

AIR COMM CORPORATION  
3300 AIRPORT ROAD  
BOULDER, COLORADO 80301

BELL HELICOPTER  
MODEL 427

FLIGHT MANUAL SUPPLEMENT  
427EC-100M

Cabin Air Conditioning System

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 Air Conditioning System in accordance with Air Comm Corporation STC No SR004180E.

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.

Log of Pages

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SYSTEM DESCRIPTION

The cabin air conditioning system is a vapor cycle type which utilizes R134a refrigerant. The system components are shown by the General Arrangement drawing (see Figure 1).

The function of the compressor is to pump refrigerant throughout the system circuit.

The evaporators are used to remove heat and moisture from the cabin, and to deliver the heat to the condenser.

The function of the condenser is to remove heat energy from the refrigerant and to reject it to the outside air.

The system controls are located in a switch panel which is positioned in the center console.

Blower Hi/Lo switches are provided to control the speed of the forward and aft evaporator blowers.

An outlet air temperature control knob is included in the switch panel. This control can be used to adjust the set-point of a capillary type switch, to adjust the conditioned air outlet temperature.

Capillary type temperature control switches are incorporated in both the forward and aft evaporators for air temperature control and/or coil freeze-up prevention. These switches control a solenoid operated refrigerant bypass valve. This arrangement provides system control without compressor clutch cycling.

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SYSTEM DESCRIPTION (cont'd)

The system incorporates a binary pressure switch. This switch is designed to protect the system in case of loss of refrigerant (low pressure) or in case of a system overpressure. The system cut-out pressures are 50 and 325 psig for the low and high pressures, respectively. This switch prevents operation of the system below ambient conditions of 50° F.

The air conditioner control panel includes a compressor ON light for visual confirmation of the system status.

The air conditioner electrical system is connected to the number two (RH) DC bus. The system is controlled by the aircraft IIDS thru a control relay. Loss of either engine will result in automatic shut-down of the air conditioner.

Loss of generator number 1 (LH) will not disconnect the air conditioning system. However; the aircraft electrical load should be monitored to avoid an over load condition.

Loss of generator number 2 will disconnect the air conditioning system. However; the operation of the system will be restored, when the bus interconnect switch is moved from NORM to BUS INTCT.

A normally closed temperature switch is mounted to the compressor and is wired in series with the clutch coil. The purpose of the switch is to disengage the compressor clutch in case of compressor seizure. The switch will remain open following exceedance of the setpoint (220° F) unless the switch is exposed to a temperature of -40° F.

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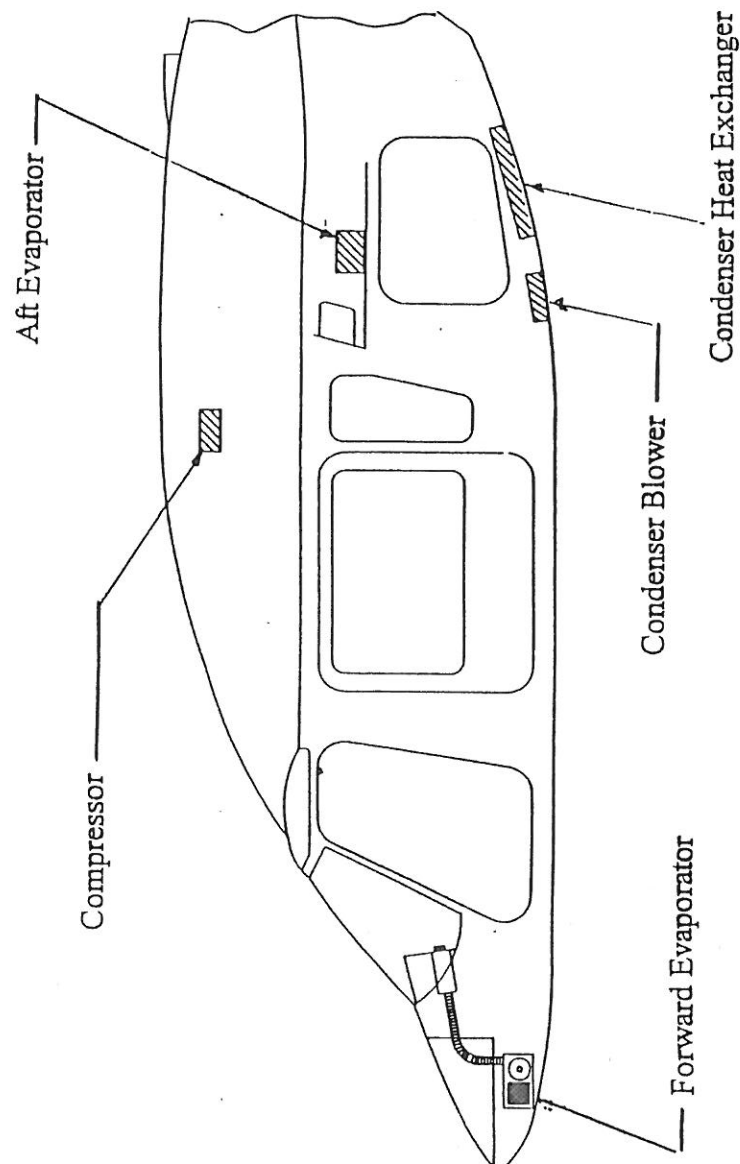


