AIR COMM CORPORATION
3300 AIRPORT ROAD
BOULDER, COLORADO 80301

BELL HELICOPTER
MODEL 427

FLIGHT MANUAL SUPPLEMENT
427H-1

Bleed Air Cabin Heater

FAA APPROVED

The information contained in this document is FAA approved material, which must be carried in the basic Flight Manual, after the rotorcraft has been modified by installation of the Cabin Heater System in accordance with Air Comm Corporation STC No SR00419DE.

The information in this document supplements or supersedes the basic manual only in the items contained herein. For Limitations, Procedures, and Performance Data not contained in this supplement, consult the basic Flight Manual.

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Log of Pages

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FLIGHT MANUAL

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Bleed Air Cabin Heater

SYSTEM DESCRIPTION

The cabin heater system is a bleed air type which incorporates the mini ejector concept as shown by the General Arrangement (see figure 1).

The system shutoff valve is an electrically operated ON-OFF valve and must be turned ON to operate the system.

The system control valve is manually operated and is used to control the flow of bleed air to the heater ejector, as required to maintain cabin comfort.

The heater ejectors mix engine bleed air with re circulated cabin air and exhausts warm air to the floor area of the cabin. The air circulation through the ejector is achieved by the bleed air pressure.

A separate manually operated valve is provided for windshield defogging. the defog ejectors are located at the inlet to the windshield defroster system.

An optional chin window defog system may be installed. If installed, this system shares the bleed air flow to the windshield defroster system.

That part of the heater system associated with the engine compartment is shown by figure 2, and is referred to as the engine bleed air system.

Bleed Air Cabin Heater

SYSTEM DESCRIPTION (Cont'd)

This system incorporates check valves which are designed to prevent bleed air backflow in the event of loss of one engine.

The heater system features two load shedding devices.

The heater shut-off valve is connected to the aircraft IIDS thru a control relay. Loss of either engine will result in automatic closure of the ON-OFF valve. In this event, the heater operation can be restored by switching the heater HTR-OFF-OVRD switch to OFF and then to OVRD.

The heater system is equipped with a series of temperature sensors. These sensors are mounted in the control column and seat box areas. An overtemperature condition, will result in automatic closure of the system shutoff valve. The heater operation can be restored, after the area which experienced the increased temperature has cooled, by switching the heater HTR-OFF-OVRD switch from HTR to OFF to HTR. However, use of the heater is not recommended until the cause of the occurrence has been determined.

