



GSW WATER HEATING
 599 Hill Street West
 Fergus, ON, Canada N1M 2X1



OIL FIRED WATER HEATER

INSTALLATION AND OPERATING INSTRUCTIONS

Read and understand these instructions thoroughly before attempting any installation or service.

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PLEASE RETAIN THESE INSTRUCTIONS IN A SAFE LOCATION FOR FUTURE REFERENCE



JWF307 - JW317 - JW327
JWF507 - JW517 - JW527
JWF307V - JW717 - JW727
JWF657

INSTALLATION RECORD

This water heater is protected by a five (5) year warranty against leaks plus a one (1) year warranty on parts.

Record key data here for future reference and prompt service:

Installed By / Purchased From:	
Installation Date:	Location of Electrical Switch or Circuit Protector:
Model Number	Serial Number
Technical Support Line: 1-888-479-8324	

PART NO. 61512 REV. F (05-03)

⚠ WARNING:

Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified Oil-Burner Technician or the oil 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.
- Installation and service must be performed by a qualified Oil-Burner Technician or the oil supplier.

⚠ WARNING:

If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

Your safety and the safety of others is very important.

We have provided many important safety messages in this manual and on your appliance. Always read and obey all safety messages.



This is the safety alert symbol.

This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages will follow the safety alert symbol and either the word “DANGER” or “WARNING”.



DANGER You can be killed or seriously injured if you don't immediately follow instructions.



WARNING You can be killed or seriously injured if you don't follow instructions.

All safety messages will tell you what the potential hazard is, tell you how to reduce the chance of injury, and tell you what can happen if the instructions are not followed.

I) INTRODUCTION

Thank you for purchasing this water heater. Properly installed and maintained, it will provide years of trouble free service. This manual gives instructions for the proper installation, safe operation and maintenance of this water heater. It is your responsibility to ensure that your water heater is properly installed and cared for.

John Wood Oil Fired Water Heaters are designed to supply domestic hot water for normal residential demands. Any deviation from this could affect your warranty.

Important Consumer Notice

The warranty on this water heater is in effect only when the water heater is installed and operated in accordance with these instructions. The manufacturer of this water heater will not assume any liability for any property damage or personal injury resulting from failure to comply with these instructions.

Protect your warranty: Regularly service your water heater as directed in the “Maintenance” section of this manual.

Installation Code Requirements

In addition to the installation instructions found in this manual, the water heater must be installed in accordance with all local and provincial or state codes or, in the absence of local and provincial or state codes, with the latest editions of:

“Installation Code for Oil-Burning Equipment (CSA B139-04)” and

“Canadian Electrical Code Part 1 (C22.1)” (in Canada) available from:

Canadian Standards Association,
5060 Spectrum Way,
Mississauga, Ontario, Canada
L4W 5N6

or

“Standard for the Installation of Oil-Burning Equipment (NFPA 31)” and

“National Electrical Code (NFPA 70)” (in USA) available from:

American National Standards Institute,
25 West 43rd Street,
New York, NY 10036

Important: Installation and service of an oil fired water heater and burner must be performed by a qualified Oil-Burner Technician to comply with local and provincial or state codes applicable to this type of equipment. All supply equipment, installation, approvals, permits, inspections, etc. are the responsibility of the owner of this water heater. Consult your local authorities for regulations specific to your area.

IMPORTANT:

This water heater must be installed strictly in accordance with the instructions enclosed, and local electrical, fuel and building codes. It is possible that connections to the water heater, or the water heater itself, may develop leaks. IT IS THEREFORE IMPERATIVE that the water heater be installed so that any leakage of the tank or related water piping is directed to an adequate drain in such a manner that it cannot damage the building, furniture, floor covering, adjacent areas, lower floors of the structure or other property subject to water damage. This is particularly important if the water heater is installed in a multi-story building, on finished flooring or carpeted surfaces. GSW WILL NOT ASSUME ANY LIABILITY for damage caused by water leaking from the water heater, pressure relief valve, or related fittings. Select a location as centralized within the piping system as possible. In any location selected, it is recommended that a suitable drain pan be installed under the water heater. This pan must limit the water level to a MAXIMUM depth of 45mm (1 3/4 in.) and have a diameter that is a minimum of 50mm (2 in.) greater than the diameter of the water heater. Suitable piping shall connect the drain pan to a properly operating floor drain. When used with a fuel-fired heater, this drain pan must not restrict combustion air flow.

II) SAFETY

Relief Valve Requirements

For protection against excessive pressure and/or temperatures, an ASME approved Temperature and Pressure (T&P) Relief Valve must be installed in the opening provided and labeled near the hot water outlet. Pressure rating of the valve must not exceed the working pressure shown on the rating plate of the water heater. The discharge capacity of the T&P valve must be equal to or greater than the input capacity of the water heater. The valve shall be self closing.

CAUTION

POSSIBLE CANCER HAZARD BY INHALATION. CAN CAUSE RESPIRATORY, SKIN AND EYE IRRITATION.

This product contains fiberglass wool and ceramic fiber materials. Airborne fibers from these materials have been listed by the State of California as a possible cause of cancer through inhalation. Use special care when handling ceramic fiber (chamber lining and base insulation) materials. Ceramic fibers can be converted to chrysotilites, a substance listed as a probable cause of cancer. Suppliers of fiberglass wool products recommend the following measures be taken when handling these materials:

Precautionary measures:

- Avoid breathing fiberglass dust.
- Avoid contact with skin and eyes.
- Use a National Institute for Occupational Safety and Health (NIOSH) approved dust/mist respirator.
- Wear long-sleeved, loose fitting clothing, gloves and eye protection.
- Wash work clothes separately from other clothing. Rinse washer thoroughly.

Removing the burner may generate airborne fiber concentration requiring additional protection.

First aid measures:

- Eye contact - Flush eyes with sterile water to remove foreign objects. If irritation or other symptoms persist, seek medical attention.
- Skin contact - Wash affected areas gently with soap and warm water after handling.

Fuel Specifications

All JOHN WOOD brand water heaters are designed to burn only fuels not heavier than No.2 (furnace) oil.

WARNING

- Do not use gasoline, crank case oil or an oil containing gasoline.
- Do not tamper with unit or controls.
- Do not leave paper or rags around the burner or heater.
- Do not experiment with the burner.

III) INSTALLATION

Location

NOTICE: Before installing this water heater, consideration and planning must be given to the following details:

- Routing and support of the vent piping.
- How and where to obtain combustion and ventilation air supply; See "Air Requirements".
- Access to oil supply, See "Oil Supply Connections".
- Position of water supply, floor drain and placement of water piping for hot and cold water; See "Water Supply Connections".
- Connection to the electrical service. See "Electrical Supply Connections".

The water heater must be installed on a non-combustible floor, as close to the chimney as practical and close to the water piping. The unit should be installed in an area not subject to freezing temperatures. It should be located so that all controls and drains are easily accessible (at least 610mm (24 in.) clearance in front of the water heater). Check the area around the installation location. Remove any combustible materials, gasoline and other flammable liquids. Failure to keep area clear and free of such materials and vapors can result in substantial property damage, severe bodily injury or death.

The heaters for which this manual has been written have been approved with the minimum clearances to combustibles as listed in Figure 1.

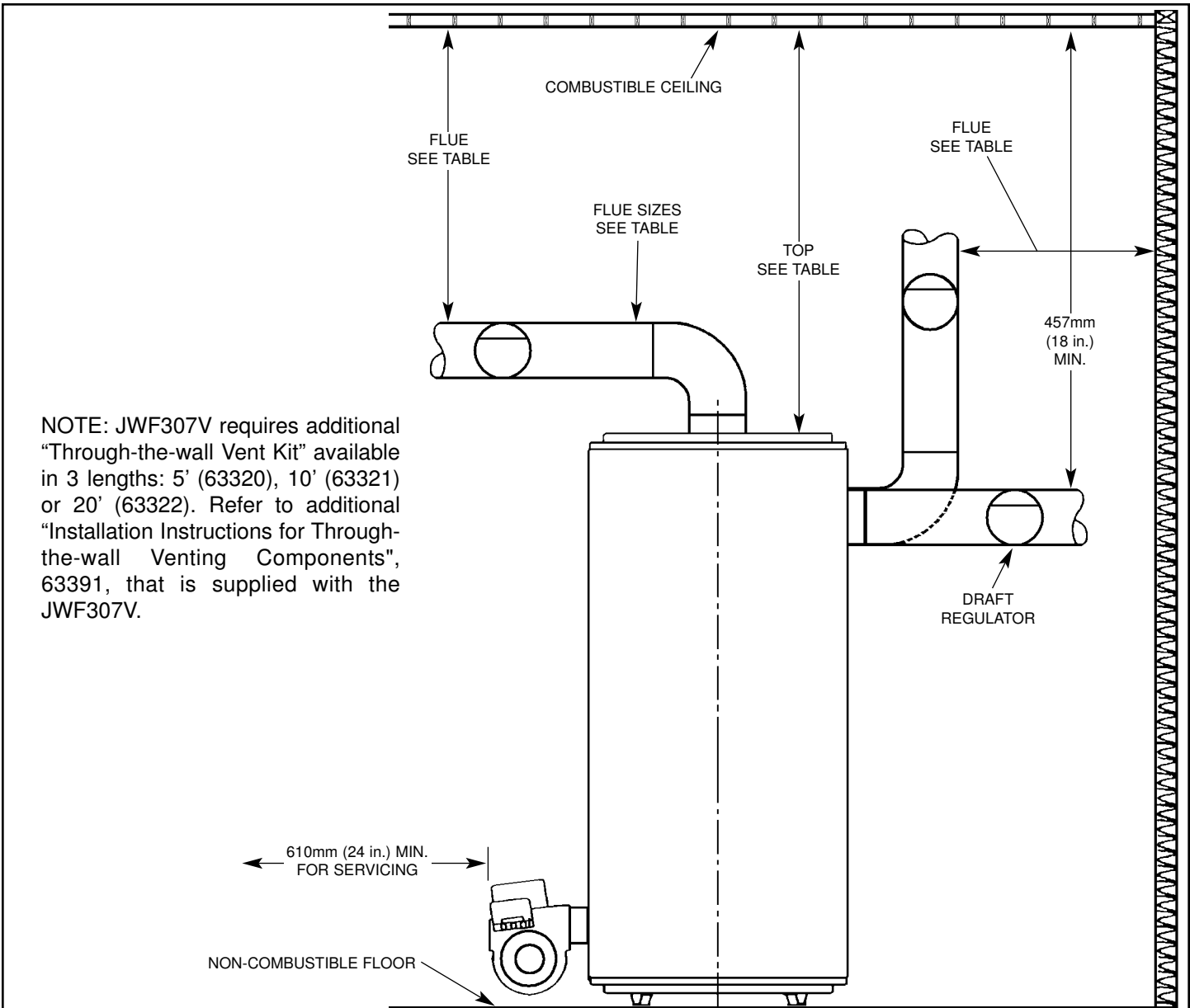
Unpacking and Inspection

WARNING

Excessive Weight Hazard
Use two or more people to move and install water heater. Failure to do so can result in back or other injury.

Move the water heater to the location of installation before removing the exterior packaging. Remove exterior packaging and place installation components aside. Inspect all parts for damage prior to installation and start-up. Completely read and understand all instructions before attempting to assemble and install this product. If you observe damage to the water heater or any of its components, DO NOT ASSEMBLE OR INSTALL IT OR MAKE ANY ATTEMPT TO FIX THE DAMAGED PART(S). Contact the place of purchase for further instructions.

