

Test/Replace Tank Element in 757524 TANK ASY W/LID,1650,3XTEA (prior to serial #LT00003498) & 757604 K TANK&LID ASY,1750W,TSB4

Tools Needed

#2 Phillips screwdriver	2-each 3/4" Open end wrench or replace one wrench with--optional 3/4" socket W/
Needle nose pliers	3/8 drive handle--.
11/32 Nut driver	Volt/Ohm meter
10" Adjustable wrench	1/2" Open end wrench

Overview

This documentation is broken into 2-distinct parts.

1. The first is meant to understand how to use a Volt/Ohm meter to determine if there is a short to ground in the tank element—meaning that the tank's interior portion of the element has been exposed to water. Also, determine if the tank is an open short—meaning the interior of the element has not been exposed to water but rather the internal wire element for whatever reason has broken. Also, how to troubleshoot all of the connecting components that give the tank element power as there may be no problem with the tank element (pages 2-7).
2. The second portion is the element has been deemed as shorted to ground or has an open short, meaning that the element's interior is not exposed to water but has broken the internal connection (pages 8-10).

The test procedures that follow are the result of a service call from the customer reporting that the brewer has a heater error.

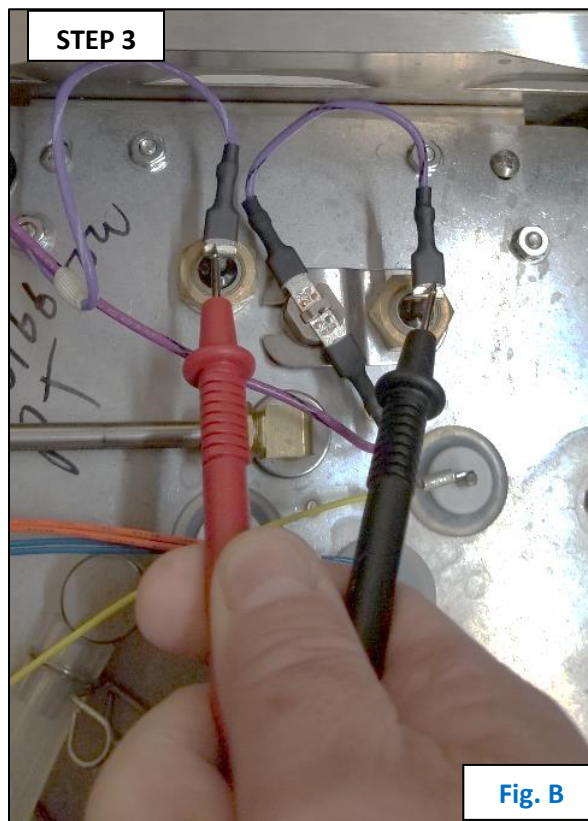
Note: Before servicing the unit; be sure to disconnect the power supply completely (unplug or turn off circuit breaker). When it is advised to remove a wire to check for Voltage throughout these procedures, turn the power OFF to unit first; get yourself setup; then turn power back on to check for Voltage. **NEVER DISCONNECT LIVE WIRES FROM ANY DEVICE ON THE MACHINE. ALWAYS EXERCISE SAFETY FIRST!!**

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USING VOLT/OHM METER TO DETERMINE ELEMENT /COMPONENT FAILURE (pages 2-7)

