



## Heat Exchanger Replacement

Model Include : NRC98-OD, NRC98-DV  
NRC83-OD, NRC83-DV  
NRC98OD(GQ-C2857WS US), NRC98DV(GQ-C2857WS-FF US)

This instructional manual is only intended for use by a qualified service professional or authorized Noritz Service Representative. Any unauthorized use of this manual may result in voiding the warranty.

Please contact Noritz Technical Support (866-766-7489) for additional support.

### Noritz America Corporation

11160 Grace Avenue, Fountain Valley, CA 92708

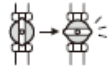
Phone 866-766-7489 Fax 714-241-1196

Procedure

1. Drain the unit as shown in following procedure

Drain water into a bucket to prevent water damage.

1. Close the gas valve.

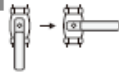


2. Turn off the power button.

3. Turn off the power supply.

**Do not touch with wet hands.**

4. Close the water supply valve.

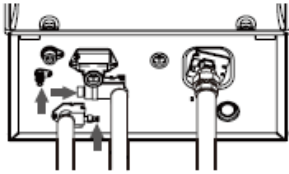


5. Fully open all hot water fixtures.



6. Turn the drain plug to the left to open, and then remove.


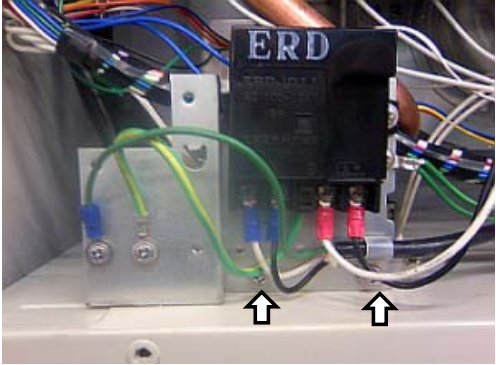
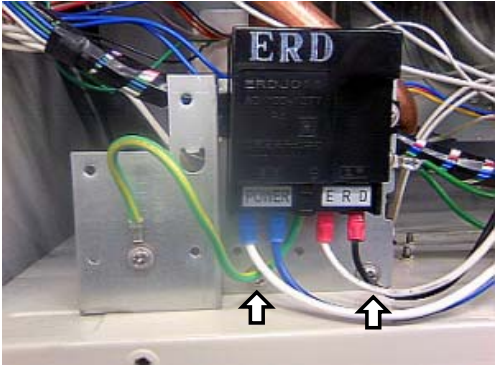
7. Check that the water is completely drained, close all the drain plugs and the hot water fixtures after 10 minutes or more pass from operation of 6.



Drain Plugs

Each drain plug might not be visible if insulation is installed around the piping.

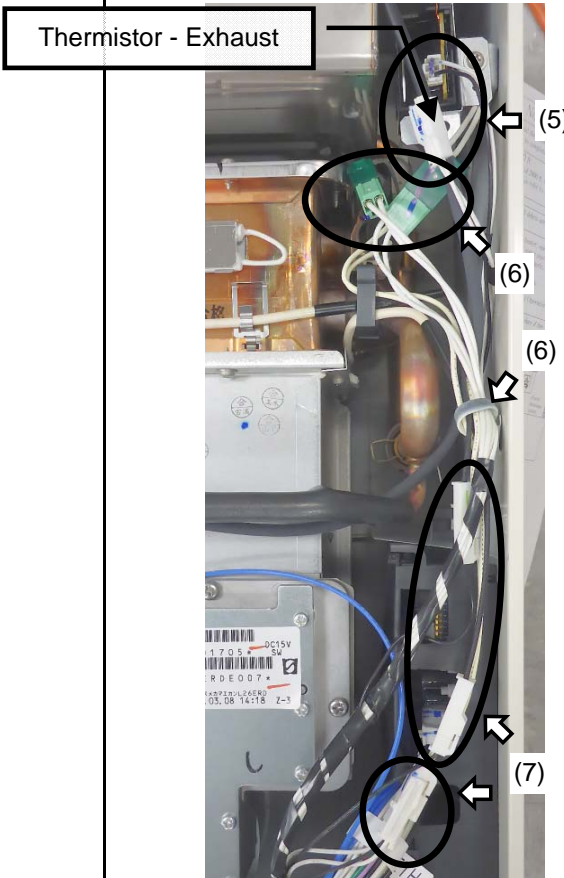
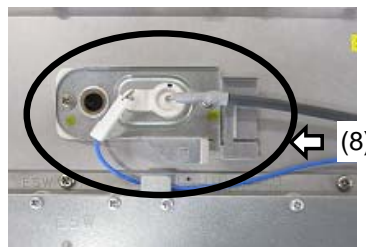

Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>2. Remove Front Cover</p> <p>(1) Disconnect electrical power to the unit                      (2) Turn off gas and water                      (3) Remove 4 screws</p>	 <p>Ex.) OD model</p>
<p>3. Remove Lightning Protection</p> <p>(1) Remove 2 screws that hold the Lightning Protection Plate                      (Whichever the unit is in case No.1, 2)</p> <p>(2) Let Lightning Protection hang outside of the unit</p>	 <p>Case No.1 - DV model</p>  <p>Case No.2 - OD model</p>

