IATA

The global commercial aircraft fleet

Shortages cap growth

August 2025

The aircraft shortage that began building in 2019 has become the industry's most pressing challenge, constraining traffic growth and forcing airlines to operate older, less efficient aircraft—raising costs and slowing progress toward sustainability. Despite some recovery in production, normalization is unlikely before 2031–2034, as the industry faces a “missing fleet” equivalent to several years of production, and order backlog continues to build up despite reaching an all-time high.

FACTS

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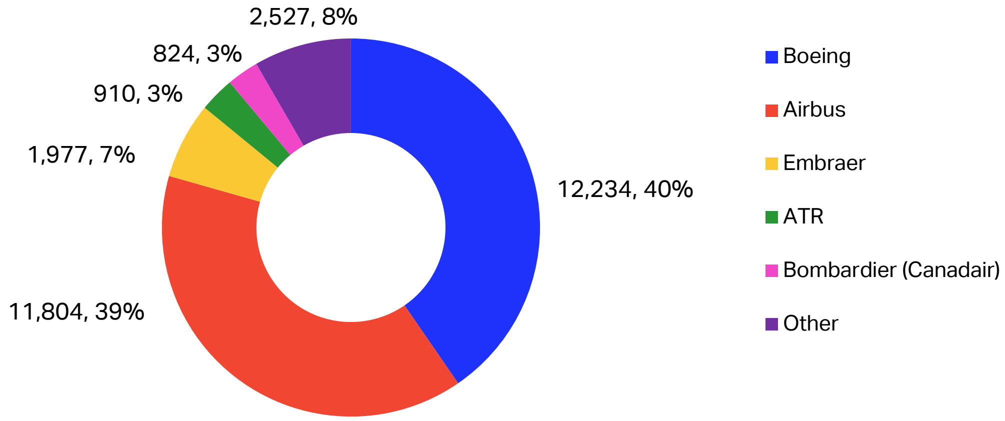
1. Overview of the current fleet

The global commercial fleet comprises 35,550 aircraft, including 30,300 active units and 5,250 held in storage as of June 2025. These aircraft represent 152 master series produced by 26 aircraft manufacturers worldwide. While this may suggest a fragmented market, the aircraft manufacturing industry is in fact highly consolidated. Two manufacturers account for 80% of the current active fleet, and the top five represent almost 95% of all aircraft in service (Chart 1).

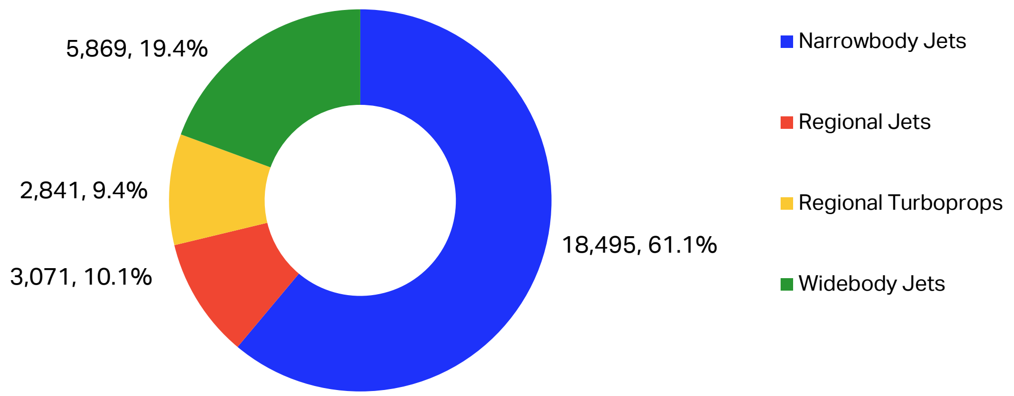
Chart 1: Composition of global commercial active fleet by manufacturer[1]



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

The global fleet is predominantly composed of narrowbody jets, reflecting their versatility and lower unit operating costs on most short- and medium-haul routes (Chart 2). Narrowbodies represent nearly 60% of the total fleet, with two aircraft families-the A320 (including neo variants) and the 737 (including Max)-accounting for over 90% of this segment (Chart 3). Notably, their share of global available seat kilometers (ASK) is also close to 60%. This alignment is driven by their high utilization rates, particularly when compared to smaller regional jets and turboprops, and by their optimal balance of capacity and range.

Chart 2: Composition of global commercial active fleet by market class



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

[1] Data as of June 2025

Table 1: Key characteristics of each aircraft class

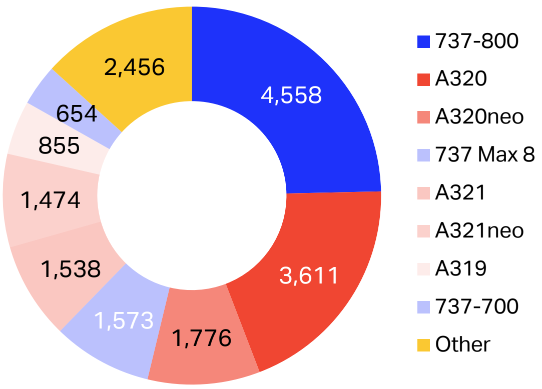
	Model examples	Average seats per flight	Average distance per flight	Range	Share of ASK
Widebody jets	B777, B767, A350, A330, B787	274	4,800 km	8,000 – 13,000 km	40%
Narrowbody jets	A320, B737	171	1,390 km	Up to 6,500 km	56%
Regional jets	Embraer E-jet, A220, Bombardier CRJ	80	760 km	3,000 – 5,000 km	2.4%
Turboprop	ATR 72, Dash 8, Beech 1900	46	340 km	1,500 – 2,000 km	0.6%
Total		**156**	**1,850 km**		

