

# SENSEI® CX Demand Duo® H-Series Retrofit Kit

## Installation Instructions

Kit Name	SENSEI® CX Demand Duo® H-Series Retrofit Kit
Kit Part Number	104000337
Compatible Models	SENSEI® CX Tankless Water Heater Models: CX160i and CX199i

**⚠ WARNING** Failure to correctly assemble the components according to these instructions may result in electric shock, injury, or death.

**⚠ CAUTION** To protect yourself from harm, follow the steps below before proceeding:

- Turn off the electrical power supply by unplugging the power cord or by turning off the electricity at the circuit breaker. (The temperature controller does not control the electrical power.)
- Turn off the gas at the manual gas valve, usually located immediately below the water heater.
- Turn off the incoming water supply. This can be done at the isolation valve immediately below the water heater or by turning off the water supply to the building.

## Overview

- Follow these instructions when retrofitting a CU model tankless water heater with a SENSEI CX model tankless water heater on the Demand Duo H-Series Commercial Hybrid Water Heating System.
- The retrofit procedure must be followed according to the instructions in this document.
- A trained and qualified professional must install and inspect the Demand Duo before use. The warranty will be voided due to any improper installation.
- For more information on the tankless water heater, such as venting options, parameter settings and maintenance, refer to the Tankless Water Heater Installation and Operation Manual supplied with the tankless water heater.
- For more information on the Demand Duo system, including detailed installation instructions, refer to the “Demand Duo H-Series with SENSEI CX Installation Instructions” supplied with the Demand Duo.

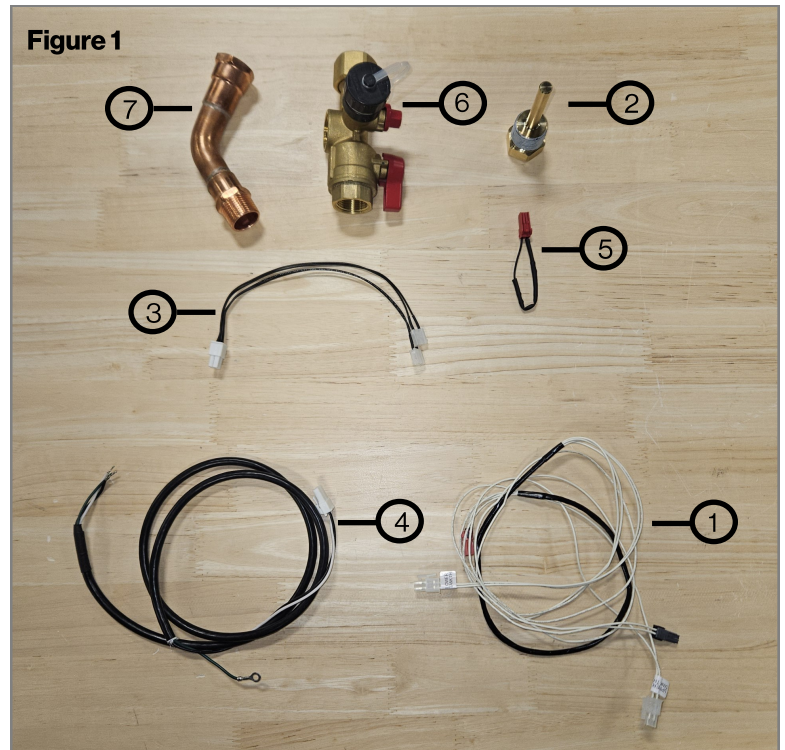
# You Will Need

## Items Supplied with Kit

Before you begin, please make sure all parts are located inside the product box.

