

# RAYPAK SERVICE INSTRUCTIONS

## HO<sub>2</sub>T™ TRACK (O<sub>2</sub> MONITORING) FIELD-INSTALLATION KIT FOR XVERS (POWERED BY KOR) HEATING BOILERS MODELS 1007-4007

**IMPORTANT NOTICE:** These instructions are for use by qualified personnel specifically trained and experienced in the installation of this type of heating equipment and related system components. Installation and service personnel may be required to be licensed in some states. Persons not qualified shall not attempt to install this equipment nor attempt repairs according to these instructions.

**DANGER - SHOCK HAZARD:** Make sure the electrical power to the boiler is disconnected to avoid damage to components, potential serious personal injury or death. Make sure the gas to the boiler has been shut off.

**WARNING:** Make sure water, gas, and power have been turned OFF before making any repairs or servicing this equipment.

**SCOPE:** The details of this document will provide instructions for field-installing the HO<sub>2</sub>T monitoring hardware for XVers (powered by KOR) boilers.

KIT NUMBER	KIT DESCRIPTION
100-10000529	Kit-HO <sub>2</sub> T Track (O <sub>2</sub> Monitoring) 6" (Model 1007)
100-10000530	Kit-HO <sub>2</sub> T Track (O <sub>2</sub> Monitoring) 8" (Models 1257/2007)
100-10000531	Kit-HO <sub>2</sub> T Track (O <sub>2</sub> Monitoring) 10" (Models 2507/3007)
100-10000532	Kit-HO <sub>2</sub> T Track (O <sub>2</sub> Monitoring) 12" (Models 3507/4007)

**NOTE:** The HO<sub>2</sub>T track kit includes an 18" Duravent stainless steel straight pipe. This is required and will impact your current venting setup.

### THIS KIT CONTAINS:

DESCRIPTIONS	QTY
Harness Assembly, Power/Enable/Modbus/Alarm	1
Harness Assembly, O <sub>2</sub> Sensor	1
Vent Adapter with O <sub>2</sub> Oxygen Sensor	1
PC Board Bracket	1
PC Board	1
PC Board Spacer (1/4" Nylon)	5
Power Supply AC/DC 120 VAC/12DC 5 Amps	1
Cable Tie, 3-7/8"	6
Cable Tie, 7-1/2"	6
Power Supply Bracket	1

DESCRIPTIONS	QTY
Cable-Power Adapter, HO <sub>2</sub> T monitoring	1
Terminal Block	1
#8-1/2" Screw (Terminal Block)	5
#10-3/8" Screws (Power Supply Bracket)	2
Block-Barrier, Bridge (2-Installed) (1 extra supplied)	3
Terminal Fork	7
SD Card	1
Decal (Wiring Diagram)	1
Decal (HO <sub>2</sub> T)	1

### TOOLS REQUIRED:

- Phillips Head Screwdriver
- Flathead Screwdriver
- Drill
- 1/8" Drill Bit
- 5/16" Nut Driver
- Utility Knife
- Wire Stripper/Side Cutter

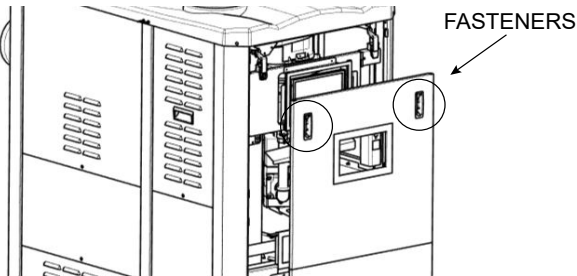
**NOTE:** If your heater was manufactured before May of 2023, update your touchscreen software or replace the SD card that is shipped with this kit. Scan QR Code below to update heater software.



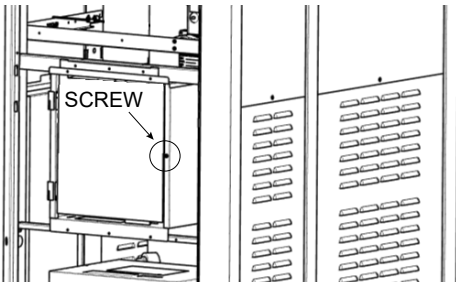
## TOUCHSCREEN UPDATE

### INSTRUCTIONS:

1. Turn off electrical power to the boiler, the breaker panel and at the boiler's power switch.
2. Turn off gas to the boiler's manual shut-off valve.
3. Release the two (2) snap fasteners to remove the front cover panel from the heater. Remove the panels and place them aside. (See **Figure 1.**)
4. Remove one (1) screw to open the Junction Box (J-box) cover. (See **Figure 2.**)



