AVIATION MAINTENANCE INDUSTRY OUTLOOK & ECONOMIC IMPACT

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In the face of softening revenue and rising costs, North American operators are continuing to deliver the global commercial air transport industry’s strongest financial performance.

Continued growth in revenue from ancillaries, widespread capacity discipline, and a lack of new entrants are helping the North American operators mitigate the impact of shifting economics.
Three years of record profits have allowed operators to invest heavily in the passenger experience and adopt new, more expensive labor contracts, which may be a possible source of turbulence in the near future amid a changing economic landscape as the oil market begins to recover from the glut.

Crude Oil and Jet Fuel Spot Prices per Gallon by Year

While some operators altered fleet plans over the past year due to the low cost of oil, OEM order books remain strong and new deliveries are occurring at record rates.
Over the past year, status changes to 3,792 aircraft have lead the global in-service fleet to experience a net growth of 828 aircraft, representing a 3.4% annual growth rate.

YOY Changes to the In-Service Fleet by Transaction Type

- **Aircraft Additions**: 2,310
  - New aircraft delivery: 1,641
  - Storage for conversion into a freighter: 5
  - Completed freighter conversion: 30
  - Unknown prior exclusion: 6
- **Aircraft Removals**: (1,482)
  - Transferred to a non-commercial operator: 42
  - Involved in an accident: 34
  - Formally retired: 198
  - Sent to storage: 1,189
  - Removed from storage: 630
  - New aircraft delivery: 1,641

2017 Global MRO Market Forecast by MRO Segment

- **Airframe & Modifications**: $16.1B
- **Engine**: $25.7B
- **Component**: $13.1B
- **Line**: $12.8B

Translating the fleet dynamics into MRO, the 2017 market is forecast to be $72.1B, with engine MRO continuing to be the driver of growth.
While the fleet continues to grow at a healthy rate, and the industry is still recording near historic net profits, uncertainties surrounding economic growth, interest rates, and oil could disrupt and hinder growth and stability of the global commercial air transport industry.

Global Fleet Forecast by Year

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Global MRO Market Forecast by Year

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The fleet is forecast to increase by 10,133 aircraft over the next 10 years driving the $72.1B MRO market to grow at 3.7% per year on average, topping out at $103.8B in 2027.
In North America, commercial air travel demand is weakening after several years of moderate growth. After two years of modest growth, demand for travel in the region is weakening. Operators will need to continue practicing capacity discipline to maintain profitability.

North American operators will account for 40% of all retirements over the next 10 years. 46% of the region’s retirements will be narrowbody aircraft.

North America will lead the world in both deliveries and retirements over the next 10 years; however, growth will be anemic. The region will add only 621 aircraft to the active in-service fleet in 10 years time.

Operators in North America are expected to take nearly one quarter of all deliveries over the next 10 years. The systematic elimination and replacement of older, less fuel efficient aircraft is expected to improve the bottom line of operators by reducing fuel and maintenance costs over the life of the aircraft.

Fleet growth in the region will be limited as most new aircraft deliveries are slated to replace older, less fuel efficient aircraft.
By 2027 55% of the North American commercial air transport fleet will have been delivered within the last 10 years, resulting in an MRO market forecast that is virtually flat, growing an anemic 1.0% per year on average.

The region will be heavily impacted by less intensive airframe maintenance and engine and component honeymoon periods accompanying new aircraft deliveries.
North American commercial operators generate $12.2B in airframe, engine, and component MRO demand while commercial MRO service providers in the region supply more than $13B in MRO services.

- **North American demand** performed in other regions: $(3.6B) 30%$
- **Rest of world demand** performed in North America: $4.4B 11%$
- **North America is a net exporter of MRO services**: $0.8B

### Supply and Demand

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In order to supply nearly $18B in commercial air transport MRO services, plus an additional $3-5B in business and general aviation MRO services, the US civil aviation maintenance industry employees more than 277,000 people.

MRO service providers, across all aviation segments, employ nearly 76% of the total US civil aviation maintenance industry and generate over 48% of the industry’s economic activity.
California, Georgia, Texas, and Florida combined employ 40% of the total US civil aviation maintenance industry. California and Washington generate the most economic activity followed by Arizona, Texas, Connecticut, Georgia, Kansas, and Florida; together, these states generate 58% of the total economic activity.

**US Civil Aviation Maintenance Industry Employment**

By State/Territory

Number of Employees

California (CA), Washington (WA), Arizona (AZ), Texas (TX), and Florida (FL) are the states with the highest employment in the US civil aviation maintenance industry.

**US Civil Aviation Maintenance Industry Economic Activity**

by State/Territory

Billions of US Dollars

California (CA), Washington (WA), Arizona (AZ), Texas (TX), and Florida (FL) are the states with the highest economic activity in the US civil aviation maintenance industry.
In 2003 the GAO found that FAA Part 147 Aviation Maintenance Technician Schools curriculum had not changed significantly in over 50 years. This is still true today, and as a result graduates are ill prepared to work on modern aircraft and require further training in today’s technology.

Moving the curriculum requirements out of CFR Part 147 and into the Master Operations Specifications will allow for faster changes to curricula for latest technologies, plus authorize distance learning, and vastly improve graduate preparedness.
We are in a period of increased turbulence and risk