

# COMBUSTION AIR SYSTEM

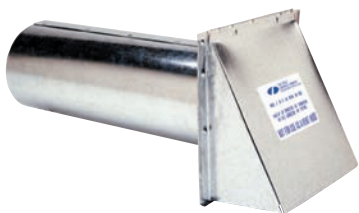
MODEL: CAS-2WM

WEIL-MCLAIN OUTSIDE AIR KIT

FOR USE WITH OIL BURNER MODELS QB-180 & QB-300



4" VRV



4" IAH HOOD



AIR BOOT™



The Air Boot™ model CAS-2WM is for use only on the designated burner(s) as described in these instructions only when the specific burner includes this Air Boot™ when shipped from the burner manufacturer or where the burner instructions specifically reference the model CAS-2WM Air Boot™ as an optional air intake system.

#### ITEMS INCLUDED IN KIT:

- 1 - Air Boot™
- 1 - 4" VRV (Vacuum Relief Valve)
- 1 - 4" IAH Hood
- 1 - Set of Gaskets
- 1 - Burner Coupling Set
- 2 - Mounting Bolts

#### INSTALLER SUPPLIED ITEMS:

- Air Duct Pipe and Elbows as needed - use 4" Dryer Venter, Aluminum or Galvanized Steel
- ¼" NPT 90° street ell for oil line, if needed
- Exterior rated caulk, silicone sealant, or equivalent

#### READ THESE INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE PROCEEDING WITH THE INSTALLATION.

This device MUST be installed by a qualified agency in accordance with the manufacturer's installation instructions. The definition of a qualified agency is: any individual, firm, corporation or company which either in person or through a representative is engaged in, and is responsible for, the installation and operation of HVAC appliances, who is experienced in such work, familiar with all the precautions required, and has complied with all the requirements of the authority having jurisdiction.

Please retain these instructions after installation.

Installed By: \_\_\_\_\_ Phone: \_\_\_\_\_ Installation Date: \_\_\_\_\_



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## THE PURPOSE OF THE VACUUM RELIEF VALVE (VRV)

The vacuum relief valve provides combustion air to the burner if the outside air supply is interrupted for any reason. Typical situations would be blockage of the air intake or duct, or wind effect which cause a negative pressure at the air intake hood.

## VRV OPERATION

With normal air flow through the air intake hood and duct, the VRV stays closed. All combustion air comes in through the air duct. If the pressure in the Air Boot™ drops, the valve door opens. Room air flows in through the VRV to provide the air needed for combustion. When the Air Boot™ pressure returns to normal, the VRV closes.

**WARNING:** Failure to perform the following can cause severe personal injury, death, or substantial property damage:

- Read all instructions before starting.
- Follow all instructions in proper order.
- Turn off service switch on boiler and any other electrical disconnect switches.
- Turn off the fuel supply valve(s) and disconnect fuel lines from the burner.

## INSTALLATION

1. Rotate the burner oil solenoid valve as shown in Figure 1, steps A-D. Do not reconnect the oil line (per E-F). The solenoid valve must be aligned as shown to prevent interference with the Air Boot™.
2. Remove the two 1/4" bolts holding the oil pump to the burner housing. Remove the oil pump.
3. Remove the screw which holds the air band to the housing. Remove the air band.
4. Install the sealing gaskets onto the burner housing. (See Figure 2)
5. Install mounting spacer onto Air Boot™. (See Figure 3)
6. Place the Air Boot™ on the housing, through the large opening in the back side of the Air Boot™ (See Figure 3). Press the AirBoot™ into position and align roughly plumb with the burner. Align the Air Boot™ mounting holes with the burner oil pump mounting holes.

