NORITZ

Installation Guide

Conversion Kits: CK-23, CK-24, CK-25, CK-26, CK-27, CK-28, CK-29, CK-30

⚠ WARNING

This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. The information in these instructions must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury or death. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

⚠ WARNING

Cette trousse de conversion ne doit être installée que par le représentant d'un organisme qualifié et conformément aux instructions du fabricant et à tous les codes et exigences pertinents de l'autorité compétente. Les instructions de cette notice doivent être suivies afin de réduire au minimum le risque d'incendie ou d'explosion, de dommage matériel, de blessure ou de mort. L'organisme qualifié est responsable de l'installation adequate de cette trousse. L'installation n'est pas adéquate ni complète tant que le bon fonctionnement de l'appareil converti n'a pas été vérifié selon les instructions du fabricant fournies avec la trousse.

In Canada:

The conversion shall be carried out in accordance with the requirements of the provincial authorities having jurisdiction and in accordance with the requirements of the CAN-B149.1 and CAN1-B149.2 Installation Code.

LA CONVERSION DOIT ÊTRE EFFECTUÉE CONFORMÉMENT AUX EXIGENCES DE L'AUTORITÉ PROVINCIALE AYANT JURIDICTION ET AUX, CSA-B149.1, *ET CAN-B149.2*.

*A qualified service agency is any individual, firm, corporation or company which either in person or through a representative is engaged in and is responsible for the connection, utilization, repair or servicing of gas utilization equipment or accessories; who is experienced in such work, familiar with all precautions required, and has complied with all of the requirements of the authority having jurisdiction.

*Conversion acceptable for install locations 0-2,000 feet. See heater installation manual for procedures to adjust above 2,000 feet.

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CK-IM-5
Rev. 08/17

1. Before Conversion

Before attempting to convert a unit, verify that the proper kit has been purchased for the model type*:

Conversion Kit	Model	Conversion Type
CK-23	N-0931M/NR111-SV, N-0931M-ASME/NC250-SV-ASME	Propane to Natural Gas
CK-24	N-0931M/NR111-SV, N-0931M-ASME/NC250-SV-ASME	Natural Gas to Propane
CK-25	N-0931M-OD/NR111-OD	Propane to Natural Gas
CK-26	N-0931M-OD/NR111-OD	Natural Gas to Propane
CK-27	N-0931M-DV/NR111-DV, N-0931M-DV-ASME/ NC250-DV-ASME	Propane to Natural Gas
CK-28	N-0931M-DV/NR111-DV, N-0931M-DV-ASME/ NC250-DV-ASME	Natural Gas to Propane
CK-29	NR83-DVC NR83DVC(GQ-2457WS-FFA US) NR83OD(GQ-2457WS US)	Propane to Natural Gas
CK-30	NR83-DVC NR83DVC(GQ-2457WS-FFA US) NR83OD(GQ-2457WS US)	Natural Gas to Propane

*The model type can be verified from the rating plate located on the front cover or the right side of case of the unit.

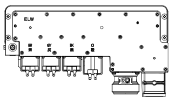
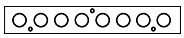
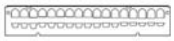
Tools Required:

- Noritz Remote Controller
- Manometer (Capable of displaying digits in tenths (e.g. 2.4) and up to 20” W.C.)
- Philips screwdriver (#2 Recommended)
- Gas leakage detector

NOTE: Do not attempt to perform a conversion without access to a manometer and a Noritz Remote Controller. A digital manometer is recommended.

2. Included Parts

The following parts are supplied in the conversion kit. Check for any missing items before starting the conversion.

Parts	Shape	Quantity
Manifold Plate	 N-0931M-DV/ NR111-DV and N-0931M-DV-ASME/NC250-DV-ASME NG/LP only  NR83-DVC/ NR83DVC(GQ-2457WS-FFA US)/ NR83OD(GQ-2457WS US)	1
O-Ring		2
Burner Damper	 N-0931M-DV/ NR111-DV and N-0931M-DV-ASME/NC250-DV-ASME NG/LP only  NR83-DVC/ NR83DVC(GQ-2457WS-FFA US)/ NR83OD(GQ-2457WS US)	1
New Inlet and Manifold Pressure Rating Sticker (English)		1
New Inlet and Manifold Pressure Rating Sticker (French)		1
Date, Gas Type, Kit Number, Name of Company Sticker (English)		1
Date, Gas Type, Kit Number, Name of Company Sticker (French)		1

