

**AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR
Mooney M20R, S, TN, U & V
AIR CONDITIONING SYSTEM**

Aircraft SN: _____

Aircraft Registration Number: _____

This supplement must be attached to the FAA approved flight manual when the Kelly Aerospace Air Conditioning System is installed in accordance with STC SA04428CH. The information contained in this document supplements or supersedes the basic manual only in those areas listed. For limitations, procedures, performance, and loading information not contained in this supplement, consult the basic FAA Airplane Flight Manual.

EDWARD M WARD Digitally signed by EDWARD M
WARD
Date: 2019.09.19 07:26:19 -0500 **for**
Manager, Southwest Flight Test Section, AIR-713
Federal Aviation Administration
Ft. Worth, TX

DATE: 9/19/2019

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SECTION 1

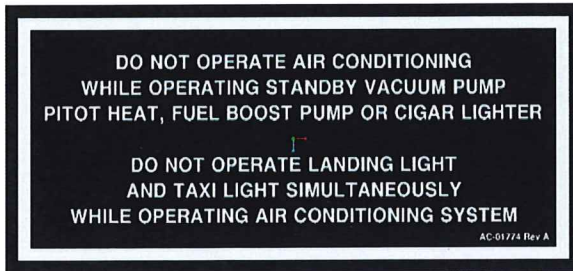
GENERAL

This supplement supplies information necessary for the operation of the airplane when the optional Air Conditioning System is installed in accordance with FAA Approved Data, either STC or Original Equipment.

SECTION 2

LIMITATIONS

When the Air Conditioning system is in operation some load shedding is needed. The Standby Vacuum Pump, Pitot Heat, Fuel Boost Pump or Cigar Lighter cannot be used while the Air Conditioning System is operating. The Landing Lights and Taxi Lights cannot be used simultaneously while the Air Conditioning System is operating. The following placard is installed in the cockpit for the pilot's reference.



Mooney Load Application Placard

SECTION 3

EMERGENCY PROCEDURES

ALTERNATOR FAILURE or any other Electrical Failure

1. 1 Amp AIR COND. Circuit Breaker**OFF**
2. Inspect and perform required maintenance after the flight.

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SECTION 4

NORMAL PROCEDURES



A1235 Climate Controller

AIR CONDITIONING SYSTEM NORMAL CHECKLIST A1235 CONTROLLER

Climate Controller Power-On Self Check

1. Climate controller initiates a self-check at power-on. A fault is indicated by the red "FAIL" illuminated. Normal operation defaults to FAN Mode with a fan speed of "0".

Prior to Engine Start

1. Ensure Air Conditioning is OFF by verifying that the "AC" light is not illuminated; press the "FAN ▼" until the display shows a fan speed of "0".
2. Follow normal procedures for engine start-up.

Air Conditioning AC Mode

1. Cabin fresh air Vent knob turned to "OFF" position.
2. Push the AC button to toggle operating modes between "FAN" and "AC".
3. Select "AC".
4. Adjust desired temperature using "TEMP" buttons. Evaporator fan speed will adjust automatically based on set temperature and actual temperature indicated.

Air Conditioning Fan Only Mode

1. Ensure the "AC" light is not illuminated; otherwise press the AC button to toggle operating modes between "FAN" and "AC".
2. Select "FAN"
3. Adjust desired fan speed using "FAN" buttons. Speed Range is "0" to "5".

Air Conditioning Fault

1. Red "FAIL" light illuminated indicates a fault has occurred.
2. Select "FAN" Mode.

Before Engine Shut-Down

1. Turn off Air Conditioner by pressing the AC button. "FAN" should be illuminated,

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CB-2 Climate Controller

AIR CONDITIONING SYSTEM NORMAL CHECKLIST CB-2 CONTROLLER

Prior to Engine Start

1. 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.

