

SIDEWALL POWER VENTER KIT

Model: CV- 4VR, -5VR Vent Riser Models



*Patented

TYPICAL VENTING SYSTEM COMPONENTS

1 – CV-VR Series Power Venter

1 - CK Series Control Kit (sold separately)

OPTIONAL SYSTEM COMPONENTS

FOR MOST MULTIPLE HEATING EQUIPMENT SYSTEMS

One CK Series Control Kit for each appliance. Except for a 24V gas furnace or boiler and a 30mV water heater multiple venting system, use the CK-90 Series Control Kit.

CONTENTS

| | | | |
|---------------------------------|---|--------------------------|----|
| Available Control Kits..... | 2 | Maintenance | 10 |
| Installation Instructions | 2 | General Inspection..... | 10 |
| Wiring | 9 | Repair Parts..... | 11 |
| Air Flow Adjustments | 9 | System Information | 11 |

GENERAL SYSTEM INFORMATION

This sidewall power venting kit is designed for installations requiring additional ground clearance for high snow levels and/or low elevation of vent penetration through the wall, and is designed for operation with natural gas, LP gas and #2 fuel oil appliances. It also features a combustion air inlet for connection to the burner, which may be used if desired

1. The thermostat (wall thermostat or aquastat) calls for heat and energizes a relay which activates the power venter. After the venter motor has come up to speed, the pressure switch closes. This closes the circuit to the burner and allows the burner to fire.
2. For millivolt controlled water heaters using the CK-20 Series Control Kit, the gas valve pressure switch activates the power venter at the same time as the burner fires.
3. After the heating requirement has been satisfied, the thermostat circuit will open and de-activate the burner and power venter circuit.
4. For venting systems equipped with a post purge device, the power venter operates for a period of time after the burner has shut off to purge remaining flue gases.

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 oil 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.*

DO NOT DESTROY

THESE INSTRUCTIONS MUST REMAIN WITH EQUIPMENT



FIELD CONTROLS

The Venting Solutions Company™

2630 AIRPORT ROAD • KINSTON, NC 28504

Phone: 252-522-3031 • Fax: 252-522-0214

www.fieldcontrols.com

CONTROL KITS

- CK-20F/HWK:** For operation with 30 or 750 millivolt gas-fired water heaters, gas-fired space heaters and gas-fired pool or spa heaters with an internally mounted thermostat. Includes a fixed post purge.
- CK-21:** For operation with gas-fired instantaneous water heaters with a pressure tap port in the burner manifold.
- CK-40F/41F:** For operation with gas-fired furnaces, boilers, unit heaters and water heaters operating with a 24 VAC gas valve. For systems not equipped with factory mounted spillage switches, use the CK-41F which includes two GSK-3 spill switches. Includes a fixed post purge.
- CK-43/43F:** For draft induced 24 VAC gas valve systems. Includes a 4" MG-1 draft control and electronic post purge. The CK-43F includes a fixed post purge.
- CK-61:** For operation with oil-fired systems. Has electronic post purge.
- CK-62:** For operation with oil-fired systems. Has thermally activated post purge.
- CK-63:** For operation with oil-fired systems. Has electronic post purge. For operating venter with or without burner motor.
- CK-81:** For operation with 750 millivolt operated boilers, furnaces, water heaters, pool or spa heaters and gas-fired fireplaces when operating with remote mounted thermostat. Operated off a 24 VAC thermostat. For operation off of a 120 VAC thermostat or wall switch, use the CK-80.
- CK-91/91F:** For gas fired draft induced 24 VAC gas valve systems and a 30 millivolt operated water heater. Includes a 4" MG-1 draft control and an electronic post purge. The CK-91F includes a fixed post purge.
- CK-92*/92F:** For operation with gas-fired furnaces, boilers, unit heaters and water heaters operating with a 24 VAC gas valve and a 30 millivolt operated water heater. Includes an electronic post purge. The CK-92F includes a fixed post purge.

INSTALLATION SAFETY INSTRUCTIONS

CAUTION: *This device must be installed by a qualified installer in accordance with the manufacturer's installation instructions. Appliances should have a minimum of 75% combustion efficiency or have a maximum measured flue gas temperature of 650°F US/575°F CA at the inlet of the power venter.*

1. The power venting system must be installed by a qualified installer. "Qualified Installer" shall mean an individual who has been properly trained or a licensed installer. The installer must write or imprint his name, phone number and date of installation on the installation tag. The tag should be attached to the power venting system control kit box or power venter unit. Recording burner and venting system initial operational information is strongly recommended as a guide for service or burner tune-up. Enter this on the back page of this manual.
2. Safety inspection of a venting system should be performed before and after installing a power venting system on an existing or new appliance. Procedures to follow are those recommended by the National Fuel Gas Code A.N.S.I.Z223.1, or refer to the General Installation Inspection section of this manual.
3. Plan the vent system layout before installation to avoid the possibility of accidental contact with concealed wiring or plumbing inside walls.
4. Single wall vent pipe (refer to Diagram B) may be used to join an appliance to the venting system, but if proper clearances cannot be maintained from combustible materials, Class B Vent Pipe should be used for gas appliances and Class L Type Vent Pipe for oil appliances. Refer to national or local codes for guidelines.
5. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
6. This equipment is designed to overcome minor negative pressure conditions. To ensure extreme negative pressure does not exist, follow the General Installation Inspection section of this manual.
7. Heating appliances equipped with draft hoods, such as boilers or furnaces, LP gas appliances and Natural gas appliances SHOULD have a secondary spillage switch installed. On appliances without draft hoods, it is recommended that a secondary safety switch such as a WMO-1, GSK, FTS, or TSP-1 be used. Gas-fired 30 millivolt power systems MUST be equipped with a spillage switch.
8. Air flow adjustment MUST be made to ensure appliance efficiency. This should be done at the appliance exhaust outlet with a velocity meter, draft gauge or by "match test procedure". A match test is in accordance with National Fuel Gas Code A.N.S.I.Z223.1, Section 8.6.
9. On oil-fired and gas-fired heating appliances not equipped with a draft hood, a barometric draft control MUST be installed to regulate proper air flow and fluctuations in the system's air flow during operation. Fluctuations may come from wind loads on the outlet of the power venter, house de-pressurization during windy days and the different house ventilation requirements between summer and winter operation. For gas appliances, use a Field Controls Type MG-1 Barometric Draft Control. For oil appliances use a Field Controls Type M or RC Barometric Draft Control. Gas-fired draft induced systems should have a single-acting barometric draft control installed.

