

Advisory Wire

REFERENCE NO:	AW300-27-0315	INFORMATION TYPE:	Maintenance Operational
ATA:	27-41	EFFECTIVITY:	Challenger 300 (20003 – 20500) Challenger 350 (20501 – 20999)
SUBJECT:	PRI STAB TRIM FAIL EICAS message caused by CPLD U27		

1. REFERENCES:

- 1.1. Aircraft Maintenance Manual (AMM) Task 45-45-01-970-802 – Data Download from the Maintenance Diagnostic Computer (MDC)
- 1.2. SmartFix Plus – B3-006872 HSTA MCU FAULT
- 1.3. SmartFix Plus – B3-006858 HSTECU INTERNAL FAULT

2. INTRODUCTION:

In an effort to reduce the high rate of No Fault Found (NFF) experienced on Motor Control Units (MCU), this Advisory Wire (AW) provides troubleshooting tips to help identify if a defective Horizontal Stabilizer Trim Electronic Control Unit (HSTECU) is causing a “PRI STAB TRIM FAIL” caution message on the Engine Indication and Crew Alerting System (EICAS).

3. DESCRIPTION:

There have been a few cases reported where an MCU was replaced following a “PRI STAB TRIM FAIL” and subsequently found NFF by the repair facility. Our investigation revealed that the cause of the EICAS message can be due to a failure or a malfunction of an HSTECU, and not because of a defective MCU.

It was discovered through an engineering investigation that a failure of the U27 Frame Counter Complex Programmable Logic Device (CPLD) located on the Monitor (MON) Circuit Card Assembly (CCA) can lead to the frame counter stopping momentarily. This can cause internal communication issues leading to a loss of synchronization between the Monitor (MON) and the Command (CMD) channels, and the loss of the HSTECU Primary channel (“PRI STAB TRIM FAIL” EICAS message being displayed).

Failure of the frame counter CPLD was confirmed to cause the “HSTA Motor Velocity Feedback” monitor to trip at the box level causing following faults in the MDC:

- HSTA MCU FAULT (B3-006872)
- HSTECU INTERNAL FAULT (B3-006858)

In order to confirm if the failure was caused by the frame counter CPLD, a download of the HSTECU non-volatile memory (NVM) is required. If the HSTECU NVM logged “MtrVelFdbkErrID”, replacing the HSTECU will fix the issue.

4. ACTION:

If you experience an amber “PRI STAB TRIM FAIL” EICAS message combined with a B3-006872 and/or B3-006858 MDC fault code in the CURRENT FAULTS and/or FAULT HISTORY, carry out a download from the

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MDC (Ref 1.1) in order to prevent an unnecessary removal of the MCU. Send the files to the Customer Response Center (CRC) and ask to verify if the fault was caused by frame counter CPLD.

SmartFix Plus (Ref. 1.2 and 1.3) has been updated to reflect this condition.

Bombardier is currently working on a resolution to fix the “PRI STAB TRIM FAIL” EICAS messages caused by the frame counter CPLD.