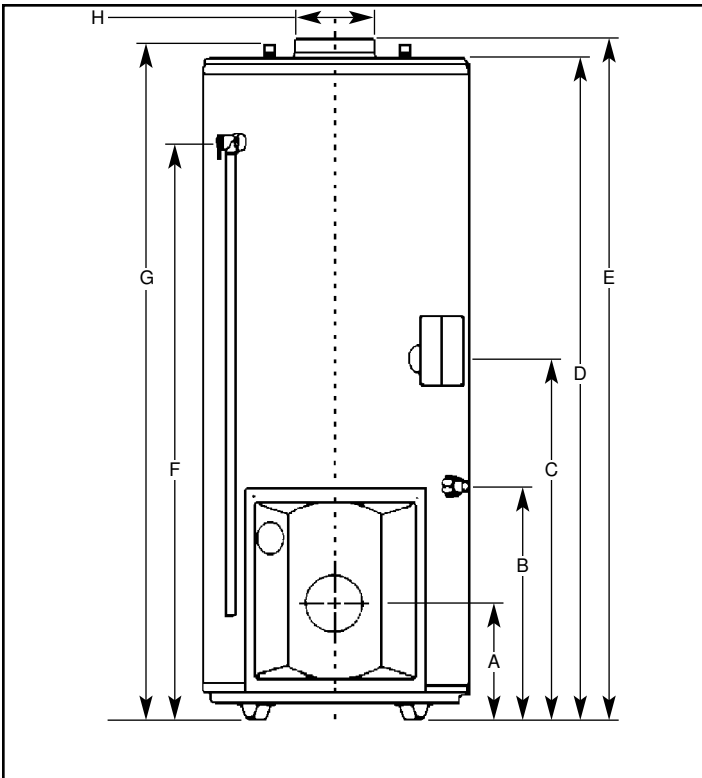
Important: Do not remove any permanent instructions, labels, or the date label from the outside of the water heater or on the inside of panels. After installation, dispose of packaging material in the proper manner.



NOTE: JWF307V requires additional "Through-the-wall Vent Kit" available in 3 lengths: 5' (63320), 10' (63321) or 20' (63322). Refer to additional "Installation Instructions for Through-the-wall Venting Components", 63391, that is supplied with the JWF307V.

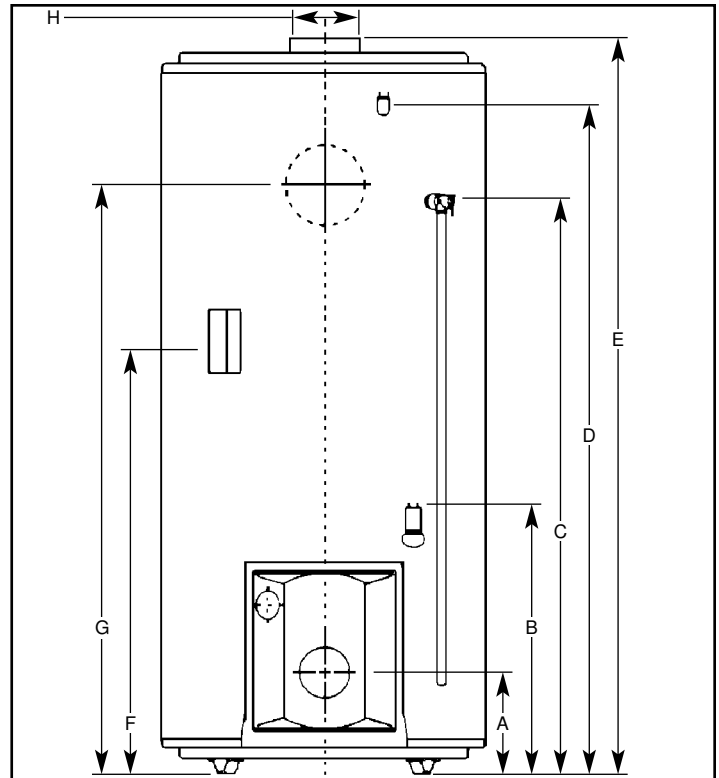
Model	Diam.		Flue location		Flue size		Clearance									
			Center	Rear			Front		Rear		Sides		Top		Flue	
	mm	in.			mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
JWF307	508	20	X		152	6	610	24	51	2	51	2	457	18	229	9
JWF507	559	22	X		152	6	610	24	51	2	51	2	457	18	229	9
JWF657	660	26	X		152	6	610	24	51	2	51	2	406	16	152	6
JWF307V	508	20	X		152	6	610	24	51	2	51	2	457	18	152	6
JW317	610	24		X	152	6	610	24	152	6	152	6	356	14	457	18
JW327	610	24	X	X	152	6	610	24	152	6	152	6	356	14	457	18
JW517	711	28		X	178	7	610	24	152	6	152	6	356	14	457	18
JW527	711	28	X	X	178	7	610	24	152	6	152	6	356	14	457	18
JW717	813	32		X	178	7	610	24	152	6	152	6	356	14	457	18
JW727	813	32	X	X	178	7	610	24	152	6	152	6	356	14	457	18

Figure 1 ROUGH-IN DIMENSIONS



Model		JWF307	JWF507	JWF657	JWF307V
Diam.	mm	508	559	660	508
	in.	20	22	26	20
A	mm	229	229	254	229
	in.	9	9	10	9
B	mm	457	457	524	457
	in.	18	18	20 5/8	18
C	mm	699	660	775	699
	in.	27 1/2	26	30 1/2	27 1/2
D	mm	1286	1486	1661	1286
	in.	50 5/8	58 1/2	65 3/8	50 5/8
E	mm	1326	1534	1692	1326
	in.	52 3/16	60 3/8	66 5/8	52 3/16
F	mm	1122	1308	1511	1122
	in.	44 3/16	51 1/2	59 1/2	44 3/16
G	mm	1314	1499	1753	1314
	in.	51 3/4	59	69	51 3/4
H	mm	150	150	150	150
	in.	6	6	6	6

**Figure 2 INSTALLATION DIMENSIONS
(CENTER FLUE MODELS)**



Model		JW317/JW327	JW517/JW527	JW717/JW727
Diam.	mm	610	711	813
	in.	24	28	32
A	mm	229	222	229
	in.	9	8 3/4	9
B	mm	508	508	495
	in.	20	20	19 1/2
C	mm	1264	1299	1359
	in.	49 3/4	51 1/8	53 1/2
D	mm	1492	1499	1565
	in.	58 3/4	59	61 5/8
E	mm	1575	1386	1486
	in.	62	54 9/16	58 1/2
F	mm	593	584	826
	in.	23 1/3	23	32 1/2
G	mm	1241	1372	1486
	in.	48 7/8	54	58 1/2
H	mm	150	178	178
	in.	6	7	7

**Figure 3 INSTALLATION DIMENSIONS
(CENTER/REAR FLUE MODELS)**

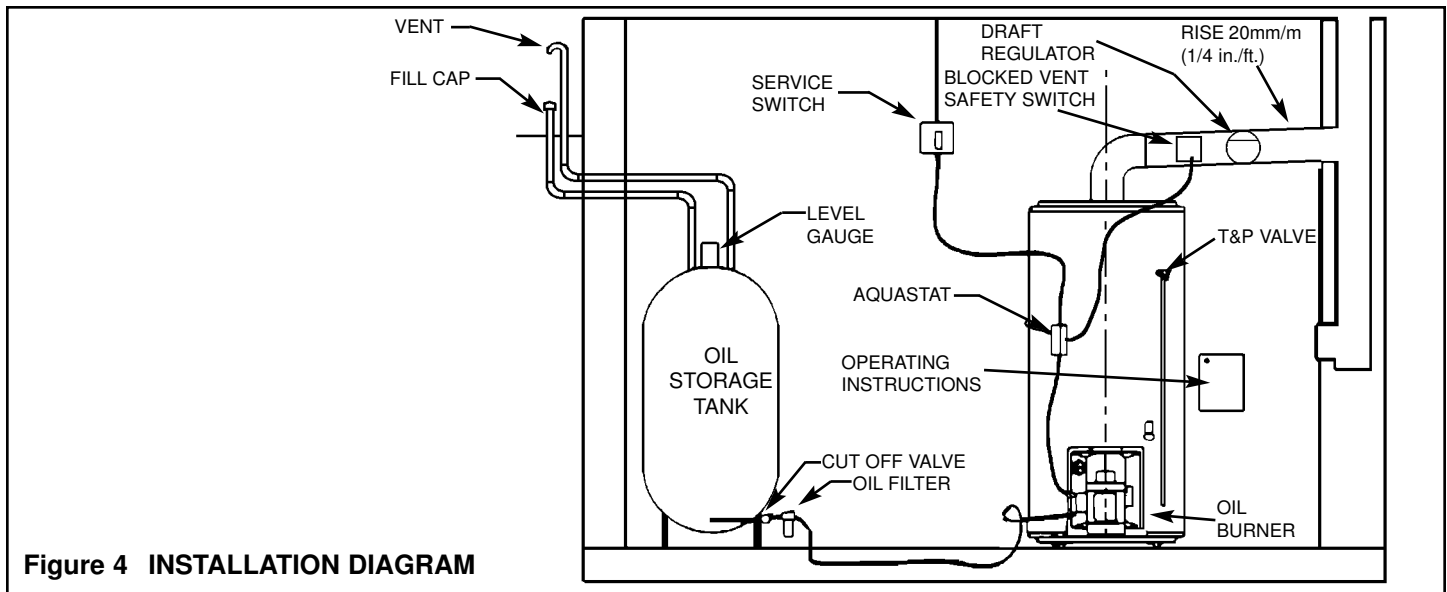


Figure 4 INSTALLATION DIAGRAM

Air Requirements

An adequate supply of combustion and ventilation air is required to:

- Ensure proper combustion.
- Reduce risk of property damage, severe bodily injury or death from possible flue gas leakage and carbon monoxide emissions.

Do not install an exhaust fan in the same room as the water heater.

Satisfactory combustion cannot be sustained in an area that is not provided with fresh air. Fresh air contains oxygen that is necessary for proper combustion. If the water heater is installed in a confined space, sufficient fresh air must be drawn in from outside of the enclosure.

NOTE: Lack of adequate fresh air supply may cause a poor flame.

Air Supply

CAUTION

IF AN ALL-HOUSE VENTILATION FAN IS USED, A SEPARATE OUTSIDE AIR DUCT MUST BE USED AND DUCTED TO THE FURNACE ROOM AND/OR ROOM WHERE THE WATER HEATER IS LOCATED.

In Canada:

If the water heater is installed in a house built to the requirements of the “**National Building Code of Canada, 1985**”, or a subsequent edition, the space shall be provided with a air inlets as outlined below, or have a mechanical air-supply system of sufficient equivalent capacity. If a mechanical air-supply system is used, it shall be interlocked to the appliance or equipment.

NOTE: In unconfined spaces in buildings of conventional frame, brick, or stone construction built prior to the requirements of the “**National Building Code of Canada, 1985**”, and not subsequently significantly air-tightened, infiltration is normally adequate to provide air for combustion and some ventilation; however, there may be notable exceptions. Houses built in accordance with the “**National Building Code of Canada, 1985**” (or subsequent edition), with exten-

sive exterior stucco coating, or with a sealed vapour barrier or other similar air sealing technique, will often be sufficiently airtight so that there is **not** sufficient air for both combustion and venting the products of combustion of an oil-fired appliance, or for replacing the air vented by other exhaust devices within the house.

Outdoor Combustion & Ventilation Air (Unconfined space)

If the water heater is installed in an unconfined space in a building having insufficient infiltration, additional air for combustion and ventilation shall be obtained from outdoors or from spaces freely communicating with the outdoors. Under these conditions, permanent opening(s) shall be provided so that the total air received through these openings will be at least as much as would be admitted by openings having a total free area of 4.5 cm²/kWh (1 in²/5000 Btu/h) of the total input rating of all oil-fired appliances.

