



Airworthiness Directive

AD No.: 2017-0064R2

Issued: 19 April 2018

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

This AD is 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 (EC) 216/2008, Article 14(4) exemption].

Design Approval Holder's Name:

SAFRAN HELICOPTER ENGINES

Type/Model designation(s):

ARRIEL 1 engines

Effective Date: Revision 2: 19 April 2018
Revision 1: 27 June 2017
Original issue: 14 April 2017

TCDS Number(s): EASA.E.073

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2017-0064R1 dated 27 June 2017. The original issue of this AD superseded EASA AD 2017-0019R1 dated 22 February 2017.

ATA 73 – Engine Fuel & Control – Drain Valve Assembly – Inspection / Replacement

Manufacturer(s):

SAFRAN Helicopter Engines, S.A. (formerly Turbomeca, S.A.)

Applicability:

ARRIEL 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E2, 1K, 1K1, 1S and 1S1 engines, all serial numbers.

These engines are known to be installed on, but not limited to, Airbus Helicopters (formerly Eurocopter, Eurocopter France, Aerospatiale) AS 350 B, BA, BB, B1 and B2, AS 365 and SA 365 (all models, except AS 365 N3), Airbus Helicopters Deutschland (formerly Eurocopter Deutschland, Messerschmitt-Bölkow-Blohm) MBB-BK117-C1 and -C2, Leonardo (formerly AgustaWestland, Agusta) A 109 K2, and Sikorsky S-76A helicopters.

Reason:

Some fuel leaks were reported originating from the drain valve (DV) assembly on certain ARRIEL 1 engines. Investigation results revealed that these fuel leaks had been caused by a non-compliant diaphragm holes position.



This condition, if not detected and corrected, could lead to fuel spraying on engine hot section and fire, possibly resulting in a commanded in-flight shut-down with consequent emergency autorotation landing on single engine helicopter.

To address this potential unsafe condition, SAFRAN Helicopter Engines published Mandatory Service Bulletin (MSB) 292 73 0851, providing instructions for identification of the affected DV, temporary measures (wrapping) and repetitive inspections, and removal from service of the affected DV.

Consequently, EASA issued Emergency AD 2017-0019-E (later revised) to require replacement of the affected DV, or wrapping and repetitive inspections, pending replacement of the affected DV. After that AD was issued, SAFRAN Helicopter Engines developed a new alternative solution to the DV replacement and published MSB 292 73 0851 version B for in-service introduction of that alternative. Consequently, EASA issued AD 2017-0019R1 to introduce the wrap of the affected DV with heat-shrinkable tubing, as a new alternative method, pending DV replacement.

After that AD was issued, additional fuel leak events were reported on DV assemblies which were equipped with compliant diaphragm holes positions. Subsequent investigation results revealed that these fuel leaks were actually caused by the fact that the diaphragm of the affected DV is more sensitive to operation stress than the previous design diaphragm.

To address this potential unsafe condition, SAFRAN Helicopter Engines published MSB 292 73 0853, providing instructions to identify, inspect and correct the affected DV.

Consequently, EASA issued Emergency AD 2017-0064-E (later revised), superseding AD 2017-0019R1, to require a one-time visual inspection of the affected DV, followed by repetitive inspections and, depending on findings, accomplishment of applicable corrective action(s). This AD also provided a list of DV, which were not affected by the unsafe condition addressed by this AD.

Since EASA AD 2017-0064R1 was issued, SAFRAN Helicopter Engines developed mod TU386, introducing a DV with an improved brown diaphragm and issued Service Bulletin (SB) 292 73 0386 providing instructions for in-service installation of post-mod TU386 DV on an engine.

This AD is revised to introduce mod TU386 as optional terminating action for the repetitive inspections required by this AD.

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

Required as indicated, unless accomplished previously:

Note 1: SAFRAN Helicopter Engines MSB 292 73 0853 (any version) is hereafter referred to as 'the MSB' in this AD.