Source: IATA Sustainability and Economics, OAG Schedules Analyser, Cirium Fleets Analyzer

Widebodies are a much smaller group, corresponding to 19.4% of the active fleet in terms of aircraft quantity (Chart 2). However, their share in global traffic is more significant, amounting to almost 40% of ASK. This is because they have the highest utilization among all aircraft groups, 40% higher than the global average for the commercial fleet, as well as a superior average distance flown and seat capacity. The widebody fleet is completely dominated by two manufacturers, with Boeing accounting for 60% of all aircraft and Airbus for 40%. This group is dominated by only four aircraft families: Boeing 777, Boeing 787, Airbus A350, and Airbus A330 (Chart 4). The average seating capacity in this group is 274 per aircraft compared to a total average of 156 seats.

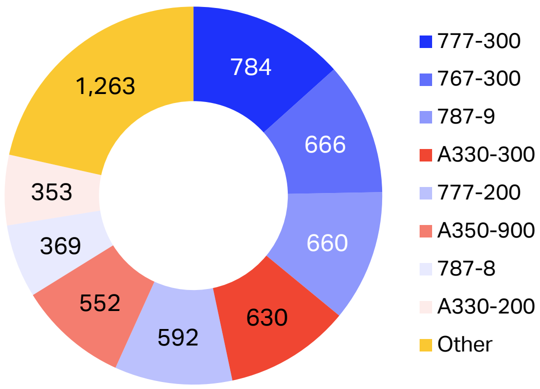
The regional and turboprop group is the smallest in the market, accounting for 23% of the global commercial fleet (Chart 5 and Chart 6). However, this group's share in global ASK is very small, only 3%. This is because of the very short average distance flown, as well the limited seating capacity of roughly 63 seats per flight.[2] Interestingly, this is the most diverse group in terms of manufacturers and aircraft types; the largest player, Embraer, accounts for only 30% of all aircraft in these two groups. Another key players include Bombardier (CRJ program), ATR, and De Havilland. This group is also characterized by the highest aircraft age and the lowest renewal rate,[3] with the share of the NextGen[4] fleet being the lowest. The average aircraft age in this group is 18 years compared to that of the total fleet of 14.8 years as of the end of 2024.

Chart 3: Composition of active narrowbody fleet[5]



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

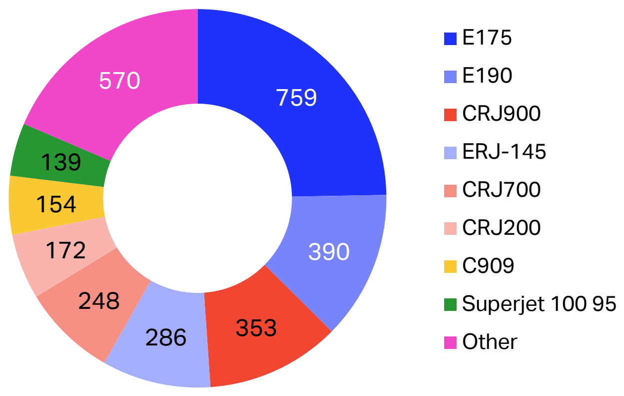
Chart 4: Composition of active widebody fleet



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

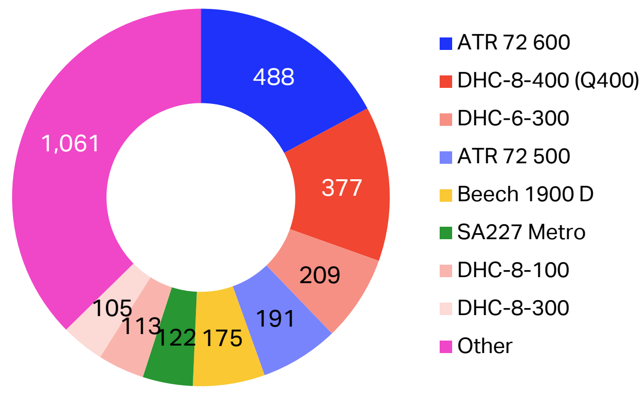
[2] OAG Schedules Analyzer, total seats divided by total frequency, turboprop and regional jets
[3] Share of new aircraft deliveries divided by the size of fleet at the beginning of a period.
[4] NextGen aircraft refer to models that incorporate the latest advancements in fuel efficiency, aerodynamics, and engine technology. These typically include aircraft delivered from the mid-2010s onward, such as the A320neo, 737 MAX, A350, and 787 families, which offer significantly lower fuel burn and emissions compared to previous-generation models.
[5] Data as of June 2025

