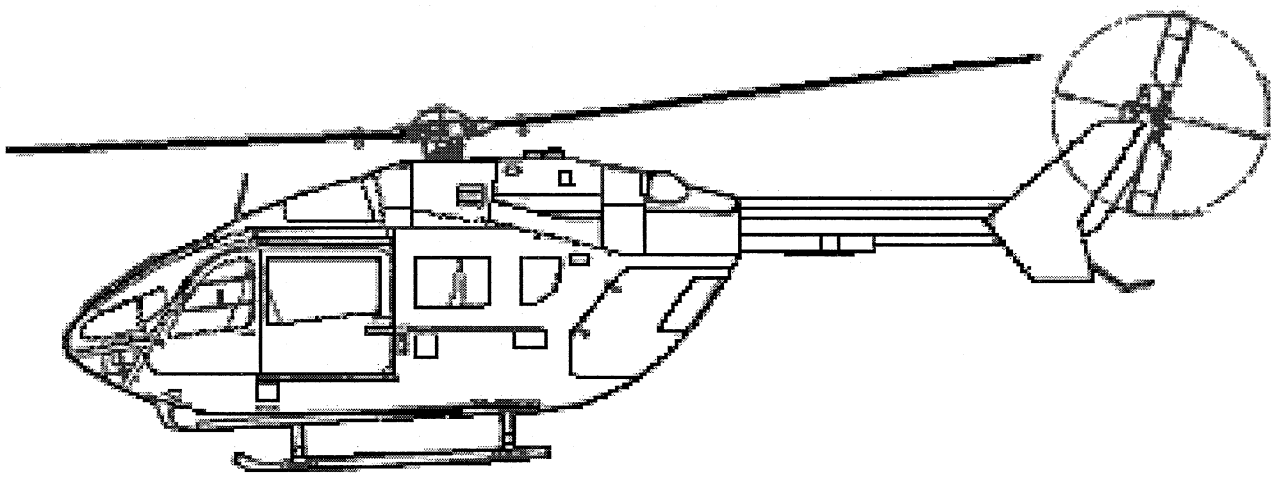
AIR COMM CORPORATION
3300 AIRPORT ROAD
BOULDER, CO. 80301

DOCUMENTS FOR THE INSTALLATION OF THE EUROCOPTER MODEL MBB-BK117-C1 & MBB-BK117-C2 (EC145) CABIN AIR CONDITIONING SYSTEM



Revision 2

19 December, 2007

RECORD OF REVISION

REVISION NUMBER	ISSUE DATE	DATE INSERTED	BY	Description of Change
1	06/22/07	06/22/07	GP	WT. & Balance
2	12/19/07	12/19/07	GP	Wt. & Balance

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LIST OF EFFECTIVE PAGES

LIST OF REVISIONS

Revision 0 (Original Issue)...3 February, 2006
Revision 1 wt. & Balance Chg. July, 07 2007
Revision 2 w. & Balance Chg. Dec., 19, 2007

LIST OF EFFECTIVE PAGES

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CHAPTER 0
INTORDUCTION

This document contains information, which is required for the installation and operation of the Air Comm Corporation's air conditioning system installed in the Eurocopter MBB-BK117-C1 & MBB-BK117-C2 (EC145) 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 air conditioning system in the Eurocopter MBB-BK117-C1 & MBB-BK117-C2 (EC145) 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 Eurocopter Helicopter models MBB-BK117-C1 & MBB-BK117-C2 (EC145) that are equipped with the Air Comm Corporation kit number EC145-200, EC145-202, EC145-203 air conditioner 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.

   It will be necessary to remove the transmission & exhaust cowlings, the main cabin headliner, and the side floor panels to facilitate the installation of this kit.

   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 air conditioner system! All plugs on the plumbing assemblies and system components should *not* be removed until just prior to installation of the part. The exception to this procedure is the installation of the receiver / drier bottle. The receiver / drier should be left capped and not installed until just prior to servicing the system with refrigerant. This prevents the desiccant inside the bottle from becoming saturated with water.

