

# LOV-T Gas Heated Solid Shortening Kit

This kit adds a heated JIB platform and heat tape to provided and existing flex lines to accommodate the use of semi-solid shortening. The changes are broadly explained below. Detailed explanations are provided inside.

## Front of Fryer

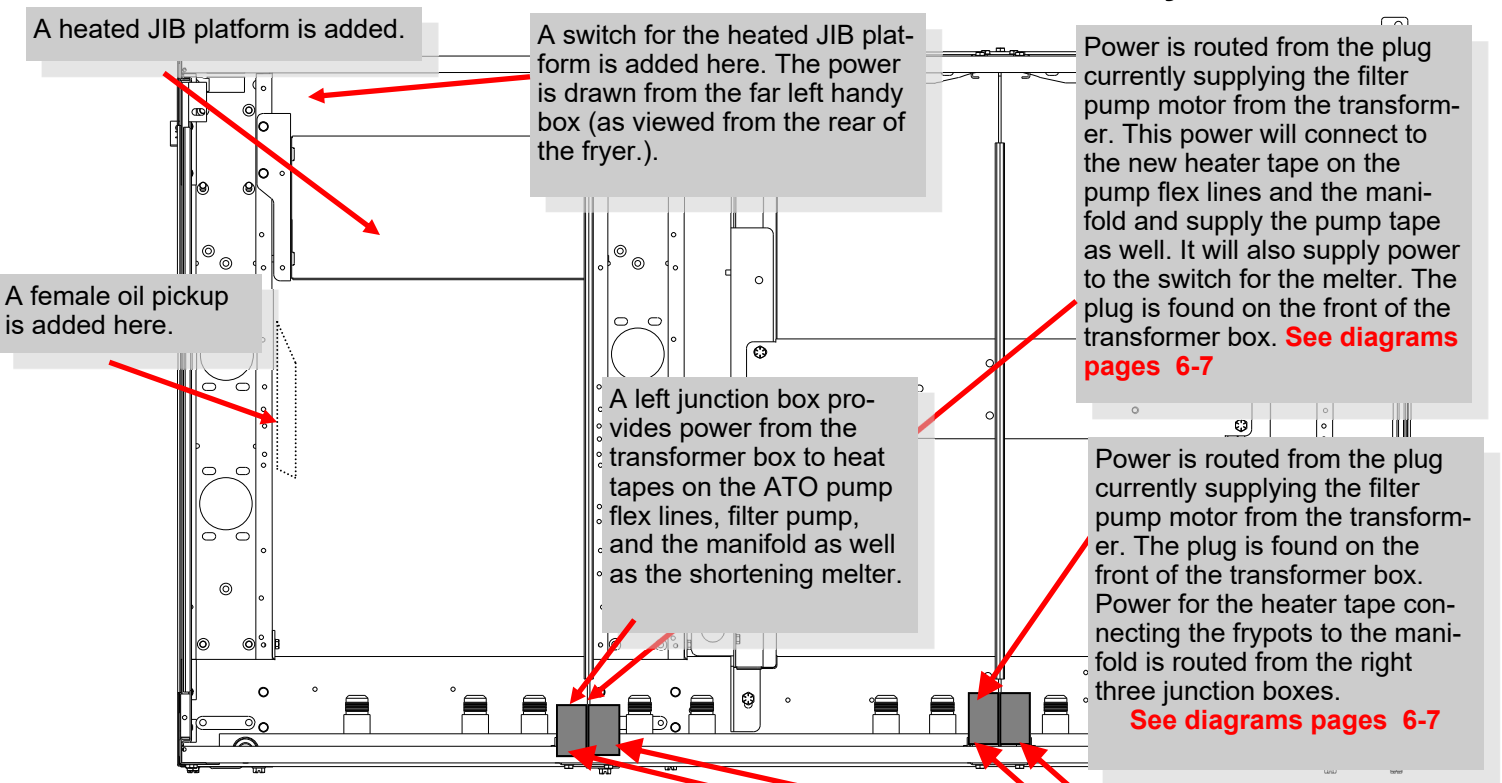


Figure 1

New, larger diameter, flex lines are provided for the inlet and outlet for the top-off pump. Heater tape is added to the return manifolds, flex lines leading to and from the ATO pump, and the flexlines attaching the pots to the manifolds as well as the filter pump.

