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COELUM 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.

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Parts Manufacturer Approval.

A debate on non-original manufacturer parts and this expanding market.

by Svein Azcué

During the current world recession and the continuing increase in the competitive airline markets, the use of the term Parts Manufacturer Approval (“PMA”) has been exponentially increasing with an old debate still lingering in regards to the safety and implications surrounding the use and impact of PMA instead of Original Equipment Manufacturers (“OEMs”). In this edition of Coelum we will explain what the PMA are as well as the issues around the use and acquisition of PMA parts in the world markets.

“It is generally illegal in the United States to manufacture replacement or modification aircraft parts without a PMA.”

What is a PMA?

A PMA is an approval granted by the United States Federal Aviation Administration (“FAA”) to a manufacturer of aircraft parts. It is generally illegal in the United States to manufacture replacement or modification aircraft parts without a PMA (although there are a number of exceptions to this general rule, including parts manufactured to government or industry standards, parts manufactured under technical standard order authorization “TSOA”, etc.). Therefore PMA-holding manufacturers are permitted to make replacement parts for aircraft, even though they may not have been the original manufacturer of the aircraft. To achieve certification, PMA manufacturers must demonstrate that a part is the same in all respects to a design in a type-certificated product and same as or better than the one it seeks to replace.

How to obtain a PMA?

First, the manufacturer-applicant must demonstrate to the FAA that it has a safe design for a specific part. The design must meet the requirements of the FAA’s safety regulations and standards, in all relevant airworthiness characteristics proving through tests that the part directly meets the FAA’s safety standards. The second step in the application process is to seek FAA approval of the manufacturing quality assurance system (known as production approval). Production approval will be granted when the FAA is satisfied that the system will not permit parts to leave the system until the parts have been verified to meet the requirements of the approved design.

The FAA has been granting PMA approvals for third party manufacturers to produce replacement parts for aircraft. Without these PMAs, aircraft parts would be exclusively designed and manufactured by OEMs resulting in a monopoly in the replacement parts market ¹

Background:

Under the Civil Air Regulations, the government had the authority to approve aircraft parts. This authority was found in each of the sets of airworthiness standards published in the Civil Air Regulations. The aircraft parts aftermarket expanded greatly in the 1980s as airlines sought to reduce the costs of spares by finding alternative sources of parts. During this time period, though, many manufacturers failed to obtain PMA approvals from the FAA.

In the 1990s, the FAA engaged in an “Enhanced Enforcement” program that educated the industry about the importance of approval and as a consequence a huge number of parts were approved through formal FAA mechanisms. Under this program, companies that had previously manufactured aircraft parts without PMAs could apply for PMAs in order to bring their manufacturing operations into full compliance with the regulations². This movement brought an explosion of PMA parts to the marketplace. Accomplishing a harmonization of standards was the goal of the Modification and Replacement Parts Association (MARPA)³. This new rule became effective April 16, 2011.

Current debate:

PMA manufacturers state that they provide cost savings of between 30 to 50 per cent in addition to design improvements, while OEMs assert that sticking to their original parts will prove cheaper in the long-term, pointing out the potential risks of using PMA parts. In the last two decades, economic pressures, world recession, AH1N1 virus, volcano eruptions among others, forced airlines to actively seek any cost saving possible, granting PMA manufacturers a chance at market. The FAA insisted all parts needed to be approved, while OEMs started putting information in their maintenance manuals and instructions for continuous airworthiness that was deemed “anti-PMA” raising concerns over the safety of using such parts. Nowadays OEMs have been more cautious in expressing their safety arguments, because in general it has proved to be a non-issue although despite FAA’s best intentions, OEM fears about PMA parts safety still linger and further discussion has revolved around economics and not safety; considering that to OEMs this is their aftermarket⁴.

1.- http://www.faa.gov/aircraft/air_cert/design_approvals/pma/ reviewed on November 26, 2011.

