

Subject: Super Absorbent Polymers Contamination of Jet Fuel

Revision:

This SIB revises EASA SIB 2018-10 dated 19 July 2018.

Ref. Publications:

- Joint Inspection Group (JIG) [Bulletin 105](#) – Filter Monitors, dated 11 December 2017.
- International Air Transport Association Super-absorbent Polymer Special Interest Group - [Data summary and proposed roadmap](#).
- Airlines for America (A4A) [Bulletin 2018.1](#) – Update on ATA103 Requirements for Filter Monitors, dated 05 June 2018.
- Federal Aviation Administration (FAA) [SAIB HQ-18-17R1](#) – Engine Fuel and Control – Filter Monitor Media Migration, dated 09 October 2020.
- [Joint Industry Field Trials: Impacts of the COVID-19 Crisis and Withdrawal of EI1583 Specification](#), dated 26 May 2020.
- JIG [Bulletin 130](#) – Introducing Dirt Defence Filtration in the JIG Standards, dated 20 August 2020.
- JIG [Bulletin 132](#) – Phase Out of Filter Monitors from the JIG Standards, dated 19 October 2020.
- A4A [Bulletin 2020.3](#) – Dirt Defense Filtration with Electronic Water Sensors, dated August 2020.

Applicability:

Competent authorities, aircraft operators, aerodrome operators, Continued Airworthiness Management Organisations (CAMO) and Approved Maintenance Organisations (AMO).

Description:

There have been several events of engine power fluctuations or other occurrences as described in the reference publications that were caused by deposits of Super Absorbent Polymers (SAP) in the aircraft/engine fuel system.

These problems are assumed to be caused by a migration of SAP out of filtration devices (filter monitors) that are used in the fuel supply chain to the aircraft. Aircraft and engine type certificate holders consider the presence of SAP in fuel to be a potential flight safety issue and cannot endorse a level of SAP that is acceptable in fuel.

The aim of this SIB is to enhance awareness of aircraft and aerodrome operators of the risks associated with SAP in jet fuel, to inform about on-going industry actions on the matter and to provide recommendations for the purpose of mitigating the associated risks.

This is information only. Recommendations are not mandatory.



On-going industry actions

Short term (see JIG Bulletin 105 for details):

- Replacement of filter monitors operating at a differential pressure (DP) of greater than 1.0 bar (15 psi) at max achievable flow with [EI 1583](#) 7th edition models.
- Limitation of the operational DP for all filter monitors to max 1.0 bar (15 psi), at maximum achievable flow. Using of DP limiting devices with an activation point set at 1.0 bar (15 psi).
- Using of 100 mesh hose-end strainers on fuelling equipment fitted with filter monitors.
- Introduction of a new protocol for inspection and cleaning hose-end strainers, as part of commissioning of new filter monitors on fuelling equipment and the routine strainer check procedure.
- Conversion of filter monitor vessels back to [EI 1581](#) 6th edition filter water separators, where possible.
- Replacement of all bespoke filter monitor systems using elements with In-to-Out direction of flow, by filter water separator filtration systems.

Long term:

Replacement of all existing filter monitor systems with alternative filtration options, following an extended qualification and field trial programme being undertaken by the industry. See Joint Industry Field Trials: Impacts of the COVID-19 Crisis and Withdrawal of EI1583 Specification, JIG Bulletin 130 and A4A Bulletin 2020.3 for additional information.

Initially the replacement of all existing filter monitor systems (long term action) was targeted to be carried out before end of 2020. However, due to certain delays the transition period may need to be extended in some locations.

At this time, the safety concern described in this SIB is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under Regulation (EU) [748/2012](#), Part 21.A.3B., nor Safety Directive (SD) action under Regulation (EU) [965/2012](#), Annex II, ARO.GEN.135(c), nor SD action under Regulation (EU) [139/2014](#), Annex II, ADR.AR.A.040.

Recommendation(s):

Aircraft operators, CAMOs, and AMOs should be aware that SAP in jet fuel can cause engine in-flight shutdowns or operational problems, and are advised to:

- Take note of the content of this SIB and the reference documents.
- Include general consideration of SAP contamination of jet fuel in their Safety Management System and in particular risk assessment of the continued use of filter monitors even after 2020, when refuelling at aerodromes outside the European Union.
- Report any events related to SAP contamination to the engine and aircraft type certificate holders, to the fuelling service provider and to the competent authority.
- Monitor the evolution of the ongoing industry actions, review the resulting publications and comply with any future deadlines set by the Standards bodies such as [JIG](#).

Aerodrome operators are advised to follow the recommendations of the JIG Bulletins 105, 130 and 132.

Competent authorities should consider this SIB as part of the continuing oversight of applicable organisations.

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Contact(s):

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Page 3 of 3