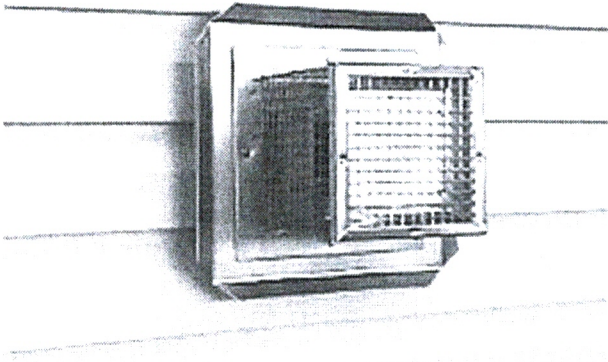


SUPPLEMENTAL INSTRUCTIONS: DIRECT VENT INSTRUCTIONS FOR HIGH EFFICIENCY OIL-FIRED HOT WATER BOILER



Information contained in this manual pertains to direct vent boilers equipped with manufacturer installed blocked vent safety control system (pressure switch).

⚠ WARNING

Installations of venting shall be done only by a qualified expert and in accordance with these instructions. Venting a boiler or any other oil appliance with improper methods or materials may result in serious injury or death due to fire or to asphyxiation from poisonous gases such as carbon monoxide which is odorless and invisible.

Keep area around vent terminal free of snow, ice, and debris.

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VENT TERMINAL LOCATIONS

Figure 2 - Vent Terminal Locations (Canada)

