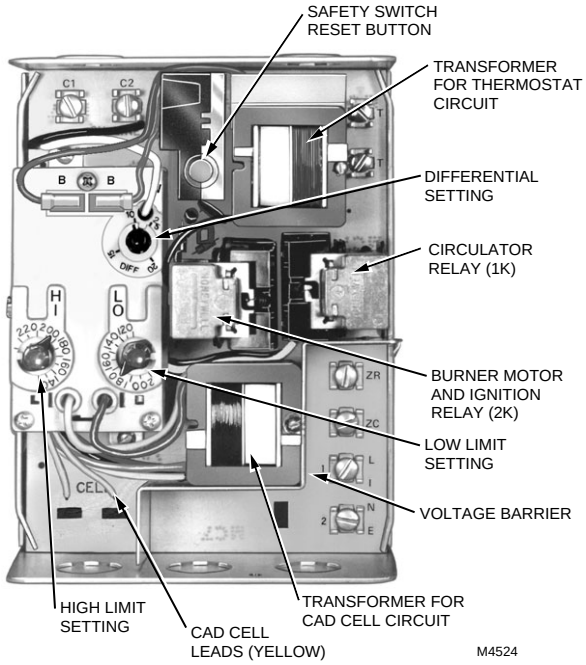


Fig. 7. Internal view of R8182H.

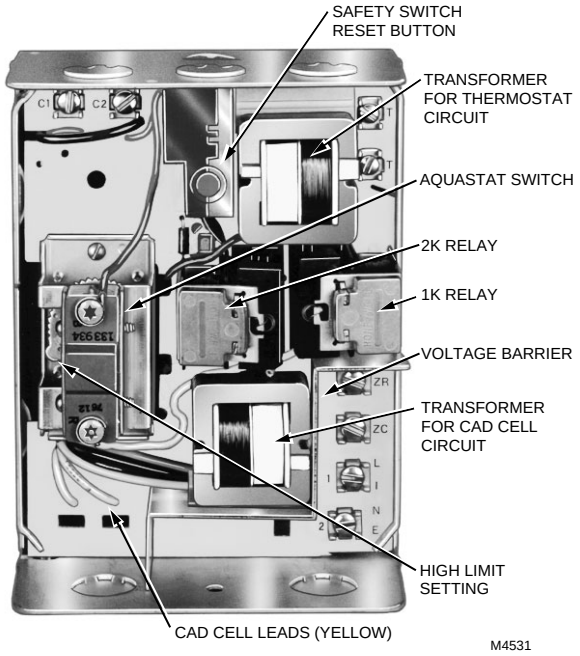


Fig. 8. Internal view of R8182J.

INSTALLATION

⚠ WARNING

Explosion Hazard.
Can cause severe injury, death or property damage.
This product is intended for use only in systems with a pressure relief valve.

When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in these instructions and on the product to be sure the product is suitable for your application.
3. The installer must be a trained, experienced service technician.
4. After completing installation, use these instructions to check product operation.

⚠ WARNING

Explosion or Electrical Shock Hazard.
Can cause severe injury, death or property damage.

1. Disconnect the power supply before beginning installation to prevent electrical shock or equipment damage.
2. Be sure that combustion chamber is clear of oil or oil vapor before starting burner.
3. Be sure that the ambient temperature at the element will not exceed 250°F (121°C).

IMPORTANT

Be sure that the sensing bulb fits snugly inside the immersion well and that the sensing bulb rests against the bottom of the immersion well. Refer to Fig. 9.

Mounting the R8182

1. Disconnect the power supply.
2. Drain all water from the boiler.
3. Generally, boilers are equipped with a tapping that allows horizontal mounting of the immersion well where average temperature boiler water circulates freely. If no tapping is provided, prepare one.
4. Install the immersion well or compression fitting (ordered separately) by threading the immersion well into the tapped hole.
5. For R8182D,E,F models:
   a. Loosen the immersion well clamp screw on the side of the R8182 case.
   b. Insert the bulb into the immersion well until it bottoms.
   c. If necessary, bend the capillary tube to hold the bulb against the bottom of the immersion well.

