Charles Taylor aviation (asset management)

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Aviation Industry Update

Topics:

Aging Aircraft Safety Rule

The 1988 Hawaii incident on the Aloha Boeing 737 drew the aviation industries attention to structural integrity, maintenance, inspections and repair issues on aging airframes. In 1991, The USA Congress passed the Aging Airplane Safety Act that required the Federal Aviation Authority (FAA) to declare a rule to assure continued airworthiness of aging aircraft. Over the years since, improvements have been made to the legislation and the Aging Aircraft Safety Rule (AASR) of 2005 was released.

The end of the compliance period is approaching and, as such, 4,000 US registered aircraft must have a damage-tolerance based maintenance programme in place and approved by 20th December 2010. Other regulatory authorities are expected to adopt or modify this legislation in the future.

Do you own, manage or operate a US registered aircraft that is approaching or within 6 years of exceeding the Survey Induction Requirement (SIR), currently 60,000 cycles for the Boeing 737CL series? If so, a FAA approved Operator Implementation Plan (OIP) must be in place on your asset by 20th December 2010.

An OIP would need to address the structural element of the maintenance programme and the way new and existing repairs, alterations (freight conversions, antenna installations, etc.) and modification / Supplemental Type Certificates (STC's) approvals are considered. A timescale must be documented to retrospectively inspect 'Fatigue-Critical Structure' (FCS), such as the fuselage pressurised skin, an area, if altered, could be susceptible to fatigue cracking. The oldest aircraft must be surveyed within 6 years of OIP approval. Each repair, alteration or modification identified as applicable whilst carrying out a 'Damage Tolerance Evaluation' (DTE) must be recorded. DTE could run to a considerable amount of work on a 20 year old airframe.

Specialist Medium or Low-Frequency Eddy Current examination (Non-Destructive Examination (NDE) probe-based technique) combined with a detailed visual inspection of each repair or alteration would be a typical example of a DTE method acceptable to find defects such as fatigue cracking.

Following the assessment of the repairs, dedicated tracking is crucial to capture repeat inspection criteria based on category classification. New repairs have A, B, or C category, each with differing levels of repeat inspection threshold based upon the aircraft manufacturer's 'Structural Repair Manual' authority standard.

The legislation is considered by CtaAM to have potential to cause a significant financial and downtime impact on operators during their lease period, as previous repairs carried out 'in-house' under design authority or from previous operators without satisfactory supporting documentation, could cause the repair to be rejected following DTE. Any existing repairs, deemed unacceptable, will require removal, replacement, further categorisation and tracking.

Have you considered the lease issues or delivery / redelivery requirements? DTE and the need for a transferable OIP would need writing into current and future agreements or leases. How would you deal with a redelivery early next year; would you accept Service Bulletin terminating action or SRM based repairs as being compliant, even STC's require damage tolerant approval. CtaAM can assist with DTE on your aircraft and scrutinize historical repairs and paperwork. Overhauled components, such as flaps, may need a DTE statement on their release paperwork.

For European registered aircraft, the European Aviation Safety Agency (EASA) has issued an Acceptable Means of Compliance (AMC 20-20, 2007) providing guidance to ensure the safe operation of aging aircraft to prevent widespread fatigue damage. Currently operators are obliged to comply under existing airworthiness requirements by using the framework of a supplemental structural inspection programme and repair evaluation guidelines within their aircraft maintenance programme. As such, EASA stated in a Terms of Reference (TOR) MDM.028 on the 2nd May 2007 that 'there is no need to create operational rules like in the US' and 'development of AMC should be enough'.

The FAA legislation captures the need to evaluate existing and future repairs to ensure DTE on aging aircraft, whilst EASA has not legislated specifically and uses existing framework to support the maintenance of aging aircraft.

Written by Rob Addison - Surveyor

Did You Know…

…that Charles Taylor aviation (asset management) can inspect your aircraft in collaboration with a recommended MRO for damage tolerance acceptance, and source specialists for Non-Destructive Examinations.

Company Overview

Charles Taylor aviation (asset management) is an aviation consulting company specialising in the management of commercial aircraft operating leases. Charles Taylor aviation (asset management) is a Charles Taylor adjusting company. We offer technical support and management that is specifically geared to aircraft operators, owners and financiers. Our commitment is to provide a highly flexible service that can be individually tailored to suit your requirements. We have designed our services to ensure your financial risk is minimised, your assets are secure and values are maintained. Charles Taylor aviation (asset management) is able to assess all risk factors and draw the right conclusions for your investments. Whether we are appointed to make a comprehensive inspection of an aircraft for lease termination, prospective purchase, investment or sale, or whether we manage the aircraft you have leased, we will adapt our approach entirely to meet your needs.

Charles Taylor aviation (asset management) Limited services comprise of the following disciplines:

- ***Aircraft Build and Pre-Purchase Inspections***
- ***Technical Records Audits***
- ***Aircraft Operating Lease Technical Management Services***
- ***Airline Technical Audits and Risk Surveys***
- ***Maintenance Check Technical Representation***
- ***Repossessions, Extractions and Lease Termination Inspections***
- ***Airline Quality and Safety Audits***

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