



KELLY AEROSPACE

Thermal Systems

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The latest revision of the maintenance manual can be obtained from the Kelly Aerospace website at www.kellyaerospace.com.

In the event Internet access is not available, please contact the Customer Service Office for inquiry or a copy of the latest revision:

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1.0 SECTION: INTRODUCTION

This document identifies the instructions for continued airworthiness for the modification of the above aircraft by installation of the Kelly Aerospace Air Conditioning System.

Applicability: Applies to aircraft altered by installation of Kelly Aerospace Air Conditioning System

Distribution: This document should be a permanent aircraft record.

2.0 SECTION: DESCRIPTION OF THE ALTERATION

The Kelly Aerospace Thermacool Air Conditioning System is installed in the aircraft as a remote-mount unit in the tail cone of the aircraft. Conditioned air is ducted out of an evaporator located just aft of the baggage area. Pilot control of the air conditioning is through the climate control unit located in the instrument panel or center console.

3.0 SECTION: CONTROL / OPERATION INFORMATION

3.1 Air conditioning System

The system is operated through temperature/fan speed selection on a climate controller located in the instrument panel or center console.

The system may be operated during all phases of operation to include take off and landing.

The air-conditioning system may be operated on the ground and without the engine running by connecting an APU or GPU to the ground power receptacle on the aircraft. The GPU or APU must be of sufficient capacity to run the A/C system with a minimum capacity of 45 amps at 28 volts. **Caution: Do not attempt to operate the air conditioning system with an APU or GPU with the aircraft battery disconnected as this could result in damage to the digital compressor controller.**

The system may be operated during level flight, take off and landing or on the ground during taxi.

AIR CONDITIONING SYSTEM NORMAL CHECKLIST CB-1 CLIMATE CONTROLLER

- 1) Prior to engine startup ensure Air Conditioning is OFF by verifying that there is no temperature displayed on the CB-1 climate controller.
- 2) Follow normal procedures for engine start-up.
- 3) To operate Air Conditioning press the upper left button on the CB-1 Climate Controller, the display will first show fan speed, then will show temperature set point.
- 4) For FAN ONLY operation use the left hand selector arrows on the CB-1 Climate Controller to increase or decrease fan speed. Speed Range is 1 to 3.
- 5) For Air Conditioning use the right hand selector arrows on the CB-1 Climate Controller to set the desired cabin temperature. Fan speed will still be controlled manually with the left hand selector arrows. The CB-1 display will default to the temperature set point, to display cabin temperature press and release the upper left button, the cabin temperature will be displayed with a dot in the lower right hand corner indicating that cabin temperature is being displayed. After a few seconds the temperature set point will be displayed again.
- 6) To turn air conditioning system off, press and hold upper left button.

AIR CONDITIONING SYSTEM NORMAL CHECKLIST CB-2 CLIMATE CONTROLLER

- 1) Prior to engine startup ensure Air Conditioning is OFF by verifying that there is nothing displayed on the CB-2 climate controller LCD screen.
- 2) Follow normal procedures for engine start-up.
- 3) To operate Air Conditioning press the lower right button on the CB-2 Climate Controller, the display will first show the logo and software version; then it will show temperature set point, fan speed bar graph, and mode display.
- 4) To select Fan Only or Air Conditioning mode press the bottom left button and toggle between modes with the middle right button. After selecting a mode, either press the bottom right button to enter or wait 3 seconds and the display will return to the main screen. The snow flake symbol in the bottom center of the display will indicate Air Conditioning mode.

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- 5) To control fan speed, press the middle left button to bring up the fan speed screen. Toggle the fan speed up or down using the middle and upper right buttons. Speed Range is 1 to 3. After selecting desired fan speed press the bottom right button to enter or wait 3 seconds and the display will return to the main screen. The fan speed bar graph on the right side of the screen will show selected fan speed. Fan speed can be controlled in both AC and Fan Only modes.
- 6) To change the desired cabin temperature use the top and middle right buttons to adjust the temperature set point up or down. The set point temperature will be displayed with an SP indication. The CB-2 display will default to the temperature set point, to display cabin temperature press and release the bottom right button, the cabin temperature will be displayed with a TEMP indication. After a few seconds the temperature set point will be displayed again.
- 7) To turn air conditioning system off, press and hold lower right button.