3. Conversion Procedure

Parts Replacement:

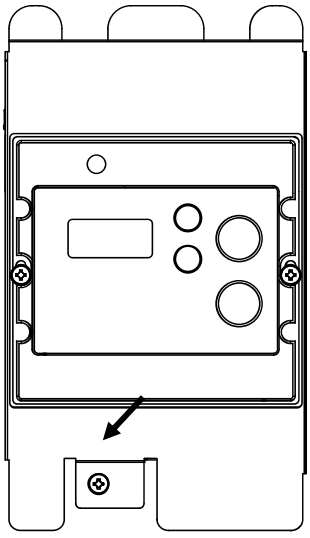
1) If the display on the Remote Controller is on, turn off the unit by pressing the “ON/OFF” button on the Remote Controller. There should be no display on the Remote Controller.

2) Turn off electrical power to unit by disconnecting the electrical plug from the outlet or shut off the breaker providing power to unit.

3) Turn off the gas and water supply to the unit by closing the gas shut-off valve.

4) Remove the Front Cover of the unit by removing the 4 screws holding it to the case.

5) **FOR NR83-DVC AND NR83DVC(GQ-2457WS-FFA US) ONLY:** Detach the Remote Controller with metal plate by removing the screw. (See image on the right)

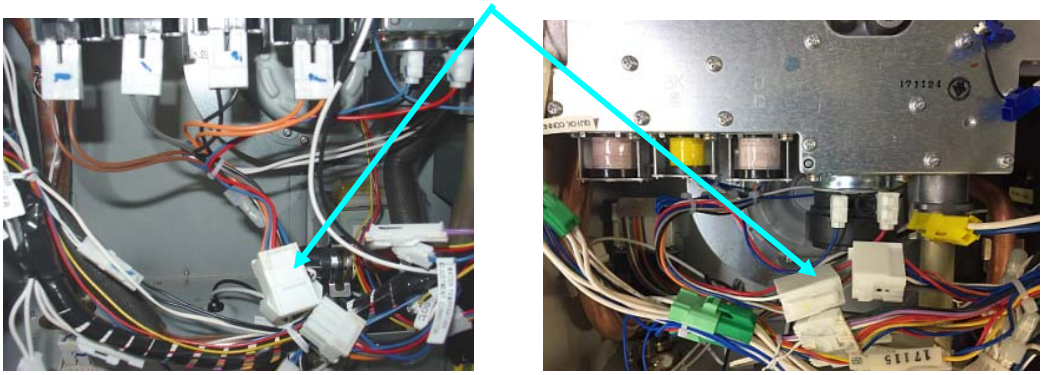


Remote Controller
NR83-DVC/
NR83DVC(GQ-2457WS-FFA US)

6) **FOR NR83-DVC, NR83DVC(GQ-2457WS-FFA US) AND NR83OD(GQ-2457WS US) ONLY:**
Locate the five colored wire connectors (Gray, Black, Orange, Blue, and Red) from the electrical solenoids on the Manifold Plate. Disconnect the connector of Manifold Plate.

FOR N-0931M, NR111, AND NC250 SERIES ONLY:
Locate the six colored wire connectors (Brown, Gray, Black, Orange, Blue, and Red) from the electrical solenoids on the Manifold Plate. Disconnect the connector of Manifold Plate.

Disconnect this connector



931 / NR111 / NC250 Series

NR83 Series

7) Remove the C-Clamp at the bottom of the Gas Pipe (Figure 2).

8) Then remove the 4 screws with a Philips screwdriver. **DO NOT use a power drill**. Once screws are removed, pull the Gas Pipe from the gas fitting. When the Gas Pipe and Manifold Plate has been detached, remove the Gas Pipe from the Manifold inlet. **Keep the Screws - Manifold Plate. These screws are used on the new Manifold Plate.** Discard the original Manifold Plate.