NOTE: Do not make sharp bends in the tubing. A sharp bend can break the tubing and cause a loss of fill. In models with an adjustable tubing length, pull the extra tubing out of the controller case.

   d. Fit the controller case onto the immersion well so that the immersion well clamp slides over the flange of the immersion well.
   e. Securely tighten the immersion well clamp screw.
6. For R8182H,J models:
   a. Loosen the screw holding the hinged backplate to the controller case and swing the backplate away from the controller case.
   b. Screw the backplate to a 4 by 4 inch junction box.
   c. Insert the bulb into the immersion well until it bottoms.

d. If necessary, bend the capillary tube to hold the bulb against the bottom of the immersion well.

NOTE: Do not make sharp bends in the tubing. A sharp bend can break the tubing and cause a loss of fill. In models with an adjustable tubing length, pull the extra tubing out of the controller case.

e. Tighten the immersion well screw over the brass collar.
f. After wiring, swing control against the backplate and refasten with the screw.

7. Refill the boiler and check for water leakage.

Mounting the R8182D

If the existing immersion well does not fit the R8182D immersion well clamp, use a 1249094 immersion well adapter (order separately; see form 68-0040, Wells and Fittings for Temperature Controllers).

1. Disconnect the power supply.
2. Drain all water from the boiler.
3. Fasten the R8182D immersion well clamp to the flange on the immersion well adapter. Refer to Fig. 9.
4. Place the adapter on the capillary tube.
5. Put the adapter end into the hole in the controller case and tighten the clamp screw.
6. Insert the sensing bulb into the immersion well and bend the capillary tubing, if necessary, to hold the sensing bulb against the bottom of the immersion well.

NOTE: Do not make sharp turns while bending the capillary tubing. In models with an adjustable tubing length, pull the extra tubing out of the controller case.

7. Apply the heat-conductive compound into the immersion well (if necessary).
a. Fold the plastic bag of heat-conductive compound lengthwise and twist it gently.
b. Cut off the end of the plastic bag and work the open end of the bag all the way into the immersion well.
c. Slowly pull the bag out of the immersion well while squeezing it firmly to evenly distribute the heat-conductive compound.
8. Wipe off any excess grease and tighten the set screw against the adapter.

If the existing immersion well is not usable, remove the existing immersion well and order a new one using form 68-0040, Wells and Fittings for Temperature Controllers.

1. Disconnect the power supply.
2. Drain all water from the boiler.
3. Install the new immersion well by threading it into the threaded hole.
4. Loosen the immersion well clamp screw. See Fig. 9.
5. Insert the sensing bulb into the immersion well and bend the capillary tubing, if necessary, to hold the sensing bulb against the bottom of the immersion well.

NOTE: Do not make sharp turns while bending the capillary tubing. In models with an adjustable tubing length, pull the extra tubing out of the controller case.

6. Apply heat-conductive compound into the immersion well (if necessary).
a. Fold the plastic bag of heat-conductive compound lengthwise and twist it gently.
b. Cut off the end of the plastic bag and work the open end of the bag all the way into the immersion well.
c. Slowly pull the bag out of the immersion well while squeezing it firmly to evenly distribute the heat-conductive compound.
7. Be sure the immersion well fits the hole in the controller case.
8. Position the immersion well clamp snugly over the immersion well flange. Securely tighten the clamp screw.
9. Refill the boiler and check for water leakage.