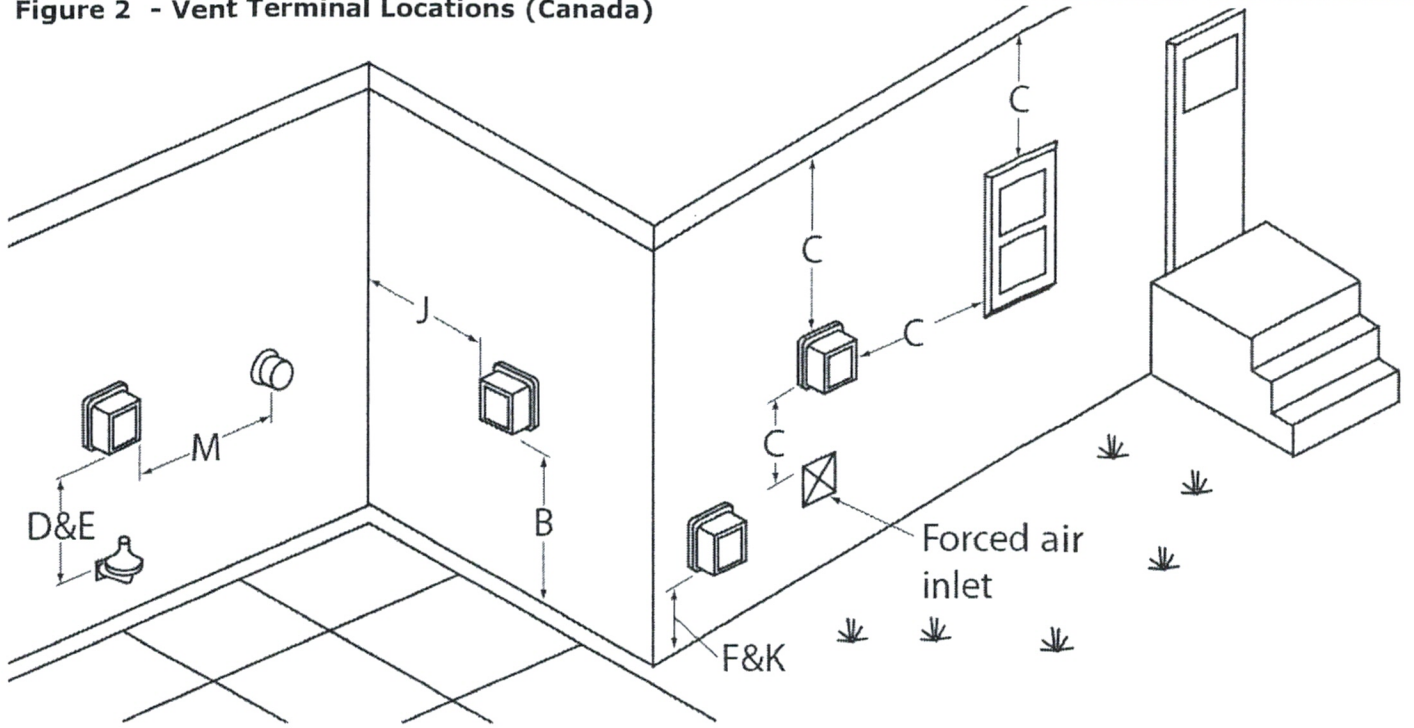
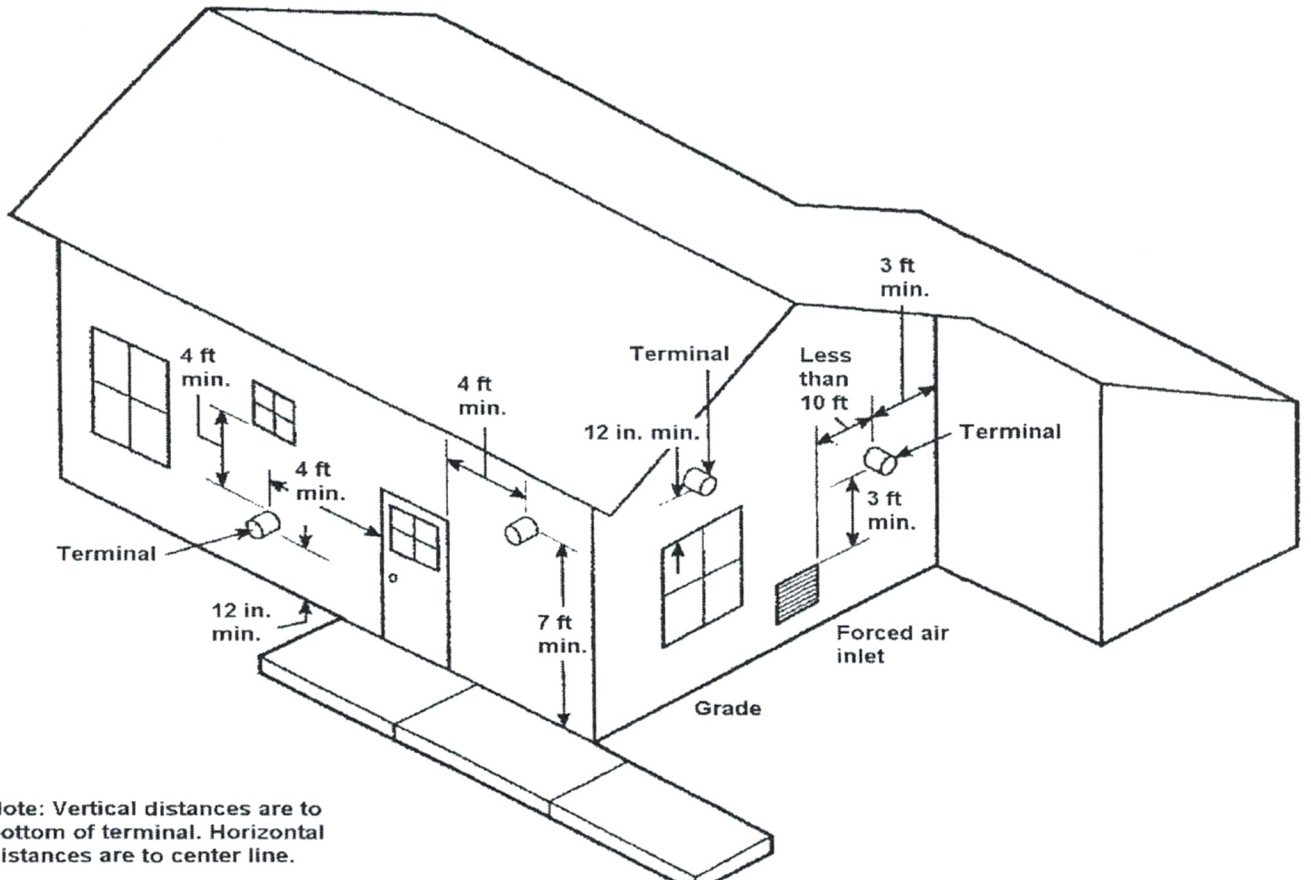


