

INSTALLATION & OPERATING INSTRUCTIONS

LAWSON

VENTED GAS-FIRED ROOM HEATERS

MODELS: 8835-TN
8835-TL
8850-TN
8850-TL
8870-TN
8870-TL

FOR YOUR SAFETY

IF YOU SMELL GAS:

1. Open windows.
2. Don't touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

SAVE FOR FUTURE REFERENCE

Manufactured for
LAWSON DIVISION
UNITED STATES STOVE COMPANY
CHATTANOOGA, TENNESSEE 37406

108583-G1
8/88

READ THIS MANUAL CAREFULLY. IT CONTAINS DETAILED INSTRUCTIONS NECESSARY FOR A GOOD AND SAFE INSTALLATION.

TO THE INSTALLER AND HOMEOWNER:

DUE TO HIGH SURFACE TEMPERATURES, THE HEATER SHOULD BE LOCATED OUT OF TRAFFIC AND AWAY FROM FURNITURE AND DRAPERIES.

CHILDREN AND ADULTS SHOULD BE ALERTED TO THE HAZARDS OF HIGH SURFACE TEMPERATURE AND SHOULD STAY AWAY TO AVOID BURNS OR CLOTHING IGNITION.

YOUNG CHILDREN SHOULD BE CAREFULLY SUPERVISED WHEN THEY ARE IN THE SAME ROOM AS THE HEATER.

DO NOT PLACE CLOTHING OR OTHER FLAMMABLE MATERIAL ON OR NEAR THE HEATER.

KEEP APPLIANCE AREA CLEAR AND FREE FROM COMBUSTIBLE MATERIALS, GASOLINE AND OTHER FLAMMABLE VAPORS AND LIQUIDS.

ANY SAFETY SCREEN OR GUARD REMOVED FOR SERVICING MUST BE REPLACED PRIOR TO OPERATING THE HEATER.

INSTALLATION AND REPAIR SHOULD BE DONE BY A QUALIFIED SERVICE PERSON. THE HEATER SHOULD BE INSPECTED BEFORE USE AND AT LEAST ANNUALLY BY A PROFESSIONAL SERVICE PERSON. MORE FREQUENT CLEANING MAY BE REQUIRED DUE TO EXCESSIVE LINT FROM CARPETING, BEDDING MATERIAL, ETC. IT IS IMPERATIVE THAT CONTROL COMPARTMENTS, BURNERS, AND CIRCULATING AIR PASSAGEWAYS OF THE APPLIANCE BE KEPT CLEAN.

"WARNING": ANY CHANGE TO THIS HEATER OR ITS CONTROLS CAN BE DANGEROUS.

THIS HEATER WILL PRODUCE CARBON MONOXIDE IF NOT INSTALLED AND ADJUSTED CORRECTLY.

THIS HEATER SHOULD BE INSTALLED SO AS TO HAVE THE DRAFT HOOD IN THE SAME ATMOSPHERIC PRESSURE ZONE AS THE COMBUSTION AIR INLET TO THE ROOM HEATER.

THIS HEATER MUST BE PROPERLY CONNECTED TO A VENTING SYSTEM. THIS HEATER IS EQUIPPED WITH A VENT SAFETY SHUTOFF SYSTEM.

THIS HEATER IS EQUIPPED WITH A SAFETY CONTROL SYSTEM DESIGNED TO PROTECT AGAINST IMPROPER VENTING OF COMBUSTION PRODUCTS.

WARNING: OPERATION OF THIS HEATER WHEN NOT CONNECTED TO A PROPERLY INSTALLED AND MAINTAINED VENTING SYSTEM OR TAMPERING WITH THE VENT SAFETY SHUTOFF SYSTEM CAN RESULT IN CARBON MONOXIDE (CO) POISONING AND POSSIBLE DEATH.

FOR

HEATER RATINGS

<u>MODEL</u>	<u>INPUT-BTU/HR</u>
8835-TN & 8835-TL	35,000
8850-TN & 8850-TL	50,000
8870-TN & 8870-TL	70,000

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ACCESSORIES

The following accessories are available for these model heaters:

Blower Accessory Kit, Model No. F88 (For Models 8850-TN, 8850-TL, 8870-TN, 8870-TL)

These forced air blower kits increase the circulation of warm air through the heated space. The Wiring Diagram is supplied with each Blower Accessory. See Page 9.

Contact your U.S. Stove Dealer or Distributor for information on these accessories.

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UNPACKING AND HANDLING:

Unpack the heater carton and examine the contents for damage or missing parts. If any parts are found damaged at the time of delivery, proper notation should be made on the bill of lading from the transportation company. Concealed damages must be filed within fifteen (15) days with the carrier. Claims of shortage must be filed with the manufacturer within five (5) days.

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1. INSTALLATION:

CAUTION: Installer must be familiar with and comply with all local and national code requirements, including the National Electric Code ANSI/NFPA No 70 (latest edition) and National Fuel Gas Code ANSI Z223.1 (latest edition) with special attention to, but not limited to, the following:

(a) Accessibility Clearances and Clearances to Combustible Construction. The heater should be located out of traffic and away from furniture, draperies, and anything combustible due to high surface temperature. See Minimum Clearances below.

(b) Venting of Flue Products.

(c) Gas Piping.

(d) Electrical Wiring. (Models incorporating blowers must be electrically grounded.)

(e) Minimum Clearances are:

Top	60 in.
Back	6 in.
Flue Pipe	6 in.
Side Opposite Control Door	6 in.
Side With Control Door	6 in.
(For access to servicing of burner and controls)	24 in
Floor — Combustible	0 in.

(Clearances for combustible flooring shall be maintained from the top surface of carpeting, tile, etc.)

NOTE: Local Codes have priority over the National Fuel Gas Code, ANSI Z223.1 (latest edition).

2. LOCATION OF HEATER:

HEATER SHOULD BE AS CENTRALLY LOCATED IN THE AREA TO BE HEATED AS POSSIBLE. HEATER MAY BE INSTALLED ON COMBUSTIBLE FLOORING WITH MINIMUM CLEARANCE OF SIX INCHES MAINTAINED BETWEEN SIDES, BACK AND VENT CONNECTOR TO ADJACENT WALLS OR FURNITURE.