Table 1

Item #	Item	Part #
1	Thermistor Wire Harness	105002047
2	Dual Thermistor	105002048
3	Dual Thermistor Harness Adaptor	105002049
4	Pump Power Harness	105002050
5	CX Retrofit Demand Duo Thermistor Jumper	105002076
6	Hot Isolation Valve Short with Pressure Relief Valve Port	107000669
7	Pressure Relief Valve Connector	107000673



## Items Needed (Field-Supplied)

- Teflon Tape
- Philips Head Screwdriver
- T-20 Torx Bit Driver
- 5/16" Nut Driver
- Pipe Wrench or Pliers
- 1-1/8" Socket
- Standard garden hose to drain the system


# Instructions

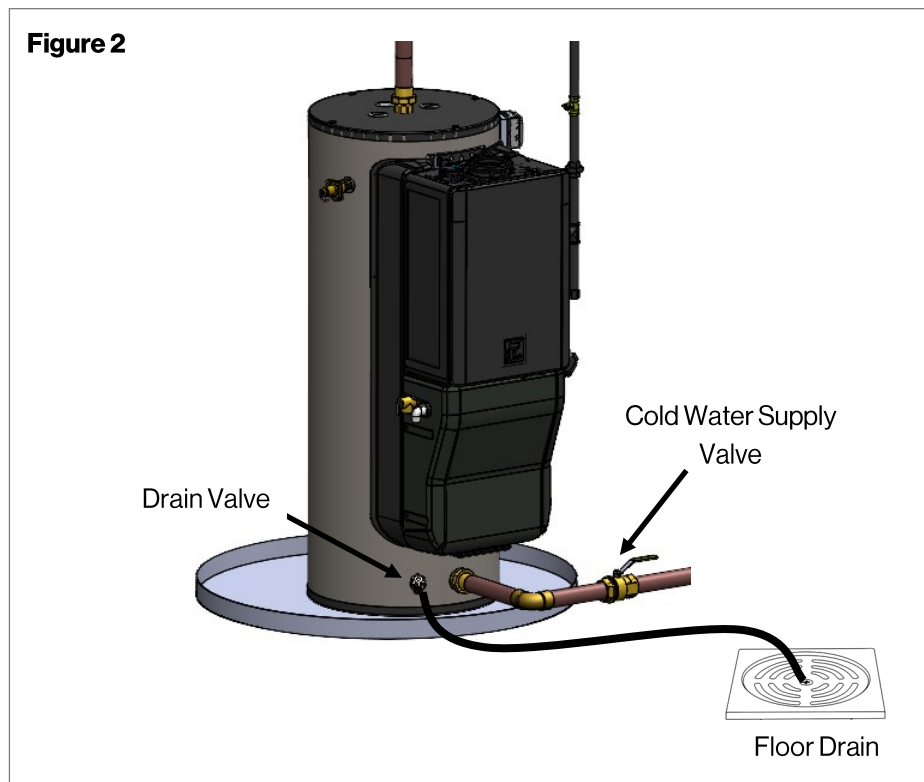
Installation must conform to the “Rinnai Tankless Water Heater Installation and Operation Manual” that is shipped with the unit (or available online at [rinnai.us](http://rinnai.us) or [rinnai.ca](http://rinnai.ca)), local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/NFPA 54.

## Turn off Power, Gas and Water:

1. Turn off the electrical power supply by unplugging the power cord or by turning off the electricity at the circuit breaker. (The temperature controller does not control the electrical power.)
2. Turn off the gas at the manual gas valve, usually located immediately below the water heater.
3. Turn off the incoming water supply. This can be done at the isolation valve immediately below the water heater or by turning off the water supply to the building.

