

Advisory Wire

REFERENCE NO: AW300-24-0141, Rev 11 EFFECTIVITY: Challenger 300
Challenger 350

ATA: 24-61

SUBJECT: Electrical System and Flight Display Issues During Flight

1. REFERENCES:

- 1.1. Service Bulletins 100-24-29 Rev01 (Challenger 300) and 350-24-004 Rev01 (Challenger 350) - Special Check/Rework - DC Power Center (DCPC) System – Replacement of the Left DC Power Center.
- 1.2. Service Bulletins 100-24-30 Rev01 (Challenger 300) and 350-24-005 Rev01 (Challenger 350) - Special Check/Modification - DC Power Center (DCPC) System – Installation of Protective Tape on the Left DCPC Card Cage.
- 1.3. Time Limits and Maintenance Checks Rev 24 (Challenger 300) and Rev 14 (Challenger 350) or later revisions approved, – Part 2 – Airworthiness Limitations – TLMC Section 05-10-20 - Time Limits - Supplementary Limitations, Task No. 24-61-01-101*
- 1.4. Transport Canada Airworthiness Directive (AD) [CF-2023-78](#) Time Limits / Maintenance Checks (TLMC) – Addition of Certification Maintenance Requirement (CMR) Task.
- 1.5. Airplane Flight Manual (AFM), Rev 75 (Challenger 300) and Rev 41 (Challenger 350) or later revisions approved, Emergency Procedures / Electrical (Section 03-19) and Non-Normal Procedures / Cautions Procedures / Electrical (section 05-19).
- 1.6. Quick Reference Handbook (QRH), Volume 2, Rev 75 (Challenger 300) and Rev 41 (Challenger 350) or later revisions approved, 04 – ELECTRICAL, Non-EICAS Procedures / Unexpected Electrical Indications (Section ELEC 04-10).
- 1.7. Transport Canada Airworthiness Directive (AD) [CF-2023-35](#) Electrical Power – Misleading Indications.
- 1.8. European Union Aviation Safety Agency (EASA) AD [CF-2023-35](#) Electrical Power – Misleading Indications.
- 1.9. Federal Aviation Administration (FAA) AD [2023-11-01](#) Airworthiness Directives; Bombardier, Inc., Airplanes.
- 1.10. Federal Aviation Administration (FAA) AD [2024-18-03](#) Airworthiness Directives; Bombardier, Inc., Airplanes.
- 1.11. Federal Aviation Administration (FAA) AD [2024-21-04](#) Airworthiness Directives; Bombardier, Inc., Airplanes.

The Bombardier references above are posted and available on the Bombardier Customer Portal:
<https://my.bombardier.com/library>

2. INTRODUCTION:

The purpose of this Advisory Wire revision is to inform Operators about the release of Airworthiness Directive AD 2024-21-04 (Ref. 1.11) by FAA. The AD introduces the new TLMC task 05-10-20 (Ref. 1.3) which is applicable to LH DCPC units with less than 3500 flight hours (FH) COMPONENT.

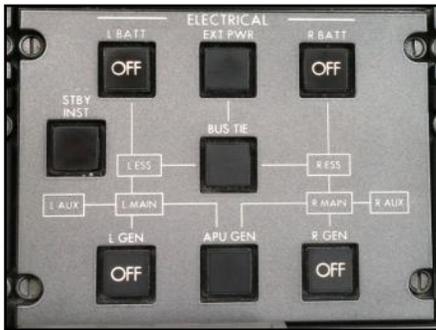
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As per TLMC (Ref. 1.3), the restoration task for LH DCPC units with less than 3500 FH, must be accomplished at, or before, 3500 FH COMPONENT.

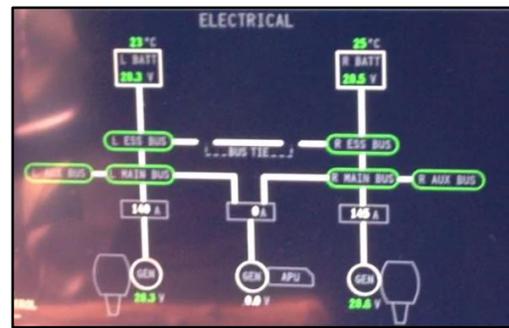
3. DESCRIPTION:

In early 2011, some cases of electrical system misleading indications issues were reported to Bombardier. These early cases were reporting flickering indications of the electrical system control panel Push Button Annunciators (PBA) while DC sources were still on-line (no loss of power). A few cases of partial / complete loss of electrical power were also reported.

