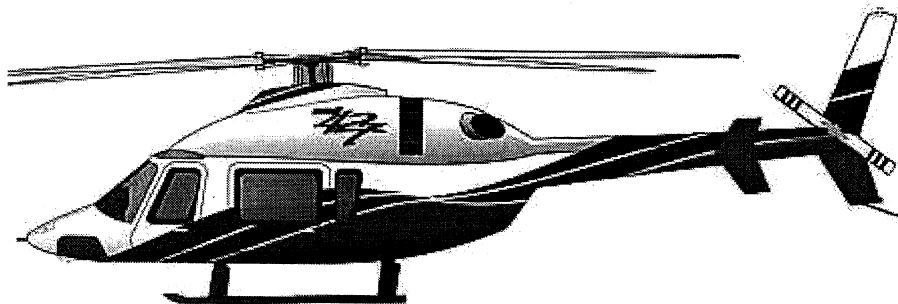


**AIR COMM CORPORATION
3300 AIRPORT ROAD
BOULDER, CO. 80301**

**DOCUMENTS
BELL MODEL 427 CABIN HEATING SYSTEM**



INSTALLATION DOCUMENTATION 427H-201M-2

LIST OF EFFECTIVE PAGES

LIST OF REVISIONS

Revision 0 (Original Issue) 4 January, 1999

LIST OF EFFECTIVE PAGES

<u>Title</u>	<u>Page(s)</u>	<u>Revision No.</u>
Record of Revisions	i	0
List of Effective Pages	ii	0
Table of Contents	iii	0
Chapter 0 Introduction	0-1	0
Chapter 1 General installation procedure & Reference Document	1-1	0
Chapter 2 Weight & Balance Information	2-1	0
Chapter 3 Flight Manual Supplement	3-1	0
Chapter 4 Supplemental Type Certificate	4-1	0

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TABLE OF CONTENTS

Identification	Title	Page
Chapter 0	Introduction	0-1
	1. Scope	0-1
	2. Purpose	0-1
	3. Arrangement	0-1
	4. Applicability	0-1
Chapter 1	General installation procedure & Reference Document.	1-1
	1. General installation procedure	1-1
	2. Reference Document	1-1
Chapter 2	Weight & Balance Information	2-1
Chapter 3	Flight Manual Supplement	3-1
Chapter 4	Supplemental Type Certificate	4-1

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**CHAPTER 0
INTRODUCTION**

This document contains information, which is required for the installation and operation of the Air Comm Corporation's heating system installed in the bell 427 series helicopter. After completion of the installation of the heating system the Weight & Balance Information, Flight Manual Supplement, and the Supplemental Type Certificate must be removed from this document and placed with the appropriate existing aircraft documents.

1. SCOPE

The scope of this document encompasses the general procedures and reference documentation necessary to install the Air Comm Corporation heating system in the Bell 427 series helicopter.

2. PURPOSE

The purpose of this document is to provide the aircraft mechanic in the field the necessary information and documentation to install the heating system.

3. ARRANGEMENT

This manual is arranged by chapters, which are broken down into paragraphs and sub-paragraphs. All of the chapters and paragraphs are listed in the front of this manual in the Table of Contents, and are further identified by their individual page number.

4. APPLICABILITY

This document is applicable to Bell Helicopter models 427 that are equipped with the Air Comm Corporation kit number 427H-200-1 heater system.

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**CHAPTER 1
GENERAL INSTALLATION PROCEEDURE & REFERANCE DOCUMENT**

1. GENERAL INSTALLATION PROCEEDURE

This section is intended to supplement the information contained on the installation drawings. All details and notes contained on the drawings should be reviewed carefully. As instructions for installation are provided on the installation drawing where appropriate, and are not repeated in this document.

The system components and associated hardware are packaged separately. Prior to beginning the installation it is recommended that the hardware be inventoried and placed in separate (labeled) boxes to prevent mixing.

2. REFERANCE DOCUMENT

The approval basis of the system covered by this document is Supplemental Type Certificate **SR00419DE**

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**CHAPTER 2
WEIGHT & BALANCE INFORMATION**

This page must be removed and placed with the appropriate existing aircraft documents.