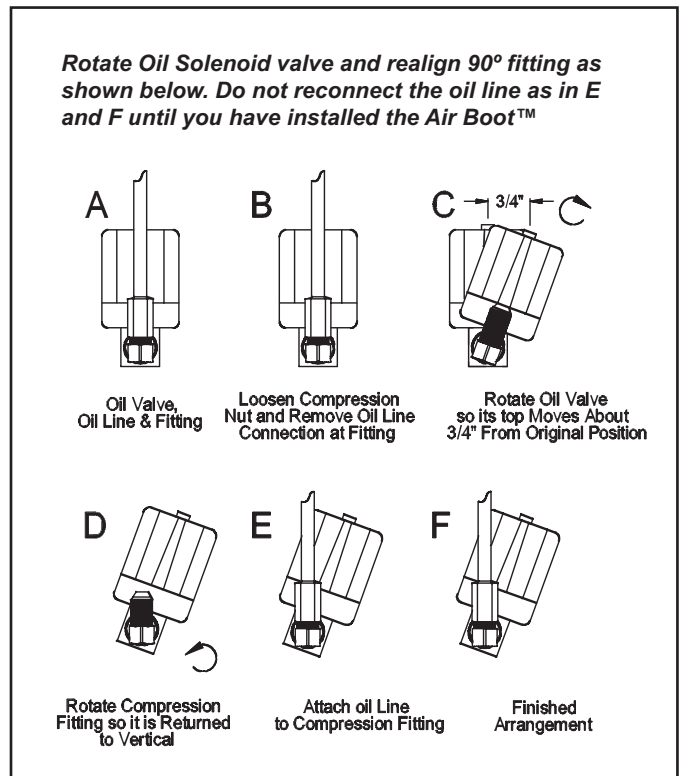


Figure 1

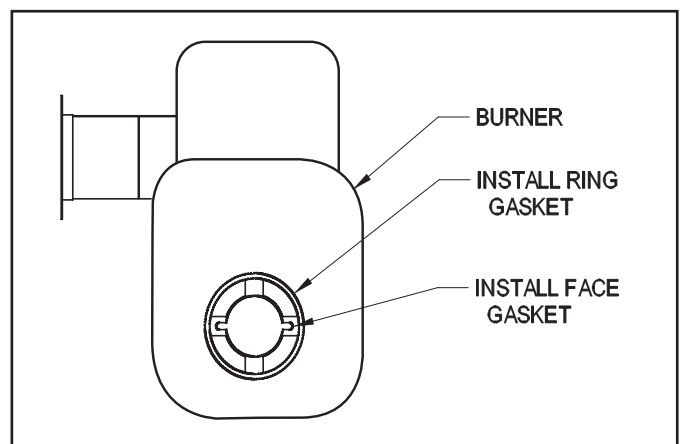


Figure 2

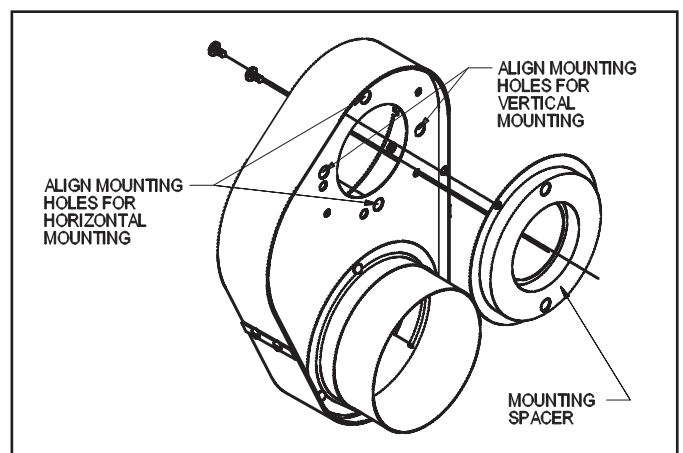


Figure 3

**NOTE:** Replace pump coupling with the coupling supplied with kit.

7. Now put the oil pump and the AirBoot™ kit coupling back into place. Replace the two ¼" oil pump mounting screws. Tighten the screws.
8. Reconnect the burner oil line to the ell fitting on the oil pump per Figure 1, drawings E and F.

