



## INSTALLATION INSTRUCTIONS:: TANK HEATER

### Detailed Installation Instructions for UltraHeat® Tank Heaters

**Outside temperature must be at least 50°F (10°C) when applying tank, pipe and elbow heaters.**

*Please read the entire installation instructions before attempting to install the UltraHeat® Tank Heaters.*

#### 1. Prepare the Tank Surface.

- Select a location on the bottom of the holding tank where the tank heater is to be put. It is recommended that the tank heater be placed as close to the drain end of the holding tank as is practical to do so. Select a location where the tank heater is mostly on the bottom of the holding tank and will lay flat against the bottom surface of the tank.
- If your holding tank has grooves in the tank surface or ribs that stick out of the tank surface, select a location on the bottom of your holding tank that will minimize the contact with the grooves or ribs and still be relatively close to the holding tank drain.
- Pre-clean the dust, dirt and other foreign matter from the holding tank surface using soap and water. Rinse with clean water and let the surface dry completely.
- Next clean the holding tank surface using isopropyl alcohol (70% alcohol minimum) with a clean cloth or rag. Allow the tank surface to dry completely. The tank surface must be clean and dry before proceeding to the next step.

**Caution:** *Do not use any type of solvent to clean the holding tank surface.*

#### 2. Put the Tank Heater onto the Tank Surface.

- Peel the release paper off the back side of the tank heater exposing the adhesive side of the tank heater.
- Place the tank heater onto the bottom tank surface with the adhesive side against the tank. It is usually best to start at one end of the tank heater and slowly but firmly press the tank heater down so that the entire tank heater makes contact with the tank surface. *Be careful not to stretch the tank heater beyond its original size.*
- If your holding tank has grooves in the tank surface or ribs that stick out of the tank surface you will need to make sure that you do not create air gaps or loose edges on the tank heater that will expose the adhesive side of the tank heater. Slowly placing the tank heater on the tank surface, work from one end being careful to lay the tank heater into the grooves or over the ribs in such a way as to make sure the tank heater is in complete contact with the tank surface. *Be careful not to stretch the tank heater beyond its original size.*

- UltraHeat®'s 13.5 VDC Tank Heaters can be combined on the same power circuit with UltraHeat® Pipe and Elbow Heaters as long as the following conditions are met:
  1. All UltraHeat® heaters must be connected in parallel only. All heater "hot-wire" leads (colored red) must be connected together with the positive circuit wire. All the heater negative wire leads (colored white) must be connected together with the circuit ground wire.
  2. The total current draw of all tank, pipe and elbow heaters to be combined on one 13.5 Volt DC circuit must be less than 15 Amperes.

#### 3b. Install the 13.5 VDC, 15 Ampere fuse or circuit breaker.

- Each 13.5 VDC power circuit for UltraHeat® heaters must use only a 15 Ampere rated fuse or circuit breaker.
- Install a 15 Ampere fuse in an open fuse slot of the 13.5 VDC fuse panel connected to the output of the 13.5 VDC power converter. If you do not have enough open circuits in your 13.5 VDC fuse panel for the number of UltraHeat® Heaters you want to install please refer to the "[Frequently Asked Questions About Typical Ultra Heat Heater installations](#)" concerning this subject. If appropriate install a 15 Ampere in-line fuse or circuit breaker off the direct output of the 13.5 VDC power converter if a 13.5 VDC fuse panel is not used.

#### 3c. Run Circuit Wire from the Fuse or Circuit Breaker to the 13.5 VDC Power Switch.

- Each 13.5 VDC power circuit must use a minimum of 14 AWG (American Wire Gage) sized circuit wires in order to comply with National Electrical Code for 15 Ampere rated circuits. It is acceptable to use a larger gage circuit wire (12 AWG, 10 AWG, etc.) for a 15 Ampere rated circuit but not a smaller gage wire (16 AWG, etc.).
- Use a female slide connector (packaged separate from the UltraHeat® Tank Heater) to connect the circuit wire from the fuse/circuit breaker to the input side of the 13.5 VDC power switch (also packaged separate from the UltraHeat® Tank Heater.)

#### 3d. Run Circuit Wire from 13.5 VDC Power Switch to the UltraHeat® Tank Heater Positive Lead.

- Use a female slide connector (packaged separate from the UltraHeat® Tank Heater) to connect the circuit wire to the output side of the 13.5 VDC power switch.
- Use the crimp cap connectors that were packaged with your UltraHeat® 13.5 VDC Tank Heater to connect the heater's lead wires to the 13.5 VDC circuit wires. Connect the positive circuit wire coming from the 13.5 VDC power switch to the red positive lead wire on the UltraHeat® Tank Heater.
- If larger connectors are necessary to properly connect multiple heater lead wires to the circuit wires, large crimp cap connectors

- Press down firmly on all parts of the tank heater once in place. This will activate the pressure sensitive adhesive on the UltraHeat® Tank Heater.

**Caution:** When properly installed the UltraHeat® Tank Heater will be very difficult to remove without destroying it.

### 3. Electrical Installation

#### 3a1. Select the Appropriate 120 VAC Power Source.

##### 120 Volt AC (VAC) Powered Tank Heaters (Model 3600, Model 4200 & Model 4800)

- All of the 120 VAC powered tank heaters are furnished with a 15-foot (13.5m) power cord and a standard two prong plug. Simply connect an extension cord into a convenient 120 VAC outlet and run the other end to the tank heater's location and plug-in the tank heater's power cord.

**Caution:** Make sure the power cord/extension cord connection is off the ground & protected from water exposure.

#### 3a2. Select the Appropriate 13.5 VDC Power Source.

##### 13.5 Volt DC (VDC) Powered Tank Heaters (Model 1200, Model 2400 & Model 3600)

- It is recommended that UltraHeat®'s 13.5 VDC Tank Heaters be powered from the output fuse panel of an RV's 13.5 VDC power converter. UltraHeat® 13.5 VDC Tank Heaters should not be powered directly from a motorized RV's engine battery circuit.
- All 13.5 VDC power circuits for UltraHeat® Heaters should be dedicated to powering UltraHeat® tank, pipe and elbow heaters only. Do not combine UltraHeat® Tank Heaters on 13.5 VDC power circuits with devices that use electric motors (water pumps, furnace blower motors, etc.).

are recommended (not included with the UltraHeat® Tank Heater.)  
**3e. Run Circuit Wire from the UltraHeat® Tank Heater Negative Lead to Ground.**

- Connect the circuit wire to be used for the ground side of the circuit using a crimp cap connector to the UltraHeat® Tank Heater's white negative lead wire. Run the circuit wire back to the RV's 13.5 VDC grounding bar which is normally located near the RV's 13.5 VDC power converter.
- It is also acceptable practice to connect the negative circuit wire directly to the RV's frame to use as a ground for the UltraHeat® Tank Heater. It is recommended that a crimp-on eyelet, a star washer, a bolt and nut or other appropriate hardware be used to attach the negative circuit wire to the RV's frame. Removing a small amount of the paint on the RV's frame where the ground connection will be located will help insure a good ground connection.

**Caution:** Do not allow high voltage on the 13.5 VDC UltraHeat® Tank Heater power circuits, this will cause great damage to the tank heater.

- [Installing UltraHeat® Pipe Heaters](#)
- [Installing UltraHeat® Elbow Heaters](#)

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