Figure 3 - Vent Terminal Location (USA)



Note: Vertical distances are to bottom of terminal. Horizontal distances are to center line.

VENT PIPE INSTALLATION

Venting Installation - Direct Vent

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance could result in death or serious injury. Do not enclose vent. Do not use barometric draft regulator. Do not route vent through walls, floors or ceilings. Venting and vent terminal are dedicated to the Boiler only; do not attempt to vent any other appliance through it.

Barometric draft regulator (furnished with standard chimney vent boiler) is not used for direct venting.

Flexible Vent Installation

Supplied flexible exhaust duct is a double wall, one (1) inch clearance to combustibles, flexible venting material.

Inner pipe is constructed of 4 inch inside diameter 316 stainless steel, with two-ply aluminum outer pipe.

High temperature insulation separates inner and outer flex pipes.

Vent installation shall conform to requirements of authority having jurisdiction or in absence of such requirements NFPA 31 Installation Of Oil Burning Equipment (U.S.) or CSA B139 (Canada) and applicable provisions of local building codes and these instructions.

⚠ CAUTION

Use appropriate safety precautions. Thin metal edges are extremely sharp. If not avoided, could result in minor or moderate injury.

1. In as short and straight a run as possible without any unnecessary bends.
2. No dips or sags throughout full length of vent.
3. Slope vent upwards from appliance at least 1/4" per foot.
4. Do not bend vent more than 90°.
5. May cut vent to minimum of 5 feet in length using fine tooth (24 teeth per inch) hacksaw blade.
6. Clean male and female ends of appliance adapter and terminal adapter with residue free brake cleaner solvent.
7. Apply minimum 1/4" bead of Si-Ultra Copper Sealant (provided) onto outside of male end of appliance adapter. Fit adapter to vent by threading it counter clockwise until it stops. Insure joint is not cross threaded. Tighten gear clamp (where provided) on outer cover. See figures 6 and 7.

