

Read carefully for proper installation and operation.

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INSTALLATION INSTRUCTIONS

REPLACEMENT ELEMENT ASSEMBLY CXM/CGM & OXM/OGM MODEL

BEFORE YOU INSTALL

HOTSTART's flanged heating elements for the CXM, CGM, OXM and OGM model series feature replaceable heating elements that may be replaced individually or as an assembly. Prior to replacing heating system elements, ensure power is disconnected and the proper lockout procedures have been followed. Use the following procedures to replace individual elements or heating elements assemblies.



Hazardous voltage: Before wiring, servicing or cleaning the heating system, turn off the power and follow your organization's lockout and tagout procedure. Failure to do so could allow others to turn on the power unexpectedly, resulting in harmful or fatal electrical shock.

Electrical hazard: All electrical work must be performed by qualified personnel.

Hot surfaces: Avoid contact with the system while it is in service. Some surfaces may remain hot even if the system is not energized.



Personal injury: Disconnect power supply before performing any electrical work. Wiring must be performed by a trained technician and in accordance with national and local electrical codes.



Element configuration: The replacement element is prewired to the system wattage and voltage and may be a different configuration than the original element. Do not change replacement element's jumper configuration or wiring locations. Altering supplied wiring configuration may result in heater failure.

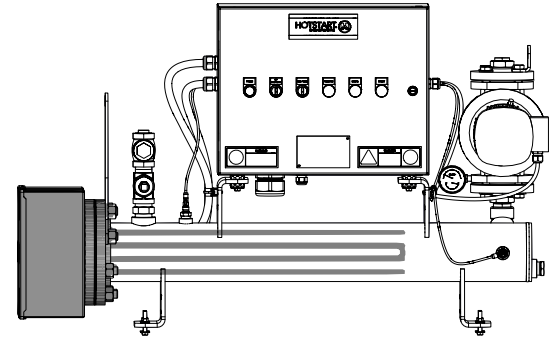


Figure 1. Example CXM model, showing element assembly.

REPLACE ELEMENT ASSEMBLY

PREPARE SYSTEM

1. De-energize the heating system. Follow your organization's lockout and tagout procedures.
2. Close isolation valves. Place appropriate receptacle or basin under tank drain plug. Unscrew plug and drain fluid from tank.

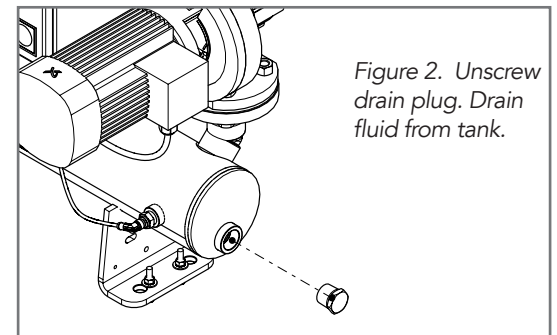


Figure 2. Unscrew drain plug. Drain fluid from tank.

