

AVIATIONWEEK

SPACE TECHNOLOGY

COMMERCIAL CLIMB-OUT

- Defining 777X Engine Options
- Extending A330's Range
- Upgrading MAX, Building NEO
- Planning New Russian Airliners
- Advancing Green Demonstrators

MADE IN CHINA
Hawker Beechcraft

AVIATION WEEK

& SPACE TECHNOLOGY

DEPARTMENTS

- 8-10 Feedback
- 10 Who's Where
- 14-16 The World
- 18 Inside Track
- 20 Inside Business Aviation
- 21 Airline Intel
- 22 In Orbit
- 23 Washington Outlook
- 55 Classified
- 56 Contact Us
- 57 Aerospace Calendar

UP FRONT

- 12 **Airbus's planned Mobile, Ala.-based assembly facility** could be boon for suppliers nationwide

THE WORLD

- 14 **Farnborough orders list**—the numbers, the players—the tally was deemed impressive
- 16 **Swiss and Swedes** expect to collaborate on JAS 39E/F Saab Gripen multirole fighter

FARNBOROUGH 2012

- 24 **777X engine proposals** raise intriguing question about potential new alliance
- 26 **Boeing, Airbus, moving ahead** with new narrowbodies in both development work and orders
- 27 **Airbus prepares A350 final** assembly along with promoting A330 upgrade plans



52

Of the 19,000 commercial aircraft in service, only 5,400 will remain in the global fleet by 2029, predicts one industry leader. Factors contributing to early retirement include high fuel prices, financing—which is easier to obtain for new aircraft than used—and safety agency regulations.

- 28 **United Aircraft Corp. is mulling** projects beyond MS-21 narrowbody

- 31 **Europe is considering** its next steps in collaborative aeronautical research

- 32 **Commercial rotorcraft** manufacturers battle for lucrative medium-size helo market

- 34 **U.K.'s commercial** space bet, just two years in, is beginning to pay off

- 35 **European space powers** spurn collective surveillance, even in face of constrained budgets

- 36 **Contractors are not waiting** for Pentagon guidance when it comes to Pacific ISR collection mission

- 38 **Alenia, ATK** are teaming to expand options for small gunships worldwide

AIR TRANSPORT

- 42 **Air Berlin's survival** plan includes that one elusive ingredient—money and lots of it
- 43 **Mongolia's independent airlines** seek international traffic rights to expand to neighboring countries

DEFENSE

- 39 **Australian Air Force** focuses on replacing aging fleet of VIP transports, receiving C-27Js
- 45 **India's stealth** UCAV program clears its design optimization/concept definition phase



COVER STORIES

Boeing's 787 took to the skies at the Farnborough air show last week, marking the first time in 28 years one of the company's commercial transport aircraft had participated in an air show flight demonstration. The 787 was painted in the livery of Qatar Airways, which is expected to take delivery of the widebody jet next month. Boeing also scored a major order during the show from United Continental Holdings for 737 MAX jets—but rival Airbus, jet engine makers and helicopter manufacturers were hardly quiet. Reports from Aviation Week's on-site team begin on page 24.

- 24 **Development costs and** hotly contested markets are turning some engine-maker rivals into partners.



- 40 **Hawker Beechcraft's** potential sale to China has many industry insiders, as well as civilians, debating the wisdom of this move

Dismantling Dynamics

Younger aircraft and engine parts add up to be worth more than their wholes



Lee Ann Tegtmeier Seattle

Boeing 747-400s, like this former BlueSky aircraft parked in Marana, Ariz., are strong disassembly candidates.

The retirement age of commercial aircraft is decreasing as the global fleet renews, which is causing teardowns at younger ages. Factors contributing to early retirement include higher fuel prices that make older aircraft more expensive to operate, financing that is easier to obtain for new aircraft than used and regulations impacting aging aircraft.

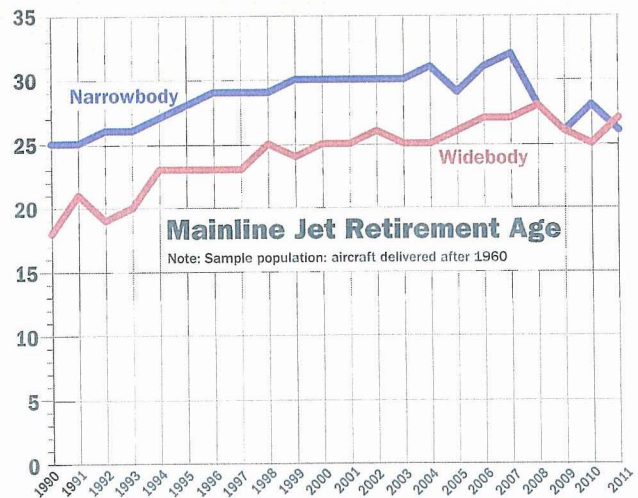
Of the 19,000 commercial aircraft in service, only 5,400 will remain in the global fleet by 2029, predicts Larry Schneider, Boeing vice president for product development, who says the average aircraft is about 25 years old at retirement.

