

Item #1043024 – KIT 2000 QUANTUM 240V

THIS KIT MUST BE INSTALLED BY A QUALIFIED TECHNICIAN PER THE INSTRUCTIONS BELOW TO ENSURE PROPER OPERATION.

KIT INCLUDES:

- 2000 Series Quantum Assembly
- 2 Crimp Spade Connectors QD (L1 and L2 Wires)
- 2 Crimp Spade Connectors QD 187 (Core Limit Wires)
- 8-10 Zip Ties
- 10 Splices
- Resistor Kit:
 - 1500 Ohm Resistor
 - 600 Ohm Resistor
 - 2002, 2003 Wiring Diagram
 - 2004, 2005, 2006 Wiring Diagram



REMOVING OLD ASSEMBLY

1. Disconnect power to all branch circuits of the heater.
2. Remove painted front panel by removing the screws located on the bottom edge of the painted front panel.
3. Remove the control circuit board mounting plate (Figure 1) by sliding it off its mounting screws. Hook it on these same screws using the eyelets provided on the front of the mounting plate for ease of service and access to the electrical compartment.
4. Disconnect the wires from the six-position terminal block (Figure 3). These wires will be connected to the Quantum Kit harness later in the installation.
 - Top two purple wires are for room temperature sensing. One of the two wires may have a section of black heat shrink with a compensator installed. Remove the heat shrink portion of the wire and discard.
 - Middle two wires, if applicable, are for a hard-wired outdoor temperature sensor.
 - Bottom two wires, red and yellow thermocouple, are for the core temperature sensor.
5. Disconnect black and red element wires from the element relays. Reference Figure 3.
 - Red Wires are re-connected in Step 19.
 - Black wires can be discarded.

NOTE: Repair red wires if showing signs of overheating.

6. Disconnect white/blue and black/yellow wires from the top fan relay. Reference Figure 3.



WARNING

HAZARDOUS VOLTAGE: Risk of electric shock. Can cause injury or death. System may be connected to more than one branch circuit. Disconnect power to all circuits before servicing.

Figure 1



7. Cut the black L1 and red L2 wires (near the header connector) from the line voltage wiring harness. Reference Figure 2.
8. Disconnect the black wires from the fan speed resistor located to the right of the control board.
9. Disconnect the green ground wire from the damper control board.
10. Trace the black wire from the element termination on the front side of Element 3 (third element from the bottom). Cut the black wire 6-8 inches from the element termination.
11. Trace the black wire from the bottom of B2 on the terminal block at the back of the heater. Cut the black wire 6-8 inches from the B2 terminal.
12. Remove the low voltage wiring harness and set aside (Figure 3).
13. Disconnect the black service light wires.
14. Remove old control board assembly and mount new assembly in place.

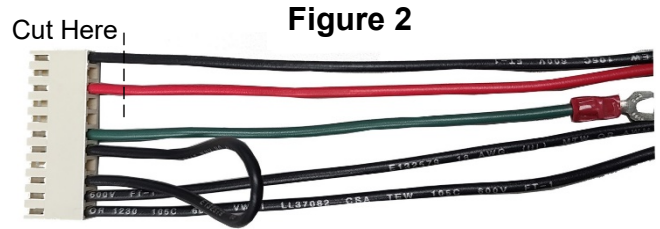


Figure 2

12. Remove the low voltage wiring harness and set aside (Figure 3).
13. Disconnect the black service light wires.
14. Remove old control board assembly and mount new assembly in place.

