

Grant Robinson

From: McConnell, DAVE P <dave.p.mcconnell@lmco.com>
Sent: Thursday, February 15, 2018 6:00 AM
To: Grant Robinson
Cc: Nakhon Supervisor Engineer; Daryl Dixon; Gary Deveau; Mrazik, Philip; Andy Taylor-Jones
Subject: 761059 Swashplate HUMS Increase
Importance: High

Grant

Following is the CSE response regarding a request for analysis of the increasing swashplate duplex bearing HI levels on HVC.

Case Number: C0087614
Customer: Thai Aviation Services Limited
Aircraft S/N: 761059
Aircraft Model: S-76D
Aircraft TT: 1,946
Part Number: 76104-78500-041
Case Subject: Request For Analysis-Rising Swashplate Health Indicator Values

Problem Description:

A/C S/N 761059 is experiencing a steadily rising Swashplate Timken bearing trend which has now exceeded the 0.5 green threshold and appears to still be rising. This trend appears to be unique in the TAS S-76D fleet.

The onset of the rise appears to correlate roughly to the replacement of the FWD MRS on 11 JAN 2018 at A/C TT 1780.6.

Subsequent to the FWD MRS replacement, the LAT MRS was replaced on 28 JAN 2018 at A/C TT 1865.5, and the AFT MRS was replaced 04 FEB 2018. All three servos were replaced for worn upper bearings.

Troubleshooting accomplished to date:

- 1) Inspect all rotating components. Reshim rotating scissor-to-hub connection.
- 2) PCL and rotating scissors disconnected. Rotating the swashplate by hand no roughness or binding or noise was noted.
- 3) A sample of grease has been taken and will be sent to a lab in Bangkok for analysis.
- 4) Bearing sensor checked for tightness.
- 5) Bearing sensor connector checked for damage and correct installation.
- 6) Expandable pins checked for proper torque.
- 7) Swashplate was regreased 05 FEB and a sharp drop in the trend was immediately noticed, but began trending upwards again almost immediately.

A/C S/N 761059 A/C TT 1945.5

Swashplate P/N 76104-78500-041 S/N A1735-00056 Component TSN 1945.5

78286.S-76D.1059.20180214T071752,050Z.rdf is the last flight 14 FEB 2018.

TAS has grounded the A/C pending further investigation and requests a response from SA engineering on an AOG basis. EoM

Problem Resolution:

Sikorsky HUMS engineering has reviewed the aircraft data and indicates the main driver is the bearing energy and most of the evaluated readings appear to be from high torque and airspeed.

No sensor issue was noted based on the data.

As indicated in the Case details, after the 2/5/18 regrease of the Swashplate, the trend was dropped.

Sikorsky Rotors Engineering, in addition to the Case troubleshooting, recommends checking the spherical bearings at the stationary and rotating scissors attachments for play and the uniball bearing for axial play per the AMM, 62-30-01.

If the most notable change/improvement in bearing energy was experienced after the 2/5 bearing re-grease, it is most likely that the duplex bearing set is the cause.

We are not sure if the old grease was purged & replaced or just 'some' was added so, it's recommended the old grease be purged from the bearing by greasing and hand rotating the swashplate, followed by continued monitoring of the bearing HUMS data.

If the trend continues upward to the range where the HUMS group considers the level to be a concern, the duplex bearing should be removed and inspected and/or replaced per AMM 62-30-03.

This email notification is provided as the case has been reviewed and does not contain technical data in the resolution.

David P. McConnell

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