



INSTALLATION INSTRUCTION AND SERVICE MANUAL

FOR INSTALLATION OF AIR CONDITIONING KITS

WITH R134a REFRIGERANT

MODEL: CESSNA 340/340A

REPORT NO. 34-010-61M

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LIST OF REVISIONS


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STC NUMBER SA16RM
FLIGHT MANUAL SUPPLEMENT

SECTION I INSTALLATION INSTRUCTION**1. PREPARATION FOR INSTALLATION**

- A. Remove pilot's seat and all passenger seats on left hand side of aircraft.
- B. Remove console on left hand side of aircraft housing switch and circuit breaker panels.
- C. Remove left forward baggage compartment floors.

2. PLUMBING AND WIRING INSTALLATION

(Reference Drawings 34-010 and 34-050)

- A. Install switches and circuit breakers in appropriate panels on a "space available" basis and route wiring.
- B. Install pressure grommet mounting holes and grommets, as shown on 34-010 and 34-050 drawings, in the forward and aft pressure bulkheads. Install drain valve solenoid.
- C. Route plumbing as indicated.
- D. Seal pressure grommets with silicone sealer, assuring adequate lengths of hoses are present to make connections.

3. COMPRESSOR/MOTOR PALLET INSTALLATION

(Reference Drawing 34-050)

- A. Install Z section supports at stations 77 and 91.5 as indicated.
- B. Install compressor pallet assembly per drawing.
- C. Connect refrigerant lines and electrical wiring. Use ES49000-3 sealant on all plumbing fitting to fitting connections.

4. PROVISIONS FOR THE CONDENSER FAN INSTALLATION

(Reference Drawing 34-050)

- A. Position skin doubler as indicated and scribe cutout of the skin; remove doubler and complete cutout; deburring and smoothing edge.

SECTION I INSTALLATION INSTRUCTION

4. PROVISIONS FOR THE CONDENSER FAN INSTALLATION (Cont'd) (Reference Drawing 34-050)

- B. Install doubler, drilling through the skin using the pilot holes in the doubler as a pattern. Rivet in place.
- C. Position the fan in position as shown, assuring clearance from compressor pallet assembly; mark attach holes on doubler, remove fan assembly and drill through.
- D. Install deflector from the inside; hold in position and drill through flange from front two holes installed in Step C previously; set aside until later.

5. INSTALLATION OF AIR INLET DEFLECTOR (Reference Drawing 34-050)

- A. Position the skin doubler as shown externally and scribe cutout in skin; using pilot holes as a pattern, drill all holes; remove and complete cutout; deburr and smooth edge of cutout.
- B. Position doubler on the inside and rivet in place.
- C. Position inlet deflector on inside over cutout and drill holes thru skin, doubler and flanges. Install mounting hardware.
- D. Position screen and secure as shown.

6. INSTALLATION OF CONDENSER (Reference Drawing 34-050)

- A. Install forward lateral floorboard angle to station 62.0 structure as indicated.
- B. Mount the condenser to the forward floor panel to clear structure as indicated.
- C. Notch the legs of the angles on the aft edge of forward panel and the forward edge of the aft panel to provide clearance for the upper inboard refrigerant hose.

SECTION I INSTALLATION INSTRUCTION

6. INSTALLATION OF CONDENSER (Cont'd) (Reference Drawing 34-050)

- D. Install the forward floor panel with condenser and refrigerant lines attached by positioning both floors before installing rivnuts to assure correct location.

7. INSTALLATION OF CONDENSER FAN

- A. Using washers as shims to match contours, install the fan with provided hardware thru the previously installed doubler. (Install screen and negative scoop at the same time.)
- B. Install ducting between condenser and condenser fan.
- C. Make electrical connections.

8. INSTALLATION OF EVAPORATOR ASSEMBLY (Reference Drawing 34-010)

- A. Aft Overhead Centerline Mounting
 1. Locate the zees under headliner and clip into frames at stations 232 and 242.
 2. With the evaporator plastic cover removed, match drill mounting panel in conjunction with the zees and attach nutplates in the zees.
 3. Attach the evaporator using provided screws.
 4. Hook up plumbing connections and drain hose to drain valve in lower skin, penetrating bulkhead.
 5. Install plastic evaporator cover.
 6. Install forward overhead centerline distribution duct .

SECTION I INSTALLATION INSTRUCTION

9. CHARGING AND TESTING

- A. Charge and test system in accordance with Service Manual TR-134 and charging unit instructions.
- B. Install aft nose compartment floor.