INSTALLATION OF CV-*VR POWER VENTER (See Table 1)

Table 1

| UNIT SIZING CHART | | | | | |
|-----------------------------|---------------------------|--------------------------------------|-------------------------------|--------------------------------------|--------|
| OIL | GAS | MAXIMUM EQUIVALENT FEET OF VENT PIPE | | | |
| MAX* OIL GPH INPUT | MAX** BTU/HR. INPUT | AT MAX BTU/HR INPUT | AT 60% OF MAX BTU/HR INPUT | VENTING WITH VENT PIPE SIZE | MODEL |
| 1.10 | 170,000 | 18 | 83 | 4" | CV-4VR |
| | | 48 | 100 | 5" | |
| | | 100 | 100 | 6" | |
| | | 100 | 100 | 7" | |
| 1.85 | 290,000 | - | 25 | 4" | CV-5VR |
| | | 32 | 81 | 5" | |
| | | 76 | 100 | 6" | |
| | | 100 | 100 | 7" | |

*Rating at 100 psi. Sizing based on appliance maximum input rate not actual firing rate. **Do not exceed maximum BTU/HR input rating or maximum oil GPH input. For multiple venting system applications, add the input for each appliance. Category I gas-fired draft induced systems require a CV-4 or larger. Category III gas-fired draft induced systems require a CV-5 or larger.

PROCEDURE FOR CALCULATING TOTAL EQUIVALENT PIPE LENGTH IN FEET

1. Calculate the total equivalent feet for each type of fitting used in the venting system from the chart below.
2. Calculate the total amount of feet for the straight lengths of vent pipe.
3. Add the equivalent feet for the fitting with the total amount of feet of straight lengths. This will approximate the total equivalent feet of the vent system.

Table 2

| EQUIVALENT LENGTH (FEET) OF VENT PIPE FOR VENT PIPE FITTING | | | | | | | | | |
|---|-----|--------------------|----|----|----|----|----|----|-----|
| VENT PIPE FITTINGS | | VENT PIPE DIAMETER | | | | | | | |
| | | 3" | 4" | 5" | 6" | 7" | 8" | 9" | 10" |
| TEE | | 19 | 25 | 31 | 38 | 44 | 50 | 56 | 63 |
| 90° ELBOW | | 5 | 7 | 9 | 11 | 12 | 14 | 16 | 18 |
| 45° ELBOW | | 3 | 4 | 4 | 5 | 6 | 7 | 8 | 9 |
| SUDDEN REDUCER OR INCREASER FOR 3 *RATIOS (d/D) | d/D | | | | | | | | |
| | 1/4 | 8 | 11 | 14 | 17 | 19 | 22 | 25 | 28 |
| | 1/2 | 5 | 7 | 8 | 10 | 12 | 13 | 15 | 17 |
| | 3/4 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 |

*Reducer or increaser ratio (d/D) small diameter divided reducer ratio is $d/D = 4/8 = 1/2$. To estimate the equivalent foot length for the fitting, use the smaller pipe diameter for the equivalent length figure. Example 4" to 8" reducer; the reducer ratio is 1/2 and the smaller pipe diameter is 4". So, from the chart, the equivalent feet would be 7 feet. (See Figure 1)

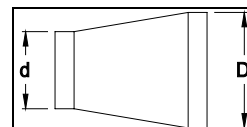


Figure 1

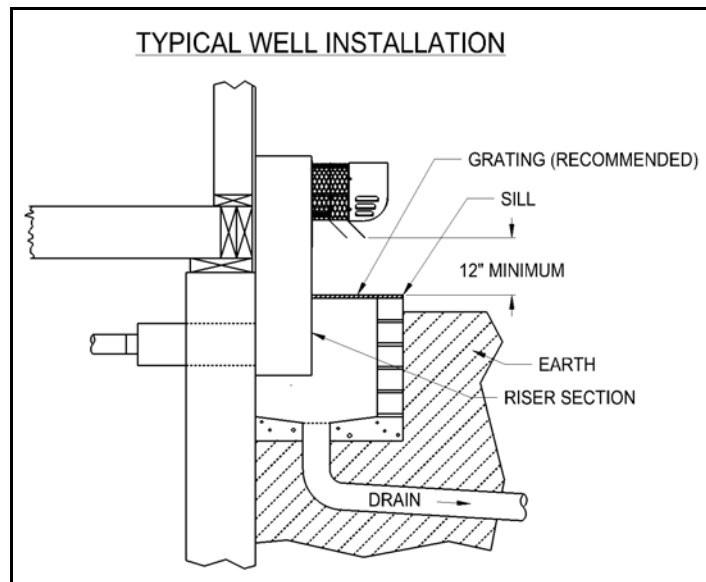
Example: System Pipe Size = 4"

- Step 1 Two 4" 90° elbows @ 7 feet each = 14 ft.
- Step 2 Ten 2 foot lengths of 4" pipe = 20 ft.
- Step 3 Total equivalent feet = 14 ft. + 20 ft. = 34 ft.