WHEN THE HEATER IS INSTALLED DIRECTLY ON CARPETING, TILE OR OTHER COMBUSTIBLE MATERIAL OTHER THAN WOOD FLOORING, THE HEATER SHALL BE INSTALLED ON A METAL OR WOOD PANEL EXTENDING THE FULL WIDTH AND DEPTH OF THE HEATER.

AVOID LOCATIONS WHERE CURTAINS, DRAPES AND CLOTHING OR INFLAMMABLE MATERIAL CAN COME IN CONTACT WITH THE HEATER OR VENT PIPING.

LOCATE IT AS TO BE READILY ACCESSIBLE FOR OPERATION AND SERVICING.

PROVISION FOR ADEQUATE COMBUSTION AND VENTILATION AIR MUST BE MADE.

ADEQUATE CLEARANCES AROUND AIR OPENINGS INTO THE COMBUSTION CHAMBER MUST BE PROVIDED.

INSTALLATIONS IN CONFINED SPACES

CAUTION: THESE VENTED HEATERS SHOULD NOT BE USED IN CONFINED SPACES UNLESS PROVISIONS ARE MADE FOR ADEQUATE AIR FOR COMBUSTION AND VENTILATION. THE SPACE SHALL BE PROVIDED WITH TWO PERMANENT OPENINGS, ONE NEAR THE TOP OF THE ENCLOSURE, AND ONE NEAR THE BOTTOM. EACH OPENING SHALL HAVE A FREE AREA OF NOT LESS THAN:

FOR 8835	35 sq.in.
FOR 8850	50 sq.in.
FOR 8870	70 sq.in.

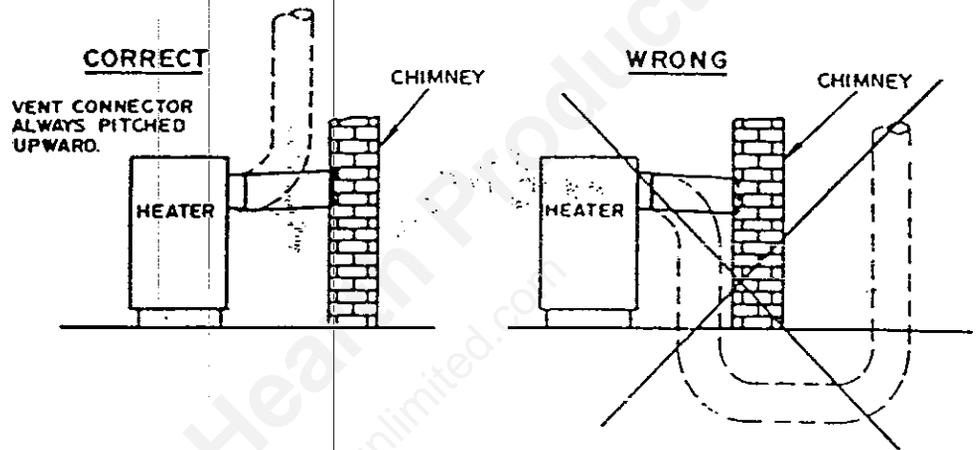
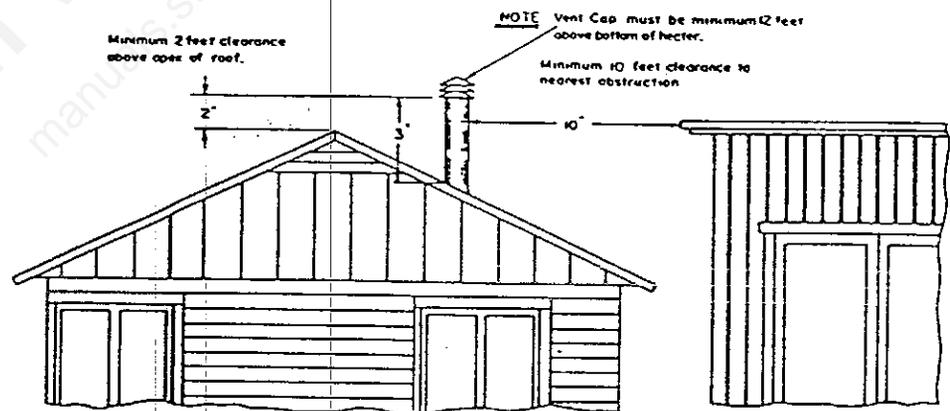


FIGURE 1
VENT CONNECTION METHODS



CORRECT CHIMNEY DESIGNS ILLUSTRATED BY DASHED LINES. CHIMNEY SHOULD EXTEND ABOVE ROOFLINE OF ADJACENT BUILDINGS. ILLUSTRATED CONDITIONS MAY PROMOTE DOWNDRAFT.

FIGURE 2

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INSTALLATIONS IN UNCONFINED SPACES

Heaters are to be sized to not exceed 1,000 BTU/HR of the total input rating of all appliances installed in the space, for every (50) cubic feet of room volume.

Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.

EXAMPLE: A Model 8870 when installed in unconfined spaces with normal infiltration, having an (8) foot ceiling and no other gas appliances would need (438) square feet of area.

3. CHIMNEY AND VENTING:

These heaters are designed to be vented and **MUST** therefore be connected to a gas vent, chimney or single-wall metal pipe venting system that is engineered and constructed so as to develop a positive flow adequate to remove flue gases to the outside atmosphere.

Check local codes and ordinances as well as ANSI Standard Z223.1 (latest edition) for accepted venting methods and practices with particular attention to:

(a) Vent connectors shall be installed without any downward pitch from the appliances and without any dips or sags. See Figure 1.

(b) Vent connectors shall be pitched upward from the appliances at least 1/4 inch per foot. See Figure 1.

(c) The horizontal run of the vent connector shall be as short and direct as possible and the heater located as near the gas vent or chimney as practical.

(d) Manually operated dampers shall **NOT** be placed in the vent connectors from the heater.

(e) The size of the vent connector shall be the same size as the vent outlet on the heater.

