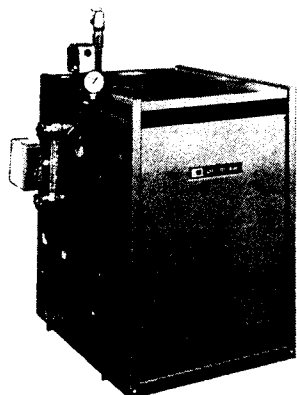


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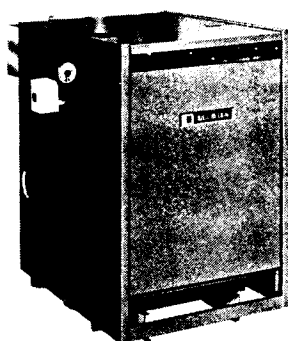
WEIL-McLAIN



Boiler Manual EG and P-EG (Series 1) — EGH (Series 2)



EG
FOR STEAM



EG
FOR WATER

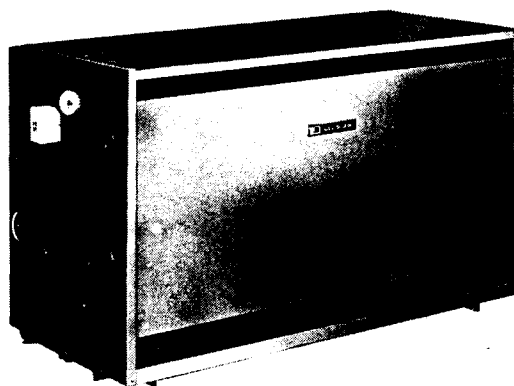
—for natural or
propane gas

—with optional
tankless heater
application

—refer to supplement
for control information

Includes:

- Installation
- Operation
- Service
- Parts



EGH
BOILER

To the owner:

Regular service on this boiler is recommended and should be performed by a qualified heating contractor.

To the installer:

Installation is not complete until all instructions shipped with this boiler are returned to their envelope and displayed near the boiler.

Read all instructions and warranty before starting

Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.



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IMPORTANT

EG, P-EG, and EGH boilers for tankless or storage heater application are available only on special order as factory-installed optional equipment. Standard boilers cannot be adapted for heater use.

IMPORTANT: When calling or writing about the boiler, PLEASE GIVE THE MODEL, SERIES, AND C.P. NUMBER, located on the boiler nameplate.

Any reuse or reproduction of the artwork and copy in this manual is strictly prohibited without the written consent of Well-McLain.



The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important information concerning the life of the product.

DANGER

Indicates the presence of a hazard which *will* cause *severe* personal injury, death or substantial property damage if the warning is ignored.

CAUTION

Indicates the presence of a hazard which *will* or *can* cause *minor* personal injury or property damage if the warning is ignored.

WARNING

Indicates the presence of a hazard which *can* cause *severe* personal injury, death or substantial property damage if the warning is ignored.

NOTICE

Indicates special instructions on installation, operation or maintenance which are important but not related to personal injury hazards.

Section I: Installation

**READ ALL INSTRUCTIONS BEFORE STARTING
FAILURE TO COMPLY WITH INSTALLATION INSTRUCTIONS CAN VOID WARRANTY**

Installations must comply with all local codes, laws, regulations and ordinances. Also United States National Fuel Gas Code ANSI Z223.1-1984. When required, installations must conform to American Society of Mechanical Engineers Safety Code for Controls and Safety Devices for Automatically Fired Boilers, No. CSD-1. Safe lighting and other performance criteria were met with the gas manifold and control assembly provided on boiler when boiler underwent tests specified in ANSI Z223.1-1984 standard.

In Canada the installation must comply with National Standard of Canada CAN 1-B149.1 or .2, Installation Code for Natural Gas Burning Appliances.

If the space is in a building of unusually tight construction, air should be obtained from outdoors or from spaces which freely connect with outdoors with an opening(s) having a total free area of no less than one square inch per 4,000 BTUH boiler input.

For boilers in confined rooms, two permanent openings shall be provided; one within 12 inches from the ceiling and one within 12 inches from the floor of the room. Each opening shall be at least one square inch per 1,000 BTUH boiler input. These openings shall freely connect with areas having adequate infiltration from outside.

When all air is provided from outdoors the confined space shall be provided with two openings as outlined above. These openings shall connect directly or by ducts with outdoors or spaces (crawl or attic) that freely connect with the outdoors and shall be of the size listed below for that particular arrangement:

AIR SUPPLY FOR COMBUSTION

WARNING

Adequate combustion and ventilation air must be provided to assure proper combustion and prevent the possibility of flue gas spillage.

- (a) One square inch per 4,000 BTUH of boiler input for direct outdoor air supply through an outside wall or through vertical ducting directly to outside.
- (b) One square inch per 2,000 BTUH of boiler input for direct outdoor air through horizontal ducting.
- (c) All ducting shall be of the same size as the opening to which it is connected with minimum dimensions of no less than 3 x 3 inches or 9 total square inches of area.
- (d) Other size ducting must comply with local codes.

In buildings of conventional frame, masonry or metal construction, infiltration is normally adequate to provide combustion air for boilers in unconfined rooms.



CHIMNEY OR VENT REQUIREMENTS

Minimum chimney or vent sizes are on page 24 of these instructions. In most cases a chimney or vent extended at least 2 feet above highest part of roof or other structure within 30 feet will be sufficient to prevent downdrafts.

A lined chimney is preferred and must be used when required by federal, provincial, territorial, state, or local building codes. Vitreous tile linings with joints that prevent the retention of moisture and linings made of noncorrosive materials are best. Advice for flue connections and chimney linings can be obtained from local gas utility. If a Type B or Type C vent is used, the instructions about size and height are in the National Fuel Gas Code. Chimney should be examined for blockage and assembly before boiler is installed.

WARNING

Do not alter boiler draft hood or place any obstruction or non-approved damper in the breeching or vent system. Flue gas spillage can occur. The Weil-McLain warranty and A.G.A. and C.G.A. certifications will become void.

Where two or more gas appliances vent into a common chimney or vent, the equivalent area should be at least equal to the area of the vent outlet on the largest appliance plus 50 percent of the area of the vent outlet on the additional appliance.

INSTALLATION CLEARANCES

Suggested minimum clearances for servicing

- 24 inches for cleaning and servicing, left side.
- 18 inches for access to controls and components, front.
- 48 inches from top for cleaning flueways.
- 6 inches on remaining sides.

Required clearances in confined spaces

Refer to plate located on inner jacket panel for required minimum clearances.

The vent pipe must be at least 6 inches from combustible material.

SELECT THE BOILER LOCATION

CONSIDER ALL CONNECTIONS TO THE BOILER BEFORE SELECTING A LOCATION.

WARNING

To avoid personal injury, death or property damage, keep boiler area clear and free from combustible materials, gasoline and other flammable vapors and liquids.

BOILER FOUNDATION

WARNING

Fire hazard. NEVER install boiler on combustible flooring or carpeting, even if a concrete or aerated foundation is used.

1. A level concrete or brick foundation is required if:
 - a) There is a possibility of the floor becoming flooded; or
 - b) Non-level conditions exist.

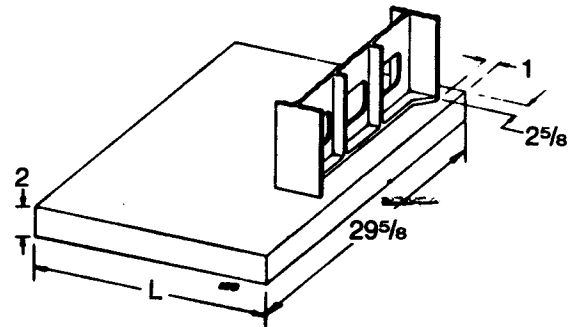


FIGURE 1

BOILER FOUNDATION SIZE—INCHES			
Boiler No.	L	Boiler No.	L
EG 30-35	19	EGH 85	40 1/4
EG 40-45	23 1/4	EGH 95	44 1/2
EG 50-55	27 1/2	EGH 105	48 3/4
EG 65	31 3/4	EGH 115	53
EG 75	36 3/4	EGH 125	57 1/4

2. Use a foundation with airways when:
 - a) Electrical wiring or telephone cables buried in the concrete floor of the boiler room.
 - b) Concrete floor is "green."
 - c) Water is channeled under the concrete.

Request MC Form 3401 for suggested foundations.



RESIDENTIAL GARAGE INSTALLATION

WARNING

Install boiler so burners are at least 18 inches above the floor. In Canada refer to CAN 1-B149 codes.

PLACING THE BOILER

WARNING

Block assembly is extremely heavy. Handle with caution to avoid personal injury.

Where the EGH block assembly is taken apart for handling:

1. Put a support under center of block. Support must be within 1/2 inch of block bottom.
2. Remove short center draw rods.
3. Tip half blocks on end as shown in Figure 2. Save elastomer sealing rings and sealant between sections.

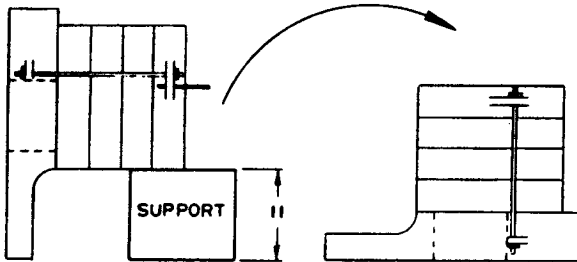


FIGURE 2

4. After moving half-blocks into desired location, clean port surfaces with clean, dry rag. DO NOT USE OIL. Place sealing rings in recessed ports. Place sealant in section grooves.
5. Re-assemble block in reverse order.

CONTROL TAPPING TABLE

LOCATION	SIZE	STEAM	WATER
C	3/4"	Probe Type Low Water Cutoff	Plugged
D	3/4"	Drain	Drain
E	3/4"	Safety Valve	Safety Relief Valve
G	3/4"	Plugged	Piping to Compression Tank or Auto Air Vent
H	1/2"	Gauge Glass and/or Optional Low Water Cut-off	Combination Pressure-Temperature Gauge
J*	3/8"	Try Cock Tappings	—
L	1/4"	Syphon, Pressure Gauge, High Limit (EG Only)	Combination Pressure-Temperature Gauge
P (EGH Only)	1"	Low Water Cutoff, Pressure Limit Control and Pressure Gauge; or Low Water Cutoff and Feeder Combination; or Low Water Cutoff and Pump Control	Low Water Cutoff; or Low Water Cutoff and Feeder Combination; or Low Water Cutoff and Pump Control
S	1 1/2"	Skim Tapping	Limit Control
	3/4" (w/tankless heater)	—	Limit Control

* Available only on special request.

NOTE: Limit Control and Supply Piping must be on the same end of the EGH boiler.

NOTE: When an internal type water heater is installed, use the tapping in the heater for an additional operating control.

INSTALLATION OF OPTIONAL INDIRECT WATER HEATER

For a boiler ordered with an internal type indirect water heater, remove the heater opening cover plate (water boilers—round plate on left side; steam boilers—rectangular plate on front).

Install heater per instructions on front of heater plate. DO NOT OVERTIGHTEN BOLTS—DAMAGE TO THE GASKET CAN OCCUR.

HYDROSTATIC PRESSURE TEST

Pressure test before attaching gas piping or electrical supply.

CAUTION

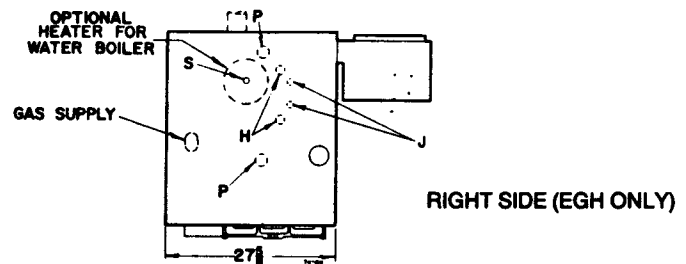
Leaks must be repaired at once or damage to the boiler can result. NEVER use petroleum based stop-leak compounds or leakage between the sections will occur.

