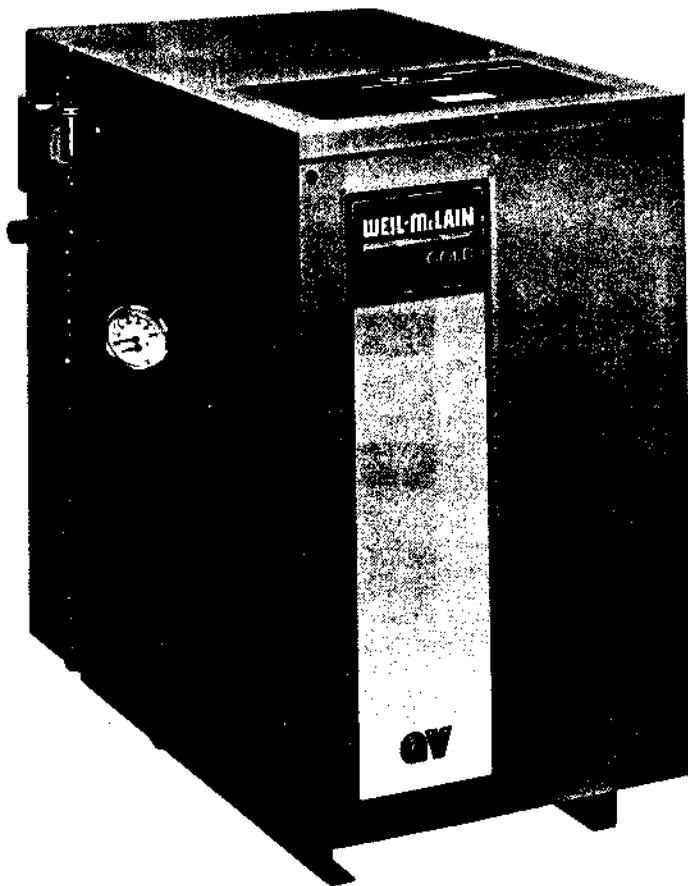


# WEIL-McLAIN



## GOLD

### GV BOILER



**BOILER MANUAL  
INCLUDES:**

- INSTALLATION
- START-UP
- MAINTENANCE
- PARTS

**GAS-FIRED, POWER-VENTED, OPTIONAL OUTSIDE COMBUSTION AIR**

- TO THE USER:**
- Boiler Manual is to be used by your qualified heating installer/service technician.
  - User's Information Manual is for your reference.
  - Regular service by a qualified service technician is recommended.

**TO THE INSTALLER:**

- **WARNING** Follow all instructions in proper order to prevent personal injury or death. Read all instructions before installing.
- Also refer to Gas Control Supplement and other packaged instructions.
- Consider piping and vent locations when determining boiler location.
- Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

Part Number 550-141-601/0490WP

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**IMPORTANT:** When calling or writing about the boiler, PLEASE GIVE THE MODEL located on the boiler rating label AND THE C.P. NUMBER located next to the rating label.

### WARNING

DO NOT USE PETROLEUM-BASED CLEANING OR SEALING COMPOUNDS IN BOILER SYSTEM.  
SEVERE DAMAGE TO BOILER WILL OCCUR.

# To Install GV Boiler

## 1. READ:

**Section A:** Before Installing Boiler ..... 4-5

## 2. SET UP:

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## 3. CONNECT (REFER TO FIGURE A):

**Section C:** Water Piping ..... 7-10

1. relief valve
2. air vent/expansion tank
3. from system (return)
4. to system (supply)

**Section D:** Venting and Combustion Air 11-14

1. vent/air intake termination
2. optional outside air intake
3. vent
4. condensate drain

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## 4. COMPLETE:

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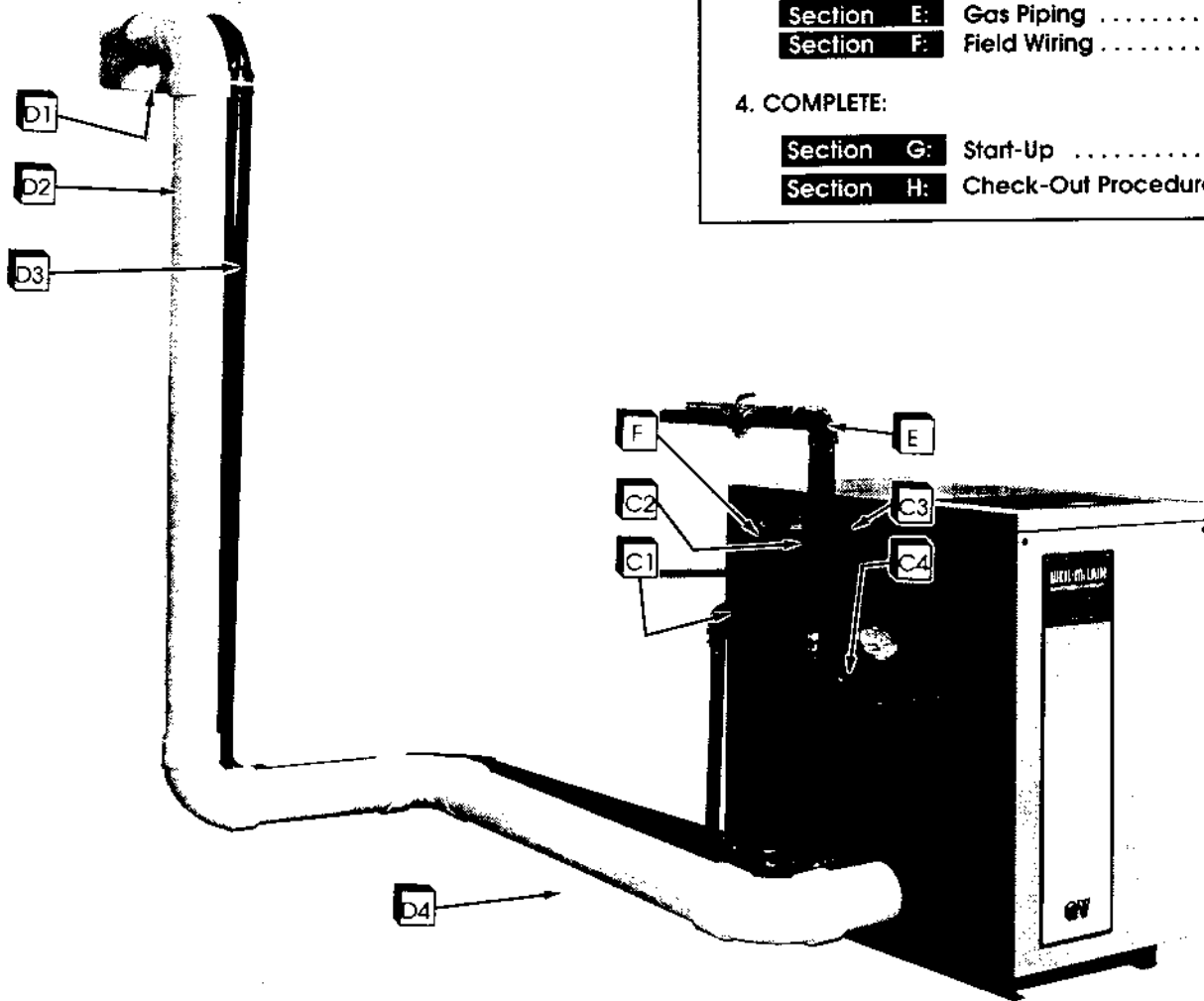


FIGURE A

Pay attention to these terms:

# **DANGER**

indicates presence of hazard which will cause personal injury, death or substantial property damage if ignored.

# **CAUTION**

indicates presence of hazard which will or can cause minor personal injury or property damage if ignored.

# **WARNING**

indicates presence of hazard which can cause severe personal injury, death or substantial property damage if ignored.

# **NOTICE**

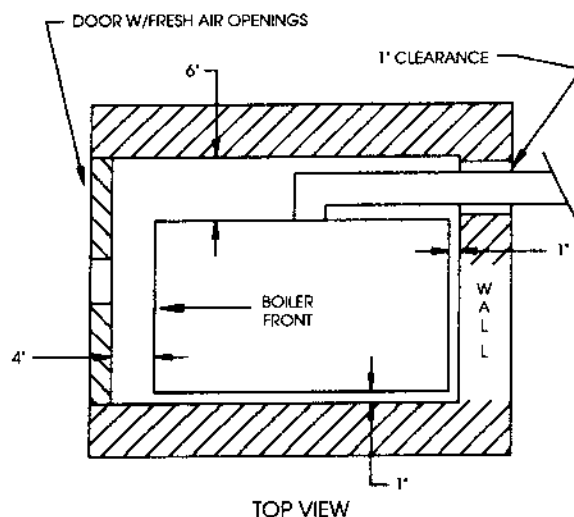
indicates special instructions on installation, operation, or maintenance which are important but not related to personal injury hazards.

## Section A: Before Installing Boiler

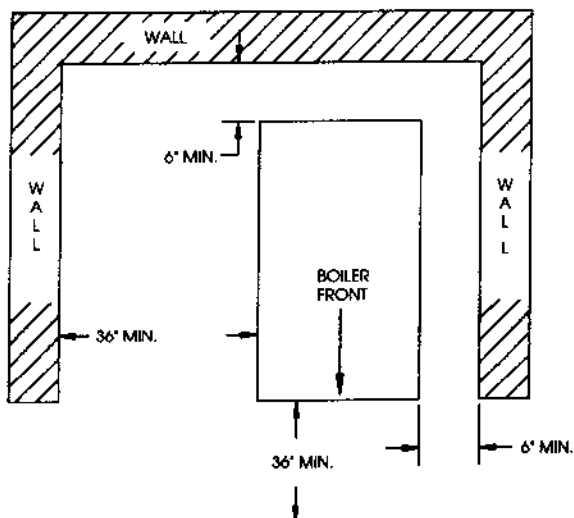
### INSTALLATIONS MUST FOLLOW THESE CODES:

- local, state, provincial, and national codes, laws, regulations and ordinances.
- National Fuel Gas Code, ANSI Z223.1- latest edition.
- Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, when required.
- National Electrical Code.
- For Canada only: CAN/CGA B149.1 and .2 Installation Code and C.S.A. C22.1 C.E.C. Part 1.

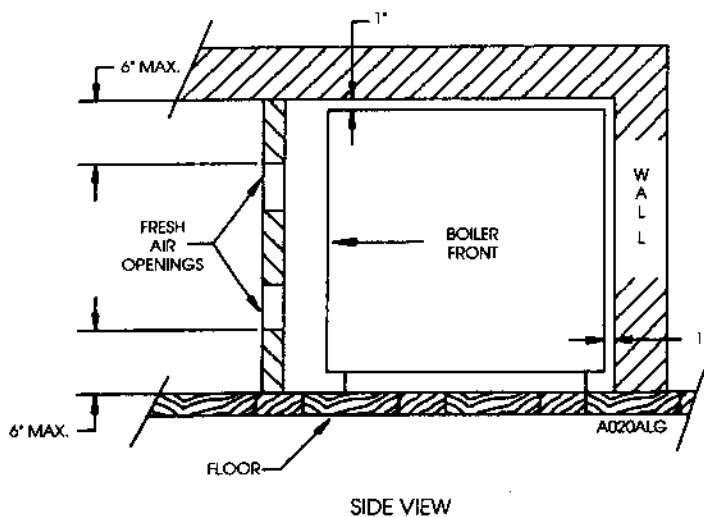
Gas manifold and controls met safe lighting and other performance criteria when boiler underwent tests specified in ANSI Z21.13- latest edition.



### PROVIDE CLEARANCES AROUND BOILER:



**CLEARANCES FOR EASY SERVICING**  
**FIGURE 1**



**MINIMUM CLEARANCES FOR TIGHT SPACES**  
**FIGURE 2**

1. Provide screwdriver clearance for removal of jacket screws. If not, unions and shut-off valves should be installed in system so boiler can be moved for servicing.

## PROPERLY LOCATE VENT TERMINATION:

### WARNING

Give special attention to location of vent to avoid possibility of property damage or personal injury.

1. Gases will form white plume in winter. Plume could obstruct window view.
2. Prevailing winds could cause freezing of condensate and water/ice build-up on building, plants or roof.
3. Locate or guard vent to prevent accidental contact by people or pets.
4. DO NOT terminate vent in window well, stairwell, alcove, courtyard, or other recessed area.
5. Vent must terminate at least 4 feet below or 4 feet horizontally from any door, window or gravity air inlet to building.
6. This vent must not be less than 7 feet above grade when located adjacent to public walkways.
7. Terminate vent at least 3 feet above any forced air inlet located within 10 feet.
8. Vent must terminate at least 4 feet horizontally, and in no case above or below unless a 4 ft. horizontal distance is maintained, from electric meters, gas meters, regulators, and relief equipment.
9. DO NOT terminate vent above any door or window. Condensate can freeze, causing ice formations.
10. Locate or guard vent to prevent condensate from damaging exterior finishes.
11. DO NOT extend exposed vent pipe outside of building. Condensate could freeze and block vent pipe.
12. Terminate vent at least 6 feet away from adjacent walls.
13. DO NOT terminate vent closer than 5 feet below roof overhang.
14. Terminate vent at least 1 foot above grade, including normal snowline.
15. Canada - do not terminate vent less than 6 feet from another combustion air inlet or less than 3 feet from any other building opening or any gas service regulator.

## SELECT COMBUSTION AIR SOURCE:

Outside or inside combustion air can be used. Outside air will maximize efficiency and minimize exposure to contaminants. Read Appendix, page 22 before using inside air.

1. If outside air is used:
  - a. outside air intake piping is all you need. See page 12 for instructions.
  - b. provide for adequate ventilation when installed in tight spaces. See page 4.
2. If inside combustion air is used:
  - a. In conventional frame, masonry or metal construction, infiltration is normally adequate for boilers in unconfined rooms.
  - b. In unusually tight construction, provide outside air as stated in #2d.