Outdoor Combustion & Ventilation Air (Confined space)

A heater installed in a confined space that obtains all of its air for combustion and ventilation from outside the building shall be provided with two permanent openings, one near the top of the enclosure and another near the bottom. Each opening shall communicate directly or by means of ducts with the outdoors or to such spaces (such as a crawl space) that freely communicate with the outdoors, and shall be sized in accordance with “Air Duct Sizing”.

Outdoor Combustion Air & Indoor Ventilation Air (Confined space)

An appliance located in a confined space that obtains its combustion air from outdoors and ventilation air from within the conditioned space of the building shall be provided with two permanent openings for ventilation. One located near the top of the enclosure and another near the bottom. Each opening shall have a free area of not less than 19.5 cm²/kWh (1 in²/1000 Btu/h) of the total input rating of all

appliances in the enclosure, freely communicating with interior areas that have in turn adequate infiltration from the outside. It shall also have a combustion air supply opening so that the total air received through the opening will be at least as much as would be admitted by openings having a total free area of 4.5 cm²/kWh (1 in²/5000 Btu/h) of the total input rating of all oil-fired appliances in the enclosure.

Indoor Combustion & Ventilation Air (Confined space)

A heater installed in a confined space and that obtains all of its air for combustion and ventilation from within the conditioned space of the building shall be provided with two permanent openings, one near the top of the enclosure and another near the bottom. Each opening shall have a free area of not less than 19.5 cm²/kWh (1 in²/1000 Btu/h) of the total input rating of all appliances in the enclosure, freely communicating with interior areas that have in turn adequate infiltration from the outside.

Air Duct Sizing

The air duct requirements shall be met by one of the following methods:

1. vertical duct(s) with a free area of not less than 5.5 cm²/kWh (1 in²/4000 Btu/h) of the total input rating of all appliances in the enclosure;
2. horizontal duct(s), with an equivalent length of less than 15 m (50 ft), having a free area of not less than 11 cm²/kWh (1 in²/2000 Btu/h) of the total input of all appliances in the enclosure; and
3. air openings that communicate directly with the outdoors, having a free area of not less than 5.5 cm²/kWh (1 in²/4000 Btu/h) of the total input rating of all appliances in the enclosure.

NOTE: Duct runs that are primarily horizontal and that have an equivalent length greater than 15 m (50 ft) should be sized accordingly larger to provide the same air flow as would be provided by the requirements of method (3) above.

In USA:

Refer to “**Standard for the Installation of Oil-Burning Equipment (NFPA 31)**”

Vent and Exhaust Connections General chimney requirements

For a burner designed for natural draft connect the vent to a vertical chimney. Insufficient draft can cause flue gas leakage and carbon monoxide emissions, which can lead to severe bodily injury or death. Use vent material approved by local codes for oil-fired burners. In the absence of such codes, refer to:

- “**Installation Code for Oil-Burning Equipment (CSA B139-04)**” (Canadian installations).
- “**Standard for the Installation of Oil-Burning Equipment (NFPA 31)**” (USA).
- “**Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances (NFPA 211)**” (USA).

NFPA 211 requires the chimney to be lined before connect-

ing the oil-fired water heater. Inspect existing chimney before installing the water heater. Failure to do any of the following can result in serious property damage, severe bodily injury or death:

- Clean the chimney, including removal of blockage.
- Repair or replace damaged pipe or liner.
- Repair mortar and joints.

To prevent downdrafts, extend the chimney at least 1 m (3 ft.) above highest point where it passes through roof and 610mm (24 in.) higher than any portion of building within 3m (10 ft.). Increase chimney cross-sectional area and height at least 4% per 305m (1,000 ft.) above sea level.

Flue Pipe

NOTE: Type “L” vent material is generally considered to be **not** suitable for this application. Flue temperatures may exceed 300°C (572°F). Use flue piping approved for this installation.

Long horizontal flue pipes, excessive number of tees and elbows or other obstructions restrict flue gas flow, and can result in the possibility of condensation, flue gas leakage and carbon monoxide emissions. These conditions can lead to serious property damage, severe bodily injury or death. The flue pipe should be the same size as the breech connection on the appliance. The sizes generally are 150mm (6 in.) for burners rated less than 1.00 GPH and 178mm (7 in.) for burners rated for 1.00 to 1.50 GPH. The flue pipe should be as short as possible and installed so that it has a continuous rise of 20mm/m (1/4 in./ft.) of horizontal length from the breech connection on the appliance to the chimney. Elbows should be minimized and the sections of pipe and fittings should be joined with sheet metal screws and straps. Routing should be made in such a way as to avoid sharp turns or unduly long runs. It is recommended that the heater be piped to its own individual flue. Where there is only one flue for both furnace and water heater, various methods are practiced in which the water heater flue enters the chimney above the main smoke pipe. Also, a “Y” fitting is frequently used in combining both the heater and furnace flues, prior to entering the chimney connection (see Figure 4, check with local authorities having jurisdiction). Obtain a gas-tight seal to prevent possible flue gas leakage and carbon monoxide emissions, which can lead to severe bodily injury or death.

Draft Regulator

This device is used on conventional chimney venting only. It automatically maintains a constant negative pressure in the chimney to obtain maximum efficiency. If the chimney does not develop sufficient draft, the draft control cannot function properly. The heater must be equipped with an approved draft regulator of adequate size. Make sure that the draft regulator diameter is at least as large as the flue pipe diameter. Follow manufacturers recommended instructions for installation. It must be installed in the flue pipe before it enters the chimney and after the Blocked Vent Safety Switch, if one is used. Set the draft regulator at -0.03 in. (-0.762mm) of water column, as measured in the flue (between the heater and the draft regulator). Recommended over-fire draft is -0.02 in. (-0.5078mm) of water column.

Chimney

Be sure that the chimney is sufficiently high and large enough to meet the specifications of the burner unit installed. Check that there is sufficient draft for the proper burning of oil. At least -0.015 in. (-0.381mm) water column of over-fire draft is recommended.

Blocked Vent Safety Switch

Oil-fired water heaters installed in Canada must be fitted with the blocked vent safety switch supplied with your heater. The installation procedure is given below. For further details and information refer to the instruction sheet supplied with the switch. (Not required for JWF307V.)

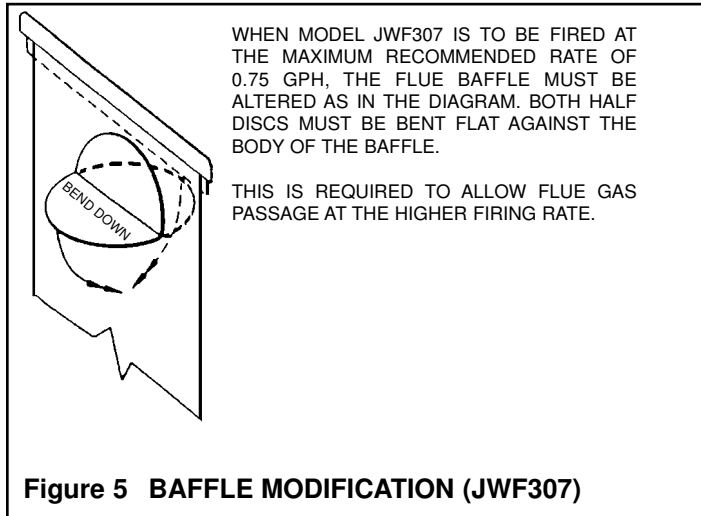
Installation

1. Pierce a 16mm (5/8 in.) dia. hole into the flue pipe 305mm to 457mm (12 to 18 in.) from the breech connection of the water heater. Remove one of the securing nuts from the pipe of the safety switch. Tighten the other securing nut onto the pipe as far as possible.
2. Insert the threaded pipe end into the pierced hole, then install the securing nut, which was removed in step 1, and tighten securely.

CAUTION: Turn "OFF" the electrical supply to the water heater when wiring safety switch.

3. Wire the safety switch in series with L1 of the electrical supply (see Figures 9, 10 & 11). Install and route wiring in an accordance with "**Canadian Electrical Code Part 1 (C22.1)**" and any applicable local codes.

CAUTION: If for any reason the system has shut down during operation, the cause of the system failure should be investigated and corrected before resetting the safety switch and re-starting the system.



Power Venting

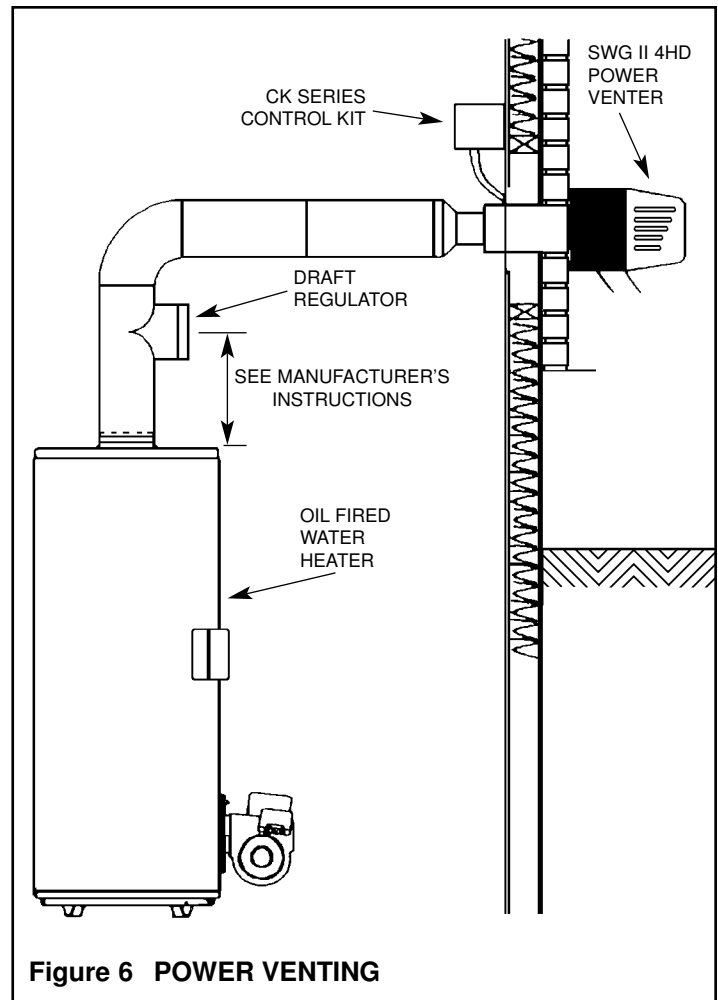
Models JWF307, JWF507 and JWF657 may be power vented with a Field SWGII 4HD Power Venter. The following control kits may be used with the SWGII 4HD:

CK 61 Electronic Post Purge.

CK 62 Thermally Activated Post Purge.

Installation of Power Venter

The "**Installation Code for Oil-Burning Equipment (CSA B139-04)**" or "**Standard for the Installation of Oil-**



Burning Equipment (NFPA 31)", local codes and the manufacturer's instructions should be adhered to in all installations of the water heaters and power venters. A draft regulator must be used in conjunction with the installation of the power venter (see "Draft Regulator"). Consult the applicable codes to calculate total equivalent vent pipe length, the straight runs of pipe and the equivalent length of pipe for each fitting.

Burner Installation

General

The installation of these units shall be in accordance with the "**Installation Code for Oil-Burning Equipment (CSA B139-04)**" or "**Standard for the Installation of Oil-**

WARNING

This installation must be performed by a qualified Oil-Burner Technician in accordance with these instructions and diagrams. The installation and maintenance of the water heater must follow all of the instructions in preceding sections of this manual. Improper installation can cause injury or property damage. Heater failure that is a result of the heating system is not covered by warranty.

