

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

**DOCUMENTS FOR THE INSTALLATION OF THE
MBB-BK117 C-1 COCKPIT HEATER AND
WINDSHIELD DEFROSTER SYSTEM**

LIST OF EFFECTIVE PAGES

LIST OF REVISIONS

Revision 0 (Original Issue)... 16 December, 2004

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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 cockpit heater and defroster system installed in the MBB-BK117 C-1 series helicopter. After completion of the installation of the air conditioner 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 cockpit heater and defroster system in the MBB-BK117 C-1 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 air conditioning system.

3. ARRANGEMENT

This document 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 document in the Table of Contents, and are further identified by their individual page number.

4. APPLICABILITY

This document is applicable to MBB-BK117 C-1 model helicopters that are equipped with the Air Comm Corporation kit number 117H-102-2 Aux Heater/Defroster System.

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CHAPTER 1
GENERAL INSTALLATION PROCEEDURE & REFERENCE 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.

Care should be taken to prevent contamination of the heater/defroster system! All plugs on the plumbing assemblies and system components should *not* be removed until just prior to installation of the part.

2. REFERENCE DOCUMENT

The approval basis of the system covered by this document is Supplemental Type Certificate **SR00007DE**.

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CHAPTER 2
WEIGHT & BALANCE INFORMATION

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

Weight breakdown – MBB-BK117 C-1 series cockpit heater and defroster system:
Dwg. 117H-102

Weight & Balance

Item	Wt. (Kg)	X-Arm (mm)	X-M (kg-mm)
MBB-BK117 C-1 Cockpit Heater & Defroster System	9.29	3,776.2	35,081
	Wt. (lbs)	X-Arm (in)	X-M (in-lb)
	20.48	148.7	3,045

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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

**FLIGHT MANUAL SUPPLEMENT
TO THE**

MODEL MBB-BK117 C-1

**COCKPIT HEATER AND WINDSHIELD DEFROSTER
SYSTEM**

BK 117-102

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 Cockpit Heater/Windshield Defroster System, in accordance with STC # SR00007DE

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

FAA APPROVED
SUPPLEMENT

**MODEL MBB-BK 117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM**

Original 0	
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Pages	Rev. No.
1-10	N/C
FAA APPROVED: DATE APPROVED: <i>Ron May</i> Ron May, Manager Denver Aircraft Certification Office, Northwest Mountain Region Denver, Colorado 80207	

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MODEL MBB-BK 117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

SYSTEM DESCRIPTION

The Cockpit Heater/Windshield Defroster System is a "bleed air" type which is installed in combination with an existing Environmental Control System.

The system installation is shown by figure 1. The function of the system components is described in the following paragraphs.

Two Cockpit Heater Ejectors provide recirculated, heated cabin air to the flight deck area.

One Aft Cabin Heater Ejector Provides recirculated, heated cabin air to the aft cabin area.

A single Jeffan Airmover installed within the existing three inch diameter defroster air duct. The purpose of the Jeffan is to enhance warm airflow onto the windshield, by augmenting the ECU output to the existing windshield diffuser.

Insulated bleed air plumbing. The plumbing taps into the existing ECU bleed air source and serves to supply bleed flow to the Cockpit and Cabin Heater Ejectors as well as the Windshield Defogger Jeffan.

Cockpit Heater/Windshield Defogger System Control Valve. This is a manually operated valve which is infinitely adjustable from full OFF to full ON.

Aft Cabin Heater Control Valve. This is a manually operated valve which is also infinitely adjustable from full OFF to full ON. It is used to control the operation of the Aft Cabin Heater Ejector.

MODEL MBB-BK C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

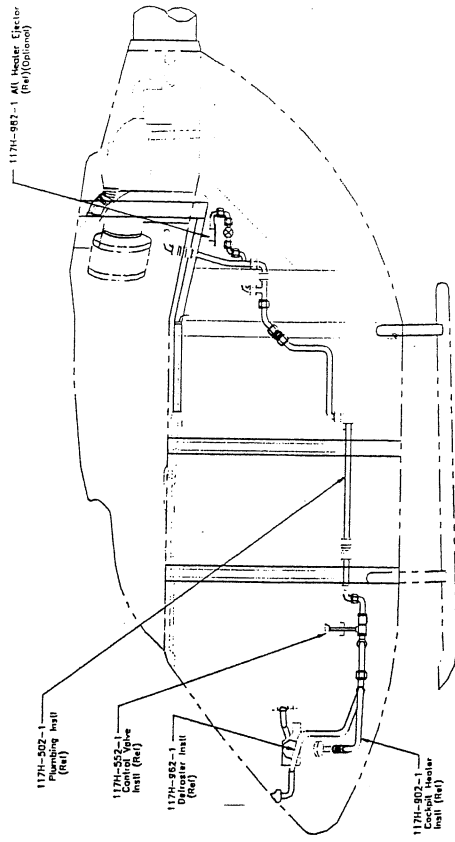


Figure 1. Cockpit Heater / Windshield Defroster System

MODEL MBB-BK117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

1. GENERAL

The Heater/Defroster System consists of two Cockpit Heater Ejectors and a Jeffan Airmover which serves to increase Windshield Defroster airflow. There is also an Aft Cabin Heater Ejector available as an option which provides additional heating capacity to the rear portion of the helicopter.

