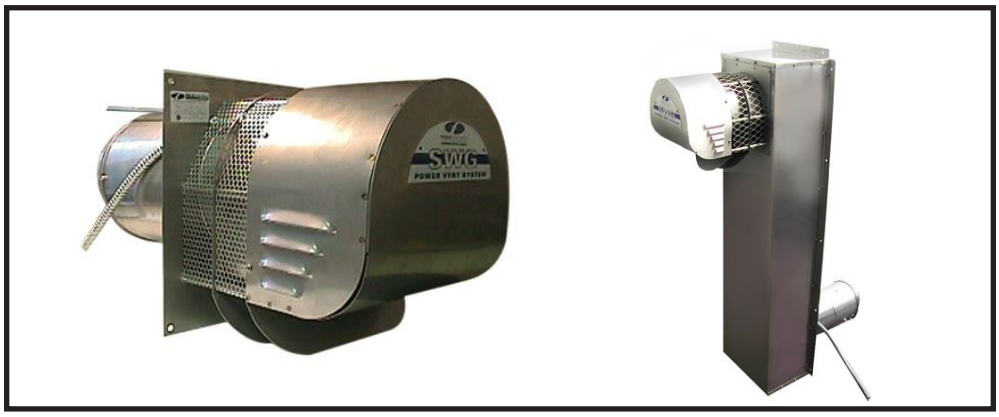
SIDEWALL POWER VENT

Model: SWG-AF Series



*Patented

Field Controls SWG-AF series power vents

TYPICAL VENTING SYSTEM COMPONENTS

1 – SWG-AF or SWG-VR-AF Series Power Vent
1 – RC Draft Control (Required Accessory Not Included)
1 – WMO-1 blocked vent switch (Required Accessory Not Included)
1 – DIP-1 pressure switch (Required Accessory Not Included)

WARNING:

The Field Controls SWG-AF series power vent system must be installed by a qualified agency in accordance with the appliance manufacturer's installation instructions.

The definition of a qualified agency is*: ".. any individual, firm, corporation, or company who either in person or through a representative is engaged in, and is responsible for installation and operation of solid or bio-fuel burning heating appliances. Who is experienced in such work, familiar with all the precautions required, and has complied with the requirements of the authority having jurisdiction".*

WARNING:

• Read the installation instructions carefully and completely before proceeding with the installation.
• For continued safe operation, the appliance vent system combination is required to be cleaned, inspected and maintained annually by a qualified agency.
• Failure to properly maintain the appliance vent system combination can lead to Death, Personal Injury and or Property Damage.
• A Carbon Monoxide alarm **MUST** be installed when venting solid or Bio-Fuel heating appliances. Refer to the appliance manufacturer's installation instructions.
• The Field Controls DIP-1 pressure switch, Barometric Draft Control and WMO-1 blocked vent switch must be properly installed and interlocked to the appliance burner feed circuit.
• The SWG-AF power vent and draft equipment is only for use as a venting option for specific listed automatic fuel-burning appliances. Refer to the appliance manufacturer's instructions for proper application, wiring and installation.

DO NOT DESTROY
THESE INSTRUCTIONS MUST REMAIN WITH EQUIPMENT

FIELD CONTROLS

OPERATION

The SWG-AF series power vents are designed for sidewall venting of a single listed automatic feed Corn, Wood Pellet and other Bio-fuel burning heating appliances.

1. The power vent operates continuously while the heating appliance is in operation. After the mechanical draft vent motor has come up to speed, the pressure switch closes. This closes the circuit to the burner feed circuit and allows the burner to fire.
2. A barometric draft control is required to maintain the proper draft through the appliance. It also regulates the appliance venting under extreme changes in windy weather conditions.
3. A pressure sensing switch and blocked vent safety switch are wired into the burner feed circuit. If proper venting is not maintained, one or both switches will open and the burner feed circuit will de-activate.

TO THE USER

For continued safe operation, the heating appliance MUST be cleaned and inspected annually by a qualified service agency. It is recommended that the owner operator should have the appliance and power vent system examined annually for deterioration from corrosion or other sources. The inspection should be performed prior to each heating season.

ELECTRICAL DATA

Power Vent Operating Current:	SWG-4AF/5AF: 1.77A @ 115V and SWG-6AF: 1.3A @ 115V
Maximum Pressure Switch Current:	10A @ 120V
Maximum Blocked Vent Switch Current:	10A @ 120V

INSTALLATION SAFETY INSTRUCTIONS

WARNING: The SWG-AF power vent system must be installed by a qualified agency.

The definition of a qualified agency is: *".. any individual, firm, corporation, or company who either in person or through a representative is engaged in, and is responsible for installation and operation of solid or bio-fuel heating appliances. Who is experienced in such work, familiar with all the precautions required, and has complied with the requirements of the authority having jurisdiction".*

CAUTION *The Field Controls DIP-1 pressure switch, Barometric Draft Control and WMO-1 blocked vent switch must be properly installed and interlocked to the appliance burner feed circuit. See the appliance manufacturer's installation instructions for proper wiring. The power vent and draft equipment is only for use as a venting option for specific listed automatic fuel-burning appliances; refer to the appliance manufacturer's instructions for proper application and installation.*

- 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 unit.
- Recording burner and venting system initial operational information is strongly recommended as a guide for service or burner tune-up. Enter recorded information on the back page of this manual.

1. Safety inspection of a venting system must be performed before and after installing a power venting system on an existing or new appliance. Procedures to follow are those recommended latest version of:

In the USA

- NFPA 211 Standard for Fireplaces, Vents and Solid Fuel-Burning Appliances, The International Mechanical Code and / or International Residential Code or refer to the General Installation Inspection section of this manual.

In Canada

- CSA B 365 Installation Code for Solid Fuel-Burning Appliances and Equipment

2. Plan the vent system layout before installation to avoid the possibility of accidental contact with concealed wiring, plumbing inside walls and combustible materials.

3. Single wall “Chimney Connector” pipe may be used to join an appliance to the venting system, but if proper clearances cannot be maintained from combustible materials, use Listed Double Wall “Chimney Connector” or Factory Built Chimney pipe, refer to national or local codes for guidelines. Newer use Type B or Gas vents for venting solid or Bio-Fuel heating appliances. Refer to the appliance manufacturer’s installation instructions.
4. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
5. This equipment is designed to overcome minor negative pressure conditions. To ensure extreme negative pressure does not exist, **A COMPLETE GENERAL INSTALLATION INSPECTION MUST BE PERFORMED!** See the General Installation Inspection section of this manual.
6. Air flow adjustment **MUST** be made to ensure proper operation and appliance efficiency. This should be done at the appliance exhaust outlet with a velocity meter or draft gauge. Refer to appliance manufacturer’s setup instructions for proper negative draft settings.
7. A barometric draft control **MUST** be properly installed to regulate the vent system’s air flow. The draft control responds to air flow fluctuations during operation. Fluctuations occur from wind loads on the outlet of the power vent, house de-pressurization and ventilation requirements; use a Field Controls Type M or RC Barometric Draft Control.
8. The Field Controls DIP-1 pressure switch and the WMO-1 blocked vent switch **MUST** be properly installed and inter locked to the appliance burner feed circuit.