TeamSAI concurs, forecasting that 30% of the 2012 fleet of in-service and stored commercial jets and turboprops will be retired within 10 years. In the last decade, the average age of the passenger jet fleet dropped two years, says David Marcontell, TeamSAI M&E Solutions president. If this trend continues, the average retirement age will drop one year for every five-year period, he says.

Aircraft due for heavy maintenance often are the first candidates for retirement or parking. Marcontell points out that aircraft "last off the [production] line," especially those succeeded by newer models, are also targets due to their shorter useful economic life. As of March, 1,959 single-aisle aircraft were parked, compared to only 433 twin-aisles. The number of parked twin-aisles has remained relatively steady since 2005, but the number of single-aisles rose to a peak of 2,145 in early 2011 from 1,288 in late 2007, says Fred Klein, president of Aviation Specialists Group.

Not all aircraft reach the desert or dismantling facilities. "Niche aircraft such as the Boeing 757 and 767 are difficult to replace," says Marcontell. Not having a replacement alternative, coupled with "a purchase or lease price low enough to offset fuel and maintenance costs, can make aircraft still viable on a cost-per-seat-mile basis," he says. However, falling valuations make financing more difficult for aircraft older than 5-6 years, says Klein.

Will airlines be able to sustain the current level of fleet renewal, given higher aircraft prices or lease rates? Marcontell does not think so, but he believes the trend "is probably solid for the next 5-8 years."



Note: Sample population: aircraft delivered after 1960

Source: Aviation Week Intelligence Network

The retirement age for commercial aircraft is about 25 years, but that could drop as values decrease.

The fact the government export banks "enable Tier-3 buyers to finance aircraft at Tier-1 rates instead of buying used models" contributes to this trend, says Bernard Comensoli, CEO of Research & Business Development S.A. in Switzerland.

In addition, more than 40 countries have restrictions on the age of imported aircraft, says Marcontell. These tend to be countries with emerging economies. Europe, Canada, Australia and the U.S., where more stringent maintenance regulations and regulatory oversight exist, do not impose aircraft age restrictions, he notes.

If the average retirement age is about 25 years, why are aircraft as young as six years being parted out? Simply put: their pieces are worth more than the whole. "Used parts maintain their value longer than aircraft—their prices fall much slower than prices for the whole aircraft," says Comensoli.

Mark Gregory, managing director of Air Salvage International in the U.K., has dismantled three nine-year-old Boeing 737-700s this year and has two more scheduled. A 737NG generates 1,800 parts for sale, opposed to only 400 for the 737 Classics, Gregory says. Used parts prices for the Classic models are depreciating because of oversupply. "Once you take the engines off of a 737-300 or -500, you're lucky to get \$200,000 for the rest of the aircraft," he says.

Early Airbus A320s face the same situation. Gregory says they generate about 700 parts, compared to 1,200 parts for newer models. It comes down to supply and demand: leading parts companies and airlines are requesting used parts for younger aircraft, which prompts aircraft to be dismantled at earlier ages. However, most of the 45 aircraft Air Salvage dismantles annually are 15-20 years old.

Air Salvage, which works with many lessors, stores most aircraft for 90-120 days and some up to 180 days, says Gregory. If the aircraft cannot be re-leased, the engines are usually sold, then the rest of the aircraft is dismantled and a parts company sells the pieces, or the dismantler consigns the parts to a company such as Universal Asset Management (UAM).

Jeff Lewis, UAM's vice president for business development, pinpoints three parting out candidates:

- Boeing 767-200/-300/ER: With 860 -300s in service and another 76 parked, Lewis says "operators continue to seek short-term leasing opportunities." This prompts demand for aircraft components and heavyweight landing gear, auxiliary power units (APU) and thrust reversers. There is high demand for Pratt & Whitney 4000 and GE CF6 engine material, and he says the engines also are strong lease candidates. He sees limited demand for JT9D and RB211 material. Given the parts commonality between the 767-200/-300 and 757, Lewis says the -200 is a better recycling candidate. Once the Boeing 787 and Airbus A350 fleets grow, expect the 767s to be phased out.