Chart 5: Composition of active regional jet fleet



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

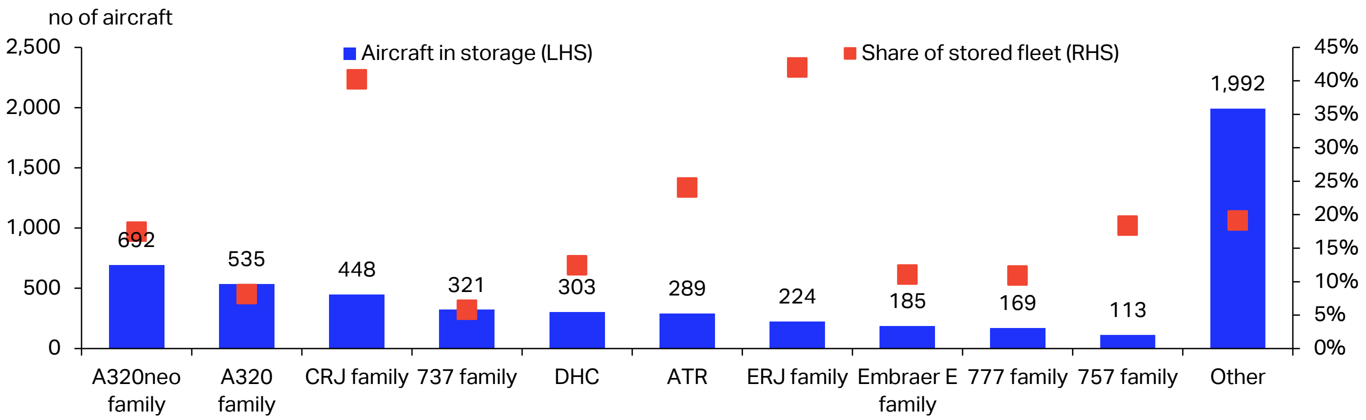
Chart 6: Composition of active turboprop fleet



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

Despite the persistent shortage of new aircraft, the share of stored aircraft remains elevated at 15% of the global fleet (Chart 7), well above the 2010–2018 average of 11.8%. Regional aircraft exhibit the highest storage ratios across all aircraft families. Notably, the CRJ and ATR families show disproportionately high shares of parked units, reflecting both structural shifts in regional connectivity and aircraft, in addition to infrastructure shortages, forcing airlines to use larger aircraft. A further 2% of the global fleet is grounded due to engine-related issues, compounding the effective reduction in available capacity. It is also important to recognize that many of the regional aircraft currently in storage are significantly aged and may never return to service. Therefore, the currently inflated share of parked fleet may be overly inflated.

Chart 7: Aircraft in storage and the share of the stored fleet in the total fleet of a family



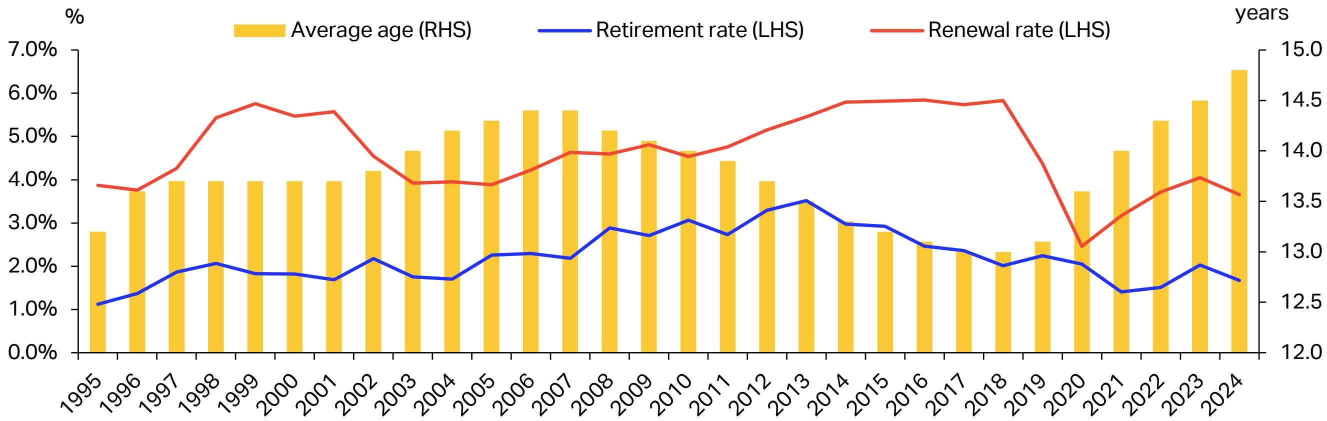
Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

2. Fleet trends

2.1. Fleet renewal on hold: aging aircraft stay in service

The current rate of aircraft retirements remains near record lows. In normal market conditions, older and less efficient aircraft would be phased out steadily as new deliveries arrive, and operators would optimize their fleets for cost and sustainability. However, with manufacturers unable to meet delivery targets and lead times for new aircraft, which have extended well beyond pre-covid norms, airlines have been forced to retain aging equipment longer than planned. The scarcity of replacements has effectively suppressed the natural retirement cycle, resulting in the highest average fleet age in the history of aviation and delaying the transition to more fuel-efficient models (Chart 8).