Junction boxes are placed here to accommodate power to the added heater tapes. When taping the heaters down, ensure the wires exit near the correct junction boxes. **See diagrams pages 6-7**

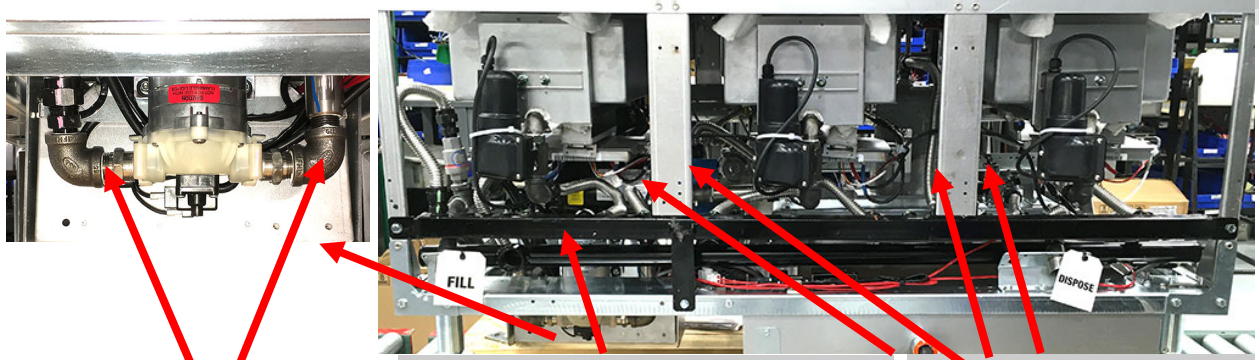


Figure 2

Large diameter return lines are provided for the top-off pump.

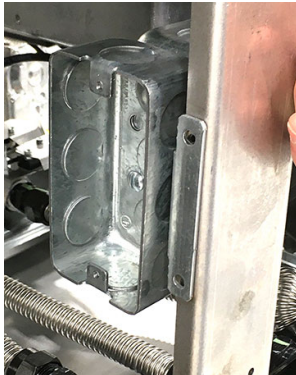
Heater tape is added to the return manifold, flex lines leading to and from the ATO pump, and the filter pump flexlines attaching the pump to the manifold and the pot to manifold flexlines..

Junction boxes are installed to accommodate power routed from the transformer box.

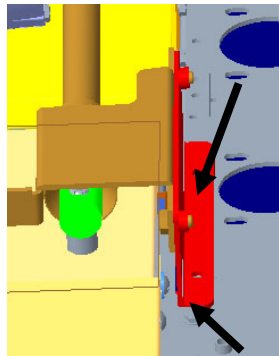
Follow the instructions below to retrofit a Frymaster gas LOV-T fryer with a heated reservoir and heated oil lines to accommodate semi-solid shortening in the fryer's auto top-off system.