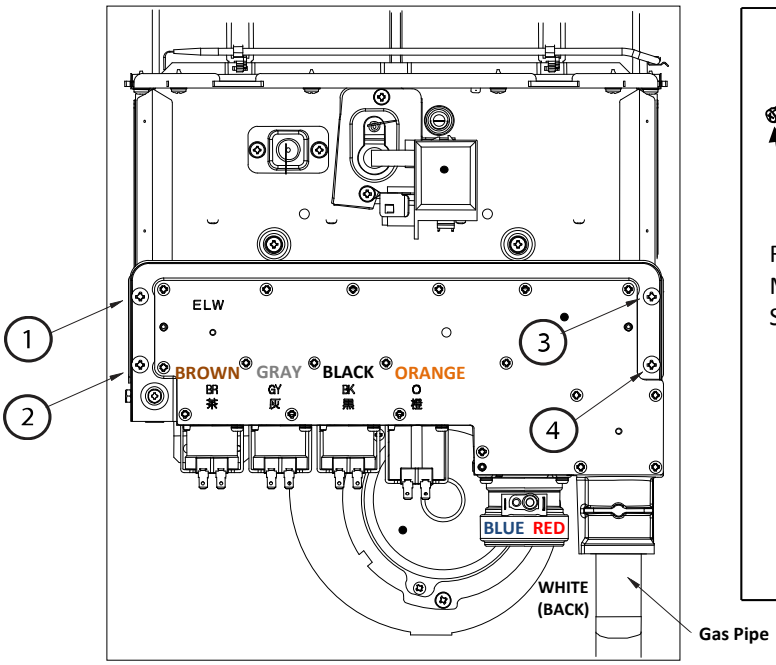


FIGURE 1

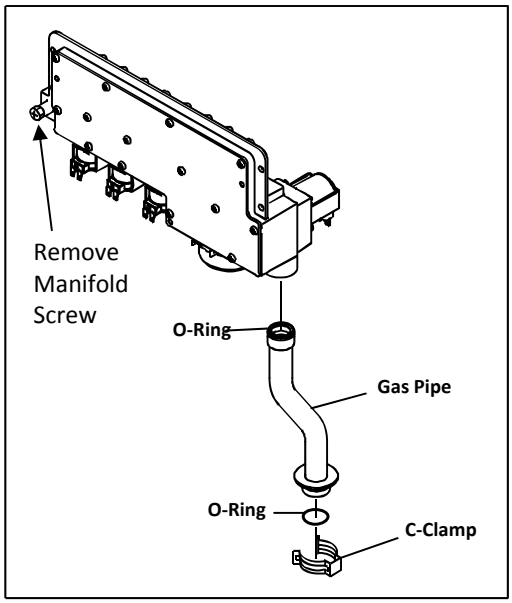


FIGURE 2

9) **FOR NR83-DVC AND NR83DVC(GQ-2457WS-FFA US) ONLY:** Remove screw, feed back pipe, and O-ring from the gas valve as shown below. **These parts are used on the new Manifold Plate.**

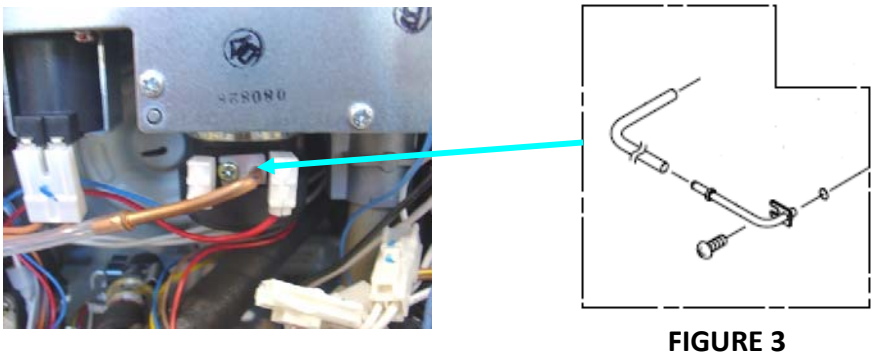
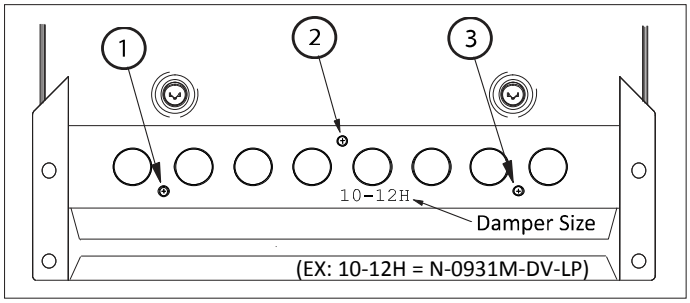


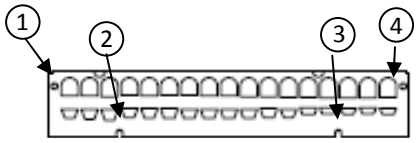
FIGURE 3

10) **FOR N-0931M-DV/NR111-DV NG/LP, N-0931M-DV-ASME/NC250-DV-ASME NG/LP, NR83-DVC, NR83DVC(GQ-2457WS-FFA US) AND NR83OD(GQ-2457WS US) ONLY**: After Manifold Plate is removed, Burner Damper will be come out as indicated in Figure 4. Remove screws (1), (2), (3), <(4) : NR83 Series only> and then detach Burner Damper from the burner assembly. Check for proper size of Burner Damper with the table below and replace with new Burner Damper included in Conversion Kit.



