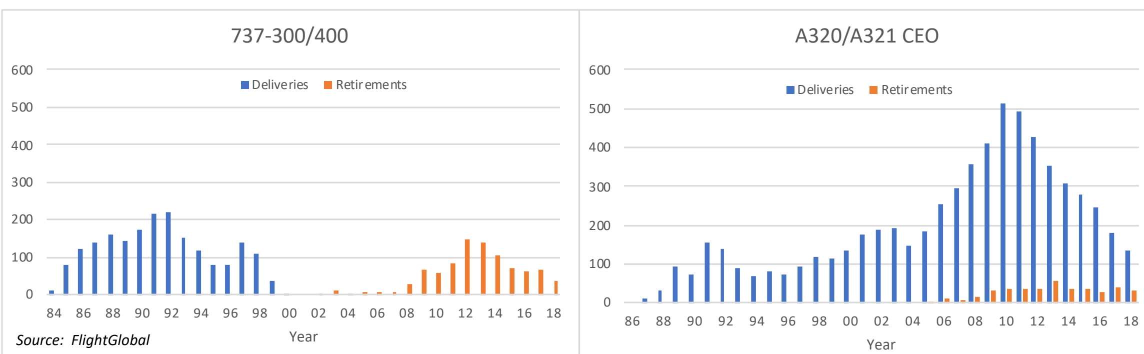
Disarray in the Used Single-Aisle Market; Caveat Investor

The commercial narrowbody aircraft trading market is experiencing a disruption in historical trading patterns. Modern 737 and A320 family aircraft are being scrapped in advance of their useful economic lives to harvest their engines. Leases for mid-life aircraft are being sold to new investors at values well above their intrinsic economic utility. This new marketplace is financially benefitting some participants while harming others.

As with most disruptions, no single issue is the root cause, but multiple factors are combining to create the “perfect storm”, including

1. **Record high aircraft production rates** – Boeing and Airbus are saturating the market with new deliveries and have expanded into the market for new entrants that are typically the province of second-hand aircraft traders and lessors. Lessors with middle aged aircraft returning off lease must reassess their options in face of increased OEM competition. Selling the aircraft into a super-heated engine market is sometimes the best option.
2. **Quantum leap in engine on-wing time** The CFM56-5, CFM56-7 and IAE V2500 engines that power the 737NG and A320 family aircraft are remaining on-wing more than twice as long between overhauls as their predecessors without a similar improvement in LLP (life limited part) life. As a result, engines enter overhaul with LLPs having 25-35% life remaining - insufficient to reach the next projected overhaul, but still valuable on the part-out market. This secondary market serves mid-life aircraft operators who are seeking to avoid the high cost of new LLPs and are willing to accept shorter intervals, but less costly overhauls.
3. **Spare Engine Shortage** – Unlike the 737-300/400 fleet where retirements commenced after the last aircraft produced thereby creating a steady pool of spare engines for the active fleet, the A320/A321CEO fleet remains in production with only a modest amount of retirements insufficient to support spare engine demand for the remaining fleet.



4. **MRO Overhaul Capacity** Engine overhaul capacity has not kept pace with the growth of 737NG and A320 families. Operators are experiencing long lead times for shop visits thereby increasing demand and prices for serviceable spare engines.
5. **737 MAX Grounding** – Although the grounding is hopefully short-lived, the impact on the mid-life narrowbody market will continue for a longer period. Operators with delayed 737 MAX orders are requesting short term lease extensions, however in some cases, lessors are leveraging this situation by requiring longer lease extensions. Consequently,

operators who had been planning to return the aircraft with the required minimum return conditions are forced to rearrange maintenance requirements including engine overhauls.

6. **Continual Flow of New Aircraft Investors** Aircraft leasing continues to attract new entrants seeking to capitalize on a growing market with attractive returns. These new investors are bidding up prices to get a foothold in the market, even though some of them may not be completely cognizant of the inherent risks.

These market conditions have reshuffled the market's winners and losers.

Winners

- **Engine Traders and Part-Out Specialists** With strong demand for serviceable spare engines and "green time" LLPs, engine traders are buying midlife aircraft for the engines. Aircraft returning off lease that previously would have been leased or sold to another operator in many cases are providing a higher financial return by being broken down and parted out. Indicative of the changing value equation, A320 family aircraft are being retired three years earlier on average than earlier generation 737-300 and 400s.
- **MRO Overhaul Facilities** These companies are experiencing growing demand and limited competition - ingredients for a robust business.
- **Experienced Aircraft Lessors** – In addition to the lease extensions mentioned previously, experienced lessors have responded to the bull market conditions by selling aircraft leases to new investors, some who may have a limited understanding of the future financial risks. Strong competition among new lessors has caused aircraft values to rise significantly above the intrinsic economic value and further distorting mid-life aircraft market trading.

Losers

- **Mid-life Aircraft Customers** Previously, most aircraft types that have been returned to lessors or retired by the original operator have gone on to productive employment in other roles. Low cost carriers, new entrants and small operators in remote locations were eager to acquire aircraft that had years of useful life remaining. As noted previously these markets are now attractive to the OEMs and lessors who placed large speculative orders with the ability to price their product at or below second hand aircraft. Additionally, mid-life narrowbodies are a source of feedstock for freighter conversions. The narrowbody freighter market, consisting entirely of converted aircraft, is undergoing a transition from 737-300/400, 757 and older aircraft to 737NG and A320 family aircraft. For a converted freighter to be operated profitably, the feedstock must be purchased close to the part-out value. With the extraordinary demand for spare engines and engine parts, feedstock values have remained too high to justify induction for conversion. Engineering companies that have made large investments in these new programs now face delayed demand. These delays in turn impact cargo operators that require additional capacity to meet the needs of their customers
- **Passenger Airlines** While large and small airlines alike have been beneficiaries of increased narrowbody production, shortages in spare engines and parts as well as long

lead times for engine overhauls have increased their operating costs. Additionally, the 737 MAX grounding has forced airline lessees to extend existing leases, sometimes longer than desired. These lease extensions disrupt expansion plans and cause sometimes costly increases in lease return costs.

- **Inexperienced Aircraft Lessors** As the commercial aircraft market continues its unprecedented rise, established lessors are selling mid-life aircraft from their fleet at premium prices, many to new entrant lessors. These sales provide the previous lessors with current income, improve liquidity and reduce risk by removing downstream maintenance cost related liabilities. In the current environment, many new investors are willing to take on these liabilities, knowingly or not. Assuming the cyclical nature of all markets has not changed, some less experienced lessors will be ill-prepared when the next downturn arrives.

When will the trading pattern for mid-life narrowbody aircraft change? Certainly, the delivery of 6,000 737Max and A320/A321 NEO aircraft over the next few years, many destined to replace existing aircraft, will provide some balance for the market, although this will put further downward pressure on existing aircraft pricing. An economic downturn significant enough to impact global air travel will also move the market closer to center. Given the multiple events that created this disruption, multiple factors must change before any significant relief arrives for those impacted by the current market.

Assessing future demand in the used commercial aircraft market is complex and requires experience, insight and data, skills which many investors may not possess organically. Fortune Aviation offers its experience and deep knowledge of commercial aircraft market trading to parties in need of assistance in addressing these issues.

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