Kelly Aerospace
Willoughby, OH
NC-13-029, Rev. B

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

PA-44-180 (28V w / G1000)

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 SA03093CH. 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.

FAA-Approved

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Manager, Southwest Flight Test Section, AIR-713
Federal Aviation Administration
Ft. Worth, TX

LOG OF REVISIONS

REV.	PAGES	DESCRIPTION	APPROVED BY	DATE
A	1 - 9	Complete Supplement	RD McElroy for Steven L. Lardinois Manager, Systems & Flight Test, Chicago ACO, Des Plaines, Il	23 Oct 2013
B	5-6 8	Replace A1235 Controller Instructions with CB-2 Instructions Add 3 amp breaker description	Manager, AIR-713 FAA Ft. Worth, TX	5-23-18

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SECTION 1
GENERAL

This Airplane Flight Manual Supplement describes the operation of the PA-44-180 airplane with the optional Kelly Aerospace Air Conditioning System installed by this STC SA03093CH .

SECTION 2
LIMITATIONS

1) Air Conditioning use is prohibited during Takeoff and Landing.
2) Required Placards -
   In full view of the pilot and co-pilot:

"AIR CONDITIONER MUST BE OFF DURING
TAKEOFF AND LANDING"

In full view of the pilot and co-pilot:

"MAXIMUM WEIGHT OF PILOT & CO-PILOT
SHALL NOT EXCEED 600 LBS."

SECTION 3
EMERGENCY PROCEDURES

No Change

SECTION 4
NORMAL PROCEDURES

+28 VOLT EXTERNAL POWER

The Air Conditioning System can only be powered when both alternators are operating unless energized via +28 volt external power.

1) External Power Plug.....INSERT in +28 VDC RECEPTACLE
2) Operate Air Conditioning system in FAN or AC Mode as desired.

BEFORE ENGINE START

1) Follow normal procedures for engine start-up.

   NOTE: Air Conditioning System will not function until both engines and alternators are operating.

AIR CONDITIONING AC MODE

1) 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.
2) Press the bottom left button and toggle between modes with the middle right button.
3) 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 snow flake symbol in the bottom center of the display will indicate Air Conditioning mode.

CB-2 Temperature Controller

SECTION 4
NORMAL PROCEDURES (Continued)

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.

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.

BEFORE ENGINE SHUT-DOWN

1) Turn "OFF" Air Conditioner.
2) Follow normal procedures for engine shut-down

SECTION 5
PERFORMANCE

Airplane Flight Manual performance charts are unchanged for installation of the Air Conditioning System based on limiting system use during the Takeoff and Landing segments. A measureable decrease in performance would otherwise be expected with the use of the Air Conditioning system.

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 insure aircraft is properly loaded and within operating limitations. Maximum weight of pilot &co-pilot shall not exceed 600 lbs.

SECTION 7
DESCRIPTION AND OPERATION

DESCRIPTION

The Air Conditioning system directs cool dry air through the headliner and out vents near the pilot, co-pilot and passenger seats. A climate controller located on the co-pilots instrument panel is used to set cabin fan speed and desired air temperature. Using R134a refrigerant, the air conditioning system is comprised of an evaporator, condenser, condenser fan, and electric compressor mounted in the system plenum underneath and to the rear of the hat rack on the left side of the aircraft.

OPERATION

The Air Conditioning system is required to be turned OFF during engine startup. The system can be powered on when both alternators are operating and the AC Mode is activated on the climate controller. Desired cabin temperature and fan speed is also set on the climate controller using the TEMP and FAN buttons. The Garmin G1000 system monitors the status of the alternators and engines such that if one alternator is selected off, an engine is not running, or one of these items fails, the air conditioning system will be deactivated after a small delay. Once the alternator and/or engine are operating again, the Garmin G1000 system will reactivate the air conditioning system.

The Air Conditioner can also be energized by external power using the 28 volt external power receptacle located on the right side of the tailcone. An external power supply capable of supplying 50 amps should be utilized.

Nominal operating current is 35 amps, measured at the compressor. Peak current draw is 45 amps when maximum cooling is required. If an electrical overload condition occurs, the air conditioning unit circuit breakers will trip. There is (1) 60 amp air conditioning circuit breaker on the lower right instrument panel which provides power to the overall air conditioning system. There are three (4) additional Air Conditioning system breakers located on the Air Conditioning system Plenum in the rear tail cone area of the aircraft. A 60 Amp breaker controls power to the compressor. A 7.5 Amp breaker controls power to the condenser fan. A 10 Amp breaker controls power to the evaporator blower. A 3 Amp breaker controls power to the CB-2 Temperature Controller. These breakers are only accessible by maintenance personnel through the block off panel behind the hat rack.