

Furnace

NT-30M FURNACE ASSEMBLY

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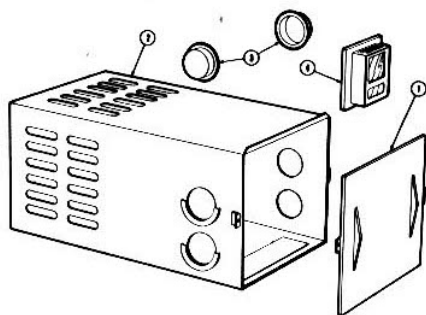


Fig. 4

Combustion Chamber Assembly Complete NT-30M

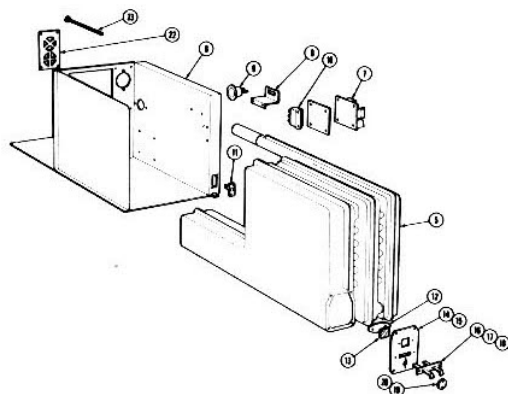


Fig. 5

Burner Assembly Complete NT-30M

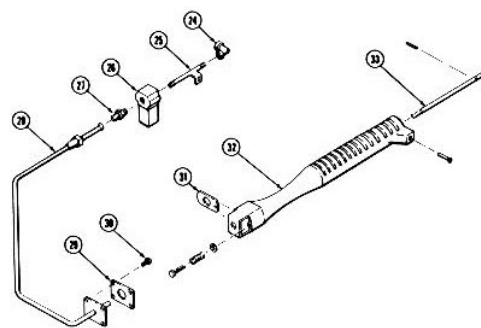


Fig. 6

Blower Assembly Complete NT-30M

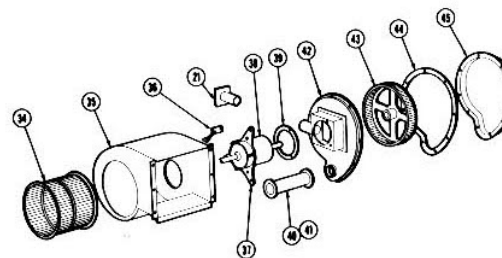


Fig. 7

Furnace Assembly NT-30M

No.	Part No.	Description
1	100808	Cabinet front
2	X100811	Cabinet assembly
3	050296	Duct collar
4	160737	Thermostat
5	X020785	Combustion chamber
6	X110319	Radiation shield assembly
7	230483	Modular board (Fenwal)
8	062135	Bracket (power supply)
9	230248	Fan switch
10	230423	Relay, thermostat RBM-150
11	230496	Limit switch
12	290120	Observation hole cover plate
13	310026	Observation glass disc
14	030451	Combustion chamber access door
15	070388	Access door gasket
16	230495	Electrode
17	070163	Electrode gasket
18	230491	Wire, electrode
19	290119	Air adjustment hole cover
20	070389	Air adjustment hole gasket
21	X050443	Tube, vent cap assembly
22	260088	Vent cap
23	121249	No. 8 x 3" sheet metal screw
24	170082	90° ell
25	X170494	Gas inlet pipe assembly
26	160739	Valve, essex
27	170375	Brass fitting 3/8 NPT 3/8 flare
28	X170493	Manifold pipe assembly
29	070387	Manifold pipe gasket
30	180214	Main burner orifice #52 (NT 30-M)
31	010582	Shutter, burner air
32	010581	Burner, main
33	140146	Air adjustment rod
34	350076	Room air blower wheel (large)
35	390178	Room air blower housing assembly
36	X230509	Micro switch and paddle assembly (NT 30-M)
37	062138	Motor mount bracket
38	230339	Motor (NT 30-M)
39	070384	Motor mount gasket
40	050439	Crossover tube
41	070385	Crossover tube gasket
42	X390179	Combustion air housing assembly, left half
43	350077	Combustion air blower wheel (small)
44	070386	Combustion air housing gasket
45	390173	Combustion air housing (right side)

