



HA8503 Retro Control Board Installation



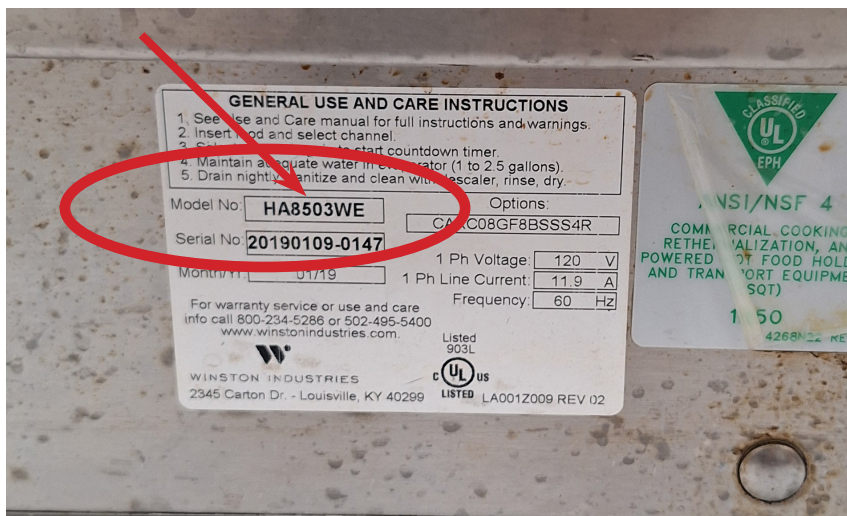
Follow QR Code for Manual
Download, Videos, and More.



HA8503 Retro Control Board Installation

Tools Required: Phillips Screwdriver Hammer Adjustable Wrench
 Flat-tipped Screwdriver Needle-nosed Pliers Wire Cutters
 3/8" Nut driver 9/16" Wrench
 3/8" Wrench SV1288 Kit

This instruction guide covers the retro control board installation for HA8503 series CVaps. Refer to the serial tag for model information.



Do not plug the new control board into the unit until the new relay panel is installed. The new control board runs on 24V and the line voltage will cause damage to new control board.

****The air probe, water probe, and float must be replaced. The new control board will not operate correctly with the old probes and float.**

****The existing relays must be replaced.****

HA8503 Retro Control Board Installation

1. Power the unit off and disconnect from power source. (Fig.1-2)



Fig.1



Fig.2

Air Probe Replacement

2. Locate the air probe access panel on the right side of the cabinet. Using a Phillips screwdriver, remove the panel. (Fig.3-4)



Fig.3



Fig.4

3. Locate the two pin molex connection and disconnect the two pin connection. (Fig.5-6)

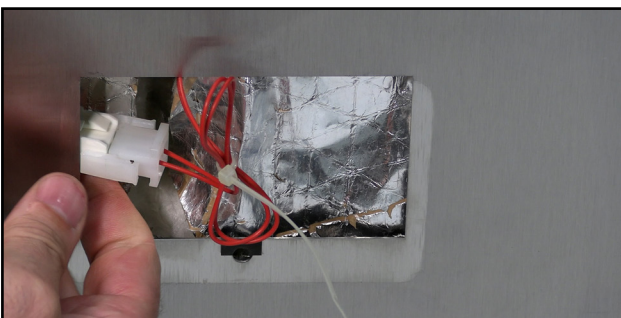


Fig.5



Fig.6

HA8503 Retro Control Board Installation

4. Pull back the insulation and locate the air probe. Using a 3/8" nutdriver, remove the two retaining nuts. (Fig.7-8)



Fig.7



Fig.8

5. Pull retaining bracket up and off of the mounting studs. Next remove the air probe, back retainer, and orange washer. (Fig.9-10)



Fig.9



Fig.10

6. Locate the replacement air probe in the kit. Thread the mounting bracket, followed by the back bracket, and finally the orange washer. (Fig.11-12)

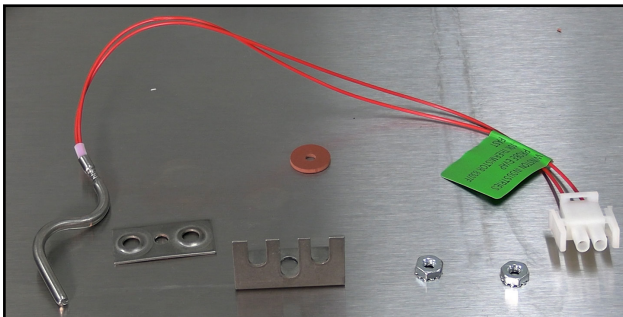


Fig.11



Fig.12

HA8503 Retro Control Board Installation

7. Insert air probe into opening and rotate until probe tip inside the unit is pointing down. (Fig.13-14)



Fig.13



Fig.14

8. Start the two retaining nuts and tighten them using a 3/8" nut driver or socket. (Fig.15-16)



Fig.15



Fig.16

9. Reconnect the Molex connection and using a Phillips screwdriver or screw gun, replace the access panel. (Fig.17-18)



Fig.17



Fig.18

HA8503 Retro Control Board Installation

Water Probe Replacement

10. Drain the water from the unit. Using a Phillips screwdriver or screw gun, remove the lower access panel on the right side.(Fig.19-20)



Fig.19



Fig.20

11. Locate the water probe connection. And disconnect the probe wire.(Fig.21-22)

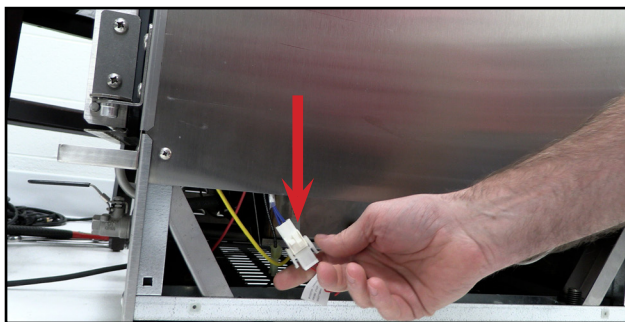


Fig.21

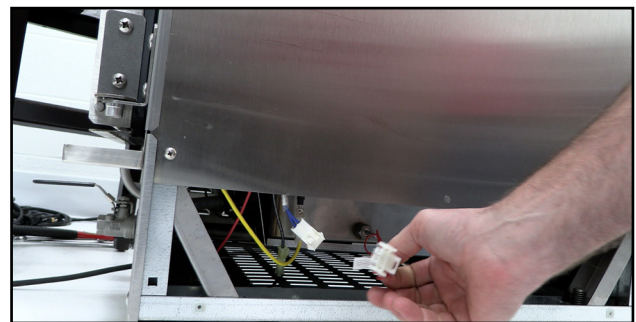


Fig.22

12. Locate the water probe compression nut. Using a 9/16" wrench loosen and remove the water probe compression nut. (Fig.23-24)

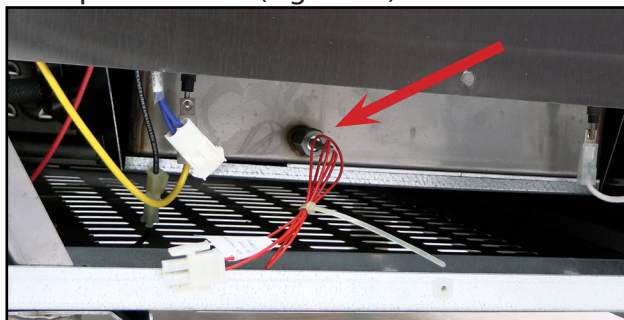


Fig.23



Fig.24

HA8503 Retro Control Board Installation

13. Gently tap the water probe with a hammer, then, using pliers pull the water probe out of the water pan. (Fig.25-26)



Fig.25

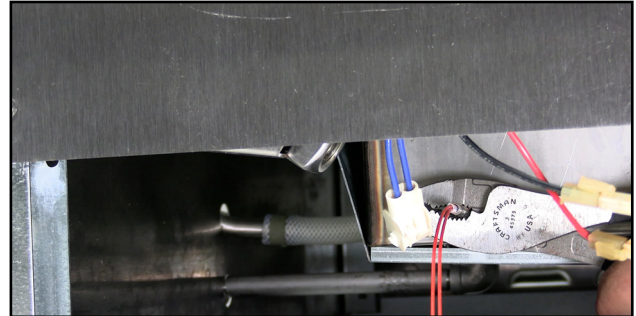


Fig.26

14. Locate the new water probe in the kit and thread on the compression nut and ferrule. The ferrule needs to be 2-1/4" from the probe tip.(Fig.27-28)



Fig.27

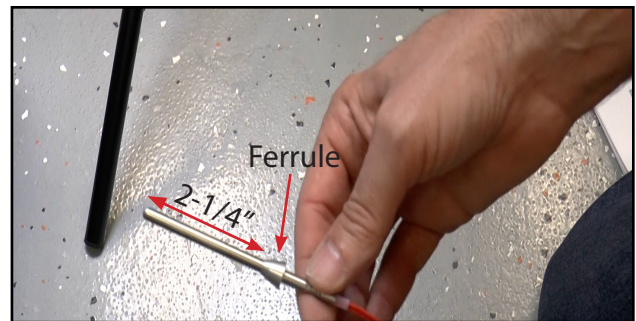


Fig.28

- 15 Insert the water probe into the probe opening. Thread the compression nut on and tighten the compression nut using a 9/16" wrench. Tighten the compression nut until the probe will no longer slide in or out. Reconnect the two pin molex connection.(Fig.29-30)



