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1. EirTrade Aviation acquired aircraft MSN 43421 Boeing 737-800 to be dismantled for used serviceable materials (USM)
2. Aircraft components at APOC Aviation's parts hub in The Netherlands

BREAKING WITH TRADITION

As operators lean more heavily on USM to keep aircraft flying, the assets supplying that material are becoming harder to secure. Teardown is having to adapt. **Craig Waters** reports

For a sector of the aviation industry built around taking aircraft out of service, keeping them flying presents something of a problem.

Used serviceable material (USM) has become an increasingly important release valve for an aftermarket still wrestling with long lead times, constrained new-parts availability and high maintenance costs.

But many of the same pressures making USM attractive are also keeping potential teardown candidates in the air.

Aircraft that might once have followed a predictable path towards retirement are instead having their lives extended. Engines, landing gear, APUs and other components are being kept in service for longer, while delayed new aircraft deliveries give operators another reason to hold on to established fleets.

The result is changing not only where teardown feedstock comes from, but the economics governing which aircraft are acquired and what happens to their components afterwards.

Ben Gifford, chief of strategy at Seattle Aviation Solutions (SAS), an aftermarket parts supplier with active aircraft teardown programmes, believes the next source of material will not follow the retirement curve many in the industry might have expected.

"Retirements sit near 1.5% of the global fleet, well below historical norms, while the industry still carries a shortfall of about 5,000 aircraft. Nobody parks a 737NG or A320ceo they can't replace.

"The next wave will be value driven, not age driven: aircraft where engines are worth more apart than the airframe is whole, lease returns facing a shop visit no one will underwrite, and business aviation fleets flying past OEM production."

That represents a departure from the conventional assumption that teardown supply would largely follow the ageing of the global fleet.

Craig Skilton, chief commercial officer at APOC Aviation, is seeing another intriguing development: aircraft reaching teardown much earlier in their lives.

1.5%

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"A BUSINESS ONCE LARGELY ASSOCIATED WITH MANAGING AN AIRCRAFT'S FINAL DESTINATION IS BECOMING MUCH MORE CLOSELY INTEGRATED WITH THE ACTIVE FLEET"

"Historically, feedstock came from ageing, life-limited airframes reaching natural retirement. The more notable shift is that feedstock is starting to come from unexpected places: relatively young A320neo and 737 MAX airframes are now being torn down for parts rather than returned to service, reflecting a case where the value of the components locked inside a young aircraft now exceeds the value of the whole aircraft in the air."

There are nevertheless signs that more familiar feedstock is beginning to emerge. Bill Thompson, vice president – origination and trading – Americas at EirTrade Aviation, expects fleet renewal eventually to release greater numbers of established narrowbodies.

"As airlines continue to acquire newer technology aircraft models, we will start to see a renewed wave of aircraft becoming available through airline fleet retirement programmes with the timing of these initiatives coinciding with new aircraft deliveries. This is already starting as more B737NG and A320ceo aircraft have recently become available."

Lessors are another source, Thompson adds, as they dispose of older aircraft while taking delivery of newer models.

Value inside the aircraft

Securing an aircraft, however, is only the beginning of the equation. In a market where the economics of individual components can determine whether an acquisition works, the traditional idea of buying an aircraft simply because it has reached retirement age looks increasingly outdated.

For APOC Aviation, there may be one or two components that effectively make the business case for an entire aircraft.

"Regarding APOC's recent A319/A320/A321 teardowns, each aircraft had a different primary value driver – one had a highly sought-after APU, another had neo-applicable avionics in strong demand, and a third we acquired specifically for its landing gear set," says Skilton.

"Typically, there's one or two main value drivers behind each acquisition that justifies the purchase and effectively de-risks the rest of the airframe's component set. It's this asset-by-asset variability, rather than a single 'most valuable' part or platform that increasingly shapes how APOC selects and prices teardown candidates."

For Thompson, the scale of the installed A320 and 737NG fleets continues to support demand for material from both platforms. But the economics become particularly interesting as aircraft move closer to retirement.

"Rather than overhaul landing gear sets, EirTrade is frequently seeing airlines buying used landing gear from



airframe teardowns that has sufficient life remaining to correlate with their planned retirement dates," he says.

"Continued time APUs, especially GTCP 131-9A and GTCP 131-9B models, are also sought-after from airframe teardowns as these allow operators to avoid shop visits and control their costs as these narrowbody aircraft types approach retirement."

Engines inevitably sit at the top of many asset valuations. Gifford points to CFM, V2500 and GE modules and life-limited parts (LLPs) as major sources of value. Yet focusing solely on the highest-priced components can obscure where USM makes a more immediate operational difference.

