



NRC661A, NRC711 Series Heat Exchanger Replacement

Model Include: NRC661A-DV, NRC661A-OD, NRC711-DV, NRC711-OD


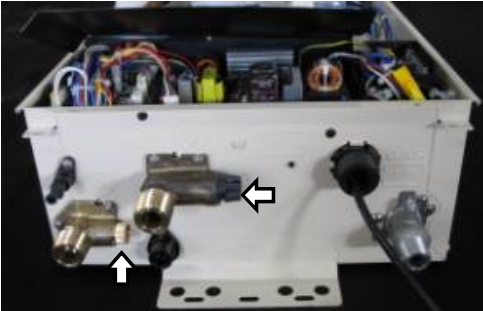
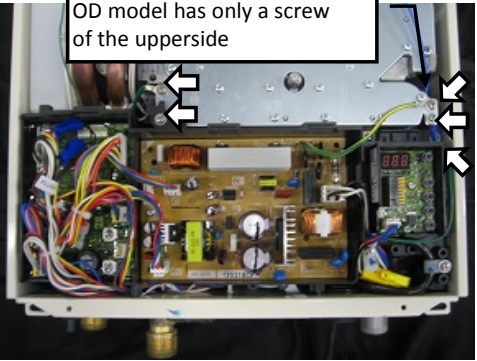
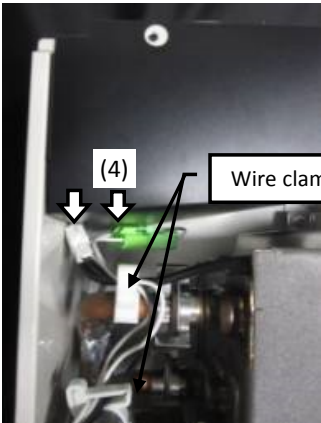
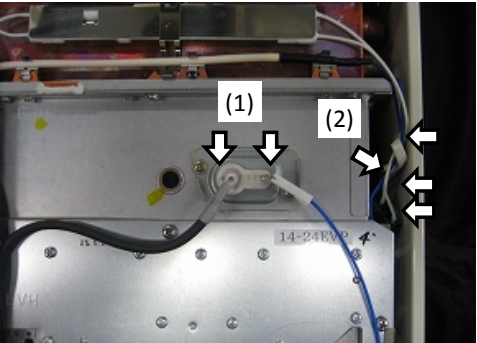
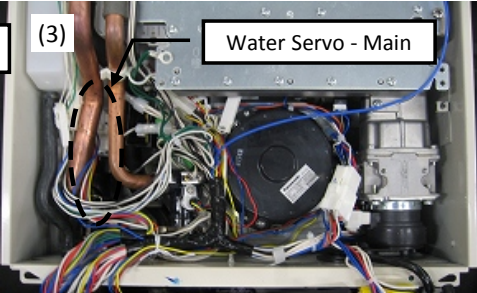
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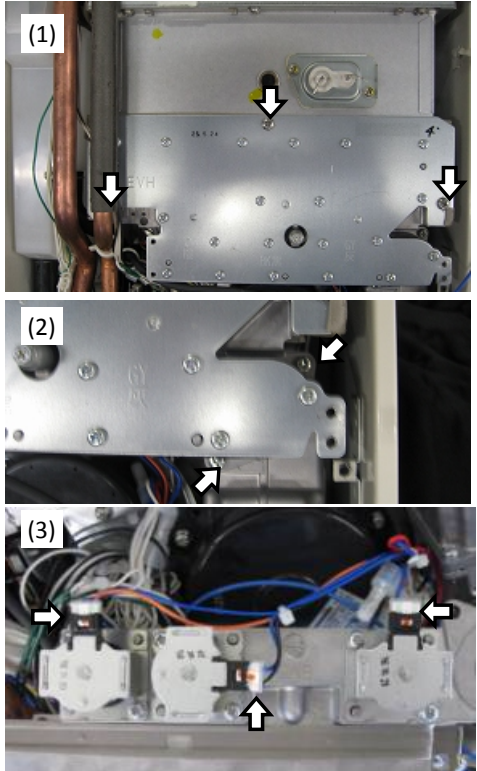
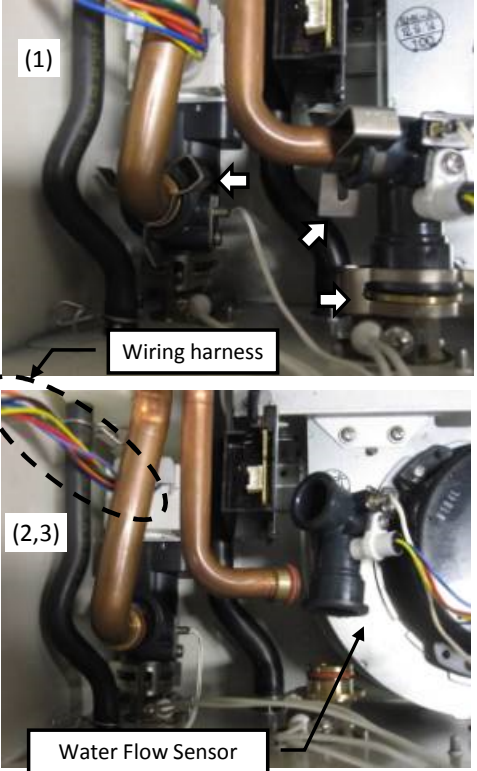
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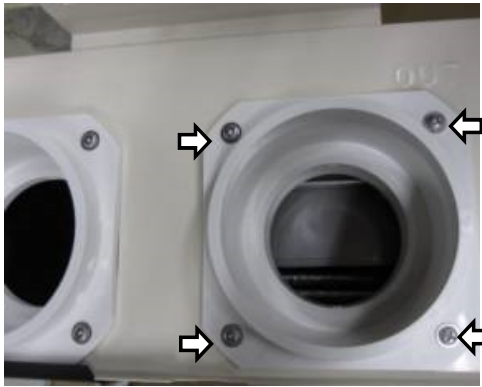
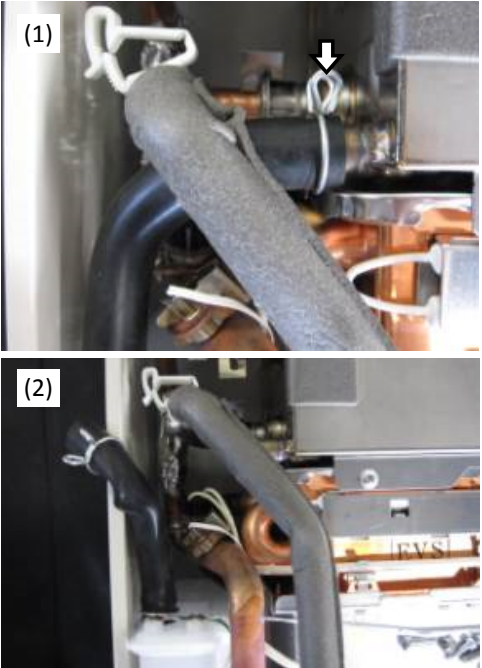
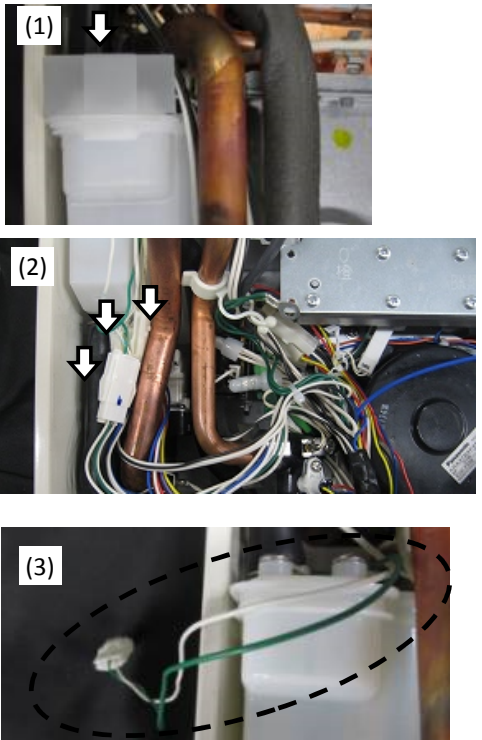
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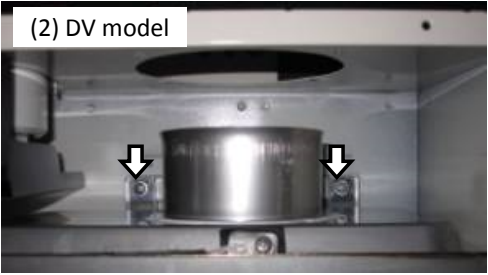
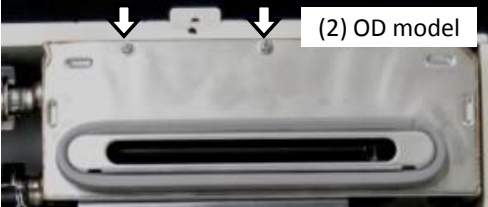
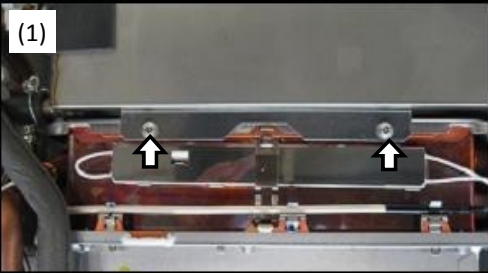
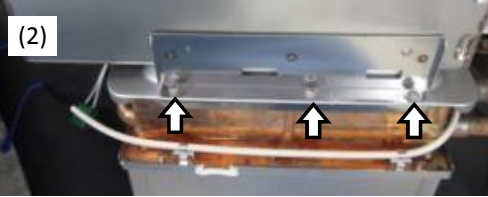