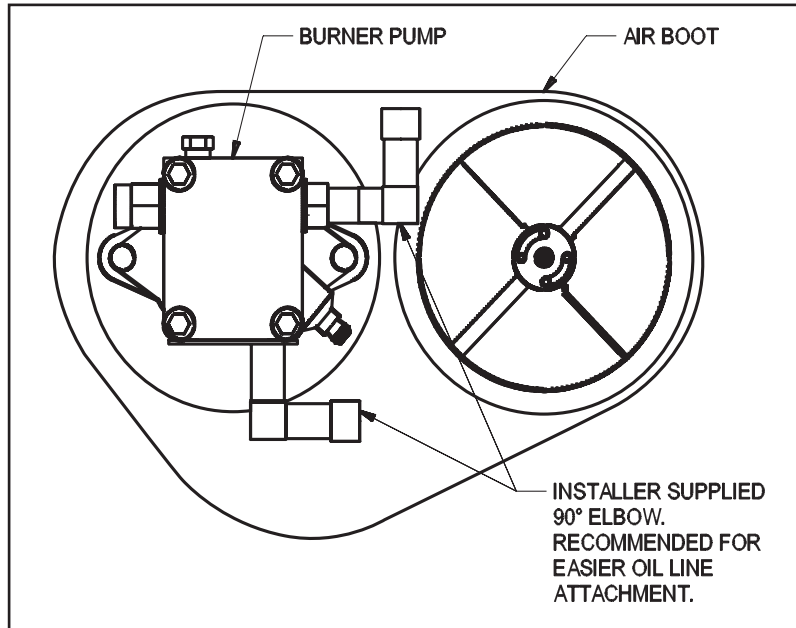


Figure 4

9. Mount the VRV tee assembly or 90° elbow onto the Air Boot™ intake. Fasten using three (3) sheet metal screws on all joints. (See Figure 5)

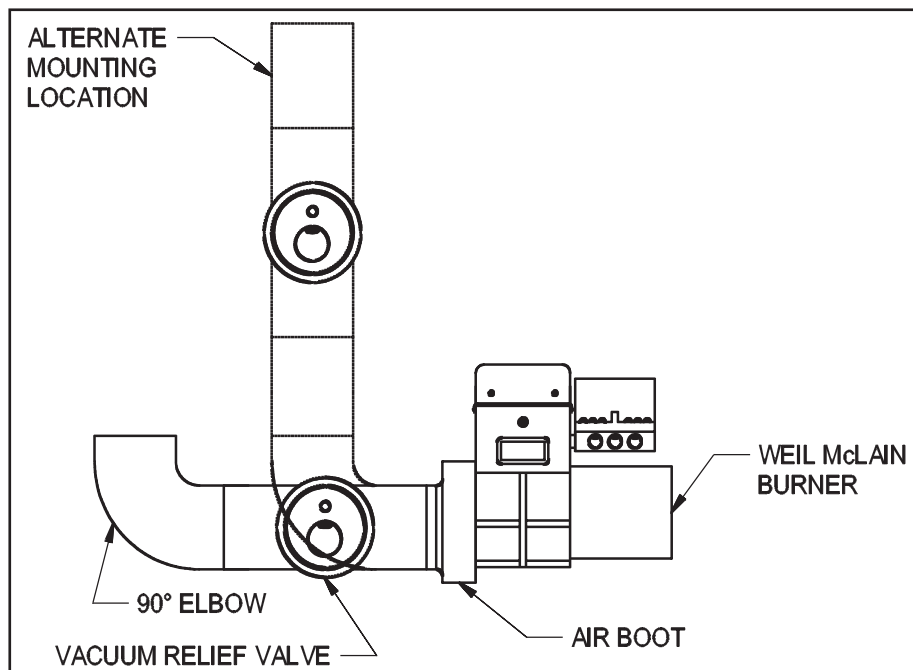


Figure 5

10. Assemble the VRV balance weight onto the gate. Screw the weight all the way in. Then attach lock nut and knurl nut. (See Figure 6)

