Customer Services

Advisory Wire

REFERENCE NO:	AW300-24-0284, Rev 01	INFORMATION TYPE:	Maintenance Operational
ATA:	24	EFFECTIVITY:	Challenger 300 (20003 – 20500) Challenger 350 (20501 – 20999)
SUBJECT:	Metallic Particles Found in the Left Direct Current Power Center (LDCPC) Battery Diode PCB Area		

1. REFERENCES:

   1.1. AIPC 24-61-82, DCPC Battery−Diode Printed−Circuit−Board (PCB) (LH) (Fig.1, Item 5)

   1.2. AIPC 24-61-69, Auxiliary Hydraulic-Pump Contactor (K141) (Fig.1, Item 5)

   1.3. Zodiac Service Bulletin 975GC02Y-24-015, Left Direct Current Power Center (L DCPC) 975GC02YXX Inspection Procedure of the Area K141 And PCB21

   1.4. Reference Information Letter BD-0059 - Left Direct Current Power Center (L DCPC) K141 and PCB21 Area Cleaning Procedure

   1.5. Airplane Flight Manual (AFM) Temporary Revision TR14

   1.6. Flight Crew Operating Manual (FCOM) Temporary Revision TR18

   1.7. Quick Reference Handbook (QRH) Temporary Revision TR11

2. INTRODUCTION:

The revision of this Advisory Wire (AW) is to inform Operators about the release of Ref 1.5, Ref 1.6 and Ref 1.7 Temporary Revisions (TR) in the Challenger 300 /350 flight manuals and the closure of our investigation of this issue.

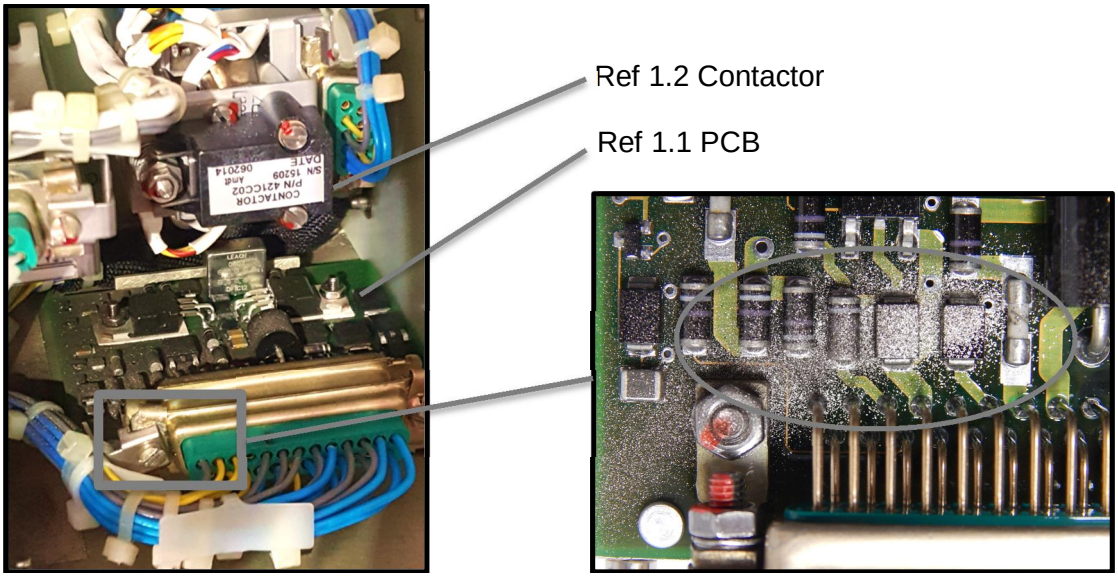
3. DESCRIPTION:

Some operators have reported finding an accumulation of fine particles on the Left Direct Current Power Center (L DCPC) battery diode printed circuit board PCB21 (Ref. 1.1). Our investigation revealed that the particles (metallic residue) were generated by wear of the Auxiliary DC Motor Pump (AUX DCMP) contactor (Ref 1.2). The manufacturer has determined that this type of wear is evidence of a contactor that has exceeded its normal service life.

Since the AUX DCMP cycles only once or twice per hour during flight, it was concluded that most of the wear of the contactor occurs during aircraft ground operation. Per design, when the AUX DCMP is selected in AUTO mode with the right hydraulic system unpressurized, the AUX DCMP will cycle ON and OFF every minute or so to maintain its accumulator pressurized. When repeatedly put in this configuration for an extended period of time, this cycling condition will gradually lead to the wear of the contactor. Review of several cases revealed that during aircraft pre-flight preparation, a pause is often made due to operational circumstances (e.g. waiting for passengers) right after completing the ‘’*BEFORE STARTING ENGINES*’’ check list. In this configuration

(left, right and AUX DCMP in AUTO mode with the right hydraulic system unpressurized), the AUX DCMP will cycle ON and OFF every minute until the ‘‘*STARTING ENGINES’’* check list is carried out.

To mitigate the cycling of the AUX DCMP during aircraft pre-flight activities, the ref 1.5, ref 1.6 and ref 1.7 temporary revisions were released to move the selection of the AUX DCMP control switch to the AUTO position from the ‘‘*BEFORE STARTING ENGINES*’’ list to the ‘‘*BEFORE TAXI*’’ check list in the flight manuals.



View looking at Ref 1.1 PCB and Ref 1.2 contactor in the LH DCPC

Metallic residue on Ref 1.1 PCB

4. ACTION:

Operators should familiarize themselves with the ref 1.5, ref 1.6 and ref 1.7 temporary revisions to avoid the cycling of the AUX DCMP during aircraft pre-flight activities. It is also suggested that maintenance crews limit the usage of the AUX DCMP to the minimum when the right hydraulic system is not pressurized. Maintenance crews are reminded to comply with the Aircraft Maintenance Manual (AMM) instructions when operating the AUX DCMP.

Finally, if maintenance is required in the left DCPC, we suggest maintenance crews visually inspect the ref 1.1 PCB for the presence of metallic residue. In case of findings, the ref. 1.4 Reference Information Letter should be performed to address the condition.