Burning Equipment (NFPA 31)” (as applicable), local codes and the manufacturer’s instructions. The burner should be installed only by a qualified Oil-Burner Technician.

Oil Supply Connections

All aspects of oil tank location and installation, tank size, oil piping supply and burners, including any fittings, valves, filters or any fuel handling components must comply with:

- “**Installation Code for Oil Burning Equipment (CAN/CSA-B139)**”, (Canada).
- “**Standard for the Installation of Oil-Burning Equipment. (NFPA 31)**”, (USA).
- Local codes and regulations.
- Information provided with burner and fuel pump.

Install the oil supply tank with fill and vent lines of adequate capacity as shown in Figure 4. When an appliance using a float valve between the supply tank and the burner is connected to a supply tank over 9 Canadian gallons capacity, a valve operated by a fusible link, shall be installed in the fuel line adjacent to, and upstream from, the float valve. If any part of fuel oil tank is above level of burner, an anti-siphon device must be used to prevent flow of oil in case of oil line break. Support the oil lines as required by applicable codes. Make tank connections with swing joints or copper tubing to prevent breaking in case the tank settles. Make the swing joints so they will tighten as tank settles. Non-hardening pipe joint compounds should be used on all threads. Do not use Teflon[®] tape as an oil pipe sealant. It can cause valves to fail creating hazards. Do not use compression fittings. Underground pipe must be run in a casing to prevent oil leaking into ground or under floor. Check local codes for more information.

Water Supply Connections

Pipes and fittings should be installed in as shown in the installation drawing (Figures 7 & 8). Install a shut-off valve in the cold water supply line in close proximity to the cold inlet of the water heater. This valve is for use only when servicing the heater and must be kept open during the heater’s operation. The water connection fittings (nipples) may contain a non-metallic lining to minimize corrosion and some models include non-metallic heat traps. These appear like pink or blue coloured plugs in the fitting. Do not attempt to pry these plugs loose or damage them. **DO NOT APPLY HEAT DIRECTLY TO THE WATER HEATER NIPPLES.** If copper piping is used, solder a piece of tubing to a threaded adaptor before screwing the adaptor to the nipples. Use only solder approved for use with potable water systems. Use a good grade of pipe joint compound, certified for use with potable water, on the threaded fittings. Be sure all fittings are drawn up tight.

NOTE: Rear and Combination flue heaters are equipped with a combination cold water inlet/drain valve.

Temperature and Pressure (T&P) Relief Valve

To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment as required by local codes. It should be no less than a combination Temperature and Pressure (T&P) Relief Valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements of the latest edition of **ANSI Z21.22: Requirements for Relief Valves and Automatic Gas Shut-off Devices for Hot Water Supply Systems.** This valve must be marked with a maximum set pressure not to exceed the marked **MAXIMUM** working pressure of the water heater (150 psi (1034 kPa)). The function of the temperature and pressure relief valve is to discharge water in quantities, should circumstances demand. To prevent property damage, bodily injury or hazard to life the relief valve must be allowed to discharge water in the event of excessive temperature or pressure developing in the water heater. If the discharge tube is not directed to a drain as shown in Figures 7 & 8 or by other suitable means, the resulting water flow may cause substantial property damage. Install the T&P valve into the opening provided and marked for this purpose in the water heater, and orient it or provide tubing so that any discharge from the cannot contact any live electrical part. Do not connect discharge directly to a drain.

the discharge line:

- **must not** be smaller than the outlet pipe size of the relief valve,
- opening **must not** be threaded, blocked, plugged, capped, reduced in size or restricted in any manner under any circumstances,
- **must be** made of material capable of withstanding 100°C (212°F) without distortion,
- **must be** installed so as to allow complete drainage of both the temperature and pressure relief valve and discharge line,
- **must** terminate near a floor drain or other suitable location not subject to blocking or freezing, and
- **must** exit only within 150mm (6 in.) above, or at any distance below the structural floor.

NOTE: Rear and Combination flue units must be fitted with a T&P Relief Valve WATTS type 40XL-5 or equivalent.

Failure to install and maintain a new, properly listed temperature and pressure relief valve will release the manufacturer from any claims which may result from excessive temperature or water pressure.

Closed Water Systems

During the heating cycle of the water heater the water expands creating a pressure build-up in the water system. The water supply meter may contain a check valve or back flow preventer. This will create a closed water system. A Temperature and Pressure (T&P) Relief Valve (150 psi (1034 kPa) maximum pressure setting, must be installed in the system (see “Temperature and Pressure (T&P) Relief Valve” section). To prevent the T&P valve from discharging hot water, the loss of energy and reduce the possible build-

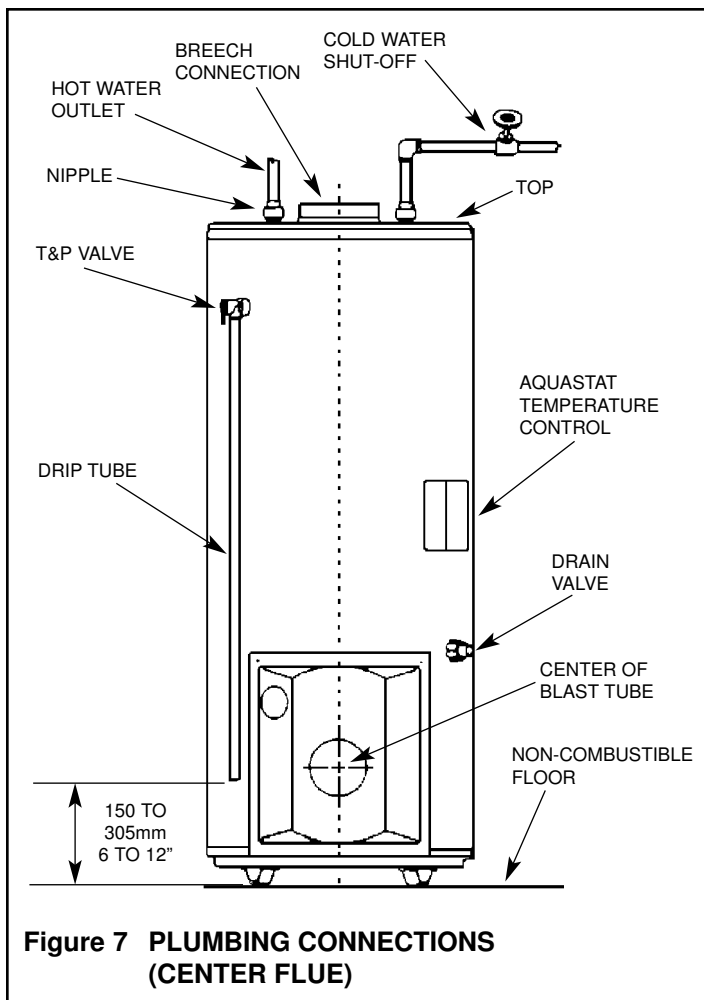


Figure 7 PLUMBING CONNECTIONS (CENTER FLUE)

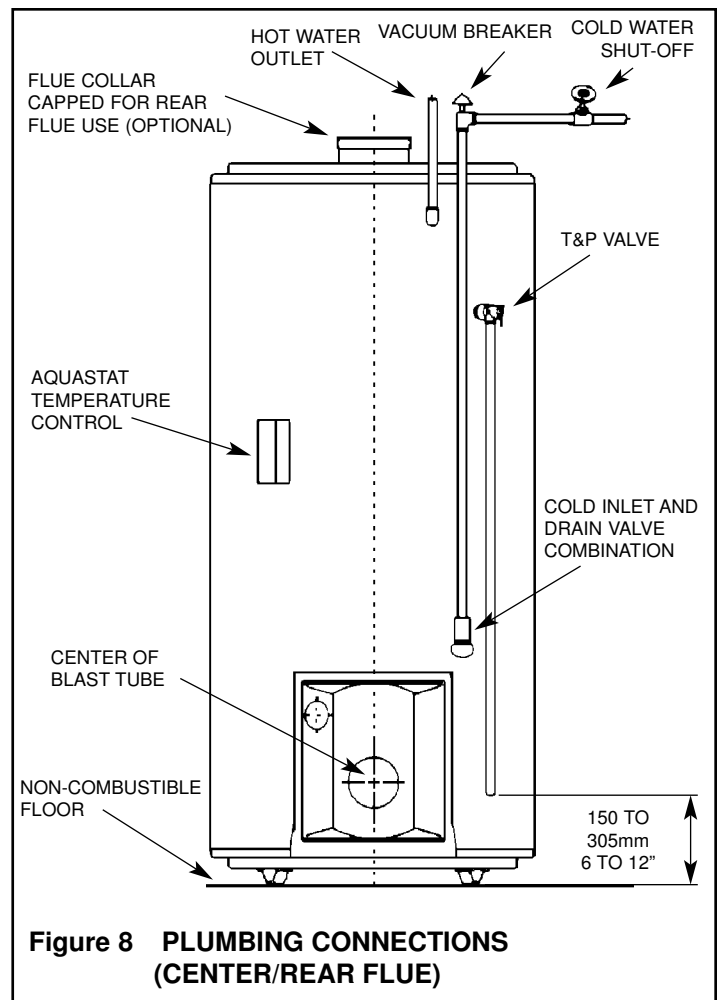


Figure 8 PLUMBING CONNECTIONS (CENTER/REAR FLUE)

up of line in the T&P valve, there are two recommendations:

1. Install a pressure relief (only) valve in the cold water supply line. Make sure that the discharge of this valve is directed to a drain and it is protected from freezing.

or:

2. Install an expansion tank on the cold water supply line. For every 50 gallons of stored water, the expansion tank must have a minimum capacity of 1.5 gallons.

Vacuum Relief Valves

Water heaters shall be protected against loss of water from siphoning due to loss of supply pressure by a vacuum relief valve installed in the cold water supply line at a level above the top of the water heater. Where heating equipment has a bottom supply, the cold water supply piping shall be carried above the top of the heater before being routed to the supply connection and have a vacuum relief valve installed in it at a level above the top of the storage tank. The vacuum relief valve shall be in compliance with the standard ANSI Z21.22 (latest issue).

Installation Of The Aquastat (Temperature Control)

This heater operates automatically under the control of the aquastat, which responds to the demand of hot water. Depending on the model, the aquastat, well and wiring is either installed on the heater, or included in the carton containing the burner. If the installation of the aquastat is

required, proceed as follows:

1. Locate the aquastat well opening in the front of the heater.
2. Apply a good grade of pipe joint compound to the threads on the well.
3. Install the well in the tank opening, tighten firmly to ensure there are no leaks.
4. Insert the sensing bulb of the aquastat into the well and secure the aquastat to the well using the screw provided.
5. Wire the control to the burner as shown in the wiring diagrams (Figures 9, 10 & 11).

