of age, it is not in the best interest of the international aviation community for authorities to suggest or imply that older aircraft are unsafe.

3.6 The analysis of the impact of aircraft age on safety does not support simple age-based restrictions as the most effective mechanism to maintain aviation safety.

3.7 Any aircraft could be considered to be ageing from the moment of its manufacture.

3.8 The ageing of an aircraft depends on such factors as age, the number of flight cycles and the number of flight hours. Individual aircraft components age differently and some of the ageing factors are fatigue through repetitive cycles, wear, deterioration and corrosion.

3.9 Those factors could cause significant safety concern if they are not properly managed throughout the life of the aircraft.

3.10 As an alternative, some States have rigorous processes to assure the continued airworthiness of older aircraft and we encourage the other to follow these best practices to maintain their ages aircraft all the time are airworthy.

3.11 Service experience has shown that there is a need to continually update knowledge about the structural integrity of ageing aircraft. Therefore, new requirements to keep up to date knowledge about ageing factors on the basis of real-time operational experience and with the use of modern tools of analysis and testing which should be introduced in somewhere of operators documents.

3.12 Finally, and in the opposite side, is there a need to set Mandatory OR Voluntary Retirement date or age for aircraft.