

DHC-8 (DASH 8)

SERVICE BULLETIN 84-32-143

Landing Gear – MLG Solenoid Sequence Valve Latch And Retract Software Logic Changes – ModSum 4-126659

This page transmits Revision 'B' of Service Bulletin 84-32-143, pages 1 thru 14, dated 16 Nov 2016.

This service bulletin is re-issued in its entirety for the reasons that follow:

- section 1. **PLANNING INFORMATION** para **D. Compliance** is revised to include the TC AD number CF-2016-31
- section 1. **PLANNING INFORMATION** para **L. References** is revised to convey the latest revision of the service bulletin, related engineering documentation and TC AD number CF-2016-31
- section 2. **MATERIAL INFORMATION** para **A. Parts Required Per Aircraft** is revised to add **NOTE 3 & 4** and to include additional info to existing **NOTE 2**
- section 3. **ACCOMPLISHMENT INSTRUCTIONS** para **B.**, revised the NOTE after step (6) (a) to included additional information, and added new step (10)
- the initial issue of the merged UTC Aerospace Systems Service Bulletin VSB 30145-32-131 is replaced with the R1 version of the VSB dated Nov 4/16.

The **Compliance** in the previous issue of this service bulletin is not affected by this revision. No additional rework to the aircraft is introduced by this revision.

Remove revision 'A' of Service Bulletin 84-32-143 and merged VSB, and replace with this revised service bulletin and merged VSB.

Previous issue(s) of Service Bulletin 84-32-143:

Initial issue – Pages 1 thru 14 dated 30 Jun 2016

Revision 'A' – Pages 1 thru 12 dated 05 Aug 2016

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SERVICE BULLETIN

Customer
Support

ATA SYSTEM: 3261

NUMBER: 84-32-143

BOMBARDIER AEROSPACE REGIONAL AIRCRAFT CONSIDER THIS SERVICE BULLETIN TO BE PARTICULARLY SIGNIFICANT AND URGE OPERATORS TO PROMPTLY EVALUATE THE CONTENTS

SUBJECT: Landing Gear – MLG Solenoid Sequence Valve Latch And Retract Software Logic Changes – ModSum 4-126659

1. PLANNING INFORMATION

A. Effectivity

Aircraft Affected:

In-Service: DHC-8 Aircraft Models 401 and 402 Serial Numbers 4001, 4003 thru 4534.

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Pre-Requisite ModSum	Title
4Q126420 or 4Q126432	Production – Landing Gear – Proximity Sensor System PSEU Logic Update – Introduction of P/N 30145-0401 Retrofit – Landing Gear – Proximity Sensor System PSEU Logic Update – Introduction of P/N 30145-0401 (SB 84-32-66)

Related ModSum	Title
4Q126651	Landing Gear – Proximity Sensors – PSEU – Introduction of PSEU 30145-0601
4Y124247	Landing Gear – MLG SSV Latch And Retract Software Logic Changes
4Y124239	Landing Gear – MLG SSV Latch And Retract Software Logic Changes

Production: Not Applicable

NOTE: The instructions in this service bulletin are only applicable to the systems and parts installed at the time of delivery on the aircraft or as changed by Bombardier Aerospace Service Bulletin(s). Before you do this bulletin, examine all STC or equivalent action changes to make sure this bulletin can be completed.

Spares Affected:

The following is a list of spares affected by this change. Review spares and procurement systems to determine the existence of any listed parts. See Paragraph 2.D., Existing Parts Accountability, for disposition.

Part Number	Description
30145-0201/-0301/-0401 and -0501	PSEU

B. Reason

Problem: Existing PSEU software can permit inadvertent de–pressurization of the MLG stabilizer brace unlock actuator under excessive vibration conditions, and also could permit landing gear retraction without all gears being weight–off–wheels.

Solution: This service bulletin introduces ModSum 4–126659.

The ModSum replaces existing PSEU 30145–0201/–0301/–0401 and –0501 with replacement PSEU 30145–0601.

PSEU 30145–0601 has new software that includes new logic equations to latch power to the solenoid sequence valve (SSV), preventing de–pressurization of the MLG stabilizer brace unlock actuator under excessive vibration conditions. This new PSEU also includes revised retraction logic that requires all gears to be weight–off–wheels before permitting the landing gear to retract.

