



Adapt™ Accessories Instructions

TABLE OF CONTENTS

Outdoor Vent Cap Installation Instructions	2
Pipe Cover Installation Instructions	3
X3 Remote Recirculation Adapter Installation Instructions	5
X3 Tankless Wi-Fi Adapter Installation Instructions	8
Bypass Cartridge Anti-Freeze Kit Instructions	14
X3 Cartridge Anti-Freeze Kit Instructions	15
X3 and Bypass Cartridge Replacement/Installation Instructions	16

Outdoor Vent Cap Installation Instructions

Kit Contains:

- Vent Cap (1x)
- User Interface Cover (1x)
- Label (1x)
- Instructions (1x)

IMPORTANT: Use only factory authorized replacement parts. **DO NOT USE ELECTRIC SCREWDRIVERS OR DRILLS, HAND TIGHTEN ALL SCREWS TO PREVENT OVER TIGHTENING.** If you lack the necessary skills to properly perform the installation, you should not proceed, but get help from a qualified service technician.

Tools and Materials Required:

- Philips Screwdriver

Installing the Vent Cap

- 1 Disconnect power to the water heater by unplugging it or by turning off the circuit at the breaker box, as appropriate. The power button on the water heater and remote **DOES NOT** disconnect power to the water heater. You must physically disconnect power to the water heater.
- 2 Locate the two screws at the bottom of the cabinet cover. Use a Phillips screwdriver to remove the screws. Place screws aside in a safe place for reinstallation.
- 3 Remove and keep the four screws from the top plate of the water heater as shown in the figure below.

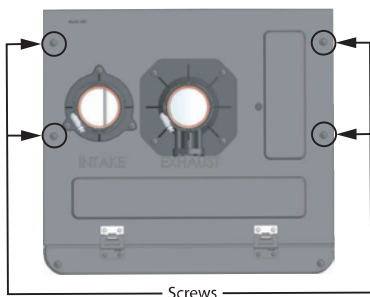


Figure 1 - Remove top plate screws.

- 4 Orient the outdoor vent cap as shown in Figure 2.

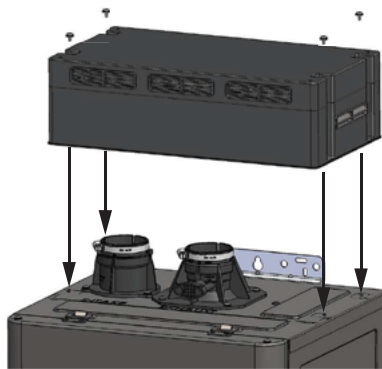


Figure 2 - Outdoor Vent Cap secure with screws.

- 5 Secure the Outdoor Vent Cap to the water heater at each corner with the screws removed in Step 3. See Figure 2.

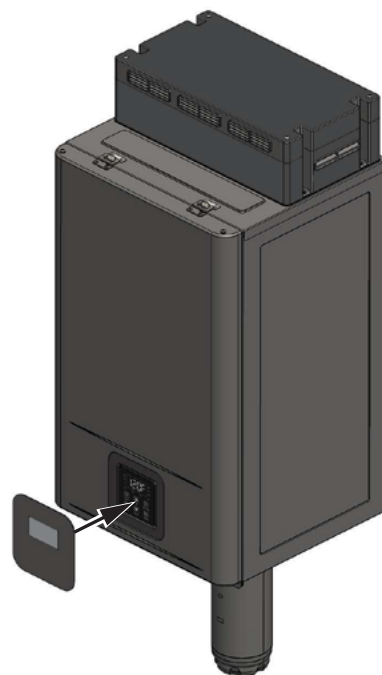


Figure 3 - Control Panel Cover Plate Install.

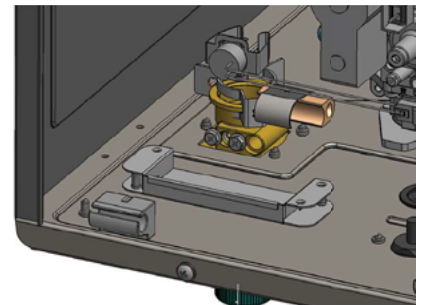
- 6 Attach the control panel cover plate as shown in Figure 3.
- 7 Locate the two screws securing the front cover, remove them and set aside both the cover and screws for re-installation.
- 8 Remove and keep the screw securing the printed circuit board. Depress the latch and rotate the printed circuit board forward and down.

- 9 Locate the air inlet plate as shown in Figure 4.

NOTICE: Figure 4 has some elements removed for clarity.

Remove and keep the 3 screws securing it to the base of the water heater. The plate is color coded and it should be rotated so that the yellow side of the plate is rotated up. Secure with the screws removed earlier.

INDOOR CONFIGURATION



OUTDOOR CONFIGURATION

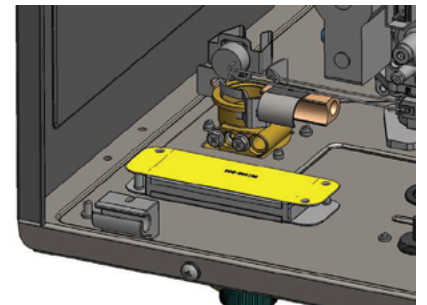
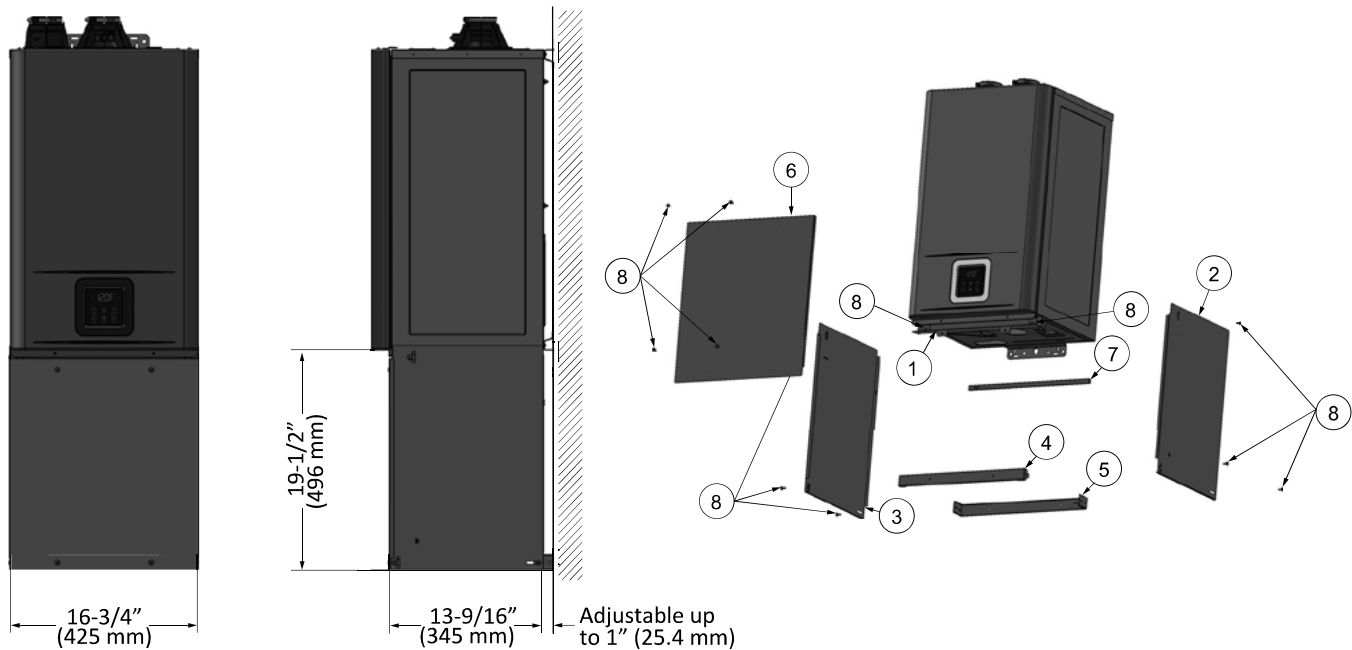


