

Aircraft Recycling, (Almost) Live

Probably one of the most unusual exhibits at this year's Farnborough Show is an old airliner fuselage section that is in the process of being dismantled. The original plan was for an entire aircraft fuselage to be completely disassembled while the show went on. However, two reasons worked against this. First, the tight UK health and safety regulations, airfield requirements, and insurance issues would have required conducting the exercise in a wired-off compound, so far away from the show that attendees wouldn't have been able to see very much. Second, the whole operation would have lasted weeks longer than the duration of the show.

The plan now is for a partly worked-on fuselage section to be put on display, along with a number of bins containing raw aircraft material, fragmented metal (processed metal ready to be smelted) and other metal and composites that have been recycled from the aircraft. The actual recycling has been undertaken by Air Salvage International (ASI)—a company specializing in servicing the global aerospace and aviation industry in end-of-life assessment management—which is based at nearby Alton and Lasham airfield. It will also demonstrate the best practice in removing recyclable or re-usable elements from aircraft, how those parts are re-used and what products can be made from aircraft material.

The exercise is a joint effort by the Aircraft Fleet Recycling Association (AFRA, based Washington, D.C. and set up three years ago), Air Salvage International, P3 Aviation, and



Airbus A310s and Fokker F27s are among the old aircraft that still may serve as sources of material supply.

WINGNet, a node of the University of Oxford's Faraday Advance Partnership in automotive and aerospace materials.

AFRA has spread from the U.S. to take in the UK and the rest of Europe with the help of ASI and the Faraday Advance Partnership. "AFRA places all involved companies on a level playing field and produces best practices in compliance within many different companies so that everyone works toward the same goal," said Mark Gregory, MD of ASI. "If an aircraft doesn't go to a museum to be put on display, it has to be recycled. Taking the metal out is fine and it can be recycled, but the cabin interior, because it's made of many types of composites, is very difficult to recycle. In an aircraft like the Boeing 737, the cabin interior is made up of many types of composite material, of which only 20% can currently be recycled. The rest cannot be because there is no process out there to recycle it. What



Oxford University is trying to come up with is a method of recycling the 80% remainder and conduct research into new materials that will be 100% recyclable on future aircraft."

At the show, AFRA will be introducing its best practice for end-of-life aircraft, focused on the demonstration, and its representatives will be on hand to discuss their initiatives and how they compare with the Airbus-led TARMAC initiative. AFRA says that its members process around 150 aircraft yearly, producing 1,000 tons of aircraft specialty alloys and 25,000 tons of aircraft aluminum per year.

"We recycle as much as is possible, putting parts back into service again to feed the older generation aircraft still in service," said Gregory. He also explained that a Boeing 737 takes about six weeks to dispose of, Airbus A320s about eight weeks, A320s about seven weeks, and Boeing 747s 12-14 weeks. "Obviously, the newer the aircraft the more time we take removing the parts before disposal," he explained.

ASI also has an interesting recycling sideline supplying anything from complete aircraft to a simple oxygen mask for use as props in the TV and film industries.

Dr. Colin Johnston, director of Faraday Advance at Oxford, says that, apart from research into wider carbon fiber recycling and the search for new and more environmentally friendly composites, his group is trying to find a lead-free solder that could be used by aircraft manufacturers. Aerospace companies are still allowed to use lead-based solder (which is banned in most other industries) because current alternatives can't take the wide temperature cycles exacted in an airframe.

"We are still trying to work out the physics," he said. Regarding the everyday use of lead-free solder on the ground, Johnston says, "you certainly won't find lead solder in new PCs and mobile phones." Ongoing work into a non-toxic cadmium 6 aerospace alternative is also another top priority.

—Mike Vines



The Sea Hawk FGA.6 Here Is the Last of the Line

The Royal Navy Historic Flight's Sea Hawk FGA.6 which is appearing as part of the Farnborough 60 celebrations is currently the world's only airworthy example of this elegant early carrier-based jet. The then very new Hawker Sea Hawk, designed by

the legendary Sydney Camm, first appeared at the 1950 Farnborough show, and entered front-line service in 1953 with the Fleet Air Arm's 801 Naval Air Squadron, whose 'Ace of Diamonds' emblem the airplane here wears.