Electrical Wiring Diagram NT-30M

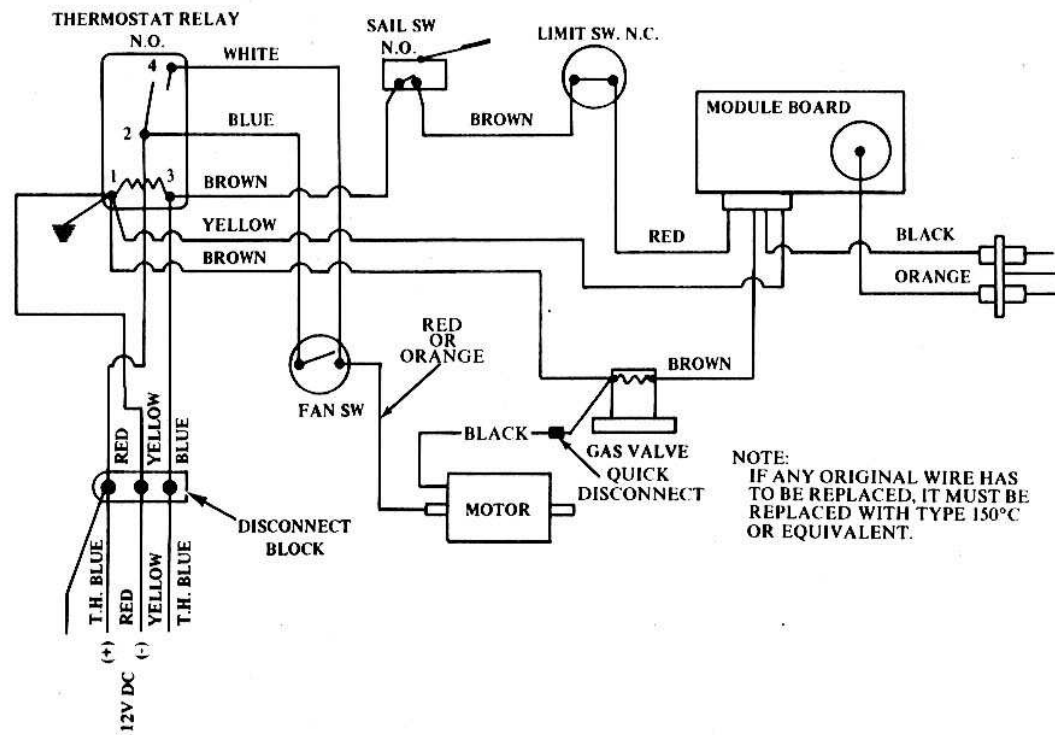


Fig. 8

Furnace Removal and Replacement - 23' Models

1. Shut off main gas supply, disconnect battery and cover carpet for protection.
2. Open tambour door as far as possible and remove lower tambour door track. (Two mounting brackets, one at each end of the track).
3. Remove furnace vent cap, screws, and vent cap from outside of trailer.
4. Remove screws attaching furnace front cabinet cover to cabinet. Remove cover.
5. Remove screws attaching grille to lower floor mounted heat duct, remove grille.
6. Remove 90° sheet metal heat duct elbow attached to right lower side of furnace cabinet to provide access to electrical connector. Disconnect electrical connector (quick disconnect plug on right side of cabinet).
7. Cut a slot in the sheet metal of furnace cabinet wall so that furnace can be pulled part way out of cabinet with gas line connected.
8. Remove screws attaching furnace to floor of cabinet.
9. Pull furnace forward enough to give access to gas line fitting. Disconnect gas line.
10. Remove furnace.
11. For installation, reverse removal procedures.

Furnace Removal and Replacement - (All Others)

1. Shut off main gas supply and cover carpet for protection.
2. Disconnect battery.
3. Remove tambour panel under stove.
4. Remove screws attaching furnace cabinet front cover to cabinet and remove cover.
5. Remove 90° sheet metal heat duct elbow attached to right lower side of furnace cabinet, to provide access to electrical connector.* Disconnect electrical connector (quick disconnect plug on right side of cabinet).
6. Unscrew gas line and remove 90° ELL gas line fitting. If the thread compound installed in production has taken a firm set, it may be necessary to cut a slot in the furnace cabinet wall so the furnace can be removed without removing the 90° fitting.
7. Remove the vent cap screws and remove vent cap from outside trailer.
8. Remove screws attaching furnace assembly to floor and slide furnace assembly out of furnace cabinet.

(NOTE: If rivets securing floor mounted heat duct project up and prevent the furnace from sliding out it will be necessary to cut them off flush with the floor. Be sure to re-rivet during installation).
9. To install, reverse removal procedures. Be sure to re-rivet floor heat duct.

* On some models it may not be possible to remove this elbow fitting. On these models, leave the electrical connector plugged in until the furnace can be moved out far enough to gain access.

Operating Instructions

1. LIGHTING INSTRUCTIONS

- a. To light the furnace, turn the manual valve to the "off" position and wait 5 minutes with blower running. (Set thermostat above actual temperature to operate blower).
- b. After 5 minutes, set the thermostat to the "off" position.
- c. Open manual valve. (Correct operating characteristics depend on this valve being positioned fully open. Never attempt to operate with valve partially closed).
- d. Set thermostat on desired temperature.
- e. Allow 15 seconds for main burner to light.
- f. If the burner does not light, set thermostat on "off" and repeat steps 1 thru 5.
- g. If after 3 tries and no ignition, go to shut down and determine cause.

2. TO SHUT DOWN

- a. Turn manual valve to the "off" position.
- b. Set thermostat on "off".

3. BURNER ADJUSTMENT

To adjust primary air to the main burner, the small sheet metal cover found just below and to the right of the lighter opening must be removed. Behind the cover is a slotted screw head. With a screwdriver, turn screw head counterclockwise for less primary air and clockwise for more primary air. A symptom of too much primary air will be a howling or screeching noise when burner is on (reduce air to correct). A symptom of too little primary air will be sooting on the exterior vent and a distinct yellow and floating flame (increase air to correct). A hard blue flame is the sign of correct adjustment.