**Figure 1. Front Cover Panel Removal**

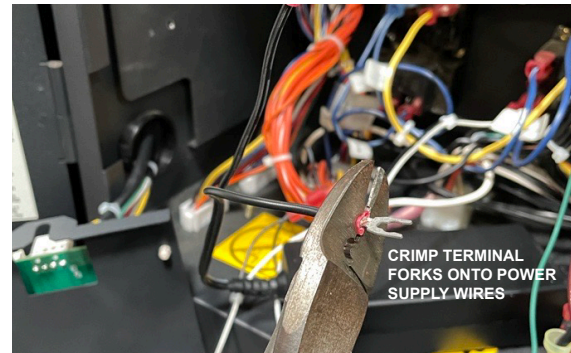


**Figure 2. Removing Junction Box Screw**

5. Using a 5/16" nut driver, remove the two (2) mounting bracket screws that hold the power supply to the heater. Unplug the power supply. (See **Figure 3.**)
6. Cut the new power supply cables approximately 1 ft. from the power box. Strip each wire approx. 3/8". Install **supplied** terminal forks onto each stripped wire. (See **Figure 4.**)
7. Using a Phillips head screwdriver, remove the existing two terminal blocks (front & rear). Move the front terminal block (keeping the wires attached) into the rear terminal block's hole location. (See **Figure 5.**)

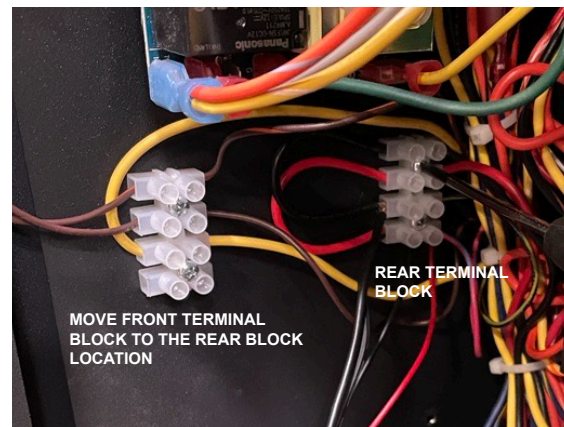


**Figure 3. Power Supply Removal**



**Figure 4. Crimp Terminal Forks to Power Supply**

**NOTE:** The "dotted" white line on the power supply wire is the POSITIVE feed.



**Figure 5. Relocate Terminal Blocks**

8. Remove the four (4) individual wires (**Black & Yellow, Black, Red & Blue and Red**) from the rear terminal block.
9. Strip each wire approx. 3/8" and crimp the four (4) **supplied** terminal forks onto the wires removed from the rear terminal block.

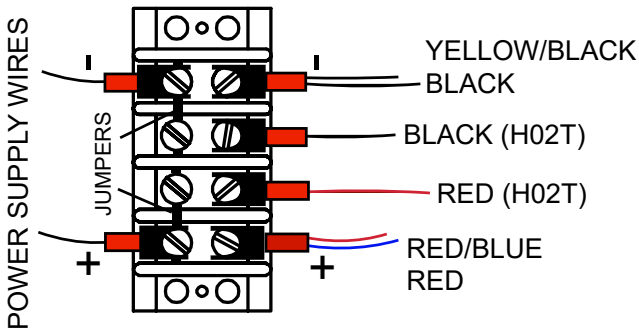
**NOTE:** Crimp the **Black/Yellow and Black** into one fork; **Red/Blue and Red** into one fork. **HO<sub>2</sub>T** supplied harness **Red and Black** wires will have their own fork. (See **Figure 6.**)

- Insert a #10 screw into the J-Box panel's right-side bracket hole (do not fully tighten). Insert the bracket (**with power supply installed and plugged in**) onto that #10 screw and tighten (Ensure the bracket's C-shaped notch is placed under the screw). Next, install and semi-tighten a #10 screw into the left-side of the power supply bracket. **This screw will be fully-tightened once the PC Board O<sub>2</sub> bracket is installed in Step 18.**
- Install the two (2) **supplied** bridge jumpers and the power supply wires into the **supplied** upper terminal block. Install the four (4) newly crimped terminal forks from **Step 9** into the lower terminal block. Using a Phillips head screwdriver, tighten all terminal connectors to secure. (See **Table A** and **Figure 6**.)