Burner Damper
for 931 / NR111 / NC250 Series

FIGURE 4



Burner Damper for NR83 Series

Model Name	Gas Conversion	Damper Size
N-0931M-DV/NR111-DV, N-0931M-DV-ASME /NC250-DV-ASME	NG to LP	10-12H
	LP to NG	7-14O
NR83-DVC/ NR83DVC(GQ-2457WS-FFA US)/ NR83OD(GQ-2457WS US)	NG to LP	17-11
	LP to NG	17-12

11) Replace the O-rings on the Gas Pipe to New O-rings included in Conversion Kit. Discard the old O-rings.

12) Insert the new Manifold Plate supplied with the conversion kit. The orifice size of the Manifold Plate should be marked as in Figure 6. Check for the proper orifice size with your model heater from the table below. **DO NOT continue with conversion if Manifold Plate is incorrect.**

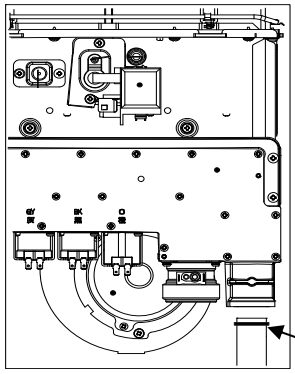
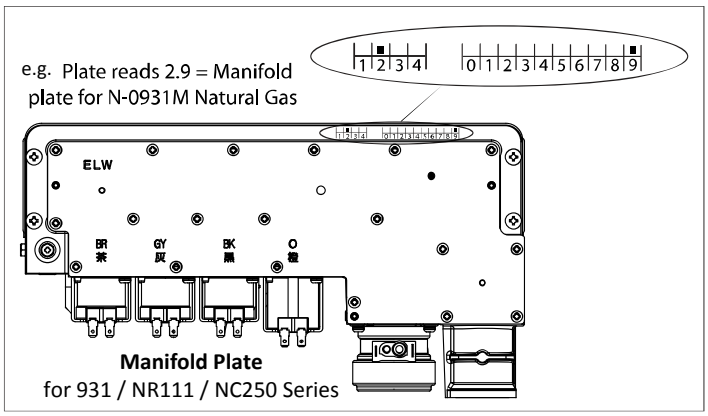
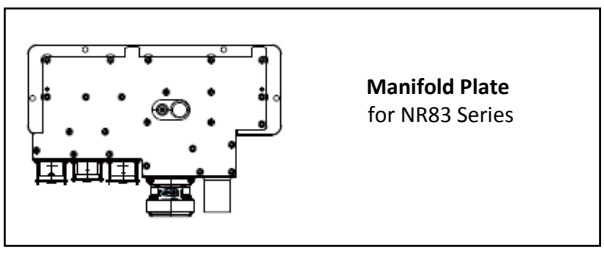


FIGURE 5



Manifold Plate
for 931 / NR111 / NC250 Series



Manifold Plate
for NR83 Series

FIGURE 6

Model Name	Gas Conversion	Orifice Size
N-0931M/NR111-SV, N-0931M-ASME/ NC250-SV-ASME	NG to LP	2.2 mm
	LP to NG	2.9 mm
N-0931M-OD/ NR111-OD	NG to LP	2.0 mm
	LP to NG	2.9 mm
N-0931M-DV/ NR111-DV, N-0931M-DV-ASME/ NC250-DV-ASME	NG to LP	2.2 mm
	LP to NG	3.0 mm
NR83-DVC/ NR83DVC (GQ-2457WS-FFA US)/ NR83OD(GQ-2457WS US)	NG to LP	1.4 mm
	LP to NG	2.2 mm

13) Make sure that O-rings are secured properly in place. **Failure to do so will cause gas leaks, possibly resulting in severe personal injury or death.**

14) Once O-rings are attached, slide the Gas Pipe into the Manifold inlet. Make sure that the Gas Pipe is completely inserted into the Manifold inlet in order to prevent any gas from leaking.