INSTALLATION

CAUTION: Failure to install, maintain and/or operate the power venting system in accordance with manufacturer's instructions will result in conditions which may produce bodily injury and/or property damage.

1. Remove power venter from box and inspect unit for damage. If the carton has been crushed or mutilated, check unit very carefully for damage. Rotate blower wheel to insure that the motor and blower wheel rotate freely. DO NOT install if any damage is apparent. Refer to unit sizing chart to check proper venting sizing.
2. Location of the termination of the venting system should be installed in accordance with the National Fuel Gas Code A.N.S.I.Z223.1, manufacturer's recommendations and/or local codes which are applicable. See requirements below or refer to installation location, Diagram A, for typical locations.
 - a. The exit termination of mechanical draft systems shall not be less than 7' above grade when located adjacent to public walkways.
 - b. A venting system shall terminate at least 3' above any forced air inlet located within 10'.
 - c. The venting system of other than a direct vent appliance shall terminate at least 4' below, 4' horizontally from or 1' above any door, window or gravity air inlet into the building.
 - d. The vent termination of a direct vent appliance with an input of 50,000 BTU's per hour or less, shall be located at least 9" from any opening through which vented gases could enter the building. With an input over 50,000 BTU's per hour, a 12" termination clearance shall be required.
 - e. The vent termination point shall not be installed closer than 3' from an inside corner of an L-shaped structure.
 - f. The vent termination should not be mounted directly above, or within 3' horizontally from an oil tank vent or gas meter.
 - g. The bottom of the exterior portion of the vent terminal (excluding the riser section) shall be located at least 12" above the surrounding finished grade or well/sill structure (see Well Installation Illustration).
3. Determine the venting system termination location (See Diagram A) and prepare the installation area: If the vent penetration through the wall must be near or below the surrounding grade, provision must be made to protect the riser section from standing water that could reach the level of the bottom of the riser section, such as a well structure with adequate drainage and protection from water runoff. If a well structure is employed, adequate clearance from the walls of the well to the riser section is required to allow for installation, inspection and cleaning of debris. It is recommended that a sill structure and grating be employed to help prevent water and debris entry into the well (see Well Installation Illustration). Refer to local building codes governing such structures.
4. Prepare the CV-VR series power venter for installation:
 - a. Extend the inner pipe of the tailpiece assembly (see Install 1, on pg 6), and using the supplied silicone sealant, apply a bead of sealant around the end of the inner pipe of the tailpiece assembly.
 - b. Insert the tailpiece inner pipe into the riser inlet collar fully, and tighten the hose clamp to secure the inner pipe into the collar (see Install 2, on pg 6).
 - c. Slide the tailpiece outer pipe up to the back of the riser section, and attach the outer pipe flange to the back of the riser section using the four supplied sheet metal screws (see Install 3, on pg 6). Note: do not use the self-drilling screws, which are for installation of the backing plates (see "Two-Piece Backing Plate Installation" section).



- d. Uncoil about 2 feet of the ¼" aluminum CK kit tubing (supplied with CK kit), and attach the straightened end to the pressure port fitting on the back of the riser, using the supplied compression gland and nut (See Install 4).