### Preparing the Hardware

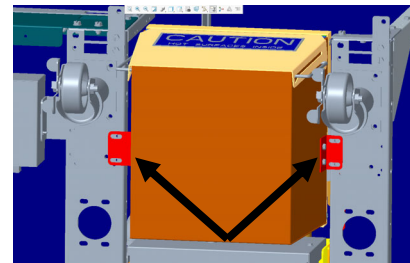
1. Remove power from unit and remove the fryer from hood to gain access to the front and back of the fryer.
2. Remove the right side panel of the fryer (as viewed from the front of the fryer).
3. Remove the lower back panel.
4. Remove the oil JIB if present. Remove the shipping cross brace if present.
5. Remove the plumbing for the flow of oil from the JIB to the inlet side of the top off pump.
6. Remove the plumbing from the outlet side of the top off pump to the manifold.
7. Attach new junction boxes to both sides of all the vertical braces, on the rear of the fryer. **See Figures 1 and 3.**
8. Attach 18" heater tapes to the new larger diameter pick up line and the outlet lines using supplied tape. Attach the heater tape with supplied tape. Attach heater tape straight on the flex lines, similar to photo. Ensure the wires from the heater tapes exit near the far left junction boxes (as viewed from the rear of the fryer). **See Figure 4.**
9. Position the female oil pickup assembly with new, larger diameter, flex line and secure with 1/4" x 20 bolts to the existing holes on top of the far right side of the frame. **See Figure 5.**
10. Route the wrapped flex pickup line through the grommet and down to the inlet side of the top off pump. **See Figure 6.**
11. Connect the flex line to the inlet side of the pump. Ensure the lock is pushed down to secure. **See Figure 7.**
12. Connect the other flex line to the outlet side of the top off pump and secure. Connect the other end to the manifold where the old hose was removed in step 6. **See Figure 7.**
13. Attach melter assembly to the bottom of the frame using existing holes, as shown inside the JIB cabinet. **See Figure 8.** Route the harness from the melter box to the rear of the fryer. One end of the harness with the two pin connector is not used.
14. Attach the new thermostat box on the rear frame of the fryer. Use an existing hole to mount the box. Use a drill point screw to secure the other hole of the mounting bracket. **See Figure 9.**



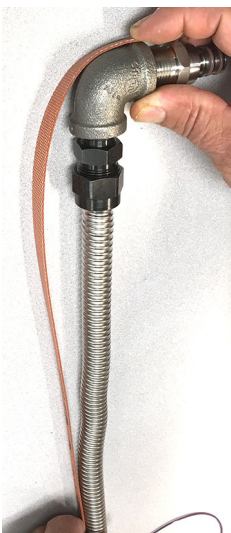
**Figure 3:** Attach junction box to vertical braces.



**Figure 5:** Position the female oil pickup on top of the fryer channel using the 1/4 x 20 bolts securing the pickup.



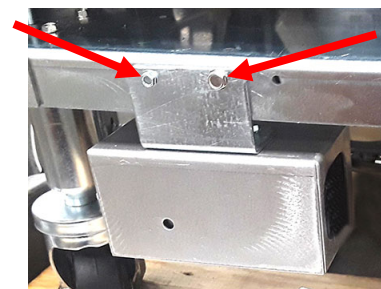
**Figure 8:** Attach the melter assembly the bottom of the frame using existing holes.



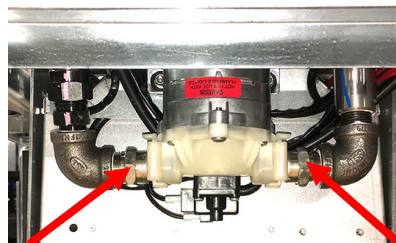
**Figure 4:** Position the heater tape straight along the provided, larger diameter, inlet and outlet flex lines. Attach with supplied aluminum tape. Ensure the elbows have heat tape on them. Ensure the wire leads exit near the junction box positions.