"The scarcity that actually grounds aircraft sits further down the shipset: dispatch critical rotables like IDGs, starters, hydraulic pumps, HMUs, FADECs, ADIRUs, and APU hardware," he says. "New part lead times on some of that run 10-12 months. The value isn't in the biggest parts. It's in the parts that stop an aircraft from dispatching."

Teardown before teardown

That shift in thinking is also changing when the important decisions are made.

Rather than dismantling an aircraft and subsequently deciding how to monetise what comes off it, the commercial assessment increasingly happens before the first component is removed.

"AIRCRAFT THAT MIGHT ONCE HAVE FOLLOWED A PREDICTABLE PATH TOWARDS RETIREMENT ARE INSTEAD HAVING THEIR LIVES EXTENDED"



"That decision is made before the aircraft arrives," says Gifford. "We underwrite on traceability, remaining life on LLPs, gear and APU, and repair cost against current market. Lead time is now part of that valuation: a unit you'd have scrapped five years ago is worth overhauling today, since the alternative is a year on an OEM backlog."

APOC Aviation similarly uses demand data, repair turnaround trends and known customer requirements to assess a candidate aircraft's component fit list against existing and anticipated demand.

"It's a more proactive, data-led approach than tearing down first and figuring out where the parts will land afterwards," says Skilton.

Thompson says the same market-led thinking determines which components justify further investment once an aircraft is harvested.

"Investment in repairs is driven by market demand for the individual components. Accordingly, harvest listings typically coincide with those items that need to be routed for repair along with other key components that can either be tagged "serviceable as removed" or have market demand in "as removed" condition. Of course, items with little to no resale value are often scrapped during the airframe teardown process, along with other components that add no additional value or scope to parts stock already held by the dismantler."

That selectivity matters. The objective is no longer necessarily to remove everything that can physically be taken off an aircraft. "In the past, airframe harvest listings contained thousands of components as the goal was to tear down the entire airframe and then scrap the hulls on site upon completion," Thompson explains.

"Currently airframe dismantlers, like EirTrade Aviation, have an increased focus on achieving their return-on-investment objectives and carefully monitor their inventory. Thus, harvest listings are limited to only the key components that will generate acceptable returns."

"MANY OF THE SAME PRESSURES MAKING USM ATTRACTIVE ARE ALSO KEEPING POTENTIAL TEARDOWN CANDIDATES IN THE AIR"



But a strong USM market brings another consideration: maintaining discipline over what should not return to the supply chain.

"Scrap discipline matters just as much," Gifford warns. "A tight parts market is exactly when unapproved material finds its way in."

Beyond dismantling

Perhaps the bigger change, then, is what it now means to be in the teardown business.

The physical dismantling of an aircraft remains necessary, but increasingly it sits in the middle of a much broader chain encompassing acquisition, asset valuation, repair management, certification, traceability, inventory positioning and ultimately USM sales.

"Dismantling is the least differentiated part of what we do," says Gifford. "The value sits on either side of it: asset selection and underwriting going in, certification, traceability, and stocking coming out."

SAS pairs its teardown business with Four Star Accessory Overhaul, an affiliated FAA Part 145 repair station.

"The model that works now is vertical. Teardown feeds USM sales, backed by an FAA 145 repair station that returns accessories to serviceable condition. That's why we run Four Star Accessory Overhaul alongside teardown. The customer gets an overhauled, traceable unit, not a box of harvested parts."



1. Aircraft MSN 5367 A320ceo was purchased by EirTrade Aviation for spare parts and disassembly
2. Ben Gifford, chief of strategy, Seattle Aviation Solutions (SAS)
3. Bill Thompson, vice president – origination and trading – Americas, EirTrade Aviation
4. Craig Skilton, chief commercial officer, APOC Aviation

APOC Aviation has travelled a similar path. Skilton says, "We started as a straightforward dismantler, selling material direct from teardown as it became available, but we've since brought MRO personnel in-house letting us proactively manage repair activity.

"That's allowed us to move away from reactive, teardown-led sales toward holding the right material on the shelf in anticipation of demand, and to offer value-added services to airlines and MRO customers."

That evolution may prove particularly important if traditional sources of teardown feedstock remain constrained. A business once largely associated with managing an aircraft's final destination is becoming much more closely integrated with the active fleet.

And that changes the fundamental calculation. The question is no longer simply what an aircraft is worth at the end of its life. It is what the right combination of components, remaining life, repair investment, traceability and immediate market demand can contribute to keeping other aircraft flying. ●