

### Piping Installation

#### OPERATION:

When the electrical power to the water heater fails, the 3/4 inch solenoid valve closes (stopping the flow of water into the water heater) and the 1/4 inch solenoid valve opens (allowing the water heater and associated piping to drain).

#### INSTRUCTIONS:

1. Turn off and disconnect the 120 V power supply.
2. Turn off the water supply.
3. Install the 3/4 inch solenoid valve and the 1/4 inch solenoid valve to the water lines as shown in the diagram.
4. Install the freeze protection circuit board and make connections according to the instructions as follows:  
KB and VC series - page 2  
Models other than KB or VC series - page 3

#### Note:

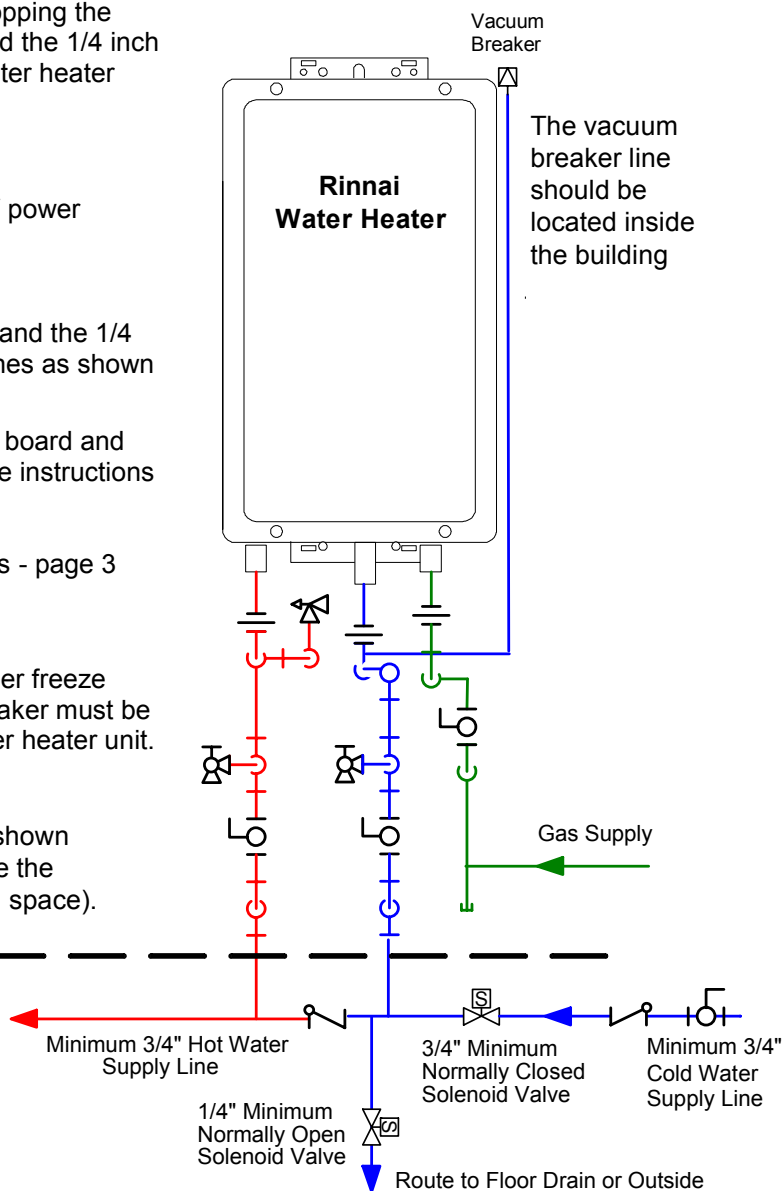
A vacuum breaker is required for proper freeze protection operation. The vacuum breaker must be installed higher than the tankless water heater unit.

#### Note:

Heat trace all water pipe and fittings (shown above the dashed line) located outside the home or building structure (attic, crawl space).

#### Note:

All water pipe and fittings shown below the dashed line should be located inside the home or building structure.



