

Photo: Singapore Aero Engines Services Ltd

# INDUSTRY RECOVERY AND OUTLOOK FOR 2023

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With more countries opening their borders, the global aviation industry is on the path of recovery from the impact of the COVID-19 pandemic. This recovery, however, has been bumpy and uneven, with the geopolitical and macroeconomic environment threatening its trajectory. What are the expectations for the aviation industry, aerospace MRO and the aftermarket in 2023 and beyond? In this *Aerospace Singapore* feature, Alton Aviation Consultancy presents its analyses and projections.

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The magnitude and length of impact from the COVID-19 pandemic is unlike any prior economic and geopolitical shock aviation had ever seen. Revenue passenger kilometers (RPKs) fell by some 66% at the height of the pandemic, overshadowing events such as the global financial crisis, SARS, and the Asian financial crisis.

### Air Traffic Recovery Perspectives

After particularly difficult years in 2020 and 2021, the air travel industry started seeing recovery, first through domestic then international flights in late 2021 through 2022. The current market consensus is that global passenger traffic will recover to 2019 levels in late 2023 / early 2024. The shape of this recovery depends on the region and the type of travel:

- **Regional Markets.** Europe, North America, and Latin America are



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expected to be among the major geographical markets to first achieve recovery (by late 2022) as these regions were the first to open up. Excluding China, which is slowly easing its zero-COVID policy, Asia should see recovery through 2023. It is worth noting that even while travel restrictions seem to be easing across APAC, the recovery trajectory will continue to be challenging in the near-term, and dependent on how quickly China opens up.

- **Travel Purpose.** Pent-up demand for leisure travel is driving global recovery with people keen to travel again after two years of restrictions. Business travel, on the other hand, has been lagging in its recovery. Virtually all businesses and organisations went from onsite to online during the pandemic, which created an opportunity for companies to review air travel requirements to reduce their cost as well as their carbon footprint. Even if business travel eventually returns as it did historically, it would likely be in phases and driven by proximity, reason for travel and industry sector.
- **Travel Distance.** Domestic or short-haul travel have been less hampered by travel restrictions, and recovered



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faster than expected in most geographies. Full recovery of the segment is expected by early 2023. International regional travel, on the other hand, is expected to lag in recovery by six months followed by international long-haul travel recovery which is only expected to recover by 2024. Chinese outbound travel is expected to spur international travel recovery rates within the Asia Pacific region once restrictions are eased for its population.

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### Headwinds will affect the air traffic recovery trajectory

While the world transitions from a pandemic to an endemic situation, other emerging economic and geopolitical themes threaten to derail the recovery of aviation.

- **Higher energy prices.**

Sanctions that were imposed against Russia since early 2022 have severely strained the global energy market, raising fuel prices and fuel price volatility for the near term.

Fuel costs in 1H2022 were estimated to account for about 24% of airlines' operating costs. In the near term, energy cost is expected to increase with the likelihood of taxes on carbon emissions as well as increasing usage of Sustainable Aviation Fuels and other green fuels.

- **Inflation and rise in lending rates.**

Across many regions, the Consumer Price Index (CPI) has climbed significantly compared to a year ago. Between July 2021 and July 2022, inflation had increased year-on-year by 8.5% in USA, 8.9% in Europe and 10.1% in the UK largely due to the supply shortages. To combat rising inflation, central banks across the world have been raising lending rates. As a result of increased borrowing and financing costs, we can expect more prudent investment allocations for inventory, capital investments, and M&A activities, including within the aviation sector.

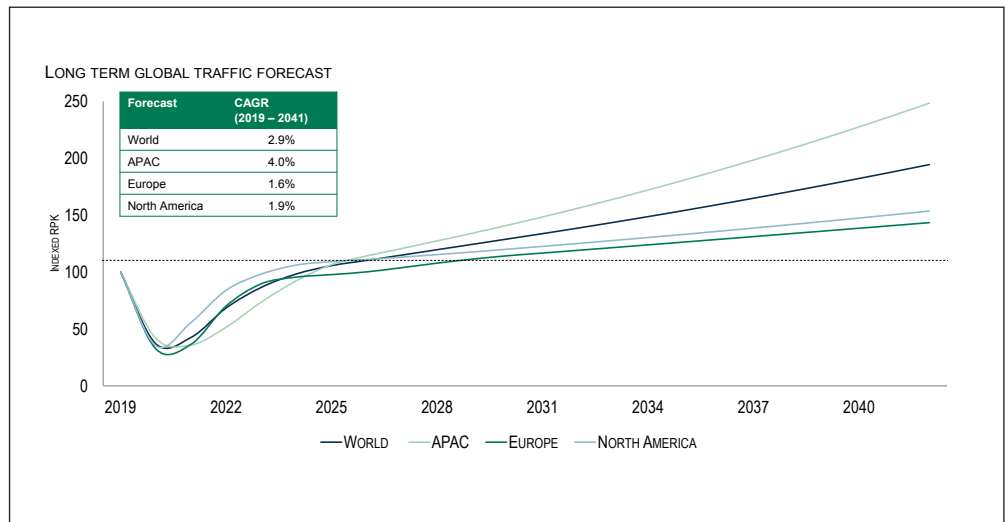


Figure 1: Long-term global traffic forecast (Alton Aviation Consultancy, 2022)