15) Insert Gas Pipe into the gas supply inlet and hold the Manifold Plate in place.

16) Secure the new Manifold Plate to the unit using the screws removed in Step 8. The screws need only to be hand tightened and should not be tightened by using a power drill. First, insert screws 1-4 from Figure 1, but do not fully tighten these screws. Once all screws are inserted, proceed to completely tighten screws 1-4.

Note: When tightening the screws, be certain to not apply excess force as the screws should turn easily. If extra force is required, stop, remove the screw and tighten by hand first. Excess force can strip out the original holes.

17) Attach C-Clamp at the bottom of the Gas Pipe (Figure 2). **Failure to do so will cause gas leaks, possibly resulting in severe personal injury or death.**

18) Connect the connector - Manifold Plate (Figure 1).

19) **FOR NR83-DVC AND NR83DVC(GQ-2457WS-FFA US) ONLY:** Attach the O-ring, feed back pipe, and screw on the Gas Valve as shown in Figure 3. Then attach the Remote Controller with screw.

20) Before replacing the Front Cover, the unit must be adjusted and tested as described in the next section.

Adjustments:

1) Before electrical power is applied to the unit, install a Remote Controller to the unit if it is not already installed.

2) Reconnect the electrical power to the unit.

3) Within the first ten minutes of connecting electrical power to the unit, but before pressing the Power ON/OFF button (display should be blank), hold the up button on the Remote Controller until the display blinks “99”. This will put the unit into Maintenance Writer mode. If the display don’t blink “99”, unplug the unit for sixty seconds, and try again.

4) After accessing the Maintenance Writer mode, use the “up” and “down” buttons to change the Maintenance Writer item number display. Pressing the “FLOW METER ALARM SET” button for 0.5 seconds will change the item number setting from “ON” to “OFF”. If the Priority lamp is flashing when an item number is displayed, this indicates an

"ON" setting for that item number, and if the Priority lamp is off, the item number is "OFF".

5) Change "FC" and "FE" from OFF to ON. The priority light should be flashing on both item numbers after pressing the "FLOW METER ALARM SET".

6) Choose the proper conversion setting from the chart and set the "A1" Maintenance Writer item number according to the chart.

   Note: DO NOT change any other item. This will cause a fault on the unit.

Desired Gas Type	A1
Natural Gas	ON
Propane	OFF

   ON: "Priority" light is flashing.
   OFF: "Priority" light is off.

7) After setting the "A1" item number for the desired gas type, press and hold the "up" and "down" buttons together for five seconds to confirm the new settings. The Remote Controller will sound and the display will go blank when the settings are confirmed. If this is not done, the unit will not put the setting changes into effect.

   Note: The setting changes can be cancelled by pressing the Power ON/OFF button before confirming the settings, or if the unit is left alone for ten minutes without confirming the settings. If the default setting needs to be changed again, disconnect the electrical power to the unit, reconnect it and repeat this procedure.

Testing:

1) Before turning on the gas supply to the unit, verify that the inlet gas supply pressure is within the following operating ranges:

   FOR N-0931M, NR111, AND NC250 SERIES ONLY:
   a. Natural Gas Supply: Min. 5.0 – Max. 10.5 inches W.C.
   b. Propane Supply: Min. 10.5 – Max. 14.0 inches W.C.

   FOR NR83-DVC, NR83DVC(GQ-2457WS-FFA US), AND NR83OD(GQ-2457WS US)ONLY:
   a. Natural Gas Supply: Min. 4.0 – Max. 10.5 inches W.C.
   b. Propane Supply: Min. 8.0 – Max. 14.0 inches W.C.

Note: If the supply pressure is higher than the maximum allowable pressure, adjust the pressure at the regulator or install a secondary regulator on the supply line connected to the water heater. **DO NOT attempt to operate heater if gas supply pressure is not within ranges specified above. High supply pressure can damage the unit and possibly cause a gas leak.**

2) Next, verify the supply pressure at the unit. To check the gas supply pressure to the unit, a tap is provided on the gas inlet (Figure 7). Make sure gas supply is turned off to the unit. Remove the hex head Philips screw from the tap. A 9/32" nut driver is recommended for the removal of this screw. If a nut driver is not available, a Philips screwdriver can be used. Gently remove the screw, so as not to strip out the screw.