2.- http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1995_register&docid=fr27fe95-2 (60 Fed. Reg. 10480 (February 27, 1995))

3.- Production and Airworthiness Approvals, Part Marking, and Miscellaneous Amendments, 74 Fed. Reg. 53368, 53380 (October 16, 2009)

4.- <http://www.chromalloy.com/files/newspressrelease/b1eb69ba-4746-4910-a056-bae79aabf08a.pdf> (reviewed on November 28, 2011)

Regarding economic considerations, this debate revolves around the immediate short-term savings offered by PMA parts, as opposed to the OEMs' long-term benefits. Many contracts in the industry prevalent in the Lessor community do not allow the use of PMA parts looking to protect and maintain aircraft liquidity, re-marketability and residual value⁵.

A point that has aroused certain discussion has come from the use of mixture parts that have resulted in design changes being introduced to engines that were operated under conditions that had not and maybe could not have been evaluated, resulting in failure of operation and therefore a questioning of the system interactions to maintain the engine's airworthiness in accordance to its design, excluding mixed configurations.

PMA expansion:

There has been much more interest in PMA parts from South East Asia, Europe and South America with potential customers finding benefits from cost savings and service provided by PMA manufacturers. Considering that the world recession has had a significant impact in the acceptance of PMA as airlines can no longer forego the savings provided by these parts, forcing airlines from Europe, Asia and Middle East to take a second look, while making the great PMA debate go global.

Traditionally PMAs were associated with the engines, but nowadays it is possible to find PMA parts available for almost every part of the aircraft. This expansion has been guided by customer demand separating from its original focus on high volume parts only, without disregarding that engine PMA parts will always be the primary focus.

Conclusions:

The increased competitiveness of the OEMs is a good thing for the free market. Customer's rights to choose between using OEM and PMA parts is a major development in driving competition, and in turn innovation. The seek to block competition may result in a disadvantage for the aircraft operators in their service expenses and the market would only benefit from healthy competition balance. There will always be a place for PMA manufacturers as OEMs compete aggressively for market share which in turn poses challenges for PMA manufacturers. This is great for the market as customers will always demand that industry to improve its offerings.

The PMA debate will rumble on as the world becomes a potential market for PMA manufacturers even with the OEM high competitiveness. It is a good time to be in the PMA business as all manufacturers will work to succeed in a legitimate way to create a healthy competition for all parties.

5.- Idem

The Rail Industry's Environmental Impact.

by Roberto Nájera.

As we know, global warming has become an important issue for most countries. This has caused major changes in all areas of development including transportation.

It is true that air transport is one of the main contributors to global warming and that is why it is now necessary to develop new transportation alternatives. One of these alternatives is an efficient railroad system that would generate profits, resources and savings of money and time. However the main reason is a significant decrease of CO₂¹ emissions. In this article the author will discuss the advantages and importance of this environmentally friendly transportation.

Green transport will make a carbon footprint² reduction.

In order to stop global warming, there are many necessary small and individual efforts we need to make to reach a significant carbon footprint reduction. This is a measure of the impact that our daily activities have on the environment, measuring all greenhouse gases³ that we individually produce in units of equivalent carbon dioxide kilograms or tons.

“...traveling by train instead of by air cuts CO₂ emissions per passenger by an overwhelming 90%.”

Green transport, such as the new diesel-electric railways, make a significant decrease of direct emissions of CO₂ from the burning of fossil fuels, and will give a carbon footprint reduction from each passenger using this kind of transport. For example, the European Rail Company, Eurostar, undertook research about the CO₂ produced by a London-Paris Eurostar journey versus a London-Paris flight. The final results concluded that a London-Paris Eurostar journey produces 22kg of CO₂ for each passenger, while a London-Paris Flight produces 224kg of CO₂ for each passenger. This means that traveling by train instead of by air cuts CO₂ emissions per passenger by an overwhelming 90%.

These facts are astonishing and support the idea that sustainable development is possible if each passenger is aware of the consequences of his actions and support these green alternatives to travel without sacrifice of his personal time, money and resources as shown below.