Fig.29

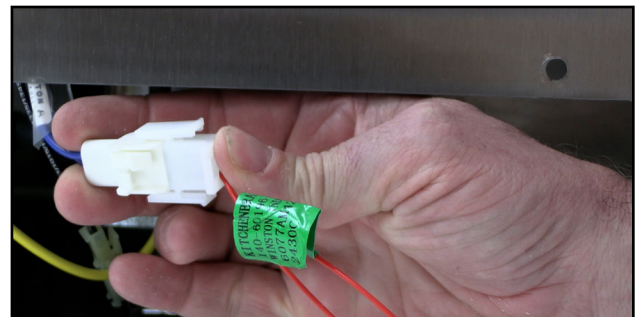


Fig.30

HA8503 Retro Control Board Installation

Level Sensor Replacement

**** If the unit does not have an existing float, remove the plug and proceed to step 19****

16. Locate the red and black float wires near the water probe connection. Disconnect both wires.(Fig.31-32)

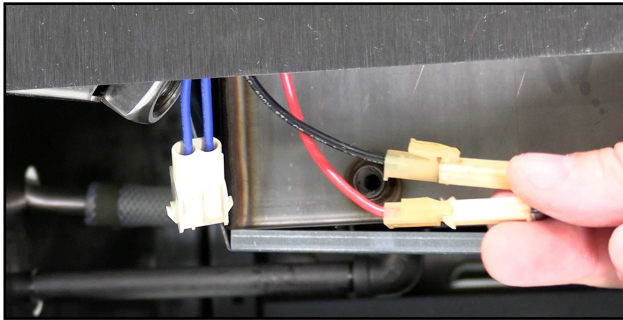


Fig.31

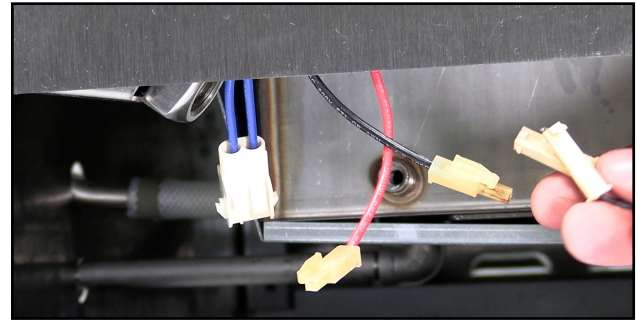


Fig.32

17. Locate the float retaining nut in the center of the evaporator pan. Using an adjustable wrench, loosen the nut. (Fig.33-34)

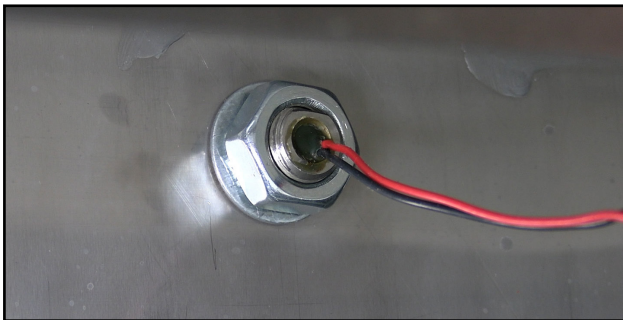


Fig.33



Fig.34

18. Remove the retaining nut and washer. Pull the float and wires out through the inside of the evaporator pan. (Fig.35-36)



Fig.35



Fig.36

HA8503 Retro Control Board Installation

19. Locate the seven pieces of the water sensor in the kit. Slide the rubber gasket onto the threaded fitting.(Fig.37-38)

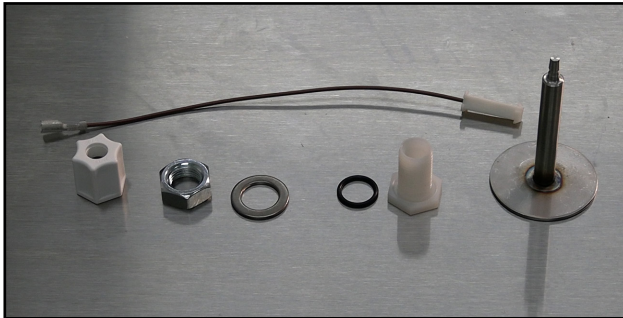


Fig.37

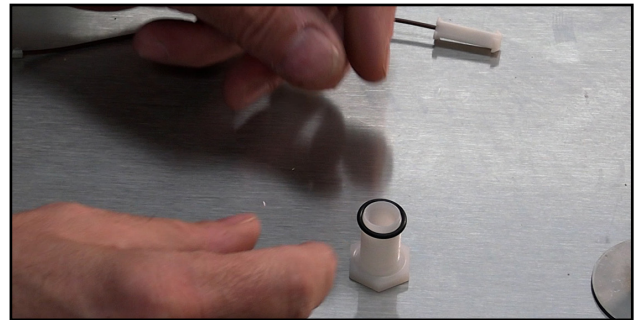


Fig.38

20. Insert water sensor fitting into float opening. Place washer on outside threads. (Fig.39-40)



Fig.39

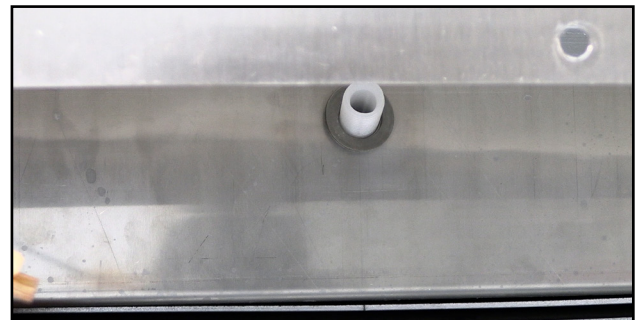


Fig.40

21. Place sensor nut onto threads and tighten with a 3/4" wrench. A 3/4" wrench will have to be used on the inside as well. (Fig.41-42)



Fig.41



Fig.42

HA8503 Retro Control Board Installation

22. Insert the water sensor into the fitting. Ensure that there is 1/4" between the sensor and the fitting. (Fig.43-44)



Fig.43



Fig.44

23. Thread the plastic compression nut onto the threaded fitting and tighten until the sensor doesn't slide forwards or backwards.(Fig.45-46)

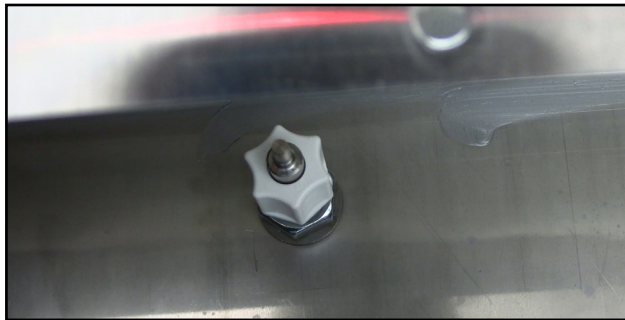


Fig.45

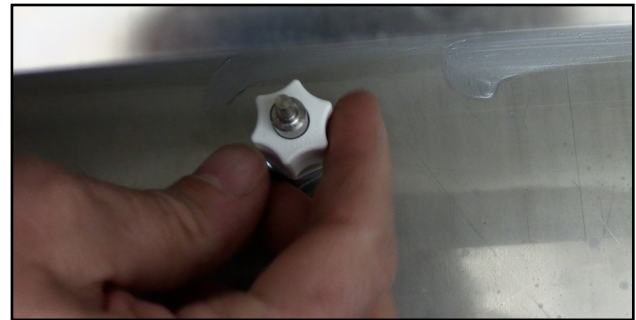


Fig.46

24. Connect the brown wire in the kit to the water sensor. Connect the brown wire to the existing sensor black wire.(Fig.47-48)



Fig.47



Fig.48

HA8503 Retro Control Board Installation

Relay Panel Installation

25. Using a Phillips screwdriver or screw gun, remove the six top retaining screws. Remove the unit top.(Fig.49-50)



Fig.49

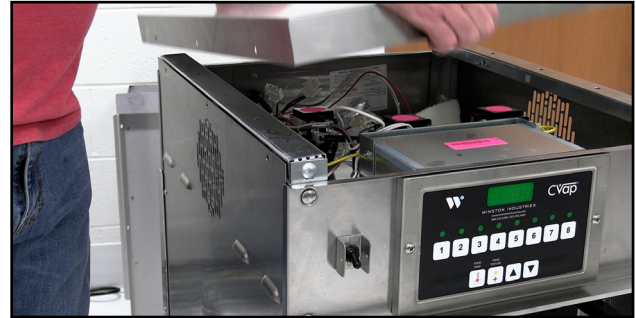


Fig.50

26. Locate the relay-transformer panel in the kit. The panel will mount on the right side. (Fig.51-52)

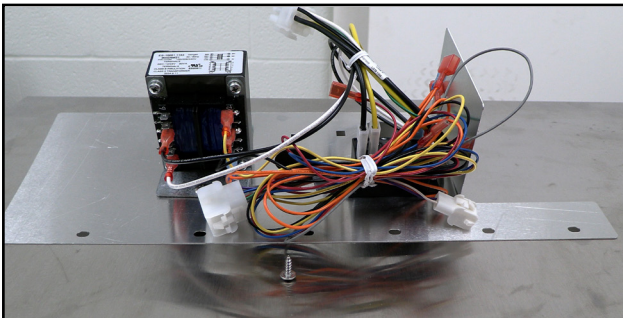


Fig.51

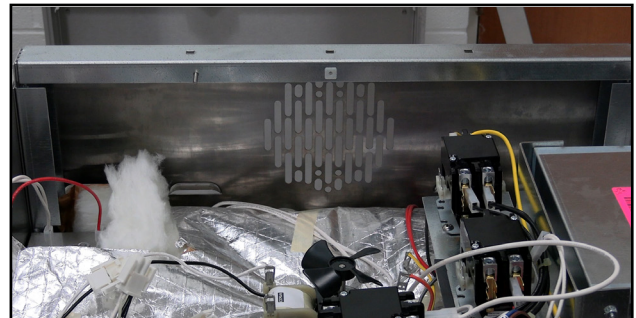


Fig.52

27. Using a 3/8" nutdriver, remove the fan retaining nut. Place the relay panel over the fan screw and reattach the retaining nut. (Fig.53-54)

