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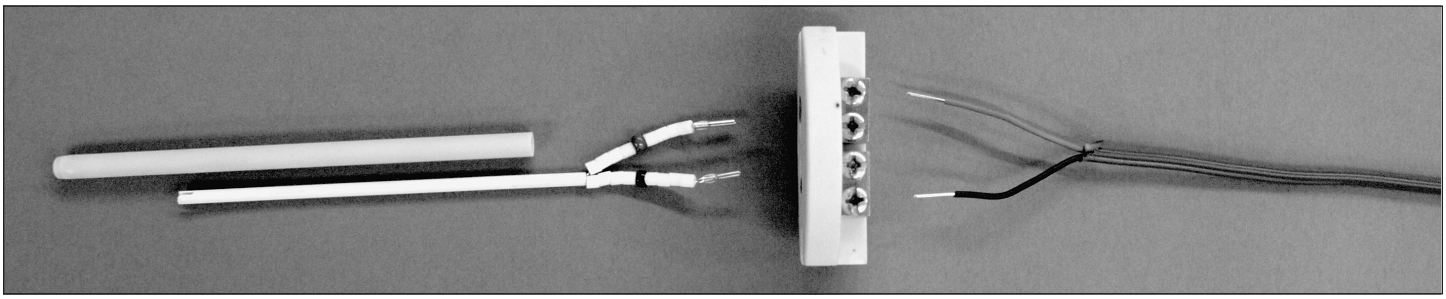
Installing the S-Type Thermocouple



Thermocouple screws must be tight. Observe polarity of wire colors at both the ceramic block and back of controller.

Important Guidelines

1 If you are upgrading from a K-type to an S-type thermocouple, you must reset your controller to the correct thermocouple type. Otherwise your kiln will overfire! See next page.

2 The thermocouple is fragile. Handle with care. Do NOT cut or bend the thermocouple.

3 Use only thermocouple-to-controller lead wires designed for the S-type thermocouple: one black and one red covered with green outer insulation.

4 Follow color polarity between the thermocouple, lead wires, and the terminals on the controller.

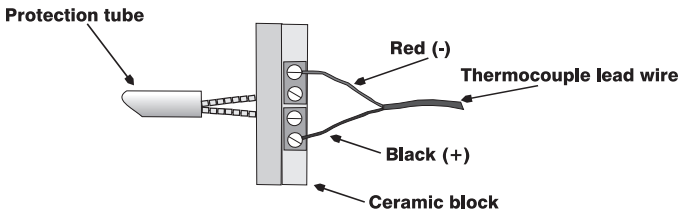
5 The thermocouple lead wires must not touch the hot kiln case.

6 Even though they are protected by insulation, thermocouple lead wires are sensitive to electromagnetic interference. Inside the kiln switch box, position the thermocouple wires away from other wires. Never let a thermocouple wire wrap around other wires.

7 Be sure the thermocouple wire ends are separated where the insulation has been stripped. If bare ends touch, the thermocouple will not work properly.

8 The S-type thermocouple must protrude at least ½" - ¾" into the firing chamber.

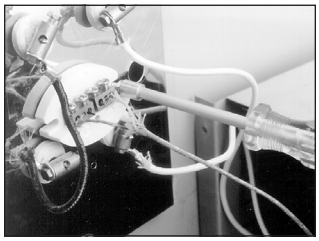
Installing the Thermocouple



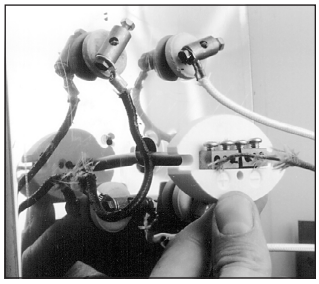
1 Read the guidelines in the left column. Then UNPLUG/disconnect the kiln from the power.

2 Remove the screws on the sides of the switch box that hold it to the kiln. Gently lift the box away from the kiln. Prop the switch box, if necessary, to prevent straining the wires attached to the elements.

3 You will see an oval-shaped ceramic connection block fastened to the outside of the firing chamber wall. Remove the 2 screws that fasten the connection block to the kiln. Pull the old thermocouple from its firebrick hole. If your kiln has a thermocouple protection tube, leave it in place.



Remove the ceramic block.



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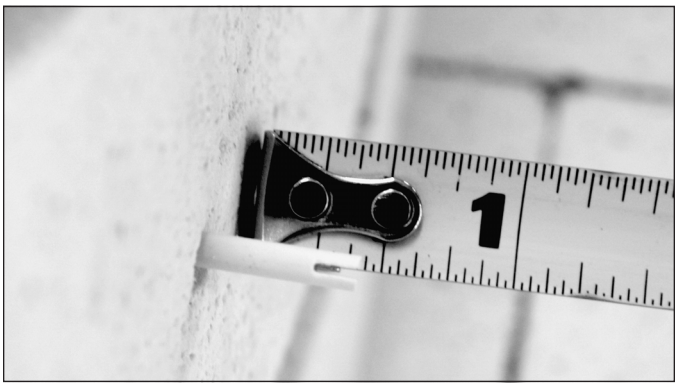
4 If the hole is 1/8" in diameter, enlarge to ¼" with an electric drill. If the hole is ½", you will need to stuff ceramic fiber around the furnished thermocouple protection tube. See Step 7.