(f) Vent connectors shall be firmly attached to the vent outlet collar of the heater by use of sheetmetal screws.

(g) Chimney must be in good condition and be free of obstruction to provide good draft for the heater. If you have any doubts about your chimney, call your Dealer.

(h) Chimney shall extend at least 3 feet above the highest point where they pass through the roof of a building and at least 2 feet higher than any portion of any building within 10 feet. See Figure 2.

(i) Chimneys shall extend at least 5 feet above the highest connected appliance draft hood outlet or flue collar.

(j) If the home does not have a chimney, a Metalbestos or any other approved Type B Chimney Package can be used.

(k) Vent pipe **MUST NOT** be connected to a chimney flue serving a separate solid fuel burning appliance.

4. The rating plate on the heater shows the input rating and type gas for which the particular heater is equipped.

IMPORTANT: WHEN THE HEATER IS INSTALLED AT ALTITUDES ABOVE 2,000 FEET, THE INPUT IS TO BE REDUCED 4 PERCENT FOR EACH 1,000 FEET OF ALTITUDE ABOVE SEA LEVEL.

EXAMPLE: 8835 installed at 4,000 feet altitude

Normal Input Rating	35,000 BTU/hr.
Less 16% for 4,000 feet above sea level	5,600 BTU/hr.
Reduced input for 4,000 feet altitude	29,400 BTU/hr.

5. GAS PIPING:

The installation of the piping must be done by a qualified gas serviceman. To ensure proper performance and full input capacity, the gas supply line leading to the heater from the main supply line should be of adequate size. Check with your local authorities as to the proper size of your particular installation.

Installation of a ground joint union is required at the gas inlet connection to the control manifold on the heater.

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Installer is to provide for a 1/8 inch N.P.T. plugged tapping, accessible for test gauge connection immediately upstream of the gas supply connection to the appliance.

Use a pipe compound which is resistant to the action of liquified petroleum gases.

The heater and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig.

The heater must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

TEST FOR LEAKS: All gas piping and connections must be tested for leaks after the installation is completed.

The supply system should be checked first with the heater turned "OFF".

After the supply system is checked, turn "ON" the heater and check the heater piping and controls.

Apply soap suds solution to all connections and joints and if bubbles appear, leaks have been detected and should be corrected.

**DO NOT USE A MATCH OR OPEN FLAME OF ANY KIND TO TEST FOR LEAKS.
NEVER OPERATE THE HEATER WITH LEAKY CONNECTIONS.**

6. MAIN BURNER INPUT AND AIR ADJUSTMENTS:

(a) These heaters are supplied with orifices to give the correct BTU/HR input based on the following pressures:

	<u>INLET SUPPLY PRESSURE</u>		<u>MANIFOLD PRESSURE</u>
	<u>MAXIMUM</u>	<u>MINIMUM</u>	
Natural Gas	14.0 In. W.C.	5 In. W.C.	3.5 In. W.C.
Propane Gas	14.0 In. W.C.	11 In. W.C.	10.0 In. W.C.

NOTE: Minimum inlet gas supply pressure is for the purpose of input adjustment.

CAUTION: Input rating should NEVER exceed that shown on the rating plate. The input rating of the heater on Natural Gas can be determined by timing the gas meter with all other gas appliances turned "OFF".

Time (Seconds Required to Burn
One Cubic Foot of Gas)

$$\frac{\text{Heating Value of Gas (Btu/Cu.Ft.)}}{\text{Nameplate Input Rating (Btu/Hr.)}} \times 3600$$

(b) **PILOT ADJUSTMENT:** The pilot flame should always envelop approximately one-half inch of the thermocouple tip. If it does not, adjustment of the pilot gas flow will be necessary and can be made with the adjusting needle valve supplied on the control valve. See Figure 5.

(c) **GAS CONTROLS:** This heater is equipped with a combination pilot safety control and integral pressure regulator to provide safe and automatic heat.

The pilot safety control completely shuts off the main burner and pilot gas flow in the event of a pilot flame failure.

The built-in pressure regulator maintains constant gas pressure to the burner on all gases.

TO CHECK THE SAFETY PILOT SYSTEM, light the pilot following the Lighting and Shutting Down Instructions (Page 10). Shut off the pilot gas and listen carefully for the safety device to click. This click indicates that the safety system is functioning correctly.

(d) This heater is equipped with a Vent Safety Shutoff Switch. This switch will detect spillage of flue products from the Draft Diverter relief opening and will shut off the pilot and the main burner gas.

Spillage of flue gases from the Draft Diverter indicates an improperly connected flue pipe or a blocked flue pipe. See Figures 1 and 2 and Paragraph 3 on Page 4 for correct venting of this heater.

THERMOSTAT: All models include an integral modulating mechanical thermostat (bulb type) which operates to close and open the main valve automatically with rise and fall in room temperature. With light heating loads, the valve should snap open and close at minimum flame. If the heating load increases, the valve modulates, supplying gas in proportion to the increase in the heating load.

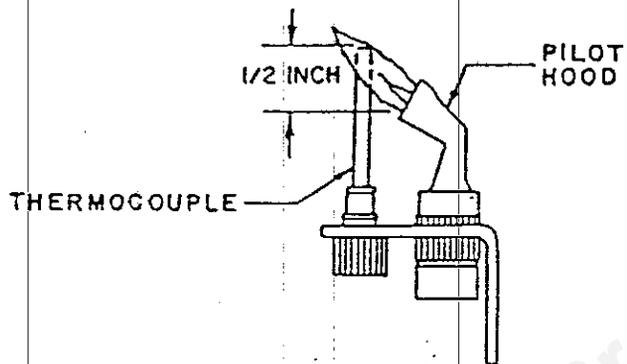


FIGURE 3

Pilot flame should always envelop approximately 1/2 inch of the thermocouple tip and should be a pronounced blue flame.