4. SEQUENCE OF NORMAL OPERATION

- a. When the thermostat calls for heat, the blower motor is energized immediately.
- b. As the blower motor reaches approximately 75 percent of the normal r.p.m. (within 3 to 5 seconds) the microswitch, in response to the air flow, will engage allowing current flow to the solenoid valve and the spark ignition system.
- c. The current to the valve opens it and allows gas to the main burner. The spark then ignites the main burner.
- d. After main burner ignition, the flame detector will sense the presence of flame (usually within 7 seconds) and deenergize the lockout feature. If the main burner does not ignite or the flame detector does not deenergize the lockout features within 7 seconds, the unit will go into lockout. At this time it will be necessary to set the thermostat on "off" and repeat steps 1 thru 5 of the lighting instructions.
- e. If after 3 tries and no ignition or main burner continues to go off within 7 seconds, go to shut down and determine cause.
- f. If within a period of approximately 2 minutes after the main burner is lit, the thermostat is turned back, both the blower motor and solenoid valve are deenergized. However, if the furnace continues to run longer than 2 minutes, which it normally should, a slight snap can be heard from within the casing. The snap is caused by the fan switch as it changes its position. After this occurs, if the thermostat is satisfied or turned back, the solenoid valve will close, the flame on the main burner will go out, but the blower will continue to run for a short period of time and will then shut off. The purpose of this is to remove most of the remaining gases from the heat exchanger. Be assured that this period of blower override is a part of the unit's normal operation.

5. FAN SWITCH

The purpose of the fan switch is to control the sequence of the blower operation. The fan switch is a two pole switch. When the bimetal disc of the fan switch is heated to the operating temperature, the switch closes. This completes a circuit through the motor from a direct source. The blower will continue to run as long as the chamber is hot even though the thermostat is satisfied and the main burner is off. When the chamber cools, the fan switch changes back to its original position and shuts the blower off. If burner and blower shut off simultaneously after thermostat is satisfied, then the fan switch failed change over. This is a symptom of a faulty switch — replace it.

6. LIMIT CONTROL

The purpose of the limit control is to turn off the gas to the main burner if, for any reason, the furnace becomes hotter than is safe. Improper operation of the furnace, due to the limit control, does not always indicate a defective control. If the circulating air is blocked or only partially so, the limit control will function and cause the main burner to cycle. Cycling on the limit is not always undesirable — if it happens only occasionally. This is a good indication of safe operation and will most likely happen on a warm day. If cycling happens too often or for an extended period, the circulating air system should be thoroughly cleaned.

If the limit control is found to be defective, there is no recommended method of repairing it. Because of its importance for safety reasons, it should be replaced with a new one.

CAUTION: Never shut the limit control even for temporary operation.

7. MICRO SWITCH

The microswitch has two purposes.

- a. It is an "air prover." It operates in response to the current of air generated by the blower. Hence, if the air from the blower is not sufficient, the switch will not operate. This may be caused by a slow motor due to low voltage, restricted return air, or lint accumulation on the blower wheel.
- b. The switch allows time for the blower to pull in a sufficient amount of air to support combustion before it engages. Once it engages, the solenoid valve opens, gas flows to burner, and ignition occurs.

8. BLOWER ASSEMBLY

Page 9-2 shows a breakdown of the blower assembly. Although one motor drives all wheels, the blowers are separate. The combustion air blower is sealed so no air will pass between it and the circulating room air blower. The combustion air blower draws air from the outside atmosphere, discharges it into the combustion chamber and forces the combustion products out the exhaust tube. The circulating room-air blower pulls return air in and forces it across the heat chamber, discharging into the area to be heated.

Maintenance and Cleaning

We recommend that the furnace be inspected and thoroughly cleaned by a qualified service agency before each heating season. This would include the combustion chamber, the main burner, the blower assembly, and all control parts. A careful inspection of all gaskets should be made and if any gaskets show signs of leakage or deterioration, they should be replaced.

Cleaning of the chamber and main burner will be required if the unit has been allowed to operate with a high yellow flame. The yellow flame is due to incomplete combustion (lack of air) and will deposit a soot formation inside the chamber and on the main burner.

To clean the chamber, main burner, blower assembly and controls, the chamber assembly must be pulled from the furnace cabinet. (See instructions for removing chamber.)

Service Hints, Diagnosis and Corrective Measures

Ignition Failures - Cautions:

1. Never operate the furnace with the electrode wire disconnected nor with the electrode assembly removed from the furnace.
2. Never use a battery charger to check out an electronic ignition furnace.
3. Never use a screwdriver on any part of the electrode assembly while the furnace is in operation.
4. Be certain that the spark from the electrode never reaches the flame sensor portion of the electrode assembly.
5. Be sure the electrode assembly screws are snug at all times, especially after the electrode has been removed and reinstalled.

The electronic ignition system is made up of three main parts. The module board, the electrode assembly and the electrode wire. The module board is the brain of the electronic ignition system and it has three functions:

1. When the blower reaches full RPM a circuit is completed to the module board and the module board produces a spark as indicated by the small neon bulb on the board as it flashes.
2. At the same instance the board also allows a complete circuit to the gas valve.
3. The module board also performs the lock-out function in cases where the spark fails to light the burner after five to seven seconds. When lockout occurs, the spark stops and the voltage from the module board to the gas valve is discontinued and the valve closes. The unit will remain lockout and the blower will continue to run until the thermostat is turned off.

