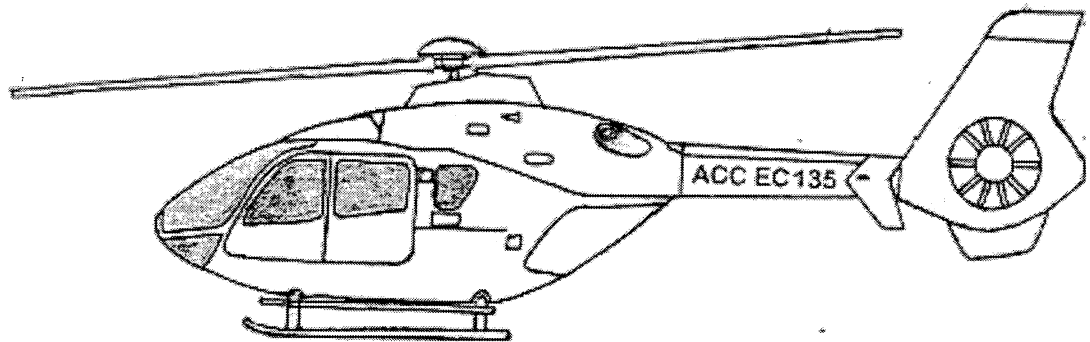


**AIR COMM CORPORATION  
3300 AIRPORT ROAD  
BOULDER, CO. 80301**

**DOCUMENTS FOR THE INSTALLATION OF THE  
EUROCOPTER MODEL EC135 CABIN AIR CONDITIONING SYSTEM**



**RECORD OF REVISION**

REVISION NUMBER	ISSUE DATE	DATE INSERTED	BY	Description of Change

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**LIST OF EFFECTIVE PAGES**

LIST OF REVISIONS

Revision 0 (Original Issue)...30 August, 2004

LIST OF EFFECTIVE PAGES

Title	Page(s)	Revision No.
Record of Revisions	i	0
List of Effective Pages	ii	0
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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
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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 air conditioning system installed in the Eurocopter EC135 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 EC135 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 EC135 that are equipped with the Air Comm Corporation kit number EC135EC-200 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 cowlings, the main cabin headliner, Chin bubbles, 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 **SR00565DE**

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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 EC135 Air Conditioner System:

Ref. Dwg. EC135-200 & EC135-202

Item	Wt. (lbs)	X-Arm (in)	X-M (in-lb.)	Y-Arm (in)	Y-M (in-lb)
Total EC135 with Dual Forward & Single Aft Evaporator (EC135-200)	126.13	154.3	19,459	-3.4	-427
Total EC135 with Single Forward & Single Aft Evaporator (EC135-202)	113.68	163.7	18,611	-3.8	-427

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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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SUPPLEMENT TO  
EC135 RFM

AIR COMM CORPORATION  
3300 AIRPORT ROAD  
BOULDER, COLORADO 80301

EUROCOPTER HELICOPTER

MODELS EC135P2, EC135P2+, EC135T2 & EC135T2+

CABIN AIR CONDITIONING SYSTEM

FLIGHT MANUAL SUPPLEMENT

Document No. EC135-1

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. SR00565DE.

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 *D. S. Gorse*

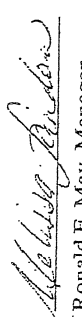
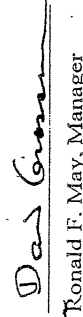
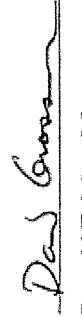
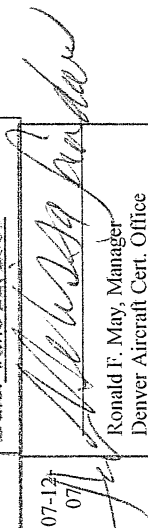
*Ronald F. May*  
Ronald F. May, Manager  
Denver Aircraft Certification Office  
Northwest Mountain Region  
Denver, Colorado