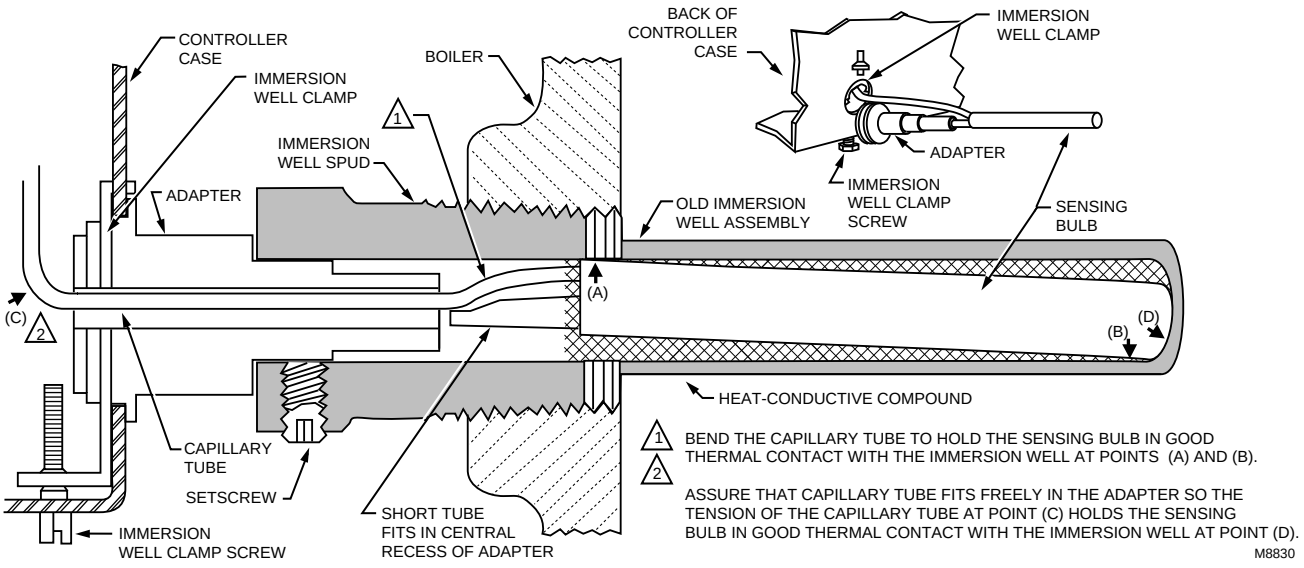


Fig. 9. Positioning the sensing bulb in the immersion well.

WIRING

IMPORTANT

Use Underwriters Laboratories Inc. listed connectors when making external circuit connections to the orange and white line voltage burner and ignition leadwires of the R8182H,J.

⚠ WARNING

Electrical Shock Hazard.
Can cause severe injury, death or property damage.
Disconnect power supply before wiring to prevent electrical shock or equipment damage.

All wiring must comply with local codes, regulations, and ordinances.

IMPORTANT

Terminals on the R8182 are approved for copper wire only.

Follow the wiring instructions furnished by the appliance manufacturer, if available, or refer to Fig. 11 through 17. For wiring multiple zoning systems, refer to Fig. 16 and 17.

The R8182 is equipped with special wiring terminals. Wires can be wrapped around the terminal screw or inserted from the side.

Method 1

1. Strip 7/16 in. of insulation from the wire end.
2. Wrap the wire 3/4 of the distance around the screw as shown in method 1.
3. Using a standard, flat-headed screwdriver, tighten the screw until the wipe is snugly in contact with the screw and contact plate.
4. Tighten the screw pin an additional one-half turn.

Method 2

1. Strip 5/16 in. of insulation from the wire end.
2. Insert wire beneath the screw as shown in method 2.
3. Using a standard, flat-heat screwdriver, tighten the screw until the wire is snugly in contact with the screw and contact plate.
4. Tighten the screw an additional one-half turn.

NOTE: Do not use a push-type ratchet screwdriver.

The R8182D,H can be converted to replace an R8182B,C,E,F or a White Rodgers 6C92-2 or 6C92-3. When replacing a White Rodgers model, the immersion well must also be replaced. Refer to Fig. 10 for Aquastat® limit connections necessary for each R8182D conversion.

To release the wires from the R8182, insert a screwdriver into the rectangular hole adjacent to the wire, push inward to release the locking-grip on the wire, and pull the wire out of the terminal hole.