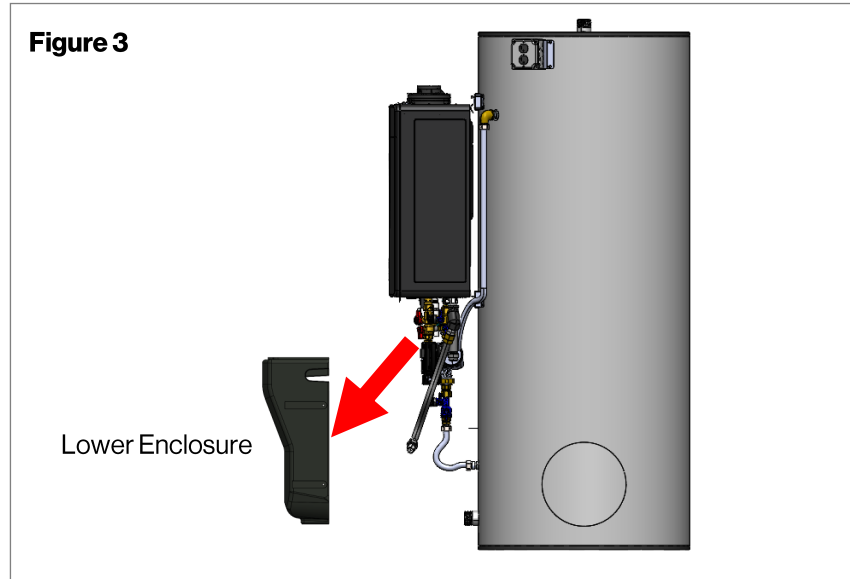
## Drain the Storage Tank:

4. Close the cold water supply manual shut-off valve (see below).
5. Connect one end of a garden hose to the storage tank drain valve and put the other end next to a free-flowing drain.
6. Open the drain valve by turning the knob counter-clockwise. 
7. Open a hot water faucet to allow air into the system.



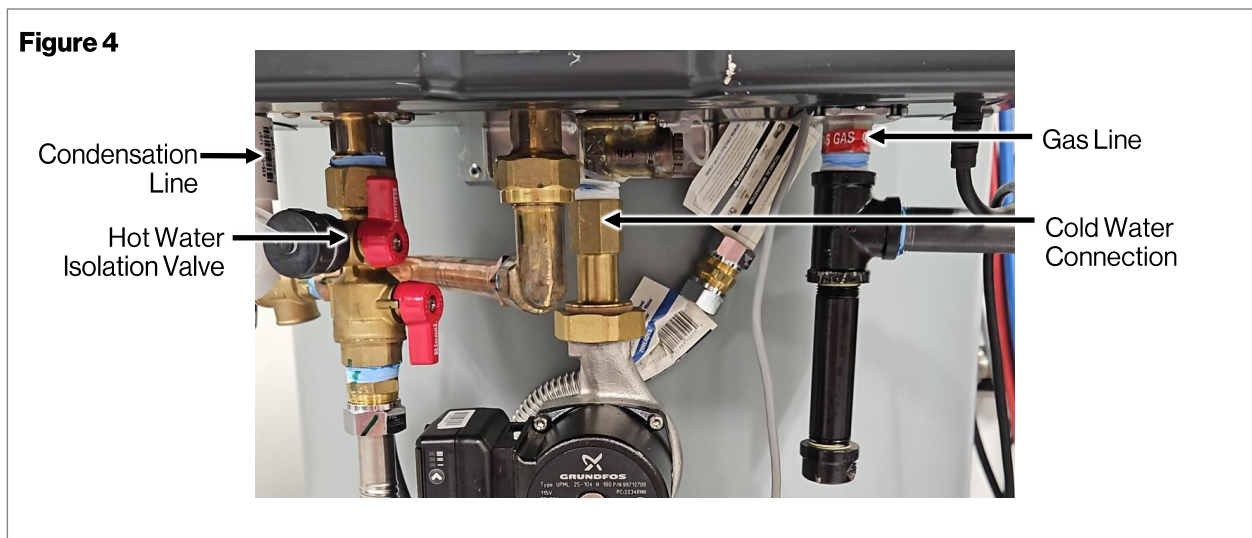
## Disassemble and Remove the CU Model from the Demand Duo:

- Loosen the screws along the perimeter of the lower enclosure and remove the lower enclosure (Fig 3).



**CAUTION:** Make sure the system is completely drained before proceeding with the next step.

- Disconnect the gas line, condensation line, hot water isolation valve, and cold water connection from the tankless unit (Fig 4).