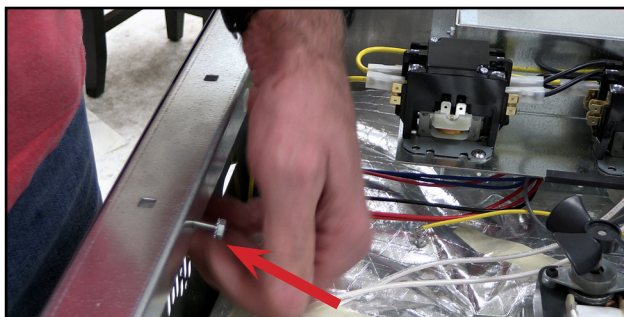


Fig.53

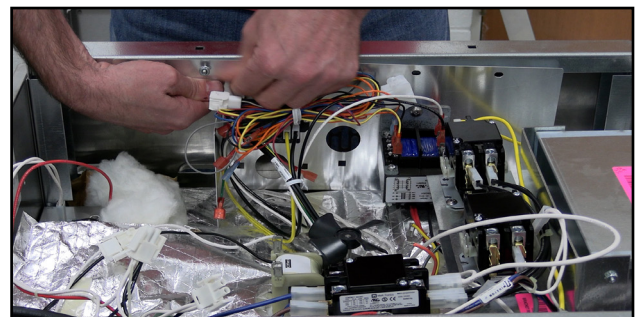


Fig.54

HA8503 Retro Control Board Installation

28. Locate the machine screw in the kit and mount the front half of the relay panel with it. (Fig.55-56)

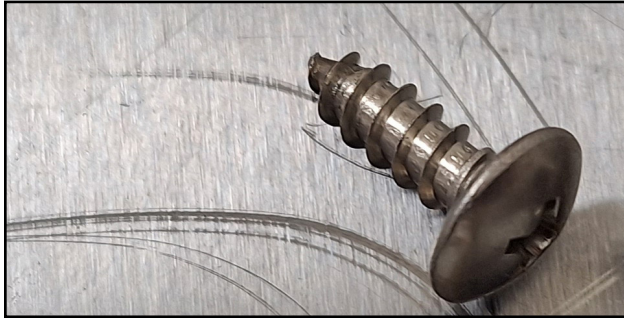


Fig.55

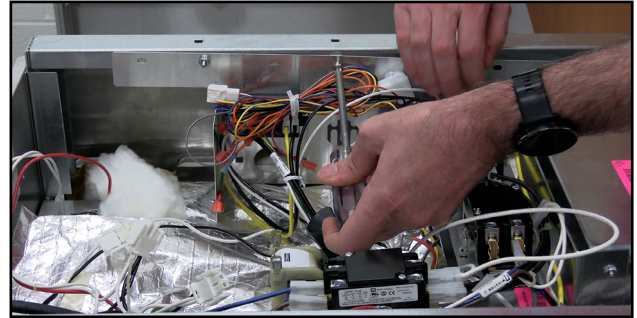


Fig.56

Control Board Wiring

29. Using a Phillips screwdriver or screw gun, remove the control board retaining screws. Pull the control board away from the opening.(Fig.57-58)



Fig.57



Fig.58

30. Disconnect the nine pin and the six pin Molex connections and remove the control board. (Fig.59-60)



Fig.59



Fig.60

HA8503 Retro Control Board Installation

31. Using a flat tip screwdriver, depress the tabs on the control housing female nine pin Molex connection. Push the connection back into the cabinet top. (Fig.61-62)

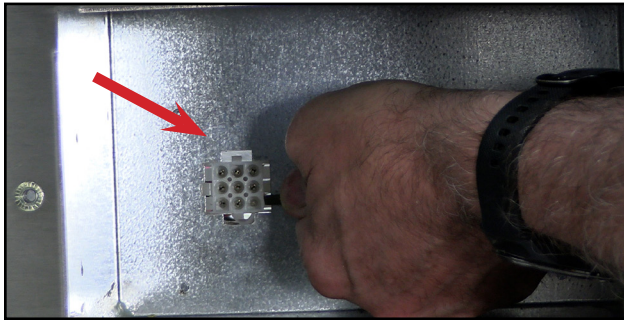


Fig.61

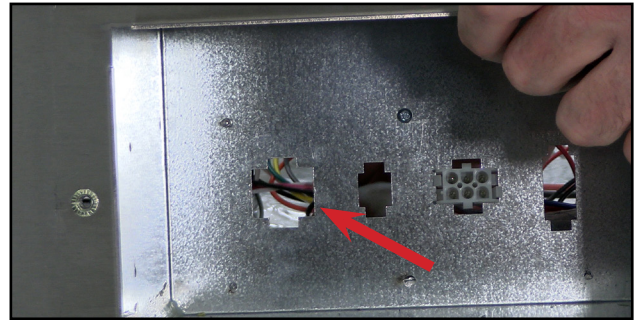


Fig.62

32. Locate the male nine pin Molex relay wires (thicker) that are coming from the relay panel. Connect to the female nine pin Molex connection that was pushed in through the housing. (Fig.63-64)

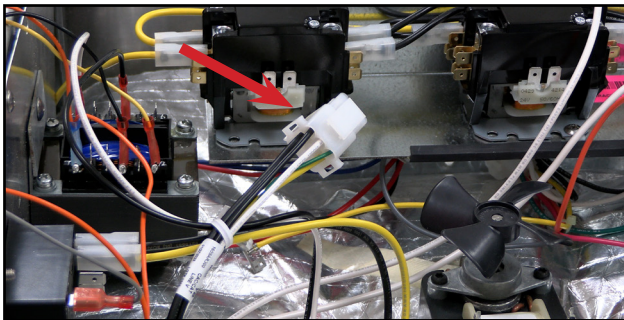


Fig.63

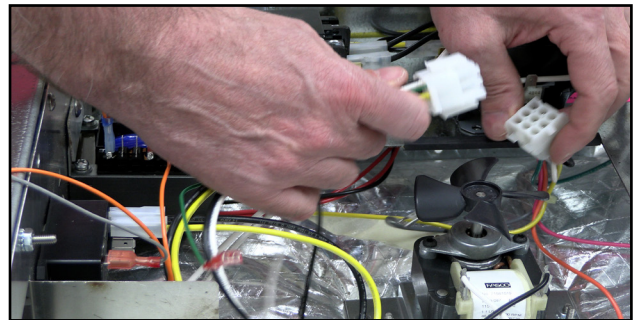


Fig.64

33. Route the signal wire nine pin Molex connection (thinner wires), from the relay panel to the opening where the female wires were pushed through and insert into the opening.(Fig.65-66)

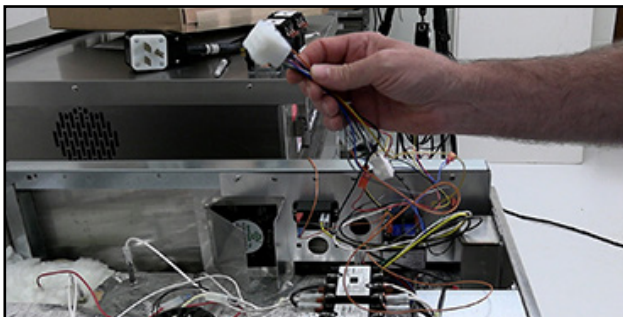


Fig.65

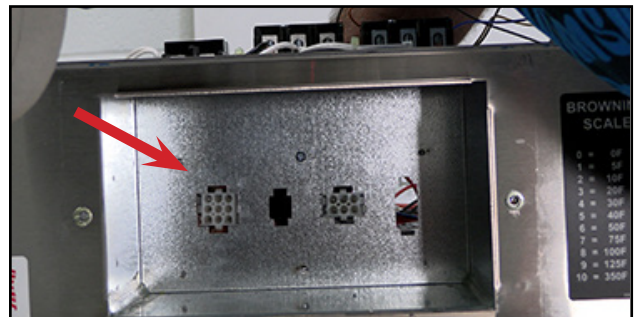


Fig.66

HA8503 Retro Control Board Installation

34. Locate the green wire connection coming from the signal wire nine pin and locate the green wire connection coming from the thicker nine pin. Connect the two grounding wires.(Fig.67-68)

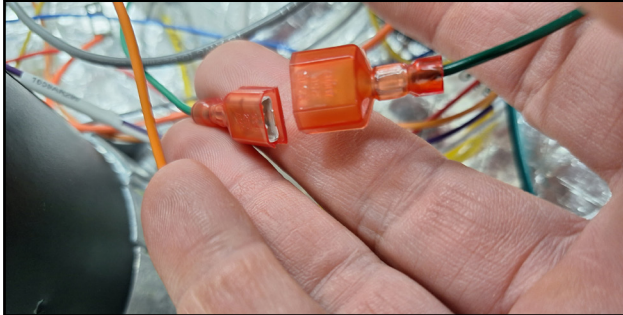


Fig.67

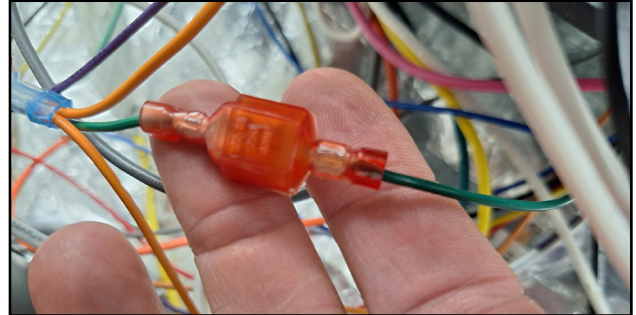


Fig.68

Relay Wiring

1. Locate the three relays and the secondary wiring harness in the kit. (Fig.69-70)

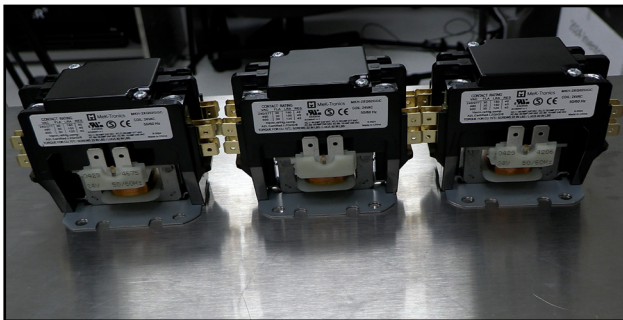


Fig.69

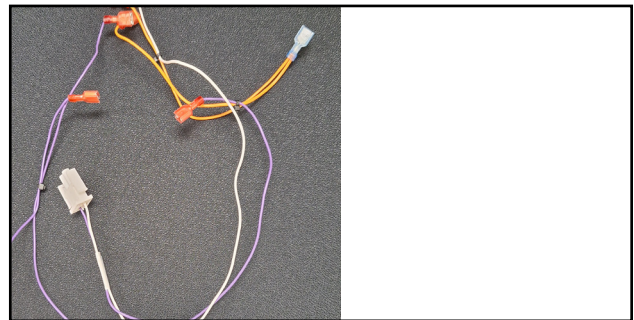


Fig.70

2. The three existing relays must be swapped out with the 24V relays in the kits.
****The existing relays will not operate with the new control board.**** (Fig.71)

