

KIT17923

⚠ WARNING: HAZARDOUS VOLTAGE - DISCONNECT POWER BEFORE SERVICING

ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

IMPORTANT— This Document is **customer property** and is to remain with this unit. Please return to service information pack upon completion of work.

Applications

Kit is used to convert a downflow 3 stage furnace to a downflow modulating furnace.

See Table 1 for a model list of 3 stage furnaces that may be converted using KIT17923.

ADH3B060ACV3V	TDH3B060ACV3V
ADH3B080ACV3V	TDH3B080ACV3V
ADH3C100ACV4V	TDH3C100ACV4V
ADH3D120ACV5V	TDH3D120ACV5V

Safety Section

Safety signal words are used to designate a degree or level of seriousness associated with a particular hazard. The signal words for safety markings are **WARNING**, and **CAUTION**.

- WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious personal injury.
- CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It is also used to alert against unsafe practices and hazards involving only property damage.

⚠ WARNING

SAFETY HAZARD
THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A CENTRAL AIR CONDITIONING PRODUCT MAY RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION OF THIS INFORMATION, NOR CAN IT ASSUME ANY LIABILITY IN CONNECTION WITH ITS USE.

⚠ WARNING

FIRE OR EXPLOSION HAZARD
FAILURE TO FOLLOW THE SAFETY WARNINGS EXACTLY COULD RESULT IN SERIOUS INJURY, DEATH OR PROPERTY DAMAGE.
IMPROPER SERVICING COULD RESULT IN DANGEROUS OPERATION, SERIOUS INJURY, DEATH, OR PROPERTY DAMAGE.

⚠ CAUTION

The IFC is polarity sensitive. The hot leg of the 115 VAC power must be connected to the BLACK field lead.

⚠ WARNING

This product can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects of other reproductive harm. For more information go to www.p65Warnings.ca.gov.

⚠ WARNING

THE CABINET MUST HAVE AN UNINTERRUPTED OR UNBROKEN GROUND ACCORDING TO NATIONAL ELECTRICAL CODE, ANSI/NFPA 70 - "LATEST EDITION" AND CANADIAN ELECTRICAL CODE C22.1 OR LOCAL CODES TO MINIMIZE PERSONAL INJURY IF AN ELECTRICAL FAULT SHOULD OCCUR. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN SERIOUS PERSONAL INJURY, PROPERTY DAMAGE, OR DEATH.

⚠ WARNING

ELECTRIC SHOCK HAZARD
DISCONNECT POWER TO THE UNIT BEFORE REMOVING THE BLOWER DOOR. ALLOW A MINIMUM OF 10 SECONDS FOR IFC POWER SUPPLY TO DISCHARGE TO 0 VOLTS. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

⚠ WARNING

SAFETY HAZARD
BODILY INJURY CAN RESULT FROM HIGH VOLTAGE ELECTRICAL COMPONENTS, FAST MOVING FANS, AND COMBUSTIBLE GAS. FOR PROTECTION FROM THESE INHERENT HAZARDS DURING INSTALLATION AND SERVICING, THE ELECTRICAL SUPPLY MUST BE DISCONNECTED AND THE MAIN GAS VALVE MUST BE TURNED OFF. IF OPERATING CHECKS MUST BE PERFORMED WITH THE UNIT OPERATING, IT IS THE TECHNICIANS RESPONSIBILITY TO RECOGNIZE THESE HAZARDS AND PROCEED SAFELY.

⚠ CAUTION

Sharp Edge Hazard. Be careful of sharp edges on equipment or any cuts made on sheet metal while installing or servicing. Personal injury may result.

Installer's Guide

Kit 17923

Components for KIT17923 (Downflow)

No.	Qty.	Drawing Number	Description
1	1	D156805P01	Igniter SiNi
2	1	D343647P02	Harness-Wire, DF, 90 3 STG
3	1	D158118P01	PCB Assembly, XC95m
4	1	B330748P10	Switch, Flame Rollout
5	1	D344939P02	Harness, wiring, DF 90-3 St
6	1	18-CH89D1-1	Installation Instructions
7	1	D343630G05	Label Asm-Blower Door DF
8	3	N156P1506B	Screw, 8-18 AB HWH 3/8
9	4	A138030P01	Wire Tie
10	1	A341948P02	Bracket, SiNi Igniter
11	1	D343626G25	Personality Module Asm *DHMB060
12	1	D343626G35	Personality Module Asm *DHMB080
13	1	D343626G31	Personality Module Asm *DHMC100
14	1	D343626G26	Personality Module Asm *DHMD120
15	1	B341900P02	Harness-Wire, 2 pin DF
16	1	B341900P06	Harness-Wire, 2 pin DF
17	1	D345731P01	Mnemonic label

* May be "A" or "T"

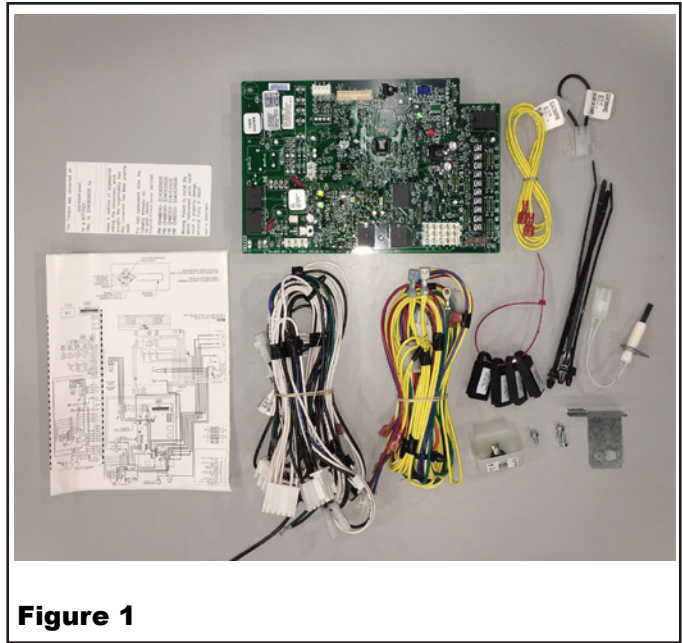


Figure 1

Preparing furnace for new kit

Step 1. Verify furnace model is in Table 1 and may be converted.

⚠ WARNING

ELECTRIC SHOCK HAZARD

Disconnect power to the unit before removing the blower door. Allow a minimum of 10 seconds for IFC power supply to discharge to 0 volts. Failure to follow this warning could result in property damage, personal injury or death.

Step 2. Turn off all power to the furnace.

Step 3. Remove the blower and burner door panels.

Step 4. Remove the cover on the junction box.

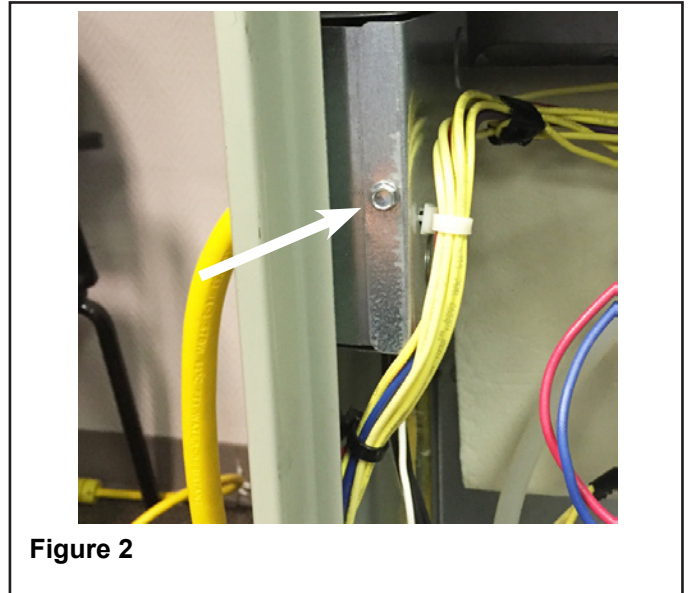


Figure 2

Step 5. Inside the junction box, disconnect the black wires (EAC, HUM, and LINE) and the white wire (Neutral).

Step 6. Remove the grommet at the bottom of the junction box and pull all wires through the junction box. Save the grommet for later reinstallation.

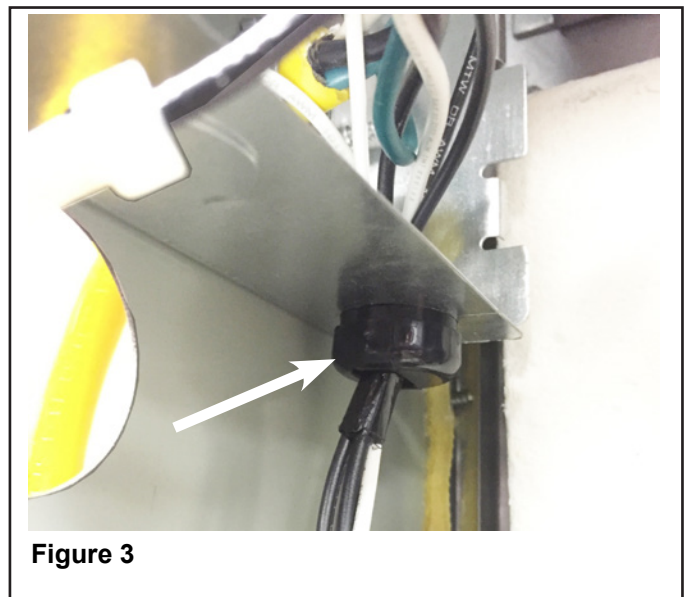


Figure 3

Step 7. Remove the screws securing the burner box cover. Remove and retain the burner box cover and screws for later reinstallation.

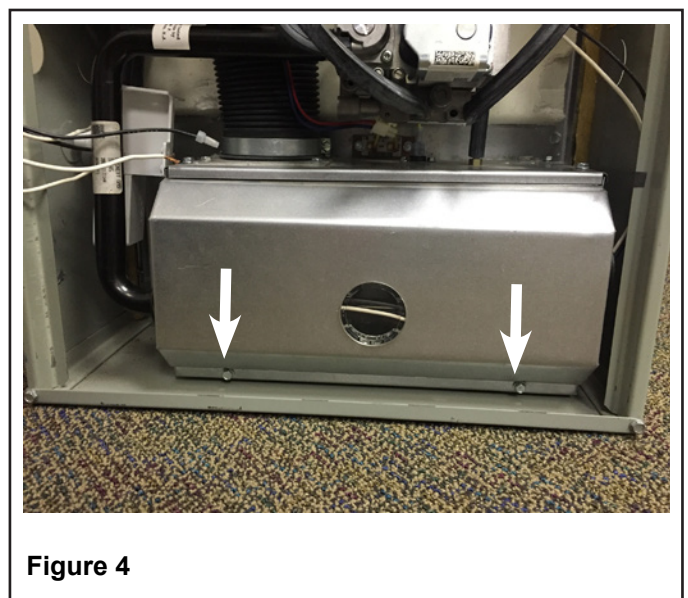


Figure 4

Installer's Guide

Step 8. Cut the wire ties holding the igniter/flame sensor wires onto the burner manifold.

Step 9. Disconnect the igniter and flame sensor wires.

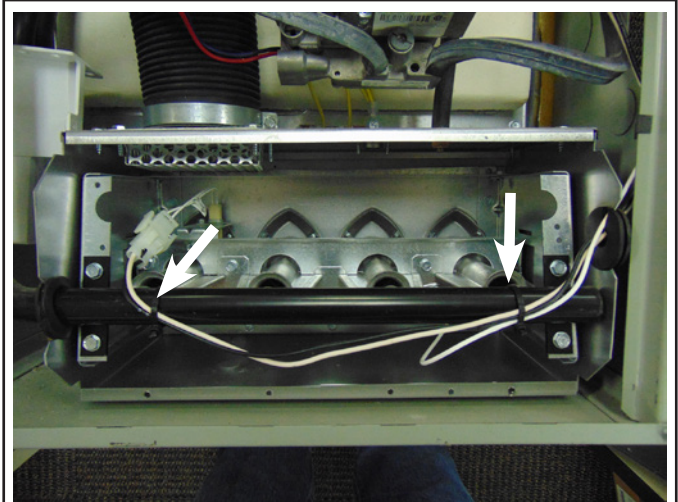


Figure 5

Step 10. Remove the two 1/4" hex head screws holding the igniter assembly and retain for later reinstallation. Remove the igniter and bracket assembly and discard.

Step 11. Install the new 120 Volt igniter and bracket assembly using the screws from the previous step.

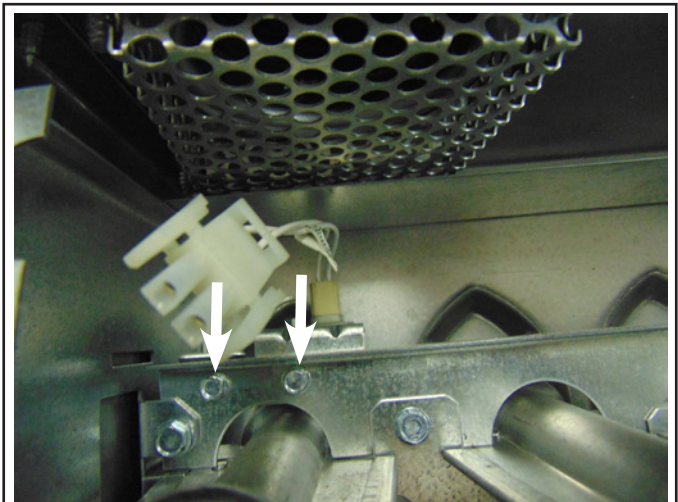


Figure 6

Step 12. Remove the igniter, ground, and flame sensor wires from the grommet and cabinet retaining clips.

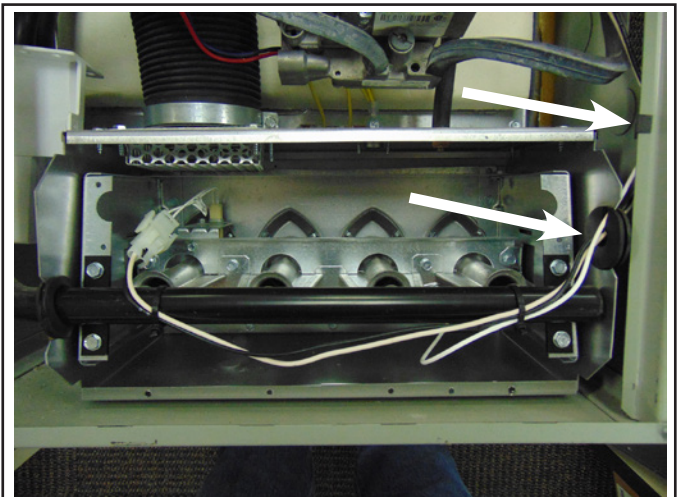


Figure 7

- Step 13.** Unplug the draft inducer wire connector.
- Step 14.** Disconnect the wires from the draft inducer limit switch.