WIRE COLOR	DESCRIPTION	TERMINAL
Red & Blue	RGB Lights	1st
Red (18-gauge)	Flow Sensor (+)	1st
*Red	HO <sub>2</sub> T Harness	2nd
*Black	HO <sub>2</sub> T Harness	3rd
Black/Yellow	RGB Lights	4th
Black (18-gauge)	Flow Sensor (-)	4th

**\*Connect Protonode wires to HO<sub>2</sub>T wires if installed.**

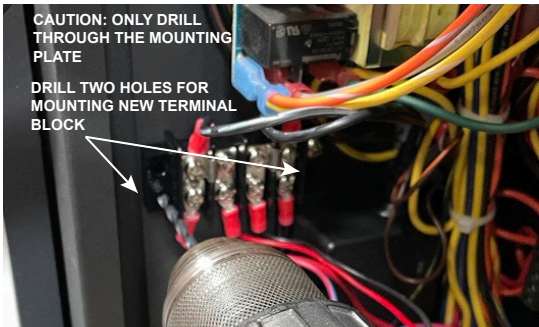
**Table A. Terminal Wiring Details**



**Figure 6. Terminal Wiring Details**

- Using a 1/8" drill bit, create two (2) new holes for the **supplied** terminal block. See (**Figure 7**.)

**NOTE: Be sure to drill through the J-box mounting panel only; do not drill all the way through the J-box.**



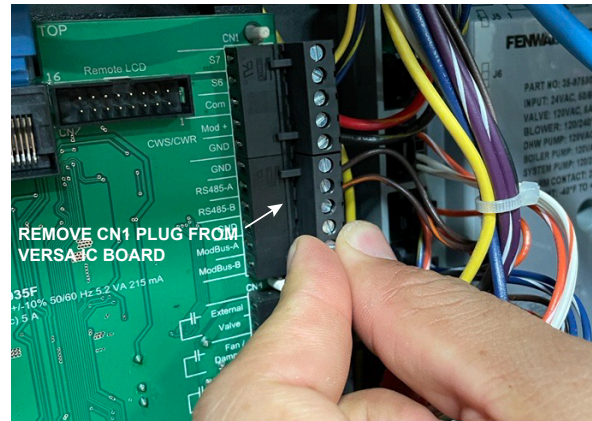
**Figure 7. Drill Holes for Terminal Block**

- Using a Phillips head screwdriver, mount the new terminal block onto the heater's J-box panel using the two (2) **supplied** #8 screws. (See **Figure 8**.)



**Figure 8. Mount Terminal Block**

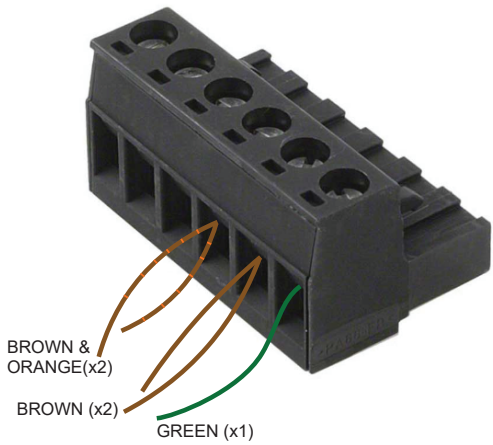
- Remove the bottom CN1 plug from the VERSA IC board. (See **Figure 9**.)



**Figure 9. Remove CN1 Plug from VERSA IC Board**

- From the CN1 plug, remove the existing brown & orange (RS485B) and brown (RS485A) sheathed wires (**Strip all wires approx. 3/8"**). From the **supplied wire harness**, take the brown & orange and brown sheathed wires, strip and splice them together with the wires previously removed from the CN1 plug (**match the colors when mating together**). Insert these wires back into the CN1 wire ports and tighten the set screws per **Figure 10**. Lastly, strip and insert the **supplied harness's** green ground wire into the CN1 wire port per **Figure 10**. Insert the CN1 plug back into the VERSA IC board.