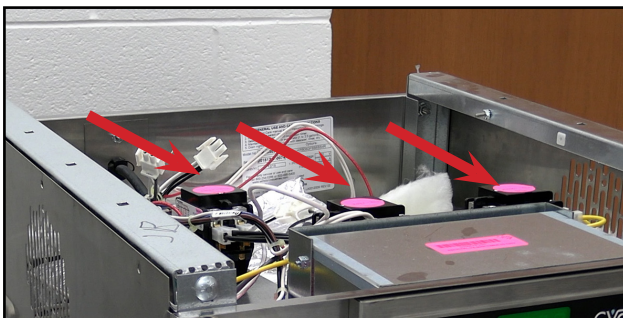


Fig.71

HA8503 Retro Control Board Installation

3. Starting with the air heater relay(Right side 2-pole). Remove the white and yellow relay wires. (Fig.72-73)

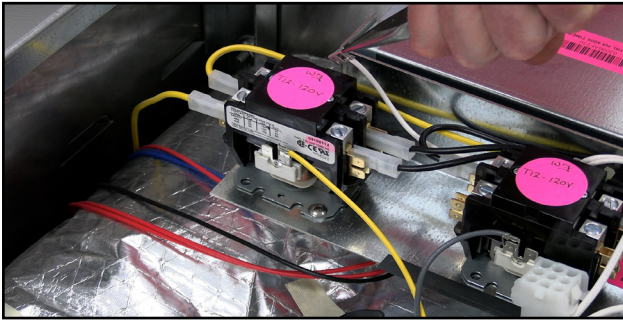


Fig.72

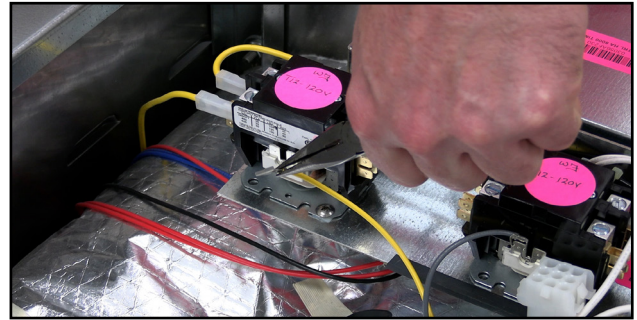


Fig.73

4. Remove the yellow wires and the black wires from the air relay (Fig.74-75)

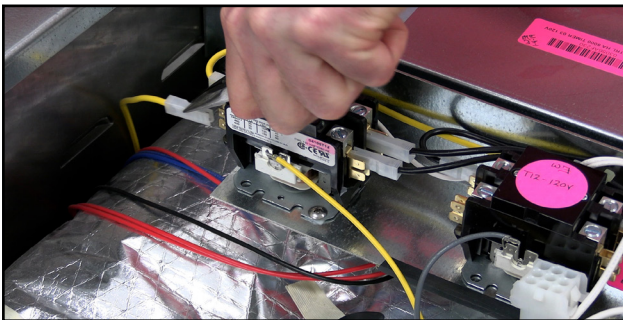


Fig.74

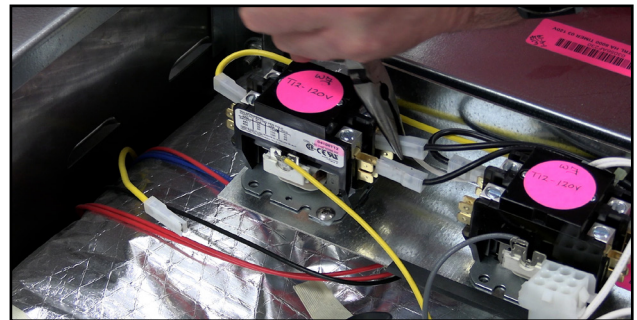


Fig.75

5. Using a Phillips screwdriver, remove the two relay retaining screws. Then remove the relay.(Fig.76-77)

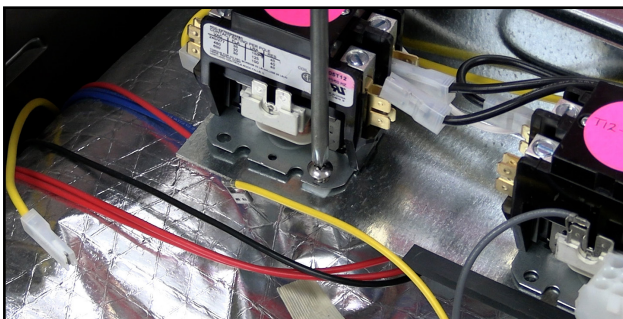


Fig.76

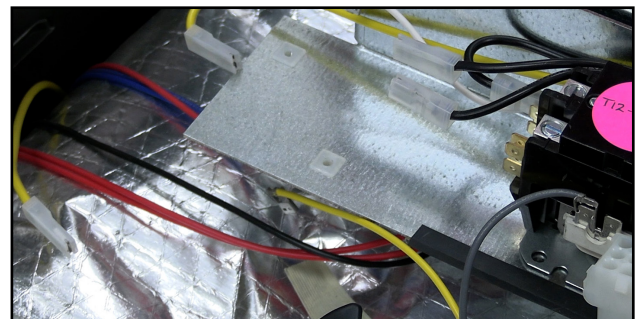


Fig.77

HA8503 Retro Control Board Installation

6. Locate one of the 2-pole 24V relays in the kit. Using a Phillips screwdriver, mount the relay in the place of the removed air relay. (Fig. 78-79)

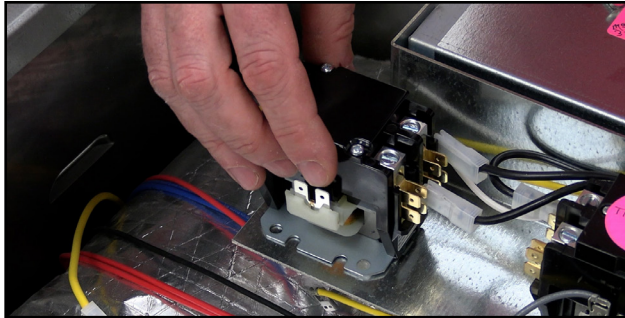


Fig.78

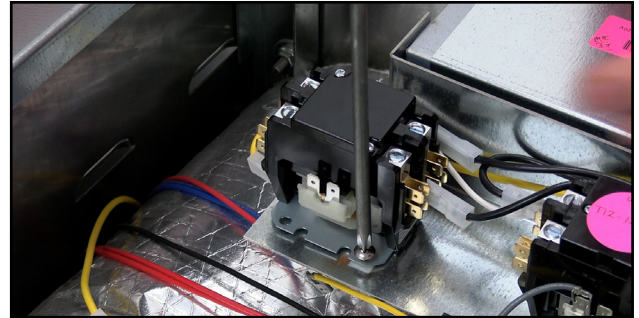


Fig.79

7. Reconnect the two black and the two yellow wires. (Fig.80-81)

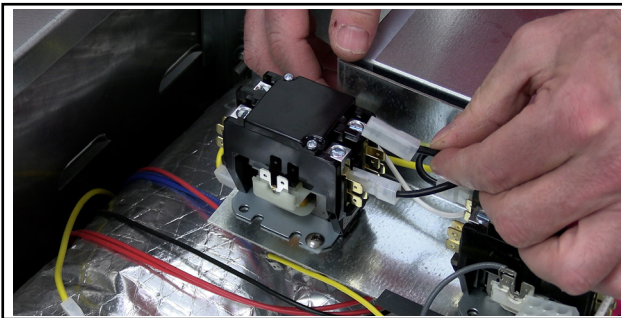


Fig.80

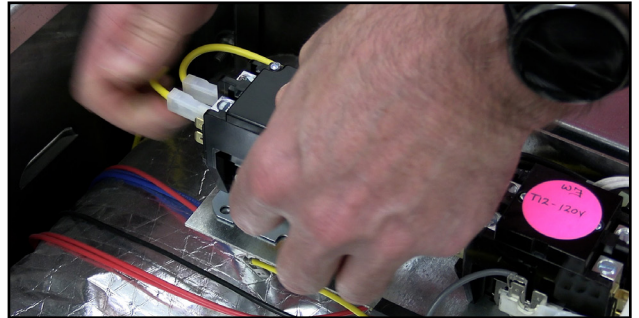


Fig.81

8. Disconnect the single white coil wire from the existing water relay (middle relay), and discard. (Fig.82-83)

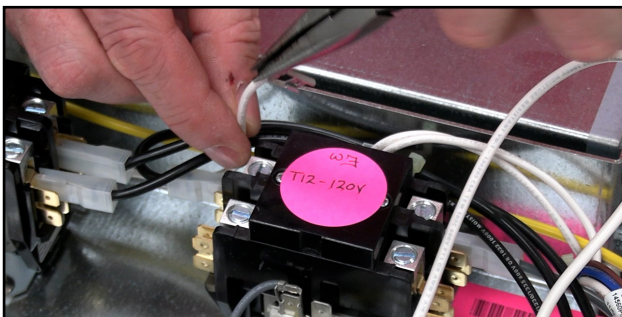


Fig.82

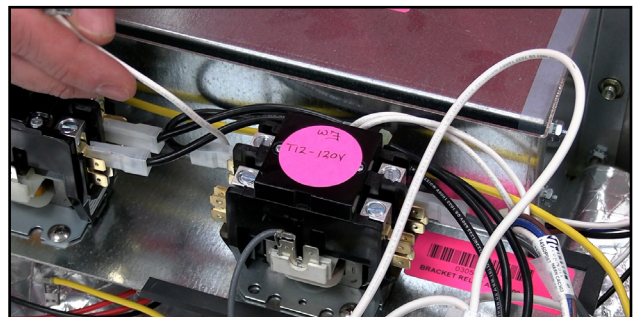


Fig.83

HA8503 Retro Control Board Installation

9. Remove the double white wire from the existing water relay. Cap the double white wire with the provided wire cap.(Fig.84-85)

