

Auto Recycling Nederland

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The end of an aircraft's life

It looks a bit eerie, an aircraft graveyard in the desert: rows and rows of disused aircraft, abandoned because they are too old to fly another mile. Derk-Jan van Heerden decided that there must be a better solution. His company – AELS (Aircraft End-of-Life Solutions) – ‘rescues’ aircraft from spending years in the desert.

Van Heerden: ‘Rescue is perhaps too big a word: we what do is recover aircraft from the desert and send them to the scrapper. So ours is not a rescue mission: we simply accelerate their end.’ At least it is a sustainable solution. ‘Dismantling aircraft and reusing the parts is not new, but it’s not yet the norm.’

AELS plans to change that. Van Heerden explained: ‘Sooner or later, every plane makes its last flight – due to an accident or because the maintenance has become too expensive.’ In the latter case, the airline stores the plane in the hope that somebody will buy the entire plane. If after years of waiting there is still no buyer, the plane is dismantled and sold in parts.

AELS wants to persuade airlines that those years of storage are wasted, because contrary to what airlines think, the separate components of an aircraft are often worth more than the plane as a whole. AELS gives them advice on the future of the plane and then takes care of the dismantlement and resale of the parts.

Ambitious

While he was studying aerospace engineering, van Heerden had the opportunity to specialize in the sustainable development of the field. ‘That’s when I started taking an interest in the fate of scrapped aircraft,’ the young entrepreneur said. ‘During my graduation period, I was involved in the dismantlement of a Boeing 747-200, together with KLM Engineering & Maintenance. It was a great experience, and I started my own business immediately afterwards.’

Now van Heerden is building a network to put his name on the map and get more work. ‘I want airlines to come to me for advice about that scrapped aircraft.’ At the moment, it usually happens the other way round. ‘I read in the newspaper about a crash or hear of an aircraft that has been grounded for a long time. Then I look up all the data I can get, make an analysis and present my findings to the owner. That’s how I’m trying to get myself known in this small world.’

That ambition is paying off. ‘It’s starting to happen,’ van Heerden said proudly. ‘I want to grow so big that I have my own specialized team for dismantling aircraft.’ Not everybody is allowed to dismantle aircraft; one needs special certifications. ‘Even so, there are still aren’t any companies that exclusively dismantle aircraft.’

On-site dismantlement

‘We have an agreement with two airports in different parts of the world, where we will be allocated space to dismantle aircraft when such is necessary,’ van Heerden said. These are Maastricht Aachen Airport (Europe) and Gander International Airport (Canada).

Not all scrapped aircraft can be processed there. ‘A crashed plane is difficult to move. You can’t just put it on the back of a trailer.’ So it must be dismantled on site. ‘Through our network we maintain contacts with scrappers all over the world.’

In many cases, the crash happens on take-off or landing, and an ad hoc dismantlement site is set up at a remote spot on the airport grounds. In that case the site must be made windproof to prevent components from being blown away and ending up in the engine of another plane.



Shears are used to cut aircraft into pieces that the shredder can handle. It's a surprisingly simple process (Photos: AELS)

Reuse

Recycling an aircraft is a lot like recycling a car wreck. First of all, the large components that can be reused in their entirety are removed. 'Examples are good engines or landing gear, but the seats also often find a new life elsewhere.' In fact, van Heerden has a souvenir in his office: two business-class seats from an old plane.

But you have to be careful. Not every part can be taken from one aircraft and simply screwed into or onto another one. Van Heerden explained: 'An aeroplane is not a standard machine, but a product with different components, each of which has its own lifespan. You have to watch that very carefully when reusing parts.'

AELS ensures that the good parts find their way back to the market. 'The recycling process is not finished until a buyer has been found.'

Cutting paper

Once all the usable parts have been removed, the plane is prepared for dismantlement. There are no shredders large enough to handle a Boeing, so the machine is cut up into manageable pieces. 'That's surprisingly easy, particularly if you bear in mind that the plane has transported hundreds of people through the air. The shears slide through the aluminium as if it were paper.' The pieces are collected in a container and taken to the recycling firm for further processing. The usable materials are removed and made ready for reuse. The aluminium from the fuselage and the titanium from the engines are particularly valuable.

'If all the reusable parts find a new destination and the material is processed, almost 90 per cent of the aircraft is recycled,' said van Heerden.

Support

Two years after its establishment, AELS is processing seven aircraft a year. Van Heerden

clarified his ambition: 'We want to do 24 a year. That's one a month at each dismantlement location.' At the moment, about 300 aircraft, each with a capacity of at least 100 passengers, are dismantled every year.

Recycling is starting to attract more attention in the world of aviation. Boeing has set up AFRA (Aircraft Fleet Recycling Association), a network dedicated to gathering knowledge on recycling. AELS is a member of this network. Another large builder – Airbus – started a project named Pamela (Process for Advanced Management of End-of-life Aircraft). The aim of the project is to set up a company that will recycle aircraft parts. But not much has been finalized on paper, said van Heerden: 'At the EASA – the European Aviation Safety Agency – there are filing cabinets full of regulations that you have to comply with during construction. Only one page is about dismantlement.'