Figure 5 - Appliance Connector w/ Test Port

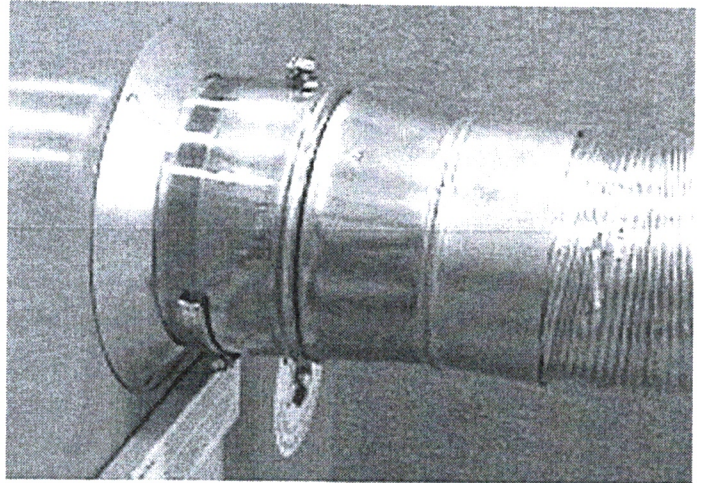


Figure 6 - Male End

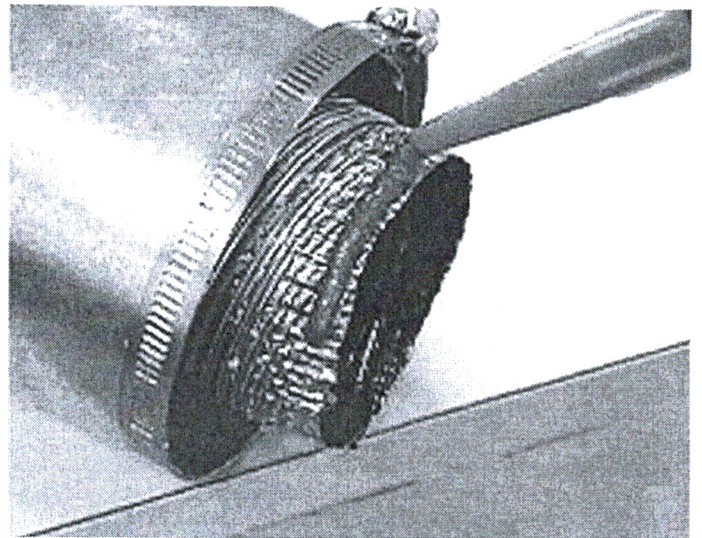
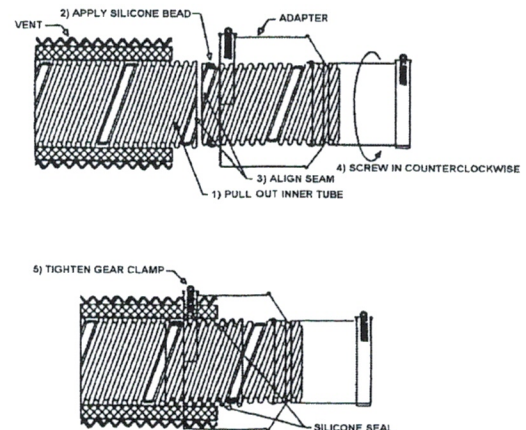


Figure 7 - Flex Vent Assembly Detail



BLOCKED VENT SAFETY SHUTOFF SYSTEM

Blocked Vent Safety Shut Off System (BVS)

Oil burners used with this direct vent boiler are equipped with a Blocked Vent Safety shutoff system (BVS) utilizing a pressure switch that is part of the oil burner. This safety device shuts off the burner in the event of combustion air blockage or venting blockage. Do not use blocked vent safety switches that are designed for use with chimney vent boilers on direct vent installations.

It is best to have burner shutter and or head settings close to Table 2.

Riello 40BF

BVS pressure switch is wired in series with terminals 10 and 11 on 530SE control. See Wiring Diagram, Figure 10 page 11.

Blocked Vent Safety Switch Pressure Tubing Connections

- Check tubing connections on all Boilers prior to firing unit.
- Riello BF low pressure side is open inside air tight burner cover and high pressure side goes to overfire pressure probe.
- Verify burner cover is air tight and all hole plugs are in place.

Oil Burner Operation

Once Boiler flue pipe and intake pipe are completely installed. In absence of burner manufacturer's instructions, use following instructions to set burner:

- Shut off electrical power to Boiler.
- Install oil pressure gauge to pressure port on oil pump. (Riello requires special adapter)
- Check air settings for initial firing in Table 2.
- Restore electrical power to Boiler.
- Start Boiler. Bleed all air from fuel oil lines.
- Close purge valve and fire unit.
- When Boiler has reached "steady state" (after approximately 5 minutes), remove bolt (test port) from center of Appliance Adapter to Boiler.
- Set combustion air control to get TRACE to ZERO smoke.

Riello 40BF Burner:

Refer to Figure 9. Check initial air shutter and head settings. Remove burner cover and turn air shutter adjustment screw (2) until top edge of air shutter (3) is in alignment with corresponding number in Table 2.

NOTICE

Riello burner pressure gauge threads are British Parallel Thread design. Test gauge with NPT fitting ruins pump body. Use Riello pressure gauge or adapter.