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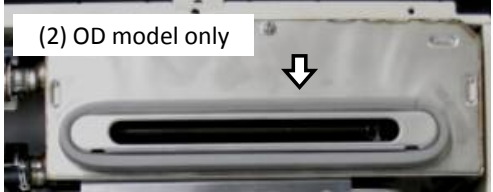
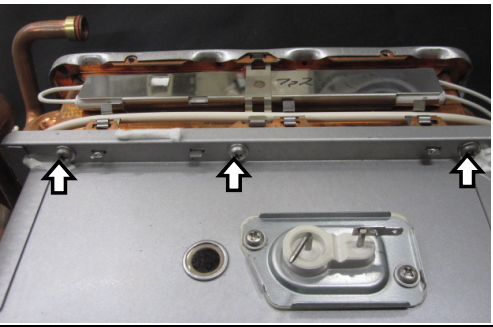
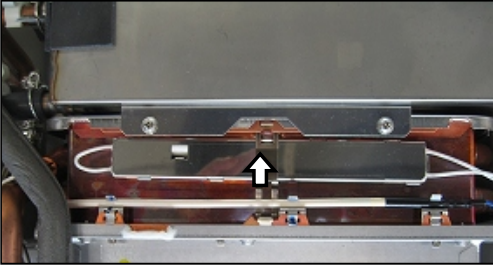
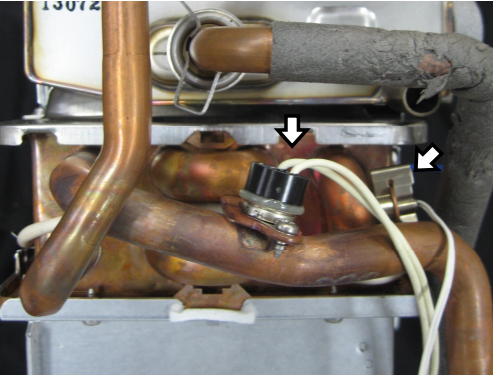
Procedure	Diagram
<p>1. Remove the front cover</p> <ol style="list-style-type: none"> (1) Disconnect electrical power to the unit (2) Turn off gas and water (3) Remove 4 screws (4) Remove drain 2 valves and drain unit completely (5) Remove the cover - circuit board <div data-bbox="549 600 785 647" data-label="Text"> <p>Cover - Circuit Board</p> </div>	 
<p>2. Disconnect the connectors from the circuit board and remove the ground wire, the circuit board</p> <ol style="list-style-type: none"> (1) Disconnect the connectors from circuit board (2) Remove the ground wire DV model; 3 ground wires OD model; 2 ground wires (3) Remove the circuit board; there are 2 screws, one on the right-side and middle-upper of the circuit board. Let the circuit board hang outside of the unit 	
<p>3. Unplug all wires that attach to the wiring harness and the body of the water heater</p> <ol style="list-style-type: none"> (1) Unplug Flame Rod and Ignition Plug (2) Loosen the wire anchor from right side of the case and unplug the freeze prevention heater, thermal fuse (2) (3) Unplug all wires that attach to the wiring harness except the water servo - main (4) *DV model only Unplug the freeze prevention heater, the thermistor - exhaust. Release the wire clamps <div data-bbox="504 1653 826 2074" data-label="Image">  </div>	 

