PART NO.	40381D096

INSTALLATION

INSTRUCTIONS

CONVERSION KIT RA103-2

FOR CONVERTING GRTC-1 GAS/ELECTRIC 3-5 TON ROOFTOP

FROM HOT SURFACE IGNITION TO DIRECT SPARK IGNITION

PART NO.	40381D096	DATE	4-16-96	SUPERSEDES	40381B093	PAGE 1 OF 8

Manufactured By
ARMSTRONG AIR CONDITIONING INC.
A LENNOX International Inc. Company
421 Monroe Street
Bellevue, OH 44811

This kit is to be used to convert the GRTC-1 models from hot surface ignition to direct spark ignition.

PARTS LIST

Qty

1 Burner rack
1 Ignitor (2 rod)
1 Ignitor lead - orange
2 #8 x 3/4" sheet metal screws
1 Standoff bracket
1 Ignition module
1 Green ground wire
1 Blue wire
2 1/4" quick connect terminals
1 Wiring label
1 Conversion label

If any damage to the contents is found at the time of delivery, proper notation should be made on the carrier's freight bill. Damage claims should be filed with the carrier at once. Claims of shortage should be filed with the manufacturer within five (5) days.

To proceed with conversion, follow these steps:

BURNER ASSEMBLY CONVERSION: See Figure 1 & 2 for burner assembly orientation

1. Turn off gas and electric supply to the unit before starting ignition system conversion.

2. Remove burner assembly by first disconnecting gas line at service union outside the unit. Remove heating compartment access panel, disconnect gas valve wires, ignitor wire, and sensor wire from ignition control. Remove the four (4) screws that mount burner assembly to the heat exchanger. Pull burner assembly out of unit.

   Refer to Figure 1 & 2, Steps 3-6

3. Remove all burners from burner rack by removing screws that hold down burner crossovers.

4. Remove burner rack, sensor, hot surface element (with bracket) from burner base pan and discard.

5. Install new burner rack from conversion kit on the burner base pan. Burner rack should be oriented so that its end flanges are pointing towards manifold assembly. Use the four (4) sheet metal screws used to hold the old burner rack assembly for the new burner rack assembly.

6. Install the two (2) rod ignitor in the holes provided in the burner rack, under the #1 burner location. Connect the orange wire from this kit to the ignitor terminal. The 1/4 quick connect end must first pass through the heyco bushing on the panel above the burner assembly.

7. Re-install all burners to new burner rack assembly, making sure that all burners are centered and burner crossovers are all on the same plane (perpendicular and horizontal).

8. Install new burner assembly in unit using the four (4) screws that were removed in Step 2.

IGNITION CONTROL (MOUNTING)

1. Remove hot surface ignition control from unit vest panel. Do not disconnect wires from control at this time.
2. Refer to Figure 3. The standoff bracket mounts to the vest panel in the location of the original ignition control. The top of the bracket has the "hood", and the right side has the mounting flange.
3. Align the lower bracket mounting hole with the lower ignition control mounting hole in the vest panel, and fasten using one of the screws included in this kit.
4. It will be necessary to drill a hole in the vest panel for the upper bracket mounting screw. Align the bracket square to the vest panel ("hood" at top), drill a 7/64 dia. hole at the location of the upper bracket hole, then secure with the other screw from this kit.
5. Using the two screws removed in Step 2, fasten the new ignition control to the bracket, spark terminal down. Install the quick connect adapter from the kit on the "TH" terminal of the ignition control.

ELECTRICAL CONNECTIONS - Refer to Figure 4

Referring to the wiring label included with the Fenwal kit, reconnect the wires to the ignition control. Use the high voltage cable from the Fenwal kit. Make sure the jumper wire from the Fenwal kit is connected between the "TH" and "24V" terminals, and that the ground wire is securely fastened to a good chassis ground point. Also ensure the wire terminals do not contact each other.

The following is a description of the electrical conversion from HSI to DSI on a wire by wire format. Refer to Figure 3.