Figure 4 - Air inlet plate orientation options











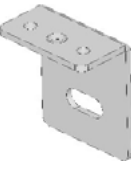

- 10 Lift the circuit board panel up and lock into place. Install and tighten the screw previously removed in Step 8.
- 11 Restore power to the water heater. The water heater is now ready for operation.

Pipe Cover Installation Instructions



NOTE: This pipe cover is available for THR-160, THR-180, THR-199, THR-160M, THR-180M, and THR-199M models.

Items included Please ensure that your pipe cover includes the following items.

① Top bracket (Qty: 1) 	② Right side cover (Qty: 1) 	③ Left side cover (Qty: 1) 	④ Bottom front bracket (Qty: 1) 	⑤ Bottom back bracket (Qty: 1) 	⑥ Front cover (Qty: 1) 
⑦ Back Bracket (Qty: 1) 	⑧ Short screws (Qty: 12) 	⑨ Long wall screws (Qty: 2)  ⑩ Wall anchors (Qty: 2) 	⑪ Mounting Tab (Qty: 2) 	⑬ Installation instructions (Qty: 1) 	

Installation of the pipe cover

1. Remove and keep the screw on the bottom, left-hand side of the water heater case. See Figure 1.
2. Attach the mounting tabs ⑪ to the bottom, left-hand side of the water heater using the screw removed in step 1. Note the orientation of the mounting tab. See Figure 1.
3. Remove and keep the screw on the bottom, right-hand side of the water heater case.
4. Attach the second mounting tab ⑪ to the bottom, right-hand side of the water heater using the screw removed in step 3. Note the orientation of the mounting tab. See Figure 1.

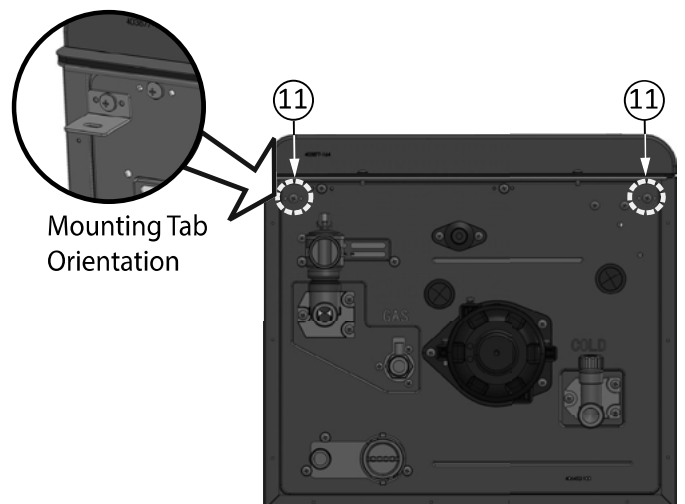


Figure 1. Attaching the mounting tabs

Pipe Cover Installation Instructions

5. Insert the tabs of the top bracket (1) into the slots in the right and left side covers (2), (3) as shown in Figure 2. Note the orientation of the top bracket (1) in Figure 2.
6. Secure the top bracket (1) and the right and left side covers (2), (3) with the short screws (8).
7. Insert the tabs of the bottom front bracket (4) into the slots in the right and left side covers (2), (3) as shown in Figure 2.
8. Secure the bottom front bracket (4) and the right and left side covers (2), (3) with the short screws (8).
9. Install the bottom back bracket (5) with two short screws (8). See Figure 2. NOTICE: use only one screw per side and in the inner screw hole as shown in Figure 2.
10. Locate the mounting tabs (11) installed earlier on the bottom front of the water heater. (See Figure 1 and 3.)

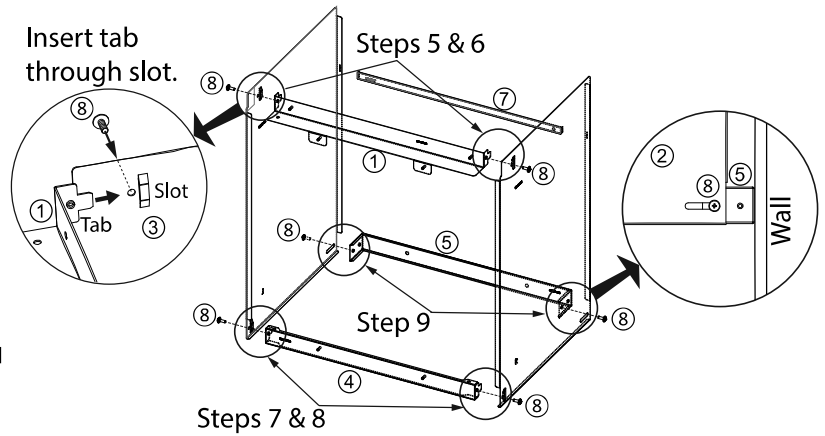


Figure 2 - Pipe Cover Basic Assembly

11. Place the assembly's top bracket (1) BEHIND the mounting tabs at the bottom of the water heater. See Figure 3.
12. Align the clearance holes, then secure the assembly with the short screws (8). See Figure 3.
13. Push the assembly back until it is flush with the wall. Mark the wall through both clearance holes in the fixing plate (5).
14. Remove the pipe cover assembly from the heater and set aside for re-installation.
15. Drill screw holes (diameter $\phi 5/16''$) at each mark that you made during step 13. (Depth: 1.6-inches.)
16. Install the wall anchors (10) into the screw holes.
17. Reinstall the pipe cover assembly onto the water heater with the short screws (8). See Figure 3.
18. Secure the pipe cover assembly to the wall by installing the long wall screws (9) through the holes in the fixing plate (5).
19. Hang the back bracket (7) on the inside of the assembly as shown in Figure 4. The tabs on the back bracket fit into the slots on the back, right and left side covers (2), (3). See Figure 4.
20. Install the front cover (6) onto the pipe cover assembly with the short screws (8). See Figure 5.
21. The pipe cover assembly can be aligned vertically by adjusting the bottom back bracket (5). Loosen the short screws (8) on either side and re-tighten once the desired alignment is set. See Figure 4.