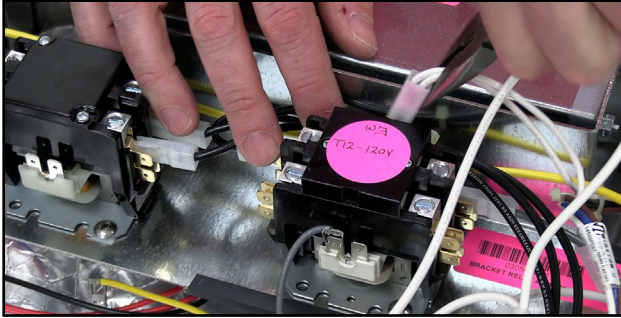


Fig.84

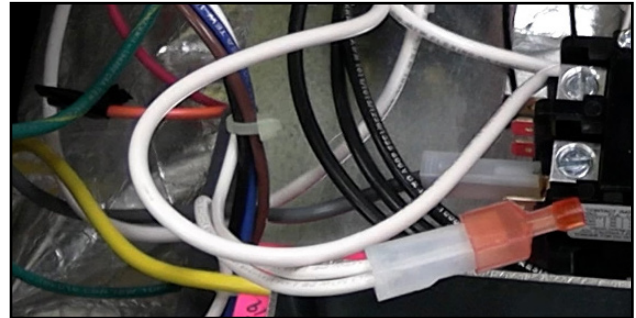


Fig.85

10. Remove the grey coil wire. Remove the black wire on the right side of the water relay.(Fig.86-87)

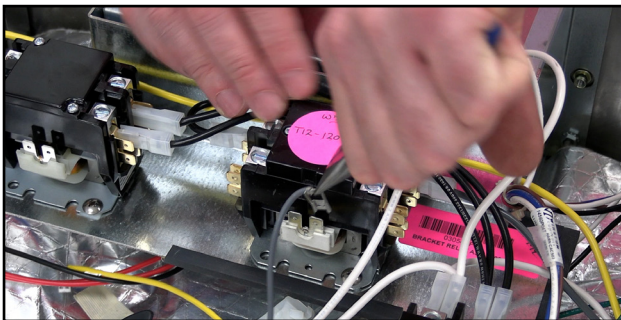


Fig.86

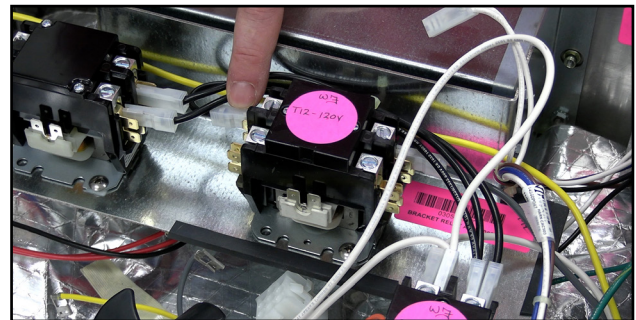


Fig.87

11. Remove the grey wire on the left side of the water relay. Using a phillips screwdriver, remove the two relay retaining screws.(Fig.88-89)

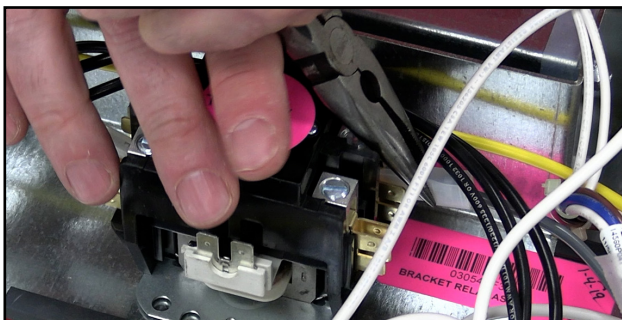


Fig.88

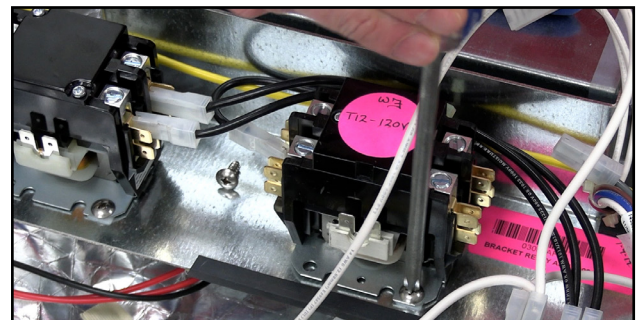


Fig.89

HA8503 Retro Control Board Installation

12. Remove the existing relay and replace with a 24V relay from the kit. (Fig.90-91)

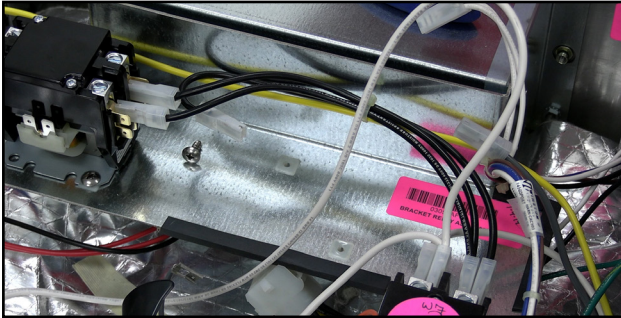


Fig.90

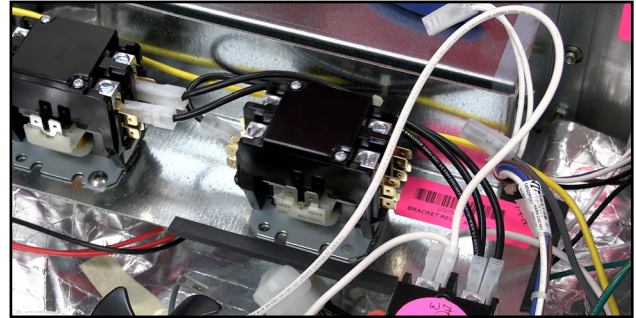


Fig.91

13. Using a Phillips screwdriver, secure the new relay. (Fig.92)

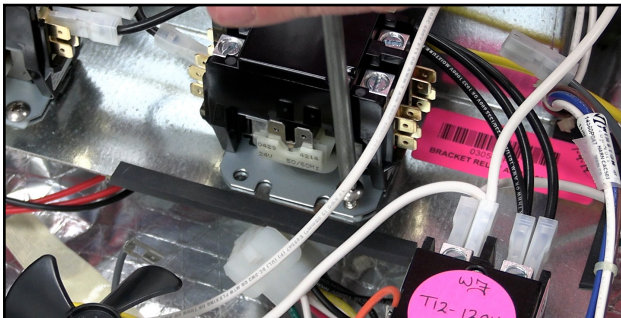


Fig.92

14. Reconnect the black wire to the right side of the new water relay. Reconnect the grey wire to the left side of the new water relay.(Fig.93-94)