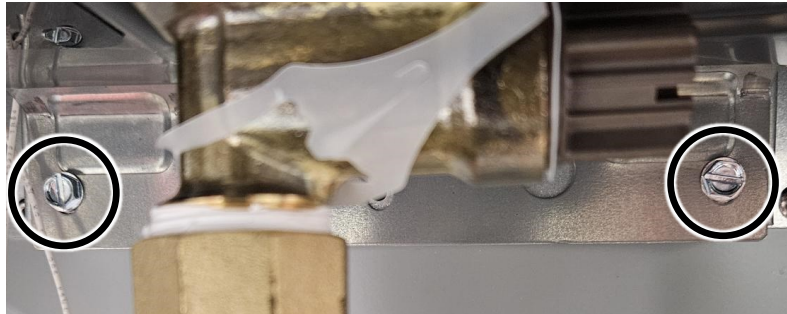
- Using a 5/16" nut driver (field-supplied), remove the CU model tankless engine from the storage tank by removing the two screws from the top and bottom brackets (Fig 5).

**Figure 5**

**Top  
Bracket**



**Bottom  
Bracket**



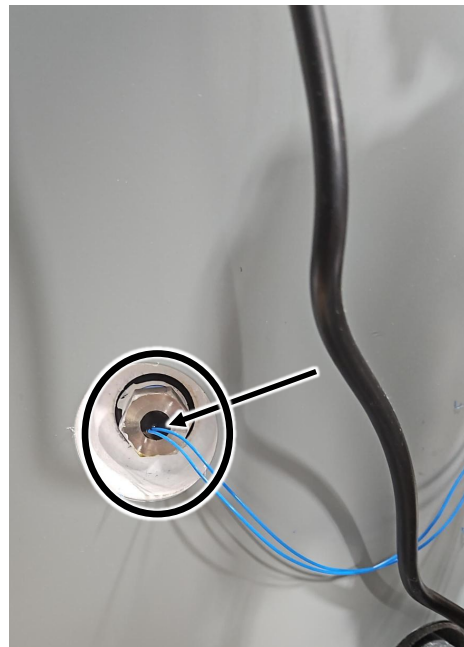
- Using a Phillips head screwdriver (field-supplied), remove the pump controller by removing the four screws around the perimeter of the controller (Fig 6).
- Using a 1-1/8" socket (field-supplied), remove the lower thermistor from the storage tank (Fig 6).

