

United States of America
Department of Transportation - Federal Aviation Administration
Supplemental Type Certificate

Number SA01801CH

This certificate issued to
Hartzell Engine Technologies LLC
2900 Selma Highway
Montgomery, Alabama 36108

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 3 of the Civil Air Regulations.

Original Product Type Certificate Number: A-790
Make: Cessna Aircraft Company
Model: 190, 195, 195A, 195B

Description of Type Design Change:
Installation of Combustion Heater Kit P/N CD12091K11, in accordance with C&D Associates heater Installation Instructions IN12091K11, Rev.-, dated, February 4, 2003, or later FAA approved revision.

Limitations and Conditions:

1. Compatibility of this design change with previously approved modifications must be determined by the installer.
2. Check aircraft Weight and Balance
3. Full compliance with the C&D Combustion Heater Instructions for Continued Airworthiness, second edition, revision none, dated April 4, 2002, or later FAA approved revision, is required.
4. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

This certificate and the supporting data, which is the basis for approval, shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: February 11, 2003

Date reissued: February 11, 2016

Date of issuance: March 27, 2003

Date amended:

By direction of the Administrator



(Signature)
Timothy P. Smyth
Manager,
Chicago Aircraft Certification Office

(Title)

C&D ASSOCIATES, INC.

IN12091K11

Page 1 of 4

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Rev -

REAR HEATER INSTALLATION INSTRUCTIONS FOR MODEL CD35K KIT, P/N CD12091K11

For Cessna 190, 195, 195A, 195B.

READ COMPLETE INSTRUCTIONS BEFORE BEGINNING INSTALLATION

1. Preparation:

- A. Remove the rear cabin area bulkhead located at station 102. Remove the upholstery along the left side of the cabin area below the windows.

2. Heater Platform Installation: (AC43.13-1B Chapter 4, Section 4, Par. 4-57, Riveting) (See Figure 1)

- A. Place the heater platform, P/N 24040, (large end forward) on the left side of the aircraft, aft of the baggage floor between stations 102 and 120.375. Position so that the back side of the platform touches, but does not overlap the bulkhead at station 120.375 and just below the longitudinal stringer running along the lower left side.
- B. Using the platform as a template, drill and cleco into temporary place.
- C. Using the inboard leg of the platform as a guide, make an index line on the floor, from the aft bulkhead at station 120.375 to the baggage area bulkhead at station 102. Through the center of the one-inch hole, make a 5/16" hole through the skin for the drain.
- D. Remove the platform and debur holes. Counter sink holes as needed.
- E. Measure back from station 102 two inches, and outboard of your index line 2.75" and place a mark for the exhaust. Measure 6.75" for the combustion air inlet and mark. Make a 2 1/2" round opening at the 2.75" mark and a 1 3/8" dia. hole at the 6.75" mark. Rivet the combustion air adapter P/N 21356. into the 1 1/2" hole, scarf facing forward to scoop in air, with six rivets evenly spaced.
- F. Install the heater platform and rivet into place.

3. Fuel Pump: (See Figure 1)

- A. Mount the fuel pump, with removable filter cap forward, onto the two mounting holes located in the front outboard section of the heater platform.

4. Fuel Line:

- A. Fuel line fastening and routing is to be accomplished in accordance with AC43.13-1A, Chapter 8, Section 2, Paragraph 8-31, Fuel Lines and Fittings.
- B. Original aircraft plumbing provided a heater fuel connection half way up the left side of the cabin area, under the middle of the windows at station 65.1875. Route a #4 line from the existing fuel line fitting aft through existing bulkhead openings back to the front fitting of the fuel pump. Clamp and secure every 12 inches as needed.

5. Heater Installation:

- A. Place the heater on the heater platform being careful to place the exhaust in the 2 1/2" exhaust opening of the fuselage. Secure using the two 6" clamps to the forward and aft mount.
- B. Connect the combustion air inlet adapter (P/N 21356) to the heater combustion air blower, using the black 1 1/2" hose and two clamps. Complete the fuel line connection from the fuel pump out fitting to the inlet on the heater.
- C. Connect the red 4" hose to the outlet planum of the heater and fasten with a hose clamp. Direct the air to the desired location.

6. Inlet Plenum: (P/N 24017) (See Figure 1)

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- A. Mount Air Inlet Plenum P/N 24017 as shown in the illustration in the top upper corner under the hat shelf cross brace. Two 3/8" relief holes in the hat shelf cross brace will need to be made for the upper two rivnuts. Use the plenum as a template. Fasten to the bulkhead and hat shelf cross brace using two pull rivets. Connect the black 4" hose from the back end of the heater to the inlet plenum.