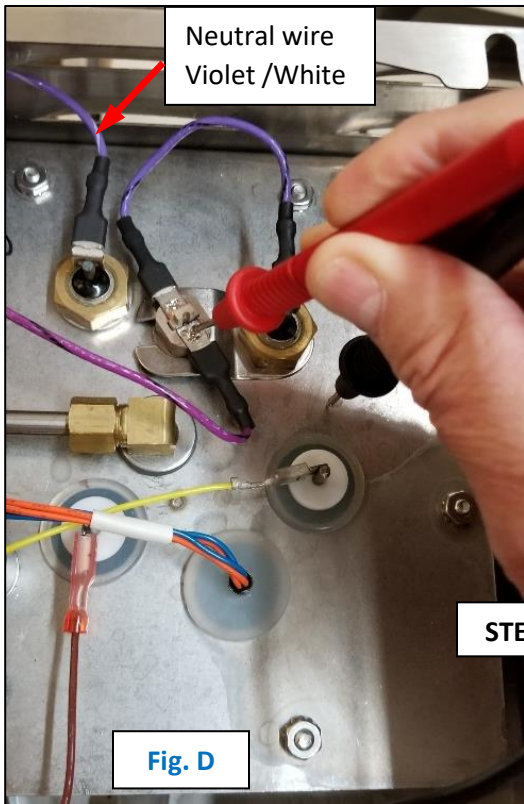
Step 1 - Remove top cover to reveal the tank and tank lid assembly.

Turn the Volt/Ohm meter dial to 200 ACV (A/C Voltage) setting (**Step 2; Fig. A**).

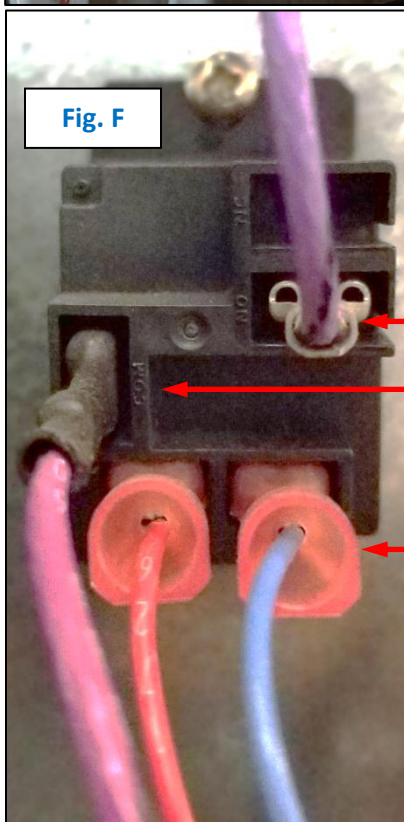
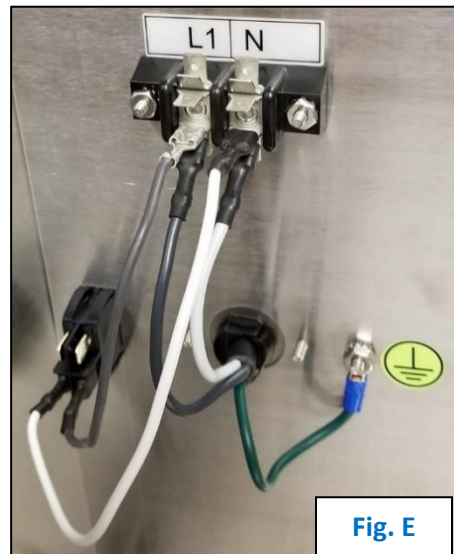


To check for Voltage to the element, turn on power switch in rear of unit. Touch the tips of the test leads to power and neutral terminals (be sure to touch bare surfaces of the terminals). (**Fig. B**) The meter should read 120Volts A/C (**Fig. C**).

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- If the meter doesn't read $120V \pm 5$, touch one lead to incoming power terminal on the limit thermostat and the other lead to the tank lid which is grounded (**Step 4; FIG. D**).
- Also, check power by placing the lead on the neutral terminal (violet w/white striped wire) while leaving the other lead on the limit thermostat terminal.
- The incoming violet w/black striped wire is from the 'NO' terminal on the heater relay (**FIG. F**). If there is a 120VAC reading continue to **Step 5 on page 4**.
- If there is **no** reading on the meter, **skip to page 5**.



