HEAT EXCHANGER REPLACEMENT KIT INSTRUCTIONS
Kit #550003256
FOR UCS & DMG 240 BOILER

Kit installation shall be completed by qualified agency.

⚠ WARNING

Fire, explosion, asphyxiation and electrical shock hazard. Improper installation could result in death or serious injury. Read this instruction and understand all requirements, including requirements of authority having jurisdiction, before beginning installation. Installation not complete until appliance operation verified per Installation, Operation & Maintenance Manual provided with boiler.

⚠ WARNING

Combustion chamber insulation in this product contains ceramic fiber material. Ceramic fibers can be converted to cristobalite in very high temperature applications. The International Agency for Research on Cancer (IARC) has concluded, Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group1). Avoid breathing dust and contact with skin and eyes. Use NIOSH certified dust respirator (N95). This type of respirator is based on the OSHA requirements for cristobalite at the time this document was written. Other types of respirators may be needed depending on the job site conditions. Current NIOSH recommendations can be found on the NIOSH website http://www.cdc.gov/niosh/homepage.html. NIOSH approved respirators, manufacturers, and phone numbers are also listed on this website. Wear long-sleeved, loose fitting clothing, gloves, and eye protection. Apply enough water to the combustion chamber lining to prevent dust. Wash potentially contaminated clothes separately from other clothing. Rinse clothes washer thoroughly.

NIOSH stated First Aid. Eye: Irrigate immediately. Breathing: Fresh air.

⚠ CAUTION

Laceration, burn hazard. Metal edges and parts may have sharp edges and/or may be hot. Use appropriate personal protection equipment to include safety glasses and gloves when installing or servicing this appliance. Failure to follow these instructions could result in minor or moderate injury.

⚠ CAUTION

Heat Exchanger weight exceeds 50 pounds (23 kg). Do not lift heat exchanger without assistance.

Figure 1 - 240 Heat Exchanger - Front of Boiler

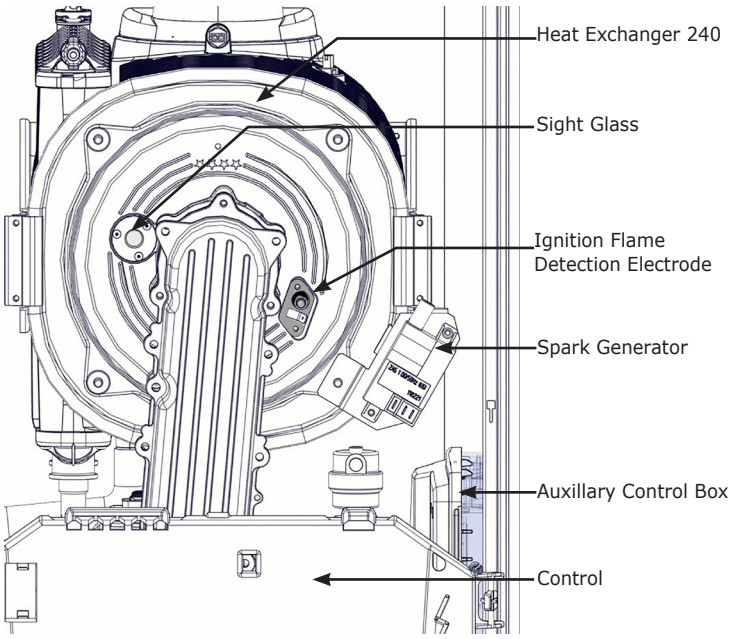
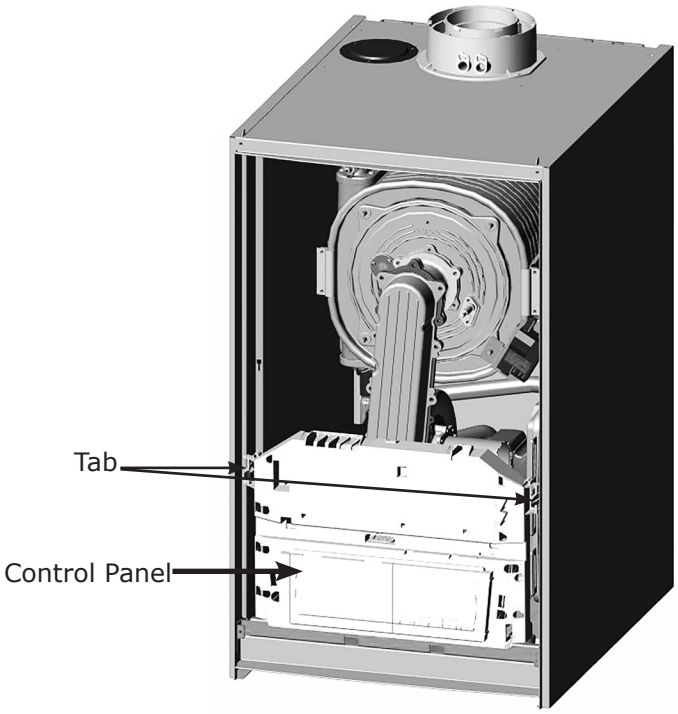