Bleed Air Cabin Heater

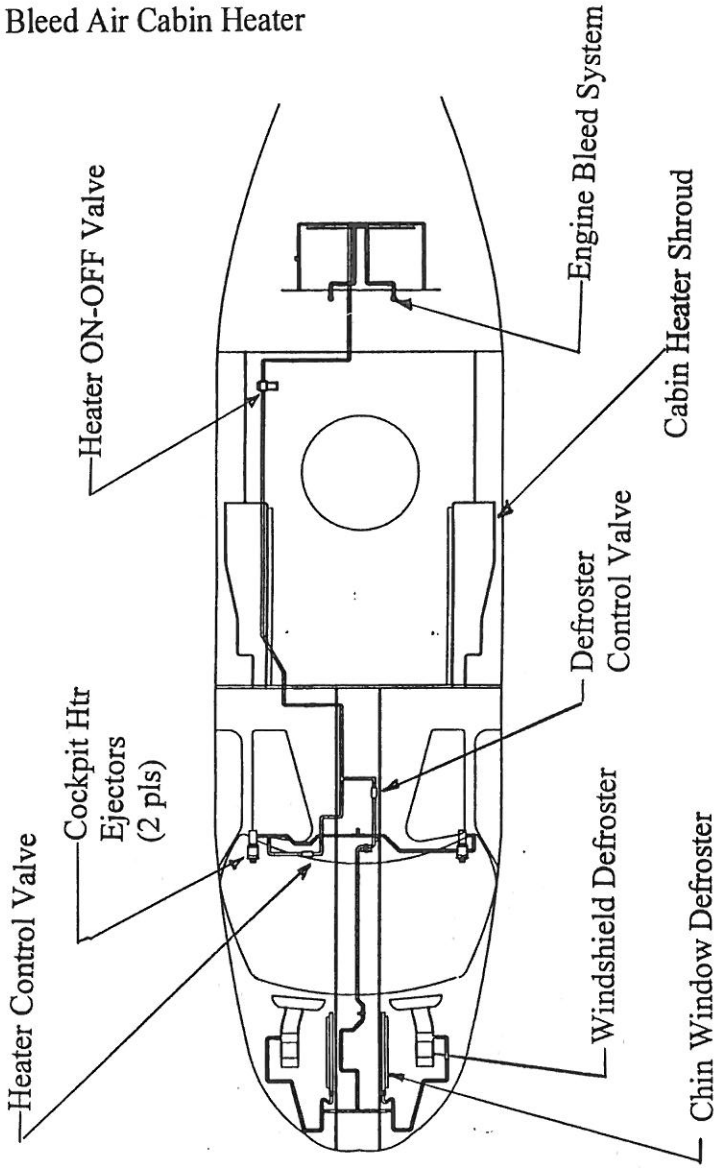
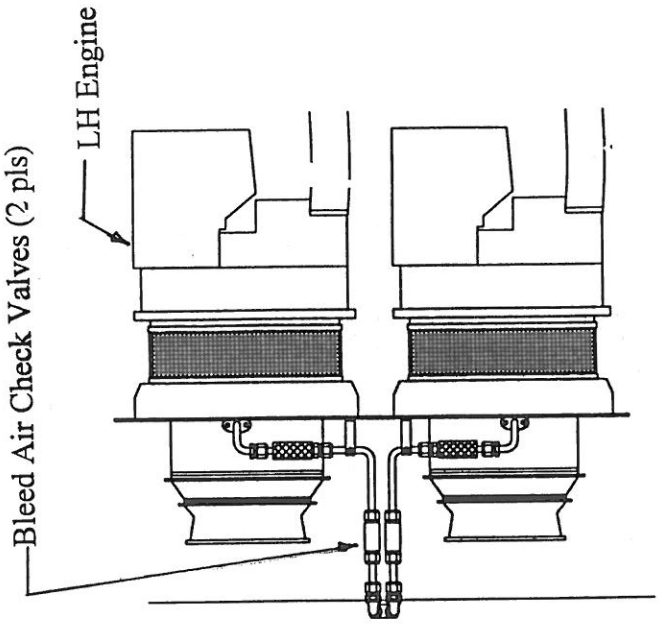
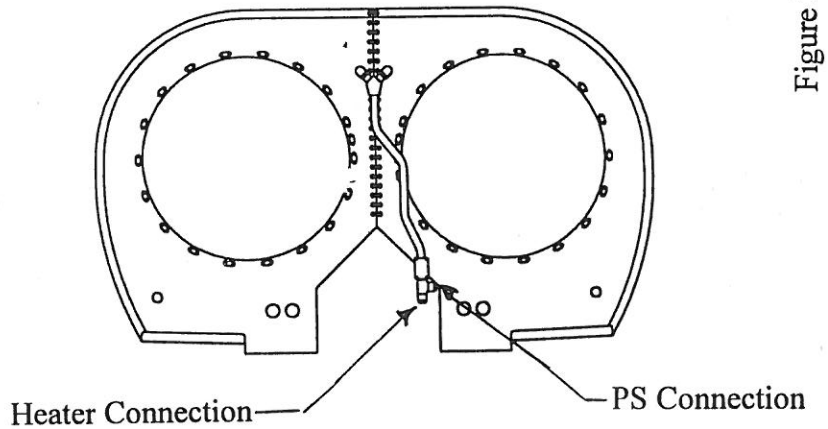


Figure 1 General Arrangement - Cabin Heater System





View Looking Forward

Figure 2 Engine Bleed Air System

Bleed Air Cabin Heater

SECTION 1 LIMITATIONS

1. Limitations

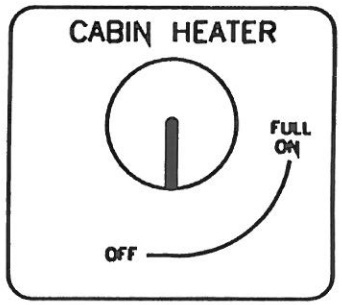
1.1 HTR-OFF-OVRD Switch shall be OFF during engine start and shut down.

1.2 During OEI flight heater use prohibited above 30 minute engine rating.

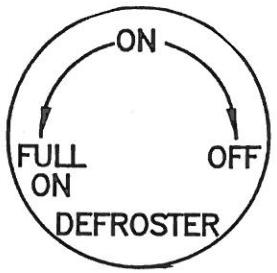
Bleed Air Cabin Heater

SECTION 1 LIMITATIONS (cont'd)

1.1 Placards and Markings



Located on the front side of the RH seat box

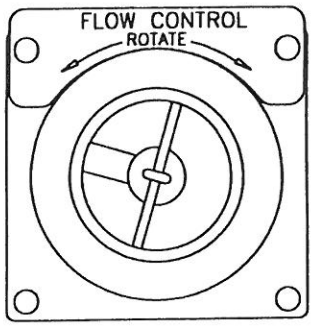


Located on the defroster control knob in the center console

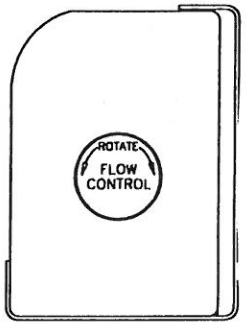
Bleed Air Cabin Heater

SECTION 1 LIMITATIONS (cont'd)