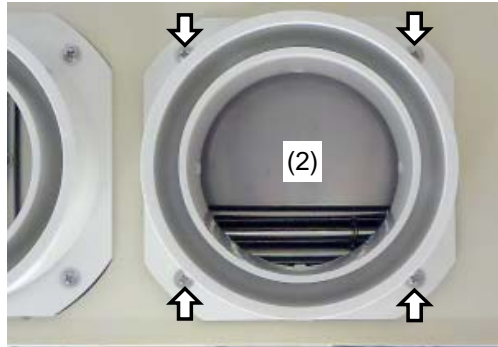
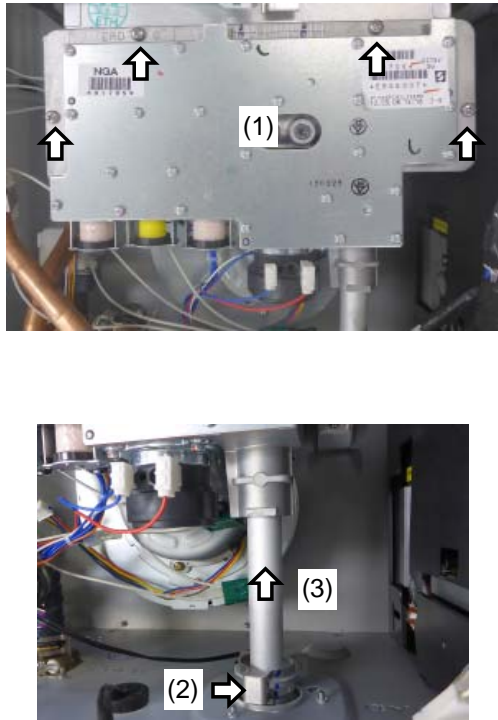
Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>4. Unplug all wires that attach to the wiring harness and the body of the water heater</p> <p>(1) Loosen the wire anchor from left side of Case, unplug Freeze Prevention Heater, <b>DV model only</b> ; Remove Deflector Plate - Air Intake and Cover - Drain</p> <p>(2) Unplug Freeze Prevention Heater, Water Level Electrode and Thermistor - Heat Exchanger</p> <p>(3) Loosen the wire anchor from lower left side of Case, unplug Freeze Prevention Heaters(2), and Water Servo - Main</p> <p>(4) Remove Cable Tie, unplug Freeze Prevention Heaters (3), Wiring for Fan Motor, Water Flow Sensor, Thermistor - Cold Water, - Hot Water, - Air Inlet Wiring for Remote Controller and Wiring for Manifold Plate</p>	<p>The diagram illustrates the internal wiring and components of a water heater. Key parts labeled include the Deflector Plate - Air Intake at the top and the Cover - Drain below it. The main image shows a complex arrangement of wires and connectors. Callouts (1), (2), and (3) indicate specific wiring points to be addressed during the procedure. A secondary inset image at the bottom shows a close-up of a Cable Tie being removed from a bundle of wires, with callout (4) pointing to it. The text 'DV model' is visible at the bottom of the main image.</p>

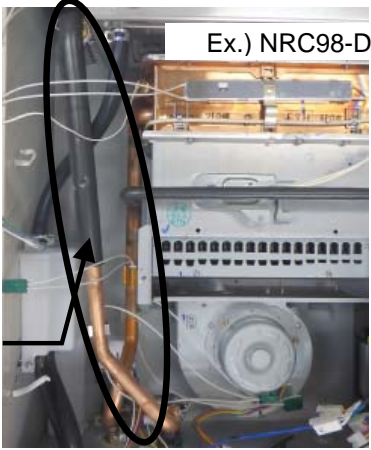
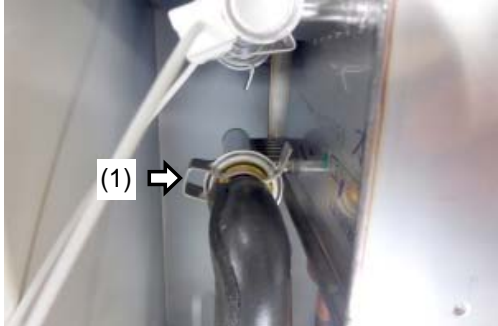
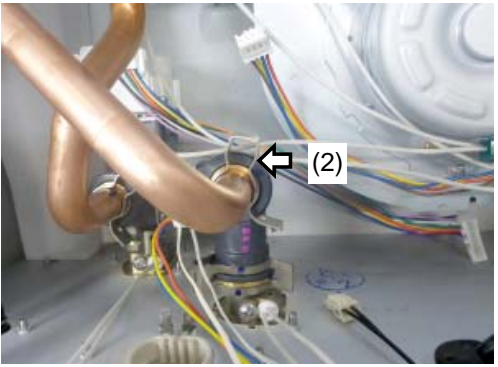
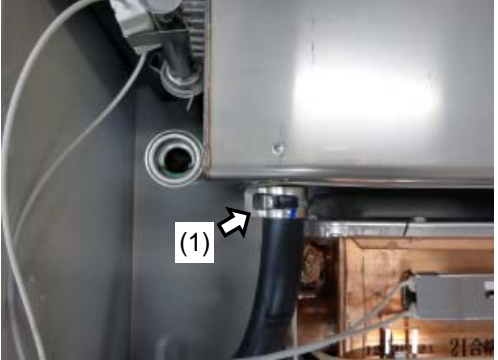
Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>(5) Unplug wiring for Igniter  <b>DV model only ; Unplug Thermistor - Exhaust</b></p> <p>(6) Loosen the wire anchor from right side of Case, unplug Freeze Prevention Heater (2)</p> <p>(7) Unplug High Limit Switch, and Thermal Fuse (2)</p> <p>(8) Unplug Flame Rod and Ignition Plug</p> <p>(9) Let all wires hang outside of the unit</p>	 <p>Thermistor - Exhaust</p> <p>Ex.) NRC98-DV</p>  <p>(8)</p>  <p>(9)</p> <p>Ex.) NRC98-DV</p>