Table 1

	MAXIMUM EQUIVALENT FEET OF VENT PIPE			
MAX BTU/HR. INPUT	AT MAX BTU/HR INPUT	AT 60% OF MAX BTU/HR INPUT	VENTING WITH VENT PIPE SIZE	MODEL
115,000	7	15	4”	SWG-4AF SWG-4VR-AF
	20	35	5”	
	50	50	6”	
190,000	20	35	5”	SWG-5AF SWG-5VR-AF
	50	50	6”	
	50	50	7”	
280,000	20	35	6”	SWG-6AF
	50	50	7”	
	50	50	8”	

SELECTING THE SWG-AF POWER VENT

PROCEDURE FOR CALCULATING VENT SYSTEM TOTAL EQUIVALENT FEET

1. Calculate the total equivalent feet for each type of fitting used in the vent system from Table 2.
2. Calculate the total amount of feet for all straight lengths of vent pipe. (1 foot = 1 equivalent foot)
3. Add the total equivalent feet from all fittings with the total amount of feet from all straight lengths. This will approximate the total equivalent feet of the vent system (See Table 1 for power vent sizing).

Table 2

EQUIVALENT FEET FOR VENT PIPE FITTINGS						
		VENT PIPE DIAMETER				
VENT PIPE FITTINGS		4”	5”	6”	7”	8”
90° ELBOW		7	9	11	12	14
45° ELBOW		4	4	5	6	7
*SUDDEN REDUCER OR INCREASER FOR 3 *RATIOS (d/D)*		d/D				
	¼	11	14	17	19	22

	½	7	8	10	12	13
	¾	3	3	4	4	5

*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 length would be 7 feet (see 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.

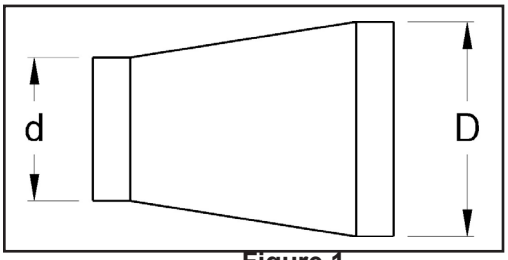


Figure 1

INSTALLING SWG-AF POWER VENT

WARNING: *Failure to install, maintain and/or operate the power vent system in accordance with manufacturer's instructions can result in conditions which may cause Death, Bodily Injury and/or Property Damage.*

1. Remove power vent 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 Table 1 (Page 3) to check for proper vent sizing.
2. Location of the termination of the venting system should be determined according to in:
   United States
   - NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances, the International Me chanical Code and / or International Residential Code. The appliance manufacturer's installation instructions and /or local codes and the authority having jurisdiction.
   - See requirements below or refer to installation location, Diagram A (Page 5), for typical locations.

   Canada
   - CSA B365 Installation Code for Solid Fuel-Burning Appliances and Equipment and any other federal, provincial, local code requirement and the manufacturer's installation instructions.
   - See requirements below or refer to installation location, Diagram A (Page 5), 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 point shall not be installed closer than 4' from an inside corner of an L-shaped structure.
e. The vent termination should not be mounted directly above, or within 3' horizontally from an oil tank vent or gas meter.
f. The bottom of the vent terminal outlet shall be at least 12" above finished grade or typical yearly snow line. If this is not possible use the SWG-VR-AF series power vent riser.
g. The area in front of power vent and 4' either side of power vent MUST be clear of any obstruction. Such as: landscaping plants, landscaping mulch, landscaping timbers etc.
h. **DO NOT** install over wood deck.
i. **DO NOT** install under a deck.

3. Before starting refer to Typical Installation Configuration Diagram on Page 15. Familiarize yourself with the layout of an installation. Determine the vent system termination location (See Diagram A on Page 5) and prepare the installation area: When through the wall vent penetration must be near or below the surrounding grade use a SWG-VR-AF series power vent riser. Provision must be made to protect the vent riser from standing water. A well structure must be used with adequate drainage and protection from water runoff. When a well structure is utilized, adequate clearance from the well wall to the vent riser **MUST** 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 Figure 4). Refer to local building codes governing such structures.

4. Determine the location of the power vent system termination. (See Diagram A)
   a. Determine wall material type Combustible or Non Combustible. (Maximum wall thickness: 8")
   - ***Combustible Wall Material:*** cut a square hole through the wall 2" larger than the outer pipe diameter of the power vent. When installing through combustible wall with insulation, the insulation must be physically secured 1" away from the power vent wall liner.
   - ***Non Combustible Wall Material:*** Cut a square hole through the wall 1" larger than the outer pipe diameter of the power vent.
   b. Make sure to keep the outer pipe centered in the hole. (See Figure 6)
   c. The power vent must be secured to the outside wall with appropriate coated weatherized fasteners.

WARNING: *DO NOT recess or set back the power vent outlet in a wall!*

   d. Seal the edges of the power vent base plate to the wall with a high temperature silicone sealant.
   e. Wood or vinyl siding should be cut so that the unit mounts directly on the wall board to provide a stable support.
   - **Note:** When the siding is greater than 1/2" thick use a spacer plate or board behind the power vent mounting base. (See Figure 2)

WARNING: *DO NOT enclose or restrict the outside power vent body. It results in reduced cooling which can create a fire hazard!*