**Figure 6**

**Pump Controller**



**Lower Thermistor**





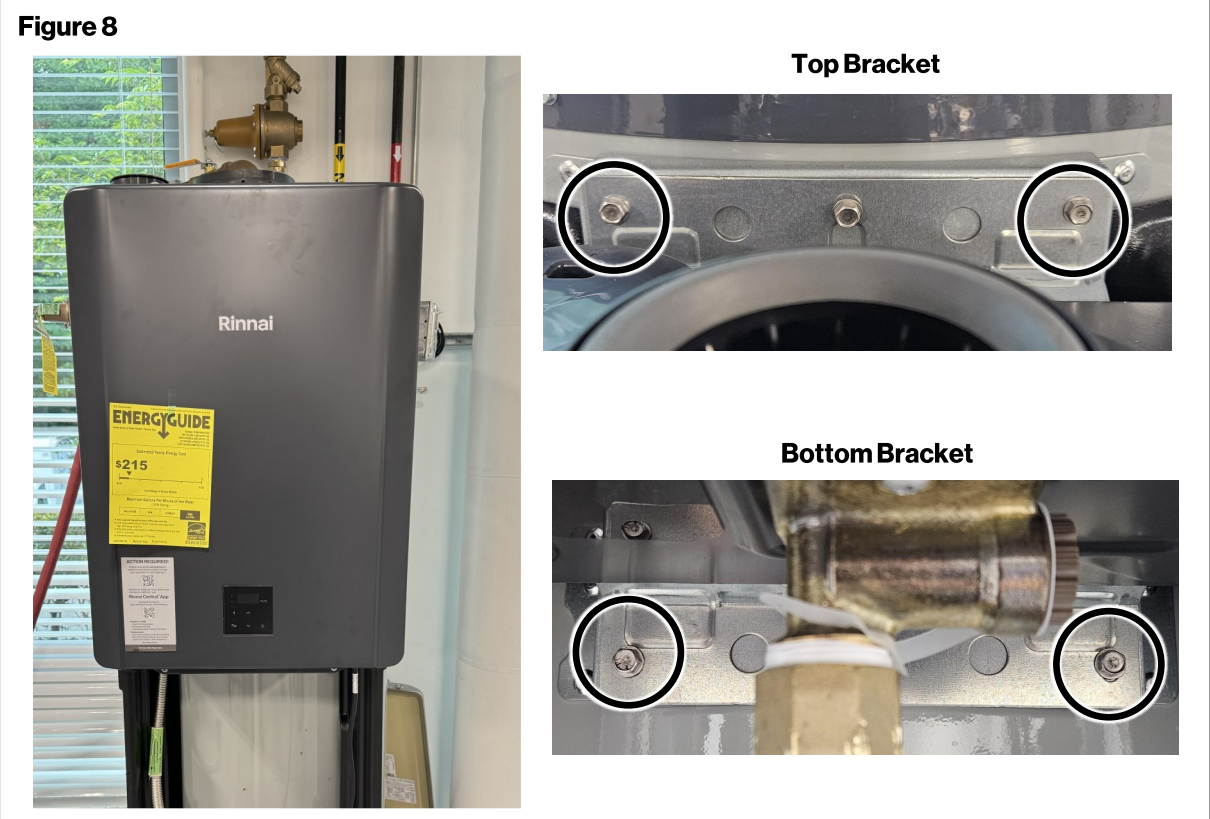
13. Install the new **dual thermistor** and **dual thermistor harness adaptor** (supplied with kit).



14. Rewire the pump using the new pump power harness (supplied with kit).

**Install SENSEI CX TWH on Demand Duo and Connect Piping**

15. Mount the new CX model tankless water heater and secure the unit to the storage tank using the two upper and two lower screws.



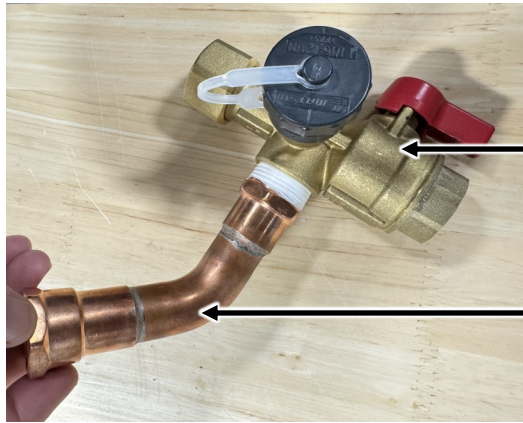
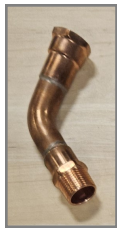
16. Install the new **hot isolation valve short with PRV port** with the **PRV connector** (supplied with kit).