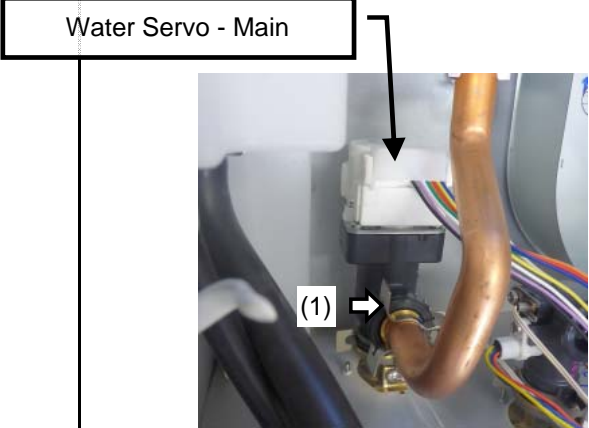
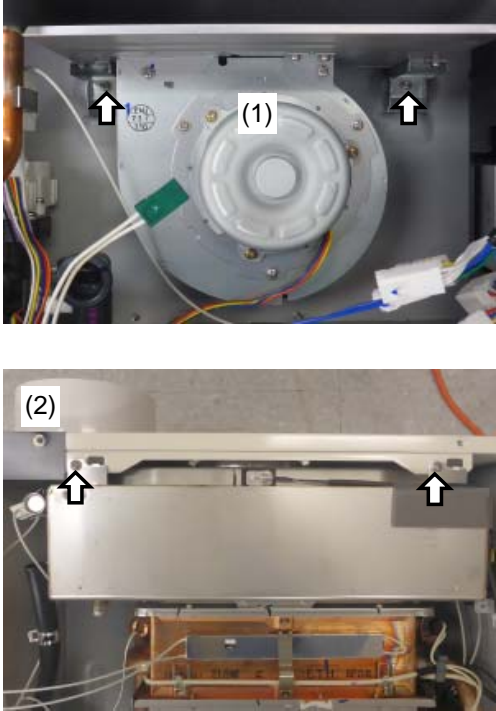
Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>5. <b>DV model only</b> ; Remove Exhaust Flue from top of the unit</p> <p>(1) Disconnect the venting from the unit</p> <p>(2) Remove 4 screws and pull Exhaust Flue off from the unit and set aside</p>	
<p>6. Remove Manifold Plate</p> <p>(1) Remove 4 big silver screws on Manifold Plate that attach Manifold Plate to Burner</p> <p>(2) Remove "C" Clamp</p> <p>(3) Locate inlet pipe to Manifold Plate and push up, remove Manifold Plate</p>	