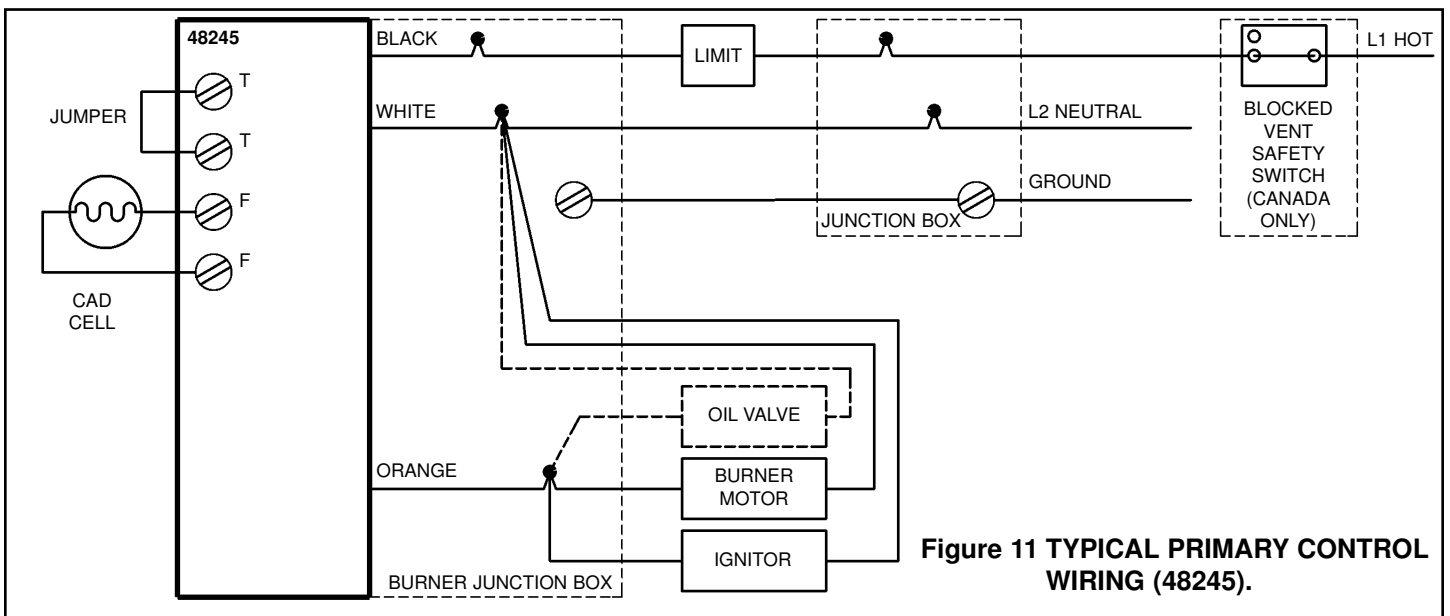
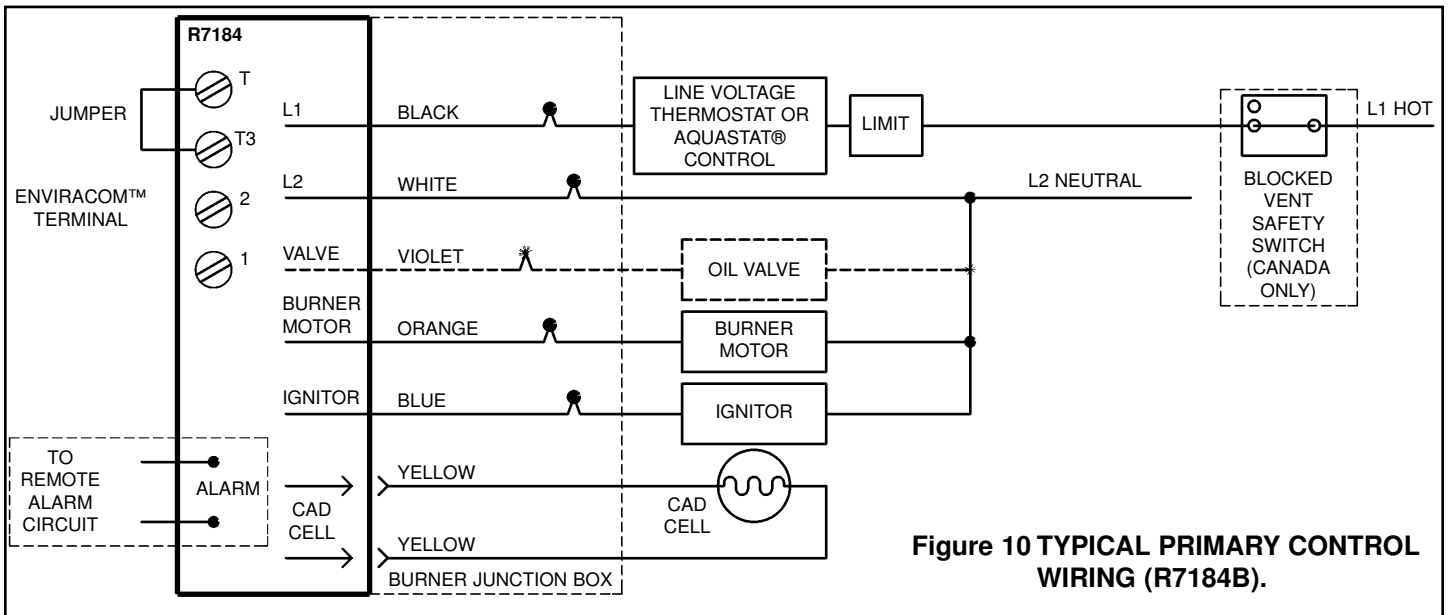
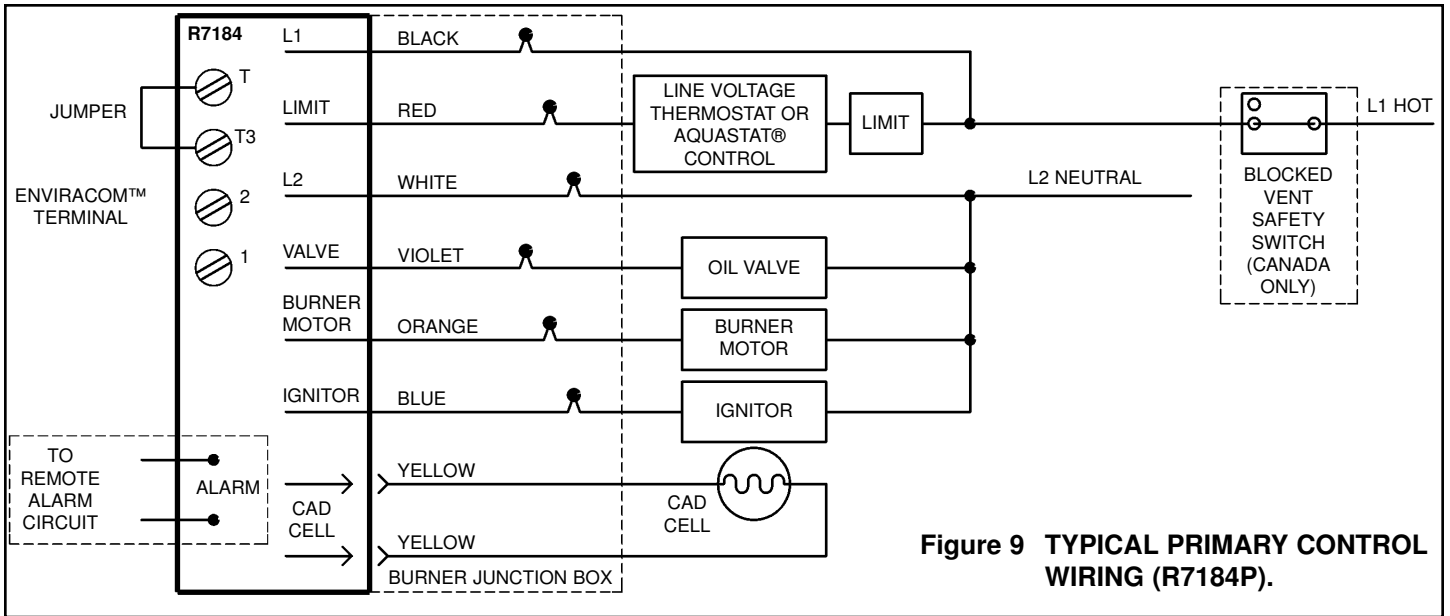
Electrical Supply Connections

General wiring requirements:

Electric shock hazard. Can cause severe personal injury or death if power source, including service switch on heater, is not disconnected before installing or servicing. Installations must comply with the latest edition these codes:

- “Canadian Electrical Code Part 1 (CSA C22.1)” (Canada).
- “National Electrical Code, ANSI/NFPA 70”, (USA).
- Any additional local, provincial, national or state codes.

Wiring must be N.E.C. Class 1. If original wire supplied with heater must be replaced, type 105°C wire or equivalent must be used. Supply wiring to heater and additional control wiring must be 14 ga. or heavier. Provide an electrical ground at heater as required by codes.



Startup

NOTE: refer to the instruction manual supplied with the burner for installation, start up and adjustment.

MAKE SURE THAT THE HEATER IS FULL OF WATER.

See "Filling the Water Heater" section.

DO NOT ATTEMPT TO START BURNER IF ANY OF THE FOLLOWING CONDITIONS EXIST:

1. Excess oil has accumulated.
2. The unit is full of vapours.

After the installation is finished and the installation checklist completed, proceed as follows:

1. Set the draft regulator for full draft.
2. Turn on oil at the tank. Adjust the air band on the burner according to the instructions provided by the burner manufacturer.
3. Close the inspection cover on the burner mounting panel, and press the reset button on the combustion safety control.
4. Set electric switch to "ON" position. The burner should start.
5. Make the air adjustment and take the necessary combustion test readings as specified by the burner manufacturer.

IV) OPERATION

Filling the Water Heater

Do not turn "ON" the electrical supply to the water heater until all the following steps, including "Startup" steps, have been completed.

1. Make sure the drain valve is closed.
2. Open a hot water faucet associated with the system.
3. Open the cold water supply valve.

NOTE: When filling, avoid water leakage. Do not allow the insulation of the water heater to get wet as water can cause electrical malfunction.

4. When water runs out of the hot water faucet in a steady stream, the tank is full.
5. Close the hot water faucet and check the system for leaks. Repair as required and retest.
6. Connect a hose to the drain valve and route to a suitable drain. Open the drain valve and let water run to flush out any foreign matter that may have entered the system. Once flushed, close the drain valve and disconnect hose. Repeat steps 2-5.

Installation Checklist

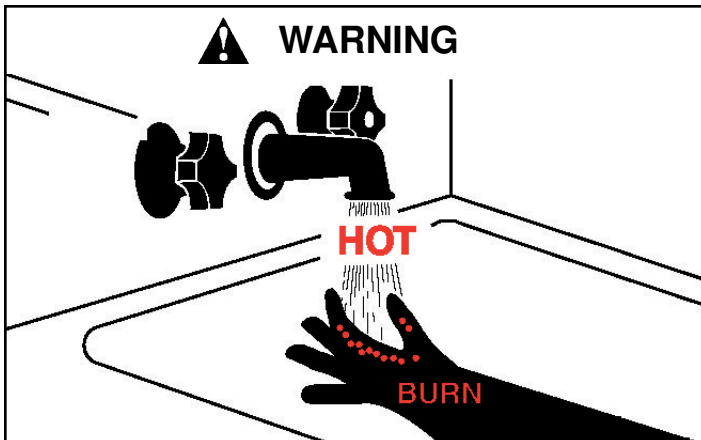
Check Here

1. Have the safety precautions described in the manual been implemented?
2. Does the oil piping conform to the recommendations of your Oil Supply Company?
3. Has the oil piping been tested for leaks?
4. Is the clearance between the water heater and combustible construction as per specifications?
5. Is the water piping correctly connected? Are you certain that there are no leaks?
6. Is the water heater filled with water?
7. Is the cold water supply valve open?
8. Is the flue pipe installed properly and are the vertical and horizontal runs properly supported?
9. Is the draft regulator intake opening unobstructed?
10. Is the T&P valve installed? Are the drain pipe (if installed) and T&P valve unobstructed?
11. Is a drain pan installed (if required) with a proper overflow pipe, directed to a drain?
12. Have you taken steps to prevent water damage in case of leaks?
13. Does the area around the water heater have adequate ventilation?
14. Air moving device does not create negative pressure?
15. Flammable vapours and materials are not placed in the proximity of the water heater?