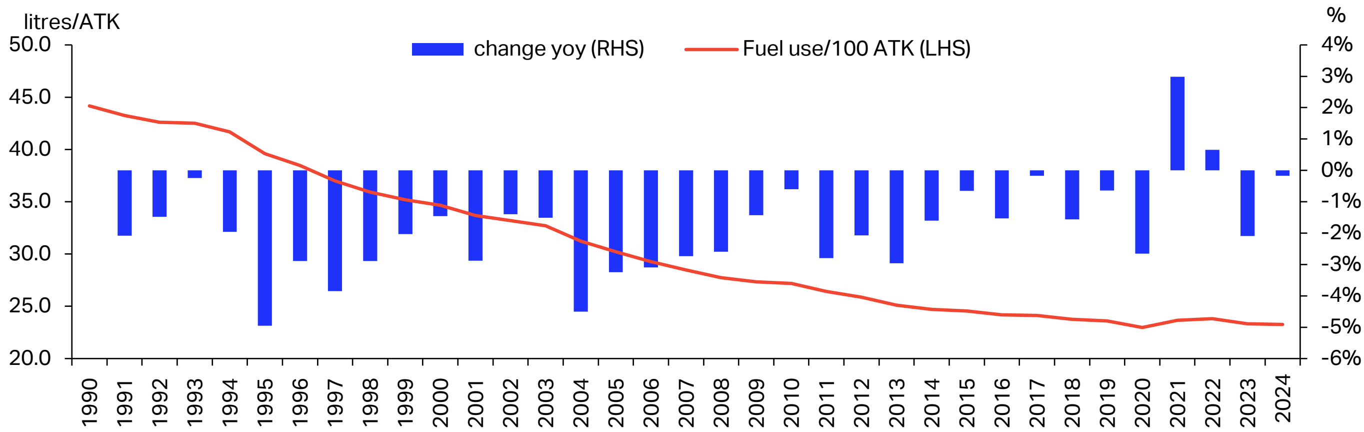
Chart 8: Average age of global fleet, fleet retirement rate, and renewal rate*



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer * retirement rate = retirement events/fleet in service and storage at the beginning of period; renewal rate = delivery events/fleet in service and storage at the beginning of period

As a result of the higher share of older aircraft in active service, the long-standing trend of improving fuel efficiency in commercial aviation has stalled in recent years. In 2024, fuel consumption at ATK remained flat compared to the previous year, marking a break from the historical pattern of steady annual improvements observed since the early 1990s (Chart 9). With the average fleet age now at 15 years, compared to 13 years pre-covid, airlines are increasingly reliant on legacy aircraft types with older engine types that have higher fuel burn per seat and per tonne kilometer. This not only raises operating costs but also complicates the industry's decarbonization trajectory, as gains from sustainable aviation fuel (SAF) and operational measures are partially offset by the slower pace of fleet renewal.

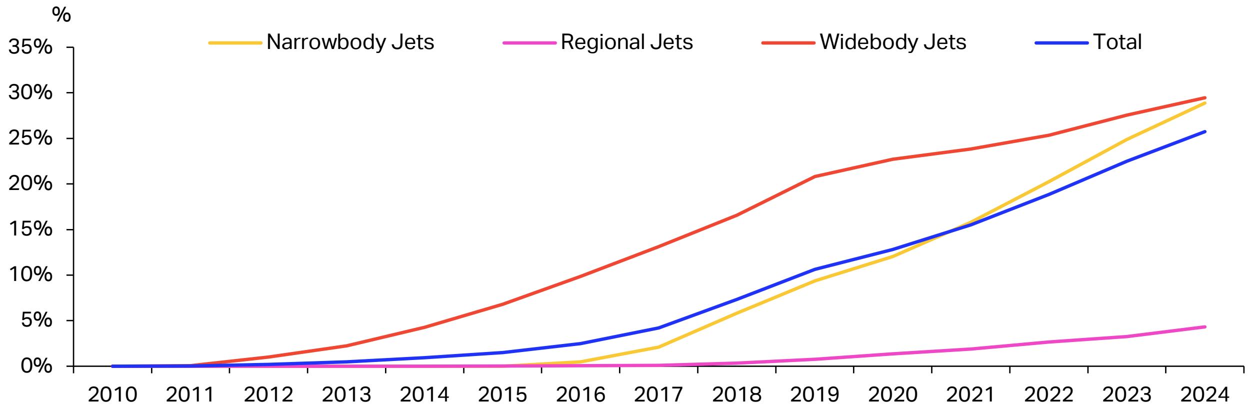
Chart 9: Average fuel consumption per ATK, liters per ATK and change YoY



Source: IATA Sustainability and Economics, IATA Information and Data

This stagnation in fuel efficiency is particularly notable given the rapid expansion of the NextGen[6] fleet which accounted for 26% in 2024, up from just 11% in 2019 (Chart 10). These aircraft offer substantial improvements in fuel burn per seat and per tonne. However, their positive impact has been diluted by the continued operation of older, less efficient models, which remain in service due to delivery delays and deferred retirements, thwarting the aggregate fleet-wide efficiency gains that otherwise would have occurred.