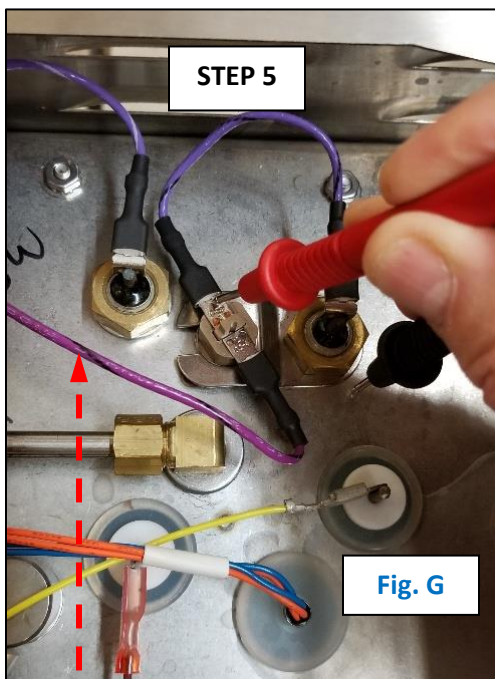
Normally Open (**NO**) terminal. Wire goes to the limit (**Fig. D**).

Common (**COM**) terminal. Wire comes from the **L1** (**Fig. E**) side of the terminal block.

12VDC terminals. Wires come from main control board.

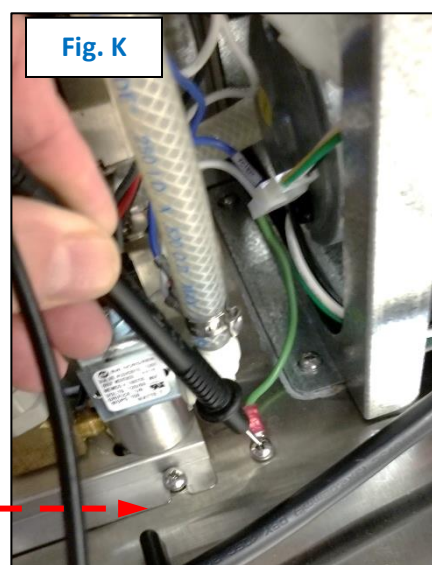
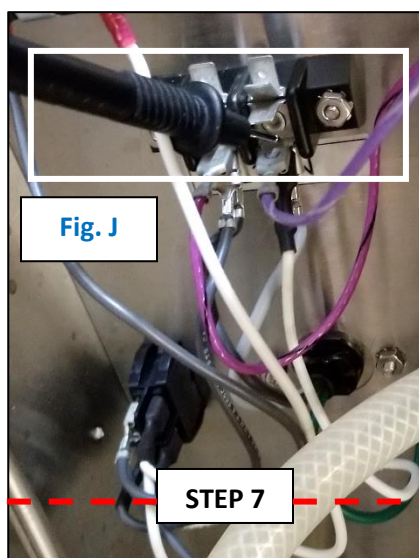
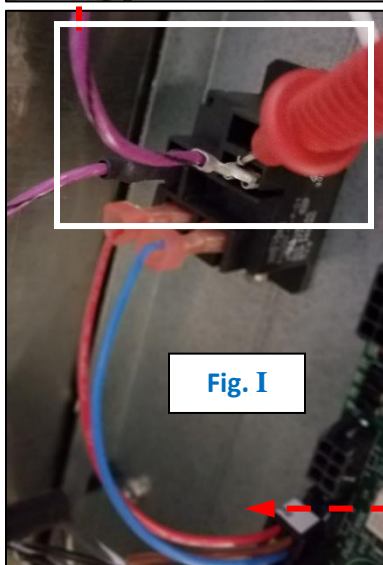
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- If the meter reading is 120VAC, move the test lead to the outgoing side of the limit thermostat keeping the other lead on the tank lid or to the violet w/white stripe wire (**STEP 5; Fig. G**).
- If there is a 120VAC reading **skip to page 5** for more instructions.
- With no reading on the meter, firmly press the reset button located in the center of the limit thermostat. (**STEP 6; Fig. H**) If tripped it will make a single click noise and it will be reset. Try again to see if there is a 120VAC reading on the meter. If there's a reading on the meter, reheat and check for boiling.
- If the button offers resistance and won't push down and doesn't click, replace the defective limit thermostat.