Figure 2 - Control Panel and Tab



Illustrations are a depiction of the boiler for general location of parts and are subject to change without notice.

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Existing Heat Exchanger Removal

1. Follow instructions TO TURN OFF GAS TO APPLIANCE found on Operating Instructions label on boiler or in Installation, Operation & Maintenance Manual. Verify all electrical power to boiler is turned off.

⚠ WARNING

Electrical shock hazard. Turn OFF electrical power supply at service panel.

2. Turn power and gas off to appliance.
3. Remove two (2) screws from front panel. Remove panel.

⚠ WARNING

Burn hazard. Verify unit has cooled before servicing. Use appropriate personal protection equipment.

4. Inspect combustion chamber through sight glass. Verify flame is not present. See Figure 1.
5. Press tabs and place control panel in down position. See Figure 2.
6. Isolate boiler from system, drain boiler.
7. Disconnect gas pipe from Air/Gas Venturi. See Figure 3.
8. Remove 3 and 5 wire harness from Blower/Fan motor.
9. Disconnect ignition wire and ground from Ignition/Flame Detection Electrode.
10. Disconnect safety limit wiring from combustion chamber cover and heat exchanger. Disconnect flue sensor cable from flue sensor.
11. Remove screw from spark generator while supporting the assembly. Set Spark Generator and bracket in bottom of unit.
12. Carefully remove four (4) nuts from combustion chamber cover assembly while supporting the assembly and set aside. See Figure 4.
13. Disconnect flue pipe from flue connection on top of boiler.
14. Remove four (4) screws from flue connection and gasket assembly. Lift up to remove and set aside.
15. Remove four (4) screws from top panel securing condensate collection tray. See Figure 6.
16. Disconnect nut from supply connection fitting and at top of pump. Remove existing gaskets.
17. Remove echanger clips from supply and return piping. Pull down to remove. Set carefully in bottom of unit. See Figure 3.
18. Disconnect condensate hose from heat exchanger.
19. Support heat exchanger. Remove four (4) screws from left and right support brackets. See Figure 6.
20. Continue to support heat exchanger. Move support brackets away from heat exchanger. Remove heat exchanger from cabinet. See Figure 5.

Figure 3 - Heat Exchanger, Air/Gas Mixer Assembly
(View with Side, Top and Bottom Panels Removed)