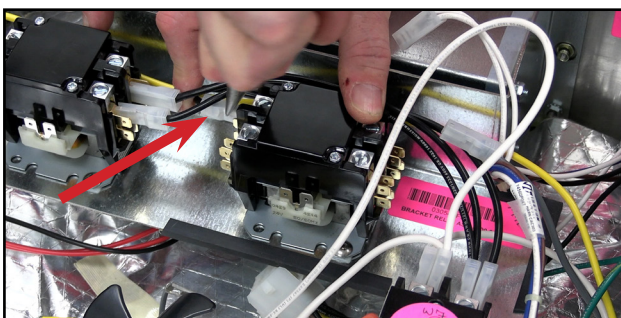


Fig.93

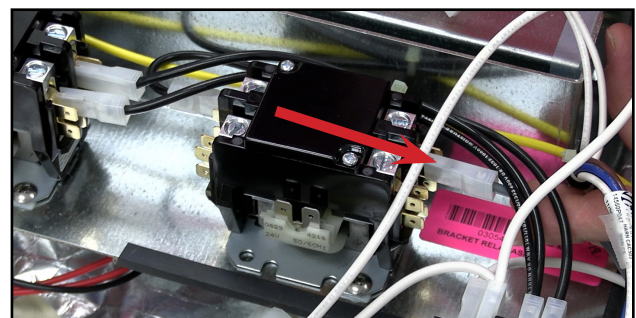


Fig.94

HA8503 Retro Control Board Installation

15. Remove the orange and red coil wires from the main relay.(Fig.95-96)

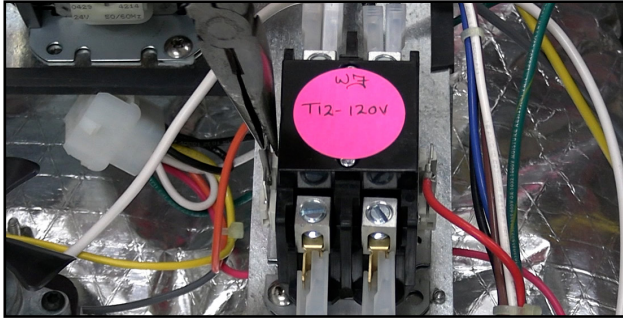


Fig.95

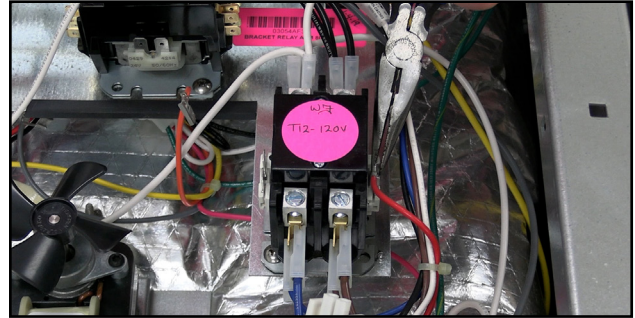


Fig.96

16. Remove the white wires and the black wires from the front side of the main relay. (Fig.97-98)

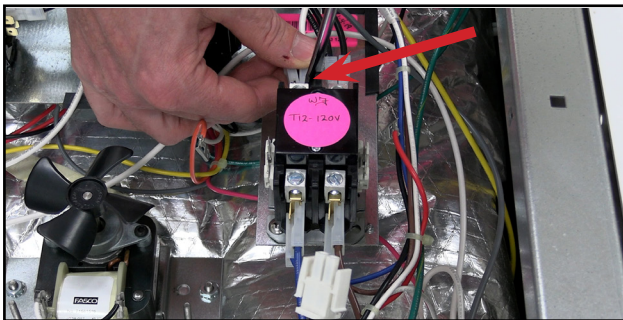


Fig.97

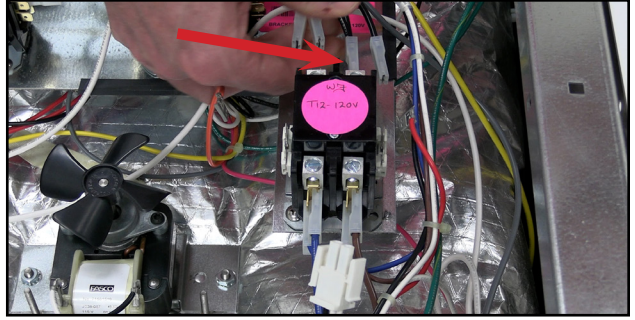


Fig.98

17. Remove the blue and brown wires from the back of the main relay. (Fig.99-100)

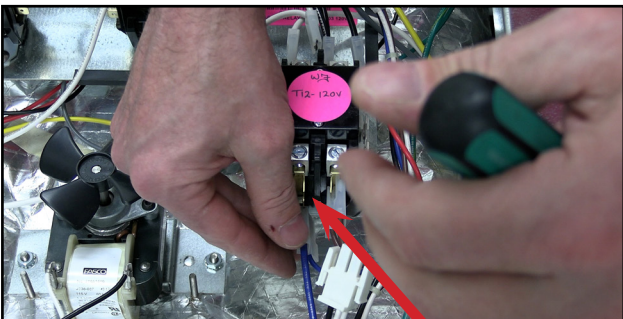


Fig.99

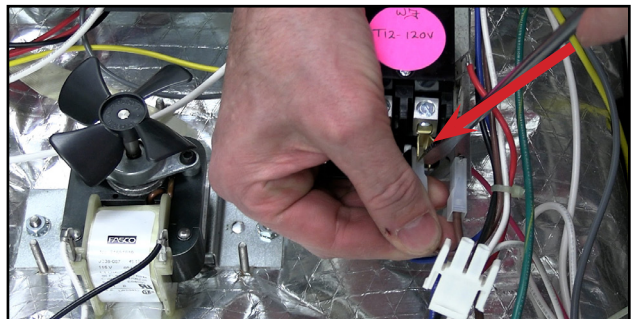


Fig.100

HA8503 Retro Control Board Installation

18. Using a Phillips screwdriver, remove the two relay retaining screws. Remove the existing main relay. (Fig.101-102)

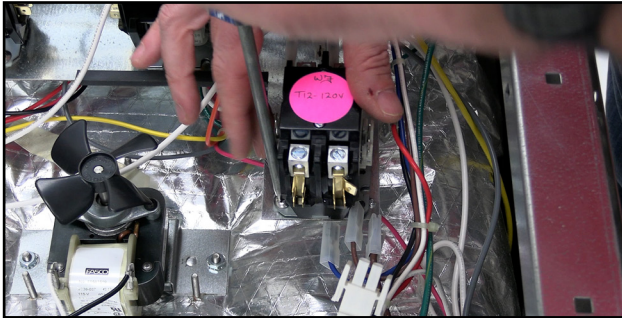


Fig.101

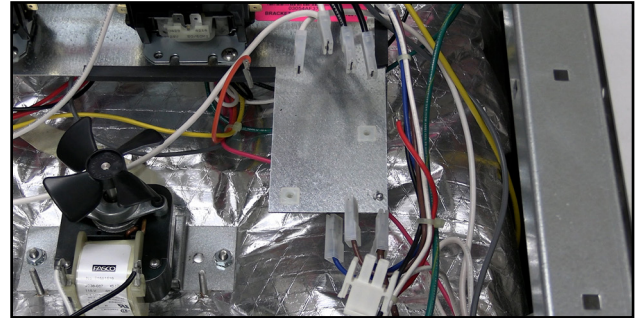


Fig.102

19. Locate the 24v new relay in the kit, and place where existing relay was. Using a Phillips screwdriver, secure the new main relay.(Fig.103-104)

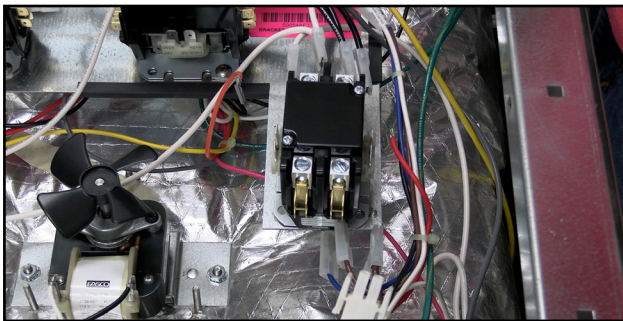


Fig.103

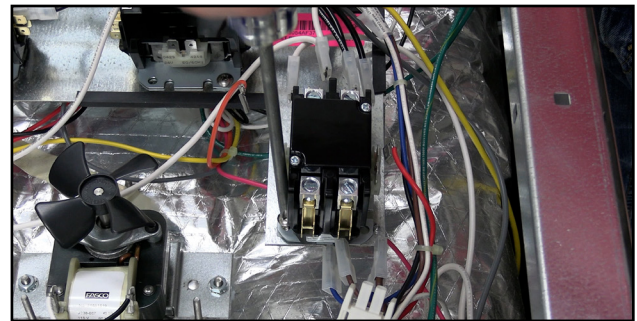


Fig.104

20. Replace the two white wires on the front right side of the new main relay. Replace the two black wires on the front left side of the new main relay.(Fig.105-106)

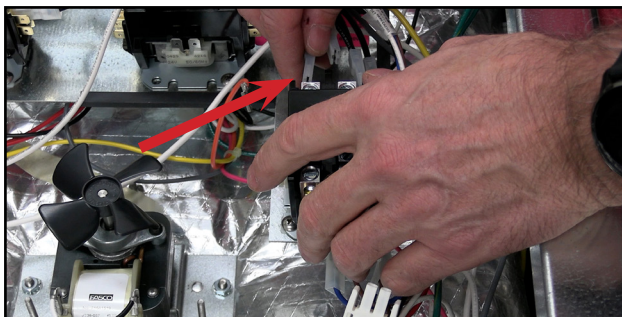


Fig.105

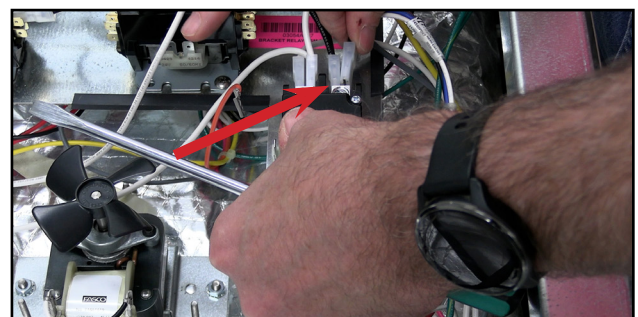


Fig.106

HA8503 Retro Control Board Installation

21. Replace the two blue wires on the rear right side of the new main relay. Replace the two brown wires on the rear left side of the new main relay.(Fig.107-108)

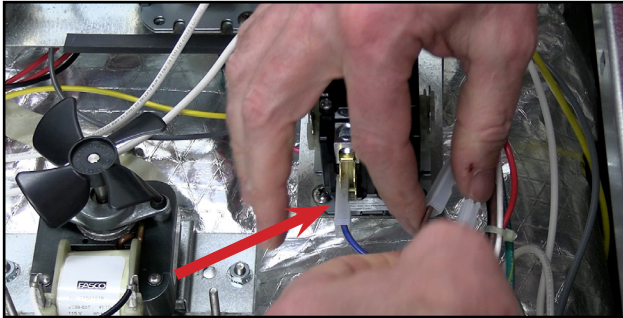


Fig.107

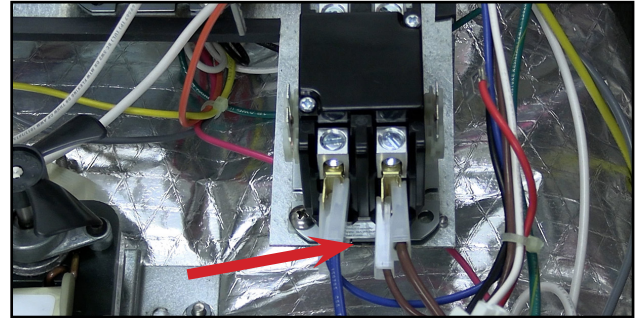


Fig.108

22. Locate the purple and white wiring harness from the kit. Locate the purple and white connection lead coming from the signal (thin wire) harness. (Fig.109-110)

