

COELUM

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Aircraft Dismantling,
Recycling Industry and
Environmental Impact.

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Pronunciation: 'che-l&m, is Latin for airspace or sky. The Romans began questioning the rights they had in the space above the land they owned and to how high above did that right extended to. Ad coelum et ad inferos, they discussed, meaning that their right of property would extend as high up to the heavens and down to hell.

Aircraft Dismantling, Recycling Industry and Environmental Impact.

by Alejandra Llopis*

It is estimated that 600 aircraft will retire each year worldwide. The usual life expectancy of aircraft has been drastically reduced as more intricate and complex financing structures are available to acquire brand new aircraft, as petitioned by carriers' consumers worldwide. What can we predict from this equation of easy-access to complex financing structures, available for both big and small carriers? We can foresee a drastic reduction in the life expectancy of aircraft, both old and new. The reduction of the time-usage for brand new aircraft may preoccupy the aeronautic sector, for new aircraft designed to last over 25 years will be dumped shortly.

"As aircraft with only 10 to 15 years of life service retire in their earlier service years, the aircraft recycling industry soars".

The usual re-leasing of the aircraft after their first lease may be much harder than it was in the past, as the equation that allows these early-retirement practices, also allows the easy access to new aircraft.¹ This can result in an excess supply of unused aircraft, sponsoring and soaring the aircraft dismantling and recycling industry.²

As the accessibility to new aircraft increases so does the premature retiring of aircraft. Some of them are parked waiting to get back in service while others are parked waiting to be totally scrapped, as their parts are sold separately and others, are simply abandoned. Nowadays there are many options to reuse and recycling aircraft and their parts in an environmentally safe manner.

As aircraft with only 10 to 15 years of life service retire in their earlier service years, the aircraft recycling industry soars. As an estimate of 600 aircraft retire each year, half of them become available for dismantling and recycling.³ Imagine now, that approximately 12,000 aircraft⁴ will be out of service by the year 2034, requiring a strategic and efficient improvement in the global aircraft recycling and storage industry. Approximately more than 150 aircraft are recycled each year, resulting in over 30,000 tons of aircraft aluminum and 600 tons of used aircraft parts to be returned to service each year.⁵

A number of factors go into deciding whether to dismantle an aircraft. For example the maintenance that the aircraft have received must be considered. After a strict and required analysis, the aircraft will be disassembled. It is expected to retrieve around 1000 parts from one single aircraft, however it is estimated that only half of these parts will be recovered from an older aircraft.

Aircraft dismantlers used to wait for an aircraft to reach 20 to 25 years of age, fall out of active service and be parked. However, as older aircraft disassembly results in losing half of the possible parts to recover, and with the availability of early retired aircraft, dismantlers are now purchasing younger, more expensive aircraft, which they believe offer them more opportunities.⁶

*IN COLABORATION WITH MIGUEL RUELAS.

1.- As limited only by the aircraft supply.

2.- Said soaring of the aircraft dismantling and recycling industry may also result in a future excess in the supply for aircraft recycled components, if the access to the market for new aircraft remains.

3.- Information provided by the MRO network. Connecting the global MRO community at the office, in the hangar, on the road. <http://aviationweek.com/mro>

4.- Statistics from the Aircraft Fleet Recycling Association (AFRA) The AFRA is an international non-profit association bringing together different sectors of the aircraft industry. <http://www.afraassociation.org/> Information provided by the Aircraft Fleet Recycling Association through the news of recyclingtoday.com.

5.- <http://www.afraassociation.org/> Information provided by the Aircraft Fleet Recycling Association through the news of recyclingtoday.com.

6.- Information provided by Aircraft Technology Engineering & Maintenance in an article published on May 2014.

The dismantling and recycling of aircraft is fueled by the many possibilities and economic incentives of a disassembled aircraft. For example, carriers can reduce their costs by reusing parts. The rescued parts during this process are repackaged and repurposed, but where is all the recycling process to be held?

“...approximately 12,000 aircraft will be out of service by the year 2034...”

Special programs and Value Added Tax (VAT)⁷ incentives should lure an industry that recycles and promotes environmentally friendly practices. Such is the case of the IMMEX Special Program.⁸ The program allows the temporary importation, subject to the customs authority corresponding authorization, of necessary goods for a particular industrial program and process, exempting it from VAT payment, so long as they are exported back. Despite specific requirements to be eligible to the IMMEX Program and the specific requirements regarding disassembling and remanufacturing industries -which vary on individual cases-, the possibilities and benefits in Mexico are available and substantive.

Environmental Impact

Aircraft dismantling and recycling companies currently handle between 100 and 120 aircraft a year.⁹ Aircraft dismantling is by nature a field that requires extensive care. If handled negligently it can produce devastating environmental effects due to the nature of the materials and parts of the dismantling business. Procedures, must consider the environment and how to remove, recycle and dismantle aircraft using the best environmental practices.

An example of an association worried about the environmental best practice is the Aircraft Fleet Recycling Association. This association is working on limiting the environmental impact and using the best practices for used aircraft parts by regulatory and sustainable developments in the fields of aircraft disassembly, as well as the salvaging and recycling of aircraft parts and materials.

In the specific case of Boeing, which is actually participating in AFRA, it is important to mention that Boeing is committed to reducing the environmental impact by reducing the fuel use, carbon emissions and all measures of sustainability. Boeing has an aircraft lifecycle plan which is focused on reducing manufacturing waste, and is looking for opportunities to increase aircraft recycling when the aircraft is retired.¹⁰

Studies in dismantling matters conclude that incorrect dismantling will result in depleted uranium being mixed in with the scrap metal, resulting in a violation to the standard scrap metal regulations.¹¹ An option to consider the environment in the recycling industry is to provide methods for safe parts recovery and environmentally responsible scrapping and recycling for planes that are not suitable for continued service.