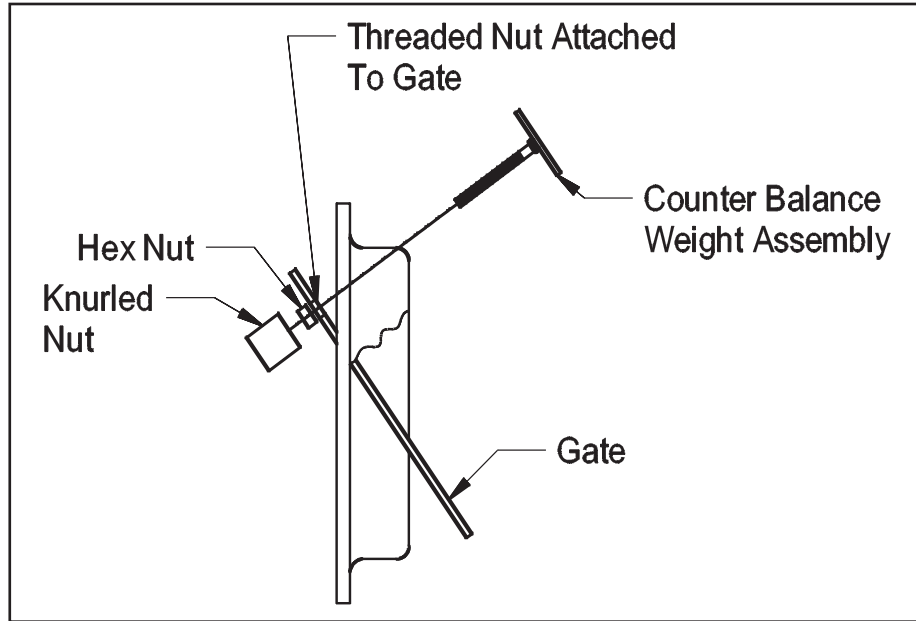


Figure 6

11. Mount the VRV assembly onto the tee and fasten with the supplied screw and nut in collar tabs. To ensure proper operation, check the gate for being level across the pivot points and plumb. (See Figure 7)