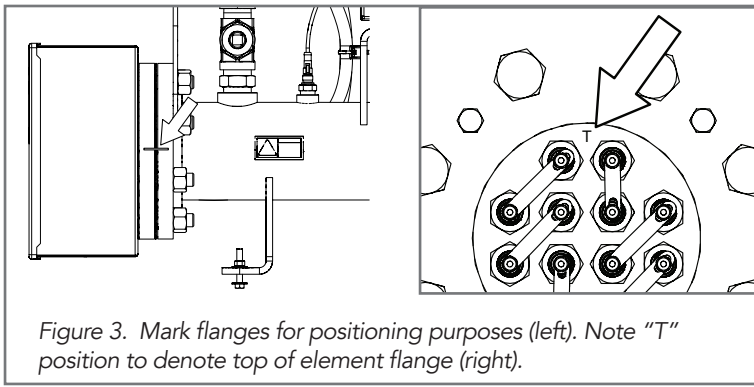
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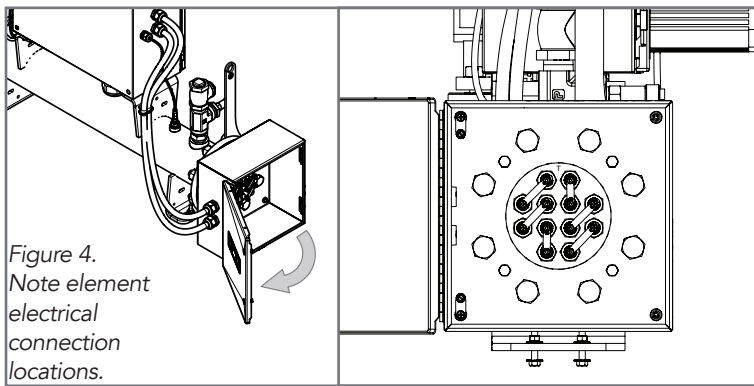
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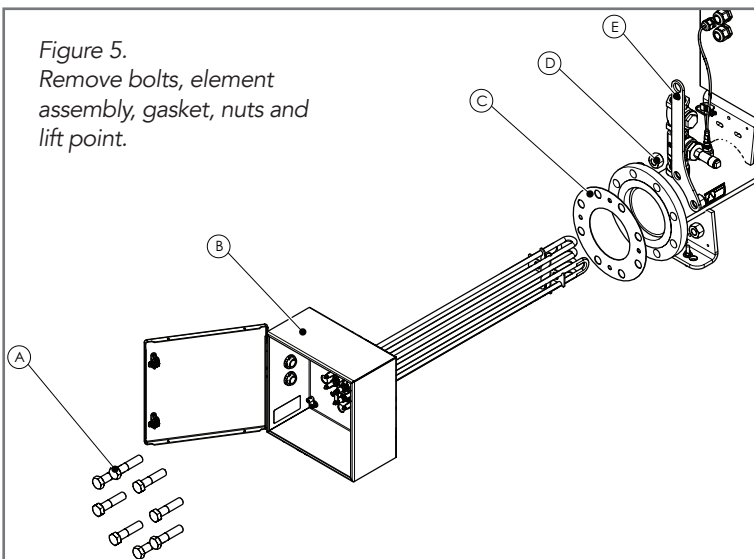
3. If replacing an individual heating element, make a mark on both element and tank flanges. Mark will allow for proper flange positioning once element replacement is complete. **NOTICE!** If replacing entire element assembly instead, note positioning of "T" at top of element flange for proper flange positioning.

REMOVE ELEMENT

4. Open element enclosure lid. Note the locations of element electrical connections. Disconnect element electrical connections and ground connection.



5. Unscrew and remove element cable strain reliefs. Remove element cables and strain reliefs. Set aside cables and strain reliefs.

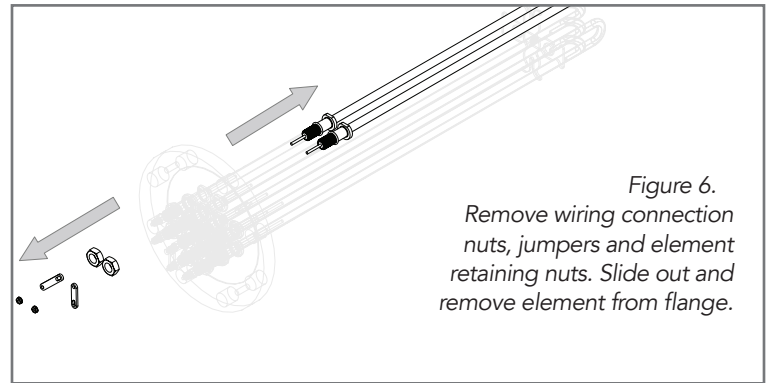


6. Loosen and unscrew element bolts and nuts. Remove bolts (A), element assembly (B), element gasket (C), element nuts (D), and tank lift point (E) if present. Set aside.
7. Replace individual heating element or element assembly:
 - If replacing individual heating element only, proceed to step 8.
 - If replacing entire element assembly, proceed to step 15.