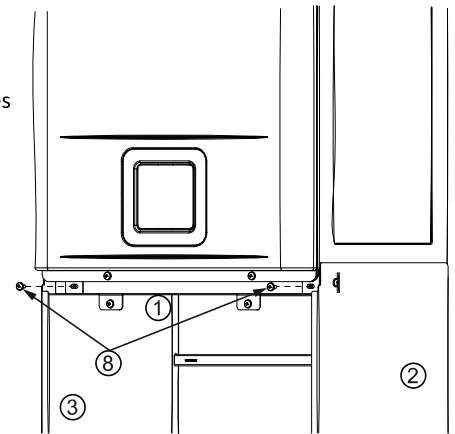


Figure 3 - Attaching to the water heater.

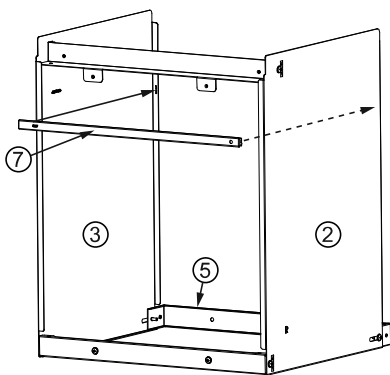


Figure 4 - Securing the back bracket to the wall.

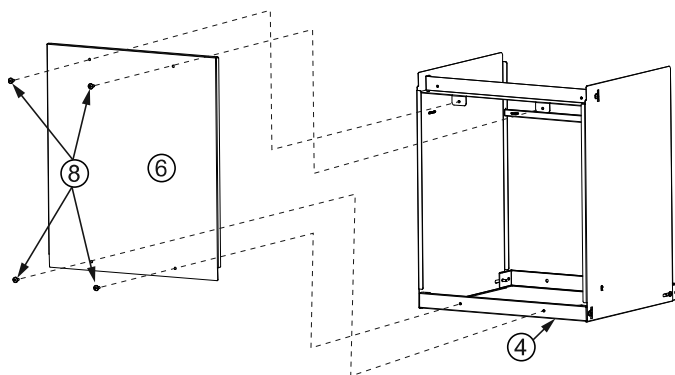


Figure 5 - Attaching the front cover.

X3 Remote Recirculation Adapter Installation Instructions

Kit 100371920 Contains:

- Remote Recirculation Receiver Module (1x)
- Two (2) Buttons
- One (1) Wall screw
- One (1) wall anchor
- Instructions (1x)

Kit 100371921 Contains:

- Remote Recirculation Receiver Module (1x)
- Three (3) Buttons
- One (1) Wall screw
- One (1) wall anchor
- Instructions (1x)

NOTICE: Addition buttons can be ordered separately use Kit 100377309. The receiver can pair up to 30 buttons.

IMPORTANT: Use only factory authorized replacement parts. If you lack the necessary skills to properly perform the installation, you should not proceed, but get help from a qualified service technician.

Tools and Materials Required:

- Flathead Screwdriver
- Philips Screwdriver

Remote Recirculation Receiver Module Location

- 1 Before proceeding, verify the location selected for the remote recirculation receiver module is within the length of the communication cable. It is best to have additional length to allow for any adjustments at either end of the cable. Addition communication cables are available and are in lengths of 10 ft (3 m) and 32 ft (10 m). The communication cables can be joined to the original provided cable for additional length.

Preparing the Water Heater

- 2 Disconnect power to the water heater by unplugging it or by turning off the circuit at the breaker box, as appropriate. The power button on the water heater and remote **DOES NOT** disconnect power to the water heater. You must physically disconnect

power to the water heater.

- 3 Locate the two screws at the bottom of the cabinet cover. Use a Phillips screwdriver to remove the screws. Place screws aside in a safe place for re-installation.
- 4 Lift cover up and away from cabinet to gain access to the water heater's internal components.

Connecting the Communication Cable to the Water Heater

- 5 Locate the user interface module on the bottom front of the water heater. See Figure 1.

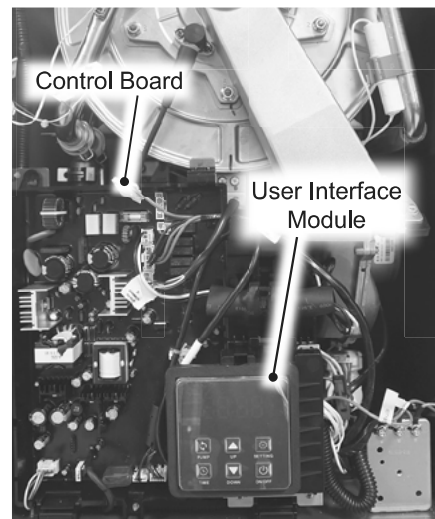


Figure 1 - User Interface Module

- 6 Locate the latch on the top of the user interface module. See Figure 2. Depress this latch and pull forward to remove the user interface module from the mounting bracket.



Figure 2 - User Interface latch

- 7 Locate the screw securing the control board panel. Use a Phillips screwdriver to remove the screw and place it aside in a safe place for re-installation. See Figure 3.

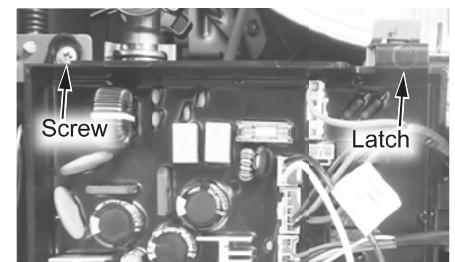


Figure 3 - Control board location

- 8 Press the latch at the top of the control board panel and pull the assembly forward from the top. It is hinged at the bottom and can be lowered. The circuit board assembly will hold itself in place.
- 9 Route the end of the communication cable through the grommet on the bottom of the water heater. See Figure 4.

X3 Remote Recirculation Adapter Installation Instructions

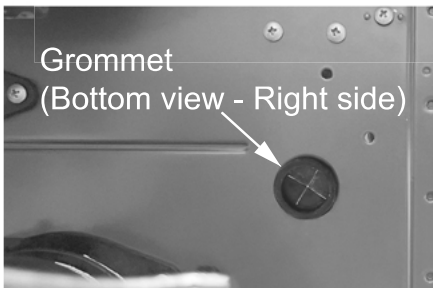
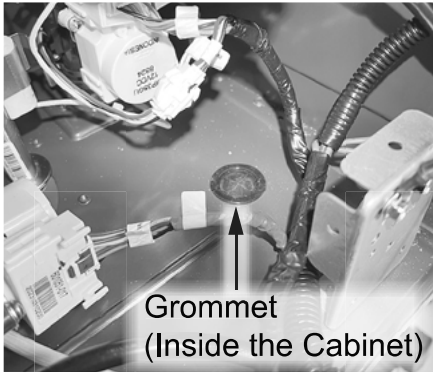


Figure 4 - Grommet location

- 10** Route the communication cable through the wiring organizers on the back of the control board panel. See Figure 5.