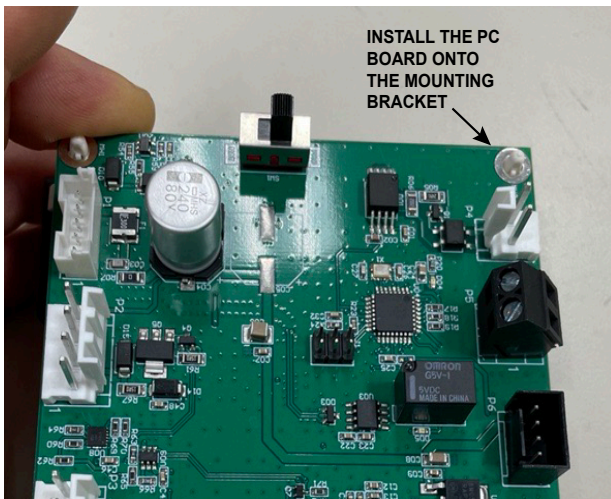
**Figure 10. Install Wiring into CN1 Plug**

16. Install four (4) Nylon spacers into the PC board bracket. (See **Figure 11.**)



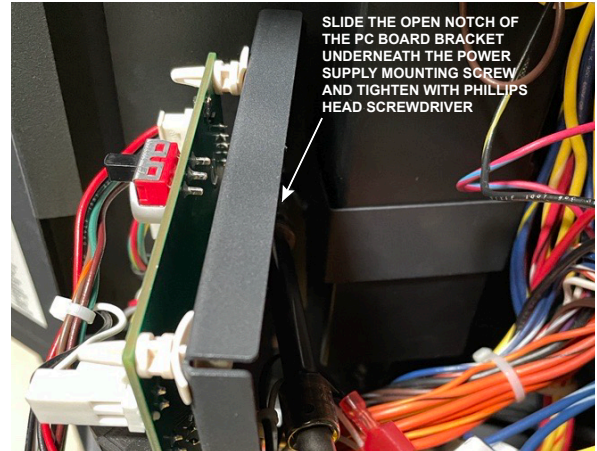
**Figure 11. Install Nylon Spacers to Bracket**

17. Install the PC Board onto the mounting bracket by aligning the four (4) board mounting holes and pressing down firmly to ensure the Nylon tabs extrude outward to hold the board in place. (See **Figure 12.**)



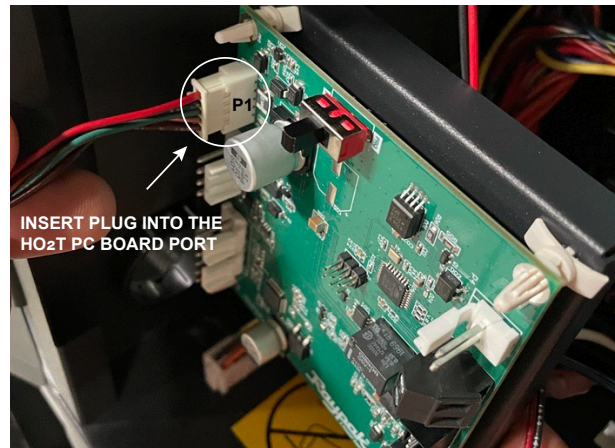
**Figure 12. PC Board Installation on Bracket**

18. Install the new PC Board with mounting bracket onto the Power Supply bracket screw. The screw can now be completely tightened with a 5/16" nut driver. (See **Figure 13.**)



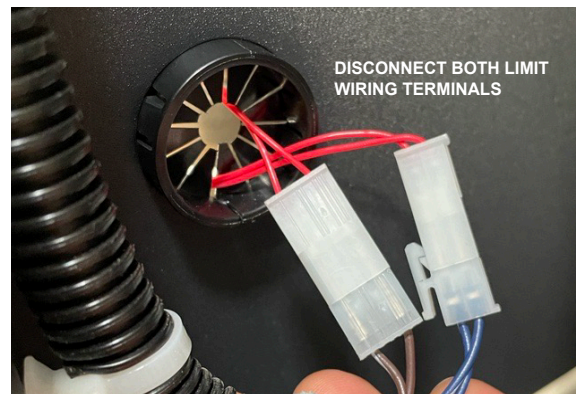
**Figure 13. Install PC Board and Bracket**

19. From the **supplied** wire harness, insert the (Power/Enable/Modbus/Alarm harness) plug into the P1 PC Board port. (See **Figure 14.**)



**Figure 14. P1 Plug Installation**

20. Remove the heater's side panels. Disconnect and remove the limit terminals from the heater's grommet. (See **Figure 15.**)



