

Press release

Constellium partners with Dassault Aviation to develop the “Eco-Efficient Aluminum for Aircraft” Project within the Clean Sky Research Programme

Paris, October 27, 2011: The European Programme Clean Sky has officially launched the “Eco-Efficient Aluminum for Aircraft” (ECEFA) project resulting from a Call for Proposal of the Eco-Design for Airframe Integrated Technology Demonstrator (ITD)* coordinated by Dassault Aviation.

ECEFA will develop an advanced aluminum product primarily for civil aircraft fuselage skin applications. With a starting point of 10% density reduction compared to current solutions, this new product is expected to offer further weight savings through design re-optimization. It also offers both physical and mechanical performances allowing for significantly reduced fuselage wall thickness, durability of the aerostructure and use of eco-friendly surface treatments. The project is conducted at Constellium’s Research Centre in Voreppe, France.

The overarching target of Clean Sky, through its €1.6 billion (\$2.2 billion) public-private research effort, is to provide solutions which minimize the impact of aviation on the environment. “The ECEFA project represents a step change in terms of eco-efficient airframe. Aluminum can make the difference” says Christophe Villemin, President of Constellium's Global Aerospace Division.

Clean Sky-supported innovations are notably designed to meet recommendations from the Advisory Council for Aeronautics Research in Europe (ACARE) to lower CO₂ emissions. In that specific regard, weight performance is considered a critical area of research and improvement. “The ECEFA project is rightly seen as a benefit for OEMs, as it addresses increased eco-efficiency requirements while offering other significant advantages, such as the reduction of maintenance operations,” adds Villemin.

ECEFA’s total budget amounts to €473,000 and is supported by Clean Sky at 50%. Following lab trials and two initial campaigns at industrial scale, ECEFA’s ambition is to increase proposed technology readiness. A series of tolerance tests shall be conducted in order to better understand its potential and ability to meet airframers’ requirements.

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About Constellium

Constellium is a global sector leader that develops innovative, value added aluminium products for a broad scope of markets and applications, including aerospace, mass transportation, automotive, packaging, energy and building and construction.

With 9,500 employees located in 26 countries and a commercial presence in more than 60 markets, Constellium is structured in 4 divisions: Global ATI, Specialty Sheet, Extrusions & Automotive Structures and its international trading network AIN. Constellium, with headquarters in Paris, is owned by Apollo Management (51%), Rio Tinto (39%) and the "Fonds Stratégique d'Investissement" FSI (10%). Constellium generated US\$ 4.4 billion of revenue in 2010.

www.constellium.com

About Dassault Aviation

Dassault Aviation is one of the major players in the global aviation industry. A reasonably sized and financially secure private international group, with a presence in more than 70 countries across 5 continents, Dassault Aviation has been profitable ever since its creation in 1936.

www.dassault-aviation.com

About Clean Sky

Clean Sky, a Public Private Partnership between the European Commission and the Aeronautical Industry, was set up to bring significant step changes regarding the environmental impact of aviation. Clean Sky will speed up technological breakthrough developments and shorten the time to market for new and cleaner solutions tested on full scale demonstrators, thus contributing significantly to reducing the environmental footprint of aviation (i.e. emissions and noise reduction but also green life cycle) for our future generations.

Clean Sky is made up of 6 Integrated Technology Demonstrators.

- **SMART Fixed Wing Aircraft** will deliver active wing technologies and new aircraft configuration for breakthrough, news products.
- **Green Regional Aircraft** will deliver low-weight aircraft using smart structures, as well as low external noise configurations and the integration of technology developed in other ITDs, such as engines, energy management and new system architectures.
- **Green Rotorcraft** will deliver innovative rotor blades and engine installation for noise reduction, lower airframe drag, integration of diesel engine technology and advanced electrical systems for elimination of noxious hydraulic fluids and fuel consumption reduction.
- **Sustainable and Green Engines** will design and build five engine demonstrators to integrate technologies for low noise and lightweight low pressure systems, high efficiency, low NOx and low weight cores and novel configurations such as open rotors and intercoolers.
- **Systems for Green Operations** will focus on all-electrical aircraft equipment and systems architectures, thermal management, capabilities for "green" trajectories and mission and improved ground operations to give any aircraft the capability to fully exploit the benefits of Single European Sky.
- **Eco-Design** will focus on green design and production, withdrawal, and recycling of aircraft, by optimal use of raw materials and energies thus improving the environmental impact of the whole products life cycle and accelerating compliance with the REACH directive.

* **The Eco-Design Integrated Technology Demonstrator** is led by Dassault Aviation (Coordinator) and Fraunhofer Gesellschaft. Other members of the consortium are:

- Aircraft manufacturers: Airbus, AgustaWestland, Alenia, Eurocopter and EADS CASA
- Systems suppliers: Safran, Thales and Liebherr
- Six associates selected to participate on Eco-Design for Airframe all along the duration of Clean Sky:
 - Four companies: EADS France, EADS Deutschland, HAI (Hellenic Aircraft Industry) and IAI (Israel Aircraft Industries)
 - Two clusters: the Netherland Cluster led by Fokker Aerostructures BV and a cluster led by RUAG Switzerland Ltd
- Partners committed to a limited period of the project, selected through calls for proposals.

www.cleansky.eu