1.- Every time we burn fossil fuels such as gas, coal or oil, carbon dioxide is released into the atmosphere. <http://thecarbonaccount.com>

2.- A 'carbon footprint' measures the total greenhouse gas emissions caused directly and indirectly by a person, organization, event or product. <http://thecarbonaccount.com>

3.- Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆). <http://thecarbonaccount.com>

Environment is equally important as time.

For those who consider that travel time is more important than the environment, we have a great announcement to make. The time when railways were slow is gone. Nowadays people consider that their time is more important than anything else so for that reason people choose a plane instead of a train because they mistakenly think a flight will reduce their time travel. They are not aware that in most of cities, airports are located at least 45 minutes from downtown, then airport check-ins are time-consuming and travelers have to be in the airport two or three hours before their flight even if their **flight** will take only an hour. It is ironic that air travelers spend more time in a car, in a check-in line or in a gate than traveling on a plane to their final destination.

Calculations from the Spanish rail company, RENFE⁴, for example show that high-speed trains from Madrid to Valencia take one hour and forty minutes to travel 357 kilometers, while by bus or by plane (considering the aforementioned airport obstacles) takes at least 3 hours. High speed train from Madrid to Barcelona takes two hours and forty minutes to travel 628 kilometers, which by car or by bus can take more than five hours. It is important to mention that train stations are located mostly in downtowns so we can forget city-airport trails and save some time and money while protecting the environment.

“Green alternatives do not exist only for the reason of protecting our planet. They also allow saving of resources and a lot of money.”

Saving resources is saving money.

Green alternatives do not exist only for the reason of protecting our planet. They also allow saving of resources and a lot of money.

For example, in 2009, KCSM⁵ renovated twelve green locomotives that now save 25% on fuel, reduce lubricating oil use by 50% and emissions of greenhouse gases by 70%. These green rail machines saved 155.6 hundred liters of fuel per month, avoiding the generation of 197 thousand tons of greenhouse gases. These significant savings have allowed the KCSM Company to invest more economic resources here in México.⁶

4.- RENFE is the state-owned passenger and freight rail transport operator in Spain

5.- Kansas City Southern Mexico, one of the three main lines of the Mexican railway system, part of the Kansas City Southern (KCS) Group with over 120 years in the railroad transportation business in North America.

6.- Business without borders, José Zozaya, Kansas City Chief Executive Officer.

Another great example is New Delhi's subway; the first railway project incorporated into the United Nations Framework Convention on Climate Change⁷, which has invested in Bombardier's new propulsion technology that allows energy savings of 30%. This reduction of contaminant emissions allowed the Delhi Metro Rail Corporation to obtain 308.000 Euros worth of carbon credits under the Certified Emission Reductions Plan (CER's). This initiative, supported by the United Nations to fight climate change, recognizes those projects capable of decreasing their carbon footprint and allows their owners to accrue carbon credits for each ton of CO2 saved. These credits can be commercialized and transformed into money.

This kind of initiative would help a lot in México because there is a lack of railway infrastructure, so if the Mexican government wants to invest in rail it would be desirable that the project be attached to the United Nations Framework Convention on Climate Change.

Mexico's Challenges

Mexico needs to extend its transportation system. It is true that Mexican government has invested in highways and airports but is also necessary to open new ways of transportation; specifically a train system. Today Mexican the railroad system does not have an efficient, up to date infrastructure to transport people.

2012 is a presidential election year in Mexico. A great candidate proposal could be the modernization of the railroad system. This proposal could be an excellent combination of benefits that would generate jobs in every state, would increase tourism and would allow for a major reduction of auto transport on highways and in cities, causing an immediate impact of lower CO2 emissions.

Therefore we can conclude that the entire world should consider rail systems as an important mode of transport. Cities would be able reduce car traffic, people would walk to their jobs, investors would save money and the most important thing, pollution would be reduced, causing an immediate positive impact on the environment.

As mentioned above, in Mexico the rail industry is not as strong as the air transport industry because it is an industry that has been forgotten over the years. It is possible certain however that next year the government will take care of this important matter in order to avoid emission problems that are disturbing our environment and that are affecting all aspects of transportation.

7.- The Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases.