The pictures below show the electrical system control panel and electrical synoptic page indications with EICAS messages from these earlier cases, as well as cases reported since. Not all cases of misleading indication reported the same indications. These indications can be intermittent or steady and can happen on-ground or in-flight.



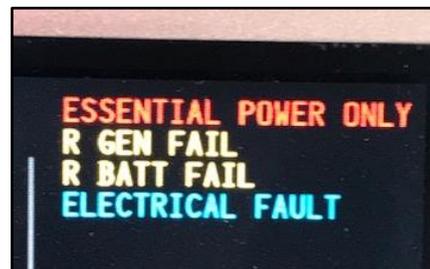
Generator(s) and or Battery(s) PBA showing OFF indications or cycling ON and OFF on the ECP while still physically on-line



Electrical synoptic page displaying power source(s) outline(s) and associated flow tube(s) in white color, although distribution buses circled in green color indicating those buses are powered (Ref L & R generators amps outputs)



BATT OFF, GEN OFF CAS message(s) posted while the affected DC source(s) is physically on-line



ESS POWER ONLY, BATT FAIL, GEN FAIL CAS message(s) posted while the affected DC source(s) is physically on-line

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The vendor investigation of this issue in 2012 did not identify any failure mode that could explain the few cases of partial / complete electrical power loss reported. Based on this, it was concluded that those cases were most likely the result of manual reset(s) attempted onto the DC source(s) shown OFF during these misleading indication events. The investigation also revealed that an unseated protection (PCB1) and / or Logic (PCB3) printed circuit boards (PCB), or contamination of the PCBs connectors could disrupt the signals carried onto the LH DCPC parallel data bus and cause the same misleading indication(s).

In January 2020, Bombardier conducted on-aircraft testing that replicated misleading indications in the electrical system when the LH DCPC parallel data bus signals were corrupted. Further investigation of all reported cases indicated that LH DCPC units with 3500 or more FH since their date of manufacture were susceptible to this issue. To address this condition, it is necessary to perform the deep cleaning SBs of the LH DCPC (Ref. 1.1)

Furthermore, to prevent additional contamination of the protection (PCB1) and/or Logic (PCB3) connectors that could disrupt the parallel data bus signals of the LH DCPC, SBs (Ref. 1.2) have been issued. The SBs entail the installation of a protective tape on the LH DCPC card cage to safeguard against such disruptions.

The SBs (Ref. 1.1 & 1.2) are mandated by ADs (Ref. 1.7, 1.8 & 1.10) and all the remaining LH DCPC units that have not reached 3500 FH are subjected to ADs (Ref. 1.4 & 1.11) and TLMC task (Ref. 1.3).

Exchange units are available at special pricing when the SBs (Ref. 1.1 & 1.2) are referenced at the time of order. Due to limited parts availability and capacity at the supplier, Operators must schedule in advance the replacement of their LH DCPC with the Bombardier In-Service Implementation Team (ISIT) (bacs_isit@aero.bombardier.com). Customers can also elect to update their own units (customer own repair) but are still required to schedule via ISIT and contact our CR&O team (Component Repair and Overhaul) for purchase order management with the vendor.

Unlike the SBs (Ref. 1.1 & 1.2), the ADs (Ref. 1.7, 1.8 & 1.10) mandate the latest version of the upgrade for all LH-DCPCs as the only option.

4. ACTION:

Operators should familiarize themselves with the AD (Ref. 1.11) to ensure they complied with the corrective actions within the specified compliance time by incorporating the SBs (Ref. 1.1 & 1.2) and TLMC (Ref. 1.3).

FAA operators with units reaching 3,500 FH must upgrade their units by November 12, 2025. However, TC and EASA operators with units that have already reached 3,500 FH are required to upgrade immediately. All operators with units below 3,500 FH must follow the TLMC guidelines (Ref. 1.3, 1.4 & 1.11) and replace their units before or upon reaching 3,500 FH.

Flight crews should review the updated AFM (Ref. 1.5) and QRH (Ref. 1.6) procedures to avoid resetting active DC sources during an electrical system misleading indication event.

This issue is purely an indication problem and, if not properly evaluated, could mislead flight crews. Key diagnostic indicators include battery voltages, DC bus outline colors, and the voltage and current outputs displayed on the electrical synoptic page. Any unexpected electrical system misleading indications must be reported to Bombardier.

For further questions or additional information, please contact your Bombardier Field Service Representative (FSR) or the Customer Response Center (CRC).