- c. For boilers in confined rooms, provide 2 permanent openings: one within 12 inches from ceiling and one within 12 inches from floor of room. Each opening must be at least 1 sq. inch per 1000 Btuh boiler input, but not less than 100 sq. inches. Openings must freely connect with areas having adequate air flow from outside.
- d. When outside air is needed, provide 2 openings as outlined above. Openings must connect directly or by ducts with outdoors or spaces (crawl or attic) that freely connect to outside. Size as listed below.
  - 1) 1 sq. inch per 4000 Btuh boiler input for direct outside air through outside wall or through vertical duct directly to outside.
  - 2) 1 sq. inch per 2000 Btuh boiler input for direct outside air through horizontal duct.
  - 3) All duct must be same size as connected opening, with minimum dimensions of 3" x 3" or 9 total sq. inches of area.
  - 4) Other size duct must comply with local codes.
- e. ANSI Z223.1 requires boiler combustion air opening at least 18" above the floor for garage installation.

## LAY A FOUNDATION, IF NEEDED:

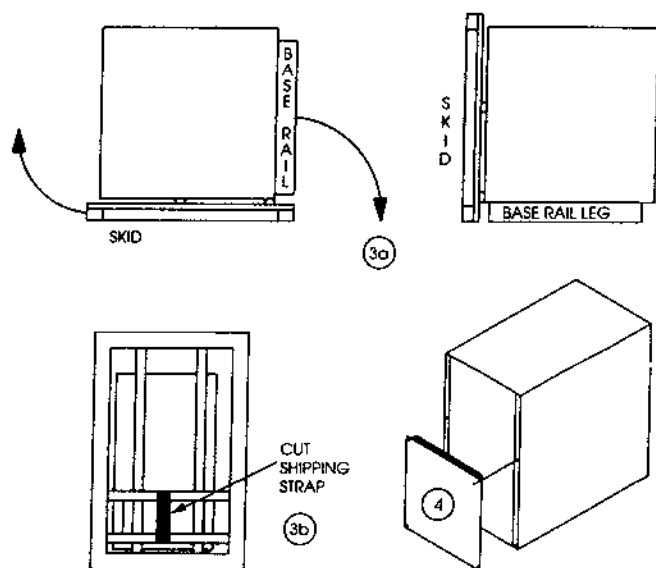
Table 1 - Minimum Boiler Foundation Size

| Foundation (in.) | Boiler Size |        |        |        |
|------------------|-------------|--------|--------|--------|
|                  | GV-3        | GV-4   | GV-5   | GV-6   |
| Length           | 27 1/4      | 30 3/4 | 34 1/4 | 37 3/4 |
| Width            | 16          | 16     | 16     | 16     |
| Thickness (min.) | 2           | 2      | 2      | 2      |

1. Approved for use on combustible flooring, but must NEVER BE INSTALLED ON CARPETING.
2. Use level concrete slab or solid brick pad if:
  - floor can become flooded.
  - non-level conditions exist.
  - high profile condensate pump is used (foundation thickness may vary depending on type of pump installed). See page 11 for details.

## Section B: Boiler Preparation

### HOW TO PLACE BOILER:



POSITIONING BOILER ON SITE  
FIGURE 3

Leave boiler on skid until installation site is ready.

1. Verify that orifice plate stamping is proper size for boiler and is for proper fuel (red-propane, natural metal-natural). Boiler is shipped ready for natural gas hook-up. To convert boiler to propane, follow instructions included with propane orifice plate.

2. Move boiler on skid next to installation site.

3. Position boiler on site as follows and as shown in Figure 3:

- (a) Carefully tip boiler over onto base rail legs.

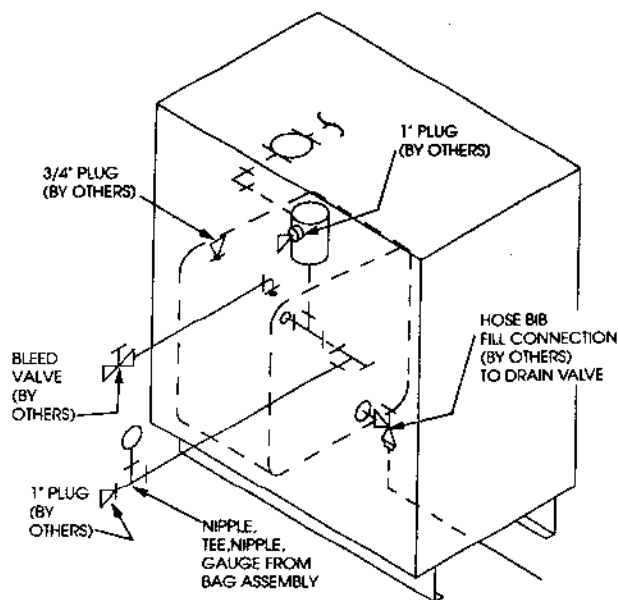
#### **DANGER**

Boiler is heavy. Take precaution to avoid personal injury.

- (b) Cut shipping strap and remove skid.

4. Install jacket back panel with 4 screws from trim bag assembly.

### MAKE HYDROSTATIC PRESSURE TEST:



BOILER SET-UP FOR HYDROSTATIC PRESSURE TEST  
FIGURE 4

Pressure test before attaching water or gas piping (except as noted below) or electrical supply.

#### **CAUTION**

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

1. Prepare boiler as shown in Figure 4.
2. Connect fill water supply through drain valve. Fill boiler with water (be sure bleed valve is open). When water flows from bleed valve, shut off water. Close bleed valve. Slowly re-open drain valve until test pressure of not more than 45 psi is reached on the pressure gauge. TEST AT NO MORE THAN 45 PSI for more than 10 minutes.

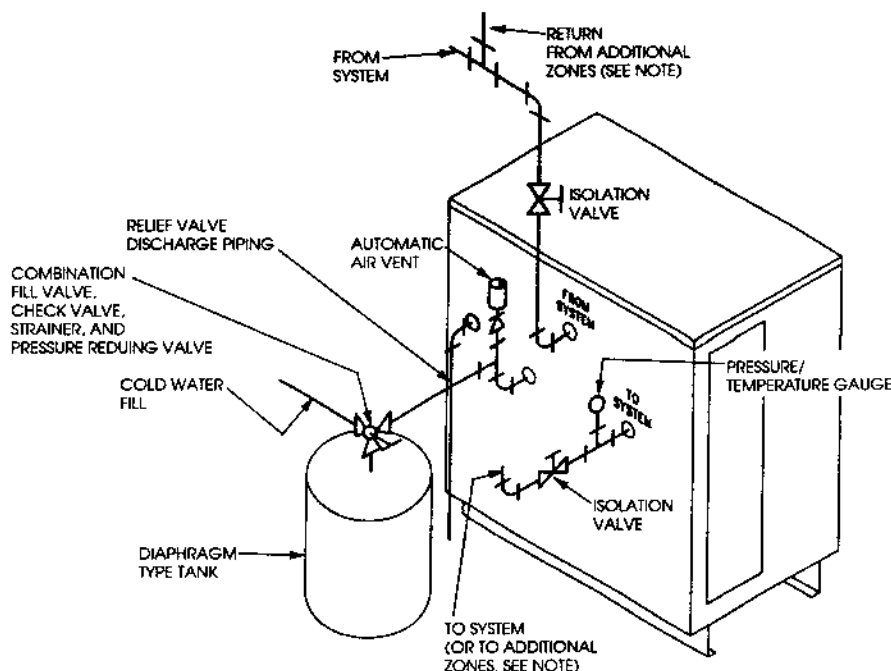
#### **WARNING**

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

3. Make sure constant gauge pressure has been maintained throughout test.
4. Check for leaks. Repair if found.
5. Remove fill water supply from drain valve. Drain boiler.
6. Remove plugs from relief valve tapping, and water supply and return tappings.

## Section C: Water Piping

### PIPING SINGLE ZONE WITH DIAPHRAGM-TYPE TANK:



NOTE: SEE PAGE 9 FOR  
MULTIPLE ZONING

PIPING WITH DIAPHRAGM-TYPE EXPANSION TANK  
FIGURE 5

1. Pipe properly (see Figure 5 to avoid improper operation and damage to boiler or building).
2. If system is to comply with ASME codes, an additional high temperature limit is needed. Purchase and install in "To System" piping between boiler and isolation valve.

3. Install relief valve in tapping on top of back section.

#### WARNING

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

4. ASME requires a low water cut-off device when boiler is installed above radiation level or by certain state or local codes or insurance companies. Use low water cut-off designed for water installations. Electrode probe-type is recommended. Purchase and install in tee in supply piping above boiler.
5. Ensure tank pressure and size will handle system fill and water volume. See Table II.
  - Fill pressure may be adjusted at tank.
  - Additional tanks may be connected to tees in system. See Table II for sizing.
6. Install automatic air vent as shown in Figure 5.

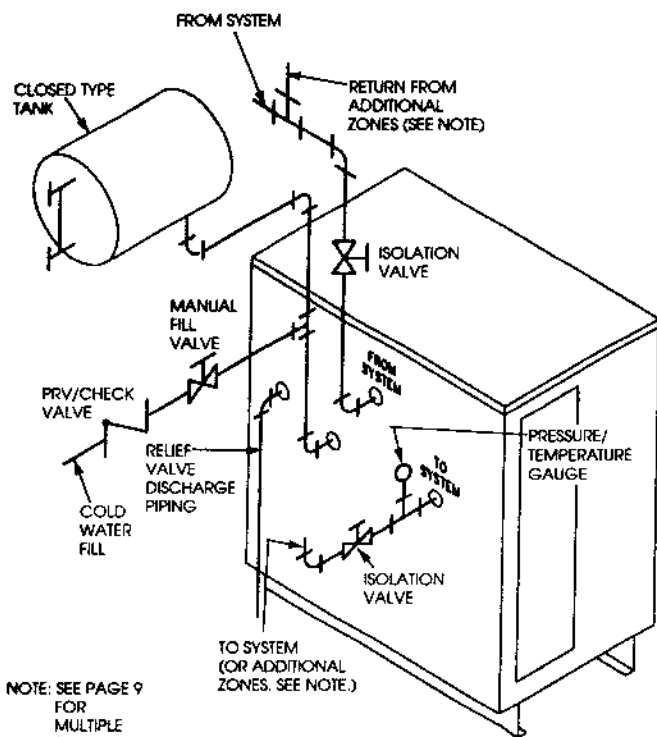
Table II - Expansion Tank Sizing\*

| Boiler Size | Standard Fill-Trol Tank-Adequate for Series Loop Piping Systems with Convector Baseboard | Additional Ex-Trol Tank Required for One Pipe Systems with Convector Baseboard | Additional Ex-Trol Tank(s) Required for Cast Iron Baseboard | Additional Ex-Trol Tank(s) Required for Cast Iron Radiators |
|-------------|--|--|---|---|
| GV-3        | No. 109  | —  | No. 15  | No. 15  |
| GV-4        | No. 109  | No. 15   | No. 15  | No. 30  |
| GV-5        | No. 109  | No. 15   | No. 15  | No. 30  |
| GV-6        | No. 110  | —  | No. 15  | No. 30  |

\* Tank selections based on 220°F. average system water temperature.

\*\* Systems with unusually large volumes of water may require additional expansion capability.

## PIPING SINGLE ZONE WITH CLOSED-TYPE TANK:



PIPING WITH CLOSED-TYPE EXPANSION TANK  
FIGURE 6

1. Pipe properly (see Figure 6 to avoid improper operation and damage to boiler or building).
2. If system is to comply with ASME codes, an additional high temperature limit is needed. Purchase and install in "To System" piping between boiler and isolation valve.

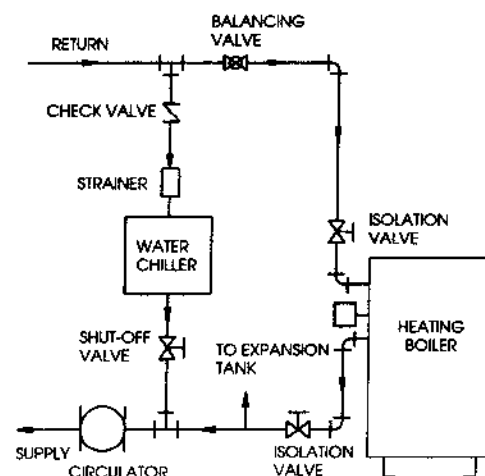
3. Install relief valve in tapping on top of back section.

### WARNING

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

4. ASME requires a low water cut-off device when boiler is installed above radiation level or by certain state or local codes or insurance companies. Use low water cut-off designed for water installations. Electrode probe-type is recommended. Purchase and install in tee in supply piping above boiler.
5. Connect tank from  $\frac{1}{2}$ " tapping shown in Figure 6 to expansion tank. Use  $\frac{1}{2}$ " NPT piping. Pitch any horizontal piping up towards tank 1" per 5 feet of piping.
6. Use backflow check valve where required by local codes.