1. Plug tappings or openings.
2. Fill boiler with water. Vent all air. TEST AT 1 1/2 times working pressure for more than 10 minutes.

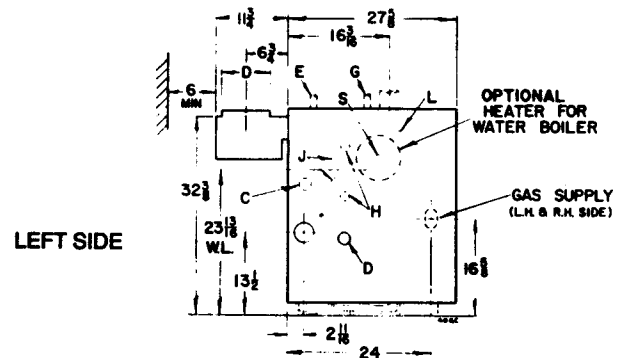
WARNING

Do not leave boiler unattended. A cold water fill could expand and cause excessive pressure.

3. Make sure gauge pressure has been maintained.
4. Check for leaks. Repair, if found.
5. Drain boiler and remove plugs from any tappings that will be used for controls and accessories. Refer to control tapping table and Figure 3.
6. On initial start-up, check for leaks in the system piping. If found, repair at once.



RIGHT SIDE (EGH ONLY)

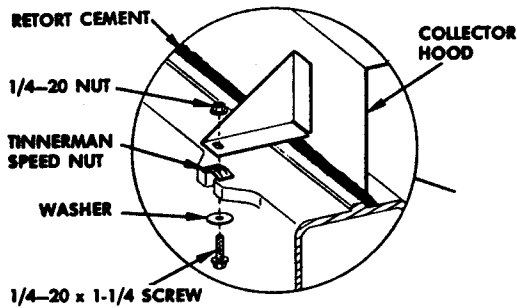


LEFT SIDE

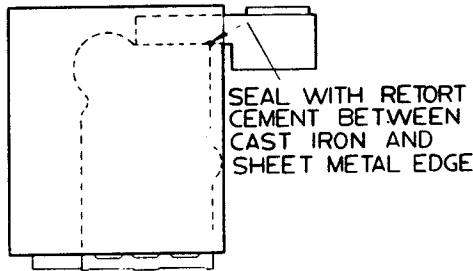
FIGURE 3

INSTALLATION OF FLUE COLLECTOR HOOD (Factory installed on P-EG boilers)

Set flue collector hood on boiler as shown in Figures 4 and 5. Use retort cement furnished to provide gas tight seal.



**FLUE COLLECTOR HOOD
FIGURE 4**



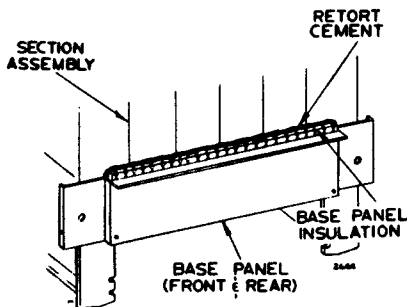
**FLUE COLLECTOR HOOD
FIGURE 5**

INSTALLATION OF FRONT AND BACK BASE PANELS (Factory installed on P-EG boilers)

See Figure 6 for installation. Fasten front (6¹/₈ inch) and back (7⁵/₁₆ inch) base panels to sections. Seal with retort cement along top of insulation panels.

NOTICE

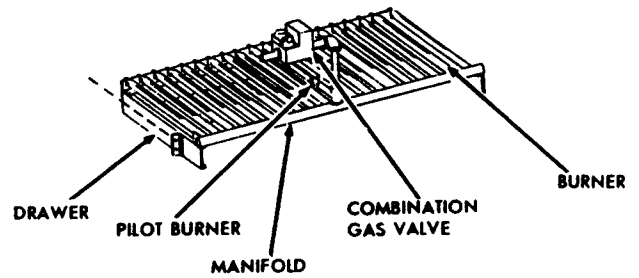
Front and rear base panels are insulated and must be sealed gas tight at top to assure proper combustion.



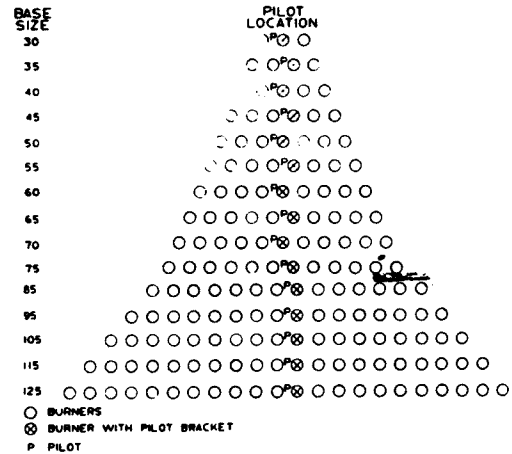
**FRONT AND
BACK BASE PANELS
FIGURE 6**

INSTALLATION OF DRAWER ASSEMBLY AND FRONT ACCESS PANEL (Factory installed on P-EG boilers)

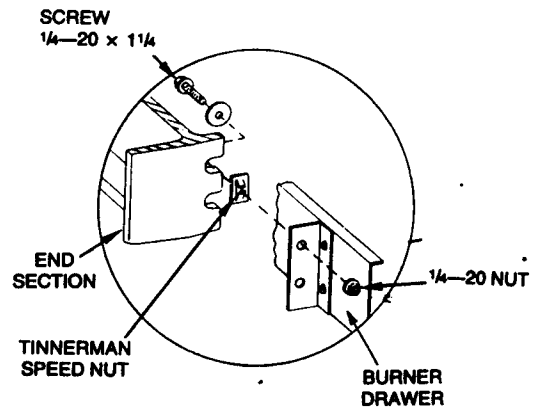
1. The drawer assembly consists of the burner drawer, main burners, gas manifold, safety pilot burner, etc. See Figures 7, 8 and 9 for installation.



**BURNER DRAWER ASSEMBLY
FIGURE 7**



**PILOT BURNER LOCATION
FIGURE 8**



**BURNER DRAWER INSTALLATION
FIGURE 9**

2. Check for proper orifice sizing.

ORIFICE DRILL SIZES		
Type of Gas	Heating Valve, BTU/cu. ft.	Standard Orifice Drill Size
Natural	1,000	No. 41
Propane	2,500	No. 54

ORIFICE DRILL SIZE—EG—CANADA ONLY		
Type Gas	Natural	Propane
0-2000 ft. el.	No. 40	No. 53
2000-4500 ft. el.	No. 42	No. 54

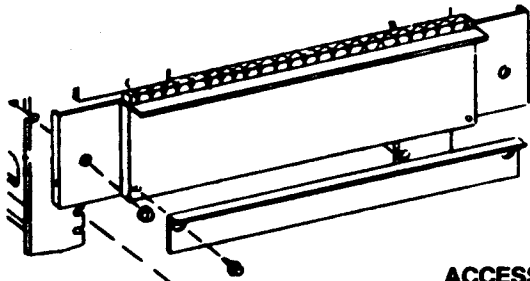


3. Level and straighten the burners to avoid misfiring.

WARNING

Burners must be properly seated in their locating slots with openings facing up. Gas orifices must inject down center of burner.

4. Install access panel. See Figure 10.



**ACCESS PANEL
 FIGURE 10**

ATTACH JACKET

1. Remove the proper knockout discs from panels as shown in tapping table, page 5.

NOTICE

Tankless and storage heater knockouts must be removed for EG and EGH boilers with optional tankless heaters prior to jacket installation.

2. Follow the separate Jacket Erecting Instructions packaged in the jacket carton.

ATTACH DRAFT DIVERTER

Attach the draft diverter to the flue collector hood using the No. 10 x 1/2" sheet metal screws provided.

WARNING

Do not alter the draft diverter—flue gas spillage can occur. If the draft diverter is altered, the A.G.A. and C.G.A. design certification, and boiler warranty become void.

BREACHING ERECTION

Connect from draft diverter outlet to chimney or vent with same size breeching. Where possible, vertical venting to the outside from the draft diverter outlet will offer best performance at lowest total cost. Where horizontal breeching is used, slope upward at least 1/4 inch per lineal foot toward chimney or vent.

NOTICE

A vertical height of 3 feet to 5 feet of breeching before any elbow or horizontal breeching is recommended to reduce chances of flue gas spillage at the draft diverter. Long horizontal breechings, excessive numbers of elbows or tees, or other obstructions which restrict the flow of combustion gases should be avoided.

Section II: Piping Connections

Pipe before installing controls. Connect return piping after jacket is attached. Connect supply piping before or after jacket is attached.

CAUTION

Failure to properly pipe the boiler may result in improper operation and damage to the boiler or building.

**FORCED HOT WATER BOILERS
 AND GRAVITY HOT WATER BOILERS (EG ONLY)**

These boilers are provided with built-in air elimination systems. A separate air eliminating device is not needed if expansion tank is piped as shown.

Refer to table and Figures 11a and 11b.

1. The circulator and expansion tank must be selected and sized according to the design requirements of the system.

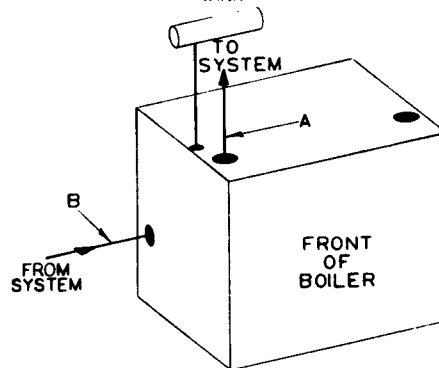
a) Size and install circulator.

b) Size expansion tank to handle the volume of water in the system.

2. Small expansion tanks cause system water to be lost from the relief valve and make-up water is added through the fill valve. Eventual section failure can result. Expansion tank installation:

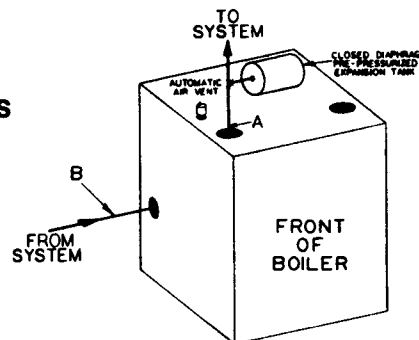
a) Closed type expansion tank—connect from the 3/4" N.P.T. compression tank tapping on the left end section (located just behind the supply outlet tap-

CLOSED TYPE EXPANSION TANK



**RECOMMENDED PIPING CONNECTIONS FORCED HOT WATER BOILERS WITH CLOSED TYPE EXPANSION TANK
 FIGURE 11a**

**RECOMMENDED PIPING CONNECTIONS FORCED HOT WATER BOILERS WITH CLOSED DIAPHRAGM PRESSURIZED EXPANSION TANK
 FIGURE 11b**





ping) to the compression tank using 3/4" N.P.T. piping. Any horizontal compression tank piping must pitch upward toward the tank at least 1 inch for each 5 feet of piping.

- b) Closed diaphragm pre-pressurized type expansion tank—may be located anywhere in the system, preferably near the boiler.

NOTICE

A manual or automatic type air vent must be installed in the 3/4" N.P.T. tapping when a closed diaphragm pre-pressurized tank is used. Refer to Figure 11b.

***FORCED HOT WATER BOILER PIPING
 MINIMUM RECOMMENDED PIPE SIZES**

Boiler Number	Supply	Return	Piping to Compression Tank "C"
	"A"	"B"	
EG-30, 35	1"	1"	3/4"
EG-40, 45 & 50	1 1/4"	1 1/4"	3/4"
EG-55, & 65	1 1/2"	1 1/2"	3/4"
EG-75	2"	2"	3/4"
EGH-85-95	2"	2"	3/4"
EGH-105-125	2 1/2"	2 1/2"	3/4"

*All supply and return pipe sizes are based upon a 20°F. temperature rise through the boiler.