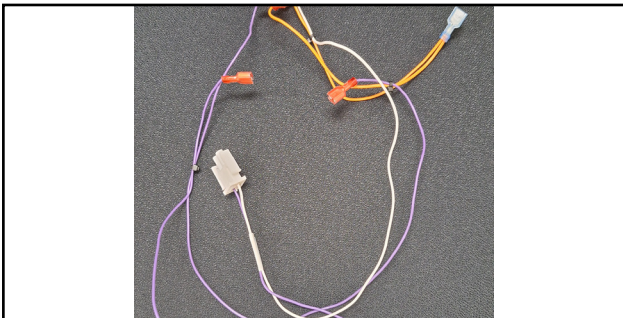


Fig.109

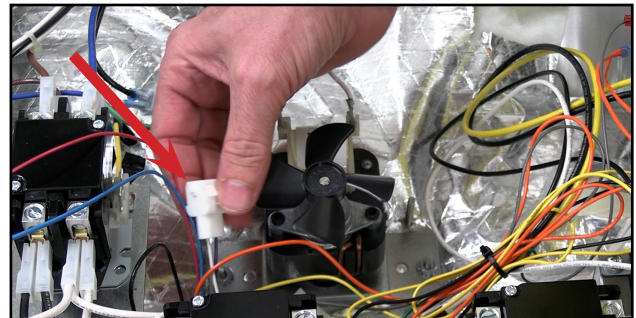


Fig.110

23. Connect the purple and white harness to the purple and white connection coming from the signal wire harness. (Fig.111)

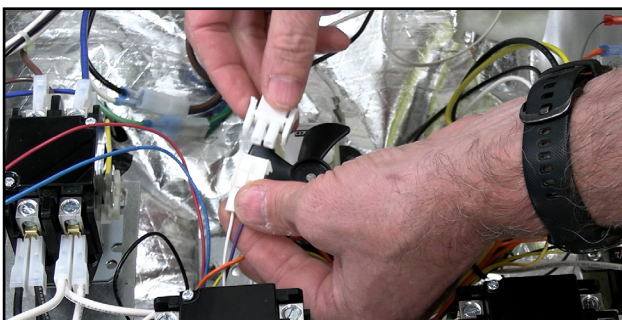


Fig.111

HA8503 Retro Control Board Installation

24. Locate the two purple wires zip tied together on the opposite end of the purple and white connection. Locate the unit high limit. It is located in the back right corner of the unit. (Fig.112-113)

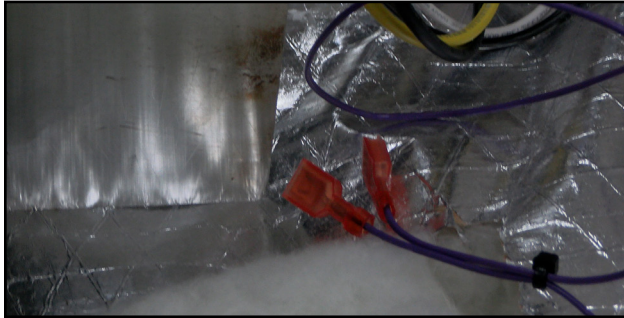


Fig.112



Fig.113

25. Remove the white and red wires from the high limit. Connect the two purple wires to the high limit. (Fig.114-115)

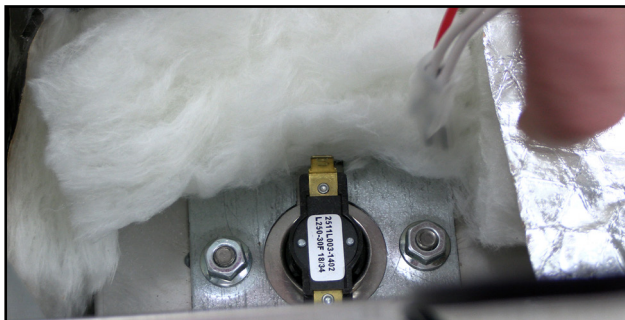


Fig.114

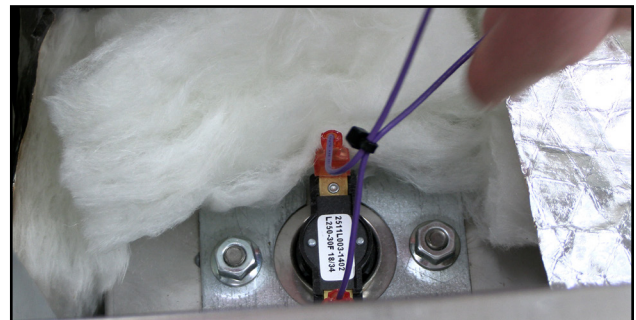


Fig.115

26. Locate the orange wire coming from the relay on the relay panel. Connect the first connection on the front side coil of the air relay (right relay). (Fig.116-117)



Fig.116

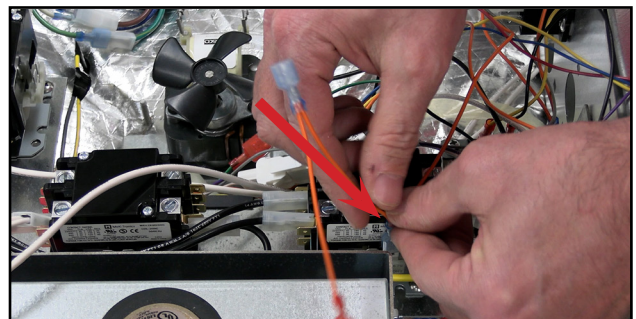


Fig.117

HA8503 Retro Control Board Installation

27. Connect the second orange connection to the front side coil of the water relay. (Middle Relay)
Locate the red signal wire coming from the main harness and connect to the back side coil of the air relay. (Right Relay)(Fig.118-119)

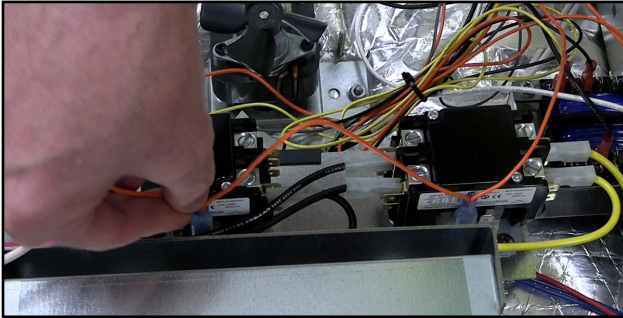


Fig.118

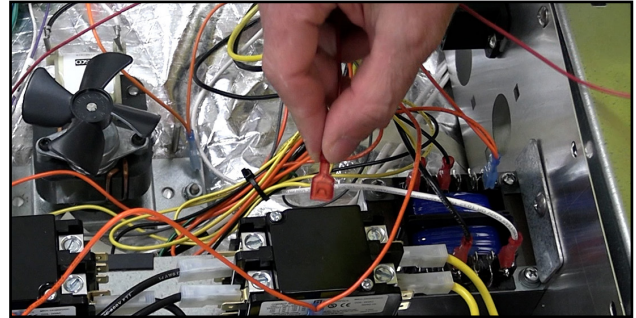


Fig.119

28. Locate the blue signal wire coming from the main harness and connect to the back side coil of the water relay. (Middle Relay) Locate the orange and purple zip tied connection coming from the purple and white wire harness.(Fig.120-121)

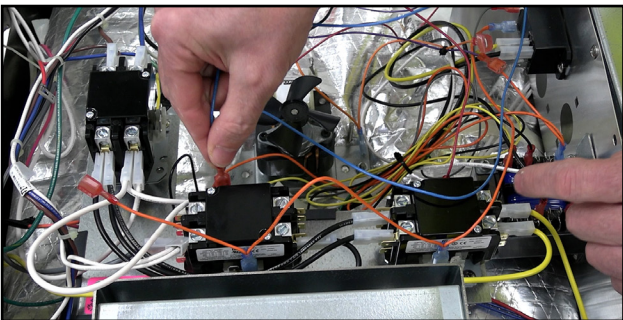


Fig.120

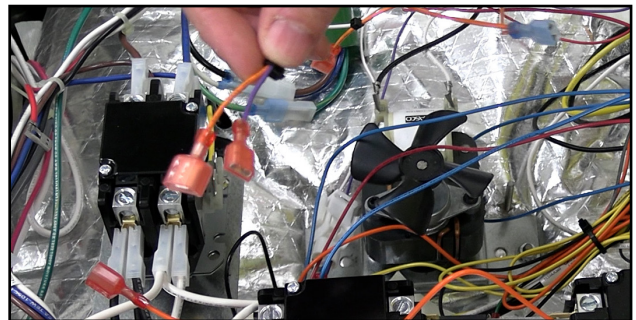


Fig.121

29. Connect the purple wire to the right side of the main relay. Connect the orange wire to the left side of the main relay. (Fig.122-123)