It is important to determine the type of problem being experienced, and then the proper check-out procedure can be made. The following is a list of problems, how to identify in which area the problem is located, and how to correct it:

1. NO HEAT

- a. Thermostat off — Check to be sure thermostat is calling for heat. Wire to thermostat could be off terminal.
- b. Gas supply — Be sure manual gas valve is in the open position (parallel to gas line).
- c. Electrical connections and power — Battery must be charged. If battery is low, there will be sufficient power to run the blower, but

not enough to run the blower at full speed. If blower doesn't run at its prescribed speed, the microswitch cannot be engaged and gas will not flow to the main burner. Be sure the connection of the voltage lines in the terminal block are tight.

- d. Malfunctioning microswitch — Be sure the microswitch is sailing in far enough to open the solenoid valve and to energize the spark module board. If the switch is not sailing in, clean any dust or dirt from the actuator pin. Other reasons for switch not sailing in are:

1. Insufficient blower speed (slow motor due to low charged battery, faulty motor, lint and dust accumulation on the blower wheels, or restriction of return air to heater). Check wiring in accordance with unit's wiring diagram to assure the proper polarity of the 12-volt d.c. power supply. This polarity must be observed so the motor will run the proper direction of rotation to insure correct air delivery.

2. Faulty microswitch — Replace switch if valve doesn't open when switch is manually engaged. Switch should also be replaced if battery is fully charged and blower motor running at top speed fails to engage switch within 6 to 7 seconds.

NOTE: To service switch, combustion chamber must be pulled out.

- e. Solenoid valve — With test light, check solenoid valve terminals in the terminal block. If current is present, but valve is not opening (when microswitch engages), replace solenoid valve. The chamber must also be removed to check the above. To replace the solenoid valve it is necessary to remove the chamber. The valve may be replaced by:

1. Shutting off manual valve.
2. Removing the four Phillips head screws holding valve head to body and then remove valve head. Replace with new valve head.

- f. Blower not operating — Check for burned-out motor.

- g. Short cycling (fan switch) — If burner and fan shut off simultaneously when the thermostat is satisfied it indicates a shorted fan switch. Replace switch (chamber must be removed).

- h. Defective relay — Relay may be faulty if motor fails to start when thermostat calls for heat. This will be evidenced by a "click" when the thermostat is raised and motor fails to operate.

2. ELECTRODE NOT SPARKING — WITH BLOWER RUNNING A MICRO SWITCH ENGAGED, CHECK THE FOLLOWING:

- a. Check for proper voltage at spark module board within the first seven seconds after the blower motor reaches full RPM. If no voltage, check back through circuit to determine cause.

- b. Voltage is present but neon bulb on module board is not flashing - replace module board.

- c. Neon bulb on module board is flashing but electrode still is not sparking - check electrode wire connections.

- d. Wire connections OK but electrode wire does not show continuity through it - replace electrode wire.

- e. Electrode wire does show continuity through it - check electrode gap to be sure it is 1/8 inch.

- f. Electrode gap OK - replace electrode assembly.

3. ELECTRODE SPARKING BUT GAS NOT COMING THROUGH BURNER:

- a. Check to see if voltage is coming out of module board to gas valve.

- b. Voltage is coming out of module board to gas valve but gas valve does not open - replace gas valve.

4. ELECTRODE SPARKING AND GAS VALVE OPENING BUT BURNER WILL NOT LIGHT:

- a. Check to see if gas is coming through burner. If no gas is coming through the burner, check for obstruction in gas line, in main burner orifice, or in main burner.

- b. Gas is coming through burner but spark will still not ignite burner - check gas pressure to be certain that it is within specs. (11" water column at furnace).

- c. Gas pressure OK - check for obstruction in main burner, check to be sure that air shutter is not completely closed and be sure electrode is positioned approximately 5/16 of an inch above and directly over one of the sawed slots on the main burner.

5. BURNER IGNITES BUT GOES OFF AND INTO LOCK-OUT:

- a. Check to be certain the flame sensor is over one of the slots in the main burner and that the main burner flame is burning against the tip of the flame sensor - adjust by sliding burner in direction necessary.

- b. Burner still goes off and into lock-out, check wire connection at flame sensor and at module board.

- c. Wire connections OK - check continuity through flame sensor wire.

- d. Continuity of flame sensor wire OK - check with micro amp meter in series with flame sensor and flame sensor wire to be certain that

the flame sensor is putting out at least seven micro amps within seven seconds after the burner is ignited. Replace electrode assembly if test is negative.

- e. Flame sensor OK but burner still goes off and into lock-out - replace module board.

6. REPEATED MODULE BOARD FAILURES:

- a. Check voltage coming out of univolt into system. Voltage should not be over 14½ volts.
- b. Check to be sure that the electrode spark is not sparking against the flame sensor portion of the electrode assembly.

7. UNIT GOES INTO LOCK-OUT ONLY ONCE IN A WHILE:

- a. Lock-out can occur if the gas pressure fluctuates at the time the thermostat calls for heat. Pressure fluctuation can be caused by a malfunctioning gas bottle regulator, an obstruction or a kink in the gas line and moisture in the gas bottle regulator, or in the gas line.

8. EXCESSIVE NOISE

- a. Blower out of balance - Replace blower.
- b. Motor hum - Replace motor.
- c. Air adjustment - A screeching or howling noise while burner is on is due to excessive primary air. To adjust for less air, see instructions on page 9-4.