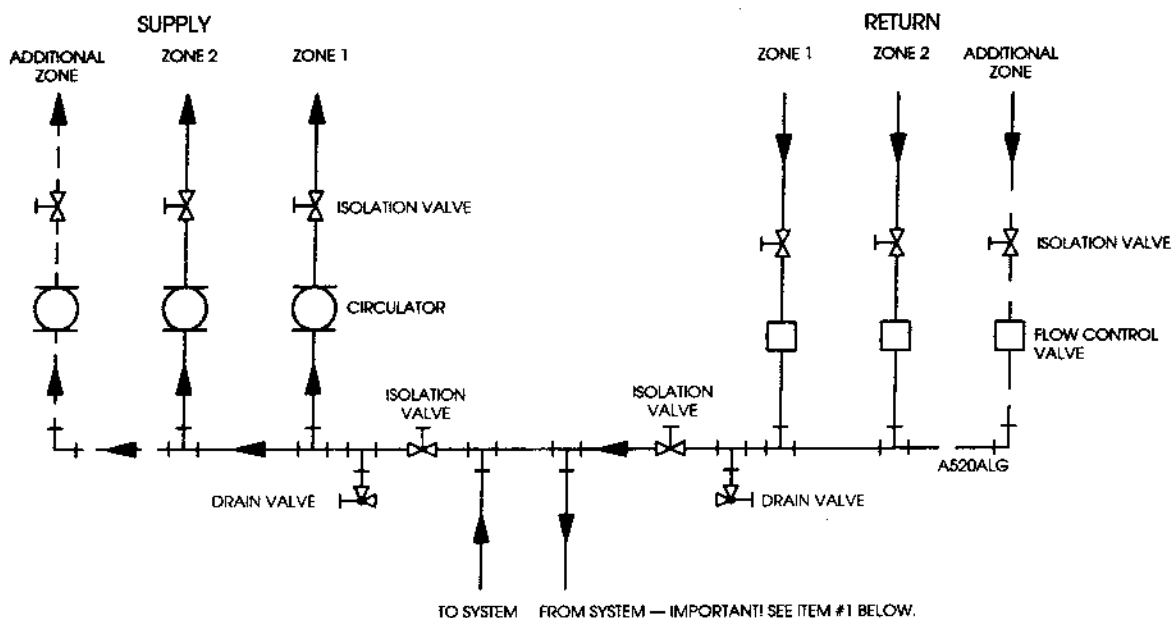
## USE WITH REFRIGERATION SYSTEM:



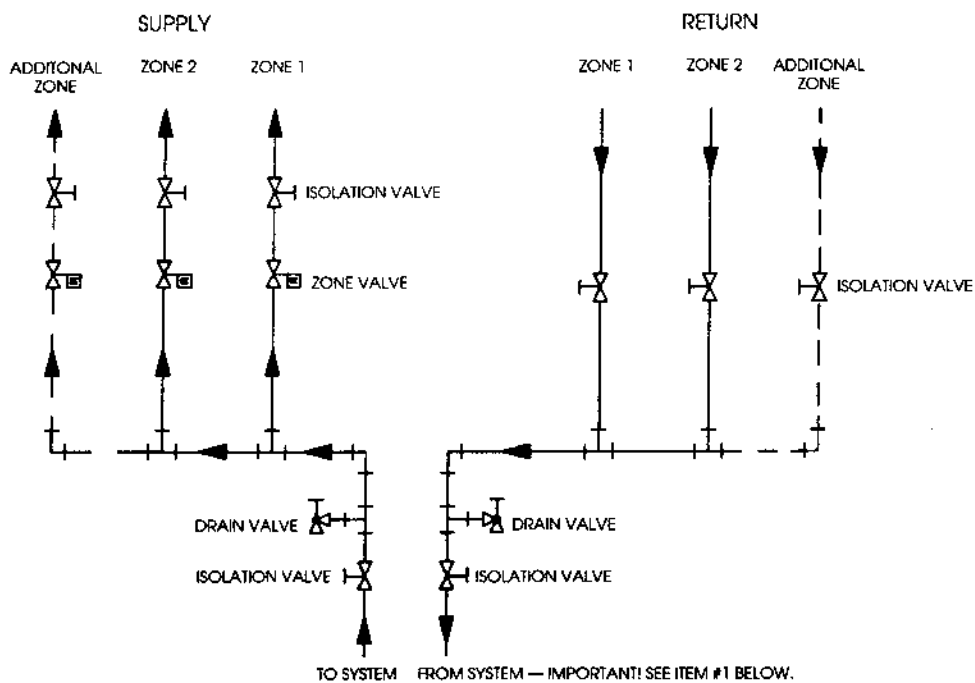
USE WITH REFRIGERATION SYSTEM  
FIGURE 7

1. Install boiler so that chilled medium is piped in parallel with heating boiler. Use appropriate valves to prevent chilled medium from entering boiler. Consult I=B=R Installation and Piping Guides.
2. If boiler is connected to heating coils located in air handling units where they can be exposed to refrigerated air, use flow control valves or other automatic means to prevent gravity circulation during cooling cycle.

## PIPING MULTIPLE ZONES:



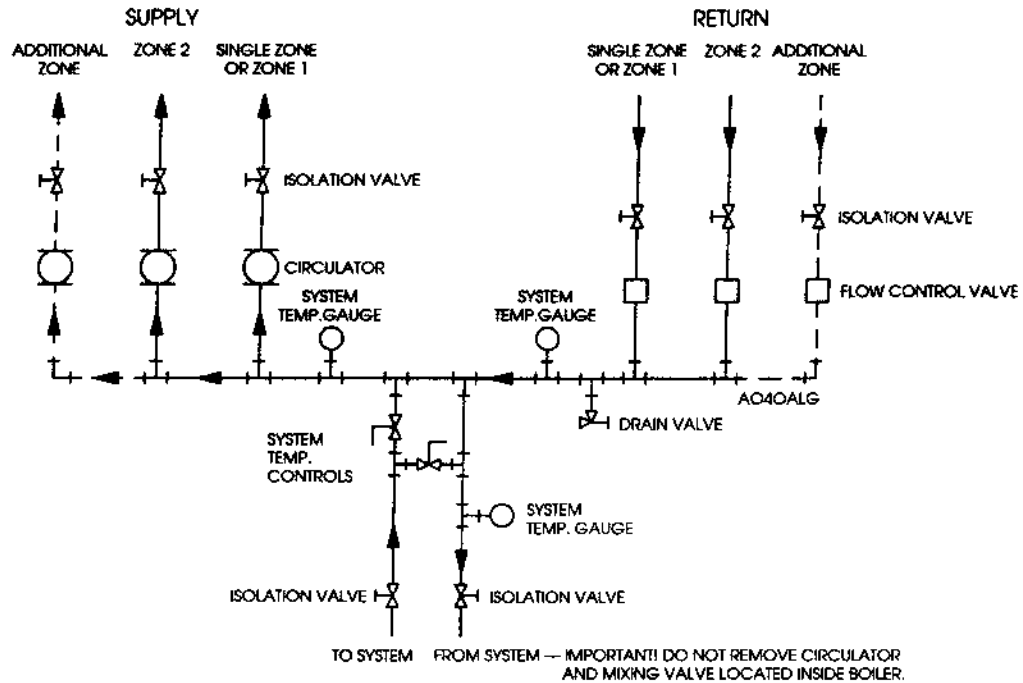
**MULTIPLE ZONING WITH CIRCULATORS**  
**FIGURE 8**



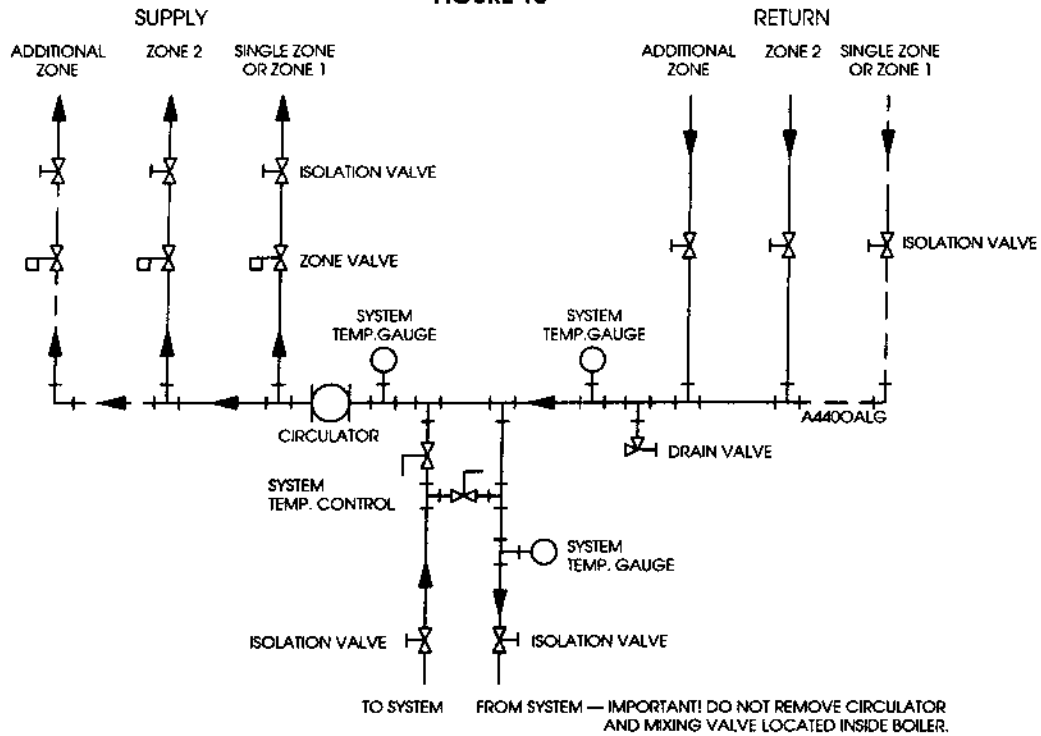
**MULTIPLE ZONING WITH ZONE VALVES**  
**FIGURE 9**

1. DO NOT REMOVE CIRCULATOR AND MIXING VALVE LOCATED INSIDE BOILER.
2. Follow instructions on pages 7 and 8 to install piping near boiler.
3. See Figure 8 or 9 to complete installation.

## PIPING FOR SYSTEMS REQUIRING TEMPERATURES BELOW 140°F.:



**PIPING WITH CIRCULATORS**  
**FIGURE 10**



**PIPING WITH ZONE VALVES**  
**FIGURE 11**

1. In most systems, this type of piping is not required. If system water temperature requirements are less than 140°F., use piping as shown in Figure 10 or 11. If system piping is plastic without an oxygen barrier, a heat exchanger should be used.

## Section D: Venting and Combustion Air Supply

### NOTICE

These instructions take precedence over vent manufacturer's instructions.

### SELECT VENTING MATERIALS:

AGA/CGA certified venting materials:

Plexco PLEXVENT®

Hart and Cooley ULTRAVENT™

AL29-4C® Stainless Steel

### WARNING

Using other venting materials can result in personal injury, death or property damage.

Use suitable 3" material for outside combustion air, such as:

Dryer vent

Galvanized steel

PVC (3" I.D.)

### FOLLOW VENTING REQUIREMENTS:

- DO NOT use existing chimney as raceway if another appliance or fireplace is vented into or thru chimney.
- See Appendix, page 22, when existing boiler is removed from common venting system.
- DO NOT connect:
  - any other appliance to vent piping.
  - multiple boilers to common vent.
- Do not wrap or insulate vent pipe and fittings.
- Refer to vent locations, page 5.
- Use DOW 732 or equivalent silicone sealant.

### FOLLOW VENT/COMBUSITON AIR PROCEDURE:

- Choose vent/combustion air method:
  - thru sidewall with W-M termination - page 12. Uses either inside or outside combustion air.
  - thru sidewall with vent coupling termination - page 13. Uses inside combustion air only.
  - thru unused chimney as raceway- page 14. Uses inside combustion air only.
  - thru roof - page 14. Uses inside combustion air only.
- Do not exceed limits in Table III for piping lengths and number of elbows. Longer vent runs will slightly reduce boiler input. See Appendix, page 22.

Table III - Venting System Length

| Total No. of Elbows | 0   | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|---------------------|-----|----|----|----|----|----|----|----|
| Max. Length (Ft.)   |     |    |    |    |    |    |    |    |
| GV-3 thru 5         | 100 | 80 | 70 | 60 | 50 | 40 | 30 | 20 |
| GV-6                | 80  | 60 | 50 | 40 | 30 | 20 | 10 | —  |

Note: also use Table for outside air piping.

### 3. Support piping:

- horizontal runs - at least every 5 feet (Canada - every 3 feet).
- vertical runs - use braces:
  - under elbow or pipe near elbow.
  - every 5 feet (Canada - every 3 feet).

### 4. To make non-metallic vent joints:

- insert pipe in fitting and mark insertion point.
- remove pipe and spread silicone sealant inside marked area.
- re-insert pipe in fitting and twist  $\frac{1}{4}$  turn to ensure proper seal.

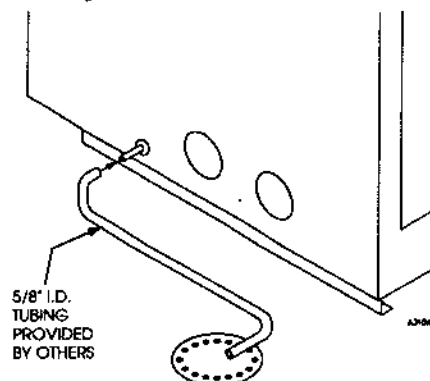
### 5. WARNING

Follow items listed below to avoid personal injury or property damage.

- Cut non-metallic vent pipe with fine-toothed hack-saw (34 teeth per inch).
- Do not use non-metallic vent pipe or fittings that are cracked or damaged.
- Do not use non-metallic vent fittings if they are cut or altered. Use only those fittings listed on page 25.
- Do not drill holes, or use screws or rivets, in non-metallic vent pipe or fittings.

### 6. To make metallic vent joints:

- Point crimped ends of pipe towards boiler for good condensate drain back to boiler.
- Do not install seams of vent pipe on bottom of runs.
- Seal all joints and seams with silicone sealant.