C. Description

The procedures in this service bulletin give the instructions to do the tasks that follow:

- aircraft electrical power is removed
- each main landing gear is secured with lock pins installed thru each main gear and main gear door mechanism
- the nose landing gear lock is engaged
- the existing PSEU P/N 30145–0201/–0301/–0401 or –0501 is removed
- the polarization keying of existing PSEU connector 3261–P1A/B/C is reworked
- reworked connector 3261–P1A/B/C is reidentified as 8MK4787–001
- replacement PSEU P/N 30145–0601 is installed and tested
- close out.

D. Compliance

Bombardier Inc. highly recommend that ModSum 4–126659 be incorporated at the earliest opportunity unless otherwise directed by the operator’s airworthiness authority.

Transport Canada Airworthiness Directive CF–2016–31.

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E. Approval

The technical content of this service bulletin has been approved under the authority of the Transport Canada Civil Aviation (TCCA) Design Approval Organization No: DAO #93-Q-02.

This service bulletin does not affect Airworthiness Limitations (AWLs) or Damage Tolerance Inspections (DTIs).

F. Manpower

It will take an estimated 6 man-hours to complete this service bulletin. The breakdown of the man-hours is shown in the table that follows:

TASK	MAN-HOURS
Job Set-Up	0.25
Procedure	1.50
Test / RTS	4.00
Close-Out	0.25

This estimate is for direct labour done by an experienced crew and it does not include, planning, familiarization, cure time, part fabrication, tool acquisition or lost time.

G. Material – Price and Availability

Refer to merged UTC Aerospace Systems Service Bulletin 30145-32-131.

H. Tooling – Price and Availability

None

I. Weight and Balance

Not affected

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J. Electrical Load Data

Not affected

K. Publications Affected

Aircraft Illustrated Parts Catalogue PSM 1-84-4

ModSums Manual PSM 1-84-12

L. References

Revision 'B' of this service bulletin was prepared to the engineering drawings and related data that follows:

DRAWING	SHEET	REV
8MK4787	1	-A

ModSum 4-126659 Rev. -E

ModSum 4Q126659 Rev. -D

PCA 46031 Rev. 0 (for internal reference only)

Transport Canada Airworthiness Directive CF-2016-31

UTC Aerospace Systems Service Bulletin 30145-32-131 R1 dated Nov 4/16

2. MATERIAL INFORMATION

A. Parts Required Per Aircraft

(1) Modification Kit 8MK4787-001.

(2) Detailed Kit Content:

Quantity Per Kit -001	Part Number	Description	Remarks
1	30145-0601	PSEU	see Note 2 below

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NOTE 1: This service bulletin is self-contained (illustrated). No drawings will be supplied.

NOTE 2: This item is required to install the kit. This item is not included in the kit and must be procured by the customer.

Due to component availability, operators may receive a P/N 30145-0601 PSEU or a P/N 30145-0602 PSEU.

If in receipt of a P/N 30145-0601 PSEU, declare this BA SB and merged UTC Aerospace Systems VSB 30145-32-131.

If in receipt of a P/N 30145-0602 PSEU, declare BA Service Bulletin 84-32-149 and merged VSB UTC Aerospace Systems Service Bulletin 30145-32-134.

NOTE 3: PSEU part number (P/N) 30145-0601 is two way interchangeable with p/n 30145-0602

NOTE 4: PSEU part number (P/N) 30145-0601 is one way interchangeable with p/n 30145-0501 / -0401 / -0301 & -0201.

Listed drawings that are required to complete the kits above can be requested by writing to the following e-mail address:

qseriesdwgrequest@aero.bombardier.com

B. Parts Required to Modify Spares

None

C. Special Tools and Equipment Required

None

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D. Existing Parts Accountability

The following parts may be affected by this service bulletin. Indented parts are components of the next higher assembly. The quantity (Qty.) column lists the quantity that may be affected per aircraft for non-indented parts and the quantity per next higher assembly for indented parts.

Existing Part Number	Description	Qty.	IC	DC	New Part Number	PNC
30145-0201	PSEU	1	C	SAL	30145-0601	S
30145-0301	PSEU	1	C	SAL	30145-0601	S
30145-0401	PSEU	1	C	SAL	30145-0601	S
30145-0501	PSEU	1	C	SAL	30145-0601	S

IC Interchangeability Code

- A Not interchangeable.
- B Removed Part. No direct replacement.
- C Interchangeable one way only.