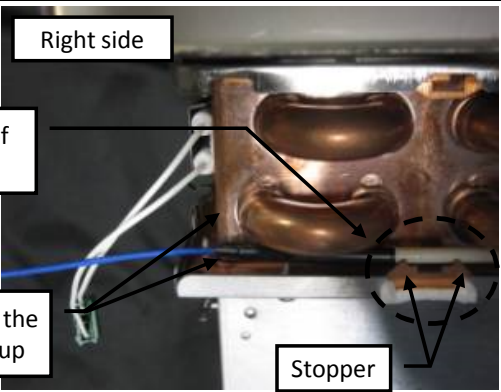
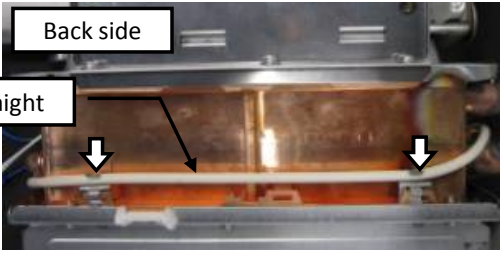
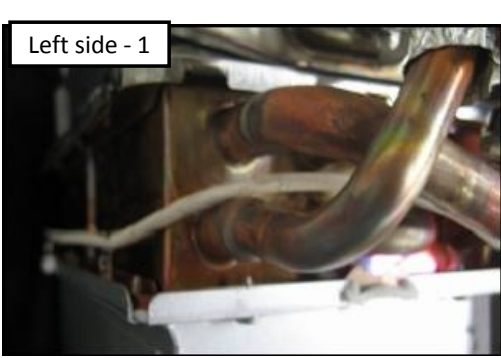
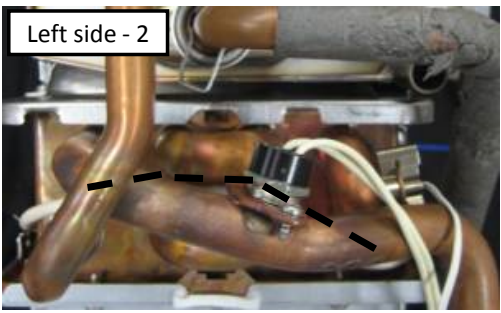
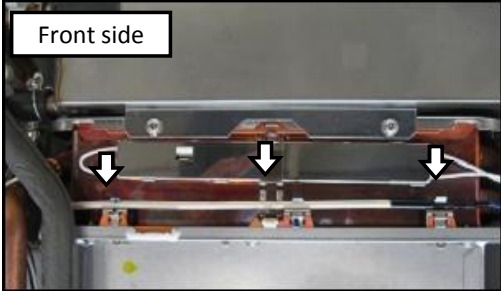
Procedure	Diagram
<p>4. Remove the manifold plate</p> <ol style="list-style-type: none"> (1) Remove 3 big silver screws on the manifold plate that attach the manifold to the burner (2) Remove 2 smaller silver screws from the manifold plate that attach the manifold to the gas valve (3) Remove the manifold plate and unplug the connector from gas solenoid valves (3) 	 <p>(1)</p> <p>(2)</p> <p>(3)</p>
<p>5. Disconnect water pipes from the water flow sensor and the water servo - main</p> <ol style="list-style-type: none"> (1) Remove "C" Clamp (3) (2) Remove the water flow sensor (3) Make sure to feed the wires from the water servo - main around the outlet water pipe as shown in bottom diagram 	 <p>(1)</p> <p>(2,3)</p> <p>Wiring harness</p> <p>Water Flow Sensor</p>