2. REFERANCE DOCUMENT

   The approval basis of the system covered by this document is Supplemental Type Certificate **SR00601DE**.

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CHAPTER 2
WEIGHT & BALANCE INFORMATION

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

Weight breakdown – Eurocopter EC145 Air Conditioner System:
Ref. Dwg. EC145-200, EC145-202, & EC145-203

(EC145-702 Standard Condenser)

Item	Wt. (lbs)	X-Arm (in)	X-M (in-lb.)	Y-Arm (in)	Y-M (in-lb)
Total EC145 with Dual Forward & Single Aft Evaporator (EC145-200)	113.24	161.6	18301	-5.7	-647
Total EC145 with Single Forward & Single Aft Evaporator (EC145-202)	105.24	143.8	15145	-7.6	-804

(EC145-704 High Output Condenser: High Output Blowers Only)

Item	Wt. (lbs)	X-Arm (in)	X-M (in-lb.)	Y-Arm (in)	Y-M (in-lb)
Total EC145 with Dual Forward & Single Aft Evaporator (EC145-200)	114.24	162.5	18562	-5.9	-671
Total EC145 with Single Forward & Single Aft Evaporator (EC145-202)	106.24	145.0	15406	-7.8	-828

(EC145-704 High Output Condenser: High Output Blowers, with Cowling Cutouts & Scoops)

Item	Wt. (lbs)	X-Arm (in)	X-M (in-lb.)	Y-Arm (in)	Y-M (in-lb)
Total EC145 with Dual Forward & Single Aft Evaporator (EC145-200)	114.59	162.8	18653	-5.9	-675
Total EC145 with Single Forward & Single Aft Evaporator (EC145-202)	106.59	145.4	15497	-7.8	-832

(EC145-704 High Output Condenser: High Output Blowers, with Cowling Cutouts & Scoops, and Ducting)

Item	Wt. (lbs)	X-Arm (in)	X-M (in-lb.)	Y-Arm (in)	Y-M (in-lb)
Total EC145 with Dual Forward & Single Aft Evaporator (EC145-200)	118.37	165.9	19638	-6.1	-720
Total EC145 with Single Forward & Single Aft Evaporator (EC145-202)	110.37	149.3	16482	-7.9	-877

(EC145-704 High Output Condenser: High Output Blowers, with Cowling Cutouts & Scoops, and Ducting. Third blower added to aft evaporator)

Item	Wt. (lbs)	X-Arm (in)	X-M (in-lb.)	Y-Arm (in)	Y-M (in-lb)
Total EC145 with Dual Forward & Single Aft Evaporator (EC145-203)	123.82	164.3	20342	-6.2	-768

CHAPTER 3
FLIGHT MANUAL SUPPLEMENT

1. FLIGHT MANUAL SUPPLEMENT

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AIR COMM CORPORATION
3300 AIRPORT ROAD
BOULDER, COLORADO 80301

EUROCOPTER HELICOPTER

MODELs BK-117 C1 & BK-117 C2

CABIN AIR CONDITIONING SYSTEM

FLIGHT MANUAL SUPPLEMENT

Document No. EC145-1

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 Air Conditioning System in accordance with Air Comm Corporation STC No SR00601DE.

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 Dan Grosan

For Ronald F. May, Manager
Denver Aircraft Certification Office
Northwest Mountain Region
Denver, Colorado

Date : April 17, 2006

CABIN AIR CONDITIONING SYSTEM

Log of Revisions			
Rev No	Pages	Date	FAA Appl
Original	1-10	4/17/06	Ronald F. May Manager, Denver Aircraft Certification Office

SECTION 5 PERFORMANCE DATA

When the air conditioner is operating, the performance data in the basic flight manual should be reduced as shown below:

Rate of Climb Degradation

No change.

Hover Ceiling In Ground Effect and Out of Ground Effect

No change

CABIN AIR CONDITIONING SYSTEM

SECTION 1 INTRODUCTION

The BK-117 cabin air conditioning system is a vapor cycle system which utilizes R134a refrigerant.