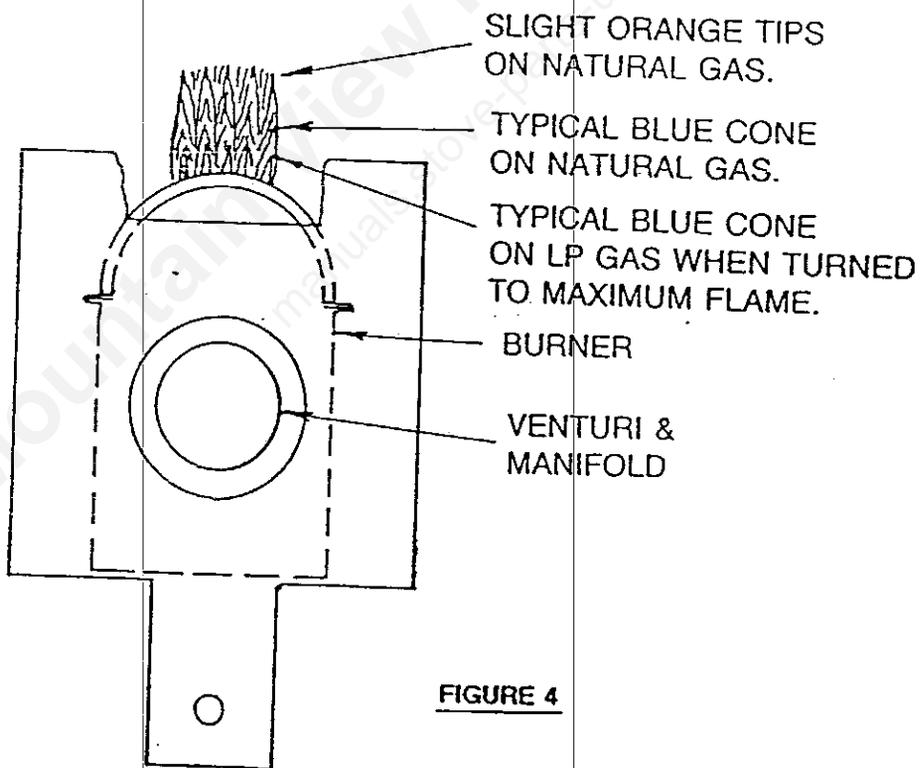


FIGURE 4

NO PRIMARY AIR ADJUSTMENT

Make sure air opening and burner tube are clear of lint, dust and cob webs.

The Temperature Dial number markings correspond approximately to the following Temperatures:

Scale Number	1	2	3	4	5	6	7	8	9
Temperature Degrees F.	60	65	70	75	80	85	90	95	100

The above chart is to be used only as a guide since the actual room temperature will vary depending upon the location of heater, outdoor temperature and house construction.

MINIMUM FLAME ADJUSTMENT:

The minimum flame is factory set and is nonadjustable.

7. BLOWER ACCESSORIES: The 8850 and 8870 heaters can be equipped with an F88 blower accessory (push-button controlled 3-speed blower accessory) for field installation.

When the blower accessory is used, it must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code ANSI/NFPA 70-1984.

The blower accessory is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

8. IMPORTANT:

Use only the type of gas for which the heater is equipped.

KEEP THE CONTROL COMPARTMENT FREE OF LINT AND DUST. IT IS RECOMMENDED THAT YOUR HEATER BE THOROUGHLY CHECKED AND CLEANED AT THE START OF EVERY SEASON. THIS WILL ENSURE SERVICE-FREE OPERATION.

RECOMMENDED MAINTENANCE

The following are some recommended maintenance procedures to be followed to keep your heater in good operating condition.

1. On models with a blower, lubricate the fan motor annually with two drops of SAE 20 oil. The motor is provided with two lubes for this purpose.

2. The venting system should be inspected and checked before each heating season and repaired or replaced as found necessary.

3. Visually check the burner and pilot flame before each heating season. (See Figures 3 & 4 for details.) Remove the burner if required to clean rust and foreign matter from the slots and obstructions such as cob webs and mud daubers from the venturi opening. Brush the surface of the burner head to clean the burner ports. Use a bottle brush or equivalent to clean the venturi.

4. The heater area must be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids.

5. The flow of combustion and ventilation air must not be obstructed.

Installation and repair should be done by a qualified service person. The heater should be inspected before use and at least annually by a professional service person. More frequent cleaning may be required due to excessive lint from some carpeting, bedding material, etc. It is imperative that the control compartments, burners and combustion and circulating air passageways be kept clean.

The exterior finish on your U.S. Stove Heater is of the highest quality baked enamel, and with proper care will maintain its new appearance for years. Observe the following simple precautions:

(1) Do not apply varnish or furniture polish.

(2) Do not wipe finish with a wet or dry cloth while the heater is warm, as this might scratch or mar the enamel.

If your U.S. Stove Heater needs service or repair, consult your local U.S. Stove dealer supplying the following information:

- (1) Complete model and serial number found on the rating plate.
- (2) Type of gas used.
- (3) Complete description of operation problem or the desired repair part.