Chart 10: Share of NextGen aircraft in global commercial fleet, % of aircraft in service and in storage

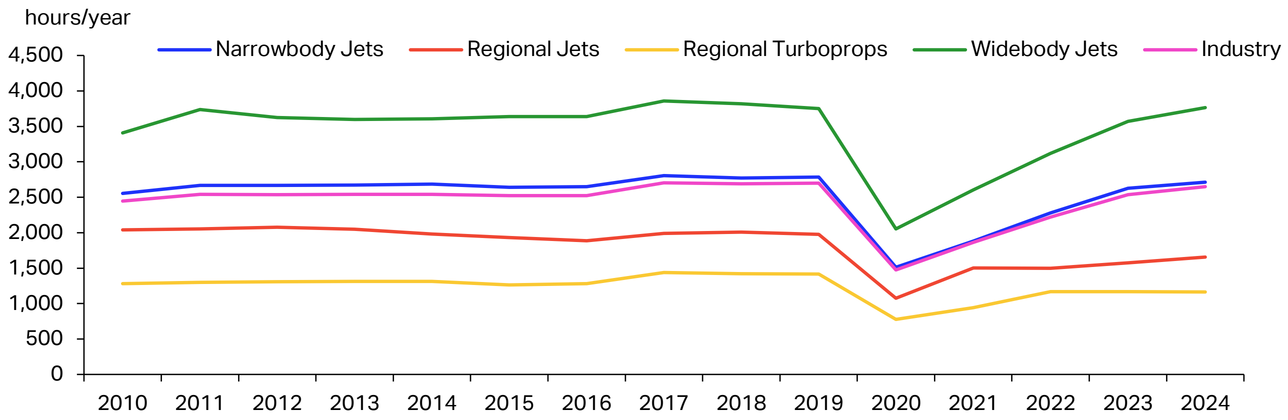


Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

2.2. Global fleet utilization is at its peak

Fleet utilization across the global commercial aircraft fleet has reached record levels in 2024 (Chart 11). This surge reflects the intense operational pressure on airlines to maximize output from existing fleets amid persistent aircraft delivery delays and constrained capacity growth. However, not all segments have recovered equally. Utilization of regional jets and turboprops remains well below historical levels, as pilot shortages and cost pressures have led many airlines to consolidate frequencies and upsize to larger aircraft. This shift has reduced the operational role of smaller aircraft types, despite their continued relevance in certain markets, and shows the uneven nature of the recovery across fleet segments.

Chart 11 Utilization of global commercial fleet by market class, hours per year



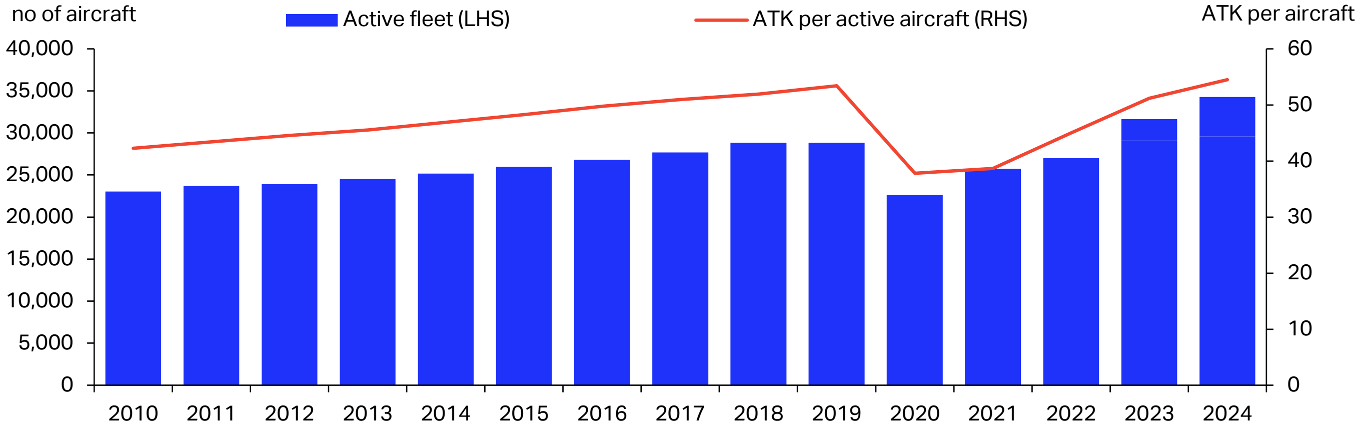
Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

Another way to look at aircraft utilization is to measure average available tonne-kilometers (ATK) per aircraft. In 2024, average utilization reached an all-time high of 54,000 available tonne-kilometers (ATK) per active aircraft, well above the historical average of 47,000 ATK observed between 2010 and 2018, and 43,000 over the longer period from 2000 to 2018 (Chart 12). Key factor impacting this growth include growing aircraft size over the past decade. It is also worth noting, that NextGen aircraft typically offer 5–10% more payload capacity and higher

[6] NextGen aircraft refer to models that incorporate the latest advancements in fuel efficiency, aerodynamics, and engine technology. These typically include aircraft delivered from the mid-2010s onward, such as the A320neo, 737 MAX, A350, and 787 families, which offer significantly lower fuel burn and emissions compared to previous-generation models. NextGen aircraft include: A320neo, B737 Max, A220, E2 family, A350, B787, A330neo, C909, C919

maximum take-off weights, which means that part of the observed increase in ATK per aircraft reflects a shift toward larger and more capable aircraft, rather than purely higher utilization.

