

**CHAPTER 99 — AUXILIARY EQUIPMENT KIT
CABIN HEATER**

A B 206-706-106

CONTENTS — MAINTENANCE PROCEDURES

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CABIN HEATER

A B 206-706-106

1. DESCRIPTION.

The combustion heater (auxiliary kit) is provided as optional equipment and provisions for heater installation are made in the equipment compartment aft of station 130.0. Fuel for heater operation is supplied by the helicopter fuel system and routed through the heater fuel filter, pump, relief valve and shutoff valve. Ignition is supplied by a heater mounted ignition assembly which converts the 28 volts dc to high voltage, producing a continuous spark during heater operation. Combustion air is supplied by a blower through a port on left side of the helicopter and routed to the combustion chamber. Heater exhaust gases are piped overboard through a shrouded exhaust flue. Heat distribution is accomplished by a heater mounted ventilating air blower and routed through ducts to the forward and aft cabin compartments. Four adjustable distribution valves are provided in the pilot compartment and two fixed openings for the passenger compartment. Controls for heater starting are located on the overhead panel and two controls are mounted on the vertical

column on pilot seat back. The right control is for temperature and the left control operates the heater shutoff valve in the event of fumes, fire or heater malfunction. A heater fail light is mounted on the console and will indicate heater malfunction (figure 1).

2. TROUBLESHOOTING.

- a. Table 1 of the troubleshooting procedure outlines a quick method of determining if one of the three heater subsystems is faulty.
- b. Table 2 lists the components involved in each of the three subsystems.
- c. Tables 3, 4, and 5 list the steps in locating the faulty component. These steps shall be accomplished in the order listed.
- d. At any point that no voltage condition is detected, always verify continuity of wiring back to the last point voltage was present before replacing a component.

Table 1. Determine malfunctioning system

Turn Heater On	Close Heater Power and Heater Control Circuit Breakers – Place Heater Switch “On” and Press Heater Start Switch.
Air system	Check or Verify that Both Blowers Are Operating.
Fuel system	At Heater Fuel Inlet — Check Fuel Pressure 100 PSI to Heater.
Ignition system	Verify Ignition Power to Ignition Plug <u>CAUTION</u> Very High Voltage.

Table 2. System breakdown

Air	
(All of these items must function for heater to have air.)	<ol style="list-style-type: none"> 1. Heater Power Circuit Breaker 2. Heater on-off Switch 3. Blower Relay 4. Combustion Air Blower 5. Ventilating Air Blower

Table 2. System breakdown (Cont)

Fuel

(All of these items must function for heater to have fuel.)

1. Heater Control Circuit Breaker
2. Heater on-off Switch
3. Heater Start Switch
4. Heater Control Relay
5. Overheat Switch
6. Heater Power Circuit Breaker
7. Blower Relay
8. Combustion Air Blower
9. Combustion Air Pressure Switch
10. Heater Fuel Pump
11. Heater Fuel Shutoff Valve
12. Adjustable Duct Switch
13. Heater Cycling Switch
14. Heater Fuel Solenoid Valve

Ignition

(All of these items must function for heater to have ignition.)

1. Heater Control Circuit Breaker
2. Heater Power Circuit Breaker
3. Heater on-off Switch
4. Heater Start Switch
5. Heater Control Relay
6. Overheat Switch
7. Blower Relay
8. Combustion Air Blower
9. Combustion Air Pressure
10. Ignition Unit
11. Ignition Lead
12. Heater Ignitor Plug

Table 3. Troubleshooting air system

	TROUBLE	CAUSE	CORRECTION
1	No Voltage To Blower	Defective Heater Power Circuit Breaker	Replace Breaker
		Defective on-off Switch	Replace Switch
		Defective Blower Relay	Replace Relay
2	Combustion Blower Not Running	Defective Motor	Replace Motor
3	Vent Blower Not Running	Defective Motor	Replace Motor

