Older Commercial Aircraft Have Relatively Stable Total Maintenance Costs

The U.S. Air Force is operating some of its aircraft fleets for decades longer than originally intended. Although experience shows that older aircraft may develop age-related problems that require additional maintenance, the rate at which maintenance costs will rise is uncertain.

Analysis of experience in the commercial sector can provide additional insight to help Air Force planners forecast long-term maintenance costs. A 2004 Boeing study of commercial airframe maintenance costs suggested that such costs rise after about 10 to 14 years of service. However, a RAND Project AIR FORCE (PAF) study of total maintenance costs (including engine and overhead costs, not simply airframe maintenance) in the commercial sector suggests that such costs level off over time. Researchers concluded the following:

- Maintenance costs for young aircraft (0–6 years old) rise an estimated 17.6 percent annually, reflecting the rise in airline maintenance costs as aircraft come off warranty.
- Maintenance costs for mature aircraft (6–12 years old) rise an estimated 3.5 percent annually.
- Maintenance costs for older aircraft (12–25 years old) rise an estimated 0.7 percent annually—a statistically insignificant amount.

One reason for the difference between PAF's and Boeing's findings is that airframe maintenance and engine maintenance have different cost patterns. While rising in older aircraft, airframe maintenance makes up only about one-third of the total maintenance costs in the data analyzed; engine maintenance and overhead costs are flat for older commercial aircraft.

An important caveat on these findings is that U.S. commercial aircraft are generally retired by age 25, and their usage is very different from that of military aircraft. Hence, the PAF study's findings are not directly applicable to the Air Force's oldest fleets. However, they add additional insights that may be helpful when evaluated in the context of Air Force fleet experiences. ■

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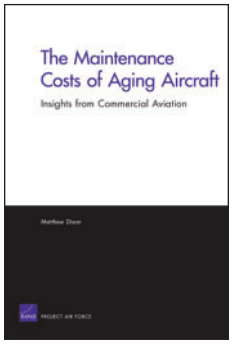

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