Further adjustments must be made with burner cover in place by unscrewing plug on cover. Turn screw clockwise to increase combustion air or counter clockwise to decrease combustion air.

- Shutter final position will vary on each installation.
- Use instruments to establish proper settings for maximum CO₂ and smoke spot reading of zero.
- Re-insert plastic cap over air adjustment hole before any measurements.

Final Check Out:

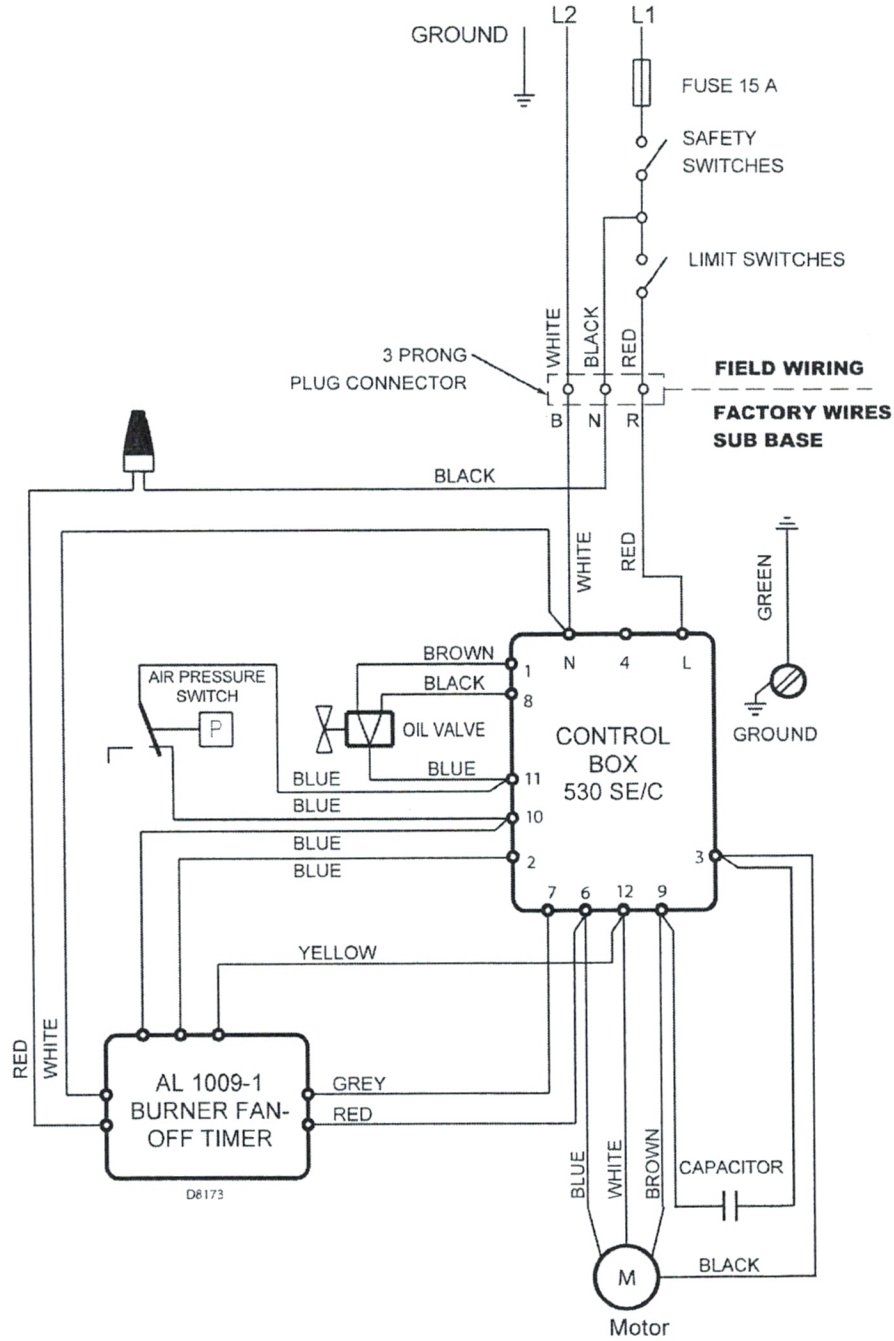
- Carefully examine complete vent system for leaks. This may be done by spraying soapy solution on all joints and watching for bubbles during pre-purge. The hot vent can be checked with lit taper for signs of air movement around joints or seams.
- Insure all safety devices and electrical components have been set for normal operation. Insure all electrical connections are tight and wiring is secure.
- Insure homeowner is informed and understands the following:
 1. Where circuit breaker or fuse is located in main electrical panel.
 2. Where Boiler switch is located, and switch "on" and "off" positions if not obvious.
 3. Where oil shut-off valve from oil storage tank is located.
 4. To keep area around vent terminal free of snow, ice, and debris.
 5. How to operate the thermostat, and other related accessories.
 6. How to operate manual reset button on primary control, and especially when not to push the reset button.
 7. How and where to visually inspect the venting system for leaks or other problems.
 8. How to inspect, clean and replace the air filter, and other homeowner maintenance procedures.
 9. Who to call for emergency service and routine annual service.
 10. Terms and conditions of the manufacturer's warranty and the contractor's warranty.