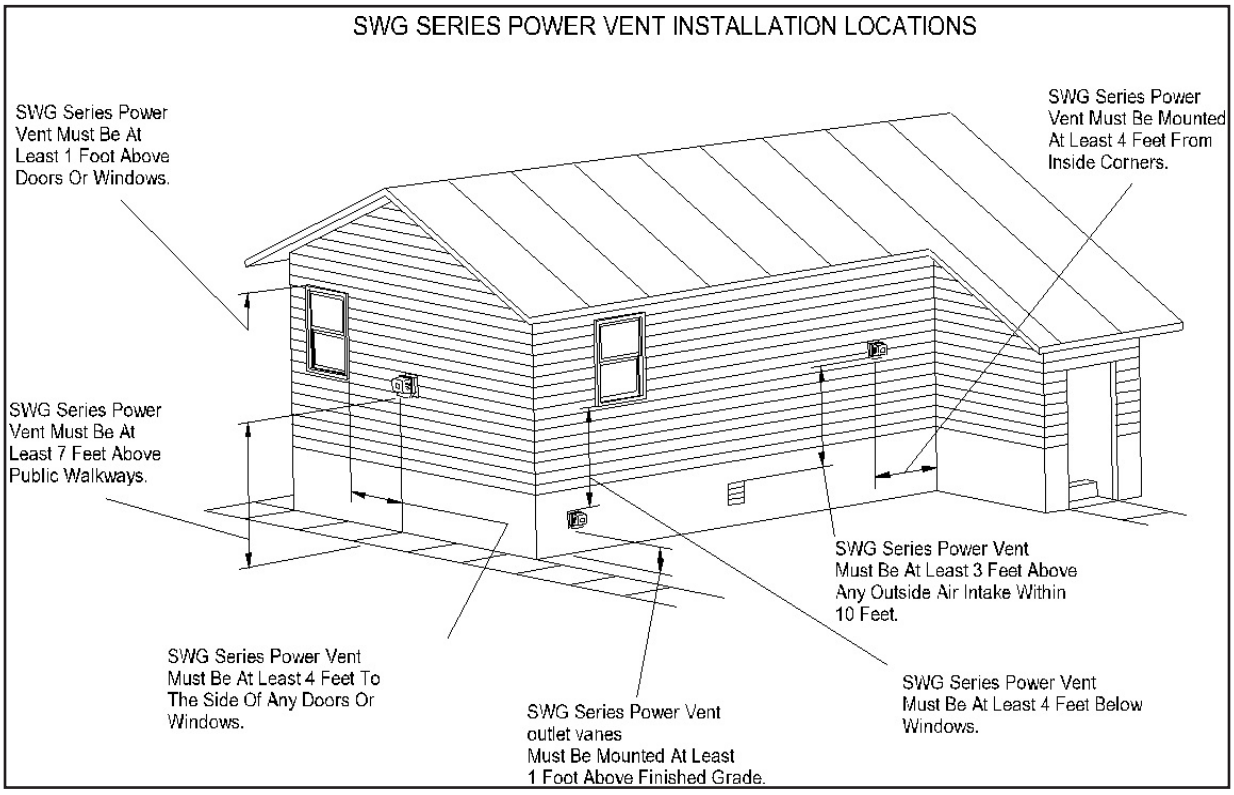


Diagram A

5a) *SWG-AF SERIES AND SWG-VR-AF SERIES*

If mounting the power vent through a combustible wall materials use the supplied wall thimble liner pipe. See page 4 for more information. (See Figure 6) The wall thimble can be removed for installations through non-combustible wall material. The wall liner pipe may need to be cut to length for wall thickness under 8".

Figure 3

5b) *SWG-VR-AF SERIES ONLY*

Prepare the SWG-VR-AF series power vent for installation: 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 sleeve and nut. (See Figure 3)

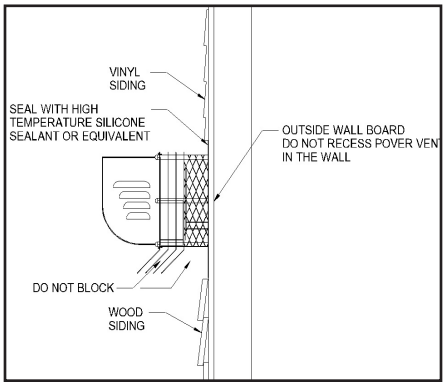


Figure 2

1. Cut a square hole for the tailpiece through the wall to the minimum dimensions given in Table 3, “Installation Hole Dimensions” (note that the tailpiece is offset from the actual termination).
2. Apply a bead of the supplied silicone sealant to the back, top and sides of the riser section mounting flange. Mount power vent to the wall. Make sure to pass the flexible conduit and pressure tubing through the wall. Make sure to keep the outer pipe centered in the hole. (See Figure 6)

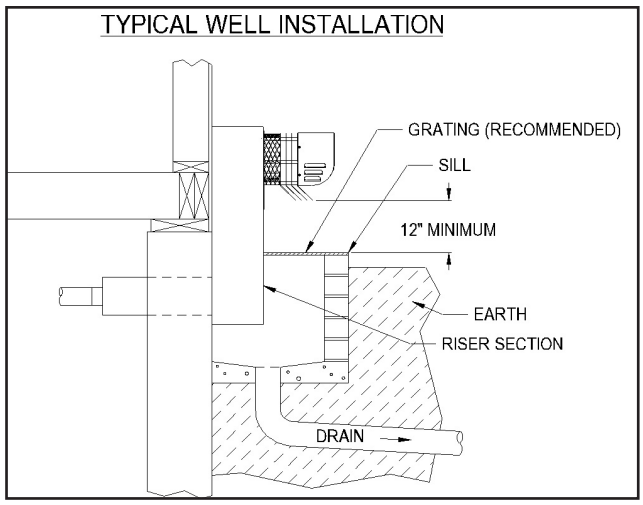


Figure 4

Power Vent Model	Square hole size through combustible wall dimension “A”	Square hole size through non-combustible wall dimension “A”
SWG-4 AF & SWG-4 AF-VR	8-inches	7-inches
SWG-5 AF & SWG-5 AF-VR	9-inches	8-inches
SWG-6 AF	10-inches	9-inches

Table 3

Determine wall material type Combustible or Non Combustible. (Maximum wall thickness: 8”)

- ***Combustible Wall Material:*** cut a square hole through the wall 2” larger than the outer pipe diameter of the power vent. When installing through combustible wall with insulation, the insulation must be physically secured 1” away from the power vent wall liner.
- ***Non Combustible Wall Material:*** Cut a square hole through the wall 1” larger than the outer pipe diameter of the power vent.

3. The power vent must be secured to the outside wall with stainless steel or galvanized lag screws (not included) or other appropriate coated weatherized fasteners. Flash and seal the edges of the power vent mounting plate to the wall with exterior sealant as necessary to prevent water entry behind the riser.