Chart 12: Utilization of global commercial fleet, ATK per aircraft



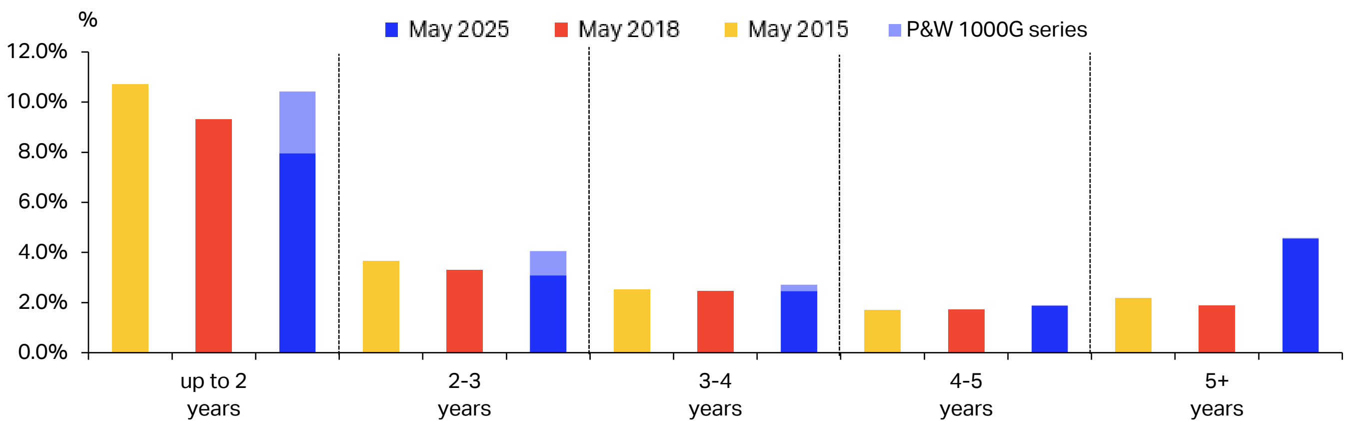
Source: IATA Sustainability and Economics, IATA Information and Data, Cirium Fleets Analyzer

2.3. Older aircraft remain in the fleet instead of being retired

The persistence of older aircraft in storage rather than in full retirement reflects another effect of aircraft shortage, that convinced airlines to retain aging aircraft as a hedge against delivery uncertainty. Simultaneously, the secondary market for mid-life aircraft has tightened, driven by a lack of new aircraft. This has elevated the residual value of stored aircraft, making outright retirement less attractive.

While the overall percentage of the global fleet currently in storage appears elevated, likely reflecting ongoing engine-related issues, particularly with the PW1000G series, the more structurally significant trend lies in the fleet parked for the long term. The share of aircraft parked for over five years has reached an unprecedented level, surpassing historical benchmarks. Such prolonged storage may indicate deeper shifts in fleet economics, including diminished resale viability, deferred retirement decisions, or strategic asset holding in anticipation of future cargo conversion or regulatory clarity. In contrast, the short-term storage segment reflects a very different dynamic, virtually everything that can fly is flying.

Chart 13: Global parked fleet by duration of in storage status, as % of total fleet



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

3. Quantifying aircraft shortage

3.1. Aircraft deliveries lost during the pandemic may hurt the market for a decade

Aircraft shortage that started to build up in 2019 has become a single most burning issue for the industry, limiting traffic growth. The aviation manufacturing ecosystem, which relies on complex, just-in-time production networks, experienced severe dislocations during the pandemic. Many suppliers downsized or exited the market, and the recovery of production capacity has been slow due to labor shortages, inflation in input costs, and limited availability of critical components such as engines, avionics, and specialty metals. At the same time, persistent quality control concerns and recurring technical findings at major airframe manufacturers have led to increased oversight from regulators and decreased production rates, or even delivery pauses. These issues have delayed production ramp-ups and contributed to a backlog of aircraft awaiting final inspection or rework. Consequently, the global fleet renewal cycle has been significantly constrained, limiting the pace at which airlines can expand capacity and modernize their operations.