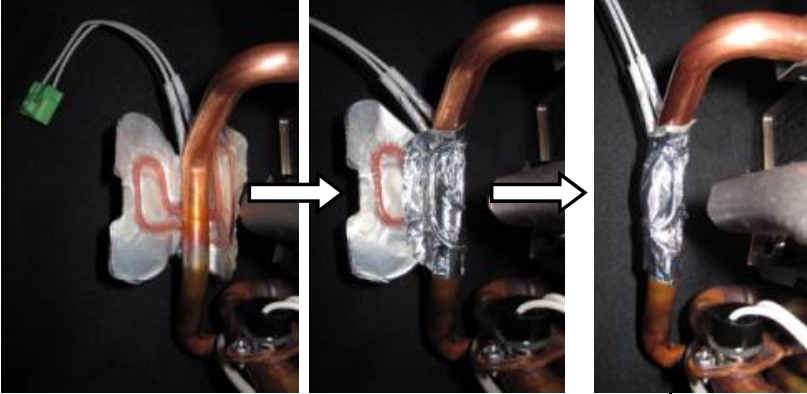

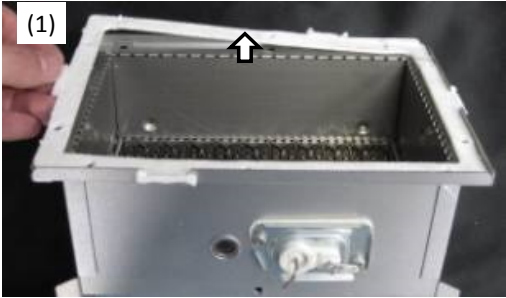


Procedure	Diagram
<p>6. Remove the exhaust flue from top of the unit *DV model</p> <ol style="list-style-type: none"> (1) Disconnect the venting from the unit (2) Remove 4 screws and pull the flue off of the unit and set aside 	
<p>7. Remove the drain hose from Stainless Steel Heat Exchanger(SS HE)</p> <ol style="list-style-type: none"> (1) Remove 1 spring clamp (2) Remove the drain hose from SS HE and pull the hose out as shown in the right diagram (2) 	
<p>8. Remove the cover and route wires - water level electrode</p> <ol style="list-style-type: none"> (1) Remove the cover - water level electrode from the condensate container (2) Unplug the water level electrode wiring, the high limit switch and the thermistor - heat exchanger wiring harness as shown in diagram (2) (3) Make sure to feed the wires from the water level electrode wiring harness outside the case as shown in diagram (3) 	

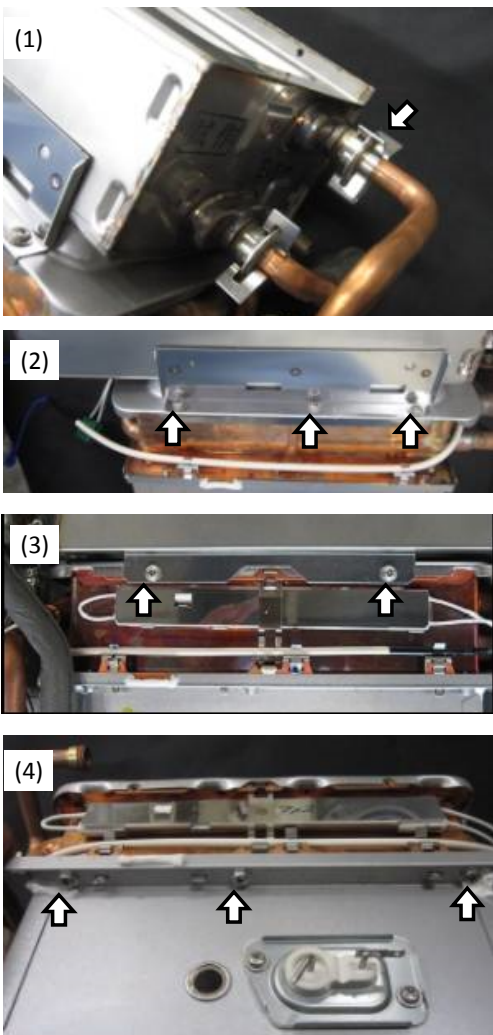
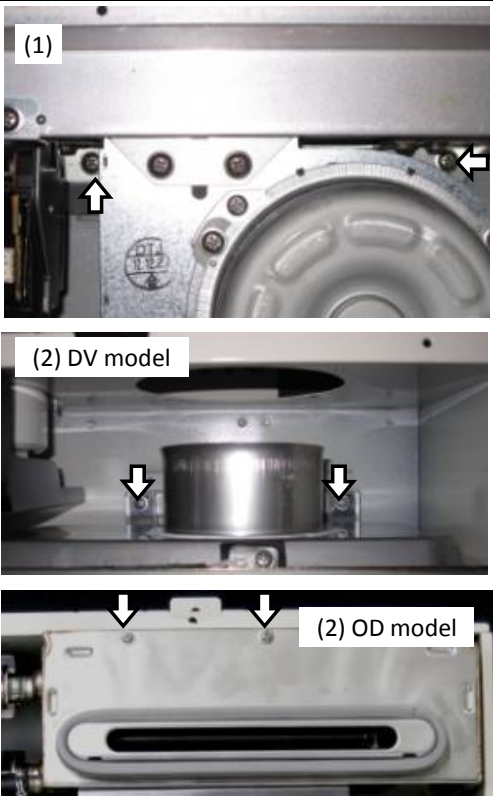
Procedure	Diagram
<p>9. Remove the heat exchanger from the case</p> <ol style="list-style-type: none"> (1) Remove the 2 set screws on the bottom of the burner (2) Remove the upper left and right set screws near the top of the case (In OD Model, the screws will be at the top of the case) (support bottom of assembly) (3) SS HE, Copper Heat Exchanger(CU HE), Burner, and Fan will come out in one section. Remove from the 	 <p>(1)</p>  <p>(2) DV model</p>  <p>(2) OD model</p>
<p>10. Separate the SS HE from the CU HE</p> <ol style="list-style-type: none"> (1) Remove 2 screws on the bracket between the SS HE and the CU HE (2) Remove the 3 screws that located on the back side of the SS HE (3) Remove "C" clamp (4) Separate the SS HE from the CU HE 	 <p>(1)</p>  <p>(2)</p>  <p>(3)</p>