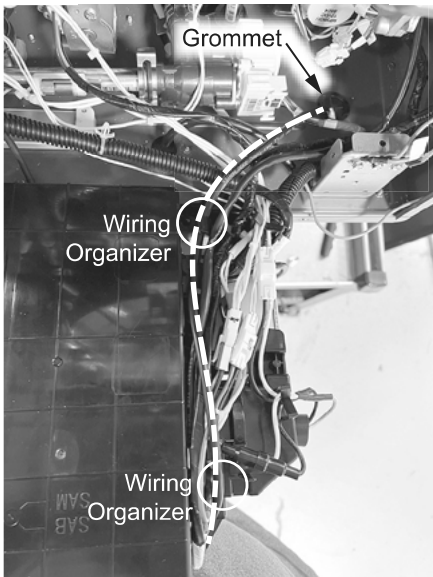


Figure 5 - Communication cable routing

- 11** Lift the control board panel up and lock into place. Install and tighten the screw previously removed in **Step 11**.

- 12** Using Figure 6 as reference connect the communication cable to the control board panel.

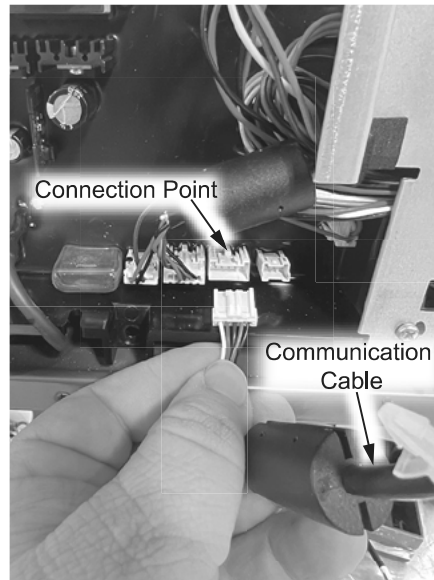


Figure 6 - Connecting the communication cable to the control board.

- 13** Reinstall the user interface module removed in **Step 10**.

Mounting the Remote Recirculation Receiver Module

- 14** Secure the remote recirculation receiver module to the wall using the provided wall screw and wall anchor. Reference Figure 7 for the orientation of the mounting bracket when mounted.



Figure 7 - Securing the remote recirculation receiver module to the wall

NOTICE: Ensure the communication cable has sufficient length to reach the desired location for the remote recirculation receiver module. Ensure the cable is routed properly and not exposed to any sharp edges. Also ensure that it is mounted safely as to not cause any trip or safety hazard.

Returning Water Heater to Operation

- 15** Replace the cabinet cover and secure with the screws previously removed in **Step 5**.

X3 Remote Recirculation Adapter Installation Instructions

- 16 Restore power to the water heater. The water heater is now ready for operation.

Configure the Water Heater

- 17 Press and hold the Settings button for five (5) seconds to enter A Mode.
- 18 Perform the sequence below to set A05 and A07 values to 1.
1. Press and hold the SETTING button for five (5) seconds to access A Mode
 2. Use the UP button or DOWN button to select code A05.
 3. Press SETTING to access this code.
 4. Use the UP button or DOWN button to set the value to 1.
 5. Press SETTING to confirm this new value.
 6. Follow steps 2 - 5 to set code A07 to 1.
 7. Press and hold the SETTING button for five (5) seconds to exit A Mode.

Pairing the Remote Recirculation Button(s)

- 19 Locate the remote recirculation buttons provided in the kit. Depending on the kit it may contain two (2) or three (3) buttons. See figure 8.
- 20 Remove the battery cover using a flathead screwdriver or coin. Place a CR2450 coin style battery into the compartment, positive side up. See figure 8.

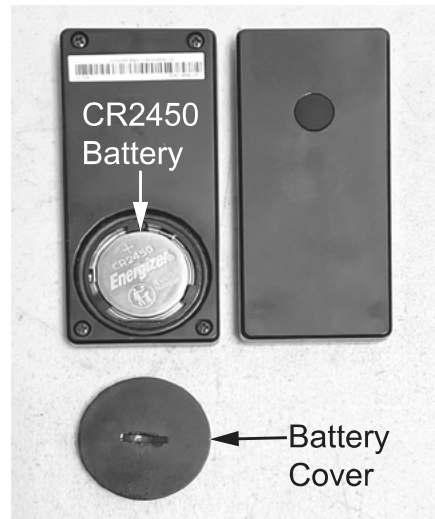


Figure 8 - Remote recirculation button(s) battery installation

- 21 Tighten the cover in place. Do this step for all remote recirculation buttons you plan to pair to the water heater.
- 22 Cycle power to the water heater by unplugging it or by turning it off and on at the circuit breaker box, as appropriate.
- 23 Within one (1) minute press the button on the remote recirculation button. The remote button will flash briefly. Perform this same step on all additional remote recirculation buttons before the minute is up.

- 24 Test the installation by pressing the button(s) on the remote recirculation button. The water heater pump should activate the control panel display will briefly flash the pump symbol followed by the pump activating.

Resetting the Receiver

- 25 With water heater and recirculation receiver on, Press and hold the "SETTING" button for five (5) seconds to access A- Mode.
- 26 Press the UP button or the DOWN button to access A07.
- 27 Press and hold the "PUMP" button on the user interface module for about ten (10) seconds. The pump icon will blink on the user interface display once complete.
- 28 Follow Steps 22 - 24 to pair the remote recirculation buttons.

X3 Tankless Wi-Fi Adapter Installation Instructions

Kit 100371922 Contains:

- Wi-Fi Module (1x)
- Mounting Adapter
- Two (2) module screws
- Four (4) wall screws
- Four (4) wall anchors
- Instructions (1x)

IMPORTANT: Use only factory authorized replacement parts. If you lack the necessary skills to properly perform the installation, you should not proceed, but get help from a qualified service technician.

Tools and Materials Required:

- Phillips Screwdriver

Installing the App on Your Phone

It is recommended the water heater app be installed on the homeowner's device prior to setting up the Wi-Fi function on this water heater.

By enabling and connecting your water heater to WiFi, you are granting permission to the manufacturer to push "over-the-air" (OTA) updates to the water heater and to collect telemetry data regarding the water heater. The OTA updates may be pushed periodically to address bugs and provide security patches. Refer to the Terms and Conditions at www.aosmith.com/Utility-Pages/Terms-and-Conditions/ for more details. Also, refer to www.aosmith.com/Privacy-Policy/ for more information about how we collect and use data.

- 1 Download the **iCOMM Utilities** app for your smart phone.



- 2 Launch the **iCOMM Utilities** app on your smart phone, then follow the simple steps to configure your Wi-Fi connection. The **iCOMM Utilities** app makes it easy to set up, program and control your Water Heater.

- 3 Create an account or log in to your existing account.

- 4 Proceed to the **Step 5** to install the Wi-fi hardware before configuring the **iCOMM Utilities** app.