- **Strengthening of the US dollar.** Amidst the recent geopolitical and trade policy events, the US dollar has strengthened significantly against major currencies. This directly impacts airlines in multiple ways given that the transactional currency for most major cost items are in US dollars while revenues are largely denominated in the local currency. Conversely, there are tailwinds for manufacturing and MRO in emerging markets where revenues are in US dollars while labor costs are in the local currency.

#### Long-term Air Traffic Forecast

In the long run, the fundamental drivers of global air traffic remain unchanged. At a global level, Alton forecasts a 2.9% CAGR between 2019 and 2041, taking into account the effects of the COVID-19 pandemic. The Asia Pacific region is expected to grow at a rate above the global average at 4.0% CAGR, while other regions like Europe and North America are anticipated to grow

at 1.6% CAGR and 1.9% CAGR respectively in the same forecast period.

## FLEET FORECAST

With air traffic recovery underway, Alton expects the near-term fleet size to reach pre-pandemic levels in-line with traffic recovery. Longer-term global GDP growth is expected to further drive growth of the commercial aviation fleet.

As of January 2022, the commercial aviation fleet is estimated to consist of 30,200 in-service aircraft and projected to grow at 3.2% per annum for the next 10 years to about 42,000 aircraft in 2032. Narrowbody aircraft are expected to drive the commercial fleet growth, with a gain in market share from 58% today to 67% in 2032 at a CAGR of 5.0% per annum in the next 10 years. Widebody aircraft are expected to reduce from 19% to 17% of the total fleet as operators' preferences are anticipated to shift towards smaller aircraft.

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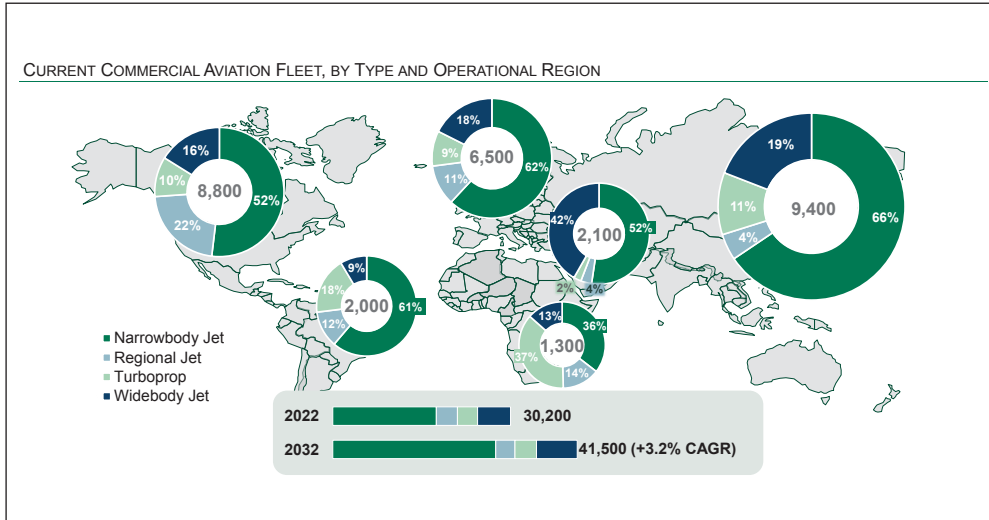


Figure 2: Commercial aviation fleet 2022 vs. 2032 (Alton Aviation Consultancy, 2022)

### Asia Pacific Fleet Forecast

Geographically, Asia Pacific will add more aircraft to the global fleet than any other region, with the addition of about 5,800 aircraft, accounting for over 50% of net fleet growth in the next 10 years. Correspondingly, Asia Pacific will experience the highest fleet growth CAGR at 4.9%, exceeding the growth in other world regions, which are expected to have CAGR between 2.0% and 3.7%.

By Alton's estimation, Airbus aircraft will constitute a higher share of the narrowbody aircraft, while Boeing aircraft will have a larger share of the widebody market in the Asia Pacific region. Airbus aircraft is estimated to account for 59% of the narrowbody fleet while Boeing aircraft will account for

60% of widebody fleet market share by 2032.