WIRING DIAGRAMS

Figure 10 - Riello Wiring Diagram With Post Purge Timer And Blocked Flue Pressure Switch Safety

The safety switch in the 530SE CONTROL BOX is equipped with a contact allowing remote sensing of burner lockout. The electrical connection is made at terminal 4 (o) on the SUB-BASE.

Should lockout occur the 530SE CONTROL BOX will supply a power source of 120VAC to the connection terminal. The maximum allowable current draw on this terminal (4) is 1 Amp.



If a neutral or ground lead is attached to terminal 4, the CONTROL BOX on the burner will be damaged should lockout occur.

OPERATION AND TROUBLESHOOTING

RIELLO 40BF Blocked Vent safety system (BVS) TROUBLESHOOTING		
Condition: Thermostat is calling for heat. Burner is not running.		
Problem	Possible Cause	Remedy
Test BVS pressure switch contacts are closed.	Contacts closed.	Go to step #2.
	Contacts open	Verify pressure tubing is connected properly and clear of obstructions. Verify vent is not obstructed. Verify combustion air intake is not obstructed. Replace.
Turn off power supply- Remove control box and jumper terminals #5 and #6. Restore power.	Motor runs.	Verify reduced voltage (42-52 Vac) between terminals #3 and #7. Ensure good contact between control box spades and sub-base terminals. Defective control box/ Replace.
	Motor does not run.	Verify electrical connections. Check for seized pump, motor, or fan against housing. Defective motor capacitor. Thermal overload (Hot motor).
Burner Starts	Burner stays in Pre-purge.	Faulty CAD cell or seeing light before trial for ignition. Coil wires on terminals #1 and #2 or #1 and #8 reversed. Open coil circuit; terminals #2 and #8. Open coil circuit; terminal #1 Defective 42-52 Vac supply, terminals #3 and #7. Defective control box/ Replace
	Burner continues to purge and light off with immediate flame dropout.	Metal yoke for coil missing. Coil wire #2 and #8 reversed. Low resistance of coil holding circuit, terminals #1 and #2, (1350 ohms \pm 10%). Verify BVS pressure switch is remaining closed upon light off.
	Burner locks out after trial for ignition.	Low resistance or no contact on starting circuit of coil, terminals #2 and #8. (1.3-ohm \pm %) No oil supply- tank empty, valve closed, dirty filter, damaged supply lines. Defective or dirty oil valve stem, nozzle, or pump strainer. Broken pump drive key, defective pump or oil pressure. Ignition electrodes shorted, cracked porcelain. Burner motor not up to speed. Excessive draft over fire. Defective control box/ Replace.