**SECTION II REQUIRED PUBLICATIONS TO INSTALL 34-010-61 AIR
CONDITIONING KIT**

INSTALLATION DRAWINGS:

| | |
|--------|--------------------------------------|
| 34-010 | GENERAL ARRANGEMENT AND INSTALLATION |
| 34-050 | INSTALLATION COMPRESSOR/CONDENSER |

INSTALLATION MANUAL:

| | |
|------------|---|
| 34-010-61M | INSTALLATION INSTRUCTIONS (This Document) |
|------------|---|

SERVICE DOCUMENT:

| | |
|--------|---------------------------------|
| TR-134 | AIR CONDITIONING SERVICE MANUAL |
|--------|---------------------------------|

SECTION III SERVICE AND MAINTENANCE PROCEDURES**DESCRIPTION - AIR CONDITIONING SYSTEM**

The Keith Products air conditioning unit is composed of two major component installations: (1) the Equipment Package and (2) the Evaporator Package.

The Equipment Package is comprised of the compressor, drive motor, condenser fan, coil and receiver dryer.

The Evaporator Package consists of the evaporator coil, blower, blower drive motor and the expansion valve.

The control for the system is located on the pilot's switch panel and consists of a simple on-off switch; some units carry a fan only position.

When the switch is placed in the ON position, the compressor, driven by an electric motor, compresses the refrigerant gas to a high pressure and high temperature. This gas is routed to the condenser where cooling from the fan removes heat from the gas, condensing it to a liquid. The liquid is then stored in the receiver dryer, adjacent to the compressor, until it is used. The refrigerant is metered to the evaporator through the expansion valve at a rate to allow all the liquid to evaporate and return to the compressor at a reduced pressure. The cabin heat is absorbed from air passing over the evaporator cooling fins. SEE FIGURE 1.

CAUTION

WHEN THE AIR CONDITIONER IS TURNED OFF, IT IS RECOMMENDED THAT A MINIMUM OF THREE MINUTES ELAPSE BEFORE IT IS TURNED ON AGAIN: THIS ALLOWS THE COMPRESSOR HEAD PRESSURE TO BLEED OFF AND BRING THE STARTING LOAD TO NORMAL.