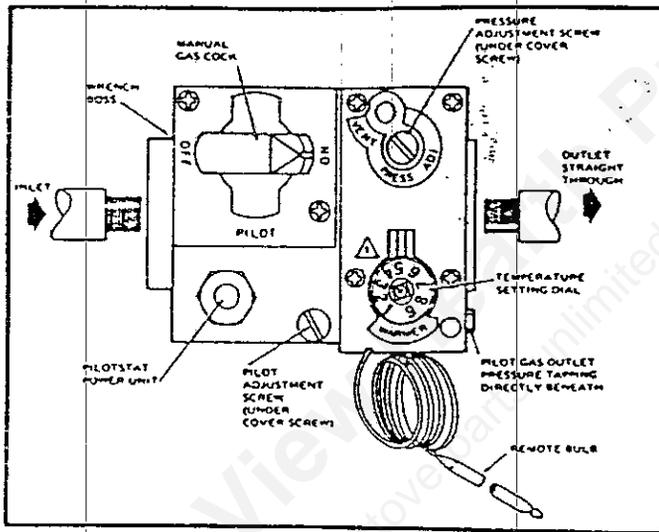
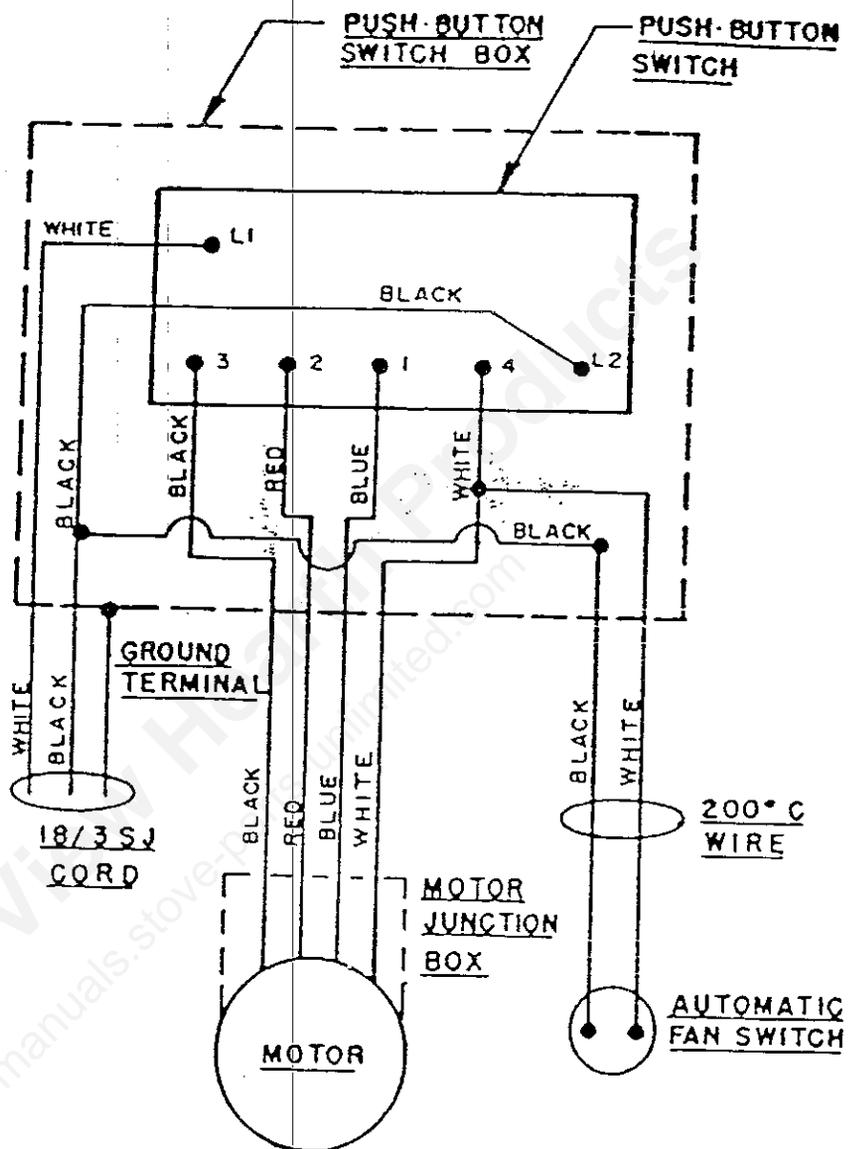


FIGURE 5
LOCATION OF GAS
VALVE ADJUSTMENTS



F88
BLOWER WIRING DIAGRAM FOR
MODELS 8850 and 8870

WARNING

Electrical Grounding Instructions

This heater is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

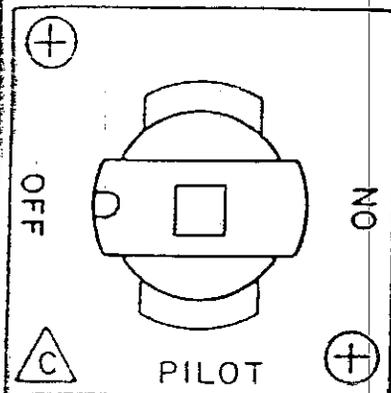
If any of the original wire as supplied with the appliance must be replaced, it must be replaced with 105 degrees C. thermoplastic wire or its equivalent, except as noted.

LIGHTING INSTRUCTIONS

TO LIGHT:

1. Set thermostat, if used, to lowest setting. Depress knob and turn clockwise to "OFF". Wait (5) minutes for unburned gas to vent.

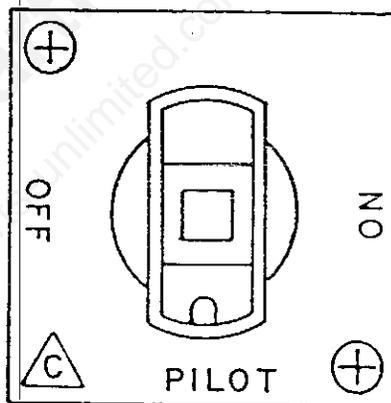
CAUTION: LP Gas is heavier than air and will not vent upward naturally.



2. With the Panel Door open, and knob in "OFF" position, depress knob — HOLD IT DEPRESSED and:

- Turn knob counterclockwise from "OFF" to "PILOT".
- Light pilot and continue holding knob depressed (about (1) minute) so that pilot will stay lit when knob is released.
- Close the Panel Door before proceeding.

NOTE: If pilot does not stay lit, repeat Steps "1" and "2".