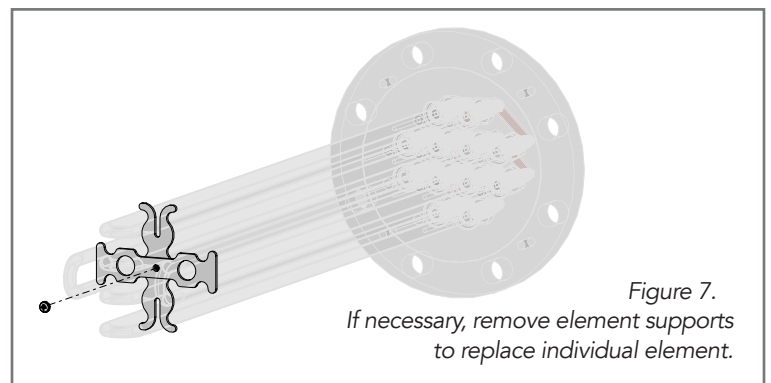
8. Before removing electrical connections, note element jumper positions.

NOTE: Elements are configured from the factory. Retain original jumper placement during element reassembly. Altering element configuration or jumper placement may cause heating system failure.

9. Unscrew and remove element wiring connection nuts. Remove element jumpers to element requiring replacement. Set aside jumpers and spacer nuts.



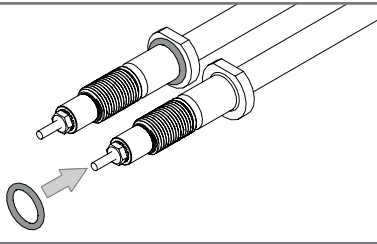
10. Unscrew and remove element retaining nuts and lock washers. Slide out and remove heating element from flange. Ensure element O-rings are removed. If necessary, remove element supports.



REASSEMBLE ELEMENT

- Slide replacement element O-rings on replacement element. Ensure old O-rings are removed.

Figure 8.
Slide replacement O-rings on replacement element.



- Insert replacement element into flange. If element supports were removed, insert and reassemble element supports.
- Fasten element in place using supplied element retaining nuts and lock washers. Tighten element retaining nut to 27 lbf · ft (37 N · m).
- Fasten element jumpers in place using supplied element wiring connection nuts.

INSTALL ELEMENT ASSEMBLY

- Reassemble element assembly as shown in Figure 9. Ensure the following are in place:
 - Element and tank flange mark (F) (if replacing individual heating element)

- Element flange "T" mark (if replacing entire heating element assembly)
- Lift point (E) if present
- Tank gasket (D)

- Insert element cables into element enclosure. Reconnect element power and ground connections. **NOTICE!** Ensure power and ground wiring locations are unchanged. Altering wiring locations may result in heater failure.

- Tighten all fasteners. **NOTICE!** Tighten element bolts in a star pattern to prevent leaks. Refer to the following torque values:

- Element bolts (A) 105 lbf · ft (142 N · m)
- Cable strain relief (B) 45 lbf · in (5.1 N · m)
- Element power/ground (G) 20 lbf · in (2.3 N · m)
- Element retaining nut (H) 27 lbf · ft (37 N · m)

- Reattach drain plug. Open isolation valves and refill heating system and lines with coolant. Check for leaks.

- Bleed all trapped air from the heating system by opening a plug or pipe fitting at or near the pump. Press and hold the **PRIME** button to evacuate any remaining air in the lines.

- Refer to your system's operation manual for additional first run procedures.

