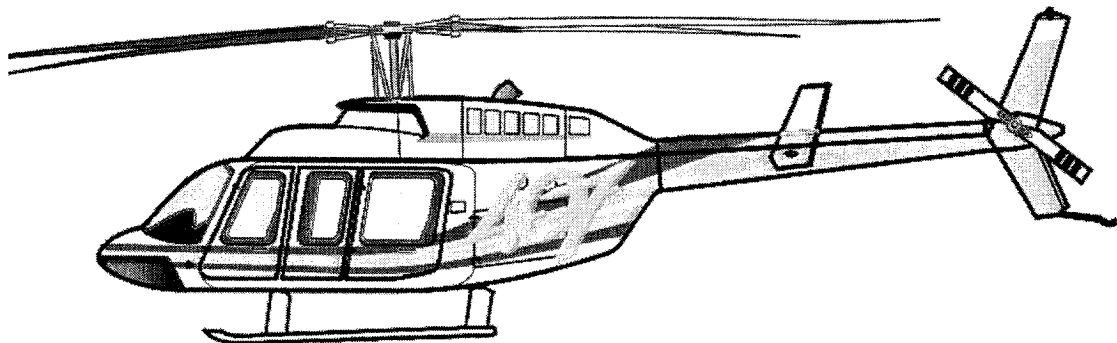


**AIR COMM CORPORATION
3300 AIRPORT ROAD
BOULDER, CO. 80301**

**DOCUMENTS FOR THE INSTALLATION OF THE
BELL MODEL 407 CABIN AIR CONDITIONING SYSTEM**



LIST OF EFFECTIVE PAGES

LIST OF REVISIONS

Revision 0 (Original Issue)... 19 July, 2000
 Revision 1 10 Dec., 2004
 Revision 2 30 Jan., 2006

LIST OF EFFECTIVE PAGES

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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 bell 407 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 Bell 407 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 Bell Helicopter models 407 that are equipped with the Air Comm Corporation kit number 407EC-201 & 407EC-202 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 SR00222DE

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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 407 Air Conditioner System:

Ref. Dwg. 407EC-201 & 407EC-202

NOTE

The weight change between the 407EC-201 and the 407EC-202 is negligible.

- Dwg 407EC-201-1 Single LH Fwd Evaporator with 407EC-620-1 Panasonic Motor Install
- Dwg 407EC-201-2 Dual Fwd Evaporator with 407EC-620-1 Panasonic Motor Install
- Dwg 407EC-201-3 Single RH Fwd Evaporator with 407EC-620-1 Panasonic Motor Install

	<u>Wt (lbs)</u>	<u>Arm (in)</u>	<u>M (in-lb)</u>
Total (-1 & -3 Single Fwd Evap)	94.57	138.0	13052
Total (-2 Dual Fwd Evaps)	104.77	126.5	13256

- Dwg 407EC-201-2 Dual Fwd Evaporator with 407EC-620-2 High Output Advanced Industries Motor Install

	<u>Wt (lbs)</u>	<u>Arm (in)</u>	<u>M (in-lb)</u>
Total (-2 Dual Fwd Evaps)	108.74	128.5	13978

- Dwg 407EC-201-1 Single LH Fwd Evaporator with 407EC-622-1 FASCO Motor Install
- Dwg 407EC-201-2 Dual Fwd Evaporator with 407EC-622-1 FASCO Motor Install
- Dwg 407EC-201-3 Single RH Fwd Evaporator with 407EC-622-1 FASCO Motor Install

	<u>Wt (lbs)</u>	<u>Arm (in)</u>	<u>M (in-lb)</u>
Total (-1 & -3 Single Fwd Evap)	95.27	138.3	13179
Total (-2 Dual Fwd Evaps)	105.47	126.9	13383