#### KEY

	3/4" Ball Valve		Pressure Regulator
	3/4" Union		Circulating Pump
	Check Valve		Boiler Drain Valve
	Pressure Relief Valve		Solenoid Valve

This is not an engineering drawing. It is intended only as a guide and not as a replacement for professionally engineered project drawings. This drawing is not intended to describe a complete system. It is up to the contractor/engineer to determine the necessary components and configuration of the particular system being installed. This drawing does not imply compliance with local building code requirements. It is the responsibility of the contractor/engineer to ensure installation is in accordance with all local building codes. Confer with local building officials before installation.

## Installation of Freeze Protection Circuit Board For Models KB Series or VC Series

NOTE: Refer to Figure 2 for VC indoor models and KB models; refer to Figure 3 for VC outdoor models.

1. Turn off and disconnect the 120 volt power supply.
2. Remove four screws securing the front panel. Remove the front panel.
3. Remove the PC board.
4. Remove the power supply connector on the PC board and attach it to the jumper connector (in line with the fuse). See (A). Attach the other end to the PC board. (Figure 1)
5. **On VC indoor models and KB models**, install the freeze protector circuit board onto the PC board. See Figure 2.  
**On VC outdoor models**, install the freeze protector circuit board onto the gas manifold. See Figure 3. Put the plastic cover over the circuit board.
6. Install the PC board.
7. Attach the other 2 jumper connectors to the freeze protector circuit board. See (B).
8. Attach the cable labeled "Anti Freeze" to the freeze protector circuit board. See (C).
9. Attach the ground cable from the freeze protector circuit board.
10. Attach the power supply cables for the drain down solenoid valves to the terminals on the freeze protector circuit board. See (D).
11. Install the front panel.
12. Connect and turn on the power supply and water supply.
13. Test the freeze protection by turning off the power supply. The 3/4 inch solenoid valve closes (stopping the flow of water into the water heater) and the 1/4 inch solenoid valve opens (allowing the water heater and associated piping to drain).

