

MANAGING AGEING FLEETS

This article was originally published in *Airline Fleet Management* on April 14, 2015.

by Debra Erni



Debra Erni

Finance

+44.20.7847.9595

debra.erni@pillsburylaw.com

Debra Erni is a partner in Pillsbury's Finance practice in the firm's London office and is a member of the Aviation, Aerospace & Transportation team.

Manufacturers design modern aircraft with a prescribed lifespan, or 'design life' of 25 years. The lifespan includes a specified number of flight hours and flight cycles, which allows the aircraft OEM, owner and operator to expect reliability in terms of service, components and function for a set period of time.

However, in reality these 25 years are not set in stone; aircraft last for both shorter and longer periods. And, it's against the actual lifespan—or the 'economic life'—of the aircraft that the owner must write down its costs.

Putting aside countries that prohibit aircraft that are more than 10 years old, any fleet manager or aircraft investor will want to stretch the economic life of an aircraft as far as possible. However, an aircraft's economic life can only continue for as long as the cost of maintenance, fuel and other operating expenses make it viable.

Typically, maintenance requirements, service downtime and fuel costs increase as an aircraft gets older.

However, an operator may consider keeping an ageing aircraft for longer if the resulting costs can be set-off by a reduction in lease rates, or if the availability of new replacement aircraft is restricted or too expensive.

An aircraft investor with the technical expertise and risk management capabilities needed to participate in

the mid-life market (aircraft of 12 years old or more) may find some rewarding opportunities to finance the ageing assets that airlines or other leasing companies are looking to phase out.

Wear and tear

While there is no denying the importance of chronological age per se, two more important factors that exacerbate aircraft ageing are corrosion and fatigue. While these aspects generally affect the aircraft structure, they can also damage wiring, flight controls and other components.

The rate of fatigue depends on the type of operation an aircraft is subject to. In particular, the length of a flight correlates directly with fatigue. As an aircraft ascends on take-off, its structure expands as a result of pressurisation, and as it descends the structure contracts, resulting in fatigue—hence an aircraft that is operated on short flights will be subjected to a higher number of pressurisation cycles, in turn increasing the rate of fatigue.

Corrosion also affects the aircraft structure and occurs as a result of the chemical or electrochemical degradation of metal over time. It can also affect electrical connectors and flight control cables. Corrosion is more prevalent in marine and coastal environments with high humidity and salt water.

Maintenance considerations

The key to managing an ageing aircraft is the maintenance programme and continual monitoring of that programme to identify hot spots as early as possible.

While repairs that are carried out with a view to extending an aircraft's longevity tend to pay off in the long run, this needs to be balanced against the airline's cost of running the aircraft, market demand for that asset and the price at which the owner can lease it for.

Line mechanics may require more detailed training on troubleshooting defects specific to older aircraft, and may need to become acquainted with heavy maintenance checks to gain experience of the more detailed inspection requirements.

Spares inventory will need to come under constant review to ensure that sufficient supplies of rotatable and consumable parts are on hand for the increased amount of maintenance needed.

However, there are many opportunities to pool parts for older aircraft, making them cheaper than those needed for new aircraft. It's fair to say that there is no exact science or formula by which to calculate the impact of age on maintenance and operating costs.

All aircraft age differently and the aircraft's type, flight operation and geographical location will have just as much bearing as the owner's or operator's access to spares, replacement parts and labour—and the cost of those.

Modifications—whether they be for reason of safety or economics—also need to be considered with ageing aircraft. For aircraft modified due to issues of safety, airworthiness directives, mandatory service bulletins and risk reduction modifications generally tend to increase in frequency and magnitude with age, however they can also apply to younger aircraft and across an entire model, irrespective of age.

It should also be remembered that many other modifications result in, or are specifically designed to bring, some form of advantage for the airline, which allows it to re-coup its costs. Again, the magnitude and frequency of such economic modifications often increases with the age of the aircraft and will be of particular concern to those airlines keen to preserve or enhance the image of their product.

When such modifications are made, they should create returns for both, or either, the airline and aircraft investor over time. Although the issues involved in operating or owning an ageing fleet are not without complexity, when weighed against the comparative costs of acquiring or financing replacement aircraft, they can be a much more attractive option to many investors and operators. The trick is to acquire the knowledge and skills needed to take on that opportunity.