To reinsert the wire into a new terminal hole, simply push the wire into the new slot.

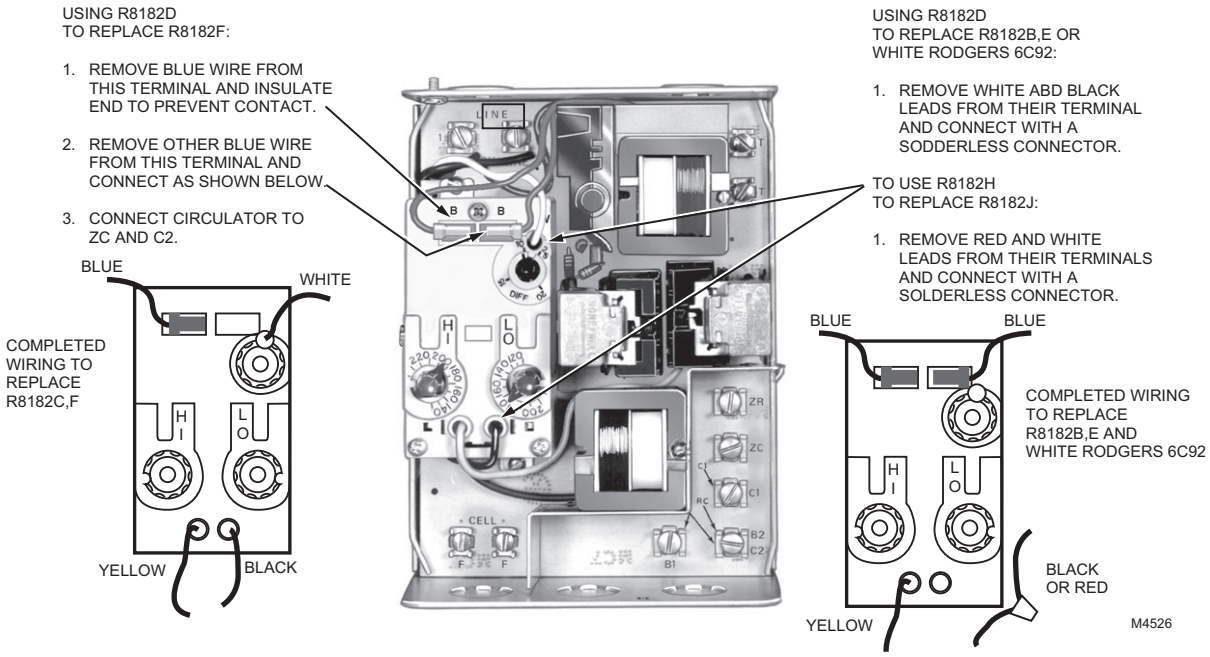
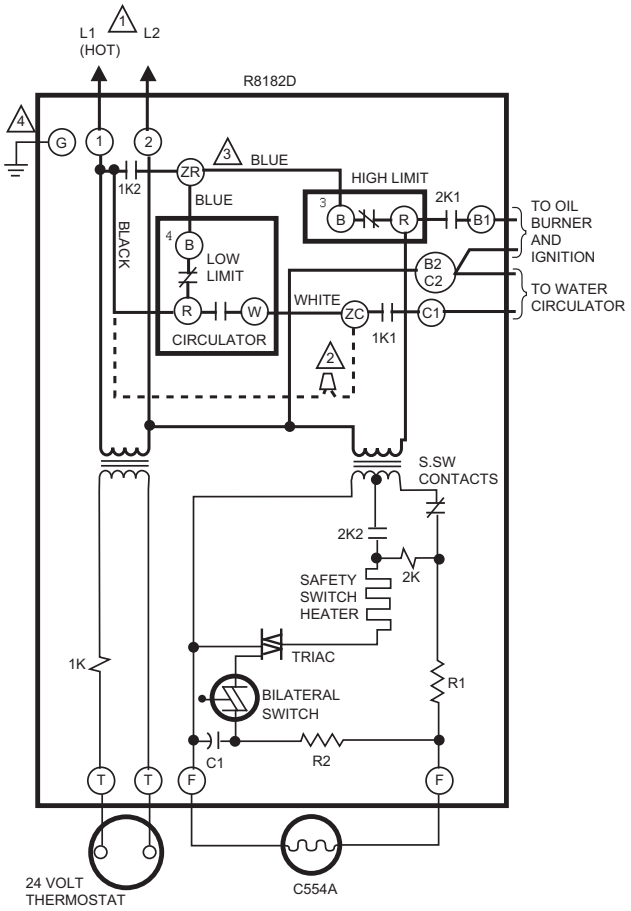


