Airworthiness Directive

AD No.: 2018-0015

Issued: 25 January 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:
FOKKER SERVICES B.V.

Type/Model designation(s):
F27 aeroplanes

Effective Date: 08 February 2018

TCDS Number(s): EASA.A.036

Foreign AD: Not applicable

Cancellation: This AD cancels CAA-NL AD (BLA) 81-50-32 dated 04 September 1981, and AD NL-2005-003 (EASA approval 2005-3869) dated 29 April 2005.

ATA 32 – Landing Gear – Main Landing Gear Drag Stay Tubes – Inspection / Replacement

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Manufacturer(s):
Fokker Aircraft B.V.

Applicability:
F27 Mark 100, Mark 200, Mark 300, Mark 400, Mark 500, Mark 600 and Mark 700 aeroplanes, all configurations, all serial numbers.

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

Affected drag stay unit: SAFRAN Landing Systems (previously Messier-Dowty, Dowty Aerospace) main landing gear (MLG) drag stay units, Part Number (P/N) 200261001, P/N 200261002, P/N 200261003, P/N 200261004, P/N 200485001, P/N 200485002, P/N 200485003, P/N 200485004, P/N 200684001, P/N 200684002, P/N 200684003 and P/N 200684004.

Affected drag stay tube: SAFRAN Landing Systems (previously Messier-Dowty, Dowty Aerospace) MLG drag stay tubes, P/N 200259300, which have a change in section (stepped bore).

The SB: Fokker Services Service Bulletin (SB) SBF27-32-173.

The applicable DALG SB: Dowty Aerospace Landing Gear SB 32-82W Revision (Rev.) 2, or SB 32-169B Rev. 2, as applicable to aeroplane model. The inspection instructions of these SBs constitute an acceptable method to inspect any affected drag stay unit or its drag stay tube, even though the Effectivity only mentions drag stay units P/N 200261001 and P/N 200485001.

The applicable CMM: SAFRAN Landing Systems (SLS), previously known as Messier-Dowty, Dowty Aerospace Landing Gear (DALG), MLG Component Maintenance Manual (CMM) 32-10-44 Rev. 3, or CMM 32-10-55 Rev. 6, as applicable.

Reason:

In 1993, an occurrence was reported concerning an MLG collapse due to a broken drag stay on a Fokker F27 Mark 500 RFV (rough field version/configuration). The investigation revealed that the drag stay failure was due to fatigue cracks, introduced by incorrect machining (not smooth, with a notch) of the affected drag stay tube bore during production.

This condition, if not detected and corrected, could lead to MLG collapse, possibly resulting in damage to the aeroplane during landing and consequent injury to occupants.

To address this unsafe condition, DALG issued SB 32-169B and SB 32-82W (both later revised), and Fokker Services issued SB F27/32-167, to provide inspection instructions. Consequently, the Civil Aviation Authority of the Netherlands (CAA-NL) issued AD (BLA) 93-169 (later revised), requiring a one-time ultrasonic inspection to identify the type of drag stay tube installed (with stepped or straight bore) on each affected drag stay unit, inspection of the affected drag stay tubes for the presence of cracks, and, depending on findings, re-identification.

After AD (BLA) 93-169/2 was issued, another occurrence was reported on an F27 Mark 500 RFV. Investigation results determined that the drag stay tube of the second occurrence had not been inspected as required by AD (BLA) 93-169, due to misinterpretation of the instructions of Fokker SB F27/32-167. Prompted by these findings, Fokker Services issued SB F27-32-171, providing additional inspection instructions, and CAA-NL issued AD NL-2005-003 (EASA approval 2005-3869) to require repetitive inspections of the affected drag stay tubes to detect cracks and, depending on findings, rework or replacement.

Since those SBs and ADs were issued, the applicable CMM were changed, although with incorrect P/N information, as a result of which an affected drag stay tube with a non-conforming bore radius may inadvertently have been installed on an aeroplane. Prompted by these findings, the applicable CMM were corrected and re-issued, and SLS issued Service Letter (SL) F27-W-8 to inform the operators, and Fokker Services introduced the relevant corrections in the F27 Mark 100 through Mark 700 Illustrated Parts Catalogue (IPC) in September 2017.

Installation of an affected drag stay tube with a non-conforming bore radius, on an MLG drag stay unit that has been re-identified, i.e. not subject to the repetitive inspections as required by CAA-NL AD NL-2005-003, would reintroduce the unsafe condition as originally addressed by the SBs and ADs referred to above. To address this potential unsafe condition, Fokker Services issued SBF27-32-173 to provide instructions to inspect, remove/discard or re-identify the affected drag stay tubes.