9. ERRATIC BLOWER OPERATION

- a. If blower motor is going off and on, check the following:
 - 1. Thermostat points - if points are opening and closing, clean points, check for shorted gas valve (see 11c below). If problem persists, replace thermostat.
 - 2. If thermostat points are remaining open or closed the internal overload switch in the motor is defective - Replace motor.
- b. If thermostat points are observed opening and closing rapidly when furnace first starts, check the following:
 - 1. Quick disconnect plug on side of furnace. Plug must be wired as shown on electrical diagram page 9-3.
 - 2. Miswiring at thermostat relay (see wiring diagram).

- 3. Shorted gas valve - if furnace runs properly with wires at Gas Valve disconnected, replace gas valve.

- 4. Short in wiring - check all connections including thermostat.

10. MAIN BURNER WILL NOT CYCLE OFF

- a. Check thermostat points - if open check the following:
 - 1. Circuit across terminals 2 and 4 of the thermostat relay. They should be open - if not, replace relay.
 - 2. If circuit across relay is open, valve may be stuck open - Replace valve.

11. UNIT WILL NOT OPERATE

- a. Check all wiring to assure proper connections or detect possible shorts.
- b. On dual voltage furnaces check following:
 - 1. Proper wiring connection to AC/DC convertor.
 - 2. Transformer for burnout or shorts.
 - 3. Diodes.
 - 4. AC/DC switching relay.
- c. If furnace thermostat is observed opening and closing rapidly when furnace starts, the gas valve may be shorted or a wire may be shorting out. Replace gas valve if symptom stops when gas valve is disconnected from circuit.

CHECKING FOR FURNACE FLUCTUATIONS

It may be difficult to check for furnace fluctuations without noticeably affecting the other appliances in the trailer. However, isolating the furnace from the trailer gas system will determine if the gas system is responsible. The isolation procedure can be done by connecting a separate upright bottle, regulator and gas line directly to the furnace eliminating the trailer gas system. If the occasional lock-out still exists, then the furnace should be thoroughly tested to determine the cause; however, if the furnace works properly on this separate system, then the trailer gas system should be checked.

When moisture in the gas system is suspected as being the problem, the following steps should be taken to prepare the gas system against further moisture problems:

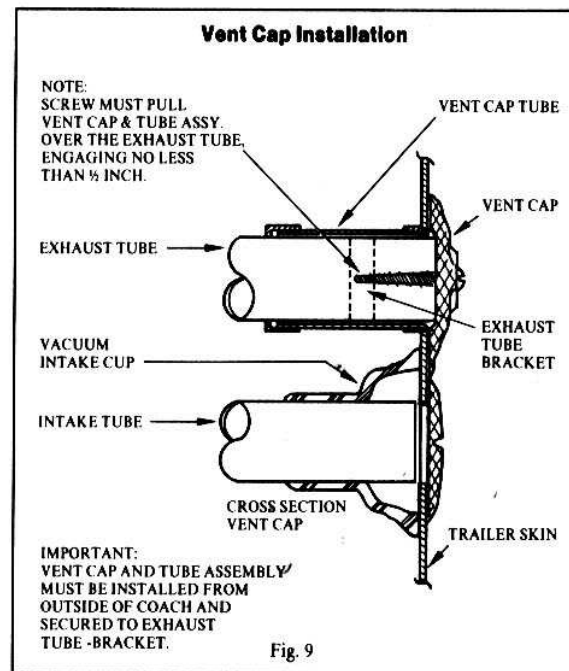
CORRECTIVE MEASURES:

1. Disconnect gas bottle and drain it completely dry of all gas and all moisture.
2. Disconnect and blow out all gas lines completely dry.
3. Install a new pressure regulator on the gas bottle.
4. Add the drying agent. 1/2 pint of methanol alcohol per 100 pound bottle capacity is recommended.

PRECAUTIONS:

5. Never fill the gas bottle over 80%.
6. Do not use gas bottle completely dry to avoid using up the drying agent.

The above procedures have been found to be effective in over 95% of all occasional lock-out problems. All of these steps must be performed as described for the preparation of a contaminated gas system to be 100% effective.

