

ADVISORY WIRE

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REFERENCE NO:	AW300-21-0264	INFORMATION TYPE:	Maintenance Operational
ATA:	21-52	EFFECTIVITY:	Challenger 300 (20003 – 20500) Challenger 350 (20501 – 20999)
SUBJECT:	ACM Failures Caused by Ram Air Circuit Blockage		

1. INTRODUCTION:

This Advisory Wire is to inform operators of a condition where the Dual Heat Exchanger (DHX) and/or Precooler (PCE) could become blocked and lead to multiple Air Cycle Machine (ACM) failures if no action is taken.

2. DESCRIPTION:

Several operators have reported events of smoke observed in the cabin. The source of the smoke was found to be the ACM that had failed during operation. Some operators have reported their aircraft as having repetitive smoke events related to ACM failures within a short period of time. Signs of this ACM failure condition can be one or more broken off ACM fan blades or heavy friction damage inside the ACM Fan housing.

The ACM damage in these cases were discovered to have been caused by an obstruction of the air conditioning Ram Air circuit. Causes of the obstruction varied from dirt or corrosion to plastic bags, rags, bird nests or insects.

The obstruction of the RAM Air circuit will cause a surging effect on the fan impeller that will lead to a blade rupture and subsequent ACM failure.



Figure 1 – Bird Nesting Material



Figure 2- Insects

3. ACTION:

It is recommended that following an ACM failure exhibiting the signs described in this Advisory Wire that both the DHX and the PCE units are inspected for any type of obstruction.

Units found to be dirty, corroded or blocked by insects, nesting material or any other debris should be replaced and returned to Bombardier for proper cleaning and efficiency testing.