**Figure 6:** Route the wrapped flex line to the pump inlet side.



**Figure 9** Attach the thermostat box to the frame.

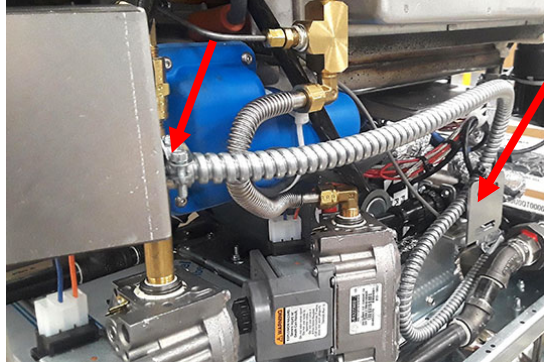


**Figure 7:** Connect the new lines to the top off pump.

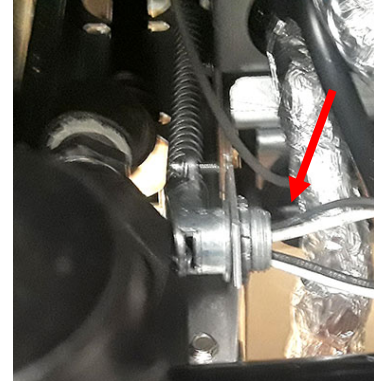
15. Attach the switch box to the right frame of the JIB cabinet as shown. **See Figure 10.**
16. Route the conduit from the switch box to the rear of the fryer. Mount on bracket behind the ATO pump as shown. **See Figures 11 and 12.**



**Figure 10:** Attach switch box on far right frame next to door.



**Figure 11:** Route the conduit to the rear of fryer.



**Figure 12:** Mount on bracket behind ATO pump.

17. Attach the 2-pin connector from the conduit from the switch box in the previous step, to the 2-pin connector of the thermostat box attached in step 14. **See Figure 13.**
18. Attach the 8-pin connector from the melter to the thermostat box. **See Figure 14.**



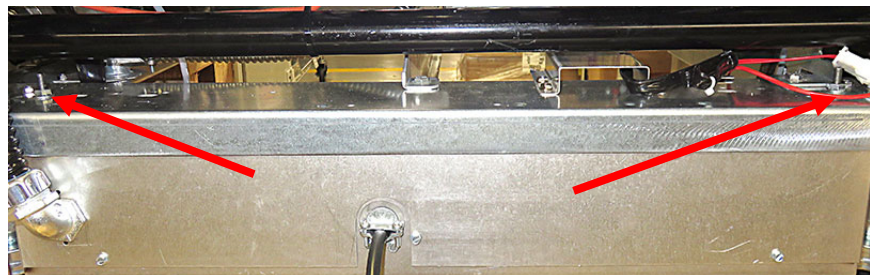
**Figure 13:** Attach thermostat box to the connector from the switch box.



**Figure 14:** Attach the melter to the thermostat box .

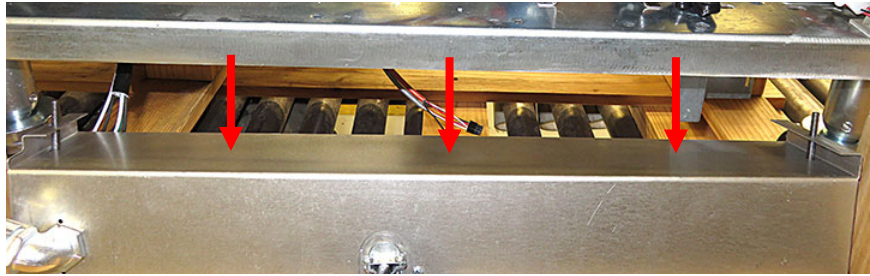
19. Attach short heater tapes to the flex lines attaching the oil-return manifold to the frypots. Again, ensure the exposed wiring exits the tape near the two right junction boxes (as viewed from the rear of the fryer).
20. Use the 56" long heater tapes to run along the bottom of the horizontal oil-return manifold and from the filter pan pickup to the filter pump. Use an 18" heater tape on the outlet side of the filter pump to the manifold. Ensure the wire leads exit near the far left junction box (as viewed from the rear of the fryer). **See diagrams on pages 6-7.**

21. Remove the filter pan.
22. Remove the splash shields (if necessary) covering the front transformer box connectors.
23. Disconnect all transformer connections, noting their position for reconnection later.
24. Remove the two nuts that secure the transformer box to the frame to lower the box. **See Figures 15 and 16.**



**Figure 15:** Remove the nuts that secure the transformer box.

**Figure 16:** Transformer box lowered from the fryer.



25. Locate and remove the three sheet metal screws that secure the box cover. See **Figure 17**.

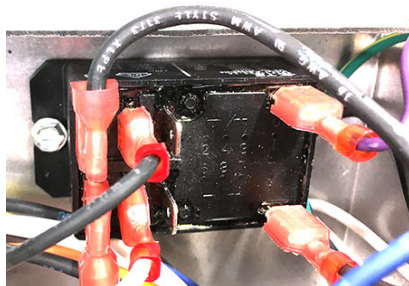
26. Locate the filter pump relay. See **Figure 18**.