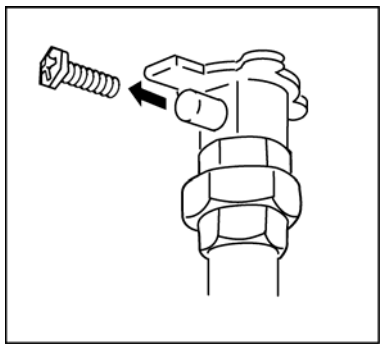
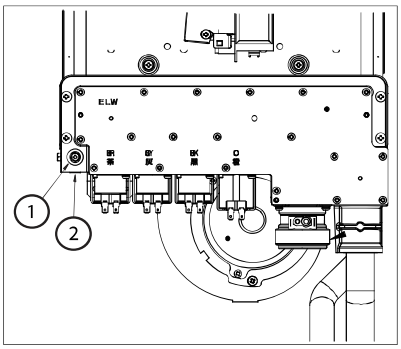


FIGURE 7

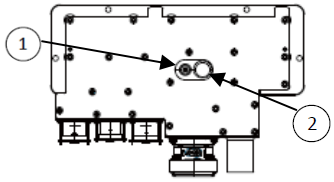
3) Connect a manometer to the tap by using a silicone tube. Turn on gas supply to the unit and confirm the supply pressure.

4) After checking the gas pressure to the unit has been confirmed, turn off the gas supply, remove the manometer tube and replace the hex head screw.

5) Check the Manifold pressure by using a manometer (digital manometer is recommended). In order to check the gas Manifold pressure, a tap is provided on the Manifold Plate inside of the unit (Figure 8). The pressure can be checked either by removing the hex head Philips screw (1) and connecting a manometer with a silicon tube, or by removing the 1/8" NPT screw (2) with an Allen wrench and connecting the appropriate pressure gauge. Be sure to zero out the manometer before attaching it to the tap.



931 / NR111 / NC250 Series



NR83 Series

FIGURE 8

6) Turn on the gas supply to the unit.

7) Before operating the unit, check for gas leaks at the gas inlet fitting and around the Manifold Plate using a gas leakage detector.

8) If not already on, press the Power "ON/OFF" button so that the unit is in standby mode. The priority light should be on.

9) Turn on several hot water fixtures (high flow rate is required through the unit) and allow the unit to go through its startup sequence. It may take several ignition attempts in order to purge air from the gas chambers. If an "11" code appears on the Remote Controller, reset the unit by pressing the Power button on the Remote Controller off and then on again.

10) Once the heater has ignited and has begun to run continuously, locate the Manifold adjustment buttons on the circuit board located in the right side of the unit (Figure 9).

11) Press and hold the maximum pressure set button. Verify from the below table that the appropriate pressure is read from the manometer. If the pressure needs adjustment, use the Manifold pressure increase and decrease buttons to adjust to the correct pressure, while continuing to hold down the maximum pressure set button.

12) Press and hold the minimum pressure set button. Verify from the tables below that the appropriate pressure is read from the manometer. If the pressure needs adjustment, use the Manifold pressure increase and decrease buttons to adjust to the correct pressure, while continuing to hold down the minimum pressure set button.

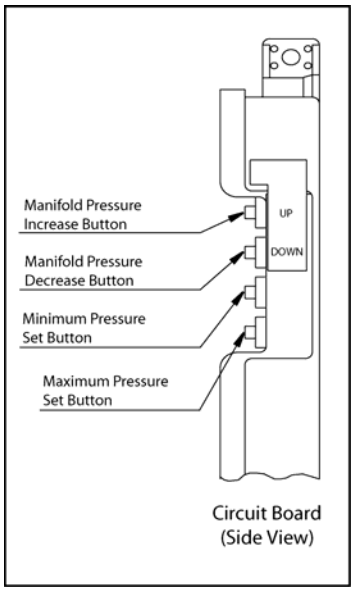


FIGURE 9

Manifold Gas Pressure Maximum and Minimum Values

Model Name	Gas Type	Supply Pressure (inch H_2O)	Manifold Pressure (inch H_2O) Cover Off	
			Max Value	Min Value
N-0931M/NR111-SV, N-0931M-ASME/NC250-SV-ASME	NG	7.9	3.46	0.87
	LP	11.0	3.65	0.94
N-0931M-OD/NR111-OD	NG	7.9	3.15	0.75
	LP	11.0	4.37	0.98
N-0931M-DV/NR111-DV, N-0931M-DV-ASME/NC250-DV-ASME	NG	7.9	3.45	0.94
	LP	11.0	4.02	0.91
NR83OD(GQ-2457WS US)	NG	7.9	2.85	1.00
	LP	11.0	4.25	1.40
NR83-DVC/NR83DVC(GQ-2457WS-FFA US)	NG	7.9	Refer to the "Setting list for gas Manifold pressure (GQ-2457WS-FFA US and NR83-DVC)" below	
	LP	11.0		