Limit thermostat reset button

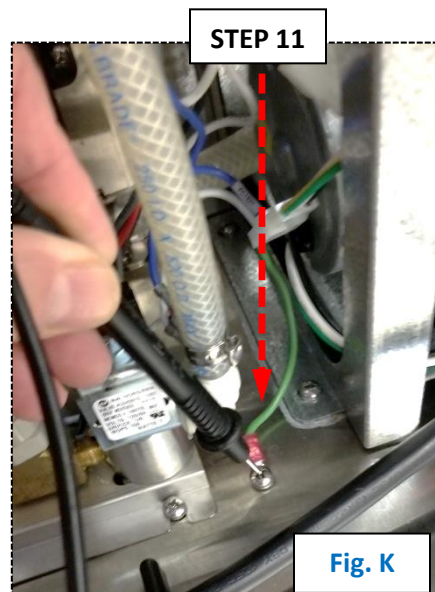
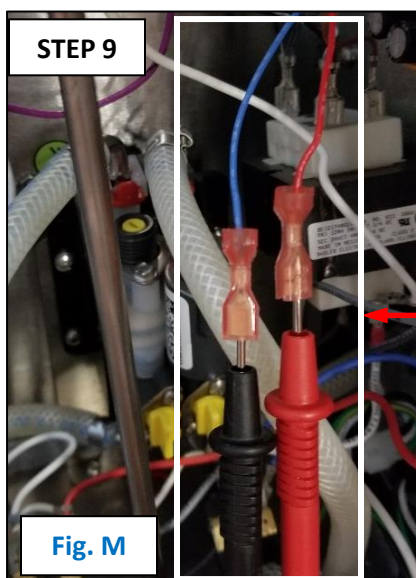
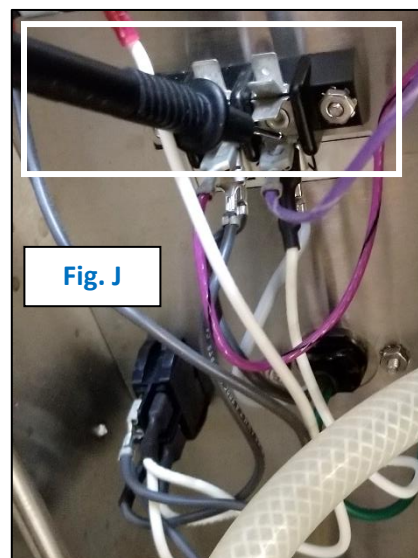
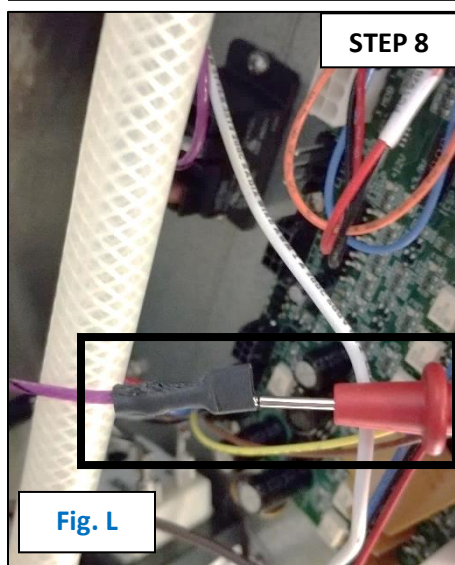
If the reset button is not up (tripped) and there's no power on terminal going to the tank heater, the limit thermostat is defective. Replace the limit thermostat.



Place one lead on wire terminal **Fig. I**. Place the other lead on neutral side of terminal block **Fig. J** or to ground **Fig. K**.

