

HIGH TEMPERATURE VENT LIMIT SWITCH

Models: LS-140A, LS-550A



Items Included:

- 1) High temperature vent limit switch
- 2) 2-1/2 to 5-1/2 inch hose clamps
- 1) Tube of high temperature sealant
- 4) Wiring quick connect terminals (LS-140A)
- 1) TCA-1 thermocouple junction block (LS-550A)
- 1) 6 foot length of 12/2 wire (LS-550A)
- 2) Wire hold down clips (LS-550A)
- 1) ROMEX connector

Installation of a High temperature vent limit switch is recommended for LP and Natural gas fired power vented and natural draft water heaters. This device is installed to limit the vent temperature in either plastic pipe (140° F temperature limit) or B vent installations (550° F temperature limit) caused by scaled up tanks and/or inadequate venting. Wiring **MUST** be in accordance with the National Electrical Code and applicable local codes.

The Field Controls High temperature vent limit switch *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 gas appliances, who is experienced in such work, familiar with all the precautions required, and has complied with the requirements of the authority having jurisdiction.*

Before and after adding this safety control on existing appliances, an installation inspection in accordance with the National Fuel Gas Code 54, Z223.1 Appendix H should be performed and a combustion analysis is recommended to determine the operating condition of the appliance.

CAUTION: *Disconnect Electrical Power When Wiring High temperature vent limit switch*

MODEL	P/N	CONTACT MATERIAL	LOAD RATING		LIMIT SETPOINT °F	RESET	SWITCH TYPE	APPLICATION
			AMPS	VOLTS				
LS-140A	46564100	SILVER	15 A	120 AC	140	AUTOMATIC	SPDT	PLASTIC VENT APPLICATIONS
LS-550A	46564200	SILVER	15 A	120 AC	550	AUTOMATIC	SPDT	B-VENT APPLICATIONS



FIELD CONTROLS
 2630 Airport Road · Kinston, NC 28504
 Phone: 252-522-3031 · Fax: 252-522-0214
 www.fieldcontrols.com

INSTALLATION OF LS-140A SWITCH ON A POWER VENTED WATER HEATERS WITH PLASTIC PIPE

1. Disconnect Electrical Power to the water heater and shut off the gas supply to the water heater.
2. Drill a 5/16" diameter hole through the side of the plastic vent pipe at least 2-inches above the outlet connection on the power venter on the water heater (See Figure 1).
3. Remove the housing cover of the limit switch.
4. Loosen the two hose clamps and route them through the two mounting tabs on the ends of the switch housing (See Figure 2).
5. Apply bead of high temperature silicone sealant round the base of the temperature probe (See Figure 3).
6. Insert the temperature probe into the 5/16" diameter hole in the vent pipe and secure the switch to the pipe with the two hose clamps (See Figure 4).



Figure 1



Figure 2

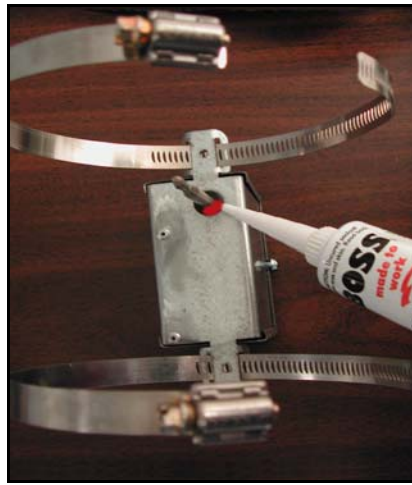


Figure 3

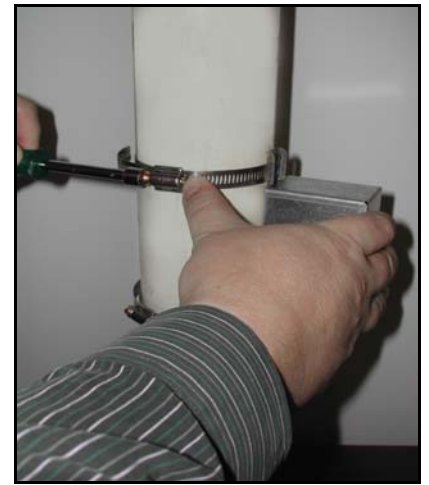


Figure 4

Wiring the LS-140A Limit switch

Wire the High temperature vent limit switch in accordance with the National Electrical Code, manufacturer's recommendations and/or applicable local codes. **THE UNIT MUST BE GROUNDED WHEN WIRED TO ANY 120 VOLT CONTROLS.** 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 into contact with any heat source. All line voltage and safety control circuits, between the vent damper and the appliance, **MUST** be wired in accordance with the National Electrical Code for Class I wiring or equivalent methods.

BEFORE STARTING WIRING, TURN OFF ALL ELECTRICAL POWER TO THE APPLIANCE AT THE APPLIANCE SERVICE SWITCH OR CIRCUIT BREAKER!!

1. Locate the wire connection to the solenoid valve on the gas valve.
2. Cut one of the leads to the solenoid valve and attach a female wire connector to each wire (See Figure 5 and 6).
3. Attach the two male wire connectors to installer supplied wire leads (See Figure 7), connect them to the



Figure 5

connectors on the solenoid valve and route the wires from the solenoid valve connections to the common terminal and the normally close (NC) terminal on the LS-140A limit switch (See Figure 8). Also route installers supplied green grounding wire from the LS-140A limit switch and connect to any convenient grounding surface at the gas valve.