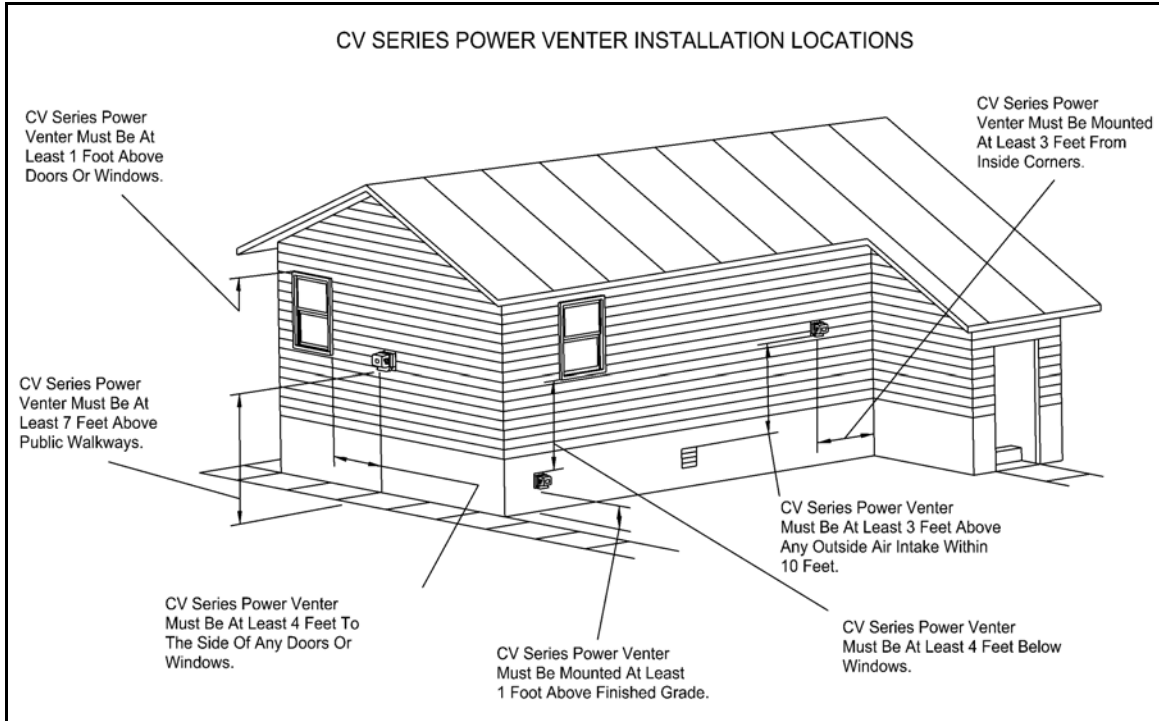


Diagram A

5. Cut a square hole for the tailpiece through the wall to the minimum dimensions given in Table 5, "Installation Hole Dimensions" (note that the tailpiece is offset from the actual termination).
6. Apply a bead of the supplied silicone sealant to the back of the top and sides of the riser section mounting flange, and mount the power venter on the wall, making sure to pass the flexible conduit and pressure tubing through the wall, and keeping the outer pipe centered in the hole (see Figure 2). Fasten the power venter to the outside wall with stainless steel or galvanized lag screws (not included) or other appropriate fasteners. Flash and seal the edges of the power venter mounting plate to the wall with exterior sealant as necessary to prevent water entry behind the riser. DO NOT enclose the spaced plates on the power venter body. This will result in reduced cooling of the power venter body. Wood or vinyl siding should be cut so that the unit mounts directly on the wallboard to provide a stable support. If the siding is greater than 1/2" thick use a spacer plate or board behind the power venter mounting plate. (See Figure 2)

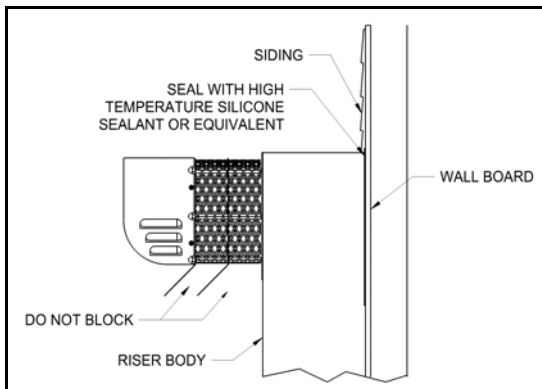


Figure 2

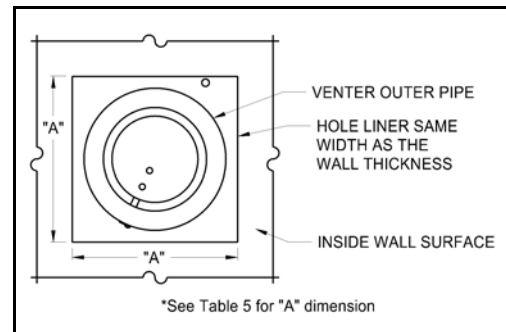


Figure 3

7. Two-Piece Backing Plate Installation:
 - a. Position the *Upper Backing Plate Half* on the inside wall by placing the plate half on the inside wall and up to the venter body, locating the air pressure sensing tube through the small slot in the plate half and the flexible conduit through the larger slot, as shown in Figure 4. Install an appropriate fastener in the upper right corner hole in the plate half. Note: if the wall is thicker than 11", it may be necessary to enlarge the pressure sensing tube slot to allow clearance for the tube union fitting.

- b. Bend the two tabs of the *Lower Backing Plate Half* outward (See Figure 5) and position it on the inside wall as shown in Figure 6 and install appropriate fasteners through the upper left and lower right corner holes in both plate halves.
- c. Install an appropriate fastener in the lower left corner hole.
- d. Extend and rotate the tailpiece's extendable combustion air tee to the desired position, and install the two self-drilling screws (included) through the two tabs on the lower backing plate and into the body of the power venter, to lock the air tee in the desired position (See Diagram 7) and complete the backing plate installation.



Figure 4



Figure 5



Figure 6



Figure 7

8. Air Tee Collar Installation: If the venter is to be used to provide combustion air to an appliance (See Figure 8):

- a. Remove the factory-installed air tee cover plate.
- b. Install the combustion air tee collar: insert the collar tabs into the slots on the air tee adjacent to the opening, and position the slotted tabs onto the mounting studs.

NOTE: The air tee must be extended to give at least 14-1/4" from end of the air tee to back of riser mounting flange to allow proper installation of the air tee collar.

- c. Reaching into the collar, bend both collar tabs inward towards the opening into a U-shape, to pull the collar towards the tee and stabilize the joint.
- d. Re-install the lock-washer nuts onto the mounting studs and carefully tighten, use care not to over-tighten.

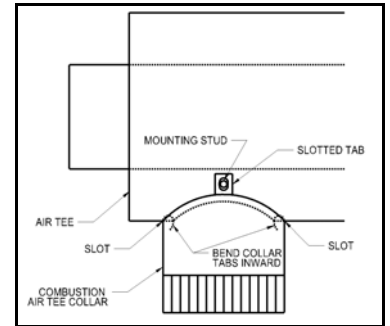


Figure 8

WARNING: If the venter does not supply combustion air to an appliance, the factory-installed air tee cover plate must be in place on the venter. Fire hazard and/or infiltration of vented gases may occur if the cover plate is not in place on the venter.

WARNING: The combustion air feature must be connected to one appliance only.



INSTALL 1



INSTALL 2



INSTALL 3



INSTALL 4

VENTING SYSTEM CONNECTIONS

Venting system should be installed and supported in accordance with the National Fuel Gas Code A.N.S.I.Z223.1, or in accordance with any local codes. A vent pipe connector shall be supported for the design and weight of the material employed, to maintain clearances, prevent physical damage and separation of joints. A vent pipe increaser or reducer may be required for connecting the power venter to the vent system. If needed, place the reducer close to the power venter. Smaller vent pipe sizes than a chimney-vented system may be used for the vent system.

If mounting venting system near combustible materials, refer to Diagram B for allowable venting system installation clearances. Clearances are based on an installation using single wall galvanized steel vent pipe. For metal thickness of galvanized steel pipe connectors, refer to NFPA 211 or NFPA 54 Standards for guidelines. If manufactured double wall vent pipe is required or used for the installation, clearance should be based on the vent pipes rated clearance. Always check local code requirements for code restrictions.

