ADVISORY WIRE

You. First.

REFERENCE NO:	AW700-22-0423, Rev 2	INFORMATION TYPE:	Maintenance Operational
ATA:	22-30	EFFECTIVITY:	Global Express / XRS (9002 - 9312, 9314 - 9380, 9384 - 9429) Global 5000 (9127 to 9383, 9389 to 9400, 9404 to 9431 and 9998)
SUBJECT:	**Unexpected Retarding of Both Thrust Levers with Auto Throttle engaged**		

1. REFERENCES:

1.1. Honeywell Service Information Letter (SIL) D201502000055 – Bombardier Global Express/5000/XRS FMZ-2000 - Flight Management System (FMS) Resets May Retard the Throttle Levers or Cause Auto-Throttle (AT) System Disconnects, dated 24 Feb 2015

1.2. Bombardier Service Bulletins (SB) 700-31-031 / 700-1A11-31-014, Modification – Central Processing System – Batch 3 Software Upgrade (initial released Dec/12) Revision 4 released Oct/16

1.3. Bombardier Service Bulletins (SB) 700-31-034 / 700-1A11-31-017, Modification – Central Processing System – Batch 3.3 Software Upgrade (initial released Jul/16) Revision 2 released Jan/17

1.4. ELDEC Service Bulletin 8-879-32-01, Rev. 1 – Landing Gear System — Landing Gear Electronic Control Unit Modification of 8-879-03 Units to 8-879-05 Revision 1, dated 17 Aug 2016

All references 1.1 to 1.4 located: (http://cic.bombardier.com) > Library > Search

1.5. Smart Fix™ Plus Troubleshooting procedure related to Observed Faults, ATA 22 Auto Flight: Unexpected AT Retarding
(http://cic.bombardier.com) > Library > Technical Publications > Smart Fix Plus

2. INTRODUCTION:

Revision 2 of this Advisory Wire (AW) advises operators about the conclusion of the investigation and the available solutions, whether the AT retarding was due to the Flight Management System (FMS) failure or to the Landing Gear Electronic Control Unit (LGECU) internal fault.

This describes a reported condition where thrust levers retarded unexpectedly while under Auto Throttle (AT) control during flight.

3. DESCRIPTION:

Some events were reported pertaining to AT commanding the thrust levers to Flight Idle with corresponding engine parameters (i.e. EPR, N1 and ITT) representative of thrust lever position. This could be due to any of the following conditions:

3.1. FMS Failure:

A few events were noted where AT retarded when one of the FMS dropped due to one of the following reasons:

- The FMS failed due to an 'Invalid Custom DB'
- The FMS reset due to BITE failure
- The FMS Speed Target disappeared following FMS fail

Since the AT functionality is hosted by the FMS processor and thus executed as an FMS function, an FMS may impact the AT operation.

When an FMS task is not executing properly, the FMS software will reset (WARM start) to get the process back to a nominal state. When a WARM start is initiated, the performance data that communicates the speed schedule is then set to zero. When the Performance information is updated, the Speed Target returns to normal.
As result during the speed transition, the AT will follow the commanded speeds causing the aircraft to slow down.

Honeywell issued Service Information Letter (Ref 1.1) to inform operators about the condition affecting aircraft pre Batch 3 (NZ5.8 and earlier) and post Batch 3 (NZ6.1) (Ref. 1.2).

3.2. Momentary nuisance “GEAR DISAGREE” CAS message:

During the reported events, the master caution lights flashed momentarily, accompanied by a nuisance “GEAR DISAGREE” (amber) Crew Alerting System (CAS) message and sometimes the aural chime was heard.

In some cases, the CAS message could not be assessed, since the condition rapidly cleared before the crew could view the message. In all cases, the indicated airspeed was greater than 250 Knots at the time of occurrence.

It was noted that the fault message “PROX_REFERENCE_ VOLTAGE_FAIL” was present in the Landing Gear Electronic Control Unit (LGECU) P/N 8-879-03 Non Volatile Memory (NVM), at the exact same time as the “GEAR DISAGREE” EICAS message and then the AT retard event occurred.

This “GEAR DISAGREE” EICAS message activates the gear down logic in the AT system and sets the aircraft’s upper speed limit to 250 Knots, thus causing the AT to reduce speed per design.

4. ACTION:

Operators should be familiar with information contained in this Advisory Wire and applicable corrective actions.

Should a similar event occur while under AT control in any flight configuration, it is recommended to perform the following:

- Disengage AT; stabilize the speed as required and re-engage AT if needed
- Press Pilot Event Marker button, to assist a possible future investigation

Operators must first determine which condition in section 3.1 or 3.2 applies to them, so the appropriate action described below can be taken:

4.1. Corrective Action when AT Retard due to FMS Failure:

To address this condition, operators are required to upgrade their IACs software to Batch 3.3 which introduces a corrective software into the changes to the FMS. This software upgrade is now available through Free of Charge (FOC) SB (Ref. 1.3) to operators who previously incorporated the Batch 3 software upgrade SB.

4.2. Corrective Action when AT Retard due to "GEAR DISAGREE" CAS message:

The LGECU manufacturer ELDEC recommendation is to upgrade the LGECU P/N 8-879-03 to 8-879-05 via Service Bulletin (Ref 1.4), which introduce a hardware improvements to the PROX_REFERENCE_ VOLTAGE circuitry to prevent the nuisance faults by installing two new programmed control cards.

The stock within Bombardier's inventory carry only the new LGECU part number and this new standard will continue to be maintained via attrition.

If the operator cannot identify or confirm which condition applies to his case, follow the guidelines and troubleshooting information that can be found in the Bombardier SmartFix Plus tool (Ref. 1.5).

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