If the answer to all the above is "Yes", proceed with the "Startup" instructions.

Water Temperature Regulation

Once installed, the operation will be completely automatic. The thermostat (aquastat) on the water heater is adjustable and will maintain water at the desired temperature.



Water temperature over 52°C (125°F) can cause severe burns instantly or death from scalds.

Children, disabled and elderly are at highest risk of being scalded.

Feel water before bathing or showering. Temperature limiting valves are recommended.

WARNING: HOT WATER CAN PRODUCE 3RD DEGREE BURNS IN 6 SECONDS AT 140°F (60°C) IN 30 SECONDS AT 130°F (54°C)

Thermostats are factory set at 49°C (120°F). Contact a qualified Oil-Burner Technician for adjustment. Set the tank thermostat as low as possible to provide an adequate supply of hot water. This will conserve oil and extend the life of the tank.

V) MAINTENANCE

General

Do not attempt to repair your water heater. Call a qualified Oil-Burner Technician for service. Turn "OFF" the electric power whenever the water supply is shut off. Before calling for service, check that:

1. The heater is properly filled.
2. The electrical supply has not been interrupted.

Professional Maintenance

Except for external appearance and area tidiness, the following steps should be performed only by a qualified Oil-Burner Technician.

1. Lift out the flue baffle to clean the flue. (On rear and combination flue heaters, the top cover, insulation and flue top cover must be removed.)
2. Insert a flue brush down the flue passage way(s) to remove soot and dirt. Soot or carbon that falls into the combustion chamber will burn up within a very short time.
3. In normal use, there should be no large accumulation of soot in the combustion chamber. If there is, remove the burner and carefully brush or vacuum the combustion chamber.

⚠ WARNING

Do not attempt to operate this water heater with the cold water inlet valve closed. Manually operate temperature and pressure relief valve at least once a year. Standing clear of the outlet, (discharge water will be hot), lift and release the lever handle on the temperature and pressure relief valve to make sure the valve operates freely.

Never operate the heater if it is not completely filled with water. To make sure the heater is filled, open the hot faucet of an upstairs tap, until there is a full flow of water with no air coming through the tap.

Flue Pipes

Once a year, inspect the flue pipe leading from the heater to the chimney. If corrosion is evident, or discoloration at the joints can be seen, replace the flue pipes. This should be done by a qualified Oil-Burner Technician. Flue pipes must be replaced by the same size flue pipe as the flue collar (breach connection) at the heater.

Combustion Tests

Burner adjustments:

Final burner adjustments must be made using combustion test equipment to assure proper operation. Do not fire heater without water or sections will overheat.

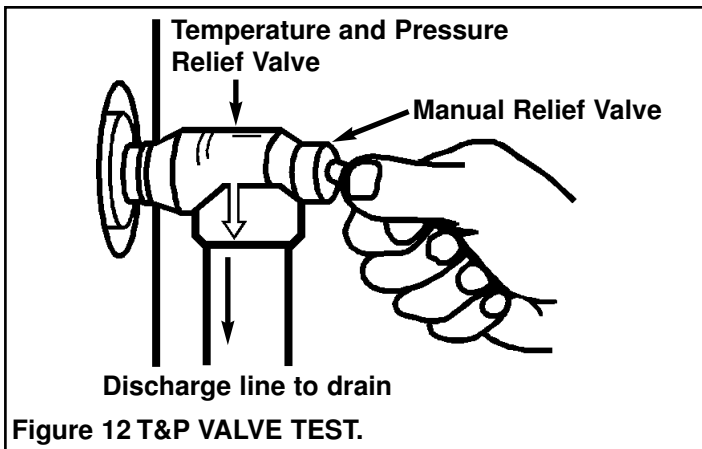
1. Refer to burner manual for start-up.
2. Allow heater to heat to design condition.
3. Using combustion test equipment, adjust burner for:
 - a. CO₂ between 11% and 12% and a trace of smoke between No. 0 smoke and No. 1 smoke.
 - b. over-fire draft -0.01 to -0.02 in. (-0.254 to -0.508mm) water column draft in combustion chamber (+0.25 in. (+6.35mm) for JWF307V).

NOTE: For JWF307V also see additional "Installation Instructions for Through-the-wall Venting Components", 63391, that is supplied with the JWF307V.

General Maintenance (by owner)

As a precaution against fire, and to maintain an adequate flow of combustion air to the heater:

- Keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.
- Keep the air ventilation openings unobstructed. If dust and lint is seen accumulating around the openings, remove it.
- Do not pile cartons, papers, or combustible materials on top, or near the heater (see Figure 1).



WARNING! The temperature and pressure relief valve must be manually operated at least once a year. Caution should be taken to ensure that:

1. No one is in front of or around the outlet of the temperature and pressure relief valve discharge line.
2. The water manually discharged will not cause any bodily injury or property damage. The water may be extremely hot.

If, after manually operating the valve, it fails to completely reset and continues to release water, immediately close the cold water supply valve, drain the tank as directed in the "Draining and Flushing" section, and replace the temperature and pressure relief valve with a new one. Failure to install and maintain an approved temperature and pressure relief valve will release the manufacturer from any claim that might result from excessive temperature or pressure.

Draining, Flushing and Sediment Removal

Some maintenance and service procedures require that the heater be drained and empty. The water heater should also be drained if being shut down for an extended period of time. Water may contain fine particles of soil and sand which settle to the bottom of a tank and thus form a layer of sediment. The action of the anode may also help to form sediment. If not removed, the heater could develop a tendency to pound, gurgle, or thump when heating up. It is recommended that the tank be drained and flushed on a regular basis to remove any sediment that may buildup during operation. To drain the tank and remove the sediment:

1. Turn "OFF" the electrical supply to the water heater.
2. Close the cold water supply valve.
3. Attach a hose to the drain valve and route to an adequate drain.

CAUTION! The water being drained can be extremely hot! The drain hose should be rated for at least 93°C (200°F). If the drain hose does not have this rating, open the cold water supply valve and a nearby hot water faucet served by the system until the water flow is no longer hot. Close the cold water supply valve and resume.

4. Open the drain valve using a flat-blade screwdriver. A nearby hot water faucet must be opened to allow the tank to be fully drained.
5. Open the cold water supply valve and flush the tank as needed to remove sediment and any other foreign mat-

ter that may have entered the system. Close the cold water supply valve when clean water flows.

6. If the heater is to remain empty for an extended period of time, it is suggested the drain valve be left open. When draining is complete, the hose may be removed.
7. Perform any other servicing as required.
8. Close the drain valve and disconnect hose.
9. Follow instructions for "Filling the Water Heater" and "Startup" when heater is ready to be put back into service.

Cathodic Protection

Your water heater has been equipped with one or more anodes that protect the glass-lined tank from corrosion and prolong the life of the water heater. Over time, as the anode(s) works, it slowly dissolves, exposing the steel inner core. Once the anode(s) is depleted, the tank will start to corrode, eventually developing a leak. Depending on water conditions, an anode(s) can last from one to ten years. Many localities treat their water and this can have a significant effect on the life of your heater. Water conditioning, such as over-softening, can accelerate the rate at which the anode(s) is consumed. As with any water heater, it is good practice to check the anode(s) annually to see if it needs replacing. **Do not remove this anode(s) permanently as it will void any warranties, stated or implied.** Rapid depletion or failure to maintain the anode can leave a heater unprotected and may result in premature failure of the heater due to corrosion and leaks.

This series of oil fired water heaters are factory equipped with 1 or 2 anodes, depending on the model. The JW717/JW727 models are equipped with one heavy duty anode. Under normal circumstances, these anodes should last the life of the tank and need not be replaced.

Hot Water Odour

On occasion, and depending on your location, hot water may develop a strong odour. This can be especially problematic in regions where the water contains sulphur, which results in hot water having a "rotten egg" odour. If this occurs, drain the system completely, flush thoroughly and refill the tank. If the water odour or discoloration persists, the anode(s) may need to be changed from magnesium to one made of aluminum. Aluminum anodes may reduce, but not eliminate, water odour problems. The water supply system may require special filtration equipment from a water conditioning company to successfully eliminate all water odour problems. In certain cases chlorinating and flushing of the water heater may be required. Contact your dealer or water supplier.

Discoloured Water

- Water rich in iron or other minerals can produce red or brown staining. Heating water generally worsens this situation.

- Black water can be an indication of organic contaminants in the water supply. This can be problematic in areas where the water is obtained from surface or contaminated sources. Organic particles can develop bacterial growth, causing potential health hazards.
- Contact your water supplier for proper filtration or water conditioning equipment.
- For bacterial problems contact your local health authority. See also "Hot Water Odour".
- A sudden appearance of rust-coloured water may indicate that the anode(s) has been depleted. Once depleted, the anode's inner steel core becomes exposed causing it to corrode and release iron particles into the water. See also "Anode Maintenance".

Anode Maintenance

A new anode is about 20mm (13/16 in.) to 22mm (7/8 in.) diameter and has a steel wire core approximately 3mm (1/8 in.) diameter in the center. If the anode is less than approximately 10mm (3/8 in.) in diameter, or the inner steel core is exposed, the anode(s) should be replaced. Operating a water heater without an actively working anode(s) will void the warranty.

To check/replace the anode:

1. Turn "OFF" the electrical supply to the water heater.
2. Close the cold water supply valve.
3. Open a nearby hot water faucet served by the system to depressurize the system.
4. Connect a hose to the drain valve and drain 22 litres (6 USG.) as directed in "Draining, Flushing and Sediment Removal".

CAUTION! The water being drained can be extremely hot! The drain hose should be rated for at least 93°C (200°F). If the drain hose does not have this rating, open the cold water supply valve and a nearby hot water faucet served by the system until the water flow is no longer hot. Close the cold water supply valve and resume.

5. Remove the anode cover, or, on JWF657, Rear and Combination flue models, remove top cover, insulation and flue top cover.

NOTE: The anode(s) has been factory installed using a power tool. It may be necessary for a second person to stabilize the heater. A few sharp blows on the handle of the socket wrench should loosen the anode nut. If an impact wrench (power drive) is available, this is an easier way to remove an anode.

6. Using a 1 1/16" socket (certain models require 1-5/16") , remove the anode(s) and inspect it. The surface may be rough, full of pits and crevices, but this is normal. If it is less than approximately 10mm (3/8 in.) in diameter, or the inner steel core exposed, the anode(s) should be replaced.
7. Apply Teflon[®] tape, or sealing compounds approved for use with potable water, to the threads of the anode(s) and install into the tank top.
8. Open the cold water supply valve and open a nearby hot water faucet to purge air from the water tank as directed in "Filling the Water Heater".

9. Check for leaks. Repair as required, and re-test.
10. Replace the covers and insulation and turn the electrical supply to the heater "ON".

Cleaning Instructions, Flue Passages Of The JWF657 Heater

Refer to Figure 13 for components of the heater.

1. Remove the casing top and lift it off completely. It is necessary to disconnect the hot and cold water lines and move them out of the way. **Do not remove the nipples from the tank.**
2. Lift off the flue collector. The flue collector has a lip on the outer edge which will allow a hook to grab the edge to help lift it up.
3. Remove the flue baffles (4).
4. With a 76mm (3 in.) diameter wire brush, 1.2m (4 ft.) long, remove any soot build-up which may be on the top head or inside the flue collector.
5. Reassemble in reverse order. It may be necessary to replace the gaskets around the nipples to seal them at the flue collector. Replace the insulation and the casing top.
6. Reconnect the plumbing lines.

