



MODEL Bell 206 L1 : REPORT NO. 206-0100-4M

Installation Instructions and Service Manual
for Air Conditioning and Bleed Air Heater Systems

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REV ✓		

REV.	DATE	DESCRIPTION OF REVISION	BY	APPROVAL
A	5/19/83	Revised Kit List to Revision A.	DMB	<i>REH</i>
B	5/23/83	Revised Kit List to Revision B.	REH	<i>REH</i>
C	5/26/83	Revised Kit List to Revision C.	REH	<i>REH</i>
D	5/31/83	Revised Kit List to Revision D.	REH	<i>REH</i>
E	6/21/83	Revised kit list to revision E.	REH	<i>REH</i>
F	7/1/83	Revised Installation Instructions to match current drawings.	DMB	<i>REH</i>
G	7/25/83	Revised Kit List to Rev F.	REH	<i>REH</i>
H	8/17/83	Revised Kit List to Revision G.	Jim RS	JIMRS
I	9/28/83	Revised Kit List to Revision H. Revised Evaporator Evaporator Blower Installation Instructions for Insulation Changes. Added Heater Installation Instructions.	REH	<i>REH</i>
J	11/30/83	Revised Kit List to Revision I	WFD	<i>REH</i>
K	1-5-84	Revised Kit List to Revision J. Deleted section IV A/C system service & Maintenance, Section V heater System Service & Maintenance, VI ECS System IPC VII Recommended spares. Section VIII is now Section IV.	REH	
L	2-2-84	Kit List Raised to Rev. K	DMB	<i>JMB</i>
M	4-6-84	Revised Flight Manual Supplement to Rev 2	KS	<i>JMB</i>
N	4-23-84	Revised Kit List to Rev L	KS	
P	5/10/84	Revised Kit List to Rev M Revised 206-0614 Inst'l Instructions	RAB	<i>REH</i>

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REV V

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MODEL NO. 206 L1

TITLE
Installation Instructions and
Service Manual for Air Conditioning and
Bleed Air Heater Systems

REV.	DATE	DESCRIPTION OF REVISION	BY	APPROVAL
Q	7-16-84	Revised Kit List to Rev N.	WFD	<i>WFD Keith</i>
R	10-12-84	Revised Kit List to Rev P.	KS	<i>KS</i>
S	10/31/82	Added sentence to item #23 on Bleed Air Heater Installation Instructions.	CLF	<i>CLF</i>
T	2-13-85	Removed Kit List from Installation Instructions Included Drawing Index added to Section III Aircraft Document Index added to Section IV	CLF	<i>CLF</i>
U	12-9-85	Reformatted Manual for modular configuration	REH	<i>REH</i>
V	4/3/92	Deleted warranty information	KS	

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I. INTRODUCTION:

This manual contains information and documents necessary to accomplish the installation, maintenance, and repair of Keith Products systems. Use of this manual in conjunction with the installation drawings provided will result in the best possible installation of the system with the minimum expenditure of labor.

This system reflects the technical expertise of the world leader in vapor cycle air conditioning systems for aircraft. The system components have been carefully matched, resulting in optimum performance and minimum weight. The system is only as good as it's installation, however, so it is extremely important that the installer READ AND UNDERSTAND THESE INSTRUCTIONS COMPLETELY PRIOR TO STARTING INSTALLATION WORK.

Upon completion of the installation, the Kit List and Installation Instruction of this manual may be discarded. The Airplane Flight Manual Supplement and Weight and Balance Revision should be inserted into the Airplane Flight Manual. The service and maintenance information should be inserted into the permanent aircraft file. Any special installation tools furnished with the kit are to be passed on to the customer for future maintenance.

AIR CONDITIONER SYSTEM DESCRIPTION AND OPERATION:

The airconditioning system consists of the following components:

1. Compressor Installation - the compressor is located on the engine drain pan and is driven via a belt and pulley arrangement off of the transmission free wheeler or the tail rotor shaft near the aft firewall.
2. Condenser/Blower Installation - The condenser and blower are located above the baggage compartment just aft of the access panel. Openings on the left side of the aircraft above the baggage door permit air to be ingested into the coil and then exhausted overboard.
3. Aft Evaporator Installation - The evaporator assembly is located just aft of the hat shelf on the left side of the aircraft. Air from the cabin is drawn through a screened opening in the hat shelf through a plenum and into the evaporation coils. Condensation moisture is collected and drained overboard thru a tube on the right lower fuselage side in the baggage compartment.
4. Aft Evaporator Blower Installation - The blower is located on the right side of the fuselage adjacent to the access panel on top of the baggage compartment. The blower serves a dual function. It provides circulation air for the air-conditioning system and can augment the air flow when the bleed air heating system is operated.
5. Electrical System - The electrical system consist of a switch panel located on the instrument sub panel or on the center console. An electrical panel is located on the shelf aft of the hat shelf. The electrical panel contains the relays and the temperature control. The circuit breakers are located on the overhead circuit breaker panel.

6. Air Distribution Installation - Air is distributed to the rear cabin via air outlets located in preformed ducts that run forward from the rear above the left and right headliner panels (located in the passenger area). The preformed ducts penetrate the rollover bulkhead and transition to two (2) decorative ducts located directly to the upper pilot and co-pilot door jambs with outlets projecting air onto the crew members.

