Customer Services

Advisory Wire

REFERENCE NO:	AW700-27-0631, Rev 2	INFORMATION TYPE:	Maintenance Operational
ATA:	27-51	EFFECTIVITY:	Global Express / XRS (9002 - 9312, 9314 - 9380, 9384 - 9429 Global 5000 (9127 - 9383, 9389 - 9400, 9404 - 9431 and 9998) Global 5000 feat. Vision Flight Deck (9386, 9401, 9445 - 9862, and 9868 - 9997) Global 6000 (9313, 9381, 9432 to 9860, 9863 - 9871, 9873 - 9997 and 60005 - 61999) Global 5500, Global 6500 (9861, 9872, 60001 - 61999)
SUBJECT:	**Slat/Flap HALFSPEED Messages - Intermittent Slat/Flap Resolver**		

1. REFERENCES:

   1.1. Advisory Wire AW700-27-0373 – SFCU -17 SLAT-FLAP HALFSPD" EICAS Nuisance Message
   1.2. SMARTFIX™ Plus troubleshooting tool; available on Bombardier Portal and standalone version.
   1.3. Airplane Flight Manual (AFM) Non-Normal Procedure, Chapter 05-10
   1.4. Aircraft Maintenance Manual (AMM) TASK 45-45-00-970-822 Access to NVM Management
   1.5. AMM TASK 45−47−00−970−810 Download of the Onboard Maintenance System (OMS) Non−Volatile Memory (NVM)

2. INTRODUCTION:

Revision 2 of this Advisory Wire is to inform Operators on the release of an improved version of the Slat Flap resolver.

This Advisory Wire (AW) is being updated to Revision 1 to add aircraft models and serial numbers to the effectivity.

This AW is to inform Operators of possible slat or flap resolver failure causing intermittent "HALFSPD" Engine Indication and Crew Alerting System (EICAS) messages displayed in flight which disappears during descent or upon landing.

3. DESCRIPTION:

The Global Series Slat Flap Control System (SFCS) is composed of many components including two (2) Slat Flap Control Units (SFCU) and four (4) dual channel resolvers. The resolvers report the left and right side slats and flaps position. This configuration provides system redundancy in the event of an SFCU or a single resolver channel failure. This redundancy allows the systems to continue its operation in a degraded (HALFSPEED) mode.

Bombardier has identified a common failure mode in the slat and flap resolvers. The resolver part number GT415-5300-3 rotor winding can break causing the wiring resistance to vary intermittently or become open with the temperature variation. This change in the resistance affects the surfaces position values reported to the SFCUs. When the difference between the left and right resolver value becomes too high, the SFCU connected to this channel will stop operating until the surfaces position values returns within acceptable limits. Since only one of the two channels of the resolver rotor is usually affected, the system continues its operation in degraded mode.

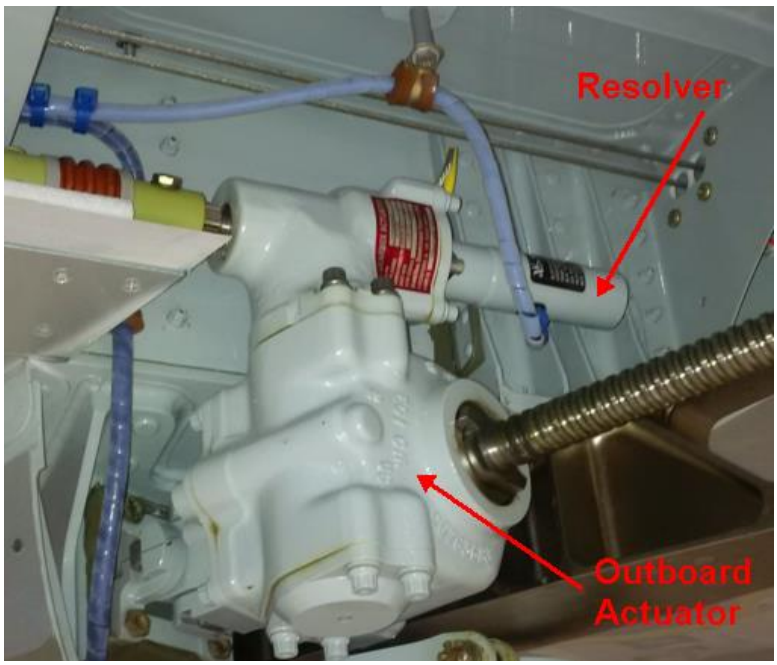

Figure 1
Right Flap Actuator and Resolver

The system redundancy lost is reported to the flight crew with one of the following (advisory) EICAS messages.

- SLAT HALFSPD (Advisory)
- FLAP HALSPD (Advisory)
- SLAT FLAP HALFSPD (Advisory)

If both channels of the resolver are affected, the according SLAT FAIL or FLAP FAIL (caution) EICAS message will be displayed.

When a resolver is defective, the “HALFSPD” messages are usually accompanied with a Central Aircraft Information/Maintenance System (CAIMS) / On-Board Maintenance System (OMS) SFCU internal fault and a resolver related fault.

In some reported cases, only a SFCU internal fault was reported in CAIMS/OMS. This condition can be interpreted as a nuisance as mentioned in the AW700-27-0373 (Ref 1.1). Bombardier recommends to refer to SmartFix™ Plus (Ref 1.2) to troubleshoot and reset the system before considering the condition a nuisance.

The actions recommended in this Advisory Wire will help reduce unnecessary SFCU removals and improve the SFCU No Fault Found (NFF) rate.

A new Slat Flap Resolver part number 5917991 / GT415-5300-5 is now available and introduces improvements in the rotor core design, reducing the number of wires in the winding and increases the wire gauge.

Both Resolver part numbers (-3 and -5) are interchangeable and intermixable, but a -3 cannot be modified to the latest configuration. Therefore, the -5 version of the Slat and Flap Resolver is available to Operators via the Aircraft Illustrated Parts Catalog (AIPC) on attrition basis, upon failure of a -3 resolver.

4. ACTION:

If one of the above mentioned “HALFSPD“ (advisory) EICAS messages is shown in flight , the crew must follow the AFM instructions (Ref 1.3).

When the aircraft is on the ground, Bombardier recommends to review the CAIMS/OMS fault messages displayed.

- If CAIMS/OMS reports a defective resolver, troubleshooting according to the related fault should be performed according to SmartFix™ Plus (Ref 1.2). In most of these cases the resolver needs to be replaced.
- If no resolver related faults are shown, refer to the applicable EICAS message in the troubleshooting section of the SmartFix™ Plus (Ref 1.2).

If the source of the fault cannot be identified using the above instructions, Bombardier suggest to download the SFCU Non Volatile Memory (NVM) (Ref 1.4 or 1.5) from both SFCUs and send them along with the CAIMS/OMS fault history to Bombardier Customer Response Center (CRC) at ac.yul@aero.bombardier.com.

The CRC team with the cooperation of the vendor will analyze the NVM and will propose a solution based on the NVM’s interpretation.

Should you have any queries pertaining to this Advisory Wire, please contact your local Field Service Representative (FSR) or the CRC.