The Aviation Decadence.

The last decade, has been by far the worst seen in Mexican Aviation industry. Nonetheless, the global picture indicates that over the next 20 years Mexican aviation will grow rapidly, calculating that almost 412 new aircraft will be needed. Problem is, Mexico has lost the opportunity to grow all this time, because of political indulgences, wrong management of airlines, airport and public services. Mexico should take advantage of the worldwide growth of the industry to take a leap and renew the industry. *La Crónica. 01/November/11.*

Tijuana suffers the lowest airline traffic.

Tijuana's International Airport, considered as one of the 5 most important airports in Mexico, is losing national and international passenger traffic because of route cancellation by airlines. Tijuana has lost more than 142 thousand passengers through this year. One of the factors of this decrease is Mexicana Airlines shutdown. *Reforma. 07/November/11.*

Congress of the Union received Mexicana Airlines leaders.

Due to the failure to present resources to rescue Mexicana Airlines, the Union leaders will be received by the Congress of the Union to discuss the matter. A few days before Ivan Baron a shows irrefutable evidence to the judge that credits the existence of the resources to rescue Mexicana Airlines, the leaders are pressuring the Congress not to remove the judge, as rumor has it. *Reforma. 17/November/11.*

Recognize aircraft inspection backlog.

The Director of Air Security of Civil Aviation acknowledged that despite the progress in recent months on administrative matters, there are still delays in this area and part of them will be resolved with the next publication of the new aviation policy. The document adds the three-level international modifications made in the last seven years and which are not in the General Aviation Act in Mexico. *El Economista. 24/November/11.*

The country is attractive to foreign airlines.

Mexico remains in the "top mind" of tourists and tour operators from Europe, North and South America, therefore is one of the more attractive countries to airlines around the world. The vice president of marketing and sales of AviancaTaca, revealed that the airline brings aggressive expectations to grow its presence in Mexico and said that in early 2013 will increase a couple of routes and frequencies to the country. *El Universal. 28/November/11.*

“Safe Pilot Program”.

The Airline Pilots Association said that since the terrorist attacks of 2001, the global aviation has become more complex for travelers. The Mexican Airline Pilots Association of Mexico is working on a program called “Safe Pilot” in which the commanders of the airlines affiliated with this organization will have access to airports by security filters in order to expedite their entry, said the expert technical committee of that agency. In an interview, the pilot explained that since the terrorist attacks of 2001, the aviation in the world has become more complex for passengers and crews, as the assaults and threats proliferate in aviation have forced governments, airports and airlines to develop security systems although can saturate terminals and are uncomfortable for passengers. “It is still in conceptual stage but it is a program similar to the “Known Crew” and the “Known Passenger” already running on other parts of the world. *Reforma. 29/November/11.*

Puebla Airport is temporarily closed: SCT.

With the dissolution and liquidation of the state’s airport’s operator, the business under the concession of the international airport “ Hermanos Serdan” of Puebla, the Ministry of Communications and Transports, informed that the operations of the terminal will be temporarily suspended. Through a statement, the SCT reported that on November 28, 2011 was notified the decree issued by the government of Puebla, whereby, in exercise of its faculties, it was determined to dissolve the partnership with the employer Ricardo Henaine Mezher. According with the article 6, fraction II, from the Airports Law, this Ministry temporarily assumed the Airport management until the Federal Government grants a new concession. *Milenio. 30/November/11.*

AICM is rehabilitated to correct flaws.

After the investigation and evaluation made to the electric systems of the International Airport of Mexico by the blackout suffered last September 28, the General Directorate of the Airport Group that controls this air terminal contemplates to conduct “emergency works” to rehabilitate the critical electric circuits of visual aids and ancillary works in the operational area to ensure safe aircraft operations of takeoff and landing at the airport. The project manager and general manager adjunct of the capital’s airport, commented that the cost of the rehabilitation work will be 25.9 million pesos of exercising in the remainder of the year 2012. *El Universal. 30/November/11.*

In this month extract was prepared by Jessi Saba and Vera García.

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