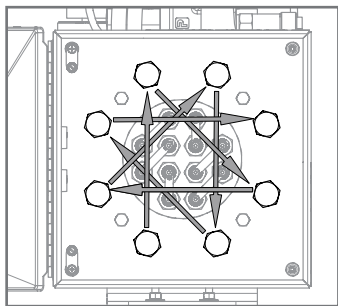
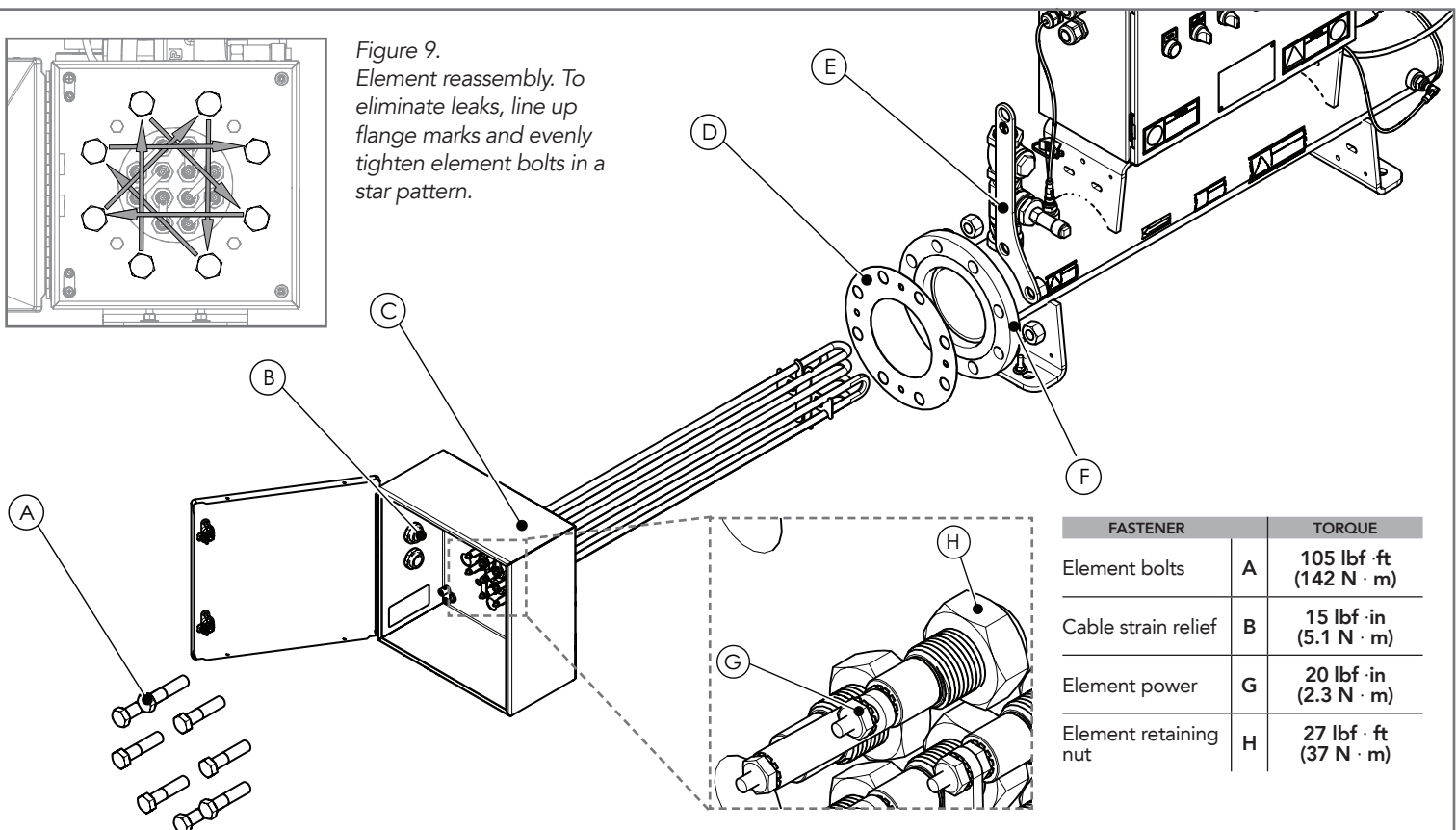


Figure 9.
Element reassembly. To eliminate leaks, line up flange marks and evenly tighten element bolts in a star pattern.



FASTENER		TORQUE
Element bolts	A	105 lbf · ft (142 N · m)
Cable strain relief	B	15 lbf · in (5.1 N · m)
Element power	G	20 lbf · in (2.3 N · m)
Element retaining nut	H	27 lbf · ft (37 N · m)