**GRAVITY HOT WATER MINIMUM
 RECOMMENDED PIPE SIZES**

Boiler Number	Supply	Return
EG-30, 35	1 1/2"	1 1/2"
EG-40, 45, 50	2"	2"
EG-55, 65, 75	2 1/2"	2 1/2"

3. WARNING

Relief valve discharge piping must be piped near to the floor or to a floor drain to eliminate potential of severe burns. Do not pipe the relief valve discharge to any area where freezing could occur.

- 4. Connect system return piping to left end for EG—right or left for EGH. SUPPLY AND RETURN MUST BE ON SAME END OF EGH BOILER.

- 5. Installer must provide drain cock(s).

- 6. Connect cold water fill supply piping close to boiler.

- 7. Plug all unused tappings.

8. Multiple Zoning

- a) Single circulator using zone valves:

Refer to zone valve manufacturer's literature for wiring and application. A separate transformer is required to power zone valves.

Provide balancing valves to adjust the flow so it is about the same in each zone.

- b) Multi-circulators:

Zoning with circulators requires a relay for each circulator.

Install flow control valves to prevent gravity circulation. Provide balancing valves to adjust the flow so it is about the same in each zone.

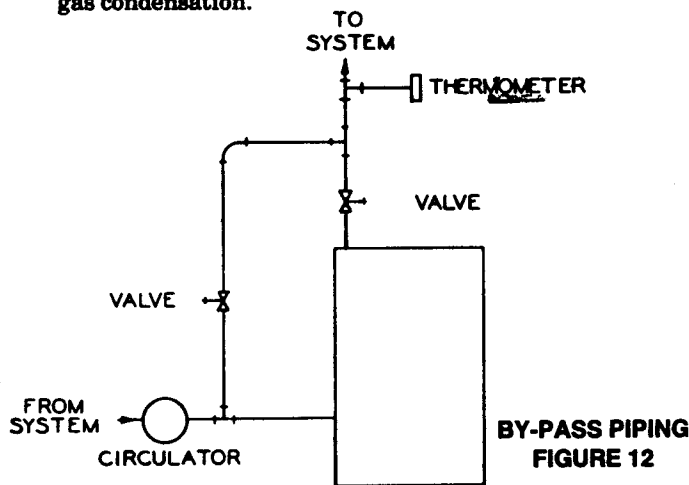
- 9. If system is to be ASME inspected and approved, an additional high temperature limit is needed. Purchase and install the control in supply outlet piping from boiler.

- 10.

NOTICE

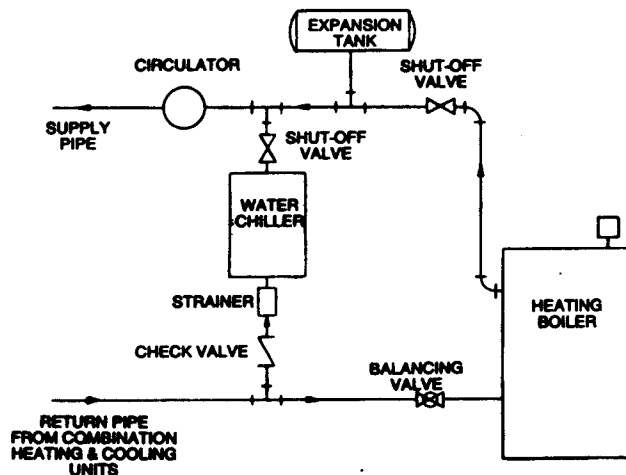
Bypass piping should be used for low water temperature applications (i.e. radiant panel systems, converted gravity systems, etc.). Refer to Figure 12 for piping details.

Use same size bypass piping as supply and return piping. Connect as shown in Figure 12. Adjust valves to maintain boiler temperature greater than 160°F. to prevent flue gas condensation.



- 11. Use with Refrigeration System:

The boiler must be installed so that chilled medium is piped in parallel with the heating boiler with appropriate valves to prevent the chilled medium from entering the boiler. Consult I=B=R Installation and Piping Guides.



**RECOMMENDED PIPING FOR COMBINATION
 HEATING & COOLING (REFRIGERATION) SYSTEMS
 FIGURE 13**



If boiler is connected to heating coils located in air handling units where they can be exposed to refrigerated air, gravity circulation during the cooling cycle must be prevented with flow control valves or other automatic means.

STEAM BOILERS

Refer to table and Figures 14 or 15. Pipe exactly as shown.

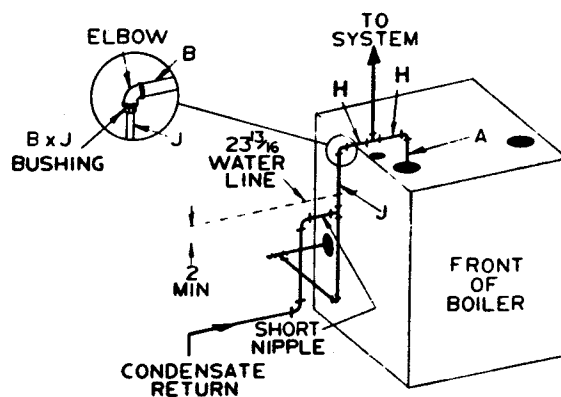
NOTICE

Satisfactory operation of a steam heating system depends on adequate condensate return to boiler to maintain a steady water level. Avoid adding excessive amounts of raw make-up water. Where condensate return is not adequate, a low water cut-off and pump control, condensate receiver, and condensate boiler feed pump should be installed. Refer to Figure 16 for sizing.

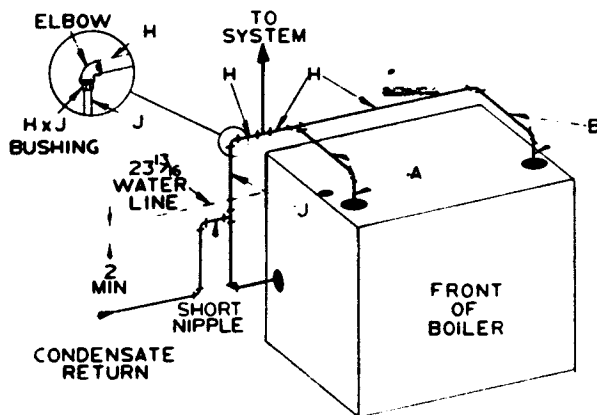
STEAM BOILER PIPING MINIMUM RECOMMENDED PIPE SIZES

Steam Boiler Size	Riser Pipe Size		Header* H	Equalizer J
	A	B		
EG-30, 35	2"	—	2"	1 1/2"
EG-40, 45, 50	2 1/2"	—	2 1/2"	1 1/2"
EG-55, 65, 75	3"	—	3"	1 1/2"
EGH-85, 95	2"	2	3"	1 1/2"
EGH-105	2 1/2"	2 1/2"	3"	1 1/2"
EGH-115, 125	2 1/2"	2 1/2"	4"	1 1/2"

*24" minimum from waterline to header.



RECOMMENDED PIPING CONNECTIONS
 EG STEAM BOILERS
 FIGURE 14



RECOMMENDED PIPING CONNECTIONS
 EGH STEAM BOILERS
 FIGURE 15

Boiler Model	AGA Gross Output # Steam Per Hour	Gallons Condensate Per Hour	Minimum Condensate Receiver Capacity (Gal.)				Recommended Maximum Condensate Feed Pump Capacity GPM
			15 Minute Boiler Operation	30 Minute Boiler Operation	45 Minute Boiler Operation	60 Minute Boiler Operation	
EG-30	63	8	2	4	6	8	0.2
EG-35	81	10	3	6	9	12	0.3
EG-40	102	12	4	7	11	14	0.4
EG-45	122	15	5	9	14	18	0.5
EG-50	142	17	5	10	15	20	0.6
EG-55	163	20	6	12	18	24	0.7
EG-65	203	24	7	14	22	29	0.8
EG-75	240	29	9	17	26	35	1.0
EGH-85	280	34	10	20	31	41	1.1
EGH-95	320	38	11	23	34	46	1.3
EGH-105	360	43	13	26	39	52	1.4
EGH-115	400	48	14	29	43	58	1.6
EGH-125	440	53	16	32	48	64	1.8

CONDENSATE RECEIVER CAPACITY
 FIGURE 16

Section III: Install Boiler Controls

WARNING

Failure to properly install, pipe and wire boiler controls may result in severe damage to the boiler, building and personnel, and will void the boiler warranty.

- For steam boilers furnished with float type low water cut-off, install controls as illustrated in Figure 18.

WATER BOILER

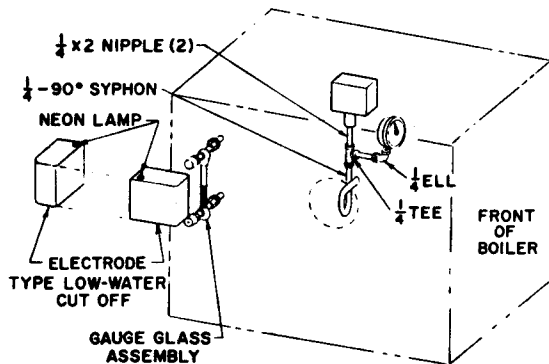
- Install controls as shown on Control Tapping Table and Figure 3, page 5. Limit control and supply piping must be on the same end of EGH boiler.
- Low water cut off for water boilers:**
 - Must be installed if boiler is located above radiation level.
 - Must be installed on all EGH 95-125 water boilers to meet ASME specifications (low water cut-off not supplied by Weil-McLain).
 - May be required on water boilers by certain state, local or territorial codes or insurance companies.

If a low water cut-off is used on a water boiler, use a control designed especially for water installations. An electrode probe type is recommended. Locate in a tee in the supply line above the boiler.

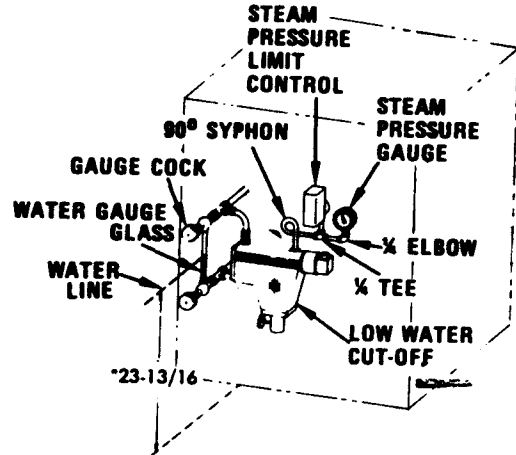
- If the system is to be ASME inspected and approved, an additional high temperature limit is needed. Purchase and install in the supply piping.

STEAM BOILER

- For steam boilers furnished with electrode-type low water cut-offs, install as shown in Figure 17.



**24-VOLT SYSTEM—STEAM BOILER
ELECTRODE TYPE LOW WATER CUT-OFF
FIGURE 17**

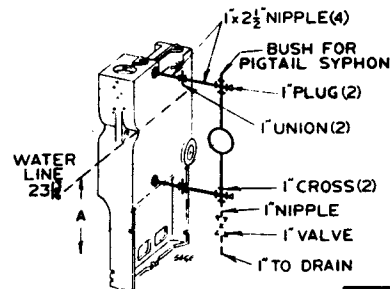


*Water Line Dimension measured from bottom of boiler section leg where it rests on the boiler room floor or boiler foundation.

**FLOAT-TYPE LOW WATER CUT-OFF
FIGURE 18**

- Other float-type water-level controls for EGH Steam boilers are shown in Figure 19. (Use 1 inch I.P.S. connections).
- Water feeders are not recommended for primary control. A low-water cut-off with pump controller is recommended with a condensate receiver and feed pump.

- Install remaining controls as shown in Control Tapping Table and Figure 3, page 5.



L.W.C.O.	DIM A.
No. 247-2	1 3/16"
No. 61	2 5/8"
No. 63	2 5/8"
No. 51-2, 51-S-2	1 1/2"
No. 150, 157	2 1/4"
No. 93, 94	2 5/8"

**PIPING FOR OPTIONAL FLOAT TYPE WATER
LEVEL CONTROLLERS FOR STEAM BOILERS
FIGURE 19**

Section IV: Optional Heaters

NOTICE

EG, P-EG, and EGH boilers for tankless or storage heater application are available only on special order as factory-installed optional equipment. Standard boilers cannot be adapted for heater use.