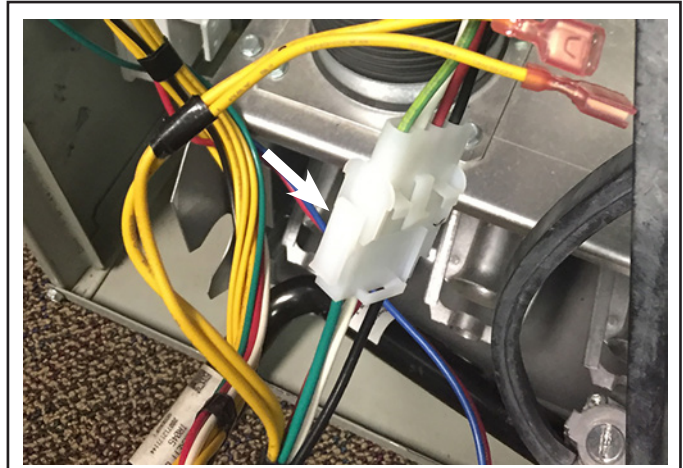
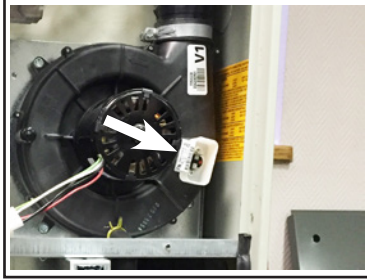


Figure 8

- Step 15.** Remove wires from the primary limit switch.

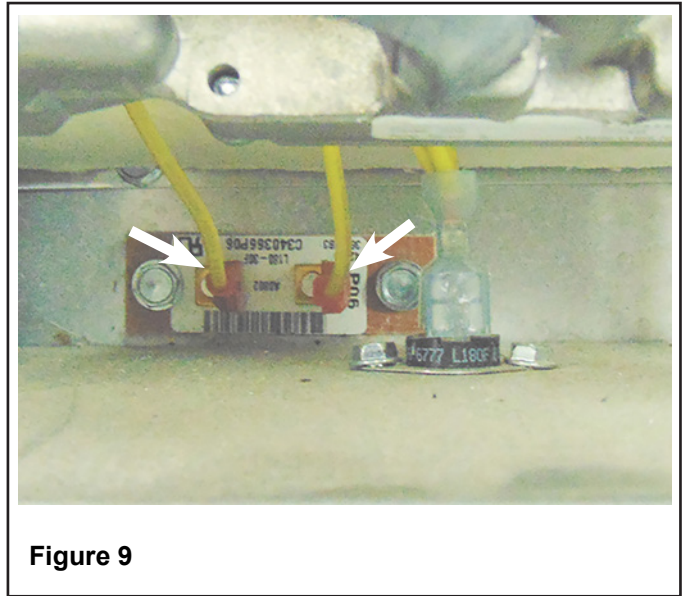


Figure 9

- Step 16.** Remove wires from the burner box limit switch.
- Step 17.** Remove the manual reset burner box limit switch. Retain screws.

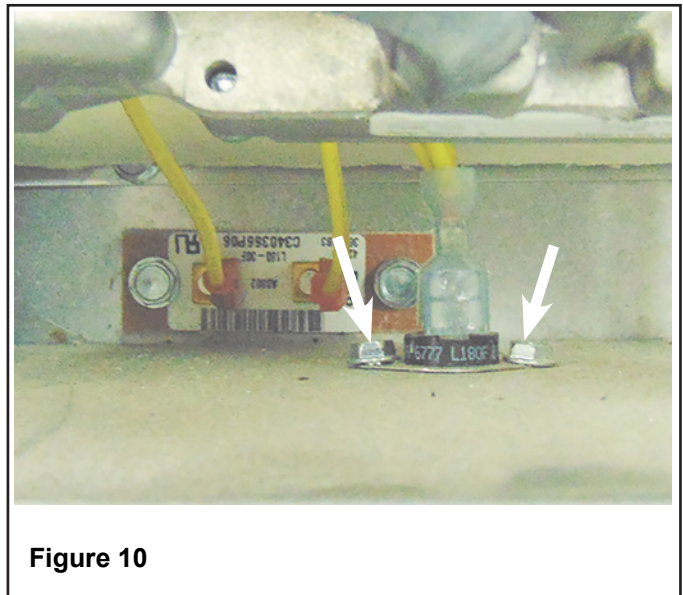


Figure 10

Installer's Guide

Step 18. Using the screws from the previous step, install the new auto reset burner box limit switch.

NOTE: The gas manifold assembly may be removed at this time for easier installation of the roll-out switch, primary limit switch, and the roll-out switch connections.

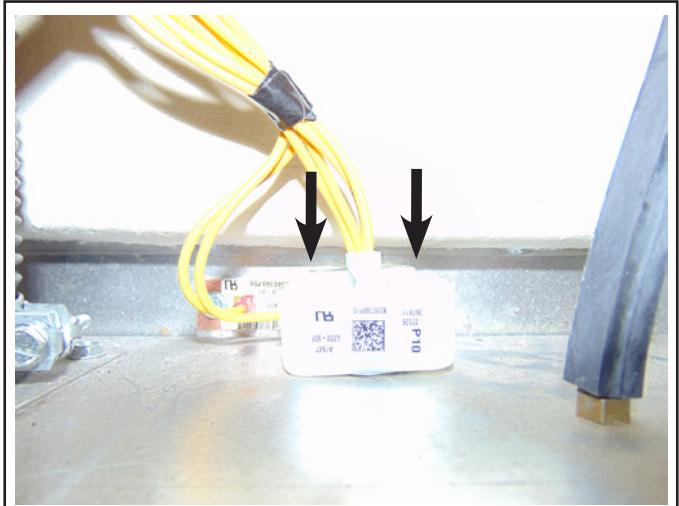


Figure 11

Step 19. Disconnect the wires to the gas valve.

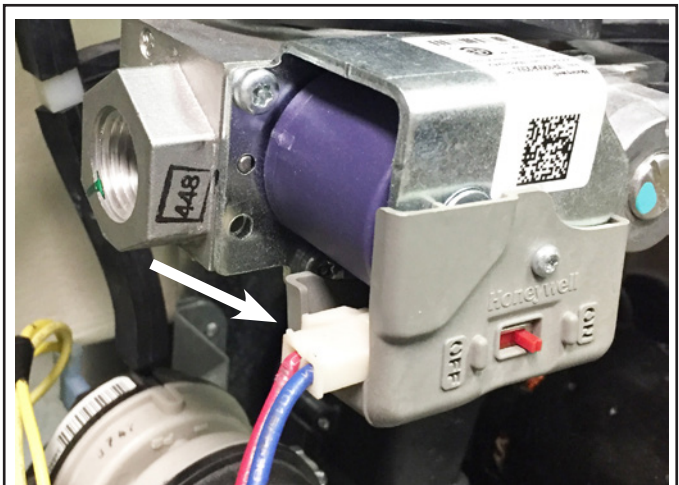


Figure 12

Step 20. Remove the ground wires that are connected to the blower deck by the fresh air intake.

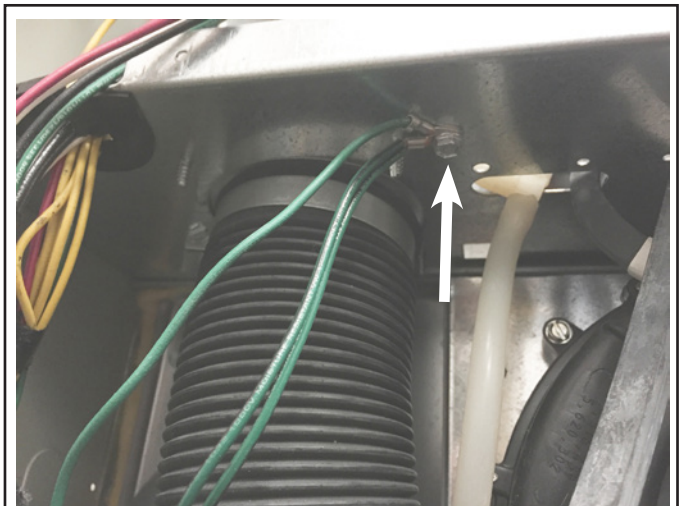


Figure 13

Step 21. Remove the harness retainer from the junction box cover.

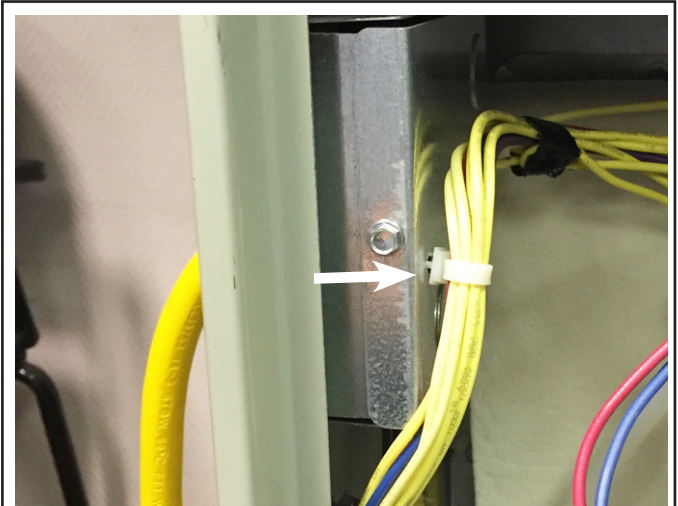


Figure 14

Step 22. Remove the wire harness from the grommet in the blower deck.

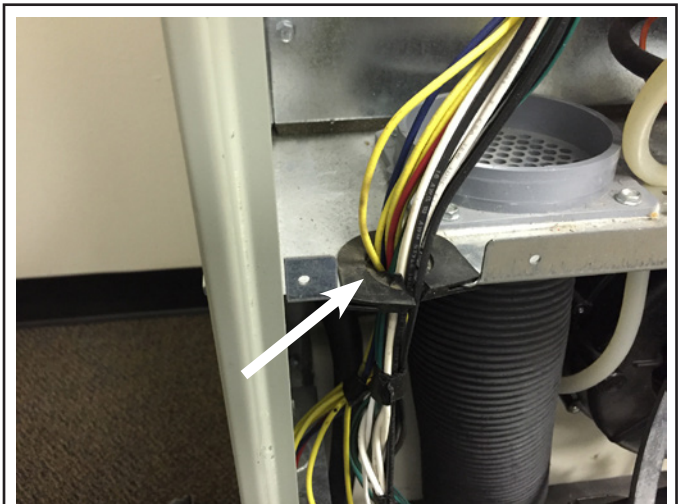


Figure 15

Step 23. Remove the wires from pressure switch 1 (PS1).



Figure 16

Installer's Guide

Step 24. Remove the wires from the double pressure switch (PS2 & PS3).

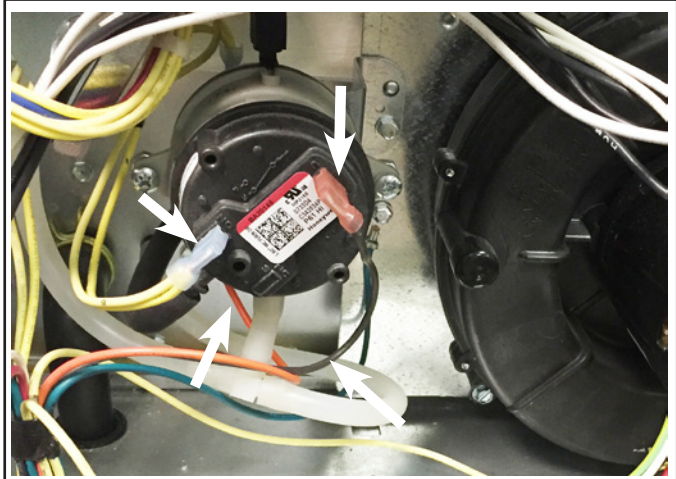


Figure 17

Step 25. Disconnect the thermostat wires from the IFC.

Step 26. Disconnect the indoor blower wire harness (9-pin connector).

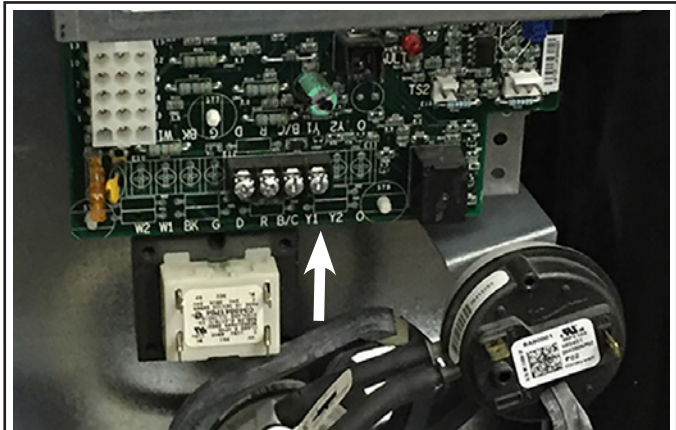
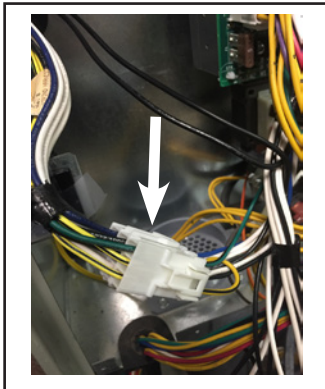


Figure 18

Step 27. Remove the LCD display.

1. Press release clip on the display assembly and remove from the bracket.
2. Disconnect the gray ribbon cable from the IFC.

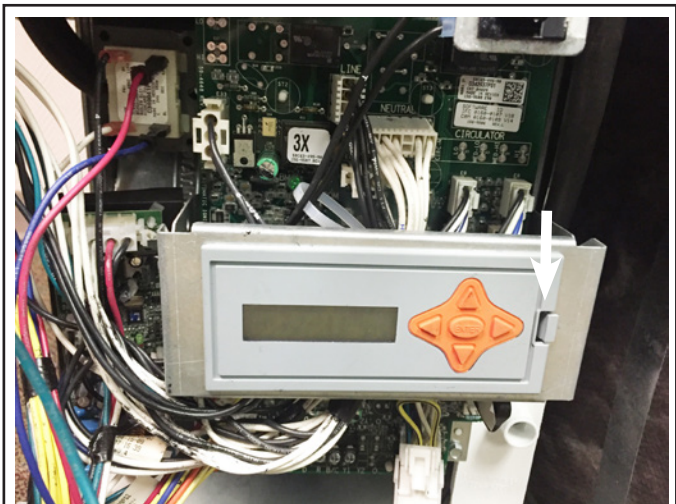


Figure 19

Step 28. Remove the two black wires from the door switch.