DC Disposition

- DIS Discard Part.
- MUI Multiple Usage Item: Return to stock if serviceable.
- RWK Rework existing part in accordance with this service bulletin.
- RWI Rework existing part per
- SAL Salvage. Return to operator's stores or Goodrich.

PNC Part Number Code

- N No equivalent Bombardier Inc. part number for reworked part. Indicate on part that this service bulletin has been accomplished.
- R Part number after rework.
- S Superseding part number.
- X Reworked part and superseding part are functionally and physically equivalent but not identical.

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3. ACCOMPLISHMENT INSTRUCTIONS

If it is not possible to complete all the instructions of this service bulletin because of the configuration of the aircraft, speak with a representative of Bombardier in the CRC at 1-844-272-2720 (1-844-CRC-CRCO) or email at thd.qseries@aero.bombardier.com for analysis and to get an approved disposition to complete this service bulletin.

A. Job Set-Up

NOTE: Make sure to put a protective cover on any disconnected electrical connector.

- (1) Placard and select all aircraft electrical power to OFF. Obey all relevant WARNINGS and CAUTIONS (refer to AMM TASK'S 24-00-00-861-802 and 24-00-00-910-801).
- (2) Make sure that lock pins are installed through each main gear and main gear door mechanism.
- (3) Make sure the nose gear ground lock is engaged.
- (4) Set wheel chocks in front and behind the landing gear tires.
- (5) Remove the front panel from the avionics rack.

B. Procedure

- (1) Locate the existing PSEU P/N 30145-0201/-0301/-0401 or -0501 (refer to Figure 1).
- (2) Remove the existing PSEU P/N 30145-0201/-0301/-0401 or -0501 (refer to PSM 1-84-2 (AMM) TASK 32-61-01-000-801).
- (3) Rework the polarization keying of existing PSEU connector 3261-P1A/B/C as follows:
 - (a) Gain access to the front of PSEU connector 3261-P1A/B/C on the mounting tray (refer to Figure 2 VIEW A for connector location).

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- (b) Change the existing polarization posts positions as shown in Figure 2 VIEW B to agree with applicable instructions given in PSM 1-84-2W Wiring Diagram Manual (WDM) Chapter 20-17-51-401.
 - (c) Reidentify reworked connector as 8MK4787-001 to agree with applicable instructions given in AMM TASK 20-00-01-910-802.
- (4) Adjust the following proximity sensors to the new gaps given below as follows:

CAUTION: USE CAUTION NEAR THE FACE OF THE PROXIMITY SENSOR BECAUSE YOU CAN CAUSE DAMAGE TO THE PROXIMITY SENSOR.

- (a) Remove and discard the lockwire from the jam nuts.
 - (b) Adjust the sensors to their nominal clearances, refer to Tables 1 & 2 that follow:
- (5) Install PSEU P/N 30145-0601 (refer to applicable instructions in AMM TASK 32-61-01-400-801).
- (6) Do an Inductance Value Check of the following proximity sensors:
- (a) At the PSEU, use the SYSTEM STATUS MENU to make sure the inductance in each sensor is Nominal Near.

NOTE: Adjust the sensors, as necessary, to get the permitted tolerances. Make sure the right gear uplock and left gear uplock are disengaged (uplock sensors indicating "FAR") while right and/or left downlock sensors (RGDLK1, RGDLK2, LGDLK1, LGDLK2) are adjusted.