TANKLESS HEATER HOOK-UP (forced hot water or steam boilers)

For correct operation, install as shown in Figure 20 (water boilers) or Figure 21 (steam boilers).

1. Automatic mixing valve must be installed.
2. Flow regulating valve must be installed. Size according to intermittent draw of heater as shown in following table.
3. Operating control with a small differential scale is recommended. Install in temperature control tapping in heater plate.
4. In hard water areas, it is advisable to soften cold domestic supply water to the tankless heater to prevent lime build-up.

STEAM AND FORCED HOT WATER BOILER TANKLESS HEATER RATINGS

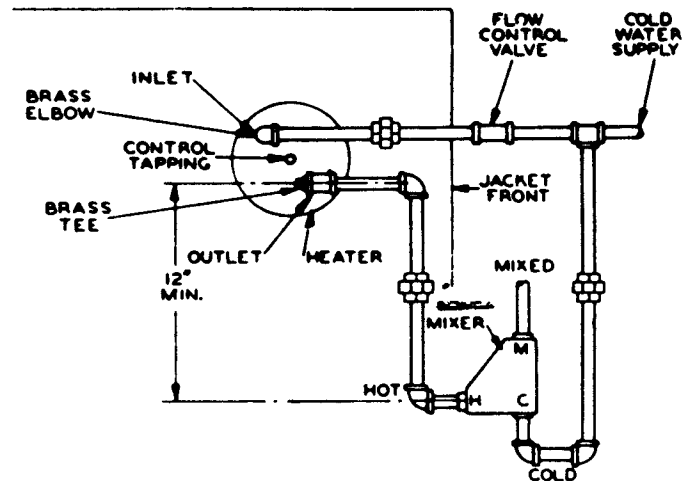
Boiler Number	Heater Number	Intermittent Draw GPM* 100°F.Av. Temp. Rise	Continuous Draw GPM** 100°F.Av. Temp. Rise	Inlet and Outlet Tappings	Temp. Control Tapping
Water					
EG & P-EG-35	E-624	3.00	1.60	1/2"	3/4"
EG & P-EG-40	E-624	3.00	2.00	1/2"	3/4"
EG & P-EG-45	E-624	3.25	2.40	1/2"	3/4"
EG & P-EG-50	E-626	4.00	2.80	1/2"	3/4"
EG & P-EG-55	E-626	4.25	3.20	1/2"	3/4"
EG-65	E-632	4.50	4.00	1/2"	3/4"
EG-75	E-632	4.50	4.80	1/2"	3/4"
Steam					
EG & P-EG-35	35-S-29	3.00	1.60	3/4"	3/4"
EG & P-EG-40	35-S-29	3.00	2.00	3/4"	3/4"
EG & P-EG-45	35-S-29	3.25	2.40	3/4"	3/4"
EG & P-EG-50	35-S-29	3.25	2.80	3/4"	3/4"
EG & P-EG-55	35-S-29	3.50	3.20	3/4"	3/4"
EG-65	35-S-29	3.75	4.00	3/4"	3/4"
EG-75	35-S-29	4.00	4.80	3/4"	3/4"
Water					
EGH-85	E632	4.50	5.00	1/2"	3/4"
EGH-95	E632	4.50	5.00	1/2"	3/4"
EGH-105	E632	4.50	5.00	1/2"	3/4"
EGH-115	E632	4.50	5.00	1/2"	3/4"
EGH-125	E632	4.50	5.00	1/2"	3/4"
Steam					
EGH-85	35-S-29	4.00	5.00	3/4"	3/4"
EGH-95	35-S-29	4.00	5.00	3/4"	3/4"
EGH-105	35-S-29	4.00	5.00	3/4"	3/4"
EGH-115	35-S-29	4.00	5.00	3/4"	3/4"
EGH-125	35-S-29	4.00	5.00	3/4"	3/4"

■Note: When two heaters are installed, multiply heater ratings by 2. EGH 85 Water—use one heater only.

Well-McLain ratings based on 60 PSIG domestic water pressure at heater.

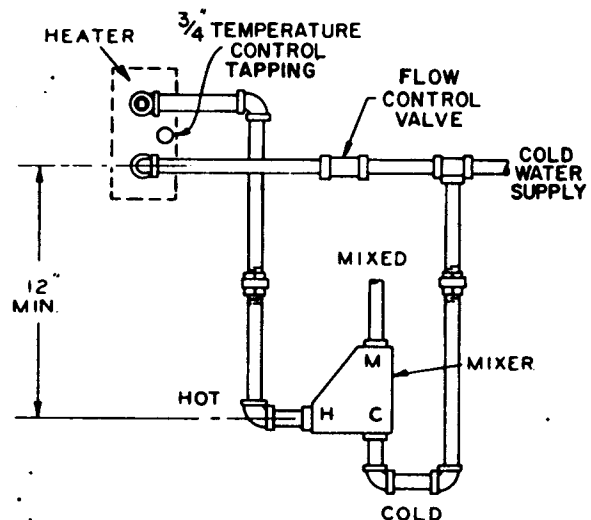
*Gallons of water per minute heated from 40° to 140° F. with 200° F. boiler water temperature.

**Continuous draw—no recovery period.



Note: Piping Connections not furnished. Use brass plugs in tees and crosses to facilitate cleaning in hard water areas.

TANKLESS HEATER PIPING (WATER BOILER)
 FIGURE 20



Note: Piping Connections not furnished. Use brass plugs in tees and crosses to facilitate cleaning in hard water areas.

TANKLESS HEATER PIPING (STEAM BOILER)
 FIGURE 21



STORAGE HEATER HOOK-UP (forced hot water boiler only)

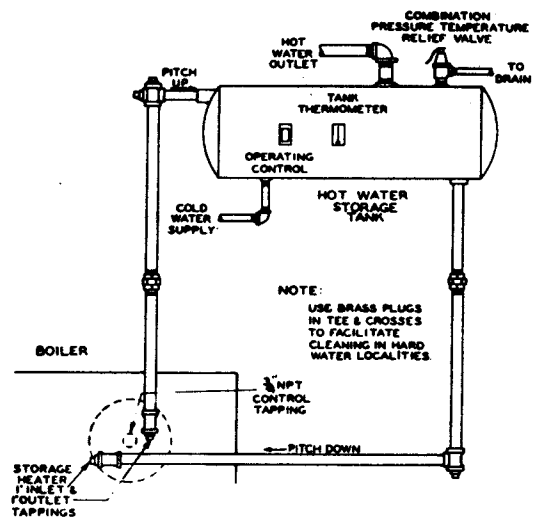
NOTICE

The 62-2-E Storage Heater cannot be used with Type EG-30, EG-35, EG-40 or EG-45 forced hot water boilers or any size Steam EG or EGH boiler.

1. Locate as high as possible above boiler.
2. Vertical type storage heater can be used if the bottom of the tank can be located above top of boiler.
3. To provide gravity circulation:
 - a) Horizontal supply from heater to tank must pitch upward 1 inch for each 10 feet of piping.
 - b) Horizontal return from tank to heater must pitch downward 1 inch for each 10 feet of piping.
4. Locate return piping above heater.
5. Use as few elbows and pipe fittings as possible.

STORAGE HEATER RATINGS (forced hot water boilers only)

Water Boiler Size	Storage Heater No.	180° Boiler Water Heater Cap. Gals. 40°-140° Rise	212° Boiler Water Heater Cap. Gals. 40°-140° Rise
EG-50 thru EG-75 and EGH-85 thru EGH-125	62-2-E	50 in 3 hours	70 in 3 hours
Recommended Storage Tank		50 Gallons	75 Gallons



SCHEMATIC STORAGE HEATER PIPING
 (forced hot water boiler only)
FIGURE 22

Section V: Gas Piping

In sizing gas piping, the following factors should be considered.

- a. Diameter and length of gas supply piping.
 - b. Number of fittings.
 - c. Maximum gas consumption (including any possible future expansion).
 - d. Allowable pressure drop from gas meter outlet to boiler is specified as three-tenths of an inch water column.
1. Size natural gas piping from table. Size piping to provide proper inlet pressure to gas valve when operating at rated input. Natural gas inlet pressure to valve should be minimum 5" W.C., maximum 14" W.C. If pressure to gas valve exceeds 14" W.C., a 100 percent lock-up gas pressure regulator of adequate size must be installed.
- To obtain approximate cubic feet per hour, divide the input (Btu per hour) by 1000.

ADDITIONAL LENGTH OF PIPE TO BE ADDED FOR EACH ELBOW OR TEE BEND IN THE LINE

Pipe Size, Inches	Additional Length, Feet
1/2"	1.3
3/4"	1.7
1"	2.2
1 1/4"	2.9
1 1/2"	3.3
2"	4.3
2 1/2"	5.1

PIPE DELIVERY SCHEDULE TABLE

*Adjusted Length of Gas Supply Piping In Feet	†Capacity of Pipe Sizes In Cubic Feet of Gas Per Hour					
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
10	132	278	520	1,050	1,600	3,050
20	92	190	350	730	1,100	2,100
30	73	152	285	590	890	1,650
40	63	130	245	500	760	1,450
50	56	115	215	440	670	1,270
75	45	93	175	360	545	1,020
100	38	79	150	305	460	870
150	31	64	120	250	380	710

* Include measured length of gas supply piping and allowance in feet for number and size of fittings.
 † Flow capacity determined from Dr. Pole's Formula; Specific Gravity—0.60; Pressure Loss—0.30" W.C.

2. For propane gas, inlet pressure to gas valve should be 10" to 13" W.C. The gas pressure regulator (furnished by the gas supplier) must be adjusted to provide lock-up pressures not exceeding 14 inches water column. Select pipe size, tanks and regulators as required.

CAUTION

If boiler is to be propane fired, make sure pressure regulator is installed on main (automatic) gas valve and that all orifices are sized for propane gas.

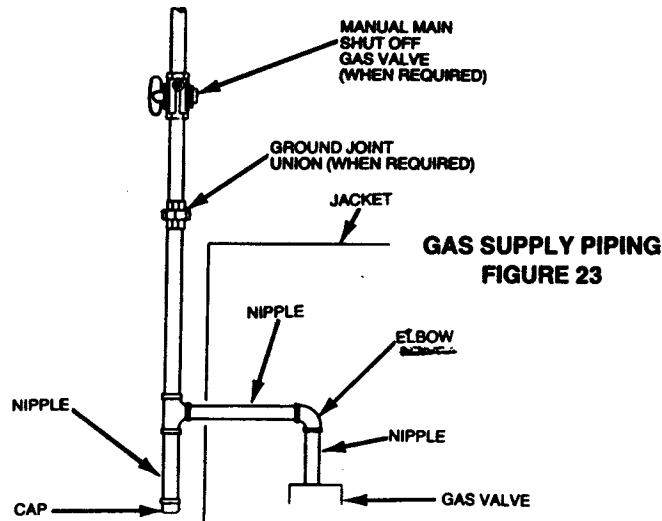


3. Gas controls are shipped pre-assembled. Remove knock-out disc from jacket panel which gas supply is to be piped.
4. Follow good piping practices.
5. Pipe joint compound (pipe dope) must be resistant to corrosive action of liquified petroleum gases. Apply sparingly only to male threads of pipe joints.
6. When piping from meter to gas valve needs to be larger than valve inlet, reduce at gas valve.
7. A drip leg must be installed at inlet of gas connection to boiler. Where local utility requires, extend drip leg to floor.
8. Install ground joint union when required for servicing. See Figure 23.
9. Install manual shut-off valve outside boiler jacket as shown in Figure 23 when required by local codes.
10. Piping must be supported by hangers, not by boiler or its accessories.
11. Carefully uncoil pilot thermal element lead and attach to connection on gas valve body. Refer to enclosed instructions from gas valve manufacturer for pilot thermal element lead connections.

12. Purge all air from supply piping.
13. Check all connections for leaks.

CAUTION

DO NOT check for gas leaks with an open flame—**BUBBLE TEST.**



Section VI: Wiring

WARNING

For your safety, turn off electrical power supply at service entrance panel before making any electrical connections to avoid possible electrical shock hazard.