Step 29. Remove the following connectors from the IFC:

- 3 pin connector (E33)
- Line connector (LINE)
- Neutral connector (NEUTRAL)
- 2 pin connector (E20)
- 4 pin connector (E8)
- 4 pin connector (E9) - Communication cable
- 15 pin connector (E18)

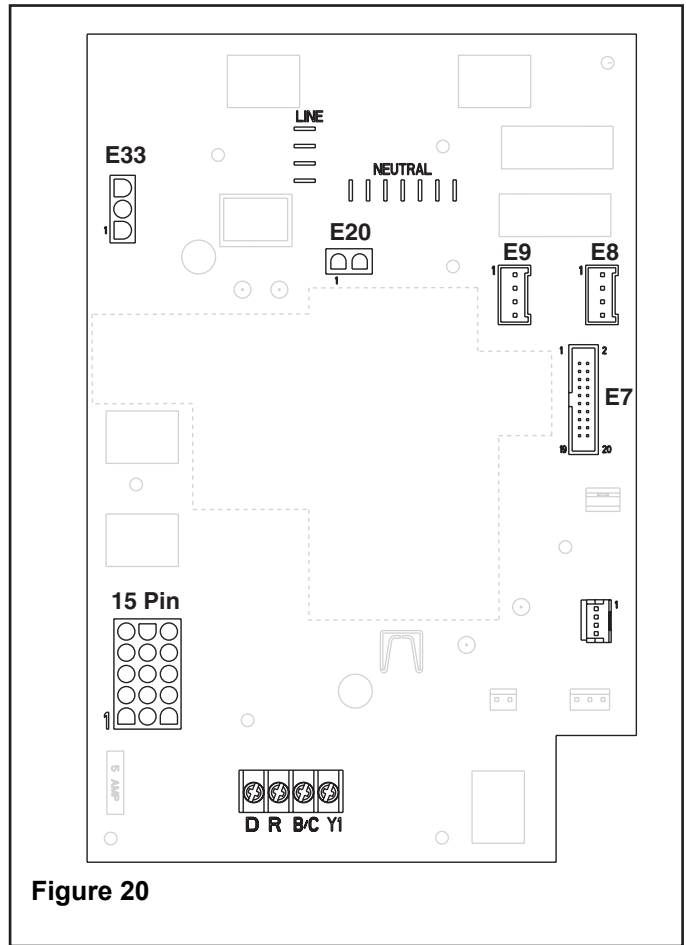


Figure 20

Step 30. Remove the voltage connection on the draft inducer board (smaller board).

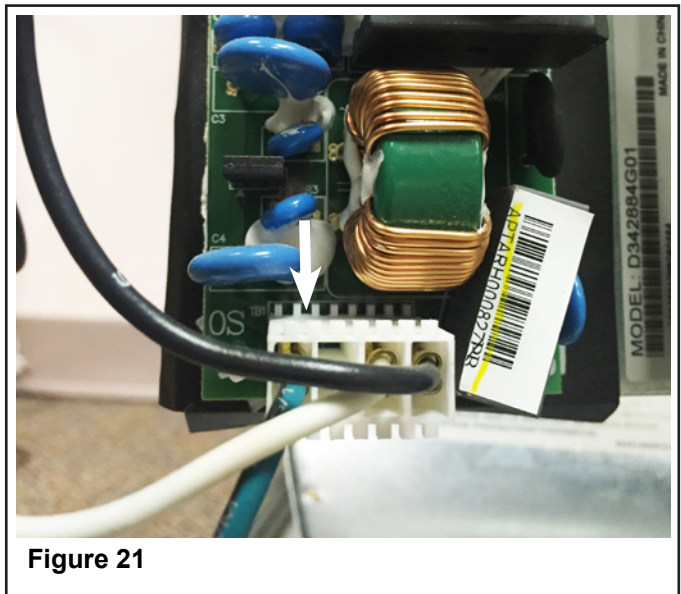


Figure 21

Installer's Guide

Step 31. Remove the draft inducer wiring harness from the draft inducer board (smaller board).

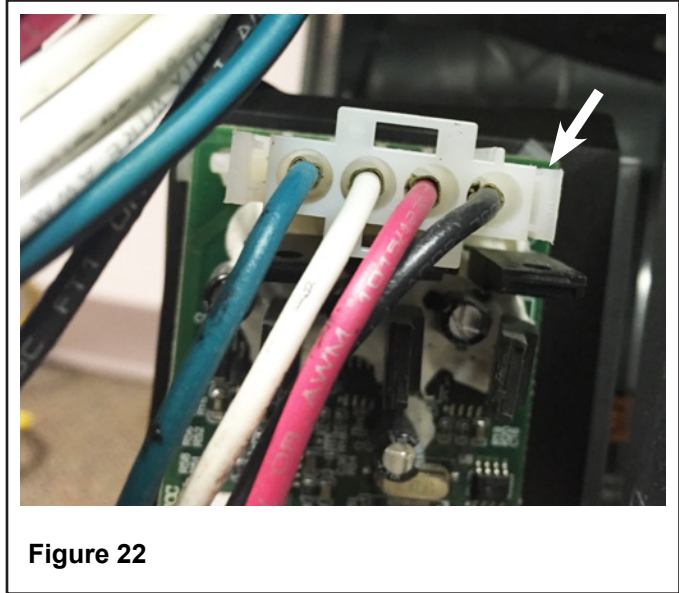


Figure 22

Step 32. Remove the four connectors from the transformer.

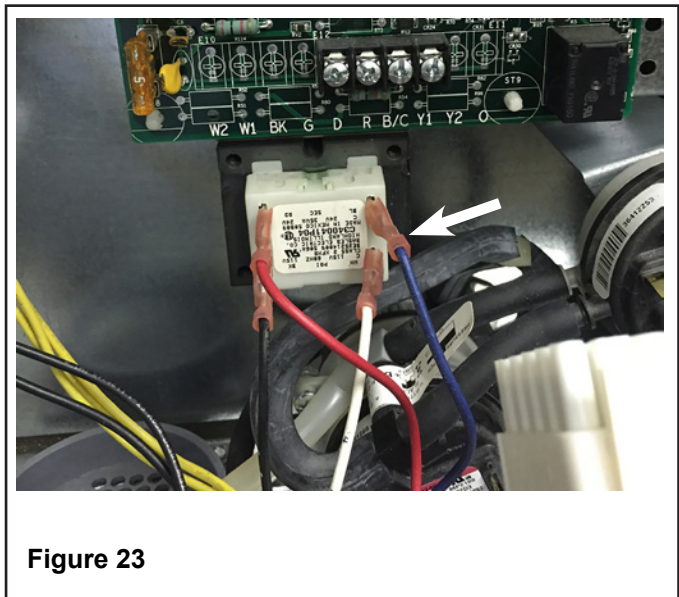


Figure 23

Step 33. Disconnect the fresh air intake and exhaust vent pipes from the furnaces. Remove the screws from the furnace exhaust pipe. Loosen the hose clamp for the connection of the flue pipe to the draft inducer. See Figure 24. Remove the flue pipe and retain.

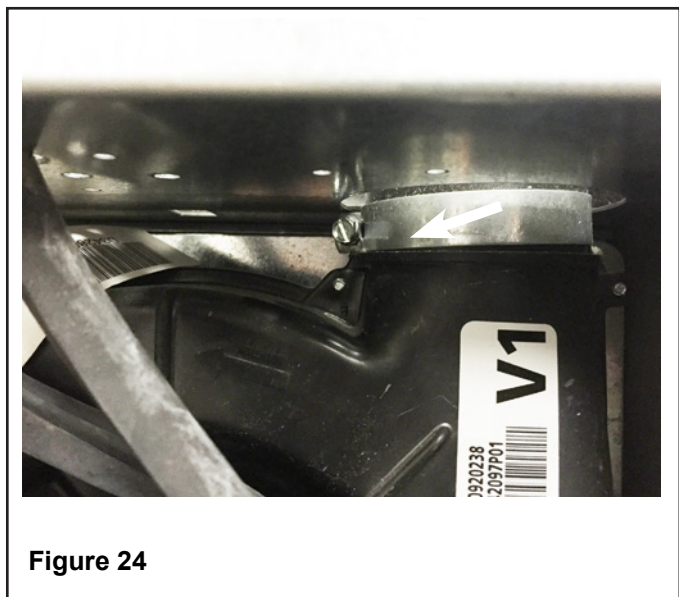


Figure 24

Step 34. Remove the three screws holding the IFC platform and retain for later use.



Figure 25

Step 35. Remove the IFC by depressing each of the standoffs to release them from the IFC board.

NOTE: The new board CNT07080 comes with standoffs installed.

Step 36. Remove extra standoffs. Either remove the old standoffs off the IFC mount bracket and use the new standoffs OR remove the new standoffs on the replacement IFC.

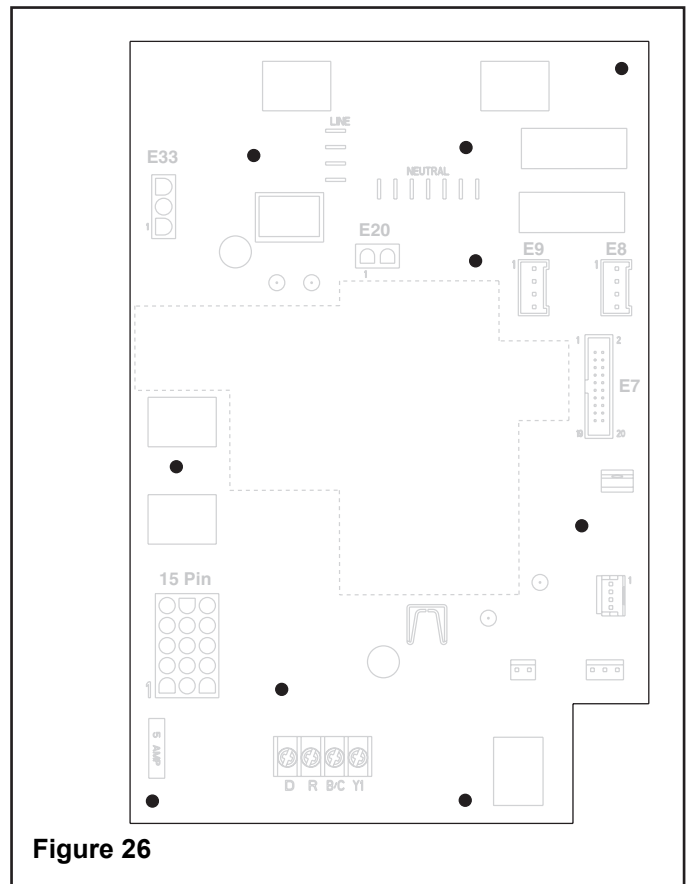
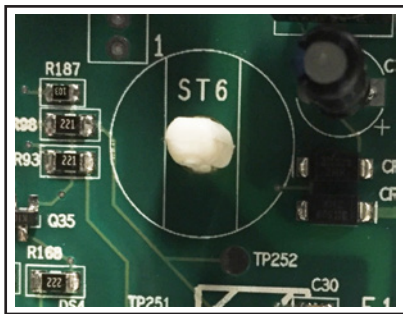
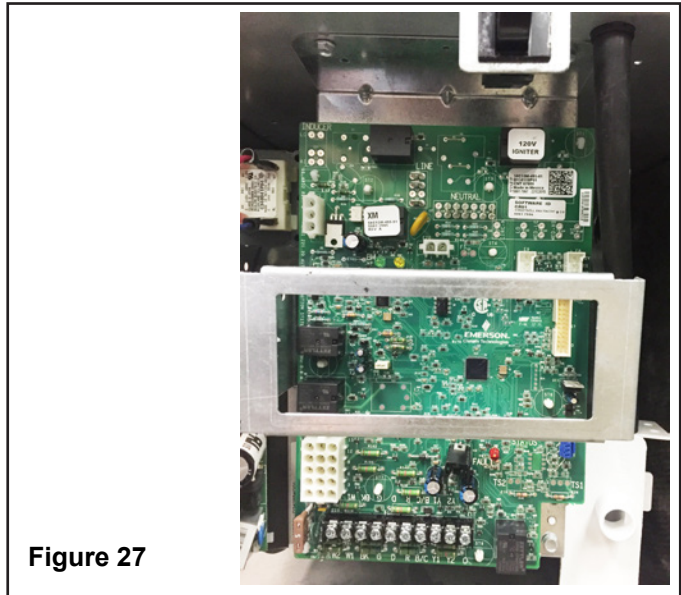


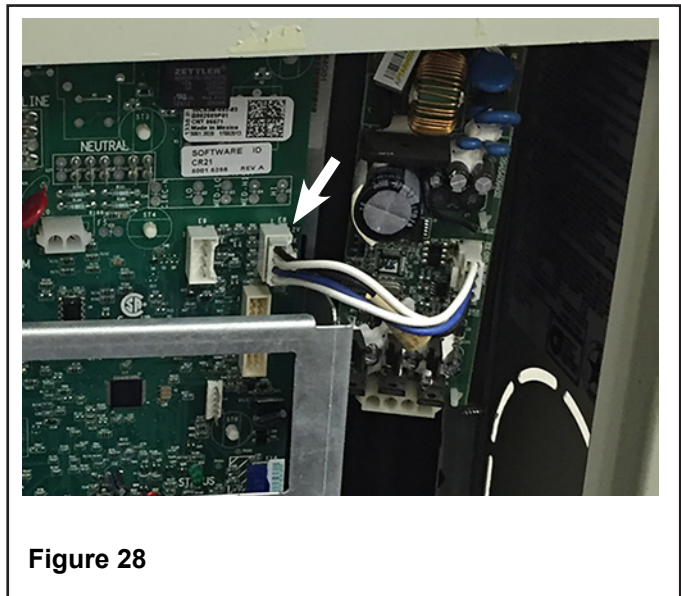
Figure 26

Installer's Guide

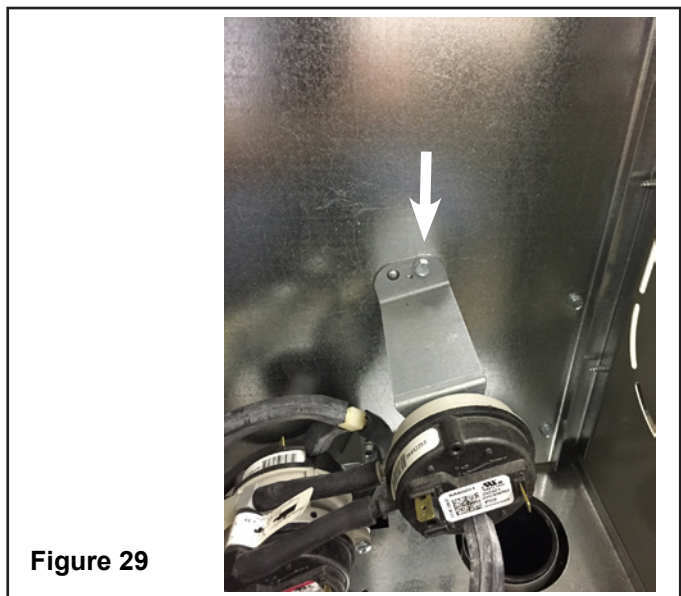
Step 37. Install the new CNT07080 IFC board. Snap in place making sure the IFC board is properly seated into all the standoffs on the IFC mount bracket.



