

**PILOT'S OPERATING HANDBOOK
AND
FOCA APPROVED AIRPLANE FLIGHT MANUAL**

SUPPLEMENT NO. 10

OPERATIONS IN COLD CONDITIONS

This supplement must be attached to the Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual when operating the PC-12, PC-12/45 and PC-12/47 in cold conditions with SB 25-002 modifications installed. The information contained herein supplements or supersedes the information in the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FOCA Approved Airplane Flight Manual.



Approved by:

Federal Office for Civil Aviation (FOCA) of Switzerland
Section for Type Certification

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SECTION 1 - GENERAL

This supplement provides the information necessary to operate the PC-12, PC-12/45 and PC-12/47 aircraft in cold temperatures with a battery and an engine heater system installed (Post SB 25-002).

SECTION 2 - LIMITATIONS

OTHER LIMITATIONS

OPERATIONS IN COLD CONDITIONS

Ambient ground temperature	0 to -15° C	Battery heater required
Ambient ground temperature	-15° C and below	Battery, engine and supplementary cabin heater required.
		External engine blanket recommended

A cabin underfloor temperature of -15° C or warmer is required prior to takeoff.

The aircraft must be clear of deposits of snow, ice and frost from the lifting and control surfaces immediately prior to takeoff.

SECTION 4 - NORMAL PROCEDURES

GENERAL

If the aircraft is to be parked outside for a period of time and the ambient ground temperature is expected to be:

0 to -15° C	connect a 110 V AC ground power supply to the battery heater connector.
-15° C and below	connect a 110 V AC ground power supply to the battery and engine heater connectors. Put a blanket cover over the engine. Put a supplementary heater in the center of the cabin.

PRE FLIGHT INSPECTION

Switch off and disconnect 110 V AC ground power supply to battery, engine and supplementary heaters.

Remove blanket cover from engine and supplementary heater from the cabin.

ENGINE STARTING

It is recommended to use external power procedure for engine starting, using a ground power unit capable of supplying 1000 Amp V DC power.

After engine start at cold temperatures of below -15°C , maximum cabin heating should be selected and the temperature of the underfloor avionic bay monitored by pressing the button near the cabin temperature indicator, to observe a minimum temperature of above -15°C prior to commencement of flight.

In the event of the underfloor temperature sensor being inoperative, a period of 3 minutes per 10° below the ambient temperature of -15°C should be allowed after the selection of maximum cabin heating, to ensure that the underfloor equipment is brought up to an ambient operating temperature of above -15°C prior to commencement of flight.

SECTION 7 - SYSTEM DESCRIPTION

BATTERY HEATER SYSTEM

Description

A belt type 110 V AC heating element is wrapped around the outside of the battery. A temperature sensor is attached to the aircraft skin and a wiring harness connects the temperature sensor to the battery heating element and the external power receptacle. The wiring harness has an additional connector installed for the connection of a supplementary cabin heater. The receptacle is installed in the lower rear fuselage. A power on indicator light is installed near the receptacle.

Operation

When 110 V AC power is supplied to the external receptacle the indicator light will come on and power is supplied to the temperature sensor and supplementary heater connector. The temperature sensor will supply power to the battery heating element when the skin temperature of the aircraft goes below 0°C .

ENGINE HEATER SYSTEM

Description

Four 110 V AC wrap around type heating elements are installed on the engine at the following locations:

- on the LH side of the reduction gearbox
- on the RH side of the reduction gearbox
- on the LH side of the accessory gearbox
- on the underside of the fuel control unit.

A wiring harness routed down the left side of the engine connects the heating elements to an external power receptacle. The receptacle is installed in the left lower front fuselage. A power on indicator light is installed near the receptacle.

Operation

When 110 V AC power is supplied to the external receptacle the indicator light will come on and power is supplied to the four engine heating elements. An insulated engine cover is placed over the engine to assist in heat retention in the engine bay.

SUPPLEMENTARY HEATER

Supplementary ceramic element safety heater of 1500 W power is placed in the center of the aircraft cabin to provide heating. The cabin heater is connected to the connector on the battery heating element wiring harness.

A temperature sensor is installed under the cabin floor between frames 17 and 18. A press button is installed near the cabin temperature indicator on the cockpit center panel. When the button is pressed the cabin temperature indicator is changed from showing the cabin temperature to the cabin under floor avionics bay temperature.

SECTION 8 - HANDLING, SERVICING AND MAINTENANCE

SERVICING

At each aircraft inspection examine the battery and engine heating elements for damage and the wiring harnesses for security of attachment.

BATTERY SERVICING

Depending on the type of battery installed, a more frequent check of the fluid level maybe recommended, when using the battery heating system for long periods of time. Check the battery manufacturers information for any additional servicing requirements.

When removing and installing the battery from the battery box take care not to damage the heating element on the edges of the box. Small tears in the element can be repaired with RTV silicone. If any of the element wire is exposed the element should be replaced.

AIRPLANE EQUIPMENT LIST

This list itemizes the equipment installed and required for operations in cold weather conditions.

Mark 'X' if installed	ATA Code	ITEM	PILATUS PART NO.	MASS kg	ARM m
	12	SERVICING Battery heater installation Engine heater installation Power on indicator light (2) Insulated engine cover 110 V power extension outlet Supplementary heater Recommended 'Windmere' or similar Temperature sensor	Tanis TAS200-03 Tanis TAS300-15 Tanis PLT Tanis CVR 619 Jet Aviation 160-4N or 160-2N 975.15.16.102		

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