Air Conditioning AC Mode

1. Cabin fresh air Vent knob turned to "OFF" position.
2. 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.
3. Press the bottom left button and toggle between modes with the middle right button.
4. After selecting AC mode, either press the bottom right button to enter or wait 3 seconds and the display will return to the main screen. The snowflake symbol in the bottom center of the display will indicate Air Conditioning mode.

Air Conditioning Fan Only Mode

1. Press the bottom left button and toggle between modes with the middle right button.
2. After selecting fan mode, either press the bottom right button to enter or wait 3 seconds and the display will return to the main screen.

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To Control Fan Speed

1. Press the middle left button to bring up the fan speed screen.
2. Toggle the fan speed up or down using the middle and upper right buttons. Speed Range is 1 to 3.
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.

Changing Temperature Set Point

1. Press the top or middle right buttons to adjust the temperature set point up or down.
2. 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

1. 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.

To turn air conditioning system off

1. Press and hold lower right button.

SECTION 5
PERFORMANCE

When the static pressure alternate source valve is pulled on, a change in static pressure supplying the static source instruments is introduced. The altimeter will react to this pressure change by indicating up to 162 feet higher than the aircraft's actual altitude.

Altimeter Correction when using Alternate Static Source

Conditions: Power required for level flight.

Gear & Flaps Up

Altimeter corrections for takeoff configuration are less than 50 feet.

--- KIAS	2000 FT. MSL		8500 FT. MSL	
	Air Conditioning Off	Air Conditioning On	Air Conditioning Off	Air Conditioning On
80	2	-31	-32	-30
90	-17	-44	-42	-44
100	-34	-57	-60	-58
110	-52	-70	-70	-73
120	-69	-84	-79	-87
130	-86	-97	-88	-99
140	-104	-110	-98	-117
150	-122	-124	-	-
160	-138	-136	-	-
170	-156	-149	-	-
180	-176	-162	-	-

Add correction to indicated altitude to obtain actual altitude of the aircraft. Windows and ventilators closed, cabin heater and defroster off.

Note: The minus sign indicates subtraction of the given number from the indicated altitude to obtain the corrected altitude.

Example: Level flight using alternate static source with the air conditioner on at 100 KIAS and 2000 feet MSL indicated altitude, actual altitude is $2000+(-57) = 1943$ feet MSL.

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SECTION 6

LOADING INFORMATION

The addition of the Air Conditioning System has been accounted for/included in the aircraft's basic empty weight and center of gravity. The Standard Aircraft Loading and CG envelope remain unchanged. Proper weight and balance calculations must be performed prior to flight to ensure aircraft is properly loaded and within operating limitations.

SECTION 7

DESCRIPTION AND OPERATION OF THE AIR CONDITIONING SYSTEM

Description

The Air Conditioning System ducts cool dry air through an evaporator mounted in the hat rack behind the aft baggage area. The condenser and compressor for the system are mounted in the tail cone. A climate controller is located on the instrument panel. The climate controller is used to set fan speed and desired air temperature. Power is supplied to the system through the main bus.

The electrical wiring for the air conditioning system is protected by 4 circuit breakers. A 1 amp circuit breaker labeled AIR COND is located in the main circuit breaker panel next to the pilot; this circuit breaker controls power to the climate controller and will also disable the entire system. A 60 amp circuit breaker, a 10 amp circuit breaker and a 15 amp circuit breaker are located in the rear of the aircraft and are not resettable in flight. These circuit breakers control the compressor, evaporator fan and condenser fan.

Operation

The Air Conditioning System should be turned off during engine startup. The system can then be turned on when the aircraft is brought up to idle. Operating the Air Conditioning System with the engine at idle for extended periods of time may cause the bus voltage to drop below 24 VDC. Maintain appropriate engine RPM to avoid prolonged discharge of battery while air conditioning is in use. The system is turned on when the master switch is in the on position and the "AC" button is pressed on the A1235 or the lower right switch is activated on the CB2 climate controller. Desired cabin temperature is set with the climate controller.

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