Date NOV 24, 2004

REVISED: June 22, 2005

REVISED: July 16, 2007

CABIN AIR CONDITIONING SYSTEM

Log of Revisions			
Rev. No.	Pages	Date	FAA Approval
Original	1-10	11-12	 Ronald F. May, Manager Denver Aircraft Cert. Office Northwest Mountain Region Denver, Colorado Date: NOV 24 2004
1	3, 4, 5	01-25-05	 Ronald F. May, Manager Denver Aircraft Cert. Office Northwest Mountain Region Denver, Colorado Date: MAR 14 2005
2	1, 2	06-22-05	 Ronald F. May, Manager Denver Aircraft Cert. Office Northwest Mountain Region Denver, Colorado Date: June 22, 2005
3	1, 2	07-12-07	 Ronald F. May, Manager Denver Aircraft Cert. Office Northwest Mountain Region Denver, Colorado Date: July 16, 2007

SECTION 5

PERFORMANCE DATA

CABIN AIR CONDITIONING SYSTEM

When the air conditioner 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:

R/C Reduction ..... 34 ft/min (10 m/min)

Hover Ceiling In Ground Effect and Out of Ground Effect

Add 39 lb (18 kg) to the actual IGE/OGE hover gross weight for takeoff power or maximum continuous power when entering the chart to determine hover ceiling.

SECTION 1

INTRODUCTION

The EC135 air conditioner is a vapor cycle system that includes the following components:

- Compressor
- Condenser
- Forward Evaporator (dual optional)
- Aft Evaporator
- Cabin Fresh Air Inlet System
- Plumbing System
- Electrical System

The compressor is belt driven from an accessory drive adapter mounted on the main rotor transmission by the compressor mounting assembly that is designed to properly position and support the compressor.

The condenser is mounted above the cabin on the aft-left-hand side of the upper deck and features a dual blower that forces cooling air through the condenser. A cutout is provided in the closeout cowling adjacent to the condenser to allow passage of the condenser cooling air.

The forward evaporator assembly is mounted on the left hand side of the instrument panel's support structure, (dual- one on each side), forward of the anti-torque pedals. Conditioned air is delivered to the crew by means of two air duct/vent assemblies installed on either side of the instrument panel.

The aft evaporator assembly is mounted under the cabin floor. Conditioned air is routed from the aft evaporator assembly to vents in the cabin headliner via a single floor to ceiling air duct located just aft of the center console.

Cabin return air is ducted from the cabin to the aft evaporator assembly via a single return air duct located in the floor under the pilot's seat.

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 EC135 helicopter also features a cockpit fresh air inlet system that is controlled by a bowen wire 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.

The air conditioner system controls feature A/C - OFF - FAN functions incorporated into a single "three position" switch. Two fan speed switches are provided to control the forward and aft evaporator fans, which can be operated independently. A temperature control knob is provided to vary the output air temperature of the air conditioner. Dimming control for the back lit air conditioner control panel is provided by the center console light dimming system.

A blue compressor "ON" annunciator is located on the air conditioner control panel to provide a visual status of the compressor's operation.

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-position switch) - OFF

BEFORE TAKEOFF

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

IN FLIGHT OPERATIONS

- A/C-OFF-FAN (3-position 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 40 amps. Monitor amps.

NOTE

Placing the FRESH/RECIRC switch in the FRESH position and/or pulling out the cockpit's bowen wire 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 bowen wire 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 EC135 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-position switch) to the OFF or FAN position to preclude damage to the compressor.

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

The EC135 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.

