



FLIGHT MANUAL SUPPLEMENT

TFMS2955
REV. B, NOV-12-2012
FOR

TANIS PREHEAT SYSTEMS
TSFQ400-2955-115 AND TSFQ400-2955-230
ON



BOMBARDIER AEROSPACE
MODEL DHC-8 Q400
WITH
PW150 ENGINES

Aircraft Reg. No. _____ Serial No. _____

This supplement must be attached to the Flight Manual when the aircraft is modified by the installation of the Tanis Preheat System.

The information contained herein supplements or supersedes the basic flight manual only in those areas listed. For limitations, procedures, and performance not contained in this supplement, consult the aircraft's approved flight manual.

PROPRIETARY DATA

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RECORD OF REVISIONS

When updated, this document is changed in its entirety.

REV	DATE	DESCRIPTION	BY	Approval
B	NOV-12-2012	Update placard description Figure 1.	JLC	
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SECTION 1. LIMITATIONS

The Tanis Preheat System installed on this aircraft is a collection of three (3) separate kits: two (2) Engine Preheat Kits, and one (1) Battery Heat Kit. Each kit is operated and controlled through individual shore power plugs. The system does not operate in flight, is not connected to or dependent on aircraft systems, and is only capable of operation when connected to a ground based AC power source.

The aircraft is not to be fueled and engines are not to be operated while the system or any of the individual kits are plugged in or connected to an extension cord.

The installation of the preheat system does not change existing environmental flight restrictions. For specific instructions that apply to this aircraft regarding cold weather operations and starting procedures reference appropriate Flight Manual and/or Flight Manual Supplements, as well as FAA Advisory Circulars, (AC).

1.1. Placards and Markings

The system's shore power plugs are located in three (3) places; one (1) on the left side of the left engine cowl, one (1) on the left side of the right engine cowl, and one (1) in the forward battery compartment as shown in Figure 1. System voltage requirement are identified by plug type, and placard.

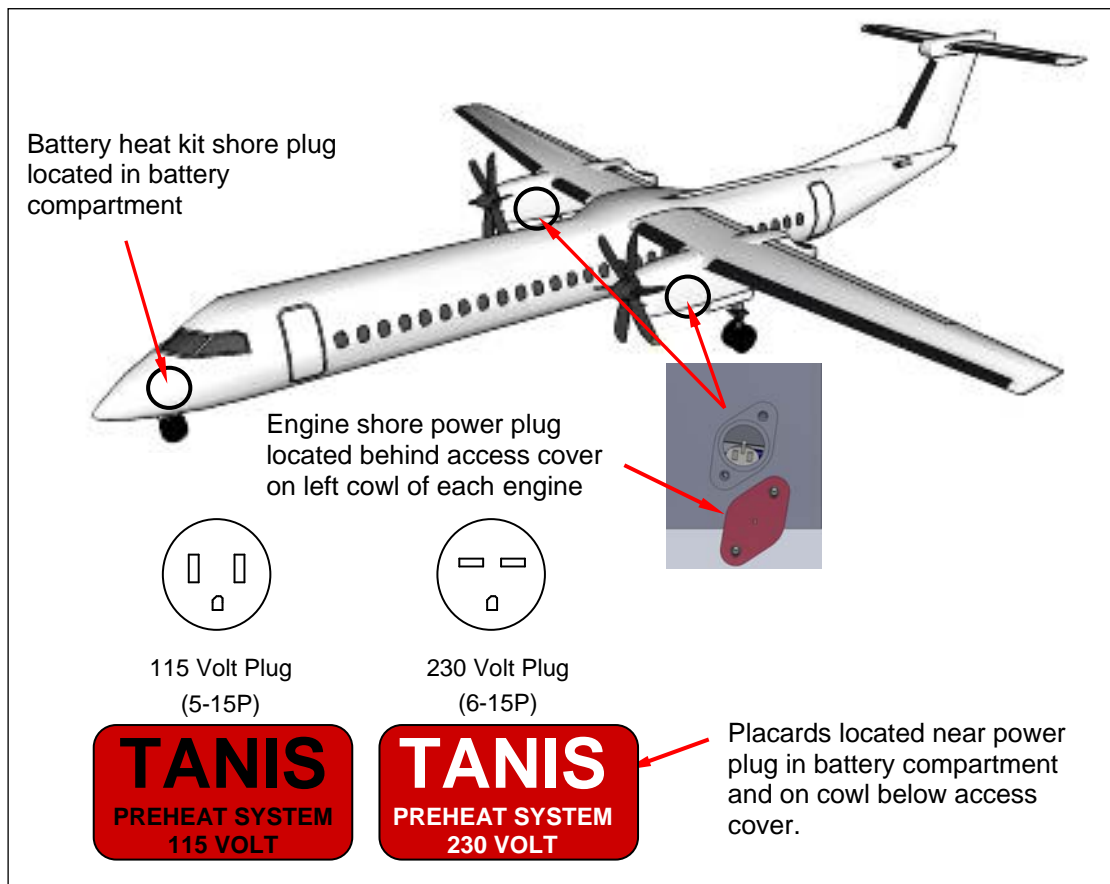


Figure 1 - Shore power plug locations, plug types, and placards.