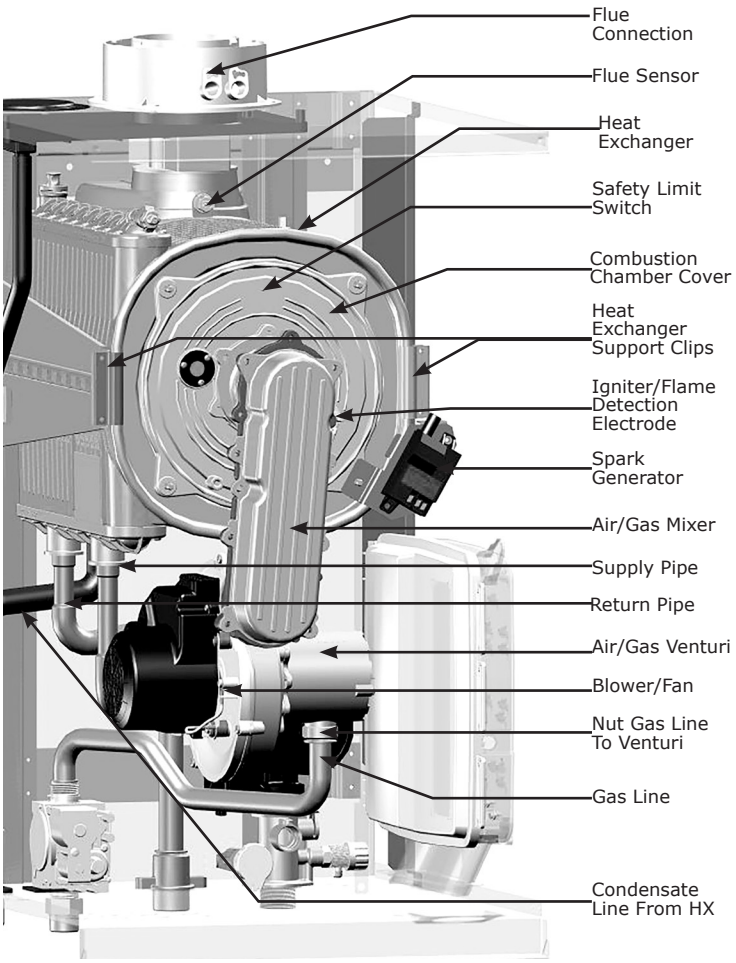


Figure 4 - Air/Gas Mixer Assembly

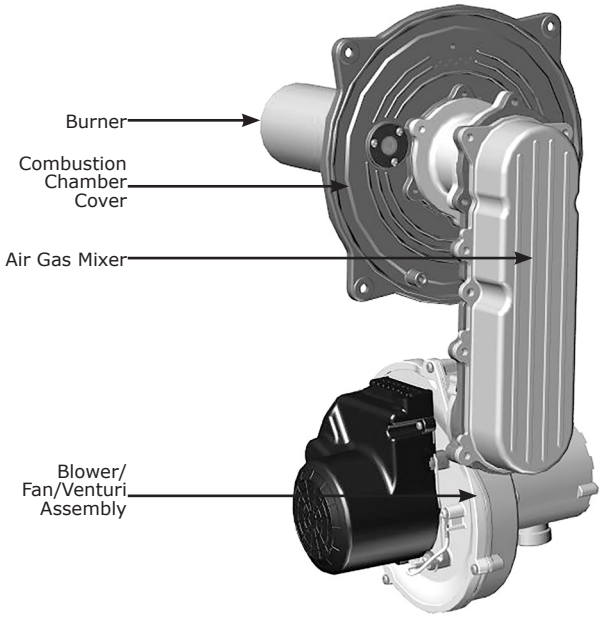


Figure 5 - Heat Exchanger With Air/Gas Mixer Assembly Removed Removed (View with Side, Top and Bottom Panels Removed)