7. Electrical Connections: (AC43.13-1B Chapter 11 Section 8)

A. Switch, Rotary (CD20654A)

- a. Install the new heater rotary control switch P/N 20654A in a convenient location on the pilot control panel making sure there is clearance around the switch body. Red wire to a 20 amp fuse at the buss bar. Black wire to ground.
- b. Route remaining white, yellow, orange and blue wires along left side of aircraft with existing wire bundle to heater location.
- c. Connect the wires coming from the control switch to the numbered terminal strip on the heater in the following manner.
 - 1) White 12 Gauge wire to terminal #1
 - 2) Blue 12 Gauge wire to terminal #6
 - 3) Orange and yellow wires to thermostat orange and yellow wires.
 - 4) Fuel Pump wire to terminal #2.
 - 5) Optional: Hour meter wire to terminal #2, Overheat warning light wire to terminal #4

8. Operation Check:

- A. With master switch on, turn the heater control to first position "Fan." Verify the ventilation fan is operational. (Airflow out of the outlet or red hose)
- B. Heater Control Switch to next position "Heat." Verify that the ventilation fan is still operational and that the combustion air motor is operating with airflow out the exhaust. Check for voltage at the heater terminal strip numbers 1, 2 and 6. Rotate heater control switch clockwise until the heater fires.

9. **IMPORTANT!** Final Inspection before closing:

- A. Inspect all fuel lines and their connections for any possible leaks and mounting security. Verify that electrical wire, fuel line, and heater installation are clear of any aircraft control cable movement before installing flooring and panels.
- B. Complete the operation and heat output tests specified in the C&D Associates, Inc. MM10000 Maintenance Manual for aircraft combustion heaters Second Edition dated 4-4-02. Tests should be accomplished in accordance with section IX 'C' operational test, and 'D' for heat output, steps 1 and 2. Also in accordance with the "Instructions for Continued Airworthiness" step #1 "Preflight/Operational check and Shutdown Procedure."

10. NOTE: Follow the 'Combustion Heater PREFLIGHT/OPERATIONAL CHECK AND SHUTDOWN PROCEDURE' outlined within the Combustion Heater "Instructions for Continued Airworthiness", Second Edition, Revision: none, dated 04-04-02, or later revision, included with these instructions. This FAA-approved Instructions for Continued Airworthiness must be complied with and become a permanent part of the Aircraft Operations and Procedures manual.

11. NOTE: Insert the following statement (label 21504 provided) in the aircraft flight manual: "Combustion Heater Operation: Please follow the C&D Associates, Inc. "Instructions For Continued Airworthiness", Second Edition, Dated April 4, 2002, Revision: none or later FAA approved revision.

12. NOTE: Increased electrical load is approximately 18 amps at 12 VDC. Fuel consumption with continuous burn is approximately 1.5 GPH.