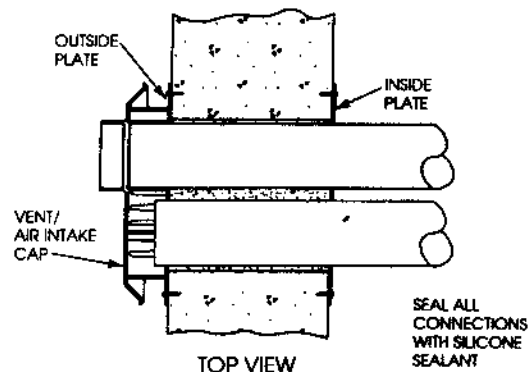
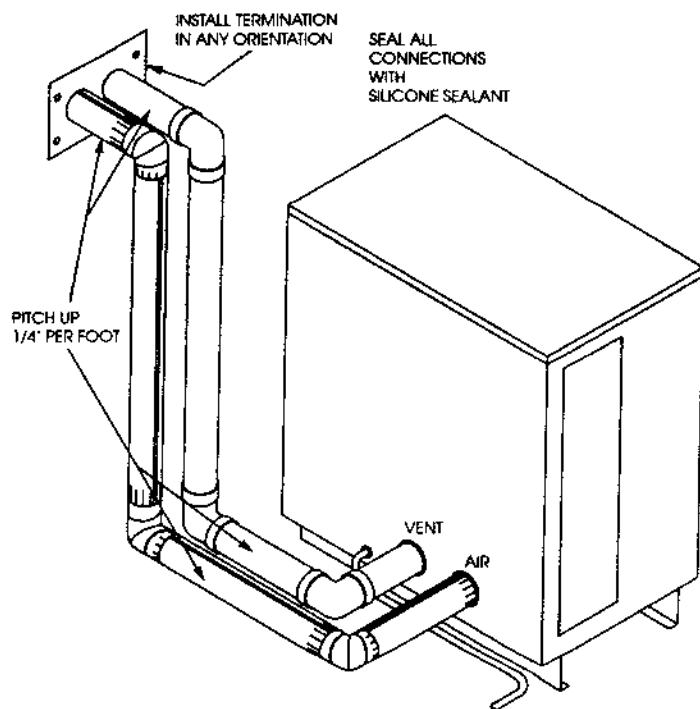
CONDENSATE TUBING INSTALLATION  
FIGURE 12

- See Figure 12 to install condensate tubing (provided by others). Use condensate pump if floor drain is not lower than condensate drain on boiler. If required:

- use a low-profile pump, OR
- set boiler on pad to allow gravity flow to pump.

Size pump in gal/hr (boiler model): 0.78 (GV-3), 1.17 (GV-4), 1.56 (GV-5), 1.95 (GV-6). Refer to pump manufacturer's instructions. Drain to non-freezing area.

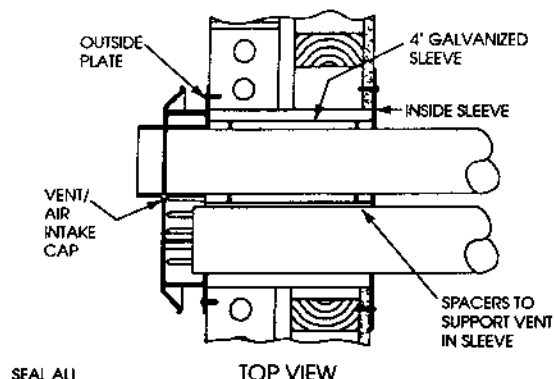
## VENTING THROUGH SIDEWALL USING W-M VENT/AIR INTAKE TERMINATION:



TOP VIEW

SIDE VIEW

## VENTING THROUGH SIDEWALL WITH W-M VENT/AIR INTAKE TERMINATION FIGURE 13



TOP VIEW

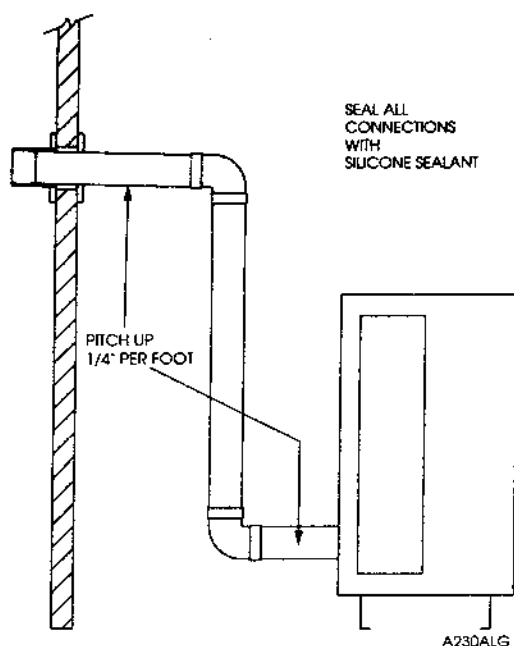
SIDE VIEW

## COMBUSTIBLE SIDEWALL TERMINATION WITH W-M VENT/AIR INTAKE TERMINATION FIGURE 13A

## NON-COMBUSTIBLE SIDEWALL TERMINATION WITH W-M VENT/AIR INTAKE TERMINATION FIGURE 13B

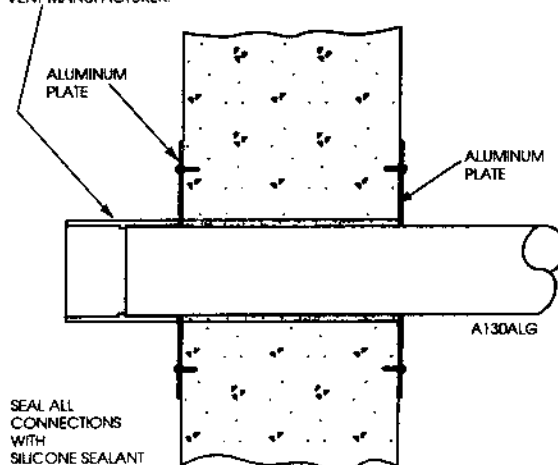
1. Instructions on page 11 must be followed. Also, refer to page 5 to review sidewall venting locations.
2. Use only W-M vent/air intake terminal kit (W-M Sales Ref. No. 11B223), provided with boiler. Install as shown in Figures 13 and 13A or B. If inside combustion air will be used, do not remove knockout in plates. ONLY if inside combustion air is used, a turndown non-metallic termination elbow and nipple may be attached to vent outlet. Elbow must have screen as supplied by vent manufacturer.
3. Do not cover up outside cap and plate with any exterior building material, such as siding or wood.
4. Check all vent joints (and seams) for gas-tight seal. Repair, if leaking.
5. Support piping:
  - a. horizontal runs - at least every 5 feet (Canada - every 3 feet).
  - b. vertical runs - use braces:
    - under elbow or pipe near elbow.
    - every 5 feet (Canada - every 3 feet).
6. Maintain 1" minimum clearance from combustibleside materials to vent pipe.

## VENTING THROUGH SIDEWALL USING VENT COUPLING TERMINATION:



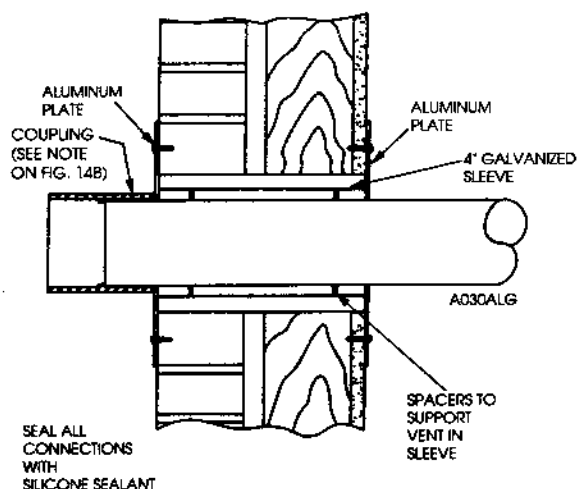
VENTING THROUGH SIDEWALL  
WITH VENT COUPLING TERMINATION  
FIGURE 14

REQUIRED NON-METALLIC COUPLING OF CERTIFIED MATERIAL.  
TURN-DOWN ELBOW AND NIPPLE MAY BE ATTACHED TO COUPLING.  
FINAL TERMINATION MUST HAVE SCREEN AS SUPPLIED BY  
VENT MANUFACTURER.



PARTS PROVIDED BY OTHERS

NON-COMBUSTIBLE SIDEWALL TERMINATION  
WITH VENT COUPLING TERMINATION  
FIGURE 14B

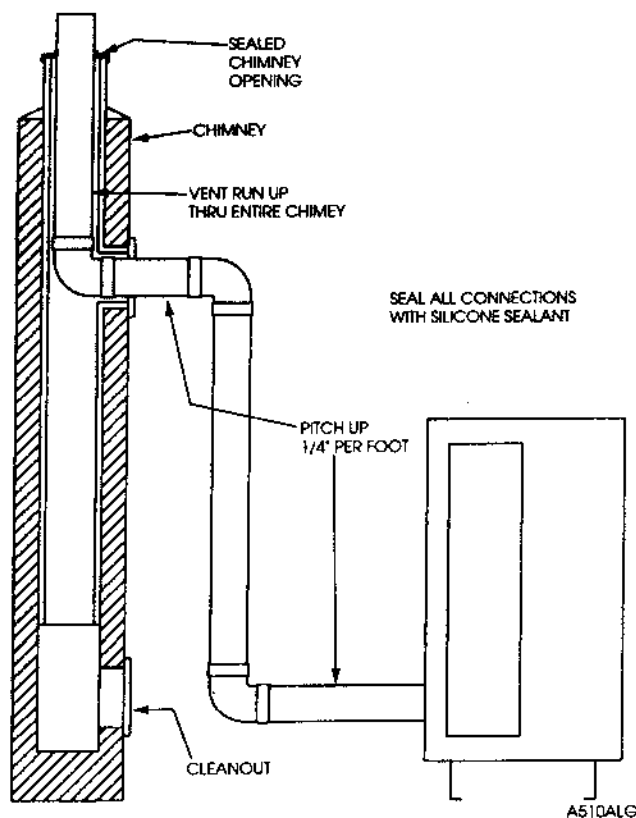


PARTS PROVIDED BY OTHERS

COMBUSTIBLE SIDEWALL TERMINATION  
WITH VENT COUPLING TERMINATION  
FIGURE 14A

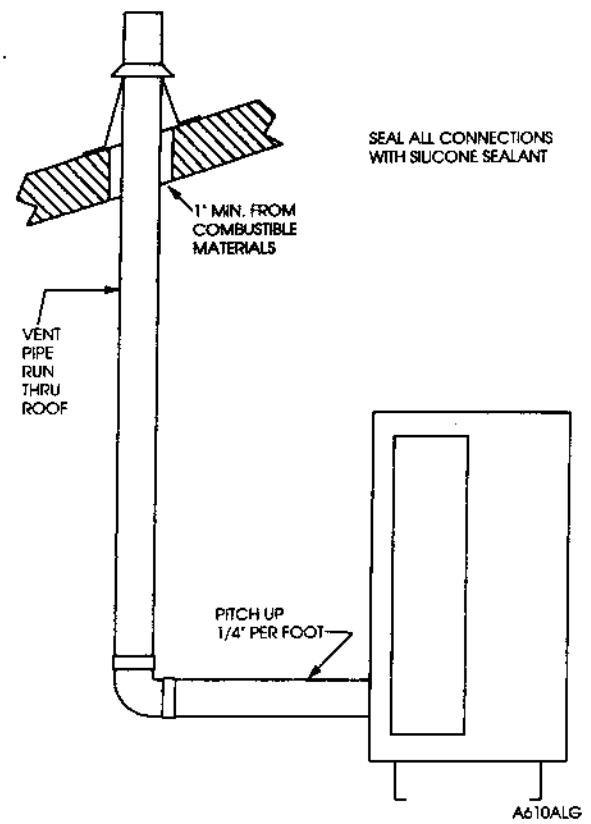
1. Instructions on page 11 must be followed. Also, refer to page 5 to review sidewall venting locations.
2. Construct as shown in Figures 14 and 14A or B.
3. Check all vent joints (and seams) for gas-tight seal. Repair, if leaking.
4. Support piping:
  - a. horizontal runs - at least every 5 feet (Canada - every 3 feet).
  - b. vertical runs - use braces:
    - under elbow or pipe near elbow.
    - every 5 feet (Canada - every 3 feet).
5. Maintain 1" minimum clearance from combustible materials to vent pipe.

## VENTING THROUGH ROOF OR UNUSED CHIMNEY:



**VENTING THROUGH UNUSED CHIMNEY**  
**FIGURE 15**

1. Instructions on page 11 must be followed.
2. Vent pipe must extend:
  - a. through entire length of unused chimney. See Figure 15.
  - b. through roof flashing, jacket, or thimble. See Figure 16.
    - vent may pass through floor, inside wall or concealed space when installed according to vent manufacturer's instructions. An enclosure must be constructed of materials specified in those instructions.

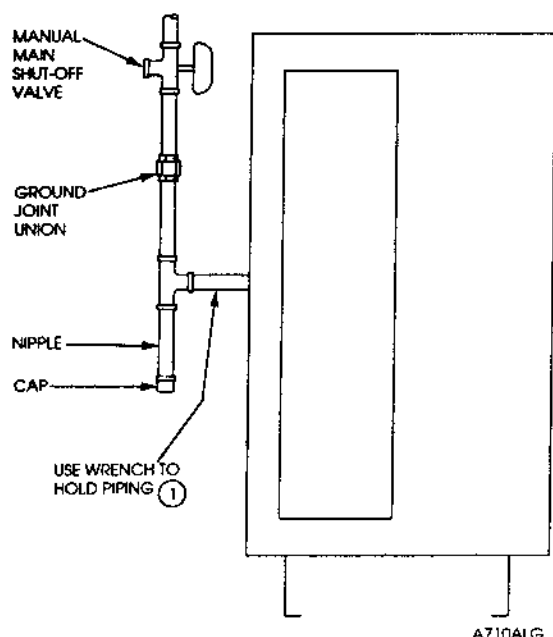


**TYPICAL VENTING THROUGH THE ROOF**  
**FIGURE 16**

3. MAINTAIN MINIMUM ONE-INCH CLEARANCE from combustible materials to vent pipe.
4. Check all vent joints (and seams) for gas-tight seal. Repair, if leaking.
5. Support piping:
  - a. horizontal runs - at least every 5 feet (Canada - every 3 feet).
  - b. vertical runs - use braces:
    - under elbow or pipe near elbow.
    - every 5 feet (Canada - every 3 feet).
6. Maintain 1" minimum clearance from combustible materials to vent pipe.