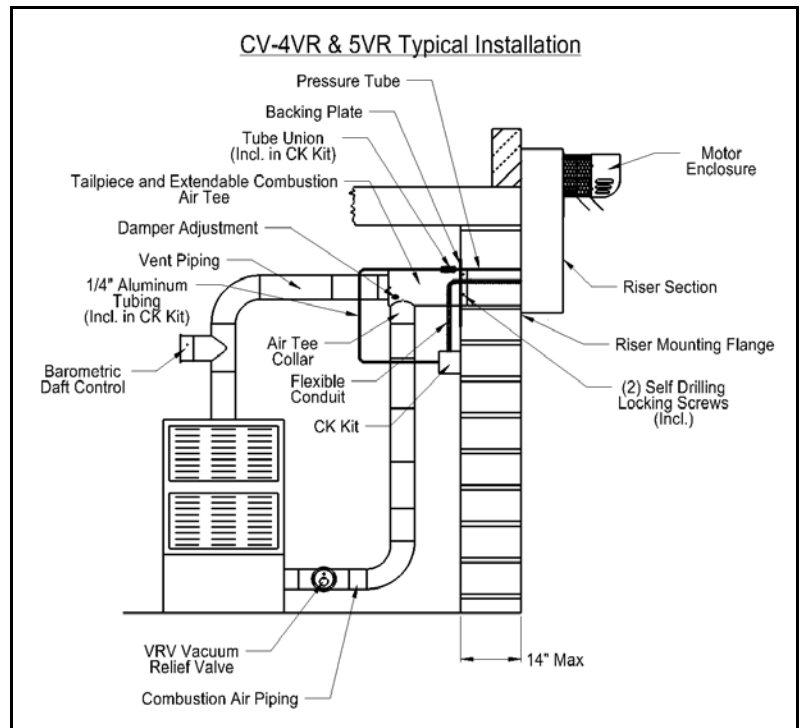


Figure 9

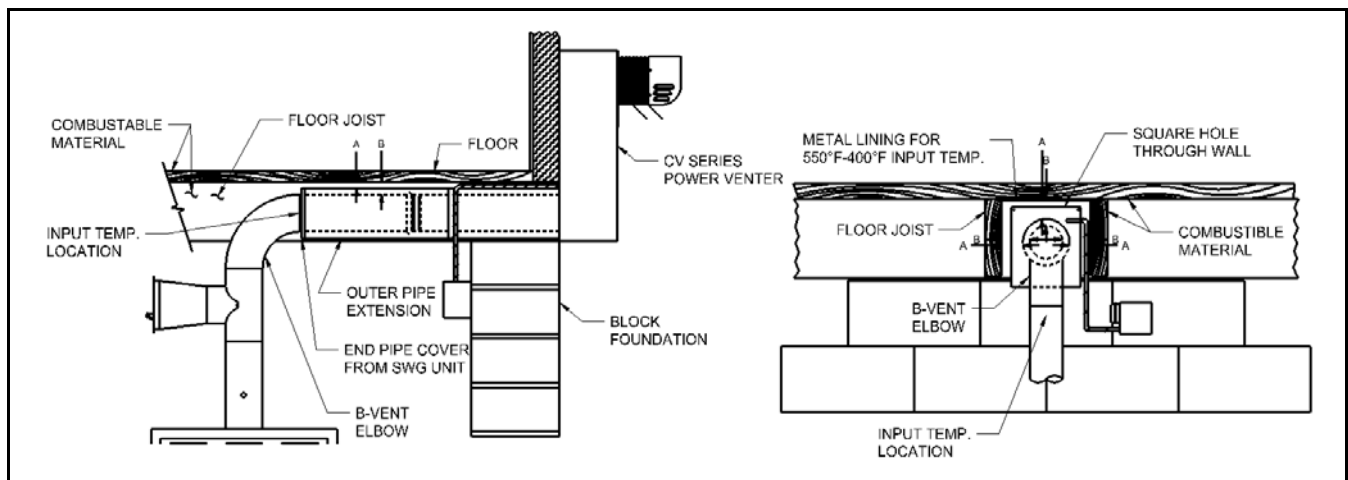


Diagram B

Route the vent pipe from the appliance to the power venter using a minimum number of elbows as possible. The horizontal section of the vent pipe should have a slight upward slope from the appliance to the power venter. For clearances to combustible materials, multiple appliance venting and other installation requirements, refer to the National Fuel Gas Code A.N.S.I.Z223.1, and/or any applicable local codes or appliance manufacturer's installation instructions.

COMBUSTION AIR SYSTEM CONNECTIONS

1. For appliances constructed with a combustion air inlet connection that do not come equipped with means of either (a) providing the burner with an alternate source of combustion air in the event of blockage, or (b) safely preventing combustion in the event of a blockage: install a Field Controls Vacuum Relief Valve, model VRV (sold separately), in the combustion air piping from the air tee collar to the appliance inlet connection, following the installation instructions included with the VRV (See Figure 9). This will allow combustion air to be drawn from within the structure (or a safe shutdown) if the venter inlet becomes blocked.
2. For oil appliances without a combustion air inlet connection, install a Field Controls Airboot, series CAS-2, with the model appropriate for the particular burner model (see the Field Controls Contractor Reference Guide for instructions on specifying the Airboot model). A VRV is included with the Airboot and need not be purchased separately.

COMBUSTION AIR DUCT WORK INSTALLATION

1. A maximum of 30 linear feet of 4" duct pipe and two (2) 90° elbows at maximum firing rate may be used (44 equivalent feet). Subtract 7 feet from the maximum linear feet for every additional 90° elbow added.