- Dwg 407EC-202-1 Single LH Fwd Evaporator with 407EC-622-1 FASCO Motor Install
- Dwg 407EC-202-2 Dual Fwd Evaporator with 407EC-622-1 FASCO Motor Install
- Dwg 407EC-202-3 Single RH Fwd Evaporator with 407EC-622-1 FASCO Motor Install

	<u>Wt (lbs)</u>	<u>Arm (in)</u>	<u>M (in-lb)</u>
Total (-1 & -3 Single Fwd Evap)	95.27	138.3	13179
Total (-2 Dual Fwd Evaps)	105.47	126.9	13383

**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 407

FLIGHT MANUAL SUPPLEMENT
407EC-1
Cabin Air Conditioning System

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 SR00222DE.

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

FAA APPROVED
SUPPLEMENT

MODEL 407
FLIGHT MANUAL

Cabin Air Conditioning System

Log of Revisions			
Original	Rev. No.	Pgs	Rev. No.
..... 0			
Pgs			
FAA APPROVED : Date: <u>3/29/96</u>			
Approved: <u>[Signature]</u> Ron May, Manager Denver Aircraft Certification Office, Northwest Mountain Region, Denver, Colorado			

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MODEL 407
FLIGHT MANUAL

CABIN AIR CONDITIONING SYSTEM

INTRODUCTION

The cabin air conditioning system is a R-134a refrigerant type which consists of an engine driven compressor, a condenser, and multiple evaporators.

The function of the compressor is to pump Refrigerant (R-134a) throughout the system circuit.

The function of the condenser is to remove heat energy from the refrigerant by forcing outside air across the condenser heat exchanger.

The evaporators are used to remove heat and moisture from the cabin, by forcing cabin air across the coils of the evaporator heat exchangers.

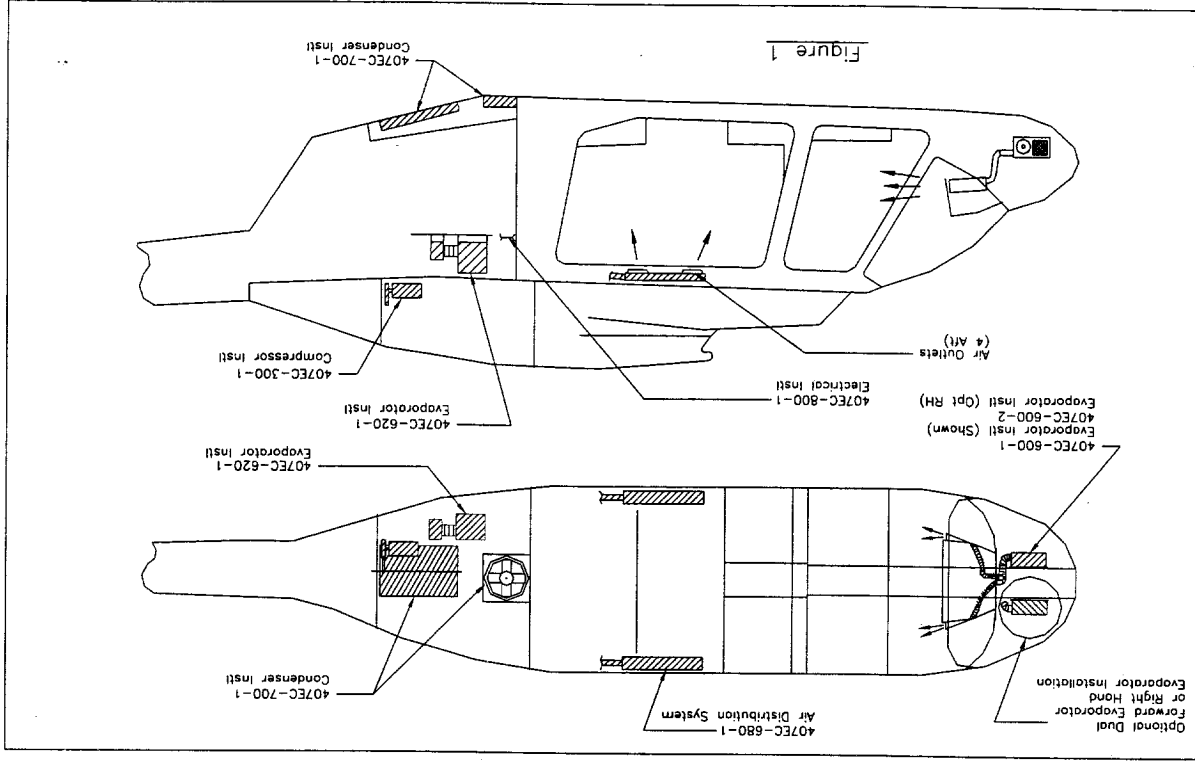
The system controls consist of a switch which can be positioned to AC, BLOWER, or OFF. In the AC mode, the complete cooling system is activated. In the BLOWER mode, only the evaporator blowers are operating as a means of cabin air circulation.