**Figure 17:** Remove the three sheet metal screws to remove the cover.



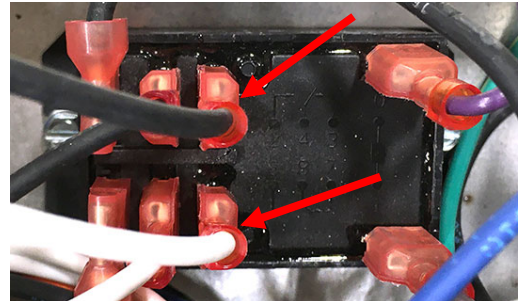
27. Attach the short black wire to pin 3 and the short white wire to pin 7 on the relay. See **Figure 19**.

28. Locate connection C4, the 9-Pin connector on the inside of the transformer box. See **Figure 20**.



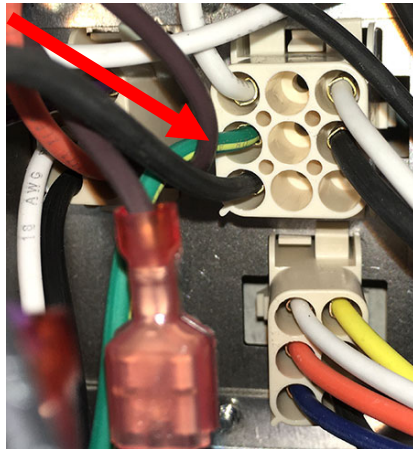
**Figure 18:** Locate the pump relay.

29. Push the white male pin, of other end of the wires used in step 27, into position 4 from inside the box. Push the black male pin into position 5 from inside the box. See **Figure 21**.



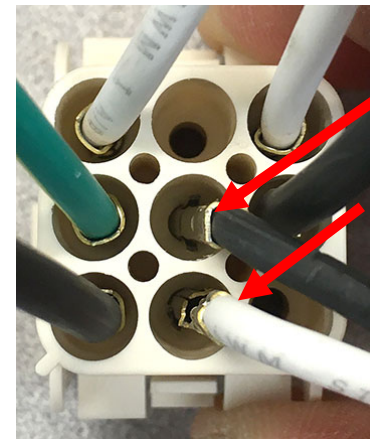
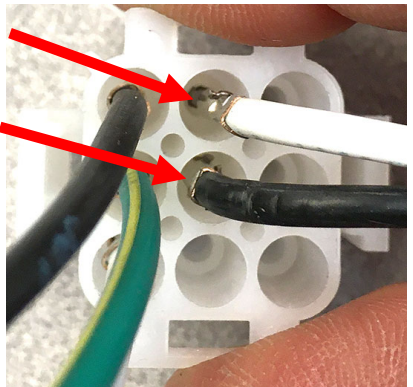
**Figure 19:** Connect white and black wires to relay.

30. Locate the 9-pin connector with 3 wires, that was disconnected from C4 in step 23. Insert the female black and white pins of the long harness coming from the melt-switch harness. Insert the white male pin into position 4 and the black male pin into position 5. See **Figure 22**.



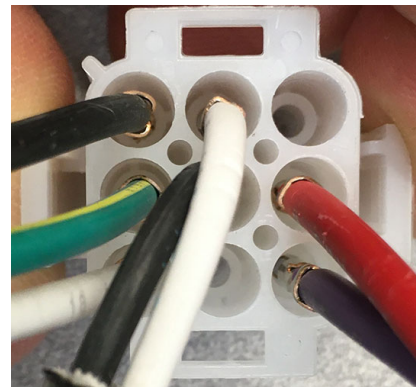
**Figure 20:** Locate 9-pin connector.