**Figure 9**

**Hot Isolation Valve Short with Pressure Relief Valve Port**



**Pressure Relief Valve Connector**

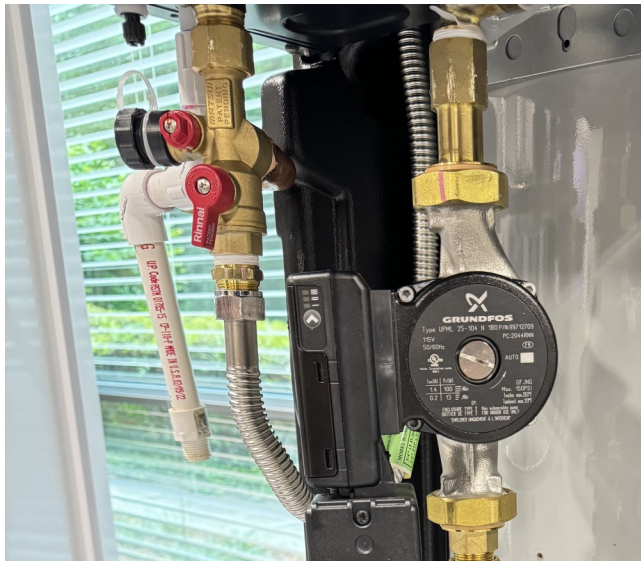


Hot Isolation Valve Short with PRV Port

PRV Connector

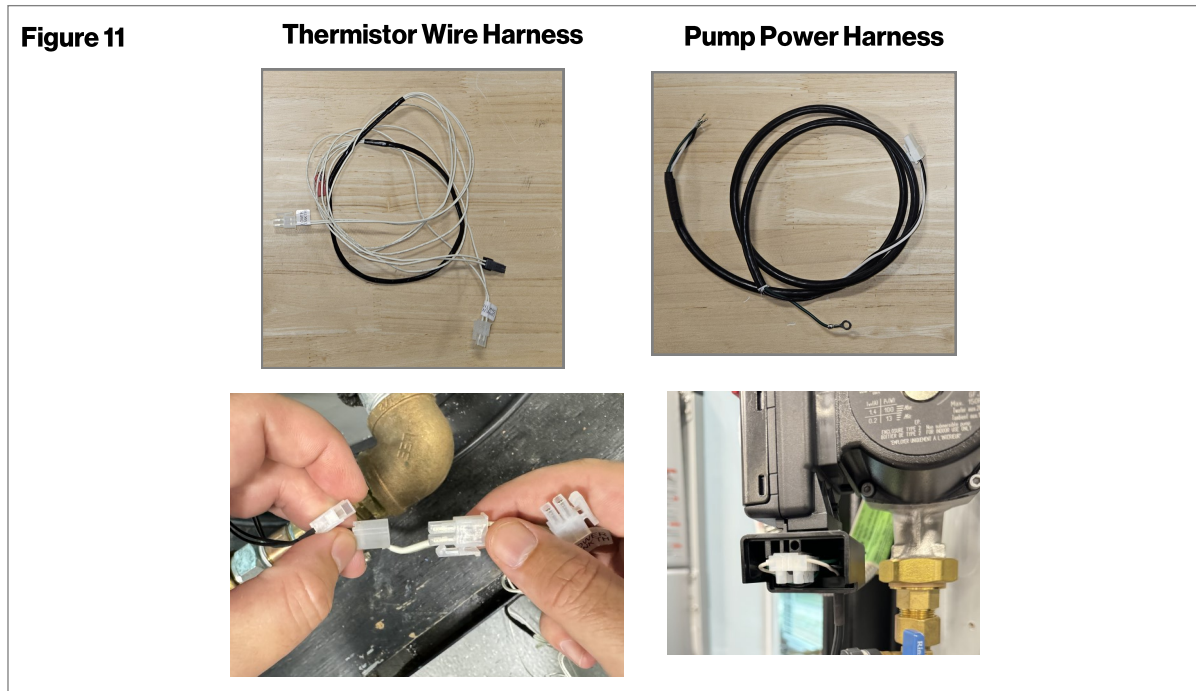
17. Connect the gas line, condensation line, hot water isolation valve and cold water connection to new CX tankless engine.