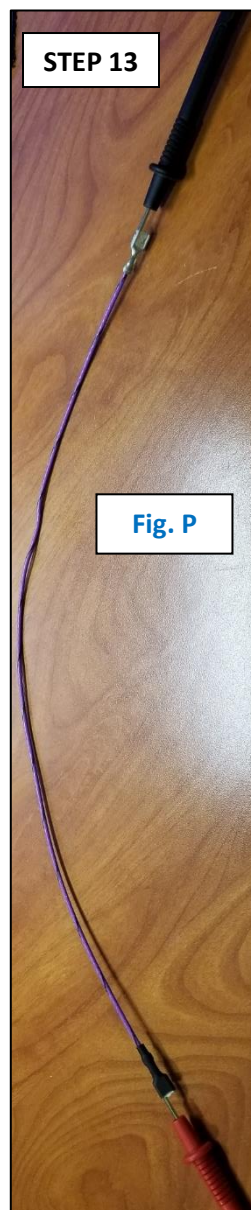
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- If there's no reading on the meter, disconnect the violet w/black stripe wire from the Common (**COM**) terminal (refer to **page 3; Fig. F**). Place one test lead from meter on the disconnected violet/black wire terminal (**Step 8; Fig. L**). Place the other lead on neutral side of terminal block or ground (**Step 11; Fig. J & K**).
- If there's still no reading skip to **page 6; Step 12**.
- If there is 120VAC on the meter, reconnect violet/black wire to the **COM** terminal on the relay. Disconnect the red and blue 12VDC wires from the heater relay (refer to **page 3; Fig. F**).
- Connect the lead to the wire as shown (**Step 9; Fig. M**). Turn the meter dial to 200VDC (**Step 10; Fig. N**). Turn power on. If there is a 12-17VDC reading on the red and blue wires and there is 120VAC reading on the violet w/black wire from the terminal block to the Common (**COM**) terminal but no voltage from the Normally Open (**NO**) terminal to the limit thermostat, replace the defective heater relay.



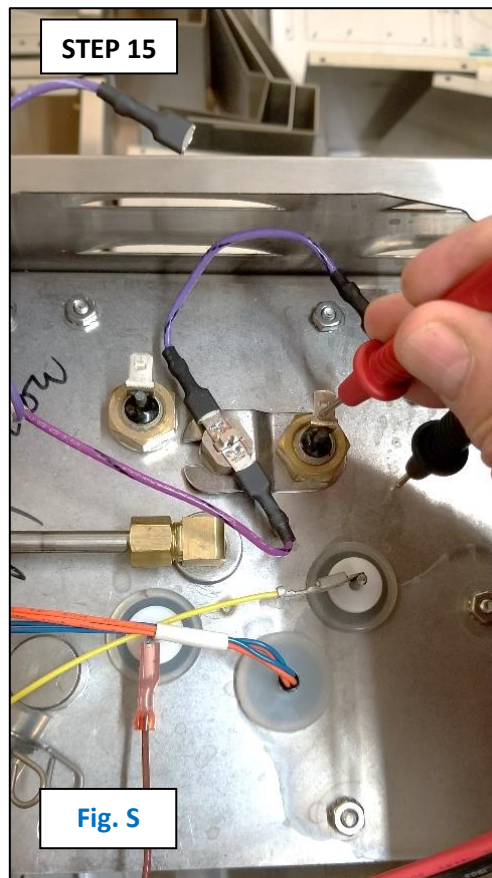
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- If there's no reading on the meter from **Step 8**, turn off the power to the unit. Turn the meter dial to **20K OHMS (Step 12; Fig. O)**. Disconnect the violet and black wire from the Common (**COM**) terminal and from the **L1** side of the terminal block (refer to **page 3; Fig. F**). Place one test lead in one end. Place the second lead on the other end of the wire terminal (**Step 13; Fig. P**).
- There should be all zeros across the display (**Fig. Q**).
- If there are no zeros that appear in the display, replace the wire.
- Steps 12 & 13 can be repeated on both of the violet w/white striped wire and the 4" & 21" violet w/black striped wires.