Following the best and safest environmental practices, recycling and dismantling processes will allow dismantling companies to find sustainable solutions.

7.- The Vat is an indirect tax applicable to the consumption of goods and services. The application of VAT in Mexico is subject to the specifications and exceptions foreseen under the VAT Law (Ley de Impuesto al Valor Agregado).

8.- The IMMEX Special Program was published on November 01, 2006 in the Federal Official Gazette (“Diario Oficial de la Federación”) under the Decree for the Promotion of the Manufacturing, Maquiladora and Export Services Industries.

9.- Statistics provided by the Aircraft Fleet Recycling Association.

10.- Published in Boeing news: <http://boeing.mediaroom.com/>

11.- According to the points analyzed by the “Aircraft End of Life Solutions (AELS). It is an AFRA accredited disassembly and dismantling company. Information provided by www.recyclingtoday.com

Drone racing soars as a competitive sport.

Due to the popularity of drones it was decided to carry out the first U.S. national drone racing championships, this event was from July 15 to 17 at the California State Fair. There were 120 pilots from all over the world operating packs of drones. Race director Scot Refsland called the competition "Formula One in the air." He thinks this week's event marks the birth of a brand new sport. www.cbsnews.com July 16, 2015

NASA Completes First Delivery Drones Flight Test.

The first test in the implementation of drones used to deliver packages has just been completed in NASA's Langley Research Center. This revolutionary method of using drones will use the aircraft in order to perform door-to-door deliveries of packages. This first test was really important in order to see the potential that the delivery drones will have in the commercial industry. Despite the signs of potential the tests also demonstrated the shortcomings that this technology could have; mainly weight that the drones can carry and the distance that they can travel. www.avweb.com July 24, 2015.

Mexican President in the trip to France cause Aerospace Industry Investment.

During a recent trip to France Mexican President, Enrique Peña Nieto has showed interest in French companies investing in the Mexican Aerospace Industry. This interest comes from the fact the Mexican Industry exported more than 6.3 billion dollars in 2014. The Aerospace industry in Mexico is one of the most dynamic in the country having now 300 different companies involved in the aerospace business which is 5 more than there were 10 years ago. Peña Nieto stated that that France is welcome to invest in the industry due to the Mexican economy being an open and competitive market. www.maquilaportal.com July 17, 2015.

Aerospace sector, open to FDI: EPN.

Enrique Peña Nieto showed interest in French companies to invest in Mexico, where aerospace industry exported more than US\$6.3 billion in 2014. The president of Mexico explained that there are more than 300 aerospace companies in the country so in the aerospace sector has become one of the most dynamic. Peña Nieto said that Mexico and France have worked together for mutual economic exchanges, achieving that more than 1,600 companies with French capital have been established in Mexico. www.eleconomista.com.mx July 17, 2015.

Solar Powered Aircraft Assembly Begins.

The Sun Flyer is set to be the world's first sun powered aircraft and it has just begun assembly on its first prototype. The prototype is set to be manufactured in two variations: the first with one seat and the second with two seats. The aircraft is expected to be fully electrical with its power source coming from sunlight. It is planned to be used as a training aircraft used to teach pilots how to operate the different aspects of a real aircrafts. There has already been a reported 20 orders for future deliveries from different aircraft training schools. www.generalaviationnews.com July 20, 2015.

Lockheed to acquire Sikorsky helicopter.

Lockheed Martin has entered into a definitive agreement to acquire Sikorsky Aircraft, a world leader in military and commercial rotary-wing aircraft, for \$9.0 billion. This acquisition will help them to extend their core business into the growing areas of helicopter production and sustainment. The deal will be closely watched by US defense authorities, who will want to ensure competition is maintained in the market. Its expected to close by late fourth quarter 2015 or early first quarter 2016. www.aero-news.net July 20, 2015.

Houston to Hold the World's Largest Airport for Space Flights.

Houston, Texas, the State's largest city often associated with Apollo missions and NASA will now hold the largest airport for commercial flights to space. FAA has just approved the construction of a "space airport" for commercial purposes in Ellington Camp, which has been a astronaut training facility for decades. www.aerolatinnews.com July 29, 2015.

Flight MH370 Possible Debris Found.

The 16-month search for Malaysia Airlines Flight 370 (MH370) has been the most extensive, and expensive, operation of its kind in the history of commercial aviation. But in spite of the most sophisticated underwater search machinery available, what looks to be the first piece of wreckage from the Boeing 777-200ER was found by a simpler means—it washed ashore on Reunion Island, a French overseas territory, on July 29. www.aviationweek.com July 31, 2015.

IATA Disapproves of Higher Airport Charges in one of the World's Leading Destinations.

The International Air Transport Association (IATA) criticized the decision by the French Government to allow the operator of Paris-Charles de Gaulle (CDG) and Paris-Orly (ORY) airports to continue increasing airport charges for each year of the 2016-2020 period. The French government's decision ignores the recommendation of the independent Airport Consultative Commission. The Commission concluded that the public interest would be best served by using terminal retail activities of Aéroports de Paris (ADP) to implement annual decreases in charges to airlines over the 2016-2020 period. "Connectivity is critical to modern economies. France is no exception. And making it more expensive at a time when improving competitiveness is a fundamental concern just does not add up. With this decision air travelers will have to reach deeper into their wallets to travel to, from and within France. In parallel, every business that in any way relies on global markets takes a hit as well. I urge the government to reconsider," said Tony Tyler, IATA's Director General and CEO. www.aerolatinnews.com July 31, 2015.

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