Step 38. Reconnect the 4 pin connector communication cable to the E8 connector on the IFC.

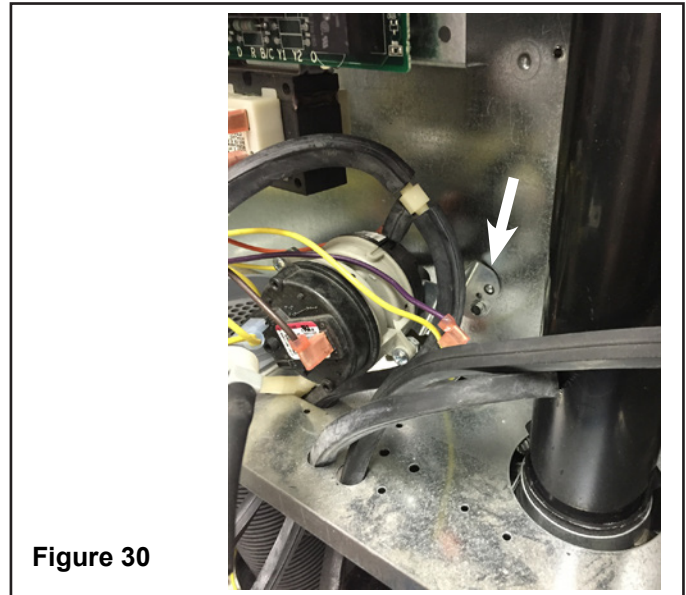


Step 39. Remove the mounting screws on PS1 mounting bracket from the inner blower door. Retain parts for later reinstallation.

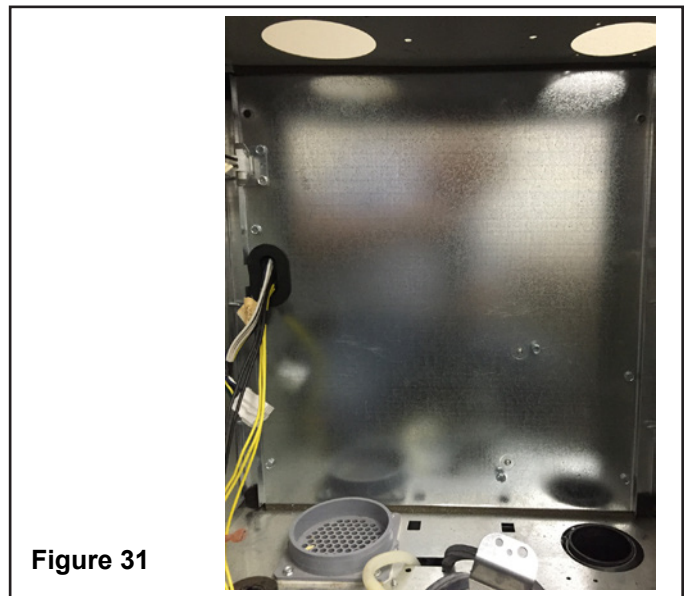


Step 40. Remove the mounting screws on the PS2/PS3 mounting bracket from the inner blower door. Retain parts for later reinstallation.

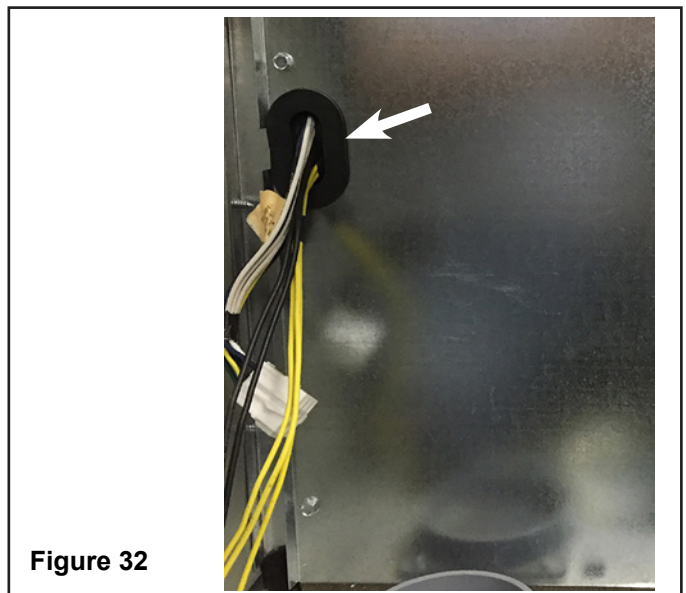
Move the pressure switch assemblies out of the way.



Step 41. Remove the screws securing the inner blower door and retain for later reinstallation.

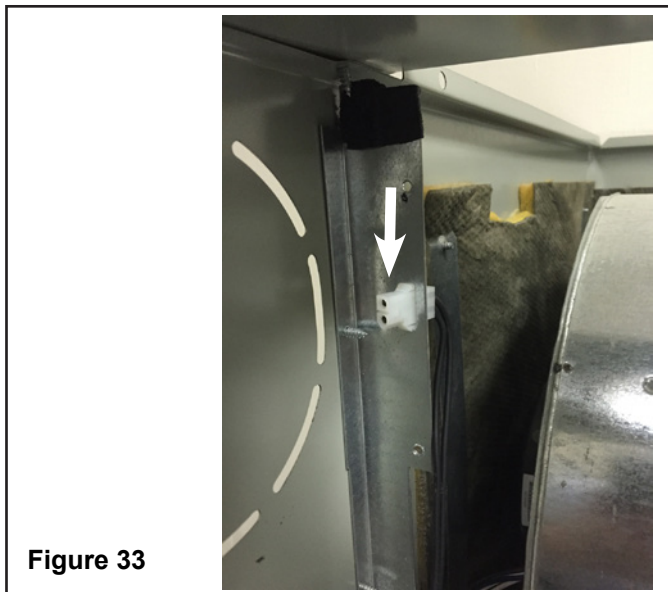


Step 42. Remove the inner blower door and thread wires through grommet.

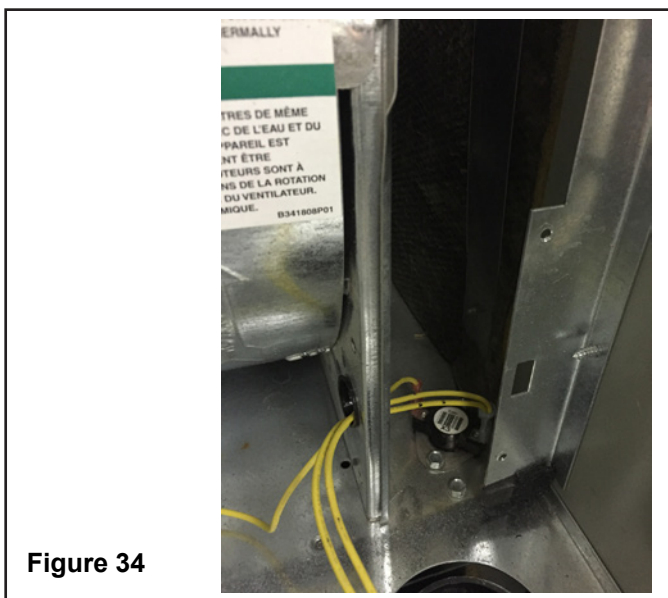


Installer's Guide

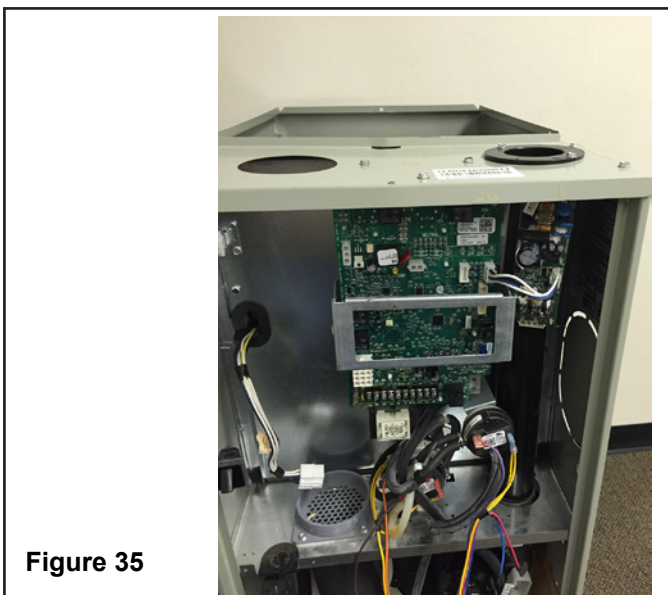
Step 43. Remove the inner blower door interlock connection.



Step 44. Remove the wires from the reverse flow switch.



Step 45. Remove the low voltage and high voltage wire harnesses from the furnace.



Step 46. Remove the left side inner blower door support. To remove the support, remove the screws on the outside of the furnace cabinet. Retain the screws.

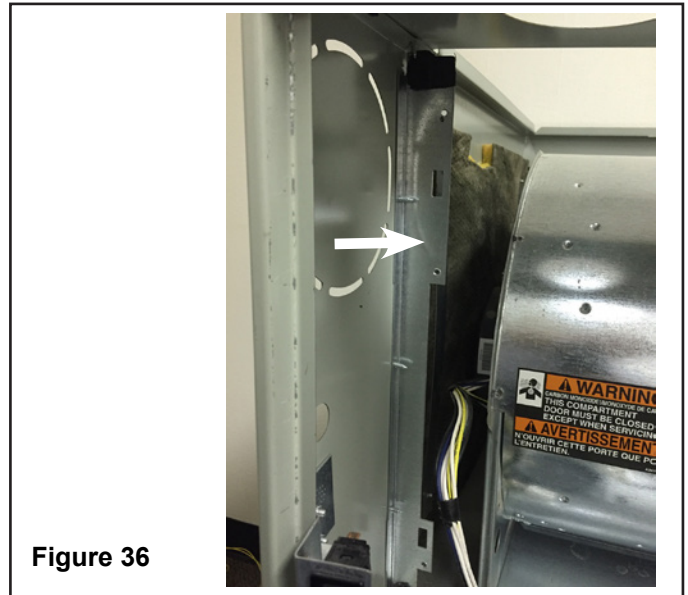


Figure 36

Step 47. Install the new left side inner blower door support using the screws removed in the previous step.

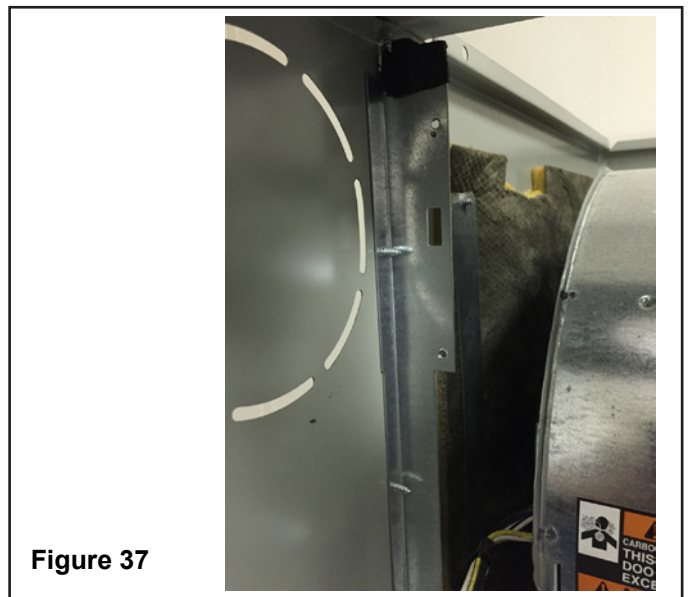


Figure 37

Step 48. Remove the inner blower door interlock connector from the inner door panel. This connector will have a loop or jumper wire.

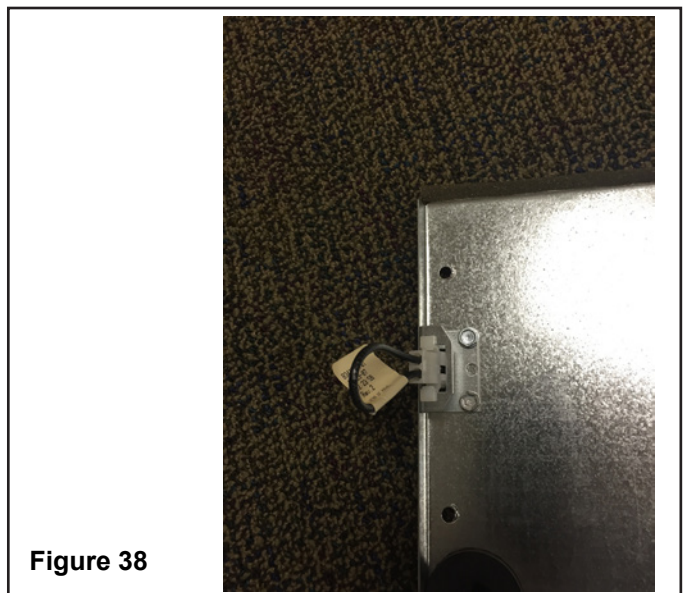
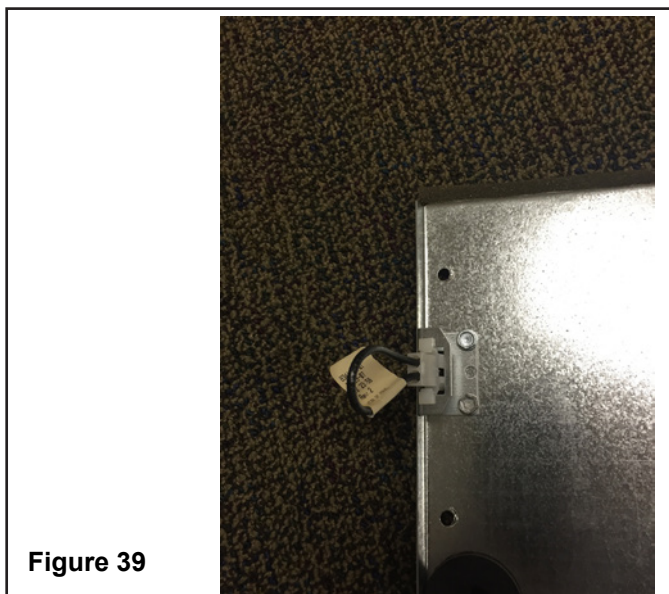


Figure 38

Installer's Guide

Step 49. Install the new inner blower door interlock connector onto the inner blower door panel.