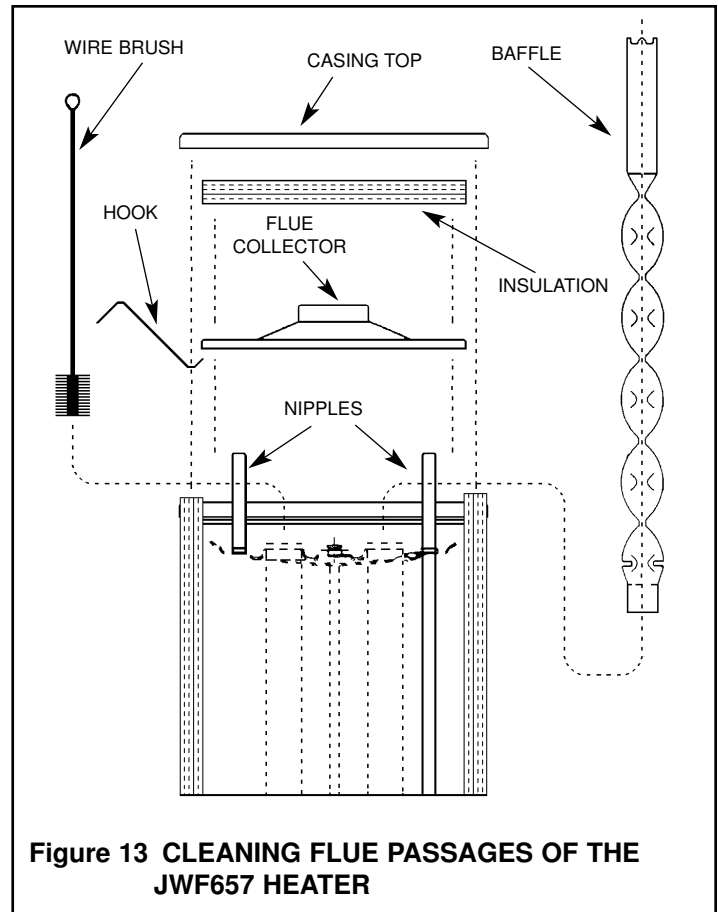


Figure 13 CLEANING FLUE PASSAGES OF THE JWF657 HEATER

Shut Down For Extended Periods

ALWAYS KEEP THE FUEL SUPPLY VALVE SHUT OFF IF THE BURNER IS SHUT DOWN FOR AN EXTENDED PERIOD OF TIME.

When away for extended periods of time such as vacation, and no freezing temperatures are expected:

1. Shut off the oil supply at the tank.
2. Shut off the cold water supply to the heater.
3. Turn "OFF" the electrical supply to the water heater.
4. Open an upstairs hot water faucet (to relieve any pressure).

When freezing temperatures are expected:

NOTE: It is recommended that all water lines in the home be drained. Contact a qualified plumber for directions applicable to the heater.

1. Shut off the oil supply at the tank.
2. Shut off the cold water supply to the heater.
3. Turn "OFF" the electrical supply to the water heater.
4. Connect a hose to the drain valve and drain as directed in "Draining, Flushing and Sediment Removal".
5. Leave the drain hose attached as a reminder that the tank has no water in it.

Re-Starting The Heater After Shut-Down

CAUTION

Hydrogen gas can be produced in a hot water system served by this heater that has not been used for a long period of time (generally two (2) weeks or more). **Hydrogen gas is extremely flammable and can ignite when exposed to a spark or flame.** To reduce the risk of injury under these conditions, it is recommended that the hot water faucet be opened for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. Use caution in opening faucets. When hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

1. Follow instructions for "Filling the Water Heater" and "Startup" when heater is ready to be put back into service.
2. If the heater does not start, check to see if the relay on the burner has tripped. Reset if necessary. Check to see if the thermostat is set at "Normal" or "High".
3. If the heater does not start:
 - a) Turn "OFF" the electrical supply to the water heater.
 - b) Shut off the oil supply at the tank.
 - c) Call a qualified Oil-Burner Technician.

VI) COMBINATION HEATING

Combination Potable Water Heating and Space Heating (Combo)

This section serves as a guide for the installation and use of "Combo" heating systems utilizing a domestic water heater which has been specifically approved for such use. It is written for those knowledgeable in the required trades and professionals involved in the design and installation of Combo Heating Systems. It is the responsibility of the installer/designer to follow all applicable codes to ensure the effectiveness and safety of the installation.

CAUTION:

READ BEFORE PROCEEDING

The following requirements must be met for the installation of Combo Heating Systems:

1. All components used for the distribution of water in the heating loop must be suitable for potable water. These include all piping, fittings, solder and fluxes, pumps for circulation of water, valves, etc.
2. The water heater **must not** be connected to a hydronic heating system that has been used previously.
3. No boiler treatment chemicals of any kind shall be introduced into the system.
4. The Combo System components must be selected and sized to meet and maintain the total calculated demands for both domestic service hot water and space heating requirement. The sizing and installation must be performed in accordance with good engineering practice such as ASHRAE Handbooks, HRAI, Hydronics Institute Manuals, CGA B149, NFPA 54, ANSI Z223.1, CSA F280, National/Provincial Building Codes, CSA C22.1, ANSI/NFPA 70, CSA B51 and/or codes having jurisdiction.
5. The air handler (fan coil) and/or the circulating pump in a heating loop will require a dedicated 120V circuit. This must be provided and identified for this purpose.
6. All piping between the water heater and the air handler or heating loop must be adequately insulated to reduce heat loss.
7. If the local jurisdiction requires a back-flow preventer in the cold water line, an expansion tank of adequate size must be installed.
8. To reduce the scald hazard potential, a mixing valve must be installed.

Installation

The heating mode may be one of the following options:

1. A fan coil/air handler (Figure 14).
2. A hydronic baseboard (finned tube) loop (Figure 15).
3. A hydronic in-floor heating loop (Figure 16).

In order to connect a heating loop to the water heater you must:

1. Install shut-off valves and unions so that the water heater can be isolated from the heating module should servicing of the water heater become necessary.
 2. Install a drain valve at the lowest point of the heating loop so that water can be drained from the heating module without affecting the water heater.
- If the air handler does not have a venting means, install an air bleed at the highest point of the plumbing arrangement.
 - If solenoid valves are used for zone heating applications, they must include electrical proof of valve full open position and must be connected to the water pump.