31. Locate harness 1083970. Insert the red wire female pin into position 8. **Figure 22:** Insert black and white wires. Insert the purple wire female pin into position 9. See **Figure 23**.



**Figure 21:** Insert black and white wires.

32. Reverse steps 22-25 to reattach the transformer box and connect the connectors.

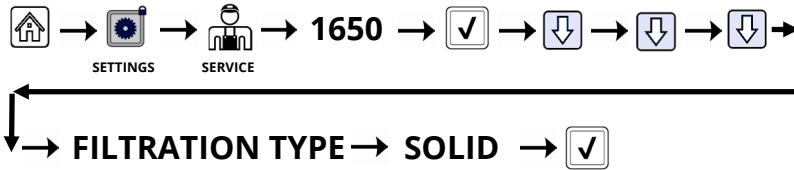


**Figure 23:** Insert red and purple wires.

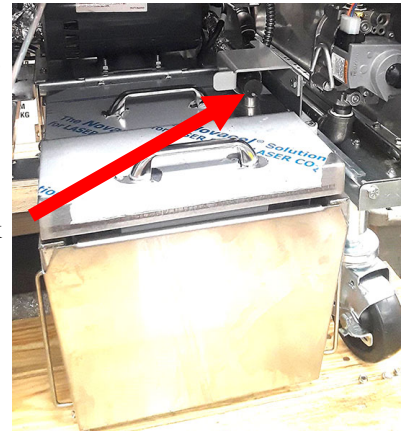
33. Replace the splash covers on the transformer box.
34. Reinsert the filter pan.
35. Route the other end of the harness used in step 31, with the red and purple wires, to the right junction box (as viewed from the rear of the fryer) that feeds power to the flex lines from the vats to the oil manifold. Use the supplied gromets on the junction boxes.
36. Route the other end of the harness with the black and white wires in step 30 to the far left junction box (as viewed from the rear of the fryer) that feeds power to the melter, ATO heat strips, filter pump heat strip and manifold heat strips. Use the supplied gromets on the junction boxes. **See Figure 24.**
37. Connect the heater tape leads from the top-off pump inlet and outlet heater tapes, the long manifold heater tapes and the pump heater tape and melter to the left junction box using the supplied 5-wire Wago connectors. **(See Using Wago Connectors below) See diagrams on pages 6-7.**
38. Daisy chain the power between the three right junction boxes (as viewed from the rear of the fryer).
39. Attach the heater tapes to oil return lines from the frypots to the manifold and from the filter pump outlet to the rear manifold to the right three junction boxes.
40. Replace back on the fryer.
41. Position provided metal solid shortening container inside the melter, ensuring the male fitting fits tightly and smoothly into the female connection. **See Figure 25.**
42. Ensure the melter switch inside the right door is turned on.
43. Position fryer under the hood, apply power.
44. Once the fryer is rebooted and all screens display the power button, press



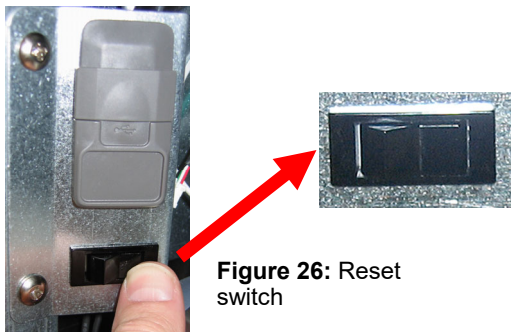
**Figure 24:** Wago connectors



45. Completely power cycle the fryer by pressing and holding the black toggle reset switch for 60 seconds. The reset switch is located either under the USB port or near the USB port. If the switch is not accessible, unplug the fryer or turn off the breaker to the fryer. **See Figure 26.**
46. Turn on the fryer and test the shortening melter system.



