



## Airworthiness Directive

**AD No.:** 2019-0159

**Issued:** 05 July 2019

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

This AD issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

### Design Approval Holder's Name:

AIRBUS

### Type/Model designation(s):

A380 aeroplanes

**Effective Date:** 19 July 2019

**TCDS Number(s):** EASA.A.110

**Foreign AD:** Not applicable

**Supersedure:** This AD supersedes EASA AD 2018-0215 dated 05 October 2018.

## ATA – Aircraft Flight Manual – Fuel Quantity Indication System Procedure – Amendment

### ATA 28 – Fuel – Fuel Quantity and Management System Software – Update

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#### Manufacturer(s):

Airbus

#### Applicability:

Airbus A380-841, A380-842 and A380-861 aeroplanes, all manufacturer serial numbers, except those on which Airbus modification (mod) 77964 and mod 77965 have been embodied in production.

#### Definitions:

For the purpose of this AD, the following definitions apply:

**The AFM TR:** Airbus A380 Aircraft Flight Manual (AFM) Temporary Revision (TR) 205 issue 1.

**The SB:** Airbus Service Bulletin (SB) A380-28-8068.

**Affected SW:** Fuel Quantity and Management System (FQMS) software (SW), standard S4.2, Part Numbers (P/N) identified as "OLD PART N<sup>o</sup>" in section 1.1.L of the SB, and earlier approved SW standards and earlier P/N.



**Serviceable SW:** FQMS SW standard S4.3, P/N identified as “NEW PART N<sup>o</sup>” in section 1.L of the SB, or a later approved SW standard and later P/N.

**Groups:** Group 1 aeroplanes are those that have affected SW installed. Group 2 aeroplanes are those that have serviceable SW installed.

**Reason:**

During a pre-departure check of an A380 aeroplane, a difference was noticed between the fuel on board (FOB) indicated on the system display after refuelling, and the sum of the initial FOB plus the fuel uplifted from the refuelling bowser. The investigation results indicated that a wrong signal from a refuel isolation valve (valve indicated in closed position, whereas the valve was actually open during refuelling) had caused this mismatch, which may have been due to contamination of the affected valve position sensor. This wrong signal triggered the system to use the fuel density determined during a previous flight for computation. If the real fuel density after the latest refuelling is different from the previously determined fuel density, the resulting fuel weight indication may show a discrepancy that is potentially above the allowable limits.

This condition, if not corrected, could lead to an undetected fuel computation error and subsequent upload of insufficient fuel, possibly resulting in fuel starvation and consequent reduced control of the aeroplane.

To address this potential unsafe condition, as an interim action, Airbus issued the AFM TR to introduce a comparison of the indicated FOB displayed after the refuelling with the sum of the initial FOB plus the fuel uplifted from the refuelling bowser. Consequently, EASA issued AD 2018-0215 to require amendment of the applicable AFM, Section Normal Procedures, pre-flight checks/fuel system, to include a quantified tolerance for the indicated FOB cross check with the uplifted fuel.

Since that AD was issued, Airbus developed mod 77964 and mod 77965 to install improved FQMS SW standard S4.3, and published the SB to provide installation instructions. This SW update corrects the fuel quantity indication over-read issue and allows removal of the AFM TR from the AFM of the aeroplane.

For the reasons described above, this AD retains the requirements of EASA AD 2018-0215, which is superseded, excludes aeroplanes that embody Airbus mod 77964 and mod 77965 in production, and requires a SW standard update of the FQMS which allows removal of operational procedure previously introduced by the AFM TR. This AD also prohibits installation of previous FQMS SW standards.

**Required Action(s) and Compliance Time(s):**

Required as indicated, unless accomplished previously:

**AFM Amendment:**

- (1) For Group 1 aeroplanes: Within 30 days after 19 October 2018 [the effective date of EASA AD 2018-0215], amend Section Normal Procedures, pre-flight checks/fuel system of the applicable AFM to incorporate the AFM TR, inform all flight crews, and, thereafter, operate the aeroplane accordingly.



- (2) Amending the applicable AFM to incorporate later AFM revisions, which include the AFM TR, as required by paragraph (1) of this AD, is an acceptable method to comply with the requirements of paragraph (1) of this AD.

**Modification:**

- (3) For Group 1 aeroplanes: Within 18 months after the effective date of this AD, install serviceable SW, as defined in this AD, in accordance with the instructions of the SB.

**Concurrent Requirements:**

- (4) For Group 1 aeroplanes that do not have Airbus mod 75860 and mod 75877 (SW standard S4.2) embodied in production: Prior to, or concurrently with, the modification as required by paragraph (3) of this AD, modify the aeroplane in accordance with the instructions of Airbus SB A380-28-8048.
- (5) For Group 1 aeroplanes that do not have Airbus mod 78017 (Central Maintenance System Tuning File Batch058\_B) embodied in production: Prior to, or concurrently with, the modification as required by paragraph (3) of this AD, modify the aeroplane in accordance with the instructions of Airbus SB A380-45-8027.
- (6) For Group 1 aeroplanes that do not have Airbus mod 76598 (Avionic Batch 6) embodied in production: Prior to, or concurrently with, the modification as required by paragraph (3) of this AD, modify the aeroplane in accordance with the instructions of Airbus SB A380-42-8031.

**AFM Change:**

- (7) After modification of an aeroplane as required by paragraph (3) of this AD, the operational procedure of the AFM TR is no longer necessary and can be removed from the AFM of that aeroplane.

**SW Installation:**

- (8) Do not install on any aeroplane affected SW, as defined in this AD, as required by paragraph (8.1) or (8.2) of this AD, as applicable.

(8.1) Group 1 aeroplanes: After modification of the aeroplane as required by paragraph (3) of this AD.

(8.2) Group 2 aeroplanes: From the effective date of this AD.

**Ref. Publications:**

Airbus A380 AFM TR 205 issue 1, EASA approval date 22 June 2018.

Airbus SB A380-28-8048 original issue dated 22 October 2015.

Airbus SB A380-28-8068 original issue dated 29 January 2019.

Airbus SB A380-42-8031 original issue dated 05 April 2018, or Revision 01 dated 03 December 2018.

Airbus SB A380-45-8027 original issue dated 30 October 2018.



The use of later approved revisions of the above-mentioned documents is acceptable for compliance with the requirements of this AD.

**Remarks:**

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. This AD was posted on 05 June 2019 as PAD 19-101 for consultation until 03 July 2019. No comments were received during the consultation period.
3. Enquiries regarding this AD should be referred to the EASA Programming and Continued Airworthiness Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#).
5. For any question concerning the technical content of the requirements in this AD, please contact: AIRBUS - EIANA (Airworthiness Office), E-mail: [account.airworth-A380@airbus.com](mailto:account.airworth-A380@airbus.com).