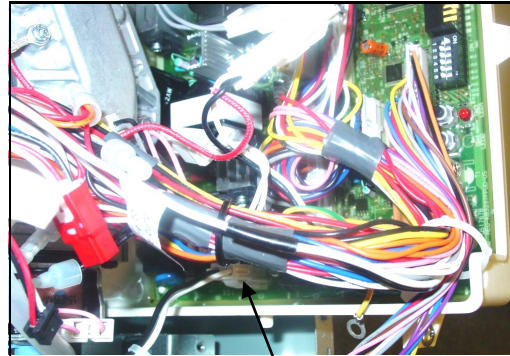


Figure 1

power supply connector  
(black and white wires) on  
the PC board

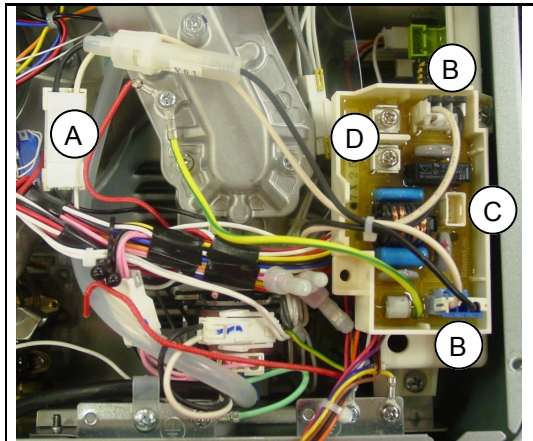


Figure 2 VC Indoor Model and KB Models

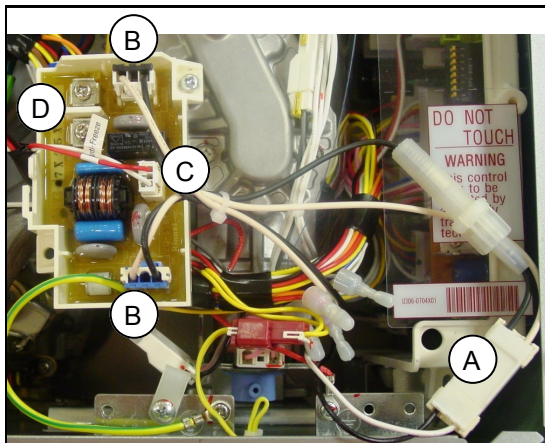
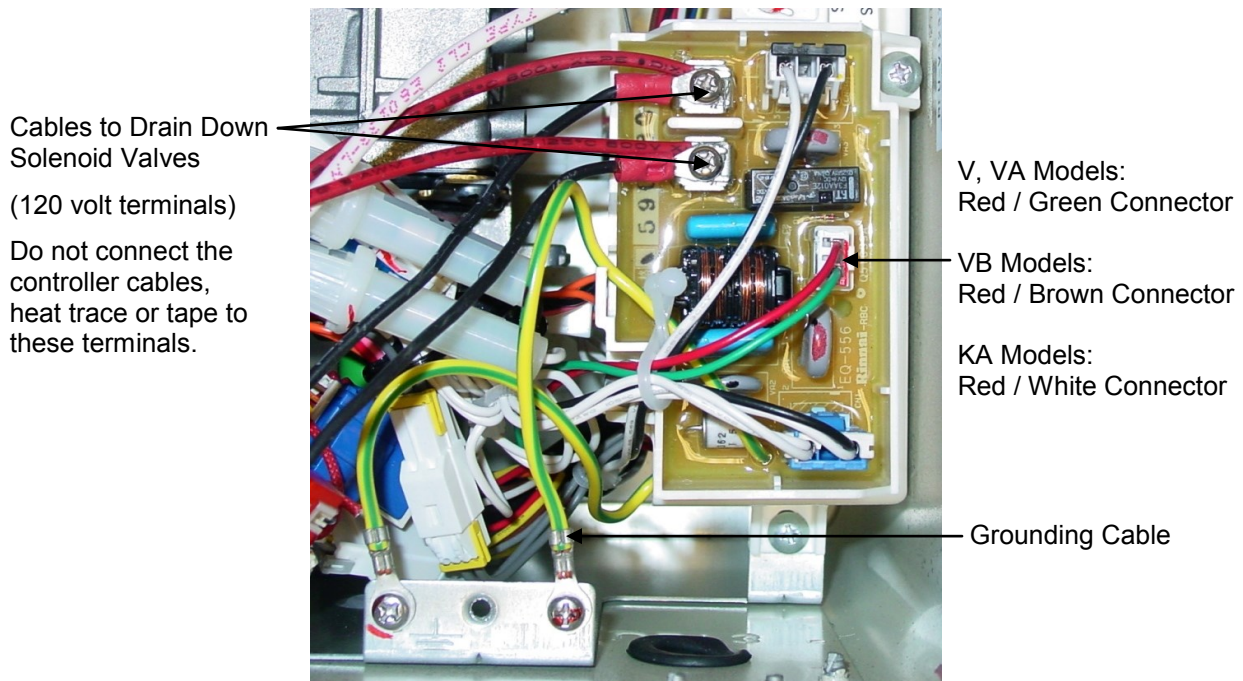


Figure 3 VC Outdoor Model

## Installation of Freeze Protection Circuit Board

### Models other than KB Series or VC Series

1. Turn off and disconnect the 120 volt power supply.
2. Remove four screws securing the front panel. Remove the front panel.
3. Remove the surge protector attached with one or two screws depending on the model. It is either attached to the PC board or to a bracket next to the fan assembly.
4. Install the freeze protection circuit board. Re-attach the connectors and grounding cable.
5. Attach the connector with the  
red and green wire (V and VA models) or  
red and brown wires (VB models) or  
red and white wires (KA models)
6. Attach the power supply cables for the drain down solenoid valves to the terminals on the surge protector.
7. Install the front panel.
8. Connect and turn on the power supply and water supply.
9. Test the freeze protection by turning off the power supply. The 3/4 inch solenoid valve closes (stopping the flow of water into the water heater) and the 1/4 inch solenoid valve opens (allowing the water heater and associated piping to drain).



Rinnai America Corporation • 103 International Drive, Peachtree City, GA 30269

Toll-Free: 1-800-621-9419 • Phone: 678-829-1700 • [www.rinnai.us](http://www.rinnai.us)

© 2013 Rinnai America Corporation. Rinnai is continually updating and improving products; therefore, specifications are subject to change without prior notice. Local, state, provincial, federal and national fuel gas codes must be adhered to prior to and upon installation.