WARNING: DO NOT enclose or restrict the outside power vent body. This results in reduced cooling which can create a fire hazard! 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 vent mounting plate. (See Figure 5)

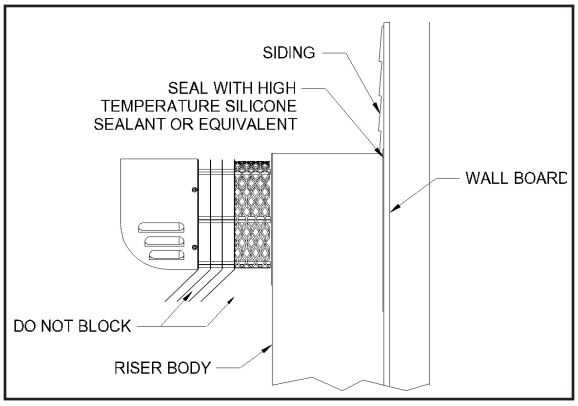


Figure 5

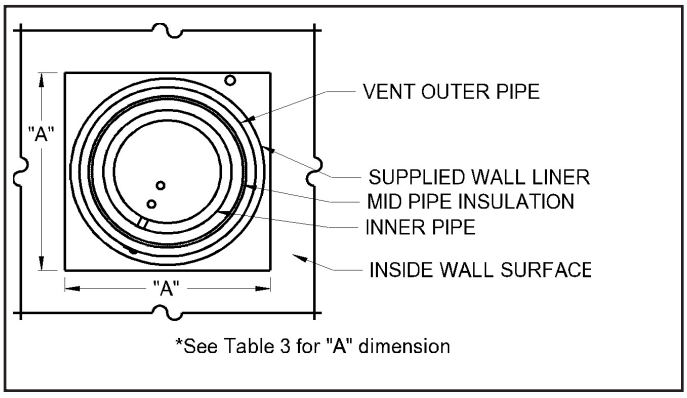


Figure 6

Two-Piece Backing Plate Installation:

a. Position Upper Backing Plate Half on the inside wall. Place plate half on inside wall and up to the vent body. At the same time. Put the air pressure sensing tube through small slot and flexible conduit through larger slot, as shown in Figure 7. Install an appropriate fastener in the upper right corner hole in the plate half.

b. Cut off or bend the two tabs of Lower Backing Plate Half inward (See Figure 8) and position it on inside wall as shown in Figure 9. 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.

Figure 7

Figure 8

Figure 9

CONNECTING POWER VENT TO APPLIANCE

The vent system should be installed and supported. Never use Type B or Gas vents for venting solid or Bio-Fuel heating appliances.

In the USA

- In accordance with the latest version of NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances. The International Mechanical Code and/or International Residential Code or in accordance with any local codes of the authority having jurisdiction.

In Canada

- In accordance with the latest version of CSA B 365 Installation Code for Solid Fuel-Burning Appliances and Equipment.

A chimney pipe connector shall be supported for the design and weight of the material employed, to maintain clearances, prevent physical damage and separation of joints. Check appliance installation instructions, the vent system may require a particulate trap.

CAUTION *Do not pass single wall connector through walls, floors or ceiling.*

A chimney connector increaser or reducer may be required for connecting a power vent to the appliance vent system. The reducer must be placed as close to the power vent as practical. The appliance flue diameter must remain unchanged until reduced at the power vent.

When installing a vent system near combustible materials, refer to the appliance installation instructions, NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances, The International Mechanical Code and/or International Residential Code and local codes for guidance. Installation within Canada must be with accordance to the latest version of CSA B 365 Installation Code for Solid Fuel-Burning Appliances and Equipment. If manufactured double wall vent pipe is required or used for the installation, clearance should be based on the vent pipes rated clearance.

CAUTION *Do not support factory built chimney by inner wall of pipe.*

Route chimney pipe from appliance to power vent. Use a minimum number of elbows as practical. The horizontal section of chimney pipe must slope upward from appliance to power vent.

WIRING

NOTE: *Power Vent must be wired on a separate 15 amp GFI ground fault circuit breaker or equivalent 15 amp ground fault over-current circuit separate from the appliance:*

Wire the power vent motor:

In the USA in accordance to the latest version of **NFPA 70 National Electric Code**

In Canada in accordance to the latest version of **C22.1 Canadian Electrical Code Part 1**

Power Vent MUST BE GROUNDED. Check the ground circuit. Make certain the unit has been properly grounded. The wiring should be protected by an over-current circuit device rated at 15 amperes.

CAUTION *Ensure electrical wiring does not come in contact with any heat source. All line voltage and safety control circuits, between the power vent and the appliance in the USA MUST be wired in accordance with the: NFPA 70 National Electrical Code for Class 1 wiring or equivalent (See Wiring Diagram on Page 10). In Canada in accordance with: C22.1 Canadian Electrical Code Part 1.*

DRAFT CONTROL LOCATIONS

The draft control should be located as close as possible to a furnace or boiler and positioned as shown in Figure 10. It should be typically 18" from appliance flue. Do not locate in a room separated from the appliance. **NOTE:** *When a sheet metal tee is used instead of the collar, the "B" dimension must not be less than indicated for proper operation.* (See Figure 11 and Table 4)

COLLAR INSTALLATION

To attach the collar to the flue, see Figure 11 and follow the instructions as follows:

1. Bend the two ears at the front corners of the collar outward. Bend 90°, ¼" behind the single hole on the straps.
2. Insert clamping screw in ears on collar and bolt the remainder of the collar together.
3. Hold the collar against the side of the flue in the exact position it is to be installed (shown by dotted lines) and mark the outline of the collar on the flue.
4. Cut a hole in the flue about ½" inside of the outline.
5. Make a series of cuts about ½" apart from the edge of this hole to the outline marks.
6. Strap the collar to the flue pipe.
7. Bend the tabs formed by the series of cuts outward against the inside of the collar to make tight joint.
8. Insert the draft control. (See Installation & Adjustment)

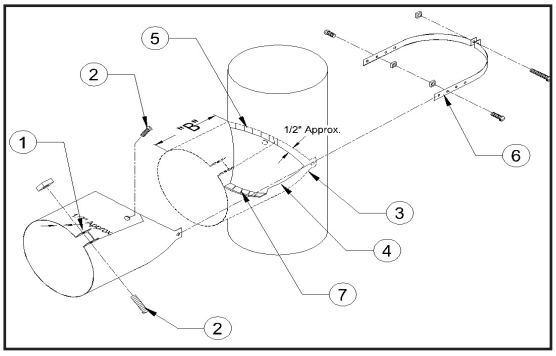


Figure11

Table 4

RC SIZE	*B-DIMENSION*
4	2 1/2 in.
5	2 1/2 in.
6	1 7/8 in.
7	2 5/8 in.

If flue pipe is made of material too heavy to bend out into collar, make the diameter of the opening within ½" of the inside diameter of the collar. Seal with high temperature RTV silicone or high temperature foil tape UL listed for the temperature of the application. For proper settings and operation of the burner and the draft, combustion testing instrumentation and draft gauges must be used.

