



AIRWORTHINESS DIRECTIVE

This Airworthiness Directive (AD) is issued pursuant to Canadian Aviation Regulation (CAR) 521.427. No person shall conduct a take-off or permit a take-off to be conducted in an aircraft that is in their legal custody and control, unless the requirements of CAR 605.84 pertaining to ADs are met. Standard 625 - Aircraft Equipment and Maintenance Standards Appendix H provides information concerning alternative means of compliance (AMOC) with ADs.

Number:

CF-2021-42

Effective Date:

10 December 2021

ATA:

76

Type Certificate:

A-82

Subject:

Engine Controls – Binding of Fuel Control Unit (FCU) Push Rod End Bearings

Applicability:

Viking Air Ltd. (formerly de Havilland) model DHC-6 series 1, DHC-6 series 100, DHC-6 series 110, DHC-6 series 200, DHC-6 series 210, DHC-6 series 300, DHC-6 series 310, DHC-6 series 320 and DHC-6 series 400 aeroplanes, serial numbers 001 through 989 with lower FCU push rod assembly part number (P/N) C6CE1398-7 or modification (MOD) 6/2347 or Federal Aviation Administration (FAA) Parts Manufacturer Approval (PMA) equivalent part installed or P/N VSC30-3A rod end bearing installed on lower FCU push rod assembly P/N C6CE1398-3.

Compliance:

As indicated below, unless already accomplished.

Background:

There have been in-service reports of binding of P/N VSC30-3A rod end bearings used in the linkage for the lower FCU push rod assembly P/N C6CE1398-7. The lower FCU push rod assembly is connected to the FCU power lever and contains a rod end bearing at each end. P/N VSC30-3A rod end bearings, fabricated with a metal inner race and a dry film lubricant, have been incorporated on FCU push rod assemblies introduced through Viking Air Ltd (Viking) MOD 6/2347. P/N VSC30-3A rod end bearings may have also been installed in-service as a replacement part in lower FCU push rod assembly P/N C6CE1398-3. In one instance, binding of the lower FCU push rod bearing resulted in one engine failing to return to a lower power setting from a higher power setting when commanded, which subsequently resulted in the need to perform an in-flight engine shutdown during final approach. An investigation also revealed that binding of P/N VSC30-3A rod end bearings can occur after a period of non-utilization of the aeroplane.

This condition, if not detected and corrected, may lead to the inability to reduce power on the affected engine, resulting in the need to perform an in-flight engine shutdown, and consequently leading to reduced control of the aeroplane and increased pilot workload during this critical phase of flight.

To address this unsafe condition, this AD mandates initial and repetitive functional checks, special detailed inspection (SDI) and lubrication of the affected FCU push rod assembly, and its replacement, as required, with a redesigned FCU push rod assembly with improved reliability (MOD 6/2484), in accordance with Viking Service Bulletin (SB) V6/0063. This AD also prohibits the installation of an affected FCU push rod assembly as a replacement part on applicable aeroplanes.

Corrective Actions:

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

The SB: Viking SB V6/0063, Revision A, dated 1 February 2021 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

The SB Rev NC: Viking SB V6/0063, Revision NC, dated 7 June 2019.

Affected FCU push rod assembly: Lower FCU push rod assembly P/N C6CE1398-7 (MOD 6/2347) or FAA PMA equivalent part. Lower FCU push rod assembly P/N C6CE1398-3 with P/N VSC30-3A rod end bearing installed is also an affected FCU push rod assembly.

Serviceable FCU push rod assembly: Lower FCU push rod assembly P/N C6CE1398-9 (MOD 6/2484) or later Transport Canada approved lower FCU push rod assembly.

Part I – Initial Functional Check, Inspection and Lubrication

Within 125 hours air time or 30 days, whichever occurs first, from the effective date of this AD, accomplish the following:

- A. Perform a functional check of the affected FCU push rod assemblies in accordance with the Accomplishment Instructions of Section II.A. of the SB to detect binding or restriction. The accomplishment of the functional check in accordance with Section II.A. of the SB Rev NC, prior to the effective date of this AD, also meets the intent of this paragraph.
- B. Perform a SDI of the affected FCU push rod assemblies to detect corrosion on the bearing ball, damage to the bearing race and lubricant of darker color or stickier texture than normal, in accordance with the Accomplishment Instructions of Section II.B. of the SB. The SDI is required for affected FCU push rod assemblies that have not been rejected as a result of the functional check of Part I.A. of this AD. The accomplishment of the SDI in accordance with Section II.B. of the SB Rev NC, prior to the effective date of this AD, also meets the intent of this paragraph.
- C. If any deficiencies are detected during the functional check or SDI, before further flight, replace both left-hand side (LHS) and right-hand side (RHS) FCU push rod assemblies with serviceable FCU push rod assemblies in accordance with Section II.D. of the SB.
- D. Lubricate the affected FCU push rod assembly ends in accordance with the Accomplishment Instructions of Section II.C. of the SB. The accomplishment of the lubrication task in accordance with Section II.C. of the SB Rev NC, prior to the effective date of this AD, also meets the intent of this paragraph. Lubrication of the affected FCU push rod assembly ends is required for all operating environments.

Part II – Repetitive Functional Check, Inspection and Lubrication

- A. At intervals not to exceed 125 hours air time, repeat the functional check and lubricate the affected FCU push rod assemblies in accordance with Part I.A and Part I.D. respectively of this AD, and rectify, as required, in accordance with Part I.C. of this AD.
- B. At intervals not to exceed 1500 hours air time, repeat the SDI in accordance with Part I.B. of this AD and rectify, as required, in accordance with Part I.C. of this AD. The repetitive SDI of this paragraph may be performed in-situ by disconnecting one end of the affected FCU push rod assembly at a time.

Part III – Functional Check and Lubrication after a Period of Non-utilization

Following any period of non-utilization of the aeroplane of more than 30 days, before further flight, accomplish the following:

- A. Perform a functional check of the affected FCU push rod assemblies in accordance with Part I.A. of this AD, and rectify, as required, in accordance with Part I.C. of this AD.
- B. Lubricate the affected FCU push rod assemblies in accordance with Part I.D. of this AD.

Part IV – Part Installation Prohibition

As of the effective date of this AD, an affected FCU push rod assembly is not eligible for installation as a replacement part on all applicable aeroplanes.

Installation of both LHS and RHS serviceable FCU push rod assemblies constitutes terminating action to the requirements of Part I, Part II and Part III of this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 26 November 2021

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