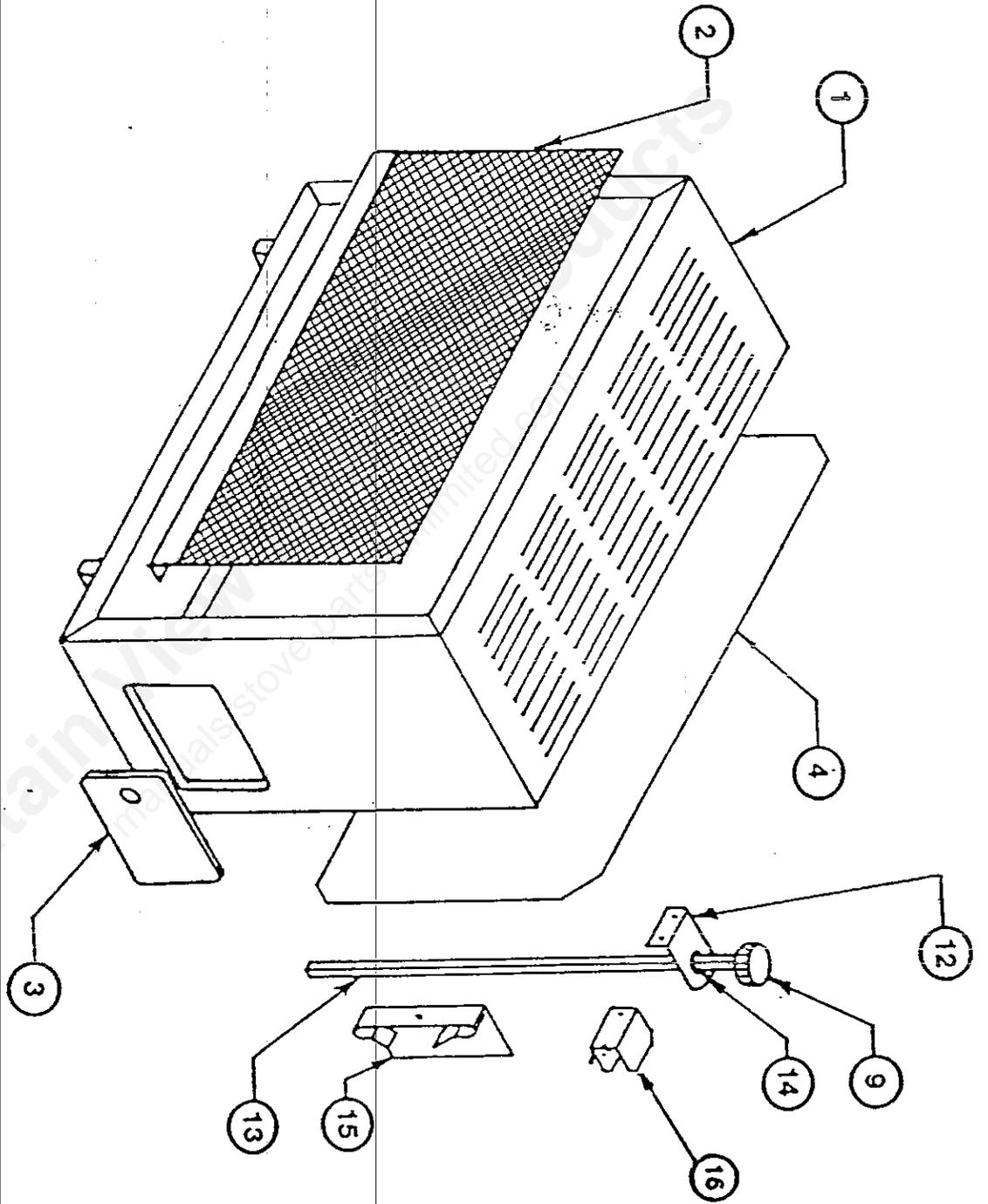


3. Turn knob counterclockwise to "ON". If system is controlled by a thermostat, adjust to desired temperature.

TO SHUT OFF:

1. **FOR TEMPORARY situations:** Main burner can be shut off by turning knob to "PILOT". Pilot will remain lit — ready to return to normal service without relighting.

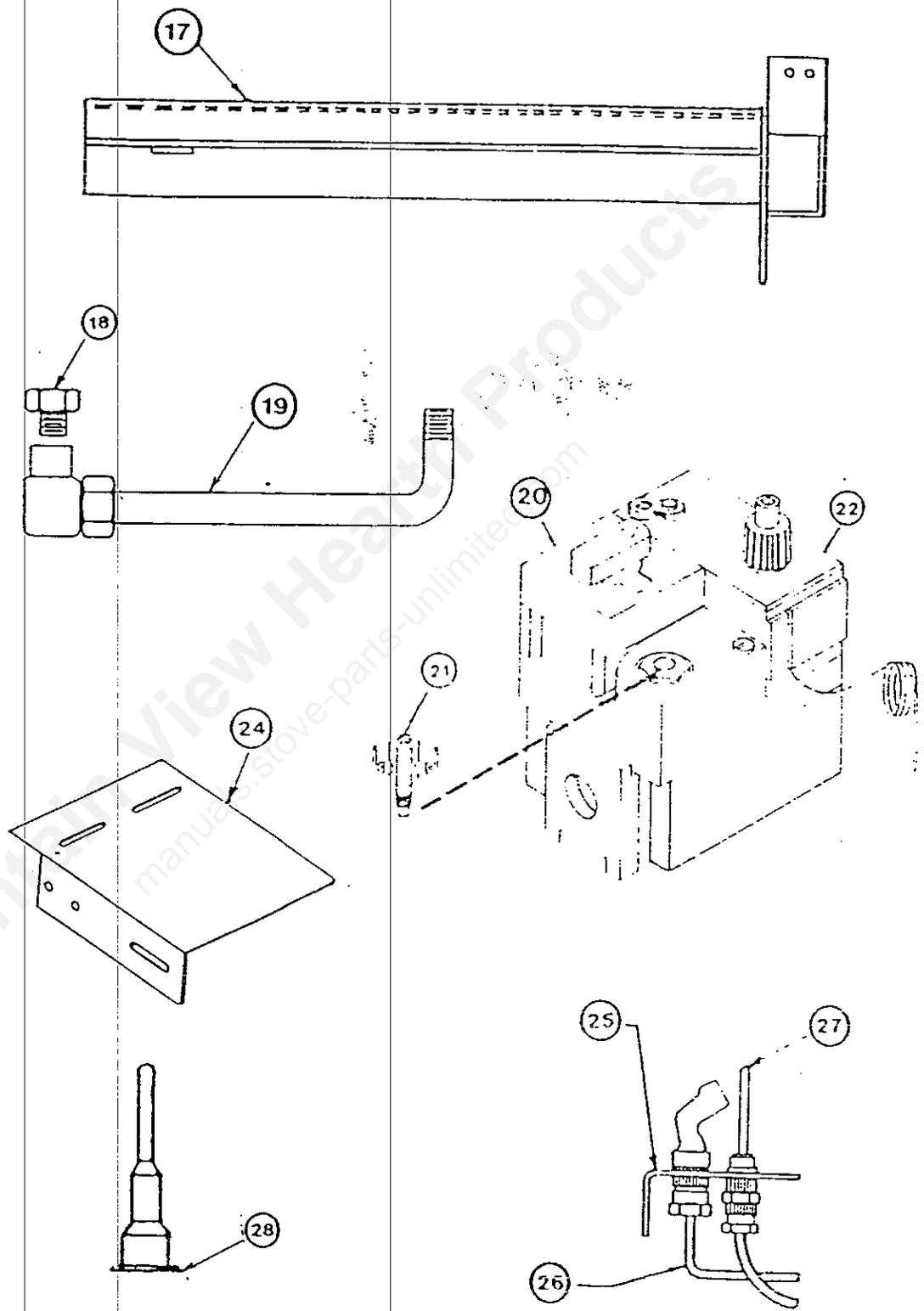
2. **FOR COMPLETE SHUTDOWN:** Depress knob and turn clockwise to "OFF".