A HI/LO blower speed switch is located adjacent to the AC, BLOWER, OFF switch for air-flow adjustment.

The system also incorporates a capillary tube type switch, whose function is to prevent evaporator coil freeze-up and/or provide temperature control of the conditioned air. The switch controls a solenoid type refrigerant bypass valve. This arrangement provides system control without compressor clutch cycling.

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 over pressure. The system cut-out pressures are 50 and 325 psig for the low and high pressures, respectively.

Model 407



CABIN AIR CONDITIONING SYSTEM

SECTION 2 NORMAL PROCEDURES

PREFLIGHT CHECK (EXTERIOR)

- Compressor - Check security.
- Compressor Drive Belt - Check tension and general condition.
- Condenser - Check security.

ENGINE PRESTART CHECK

Air Cond Switch - OFF

BEFORE TAKEOFF

Air Cond switch - Air Cond (ON) as desired.
Select HI / LO blower as desired.

IN FLIGHT OPERATIONS

Air Cond switch - Air Cond (ON) as desired.
Select HI / LO blower as desired.

CABIN AIR CONDITIONING SYSTEM

SECTION 3 EMERGENCY PROCEDURES

Air Cond switch - OFF

Operate Air Conditioner switch to - OFF,
for any of the following emergencies:

- Engine Failure
- Engine Over temperature
- Generator Failure

SECTION 4 MALFUNCTION PROCEDURES

If outlet air is not cool, turn Air Cond. to OFF, or to
BLO to preclude damage to the compressor.

FAA APPROVED
SUPPLEMENT

MODEL 407
FLIGHT MANUAL

CABIN AIR CONDITIONING SYSTEM

SECTION 5 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.

R/C.....67 ft/min.

Hover Ceiling In Ground Effect and Out of Ground Effect

Subtract 50 pounds (22.68 kilograms) from IGE/OG E hover gross weight for takeoff power or maximum continuous power..

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 SR00222DE

This certificate, issued to Air Comm Corporation

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: H2SW
 Make: Bell Helicopter Textron, Inc.
 Model: 407

Description of the Type Design Change:

Installation of a vapor cycle air conditioning system in accordance with Air Comm Corp. Master Drawing List DL-407AC, Rev. A, dated February 14, 1996, or later FAA approved revision.

Limitations and Conditions:

1. FAA Approved Rotorcraft Flight Manual Supplement 407EC-1, dated March 29, 1996 or later FAA approved revision is required.
2. Approval of this change in type design applies to the above model rotorcraft only. This approval should not be extended to aircraft 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.
3. A copy of this certificate must be maintained as part of the permanent records for the modified rotorcraft.

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: July 8, 1995

Date reissued:

Date of issuance: March 29, 1996

Date amended: May 30, 1996



By direction of the Administrator

RONALD F. MAY *(Signature)* Manager
 Denver Aircraft Certification Office
 Northwest Mountain Region, Denver, Colorado
 (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.