Wi-Fi Adapter Mount

- 5 Before proceeding, verify the location selected for the Wi-Fi adapter mount is within the length of the communication cable. It is best to have additional length to allow for any adjustments at either end of the cable. Additional communication cables are available and are in lengths of 10 ft (3 m) and 32 ft (10 m). The communication cables can be joined to the original provided cable for additional length.

Preparing the Water Heater

- 6 Disconnect power to the water heater by unplugging it or by turning off the circuit at the breaker box, as appropriate. The power button on the water heater and remote **DOES NOT** disconnect power to the water heater. You must physically disconnect power to the water heater.

- 7 Locate the two screws at the bottom of the cabinet cover. Use a Phillips screwdriver to remove the screws. Place screws aside in a safe place for re-installation.

- 8 Lift cover up and away from cabinet to gain access to the water heater's internal components.

Connecting the Communication Cable to the Water Heater

- 9 Locate the user interface module on the bottom front of the water heater. See Figure 1.

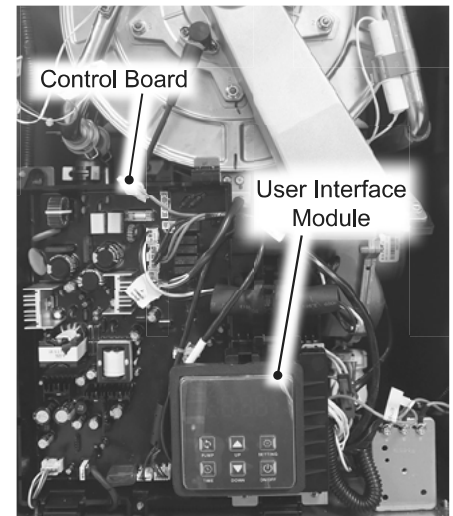


Figure 1 - User Interface Module

- 10 Locate the latch on the top of the user interface module. See Figure 2. Depress this latch and pull forward to remove the user interface module from the mounting bracket.



Figure 2 - User Interface latch

X3 Tankless Wi-Fi Adapter Installation Instructions

- 11** Locate the screw securing the control board panel. Use a Phillips screwdriver to remove the screw and place it aside in a safe place for re-installation. See Figure 3.

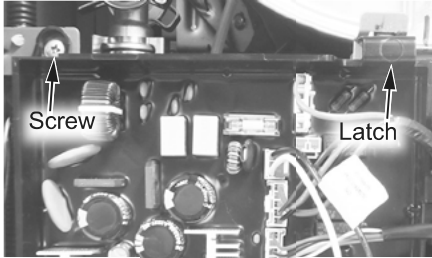


Figure 3 - Control board location

- 12** Press the latch at the top of the control board panel and pull the assembly forward from the top. It is hinged at the bottom and can be lowered. The circuit board assembly will hold itself in place.

- 13** Route the end of the communication cable through the grommet on the bottom of the water heater. See Figure 4.

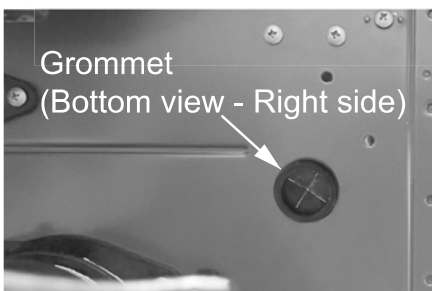
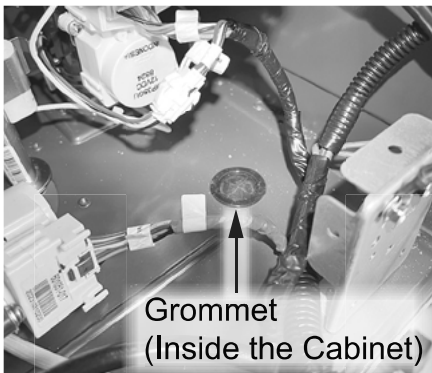


Figure 4 - Grommet location

- 14** Route the communication cable through the wiring organizers on the back of the control board panel. See Figure 5.

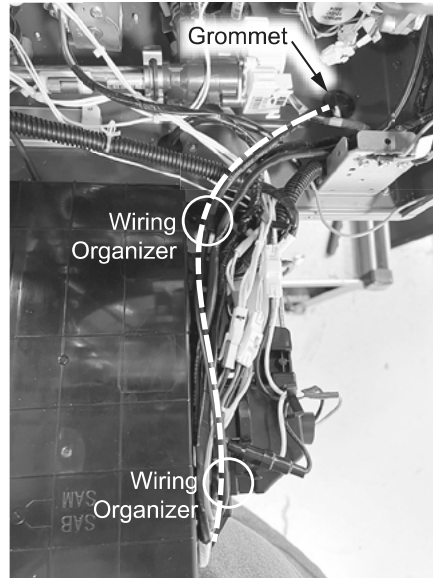


Figure 5 - Communication cable routing

- 15** Lift the control board panel up and lock into place. Install and tighten the screw previously removed in Step 11.

- 16** Using Figure 6 as reference connect the communication cable to the control board panel.

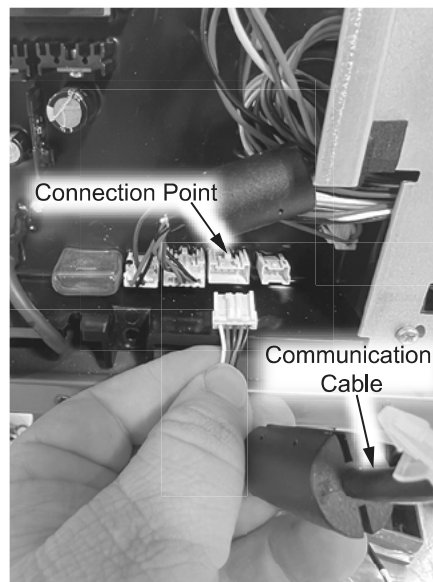


Figure 6 - Connecting the communication cable to the control board.

- 17** Reinstall the user interface module removed in Step 10.

Mounting the Wi-Fi Adapter Mount

- 18** Secure the Wi-Fi mounting bracket to the wall using the four (4) provided screws and wall anchors. Reference Figure 7 for the orientation of the mounting bracket when mounted.

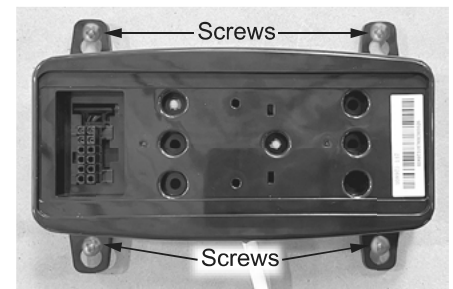


Figure 7 - Securing the mounting bracket to the wall

NOTICE: Ensure the communication cable has sufficient length to reach the desired location for the Wi-Fi Adapter Mount. Ensure the cable is routed properly and not exposed to any sharp edges. Also ensure that it is mounted safely as to not cause any trip or safety hazard.

- 19** Locate the Wi-Fi module provided in the kit. The back side of the module has a plug that will engage with a socket in the mounting adapter. Align the plug with the socket and push in until fully seated. See Figure 8.