## Section E: Gas Piping

### GAS PIPING:



**GAS PIPING INSTALLATION  
FIGURE 17**

- ① Refer to Figure 17 to pipe gas. Use wrench to hold factory-installed gas piping nipple.
2. Support piping with hangers, not by boiler or its accessories.
3. Purge all air from supply piping.
4. Check factory-installed piping and field-installed piping for leaks - use BUBBLE TEST.

#### CAUTION

- a. DO NOT check for gas leaks with an open flame - USE BUBBLE TEST.
- b. Close manual main shut-off valve during any pressure testing at less than 13" W.C.
- c. Disconnect boiler and gas valve from gas supply piping during any pressure testing greater than 13" W.C.

5. Use pipe dope compatible with propane gases. Apply sparingly only to male pipe ends.

### Natural Gas:

Table IV - Pipe Delivery Schedule

| Length of Pipe<br>in Feet | * Capacity of Pipe in<br>Cubic Feet of Gas Per Hour |      |     |        |        |
|---------------------------|---|------|-----|--------|--------|
|                           | 1/2"  | 3/4" | 1"  | 1 1/4" | 1 1/2" |
| 10                        | 132   | 278  | 520 | 1050   | 1600   |
| 20                        | 92  | 190  | 350 | 730    | 1100   |
| 30                        | 73  | 152  | 285 | 590    | 860    |
| 40                        | 63  | 130  | 245 | 500    | 760    |
| 50                        | 56  | 115  | 215 | 440    | 670    |
| 75                        | 45  | 93   | 175 | 360    | 545    |
| 100                       | 38  | 79   | 150 | 305    | 460    |
| 150                       | 31  | 64   | 120 | 250    | 380    |

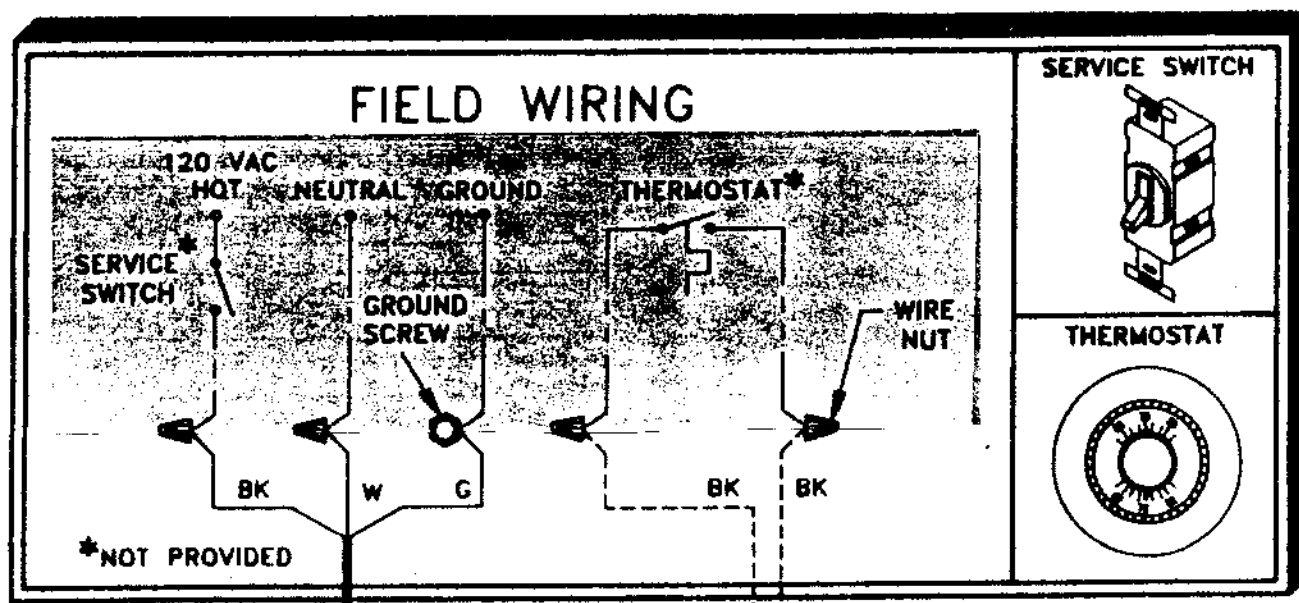
\*based on 0.60 Specific Gravity, 0.30" W.C. pressure drop.  
NOTE: For additional piping schedules, see ANSI Z223.1.

1. Refer to Table IV for pipe length and diameter. Base on rated boiler input (divided by 1000 to obtain cubic feet per hour).
2. Inlet pressure at gas valve inlet: maximum 13" W.C.  
minimum 4" W.C.
3. Install 100% lock-up gas pressure regulator in supply line if inlet pressure exceeds 13" W.C. Adjust for 13" W.C. maximum.

### Propane Gas:

1. Boiler can be converted easily with propane conversion kit supplied.
2. Contact gas supplier to size pipes, tanks and 100% lock-up gas pressure regulator.
3. Adjust regulator provided by gas supplier for 13" W.C. maximum pressure.
4. Inlet pressure at gas valve inlet: maximum 13" W.C.  
minimum 4" W.C.

## Section F: Field Wiring



HIGH VOLTAGE FACTORY WIRING  
 LOW VOLTAGE FACTORY WIRING  
 HIGH VOLTAGE FIELD WIRING  
 LOW VOLTAGE FIELD WIRING

FIELD WIRING DIAGRAM  
 FIGURE 18

### INSTALLATIONS MUST FOLLOW THESE CODES:

- National Electrical Code and any other national, state, provincial or local codes or regulations having jurisdiction.
- Safety wiring must be N.E.C. Class 1.
- Boiler must be electrically grounded as required by N.E.C. ANSI/NFPA 70-latest edition.
- In Canada, C.S.A. C22.1 C.E.C. Part 1.

### CONNECT WIRING:

#### Thermostat:

1. Install on inside wall away from influences of drafts, hot or cold water pipes, lighting fixtures, television, sunrays, or fireplaces.

2. Follow instructions with thermostat. If it has a heat anticipator, set heat anticipator in thermostat to match power requirements of equipment connected to it (ignition control and gas valve, zone valve contacts, etc.). Wiring diagram on boiler gives setting for standard equipment (ignition control and gas valve).
3. Thermostat wires are labeled "T-T" on boiler. Remove label before connecting as shown in Figure 18.

#### Junction Box (furnished):

1. Fused disconnect or service switch (15 amp. recommended) may be mounted on this box. Some local codes may prohibit installation of fused disconnect or service switch on boiler.
2. Connect as shown in Figure 18.

## Section G: Start-Up

### DETERMINE IF WATER TREATMENT IS NEEDED:

1. **Never use petroleum-based stop leak compounds.** Water seal deterioration will occur, resulting in leakage between sections.
2. Consult local water treatment companies for unusually hard water areas (above 7 grains hardness) or low pH water conditions (below 7.0).
3. Repair **ALL** leaks. Continual fresh makeup water will reduce boiler life. Minerals can build up in sections, reducing heat transfer, overheating cast iron, and causing section failure.
4. Freeze protection (when used):
  - a. Use antifreeze made especially for hydronic systems. Inhibited propylene glycol is recommended. **DO NOT** use undiluted antifreeze or automotive antifreeze.
  - b. Determine quantity according to system water content. Boiler water content is listed on back page.
  - c. Follow antifreeze manufacturer's instructions.
  - d. 50% solution provides maximum protection to about -30°F.
  - e. Local codes may require back flow preventer or actual disconnect from city water supply.

### FILL THE SYSTEM:

1. Close manual and automatic air vents and drain cock.
2. Fill to correct system pressure. Correct pressure will vary with each application. Normal cold water fill pressure for residential system is 12 psi.
3. Open automatic air vent two turns.
4. Slowly feed water to boiler.
  - a. Starting on the lowest floor, open air vents one at a time until water squirts out. Close vent.
  - b. Repeat with remaining vents.
5. Close manual water feed valve when correct boiler pressure is reached.

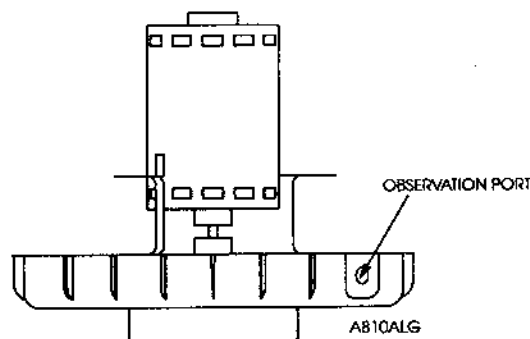
### PLACE IN OPERATION:

1. Verify boiler is filled with water.
2. Follow lighting instructions on page 18.
3. Check system piping for leaks. If found, repair immediately.
4. Vent air from system. Repeat steps 4 and 5 under "Fill the System." Air in system can interfere with water circulation and cause improper heat distribution.
5. If boiler fails to start, check for:
  - a. Loose connections, blown fuse or service switch off?
  - b. High limit switch set below boiler water temperature?
  - c. Thermostat set below room temperature?
  - d. Gas not turned on at meter or boiler?
  - e. Incoming gas pressure less than 4" W.C. ?
  - f. If above fails to correct problem, refer to Gas Control Supplement.

### INSPECT VENTING SYSTEM:

1. Check for gas tight seal at all vent pipe connections.

### CHECK BURNER FLAME AND IGNITOR GLOW:



**SEEING BURNER FLAME OR IGNITOR GLOW  
THROUGH OBSERVATION PORT  
FIGURE 19**

1. Look through observation port in blower housing:
  - a. Ignitor glow is seen as yellow-orange.
  - b. flame is seen as round blue dot.

## FOR YOUR SAFETY READ BEFORE LIGHTING

### WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

#### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

- If you cannot reach your gas supplier, call the fire department.

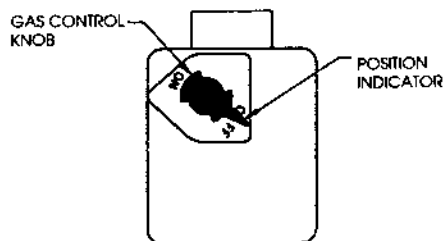
- C. Use only your hand to push in or turn the gas control knob or move the selector arm. Never use tools. If the knob or arm will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

## OPERATING INSTRUCTIONS

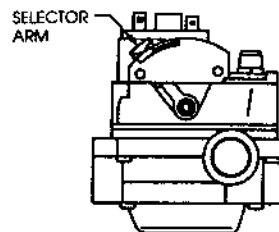
1. STOP! Read the safety information above.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

NOTE: Use the picture that corresponds with your valve.

WHITE-RODGERS



ROBERTSHAW



5. Push in gas control knob slightly and turn clockwise to "OFF".  
NOTE: Knob cannot be turned to "OFF" unless knob is pushed in slightly. Do not force.
6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to next step.
7. Turn gas control knob counterclockwise to "ON."
8. Turn on all electric power to the appliance.
9. Set thermostat to desired setting.
10. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.
11. Replace control access panel.

5. Depress and move selector arm left to "OFF."  
Note: Arm cannot be turned to "OFF" unless arm is pushed in slightly. Do not force.
6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to next step.
7. Depress and move selector arm right to "ON."

## TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. To turn boiler "OFF" follow 5 in "Operating Instructions" above that corresponds with your valve.
4. Replace control access panel.



## Section H: Check-Out Procedure

Check off steps as completed:

- ☐ 1. Boiler and heat distribution units filled with water?
- ☐ 2. Automatic air vent, if used, open two full turns during venting procedure?
- ☐ 3. Air purged from system?
- ☐ 4. Air purged from gas piping? Piping checked for leaks?
- ☐ 5. Followed lighting instructions on page 18 for proper start-up?
- ☐ 6. Is burner flame or ignitor glow visible? Refer to "Check Burner Flame and Ignitor Glow," p. 17.
- ☐ 7. Test safety controls: If boiler is equipped with a low water cut-off or additional safety controls, test for operation as outlined by manufacturer. Burner should be operating and should go off when controls are tested. When safety devices are restored, burners should reignite.
- ☐ 8. Test limit control: While burner is operating, move indicator on high limit control below actual boiler water temperature. Blower and burner should go off while circulator continues to operate. Raise setting on limit control above boiler water temperature and burner should reignite.
- ☐ 9. Test ignition system safety device:
  - a. Connect voltmeter to gas valve terminals.
  - b. Turn off manual gas valve.
  - c. Set thermostat to call for heat.
  - d. Ignitor will glow for approx. 20 seconds. Near end of 20 seconds, 24VAC will show at gas valve for approx. 6 seconds and then return to 0 VAC.
  - e. To restart system, follow lighting instructions on page 18.
- ☐ 10. High limit control set to design temperature requirements of system? Maximum high limit setting = 220°F.
- ☐ 11. For multiple zones, flow adjusted so it is about the same in each zone?
- ☐ 12. Thermostat heat anticipator (if available) set properly? Refer to "Wiring," page 16.
- ☐ 13. Boiler cycled with thermostat? Raise to highest setting and verify boiler goes through normal start-up cycle. Lower to lowest setting and verify boiler goes off.
- ☐ 14. Measure natural gas input:
  - a. Operate boiler 10 minutes.
  - b. Turn off other appliances.
  - c. At natural gas meter, measure time (in seconds) required to use on 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 label.
- ☐ 15. Observed several operating cycles for proper operation?
- ☐ 16. Set room thermostat to desired room temperature?
- ☐ 17. Completed Installation and Service Certificate below?
- ☐ 18. Reviewed all instructions shipped with this boiler with owner or maintenance person, returned to envelope and given to owner or placed in pocket inside front panel in boiler?