Longer pipe lengths require the use of a larger pipe between the VRV and the intake hood. It also requires the use of a vent pipe increaser at the VRV and a reducer at the intake hood. (See Table 3)

Table 3

| Pipe Diameter | Maximum Equivalent Pipe Feet (between Air boot™ and duct termination) | Elbow* Equivalent Feet | Reducer or Increaser Equivalent Feet |
|---|---|------------------------|--------------------------------------|
| 4" | 44' | 7' | - |
| 5" | 60' | 9' | (4" to 5") 3' |
| 6" | 90' | 11' | (4" to 6") 6' |
| *Note: Subtract the elbow or reducer equivalent feet from the maximum equivalent feet to get maximum linear feet of pipe. | | | |

2. Route the duct work from the VRV tee to the inlet vent termination with as minimum a number of elbows as possible.
3. Secure and support the duct work for the design and weight of the material used, to prevent physical damage and separation of joints. For guidelines refer to recognized national building codes or according to any local codes.
4. To reduce uncontrolled air leakage into the duct, tape all joints and seams using standard duct tape.

NOTE: Try to run a minimum of 12 feet of duct to help temper the outside air being brought into burner.

INSTALLATION USING SINGLE WALL VENT PIPE (SEE TABLE 4)

Table 4

| CV-4VR & 5VR INSTALLATION CLEARANCES TO COMBUSTIBLES | | | |
|---|------------------------|-------------------------------|-------------------------------|
| Max. Inlet Temperature | Through-wall Clearance | Vent Pipe Clearances | |
| | | Double Pipe System | Single Pipe System |
| 400°F or Less | ½" min | ½" min | 3" min |
| 400°F-650°F (US) 400°F-575°F (Can) | ½" min | 1" min | 4" min |
| | | ½" min with sheet metal liner | 3" min with sheet metal liner |
| *CAUTION: Air Tee Cover Plate must be in position on Air Tee when not providing combustion air. | | | |

NOTE: Vent pipe joints should be secured with at least (3) three sheet metal screws.

Table 5

| Model | Hole Dimensions |
|--------|--------------------|
| CV-4VR | Min. 7-1/8" Square |
| CV-5VR | Min. 8-1/8" Square |

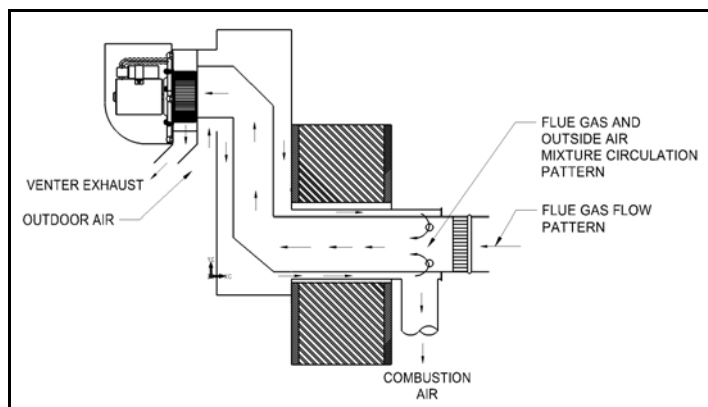


Figure 11

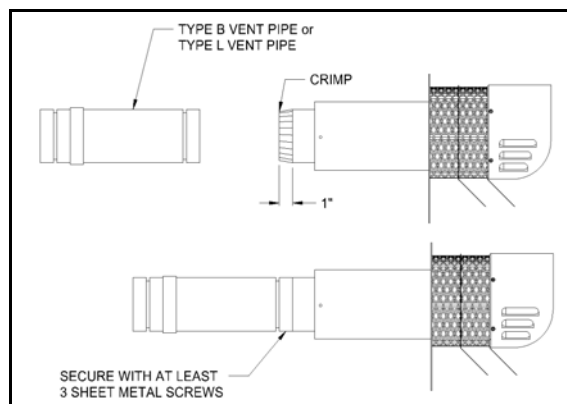


Figure 12

CLASS B AND CLASS L DOUBLE WALL VENT PIPE INSTALLATION

(Follow vent pipe manufacturer's listed or recommended clearances from combustible material)

1. Using a hand crimper or a like device, crimp the inner pipe of the CV power venter approximately 1" long. (See Figure 7)
2. Attach the vent pipe over the crimped end of the CV power venter inner pipe.
3. Secure the vent pipe to the CV power venter inner pipe with at least (3) three #8 sheet metal screws. Pre-drilling the holes through both pipes will allow easier fastening.

WIRING

NOTE: Refer to appropriate control kit for proper installation instructions.

Wire the power venter motor and controls in accordance with the National Electric Code and applicable local codes. UNIT MUST BE GROUNDED. Check ground circuit to make certain that the unit has been properly grounded. The wiring should be protected by an over-current circuit device rated at 15 amperes. CAUTION MUST be taken to ensure that the wiring does not come in contact with any heat source. All line voltage and safety control circuits, between the power venter and the appliance, MUST be wired in accordance with the National Electrical Code for Class 1 wiring or equivalent.

AIR FLOW ADJUSTMENTS

In order to obtain proper system draft, the power venter has an airflow adjustment damper built in. When used in a system with a barometric draft control, this damper should be used to make coarse draft adjustments while the barometric should be used for finer adjustments. Loosen the locking screw on the air flow adjustment damper on the outer pipe of the power venter. (See Figure 8) Adjust the damper to the full open position. Follow appliance manufacturer's procedures for starting the heating appliance. Then adjust the thermostat to call for "Heat". After the system has operated for several minutes to stabilize flue gas temperatures, check for negative draft or up-draft at the heating appliance outlet or air flow into the draft hood. Use a draft gauge, velocity meter or match test procedure. Adjust the adjustment damper closed to obtain the minimum air flow required to maintain draft. Then increase air flow slightly (10% over minimum air flow rate) to ensure proper venting. For oil-fired or gas-fired power burners, adjust draft to proper over-fired draft.

