PROJECT

ANTIFOD

A New proTection device for FOD

Funding: European (Horizon 2020)
Duration: Nov 2018 - Oct 2020
Status: Ongoing
Total project cost: €1,437,109
EU contribution: €1,361,570

Call for proposal: H2020-CS2-CFP07-2017-02
CORDIS RCN : 218629

Objectives:

The main objective of this innovation action is to develop a Foreign Object Debris (FOD) protection device applied to an electrical ECS fresh air inlet, validated to TRL5. This will be achieved through the following two-stage design process, each with their own secondary objectives:

1. Preliminary design, which aims to:
   - capture the top-level requirements through a survey of the user needs and used to develop a set of baseline candidate concepts.
   - use innovative design methods to conduct a concept study.
   - verify prototypes rapidly using a combination of CFD and additive manufacturing, as measured by comparing calculated separation efficiency and pressure loss.
   - refine the highly ranked concepts via a trade-off study and determine the best suited solution that meets all the top-level requirements, measured through a scoring system.
   - produce a preliminary design from the winning concept, including feasibility study, sensitivity analysis, risk assessment, and system requirements report, measured through a preliminary design review (PDR) which demonstrates compliance with the user needs.

2. Detailed design, which aims to:
   - define an aerodynamic geometry for the intake protection and FOD separation device which demonstrably meets the relevant requirements and integrates with the mechanical interfaces of the existing intake scoop inlet, scoop ducting and eECS inlets, and is measured through Wall-Modelled LES simulations.
   - produce a detailed design and subsequent manufacture of the full-scale intake protection and FOD separation device.
   - design a test bench to validate the intake protection and FOD separation device.
   - deliver a final full-scale working prototype to the Topic Leader which demonstrably meets the user needs, as measure.

Parent Programmes:
H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport

Institute type: Public institution
Institute name: European Commission
Funding type: Public (EU)
Other programmes: JTI-CS2-2017-CfP07-SYS-02-45 Development of a Foreign Object Debris (FOD) protection device applied to an electrical ECS fresh air inlet.

Lead Organisation:

Universitat Politecnica De Catalunya
Partner Organisations:

**Particle Technology Limited**

**Address:**
PENNINE HOUSE 8 STANFORD STREET
NOTTINGHAM
NG1 7BQ
United Kingdom

**EU Contribution:** €80,988

**Manchester Metropolitan University**

**Address:**
All Saints Building, Oxford Road
MANCHESTER
M15 6BH
United Kingdom

**Organisation Website:**
http://www.mmu.ac.uk

**EU Contribution:** €440,255

**Aircraft Research Association Limited**

**Address:**
Manton Lane
Bedford
MK41 7PF
United Kingdom

**Organisation Website:**
http://www.ara.co.uk

**EU Contribution:** €505,986

**Termo Fluids Sl**

**Address:**
CARRER MAGI COLET 8
08204 SABADELL
Spain

**Organisation Website:**
http://www.termofluids.com

**EU Contribution:** €95,270

**Technologies:**

Aircraft operations and safety
Debris sheilding

**Development phase:** Demonstration/prototyping/Pilot Production
STRIA Roadmaps: Vehicle design and manufacturing
Transport mode: Air transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Safety/Security
Geo-spatial type: Other