WIRE #

1. Should have been discarded in Step 5 of burner assembly conversion.
2. Disconnect black lead #2 from L1 on HSI and connect to L1 of DSI.
3. Discard black lead #3 on HSI.
4. Should have been discarded in Step 5 of burner assembly conversion.
5. Should have been discarded in Step 4 of burner assembly conversion.
6. Disconnect red wire #6 from TH on HSI and connect to PSW on DSI.
7. Disconnect red wire #7 from VAL on HSI and connect to V1 on DSI. Connect other end of red wire #7 to top MV terminal on gas valve.
8. Disconnect black wire #8 from gas valve on HSI system and connect it to GND terminal on DSI control.
9. Disconnect blue wire #9 from GND on HSI control and gas valve and discard. Install blue wire supplied in this kit on the gas valve's bottom MV terminal and the V2 terminal on the DSI control.
10. Disconnect green wire #10 from GND on HSI and discard. Install green wire supplied in this kit to GND on the DSI control. The ring of this wire is to be mounted to the bottom mounting leg on the DSI control with screw #2 that was removed in Step 2 in the Ignition Control Mounting section.
11. Black wire lead #11 discard.
12. Disconnect white wire #12 and orange wire #13 from 24 VAC terminal on HSI control. Connect white wire #12 and orange wire #13 to TH on DSI control.
13. Disconnect white wire #14 from F2 on HSI. Connect it to IND on DSI control.
14. Disconnect red wire #15 from IND on HSI. Cut off 1/4" quick connect terminal and cap off this wire (use wire or crush nut). This wire is not to be used on the DSI system.
15. Disconnect black wire #16 from wire nut B. Connect wire to wire nut A.
16. Connect black jumper wire #17 between "TH" and 24V terminals on ignition control.
17. Connect orange ignitor wire #18 that was installed on ignitor rod in the burner assembly section to spark connection on DSI control.

WIRING IS NOW COMPLETE.

Now that the burner assembly, ignition control, and electrical connections are made, the following steps need to be followed to finish conversion:

1. Connect gas line at union unit.
2. Turn on gas and electrical supply to unit. Set thermostat above room temperature.
3. Draft blower should immediately start upon call for heat.
4. Ignition control will initiate a 30 second pre-purge cycle. Once pre-purge time has expired, the ignitor will be energized.
5. Flame should be established once all air is bled from line. Check for gas leaks using soap solution etc.
6. Cycle main burners on and off. Ignition and extinction should be smooth and quiet.
7. Affix wiring label from this kit adjacent to wiring diagram label on unit control box access panel.
8. Affix conversion label from this kit adjacent to the unit rating plate.