Weight breakdown – Bell 427 series heating system:
Dwg. 427H-200-1

Weight & Balance

Item	Wt. (lbs)	Arm (in) X	Arm (in) Y	M (in-lb) WX	M (in-lb)WY
Total (427H-200-1 Installation) Bell 427 Heater System	19.3	183.3	1.7	3537	33
Total with optional (427H-988-1) Bell 427 Chin Bubble Defroster	20.5	178.7	1.6	3663	33

* Engine Bleed Air System part of basic helicopter

**CHAPTER 3
FLIGHT MANUAL SUPPLEMENT**

1. FLIGHT MANUAL SUPPLEMENT

The following document must be removed and placed with the appropriate existing aircraft documents.

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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 51200419D.

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.

FAA APPROVED: MAY 15 2000

Log of Pages

MODEL 427
 FLIGHT MANUAL

Bleed Air Cabin Heater

Log of Revisions			
Original	0,	Pages 1 - 14	
Pgs	Rev No.	Pgs	Rev No.
FAA APPROVED: Date: <u>May 15, 2000</u> Approved: <u>Paul J. Carter</u> <i>Ron May, Manager</i> Denver Aircraft Certification Office, Northwest Mountain Region, Denver, Colorado			

FAA APPROVED: MAY 15 2000

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

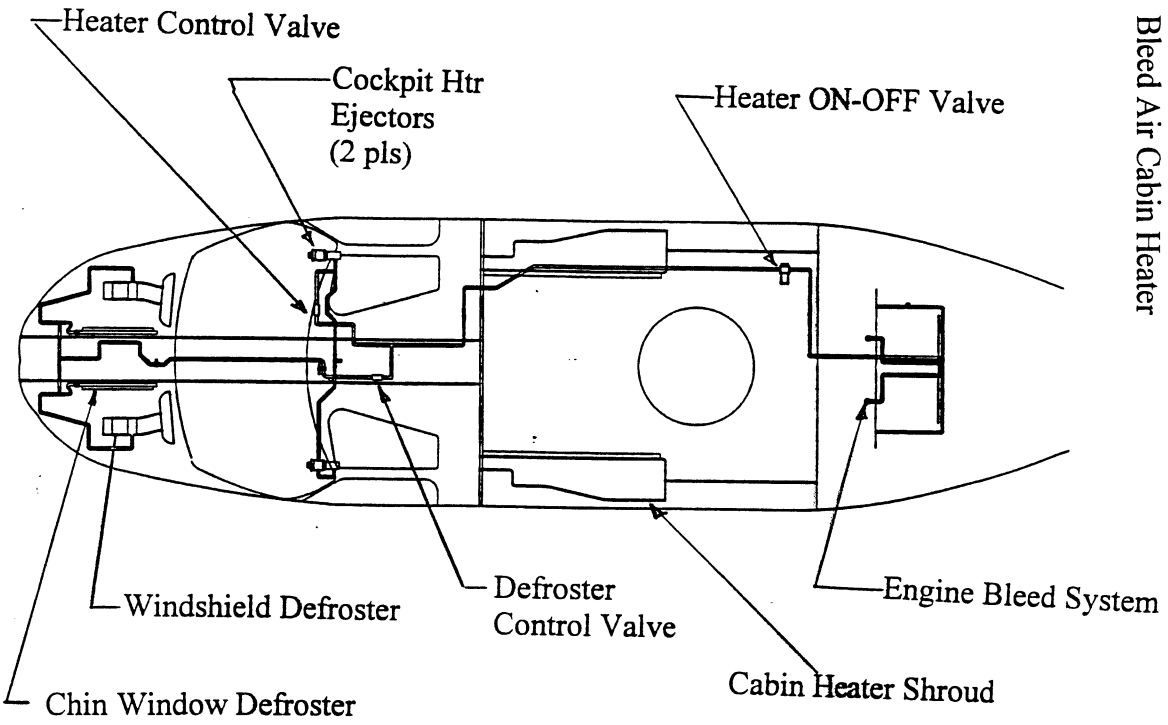


Figure 1 General Arrangement - Cabin Heater System

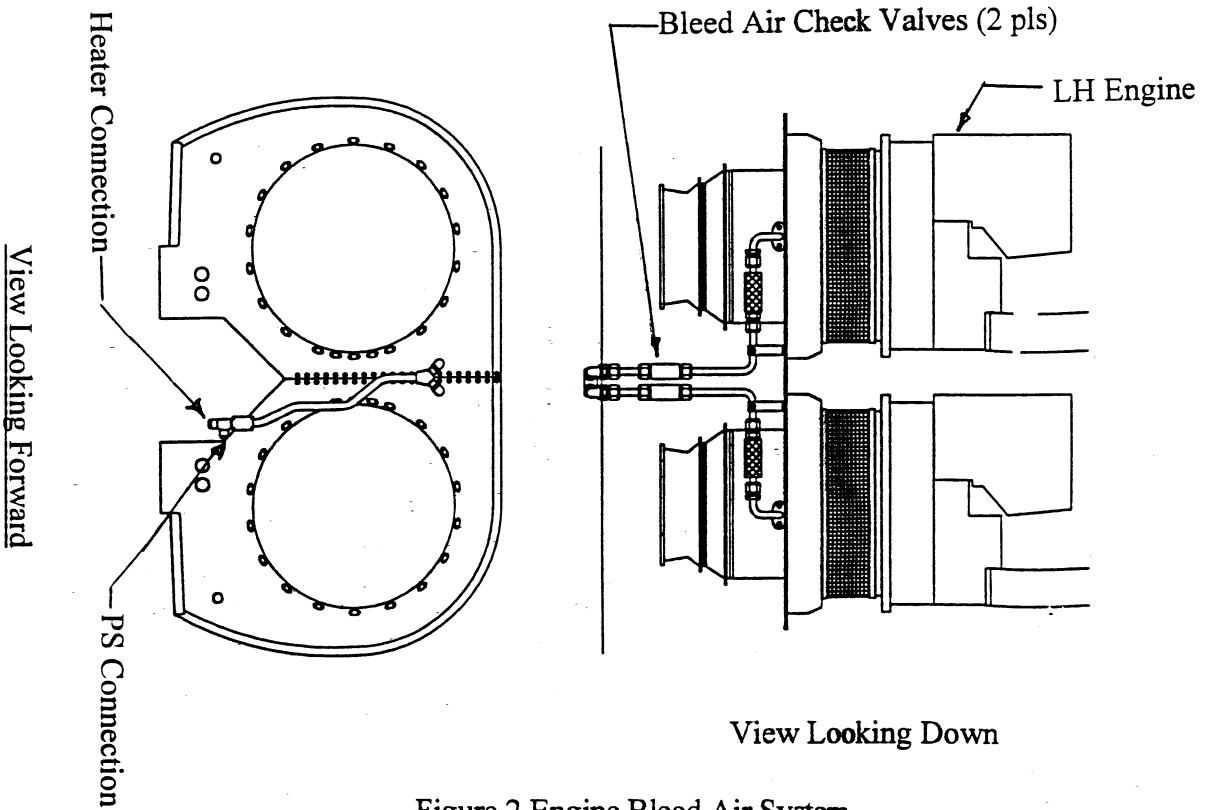


Figure 2 Engine Bleed Air System

Bleed Air Cabin Heater

SECTION 1

LIMITATIONS

1. Limitations

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

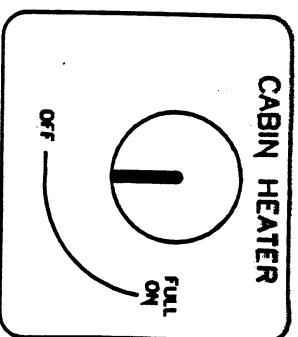
1.2 During OEI flight heater use prohibited above 30 minute engine rating.