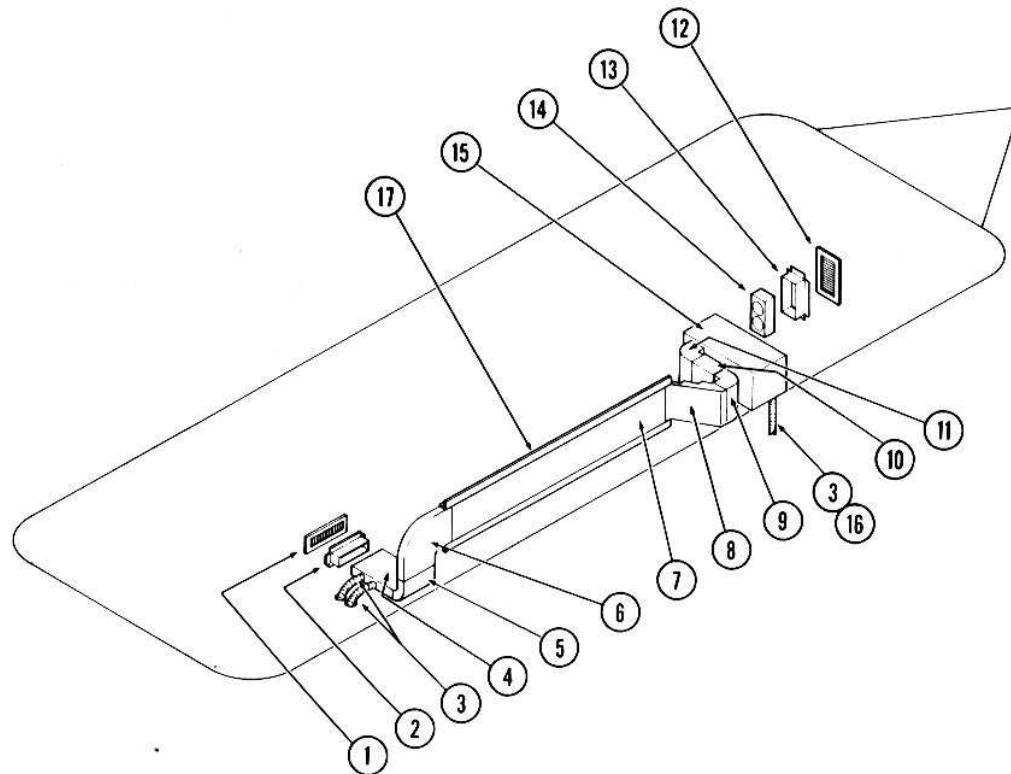


Component Replacement Procedure

Components	Procedures	Components	Procedures	Components	Procedures
1. Replace gas valve	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Remove chamber assembly. - Remove two valve wires. - Remove valve and replace.	4. Replace microswitch	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Remove chamber assembly. - Remove two screws and nuts holding microswitch assembly to blower housing. - Remove wires. - Remove switch.	6. Replace blower assembly	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Remove chamber assembly. - Disconnect microswitch wires. - Remove microswitch. - Remove screws holding blower to firewall. - Remove metal crossover tube. - Remove blower.
2. Replace main burner orifice	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws. - Remove 3" screw (center of exhaust, outside). - Disconnect manifold tubing. - Remove screws from burner compartment door. - Remove main burner orifice. - Disconnect wires at valve. - Remove burner assembly and replace main burner orifice.	5. Replace motor	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Remove chamber assembly. - Remove two microswitch wires from terminal block. Disconnect two motor wires. - Disconnect metal crossover tube. - Remove blower from firewall. - Remove large blower wheel with 1/8" Allen wrench. - Remove screws from blower housing. - Remove small blower wheel. - Remove motor. - Remove blower flange (rim) on blower housing. - Disconnect motor electrical leads and pull through blower housing opening. - Remove motor and blower wheels. - Loosen Allen screw on circulating wheels and remove from motor shaft. - Replace motor.	7. Replace limit switch	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Remove chamber assembly. - Remove two wires from limit switch. - Remove limit switch.
3. Replace main burner	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Remove screws from burner compartment door. - Remove two gas valve wires. - Disconnect manifold tubing. - Pull burner assembly. - Remove burner.			8. Replace fan switch	- Disconnect gas and power supply (quick disconnect). - Disconnect gas manifold from piping at union fitting. - Remove cabinet front. - Remove shipping screw securing chamber shield to cabinet. - Remove vent cap screws (outside). - Remove 3" screw (center of exhaust, outside). - Pull chamber assembly. - Remove 2 wires from fan switch. - Remove fan switch.

Components	Procedures	Components	Procedures	Components	Procedures
9. Replace large blower wheel	a. Disconnect gas and power supply (quick disconnect). b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly. h. Remove microswitch wires. j. Disconnect motor wires. k. Remove blower from firewall. l. Remove large blower with 1/8" Allen wrench.	12. Replace chamber only	a. Disconnect gas and power supply. b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly. h. Remove chamber from chamber wrapper. j. Remove electrode assembly. k. Remove blower assembly. l. Remove main burner and valve assembly. m. Remove relay, fan switch and limit switch. n. Remove module board.	16. Replace thermostat relay	a. Disconnect gas and power supply (quick disconnects). b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly. h. Remove screws from relay. j. Disconnect electrical leads to relay and replace.
10. Replace small blower wheel	a. Disconnect gas and power supply (quick disconnect). b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly. h. Remove two microswitch wires from terminal block. j. Disconnect motor wires. k. Remove blower from firewall. l. Remove screws on motor housing. m. Remove small blower with 1/8" Allen wrench.	13. Replace thermostat	a. Turn power off or thermostat to "off" position. b. Remove thermostat cover. c. Remove two screws holding thermostat body to wall. d. Remove two wires.	17. Replace module board	a. Disconnect gas and power supply (quick disconnects). b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly. h. Remove electrode wire at board. j. Disconnect wiring at board (quick disconnect). k. Remove board.
11. Replace complete chamber assembly	a. Disconnect gas and power supply (quick disconnect). b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly.	14. Replace burner assembly	a. Disconnect gas and power supply (quick disconnect). b. Disconnect gas manifold from piping at union fitting. c. Remove cabinet front. d. Remove shipping screw securing chamber shield to cabinet. e. Remove vent cap screws (outside). f. Remove 3" screw (center of exhaust, outside). g. Pull chamber assembly. h. Remove two valve wires. j. Remove screws from burner compartment door. k. Remove burner assembly.		
		15. Replace vent cap	a. Remove vent cap screws (outside). b. Remove 3" screw (center of exhaust, outside).		

