# AIRCRAFT, ENGINE & PARTS MANUFACTURING

## CURRENT TRENDS

- The economic effects of the COVID-19 pandemic cost U.S. airlines $35 billion in 2020 and forced many to take on new debt obligations to survive the downturn.
- Setbacks continue for Boeing as the 737 MAX is once again under investigation by the Federal Aviation Administration.
- Airlines' focus on modernizing their fleets with more efficient planes will support industry recovery in 2021.
- The national defense segment continues to provide strong foundational support to the industry amid the lingering pandemic.

## PROJECTED VALUES
(12-MONTH OUTLOOK)

DECREASING STABLE INCREASING

## APPROXIMATE NET RECOVERY ON COST*

**80%-100%**
FG subject to an order

**60%-80%**
FG subject to aftermarket demand

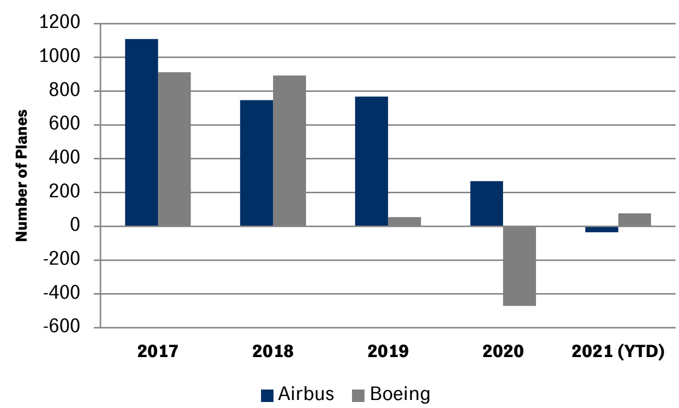
**0%-20%**
surplus FG

**0%-10%**
work in process, as-is

**40%-60%**
metal stock, mill size

**50%-70%**
detail parts in demand

## ANNUAL JET ORDERS (NET IN YEAR OF CANCELLATION)




**40%-60%**
hardware in demand

**0%-20%**
surplus details and hardware

*737 MAX inventory (-10 to -15 pt. decrease)



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**SETBACKS CONTINUE FOR BOEING:** In 2020, Boeing had its worst year on record for net aircraft sales, as deliveries dropped by 60% between 2019 and 2020. Customers have canceled more than 600 orders in 2020, primarily due to fallout from the pandemic in addition to ongoing issues with the 737 MAX aircraft. Specifically, Boeing reported that airlines canceled 373 orders for the 737 MAX during the first five months of 2020 after electrical issues were discovered on the aircraft, which resulted in two devastating crashes in 2018 and 2019.

Although Boeing fixed its flawed automated system in 2020, the company is again under audit by the Federal Aviation Administration (FAA). The most recent audit was triggered when Boeing disclosed an electrical power system issue on April 7, 2021. This audit subsequently grounded 109 Boeing 737 MAX aircraft worldwide, including 71 in the United States.

On April 28, 2020, the FAA ordered Boeing to fix bonding issues in the electrical systems in some 737 MAX planes that could lead to engine ice protection loss and critical functions on the flight deck. The FAA noted the affected planes were manufactured after a design change in early 2019. Per FAA documents, Boeing must also repair more than 300 additional undelivered planes that have the same issue.

Despite these setbacks, February marked the first month since November 2019 where monthly sales outpaced scrapped orders, marking an important inflection point for the company. First-quarter 2021 commercial airplane deliveries totaled 77, compared to 50 in 2020. However, Boeing's first-quarter revenue for 2021 still decreased 31% due to heavy discounts offered to buyers lacking liquidity.

As the pandemic continues around the world, the company's 737 program is currently producing at a reduced rate, but it plans to increase production to 31 per month in early 2022. Boeing has not disclosed the current monthly production rate, but it is believed to be in the low double digits.

Continued setbacks related to the 737 MAX, combined with pandemic-related shutdowns, drove Boeing to deliver just 157 total aircraft in 2020, compared to the 566 aircraft delivered by major competitor Airbus. However, Boeing maintains a strong defense, space and security segment that has remained resilient throughout the pandemic.

**PANDEMIC IMPACT CONTINUES BUT INDUSTRY IS REBOUNDING:** Since the start of the pandemic, there have been over 150 million COVID-19 cases around the world and three Centers for Disease Control and Prevention (CDC)-reported variants remain a global concern. U.S. passenger airline operating revenue decreased 62% from the first quarter of 2019 through the first quarter of 2021. Although airlines incurred more than $35 billion in net losses in 2020, the availability of COVID-19 vaccines has created expectations for recovery in the commercial airline industry.