Bleed Air Cabin Heater

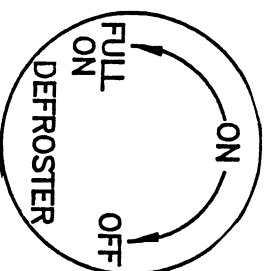
SECTION 1

LIMITATIONS (cont'd)

1.1 Placards and Markings



Located on the front side of the RH seat box

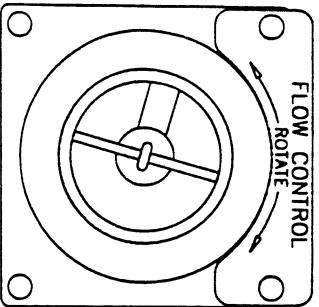


Located on the defroster control knob in the center console

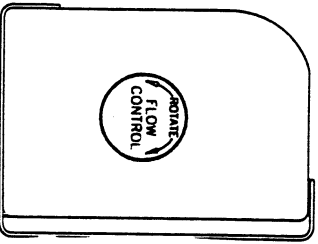
Bleed Air Cabin Heater

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



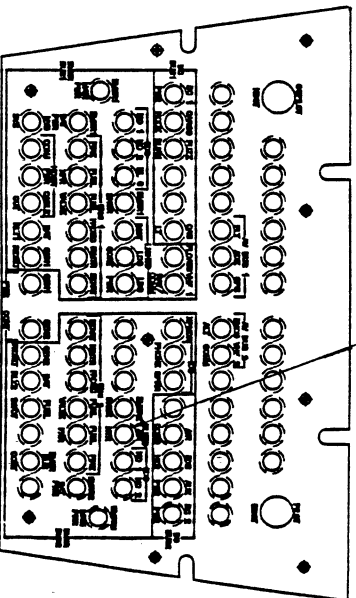
Located on the aft edge of the cabin heater shrouds

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Bleed Air Cabin Heater

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

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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 Restart 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.

MODEL 427
FLIGHT MANUAL

FAA APPROVED
SUPPLEMENT

MODEL 427
FLIGHT MANUAL

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SUPPLEMENT

Bleed Air Cabin Heater

Bleed Air Cabin Heater

SECTION 3 EMERGENCY/FUNCTION PROCEDURES

SECTION 4 PERFORMANCE

Panel Wording

Corrective Action

ENG 1 OUT
Heater automatically OFF line.
Move HTR-OFF-OVVD switch to OFF.

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

ENG 2 OUT
Heater automatically OFF line.
Move HTR-OFF-OVVD switch to OFF.

ENG 1 FIRE
Move HTR-OFF-OVVD switch to OFF.

ENG 2 FIRE
Move HTR-OFF-OVVD switch to OFF.

2 MIN
Move HTR-OFF-OVVD switch to OFF.

30 SEC
Move HTR-OFF-OVVD switch to OFF.

HTR DUCT TEMP
Heater automatically OFF line.
Move HTR-OFF-OVVD switch to OFF.

Note

Heater operation can be restored following cool-down by operating the HTR-OFF-OVVD 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 OI flight by moving the HTR-OFF-OVVD switch to OVVD. Monitor MGT and NG.

**CHAPTER 4
SUPPLEMENTAL TYPE CERTIFICATE**

1. SUPPLEMENTAL TYPE CERTIFICATE

The following document must be removed and placed with the appropriate existing aircraft documents.

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United States of America
Department of Transportation—Federal Aviation Administration
Supplemental Type Certificate

Number SR00419DE

This certificate, issued to **Air Comm Corporation
3300 Airport Road
Boulder, Colorado 80301**

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product—Type Certificate Number: R00001RC
Make: Bell Helicopter Textron
Model: 427

Description of the Type Design Change:

Installation of Cabin Heater in accordance with Air Comm Corporation Master Drawing List Report No. DL-427H, revision C, dated March 9, 2000, FAA approved May 15, 2000, or later approved revision.

Limitations and Conditions:

1. FAA Approved Flight Manual Supplement, 427H-1, dated May 15, 2000 or later approved revision is required.
2. FAA Accepted Instructions for Continued Airworthiness, 427H-201M-1, revision 0, or later accepted revision is required.
3. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of the permission.
4. Compatibility of this design change with previously approved modifications must be determined by the installer.
5. A copy of this certificate, Instructions for Continued Airworthiness, and FAA Approved Flight Manual Supplement is required and must be maintained as a part of the permanent records for each aircraft.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: February 4, 1998.

Date reissued:

Date of issuance: May 15, 2000.

Date amended: 9/27/00, 11/13/00



By direction of the Administrator

David T. Grossman
David T. Grossman (*Signature*), Rotorcraft Program Manager
Northwest Mountain Region
Denver Aircraft Certification Office
(*Title*)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.