7. Forward Evaporator Installation - When the helicopter is equipped with a Forward Evaporator, it is located on the lower right hand side of the instrument shroud and provides additional air distribution to the pilot and co-pilot via adjustable louvered ducts located on the upper right and left sides of the instrument shroud.

SYSTEM OPERATION:

When the system is turned on, the compressor freon goes to a high pressure and temperature. This gas is routed to the condenser where cooling from the fan removes heat from the gas, condensing it into a liquid. The liquid is then stored in the receiver/dryer next to the evaporator until it is used. The freon is metered through the evaporator and return to the compressor at a reduced pressure. The cabin heat is absorbed from the air passing over the evaporator cooling coil.

BLEED AIR HEATER SYSTEM DESCRIPTION AND OPERATION:

The bleed air heater system consists of the following components:

1. Control Valve - The control valve is located on the pilot's overhead panel. Rotate the control knob clockwise to turn heat on and counter-clockwise to turn heat off.
2. Regulator Valve - The regulator valve is located just aft of the hat shelf. The valve delivers bleed air as directed by the control valve to the ejector nozzle located internally in the heater silencer via flex duct.
3. Heater Silencer - The heater silencer is located just above the access panel in the baggage compartment. Bleed air delivered to the nozzle creates a positive hot air flow to the cabin ducting. A duct temperature switch, when activated, illuminates a light on the instrument annunciator panel labeled "DUCT TEMP HIGH".

DRAWING AND INSTALLATION MANUAL SYSTEM

1. Take the 206-0100 General Arrangement drawings from the drawing package.
2. Locate the sheets that list all the General Arrangements covered by this drawing.
3. Locate the dash number of the kit you are installing (listed in the part number column).
4. Move to the left until you reach the sloping line crossing this same dash number that is listed to the left of the part number column at the bottom of the page.
5. All of the individual installations you will be doing are listed in this dash number column.
6. For example: You are installing a 206-0100-24 kit. Proceed up the part number column to -24. Then go to the left to the sloping line. Down at the bottom of the page you should see another -24. Then going up this column you will see the first installation listed is 206-0202-4 Blower Installation. The next installation you will see is 206-0203-1 Evaporator Installation. The other installations can be located similarly.
7. As you identify each of these individual installations, look to the far left of the page for any flag notes that apply to your installation. They may be found on page 1 of 206-0100.
8. Next, select any one of the Installation Drawings such as the Evaporator Installation.
9. Then select the Installation Manual carrying the same number. This manual will also have one (or more) dash number(s) after the basic number.
10. Refer back to the Installation Drawing and locate this (these) dash number(s) (located to the left of the column marked "Part Number")
11. When the Installation Drawing refers to several dash numbers, look at the remarks column for notes which refer to the models of the helicopter to which each dash number applies.
12. After having determined the dash number applicable to your particular installation, proceed vertically up that column to determine the quantity and part number of each to be installed.
13. In the field of the drawing (The views, sections and details illustrations) some of them may say (-1 only) or (-2 only) etc. Only those views, sections or details carrying the dash numbers you located in step 5 apply to your installation.
14. If no dash number appears in a view, section or detail, then that view, section or detail applies to all installations on your drawing.

GENERAL INSTRUCTIONS

1. These instructions are intended only to sequence and to clarify the installation drawings. In the case of a discrepancy, the drawing shall be the authority.
2. All references are to the following drawings unless otherwise specified:
206-0100.
3. For removal of the seats, interior trim panels, and general preparation of the aircraft for installation of the air conditioner, see the appropriate aircraft service manual.
4. This kit has been designed around an aircraft with standard factory installed hardware. It should be determined at an early stage of the installation if any deviations need to be made from this outline in order to facilitate individual hardware and equipment installations.
5. Prior to commencement of installation, all parts should be checked against the kit list to aid in identification and to insure that proper quantities have been supplied.
6. Standard aircraft practices should be adhered to as outlined by FAA Advisory Circular 43.13-1A and 43.13-2A.
7. Upon completion of the installation, charge and test the unit following the service instructions as outlined in 206-0100-ISM Service Manual Addendum.

II. SPECIFIC INSTALLATION INSTRUCTIONS

RECOMMENDED ORDER OF INSTALLATION

Bleed Air Heater Installation
Compressor Installation
Condenser/Blower Installation
Evaporator Blower Installation
Electrical Installation
Air Distribution Installation
Plumbing Installation

WEIGHT AND BALANCE DATA:

NOTE: Weight and Balance Data Sheet (part of this document) should be removed and made part of the aircraft documents.



DATE _____

AIRCRAFT WEIGHT & BALANCE DATA

CUSTOMER:

Name _____

Address _____

New Empty Weight _____

New C/G _____

New Moment _____

AIRCRAFT:

Make Bell Helicopter Textron

Model 206-L1

Serial _____

Registration _____

Licensed Gross Weight _____

New Useful Load _____

UNIT	WEIGHT	CG	MOMENT
206-0100-4 ECS (LONG)	100.33 LBS.		16382.69 IN-LBS.
206-0100-4 ECS (LAT)	100.33 LBS.		-521.29 IN-LBS.

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