REPLACEMENT PARTS LIST

ITEM NO.	PART NO.	PART NAME	6835	6850	6870
1	B107418-G9	Casing AYC	—	X	—
1	A107413-G7	Casing AYC	X	—	—
1	A107422-G7	Casing AYC	—	—	X
2	C106574-G4-5	Screen Assembly	X	—	—
2	C106574-G1-4	Screen Assembly	—	X	—
2	C106574-G2-4	Screen Assembly	—	—	X
3	C107415-G2-2	Panel Door Assembly	X	—	—
3	CW738-G8-10	Panel Door Assembly	—	—	X
3	C108449-G1-1	Panel Door Assembly	—	X	—
4	C108509-G1	Panel Back Assembly	X	—	—
4	A106935-G1	Panel Back Assembly	—	X	—
4	A106935-G2	Panel Back Assembly	—	—	X
9	A106913-G1	Control Knob	X	X	X
12	B106910-G1-2	Bracket Dial	X	X	X
13	B106662-G25	Control Rod	X	—	—
13	B106662-G20	Control Rod	—	X	—
13	B106662-G22	Control Rod	—	—	X
14	A106971-G3	Grommet	X	X	X
15	B106851-G1	Bracket Thermobutb	X	X	X
16	B108222-G2	Switch Limit AYC	X	—	—
16	B108222-G3	Switch Limit AYC	—	X	—
16	B108222-G4	Switch Limit AYC	—	—	X

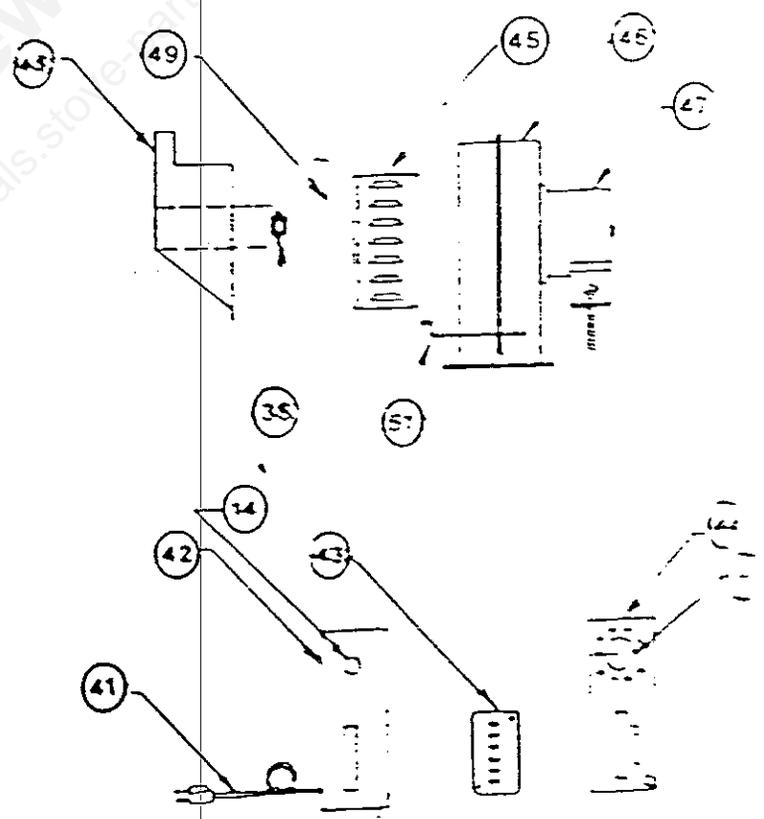
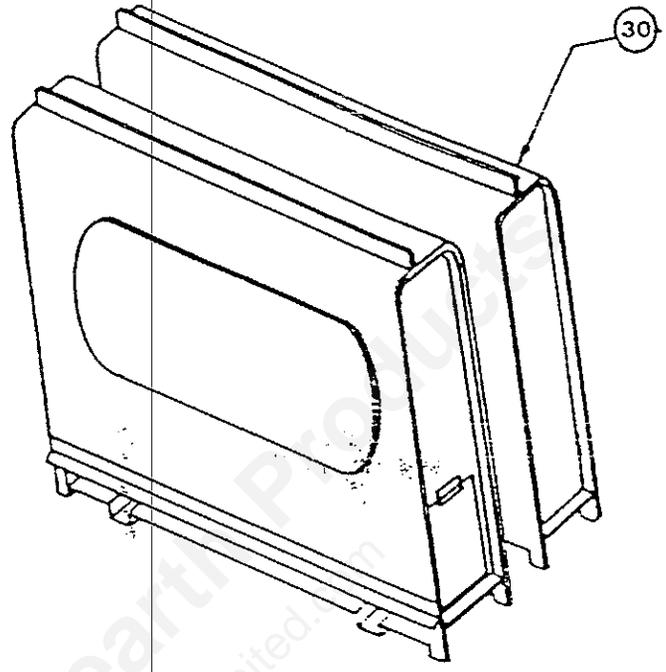
WHEN ORDERING PARTS, STATE MODEL NUMBER, PART NUMBER AND PART NAME OR DESCRIPTION.
CONTACT YOUR LOCAL U.S. STOVE DISTRIBUTOR OR DEALER FOR PARTS.