Installing the new kit

Step 1. Locate the low voltage wire harness with 2-pin molex plug on one end and 1/4" 90 degree flag terminals on the other end.

Step 2. Thread the two yellow wires with the 1/4" 90 degree flag terminals through the two holes in the blower housing.

Step 3. Connect the two yellow wires with 90 degree flag terminals onto the reverse flow switch.

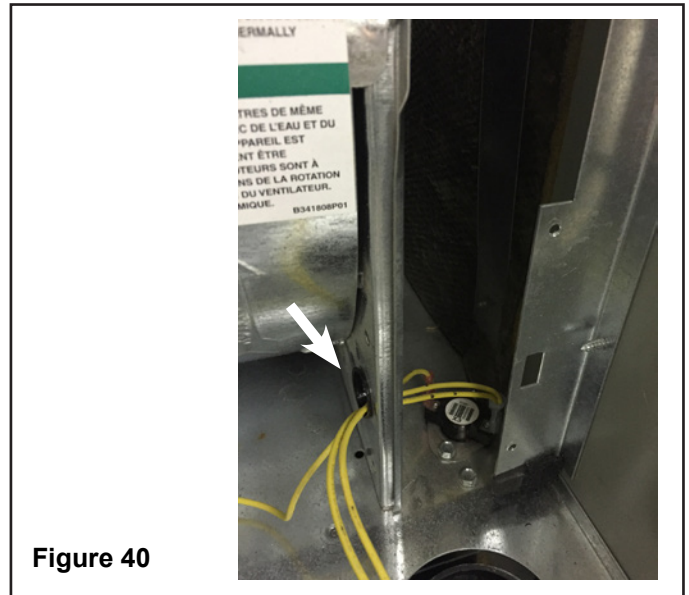


Figure 40

Step 4. On the high voltage wire harness, locate the 2-pin molex plug with black wires labeled #10 and #1 for the inner blower interlock connection. Insert into the square opening of the new inner blower door support installed earlier.

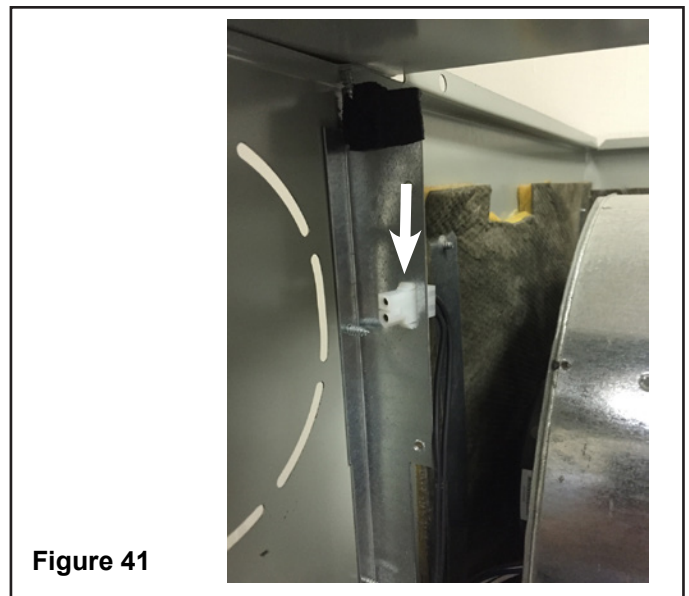


Figure 41

Step 5. Reinstall the inner blower door. Thread reverse flow switch leads, the two black interlock connection leads, and the 9-pin blower connector leads through the rubber grommet on the inner blower door.



Figure 42

Installer's Guide

Step 6. Reinstall the screws holding the inner blower door in place.

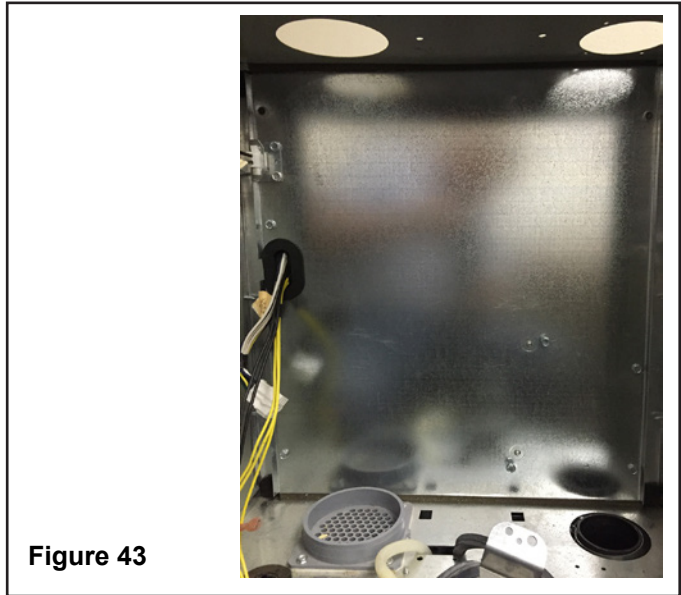


Figure 43

Step 7. Reinstall the flue pipe into the inducer and tighten clamp. Reinstall the two screws on the flue pipe into the top panel.

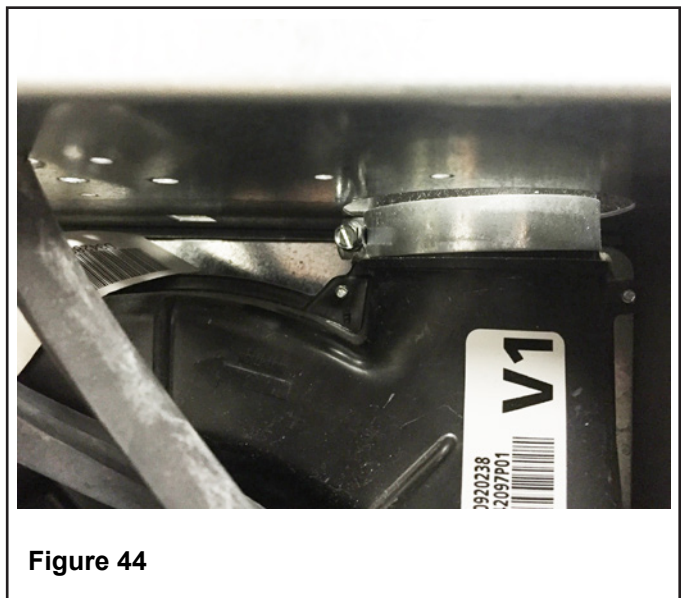


Figure 44

Step 8. On the low voltage harness labeled DHM-LONG, locate the two yellow wires labeled #6 and #6 with 90 degree flag terminal.

Step 9. Attach the 90 degree flag terminal onto the C terminal on PS2.

Step 10. Locate the orange wire with 90 degree flag terminal and attach to the "NO" (normally open) terminal on PS2.

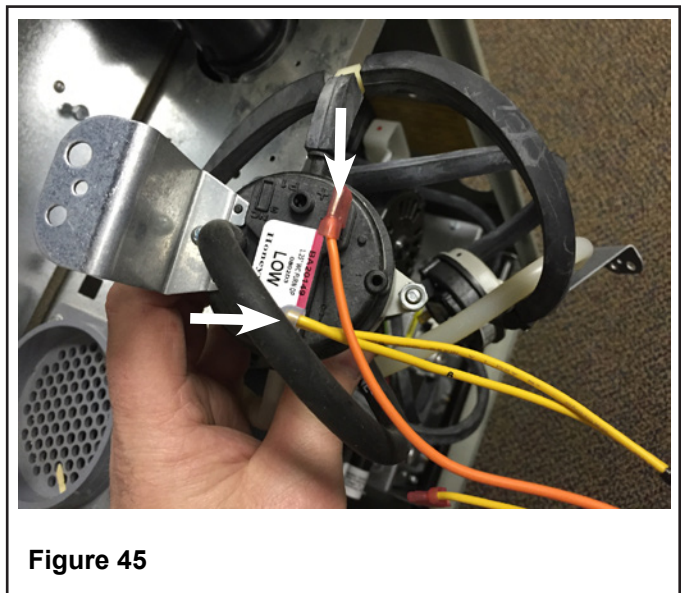


Figure 45

Step 11. On the low voltage harness labeled DHM-LONG, locate the yellow wire labeled #6 with 90 degree flag terminal.

Step 12. Attach the 90 degree flag terminal onto the C terminal on PS3.

Step 13. Locate the brown wire with 90 degree flag terminal and attach to the "NO" (normally open) terminal on PS3.



Figure 46

Step 14. On the low voltage harness labeled DHM-LONG, locate the yellow wires labeled #2 and #6 with 90 degree flag terminal.

Step 15. Attach the 90 degree flag terminal onto the C terminal on PS1.

Step 16. Locate the purple wire with 90 degree flag terminal and attach to the "NO" (normally open) terminal on PS1.



Figure 47

Step 17. Remount the PS2/PS3 assembly to the inner blower door.

Step 18. Remount the PS1 assembly to the inner blower door.



Figure 48

Installer's Guide

Step 19. Reinstall the IFC and bracket assembly to the top panel.

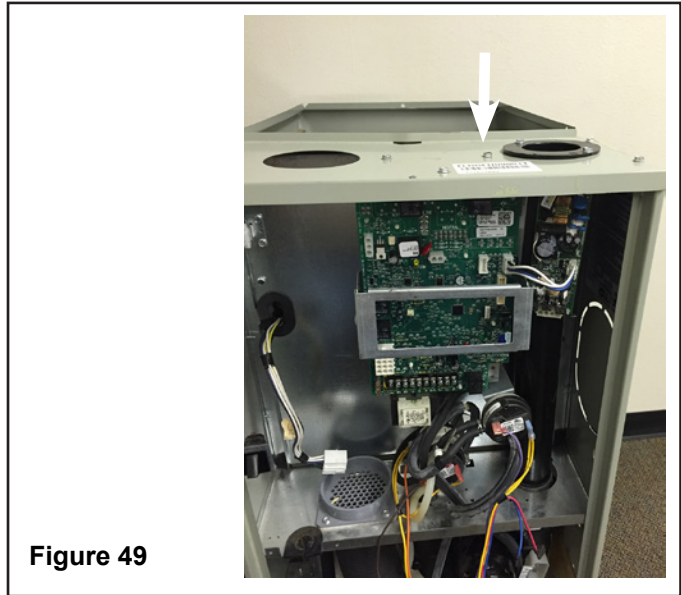


Figure 49

Step 20. Attach the red and blue wires with terminals to the transformer. The red will be plugged onto "RD" and the blue wire will be plugged onto "BL" on the transformer.

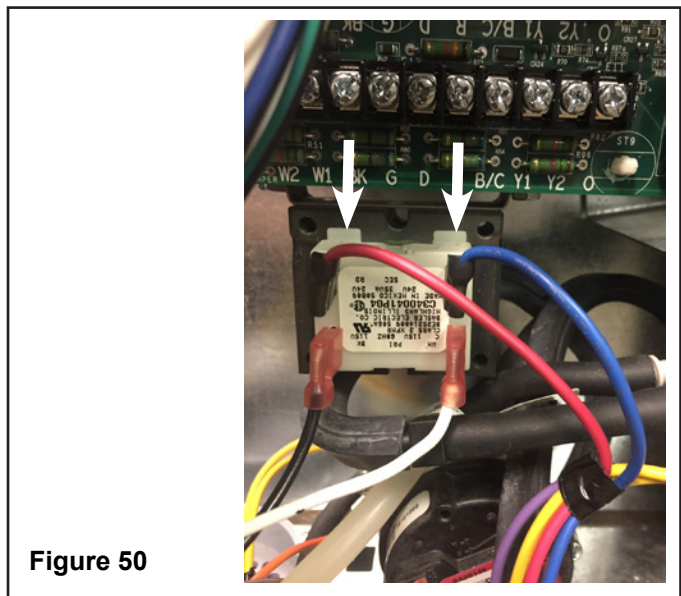


Figure 50

Step 21. Connect the 15-pin connector to the IFC.

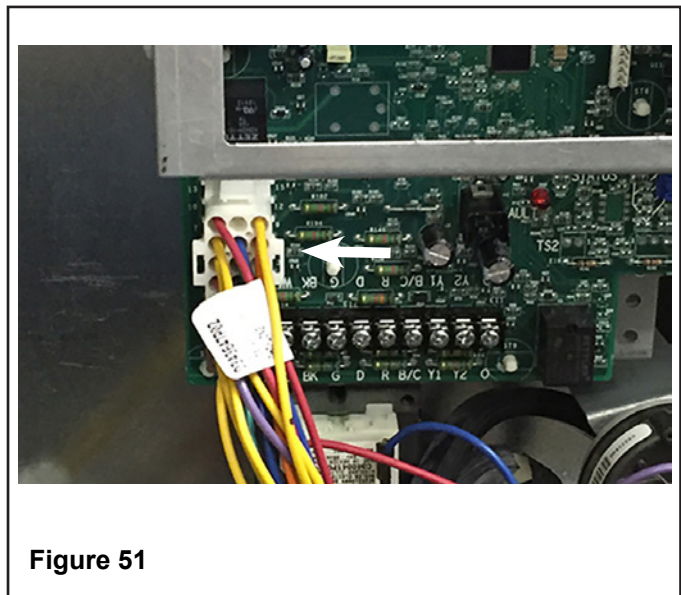


Figure 51

Step 22. Connect the 2-pin molex plug on the wire harness to the 2-pin molex plug from the reverse flow switch that is coming through the grommet.