Airlines are seeing an increase in vacation bookings through summer 2021, and Transportation Security Administration screenings are on the rise. Since March 11, 2021 over one million people have been screened each day; by May 28 this number was just under two million. This momentum is a result of growing consumer confidence in the safety of domestic air travel through rigorous on-board protocols, such as requiring face coverings, using HEPA filtration systems, disinfecting surfaces and offering touchless check-in. However, business travel, which is more profitable for airlines, remains down, resulting in a lagging financial recovery. A return to normal air travel abroad remains uncertain as many countries are still dealing with various levels of COVID-19 restrictions and vaccine implementation, particularly in Europe.

A concern for the foreseeable future is the increase in debt undertaken during the pandemic. Throughout 2020, industry participants were forced to take on billions in debt to survive the pandemic, partially offsetting the positive momentum from the vaccine rollout as companies are now forced to address significant debt load. American Airlines survived the pandemic by taking on $22 billion in new debt, raising its total debt obligations to $50 billion. Similarly, United Airlines' long-term debt for the quarter ending March 31, 2021, totaled over $26 billion, representing a 92.3% increase year-over-year. Additional debt taken on by key industry airlines has diminished credit ratings, causing increased interest expenses. These sizeable expenses will hinder the airlines' ability to rehire and innovate until their debt levels return to normal.

With the significant reduction in flights and the financial instability of airlines, ancillary companies that supply and support airlines have been negatively impacted. With fewer flights over the past year, the need for companies to repair and maintain current aircraft fleets has dropped significantly. However, airlines' focus on updating older, less efficient aircraft models will likely drive the commercial segment in 2021. For example, German airline Lufthansa, which received a $9.8 billion bailout from the German government in May 2020, agreed to purchase five Airbus A350-900 and five Boeing 787-9 Dreamliner aircraft to modernize its fleet. In April 2021, Delta Airlines placed an order for 25 A321neo Airbus aircraft, which offer expanded seating capacity and optimized use of cabin space. A strong focus on fuel efficiency and aircraft optimization will play a vital role in industry growth throughout 2021 and beyond.

**INDUSTRY OUTLOOK:** As more consumers get vaccinated and global vaccine deliveries continue to progress, the commercial aviation industry is seeing signs of recovery following a year of rapid decline. Prior to the pandemic, the industry was expanding as the economy grew and more people spent their disposable income on travel. As the economy rebounds and consumer income increases, combined with decreased unemployment rates and government stimulus programs, U.S. commercial air travel is forecast to return to pre-pandemic levels.

Prior to the pandemic, the FAA had projected the number of general aviation and air taxi aircraft would decline, leading to a younger fleet that would require fewer repairs and less maintenance, in turn negatively affecting the aircraft parts industry. Although airlines contracted their fleets and replaced older aircraft with newer, more fuel-efficient planes in 2020, airlines are expected to stimulate industry growth by expanding their fleets in 2021 and 2022 as travel demand returns. According to data from Avolon, an aircraft leasing company based in Dublin, Ireland, nearly 90 new airlines are set to debut before the end of 2021 as they endeavor to take advantage of heavily discounted aircraft sales, further accelerating the industry's rebound in the latter half of the year.

Through 2025, aircraft engine and parts manufacturing industry revenue in the U.S. is forecast to increase at an annualized rate of 9.0% to over $260 billion, per IBISWorld. Much of this growth is the result of the low base created by the pandemic. Industry revenue, however, is not expected to return to pre-pandemic levels until 2023, as commercial airlines are currently focused on optimizing their fleets and coping with financial setbacks.

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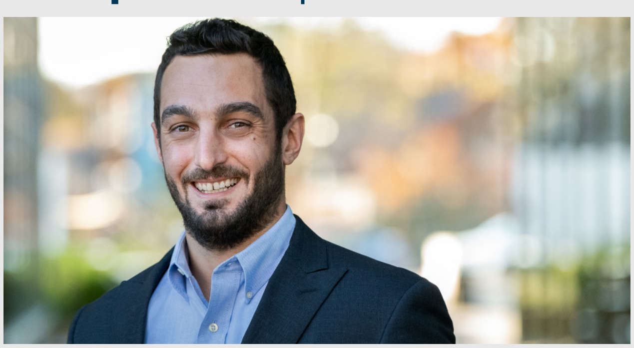
## The Expert: Christopher Muise



Christopher Muise, MBA is responsible for valuing industrial inventory at Gordon Brothers. He has over 10 years of experience valuing inventory across a broad range of industry sectors, including aircraft parts and equipment, automotive, construction and building products and oilfield services. Read his full bio here.