**Figure 15. Disconnect Limit Terminals**



21. Remove the existing grommet from the rear of the heater. (See **Figure 16.**)



**Figure 16. Remove Grommet from Heater**

22. Using a blade, slice one section of the grommet allowing a split at one end. (See **Figure 17.**)



**Figure 17. Slice the Grommet**

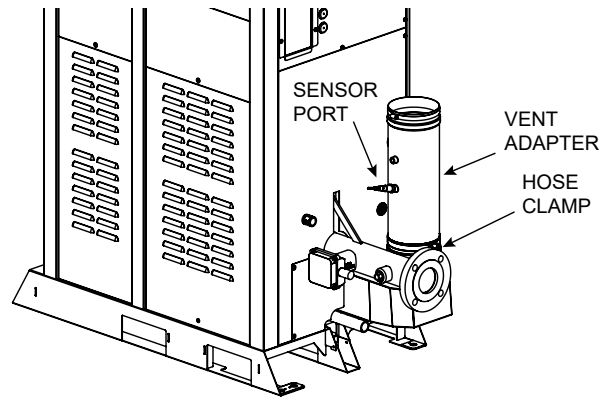
23. Feed the **supplied** oxygen sensor plug and cable and limit terminals through the grommet, followed by re-installing the grommet around the wiring. (Secure the sensor cable with zip ties to the upper existing cable bundle inside the heater) (See **Figure 18.**)



**Figure 18. Install Sensor Plug and Limit Wires**

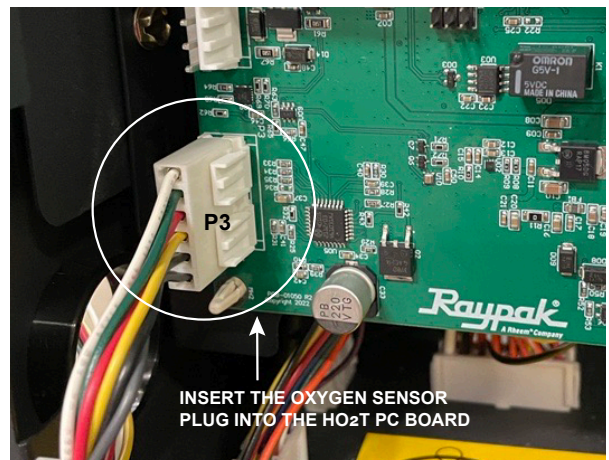
24. Install the vent adapter onto the rear of the heater. Secure with **supplied** hose clamp. (See **Figure 19.**)

**NOTE:** The HO<sub>2</sub>T sensor has been installed into the vent adapter to the appropriate torque prior to shipment.



**Figure 19. Installation of Vent Adapter**

25. Connect the oxygen sensor plug to the PC board P3 port. (See **Figure 20.**)



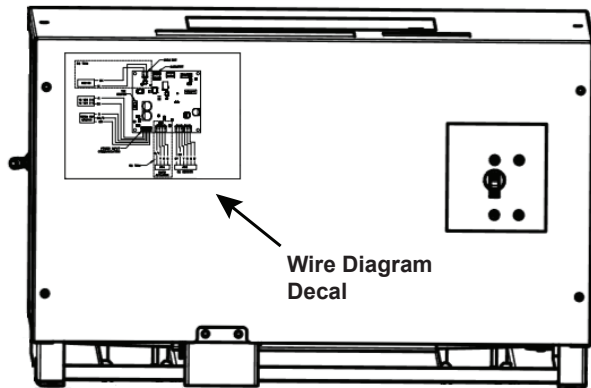
**Figure 20. Oxygen Sensor Plug Installation**

26. Connect the opposing end of the P3 plug into the oxygen sensor's plug. (See **Figure 21.**)

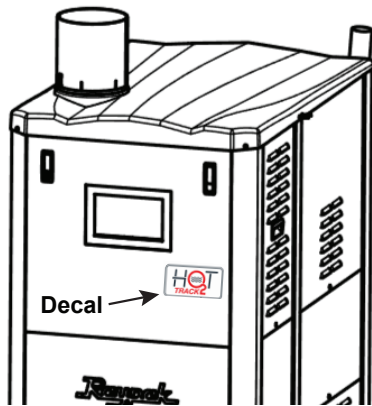


**Figure 21. Oxygen Sensor Plug Connection**

27. Place the **supplied** wire diagram decal onto the front of the power supply box and the HO<sub>2</sub>T decal on the front of the heater. (See **Figure 22** and **Figure 23**.)



**Figure 22. Wire Diagram Decal Application**



**Figure 23. HO<sub>2</sub>T Decal Application**

28. See the O<sub>2</sub> Monitoring (HO<sub>2</sub>T Track) section in the XVers with KOR Installation Manual (P/N: 241849) for proper setup, pre-start check, wiring and troubleshooting.
29. Reverse Steps 4 through 1 to bring the boiler back to operating status.