

ADVISORY WIRE

AW300-24-0013, Rev. 1

DATE: January 23, 2006**PAGE** 1 OF 3**FROM:** Bombardier Aerospace, Business Aircraft

ADVISORY WIRE

REFERENCE NO: AW300-24-0013, Rev 1**SUBJECT:** Loss of Normal Electrical Power**EFFECTIVITY:** BD100-1A10 (20006 & Subs.)**ATA:** 24-31

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ADVISORY WIRE

AW300-24-0013, Rev.1

DATE: January 23, 2006**PAGE:** 2 of 3

1.0 INTRODUCTION:

This revision provides updated information for Flight and Maintenance Crews on the root cause of the hydraulic DC Motor-Driven Pump (DCMP) failures and subsequent loss of normally generated electrical power.

2.0 DESCRIPTION:

There were two cases reported where, during production flight-testing, normal electrical power was lost. In both cases, while the crew was performing single engine relight testing, with one engine shut down, the engine driven generator of the operating engine went off-line followed by a “GEN FAIL” Crew Alerting System (CAS) message. In one of the cases, a “GEN OVERLOAD” CAS message was momentarily posted before the “GEN FAIL” message.

Once the shut down engine was successfully started, the generator of that engine also went OFF line. In the first event, the crew then started the APU and the APU generator also went OFF line. The same CAS messages were posted in each case. In the first event, the aircraft returned to the airport under battery power. In the second event, the Pilot selected the DCMP off and was able to select the engine generator back on-line. In both cases the aircraft landed uneventfully.

Investigation after the events revealed that there was a failure within the DCMP (P/N 955805-5) that had been operating during the single engine re-light procedure. The failed units were removed and returned to the vendor for further investigation where analysis of the failed pumps revealed that the pump internal wiring had a partial short. This short had caused an electrical voltage ripple that was sufficient to trip the generators off-line. The increased current was not sufficient to trip the hydraulic pump CB.

ADVISORY WIRE

AW300-24-0013, Rev.1

DATE: January 23, 2006**PAGE:** 3 of 3

The cause of the partial internal short of the DCMP has been identified as a failure of the resin-impregnated glass banding-tape holding the DCMP armature windings together due to high temperatures. The tape failure resulted in the armature windings spreading out due to centrifugal force and shorting to the case.

Bombardier and the vendor are now evaluating changing the design of the DCMP to incorporate a brush-less type motor.

In advance of a change to the DCMP, the Emergency, Non-Normal, and Normal Procedures of the Airplane Flight Manual (AFM) have been revised. The AFM, Revision 3, dated April 28, 2005, released in May 2005, instructs pilots to turn the hydraulic pumps "OFF" during flight and to "AUTO" just before landing. This will prevent a voltage ripple from a failed DCMP causing the engine generator of the other side of the electrical system to go off-line.

3.0 ACTION:

There are no actions for the Operators to take other than being familiar with the situation described above. Pilots should be aware of the new procedures outlined in the revision to the AFM. We will keep you informed as more information becomes available.