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- In **Step 14, Fig. R**, turn off the power. Turn the meter dial to 20K OHMS (**Fig. Q**), remove both the violet w/black stripe & violet w/white stripe wires from the tank element.
- Place one test lead on each of the element terminals.
- There should be all zeros across the display (**Fig. Q**).
- If there are no zeros that appear in the display, it could be a possible open short **Step 14, Fig. 14)**. Verify an open short by checking for a short to ground.
- Check for short to ground by placing one test lead on either terminal of the tank element and the other on the tank lid (**Step 15, Fig. S**). If there are zeros across the display (**Fig. Q**), the element has a short to ground—replace the tank element.
- If there are no zeros across the display the display, the element has an open short—replace the element (**Step 14, Fig. R**).



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TANK ELEMENT REPLACEMENT



Fig. T

701695 ELE,1650W/120V,6600W/240V
Used in 757524 Tank (Legacy tank prior to serial #LT0000349).
 Element comes with 2-each **100190 Nut, ½-20 & 100409 Brass Gasket .520ID, Tin Plated.**

100190



100409

202025 ELEMENT,TANK 1750W 120V
Used in 757604 Tank (Replacement tank).
 Element comes with 2-each **100190 Nut, ½-20 & 100409 Brass Gasket .520ID, Tin Plated.**

- Using a #2 Phillips screwdriver remove the two 8-32 screws from the back of the tank lid which attaches the lid to a holding bracket **(Step 16; Fig. U).**
- Next using an adjustable wrench, place and hold back on the elbow while placing a 1/2" open end wrench on the incoming stainless steel tube nut. Turn the hex nut counterclockwise to loosen and remove **(Step 17; Fig. W).**
- Pinch and pull back the hoses clamp on the tank overflow tube. Pull the tube off the elbow **(Step 17; Fig. W).**

STEP 16

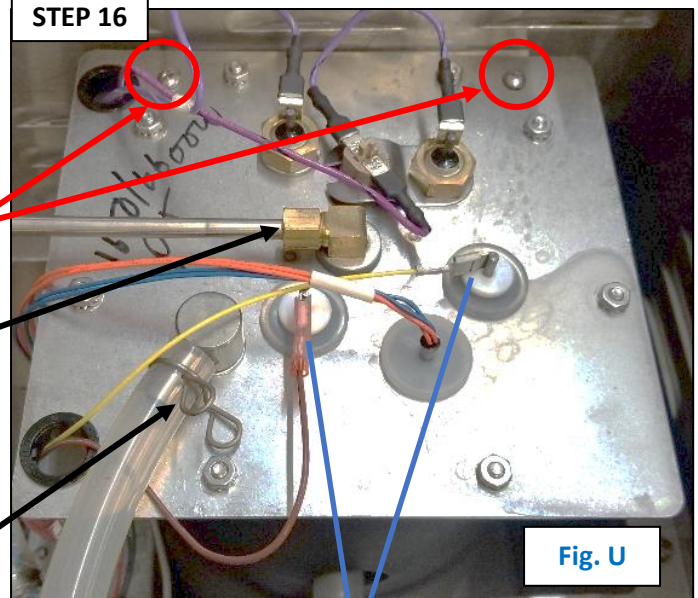
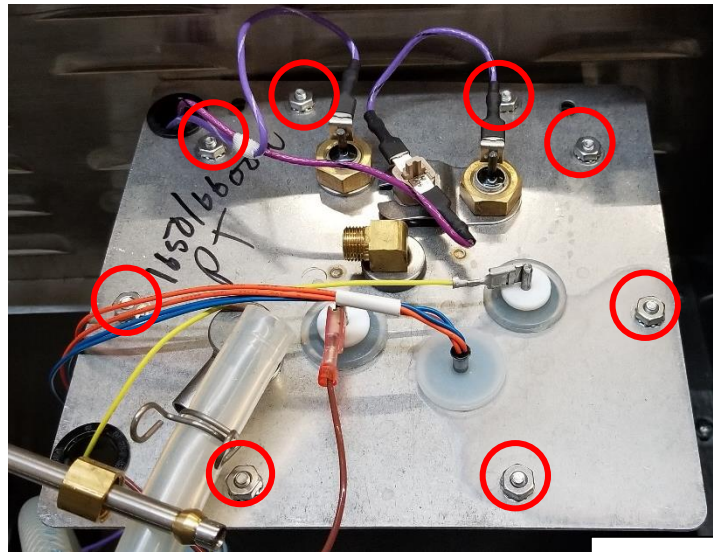