**Figure 10**

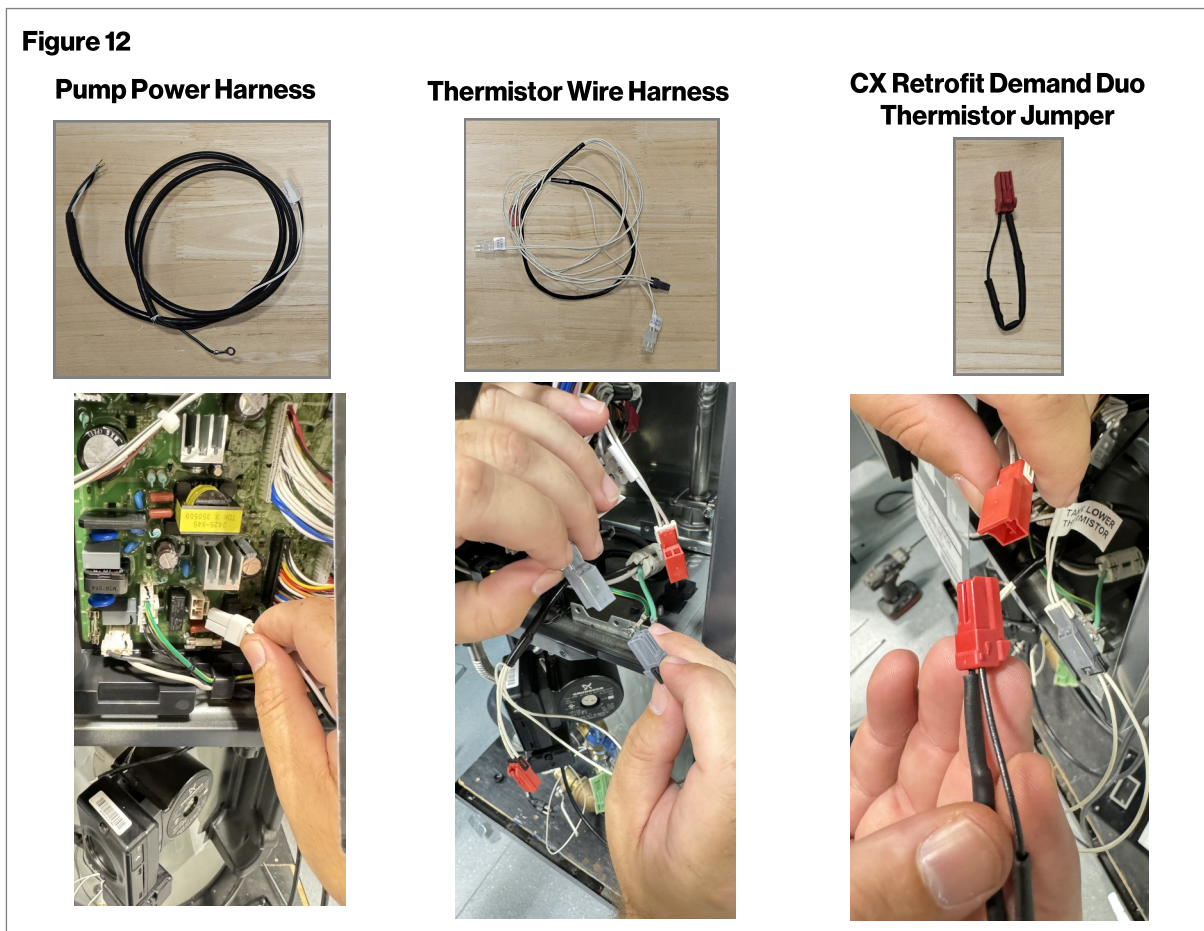




18. Wire unit with new **thermistor wire harness** and **pump power harness**.



19. Wire the **pump power harness**, lower **thermistor wire harness** and the **CX Retrofit Demand Duo Thermistor Jumper** for upper thermistor to control board.





20. Fill the system with cold water. For detailed instructions, refer to the steps in the Demand Duo Installation Instructions.

**NOTICE: DO NOT OPERATE THIS WATER HEATER UNLESS IT IS COMPLETELY FULL OF WATER.**

To prevent damage to the water heater, all air must be relieved from the system and a hot water fixture must be flowing water before the water heater is plugged in and turned on.

21. Replace the lower enclosure by replacing the screws around the perimeter of the lower enclosure.
22. Turn on the gas supply.
23. Turn on the water supply.
24. Turn on and connect 120 V power supply.