1. 1 Placards And Markings (cont'd)



Located on the heater outlets on the front of the Pilot/Co-Pilot seat box



Located on the aft edge of the cabin heater shrouds

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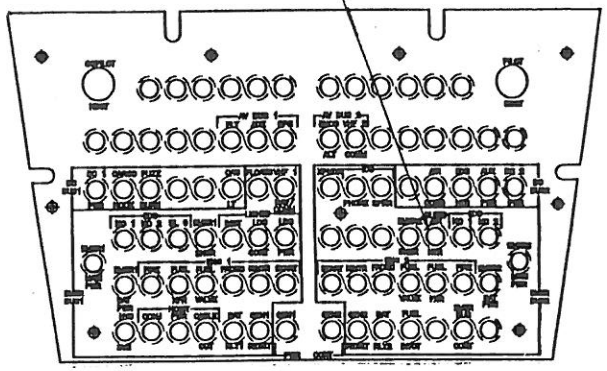
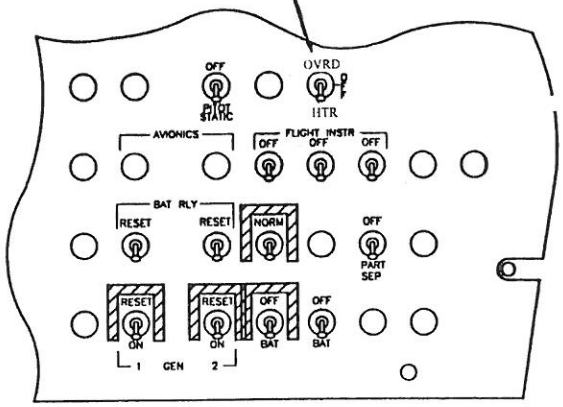
SECTION 1 LIMITATIONS (cont'd)

1. 1 Placards And Markings (cont'd)

BLEED AIR HTR circuit breaker



HTR-OFF-OVRD Switch



Located in overhead switch panel

Bleed Air Cabin Heater

SECTION 1 LIMITATIONS (cont'd)

HTR DUCT TEMP caution message displayed on Integrated Instrument Display System (IIDS).

Bleed Air Cabin Heater

SECTION 2 NORMAL PROCEDURES

Engine Prestart Check
HTR-OFF-OVRD switch - OFF.
Cabin Heater Control Knob - As desired.
Defroster Control Knob - As desired.

Before Takeoff
HTR-OFF-OVRD switch - ON as desired.
Cabin Control Valve - As desired.
Defroster Control Knob - As desired.
Check BLEED AIR ON Aircraft Performance charts in Basic Flight Manual

In Flight Operations
HTR-OFF-OVRD switch - ON as desired.
Cabin Control Valve - As desired.
Defroster Control Knob - As desired.
Check BLEED AIR ON Aircraft Performance charts in Basic Flight Manual

Descent And Landings
HTR-OFF-OVRD switch ON as desired.
Cabin Control Valve - as desired.
Check BLEED AIR ON Aircraft Performance charts in Basic Flight Manual.

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SECTION 3 EMERGENCY/FUNCTION PROCEDURES

Panel Wording	Corrective Action
ENG 1 OUT	Heater automatically OFF line. Move HTR-OFF-OVRD switch to OFF.
ENG 2 OUT	Heater automatically OFF line. Move HTR-OFF-OVRD switch to OFF.
ENG 1 FIRE	Move HTR-OFF-OVRD switch to OFF.
ENG 2 FIRE	Move HTR-OFF-OVRD switch to OFF.
2 MIN	Move HTR-OFF-OVRD switch to OFF.
30 SEC	Move HTR-OFF-OVRD switch to OFF.
HTR DUCT TEMP	Heater automatically OFF line. Move HTR-OFF-OVRD switch to OFF.

Note

Heater operation can be restored following cool-down by operating the HTR-OFF-OVRD switch to OFF and back to ON.

Caution

It is recommended that the source of the HTR DUCT TEMP Condition be corrected prior to operation of the heater.

Note

Heater operation can be restored during OEI flight by moving the HTR-OFF-OVRD switch to OVRD. Monitor MGT and N_G.

Bleed Air Cabin Heater

SECTION 4 PERFORMANCE

No change in performance with heater OFF. Refer to Aircraft Flight Manual for BLEED AIR ON Aircraft Performance Data.