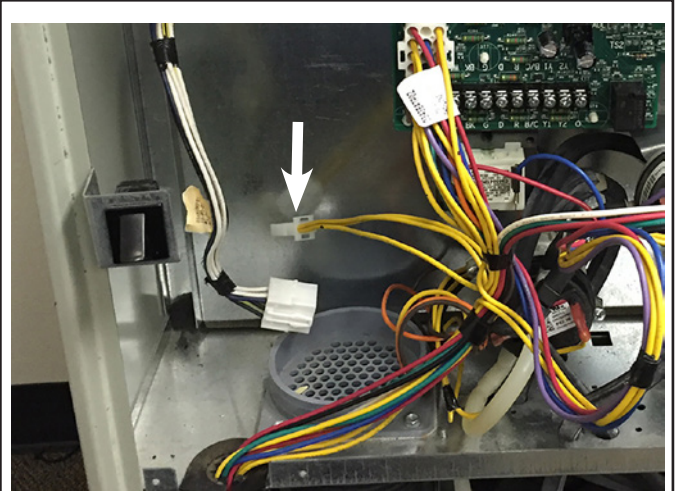


Figure 52

Step 23. Plug the 4-pin connector for the draft inducer onto the smaller board.

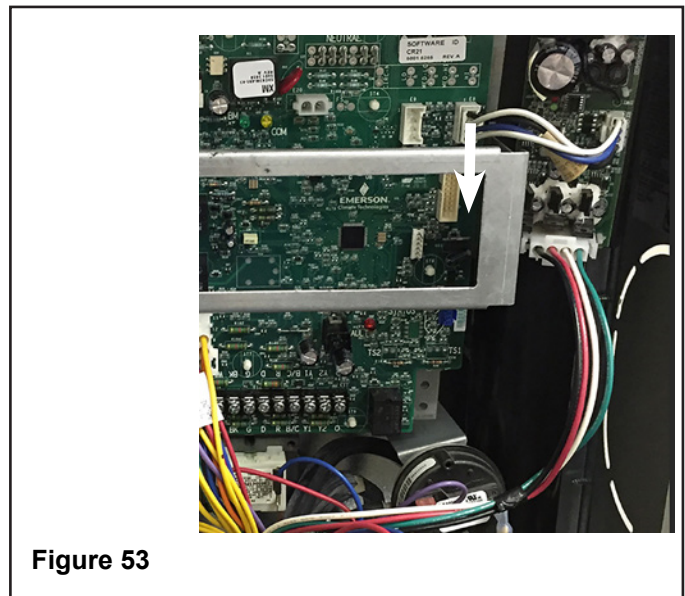


Figure 53

Step 24. Thread the low voltage harness through the grommet in the blower deck.

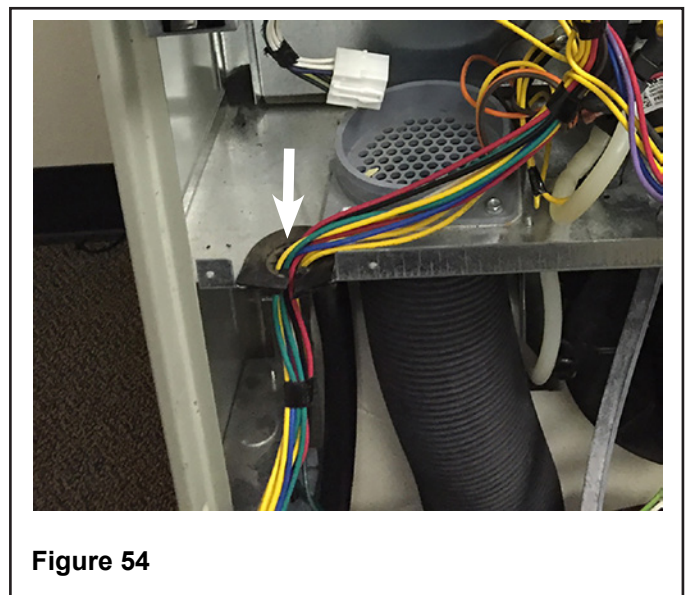
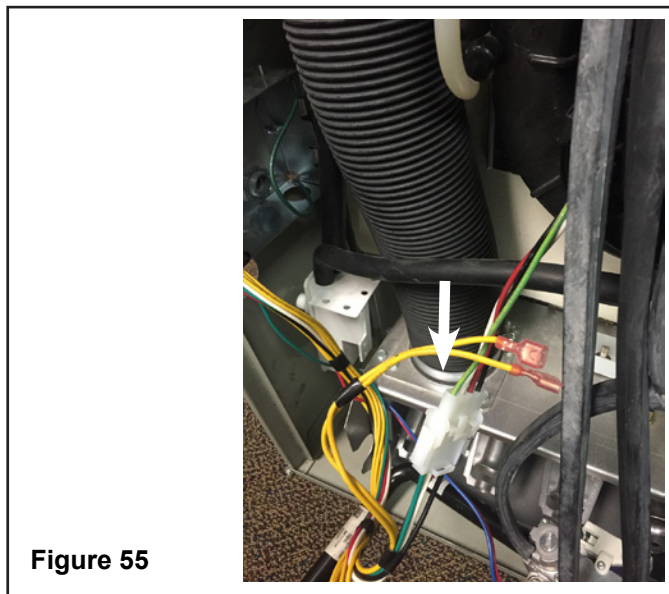


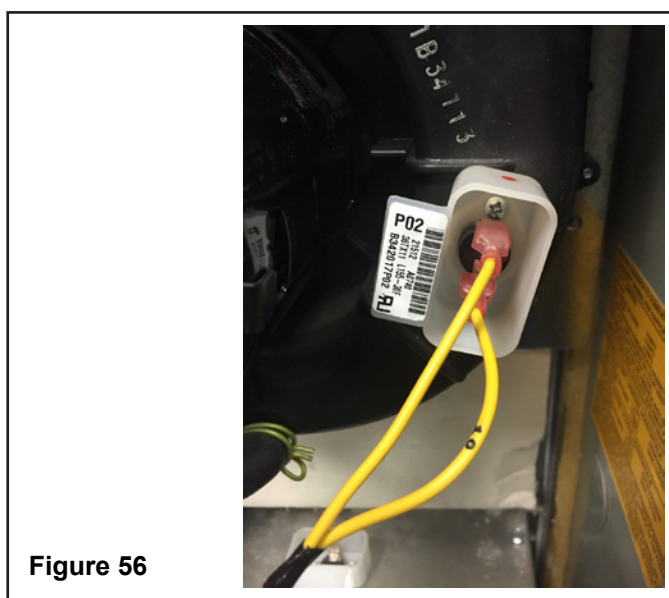
Figure 54

Installer's Guide

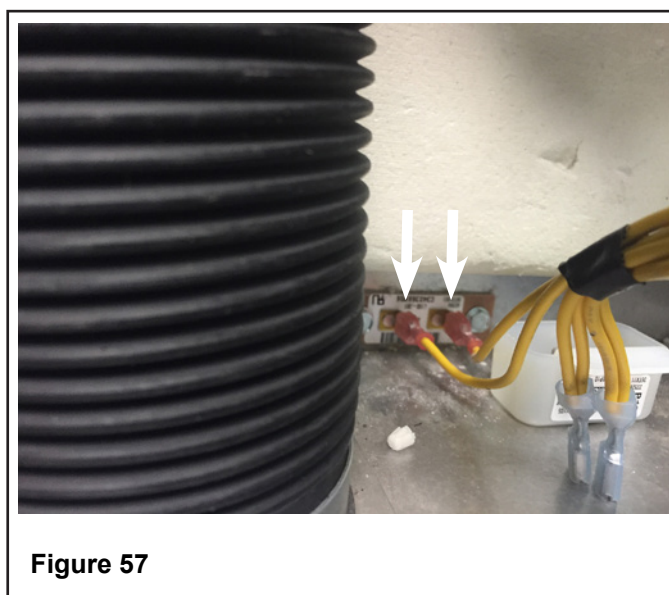
Step 25. In the combustion area, connect the 4-pin inducer harness plug to the draft inducer plug.



Step 26. Locate yellow wire #3 and yellow wire #10 and connect to the draft inducer limit switch.



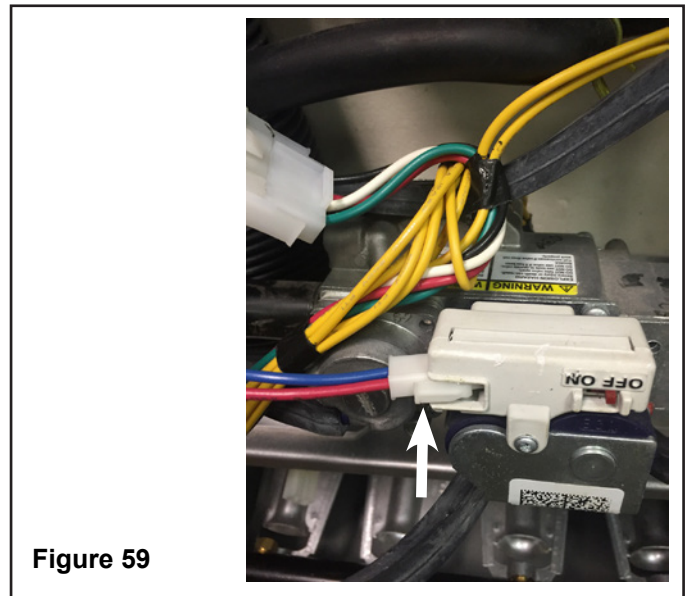
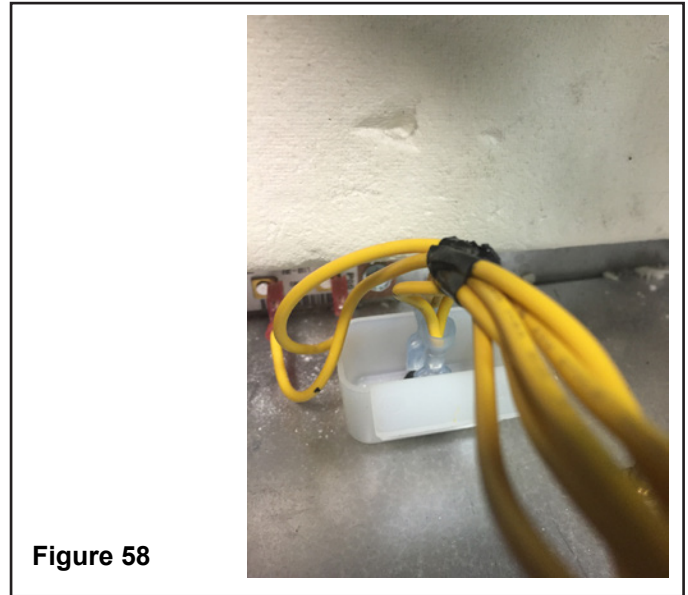
Step 27. Locate the yellow wire and yellow wire #7 and connect to the high limit switch.



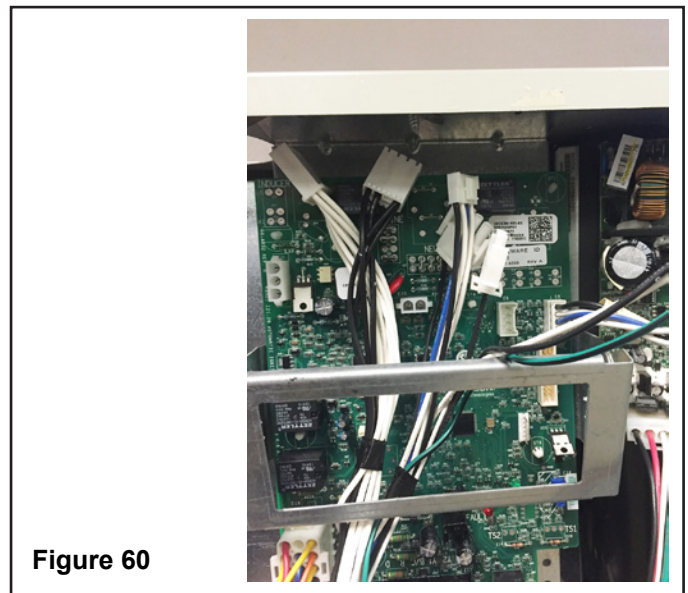
Step 28. In the same wire bundle, locate the two light blue 1/4" female connectors where each has two yellow wires. Plug into the burner rollout switch.

IMPORTANT: If the manifold was removed earlier, reinstall at this time. Make sure to reconnect any hoses that may have come loose.

Step 29. Install the gas valve connector with red and blue wires to the gas valve.



Step 30. On the high voltage harness, take the end with the IFC connectors and thread under the user interface bracket.



Installer's Guide

Step 31. Locate the 4-pin connector with the black wire, white wire #6, and green wire with black stripe. Connect onto the top of the variable speed draft inducer drive board (smaller pc board).

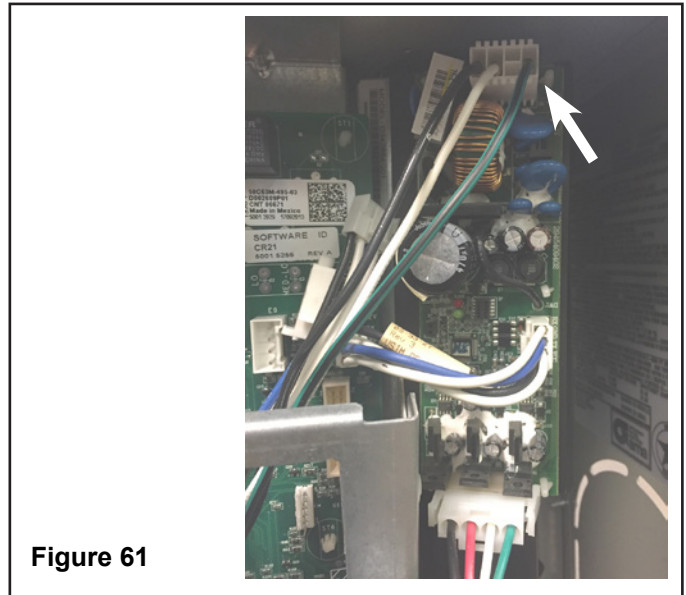


Figure 61

Step 32. Locate the 6-pin connector with seven white neutral wires and connect to the “NEUTRAL” connection on the IFC board.