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TABLE 1

Sensor Name (Abbreviation)		Near Gap Nominal (inches)	Near Gap Tolerance (inches)
Left Gear Downlock #1	(LGDLK1)	0.045	+0.005/-0.005
Left Gear Downlock #2	(LGDLK2)	0.045	+0.005/-0.005
Nose Gear Down #1	(NGDN1)	0.050	+0.005/-0.015
Nose Gear Down #2	(NGDN2)	0.050	+0.005/-0.015
Nose Gear Lock #1	(NGLK1)	0.050	+0.005/-0.005
Nose Gear Lock #2	(NGLK2)	0.050	+0.005/-0.005
Right Gear Downlock #1	(RGDLK1)	0.045	+0.005/-0.005
Right Gear Downlock #2	(RGDLK2)	0.045	+0.005/-0.005

TABLE 2

Inductance Check				
Sensor Name (Abbreviation)		Near Gap Too Close mH	Nominal Near mH	Near Gap Too Large mH
Left Gear Downlock #1	(LGDLK1)	8.523	8.355	8.232
Left Gear Downlock #2	(LGDLK2)	8.523	8.355	8.232
Nose Gear Down #1	(NGDN1)	8.520	8.256	8.072
Nose Gear Down #2	(NGDN2)	8.520	8.256	8.072
Nose Gear Lock #1	(NGLK1)	8.438	8.302	8.196
Nose Gear Lock #2	(NGLK2)	8.438	8.302	8.196
Right Gear Downlock #1	(RGDLK1)	8.523	8.355	8.232
Right Gear Downlock #2	(RGDLK2)	8.523	8.355	8.232

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- (7) Torque the jam nut to 96 plus or minus 24 lbf.in (8.1 to 13. 6 N.m).
- (8) Safety the jam nuts with lockwire.
- (9) Make sure that the clearance did not change. Adjust the clearance if necessary.
- (10) Power PSEU down then power up. Verify no active faults are present.