INSTALLATION AND ADJUSTMENT

NOTE: *See sections on draft control locations and collar installation.* Insert the draft control into collar. The front face of the control must be plumb. The pivot points must be level whether the control is on a horizontal, vertical or sloping flue pipe. Use a spirit level, plumb and level accurately. Secure the control in the collar by tightening the clamping screws. If the collar is not supplied by Field, the control may be held in place by small bolts or sheet metal screws so located as not to interfere with the movement of the gate. When a sheet metal TEE is used instead of the collar, the "B" dimension must not be less than indicated for proper operation. The "B" dimension prevents the damper gate from obstructing the flue passage way.
(See Figure 11 & Table 4)

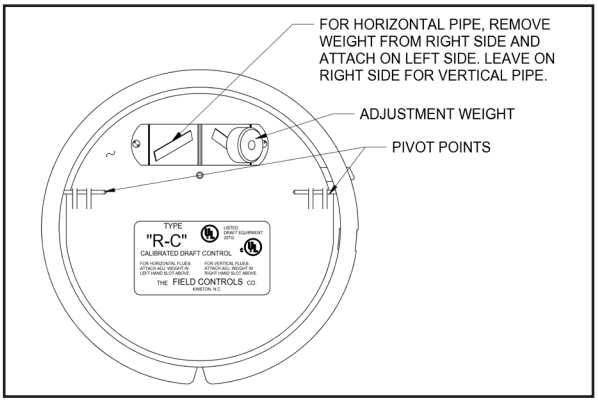


Figure12

VERTICAL FLUES: The draft control is shipped for installation in a vertical flue. The adjustment weight should be in the right hand slot when you face the control. (See Figure 12)
HORIZONTAL FLUES: For horizontal flues, remove the weight from the right hand slot and attach it to the left hand slot as shown in Figure 12.

WARNING: PROPER AIR FLOW ADJUSTMENT MUST BE COMPLETED!

AIR FLOW ADJUSTMENTS

In order to obtain proper system draft, the power vent has a built in airflow adjustment damper. The damper is used to make coarse draft adjustments while the barometric damper is used for finer adjustments. Loosen the locking screw on the air flow adjustment damper. It is located on the outer pipe near the inlet of the power vent. (See Figure 13) Adjust the damper to the 1/2 to full open position. Follow the appliance manufacturer's start up procedures. After the system has operated for several minutes and flue gas temperature stabilized. Check at the appliance flue outlet for proper negative draft.

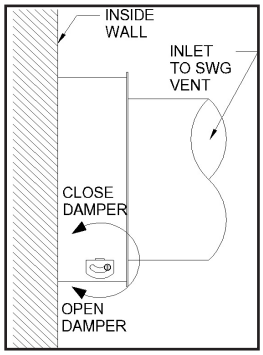


Figure13

Note: *(The draft control gate should be open approximately 30o from vertical)* Use a draft gauge or velocity meter to check for proper appliance draft. Adjust the airflow adjustment damper at the inlet of the power vent. Obtain at least the appliance manufacturer's specified draft level while still maintaining the 30o gate angle on the draft control.

CAUTION *If sufficient combustion air for the burner is not available, additional combustion air should be supplied from outside the structure. The air inlet should be on the same wall as the power vent discharge. For example, tightly constructed homes and weatherized homes are 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 national and/or local code requirements for combustion and makeup air requirements.*

DIP-1 DRAFT INDUCER PROVING SWITCH ADJUSTMENTS:

WARNING: ***The pressure switch must be properly adjusted!***

Follow appliance manufacturer's instructions, light the appliance and adjust the RC Draft Control barometric damper and/or the appliance draft controls to obtain the minimum draft recommended by the appliance instructions. After the appliance has operated a sufficient time to establish stable combustion, adjust pressure switch sensitivity by turning the pressure switch adjustment screw "clockwise" (see Figure 14) until burner feed system operation stops. Then turn the adjustment screw "counter-clockwise" until burner feed system starts operating. Turn the adjustment screw an additional ¼ to ¾ of turn "counter-clockwise" more to ensure adequate switch adjustment. Readjust the RC Draft Control barometric damper and/or the appliance draft controls to provide the normal recommended operating draft.

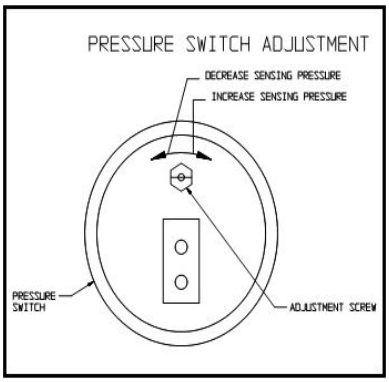


Figure 14

WARNING: *Failure to properly adjust the pressure switch as specified above can lead to Death, Personal Injury and or Property Damage.*