Table 2: Summary of aircraft shortage calculations

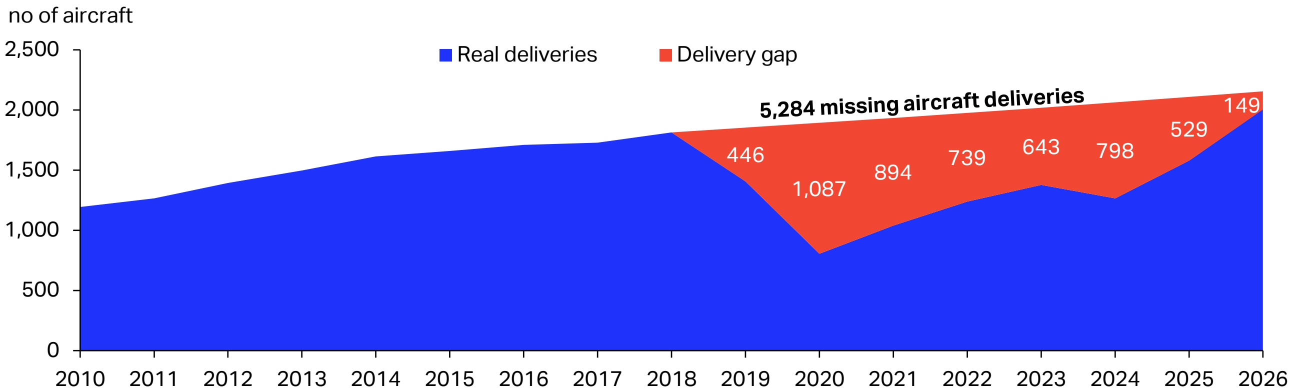
Methodology	Implied aircraft shortage
Decline in deliveries	5,284 aircraft
Decline in renewal rate	4,055 aircraft
Decline in retirement rate	2,397 aircraft
Increase in backlog	5,352 aircraft

Source: IATA Sustainability and Economics

3.2. Deliveries continue to lag the past decade trend

If deliveries had continued at their pre-covid pace, the global fleet would have been significantly larger today. Based on historical delivery trends (the average growth rate over the 2010-18 period), the industry would have expected roughly 16,004 new aircraft to enter service between 2019 and 2026. Instead, the cumulative deliveries over this period are likely to be limited to 10,720 aircraft, and thus short by approximately 5,284 units – a substantial supply gap (Chart 14). This shortfall reflects both the immediate impact of covid-related production halts and the slow recovery in manufacturing capacity in the years since. The result is a structurally tighter market, where limited aircraft availability continues to constrain capacity growth and delay fleet renewal. It does, however, support yields across many regions.

Chart 14: Real aircraft deliveries (incl. 2025-26 forecast) compared with theoretical pre-pandemic trend

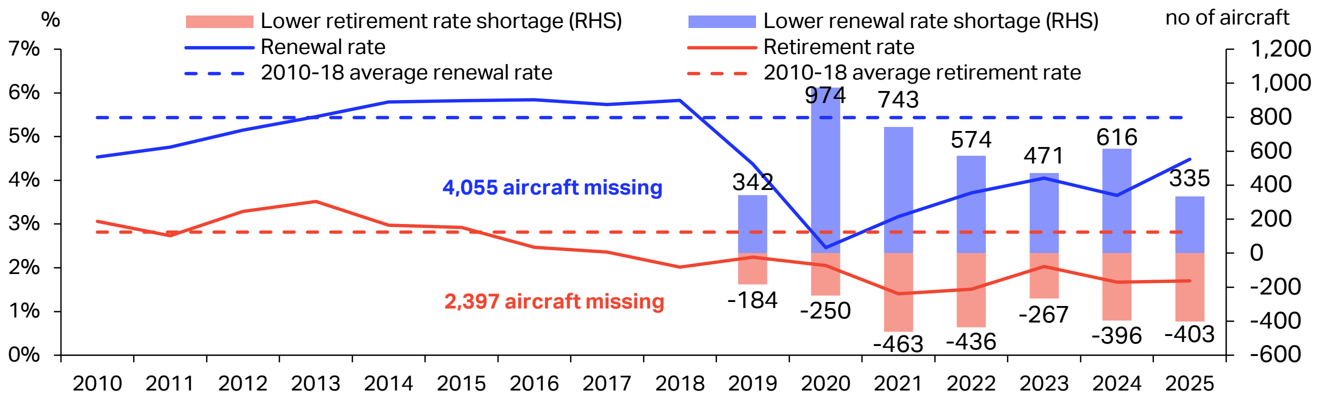


Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

3.3. Low retirement rates indicate a lack of new aircraft

Another approach would be to look not at nominal deliveries, but how they stand in relation with the fleet size. Assuming that renewal rate (deliveries to fleet size) did not drop in light of aircraft shortage, there would be 4,055 more deliveries over 2019 and 2025 (Chart 15). On the flipside, lack of new deliveries also decreased number of retirements in the global fleet. If the retirement rate did not drop, we would see 2,397 more retirements in the market over the same period. Although these two figures represent lower number than other methodologies. It might be underestimated, as both retirement and renewal rates could remain below historical average for few more years until rates normalize, while other methodologies are rather able to capture the whole gap. Despite this headwind, looking at renewal and retirement rates remain crucial to assess the situation in the market.