Figure 3
2000 Series Processor Control Board Assembly

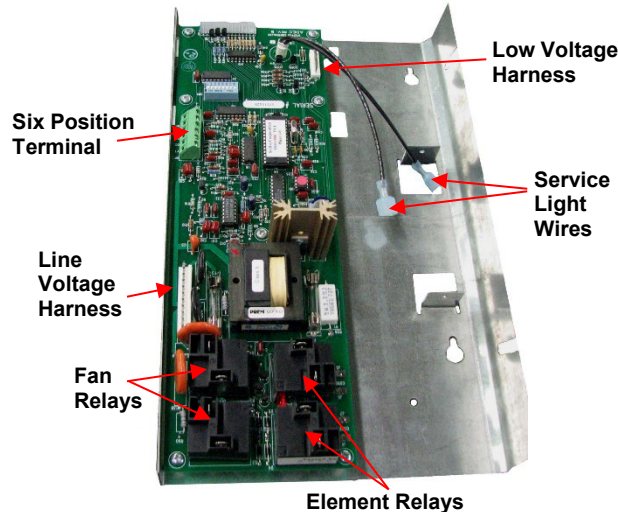
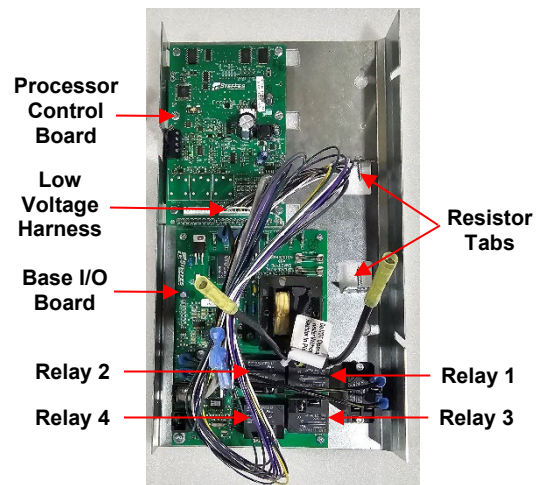


Figure 4
2000 Series Quantum Assembly



INSTALLING NEW ASSEMBLY

15. Cut and strip black L1 and red L2 wires disconnected in Step 7 and crimp on 1/4" female spade connectors provided.
 - Connect red wire to the L2 240 terminal (Figure 5) on the base I/O (Figure 4). If heater is powered by 120V power, use L2 120 (Figure 5).
 - Connect black wire to the L1 terminal (Figure 5) on the base I/O board.
16. Connect the white/blue wire removed from the fan relay onto the blower terminal on the base I/O board. See Figure 5.
17. Connect black/yellow wire removed from the fan relay onto the damper terminal on the base I/O board. See Figure 6.
18. Locate the resistor harness coming off Relay 1 on the base I/O board.
 - Secure one black wire with butt splice to the black wire off the bottom of B2 terminal at the back of the heater.
 - Secure one black wire with butt splice to the black wire off the front side of Element 3 (third element from the bottom).

Figure 5

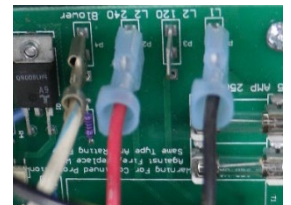


Figure 6



QUANTUM KIT INSTALLATION FOR 2000 SERIES continued....

19. Connect the red element wires to relay 3 on base I/O board. See Figures 4 and 7.
20. Locate the black service light wires (Step 13). Crimp a female QD 187 to each wire and connect to the small terminals on the core limit relay (Figure 8).
21. Connect red and yellow thermocouple wires to the bottom two positions of the 4-position terminal block on the processor control board. Wires are polarity sensitive, verify red wire goes to R and yellow wire goes to Y. Reference Figures 9 and 10.
22. Referencing Table 1 and Figure 9, use splices provided to make low voltage connections as applicable:

Figure 7

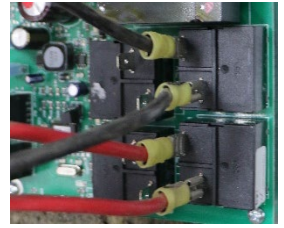


Figure 8

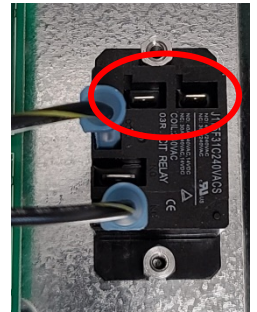


Table 1

	2000 Series Heater	Quantum Assembly
Room Temperature Sensing	Purple	Purple
Outdoor Temperature Sensor	Field Wires	Gray
Low Voltage Peak Control	Blue Blue/White	Blue Blue/White
Low Voltage Common	Yellow	Black
Room Temperature Set Back	Orange	Green
Anticipated Peak Control	Blue/Yellow	Yellow

