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No. CF-89-09R4

AIRWORTHINESS DIRECTIVE

The following airworthiness directive (AD) may be applicable to an aircraft which our records indicate is registered in your name. ADs are issued pursuant to Canadian Aviation Regulation (CAR) 593. Pursuant to CAR 605.84 and the further details of CAR Standard 625, Appendix H, the continuing airworthiness of a Canadian registered aircraft is contingent upon compliance with all applicable ADs. Failure to comply with the requirements of an AD may invalidate the flight authorization of the aircraft. Alternative means of compliance shall be applied for in accordance with CAR 605.84 and the above- referenced Standard.

This AD has been issued by the Continuing Airworthiness Division (AARDG), Aircraft Certification Branch, Transport Canada, Ottawa, telephone (613) 952-4357.

CF-89-09R4 DE HAVILLAND

Applies to all de Havilland Inc. Model DHC-8 aircraft, serial numbers 3 and subsequent, as indicated.

Compliance is required as indicated.

An incident of asymmetric flap deployment has been reported where only the left-hand inboard flap extended, the flap drive caution light failed to illuminate, and the flap position indicator remained at zero degrees. Investigation revealed: a broken primary drive shaft between the two left-hand flaps caused by chafing on an adjacent cooling duct; a broken splined coupling between the flap power unit and the right-hand primary drive shaft caused by inadequate design heat treatment of early serial number parts; and a malfunctioning secondary-drive torque sensor.

To prevent further failure, accomplish the following:

Part I

Applies to aircraft serial numbers 3 through 160.

Within 50 flight hours from 3 July 1989, unless already accomplished after 2 June 1989:

1. Visually inspect the flap primary-drive torque tubes in the vicinity of station YW 170 of the left and right wing, where the torque tube enters the outboard side of each nacelle, for signs of damage/wear due to chafing. Torque tubes must be replaced before further flight if wear exceeds 0.010 inch in depth or is present over more than 180 degrees around the circumference of the shafts.
2. Inspect the cooling ducts (part number DSC 287-12-70/60) in the vicinity of station YW 170 of the left and right wing, where the cooling duct enters the outboard side of each nacelle, for possible interference with the flap primary-drive torque tube. Reposition the cooling duct as necessary to provide a minimum clearance of 0.3 inch with the flap primary-drive torque tube.

If reinforcement wires of the cooling duct are broken due to chafing, the cooling duct must be repaired before further flight and replaced within 30 days.

3. Perform an operational check of the torque sensor as per maintenance program task 2750/11. Refer to DASH 8 Maintenance Program Supplementary Information, PSM 1-8-7/1-83-7, Volume 2, Procedures-27.

Part II

Applies to aircraft serial numbers 3 through 231, 233, 235, 237 and 243.

Note: De Havilland advised that the serial number range of aircraft with suspect torque tubes was incomplete. Part II of this directive has been revised to provide a complete list of aircraft requiring inspections and possible replacement of the torque tube splined couplings.

- A. Within 300 flight hours after 24 August 1992 for aircraft with serial numbers 3 through 177; and within 300 flight hours after the effective date of this directive for aircraft with serial numbers 178 through 231, 233, 235, 237 and 243, unless already accomplished in response to the revised Sundstrand service

bulletins listed in Table 2, accomplish the following:

1. Locate flap primary-drive torque tubes having part numbers and serial numbers listed in Table 1 below:

TABLE 1

TORQUE TUBE

P/N SERIES TORQUE TUBE S/N

734187 125 through 171

734378 129 through 150

734380 127 through 166

734382 211 through 322

734384 153 through 188 and

226 through 235

734386 195 through 286

734388 160 through 177

2. Determine whether torque tubes located by paragraph A.1 above have been re-identified with the service bulletin number indicated in Table 2 below.

Note: For re-identification, the applicable service bulletin number may have been marked on the rod with indelible ink or on the identification plate adjacent to the part number.

- (a) Torque tubes found to have been re-identified with the applicable service bulletin number do not require further action per Part II of this directive.
- (b) Torque tubes not re-identified with the applicable service bulletin number must be inspected and reworked as required by Part II, section A, step 3 and 4, and section B below.

TABLE 2

TORQUE TUBE POST-MODIFICATION

P/N SERIES SUNDSTRAND SB NO. IDENTIFICATION

734187 734187-27-A2 Revision 1 27-A2

734378 734378-27-A3" 1 27-A3

734380 734380-27-A2" 1 27-A2

734382 734382-27-A3" 1 27-A3

734384 734384-27-A2" 1 27-A2

734386 734386-27-A2" 1 27-A2

734388 734388-27-A1" 1 27-A1

3. On the torque tubes located per paragraph A.2(b) above, remove the through bolt from the splined coupling(s) of each torque tube and, using a 10X magnifying glass, visually inspect the area around all