Chart 15: Aircraft shortage implied by lower retirement and renewal rates

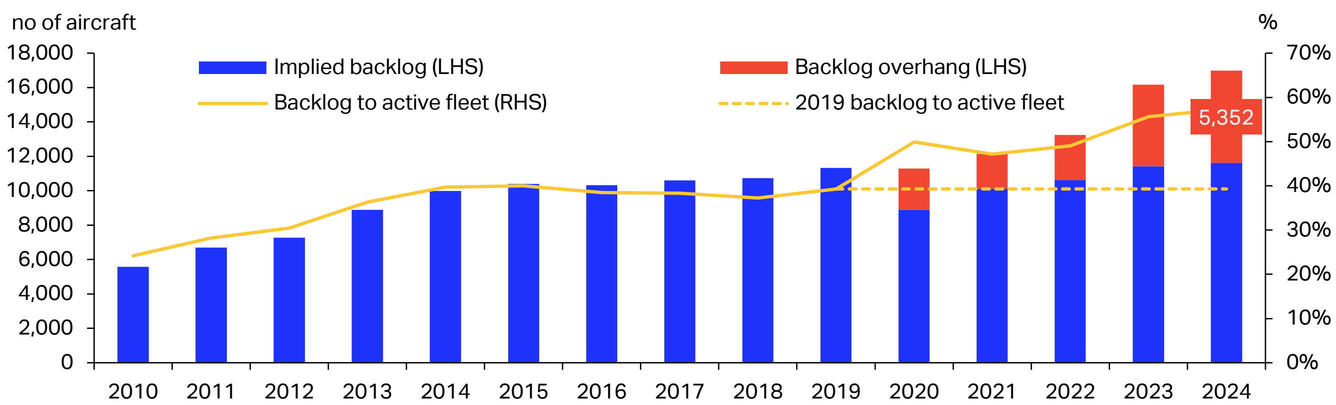


Source: IATA Sustainability and Economics, Cirium Fleets Analyzer * retirement rate = retirement events/fleet in service and storage at the beginning of period; renewal rate = delivery events/fleet in service and storage at the beginning of period

3.4. Record backlog reflects growing mismatch between demand and production

Another way to quantify the scale of the current aircraft shortage is by examining the industry-wide order backlog. Under normal market conditions, the size of the backlog is roughly proportional to expected future deliveries, reflecting a balance between airline demand and manufacturer production capacity. Historically, the global aircraft backlog has remained relatively stable at around 40% of the active fleet. However, by mid-2025, the backlog reached a record high of 58% relative to the in-service fleet – a clear sign of unmet replacement and of growing demand. Based on the historical relationship between backlog and fleet size, this imbalance suggests a structural shortage of 5,352 aircraft relative to what would be expected in a balanced market (Chart 16).

Chart 16: Aircraft shortage implied by increased backlog



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer

3.5. No near-term solution

Despite signs of improvements in the supply chain, and some pick up in deliveries, the global aircraft shortage is not expected to normalize before 2031-2034 given the magnitude of the problem as it stands today. The cumulative shortfall, estimated at over 5,000 aircraft, deferred retirements, and record backlogs, have created a structural shift that is likely to take years to normalize. Looking at the backlog overhang, estimated at 5,352 aircraft as of end-2024, compared to current deliveries, estimated at an annual average of 2,100 for next five years, and further assuming new orders of around 1,700 aircraft per year on average, the backlog would normalize in 2031 at earliest. However, if we instead use the average amount of orders of the past decade (approximately 2,100), the normalization will not occur before 2034.This timeline reflects not only the time needed to replenish lost deliveries but also the inertia in fleet renewal cycles and the continued reliance on aging aircraft. In effect, the market is operating with a “missing fleet” equivalent to several years of production. While record utilization rates have masked this gap temporarily, this will not be possible much longer, simply given the absolute limit. Sustainable recovery will require production capacity to ramp up which, in turn, would be greatly aided by regulatory clarity, especially regarding trade policies.

Glossary

ACTK – Available Cargo Tonne-Kilometers

ASK – Available Seat-Kilometers

ATK – Available Tonne-Kilometers

BBL – Barrel

CLF – Cargo Load Factor

CTK – Cargo Tonne-Kilometers

LF – Load Factor

PLF – Passenger Load Factor

ppt - Percentage points

RPK – Revenue Passenger-Kilometers

RTK – Revenue Tonne-Kilometers

SA – Seasonally adjusted

SAF – Sustainable Aviation Fuel

YoY – Year-on-year

Methodology

This analysis includes all aircraft classified by Cirium as commercial aircraft, which are used for passenger, cargo, combi, or convertible operations. This covers widebody, narrowbody and regional jets, as well as turboprop types.

Definitions

Stored (Parked) Aircraft – defined by Cirium as an aircraft not in regular operational service. This includes aircraft placed in short- or long-term parking programs, undergoing conversion or unplanned maintenance, or newly delivered aircraft still in fit-out. Aircraft are typically classified as stored after 60 days of inactivity for narrowbodies and 90 days for widebodies, or if they are ferried to known storage facilities.

Retired Aircraft – An aircraft is considered retired when it is permanently withdrawn from service, with no expectation of returning to either active or stored status. Retirement is confirmed through regulatory filings, evidence of part-out or recycling, or long-term inactivity (typically 5+ years) without signs of reactivation

Table of charts

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