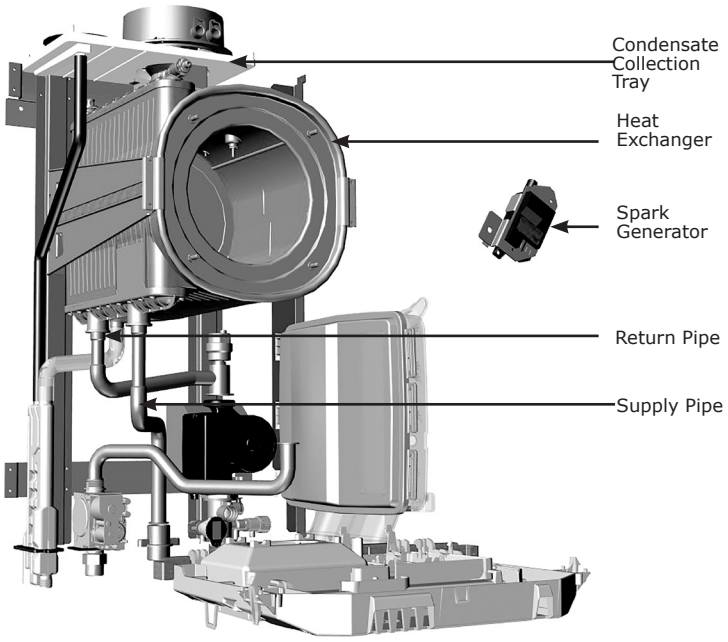
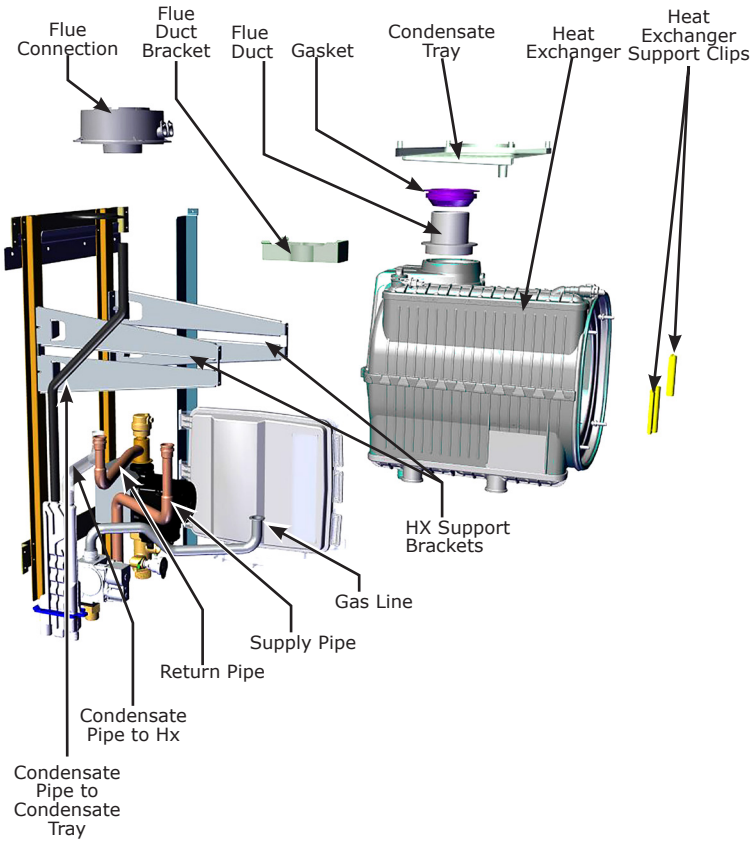


Figure 6 - Heat Exchanger Removed from Boiler Frame (View with Side, Top and Bottom Panels Removed)



New Heat Exchanger Installation

1. Install new gaskets and flue outlet adapter into new heat exchanger. See Figure 6.
2. Install new heat exchanger. Engage brackets on both sides of boiler. Secure with four (4) mounting clips. See Figure 6.
3. Connect condensate pipe to new heat exchanger.
4. Connect supply and return piping. Push up into heat exchanger. Secure with exchanger clips.

Note Supply pipe Heat Exchanger front connection.

5. Install new gaskets on supply connection nipple and pump. Tighten nuts for supply and return (pump) connections.
6. Install condensate collection tray and support bracket to heat exchanger. Connect condensate hose to collection tray. Secure with four (4) screws through top panel of boiler See Figure 5.
7. Install flue connection with new gasket to top of boiler. Secure with four (4) screws through top boiler panel.
8. Install flue connection with new gasket to top of boiler. Secure with four (4) screws.
9. Connect vent pipe to flue connection.
10. Install combustion chamber cover assembly with new gasket. Secure with four (4) nuts. Leave bottom right nut for last to mount igniter electrode bracket and igniter electrode. See Figures 4 and 7.
11. Reconnect 3 and 5 wire harness to Blower/Fan motor.
12. Connect gas pipe to Air/Gas Venturi with new gasket, tighten.
13. Fill boiler. Purge and check for leaks.
14. Return control assembly to upright position. Open valves to system.See Figure 2.
15. Restore power, gas and water to boiler. Test operation. Check for gas and water leaks.
16. **Adjust Parameters 17-19 as indicated A-D:**