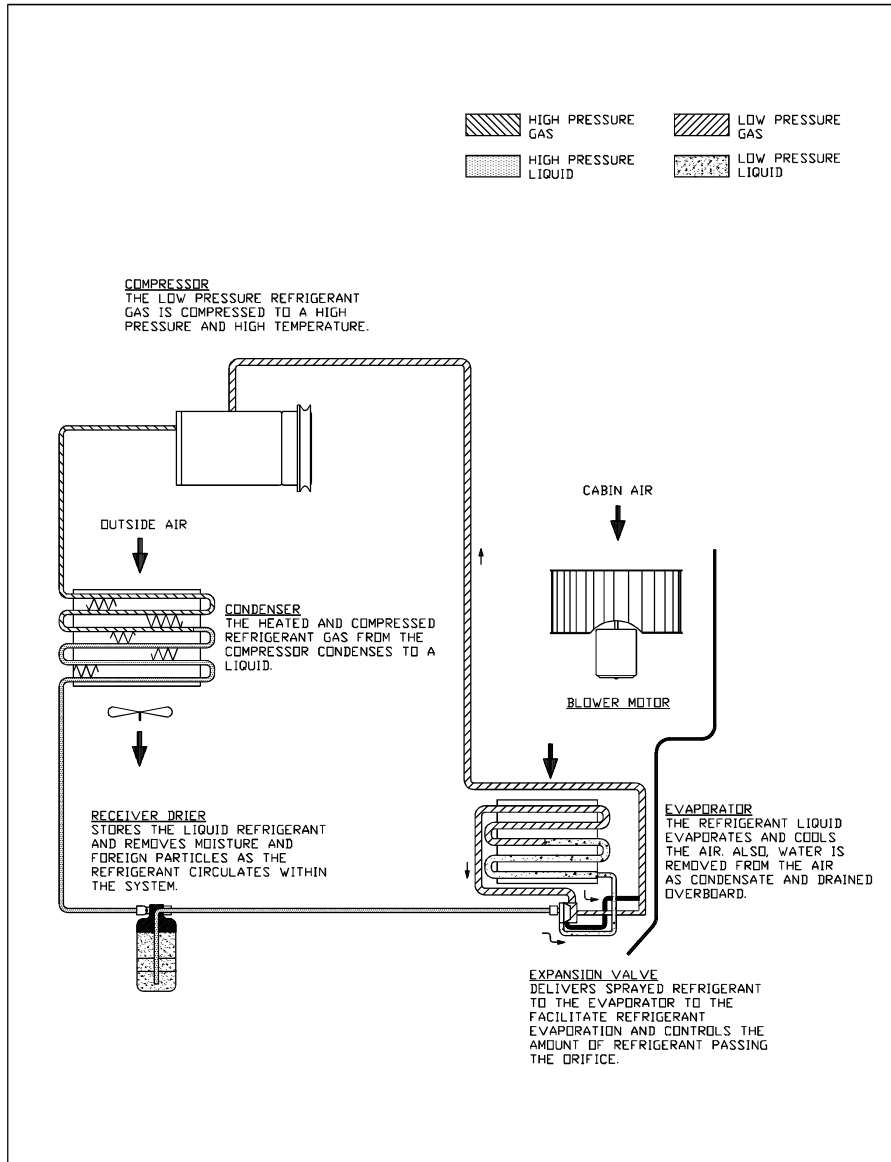


Figure 1. Vapor Cycle Schematic

SECTION III SERVICE AND MAINTENANCE PROCEDURES**EVACUATION AND CHARGING PROCEDURES**

Follow the evacuation and charging procedures given for your R134a refrigerant charging unit.

CLEANING, INSPECTION AND REPAIR**A. Cleaning**

1. The air conditioning components should be wiped clean with a cloth and a stream of low pressure dry air.

B. Inspection

To avoid invalidating warranty, the following procedure must be followed:

1. Single 3/8" "V" Belt
 - a. Maintain belt tension at 30-35 pounds. this is equivalent to deflecting the belt .3 inch, measured at the center span, with a 6-8 pound load being applied perpendicular to the belt.
 - b. After installing a new belt, reset tension again after approximately one hour of operation.

Every 100 hours inspect the air conditioning system for the following:

1. Security of mounting
2. Compressor drive belt for proper tension.
3. Sight gauge for proper refrigerant level.
4. Remove lint and grease from evaporator with a vacuum.

C. Repair and Servicing

Repair to the air conditioning system is limited to the replacement of components.

SECTION III**SERVICE AND MAINTENANCE PROCEDURES****PRESSURIZED AIRCRAFT CONDENSATE DRAIN VALVE OPERATION**

One result of an aircraft air conditioning system operating is the removal of moisture from the warm air in the cabin as the system circulates the air over the evaporator coil. Because of this, the evaporator has a drain pan and drain tube to allow the accumulated moisture to run overboard. Non-pressurized aircraft normally have an open drain system functioning all the time.

All pressurized aircraft equipped with Keith Products air conditioning systems are equipped with a condensate drain valve in the line with an instrument panel mounted switch.

The purpose of the valve is to allow the pilot to control the outflow of water from the evaporator pan. Any momentary application of the drain switch allows a small amount of pressurization air to escape through the drain tube and valve. However, past experience has shown that the aircraft pressurization systems have more than adequate capacity to handle even inadvertently leaving the switch on for extended periods of time.

Aircraft operated in high humidity areas can generate a large amount of water in the evaporator in a short period of time from takeoff to cruise altitude.

The condensate drain switch should be put in the "ON" position for two (2) to three (3) minutes after reaching cruise altitude to drain off the excess water. The switch should then be returned to the "OFF" position.

Since the capacity of the drain pan is not necessarily large, continued operation in a high humidity environment could result in a spillage of water out of the evaporator box into the interior of the aircraft, if the system is not drained.

Good practice would be to drain the line for a moment or two before shutting the aircraft down at the destination airport, thus assuring drain pan capacity at the next takeoff.

SECTION IV AIRCRAFT DOCUMENTS**SAMPLE****WEIGHT AND BALANCE SUPPLEMENT**MODEL: CESSNA 340

SERIAL NUMBER:

REGISTRATION NUMBER:

| <u>ITEM</u> | <u>WEIGHT</u> | <u>ARM</u> | <u>MOMENT</u> |
|------------------------------|---------------|------------|---------------|
| 1. PREVIOUS EMPTY WEIGHT | | | |
| 2. ADD AIR CONDITIONER | | | |
| a) COMPRESSOR/CONDENSER | 52.4 | 79.0 | 4139.6 |
| b) EVAPORATOR | 15.0 | 242.0 | 3630.0 |
| c) HOSES/FITTINGS/ELECTRICAL | 12.0 | 150.0 | 1800.0 |
| d) DUCTING | 6.0 | 183.0 | 1098.0 |

NEW EMPTY WEIGHT:

NEW AIRCRAFT EMPTY WEIGHT C.G.:

NEW USEFUL LOAD: