

BULLETIN ADDENDUM

Aircraft Type and Registration:	DHC-8-402 Dash 8, G-JECJ
Date & Time (UTC):	23 October 2013 at 0540 hrs
Location:	Manchester Airport
Information Source:	Aircraft Accident Report Form and additional information supplied by the aircraft manufacturer

AAIB Bulletin No. 6/2014 refers

The above AAIB Bulletin contained the following synopsis:

'Whilst en-route, the crew experienced a number of cautions and warnings on the Central Warning Panel (CWP). The number of these increased, and cabin and cockpit lights also started to fail. The aircraft diverted to Manchester, where an uneventful landing was made. It is suspected that there had been a failure of the right starter/generator or its Generator Control Unit (GCU) and that a further latent failure of a contactor had prevented automatic connection of the right DC bus to the left DC bus. The services normally powered by the right DC bus would now be powered by the main aircraft battery, which would progressively discharge.'

A report has subsequently been received from the manufacturer containing the following findings from their examination of the components:

- The brushes and collector of the DC generator were found severely worn and damaged
- *No fault found* with the Generator Line Contactor (GLC) K2 (AAIB italics)
- No fault found with DC GCU

The report also contained the conclusion that loss of contact between the brushes and armature:

'...while backed up by the battery allowed the condition to be undetected by normal generator power quality protection circuits.

In the absence of detection, the GCU and EPCU do not reconfigure the system as would be the case for a power quality failure.

This failure mode is detectable by the pilot through observation of zero generator output current on the electrical load meter page. Additionally, abnormal positive discharge current from [the] battery when the generator is believed to be on-line is an indication of impending ... battery depletion.... resumption of DC power to the Right DC buses could be accomplished through...turning off the DC Generator switch to the faulty side which will enable cross tying of the opposite side to supply the load as well as charging the battery.'

Bombardier advise that they propose the following amendment to the Aircraft Flight Manual (AFM):

DRAFT

NEW 400 AFM PROCEDURE

EMERGENCY SECTION

ELECTRICAL EMERGENCIES Page 3-7-1, new item 3.7.2:

3.7.2 LEFT MAIN DC BUS OR RIGHT MAIN DC BUS FAILURE
(NO ILLUMINATION OF THE DC BUS CAUTION LIGHT)

NOTE

A failure of the Left Main DC Bus or Right Main DC Bus will result in the loss of some or all the services powered by the affected Main DC Bus. Illumination of caution lights and presentation of messages associated with the lost systems will occur.

Confirmation of the affected DC Bus:

1. #1 MFD or #2 MFD – Select the ELECTRICAL page.
2. DC GEN 1 (L MAIN DC BUS) or DC GEN 2 (R MAIN DC BUS) – Confirm 0 LOAD.
3. AUX BATT (L MAIN DC BUS) or MAIN BATT (R MAIN DC BUS) – Confirm a negative (-) load.
4. Affected DC GEN switch – Select OFF