Heat Exchanger Replacement Procedure

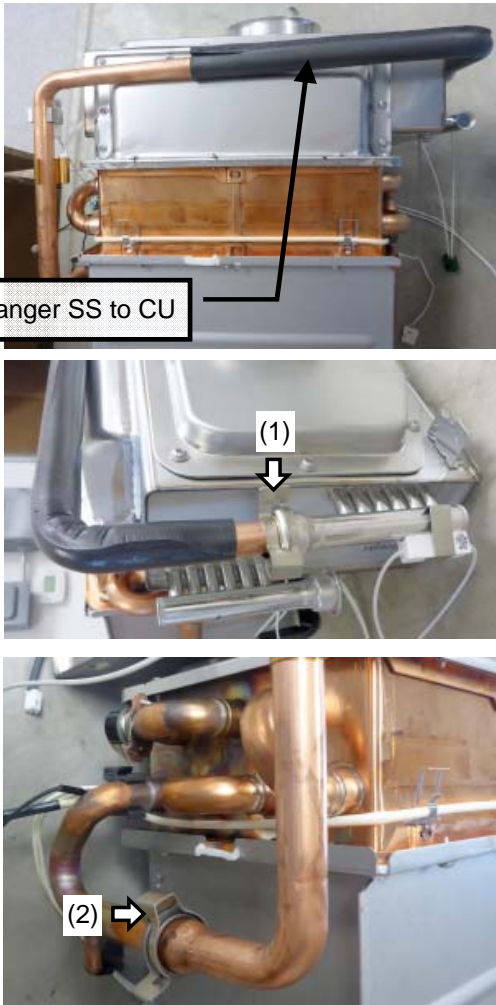
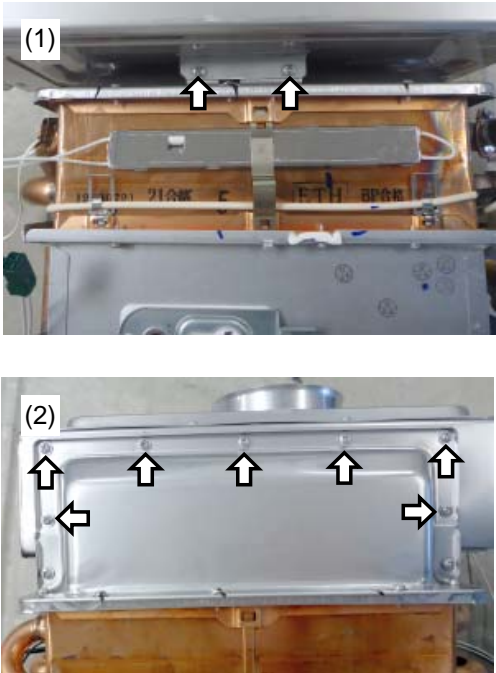
Procedure	Diagram
<p>7. Remove Pipe - Flow Sensor to Stainless Steel Heat Exchanger (SS HE)</p> <p>(1) Remove "C" Clamp on top of the pipe going into SS HE</p> <p>(2) Remove "C" Clamp on bottom of the pipe going into Water Flow Sensor</p> <p>(3) Remove the pipe</p>	<p>Diagram</p> <p>Ex.) NRC98-DV</p>  <p>Pipe - Flow Sensor to SS HE</p>  
<p>8. Remove Hose of Condensate Container</p> <p>(1) Remove Hose Clamp on the hose of Condensate Container, it will be left below SS HE (you will need a needle nose pliers to open Hose Clamps)</p>	

Heat Exchanger Replacement Procedure

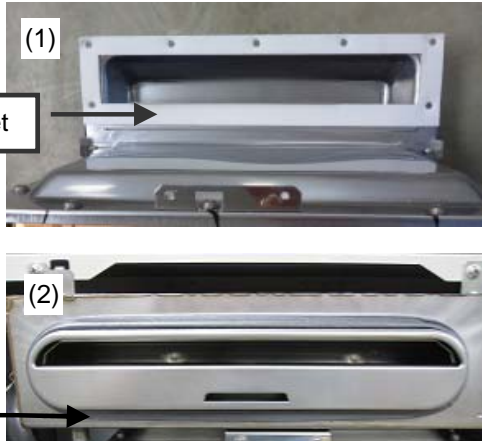

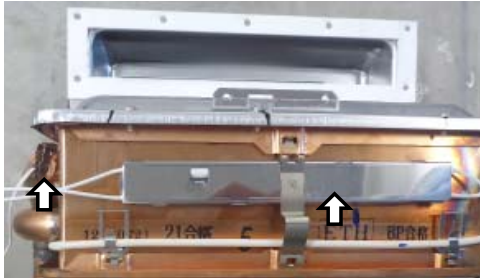
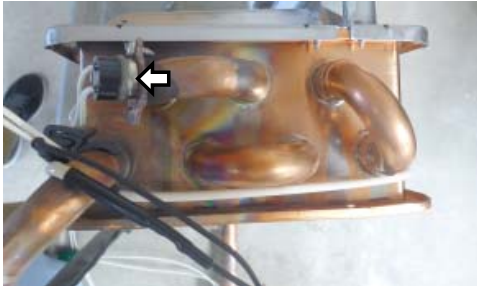
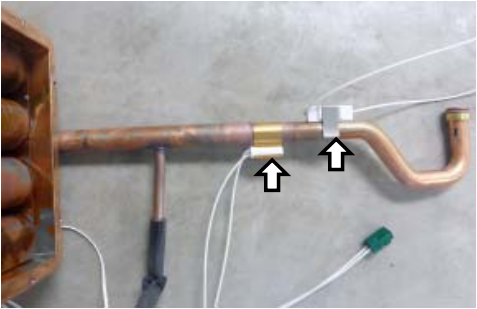
Procedure	Diagram
<p>9. Disconnect a pipe from Water Servo - Main</p> <p>(1) Remove "C" Clamp, disconnect a pipe from Water Servo - Main</p>	
<p>10. Remove the assembly from the case</p> <p>(1) Remove 2 set screws on the bottom of Burner</p> <p>(2) Remove 2 set screws near the top of the case (Support bottom of the assembly)</p> <p>(3) SS HE, Copper Heat Exchanger (CU HE), Burner and Fan Motor will come out in one section, remove from the unit</p>	