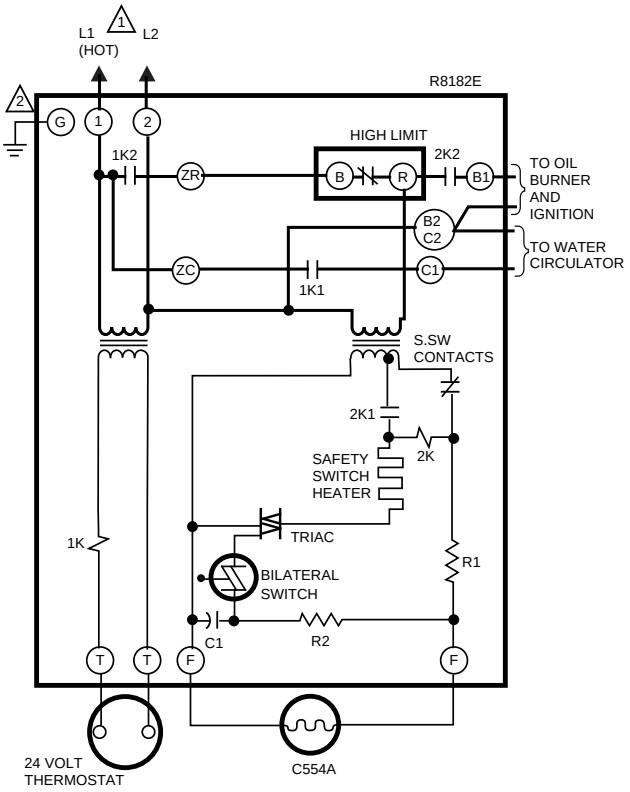
Fig. 10. Converting R8182D,H to replace other controls.



1. 120 VAC POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. WHEN THE BLACK AND WHITE WIRES ON THE R8182D AQUASTAT® CONTROLLER ASSEMBLY ARE DISCONNECTED FROM THE CIRCULATOR SWITCH AND ARE INTERCONNECTED, LOW LIMIT AND CIRCULATOR CONTROL ARE BYPASSED. CIRCULATOR OPERATES WITHY THEROMSTAT ONLY.
3. TO REPLACE R8182C,F, REMOVE BLUE WIRE AND INSULATE END. DISCONNECT THE THE OTHER BLUE WIRE AT 4 AND WIRE TO B AT 3.WHEN CIRCULATOR IS CONNECTED BETWEEN ZC AND C2, LOW LIMIT FUNCTION IS REMOVED AND CIRCULATOR OPERATES WITH CIRCULATOR CONTROL (R TO W) ONLY.
4. CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.

M4519

Fig. 11. R8182D internal schematic and wiring diagram.



1. 120 VAC POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.

M4527

Fig. 12. R8182E internal schematic and wiring diagram.