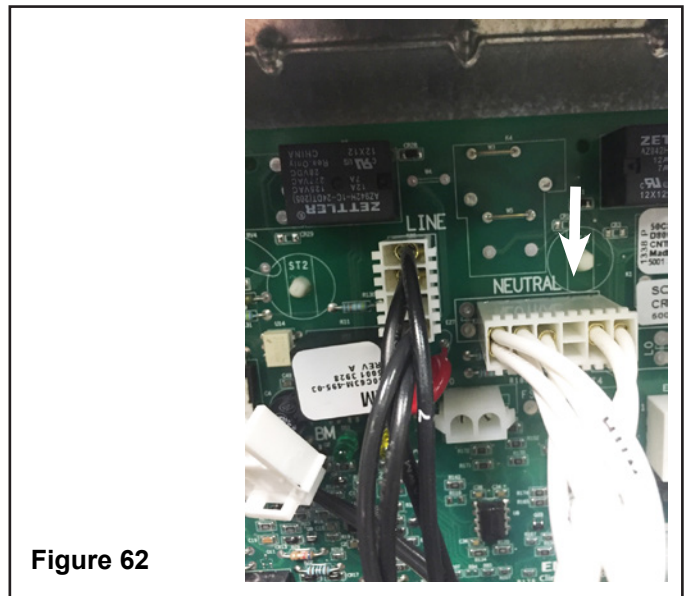


Figure 62

Step 33. Locate the 4-pin connector with four black wires and connect to the “LINE” connection on the IFC board.

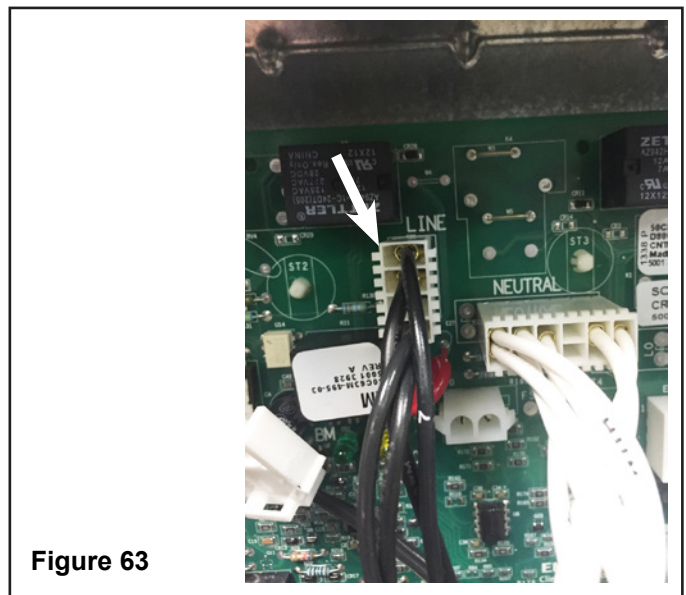


Figure 63

Step 34. Locate the 3-pin connector with two black wires; one is labeled HUM. Connect to the E33 connection on the IFC board.

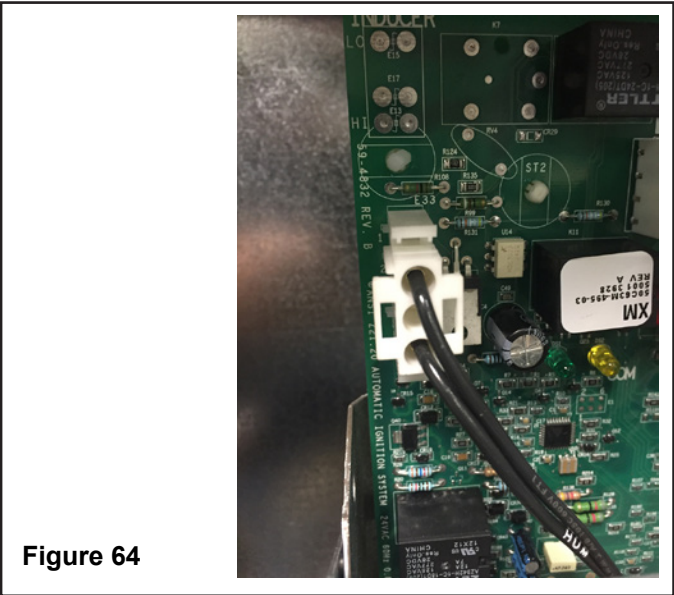


Figure 64

Step 35. Locate the 2-pin connector with one white and one black wires. Connect to the E20 connection on the IFC board.

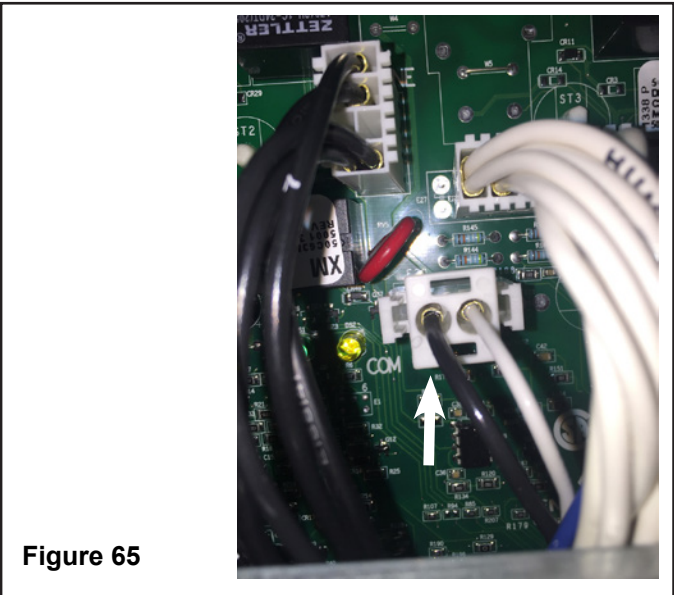


Figure 65

Step 36. Locate the 4-pin connector with one black, one blue, and two white wires. Connect to the E9 connection on the IFC board.

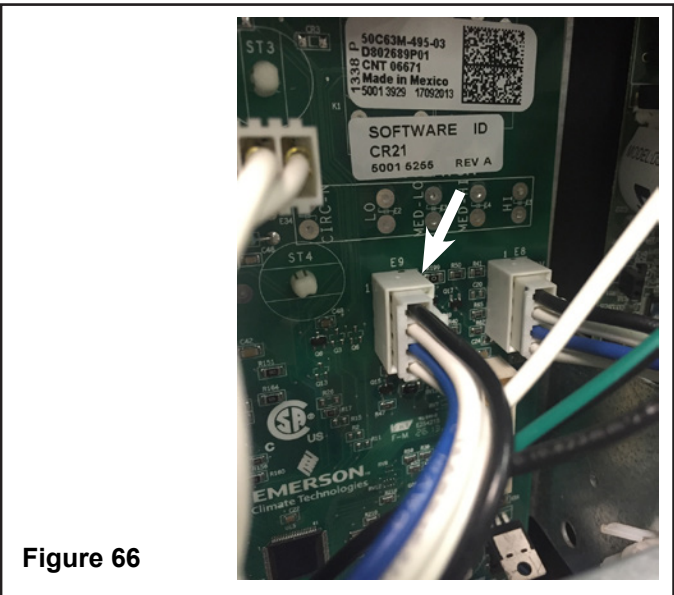
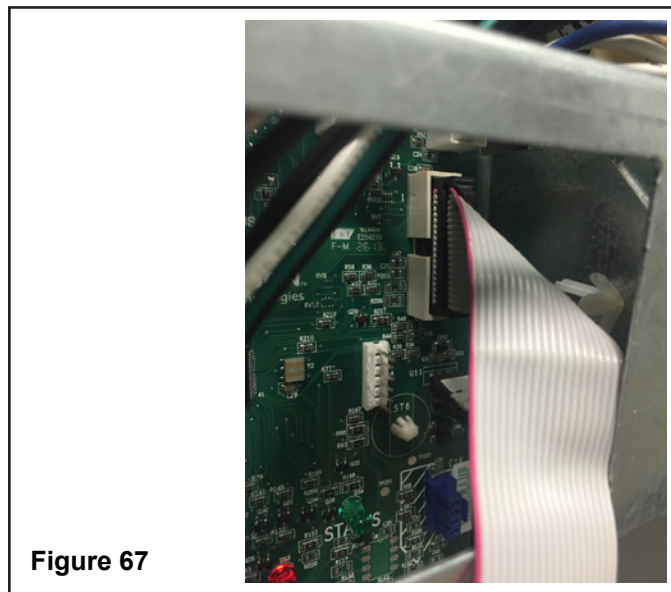


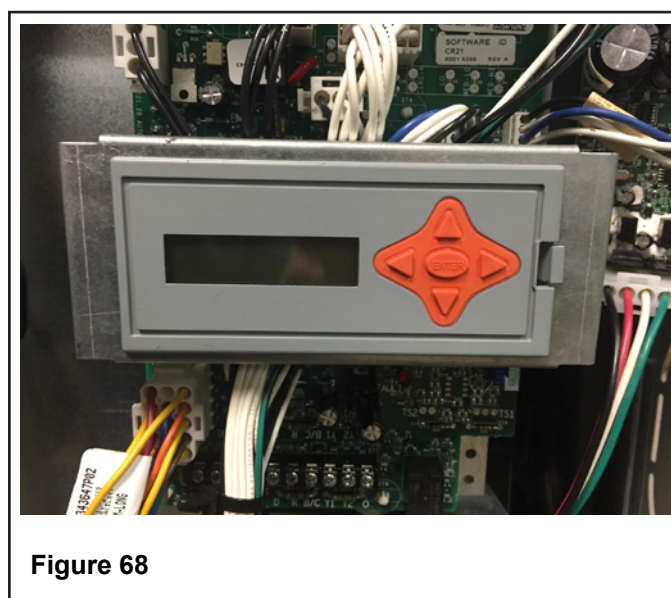
Figure 66

Installer's Guide

Step 37. Attach the ribbon wire from the User Interface to the E7 connection on the IFC board.



Step 38. Snap the User Interface onto the mount bracket.



Step 39. Select the appropriate personality module (PM) based on your furnace model number in the table.

Furnace model number	Personality Module (PM)
ADH3B060ACV3V, TDH3B060ACV3V	*DHMB060
ADH3B080ACV3V, TDH3B080ACV3V	*DHMB080
ADH3C100ACV4V, TDH3C100ACV4V	*DHMC100
ADH3D120ACV5V, TDH3D120ACV5V	*DHMD120

* May be "A" or "T"

Step 40. Insert the personality module onto the IFC board at E16.

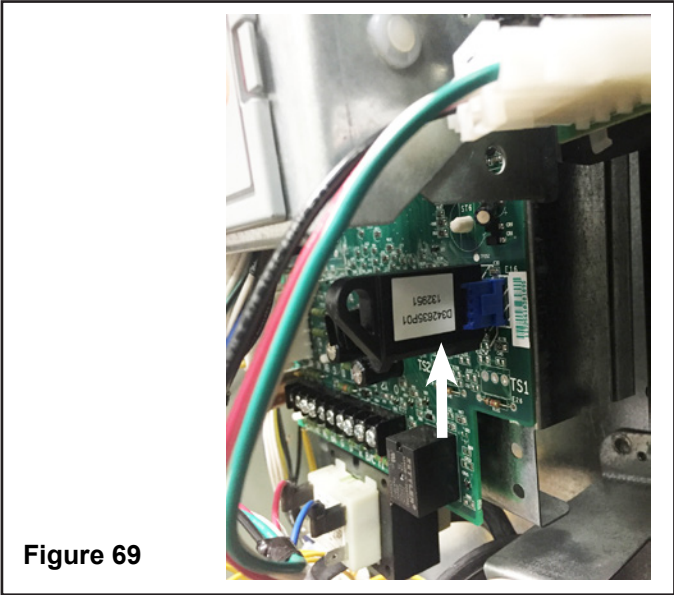


Figure 69

Step 41. Locate the black wire labeled #4 with 1/4" 90 degree flag terminal and connect to "115 V" on the transformer.

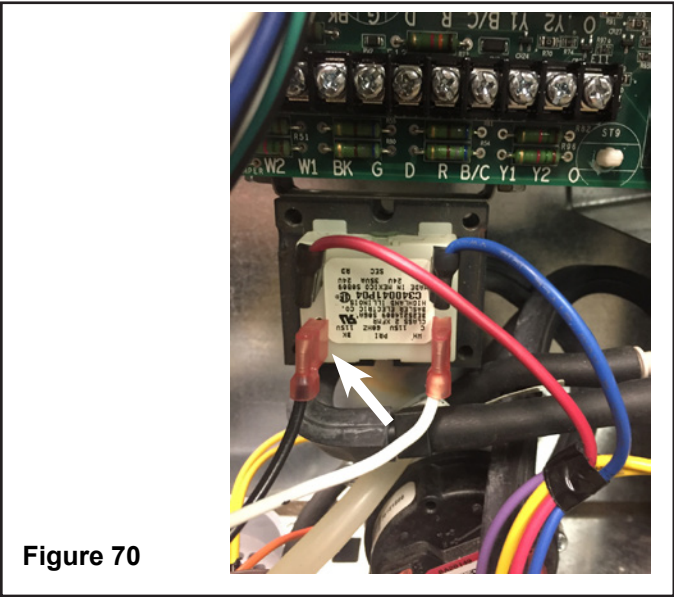


Figure 70

Step 42. Locate the white wire labeled #4 with 1/4" 90 degree flag terminal and connect to the "C" terminal on the transformer.