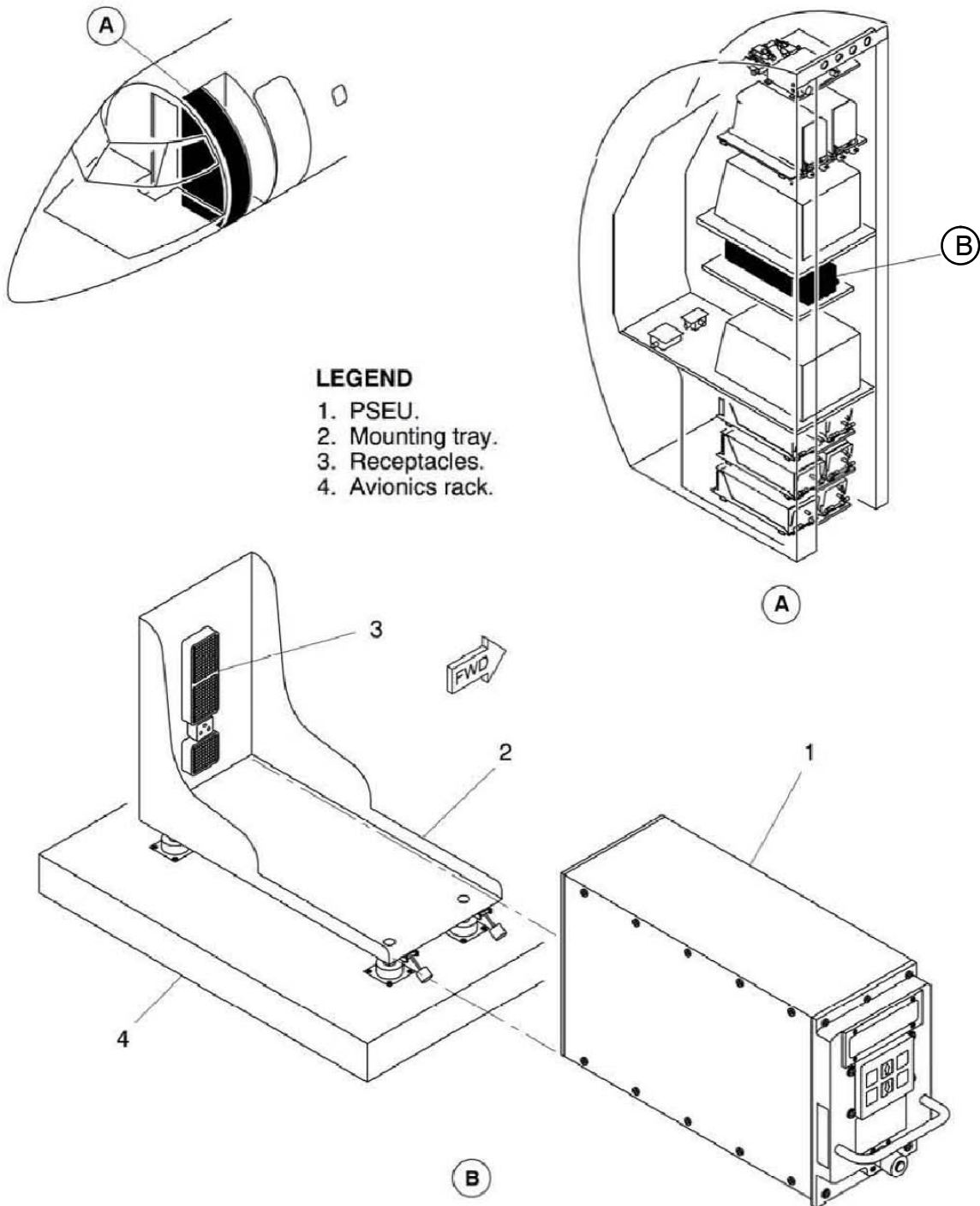
C. Close Out

- (1) Remove all tools and equipment from the work area.
- (2) Re–install the front panel to the avionics rack.
- (3) Wrap the removed PSEU in a protective cover and route to Goodrich, refer to merged UTC Aerospace Systems Service Bulletin 30145–32–131 section **3. ACCOMPLISHMENT INSTRUCTIONS** for additional instructions.
- (4) On incorporation of this ModSum, make an entry that conforms to local regulatory requirements in the applicable logbook(s). Enter component serial numbers if applicable. Enter this ModSum number only after complete and functional incorporation of all work defined in this service bulletin.

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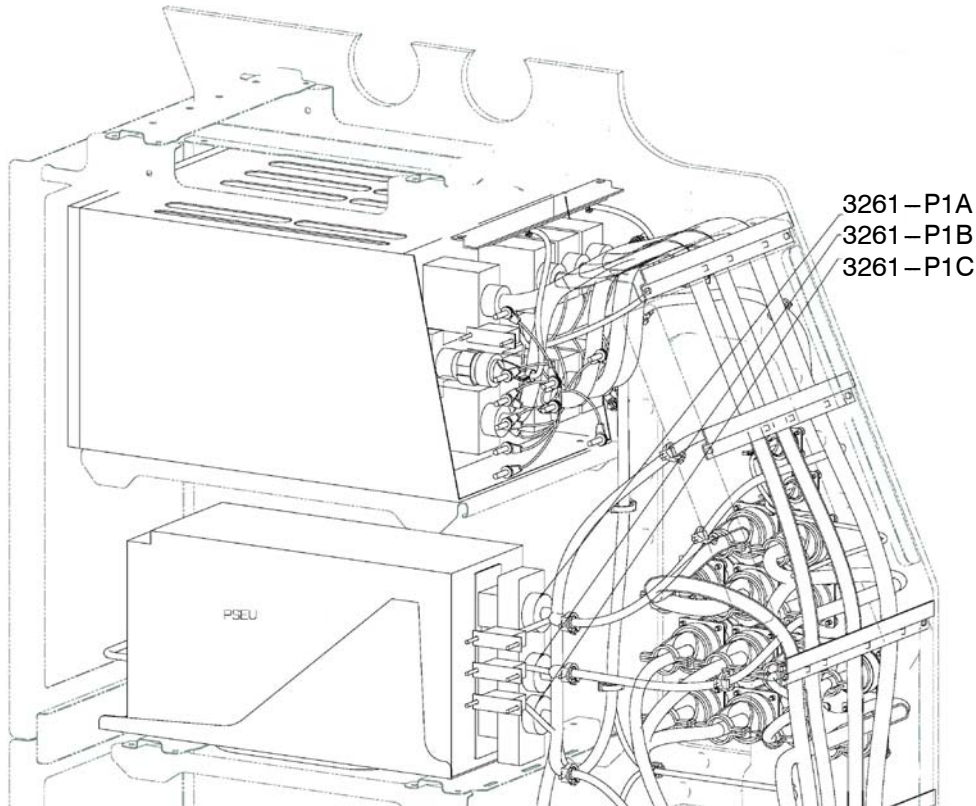
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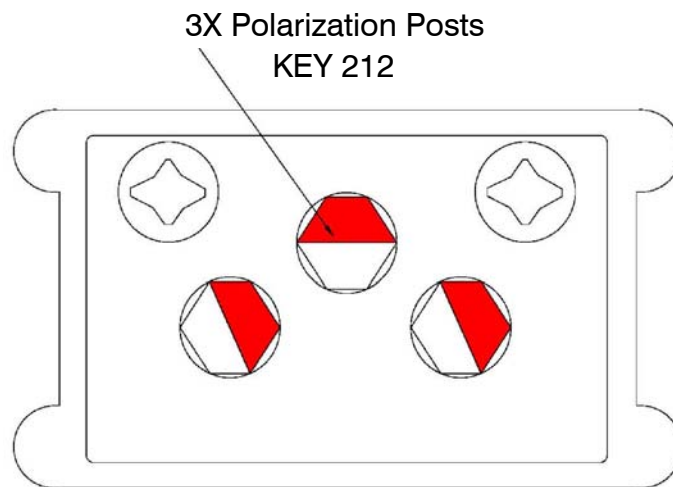