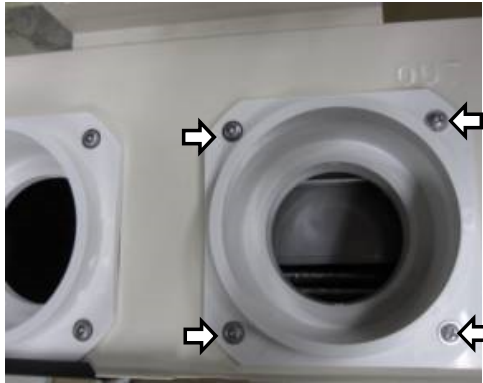
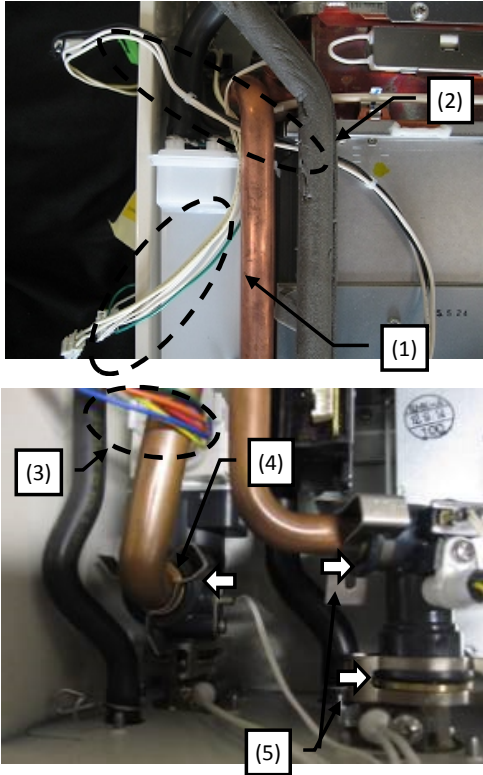
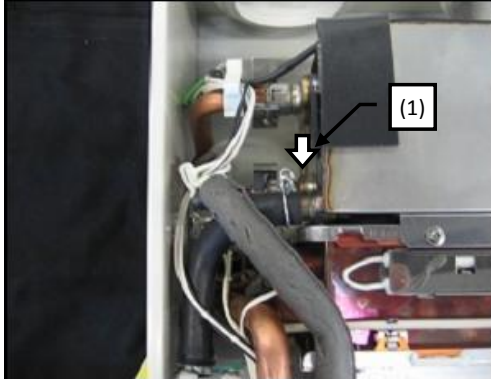
NRC661A, NRC711 Series Heat Exchanger Replacement Procedure