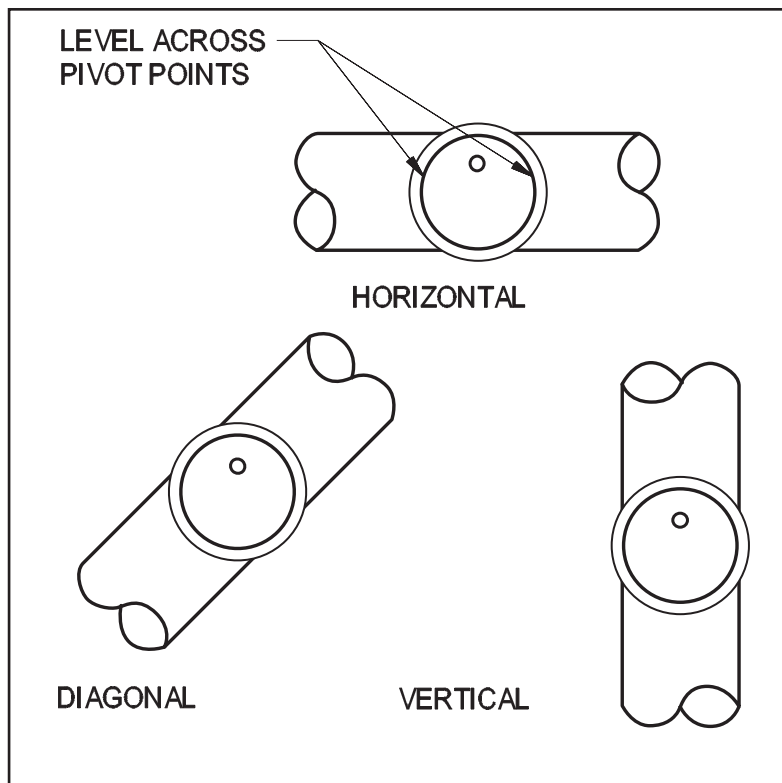


Figure 7

12. Refer to Figure 8 for general installation layout.

### AIR DUCT AND AIR INTAKE HOOD (See Figure 8)

1. Mount the air intake hood through an outside wall. It must be at least 12" ABOVE grade or snow line.
2. Locate the air intake hood at least 3' BELOW or 6' horizontally from any appliance VENT termination.
3. When the appliance is sidewall vented, locate the air intake hood on the same side of the building as the appliance vent outlet.
4. Always mount the air hood with the intake pointed down.
5. To install the air intake hood, cut a 4¼" hole through the side of the building. Slide the hood through the wall and fasten with appropriate screws.
6. Seal around the exterior plate with an exterior rated caulk, silicone sealant, or equivalent.

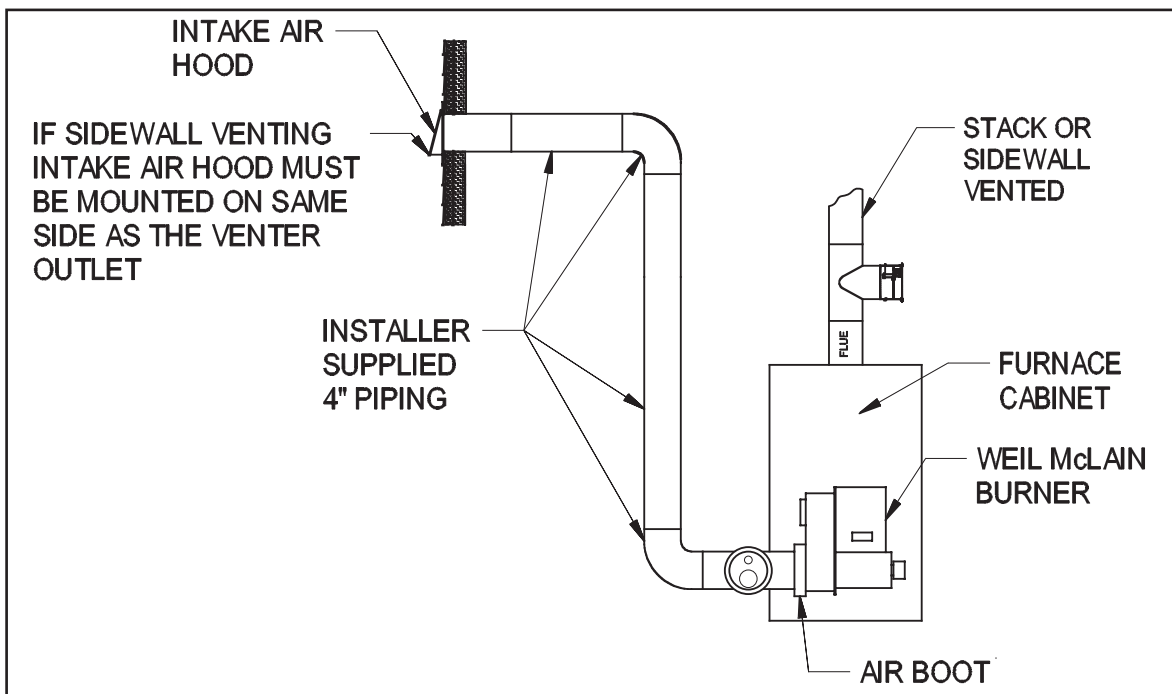


Figure 8

7. Locate the air hood so the air piping length doesn't exceed the limits below:

<b>NUMBER OF ELBOWS</b>	<b>MAXIMUM LENGTH OF AIR PIPE</b>
2 to 4	35'
5	28'
6	21'
7	14'

8. Construct the air duct piping with 4" diameter dryer vent or aluminum or galvanized steel pipe, using as few elbows as possible.