All wiring must be installed in accordance with the requirements of the National Electrical Code and any additional national, state, or local code requirements having jurisdiction. All safety circuit wiring must be N.E.C. Class 1.

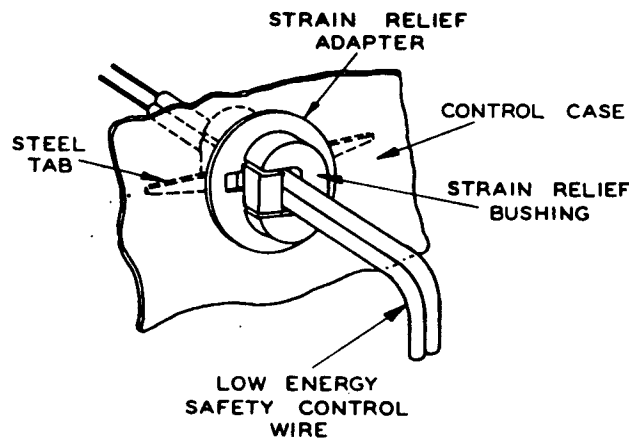
The boiler must be electrically grounded in accordance with the National Electrical Code, ANSI/NFPA No. 70-1981. Use 90°C Thermoplastic Wire, or equivalent, if any of the original wire must be replaced.

In Canada the installation must conform to Canadian Electrical Code, Part 1 C22.1, Safety Standard for Electrical Installations, and any local codes. Refer to wiring diagrams in "Supplemental Instructions—EG and P-EG Boilers for Canada." The control circuit fuse provides ground fault protection of the safety control circuit.

WARNING

Because of the many control options available, a packet of wiring diagrams is provided in the boiler trim carton. The installer must determine the correct wiring diagram to use with the controls on the individual installation. Attach wiring diagram to inside of jacket door.

A separate electrical circuit with a fused disconnect switch (15 amp. recommended) should be used for the boiler.



Strain relief bushing and adapter must be used on all low-energy safety control wire to conform with NEC Class 1 wiring.

FIGURE 24

A strain relief bushing and adapter must be used at each point where the safety circuit wiring passes through a control case (see Figure 24) to protect the safety circuit wiring insulation.

PI AND PID SYSTEMS

For boilers equipped with PI or PID systems, refer to separate instructions for application data and wiring.

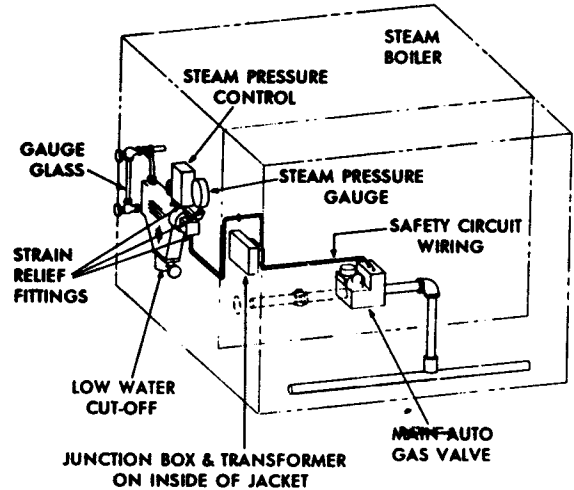


24-VOLT SYSTEMS
 (see Figures 25a, b, and c)

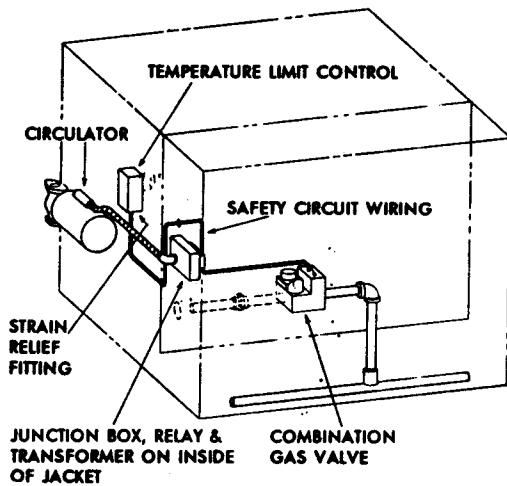
For boilers without a combination limit control and relay:

1. Attach electrical junction box to inside of jacket left end panel. No. 8-32 1/2" machine screws and nuts are provided.
2. Attach control transformer to junction box.
3. Bring supply wiring to boiler.
4. Forced hot water boilers only—a transformer with receptacle for plug-in circulator relay is furnished. Relay is not standard.

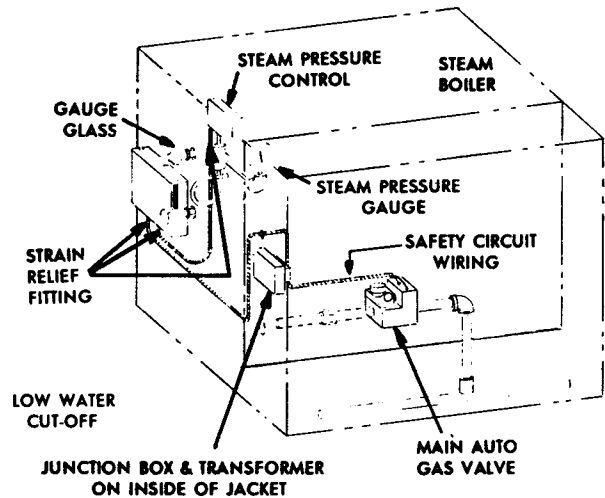
Supply wiring to the boiler must be No. 14 gauge or heavier. Install in conduit. The operating and safety circuit wiring must be No. 18 gauge or heavier. Wire per correct wiring diagram.



**24-VOLT SYSTEM
 STEAM BOILER WIRING
 FLOAT TYPE LOW WATER CUT-OFF
 FIGURE 25b**



**24-VOLT SYSTEM
 FORCED HOT WATER WIRING
 FIGURE 25a**



**24-VOLT SYSTEM STEAM BOILER WIRING
 WITH ELECTRODE TYPE LOW WATER CUT-OFF
 FIGURE 25c**



EG Millivolt Control Systems:

Use solid wire to provide the least possible resistance. Determine wire length in the safety and thermostat circuits. Refer to table for the recommended minimum wire size.

MILLIVOLT CONTROL SYSTEMS RECOMMENDED WIRE SIZES

Recommended Minimum Thermostat and Safety Wire Sizes According to Wire Lengths	
Wire Length	Wire Size
16 Feet	22 Gauge
25 Feet	20 Gauge
40 Feet	18 Gauge
64 Feet	16 Gauge
100 Feet	14 Gauge

WIRING MULTIPLE ZONES

Refer to zone valve manufacturer's literature for wiring and application. A separate transformer is required to power zone valves. Zoning with circulators requires a relay for each circuit.

INSTALL ROOM THERMOSTAT

Install room thermostat on an inside wall. Never install where it will be influenced by drafts, hot or cold water pipes, lighting fixtures, television, rays of the sun or near a fireplace.

Heat anticipator in thermostat must be set to match primary control power requirements. Refer to correct wiring diagram for recommended heat anticipator setting with installed controller. Wire thermostat as shown.

Section VII: Final Adjustments

WATER TREATMENT

Never use petroleum based stop-leak compounds. Leakage between the section will occur.

Addition of fresh make-up water will reduce boiler life. Minerals can build up in the sections, reducing heat transfer, overheating the cast iron, and causing section failure.

In hard water areas, water treatment should be used to reduce introduction of minerals into the system.

Freeze protection (when used):

Use antifreeze especially made for hydronic systems. Inhibited propylene glycol is recommended. DO NOT use undiluted or automotive type antifreeze.

50% solution provides maximum protection to about -30°F.

Local codes may require a back-flow preventer or actual disconnect from city water supply.

Determine quantity according to system water content. Boiler water content is listed on page 24.

Follow antifreeze manufacturer's instructions.

FILLING WATER BOILERS

1. Close manual air vents, drain cock, and automatic air vent, if used.
2. Fill to correct system pressure. Correct pressure will vary with each application. Residential systems are often designed for 12 pounds of cold fill pressure.
3. Open automatic air vent two turns, if used.
4. Open manual water feed valve.
5. a) Starting on the lowest floor, open air vents one at a time until water squirts out. Close vent.
b) Repeat with remaining vents.

6. Close manual water feed valve when correct boiler pressure is reached.
7. If purge valve is used—located in the return piping:
 - a) Connect hose to drain valve located above purge valve.
 - b) Close purge valve.
 - c) Open hand water feed valve and allow system to purge all air. If system has more than one circuit, purge each circuit separately by opening each balancing valve one at a time.
 - d) Close drain cock.
 - e) Open purge valve.
 - f) Fill system to correct pressure.

FILLING STEAM BOILERS

1. Do not fill (except for leakage tests) until boiler is ready to be fired.
2. Fill to normal waterline, halfway up gauge glass.
3. Boiler water pH 7.5 to 8.5 is recommended.
4. Follow skimming procedure.

SKIMMING STEAM BOILERS

CAUTION

Clean all newly installed steam boilers to remove oil and grease. Failure to properly clean can result in violent fluctuations of water level, water passing into steam mains, or high maintenance costs on strainers, traps and vents. DO NOT use petroleum based products in boiler.



1. Provide 1½" piping from skim tapping to floor drain.
2. Adjust water line to midpoint of skim tapping.
3. Fire boiler to maintain temperature below steaming rate.
4. Feed in water to maintain water level. Cycle burners to prevent rise in steam pressure.
5. Continue skimming until discharge is clear. May take several hours.
6. Drain boiler. While boiler is **WARM, BUT NOT HOT**, flush all interior surfaces under full pressure until drain water runs clear.
7. Remove skim piping. Plug tapping.
8. Close drain cock. Fill with fresh water to waterline. Start burners and steam for 15 minutes to remove dissolved gases. Stop burners.
9. Check traps and air vents for proper operation.

Inspect base insulation:

Make sure base insulation is secure against base panels.

WARNING

If base insulation material is damaged or displaced, call serviceman immediately. **DO NOT** operate boiler.

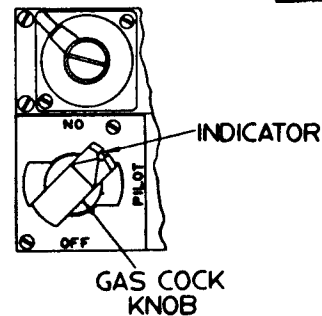
To place in operation:

CAUTION

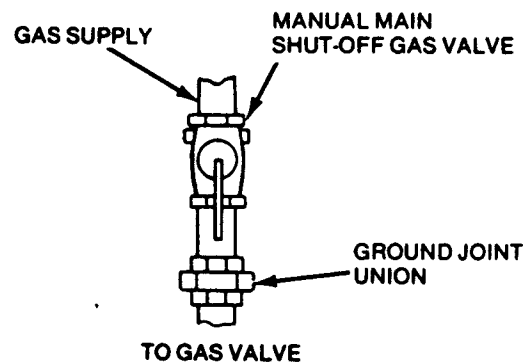
The manual gas cock knob and manual main shut-off gas valve (when used) must be closed for at least five (5) minutes before lighting.

1. Turn thermostat or operating control to OFF position or lowest position on dial. Be sure boiler has been correctly filled with water.
2. Turn OFF electric power.
3. For boilers with electronic spark ignition systems:
 - a) Open manual gas cock knob.
 - b) Open manual main gas valve, when used.
 - c) Go to Step 5.
4. For boilers with constant burning pilots:
 - a) Remove front access panel.
 - b) Open manual pilot gas valve, when used.
 - c) Open manual main gas valve, when used.
 - d) Place lighted match next to pilot burner.
 - e) Turn gas cock knob to pilot and depress. Pilot should ignite. Hold in for 60 seconds.
 - f) Release knob after 60 seconds. Pilot should continue burning.
 - g) Turn knob to ON position.