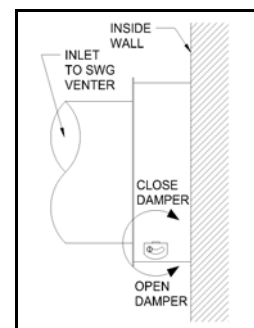


Figure 13

If proper draft has been established, tighten the adjustment locking screw. For gas-fired systems, shut off thermostat and check for residual heat spilling from draft hood. If this occurs, a post purge timer may be required. If so, use a Field Controls PPC-5 Electronic Post Purge or a Control Kit which includes one. Before installing, refer to the General Installation Inspection to check for negative pressure problems in the building. If sufficient combustion air for the burner is not provided, a flow reversal during the off cycle could occur within the venting system. This may cause combustion problems as well as condensation that could block the air pressure sensing tube. It may also contribute to premature motor failure. Combustion, and/or make-up air, should be supplied from outside the structure and the air inlet should be on the same wall as the power venter discharge, if the combustion air feature of the power venter is not used. For example, tightly constructed homes and homes retro-fitted from electric heated systems are more likely to experience combustion and/or make-up air problems. For further information consult "The Field Report-Effects of insufficient combustion air on draft and heating systems". Refer to the appropriate control kit installation instructions for pressure switch adjustment procedure and system checkout procedures before operating continuously. **NOTE:** After proper venting has been established, it is recommended that a combustion test on gas and oil units, a check for CO levels on gas units, and a smoke test on oil systems be performed to ensure maximum burner efficiency. Oil burner air adjustments should be set at a zero to a trace smoke at the highest or recommended CO₂% setting set by heating equipment manufacturer.

GENERAL INSTALLATION INSPECTION

Recommended procedures for safety inspection of an appliance in accordance with the National Fuel Gas Code A.N.S.I.Z223.1. The following procedure will help evaluate the venting system. It is intended as a guide to aid in determining that the venting system is properly installed and is in a safe condition for continuous use. This procedure should be recognized as a generalized procedure which cannot anticipate all situations. Accordingly, in some cases, deviation from this procedure may be necessary to determine safe operation of the equipment. If it is determined that a condition exists which could result in unsafe operation, the appliance should be shut off and the owner advised of the unsafe condition. Corrections must be made before the appliance is put into continuous operation. The following steps should be followed in making a safety inspection.

1. Visually inspect the venting system for proper size and determine that there is no flue gas spillage, blockage, restriction, leakage, corrosion or other deficiency which could cause an unsafe operation.
2. Insofar as practical, close all building doors, fireplace dampers, windows and all doors in area in which the appliance is located. Turn on clothes dryers, any exhaust fans, such as range hoods and bathroom exhausters so they operate at maximum speed. Do not operate a summer exhaust fan. If, after completing Steps 3 through 7 it is believed sufficient combustion air is not available, refer to the National Fuel Gas Code A.N.S.I.Z223.1, or any applicable local codes for guidance.
3. Place in operation the appliance being inspected. Follow the lighting instructions and adjust thermostat so appliance will operate continuously.
4. Determine that the pilot or burner is operating properly and that the main burner ignition operates satisfactorily, by interrupting and re-establishing the electrical power of the appliance in any convenient manner. Test the pilot or burner safety device to determine if it is operating properly by extinguishing the pilot or disconnecting the flame safety circuit and pressure switch sensing tube from the pressure switch.
5. Visually determine that the main burner is burning properly; i.e., no floating, lifting or flashbacks. When performing smoke test on oil-fired systems, the burner should operate at a zero to a trace smoke. This can indicate reduced available combustion air to burner.
6. If appliances are equipped with high and low flame control or flame modulation, check for proper main burner operation at low flame.
7. Test for spillage at draft hood or barometric draft control opening and burner inlet air location after 5 minutes of main burner operation. Use a draft gauge, flame of a match or candle, smoke from a cigarette, cigar or pipe. If spillage occurs, adequate air is not available. Shut off heating appliance thermostat and check for spillage around the draft hood, barometric draft control or burner inlet air location after power venter has stopped operation. If a flow reversal is noticed, house de-pressurization is occurring and make up air is required. For oil-fired systems, this may be noticed by oil fume smell after post purge cycle.
8. Turn on all fuel burning appliances within the same room so that they will operate at their maximum input. Then repeat Steps 5 through 7.
9. Return doors, windows, exhaust fans, fireplace dampers and any other fuel-burning appliances to their previous condition of use.

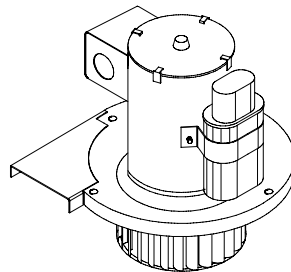
MAINTENANCE

1. **Motor:** Inspect the motor once a year - motor should rotate freely. To prolong the life of the motor, it must be lubricated with six drops of SWG Superlube, Part # 46226200, annually.
2. **Wheel:** Inspect the power venter wheel annually to clear any soot, ash or coating, which inhibits either rotation or air flow. Remove all foreign materials before operating.
3. **Vent System:** Inspect all vent connections annually for looseness, for evidence of corrosion and for flue gas leakage. Replace, seal or tighten pipe connections if necessary. Check the power venter choke plate to insure it is secured in place. Check the barometric draft control, if installed, to insure the gate swings freely.
4. **System Safety Devices:** With the heating system operating, disconnect the pressure sensing tube from the pressure switch on the CK Kit. This will stop the burner operation. Re-connecting the tube will relight the burner. For 30 millivolt operating systems, disconnect one lead of the spill switch circuit from the thermocouple junction block. This will shut off the pilot and the burner. Re-connection will allow relighting the pilot.