Given the increasing share of narrowbodies for the commercial aviation fleet, the CFM56-5B/7B (driven by the Airbus A320 family and Boeing 737 classic / next generation) and LEAP-1A/1B (driven by the Airbus A320neo family and Boeing 737 MAX) are expected to become the

prominent engines in the market. The two engine types combined are expected to comprise more than 50% of Asia Pacific's fleet by 2032.

### Supply-side Challenges

As airlines recognize the need for aircraft to drive post-pandemic growth, demand for new aircraft is robust. Airbus has 'sold-out' its A320neo family production line until the second half of this decade and other popular narrowbody models such as the A220 and 737 MAX have multi-year wait times.

In the near term, supply chain challenges would continue to impact new aircraft deliveries. At this time, the industry is facing challenges to ramp-up production rates that were cut during the pandemic. Labour shortage is an issue which is prevalent across the industry. Additionally,

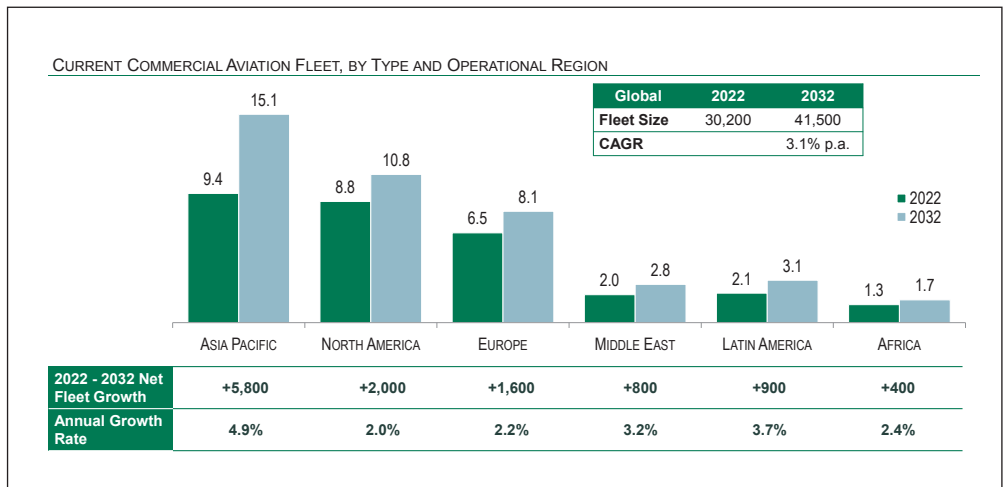


Figure 3: Commercial aviation fleet forecast by region (Alton Aviation Consultancy, 2022)

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10-YEAR AIRCRAFT BACKLOG BY MODEL (AS AT JUL 2022)		
Aircraft Family	Backlog	Monthly Production Rate
<b>Narrowbody Jets</b>		
A320neo	5,831	50 → 75 by 2025
737 MAX	4,340	31 → 47 by 2H2023
A220	553	6 → 14 by 2025
<b>Widebody Jets</b>		
787	500	2 → 5 "over time"
A350	451	5 → 6 by 1H2023
777X	341	3
A330neo	196	3

Figure 4 Aircraft backlog and production rates (Alton Aviation Consultancy, 2022)

the shortage of raw materials and manufacturing capacity due to the ongoing Russia-Ukraine conflict is affecting multiple areas in the supply chain. Delivery of engines, for example, have been a particular issue, with OEMs like Airbus having to store fully assembled aircraft awaiting engines. Having acknowledged these challenges, aircraft manufacturers are working towards solving these issues with their suppliers and new

aircraft supply is making steady improvements. Manufacturers are responding by leveraging new strategies such as dual or triple sourcing and nearshoring to mitigate supply chain risks.

### MRO FORECAST

The global commercial MRO market is expected to reach US\$120B in 2032 from US\$78B in 2022, growing at a CAGR of 4.4% per annum between the 10-year period. Asia Pacific is expected to generate the highest spend over the next

decade accounting for over 35% of the global MRO spend, growing from US\$14B to US\$21B at a CAGR of 4.8%. The growth of the narrowbody fleet in Asia Pacific is a large contributor to this growth. Engine MRO makes up the lion's share of total MRO spend (~50%) and is also expected to grow from US\$37B to US\$59B at a CAGR of 4.8% over the next decade. Component MRO, line MRO, airframe

MRO, and modifications make up the remaining MRO spend.

### Engine MRO Trends

**Greater utilisation of narrowbody and cargo engine types.** Driven by domestic and short-haul international recovery, narrowbody aircraft engines such as the current generation CFM56-5B/7Bs and V2500s saw utilisation pick up the soonest in aviation's post-pandemic recovery. Greater fuel efficiency on new generation narrowbody engines such as the LEAP-1A and PW1100 also led to greater usage during the pandemic and recovery phase. Legacy engine types such as the CF6 and PW4000 saw increased engine utilisation throughout the pandemic due to intensive cargo freighter utilisation with increase in engine shop demand for cargo engine types as a result.