- 20** Locate the two (2) screws provided in the kit. Secure the Wi-Fi module to the mounting bracket using the provided screws. See Figure 8.

- 21** Locate the battery saver strip on the side of the Wi-Fi module and pull outward to remove it. Dispose of the strip properly.

X3 Tankless Wi-Fi Adapter Installation Instructions

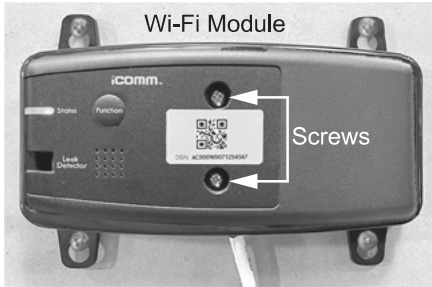


Figure 8 - Mounting screw location

Returning Water Heater to Operation

- 22 Replace the cabinet cover and secure with the screws previously removed in **Step 7**.
- 23 Restore power to the water heater. The water heater is now ready for operation.

Configuring the Wi-Fi App

- 24 Before configuring the app, write down your Wi-Fi Network and password. The **iCOMM Utilities** app will need you to enter this information later.
- 25 Open the **iCOMM Utilities** app and log into your existing account. Tap the "Add My Water Heater" button. See Figure 9.

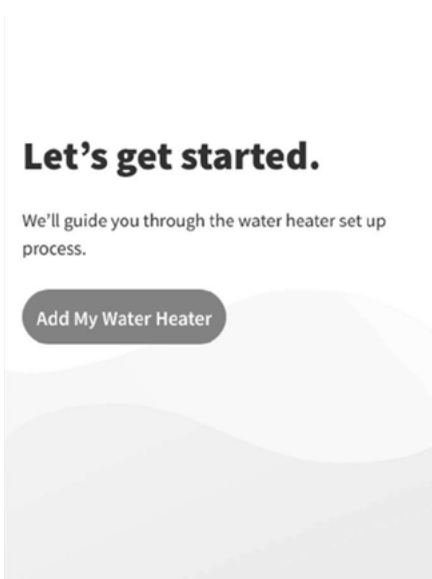


Figure 9 - Add my water heater section

- 26 You will be asked to enter the following information:

- Name of Installation Location
- Product Nickname
- Installation Date.

After entering the information, tap "Save & Continue" to proceed. See Figure 10.

Figure 10 - Installation information

- 27 The app will ask permission to use the phone's camera to scan the Serial QR code located on the water heater's rating plate. This is **NOT** the DSN QR code on the Wi-Fi module.

NOTICE: If the app is unable to scan the Serial QR code, select the "Enter Serial Number Manually" option at the bottom of the app.

Once registered, the app will proceed to the next step.

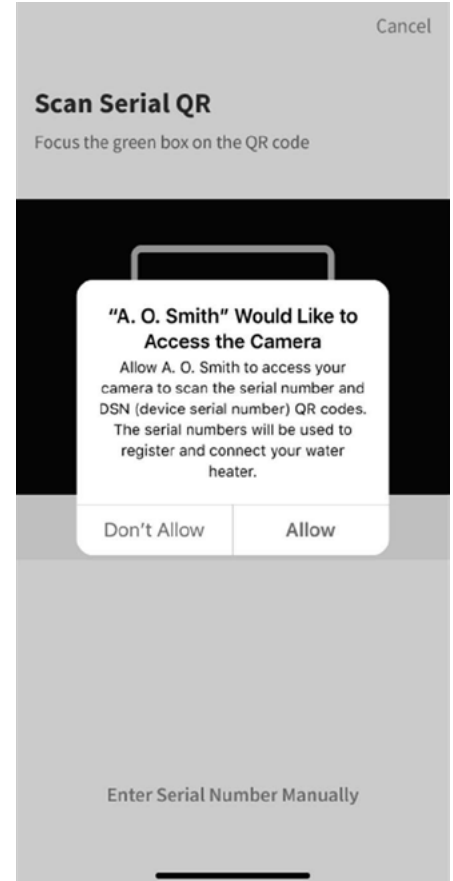


Figure 11 - Scan serial QR Code

- 28 The app will begin the process of connecting your water heater to your Wi-Fi Network. Tap the "Connect" option to proceed. See Figure 12.

X3 Tankless Wi-Fi Adapter Installation Instructions

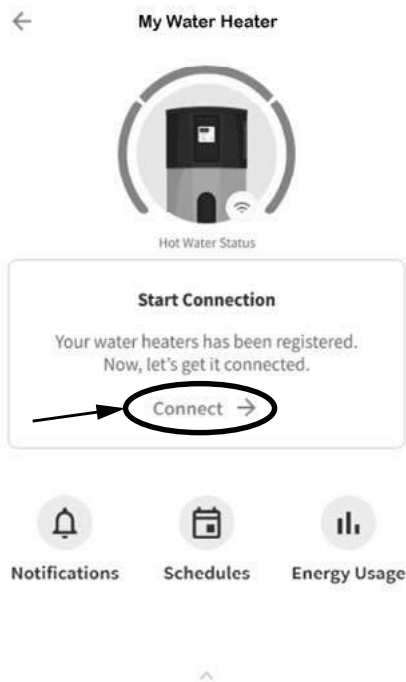


Figure 12 - Preparing to connect

29 You will be asked to select your desired connection method. Tap the "Connect to WiFi" option. See Figure 13.



Figure 13 - Choosing the type of connection

30 Press the **Function** button on the Wi-Fi module **once**. A green light will begin to flash while in AP mode. The green light will stop flashing and remain on once setup is successful. Tap "Connect to WiFi" to continue. See Figure 14.



Figure 14 - Starting AP mode

31 The Wi-fi app will continue the connection process and display the status. Once it has established an AP connection with the Wi-Fi module it will display the "Choose Your Wi-Fi Network" option. See Figure 15.

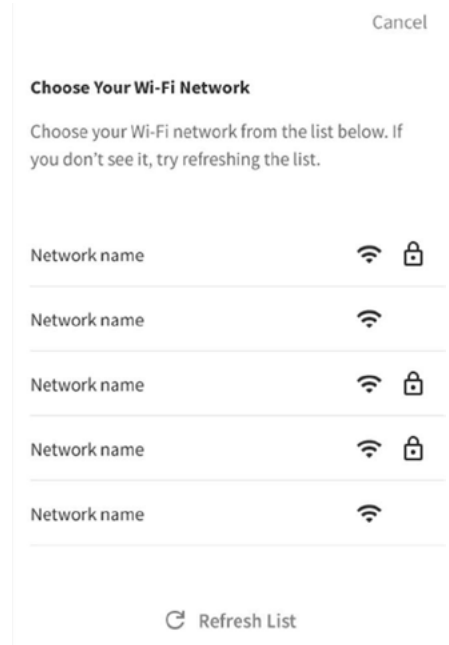


Figure 15 - Available Wi-Fi networks.

32 Select your preferred Wi-Fi Network from the list. We recommend connecting to a Wi-Fi network that has been secured with a password. Enter the network password when asked and tap "Save" to continue.