Fig. U

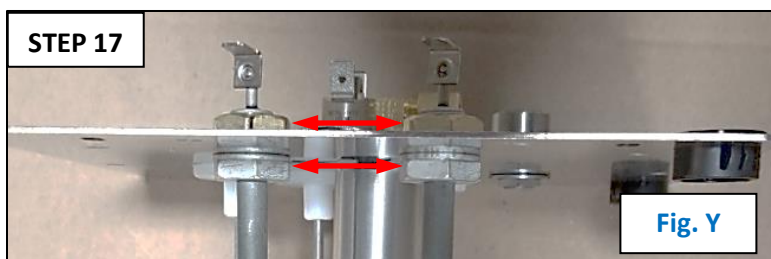
- Disconnect probe wires.

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Using an 11/32" nut driver, remove the eight 8-32 washer hex nuts from the tank lid and remove the entire tank lid assembly. **(Step 17; Fig.'s V, W & X).**

Using two 3/4" open end wrenches, place 1-on the hex of the heating element and the other on the brass nut. **(Step 18; Fig. Y).** There are two 100409 Washers just under the brass hex nuts. Set aside for re-use during re-assembly.



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Reassemble the new tank element onto the tank lid assembly. Reverse the disassembly process and re-install tank lid assembly back into the tank. Reconnect all wires and tubes. Turn on power, heat and test unit.



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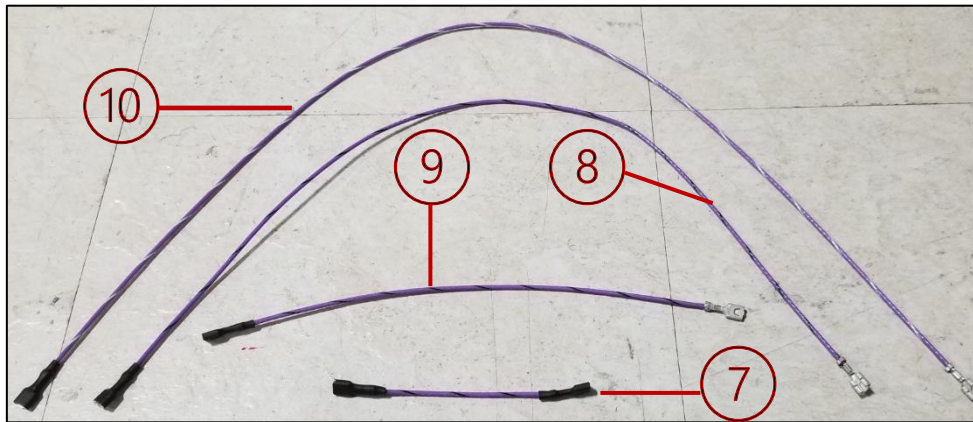


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KEY	PART #	DESCRIPTION	QTY
1	757607	LID ASY,1750W,KTANK,TSB4	1
	757528	LID ASY, 1650W, 3XTEA (not shown)	1
2	111593	THERM,MAN,VERTAB,221F,25A	1
3	110958	RELAY,12VDC,SPST,30A,MECH	1
4	202025	ELEMENT,TANK 1750W 120V (short)	1
5	701695	ELE,1650W/120V,6600W/240V (long)	1
6	100409	GASKET,BRASS.520ID,TN/PLT (2-w/element—2-under 100190)	4
7	152198	14GA VIO/BK 4 TEF 1S-1S (on tank lid)	1
8	102613	14GA VIO/BK 21 TEF 1S-1 (Fig. F)	1
9	103048	14GA VIO/BK 10 TEF 1S-1 (Fig. F)	1
10	103133	14GA VIO/WH 27 TEF 1S-1 (Step 14; Fig R)	1