Heat Duct System (Rear Bath)

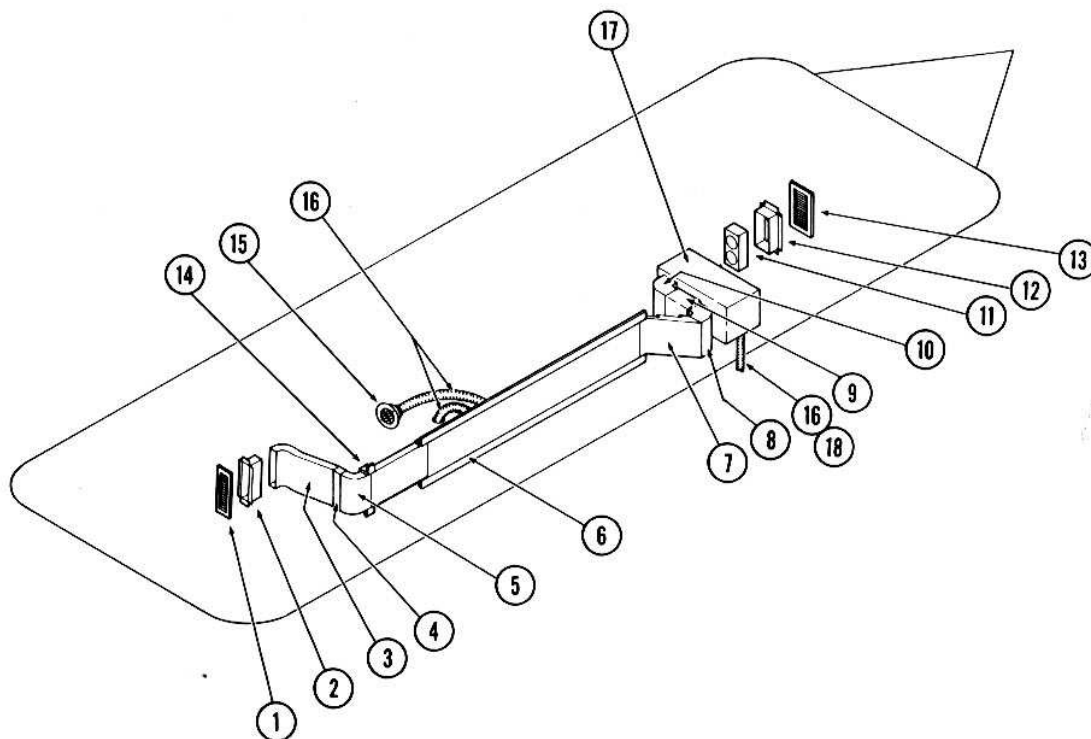


No.	Part No.	Description
	942053	Heat duct installation
1	600846	Register, 2 1/4" x 10"
2	600678	Register adapter
3	600193	Flexible heat duct
4	600688	Heat duct, floor mtg.
5	600677	Duct elbow, 90°, 2" x 10" horizontal
6	600675	90° vertical elbow 2" x 10"
7	600742	Heat duct w/back
8	600853	Heat duct fitting, 60° elbow
9	600693	Heat duct elbow
10	600683	Heat duct
11	600680	Heat ducting adapter
12	600845	Register, 10" x 4"
13	600839	Heat duct adapter
14	600842	Heat duct adapter
15	690073	Furnace
16	100124	Heat nozzle
17	600893	Heat duct wall mtg. 86" (Ohio)
	101704	Vinyl clad, 16" x 86" (Cal.)

MISCELLANEOUS FASTENERS

320059	Screw No. 8 x 1"
365002	Furnace tape

Heat Duct System (Center Bath)



No.	Part No.	Description
	942053	Heat duct installation
1	600846	Register - 2¼" x 10"
2	600678	Register adapter
3	600856	Heat duct (Twin only)
4	600742	Heat duct (Double only)
5	600677	Duct elbow, 90° - 2" x 10" horizontal (Twin only)
6	600893	Heat duct wall mtg. 86" (Ohio)
	101704	Vinyl clad, 16" x 86" (Cal.)
7	600853	Heat duct fitting, 60° elbow
8	600693	90° horizontal elbow - 4½" x 10"
9	600683	Heat duct
10	600680	Heat duct adapter
11	600842	Heat duct adapter
12	600839	Heat duct adapter
13	600845	Register, 10" x 4"
14	600703	Heat duct, wall mounting - 9" (twin only)
15	600414	Register
16	600193	Flexible heat duct
17	690073	Furnace
18	100124	Heat nozzle

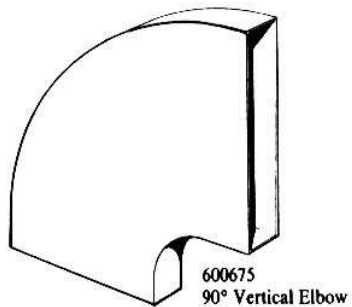
MISCELLANEOUS FASTENERS

320059	Screw No. 8 x 1"
365002	Furnace tape

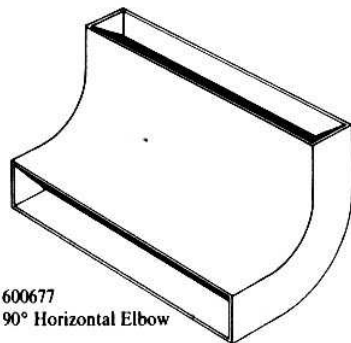
Heat Duct Fittings



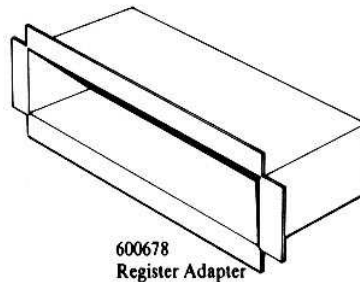
600184
Duct fitting, 2"
600193
Flexible heat duct
600414
Register