Setting List for Manifold Pressures NR83DVC(GQ-2457WS-FFA US)

Manifold Pressure (inch H_2O) Cover off								
Vent length adjustment	Dip7=OFF	Dip8=OFF	Dip7=ON	Dip8=OFF	Dip7=OFF	Dip8=ON	Dip7=ON	Dip8=ON
	Minimum		Short		Long		Maximum	
Gas type	Max. value	Min value	Max. value	Min value	Max. value	Min value	Max. value	Min value
NG	2.75	0.90	2.70	0.85	2.70	0.85	2.65	0.80
LP	3.85	1.25	3.80	1.25	3.75	1.20	3.70	1.20

Setting list for Gas Manifold pressure (NR83-DVC)

Manifold Pressure for NR83-DVC (inch H_2O) Cover off										
Vent length adjustment	Dip 7=OFF	Dip 8=OFF	Dip 7=ON	Dip 8=OFF	Dip 7=OFF	Dip 8=ON	Dip 7=ON	Dip 8=ON	No Venting	
	Minimum Length		Short Length		Long Length		Maximum Length			
Gas type / Vent length	Max. value	Min. value	Max. value	Min. value	Max. value	Min. value	Max. value	Min. value	Max. value	Min. value
NG / Min length	2.57	1.00	2.53	1.00	2.49	0.96	2.49	0.96	2.65	1.04
(Vertical termination)*	(2.53)	(0.97)	(2.46)	(0.95)	(2.46)	(0.95)	(2.40)	(0.93)		
NG / Max length	2.53	1.00	2.49	0.96	2.49	0.96	2.49	0.96		
(Vertical termination)*	(2.46)	(0.95)	(2.46)	(0.95)	(2.40)	(0.93)	(2.36)	(0.92)		
LP / Min length	3.73	1.36	3.65	1.36	3.61	1.32	3.57	1.32	3.81	1.41
(Vertical termination)*	(3.61)	(1.30)	(3.53)	(1.30)	(3.53)	(1.30)	(3.49)	(1.28)		
LP / Max length	3.65	1.36	3.61	1.32	3.57	1.32	3.57	1.32		
(Vertical termination)*	(3.53)	(1.30)	(3.53)	(1.30)	(3.49)	(1.28)	(3.45)	(1.28)		

*Use these settings when the unit terminates using the vertical rain cap

* Do not change any other dipswitches.

* Vent length condition.

	7	8
① Minimum length	○	○
② Short length	●	○
③ Long length	○	●
④ Maximum length	●	●

ON= ● OFF= ○

13) After the Manifold pressures have been confirmed, verify that the flame is a steady blue color using the inspection window (Figure 10).

14) Turn off water and gas to unit. **Attach screw to Manifold tap** and turn on gas supply to the unit.

15) Perform a final gas leak check around the entire Manifold Plate, especially near the Gas Pipe and Manifold inlet, using a gas leak detection device.

16) If the Remote Controller needs to be removed, disconnect electrical power to heater and proceed to remove controller connections.