The system components include two forward and one aft mounted evaporators, a compressor and a condenser all connected by an appropriate refrigerant plumbing system. The system general arrangement is shown by figure 1.

The compressor is mounted on the main rotor transmission and is belt driven by the tail rotor output shaft.

The condenser is mounted above the cabin on the aft-left-hand side of the fuselage and features a dual blower arrangement for forcing cooling air through the condenser.

The two forward evaporator/assemblies are mounted on either side of the instrument panel's support structure forward of the anti-torque pedals. Conditioned air is delivered to the flight crew through outlets which are mounted in the instrument panel.

The cabin evaporator is mounted above the headliner and pumps conditioned air thru the existing headliner ducting.

The system controls contain A/C-OFF-FAN functions incorporated on a single "three position" switch. Two additional "two position" switches are installed to provide High and Low blower selection for the two forward evaporator blowers and the two aft evaporator blowers. One switch controls the two forward evaporator blowers in unison and the other switch controls the two aft evaporator blower, so that the forward and aft evaporator blowers can be operated independently of one another. Temperature selection is controlled by one infinite position potentiometer mounted on the air conditioner control panel. Dimming of the air conditioner's back lit control panel is provided by the aircraft's standard center console dimming system.

SECTION 1 (cont'd)

The refrigerant plumbing system features a high/low pressure Cutoff switch. Exceeding the pressure limits will de-energize The compressor's magnetic clutch.

The BK-117 helicopter features an auto load shed system that De-energizes the power feed to the entire air conditioner System, including the compressor clutch, in the event of a generator/engine failure.

A "Compressor ON" light is mounted in the system control Panel to provide visual status of the compressor drive system.

The cabin's fresh air inlet system features a fresh air box that is mounted above the cabin headliner and connected to the cabin headliner vents. The fresh air box is equipped with a close-off door that is electrically actuated by the FRESH/RECIRC switch located on the air conditioner control panel. The "FRESH/RECIRC" switch must be in the FRESH position to bring outside fresh air into the cabin and must be in the RECIRC position to allow the existing cabin air to be recirculated. The BK-117 helicopter also features a cockpit fresh air inlet system that is controlled by a manually operated knob located at the aft end of the center console (Refer to the basic Flight Manual for a description of operation). Both the cockpit and cabin fresh air inlets can be opened as desired by the crew to bring outside fresh air into the cabin during both air conditioner or fan operations. However, to maximize the cooling performance of the air conditioner both the cockpit and cabin fresh air inlets are typically closed so that existing cabin air can be recirculated.

SECTION 4 NORMAL PROCEDURES

PREFLIGHT CHECK (EXTERIOR)

Compressor – Check security
Compressor Drive Belt – Check tension and general condition

ENGINE PRESTART

Check A/C–OFF–FAN (3-postion switch) – OFF

BEFORE TAKEOFF

A/C–OFF–FAN (3-postion switch) – As desired
EVAP FANS – FAN SPEED SWITCHES – As desired
FRESH/RECIRC SWITCH – As desired

IN FLIGHT OPERATIONS

A/C–OFF–FAN (3-postion switch) – As desired
EVAP FANS – FAN SPEED SWITCHES – As desired
FRESH/RECIRC SWITCH – As desired

NOTE

Total air conditioning system electrical load is less than 37 amps. Monitor amps.

NOTE

Placing the FRESH/RECIRC switch in the FRESH position and/or pulling out the cockpit's fresh air knob will allow outside fresh air to enter the cabin. For maximum cooling place the FRESH/RECIRC switch in the RECIRC position and push in the cockpit's fresh air knob to close off the outside air inlets and recirculate existing cabin air.

NOTE

Simultaneous operation of the cabin heater and air conditioner can be used to achieve cabin defogging.

SECTION 3 EMERGENCY PROCEDURES

Place the A/C-OFF-FAN (3-position switch) to the OFF position for any of the following emergencies:

Smoke in the cabin
Engine failure
Engine over-temperature
Generator failure
Water landing

NOTE

Loss of generator output will activate the BK-117 helicopter's auto load shed system, which will de-energize the entire air conditioning system, including compressor clutch.