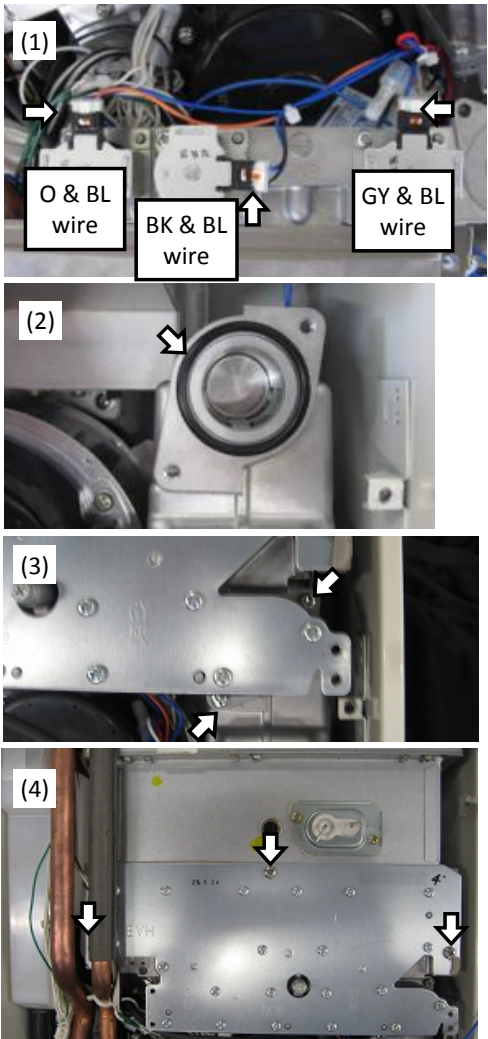
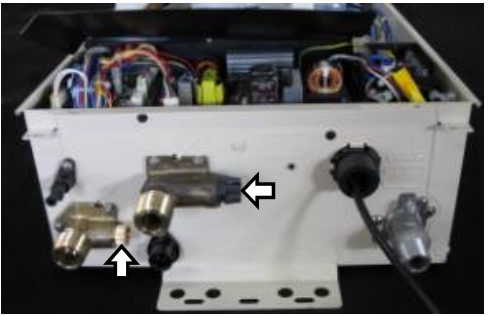
Procedure	Diagram
<p>11. Replacing the SS HE</p> <p>Note: If you are not replacing the SS HE then you can skip this step and set the SS HE aside.</p> <p>(1) Remove old gasket between the SS HE and the CU HE Exhaust Box and replace with new one</p> <p>(2) *OD model only Remove the gasket on the front of the SS HE and place on new one</p>	<p>(1)</p>  <p>(2) OD model only</p> 
<p>12. Replacing the CU HE</p> <p>(1) Remove 10 screws holding the burner to the CU HE</p> <p>(2) Separate the burner from the CU HE</p>	
<p>13. Remove heat exchanger components from old heat exchanger and put on new heat exchanger</p> <p>(1) Front side: Freeze Prevention Heater</p> <p>(2) Left side: High limit Switch and Thermistor - Heat Exchanger</p> <p>*Replace new O Ring for the thermistor - heat exchanger</p>	 

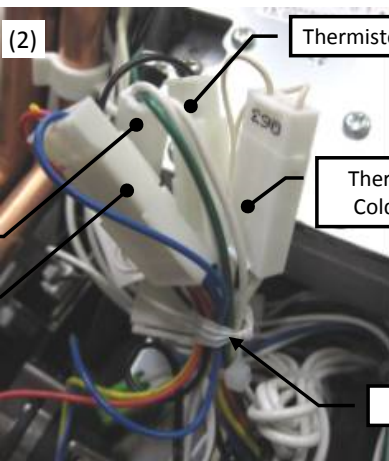
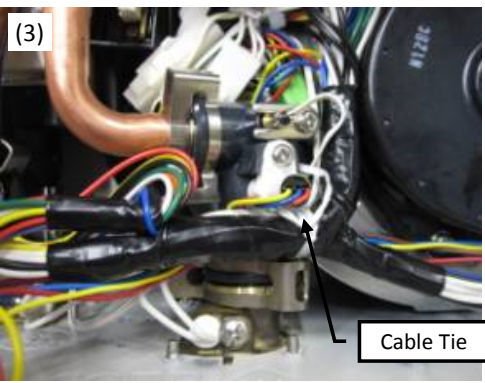
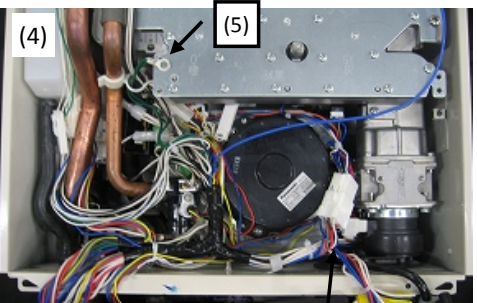
Procedure	Diagram
(3) Attach the thermal fuse and 5 clamps from 4 sides of the heat exchanger, See 4 views of the heat exchanger to make sure the thermal fuse is routed	 <p>Right side</p> <p>Stopper</p>
Install the thermal fuse(White) inside of the stopper	 <p>Back side</p>
The end of insulation tube(Black) and the front of the heat exchanger are lined up	 <p>Left side - 1</p>
Keep the thermal fuse straight	 <p>Left side - 2</p>
<p>Make sure to route the thermal fuse as shown in the diagram to the right (Left side - 1, 2)</p>	 <p>Front side</p>