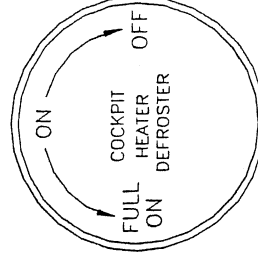
2. LIMITATIONS

- 2.1 Heater Defroster control shall be OFF during engine startup and shutdown.
- 2.2 Heater/Defroster control shall be OFF during takeoff and landing.
- 2.3 Heater/Defroster control shall be OFF if TOT reaches the limit as indicated on the engine temp. gage.
- 2.4 This manual is a supplement to the basic heater flight manual and is to be used in conjunction with that document.

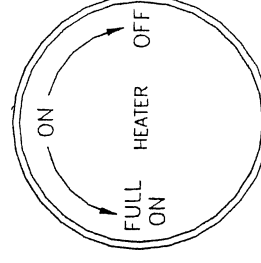
MODEL MBB-BK 117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

2. LIMITATIONS (Cont'd)

2.1 PLACARDS & MARKINGS



Cockpit Heater and
Defroster Control



Aft Cabin Heater
Control

MODEL MBB-BK 117C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

- 3, EMERGENCY AND MALFUNCTION PROCEDURES
- Operate Htr/Defroster Control to OFF for any of the following conditions.
- 3.1 Engine overtemperature.
 - 3.2 Engine failure.
 - 3.3 Insufficient power.
 - 3.4 Smoke in cabin.
 - 3.5 Heater Duct Light Illumination.

MODEL MBB-BK 117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

4. **NORMAL PROCEDURES**

This section contains instructions and procedures that are peculiar to the operation of the cockpit Heater/Windshield Defroster system.

- 4.1 Engine Prestart.
ECU Master Switch OFF.
Heater/Defrost Control OFF.
- 4.2 Before Takeoff.
ECU Master Switch OFF.
Heater/Defrost Control OFF.
- 4.3. Inflight Operations.
Heater Master Switch ON and Heater / Defrost Control - as desired.

NOTES

- 1. The Cockpit Htr / Defroster and optional aft Heater Ejector are activated simultaneously when the ECU Master Switch is ON and the Control is adjusted as desired.
- 2. The Cockpit and aft Heater Ejectors function independently of ECU Temp Control.
- 3. The Defroster feature provides additional airflow to the windshield. The ECU Temp Control must be moved to Warm to provide warm air to the windshield.
- 4. The aft Heater Ejector is independently controlled by a valve located in the aft, lefthand section of the cabin once the ECU Master Switch is in the ON position.

MODEL MBB-BK117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

4. NORMAL PROCEDURES (Cont'd.)

- 4.4 Descent & Landing.
Heater/Defrost Control OFF.
ECU Master Switch OFF.
- 4.5 Engine Shutdown.
Heater/Defrost Control OFF.
ECU Master Switch OFF.

MODEL MBB-BK117 C-1
COCKPIT HEATER/WINDSHIELD DEFROSTER SYSTEM

5. PERFORMANCED DATA

The Cockpit Heater/Defroster System shares the bleed air supply to the ECU (i.e. no increase in usage). Therefore the ECU "performance loss" data in the basic Flight Manual is applicable.

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 SR00007DE

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 29 of the Federal Aviation Regulations.* *Certification basis is set forth in Type Certificate Data Sheet H13EU

Original Product—Type Certificate Number: H13EU
Make: Messerschmitt-Bolkow-Blohm
Model: MBB-BK-117 A-1, A-3, A-4, B-1, C-1

Description of the Type Design Change:

Installation of Air Comm Corporation Cockpit Heater and Windshield Defroster System in accordance with Air Comm Corporation Master Drawing List, Report No. DL-117H, Revision N/C, dated September 15, 1992, or later FAA approved revisions.

Limitations and Conditions:

1. Instructions for Continued Airworthiness, Air Comm Corporation Report BK117H-200M, Revision A, dated December 10, 2004, FAA accepted December 15, 2004, or later FAA accepted revision is required for this installation.
2. FAA Approved Flight Manual Supplement, Document No. BK-117-100, Revision N/C, dated November 25, 1992, or later FAA approved revision is required for Models A-1, A-3, A-4, and B-1. FAA Approved Flight Manual Supplement, Document No. BK-117-102, Revision N/C, dated December 15, 2004, or later FAA approved revision is required for Model C-1.
3. Supplemental Type Certificate Number (STC) SH226NE, which installs the Environmental Control System, is a required part of this STC.
4. This approval should not be extended to rotorcraft of this model on which other previously approved modifications are incorporated unless it is determined that the interrelationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that rotorcraft.
5. 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 that permission.

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: June 28, 200

Date reissued:

Date of issuance: November 24, 2004

Date amended: December 15, 2004



By direction of the Administrator

Melissa Sandow

Melissa Sandow (Signature), Small Airplane 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.

This certificate may be transferred in accordance with FAR 21.47.