NOTE

If outlet air is not cool, place the A/C–OFF–FAN (3-postion switch) to the OFF or FAN position to preclude damage to the compressor.

Air Comm Corporation
Document No. EC145-1

SUPPLEMENT TO
BK-117 C1 & BK-117 C2 RFM

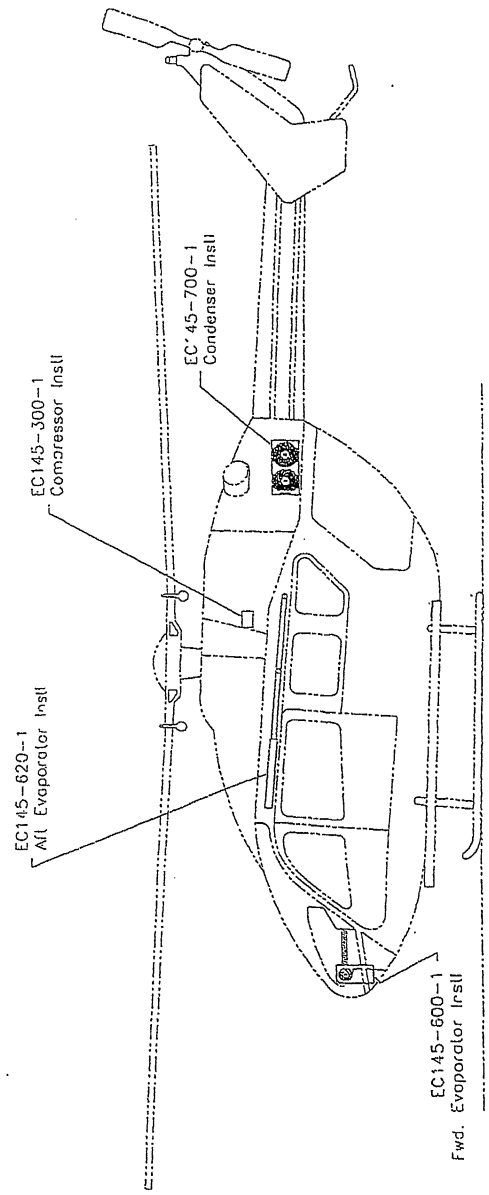

Figure 1 General Arrangement – EC145 Air Conditioning System

PLACARDS AND MARKINGS

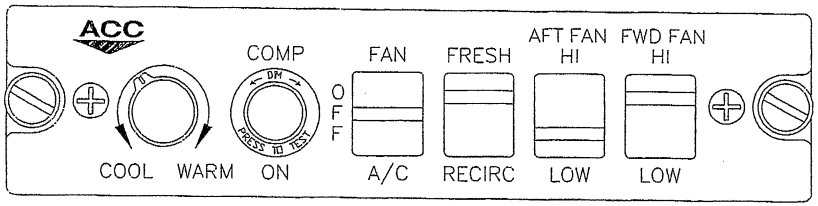

Figure 2
Air Conditioner Control Panel
(Located in center console)

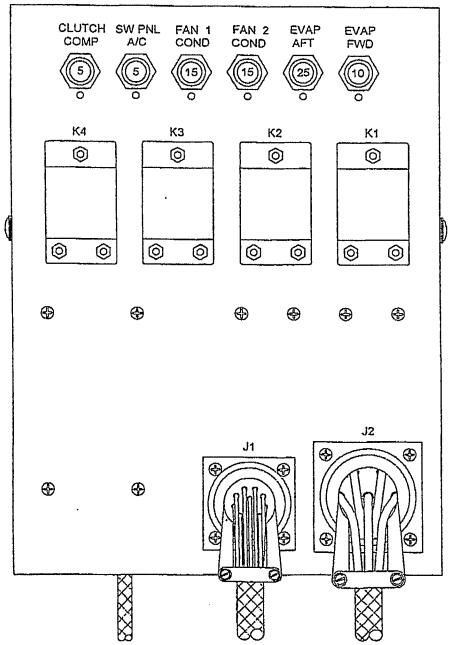

Figure 3
Air Conditioner Relay Panel
(Mounted in the equipment bay
above the baggage compartment)