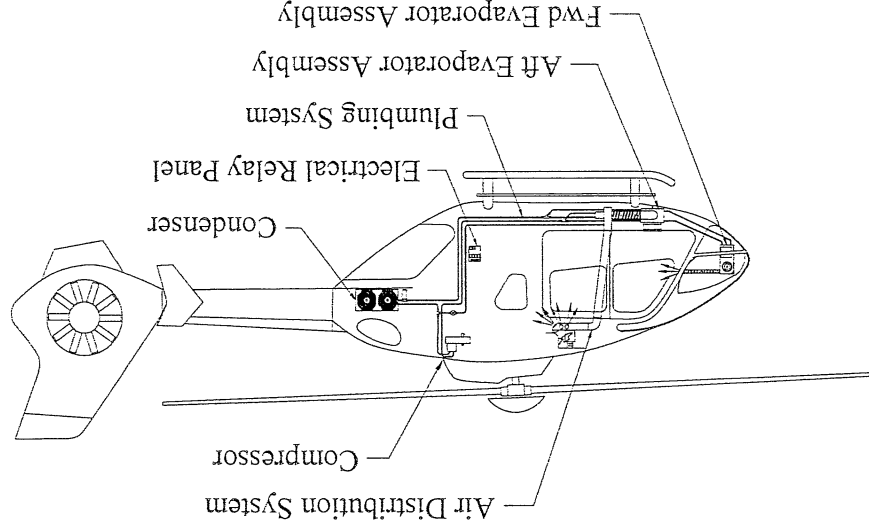


Figure 1

General Arrangement – Cabin Air Conditioner

SECTION 2

OPERATING LIMITATIONS

PLACARDS AND MARKINGS

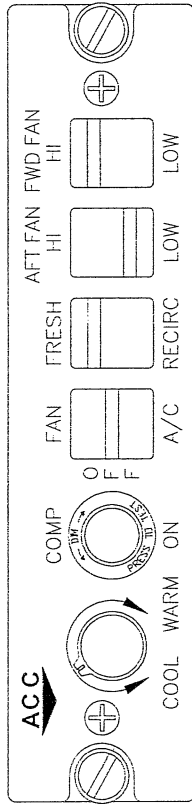


Figure 2  
Air Conditioner Control Panel  
(Located in center console)

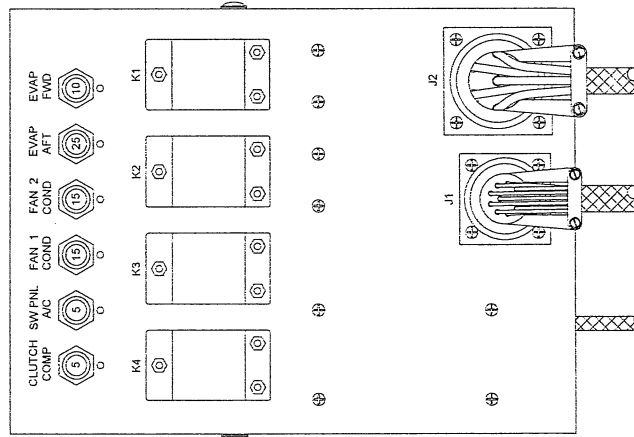


Figure 3  
Air Conditioner Relay Panel  
(Mounted inside the aft-left-hand cabin wall  
behind the interior closeout panel)

SECTION 2

OPERATING LIMITATIONS

PLACARDS AND MARKINGS (cont'd)