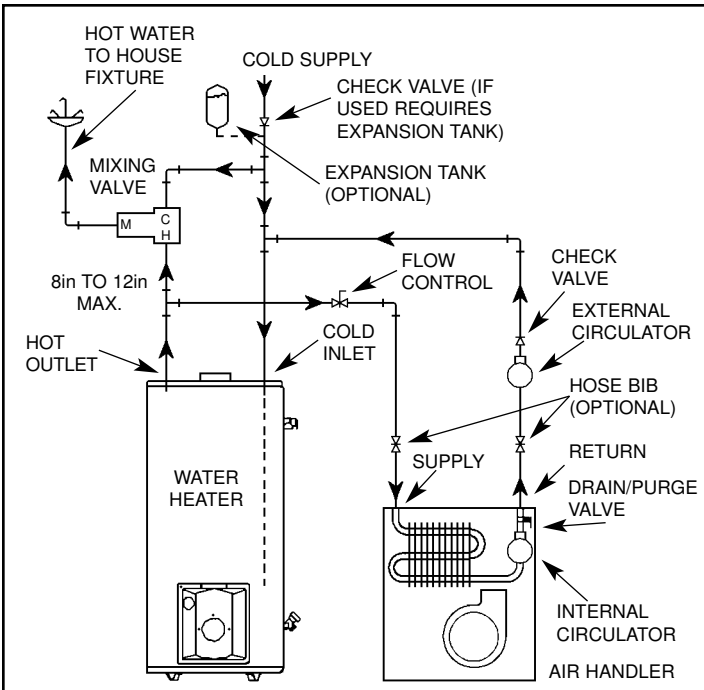


Figure 14 COMBO HEATING - AIR HANDLER

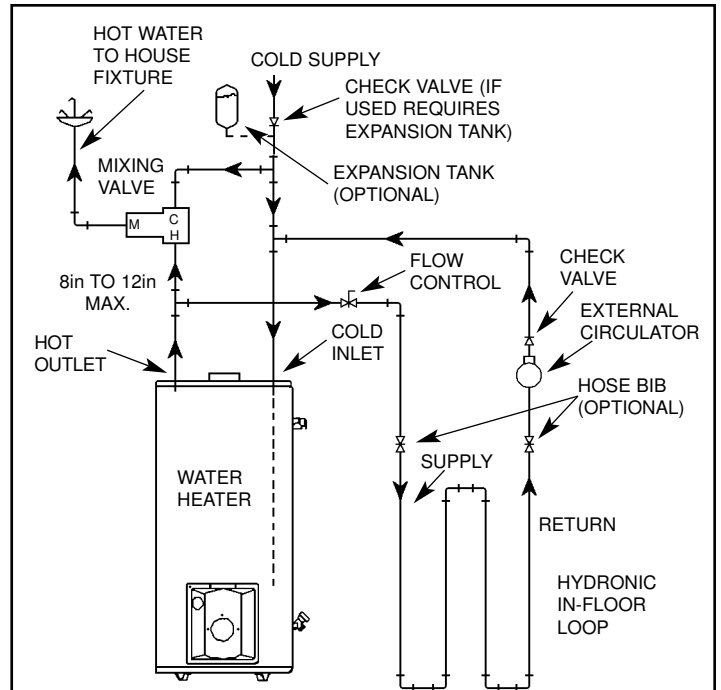


Figure 15 COMBO HEATING - IN-FLOOR LOOP

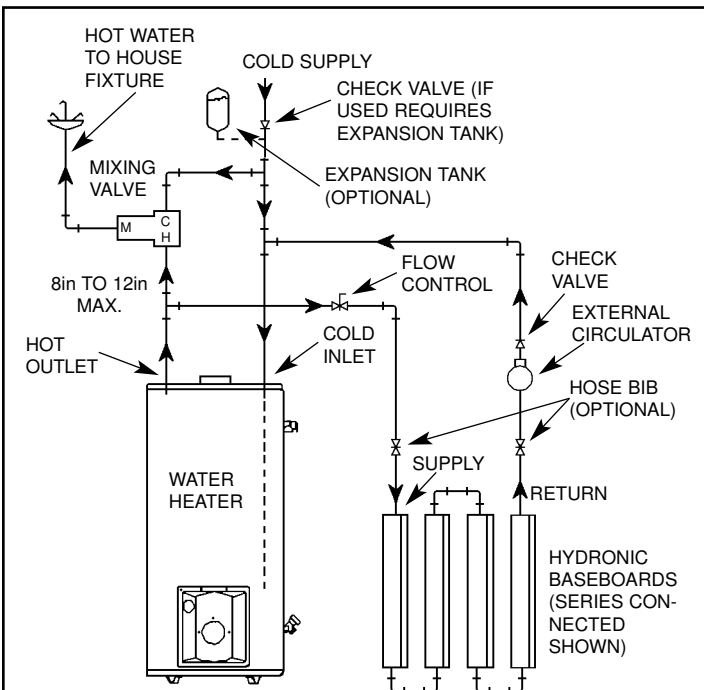


Figure 16 COMBO HEATING - BASEBOARD

Model	MFGR	Burner	Nozzle & Pump Press.	Blast tube	Notes
JW317	BECKETT	AFG GSW-J3037	0.75 GPH		U.S. ONLY
	BECKETT	AFG GSW-J3036	0.75 GPH		MASS. ONLY
	CARLIN	EZ197297AJW317	0.75 GPH		
	CARLIN	97297AJW317	0.75 x 60A DEL 85472, 100 psi	9"	
JW327	BECKETT	AFG GSW-J3037	0.75 GPH		U.S. ONLY
	BECKETT	AFG GSW-J3036	0.75 GPH		MASS. ONLY
	CARLIN	EZ197297AJW317	0.75 GPH		
	CARLIN	97297AJW317	0.75 x 60A DEL 85472, 100 psi	9"	
JW517	BECKETT	AFG GSW-J5037	0.85 GPH		U.S. ONLY
	BECKETT	AFG GSW-J5036	0.85 GPH		MASS. ONLY
	CARLIN	EZ197397AJW517	0.85 GPH		
JW527	BECKETT	AFG GSW-J5037	0.85 GPH		U.S. ONLY
	BECKETT	AFG GSW-J5036	0.85 GPH		MASS. ONLY
	CARLIN	EZ197397AJW517	0.85 GPH		
JW717	AERO	FAFC-3-03	1.0 GPH		
	BECKETT	AFG GSW-J7037	1.0 GPH		U.S. ONLY
	BECKETT	AFG GSW-J7036	1.0 GPH		MASS. ONLY
	CARLIN	EZ197397AJW717	1.0 GPH		
	CARLIN	97397AJW717	1.00 x 60A DEL 38018, 100 psi	9"	
JW727	AERO	FAFC-3-03	1.0 GPH		
	BECKETT	AFG GSW-J7037	1.0 GPH		U.S. ONLY
	BECKETT	AFG GSW-J7036	1.0 GPH		MASS. ONLY
	CARLIN	EZ197397AJW717	1.0 GPH		
	CARLIN	97397AJW717	1.00 x 60A DEL 38018, 100 psi	9"	
JWF307	AERO	FAFC-2X	0.65 - 0.75 GPH		
	AERO	SV-2X	0.65 - 0.75 GPH		
	AERO	FAFC-2X	0.65 x 80A TO 0.75 x 80A	4 7/8"	
	AERO	SV-2X	0.65 x 80A TO 0.75 x 80A	4 7/8"	
	BECKETT	AFG GSW-J3006	0.65 - 0.75 GPH		CANADA
	BECKETT	AFG GSW-J3031	0.65 GPH		MASS. ONLY
	BECKETT	AFG GSW-J3033	0.75 GPH		MASS. ONLY
	BECKETT	AFG GSW-J3032	0.65 GPH		U.S. ONLY
	BECKETT	AFG GSW J3034	0.75 GPH		U.S. ONLY
	CARLIN	EZ-1 #96983DA	0.75 GPH		
	CARLIN	96986AJW307	0.75 x 60A DEL 85472, 100 psi	7"	
	RIELLO	R35.3.04.OR	0.60 - 0.65 GPH		
	RIELLO	R35.3.04.OR	0.60 x 60W Delavan, 130, 0.65	4.25"	
	RIELLO	R35.3.04.OR	0.65 x 60W Delavan, 150, 0.75	4.25"	
	WAYNE	HSR "Ecore"	0.65 - 0.75 GPH		
JWF307V	BECKETT	AFG GSW-J3007	0.65 GPH		CANADA
	BECKETT	AFG GSW-J3009B	0.65 GPH		U.S.
	BECKETT	AFG GSW-J3008B	0.65 GPH		MASS. ONLY
	CARLIN	EZ-1	0.65 GPH		
	RIELLO	40 BF3 SBT	0.60 x 60A Delavan, 140, 0.65	4.188"	
	RIELLO	40 BF3 SBT	0.75 GPH		

Table 1 LISTING OF OIL BURNERS.

Model	MFGR	Burner	Nozzle & Pump Press.	Blast tube	Notes
JWF507	AERO	FAFC-2X	0.75 GPH		
	AERO	SV-2X	0.75 GPH		
	AERO	FAFC-2X	0.75 x 80A	5 15/16"	
	AERO	SV-2X	0.75 x 80A	5 15/16"	
	BECKETT	AFG GSW-J5006	0.75 GPH		CANADA
	BECKETT	AFG GSW-J5032	0.75 GPH		U.S.
	BECKETT	AFG GSW-J5031	0.75 GPH		MASS. ONLY
	BECKETT	AFG GSW-J5041	0.75 GPH		
	BECKETT	AFG GSW-J5040	0.75 GPH		
	BECKETT	AFG GSW-J5999	0.75 GPH		
	CARLIN	EZ196983AJW507	0.75 GPH		
	CARLIN	96983AJW507	0.75 x 60A DEL 85472, 100 psi	7"	
	RIELLO	R35.3.05.OR	0.65 GPH		
	RIELLO	R35.3.05.OR	0.65 x 60A CT Delavan, 160, 0.75	5.688"	
JWF657	AERO	HF-US-2-9	1.0 - 1.25 GPH		
	BECKETT	AFG GSW-J7006	1.0 - 1.25 GPH		CANADA
	BECKETT	AFG GSW-J7041	1.0 - 1.25 GPH		U.S.
	BECKETT	AFG GSW-J7040	1.0 - 1.25 GPH		MASS. ONLY
	CARLIN	EZ197397AJW517	1.0 - 1.25 GPH		
	CARLIN	96986AJW657	1.25 x 60A DEL 85548, 100 psi	9"	
	RIELLO	R35.5.07.OR	0.85 - 1.1 GPH		

Table 1 (cont'd) LISTING OF OIL BURNERS.

~ Certificate of Warranty ~

See Rating Label Serial Number prefix for Warranty Code. Reduced warranty period applies to Newfoundland.

Warranty Code:	P	R	S	T	U	V	W	Y
Standard Warranty Years:	3	5	6	7	8	9	10	12
Reduced Warranty Years:	2	3	3	5	5	5	5	7

For its GSW and John Wood water heaters and storage boosters ("Unit"), GSW Water Heating ("GSW") warrants that, upon receipt of a properly verified Warranty claim within the Warranty Period, it will, at its election, repair or replace: units which leak or parts which are defective in material or workmanship, subject to the terms and conditions set forth in this certificate. GSW will not assume any expense or liability for unauthorized returns, nor repairs made by a person who has not been authorized by GSW or one of its authorized dealers. GSW Units/parts must be replaced with GSW or John Wood products to be eligible for Warranty. This Warranty is available to the original owner of a Unit installed within the boundaries of continental United States, of Canada, or their territories. **Consumers must retain point-of-sale proof of purchase to validate warranty entitlement.** This Warranty does not cover components not manufactured by GSW, such as oil burners, which carry the warranty given by the manufacturer thereof, copy of which warranty GSW will make available, to the extent supplied by the manufacturer, without recourse to GSW.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THIS EXPRESS WARRANTY IS, WHERE PERMITTED BY LAW, IN LIEU OF AND EXCLUDES AND REPLACES ALL OTHER CONDITIONS, WARRANTIES, GUARANTEES, REPRESENTATIONS, OBLIGATIONS OR LIABILITIES OF GSW OF ANY NATURE OR KIND, EXPRESS OR IMPLIED, HOWEVER ARISING (WHETHER BY CONTRACT, CONDUCT, STATEMENT, STATUTE, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW OR OTHERWISE) WITH RESPECT TO THE UNIT OR ITS FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INSTALLATION, OPERATION, REPAIR OR REPLACEMENT. GSW EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES. IN NO EVENT WILL GSW'S LIABILITIES EXCEED THE COST OF THE DEFECTIVE PART(S) OR UNIT. GSW WILL NOT PAY FOR ANY TRANSPORTATION, LABOUR, INSTALLATION, OR OTHER INCIDENTAL COSTS ASSOCIATED WITH THE REPAIR OR REPLACEMENT OF A DEFECTIVE PART OR UNIT.

This warranty and GSW's obligations shall be construed and determined in accordance with the laws of both the Province of Ontario, and of Canada in force therein. This Warranty does not affect specific legal rights of a consumer under applicable law, except to the extent that such rights may be waived or replaced, and the provisions hereof are deemed to be amended to the extent necessary. The unenforceability of any provision, in whole or in part, of this Certificate shall not affect the remaining provisions. Any and all repair and/or replacement of part(s) or Unit are the sole and exclusive remedy available against GSW.

LIABILITY OF GSW COVERED BY THIS WARRANTY IS CONDITIONAL UPON THE FOLLOWING:

1. The Unit shall be installed in accordance with all manufacturers' instructions, all applicable equipment and building codes, ordinances and regulations (hereinafter referred to as the "standards").
2. The Unit must not be installed where water damage can result from a leak, while provision(s) shall be made for directing any water escaping from the Unit, to a properly operating drainpipe. As all units of this type may eventually leak, you must protect against any potential water damage. GSW accepts no responsibility for such damage, nor any incidental or consequential loss, nor damage(s) related thereto, suffered by the owner of the Unit nor by any third party.
3. The Unit shall not be installed where it will be exposed to adverse or unusual environmental or corrosive conditions. No warranty extends, for example, and without limitation of the foregoing, to Units exposed to: salts; chemicals; exhausts; pollutants or contaminants. Further, no warranty extends to Units affected by fire, freezing or flood, "Acts of God", or any other contingency beyond the control of GSW.
4. The Unit shall be equipped with a properly operating temperature and pressure relief valve as specified by GSW and applicable standards. The Unit shall be operated at temperatures not exceeding the maximum setting of the thermostat and/or high limit control provided by GSW, and at water pressures not exceeding the pressure reading stated on the Unit.
5. The Unit must be carefully inspected, maintained, and operated in accordance with the manufacturer's instructions. No warranty extends, for example, and without limitation of the foregoing, to any Unit operated: without the tank being completely filled with water; without an operating anode; with levels of sediment or lime precipitate which cause failure; in connection to any attachment(s), energy saving device(s), or other means of heating, except as approved by GSW for the Unit; other than with potable water without any additives such as salts, chlorine or chemicals, except those added for the sole purpose of rendering the water fit for domestic use.
6. All repairs must be made by a competent and qualified person who is certified, by GSW or one of its authorized dealers, to work on the Unit, using factory approved replacement parts, and the Unit shall not be otherwise modified, altered or improperly repaired.
7. A properly documented claim shall be received by GSW or one of its authorized dealers, or point of purchase, within the following Warranty Period, except as provided otherwise below*:
 - a) for any defective part, within one (1) year; or
 - b) for any Unit that develops leaks in the inner tank due to rust, corrosion or other chemical reactions caused by the potable domestic water supplied to your home, within the period of time shown in table at the top of this page.

* Residential units installed and used in a commercial application carry a warranty period of one (1) year from date of installation; and, Any repair or replacement of any part, tank, or Unit under this Warranty will not extend the Warranty Period beyond that calculated from the date of first installation of the original Unit. The date of first installation will be deemed to be the later of the date indicated by the Unit's serial number, or if supplied with the Warranty claim, the sales receipt, or installer's receipt.
8. A claim under this Warranty must include the model and serial number of the Unit, proof of date on which the Unit was first installed, and the identity of the defective part(s) for which a claim is being made and be submitted within 15 days following discovery of the defect(s), by personal delivery to a GSW authorized dealer, point of purchase, or GSW itself at:

GSW Water Heating
GSW Water Heating is a division of GSW Water Products Inc.
599 Hill Street West
Fergus, ON Canada N1M 2X1

Should you have questions, please call our Technical Support Line at **1-888-479-8324**.
9. If requested by GSW, information relating to the purchase, transportation, operation and installation of the Unit must be supplied. The defective part(s) or Unit, with all components properly and securely packed, shall be returned transportation pre-paid, to the address designated by GSW in the written request. All claims are subject to validation by GSW.