13. NOTE: Weight and balance change: Heater Kit installation aft of rear cabin bulkhead weighing 28 lbs.

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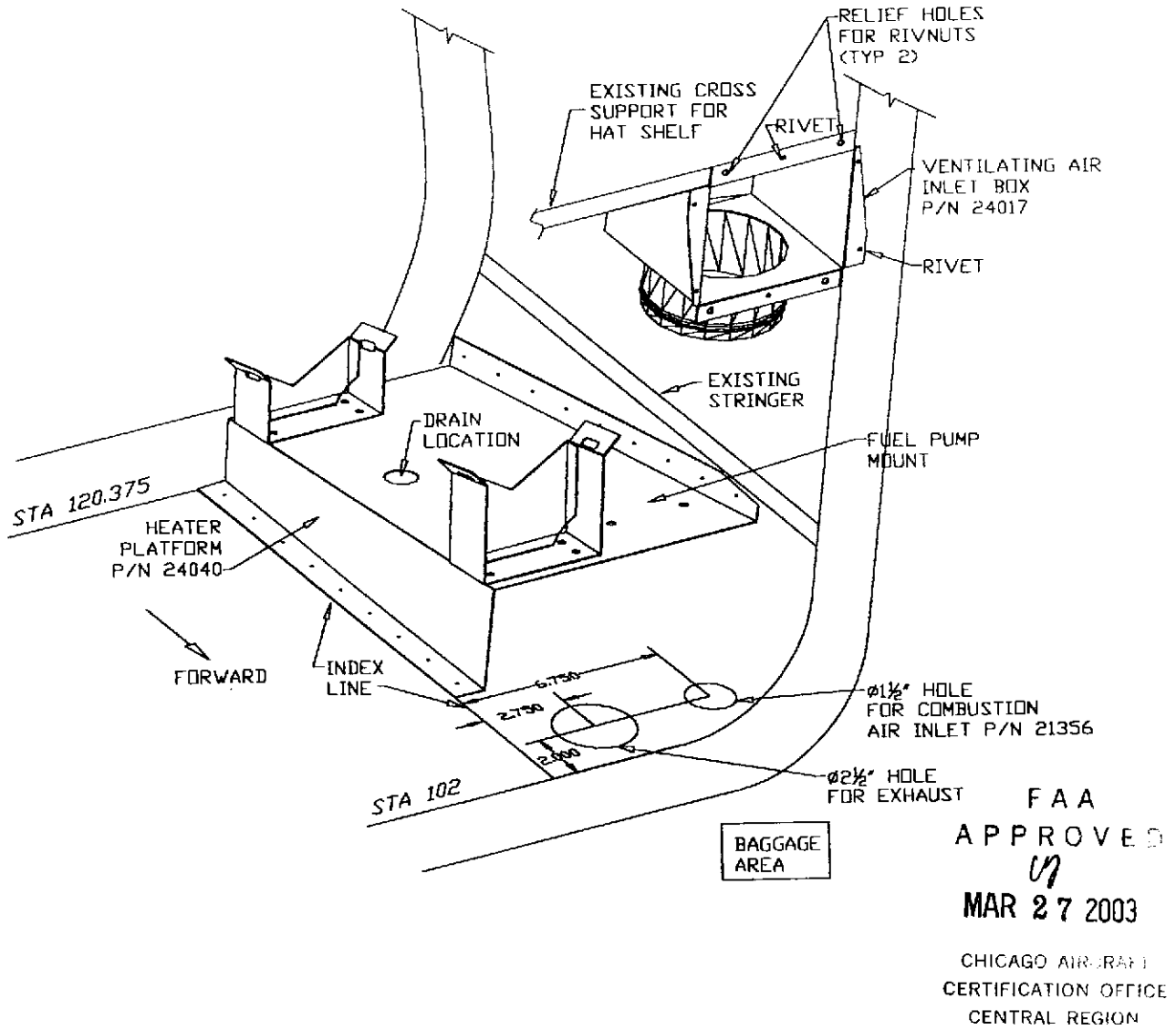


Figure 1

DOCUMENTATION AND PARTS REQUIREMENT TABLE

DOCUMENTATION

- | | |
|---|-------|
| 1. FAA/PMA Supplement #XX | _____ |
| 2. Installation Instructions IN12091K11 | _____ |
| 3. Label for flight manual | _____ |
| 4. MM10000 Maintenance Manual | _____ |
| 5. Quality Assurance Certificate of Compliance #527 | _____ |

PARTS

- | | | |
|-----------------------------------|-----------------|-------|
| 1. (1) Plenum, Outlet | 24045 | _____ |
| 2. (5") Drain Line | #4 | _____ |
| 3. (1) Plenum, Inlet | 24017 | _____ |
| 4. (1) Platform Assy, Heater | 24050 | _____ |
| 5. (1) Hose, Black (1.5") | CEET-6 | _____ |
| 6. (2) Clamp, Worm Drive | 2 1/2" | _____ |
| 7. (1) Hose, Black (1.5") | CEET-6 | _____ |
| 8. (2) Clamp, Worm Drive | 1 1/2" | _____ |
| 9. (66") Hose, Red (4") | SCEET-16 | _____ |
| 10. (3) Clamp, Worm Drive | 4" | _____ |
| 11. (1) Fuel Pump (7.5 PSI) | 21370 | _____ |
| 12. (2) Adapter | AN816-D4 | _____ |
| 13. (2) Screw, Phillips | #10 x 1" | _____ |
| 14. (2) Washers, Starlock | #8 | _____ |
| 15. (1) Inlet, Combustion Air | 21356 | _____ |
| 16. (1) Rotary Switch | 20654 | _____ |
| 17. (1) Thermostat | 21253 | _____ |
| 18. (25) Rivets, countersunk 1/8" | MS20470AD-AD4-3 | _____ |
| 19. (2) Clamp, Worm Drive | 6" | _____ |
| 20. (1) Circuit Breaker, 20 amp | W23X1A1G20 | _____ |
| 21. (72") #4 Alum 1/4" Fuel Line | 21337 | _____ |
| 22. (4) B Nuts | AN818-4D | _____ |
| 23. (4) Sleeves | AN819-4D | _____ |

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