## Installation and Service Certificate

BOILER MODEL \_\_\_\_\_ SERIES \_\_\_\_\_ CP NUMBER \_\_\_\_\_ DATE INSTALLED \_\_\_\_\_

MEASURED 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 I: Maintenance

### SUGGESTED MINIMUM MAINTENANCE SCHEDULE:

Maintenance as outlined below can be performed by the owner. Also refer to User's Manual for specific maintenance instructions.

Regular service by a qualified service agency and maintenance must be performed to assure maximum boiler operating efficiency.

#### Beginning each heating season:

1. Annual service call by qualified service agency.
2. Visually check top of vent ell for soot. Call service man to clean. Some sediment at bottom of vent ell is normal.
3. Visually inspect venting system for proper function, deterioration or leakage.
4. Check that boiler area is free from combustible materials, gasoline, and other flammable vapors and liquids.
5. Check for and remove any obstruction to the flow of combustion or ventilation air to boiler.
6. Follow "Place in Operation," page 17.
7. Visually inspect burner flame and ignitor glow, page 17.
8. Check operation of safety devices. Refer to manufacturer's instructions.
9. Follow oil-lubricating instructions on circulator. Over-oiling will damage circulator. Water-lubricated circulators do not need oiling.
10. Visually inspect condensate drain hose for proper operation or deterioration. Check for plugged condensate drain by checking for 1 or more inches of water in vent ell.
11. Check operation of mixing valve. On cold start-up, return piping between mixing valve and circulator inside boiler will feel warmer than return piping outside jacket from system.

#### WARNING

To avoid potential of severe burn, DO NOT rest hands on or grasp pipes. Use a light touch - return piping will heat up quickly.

If mixing valve does not seem to be working, the spring and thermostat may need to be replaced. Call a qualified service technician.

12. Open jacket top panel and check for piping leaks around circulator, mixing valve, relief valve and other fittings. Repair, if found. DO NOT use petroleum-based stop leak compounds - leakage between sections will occur.

#### 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 the flow of combustion or ventilation air to boiler.

#### Monthly during heating season:

1. Open jacket top panel and check for piping leaks around circulator, mixing valve, relief valve, and other fittings. If found, repair at once. DO NOT use petroleum-based stop leak compounds - leakage between sections will occur.
2. Visually inspect burner flame and ignitor glow, page 17.
3. Visually inspect venting system for proper function, deterioration or leakage.
4. Check air vents for leakage.

#### Periodically during heating season:

1. Check relief valve. Refer to manufacturer's instructions on valve.
2. Test low water cut-off, if used. Refer to manufacturer's instructions.
3. Visually inspect condensate drain hose for proper operation or deterioration. Check for plugged condensate drain by checking for 1 or more inches of water in vent ell.
4. Clean screen in vent termination and air intake.

#### Every 6 months:

1. Oil blower motor. With boiler power shut off, lift up control tray. Place a few drops of S.A.E. 20 motor oil in 2 blower motor oil cups. Replace control tray and restore power to boiler. Do not use common universal household oils.

#### End of each heating season - annual shut-down procedure:

1. Follow "To Turn Off Gas To Appliance" instructions, page 18.
2. DO NOT drain system unless exposure to freezing temperatures will occur. DO NOT drain system if antifreeze is used.

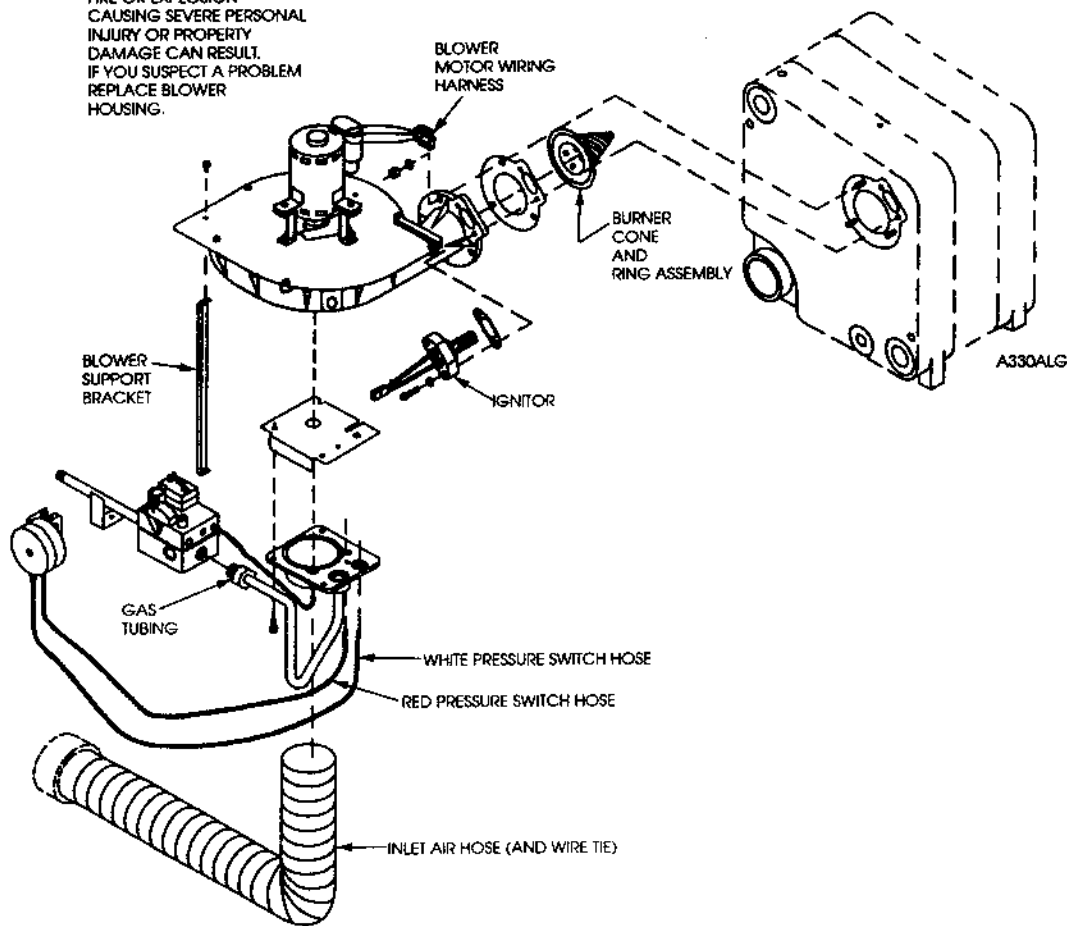
#### CLEANING BOILER HEATING SURFACES:

The following service procedures must be performed ONLY by a qualified service agency. Boiler owner should not attempt these procedures.

1. If you find soot in top of vent ell (some sediment in bottom of vent ell is normal) - remove blower assembly, and clean inside boiler by spraying water into chamber. Drain through condensate hose. Also check burner, replace if damaged; check gas valve operation and negative outlet pressure, replace if not okay - gas valve is not adjustable; check blower wheel operation.
2. If you find rust deposits in vent ell - check mixing valve and clean boiler as above.

**WARNING**

DO NOT DISASSEMBLE BLOWER HOUSING. A FIRE OR EXPLOSION CAUSING SEVERE PERSONAL INJURY OR PROPERTY DAMAGE CAN RESULT. IF YOU SUSPECT A PROBLEM REPLACE BLOWER HOUSING.



REMOVING/REPLACING BLOWER ASSEMBLY  
FIGURE 20

**To remove blower assembly:****WARNING**

Wait until ignitor is cooled down before proceeding.

Turn off power and gas to boiler. Failure to do so can cause severe personal injury, death and property damage.

1. Remove control tray.
2. Disconnect:
  - gas tubing from gas valve (left-hand thread)
  - pressure switch hoses
  - hose from gas valve to gas/air manifold
  - air inlet hose
  - blower motor wiring harness from control module
  - ignitor harness connected to ignitor plug
  - blower support bracket
3. Remove 2 ignitor screws and washers. Carefully remove ignitor. Use care when handling ignitor - very brittle!
4. Remove nuts from studs at blower housing mounting bracket.
5. Grasp blower housing and pull free from studs. Turn clockwise until blower assembly can be removed safely from inside of boiler.
6. Burner cone and ring assembly can be removed for inspection.

**To replace blower assembly:**

1. Re-install burner cone and ring assembly into combustion chamber opening.
2. Place blower housing gasket over studs at combustion chamber opening.
3. Position blower assembly over studs. Install nuts and tighten.
4. Install ignitor and ignitor gasket. Fasten with screws and washers.
5. Connect :
  - gas tubing to gas valve (left-hand thread)
  - pressure switch hoses
  - hose from gas valve to gas/air manifold
  - air inlet hose (with new wire tie)
  - blower motor wiring harness to control module
  - ignitor harness connected to ignitor plug
6. Install control tray.
7. Be sure all wiring and hose connections are secure and correct.

## Section J: Appendix

### INSIDE COMBUSTION AIR CONTAMINATION:

All boilers experience some condensation in the section assembly during start-up. Unlike most conventional boilers, condensation is minimized in the GV by a built-in mixing valve that maintains boiler return water temperature above 140°F.

The condensate from flue gas is slightly acidic. In most cases the pH level is not harmful to vents or drains. When combustion air is contaminated by vapors from products in areas listed below, the acidic levels in the condensate increase. Higher acidic levels attack many materials, including stainless steel commonly used in high efficiency systems.

The GV boiler can use special corrosion-resistant non-metallic vent material. You may, however, choose to use outside combustion air for one or more of these reasons:

- installation is in an area containing contaminants listed below which will induce acidic condensation.
  - you want to reduce infiltration into your home through openings around windows and doors.
  - you are using AL29-4C® stainless steel vent pipe, which is more corrosion-resistant than standard metallic vent pipe. In extremely contaminated areas, this may also experience deterioration.
1. Products causing contaminated combustion air:
    - a. spraycans containing chloro/fluorocarbons
    - b. permanent wave solutions
    - c. chlorinated waxes/cleaners
    - d. chlorine-based swimming pool chemicals
    - e. calcium chloride used for thawing
    - f. sodium chloride used for water softening
    - g. refrigerant leaks
    - h. paint or varnish removers
    - i. hydrochloric acid/muriatic acid
    - j. cements and glues
    - k. anti-static fabric softeners used in clothes dryers
    - l. chloride-type bleaches, detergents, and cleaning
    - m. solvents found in household laundry rooms
    - n. adhesives used to fasten building products
    - ... and other similar products
  2. Areas causing contaminate combustion air:
    - a. dry cleaning/laundry areas and establishments
    - b. metal fabrication plants
    - c. beauty shops
    - d. refrigeration repair shops
    - e. photo processing plants
    - f. auto body shops
    - g. plastic manufacturing plants
    - h. furniture refinishing areas and establishments
    - i. new build construction
    - j. remodeling areas

### WARNING

Check for areas and products as listed above before installing boiler. If found:

- remove products permanently.
- OR
- provide outside combustion air.

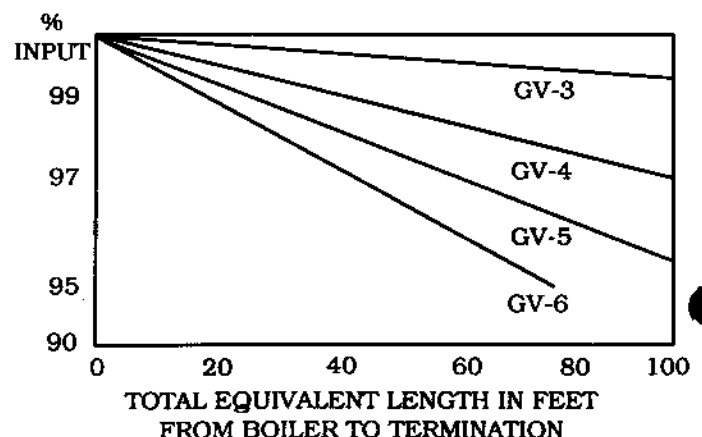
### WHEN REMOVING BOILER FROM COMMON VENTING SYSTEM:

At the time of removal of an existing boiler, the following steps shall be followed with each appliance remaining connected to the common venting system placed in operation, while the other appliances remaining connected to the common venting system are not in operation.

- a. Seal any unused openings in the common venting system.
- b. Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion, and other deficiencies which could cause an unsafe condition.
- c. Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any appliances not connected to the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.
- d. Place in operation the appliance being inspected. Follow the lighting instructions. Adjust thermostat so appliance will operate continuously.
- e. Test for spillage at draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match, or candle, or smoke from a cigarette, cigar, or pipe.
- f. After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers, and any other gas-burning appliance to their previous conditions of use.

Any improper operation of common venting system should be corrected so the installation conforms with the National Fuel Gas Code, ANSI Z223.1 - latest edition. Correct by resizing to approach the minimum size as determined using the appropriate tables in Appendix G of that code.