33 The app will attempt to connect to your Wi-Fi network. The Wi-Fi module LED will stop flashing and become solid when a Wi-Fi connection is established.

X3 Tankless Wi-Fi Adapter Installation Instructions

34 The app will display "Water Heater Added" once the connection is complete. See Figure 16. Tap "Return to Dashboard" to access temperature control and notifications on the app.

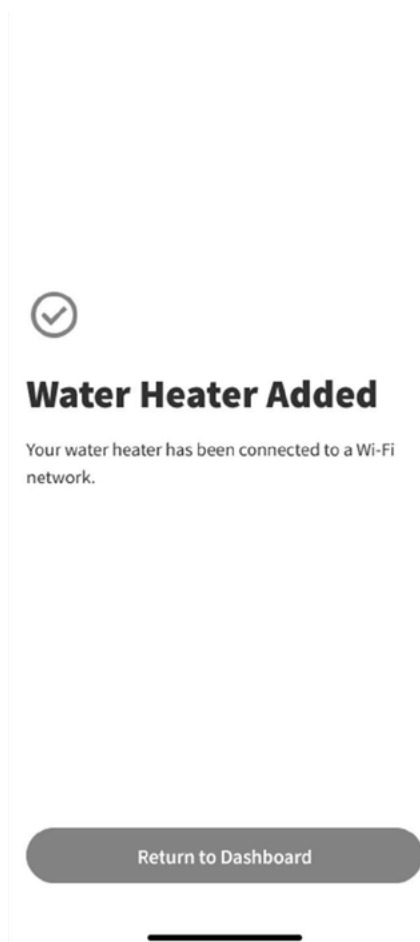


Figure 16 - Wi-Fi configuration completed

35 The "Dashboard" screen allows you to set the desired temperature and check for any alerts.

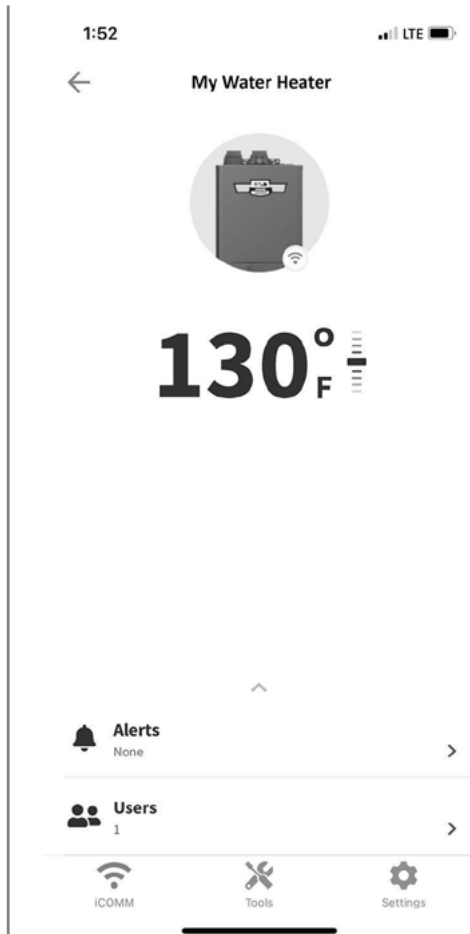


Figure 17 - Dashboard screen

Module Reset:

Soft reset:

With both Wi-Fi and Bluetooth OFF, press the function button once, the green LED will start flashing. Within the first 5 seconds of the green LED flashing, press the function button and hold for 5 seconds to trigger the Soft Reset. If no keys are pressed or held in the first 5 seconds, the Soft Reset will not be triggered and the module will function as the described in the Wi-Fi setup section.

NOTE: The Soft Rest will disable Wi-Fi and Bluetooth functions, to restore these functions after a soft reset do the following. Press the function button for 6 seconds then release. During the 6 seconds, the LED will flash green and blue.

Factory reset:

With both Wi-Fi and Bluetooth OFF, press the function button once, the green LED will start flashing. Within the first 5 seconds of the green LED flashing, double press the function button. The blue LED will remain on ON. Within the first 5 seconds of blue LED remaining ON, press the function button and hold for 5 seconds. This will trigger the Factory Reset. If no keys are pressed or held in the first 5 seconds of the green LED flashing, the module will operate as the described in the Wi-Fi setup section. If the function button is not pressed or held in the first 5 seconds of blue LED flashing, the Factory Reset will not be triggered and the blue LED will be turned off 10 seconds after the double press.

The Factory Reset will revert all settings to factory default and WIFI profiles. Then reboot the module after 6 seconds (during the reboot both green and blue LEDs will flash at the same time).

X3 Tankless Wi-Fi Adapter Installation Instructions

Regulatory Notices

Product Emissions: Unintentional

FCC (UNITED STATES):

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, (2) This device must accept any interference received including interference that may cause undesired operation.

ICES-003 (CANADA):

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician.

CAUTION: Changes or modifications to this equipment not expressly approved by the party responsible for compliance (A.O. Smith Corporation) could void the user's authority to operate the equipment.

Intentional Radiation: (Wi-Fi Radio)

Contains FCC ID: VPYLB1LD

Contains IC: 772C-LB1LD

This device complies with part 15 of FCC Rules and Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Warning:

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles les radioélectriques (RF) de la FCC lignes directrices d'exposition et d'exposition

aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le radiateur et le corps humain.

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

DATA NOTICE:

Data relating to your water heater may be periodically uploaded from this device. A. O. Smith is the owner of all such data and will use the data for business purposes including but not limited to product improvement.

Bypass Cartridge Anti-Freeze Kit Instructions

Kit Contains:

- Heat Trace Cable (1x)
- Insulation Blanket (1x)
- Hook and Loop Adhesive Strips (2x)
- Instructions (1x)

IMPORTANT: Use only factory authorized replacement parts. **DO NOT USE ELECTRIC SCREWDRIVERS OR DRILLS, HAND TIGHTEN ALL SCREWS TO PREVENT OVER TIGHTENING.** If you lack the necessary skills to properly perform the installation, you should not proceed, but get help from a qualified service technician.

Tools and Materials Required:

- Philips Screwdriver
- Duct Tape

Installing the Anti-Freeze Kit

- 1 Make sure the bypass cartridge exterior is clean.
- 2 Slide the heat trace up from the bottom of the bypass. NOTICE the orientation of the heat trace. The power plug should be at the bottom.



Figure 1 - Cable placement/orientation.

- 3 Secure the heat trace to the manifold using the duct tape. See Figure 1.
- 4 Install the adhesive hook and loop strips as shown in Figure 2.

NOTICE: these strips must be applied on either side of the manifold.



Figure 2 - Hook and Loop Strips

- 5 Open the insulation blanket and wrap it around the bypass and heat trace. It is easier to join the ends of the insulation blanket, if you attach it to the bypass cartridge with the ends opening towards the front of the water heater. Note the orientation of the insulation blanket in Figure 3. NOTICE: When joining the hook and loop edges of the insulation blanket do not use excess force on the bypass cartridge.