Table 4. Troubleshooting fuel system

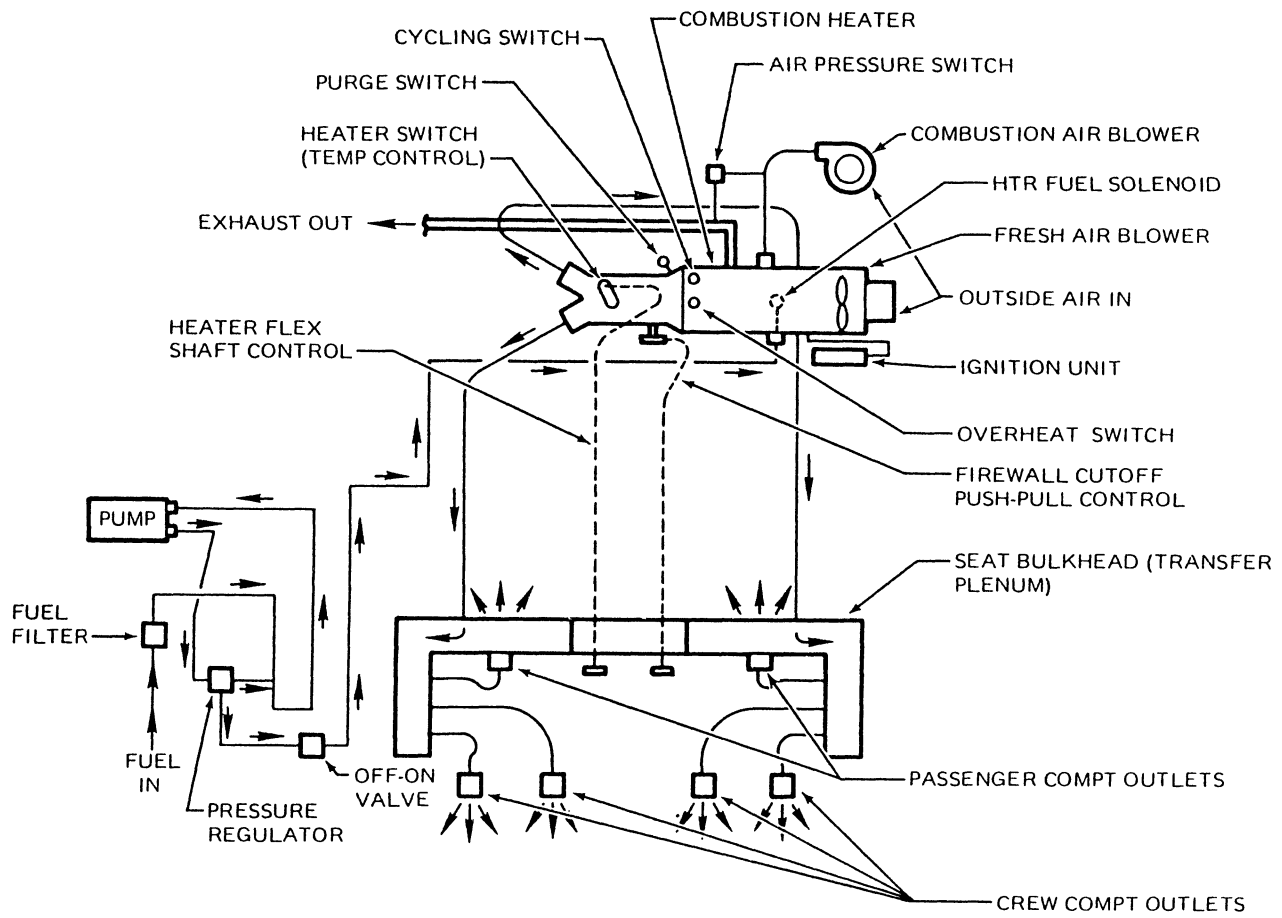
CHECK	TROUBLE	CAUSE	CORRECTION
1 Press heater start switch and hold. Check voltage at terminal 1 on heater terminal block	No Voltage	Defective heater control circuit breaker	Replace CB
		Defective heater on-off switch	Replace switch
		Defective heater start switch	Replace switch
		Defective heater control relay	Replace relay
2 Press heater start switch and hold. Check voltage at terminal 3 on heater terminal block	No Voltage	Defective Overheat Switch	Replace switch
		Defective Comb. air switch (Comb. air blower running)	Replace switch
		Defective duct switch	Replace switch
3 Voltage to heater fuel pump and fuel shutoff valve. Check fuel pressure (100 PSI) at heater inlet connection	No Pressure	Duct switch set below ambient temperature	Adjust duct switch to max "or" high position
		Defective fuel pump	Replace pump
		Defective fuel shutoff valve	Replace valve
4 Fuel in combustion chamber. Disconnect power to ignition unit. Check fuel out heater. Drain after approximately five minutes	No Fuel	Clogged fuel line	Clean or replace line
		Defective heater cycle switch	Replace cycle switch
		Defective fuel solenoid valve	Replace solenoid valve
		Clogged fuel nozzle	Replace nozzle

NOTE

Use steps 1 and 2 of Troubleshooting Fuel System. If trouble is not located, follow steps as outlined below.

Table 5. Troubleshooting ignition system

CHECK	TROUBLE	CAUSE	CORRECTION
1 Check voltage at input of ignition unit.	No voltage	Defective wire No. H12E20. (Also see instructions below)	Replace wire
2 Disconnect ignition high tension lead at ignitor plug. Check for ignition high voltage. <u>CAUTION</u> Very high voltage	No voltage	Defective vibrator	Replace vibrator
		Defective ignition unit	Replace ignition unit
		Defective ignition lead	Replace ignition lead
3 Fire in combustion chamber	Fuel does not ignite	Defective ignitor plug	Clean or replace plug



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Figure 1. Heater system components