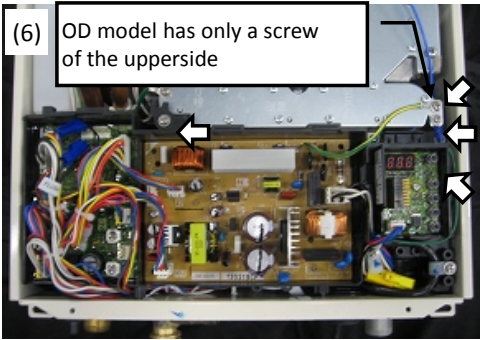
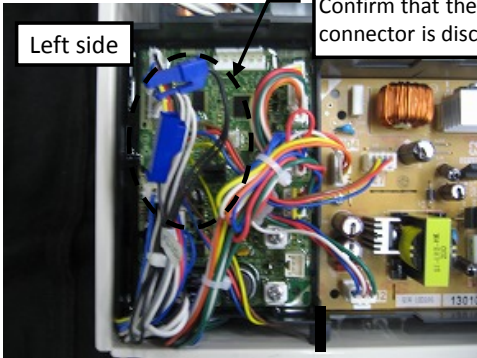
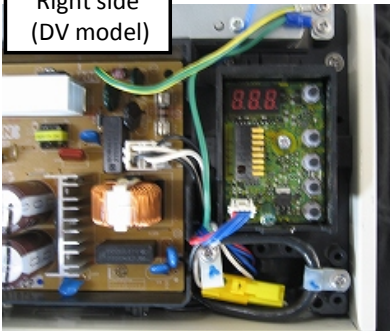
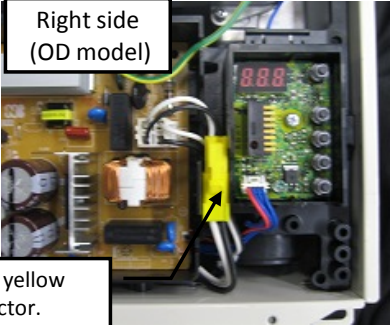
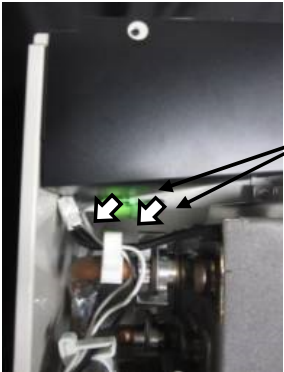
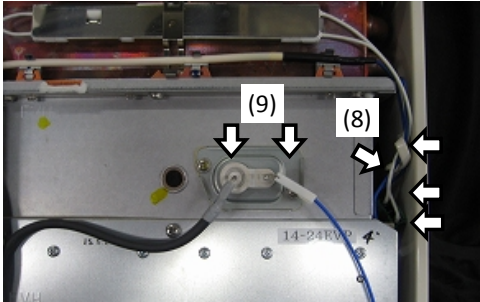
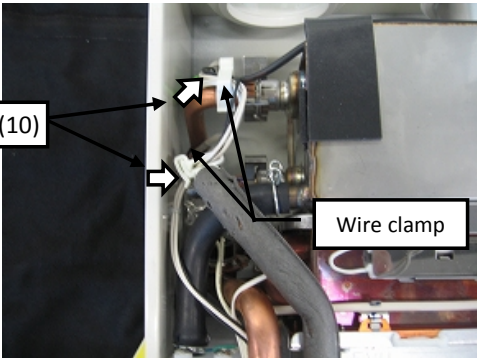
Procedure	Diagram
<p>(4) *DV model only Place the new freeze prevention heater with one that was shipped in the heat exchanger kit. Wrap the freeze prevention heater around inlet pipe to the CU HE.</p> 	<p>Left side of HE</p> 
<p>14. Replace gaskets</p> <p>(1) Remove old burner gasket and replace with new one</p>	<p>(1)</p> 
<p>15. Place new O Rings on new CU HE</p> <p>(1) Inlet to the CU HE</p> <p>(2) Outlet from the CU HE</p>	<p>(1)</p>  <p>(2)</p> 





Procedure	Diagram
<p>16. Reattach Burner, CU HE, and SS HE</p> <ol style="list-style-type: none"> (1) Attach the inlet pipe to the CU HE with the "C" Clamp. Make sure to insert the pipe in all the way before attaching "C" Clamp. (2) Attach 3 screws that located on the back side of the SS HE to hold the SS HE to the CU HE (3) Attach 2 screws on the bracket between the SS HE and the CU HE (4) Attach 10 screws around perimeter of the burner and the CU HE 	 <p>(1)</p> <p>(2)</p> <p>(3)</p> <p>(4)</p>
<p>17. Replace the assembly back inside the case</p> <ol style="list-style-type: none"> (1) Secure the 2 set screws on the bottom of the burner (2) Secure the upper left and right set screws near the top of the case (In OD model, the screws will be at the top of the case) 	 <p>(1)</p> <p>(2) DV model</p> <p>(2) OD model</p>

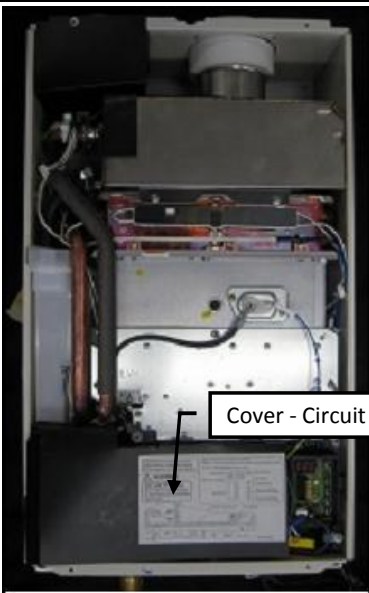
Procedure	Diagram
<p>18. Replace the flue from top of the unit *DV model only</p> <p>(1) Attach the flue to the unit and secure the 4 screws</p> <p>(2) Reconnect the venting to the unit</p>	
<p>19. Reconnect water connections</p> <p>(1) Maintain the high limit switch, the thermistor - heat exchanger and the water level electrode wiring harness as shown in diagram (1)</p> <p>(2) *DV model only Maintain the freeze prevention heater and the thermistor - exhaust wiring harness as shown in</p> <p>(3) Maintain wiring harness as shown in diagram (3)</p> <p>(4) Insert the pipe from the CU HE to the water servo - main and attach "C" clamp</p> <p>(5) Insert the water flow sensor to the inlet water connection and attach "C" clamp. And then insert the water inlet pipe to the water flow sensor and attach "C" clamp.</p>	
<p>20. Replace the drain hose to the SS HE</p> <p>(1) Replace the drain hose to the SS HE and reattach 1 spring clamp as right diagram (1)</p>	