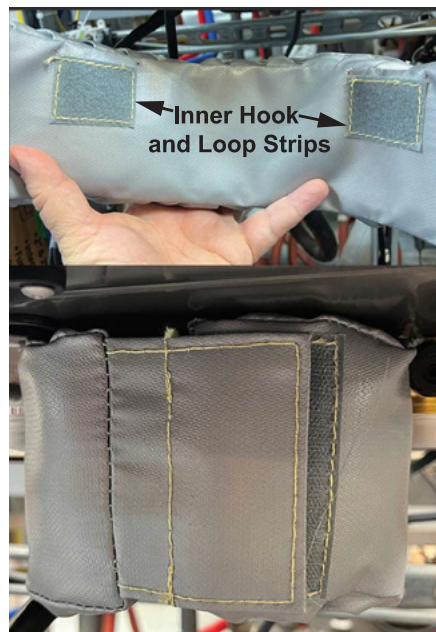


Figure 3 - Insulation Blanket orientation and installation.

- 6 Make sure the insulation blanket is fully seated and covers the entire bypass cartridge.

- 7 Plug the heat trace cable into the 120v wall outlet (a Ground Fault Circuit Interrupter GFCI receptical is recommended), It may begin to heat up if the ambient temperature is below 70°F. NOTICE: If a lower temperature set point is needed, an inline thermostat can be purchased and installed.

- 8 Check the installation to ensure everything is seated properly. Correct any gaps between the bypass cartridge and the insulation blanket.

X3[®] Cartridge Anti-Freeze Kit Instructions

Kit Contains:

- Heat Trace Cable (1x)
- Insulation Blanket (1x)
- Instructions (1x)

IMPORTANT: Use only factory authorized replacement parts. If you lack the necessary skills to properly perform the installation, you should not proceed, but get help from a qualified service technician.

Tools and Materials Required:

- Philips Screwdriver
- Duct Tape

Installing the Anti-Freeze Kit

- 1 Make sure the X3[®] cartridge exterior is clean.
- 2 Coil the heat trace cable around your hand. This will form the cable into a coil and make installation easier.
- 3 Slide the coiled heat trace cable onto the X3[®] Cartridge. Secure the heat trace cable to the top of the X3[®] Cartridge with a section of duct tape.



Figure 1 - Securing the top of the trace.

- 4 With the heat trace cable secure at the top of the X3[®] Cartridge

adjust the coil of the heat trace cable evenly as it descends down the X3[®] Cartridge. Use a second section of duct tape to secure the bottom. See Figure 2 as an example.



Figure 2 - Secure the bottom of the trace.

- 5 Once secured, take a moment to ensure the cable is evenly spaced and is not overlapping itself.
- 6 Open the insulation blanket and place it around X3[®] Cartridge. It is easier to join the ends of the insulation blanket, if you attach it to the X3[®] Cartridge with the ends opening towards the front of the water heater. **NOTICE:** When joining the hook and loop edges of the insulation blanket do not use excess force on the X3[®] Cartridge.



Figure 3 - Insulation Blanket installed.

- 7 Make sure the insulation blanket is fully seated and covers the entire X3[®] cartridge. See Figure 3.
- 8 Plug the heat trace cable into the 120v wall outlet (a Ground Fault Circuit Interrupter GFCI receptical is recommended), It may begin to heat up if the ambient temperature is below 70°F. **NOTICE:** If a lower temperature set point is needed, an inline thermostat can be purchased and installed.
- 9 Check the installation to ensure everything is seated properly. Correct any gaps between the X3[®] cartridge and the insulation blanket.

X3[®] and Bypass Cartridge Removal/Installation Instructions

Kit Contains:

- X3[®] or Bypass Cartridge (1x)
- Instructions (1x)

IMPORTANT: Use only factory authorized replacement parts. **DO NOT USE ELECTRIC SCREWDRIVERS OR DRILLS, HAND TIGHTEN ALL SCREWS TO PREVENT OVER TIGHTENING.** If you lack the necessary skills to properly perform the installation, you should not proceed, but get help from a qualified service technician.

Tools and Materials Required:

- Philips Screwdriver

Removing the Old Cartridge

1 Disconnect power to the water heater by unplugging it or by turning off the circuit at the breaker box.

2 **NOTICE:** Close the cold inlet water valve.

3 Open all hot water taps in the house. When the residual water flow has ceased, close all hot water taps.

4 Remove the two long screws and one short screws securing the cartridge to the manifold located on the underside of the water heater cabinet. See Figure 1. Set the screws aside in a safe place. It is important to note the sizes of the screw and their order for reinstallation.

NOTICE: If you have the cartridge anti-freeze kit installed, remove and set it aside for reinstallation later.

5 With the screws removed, pull down to remove the cartridge from the water heater. Place a bucket under the water heater cabinet to collect any residual water.

NOTICE: The cartridge will be full of water. Use caution not to tilt the cartridge until the water has been drained.

Installing the New Cartridge:

1 Inspect the new cartridge and o-rings for damage or debris. Verify lubricant has been properly applied to o-rings.

2 Insert the cartridge into manifold **NOTICE:** The X3[®] cartridge is keyed to only install in one direction. Align the ▲ on the cartridge with the ▼ on the manifold. When inserting the cartridge, push up until the screw holes align. Some resistance is normal. See Figure 1 and 2.

3 Insert and snug all three screws by hand. Use a screwdriver to tighten the two ① screws first and lastly tighten screw ②. **DO NOT** use a drill or impact driver to tighten the screws.

NOTICE: use only the screws removed earlier and note their order, they are not interchangeable with any other type of screw.

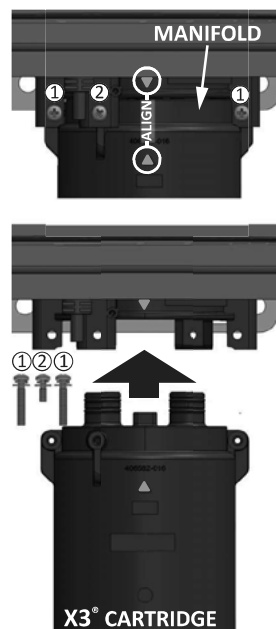


Figure 1 - X3[®] Cartridge Installation.

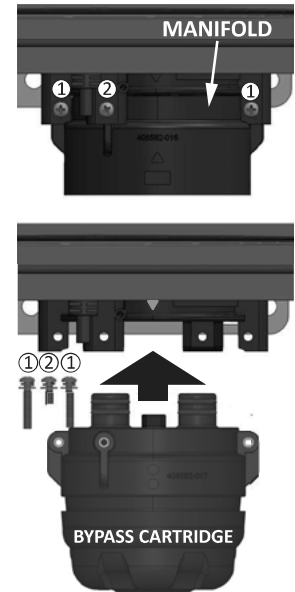


Figure 2 - Bypass Cartridge Installation.

4 Open the cold inlet water valve. Check for leaks at the cartridge. Turn off the water and correct any leaks immediately.

5 Re-connect power to the water heater by plugging it in or by turning on the circuit at the breaker box.

6 With the power restored verify proper operation of the water heater.