### REDUCED INPUT FOR VENT LENGTH:



## Section K: Parts

|                                |    |
|--------------------------------|----|
| Section Assembly . . . . .     | 24 |
| Jacket Assembly . . . . .      | 25 |
| Vent Parts . . . . .           | 25 |
| Blower Assembly . . . . .      | 26 |
| Boiler Trim Assembly . . . . . | 27 |

### REPLACEMENT INSTRUCTIONS

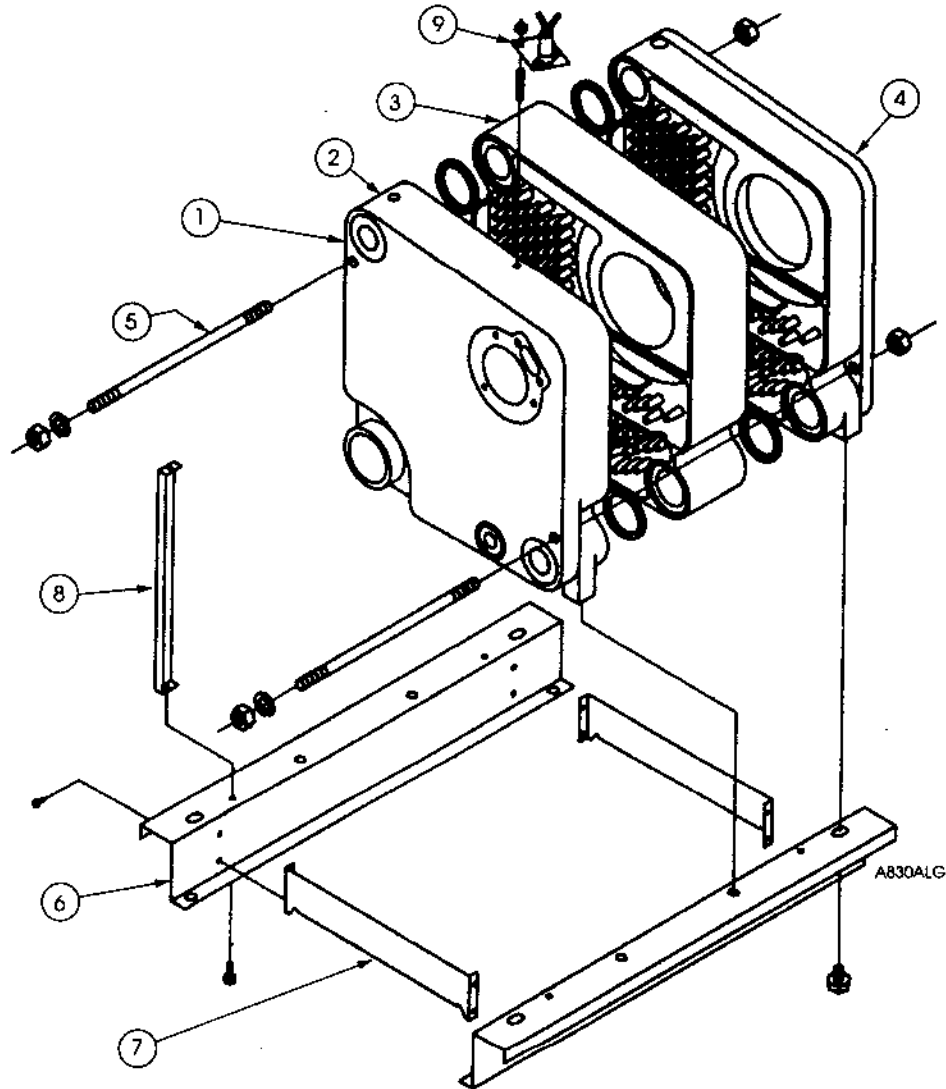
Before replacing any parts on the boiler:

1. Turn off power.
2. Shut off gas supply.

Refer to appropriate drawing on following pages for parts replacement.

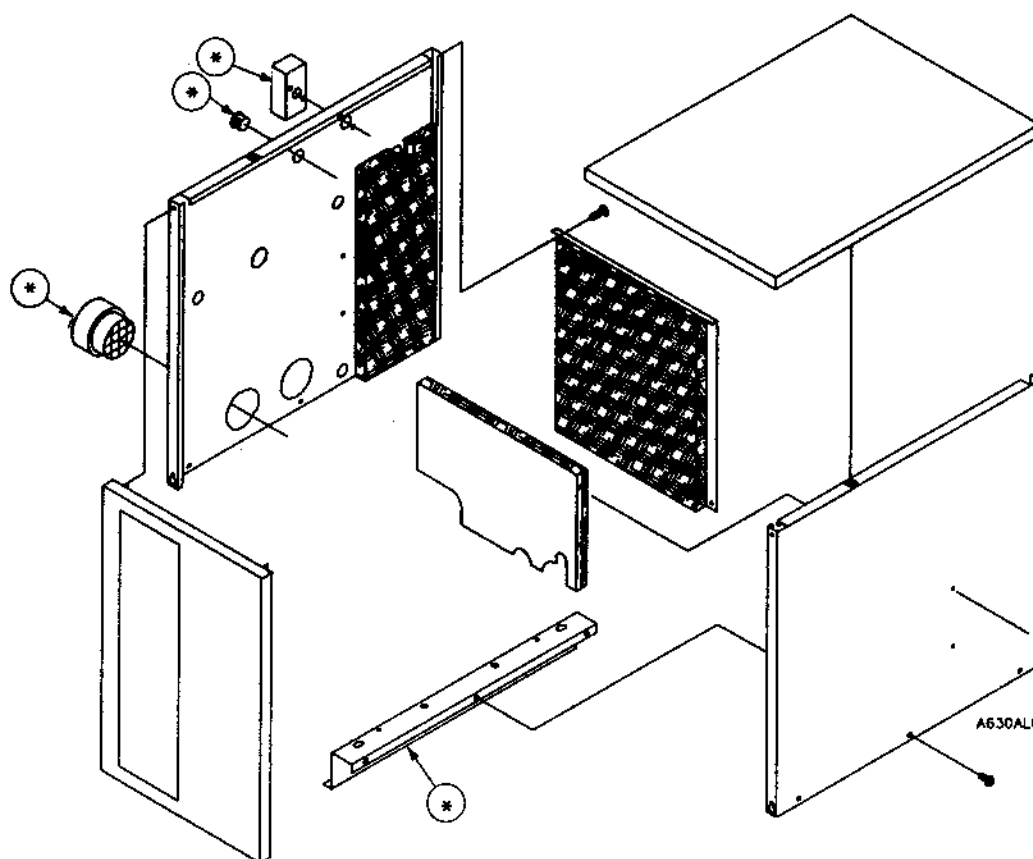
Replacement parts can be ordered or purchased through a local Weil-McLain distributor. When ordering, specify "GV Boiler" and include description and part number of replacement part. Some parts are stock items (■) and can be purchased from a local supply house.

## Section Assembly



| Figure No. | Description   | Well-McLain Sales Ref. No. |        |        |        |
|------------|---|----------------------------|--------|--------|--------|
|            |   | GV-3                       | GV-4   | GV-5   | GV-6   |
| 1          | Block Assembly, Including:<br>Front Section (3914); Int. Section (3915) (qty. for boiler size); Back Section (3918);<br>Square Cut Seals, 2"; Silicone Sealant; Tie Rods; Tie Rod Nuts; Tie Rod Washers;<br>Water Tubing Male Adapters, 1" N.P.T.; Water Tubing, Pump to Return; Blower Flange Gasket; Ignitor; Ignitor Gasket; Screws; Lock Washers; Studs; Nuts | 11B200                     | 11B201 | 11B202 | 11B203 |
| 2          | Front Section (3914) (Repair Kit Required)  | 11B204                     | 11B204 | 11B204 | 11B204 |
| 3          | Int. Section (3915) (Repair Kit Required)   | 11B205                     | 11B205 | 11B205 | 11B205 |
| 4          | Back Section (3918) (Repair Kit Required)   | 11B206                     | 11B206 | 11B206 | 11B206 |
| NOT SHOWN  | Repair Kit, Front Replacement Sections, Including:<br>Square Cut Seals, 2"; Silicone Sealant; Tie Rod Nuts; Tie Rod Washers; Water Tubing Male Adapters, 1" N.P.T.; Water Tubing, Pump to Return; Blower Flange Gasket; Ignitor; Ignitor Gasket; Screws; Studs; Nuts; Lock Washers  | 11B207                     | 11B207 | 11B207 | 11B207 |
| NOT SHOWN  | Repair Kit, Int/Back Replacement Sections, Including:<br>Square Cut Seals, 2"; Silicone Sealant; Tie Rod Nuts; Tie Rod Washers  | 11B208                     | 11B208 | 11B208 | 11B208 |
| 5          | Tie Rod   | 11B209                     | 11B210 | 11B211 | 11B212 |
| 6          | Base Rail Leg   | 11B213                     | 11B214 | 11B215 | 11B216 |
| 7          | Base Rail Brace   | 11B217                     | 11B217 | 11B217 | 11B217 |
| 8          | Blower Housing Support  | 11B218                     | 11B218 | 11B218 | 11B218 |
| 9          | Thermo Disc Kit, Including:<br>3T Block Switch; Block Switch Clip; Wire Ties  | 10C403                     | 10C403 | 10C403 | 10C403 |

## Jacket Assembly



| Description   | Well-McLain Sales Ref. No. |        |        |        |
|---|----------------------------|--------|--------|--------|
|   | GV-3                       | GV-4   | GV-5   | GV-6   |
| Jacket Replacement Carton, including:<br>Left Side Jacket Panel; Right Side Jacket Panel; Back Jacket Panel; Interior Jacket Panel; Pocket for Front Panel; Front Jacket Panel; Top Jacket Panel; Limit/Pressure Switch Bracket; Labels; Screws | 11B219                     | 11B220 | 11B221 | 11B222 |

\* For reference only - not included in jacket carton.

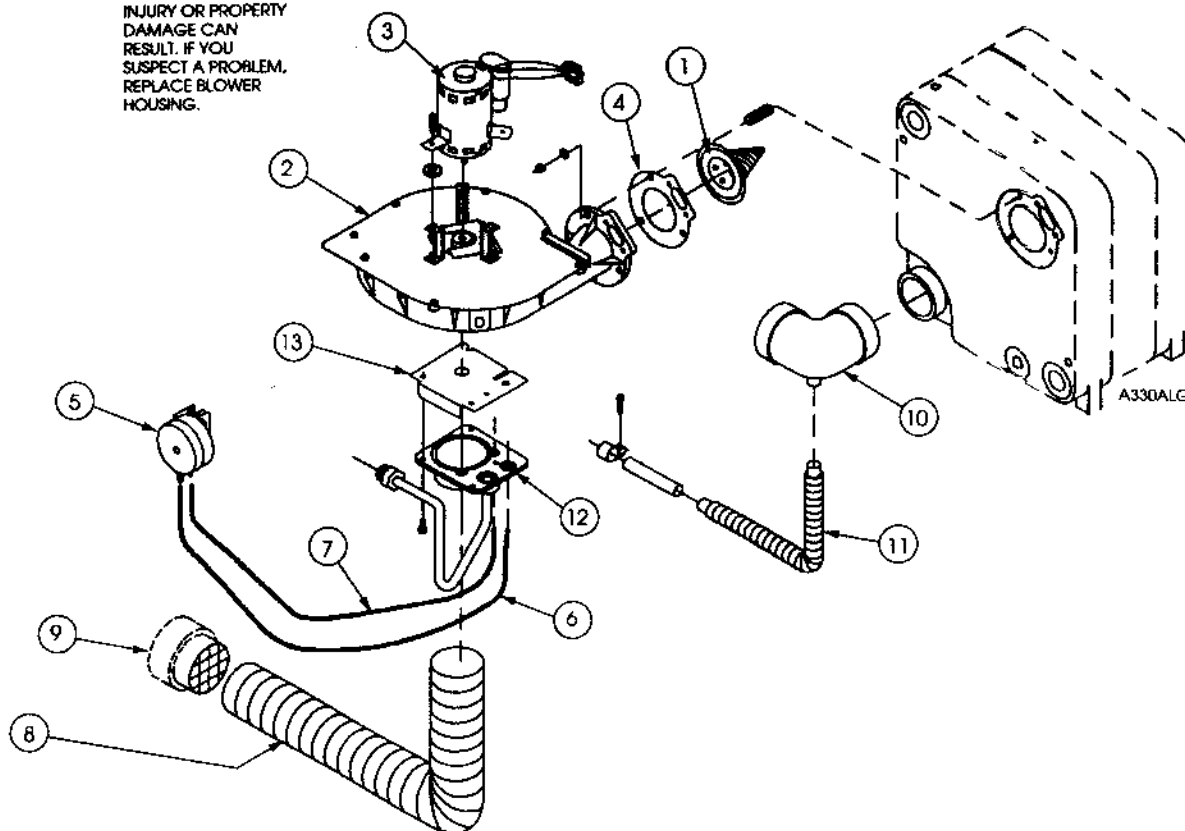
## Vent Parts

| Plexco PLEXVENT® Description  | Vendor Part Number | Hart & Cooley ULTRAVENT™ Description | Vendor Part Number |
|-------------------------------|--------------------|--------------------------------------|--------------------|
| Vent Pipe, 3' x 5' lengths    | 901220             | Vent Pipe, 3' x 10' lengths          | 3UP10              |
| 90° Sweep Elbow (long radius) | 902299             | 90° Sweep Elbow (long radius)        | 3UES90             |
| 45° Elbow (long radius)       | 903958             | 45° Elbow (long radius)              | 3UE45              |
| Coupling                      | 901218             | Coupling                             | 3UC                |