- Boeing 747-400: With 600 in service and 63 in storage, Lewis expects 30 of these to be parted out in the next 36 months. UAM tore down 12 in the last 18 months and just took two more from Lufthansa, he says. Several airlines are phasing out this type and Lewis says the freighter market is saturated, so these aircraft are not being sought for cargo conversions. "At

\$22 million for a conversion, plus a D check, that's almost \$30 million, which makes it hard to deploy as a straight freighter," says Lewis. He sees strong demand for heavyweight landing gear, APUs and thrust reversers, partly because "it is becoming cheaper to buy these components than overhaul them." While there is not much need for RB211 engines, Lewis points to "a strong demand for RB211 thrust reversers and nose cowlings." In the next 12-24 months, he cautions that the 747-400 component market could become saturated.

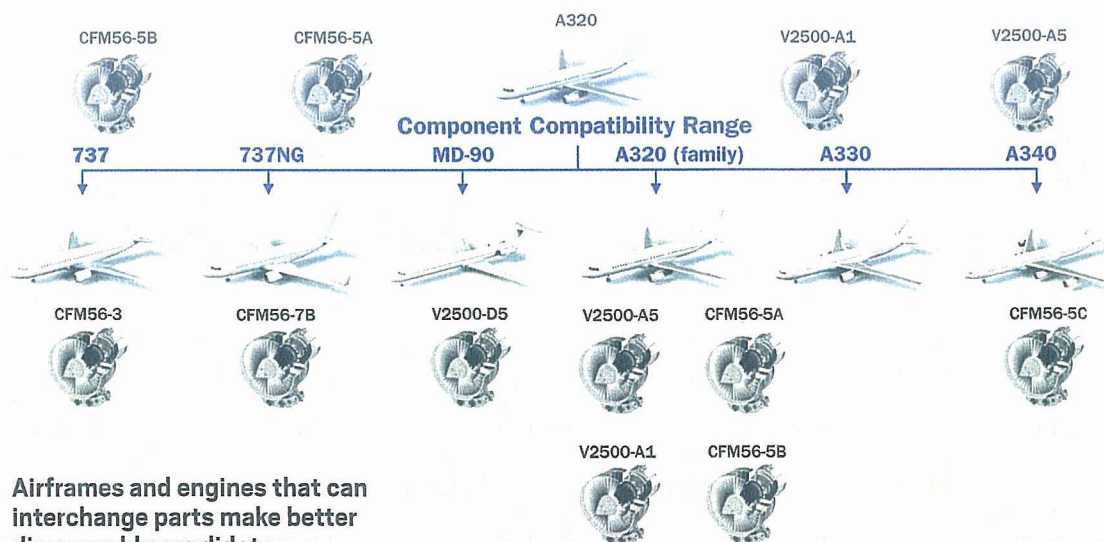
- Airbus A330: Only two have ever been parted out, but as airframes near 15-16 years of age, they could become disassembly candidates. With 848 in service and 31 in storage, "there is a strong demand for this aircraft for lease," Lewis says, especially from medium/long-haul low-cost carriers like Air Transat in Canada. "Redeploying a 10-year aircraft is easy to do, but 15-year-old ones are more difficult," he notes. Some A330s also could be converted to freighters. Given the 70% parts commonality between the A330s and A340s, demand for components exists. For this aircraft, Lewis sees a "good demand for PW4000 and Trent thrust reversers and nose cowlings."

Comensoli adds the Airbus A320 family as candidates—4,838 are in service and 147 are stored. He estimates 70-90% of the aircraft value is based on remarketing the CFM56 and IAE V2500 engines. Recycling 1989-91-vintage A320 "rotables, interior equipment, some flight controls and metal recycling earns \$1-1.2 million," says Comensoli.

He sees prices falling rapidly for the 2,250 aircraft near the 15-year vintage, such as the A320/A321, A330/A340 and Boeing 767. While values for 5-15-year-old aircraft are dipping, these fleets face maintenance requirements and rely on the secondary market for parts, which is driving more disassembly. As values fall, "part-outs become economically viable at younger ages," says Comensoli. This makes several in-production aircraft models available for "prices approaching salvage value," he adds.

GA Telesis, which leases and provides aftermarket support for aircraft and engines, has disassembled 150 commercial aircraft and 500 jet engines in the past eight years. Vice President Phil Arroyo says, "there is approximately \$500 million in the teardown pipeline." He sees the strongest demand for aircraft 12 years of age or older. ☐

A320 Compatibility Chain



Airframes and engines that can interchange parts make better disassembly candidates.