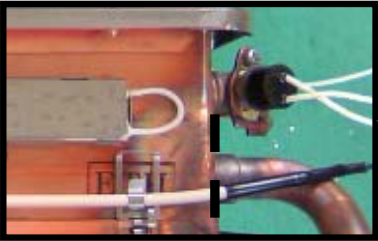
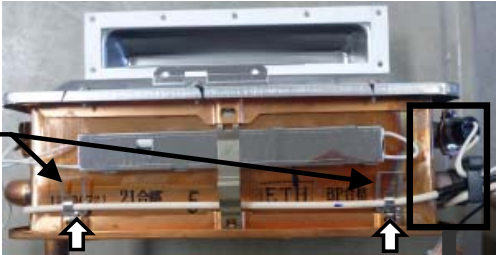



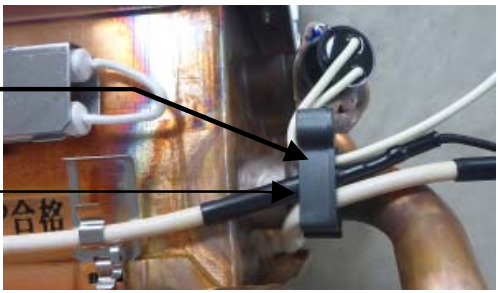
Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>11. Remove Pipe - Heat Exchanger SS to CU</p> <p>(1) Remove "C" Clamp on top of the pipe going into SS HE</p> <p>(2) Remove "C" Clamp on the pipe going into CU HE</p> <p>(3) Remove the pipe</p>	
<p>12. Separate SS HE from CU HE</p> <p>(1) Remove 2 screws on the bracket between SS HE and CU HE</p> <p>(2) Remove 7 screws that located on the back side of SS HE</p> <p>(3) Separate SS HE from CU HE</p>	


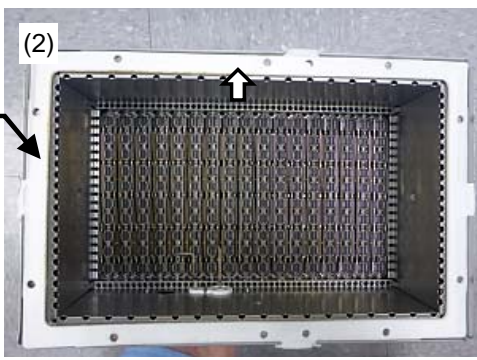
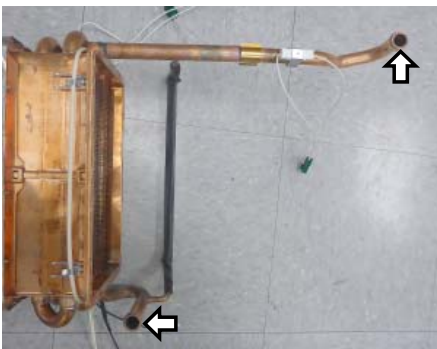

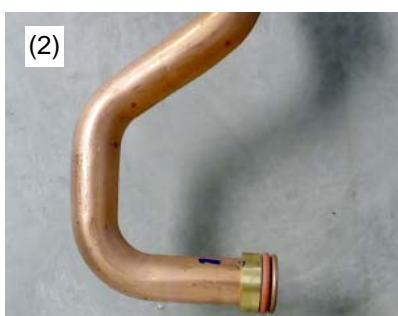
Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>13. Replacing the SS HE</p> <p>Note: If you are not replacing SS HE, you can skip this step and set SS HE aside.</p> <p>(1) Remove old Gasket between SS HE and CU HE Exhaust Box and replace with new one</p> <p>(2) <b>OD model only</b> ; Remove Gasket on the front of SS HE and place on new one</p>	 <p>(1) Gasket</p> <p>(2) Gasket</p> <p>OD model</p>
<p>14. Remove CU HE</p> <p>(1) Remove 12 screws holding Burner to CU HE</p> <p>(2) Separate Burner from CU HE</p>	 <p>(1)</p>
<p>15. Remove the heat exchanger components from old heat exchanger and put on new heat exchanger</p> <p>(1) Front side: Freeze Prevention Heater and Thermistor - Heat Exchanger</p> <p>(2) Right side: High Limit Switch</p> <p>(3) Under side: Freeze Prevention Heater (2) (Secure to put Freeze Prevention Heater on same position)</p>	<p>(1)Front side</p>  <p>(2)Right side</p>  <p>(3)Under side</p>  <p>Ex.) NRC98-DV</p>


Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>(4) Attach Thermal Fuse, 4 Clamps, and Harness Clip on 4 sides of CU HE, see 4 views of CU HE to make sure Thermal Fuse is routed correctly</p>  <p>The end of Insulation tube(Black) and the right corner of CU HE are lined up</p>	<p><u>Front side</u></p>  <p>Clamp</p> <p><u>Left side</u></p>  <p>Keep Thermal Fuse straight</p> <p><u>Back side</u></p>  <p>Clamp</p> <p><u>Right side</u></p>  <p>Harness Clip</p> <p>Keep Thermal Fuse straight</p>  <p>Harness Clip</p> <p>Tie Thermal Fuse and High Limit Switch with Harness Clip</p>