5. Move thermostat or operating control to call for heat.
6. Turn ON electric power.
7. If boiler starts, go to Step 9.
If boiler fails to start, go to Step 8.
8. If boiler fails to start, check:
 - a) Loose connection or blown fuse?
 - b) Limit setting above boiler water temperature or pressure?
 - c) Thermostat above room temperature?
 - d) Gas turned on at meter?
 - e) Gas turned on at boiler?
 - f) If above fails to eliminate the trouble, call a trained serviceman.
9. Make sure boiler goes through several normal operating cycles.
10. Turn thermostat or operating control to desired setting.



**TYPICAL GAS COCK DIAL
 FIGURE 26**



**MANUAL MAIN SHUT-OFF GAS VALVE
 FIGURE 27**



Section VIII: Check-out Procedure

CHECK-OUT PROCEDURE

Check-off steps as completed.

- 1. System properly filled with water?
- 2. Automatic air vent, if used, open one turn (water boilers only)?
- 3. Air purged from system (water boilers only)?
- 4. Steam boilers properly skimmed?
- 5. Air purged from gas piping? Piping checked for leaks?
- 6. Follow operating instruction label on boiler for proper start-up. Also refer to "To Place in Operation", page 16.

For boilers with spark ignition: The electronic control will light the pilot burner (if vent damper is installed, the damper must first be fully open). When pilot flame is proven, main gas valve will open and the main burners will ignite. **NOTE:** If pilot flame isn't proven, main gas valve will not open and boiler will not operate until properly serviced.

- 7. Proper burner flame? Refer to "Check Main Burner Flames" and "Check Pilot Burner Flame", page 19.
- 8. Test safety controls: If boiler is equipped with a low water cut-off or additional safety controls, test for operation as outlined by the manufacturer. Burners should be operating and should go off when controls are tested. When safety devices are restored, burners should reignite.
- 9. Test limit control: While burners are operating, move the indicator of the limit control below actual boiler water temperature or pressure. Burners should go off. The circulator should continue to operate (water boilers only). Raise the limit control above the boiler water temperature or pressure and the burners should reignite.
- 10. For boilers with electronic ignition systems—To test ignition system safety shut-off device: Connect a manometer to the outlet side of the gas valve. Start the boiler, allowing for normal start-up cycle to occur and main burners to ignite. With main burners on, manually shut off gas supply at manual main shut-off gas valve. Burners should go off. Immediately open manual main shut-off gas valve. The manometer should

confirm there is no gas flow until flame sensing element has sufficient time to cool. Only after this delay should the boiler cycle and main burners reignite.

- 11. Limit control set to design temperature or pressure requirements of system? Maximum limit setting—240°F. (water boilers)—15# (steam boilers).
- 12. For multiple zones, flow adjusted so it is about the same in each zone (water boilers only)?
- 13. Thermostat heat anticipator set properly? Refer to "Room Thermostat", page 15, and correct wiring diagram.
- 14. Boiler cycled with the thermostat? Raise to highest setting. Boiler should go through normal start-up cycle. Lower to lowest setting. Boiler should go off.
- 15. Measure gas input (natural gas only):
 - a. Operate boiler 10 minutes.
 - b. Turn off all other appliances.
 - c. At the natural gas meter, measure the time (in seconds) required to use one cubic foot of gas.
 - d. Calculate gas input:

$$\frac{3600 \times 1000}{\text{number seconds from step C}} = \text{Btuh}$$
 - e. Btuh calculated should approximate input rating on rating plate.
- 16. Check manifold gas pressure by connecting a manometer to the downstream test tapping on main gas valve.

	NAT.	L.P.
MANIFOLD GAS PRESSURE	3.5" W.C.	11.0" W.C.
- 17. Several operating cycles observed for proper operation?
- 18. Room thermostat set to desired temperature?
- 19. Installation and Service Certificate on this page completed?
- 20. All instructions shipped with this boiler reviewed with owner or maintenance person, returned to envelope and given to owner or displayed near boiler?

Installation and Service Certificate

BOILER MODEL _____ SERIES _____ CP NUMBER _____ DATE INSTALLED _____

BTU INPUT _____

- Installation instructions have been followed.
- Check-out sequence has been performed.
- Above information is certified to be correct.
- Information received and left with owner/maintenance person.

Installer _____
 (Company) _____ (Address) _____ (Phone) _____ (Installer's Signature) _____

Section IX: Maintenance

Also Refer to Additional Instructions Shipped With The Boiler For Specific Control Operation and Troubleshooting.

NOTICE

Your boiler should be inspected, cleaned and, if necessary, adjusted once a year. A qualified service agency should be called.

WARNING

TO AVOID PERSONAL INJURY, BEFORE SERVICING:

1. Disconnect electrical supply.
2. Shut-off gas supply.
3. Allow boiler to cool.

WARNING

To avoid personal injury, death or property damage, keep boiler area clear and free from combustible materials, gasoline and other flammable vapors and liquids.

Do not block flow of air to boiler. Incomplete combustion and flue gas spillage can occur.

Do not store sources of hydrocarbons (i.e., bleaches, cleaners, chemicals, sprays, paint removers, fabric softeners, etc.) in boiler area. This can contribute to shortened boiler/vent system life.

Suggested Minimum Maintenance Schedule

Beginning of each heating season:

1. Annual service call by a qualified service agency.
2. Check burners and flueways and clean if necessary. Reference "Clean Boiler Heating Surfaces" and "Cleaning Main Burners", page 19.
3. Follow procedure "To Place in Operation", page 16.
4. Visually inspect pilot and burner flames. Reference "Check Main Burner Flames" and "Check Pilot Burner Flame", page 19.
5. Visually inspect venting system for proper function, deterioration or leakage. Reference "Inspect Venting System", page 19.
6. Visually inspect base insulation. Reference "Inspect Base Insulation," page 16.
7. Check operation of low-water cut-off, if used, and additional safety devices. Refer to manufacturer's instructions.
8. Check that boiler area is free from combustible materials, gasoline and other flammable vapors and liquids.
9. Check for and remove any obstruction to flow of combustion or ventilation air.
10. Follow instructions on circulator to oil, if oil lubricated. Overoiling will damage the circulator. Water lubricated circulators do not need oiling.

Daily during heating season:

1. Check that boiler area is free from combustible materials, gasoline and other flammable vapors and liquids.
2. Check for and remove any obstruction to flow of combustion or ventilation air.

Periodically during heating season:

1. Check safety relief valve. Reference manufacturer's instructions on relief valve tag.
2. Test low water cut-off, if used. Blowdown if low water cut-off is float type. Reference manufacturer's instructions.

Monthly during heating season:

1. Check for leaks in boiler and piping. If found, repair at once.

CAUTION

Continuous use of make-up water can damage boiler sections due to addition of minerals. DO NOT use petroleum based stop-leak compounds—leakage between the sections will occur.

2. Check any gaskets for leakage. Tighten or replace, if needed. Do not overtighten bolts—damage to the gasket can occur.
3. Visually inspect pilot and burner flames. Reference "Check Main Burner Flames" and "Check Pilot Burner Flame," page 19.
4. Visually inspect venting system for proper function, deterioration or leakage. Reference "Inspect Venting System", page 19.
5. Check automatic air vent for leakage. If leaking, remove vent cap and push valve core in to wash off sediment that may have accumulated on the valve seat. Release valve, replace cap and open one turn.

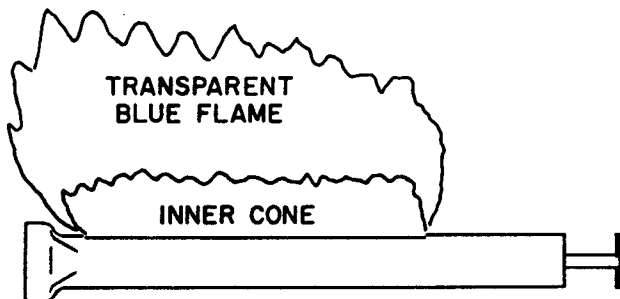
End of each heating season:

1. Follow "Annual Shutdown Procedures", page 19.

Detailed Maintenance Instructions

Check main burner flames:

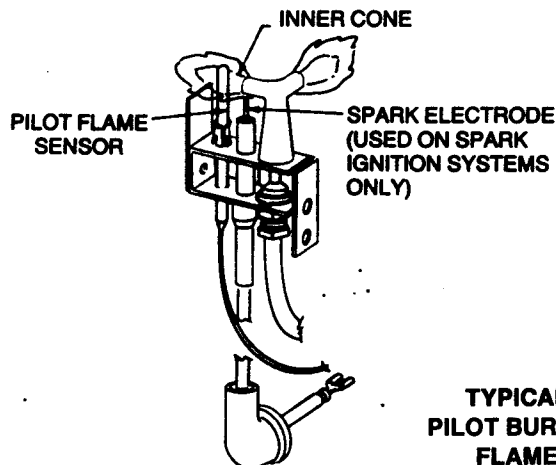
1. Check main burner flames at least once a month during heating season.
2. Proper burner flame
 - a) Upper cone transparent blue.
 - b) Yellow-orange streaks may appear—caused by dust.
 - c) Inner cone— $\frac{1}{2}$ to $\frac{5}{8}$ inches high.
3. Improper flame.
 - a) Overfired—Flames large.
 - b) Underfired—Flames small.
 - c) Lack of primary air—Yellow tipping on flames; sooting will occur.
4. If improper burner flames are suspected, contact a trained serviceman or local gas utility.



TYPICAL MAIN BURNER FLAME
FIGURE 28

Check pilot burner flames:

1. Proper pilot flame
 - a) Blue flame.
 - b) Inner cone engulfing pilot flame sensor
 - c) Pilot flame sensor glows cherry red.
2. Improper pilot flame
 - a) Overfired—flames large and lifting or blowing past pilot flame sensor.
 - b) Underfired—flame small; pilot flame sensor not engulfed by inner cone.
 - c) Lack of primary air—flame tip yellow.
 - d) Pilot flame sensor not heated properly.
3. If improper pilot flames are suspected, contact a trained serviceman or local gas utility.



TYPICAL
PILOT BURNER
FLAME
FIGURE 29

Inspect venting system:

1. Check venting system at least once a month during heating season. With boiler firing, hold a candle or match below lower edge of draft hood "skirt". If the flame does not blow out, but burns undisturbed, the vent system is functioning properly. If flame blows out or flickers drastically, vent system must be checked for obstructions or other causes of improper venting.
2. Inspect all parts of venting systems for deterioration from corrosion, physical damage, sagging, etc. Correct all conditions found.

Clean boiler heating surfaces:

1. Follow shut-down procedure.
2. Remove upper rear jacket panel. Turn back jacket insulation to expose collector hood.
3. Remove collector hood. Clean excess boiler cement from collector hood and cast iron sections.
4. Remove burners from base of boiler. Follow "Cleaning main burners," page 19, to thoroughly clean burners. Place newspaper in base of boiler to collect soot that will fall.
5. With a wire flue brush, clean between the sections.
6. Remove paper and soot. Vacuum or brush base and surrounding area.
7. Replace collector hood. Seal with boiler cement.
8. Replace insulation and jacket panel.
9. Replace main burners.

NOTE: Excessive sooting indicates improper combustion of the gas. Call a qualified service agency or your local gas utility to check for proper combustion and make any necessary adjustments.