**PSEU Removal / Installation
Figure 1**

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VIEW A



VIEW B

**PSEU Connector 3261-P1A/B/C Location - Rework
Figure 2**

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SERVICE BULLETIN (SB) – RECORD OF INCORPORATION – Q SERIES DASH 8 AIRCRAFT

To: CMDB Focal
Facsimile: (1) 416 375 4538
E-mail: cmdb.requests@aero.bombardier.com

From: _____

Company: _____

Phone: _____ **Extn:** _____

Facsimile: _____ **Date:** _____

E-mail: _____

The data that you provide below will help us record the incorporation of this ModSum and the aircraft effectivity in the maintenance manual.

Operator: _____ **Service Bulletin:** _____ **Revision:** _____

Aircraft Serial Number: _____ Model Number: _____ Date Bulletin Completed: _____

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Fax this sheet to (1) 416 375 4538 or Email PDF to:
cmdb.requests@aero.bombardier.com

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SERVICE BULLETIN (SB) – COMMENT SHEET – Q SERIES DASH 8 AIRCRAFT

To: SB Focal (Toronto), Bombardier Aerospace Commercial Aircraft
Phone: (1) 416 375 4078 **Facsimile:** (1) 416 375 4538
E-mail: syed.rizvi@aero.bombardier.com

From: _____
Company: _____
Phone: _____ **Extn:** _____
Facsimile: _____ **Date:** _____
E-mail: _____

Select appropriate box(es) and add comments or suggestions you would like us to know that may enhance the quality of our service bulletins.

Service Bulletin: _____ **Revision:** _____ **ModSum:** _____

1. PLANNING INFORMATION

- | | | | |
|--|-----------------------------------|--------------------------------------|--|
| <input type="checkbox"/> Effectivity | <input type="checkbox"/> Reason | <input type="checkbox"/> Description | <input type="checkbox"/> Compliance |
| <input type="checkbox"/> Approval | <input type="checkbox"/> Manpower | <input type="checkbox"/> Material | <input type="checkbox"/> Weight and Balance |
| <input type="checkbox"/> Electrical Load | <input type="checkbox"/> Tooling | <input type="checkbox"/> References | <input type="checkbox"/> Publications Affected |

2. MATERIAL INFORMATION

- | | | |
|--------------------------------------|--|---|
| <input type="checkbox"/> Kit Content | <input type="checkbox"/> Special Tools/Equipment | <input type="checkbox"/> Parts to Modify Spares |
| <input type="checkbox"/> Consumables | <input type="checkbox"/> Disposition of Existing Parts | <input type="checkbox"/> Other _____ |

3. ACCOMPLISHMENT INSTRUCTIONS

- | | | | |
|--|--------------------------------------|------------------------------------|-------------------------------|
| <input type="checkbox"/> Job Set-Up | <input type="checkbox"/> Procedure | <input type="checkbox"/> Close-Out | <input type="checkbox"/> Test |
| <input type="checkbox"/> Illustration(s) | <input type="checkbox"/> Other _____ | | |

4. COMMENTS, REMARKS, SUGGESTIONS

***Fax this sheet to (1) 416 375 4538 or Email PDF to:
syed.rizvi@aero.bombardier.com***