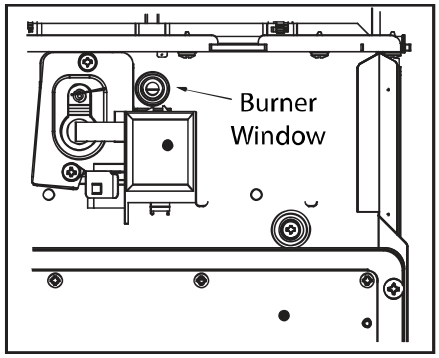


FIGURE 10

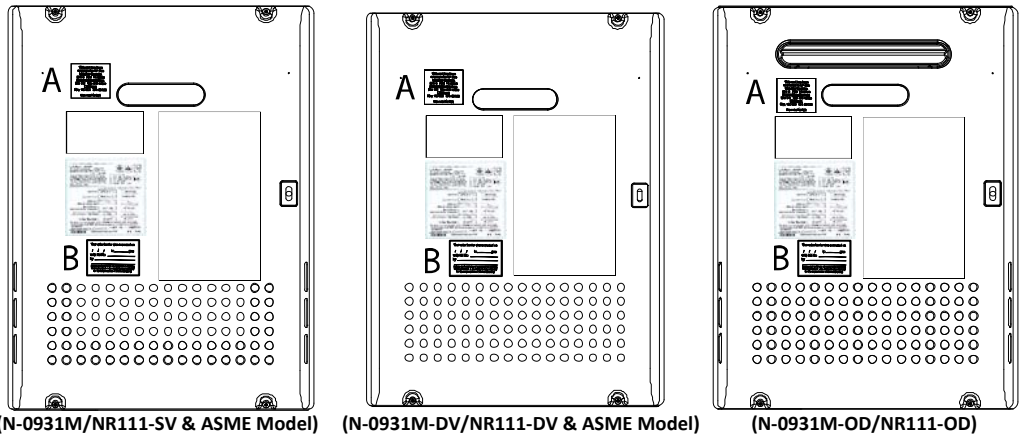
Apply conversion labels:

1) Close the Front Cover of the unit with 4 screws previously removed.

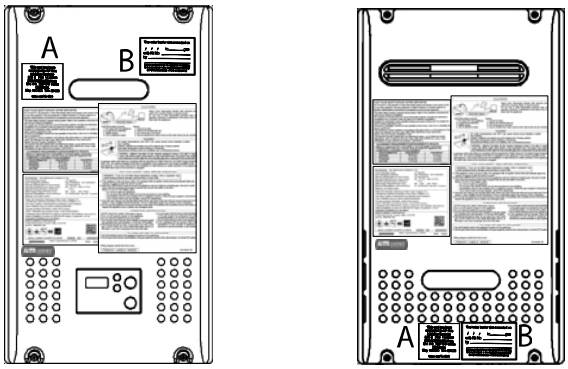
2) Locate the 2 conversion stickers in English supplied in the conversion kit. ***For units certified for use in Canada locate the 2 conversion stickers in French.**

3) Place the sticker indicating the new inlet and Manifold pressures directly above the rating sticker so as not to cover any existing markings as indicated by "A" in Figure 11. ***For units certified for use in Canada place French sticker with new pressures next to English sticker.**

4) Fill out the required information on the remaining sticker indicating the date, gas type, kit number, and name of the company performing the conversion. Place this sticker on the front cover as indicated by "B" in Figure 11. Do not to cover any existing markings. ***For units certified for use in Canada place French sticker with agency information next to English sticker.**



(N-0931M/NR111-SV & ASME Model) (N-0931M-DV/NR111-DV & ASME Model) (N-0931M-OD/NR111-OD)



NR83-DVC
NR83DVC (GQ-2457WS-FFA US)

NR83OD(GQ-2457WS US)

FIGURE 11

Installation Checklist:

Parts Replacement:

- ☐ Remove existing Manifold Plate, Burner Damper and O-rings. Discard these parts.
- ☐ Replace with new Manifold Plate, Burner Damper and O-rings.
- ☐ Make sure that Manifold Plate and O-rings are secured properly in place.

Adjustments:

- ☐ Access Maintenance Writer mode and set the A1 item number to desired gas type.
- ☐ Confirm gas type settings.

Testing:

- ☐ Before opening gas valve to the unit, verify the gas supply pressure is within operating range of the uint.
- ☐ If gas supply pressure is not within specification, adjust the pressure at the regulator or install a secondary regulator on the supply line connected to the unit.
- ☐ Remove hex Philips screw from inlet of the unit and confirm gas supply pressure with manometer. Replace screw after confirmation of gas supply pressure.
- ☐ Remove hex Philips screw or 1/8" NPT screw from gas valve and connect manometer to Gas Valve.
- ☐ Check for gas leaks around gas inlet fitting and Manifold Plate using a gas leakage detector.
- ☐ Check and confirm correct Manifold pressures. Make adjustment if necessary. Replace screw after Manifold pressures have been confirmed.
- ☐ Perform final gas leak check again with gas leakage detector.

Apply Conversion Labels:

- ☐ Place New Inlet and Manifold Pressure Rating Sticker above rating sticker on front cover.
- ☐ Fill out information on Date, Gas Type, Kit Number, Name of Company Sticker and place on front cover.
- ☐ Include French stickers for units certified for use in Canada.