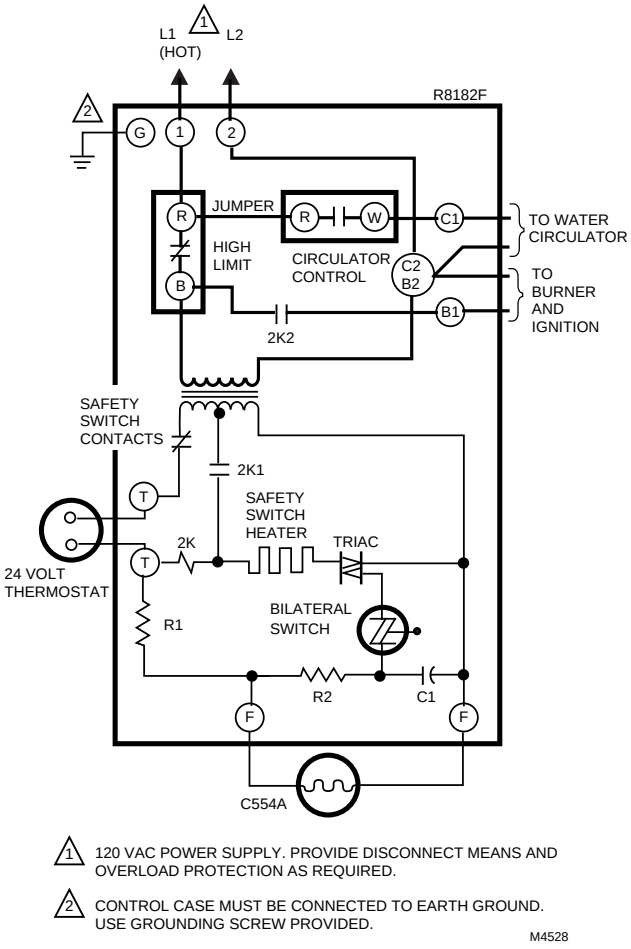


Fig. 13. R8182F internal schematic and wiring diagram.

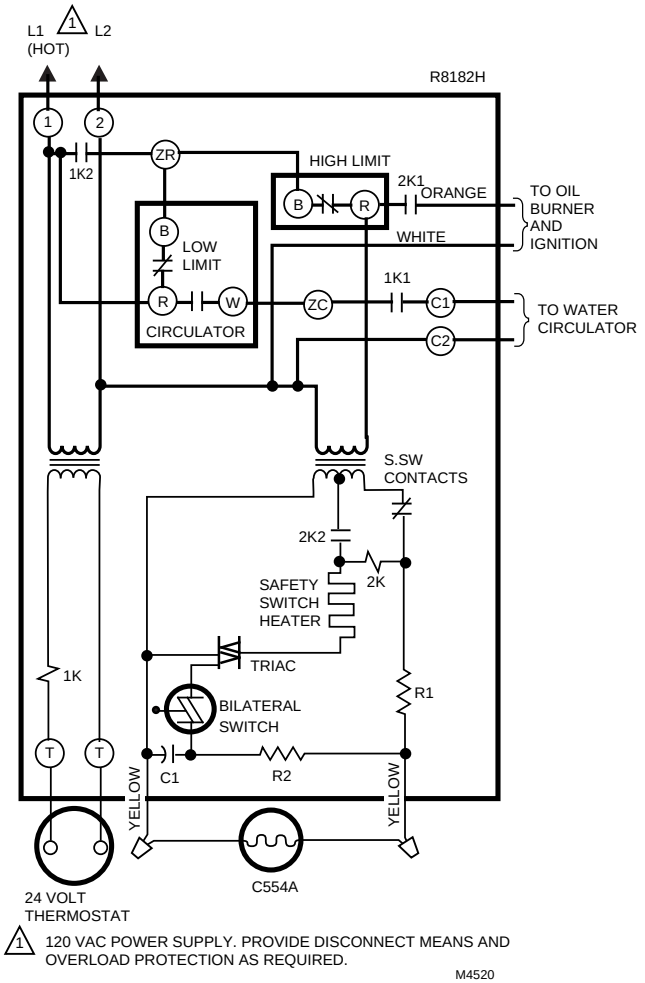


Fig. 14. R8182H internal schematic and wiring diagram.