Cleaning main burners

1. Vacuum or brush burners to remove dust and lint.

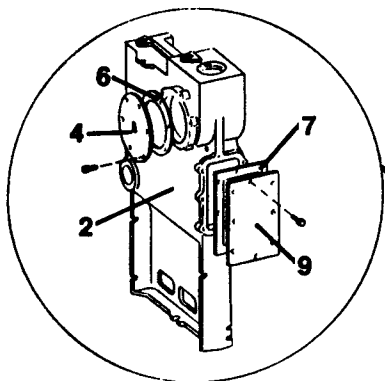
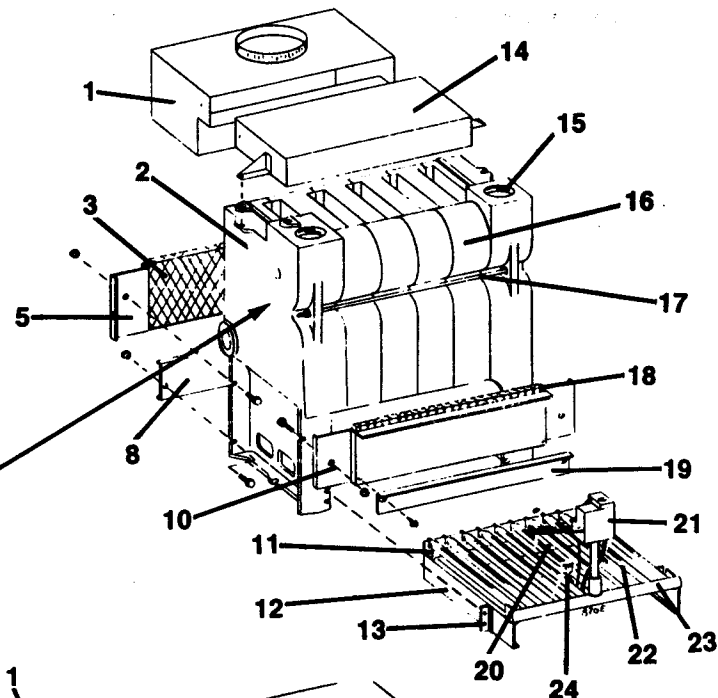
When replacing, burner tubes must be seated in slots in the back with openings facing up.

Annual shut-down procedure:

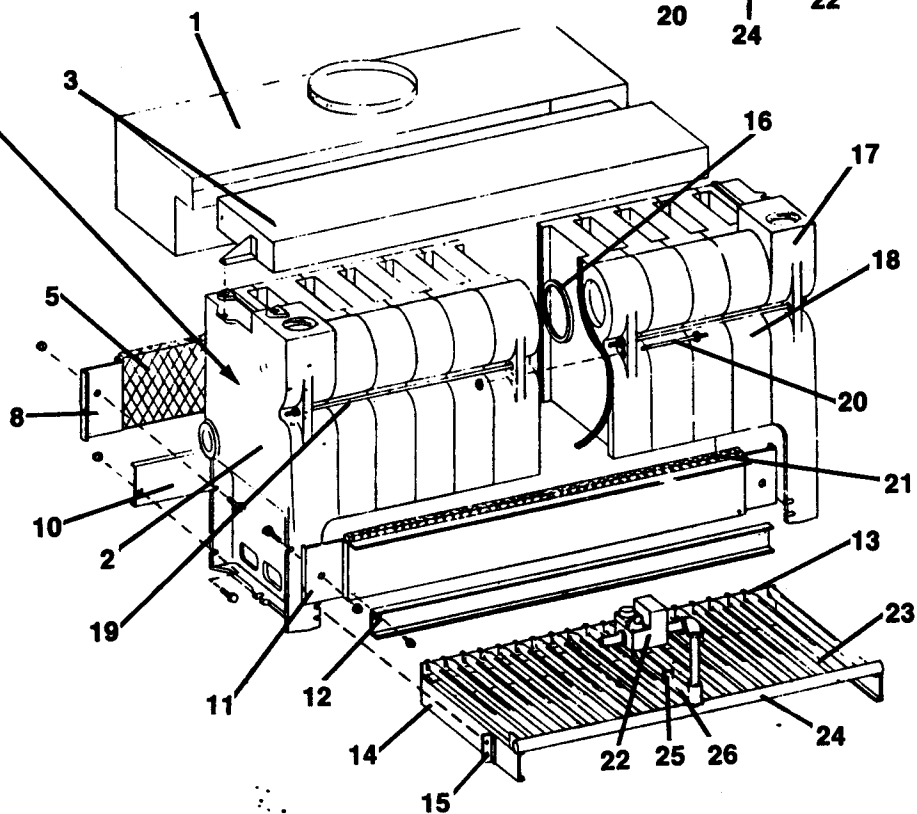
1. Close manual main shut-off valve (when used) and gas cock on gas valve. Close pilot valve, when used.
2. Disconnect electric power supply.
3. Move thermostat indicator to low setting.
4. DO NOT drain system unless exposure to freezing temperatures will occur. If antifreeze is used with system, do not drain.
5. Open boiler drain cock to remove impurities that may have settled in the boiler (about a quart is all that is necessary to drain out). Refill to correct pressure.
6. If complete boiler and piping system must be drained to avoid freezing, a means must be provided for draining water from BOTH ends of the boiler at or below the level of the return tapping.

Section X: Replacement Parts

**EG and P-EG
SERIES 1**



**EGH
SERIES 2**



Weil-McLain will attempt to stock major boiler replacement parts for at least 20 years. Items manufactured by others will normally have an equivalent part available for at least the same time period. Do not order replacement parts directly from Weil-McLain. Your serviceman must provide our distributor with the type of fuel, boiler size, type and series for proper parts replacement.

Some items such as nuts, bolts, tubing, washers and most controls are likely to be available through your local hardware store, serviceman or heating supply outlet.



EG REPLACEMENT PARTS LIST

Ref. No.	Description	Part Number
1.	Draft Hood—30	450-021-219
	—35	450-021-214
	—40	450-021-220
	—45	450-021-215
	—50	450-021-221
	—55	450-021-216
	—65	450-021-217
	—75	450-021-218
2.	Left End Section w/o Tkls. Opening (1813)	311-800-007
	Left End Section w/Tkls. Opening (1814)	311-800-014
3.	Back Base Panel Insulation—30/35	591-222-058
	—40/45	591-222-059
	—50/55	591-222-060
	—65	591-222-061
	—75	591-222-062
4.	EG(W) Round Heater Cover Plate	592-243-216
	EG(W) Round Tankless Heater—E624	590-921-670
	—E626	590-921-675
	—E632	590-921-658
	EG(W) Round Storage Heater 62-E-2	590-921-665
5.	Back Base Panel—30/35	450-800-010
	—40/45	450-800-011
	—50/55	450-800-012
	—65	450-800-013
	—75	450-800-014
6.	EG(W) Round Heater Cover Plate Gasket	590-317-995
7.	EG(S) Rectangular Htr. Cover Plt. Gasket	590-317-579
8.	Back Base Channel—30/35	451-800-020
	—40/45	451-800-021
	—50/55	451-800-022
	—65	451-800-023
	—75	451-800-024
9.	EG(S) Rectangular Heater Cov. Plt. EG(S) Tankless Heater—35-S-29	450-030-934 590-921-666
10.	Front Base Panel—30/35	451-800-000
	—40/45	451-800-001
	—50/55	451-800-002
	—65	451-800-003
	—75	451-800-004
11.	Back Burner Support—30	451-800-085
	—35	451-800-086
	—40	451-800-087
	—45	451-800-088
	—50	451-800-089
	—55	451-800-090
	—65	451-800-092
	—75	451-800-094

Ref. No.	Description	Part Number
12.	Burner Pan Side Rail	451-800-060
13.	Bracket for Burner Pan Side Rail	451-800-065
14.	Collector Hood—30/35	450-014-733
	—40/45	450-014-734
	—50/55	450-014-735
	—65	450-014-736
	—75	450-014-737
15.	Right End Section (1818)	311-800-018
16.	Intermediate Section (1815)	311-800-010
17.	Tie Rod (1/2" x 14)—30/35	560-234-470■
	(1/2" x 18 1/2)—40/45	560-234-475■
	(1/2" x 22 3/4)—50/55	560-234-480■
	(1/2" x 27)—60	560-234-485■
	(1/2" x 31 1/4)—75	560-234-490■
18.	Front Base Panel Insulation—30/35	591-222-048
	40/45	591-222-049
	50/55	591-222-050
	65	591-222-051
	75	591-222-052
19.	Access Panel—30/35	451-800-040
	40/45	451-800-041
	50/55	451-800-042
	65	451-800-043
	75	451-800-044
20.	Burner w/Pilot Bracket	512-200-019
21.	Gas Valve	▶
22.	Main Burner	512-200-029
23.	Burner Manifold—30	591-125-533
	—35	591-125-538
	—40	591-125-534
	—45	591-125-539
	—50	591-125-535
	—55	591-125-540
	—65	591-125-541
	—75	591-125-542
24.	Pilot Burner Assembly	▶
	Square Cut Seal—6"	591-800-007
	Square Cut Seal—3"	592-800-010
	Main Burner Orifice—Natural Gas	
	—No. 41 Drill	560-528-987
	Main Burner Orifice—Propane Gas	
	—No. 54 Drill	560-528-988

■ purchase at local supply house.
 ▶ see Supplement for control information.



EGH REPLACEMENT PARTS LIST

Ref. No.	Description	Part Number
1.	Horizontal Draft Hood—85	450-206-240
	—95	450-206-241
	—105	450-206-242
	—115	450-206-243
	—125	450-206-244
2.	Left End Section w/o Tkls. Opening (1813)	311-800-007
	Left End Section w/Tkls. Opening (1814)	311-800-014
3.	Horizontal Collector Hood—85	450-014-750
	—95	450-014-751
	—105	450-014-752
	—115	450-014-753
	—125	450-014-754
4.	EGH(W) Round Heater Cover Plate	592-243-216
	EGH(W) Tankless Heater E-626	590-921-675
	E-632	590-921-658
	EGH(W) Storage heater 62-E-2	590-921-665
5.	Back Base Panel Insulation—85	591-222-063
	—95	591-222-064
	—105	591-222-065
	—115	591-222-066
	—125	591-222-067
6.	EGH(W) Round Heater Cover Plate Gasket	590-317-495
7.	EG(S) Rectangular Heater Cov. Plt. Gasket	590-317-579
8.	Back Base Panel—85	451-800-025
	—95	451-800-016
	—105	451-800-017
	—115	451-800-018
	—125	451-800-019
9.	EGH(S) Rectangular Htr. Cov. Plt. EGH(S) Tankless Heater	450-030-934 590-921-666
10.	Back Base Channel—85	451-800-025
	—95	451-800-026
	—105	451-800-027
	—115	451-800-028
	—125	451-800-029
11.	Front Base Panel—85	450-800-005
	—95	450-800-006
	—105	450-800-007
	—115	450-800-008
	—125	450-800-009

Ref. No.	Description	Part Number
12.	Access Panel—85	451-800-045
	—95	451-800-046
	—105	451-800-047
	—115	451-800-048
	—125	451-800-049
13.	Burner Back Support—85	451-800-095
	—95	451-800-096
	—105	451-800-097
	—115	451-800-098
	—125	451-800-099
14.	Side Rail for Burner Pan	451-800-060
15.	Holder Bracket for Burner Pan	451-800-065
16.	Elastomer Seal—6"	591-800-007
	Elastomer Seal—3"	592-800-010
17.	Right End Section w/o Tkls. Opening (1818)	311-800-032
	Right End Section w/Tkls Opening (1819)	311-800-022
18.	Intermediate Section (1815)	311-800-010
	Intermediate Section w/Tie Rod Lugs (1817)	311-800-026
19.	Draw Rod (1/2" x 17)—85,95	560-234-472■
	(1/2" x 21 1/4)—95,105,115	560-234-477■
	(1/2" x 25 1/4)—115,125	560-234-482■
20.	Tie Rod (For 1817 Section Only) (1/2" x 7")	560-234-465■
21.	Front Base Panel Insulation—85	591-222-053
	—95	591-222-054
	—105	591-222-055
	—115	591-222-056
	—125	591-222-057
22.	Combination Gas Valve	▶
23.	Main Burner	512-200-029
24.	Burner Manifold—85	591-125-543
	—95	591-125-544
	—105	591-125-545
	—115	591-125-546
	—125	591-125-547
25.	Pilot Burner Assembly	▶
	Main Burner Orifice	
	—Natural Gas—No. 41 Drill	560-528-987
	—Propane Gas—No. 54 Drill	560-528-988
26.	Burner with Pilot Mtg. Bracket	512-200-019

■ purchase at local supply house.

▶ see Supplement for control information.