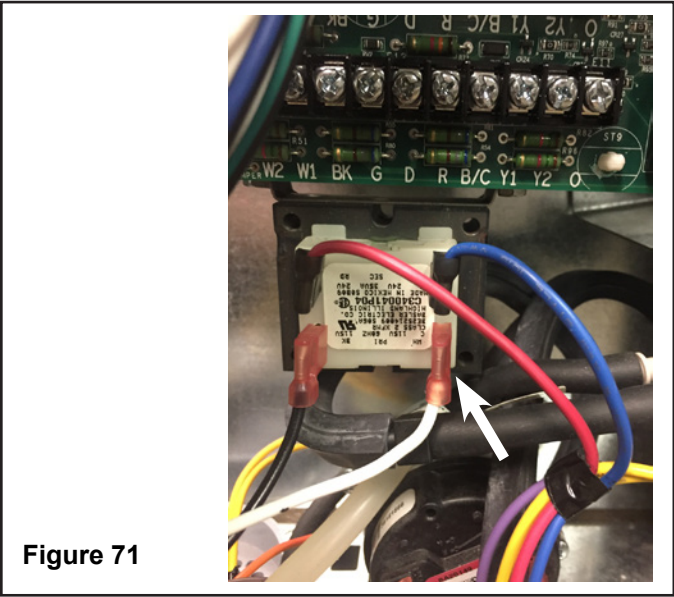
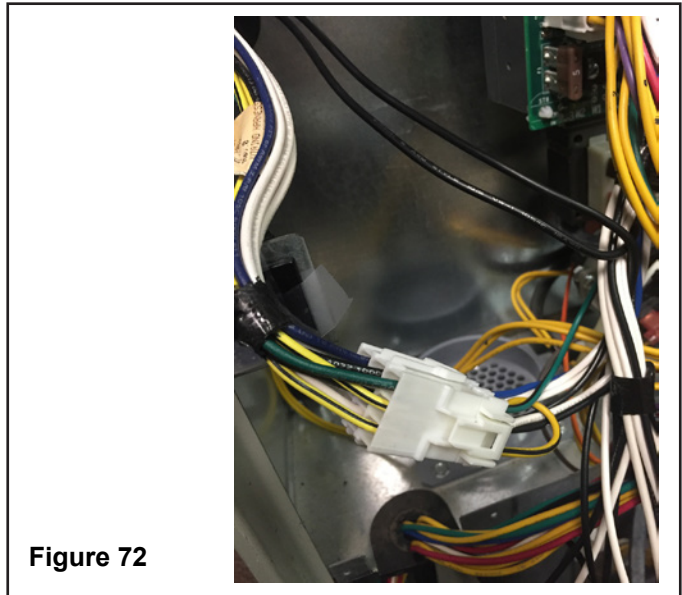


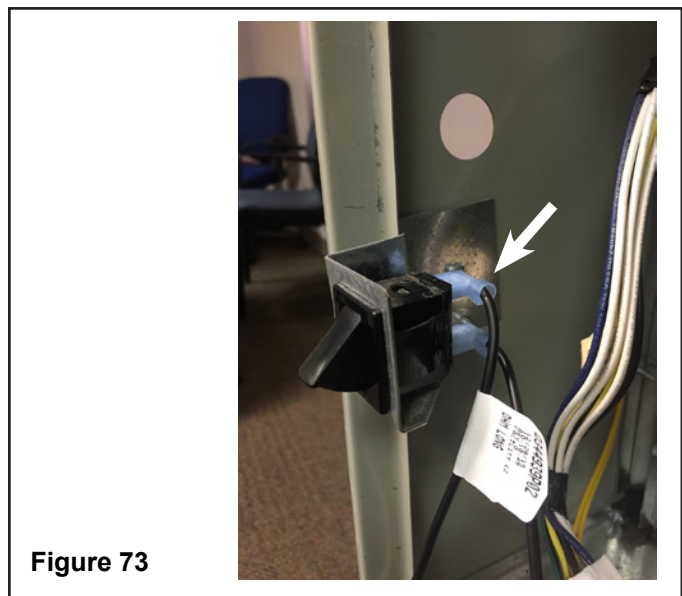
Figure 71

Installer's Guide

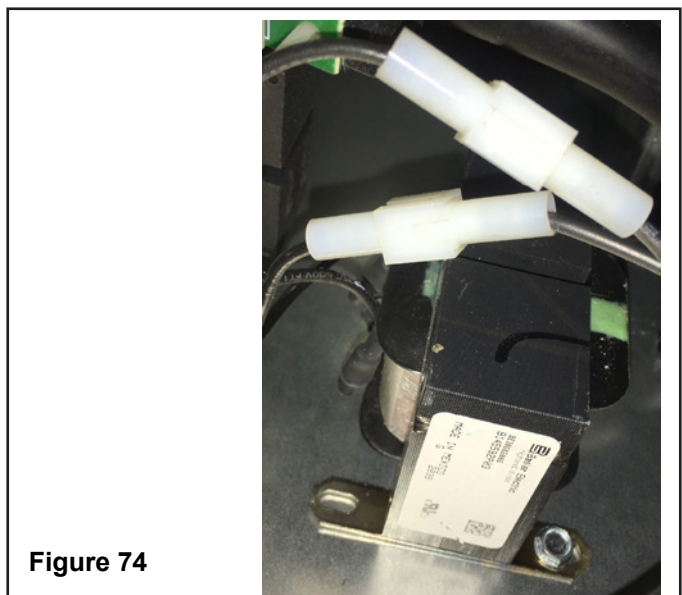
Step 43. Find the 9-pin connector and connect to the 9-pin connector from the blower.



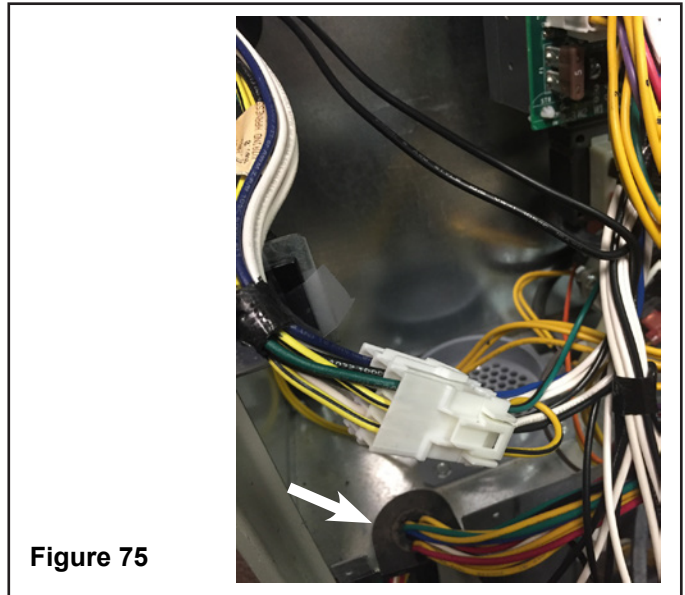
Step 44. Locate the two black wires labeled #10 with 90 degree flag terminals and connect to the door switch.



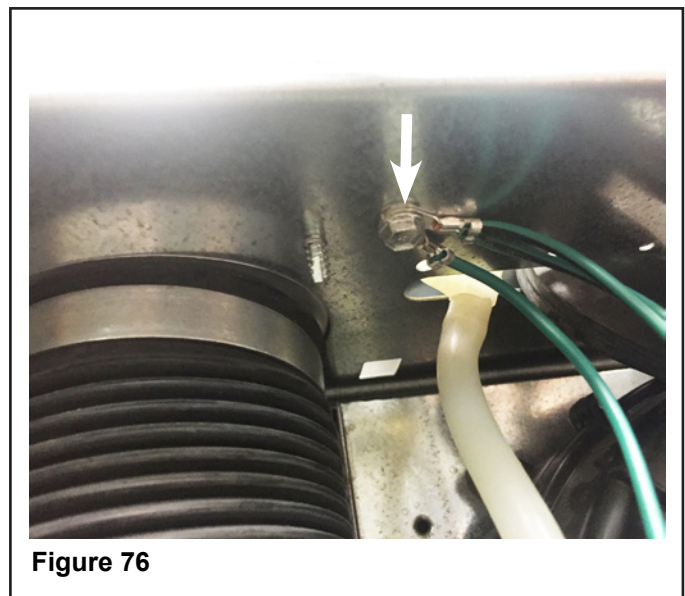
Step 45. Locate the black wire labeled #8 and the black wire labeled #7 and connect to the line choke.



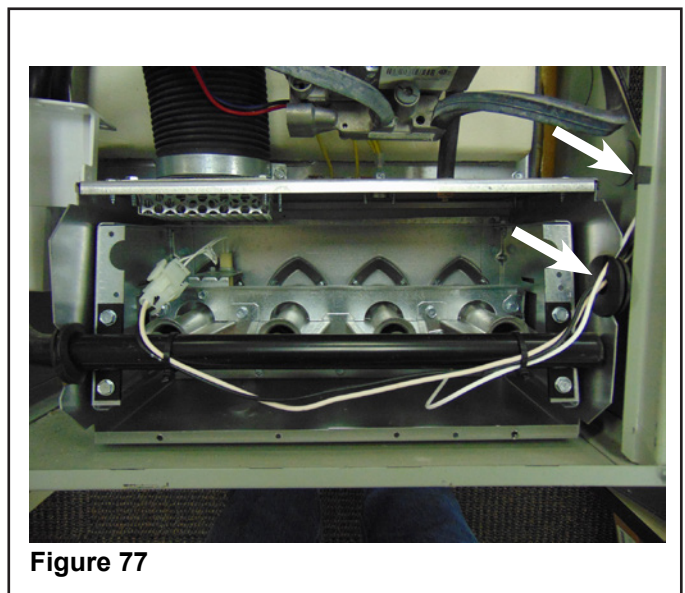
Step 46. Thread the remainder of the high voltage harness through the grommet in the blower deck.



Step 47. Find the two green wires with one eye terminal and the single green with with an eye terminal from the high voltage harness. Connect to the blower deck using one screw.



Step 48. Locate the 2-pin igniter connector with one black wire and one white wire and the white flame sensor wire. Route the wires down the side of the furnace cabinet. Tuck behind the wire clip and run through the rubber grommet on the right side of the burner box.



Installer's Guide

Step 49. Connect the white wire to the flame sensor.

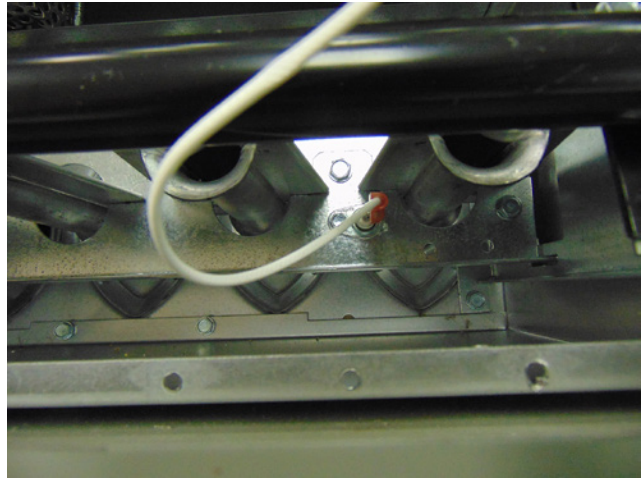


Figure 78

Step 50. Connect the 2-pin igniter connector to the new 120 V igniter.

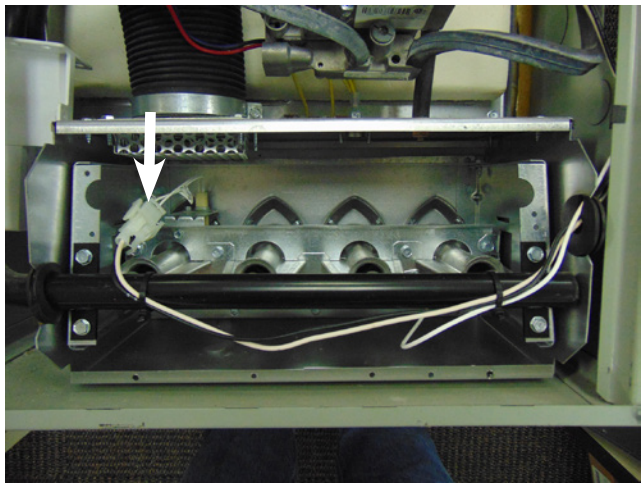


Figure 79

Step 51. Wire tie the igniter and flame sensor wires to the side of the manifold opposite the burner orifices.

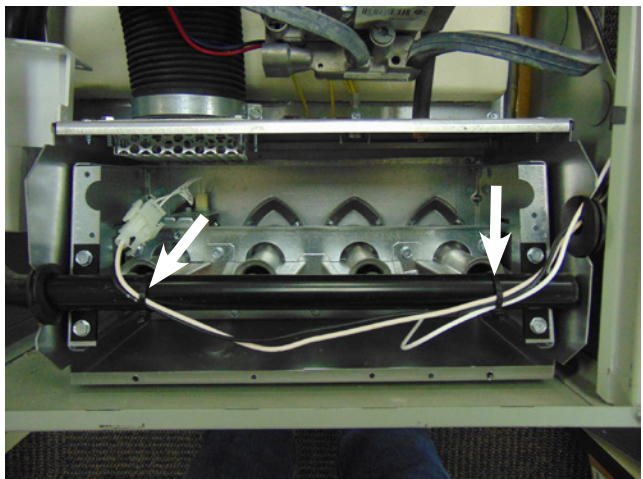
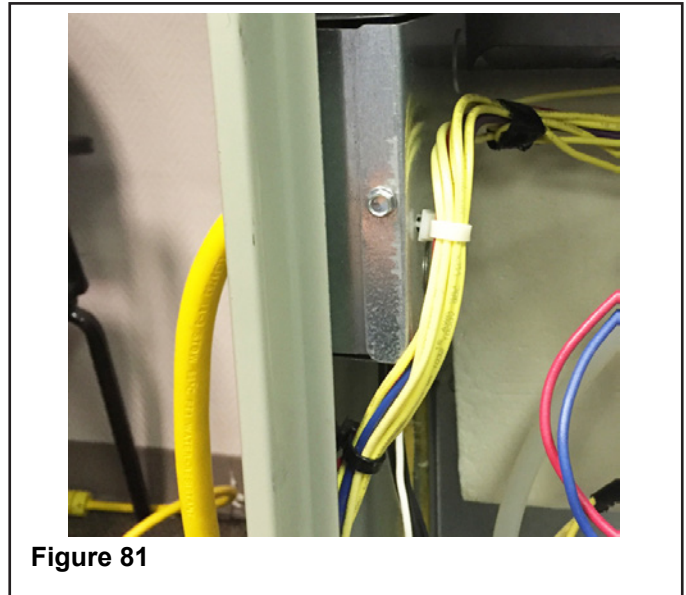


Figure 80

- Step 52.** Reinstall the burner box cover using the screws removed during disassembly.
- Step 53.** Locate the remaining high voltage wire bundle with white wire labeled "1", black wire labeled "1", black wire labeled "EAC", white wire labeled "EAC", white wire labeled "HUM", and black wire labeled "HUM". Thread through the bottom of the junction box.
- Step 54.** Reinstall the strain relief grommet onto the junction box.
- Step 55.** Connect the incoming power leads to the white wire labeled "1", the black wire labeled "1" and the green wires.
- Step 56.** Reinstall the junction box cover.
- Step 57.** Double check all connections are secure.
- Step 58.** Reinstall blower and burner door panels.
- Step 59.** Apply power and check operation per the new furnace Installer's Guide in the kit.
- Step 60.** Apply wiring diagram to inside of blower door.
- Step 61.** Apply mnemonic label to outside of blower door.



About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit www.trane.com or www.americanstandardair.com

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

18-CH89D1-1 26 Feb 2021
Supersedes (New)

© 2021