Figure 9

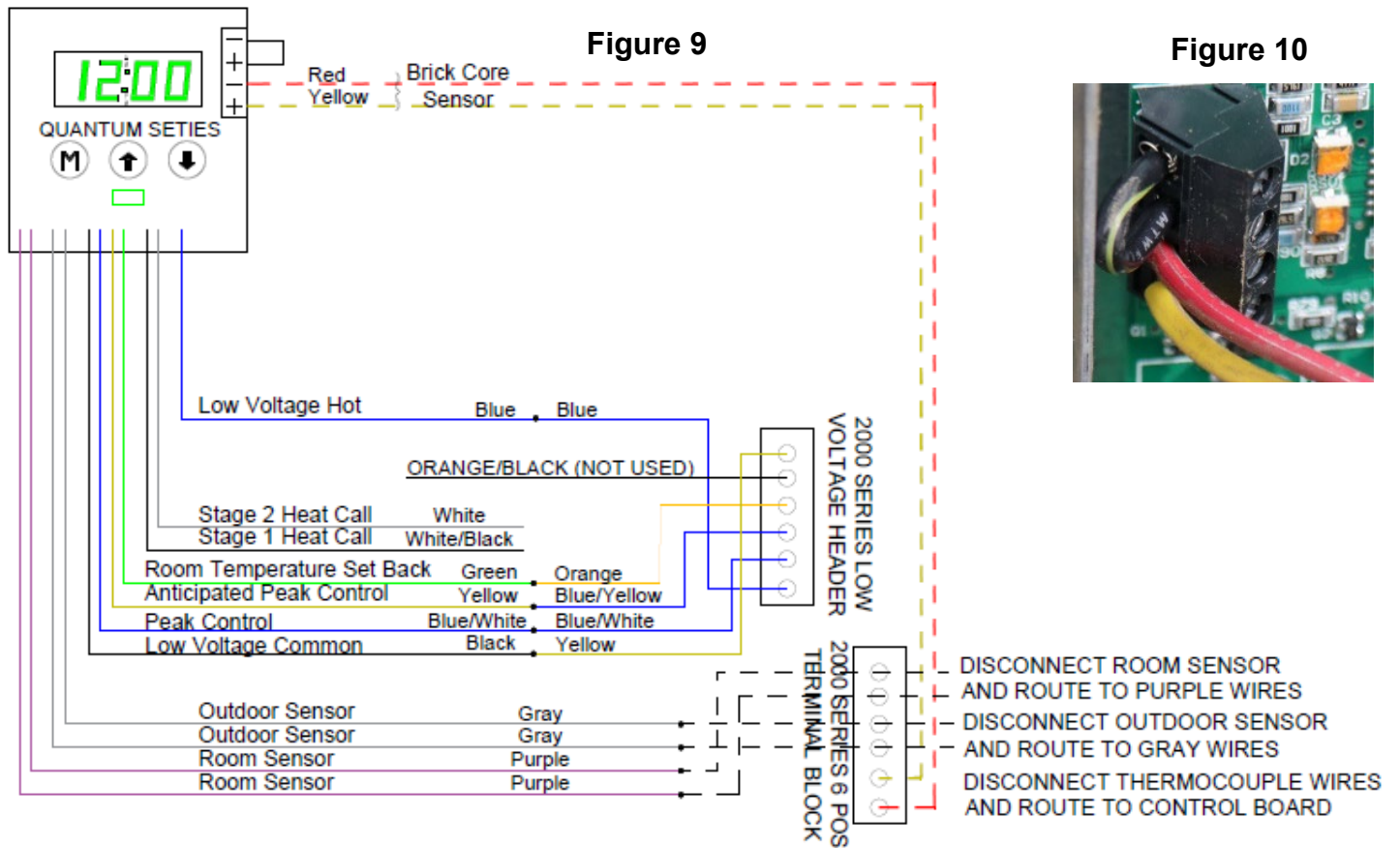
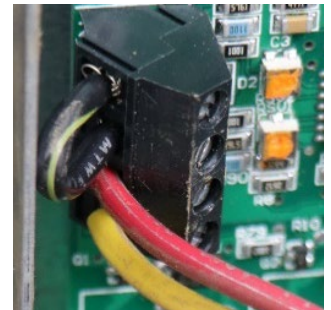
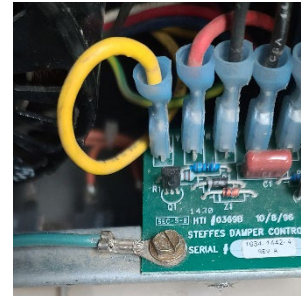


Figure 10



23. Connect the green ground wire to the damper control board. Reference Figure 11.
24. Electrically isolate extra wires and tuck out of the way. Use the tie wraps included with the kit to bundle extra wires.
25. Use Figures 12 and 13 to determine if the blower is a FASCO blower or a Jakel or P-Tech blower. This information is important for selecting the correct resistor and proper programming of the heater.