Contrary to narrowbody passenger aircraft and cargo freighter aircraft engine utilisation, widebody aircraft engine utilisation is only just starting to pick up and is expected to ramp up in tandem as international travel gears up towards the end of 2023.

### Green time engines

**and USM.** Throughout the pandemic, airlines employed various strategies to minimize engine MRO cost. With significant portions of their fleets parked/stored (up to 60% of the total global fleet at the height of the pandemic), airlines opted for greater use of green time engines to defer engine shop visits.

Airlines also sought tailored work-scopes and lowered work content to reduce shop

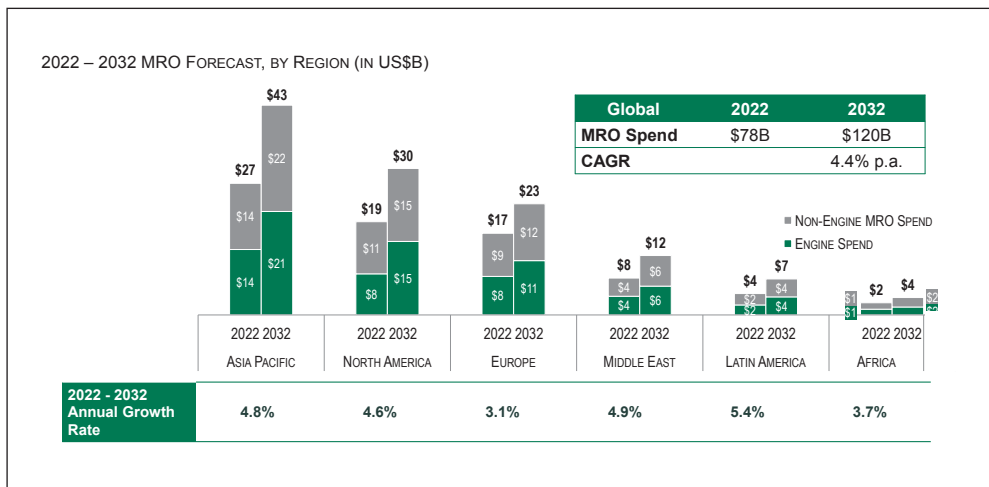


Figure 5: Global MRO demand forecast by segment and region

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visit costs. Many airlines increased the use of used serviceable material (USM) and performed module swaps to avoid costlier new part replacements and extensive engine module repair and overhauls. On-wing repairs were also preferred to avoid heavier costs of shopping engines.

**Near-term Engine MRO demand to increase.** Alton anticipates high near-term engine maintenance demand as “spare” engines in the market require overhaul. Furthermore, with green-time engines being in run-out condition, the availability of USM content is reduced leading to an increase in new part replacement demand.

Alton is also observing an increase in engine overhaul lead times, contributed by near-term parts supply chain challenges as well as labour challenges. Engine shop overhaul capacity is also tight, and engine operators need to plan further in advance to secure engine overhaul slots for their engines.

### MRO Labour Challenges

A major issue for the industry at present is a shortage of skilled technicians. The industry had lost many experienced staff as companies globally were forced to respond to the sudden and unexpected demand shock by initiating a wave of job cuts and early retirements to stay afloat. This poses additional challenges for the industry in the post-pandemic environment as it seeks to increase its workforce to cope with returning demand. We can expect a more moderate ramp up in MRO capacity in the near term as a new labour force needs to be trained for the industry.

Anticipating this, we can also expect the MROs to adjust salaries and benefits for technicians in a bid to retain current talents and avoid



further loss to competitors and other industries. In the long run, it would be beneficial for MROs to collaborate with schools and institutions in their respective regions to build a pipeline of fresh graduates. To sustain their manpower supply for the future, MROs can consider directly getting involved in providing aftermarket training resources.

## CONCLUSION

Globally, the aviation industry is expected to recover from the COVID-19 pandemic, although this is predicated on a recovery to pre-COVID traffic and fleet growth as well as longer term economic growth.

Despite being slower to recover, the Asia Pacific region will continue to be the largest aviation market globally. The APAC fleet is expected to grow from 9,400 aircraft to 15,100 aircraft between 2022 and 2032, and this will drive the region's MRO spend from \$27B to \$43B in the same period.

Evolving supply chain strategies at OEMs and MROs may lead to increased investment in the region due to a combination of factors including being closer to the customer base, diversification of the supply chain and advantageous investments in the economic business case. While there are near term challenges affecting the recovery, players in the Asia Pacific aerospace market stand to benefit.