9. Fasten and support the air duct piping to prevent damage and separation of joints.

## ADJUSTMENTS

### AIR INTAKE BOOT AIR SETTING

1. Follow the instructions in the Boiler and Burner Installation Manuals for adjusting and setting the burner.



**WARNING:** Failure to properly adjust the burner after installing this kit can result in severe personal injury, death or substantial property damage.

2. Loosen the air band screw on the Air Boot™. Position the screw at the initial setting on the following chart. Use this setting only as a starting point. Do not leave the burner with this setting unless your testing proves it to be acceptable.

INITIAL AIR BOOT™ AIR CONTROL SETTINGS	
Input Range (GPH)	Air Band Setting
0.55 - 0.70	25° F
0.75 - 1.00	60° F
1.10 - 1.75	80° F
2.00 - 2.55	180° F

3. Start the burner and adjust the air control as needed to achieve the required CO<sub>2</sub> and smoke levels. Set over fire draft to appliance manufacturer's specifications (typically -.02" of water). Secure air control knob with indicator bracket. If draft levels are not obtainable or controllable, use standard industry methods to control the draft or call the Field Controls Tech Line at 1-800-742-8368 for more information.
4. Adjust the counterweight on the vacuum relief valve so the gate remains closed during the burner setup and testing.

### VACUUM RELIEF VALVE COUNTERWEIGHT

1. After you have completed adjusting the burner, adjust the VRV counterweight.
2. With the burner running normally, rotate the counterweight screw counterclockwise until the gate just begins to open.
3. Check the combustion again to verify no changes have occurred. If OK, hold the counterweight screw in position and tighten the hex nut against the gate to lock the screw permanently in position.

## LIMITED WARRANTY

Field Controls, LLC ("Company") warrants that its products shall be free from defects in material and workmanship under normal use for the limited period indicated, **from the date of manufacture, subject to the provisions 1-8 below.**

### **Eighteen (18) months**

All Field Controls Products (except for those listed below as 5 years or 90 days).

### **Five (5) years**

Field Controls Direct Vent Systems (FDVS), Field Oil Vent Kits (FOVP), and ComboVents (CV).

Field Controls warrants that the products listed below shall be free from defects in material and workmanship under normal use for the limited period indicated, **from the date of purchase by the consumer, subject to the provisions 1-8 below.**

### **Ninety (90) days**

UV lamps/bulbs

### **Provisions:**

1. During the limited warranty period, Company, or its authorized service representative, will repair or replace, at Company's option, without charge, a defective Product. Product that is repaired may be repaired with new or refurbished replacement parts. Product that is replaced may be replaced with a new or refurbished product of the same or similar design. Company will return repaired or replacement Product to customer in working condition. Labor charges are not covered as part of the limited warranty.
2. With regard to UV lamps/bulbs, customer shall be required to include a "valid proof of purchase" (sales receipt) identifying the Product purchased (Product model or accurate date code information) and the date the Product(s) was purchased.
3. Product whose warranty/quality stickers, Product serial number plates or electronic serial numbers have been removed, altered or rendered illegible shall not be covered under the limited warranty.
4. Defective Product must be returned to Company, postage prepaid.
5. IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR SIMILAR DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS OR REVENUE, INABILITY TO USE PRODUCT, OR OTHER ASSOCIATED EQUIPMENT, THE COST OF SUBSTITUTE EQUIPMENT, AND CLAIMS BY THIRD PARTIES) RESULTING FROM THE USE OF PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
6. THIS WARRANTY AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL, WRITTEN, EXPRESS, STATUTORY OR IMPLIED. TO THE EXTENT PERMITTED BY LAW, COMPANY DISCLAIMS ALL IMPLIED AND STATUTORY WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
7. Company makes no warranty of any kind in regard to other manufacturer's products distributed by Company. Company will pass on all warranties made by the manufacturer and where possible, will expedite the claim on behalf of the customer, but ultimately, responsibility for disposition of the warranty claim lies with the manufacturer.
8. Product that has been subjected to misuse, accident, shipping or other physical damage, improper installation or application, abnormal operation or handling, neglect, fire, water or other liquid intrusion are not covered by the warranty.



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