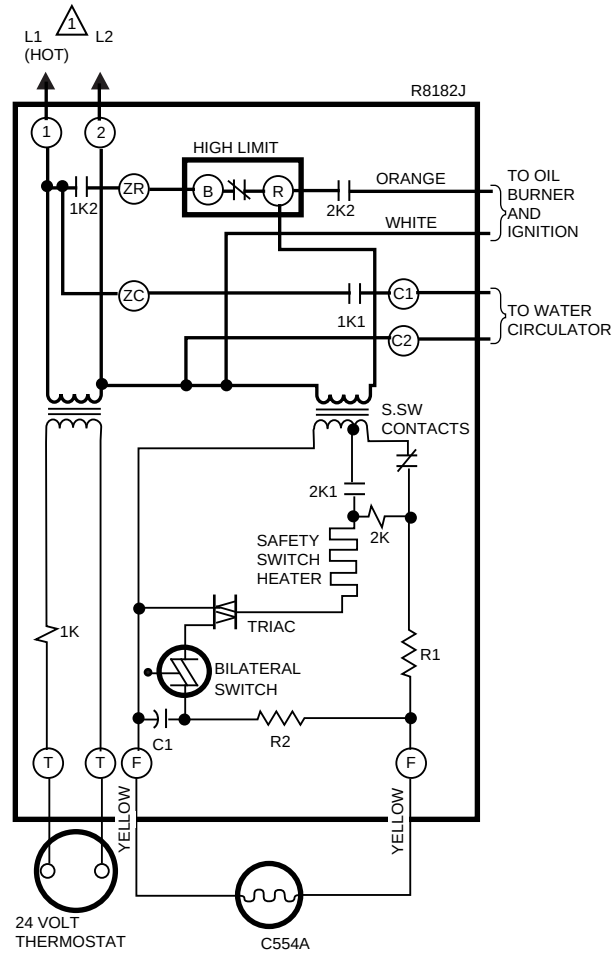


Fig. 15. R8182J internal schematic and wiring diagram.

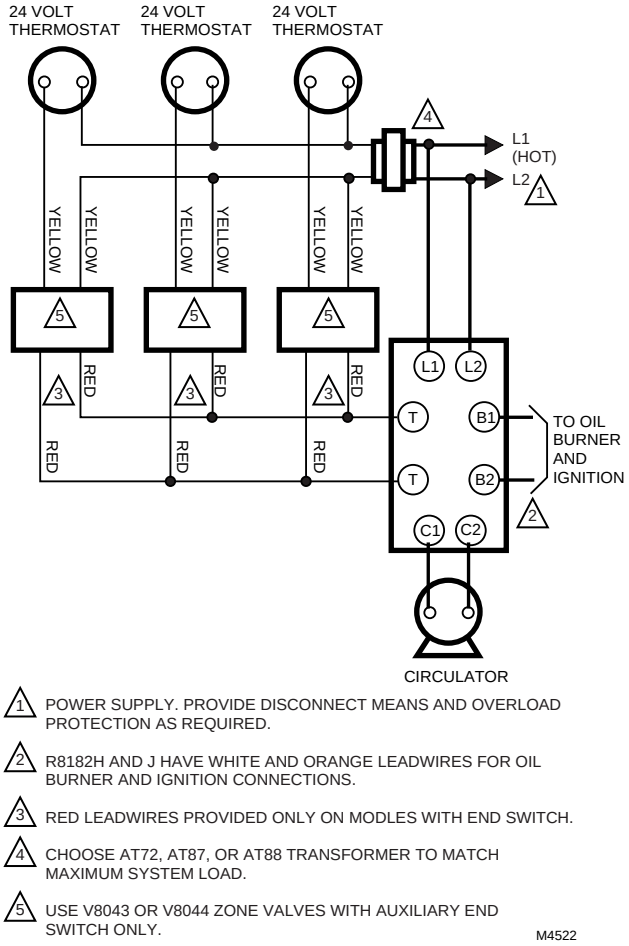


Fig. 16. R8182D,E,F,H and J in a typical zoning application using zone valves.