PLACARDS AND MARKINGS (cont'd)

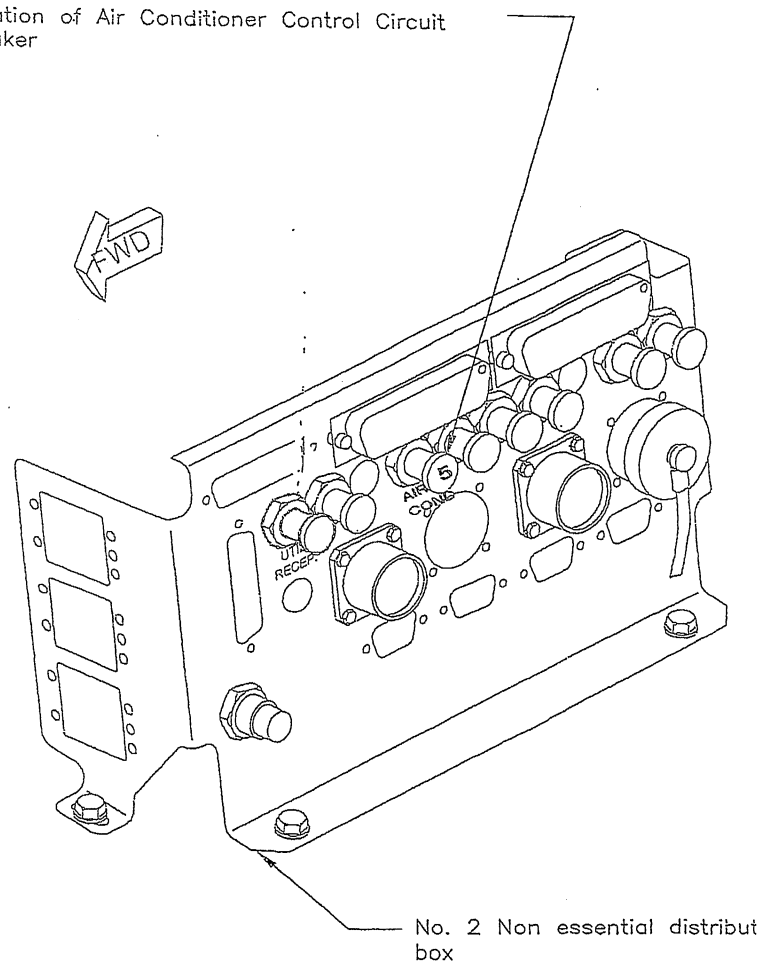

Figure 4
Air Conditioner Control Circuit Breaker
(located in No 2 non essential distribution box)

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 SR00601DE

This certificate, issued to **Air Comm Corporation**
3300 Airport Road
Boulder, CO 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: **Eurocopter Deutschland GmbH**

Model: **MBB-BK 117 C-1, MBB-BK 117 C-2**

Description of the Type Design Change: Installation of a cabin air conditioning system in accordance with Air Comm Master Drawing List – EC145 Cabin Air Conditioning System, Report No. DL-EC145, revision C, dated 4/10/06, and FAA approved April 17, 2006, or later FAA approved revision.

Limitations and Conditions:

1. A copy of this Certificate and FAA Approved Rotorcraft Flight Manual Supplement Number EC145-1, revision Original, dated April 17, 2006, or later FAA approved revision must be maintained as part of the permanent records for the modified aircraft.
2. For Instructions for Continued Airworthiness refer to Air Comm Corporation Instructions for Continued Airworthiness, Document No. EC145-200M-1, revision 0, dated February 3, 2006 or later FAA accepted revision.
3. Compatibility of this design change with previously approved modifications must be determined by the installer.
4. 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: **March 20, 2006**

Date reissued:

Date of issuance: **April 18, 2006**

Date amended:

By direction of the Administrator

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