**Figure 25:** The heated solid shortening platform is shown in place with the metal shortening pan.



**Figure 26:** Reset switch

## Using Wago Connectors

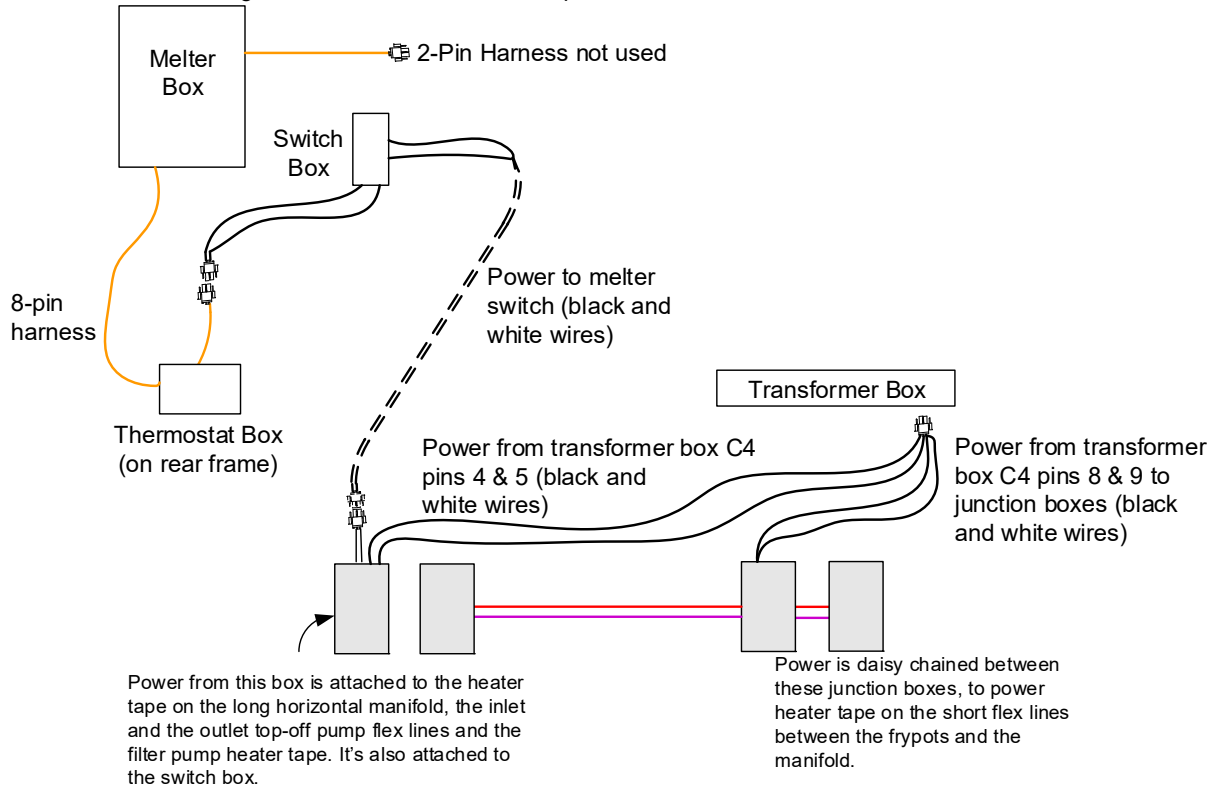
Wago connectors allow stripped wires (3mm) to be cleanly connected. They are easy to use:

1. Completely lift the orange lever. It will stay upright.
2. Insert stripped wires.
3. Close orange levers.
4. Gently pull on the wires to ensure the wires are secured.
5. Ensure no bare wire is visible outside the connector.



Power from two sources is routed to the junction boxes at the rear of the fryer.

- Use the power from the right three junction boxes (as viewed from the rear of the fryer) exclusively for the heater tapes on the flex lines between the manifold and the frypots.
- Use the power from the left junction box (as viewed from the rear of the fryer) exclusively for the pump and pickup heater tape harness; the top-off pump inlet and outlet heater tapes and the long horizontal manifold heater tape.



# Solid Shortening Wiring Diagram