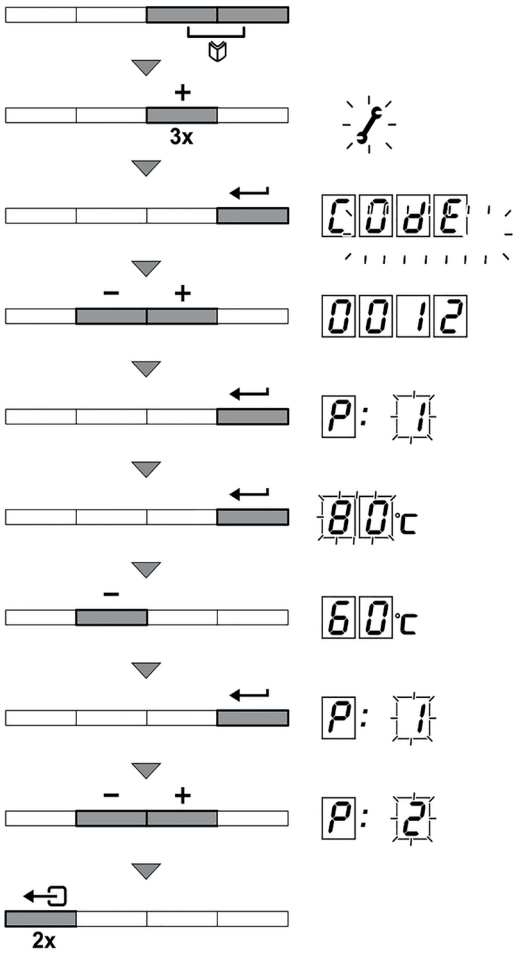
A - Installer Level Parameters

Parameters **P17** to **dF** (error code history) must only be modified by a qualified installer.

To prevent unwanted settings, some parameter settings can only be changed after special access code **0012** is entered.

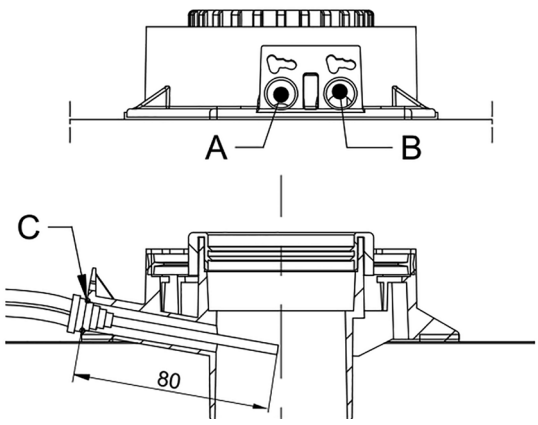
- Press the two Menu buttons simultaneously and then (+) button until the symbol flashes on the menu bar.
- Select the INSTALLER menu using the button. "**CODE**" appears on the display.
- Use (-) or (+) button to input the installer code "**0012**".
- Confirm using button, "**P1**" is displayed with "**1**" flashing.
- Press button a second time, the value will appear and flashes, for example [80°C (176°F)].
- Change the value by pressing the [**-**] or [**+**] button. [In this example using [**-**] button to change the value to 60 ºC (140 °F).]
- Confirm the value with the button, "**P1**" is displayed with 1 flashing. Button, "P1" is displayed with 1 flashing. If necessary, set other parameters by selecting them using the (**-**) or (**+**) button.
- Press button 2 times to return to current operating mode.

FIGURE 7 - Installer Level Parameters



Natural Gas				Propane			
Air/Gas Mixture		Nozzle		Air/Gas Mixture		Nozzle	
in	mm	in	mm	in	mm	in	mm
1 3/16	30	7/32	5.3	1.18	30	5/32	4

FIGURE 8 - Combustion Air Temperature Ports



B - Boiler has two dedicated built in test ports. See Figure 8.

One connection port is connected to exhaust flue (**A**), and allows monitoring of the quality of combustion products and combustion efficiency.

Other is connected to combustion air intake (**B**), used to check for recycling products for combustion.