Heat Exchanger Replacement Procedure

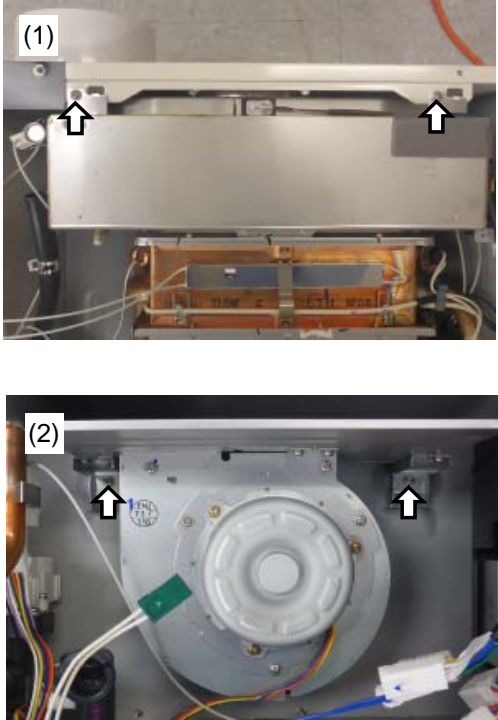
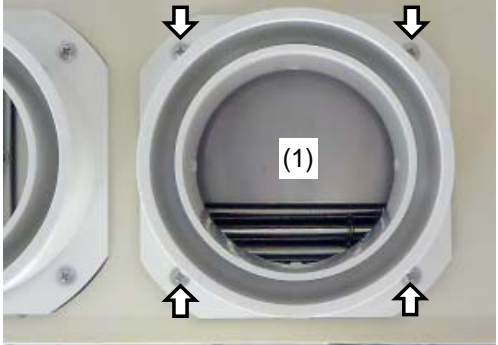
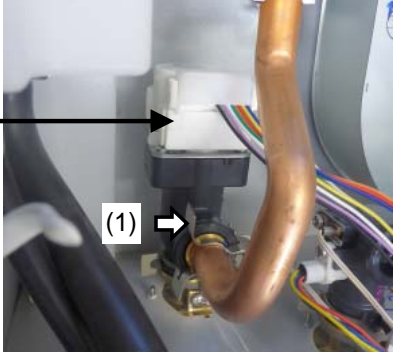
Procedure	Diagram
<p>16. Replace Gaskets</p> <p>(1) Replace new Gasket on CU HE Exhaust Box</p> <p>(2) Remove old burner Gasket and replace with new one</p>	 
<p>17. Place new O - Rings on new CU HE</p> <p>(1) Inlet to CU HE</p> <p>(2) Outlet from CU HE</p>	 <p data-bbox="1029 1400 1220 1433">Ex.) NRC98-DV</p>  

Heat Exchanger Replacement Procedure

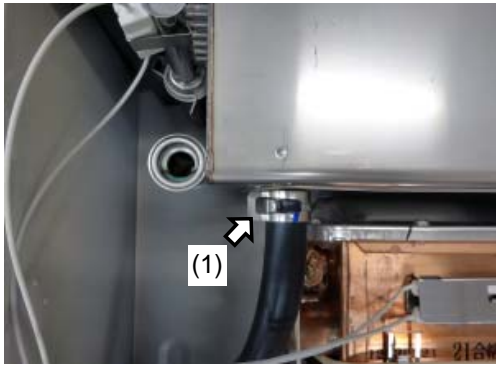
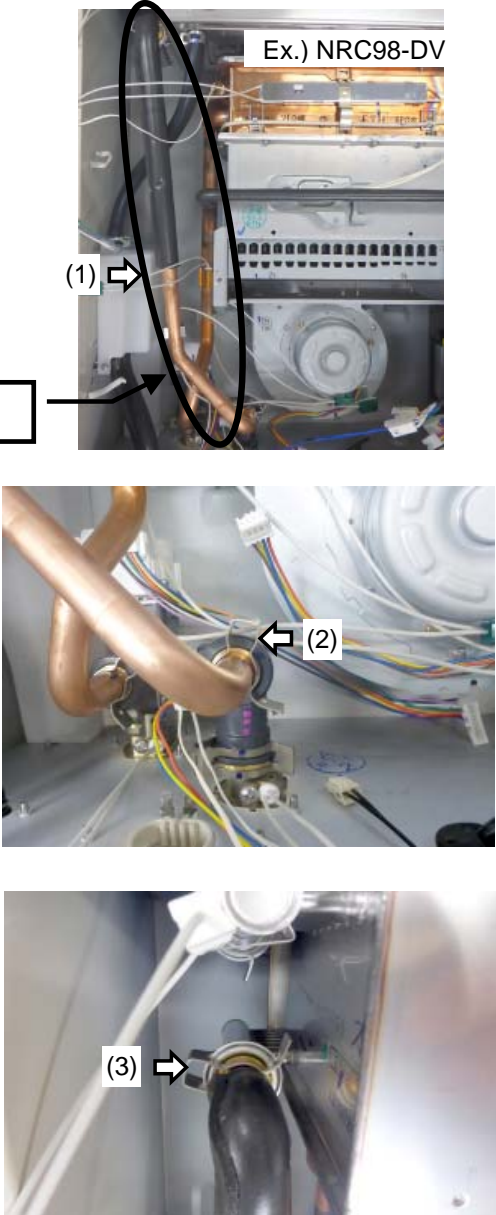
Procedure	Diagram
<p>18. Replace Burner, CU HE, and SS HE</p> <p>(1) Attach 7 screws that located on the back side of SS HE to hold SS HE to CU HE</p> <p>(2) Attach 2 screws on the bracket between SS HE and CU HE</p> <p>(3) Attach "C" Clamp on top of Pipe - Heat Exchanger SS to CU going into SS HE</p> <p>(4) Attach "C" Clamp on the pipe going into CU HE</p> <p>(5) Attach 12 screws around perimeter of Burner and CU HE</p>	   