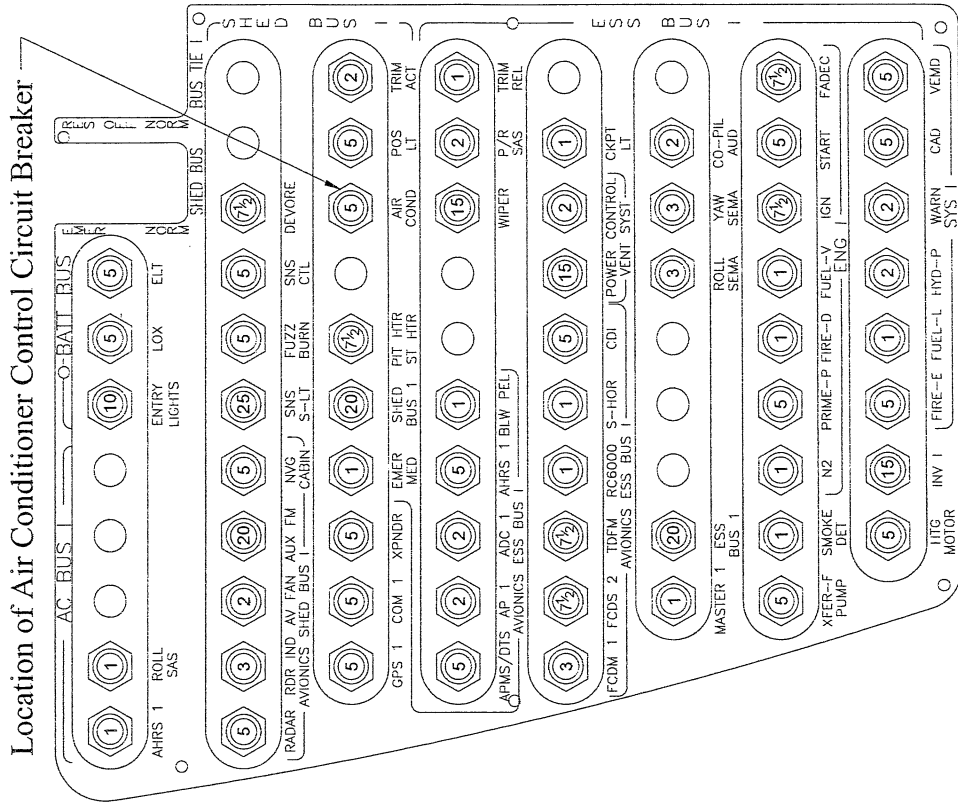


Figure 4  
Air Conditioner Control Circuit Breaker  
(located on left-hand cockpit overhead circuit breaker panel)



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Transport Airplane Directorate  
Aircraft Certification Service  
Denver Aircraft Certification Office  
26805 E. 68<sup>th</sup> Ave, Room 214  
Denver, CO 80249

July 16, 2007

Mr. Norm Steiner  
Air Comm Corporation  
3300 Airport Road  
Boulder, CO 80301

Dear Mr. Steiner:

This is in response to your letter of July 16, 2007 for the amendment to Supplemental Type Certificate (STC) SR00565DE which installs a Cabin Air Conditioning System in Eurocopter EC135 rotorcraft. This amendment adds the *EC135P2+* and *EC135T2+* to the model eligibility to this STC.

Our review of the data submitted indicates that Title 14 of the Code Federal Regulations Part 27 have been met. Enclosed is:

Amended STC No. SR00565DE, dated July 16, 2007

Our previous comments regarding your responsibilities as holder of an STC are still applicable. If you have any questions, please contact Kreg Voorhies at (303) 342-1092.

Sincerely,

for Melissa Sandow  
Senior Engineer

Enclosure

**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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# Supplemental Type Certificate

*Number* SR00565DE

*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 therefore as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.*

*Original Product - Type Certificate Number :* H88EU  
*Make :* Eurocopter  
*Model :* EC135P2, EC135P2+, EC135T2, EC135T2+

*Description of Type Design Change:*

Installation of Cabin Air Conditioning System in accordance with Air Comm Corporation Master Drawing List Report No. DL-EC135, Revision A, dated 10/19/04, FAA approved November 24, 2004, or later FAA approved revision.

*Limitations and Conditions:*

1. Instructions for Continued Airworthiness, Air Comm Corporation Report EC135-200M-1, Revision Original dated August 25, 2004, FAA accepted November 24, 2004, or later FAA accepted revision is required for this installation.
2. FAA Approved Flight Manual Supplement, Document No. EC135-1, Revision Original, approval date of November 24, 2004, or later FAA approved revision is required.
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, 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, 2004  
*Date of issuance :* November 24, 2004

*Date reissued :*  
*Date amended :* 6/22/05; July 16, 2007



*By direction of the Administrator*

*Melissa Sandow*  
(Signature)

Melissa Sandow  
Senior Engineer  
Northwest Mountain Region  
Denver Aircraft Certification Office  
(Title)