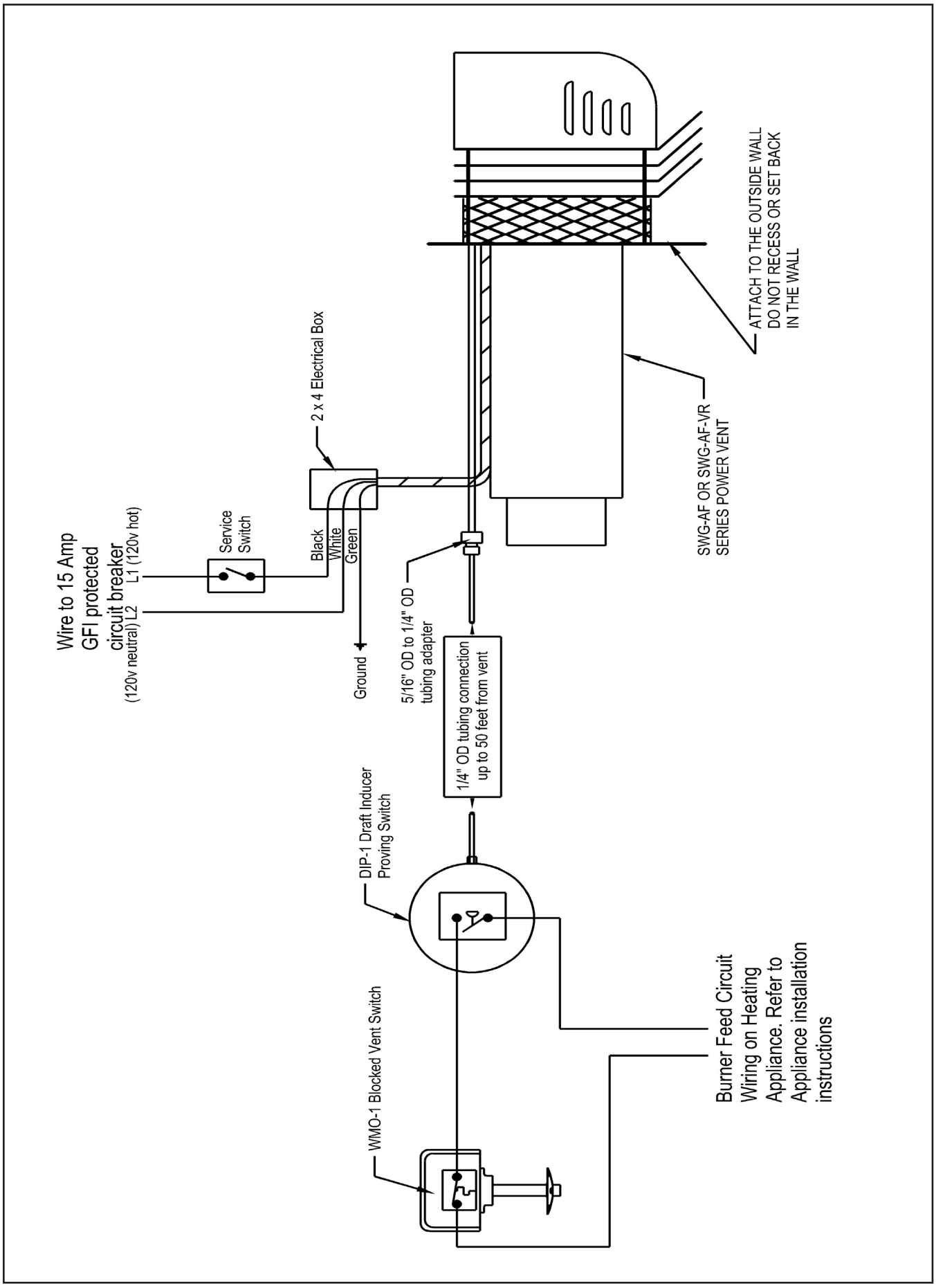
WARNING: ***GENERAL INSTALLATION INSPECTION MUST BE PERFORMED!***

GENERAL INSTALLATION INSPECTION

Recommended procedures for a safety inspection of an appliance, in accordance with National Codes. 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 exhausts 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 Flue 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 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 burner safety device to determine if it is operating properly by disconnecting the pressure switch sensing tube from the pressure switch.
5. Visually determine that the burner is burning properly; i.e., no floating, lifting or flashbacks. 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 burner operation at low flame.
7. Test for spillage at the barometric draft control opening and burner inlet air location after 30 minutes of 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 barometric draft control or burner inlet air location after power vent has stopped operation. If a flow reversal is noticed, house de-pressurization is occurring and make up air is required.
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.

WIRING DIAGRAM



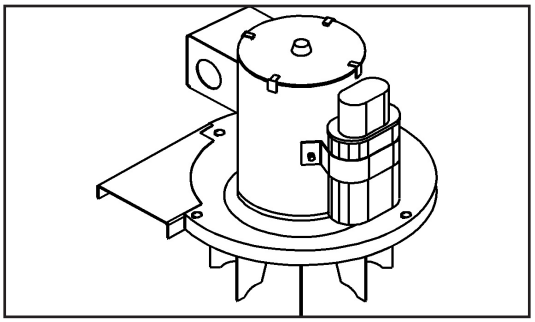
MAINTENANCE

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 vent 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, build up of soot and for flue gas leakage. Replace, seal or tighten pipe connections if necessary. Check the power vent 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. This will stop the burner feed operation. Re-connecting the tube will restart the burner feed system.

REPLACEMENT PARTS

Should the motor blower wheel assembly need replacement, the following items are available. The SWG-AF Repair Motor Kit contains the Motor and Blower Wheel. It is factory assembled to a mounting bracket.

MODEL	*REPAIR MOTOR KIT*
SWG-4AF	46544400
SWG-5AF	46544500
SWG-6AF	46544600



REMOVAL AND INSTALLATION OF THE SWG-AF SERIES POWER VENT MOTOR ASSEMBLY

REMOVAL

1. Remove the motor enclosure cover by loosening the four screws.
2. Open the electrical box on the motor and disconnect the conduit and wires from the motor. (See Figure 15)
3. Remove the 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 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 results in excessive vibration and premature motor failure.*

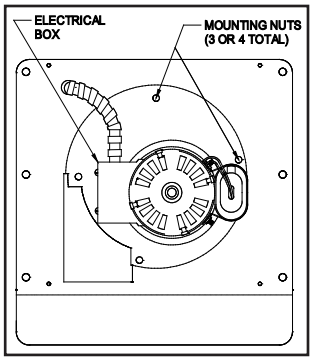


Figure 15

INSTALLATION

1. Align holes in the circular cover plate with holes in the motor mount bracket on the motor assembly. (See Figure 15)
2. Slide motor assembly onto protruding threaded studs on the power vent body. The exhaust chute must be pointing downward. Replace the four nuts securely to the threaded studs. (See Figure 16)
3. Re-attach flexible conduit and wires to motor and secure cover on the electrical box.
4. Install motor cover with the side louvers pointing downward.

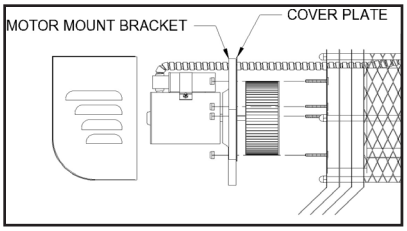


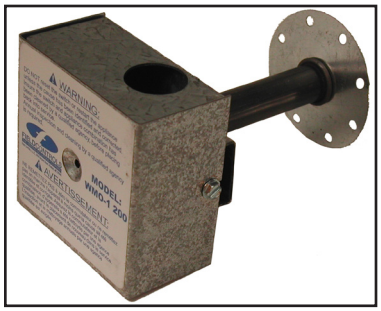
Figure 16

THE WMO-1 BLOCKED VENT SWITCH

This device is intended to detect a blocked vent system, responds to hot flue gasses backing up through its heat transfer tube, and must be wired to shut off the burner feed system according to the appliance manufacturer's instructions. It requires manual resetting.

WARNING: 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 solid or bio-fuel 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".*



Model: WMO-1

WARNING: Read the installation instructions carefully and completely before proceeding with the installation.

WARNING: Do NOT reset the device or restart the appliance unless the cause has been identified and corrected by a qualified agency. Insure the switch appliance combination has been cleaned by a qualified agency before placing back into service. Annual inspection and cleaning by a qualified agency is required.