Note 2: For the purpose of this AD, an affected DV, equipped with a blue diaphragm Part Number (P/N) 9 164 95 002 0 and therefore subject to inspections and wrapping, is a DV manufactured, repaired or overhauled on or after 01 January 2016, except those listed in Appendix 1 of this AD.



Note 3: For the purpose of this AD, a serviceable DV is an unaffected DV (see Note 2 of this AD) or an affected DV that is wrapped and leak-free in accordance with the instructions of the MSB, or a DV listed in Appendix 1 of this AD, or post-mod TU386 DV equipped with brown diaphragm.

Note 4: The MSB introduces an extended service limit for certain DV that are not subject to the inspections and wrapping. This AD does not impose that limit.

Inspection:

- (1) Within 10 flight hours (FH) or 7 days, whichever occurs first after 14 April 2017 [the effective date of the original issue of this AD], visually inspect the affected DV in accordance with the instructions of the MSB.

Corrective Action(s):

- (2) If, during the inspection as required by paragraph (1) of this AD, a fuel leak is detected, before next flight, replace the affected DV with a serviceable DV (see Note 3 of this AD) in accordance with the instructions of the MSB.
- (3) If, during the inspection as required by paragraph (1) of this AD, no fuel leak is detected, before next flight, wrap the affected DV with a self-amalgamate tape or with a heat shrinkable tubing in accordance with the instructions of the MSB.

Repetitive Inspections:

- (4) Before next flight after wrapping of an affected DV, as required by paragraph (3) of this AD, and, thereafter, before each first flight of the day, inspect the affected DV in accordance with the instructions of the MSB.

Corrective Action(s):

- (5) If, during any inspection as required by paragraph (4) of this AD, a fuel leak is detected, before next flight, replace the affected DV with a serviceable DV (see Note 3 of this AD) in accordance with the instructions of the MSB.
- (6) If, during any inspection as required by paragraph (4) of this AD, the wrapping is found defective, before next flight, remove the wrap and re-wrap the affected DV in accordance with the instructions of the MSB.

Credit:

- (7) Inspections and corrective actions (including any wrapping of a DV) on an engine, accomplished before 14 April 2017 [the effective date of the original issue of this AD] in accordance with the instructions of SAFRAN Helicopter Engines MSB 292 73 0851, is acceptable to comply with the initial requirements of this AD for that engine.

Part(s) Installation:

- (8) From 14 April 2017 [the effective date of the original issue of this AD], it is allowed to install a DV on an engine, provided it is a serviceable DV (see Note 3 of this AD).



Terminating Action:

- (9) Replacement on an engine of an affected DV, as required by paragraph (5) of this AD, does not constitute terminating action for the repetitive inspections as required by paragraph (4) of this AD for that engine.
- (10) Modification of an engine by installing a post-mod TU386 DV in accordance with the instructions of Safran Helicopter Engines SB 292 73 0386 constitutes terminating action for the repetitive inspections as required by paragraph (4) of this AD for that engine, provided that the engine remains in that configuration.

Ref. Publications:

SAFRAN Helicopter Engines MSB 292 73 0853 version A dated 07 April 2017, or version B dated 30 March 2018.

SAFRAN Helicopter Engines SB 292 73 0386 version A dated 30 March 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. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. For any question concerning the technical content of the requirements in this AD, please contact your nearest SAFRAN Helicopter Engines technical representative or connect to www.tools.safran-helicopter-engines.com.



Appendix 1 – List of 17 DV with black diaphragm P/N 9 560 12 112 0 installed,
delivered on or after 01 January 2016 (see Note 2 and 3 of this AD)

P/N	s/n
0174126090	A978B
	B38B
	C472B
	462B
	612M
	956M
	1353M
0174128150	C966B
	584M
	732M
	783M
	788M
	1117
	1207
0174128170	C115B
	410M
	533M