Source: GA Telesis

Distributors' Dilemmas

A flood of material and unpredictable demand challenge parts suppliers

Lee Ann Tegtmeier **Seattle**

Aftermarket parts suppliers and distributors face convergent effects in the market that have not existed in previous economic cycles.

One factor is the quantity of spare parts on the market that comes from aircraft or engine teardowns. Peter Zimm, an ICF SH&E principal, predicts that surplus parts will account for 20% of the aftermarket parts market by 2015, up from 18% last year, when \$2.3 billion of surplus parts sold. New OEM and parts manufacturer approval (PMA) components make up the other 80% and 82%, respectively.

This is the first time "massive disassemblies are being taken down not because of mechanical life but because of financial reasons, which floods the mar-

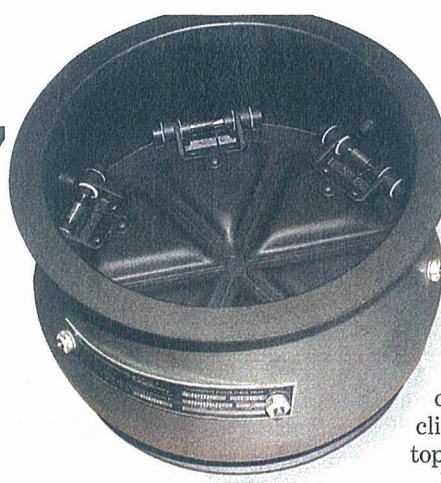
ket for material," says Mitch Weinberg, president of International Aircraft Associates.

In today's market, capital is more readily available to finance new aircraft instead of used, which is leading to more aircraft and engines being torn down for their parts. The valuation of older aircraft is generally falling, which also drives to teardowns.

Market experts predict about 400 aircraft will be dismantled this year. The flooding is exacerbated because "there's not enough demand from maintenance shops for the material," Weinberg says. So the logical next question is, "how do you sustain a business with too much supply and not enough demand?" he asks. The answer is diligence, he says, finding the good opportunity and being proactive.

He is hopeful that deferred engine maintenance and upcoming regularly scheduled maintenance for engines such as the CFM56-3/-5 and V2500s will generate material business.

It is a balancing act for distributors such as Weinberg, who want to purchase inventory now at lower costs



INTERNATIONAL AIRCRAFT ASSOCIATES

International Aircraft Associates' inventory is full with parts like this Hamilton Sundstrand compressor-bypass check valve.

the commercial aviation parts aftermarket, however, that a vendor who tears down a couple of aircraft can dip the parts values as they start climbing. "You really have to stay on top of it," says Weinberg.

Jimmy Wu, president and CEO of Infinity Air, agrees. "I like bad economies because they give me access to airlines that I wouldn't have had" in a good economy, when carriers tend to rely on OEMs more, Wu notes. Bad economies also force companies to create better services, he says. When evaluating risks, he uses the cash conversion cycle, which weighs how fast you can turn inventory, how quickly you have to pay based on your credit and the speed at which you are paid.

Vendors are also being pushed to do more because airlines are using fewer of them. At the same time, repair stations are doing the opposite, sending requests to more and more vendors to gain competitive pricing, observes Leo Cohen, president of J&M Aircraft. This can require twice as much work for the same output.

Meanwhile, as more carriers seek a limited number of vendors, which provide preferred pricing, they are going outside those contracts and searching for parts on the open market. It is a buyer's market, especially in the aftermarket space held by independents because they can discount prices, compared to OEMs that fluctuate prices.

Combined, these types of elements make the market very unpredictable.

And because of this volatility and price sensitivity, some distributors are losing business to those offering lower prices. While more expensive does not mean better, Cohen cautions carriers and MROs to understand the requirements for serviceable parts, including tracing paperwork. The cheapest parts might not be the least expensive if quality or documentation problems exist.

Another issue impacting the aftermarket parts market is the replenishing airlines have done in the last 11-12 months of inventory that they had kept at a minimum in the worst of the recession. That boosted parts sales for a year, but the restocking is mostly done, says Zimm. ☐

INFINITY AIR



Allflight, an Infinity Air company, uses this autoclave to cure parts in its composite metal bonding facility.

and hold it until demand for the material increases, when values will correspond. This is a "potentially slippery slope because you need to know when to hold [inventory] and when to fold," says Weinberg. It is like following the stock market and "keeping your finger on the pulse in real time," he says.

There is such hyper-competition in