- Wiring **MUST** be in accordance with the current **Canadian Electric Code** and any other applicable federal, provincial, local code requirements and appliance manufacturer instructions.
- For installations in the USA, all wiring shall be in accordance with the **National Electrical Code**, applicable local codes and appliance manufacturer instructions.
- For continued safe operation, the appliance-switch combination is required to be inspected and maintained annually by a qualified agency. Failure to properly maintain the appliance-switch combination can lead to Death, Personal Injury and or Property Damage.

INSTALLATION

MOUNTING IN THE VENT PIPE

SEE THE APPLIANCE MANUFACTURER'S INSTRUCTIONS FOR THE SPECIFIC LOCATION.
IF THE APPLIANCE MANUFACTURER DOES NOT SPECIFY A LOCATION, REFER TO FIGURE 21

1. Drill or pierce a clean hole (3/4 ± 1/32" diameter) in the vent pipe near the appliance vent outlet. (See Figure 18)
2. The heat transfer tube must have the fiber gasket installed against the mounting plate before attaching the unit to the vent pipe.
3. Insert the heat transfer tube with gasket into the 3/4" diameter hole placed in the vent pipe during step 1.
4. Secure the assembly to the vent pipe with a minimum of 4 sheet metal screws. The channel must be mounted horizontally, unless specified differently by the appliance manufacturer. (See Figure 17)

WARNING: *Disconnect electrical power supply to the appliance when wiring the blocked vent switch.*

WARNING: *Switch connection channel must be mounted horizontally, unless specified differently by the appliance manufacturer.*

CAUTION: *The switch must be mounted to a single wall chimney connector unless specified differently by the appliance manufacturer.*

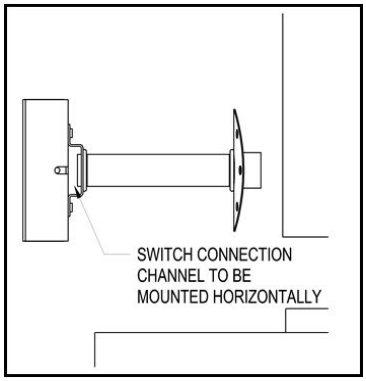


Figure 17

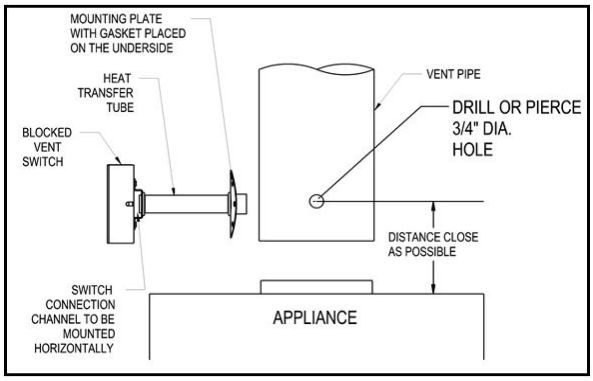


Figure 18

WIRING INSTRUCTIONS

5. Wire the blocked vent switch according to MFG installation instructions in series with the limit control circuit or burner feed controls. Route all wiring with an acceptable wiring enclosure in accordance with the current **CSA C22.1 Canadian Electric Code Part 1** and any other applicable federal, provincial and local code requirements. For installations in the USA all wiring shall be in accordance with the **National Electrical Code** and applicable local codes.

WMO-1 SWITCH MAINTENANCE:

Note: *For continued safe operation, the appliance-switch combination is required to be inspected and maintained annually by a qualified agency.*

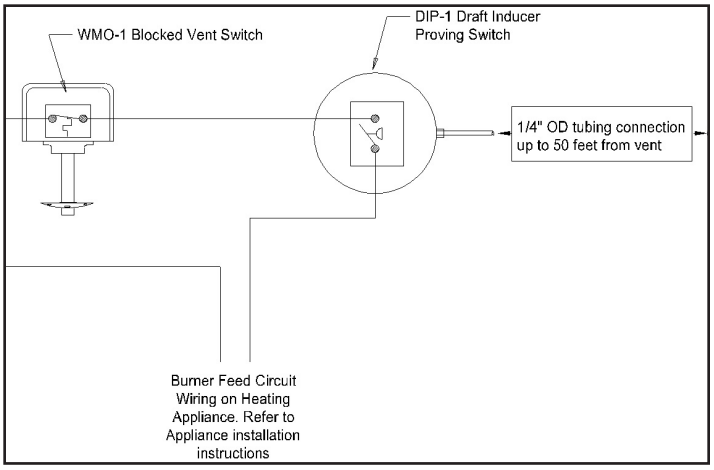
1. Disconnect power to the appliance.
2. Remove the two screws holding on the WMO-1 blocked vent switch assembly cover.
3. Remove the cover.
4. Remove the two screws holding the control box to the heat transfer tube assembly. The control box slides, unlocking it from the heat transfer tube assembly.
5. Carefully remove any buildup from the thermal switch surface.

DO NOT DENT OR SCRATCH THE SURFACE OF THE THERMAL SWITCH.
IF THE THERMAL SWITCH IS DAMAGED, REPLACEMENT IS REQUIRED.

6. Clear and remove any buildup or obstruction inside the heat transfer tube.
7. Remount, lock and refasten the control box with the two screws removed in step 4.
8. Reattach the assembly cover with screws removed in step 2.
9. Re-establish power to the appliance.

THE DIP-1 FAN PROVING SWITCH

This device **MUST** be installed by a qualified installer in accordance with the manufacturer's instalation instructions. **In the USA** wiring **MUST** be in accordance with the **NFPA 70 National Electrical Code** and applicable local codes.



DIP-1 Wiring Diagram

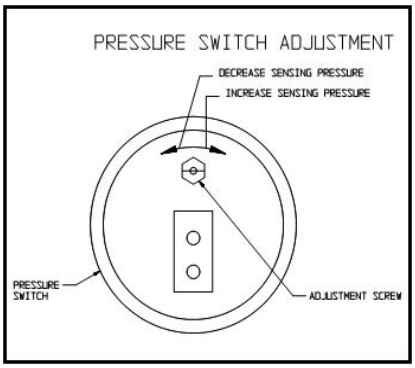


Figure 19

In Canada wiring **MUST** be in accordance with **C22.1 Canadian Electrical Code** and any other fedral, provincial, local code requirement and appliance manufacturer's instructions.

WARNING: *Disconnect electrical power supply when wiring pressure switch.*

INSTALLATION PROCEDURE FOR REMOTE PRESSURE SWITCH KIT:

1. The pressure switch must be mounted in the vertical position to maintain maximum sensitivity and removed from any heat source. (See Figure 19)
2. Attach ¼" tubing to the pressure sensing fitting with the ¼" compression nut and sleeve. Then route tubing to power vent and connect end to pressure sensing tube on the power vent.