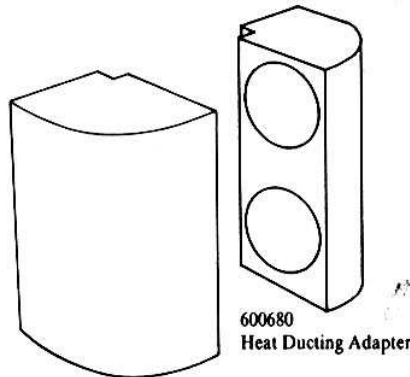
600675
90° Vertical Elbow



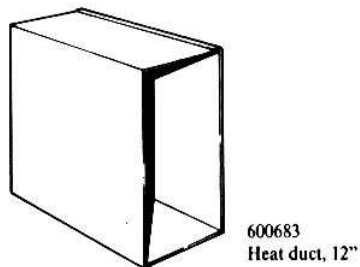
600677
90° Horizontal Elbow



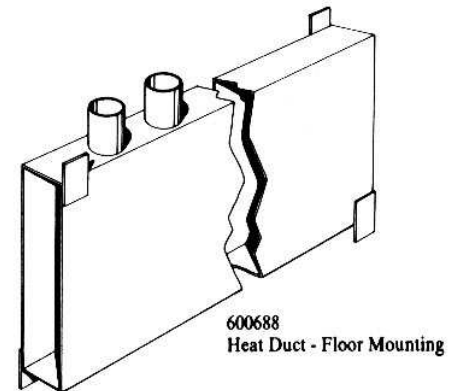
600678
Register Adapter



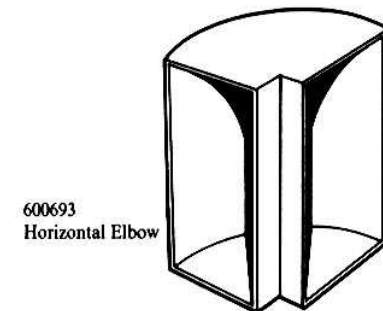
600680
Heat Ducting Adapter



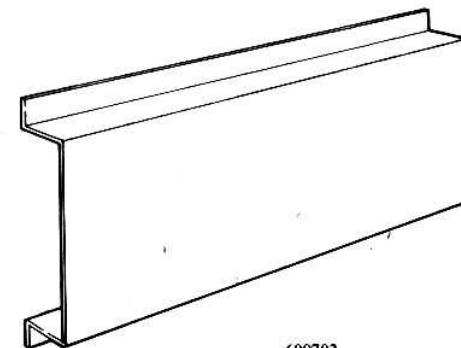
600683
Heat duct, 12"



600688
Heat Duct - Floor Mounting

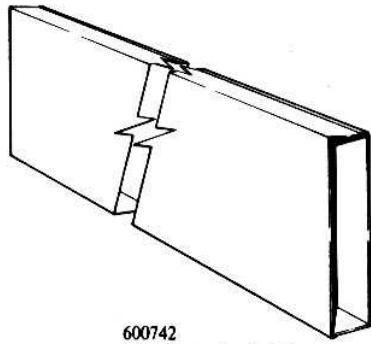


600693
Horizontal Elbow

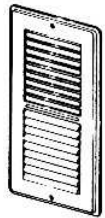


101487
Heat duct, vinyl clad, wall mntg. - 101"
101704
Heat duct, vinyl clad, wall mntg. - 86" (Cal.)

600703
Heat duct, wall mntg. - 9"
600893
Heat duct, wall mntg. - 86"



600742
Heat duct w/back, 84"



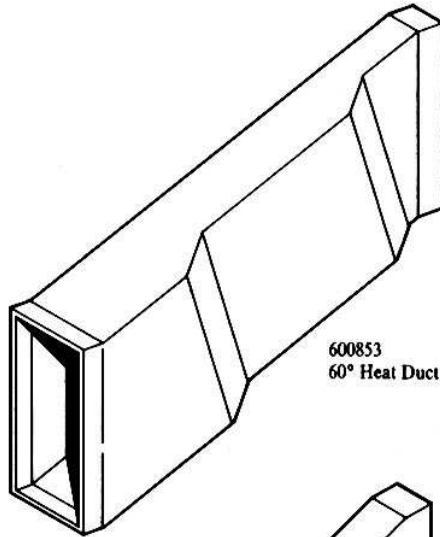
600845
Register



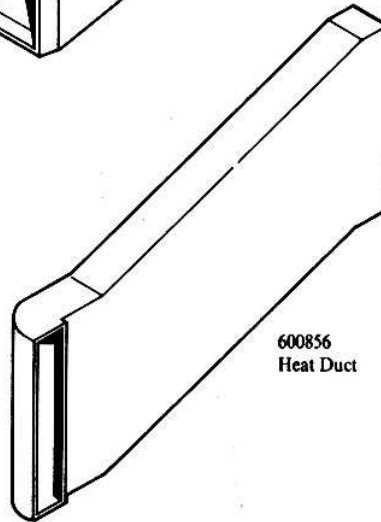
600842
Adapter



600839
Adapter



600853
60° Heat Duct Fitting



600856
Heat Duct