REPLACEMENT PARTS

Should the motor or blower wheel need replacing, the following replacement items are available. The Repair Motor Assembly contains the Motor and Blower Wheel factory assemble to a mounting bracket.

| MODEL | PART NUMBERS | |
|--------|-----------------------|--------------|
| | REPAIR MOTOR ASSEMBLY | BLOWER WHEEL |
| CV-4VR | 46234800 | 46310400 |
| CV-5VR | 46234900 | 46213800 |



**CV Repair
Motor Assembly**

REMOVAL AND INSTALLATION OF THE CV SERIES POWER VENTER MOTOR ASSEMBLY

REMOVAL

1. Remove the motor enclosure cover by loosening the four screws. (See Figure 14)
2. Disconnect the conduit connector from the motor conduit box by loosening the screw on the side of the connector. Pull the wires and wire nuts out of conduit box hole and remove the wire nuts. **NOTE:** *Wiring disconnection may not be necessary for inspection and/or cleaning only.* (See Figure 15)
3. Remove the three or four nuts securing the motor assembly, and pull the motor assembly straight off of the unit. (See Figure 16)
4. Clean off any build-up inside the blower wheel housing and the blower wheel.
CAUTION: *Avoid applying excess pressure on the blower wheel when cleaning off any build-up of material. This will cause an imbalance of the blower wheel, which will result in excessive vibration and premature motor failure.*

INSTALLATION

1. Align the holes in the circular cover plate with the holes in the motor mount bracket on the motor assembly. (See Figure 16)
2. Slide the motor assembly onto the protruding threaded studs on the power venter body with the exhaust chute pointing downward, and replace the four nuts securely to the threaded studs. (See Figure 16)
3. Re-attach wires and wire nuts to the motor wiring and reinstall the conduit connector, firmly tightening the screw on the side of the connector.
4. Install the motor cover with the side louvers pointing downward.

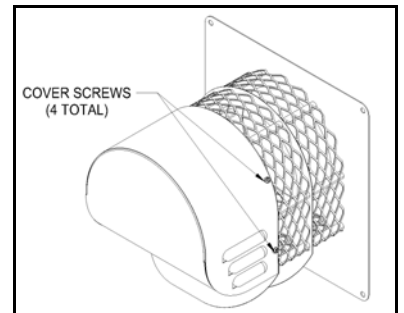


Figure 14

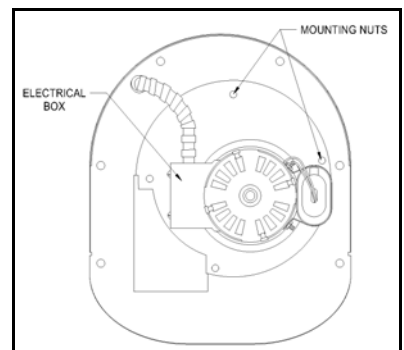


Figure 15

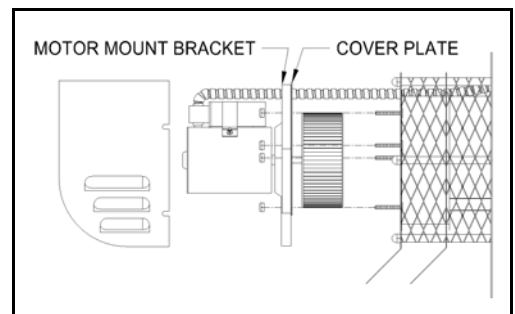


Figure 16

INITIAL BURNER AND VENTING SYSTEM OPERATIONAL INFORMATION

List the following for each operating appliance on the sidewall venting system, as a guide for tune-up or service information annually.

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| DATE: | | | | | | | | |
| FOR GAS FIRED EQUIPMENT | | | | | | | | |
| Heating Appliance BTU/HR Input | | | | | | | | |
| Gas Valve Operation Pressure | | | | | | | | |
| Vent System Draft Above Draft Hood or Before Barometric Draft Control | | | | | | | | |
| CO ₂ Measurement | | | | | | | | |
| CO Measurement | | | | | | | | |
| Equipment Outlet Flue Gas Temperature | | | | | | | | |
| | | | | | | | | |
| FOR OIL FIRED EQUIPMENT | | | | | | | | |
| Oil Burner Nozzle Size | | | | | | | | |
| Oil Burner Operating Pressure | | | | | | | | |
| Pump Operating Vacuum Pressure | | | | | | | | |
| Smoke Number | | | | | | | | |
| Over-fire Draft | | | | | | | | |
| Equipment Outlet Flue Gas Temperature | | | | | | | | |
| CO ₂ Measurement | | | | | | | | |

Limited Warranty

Field Controls, L.L.C. warrants that the following Field Controls, L.L.C. products sold hereunder, shall be free from defects in material and workmanship under normal use for eighteen (18) months from date of manufacturing by the consumer excepting the provisions numbered below.

Provisions:

1. Field Controls shall have no obligation in the event the customer is unable to provide receipt showing the date the customer purchased the product(s) or accurate date code information.
2. The product must be properly installed, maintained and operated under normal conditions.
3. Field Controls shall not be liable for any consequential and incidental damages, resulting from failure of a Field Controls, L.L.C. product, failure to deliver, delay in delivery, delivery in nonconforming condition, or for any breach of contract or duty between Field Controls, L.L.C. and the customer.
4. Field Controls, L.L.C. products are often intended for use in specific applications. Field Controls, L.L.C. makes no warranty if a Field Controls, L.L.C. product is used in applications other than intended.
5. Field Controls, L.L.C. makes no warranty of any kind in regard to any other manufacturer's products distributed by Field Controls, L.L.C. Field Controls, L.L.C. 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.



FIELD CONTROLS
The Venting Solutions Company™