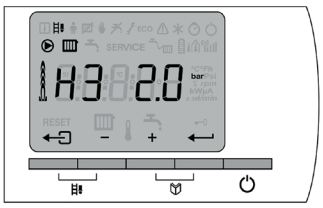
The following can be measured at exhaust flue test port:

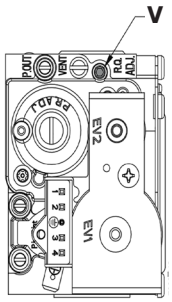
- temperature of combustion products
- oxygen (O_2) or carbon dioxide (CO_2) concentration;
- carbon monoxide (CO) concentration.

Temperature of combustion air must be measured on air intake test port (**B**) by inserting measurement sensor approximately 3-3/16" (80.00 mm) (**C**).

C - Combustion Setup (High-Fire)

- Unscrew exhaust port plug at exhaust flue test port. See Figure 8.
- Insert combustion analyzer into exhaust flue test port. Verify opening around combustion analyzer probe is completely sealed when taking measurements.
- Set boiler to high-fire by pressing two buttons simultaneously. Display will show **H3** and the symbol will appear.
- Measure percentage of O_2 or CO_2 in flue gases.
- Compare the measured values with values in table below. Remove front panel when comparing values.
- Adjust gas/air ratio using high-fire adjustment screw (**V**) if needed. Turn screw clockwise to reduce CO_2 level and counterclockwise to increase it.



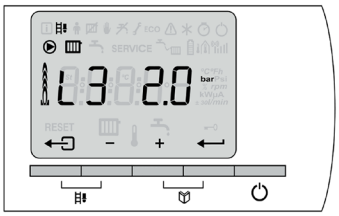


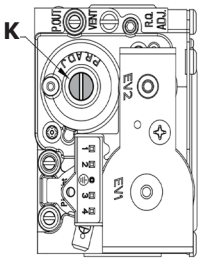
O_2/CO_2 Values at High Fire Natural Gas			
Nominal value		**Permitted value**	
O_2 %	CO_2%	O_2 %	CO_2%
4.3	9.3	3.9 - 4.7	9.1 - 9.5

O_2/CO_2 Values at High-Fire Propane Gas			
Nominal value		**Permitted value**	
0_2 %	CO_2%	0_2 %	CO_2%
5.7	10.0	5.4 - 6.0	9.8 - 10.2

D - Combustion Setup (Low-Fire)

- Unscrew exhaust port plug at exhaust flue test port.
- Insert combustion analyzer into exhaust flue test port. Verify the opening around combustion analyzer probe is completely sealed when taking measurements.
- Set boiler to low-fire by pressing two buttons simultaneously. If the boiler is already in combustion setup mode for high fire, press the (-) button several time until **L3** is displayed on the screen.
- Measure percentage of O_2 or CO_2 in flue gases.
- Compare the measured values with values in table below. Remove front panel when comparing values.
- Adjust gas/air ratio using low-fire adjustment screw (**K**) if needed. Turn screw clockwise to increase CO_2 level and counterclockwise to decrease it.





K - Screw cover shown. Adjustment screw is located under cover.

O_2/CO_2 Values at Low-Fire Natural Gas			
Nominal value		**Permitted value**	
O_2 %	CO_2%	O_2 %	CO_2%
5.7	8.5	5.4 - 6.1	8.3 - 8.7