NOTE 1: *Use ¼" metal, ¼" Nylon tubing rated to SAE J844 or equivalent plastic tubing rated for applications of 150°F or higher.*

NOTE 2: *Secure routed tubing in position away from any heat sources.*

WIRING

Wire in accordance with the Appliance Manufacturer's installation instructions, the National Electrical Code and applicable local codes (see Wiring Diagram and Page 8). In Canada in accordance with C22.1 Canadian Electrical Code Part 1 and any other applicable fedral, provincial, local code requirement and appliance manufacturer's instructions.

SETTING PRESSURE SWITCH

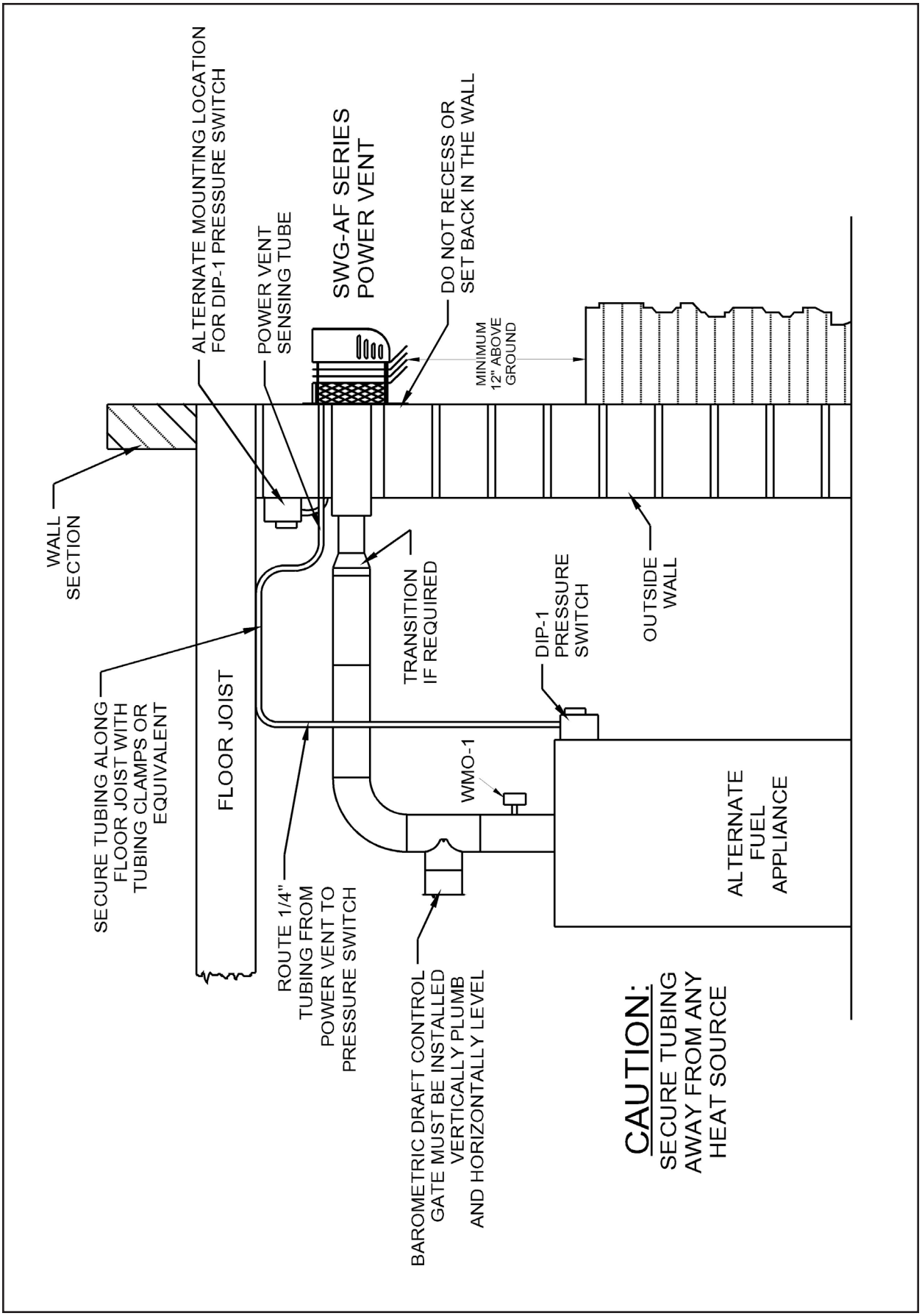
Follow appliance manufacturer's instructions, light the appliance and after the appliance has operated a sufficient time to establish stable combustion, adjust pressure switch sensitivity by turning pressure switch adjustment screw "clockwise" (See Figure 19) until burner feed operation stops. Then turn the adjustment screw "counter-clockwise" until burner feed starts operating. Turn the adjustment screw an additional ¼ to ¾ of turn "counter-clockwise" more to ensure adequate switch adjustment. See page 8.

SYSTEM CHECK-OUT PROCEDURE FOR FAN PROVING SWITCH

1. Adjust the draft according to Air Flow Adjustments and DIP-1 Draft Inducer Proving Switch Adjustments.
2. After the appliance has operated for a sufficient time to establish stable combustion.
3. Check the set point of the pressure switch adjustment by rotating the switch adjustment screw "clockwise" until the burner feed operation stops, then rotate the switch adjustment screw "counter-clockwise" until the burner feed operation starts. Add an additional ¼ to ¾ of a turn "counter-clockwise" to ensure a proper setting.
4. Remove the ¼" sensing tube from the pressure switch, the burner feed operation MUST stop. Reconnect the ¼" sensing tube and the burner feed operation will start operating.
5. Readjust the RC Draft Control barometric damper and/or the appliance draft controls to provide the normal operating draft recommended by the appliance instructions and markings.

WARNING: *If for any reason the system has shut down during operation, the cause of the system failure should be investigated and corrected before re-setting the safety controls and re-starting the system.*

TYPICAL INSTALLATION CONFIGURATION



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:							
EQUIPMENT SETUP INFORMATION							
Heating Appliance BTU/HR Input							
Vent System Draft Before Barometric Draft Control							
Vent System Draft After Barometric Draft Control							
CO2 Measurement							
CO Measurement							
Appliance Outlet Flue Gas Temperature							
Power Vent Inlet Flue Gas Temperature							

Warranty

For warranty information about this or any Field Controls product, visit:
www.fieldcontrols.com/warranty

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