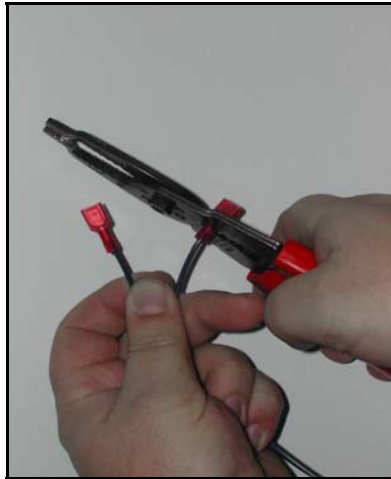


Figure 6

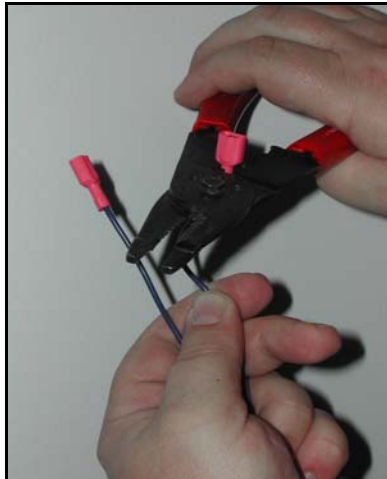


Figure 7

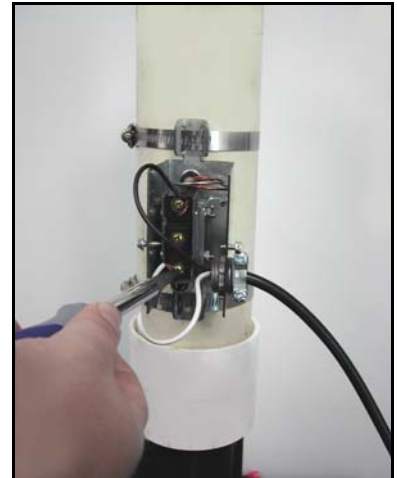


Figure 8

INSTALLATION OF LS-550A SWITCH ON A NATURAL DRAFT WATER HEATER WITH B-VENT

1. Adjust the thermostat on the water heater gas valve to the pilot position and shut off the gas supply to the water heater.
2. Drill a 5/16" diameter hole through the connection joint on the end on the B-vent next the draft hood (See Figure 9).
3. Remove the housing cover of the limit switch.
4. Loosen the two hose clamps and route them through the two mounting tabs on the ends of the switch housing (See Figure 2).
5. Apply bead of high temperature silicone sealant round the base of the temperature probe (See Figure 3).
6. Insert the temperature probe into the 5/16" diameter hole in the vent pipe and secure the switch to the pipe with the two hose clamps (See Figure 10).



Figure 9



Figure 10

Wiring the LS-550A Limit switch

Wire the High temperature vent limit switch in accordance with the National Electrical Code, manufacturer's recommendations and/or applicable local codes. **THE UNIT MUST BE GROUNDED WHEN WIRED TO ANY 120 VOLT CONTROLS.** 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 into contact with any heat source. All line voltage and safety control circuits, between the vent damper and the appliance, **MUST** be wired in accordance with the National Electrical Code for Class I wiring or equivalent methods.

BEFORE STARTING WIRING, TURN OFF ALL ELECTRICAL POWER TO THE APPLIANCE AT THE APPLIANCE SERVICE SWITCH OR CIRCUIT BREAKER!!

30 MILLIVOLT WATER HEATER:

The application requires a TCA-1 Thermal Couple Junction block and a 6 foot length of 12 ga. two (2) wire conductor

CAUTION: Shut off gas supply before working on appliance.

1. Remove thermocouple from gas control valve. (See Figure 11)
2. Thread the TCA-1 junction block into the thermocouple port and thread the thermocouple into the bottom of the TCA-1 junction block.
3. Connect the 12 ga wire to the two quick connect terminals on the TCA-1(See Figure 12). Then route the 12 ga wire to the LS-550 limit switch. Secure the wires to the water heater enclosure with acceptable hold down tabs, keeping the wires away from any hot surface area.
4. Connect one 12 ga wire lead to the common terminal connection on the limit switch and connect the other 12 ga wire lead to the normally closed (NC) terminal connection on the limit switch (See Figure 13).

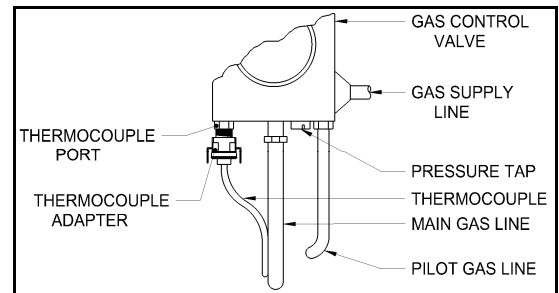


Figure 11

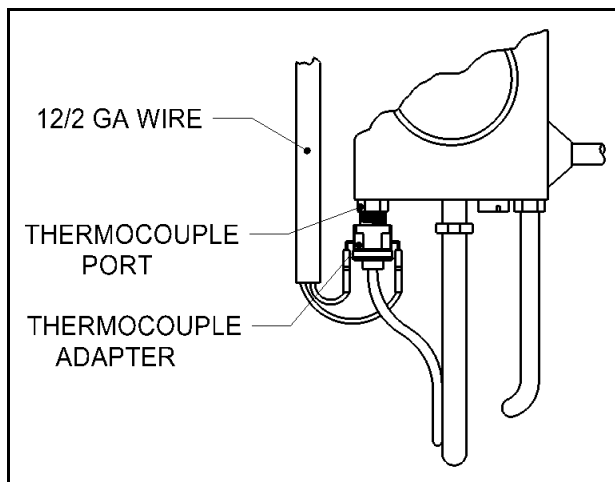


Figure 12



Figure 13