4.0 SECTION: MAINTENANCE / SERVICING INSTRUCTIONS

There are no maintenance requirements for the Air-conditioning System outside of normal 100hr/Annual inspection intervals or during routine maintenance.

Perform a system functional test after any maintenance is performed on the air-conditioning system.

Note: Before inspections or maintenance are performed it is the responsibility of the owner/operator and maintenance agency to assure that they are in possession of the latest revision of the applicable documentation and drawings.

CHARGING

Only trained and qualified personnel may service this system.

The Air Conditioning System should contain 34 oz of R-134A Refrigerant. There are no substitutions permitted. The service ports are on top of the compressor which is located in the tailcone. The small service port is the high pressure side and the large service port is the low pressure side.

Caution: It is vital that the compressor is NOT operated while the system is under vacuum. Doing so will instantly damage the compressor.

5.0 SECTION: TROUBLESHOOTING

Failures of the Kelly Aerospace Thermacool Air Conditioning System can include but may not be limited to the following items:

- 1) Fan motor failure, characterized by no or little airflow. Corrective action: Troubleshoot the fan motor wiring, relay and fan for proper operation, repair or replace as necessary.
- 2) Compressor failure, characterized by low amp draw, or little cold air output. Corrective action: Troubleshoot compressor and compressor controller and wiring, repair or replace as necessary.
- 3) Low or no refrigerant, characterized by little or no cold air. Corrective Action: Inspect system for leaks, repair as necessary, and service system appropriately with R-134A refrigerant.
- 4) Any or all of these probable failures require inspection as necessary, or system must be secured and placarded until repaired.

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6.0 SECTION: REMOVAL AND REPLACEMENT INFORMATION

Refer to the Kelly Aerospace ThermoCool Air Conditioning System Installation Manual.

When replacement of any refrigerant containing device is necessary, e.g... compressor or evaporator, it is necessary to evacuate the refrigerant prior to removal. An EPA approved refrigerant evacuation machine is required. Prior to recharging the system with refrigerant, the system must be evacuated. Allow the vacuum source to remain connected for a minimum of one hour to assure there are no leaks and verify system integrity.

7.0 SECTION: DIAGRAMS

A list of all applicable diagrams can be found in document NC-14-021.

All drawings and diagrams will be provided by Kelly Aerospace Thermal Systems. These may be obtained by contacting Kelly Aerospace by calling 440-951-4744 or fax 440-951-4725

8.0 SECTION: SPECIAL INSPECTION REQUIREMENTS

Inspect the system during 100 Hr and/or Annual inspections. There are no servicing requirements for the Air-conditioning System outside of normal 100hr/Annual inspection intervals or during routine maintenance.

During the annual or 100 hr inspections check for the following items:

1. Security of attachment of all components.
2. Evidence of any leaks.
3. Fretting or cracking of any sheet metal structures.
4. Insect or animal nests in condenser or evaporator sections.
5. Bent or obstructed fins on the condenser and evaporator coils.
6. Loose or missing hardware.
7. Loose or chaffing tubing.
8. Loose or chaffing wires.

9.0 SECTION: DATA RELATED TO STRUCTURAL FASTNERS

Structural fasteners should be installed per AC43.13-1B. Also, refer to Cirrus Maintenance Manual.

10.0 SECTION: OVERHAUL PERIOD

No additional overhaul time limitations.

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11.0 SECTION: AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations Section is FAA APPROVED and Specifies maintenance required under FARs parts 43.16 and 91.403 unless an alternate program has been FAA APPROVED. There are no additional Airworthiness Limitations as a result of this alteration.

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