<i>Extension cord specifications</i>		
<i>Conductor gauge/wires:</i>	<i>Max amps:</i>	<i>Max length:</i>
16/3	13A	50'
	10A	100'
14/3	15A	50'
	13A	100'
12/3 10/3	15A	100'
	15A	100'

(System circuit protection 12A)

Figure 2 - Extension Cord Specifications.

SECTION 2. NORMAL PROCEDURES

The preheat system does not operate in flight and is not connected to or dependent on aircraft systems. The system is only capable of operation when connected to a ground based AC power supply. Only operate the aircraft with preheat kits unplugged and the plug access doors fully closed and latched.

Use proper fluids and oils as recommended by the manufacturer for conditions of flight.

Only operate the preheat system with aircraft fluids at operational levels.

The system can be operated immediately after full engine shut down.

Reference SECTION 1. LIMITATIONS Figures 1 and 2, for shore power location, markings, and extension cord requirements.

2.1. Preheat System Operation and Control

- 2.1.1. Operation and control of the preheat system is accomplished by simply plugging in and unplugging the 3 kits.
- 2.1.2. When preheat kits are connected to power, a red indicator light located adjacent to their respective plug will be on.
- 2.1.3. The systems may be operated at all times while in standby status.
- 2.1.4. For the systems to be of maximum benefit when temperatures are at or below 0°C (32°F), they should be in continual use for a minimum of 6 hours before engine start.
- 2.1.5. When operating at -12°C (+10°F) and below, the use of insulated engine and airframe cowl plugs and/or covers increases the efficiency of preheating operation, retaining heat, and acting as a windbreak.

Engines:

- Using an appropriate flat bladed tool, access the engine shore power plugs by removing the access covers on the left side of the each cowl.
- Reinstall one corner of each access cover leaving room for plug access. This will protect aircraft finish and prevent the loss of the cover plate.
- Plug in the power cord and check indicator light to see that it is on.

Batteries:

- Open the forward upper battery compartment door.
- Plug in the power cord and check indicator light to see that it is on. (Plug is located adjacent to the battery).
- Secure the door by moving the power cord into a position that will allow one of the door latches to be engaged. This will prevent the door from wind damage.

2.2. Preflight Procedures

- 2.2.1. Check to see that the indicator lights are on and the system has been in operation during standby.
- 2.2.2. Remove engine and airframe cowl plugs and/or covers, if used.
- 2.2.3. Perform preflight procedures and walk around.
- 2.2.4. Unplug the aircraft preheat systems from the extension cord(s).
- 2.2.5. Latch the battery compartment door.
- 2.2.6. Reinstall engine access covers on left and right engine cowl.
- 2.2.7. Appropriately stow extension cord(s).
- 2.2.8. Start the aircraft following normal starting procedures.

2.3. Post Flight Operation

Preheat kits may be plugged in as soon as practical after full engine shut down.

- 2.3.1. Once the aircraft is secured, access power plugs and plug in the kits.
- 2.3.2. Verify each of the kits operation by checking to see that the indicator light is on.
- 2.3.3. If used, install engine and airframe cowl plugs and/or covers per manufacturer's instructions.

SECTION 3. EMERGENCY AND MALFUNCTION PROCEDURES

The Tanis Preheat System installed on this aircraft does not operate in flight, is not connected to or dependent on aircraft systems, and is only capable of operation when connected to a ground based AC power source.

Should a malfunction be detected, disconnect the system from power source, flag as inoperable and inspect before flight. Repairs are to be conducted by an appropriately rated and certified mechanic with airframe and power plant experience on this type of aircraft.

SECTION 4. PERFORMANCE

No change from the basic flight manual.

SECTION 5. OPTIONAL EQUIPMENT SUPPLEMENTS

No change from the basic flight manual.

SECTION 6. WEIGHT AND BALANCE

Equipment List and Weight and Balance figures recalculated at time of system installation per aircraft manufacturer's standards.

SECTION 7. SYSTEM DESCRIPTION

This Tanis Preheat System TSQ400-2955-, is a collection of three separate kits: two Engine Preheat Kits: TSTPW150-2961-, and one Battery Heat Kit: TB02962-. Each kit is operated independently through their own individual plug. Engine preheating is accomplished through electrical resistance heat in the form of thin surface mounted pads sized and shaped to fit the propeller reduction (PRGB) and accessory gearboxes (AGB) that in turn heat fluids and attached accessories. The main, auxiliary, and standby batteries are heated with belt type heat elements that interconnect through a thermostatically controlled harness.

Preheating is a cold weather aviation procedure that reduces thermal stress, spool-up times, and increases reliability and safety of operations.

The system is placarded adjacent to each plug. Placard states, Tanis Preheat System, with voltage requirements called out. Voltage requirements are verified by plug configuration and placard. Design is for operation at plus or minus 10% of system voltage requirement. Inline fused links with 12 Amp (MDA-12) fuses, provide circuit protection for each preheat kit.

For visual reference see Section 1. Figure 1.

SECTION 8. HANDLING, SERVICING AND MAINTENANCE

For detailed information regarding maintenance, illustrations and electrical values reference Instruction for Continued Airworthiness (ICA) TICA2955 for the DHC-8 Q400.

SECTION 9. SUPPLEMENTAL PERFORMANCE INFORMATION

No change from the basic flight manual.

***** NOTHING FOLLOWS *****