## Blower Assembly

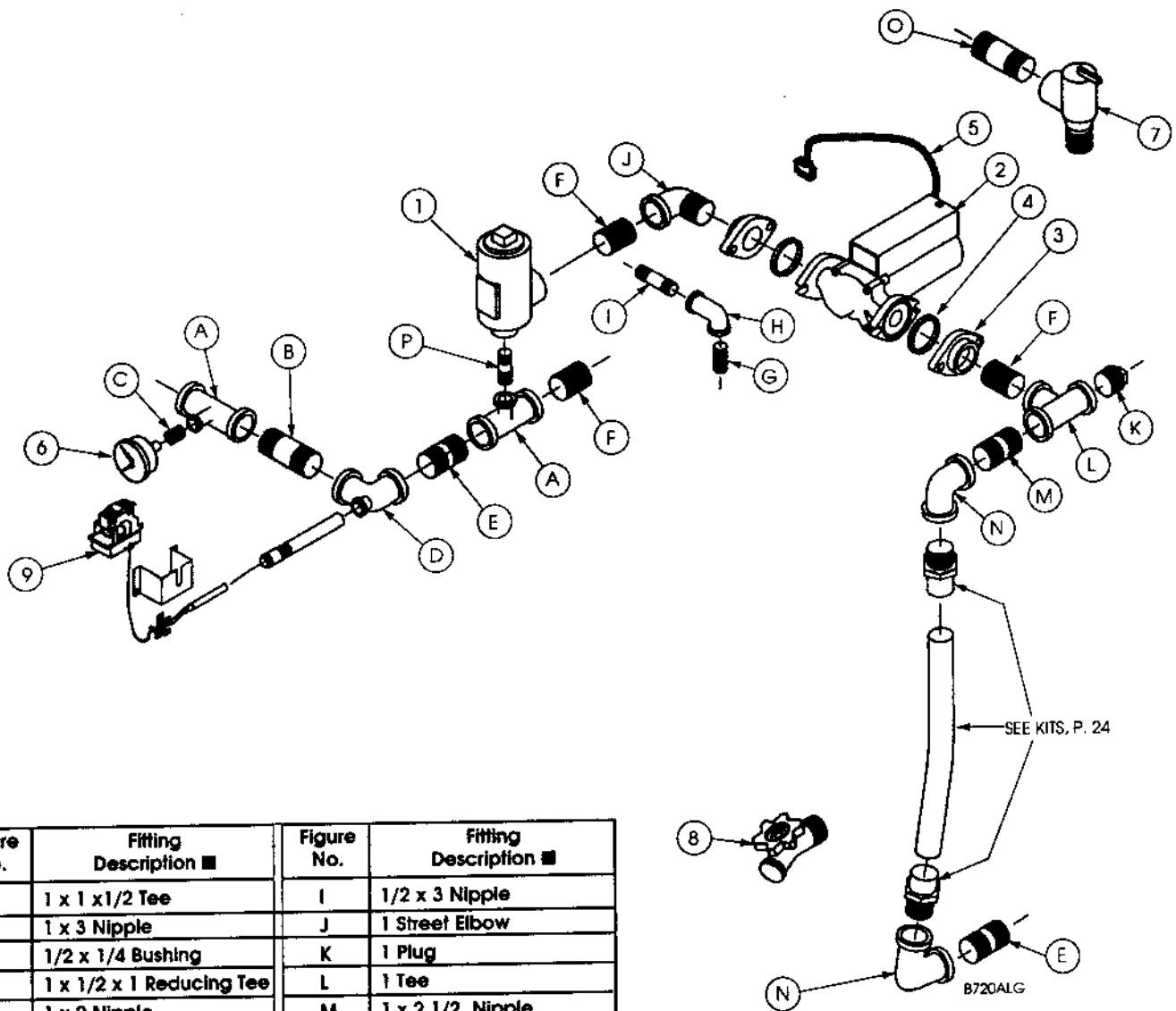
### WARNING

DO NOT DISASSEMBLE BLOWER HOUSING. A FIRE OR EXPLOSION CAUSING SEVERE PERSONAL INJURY OR PROPERTY DAMAGE CAN RESULT. IF YOU SUSPECT A PROBLEM, REPLACE BLOWER HOUSING.



| Figure No. | Description  | Weil-McLain Sales Ref. No. |        |        |        |
|------------|--|----------------------------|--------|--------|--------|
|            |  | GV-3                       | GV-4   | GV-5   | GV-6   |
| 1          | Burner Replacement Kit, including:<br>Burner Cone and Ring Assembly; Blower Flange Gasket; Ignitor; Ignitor Screws; Ignitor Washers; Ignitor Gasket  | 10C375                     | 10C376 | 10C377 | 10C378 |
| 2          | Blower Assembly, including:<br>Blower Housing; Observation Port Window; Blower Housing Cover Plate; Blower Motor Mounting Brackets; Washer Hold Down Bracket; Lock Nuts; Motor Mount Grommets; Blower Motor; Blower Wheel; Magnetic Washer; Silicone Sealant; Screws; Blower Flange Gasket; Ignitor; Ignitor Screws; Ignitor Washers; Ignitor Gasket | 10C379                     | 10C379 | 10C379 | 10C379 |
| 3          | Blower Motor Replacement Kit, including:<br>Blower Motor; Motor Mount Grommets; Screw; Lock Nuts; 8" Allen Wrench  | 10C380                     | 10C380 | 10C380 | 10C380 |
| 4          | Blower Flange Gasket   | 10C381                     | 10C381 | 10C381 | 10C381 |
| 5          | Pressure Switch  | 10C382                     | 10C382 | 10C382 | 10C382 |
| 6          | Pressure Switch Tubing to Gas/Air Manifold, White, 22"   | 10C383                     | 10C383 | 10C383 | 10C383 |
| 7          | Pressure Switch Tubing to Gas/Air Manifold, Red, 22"   | 10C384                     | 10C384 | 10C384 | 10C384 |
| 8          | Inlet Air Hose   | 10C385                     | 10C385 | 10C385 | 10C385 |
| 9          | Inlet Air Tube w/ Grill  | 10C386                     | 10C386 | 10C386 | 10C386 |
| 10         | Vent Elb Replacement Kit, including:<br>Vent Elb w/Drain; Silicone Sealant, RTV 700  | 10C387                     | 10C387 | 10C387 | 10C387 |
| 11         | Hose Trap  | 10C388                     | 10C388 | 10C388 | 10C388 |
| 12         | Gas/Air Manifold Assembly, including:<br>Gas/Air Manifold; Gas Tubing; Washers; Screws   | 10C389                     | 10C389 | 10C389 | 10C389 |
| 13         | Conversion Kit, Natural to Propane, including:<br>Propane Orifice Plate; Label   | 10C390                     | 10C391 | 10C392 | 10C393 |
| 13         | Conversion Kit, Propane to Natural, including:<br>Natural Orifice Plate; Label   | 10C394                     | 10C395 | 10C396 | 10C397 |

# Boiler Trim Assembly



| Figure No. | Fitting Description ■    | Figure No. | Fitting Description ■ |
|------------|--------------------------|------------|-----------------------|
| A          | 1 x 1 x 1/2 Tee          | I          | 1/2 x 3 Nipple        |
| B          | 1 x 3 Nipple             | J          | 1 Street Elbow        |
| C          | 1/2 x 1/4 Bushing        | K          | 1 Plug                |
| D          | 1 x 1/2 x 1 Reducing Tee | L          | 1 Tee                 |
| E          | 1 x 2 Nipple             | M          | 1 x 2 1/2 Nipple      |
| F          | 1 Close Nipple           | N          | 1 Elbow               |
| G          | 1/2 Close Nipple         | O          | 3/4 x 3 Close Nipple  |
| H          | 1/2 Elbow                | P          | 1/2 x 2 1/2 Nipple    |

| Figure No. | Description                                  | Well-McLain Sales Ref. No. |         |         |         |
|------------|--|----------------------------|---------|---------|---------|
|            |  | GV-3                       | GV-4    | GV-5    | GV-6    |
| 1          | Mixing Valve                                 | 10C408                     | 10C408  | 10C408  | 10C408  |
| 2          | Circulator, Taco 007                         | 10C195■                    | 10C195■ | 10C195■ | 10C195■ |
|            | Circulator, Bell & Gossett LR20              | 10C194■                    | 10C194■ | 10C194■ | 10C194■ |
| 3          | Circulator Flange, 1", Taco                  | 10C296■                    | 10C296■ | 10C296■ | 10C296■ |
|            | Circulator Flange, 1" Bell & Gossett         | 10C295■                    | 10C295■ | 10C295■ | 10C295■ |
| 4          | Circulator Gasket, Taco                      | 10C307■                    | 10C307■ | 10C307■ | 10C307■ |
|            | Circulator Gasket, Bell & Gossett            | 10C305■                    | 10C305■ | 10C305■ | 10C305■ |
| 5          | Wiring Harness, Control Module to Circulator | 10C410                     | 10C410  | 10C410  | 10C410  |
| 6          | Pressure Temperature Gauge 2-1/2" SSK        | 10C034■                    | 10C034■ | 10C034■ | 10C034■ |
| 7          | Relief Valve, 3/4", 30 PSI                   | 10C199■                    | 10C199■ | 10C199■ | 10C199■ |
| 8          | Drain Valve, 3/4"                            | ■                          | ■       | ■       | ■       |
| 9          | Limit Control w/ 1/2" Well                   | 10C411                     | 10C411  | 10C411  | 10C411  |

■ Available from local supply house.

**RATINGS:**


DOE

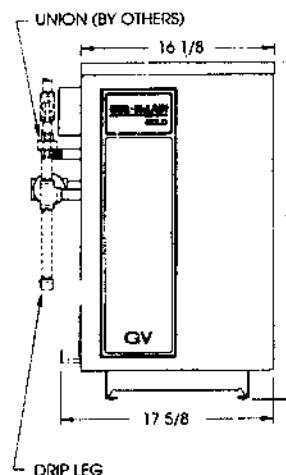
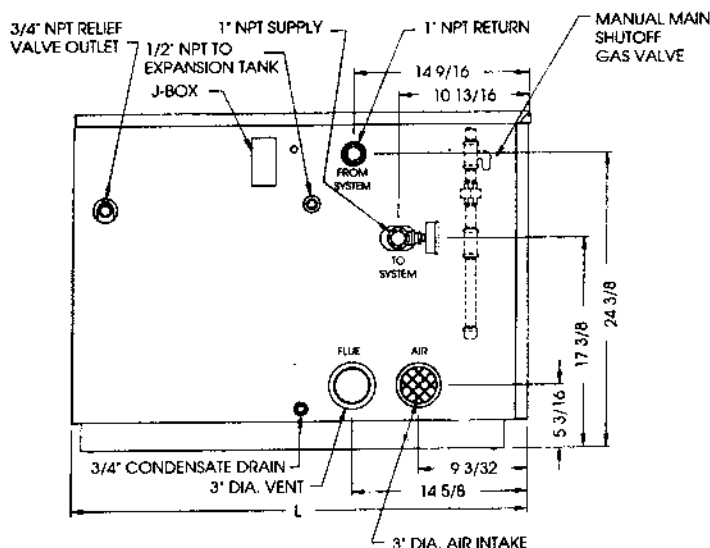


| BOILER MODEL | AGA INPUT BTUH | DOE HEATING CAPACITY BTUH+ | NET I=B+R RATINGS BTUH* | DOE SEASONAL EFFICIENCY (%) | VENT/ COMBUSTION AIR DIAMETER (IN) | BOILER WATER CONTENT (GALS) |
|--------------|----------------|----------------------------|-------------------------|-----------------------------|------------------------------------|-----------------------------|
| GV-3         | 70,000         | 61,000                     | 53,000                  | 87.5                        | 3                                  | 3.3                         |
| GV-4         | 105,000        | 92,000                     | 80,000                  | 87.3                        | 3                                  | 4.2                         |
| GV-5         | 140,000        | 122,000                    | 106,000                 | 87.2                        | 3                                  | 5.1                         |
| GV-6         | 175,000        | 153,000                    | 133,000                 | 87.0                        | 3                                  | 6.0                         |

\* Based on standard test procedures prescribed by the United States Department of Energy. Ratings also referred to as AGA/CGA Output.

+ 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. Ratings are based on a piping and pick-up allowance of 1.15. An additional allowance should be made for unusual piping and pick-up loads.

Boilers are tested for 50 lbs. working pressure.  
GV boilers are not available for millivolt systems.

**DIMENSIONS:**


| BOILER MODEL | SUPPLY (IN) | RETURN (IN) | BOILER LENGTH "L" (IN) | GAS CONNECTION SIZE (IN)■ | CRATE DIMENSIONS (OUTSIDE MEASUREMENTS - IN) |       |        | APPROX. SHIPPING WT. (LBS) |
|--------------|-------------|-------------|------------------------|---------------------------|--|-------|--------|----------------------------|
|              |             |             |                        |                           | LENGTH                                       | WIDTH | HEIGHT |                            |
| GV-3         | 1           | 1           | 27 1/4                 | 1/2                       | 32   | 22    | 37     | 290                        |
| GV-4         | 1           | 1           | 30 3/4                 | 1/2                       | 32   | 22    | 37     | 335                        |
| GV-5         | 1           | 1           | 34 1/4                 | 1/2                       | 32   | 22    | 44     | 380                        |
| GV-6         | 1           | 1           | 37 3/4                 | 1/2                       | 32   | 22    | 44     | 455                        |

■ Gas piping from meter to be sized according to local utility requirements.

**STANDARD EQUIPMENT:**

Factory fire Test  
Insulated Steel Jacket  
Cast Iron Sections with Built-in Air Separator  
Steel Base  
Microprocessor-Based Control Module with Indicator Lights  
Blower Assembly with Observation Port  
Gas/Air Manifold Assembly  
Gas/Air Orifice Plate for Natural Gas  
(separate plate furnished for conversion to propane)  
Stainless Steel Burner Cone and Ring Assembly  
Negative Regulation Gas Valve  
Hot Surface Ignition System  
Air Pressure Switch  
Circulator - 1 inch, all sizes  
Mixing Valve

Vent Ell with Condensate Drain and Trap  
Vent/Air Intake Sidewall Termination Kit  
40VA Transformer  
Electrical Junction Box  
30 PSI ASME Relief Valve  
Water Temperature Limit Switch  
Section Block Temperature Limit Switch  
Combination Pressure-Temperature Gauge  
Drain Valve

**ADDITIONAL EQUIPMENT:**

Weil-McLain 5-Year Homeowner Protection Plan  
Fill-Trol System (diaphragm-type expansion tank, fill and check valve, automatic air vent, and fillings) - #109 for sizes 3 thru 5; #110 for size 6. Shipped in separate carton.

# WEIL-McLAIN

Michigan City, Indiana 46360



A Division of The Marley Company

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