Pipe - Heat Exchanger SS to CU

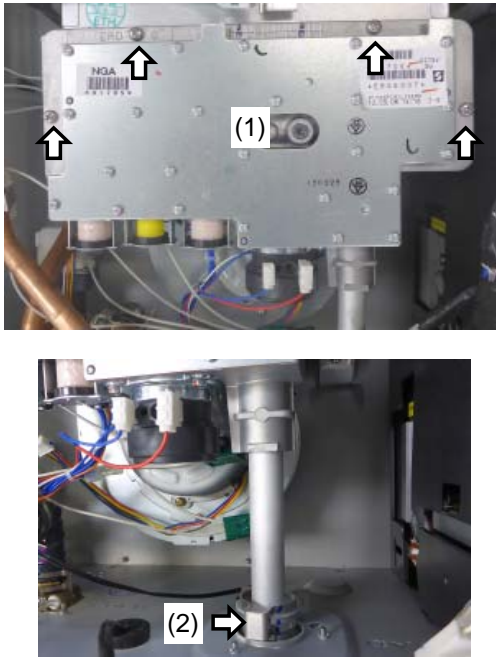

Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>19. Replace the assembly back inside the case</p> <p>(1) Secure 2 set screws near the top of the case</p> <p>(2) Secure 2 set screws on the bottom of Burner</p>	
<p>20. <b>DV model only</b> ; Replace Exhaust Flue on top of the unit</p> <p>(1) Attach the flue to the unit and secure 4 screws</p> <p>(2) Reconnect the venting to the unit</p>	
<p>21. Reconnect a pipe to Water Servo - Main,</p> <p>(1) Insert a pipe to Water Servo - Main, and attach "C" Clamp</p>	

Heat Exchanger Replacement Procedure

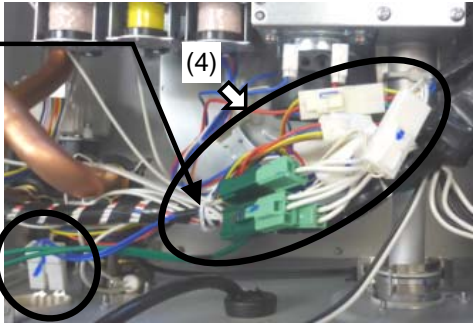

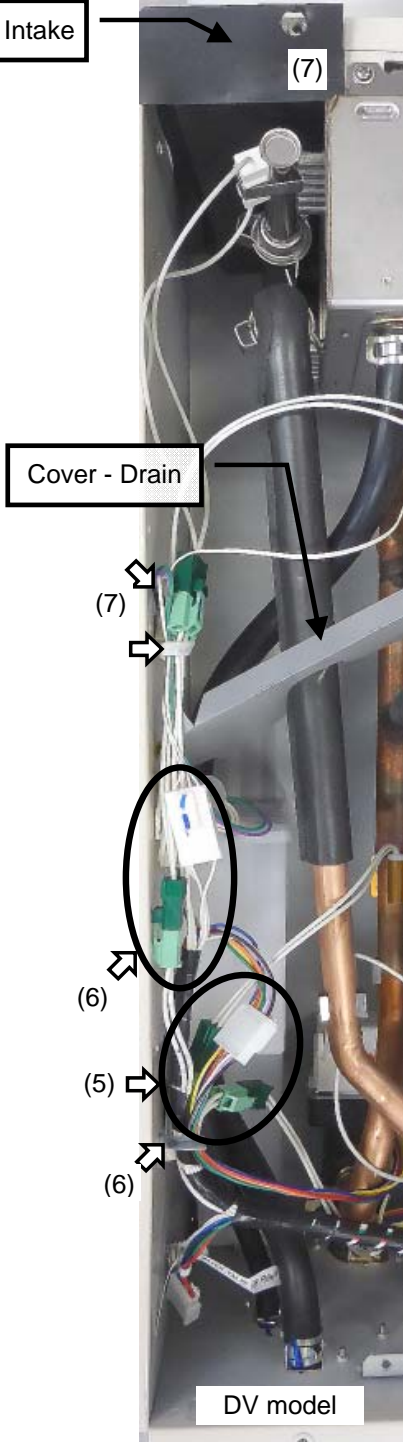
Procedure	Diagram
<p>22. Attach Hose of Condensate Container</p> <p>(1) Attach hose with Hose Clamp, you will need a needle nose pliers for these clamps</p>	
<p>23. Reconnect Pipe - Water Flow Sensor to SS HE</p> <p>(1) Insert the pipe into Water Flow Sensor and SS HE</p> <p>(2) Attach "C" Clamp on bottom of the pipe going into Water Flow Sensor</p> <p>(3) Attach "C" Clamp on top of the pipe going into SS HE</p>	 <p>Ex.) NRC98-DV</p> <p>Pipe - Flow Sensor to SS HE</p>