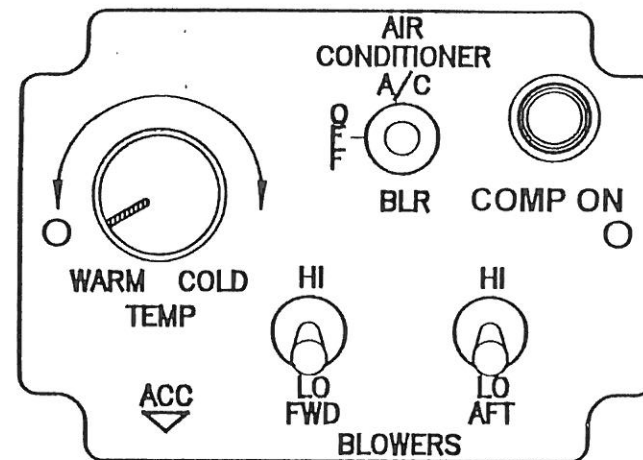
Figure 1 General Arrangement, Cabin Air Conditioner

# Cabin Air Conditioning System

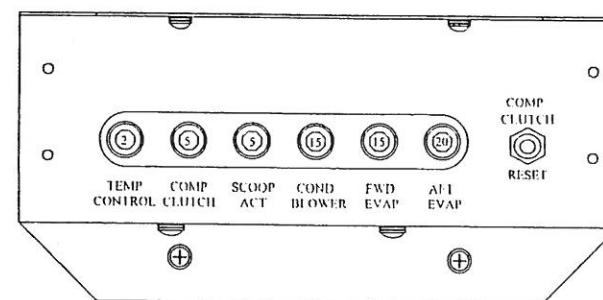
## SECTION 1

## LIMITATIONS

### Placards And Markings



Located in center console



Located in upper forward edge of baggage compartment

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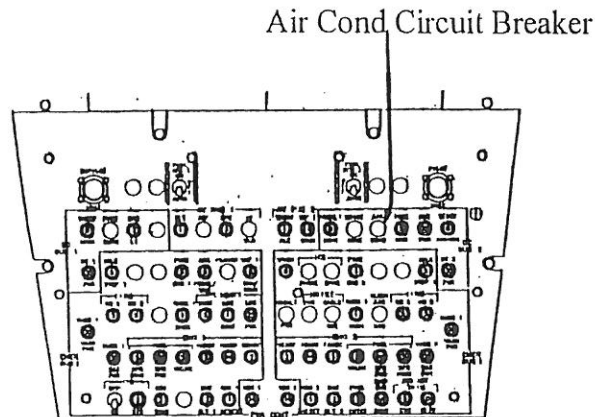
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SECTION 1 (cont'd)

LIMITATIONS

Placards And Markings



Located in overhead Switch Panel

MAXIMUM BAGGAGE Wt: 228 LBS

Located on baggage compartment door.

MAG COMPASS DEVIATION  
MAY BE EXCESSIVE WITH  
AIR COND OR BLOWER ON

Located adjacent near compass

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SECTION 2

NORMAL PROCEDURES

Preflight Check (Exterior)

Compressor - Check security.  
Condenser - Check security.

Engine Prestart Check

A/C - OFF - BLR Switch OFF

Before Takeoff

A/C - OFF - BLR Switch as desired.  
Select HI / LO blower as desired.

In Flight Operations

A/C - OFF - BLR Switch as desired.  
Select HI / LO blower as desired.

Note

The total air conditioning system electrical  
load is 43 amps. Monitor amps.

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SECTION 3 EMERGENCY /MALFUCTION PROCEDURES

PANEL WORDING

CORRECTIVE ACTION

ENG 1 OUT	Air Conditioner automatically OFF. Select A/C - OFF - BLR switch OFF.
ENG 2 OUT	Air Conditioner automatically OFF. Select A/C - OFF - BLR switch OFF.
DUAL GEN FAIL	Air Conditioner automatically OFF. Select A/C - OFF - BLR switch OFF.
1 GEN	Air Conditioner will continue to operate. Monitor amps.
2 GEN	Air Conditioner automatically OFF. Air Conditoner will restart when BUS INTCT is selected. Monitor amps.

FAULT

ACTION

Air Conditoner not providing cool air.	Verify COMP ON light illuminated. If light extinguished select A/C - OFF - BLR switch OFF.  If COMP ON light illuminated, adjust Temp Knob to COLD. If no change in outlet air temperature select A/C - OFF - BLR switch to OFF.
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SECTION 4 PERFORMANCE DATA

When the A/C is operating, the performance data in  
the basic flight manual should be reduced as shown  
below:

Rate of Climb Degradation: Reduce the rate of  
climb in the basic Flight Manual by the amount  
shown below.

CHART R/C minus 55 ft/min.

Hover Ceiling In Ground Effect and Out of Ground Effect

Add 75 pounds to the existing aircraft weight and read the  
corresponding hover ceiling.

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