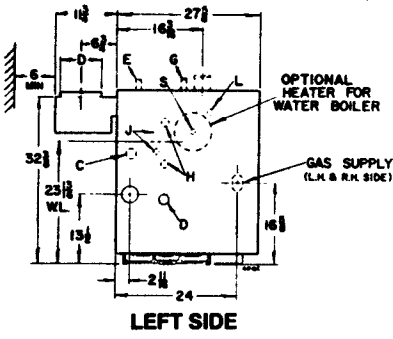


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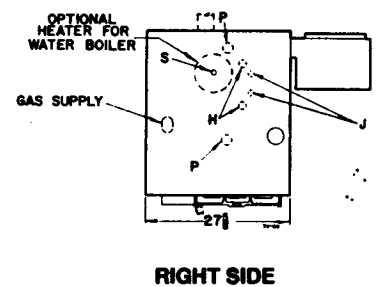
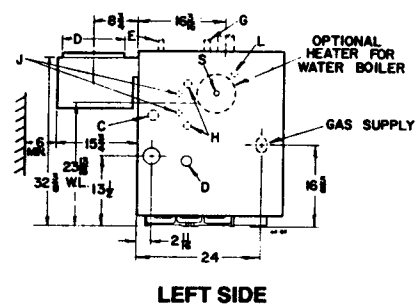
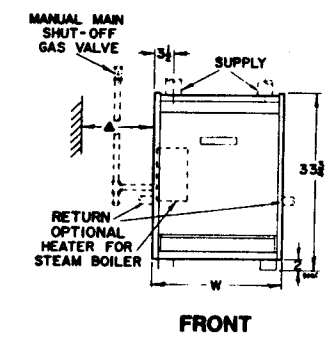
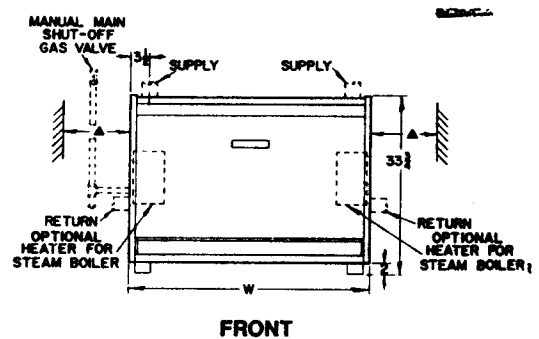
Boiler Number	Supply		Return		Dimensions		Gas Connection Size—Natural & Propane*	Draft Hood Outlet Size	Dimensions of P-EG Crate Outside Measurements in Inches			Approx. Shipping Weight (Lbs.)
	EG/EGH	P-EG	EG/EGH	P-EG in Circulator	D	W			Length	Width	Height	
EG & P-EG-30 & 35	2-3"	2-3"	2-2 1/2"	1"	5"	17"	1/2"	5"	35"	30"	39"	430
EG & P-EG-40 & 45	2-3"	2-3"	2-2 1/2"	1"	6"	21 1/4"	1/2"	6"	35"	30"	39"	505
EG & P-EG-50 & 55	2-3"	2-3"	2-2 1/2"	1 1/4"	7"	25 1/2"	1/2"	7"	35"	30"	39"	585
EG-65	2-3"	—	2-2 1/2"	—	8"	29 3/4"	3/4"	8"	—	—	—	660
EG-75	2-3"	—	2-2 1/2"	—	8"	34"	3/4"	8"	—	—	—	735
EGH-85	2-3"	—	2-2 1/2"	—	9"	38 1/4"	3/4"	9"	—	—	—	825
EGH-95	2-3"	—	2-2 1/2"	—	10"	42 1/2"	3/4"	10"	—	—	—	915
EGH-105	2-3"	—	2-2 1/2"	—	10"	46 3/4"	1"	10"	—	—	—	1005
EGH-115	2-3"	—	2-2 1/2"	—	12"	51"	1"	12"	—	—	—	1095
EGH-125	2-3"	—	2-2 1/2"	—	12"	55 1/4"	1"	12"	—	—	—	1185

*Sizes shown are gas connection sizes. Gas piping from meter to boiler to be sized according to local utility requirements.

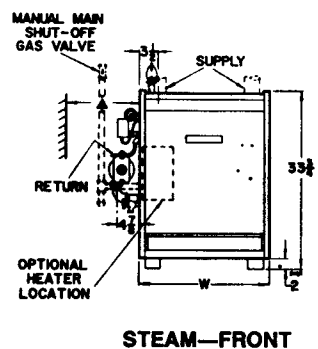
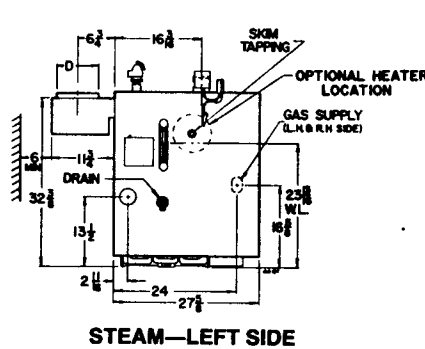
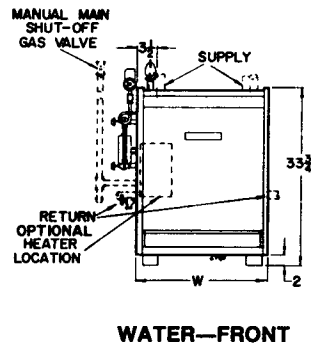
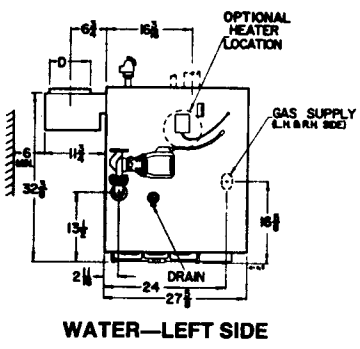
DIMENSIONS—EG



DIMENSIONS—EGH



DIMENSIONS—P-EG





Design
 Certified by
 American Gas
 Association

DOE



Net ratings approved by
 Hydronics Institute



Built to
 A.S.M.E.
 Specifications

Ratings

Boiler Number	A.G.A. Input MBH**	D.O.E. Gross Output MBH**	Net I-B-R Ratings***			Net Sq. Ft. Water†	Chimney Size‡	Boiler Water Content (gallons)	
			Sq. Ft. Steam	Steam MBH**	Water MBH**			Water Blr.	Steam Blr. (to waterline)
+EG-30-*	75	63	195	47.3	54.8		5" x 20'	12.3	8.4
+EG-35-*	100	81	255	60.8	70.4	470	5" x 20'	12.3	8.4
+EG-40-*	125	102	320	76.5	88.7	590	6" x 20'	14.8	9.8
+EG-45-*	150	122	380	91.5	106.1	705	6" x 20'	14.8	9.8
+EG-50-*	175	142	445	106.5	123.5	825	7" x 20'	17.3	11.2
+EG-55-*	200	163	510	122.3	141.7	945	7" x 20'	17.3	11.2
EG-65-*	250	203	635	152.3	176.5	1,175	8" x 20'	19.8	12.6
EG-75-*	300	240■	750	180.0	208.7	1,390	8" x 20'	22.3	14.0
EGH-85-*	350	280■	875	210.1	243.5	1,620	9" x 20'	24.8	15.4
EGH-95-*	400	320■	1000	240.1	278.3	1,855	10" x 20'	27.3	16.8
EGH-105-*	450	360■	1125	270.1	313.0	2,085	10" x 20'	29.8	18.2
EGH-115-*	500	400■	1250	300.1	347.8	2,320	12" x 20'	32.3	19.6
EGH-125-*	550	440■	1375	330.1	382.6	2,550	12" x 20'	34.8	21.0

- + Add "P" for package boiler completely assembled and wired with jacket and controls (P-EG-35 through P-EG-55 only).
- * Add to Boiler number "W" for water, "S" for steam, without tankless heater. Add "WHS" for water boiler with storage heater. Add "WT" for water, or "ST" for steam, with tankless heater for EG boilers. For EGH boilers, add "-1WT" for water boiler with one tankless heater; "-2WT" for water boiler with two tankless heaters. Add "-1ST" for steam boiler with one tankless heater, "-2ST" for steam boiler with two tankless heaters.
- ** MBH refers to thousands of BTU/Hr.
- *** Net I-B-R ratings are based on net installed radiation of sufficient quantity for the requirements of the building and nothing need be added for normal piping and pick-up. Water ratings are based on a piping and pick-up allowance of 1.15; steam ratings on an allowance of 1.333. An additional allowance should be made for unusual piping and pick-up loads. Consult Application Engineering Department.
- † Based on average water temperature of 170°F in heat distributing units.
- ‡ In special cases where surrounding conditions permit, chimney height may be reduced to 10 feet.
- NOTE: EGH Water boilers tested for 50 P.S.I. working pressure; also available upon special request for 80 P.S.I. working pressure.
- A.G.A. Gross Output—BTU/Hr.

Standard Equipment

Factory-Assembled Section Block Insulated Extended Jacket Horizontal to Vertical Draft Hood Aluminized Steel Burners Non-Linting Pilot Burner Heater Cover Plates (for boilers with tankless heater openings when tankless heater is ordered) Safety Control Wire Electrical Junction Box Highest Efficiency Models, PID Intermittent Electronic Ignition System and Automatic Vent Damper High Efficiency Models, PI Intermittent Electronic Ignition System Standard Efficiency Models Constant Burning, Thermally Supervised Pilot System

EG BOILERS ADD:
 Combination Gas Control Valve (includes main gas valve with redundant seat, PI, PID models, and 24V models; pressure regulator, gas cock, pilot filter, pilot adjustment) Thermocouple (standard efficiency models)

EGH BOILERS ADD:
 Combination Gas Control Valve (includes main gas valve with redundant seat, PI and PID models; main gas valve with single seat, 24V models; pressure regulator,

gas cock, pilot filter, pilot adjustment) 100% Shutoff Thermocouple (EGH-85 and 95 only) 40 VA Transformer

FOR EG WATER BOILERS
 Built-In Air Eliminator 30 P.S.I. ASME Safety Relief Valve Combination Pressure-Temperature Gauge High-Limit Control 40 VA Transformer with Receptacle for Circulator Relay

FOR EGH WATER BOILERS
 Built-In Air Eliminator 30 P.S.I. ASME Safety Relief Valve Combination Pressure-Temperature Gauge High-Limit Control for PID and PI Models Dual-Limit Control for Standard Efficiency Models

FOR EG STEAM BOILERS
 ASME Safety Valve Steam Pressure Gauge High-Limit Pressure Control for PI, PID, and 24V Models Syphon Gauge Cocks Gauge Glass Low-Water Cutoff—Electrode Type for PI, PID, and 24V Models 40 VA Transformer

FOR EGH STEAM BOILERS
 ASME Safety Valve Steam Pressure Gauge High-Limit Pressure Control (two limit controls on EGH-85 and 95)

Syphon Gauge Cocks Gauge Glass Low-Water Cutoff—Probe Type

EG OPTIONAL EQUIPMENT
 Tankless Water Heater—EG-35-75

With tankless heater: Combination High Limit, Low Limit, Circulator Control, and Relay with 40 VA Transformer Tankless Steam Heater—EG35-75

With Tankless Heater: Operating Control Tankless Heater 35-S-29 for All Units Storage Heater Circulator Relay Self-Generating Control System with 100% Shutoff Furnished with Dual Limit

Controls (in place of redundant gas valve) and Float Type Low-Water Cutoff (in place of probe type) Thermostat

EGH OPTIONAL EQUIPMENT
 Tankless Heaters—for water or steam EGH85-125 With Tankless Heater(s): Operating Control Storage Heater Thermostat Intermittent Electronic Ignition System for EGH-85 and 95) Intermittent Electronic Ignition System and Automatic Vent Damper Flame Rectification System with RA890—Not Mounted

In the interest of continual improvement in products and performance, Weil-McLain reserves the right to change specifications without notice.



WEIL-McLAIN®

Michigan City, Indiana 46360 ■ A Marley Company



In Canada: Marley Fluid Systems, 128 East Dr., Brampton, Ontario L6T 1C2