Figure 11



**Figure 12
FASCO Blower**



**Figure 13
Jakel or P-Tech
Blower**



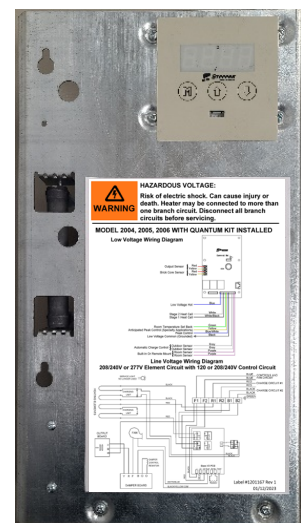
SELECTING RESISTOR AND WIRING DIAGRAM

26. Select proper resistor and wiring diagram from Table 2.
27. Loosen the top screw from resistor tab on the assembly.
28. Slide resistor onto the bottom screw and replace top screw. Reference Figure 4.
29. Attach the black/yellow resistor wires from the base I/O board (Figure 6) to the resistor (Figure 4).
30. Attach the proper wiring diagram label to front of the assembly as shown in Figure 14.
31. Return the Quantum assembly to the closed position and energize the system.

Table 2

	Model: 2002/2003 240VAC Controls 240/208VAC Elements	Model: 2004/2005/2006 240VAC Controls 240/208VAC Elements
Wiring Diagram Label to be Installed	1201170	1201167
Jakel or P-Tech Motor Resistor	1017053 1500 ohm	
Fasco Motor Resistor	1017050 600 ohm	

Figure 14



PROGRAMMING

32. Set the value of Location 98 (L098) to the appropriate value shown in Table 3. Location 98 will revert to a value of zero (0) upon leaving the location.
33. Set/verify the values as shown in Table 4. These values correspond to the specific model of heating system and blower information.

Table 3 - Initial Location 98 Setup Values

Series	Standard	Nova Scotia	Ontario
2000 Quantum	21	20	22

Table 4 – 2000 Series Quantum Location Values

Blower Mfg	Model											
	FASCO						Jakel or P-TECH					
	Location	2002 120V	2002	2003	2004	2005	2006	2002 120V	2002	2003	2004	2005
L028	1	240V = 1 208V = 5					1	240V = 1 208V = 10				
L029	20	20	65	110	155	200	20	20	65	110	155	200
L048	55°F/12°C						55°F/12°C					
L052	12						12					
L091	4						4					
L092	1						1					
L094	220						240					
L095	150						100					

CONFIGURATION

34. Configure the system using the Configuration Guide (Table 5) below:

NOTE: Only update configurations C000 – C006 as needed for the application.

35. Verify operation and install painted front cover.

Table 5

Configuration Number	Method of Peak Control									
	Power Line Carrier (PLC) Peak Control *	Low Voltage Direct Wired Peak Control				Time Clock Module Peak Control		Line Voltage Peak Control		Special Application
		Peak Switch Closed for Charging		Peak Switch Open for Charging						
		Outdoor Sensor	No Outdoor Sensor	Outdoor Sensor	No Outdoor Sensor	Outdoor Sensor	No Outdoor Sensor	Outdoor Sensor	No Outdoor Sensor	
C000	5	5	6	5	6	5	6	5	6	
C001	60°F	60°F				60°F		60°F		
C002	20°F	20°F				20°F		20°F		
C003	Match to the Channel Selected at PLC	0				0		0		
C004	154	155	154	155	154	159	158	155	154	
C005	0	1		0		0		0		
C006	6	6				6		6		

NOTES: The factory default for Power Line Carrier (PLC) peak control is Channel 3. However, most 2000 Series heaters will be set to Channel 1 or 2. Verify proper channel before configuring the heating system.

Access the online Technical Resource Library (TRL) for steps to access Location and Configuration Menus.