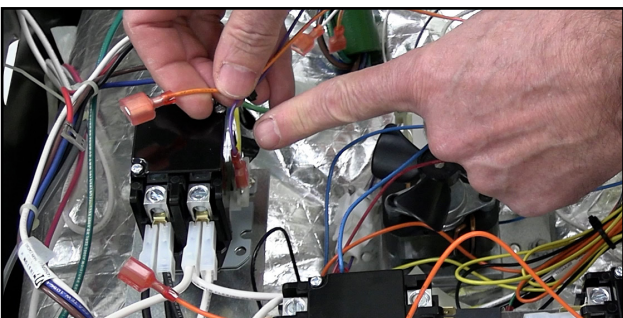


Fig.122

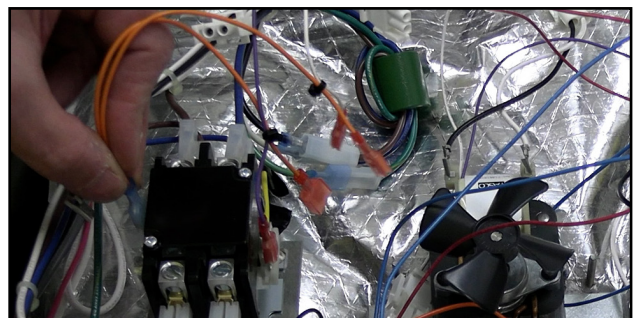


Fig.123

HA8503 Retro Control Board Installation

30. Locate the orange and white ziptied wires coming from the purple and white harness. Connect the orange wire to the male orange plug coming from the front side of the water and air relay. (Fig.124-125)

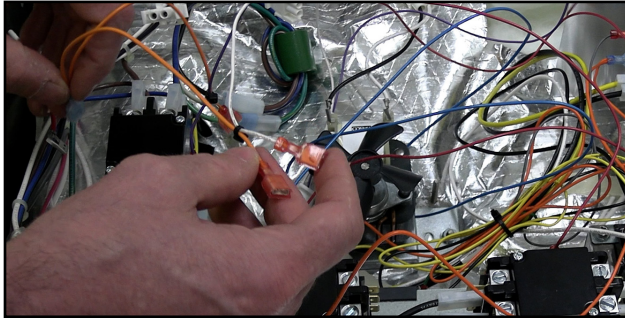


Fig.124

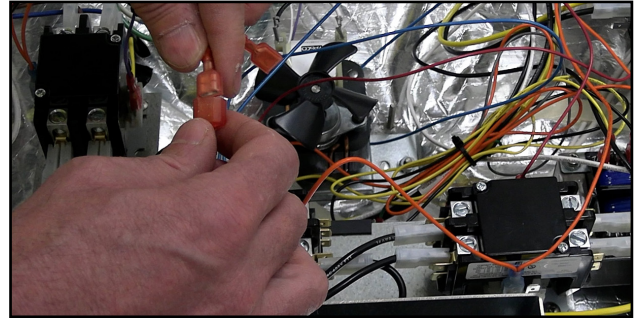


Fig.125

31. Bunch up the signal wires and zip tie together. Ensure that no wires are interfering with the fan. (Fig.126-127)

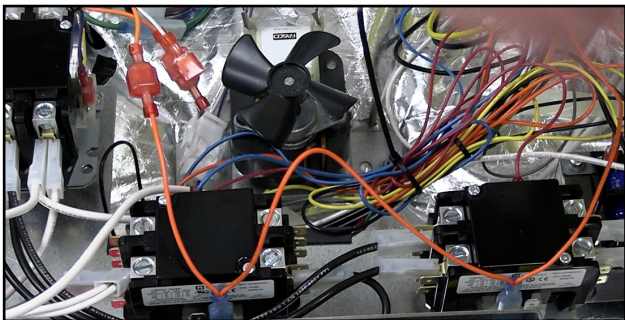


Fig.126

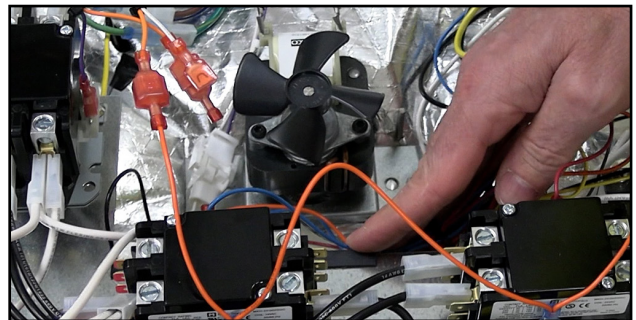


Fig.127

32. Remove the red wire that was connected to the high limit. Cap the two unused white wires. (Fig.128-129)

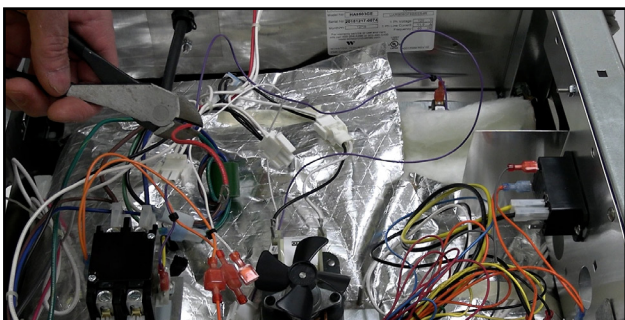


Fig.128

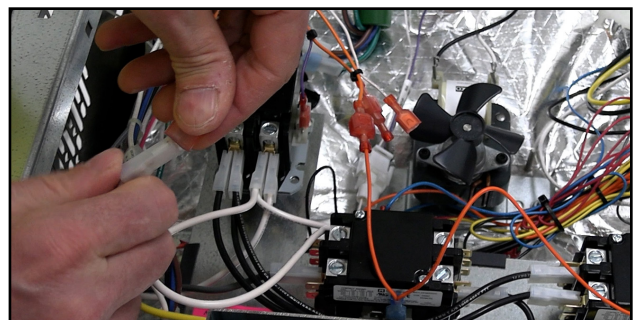


Fig.129

HA8503 Retro Control Board Installation

33. Locate the control board adapter plate and control screws in the kit. Using a Phillips screwdriver, install the adapter plate. (Fig.130-131)

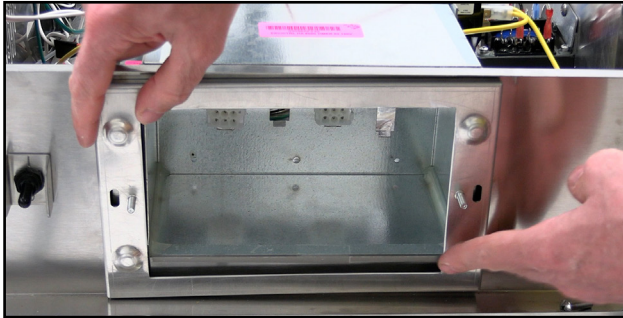


Fig.130



Fig.131

34. Locate the new control board in the kit. Connect the red and blue six pin molex connection. Connect the nine pin molex connection. (Fig.132-133)

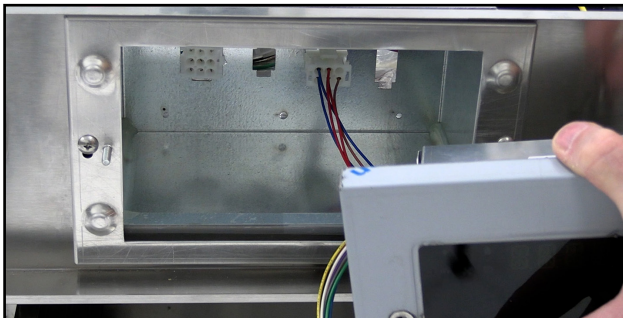


Fig.132

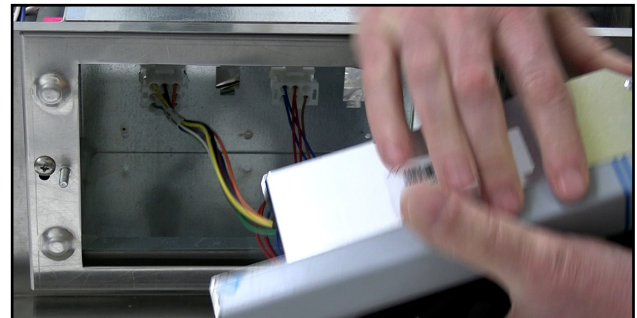


Fig.133

35. Peel the protective film then, insert the control board into the control opening. Using a 3/8" nutdriver, secure the control board to the mounting studs with the provided acorn nuts. (Fig.134-135)



Fig.134



Fig.135

HA8503 Retro Control Board Installation

36. Fill the water pan with water. Verify that there are no leaks at the water probe and water level sensor. (Fig.136-137)



Fig.136



Fig.137

37. Plug the unit into the correct voltage. (Fig.138)



Fig.138

- 38 Turn the unit on and press the blinking W.(Fig.139-140)



Fig.139



Fig.140

HA8503 Retro Control Board Installation

39. Verify that the unit is heating and operating correctly. (Fig.141-142)

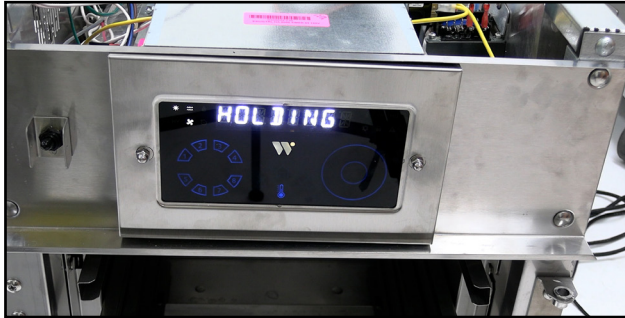


Fig.141



Fig.142

40. Using a Phillips screwdriver, replace the side access panel, and the unit top.(Fig.143-144)



Fig.143

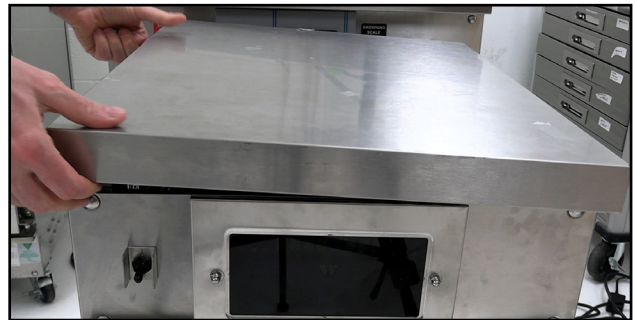


Fig.144

41. Replace the center rack, and replace the door.(Fig.145-146)



Fig.145



Fig.146