REPLACEMENT PARTS LIST

ITEM NO.	PART NO.	PART NAME	8835	8850	8870
17	D108437-G1	Burner	X	—	—
17	D108436-G1	Burner	—	X	—
17	D108296-G1	Burner	—	—	X
18	CW1387-G3	Orifice Main Burner Nat. (No. 34 DMS)	X	—	—
18	CW1387-G4	Orifice Main Burner LP (No. 50 DMS)	X	—	—
18	CW1387-G5	Orifice Main Burner Nat. (No. 29 DMS)	—	X	—
18	CW1387-G6	Orifice Main Burner LP (No. 45 DMS)	—	X	—
18	CW1387-G7	Orifice Main Burner Nat. (No. 21 DMS)	—	—	X
18	CW1387-G10	Orifice Main Burner LP (No. 40 DMS)	—	—	X
19	C108240-G2	Manifold Assembly	X	—	—
19	C108240-G3	Manifold Assembly	—	X	—
19	C108240-G5	Manifold Assembly	—	—	X
20	B108225-G1	Valve Combination Nat.	X	X	X
20	B108225-G2	Valve Combination LP	X	—	X
20	B108225-G6	Valve Combination LP	—	X	—
21	B108245-G3	ECO Connector	X	X	X
22	B108225-G7	Regulator & Operator Head Nat.	X	X	X
22	B108225-G8	Regulator & Operator Head LP	X	X	X
24	B108216-G1	Bracket Control (RH)	X	X	X
25	B107989-G1	Pilot Burner Nat.	X	X	X
25	B107990-G1	Pilot Burner LP	X	X	X
26	B108300-G2	Pilot Tube	X	—	—
26	B108300-G3	Pilot Tube	—	X	—
26	B108300-G4	Pilot Tube	—	—	X
27	B107783-G2	Thermocouple (24")	X	X	X
28	A110339-G3	Pilot Orifice Nat. (CAR 12)	X	X	X
28	A110340-G2	Pilot Orifice LP (GAF 8)	X	X	X

WHEN ORDERING PARTS, STATE MODEL NUMBER, PART NUMBER AND PART NAME OR DESCRIPTION.
CONTACT YOUR LOCAL U.S. STOVE DISTRIBUTOR OR DEALER FOR PARTS.



F-88 BLOWER ACCESSORY

REPLACEMENT PARTS LIST

ITEM NO.	PART NO.	PART NAME	8835	8850	8870
30	D108466-G1-1	Chamber & Exchanger AYC	X	—	—
30	D105821-G5-1	Chamber & Exchanger AYC	—	—	X
30	C108457-G1-1	Chamber & Exchanger AYC	—	X	—
38	BW745-G1	Thermopisc Switch	—	X	X
41	B107424-G1	Cord AYC	—	X	X
42	AW4983-G3	Switch Box AYC	—	X	X
43	AW2832-G2	Push Button Switch	—	X	X
44	B106901-G2-1	Plate Switch Box	—	X	X
45	AW2204-G1	Blower Wheel	—	X	X
46	DW1299-G12	Scroll	—	X	X
47	DW1299-G3	Motor	—	X	X
48	C106781-G1-1	Duct Assembly	—	X	X
49	C106778-G1	Back Duct	—	X	X
51	A106775-G1-1	Bracket Blower Assembly	—	X	X

WHEN ORDERING PARTS, STATE MODEL NUMBER, PART NUMBER AND PART NAME OR DESCRIPTION.
CONTACT YOUR LOCAL U.S. STOVE DISTRIBUTOR OR DEALER FOR PARTS.

Service Hints & Maintenance Suggestions ...

CAUSE AND CORRECTION CHART

NOTE: Service should only be performed by qualified service personnel.

SYMPTOMS	CAUSES	CORRECTIONS
Burner Flame Lifts	Manifold Gas Pressure Too High	Adjust
	Inlet Gas Pressure Too High	Call Gas Company to Re-adjust
	Orifice Too Large	Replace with Correct Size Orifice
Burner Flame Goes Out	Gas Supply Low or Off	Check Valves in Inlet Line
	Valve Problems	Replace Valve
Burner Makes Noise or Flame Flashes Back Into Burner	Damaged Burner or Orifice	Replace
	Wrong Size Orifice	Replace with Correct Size
Reddish Color Flame	Dust in Air	This Will Clean Itself Up
Flame Too High	Manifold Gas Pressure Too High	Adjust
	Wrong Size Orifice	Replace with Correct Size
	Inlet Gas Pressure Too High	Call Gas Company to Re-adjust
Flame Too Low	Manifold Gas Pressure Too Low	Adjust
	Inlet Gas Line Obstructed	Clean Inlet Gas Line
	Wrong Size Orifice	Replace with Correct Size
	Leaking (May be accompanied by smell)	Shut Off Heater Immediately — Test for Leaks
	Inlet Gas Pressure Too Low	Call Gas Company to Re-adjust
Yellow or Smoky Flame	Wrong Size Orifice	Replace with Correct Size
	Burner Slots Dirty	Clean Burner Slots
PILOT FLAME TROUBLE		
Pilot Does Not Light or Remain Lit	Gas Valves Closed	Open Valves
	Air in Line	Continue to Relight until all Air is Exhausted
	Dirty Thermocouple Electrical Connections	Clean All Connections
	Carbon on Thermocouple Tip	Clean Tip
	Defective Thermocouple	Replace Thermocouple
	Thermobulb Not in Proper Position	Re-position
	Overheated Thermocouple Caused by Too Much Main Burner Input	Call Gas Company to Re-adjust
	Main Burner Interferes with Pilot Flame Because of Too High Pressure	Call Gas Company to Re-adjust
Lazy, Yellow Flame	Dirty Pilot Burner	Clean Air Openings
Small Flame	Low Gas Pressure	Clean Orifice
	Obstruction Within Valve	Replace Valve
	Pilot Gas Adjustment Closed Too Far	Turn Pilot Flow Adjustment Counterclockwise

If you are unable to make any of the above corrections, call your dealer.

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