For the reasons described above, this AD requires a one-time inspection of the affected drag stay units to determine whether an affected drag stay tube is installed, repetitive inspections of those that have an affected drag stay tube installed, and, depending on findings, accomplishment of applicable corrective action(s).

With the issuance of this AD and AD 2018-0016, the requirements of CAA-NL AD (BLA) 93-169/2 dated 29 April 1994 are no longer necessary and that AD is also cancelled.

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

Required as indicated, unless accomplished previously:

Inspection / Identification:

(1) Within 12 months after the effective date of this AD, inspect each affected drag stay unit in accordance with the instructions of Section 4, step F. of the SB, which includes references to the instructions of the applicable DALG SB.

Re-identification:

(2) If, during the inspection as required by paragraph (1) of this AD, an affected drag stay unit is found to have a straight bore drag stay tube (P/N 200485300) installed, before next flight, re-identify that affected drag stay unit in accordance with the instructions of Section 4, step I.(2), I.(3) or I.(4) of the SB, as applicable.

(3) If, during the inspection as required by paragraph (1) of this AD, an affected drag stay unit is found to have an affected drag stay tube installed with a correct radius, before next flight, re-identify the affected drag stay unit in accordance with the instructions of Section 4, step J.(1), J.(2) or J.(3) of the SB, as applicable.

(4) If, during the inspection as required by paragraph (1) of this AD, an affected drag stay unit is found to have an affected drag stay tube installed with an incorrect radius, before next flight, re-identify the affected drag stay unit in accordance with the instructions of Section 4, step K.(1), K.(2) or K.(3) of the SB, as applicable.

Inspection(s) / Corrective Action(s):

(5) For affected drag stay units P/N 200261002, P/N 200261003, P/N 200485002, P/N 200485003, P/N 200684002 and P/N200684003: Within 12 months after the effective date of this AD, inspect the affected drag stay tube in accordance with the instructions of Section G. of the SB, referring to the applicable DALG SB.

(6) If, during the inspection as required by paragraph (5) of this AD, crack indication of less than 80% is found, within 1 500 flight cycles (FC) after that inspection, and, thereafter, at intervals not to exceed 1 500 FC, until the next scheduled MLG overhaul, inspect the affected drag stay tube in accordance with the instructions of Section G. of the SB, referring to the applicable DALG SB.

(7) If, during any inspection as required by paragraph (5) or (6) of this AD, as applicable, crack indication of 80% or more is found, before next flight, replace the affected drag stay tube with a serviceable part as defined in, and in accordance with the instructions of, Section H. of the SB.

(8) For affected drag stay units P/N 200261002, P/N 200485002 and P/N 200684002: If, during the inspection as required by paragraph (5) of this AD, no crack indication is found, within 1 500 FC after that inspection, and, thereafter, at intervals not to exceed 1 500 FC, until the next scheduled MLG overhaul, inspect the affected drag stay tube in accordance with the instructions of Section G. of the SB, referring to the applicable DALG SB.

Parts Installation:

(9) From the effective date of this AD, it is allowed to install on any aeroplane an affected drag stay unit (which includes installation of a replacement MLG), provided that, prior to installation, it has been determined that no affected drag stay tube is installed, or the installed affected drag stay tube has been reworked during MLG overhaul in accordance with the instructions of Appendix B of the applicable DALG SB, or has passed an inspection (confirmed correct bore radius) in accordance with the instructions of the applicable DALG SB. For the purpose of this requirement, removal of an MLG or an affected drag stay unit from an aeroplane and re-installing that MLG or drag stay unit on the same aeroplane is not 'installation'.

Ref. Publications:

Fokker Services SBF27-32-173 original issue, dated 30 November 2017.

Dowty Aerospace Landing Gear SB 32-82W Revision 2, dated 29 July 1994.

Dowty Aerospace Landing Gear SB 32-169B Revision 2, dated 29 July 1994.

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 22 December 2017 as PAD 17-175 for consultation until 19 January 2018. No comments were received during the consultation period.

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: Fokker Services B.V., Technical Services Dept., P.O. Box 1357, 2130 EL, Hoofddorp, The Netherlands, Telephone +31-88-6280-350, Fax +31-88-6280-111, E-mail: technicalservices@fokker.com.
   The referenced publications can be downloaded from www.myfokkerfleet.com.