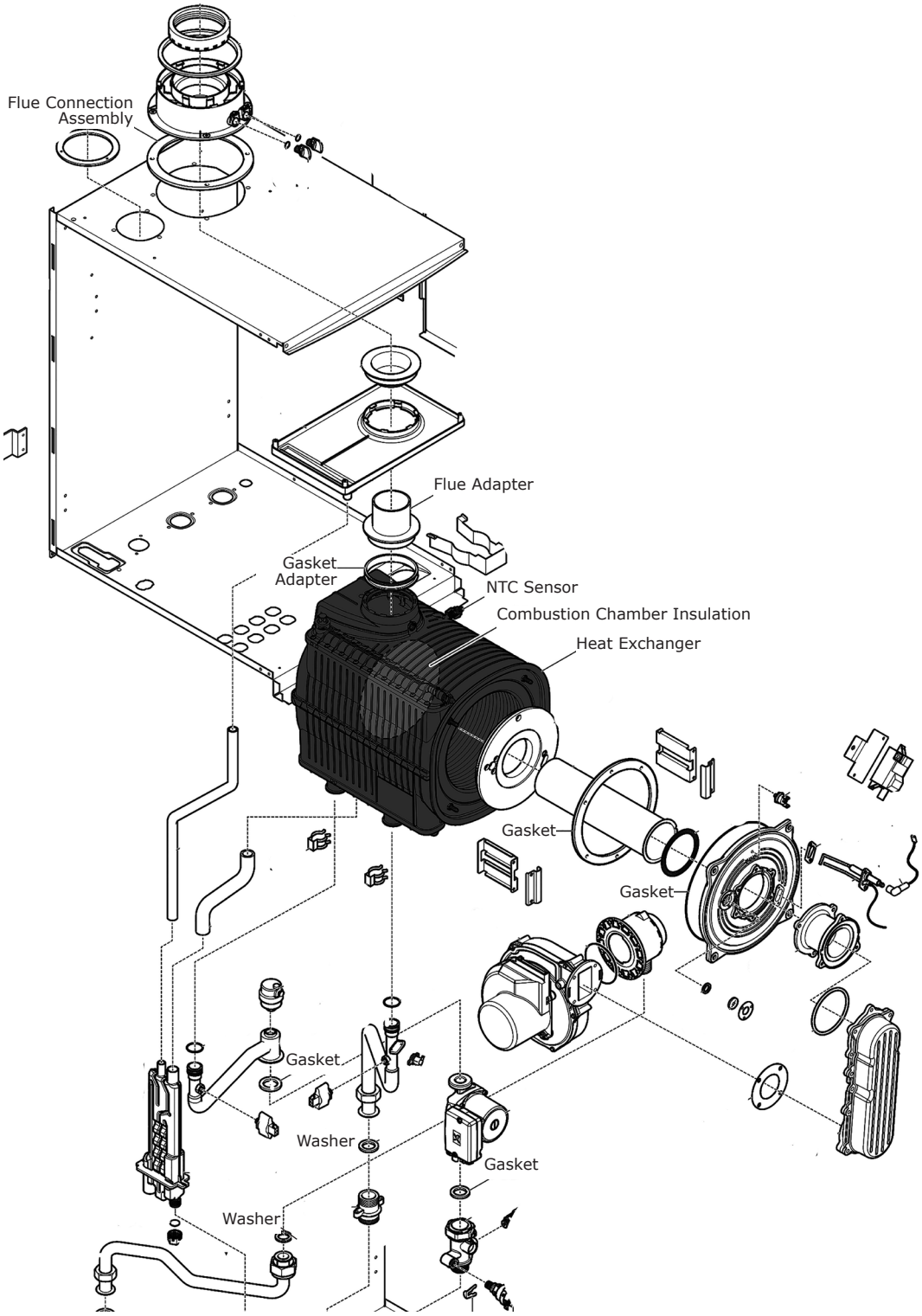
O_2/CO_2 Values at Low-Fire Propane Gas			
Nominal value		**Permitted value**	
0_2 %	CO_2%	0_2 %	CO_2%
6.4	9.6	6.1 - 6.70	9.4 - 9.8

17. Resume operation using OPERATING INSTRUCTIONS found on Operating Instructions label on boiler or in Installation, Operation & Maintenance Manual.

18. Install front panel secure with screws.

19. Verify proper operation.

Figure 9 - Heat Exchanger - Exploded View



Heat Exchanger Replacement Kit 550003256 -Includes:		
Description	**PART #**	**Qty**
HEAT EXCHANGER	-	1
GASKET	-	1
FLUE CONNECTOR	-	1
GASKET		
HEAT EXCHANGER COVER GASKET	-	1
SEALING WASHER G 3/4	-	1
GASKET ADAPTER	-	1
O RING EPDM	-	1
GASKET	-	1
KIT INSTRUCTIONS	240011705	1