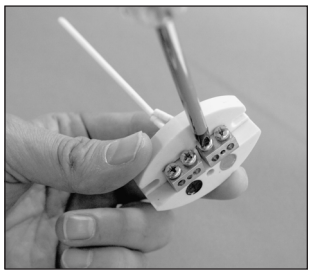
5 Slide the new thermocouple into the hole. You will find 4 screw connectors on the oval ceramic block. Insert the 2 wires from the new thermocouple into the 2 center screw holes in the ceramic block. The red wire goes into the hole marked "-".

6 The thermocouple must protrude into the firing chamber ½" - ¾". To adjust the thermocouple length, gently change the gap between the thermocouple and ceramic block. Then securely tighten the 2 screws in the ceramic block.

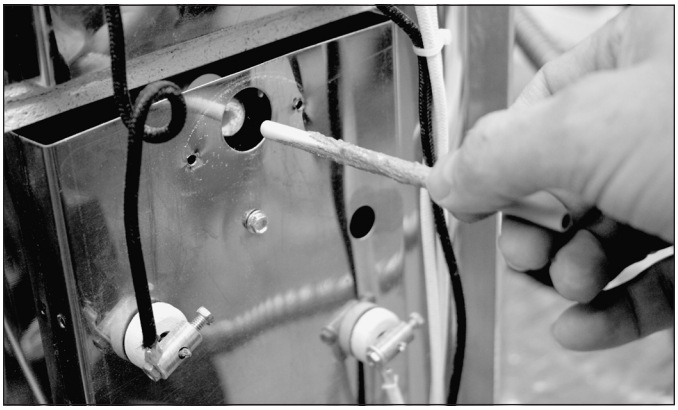


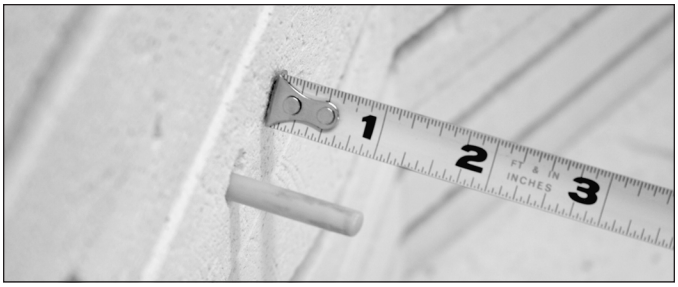
The S-type thermocouple must extend into the firing chamber ½" - ¾".

Caution: Do not sharply bend the two thermocouple wire ends. Otherwise they will break.



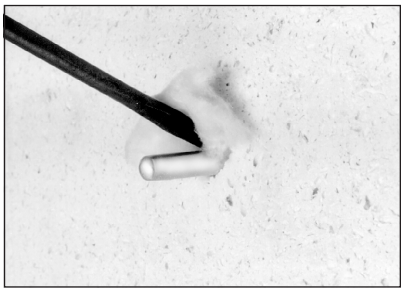
7 Remove the thermocouple and connector block from the kiln. Then wipe a small amount of kiln cement onto the thermocouple protection tube. Starting from outside the kiln, gently slide the tube into the thermocouple hole until the tube extends into the firing chamber 1" - 1 ¼".


Anchor the protection tube in the firebrick wall with kiln repair cement.



The protection tube should extend into the firing chamber 1" - 1 ¼".

If the thermocouple hole is ½" in diameter, insert the protection tube. Then stuff ceramic fiber into the hole around the tube. Fiber is available from Paragon.


If the hole is ½" in diameter, stuff ceramic fiber around the protection tube.

8 Slide the S-type thermocouple into the protection tube. Fasten the ceramic block to the kiln with the 2 screws that you removed in Step 3.

9 The S-type thermocouple-to-controller lead wires are red and black covered with green outer insulation. If you are upgrading to the S-type thermocouple from the K-type, you will need to replace the lead wires.

Insert the lead wires in the connection block observing color polarity. The red wire goes on the side marked "-". Tighten the screws securely.

If your ceramic connection block is color coded yellow and red, connect the black wire to the yellow side of the block.

10 **If you are replacing the lead wires:** Remove the controller faceplate from the front of the kiln's switch box. Remove the old thermocouple wires attached to the back of the controller. Attach the new thermocouple lead wires to the correct controller terminals. Reinstall the faceplate to the switch box.

11 Position the thermocouple lead wires so they are away from the hot sides of the kiln case and electrical wiring. (Placing thermocouple wires next to or looped around other wires could cause erratic controller readings.)

12 Check that no wires or wire nuts touch the kiln case or element connectors. Wires touching element connectors or the kiln case will burn. Reinstall the switch box.

Resetting the Sentry Controller

If you are upgrading from a K-type to an S-type thermocouple, you must reset your controller to the correct thermocouple type. Otherwise your kiln will overfire!

1 From IdLE, press the OPTIONS key repeatedly until TC appears in the display window.

2 Press ENTER. Use the 1 and 2 keys to select TC S.

3 After selecting TC S, press ENTER. Press STOP to return to IdLE.