Procedure	Diagram
<p>21. Replace the manifold plate</p> <ol style="list-style-type: none"> (1) Plug the connector to gas solenoid valves (3) as right diagram (2) Confirm that there is O-Ring before replace the manifold plate (3) Replace 2 smaller silver screws from the manifold plate that attach the manifold to the gas valve (4) Replace 3 big silver screws on the manifold plate that attach the manifold to the burner (5) Hand tighten 5 screws equally 	 <p>(1) Plug the connector to gas solenoid valves (3) as right diagram</p> <p>(2) Confirm that there is O-Ring before replace the manifold plate</p> <p>(3) Replace 2 smaller silver screws from the manifold plate that attach the manifold to the gas valve</p> <p>(4) Replace 3 big silver screws on the manifold plate that attach the manifold to the burner</p>
<p>22. Check for water leaks</p> <ol style="list-style-type: none"> (1) Replace drain 2 valves (2) Turn on cold water shut off valve slowly (check for leaks around "C" clamps) (3) If you get leaks shut off water and re-secure "C" clamps 	

Procedure	Diagram
<p>23. Plug all wires that attach to the wiring harness and the body of the water heater</p> <ul style="list-style-type: none"> (1) Plug all wires that attach to the wiring harness (2) Tie wires by the cable tie as right diagram (3) Tie wires by the cable tie as right diagram <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="534 459 798 504" style="border: 1px solid black; padding: 2px;">Thermistor - Hot Water</div> <div data-bbox="566 526 798 571" style="border: 1px solid black; padding: 2px;">Water Flow Sensor</div> </div> <p>(4) Put the all wires in the position as shown in diagram (4)</p> <p>(5) Secure the ground wire</p>	<div style="display: flex; justify-content: space-between;"> <div data-bbox="861 257 909 302" style="border: 1px solid black; padding: 2px;">(2)</div> <div data-bbox="1157 257 1332 302" style="border: 1px solid black; padding: 2px;">Thermistor - Air</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div data-bbox="1189 403 1364 448" style="border: 1px solid black; padding: 2px;">Thermistor - Cold Water</div> <div data-bbox="1236 627 1364 672" style="border: 1px solid black; padding: 2px;">Cable Tie</div> </div>  <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div data-bbox="861 739 909 784" style="border: 1px solid black; padding: 2px;">(3)</div> <div data-bbox="1236 1041 1364 1086" style="border: 1px solid black; padding: 2px;">Cable Tie</div> </div>  <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div data-bbox="861 1142 909 1187" style="border: 1px solid black; padding: 2px;">(4)</div> <div data-bbox="1077 1131 1125 1176" style="border: 1px solid black; padding: 2px;">(5)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div data-bbox="965 1456 1149 1534" style="border: 1px solid black; padding: 2px;">Cable Tie (OD model only)</div> </div> 

Procedure	Diagram
<p>(6) Replace the circuit board; secure 2 screws, one on the right-side and middle-upper of the circuit board. Secure the ground wire. DV model; 2 ground wires OD model; 1 ground wires</p> <p>(7) Reconnect the connectors to the circuit board</p> <p>(8) Plug the freeze prevention heater, thermal fuse (2) and tie it by wire anchor to right side of the case as right diagram</p> <p>(9) Plug Flame Rod and Ignition Plug</p> <p>(10) *DV model only Plug the freeze prevention heater, the thermistor - exhaust. Secure the wire by clamps (2) as shown in diagram (10)</p>	<p>(6) OD model has only a screw of the upperside</p> 
<p>Left side</p>  <p>Confirm that the blue connector is disconnected.</p> <p>Take out all wires from the left side of the line</p>	<p>Right side (DV model)</p>  <p>Right side (OD model)</p>  <p>Push the yellow connector.</p>
	<p>(9)</p> <p>(8)</p>  <p>(10)</p> <p>Wire clamp</p> 

Procedure	Diagram
<p>(11) Replace the cover - water level electrode to the condensate container</p> <p>(12) *DV model only Reinstall power supply cord as right diagram</p> <p>(13) Put all wires as the diagram</p> <div data-bbox="269 1126 722 1798"> <div data-bbox="272 1131 477 1171">OD model</div>  </div>	<div data-bbox="834 257 1329 555"> <div data-bbox="837 262 898 302">(11)</div>  </div> <div data-bbox="834 577 1329 952"> <div data-bbox="837 582 898 622">(12)</div>  </div> <div data-bbox="834 1052 1310 1798"> <div data-bbox="837 1057 1042 1097">DV model</div>  </div>

Procedure	Diagram
(14) Replace the cover - circuit board	
<p>24. Check for gas leaks and doing trial operation</p> <ul style="list-style-type: none"> (1) Turn on gas (2) Turn on the unit. Check for leaks around manifold plate and joining areas. For example - Between the burner and the CU (3) If you get leaks shut off gas, water and re-secure leaking points 	
<p>25. Replace the front cover</p> <ul style="list-style-type: none"> (1) Secure the front cover with 4 screws 	