Heat Exchanger Replacement Procedure

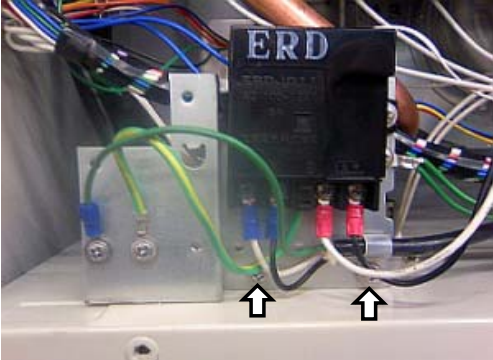
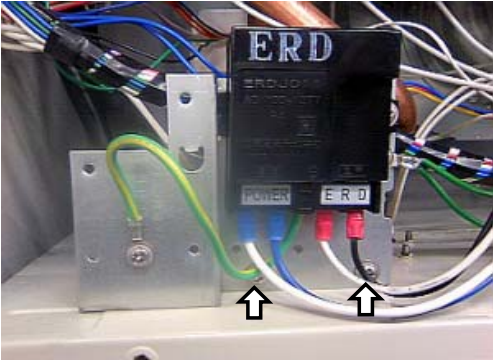

Procedure	Diagram
<p>24. Replace Manifold Plate</p> <p>(1) Secure the Manifold Plate to Burner with 4 big silver screws</p> <p>(2) Secure gas pipe of Manifold Plate to gas inlet fitting with "C" Clamp</p>	
<p>25. Reconnect all wires that attach to the wiring harness and the body of the water heater</p> <p>(1) Plug wiring for Igniter <b>DV model only</b> ; Plug Thermistor - Exhaust</p> <p>(2) Plug Freeze Prevention Heater (2), High Limit Switch, and Thermal Fuse (2), tie all wires (except for Ignition Wire) with the anchor from right side of the case</p> <p>(3) Plug Flame Rod and Ignition Plug</p> <div data-bbox="411 1415 933 1554" style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p><b>Caution!</b>                      1. Don't tie Ignition Wire with the anchor.                      2. Set Ignition wire behind of other wires.</p> </div>	<div data-bbox="767 958 1078 1016" style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"> <p>Thermistor - Exhaust</p> </div>  <p style="text-align: center;">Ex.) NRC98-DV</p>



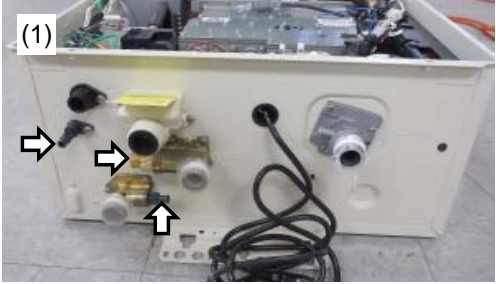

Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>(4) Plug Freeze Prevention Heaters (3), Wiring for Fan, Water Flow Sensor, Thermistor - Cold water, Hot water, Air Inlet, Wiring for Manifold Plate and Wiring for Remote Controller And then tie wires with Cable Tie</p>	
<p>(5) Plug Freeze Prevention Heaters (2) and Water Servo - Main</p>	
<p>(6) Plug Freeze Prevention Heater, Water Level Electrode and Thermistor - Heat Exchanger And then tie wires with the anchor from side of Case</p>	
<p>(7) Plug Freeze Prevention Heater Tie wires with the anchor from left side of Case Attach Deflector Plate - Air Intake</p>	

Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>26. Replace Lightning Protection</p> <p>(1) Attach Lightning Protection Plate with 2 screws</p>	 <p>Case No.1 - DV model</p>  <p>Case No.2 - OD model</p>
<p>NRC98OD(GQ-C2857WS US) and NRC98DV(GQ-C2857WS-FF US) have "Blue connector" for Scale Flushing</p> <p><b><u>NOTE ; Don't connect this blue connector when replacing Heat Exchanger</u></b></p>	 <p>Disconnected</p>

Heat Exchanger Replacement Procedure

Procedure	Diagram
<p>27. Check for water leak</p> <p>(1) Secure 3 drain valves</p> <p>(2) Turn on water inlet valve slowly (check for leaks around "C" Clamps)</p> <p>(3) If you get leaks, close water inlet valve Re-secure "C" Clamps of leaking points</p>	
<p>28. Check for gas leaks and doing trial operation</p> <p>(1) Turn on gas</p> <p>(2) Turn on the unit Check for leaks around Manifold Plate and joining areas For example ; Between Burner and CU HE</p> <p>(3) If you get leaks, Close gas supply valve Re-secure "C" Clamps of leaking points</p>	
<p>29. Replace Front Cover</p> <p>(1) Secure Front Cover with 4 screws</p>	 <p style="text-align: center;">OD model</p>