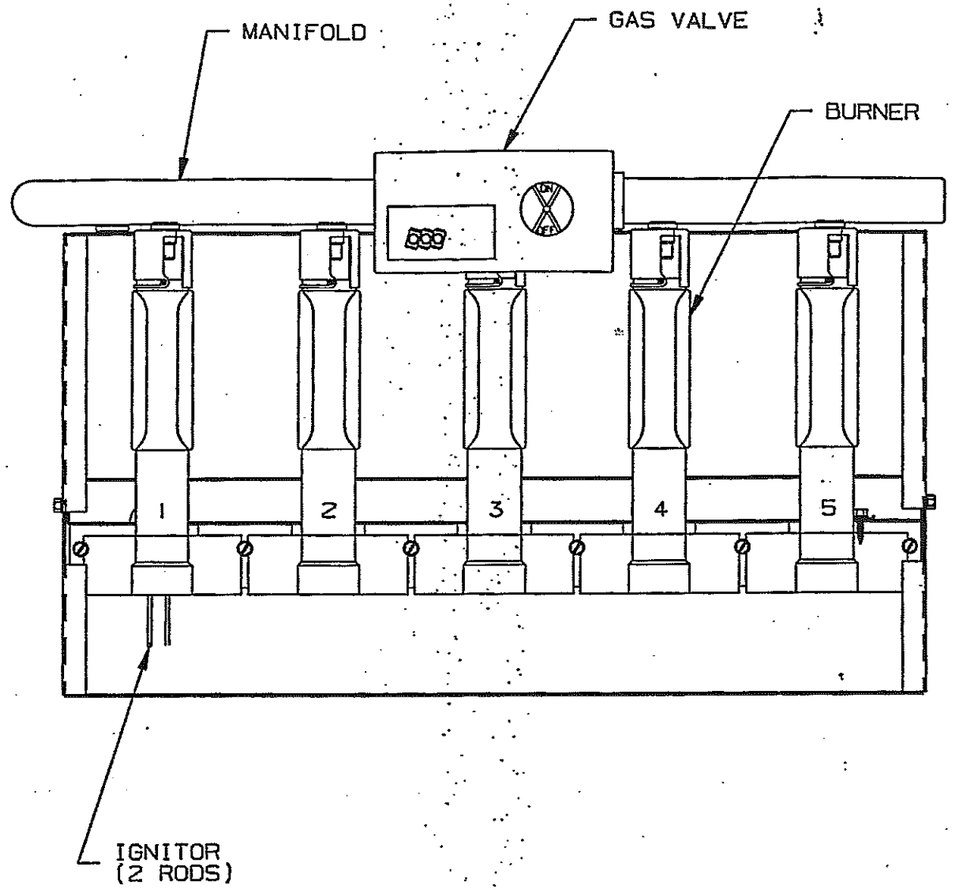

FIGURE 1

BURNER ASSEMBLY
FOR DIRECT SPARK

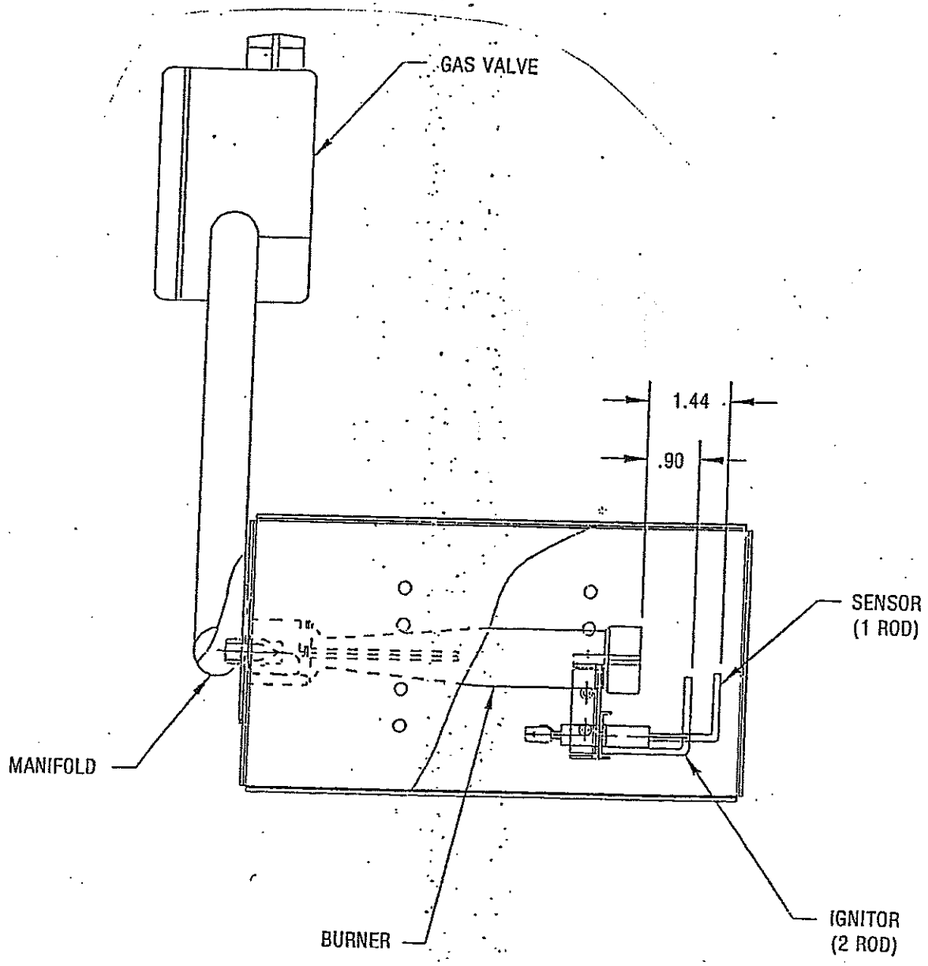

FIGURE 2

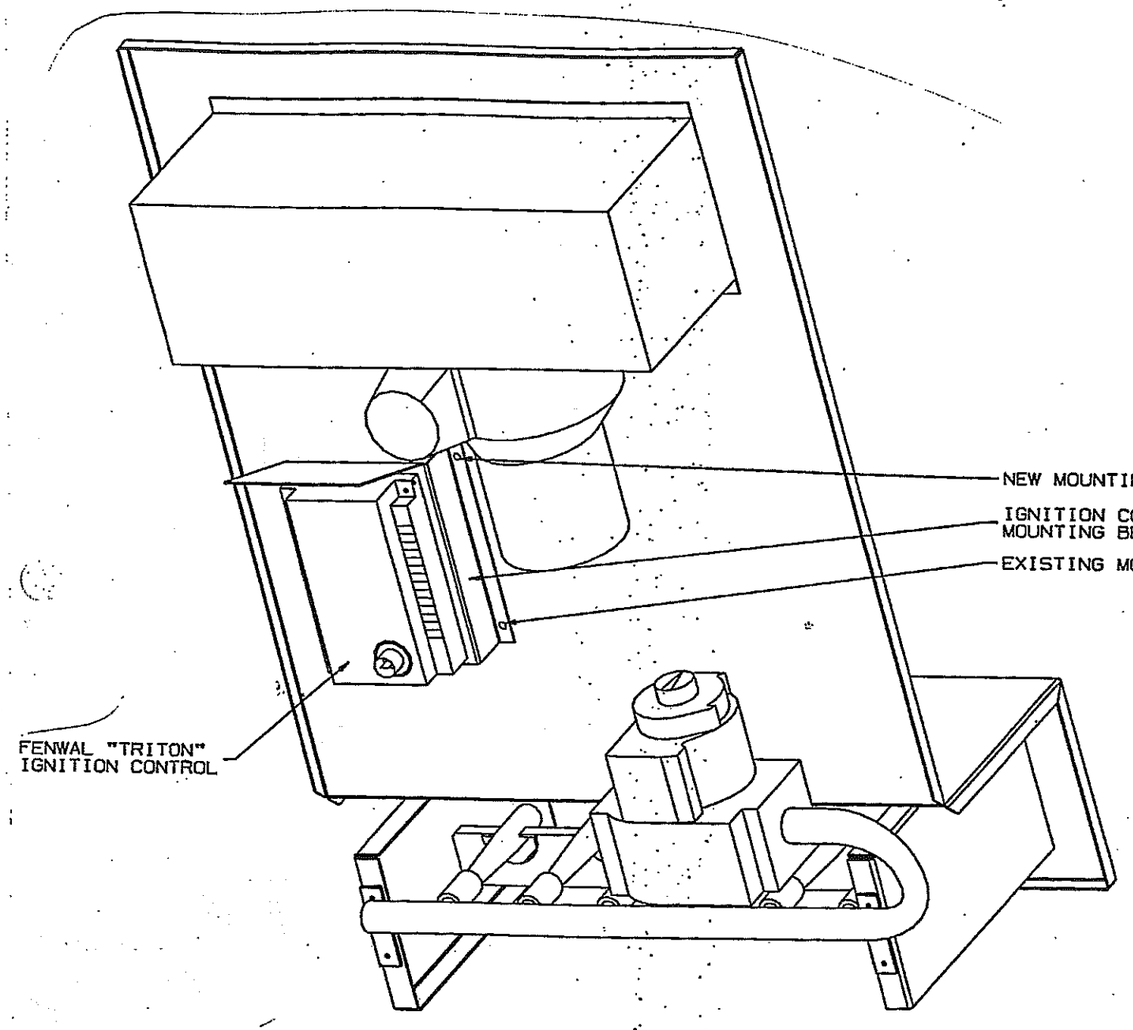

FIGURE 3

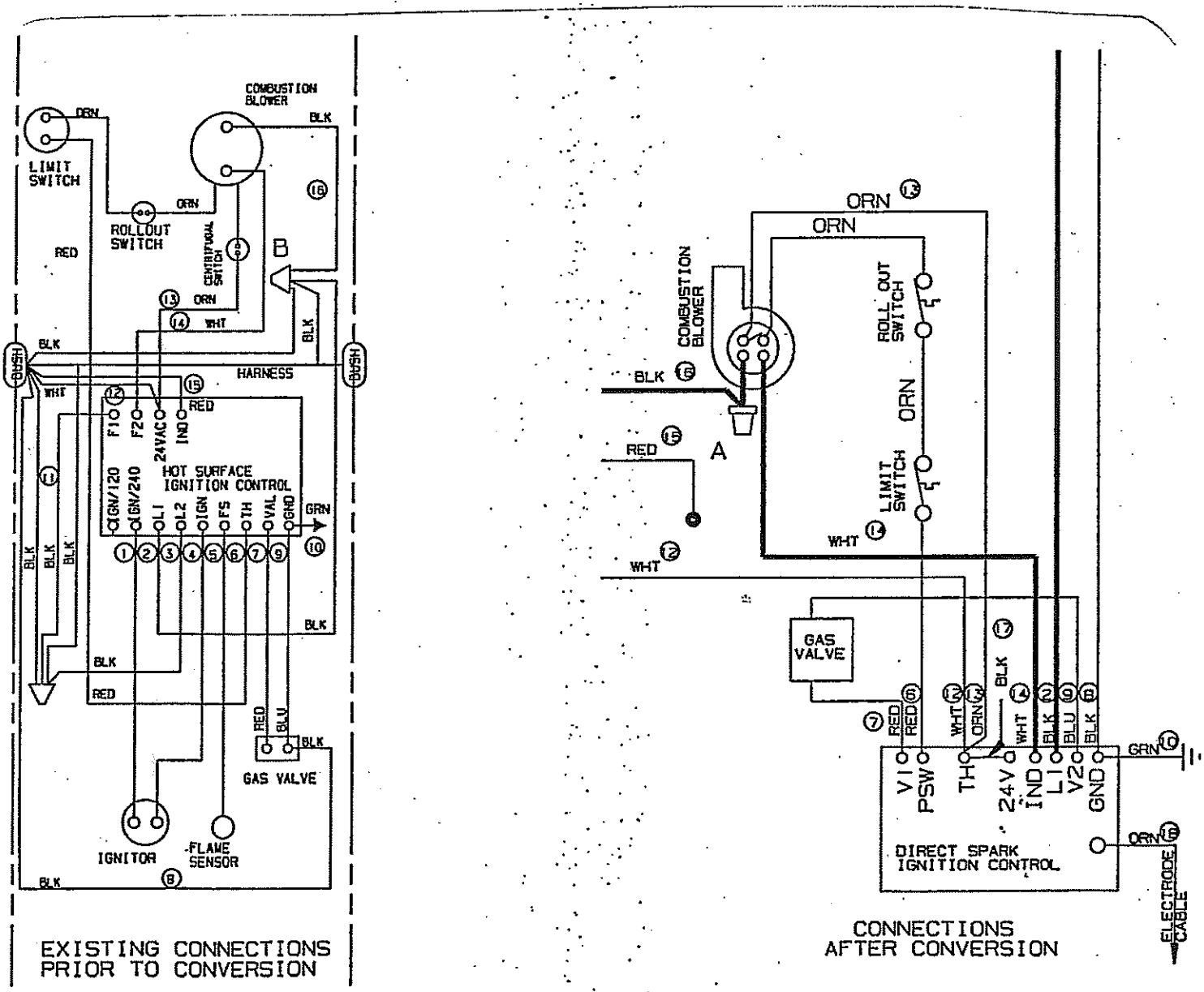
COMBUSTION BLOWER
ORN
BLK
LIMIT SWITCH
ROLLOUT SWITCH
CENTRIFUGAL SWITCH
RED
B
WHT
BUSH
HARNESS
F1O
F2O
24VACO
INDO
HOT SURFACE IGNITION CONTROL
IGN/120
IGN/240
OL1
OL2
OIGN
OFS
OTH
OVAL
OGND
GRN
GAS VALVE
IGNITOR
FLAME SENSOR
EXISTING CONNECTIONS PRIOR TO CONVERSION
ROLL OUT SWITCH
A
GAS VALVE
VI
PSW
TH
24V
IND
LI
V2
GND
DIRECT SPARK IGNITION CONTROL
ELECTRODE CABLE
CONNECTIONS AFTER CONVERSION

FIGURE 4