



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) to ADs.

Number:

CF-2020-05

Effective Date:

27 March 2020

ATA:

57

Type Certificate:

A-82

Subject:

Wings – Cracking and Corrosion of Aileron Internal Structure

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, all serial numbers.

Compliance:

As indicated below, unless already accomplished.

Background:

Viking Air Ltd. (Viking) received reports of cracks and corrosion damage to the aileron internal structure. During a repair of an in-service aeroplane, an aileron hinge support rib was found cracked at the lower flange along the bend radius near the hinge fitting attachment at wing station 247.29. Preliminary investigation by Viking determined that the observed crack was the result of fatigue. During an inspection of another in-service aeroplane, the aileron inboard rib and the vertical flange of the inboard aileron forward spar near a fastener hole were also found cracked.

The current inspection requirements of the affected aeroplanes do not include a direct inspection of the aileron internal structure. Cracks or other damage to the aileron ribs or to the aileron spar flanges are not detectable from the aileron exterior surfaces. Undetected cracks or other damage to the aileron internal structure could lead to progressive looseness of the aileron at the hinge support rib push-pull rod attachment and subsequent flutter condition and degraded or loss of aileron control.

To detect and correct any cracking or other damage to the aileron internal structure, this AD mandates a one-time Special Detailed Inspection (SDI) of all aileron internal structure, including front and rear spars, all aileron ribs and upper and lower skins for cracks, corrosion or other damage, and rectification, as required, of the damaged parts.

This AD also mandates reporting of all inspection results to Viking. The reporting of the inspection results is necessary to assess the overall aileron internal structural condition on in-service aeroplanes and to determine additional corrective action based on the results of the inspections.

Viking has published Service Bulletin (SB) V6/0066 Revision A, dated 9 December 2019, (referred to as “the SB” in this AD) providing accomplishment instructions for the inspection, rectification of the damaged parts, and reporting requirements.

Corrective Actions:

Part I – Special Detailed Inspection

- A. Perform a SDI of the aileron internal structures from aileron inboard end to outboard end, including front and rear spars, all aileron ribs, upper and lower skins, for cracks, creases or buckling, corrosion, damage to fasteners or other defects, using a flexible borescope through existing aileron drain holes,

in accordance with the Accomplishment Instructions of the SB and the following schedule:

1. For all Left-Hand (LH) or Right-Hand (RH) ailerons that have accumulated 16 000 hours air time or more, or 32 000 Flight Cycles (FC) or more, or 10 years in-service or more since new, as of the effective date of this AD: within 6 months from the effective date of this AD;
 2. For all LH or RH ailerons that have accumulated less than 16 000 hours air time, and less than 32 000 FC, and less than 10 years in-service since new as of the effective date of this AD: within 6 months from reaching 16 000 hours air time, or 32 000 FC, or 10 years in-service since new, whichever occurs first.
- B. If any cracks or other damage are found during the inspection, before further flight, replace or repair the affected parts in accordance with the SB.
- C. Aeroplanes that have undergone the SDI and rectification of the damaged parts, as required, in accordance with the Accomplishment Instructions of SB V6/0066 Revision NC, dated 29 August 2019, prior to the effective date of this AD, meet the intent of Part I.A and Part I.B of this AD.

Part II – Reporting Requirements

Within 30 days from the completion of the inspection required by Part I.A of this AD, report all findings to Viking in accordance with the requirements of the SB.

The use of later revisions of the SB that have been approved by the Chief, Continuing Airworthiness, Transport Canada, is acceptable for compliance to the requirements of this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 13 March 2020

Contact:

Audrey Vézina-Manzo, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail AD-CN@tc.gc.ca or any Transport Canada Centre.