COMMUNICATION AND RESPONSE TRAILER MANUAL

OVERVIEW: GENERAL OPERATION AND FEATURES

TOWING

Towing a Communication and Response Trailer (CRT) differs from towing a boat or a small utility trailer because of its weight and dimensions. The trailer itself is approximately 12 feet tall and weighs an estimated 5,000 pounds before it is outfitted. The CRT's total tongue weight is approximately 1,500 pounds when both the propane tanks and water tanks are full. You will need a tow vehicle that is capable of pulling a trailer with the aforementioned weight specifications; a vehicle that is equipped with an electronic brake controller. While the CRT is not difficult to tow if you have the suggested vehicle, it is recommended that you tow it several times before using it in an emergency situation, just to get used to the process. Please take caution when towing to allow for extra stopping distance and make sure that any low-hanging awnings or enclosures can accommodate the CRT's height specifications before attempting entry. At almost 12 feet in height, the unit can easily be damaged if you strike any low-hanging obstructions. Always test brakes and the CRT's brake lighting before entering public roadways.

EXTERIOR FEATURES

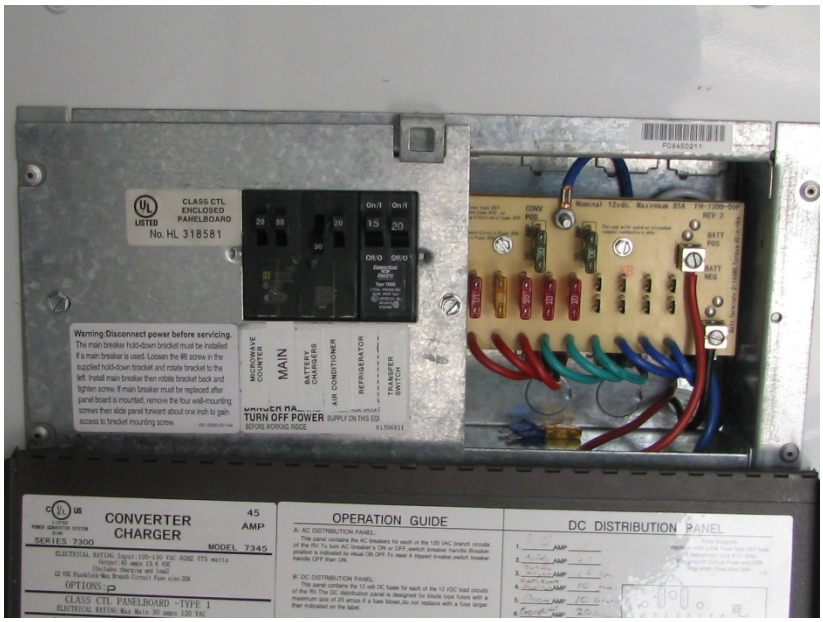
- **RETRACTABLE AWNING** [See included manufacturer's manual for details on operation.]
- **WHEELCHAIR-ACCESSIBLE DOOR** is included. There is no warranty for wheelchair use. Operate at your own risk.
- **EXTERIOR 12-VOLT LIGHT** located near the front curb-side door
- **REMOVABLE 110-VOLT HALOGEN AREA LIGHT** can detach from the trailer and convert into a tripod-mount light. The light will also detach from the tripod stand and convert into a floor-standing work light.
- **WIND GENERATOR MOUNT** located to the right side of the rear door

INTERIOR FEATURES

- **REFRIGERATOR**
  The refrigerator can be powered by propane, 12-volt power or 110-volt power. It is very important not to use 12-volt power for initial cooling. This type of power is only meant to maintain temperature of the contents inside after the onset of initial cooling. Always use

propane or the 110-volt power supply on initial startup. The refrigerator uses the circulation of the air across the cooling fins located in the rear of the unit to maintain a consistent temperature. It is important when packing the unit that you leave adequate space around the contents to allow for proper air flow.

- **WATER SYSTEM / BATHROOM FACILITIES**
  - There is a city water hookup if the facilities are available. In the event that you are not connected to a city water supply, there is an internal 12-volt water pump that needs to be turned on prior to operating your CRT. The power switch, which becomes illuminated when it is in the "ON" position, is located near the power panel.



  - Both the city hook-up and the fill for the water tanks are located to the right of the curb-side door.

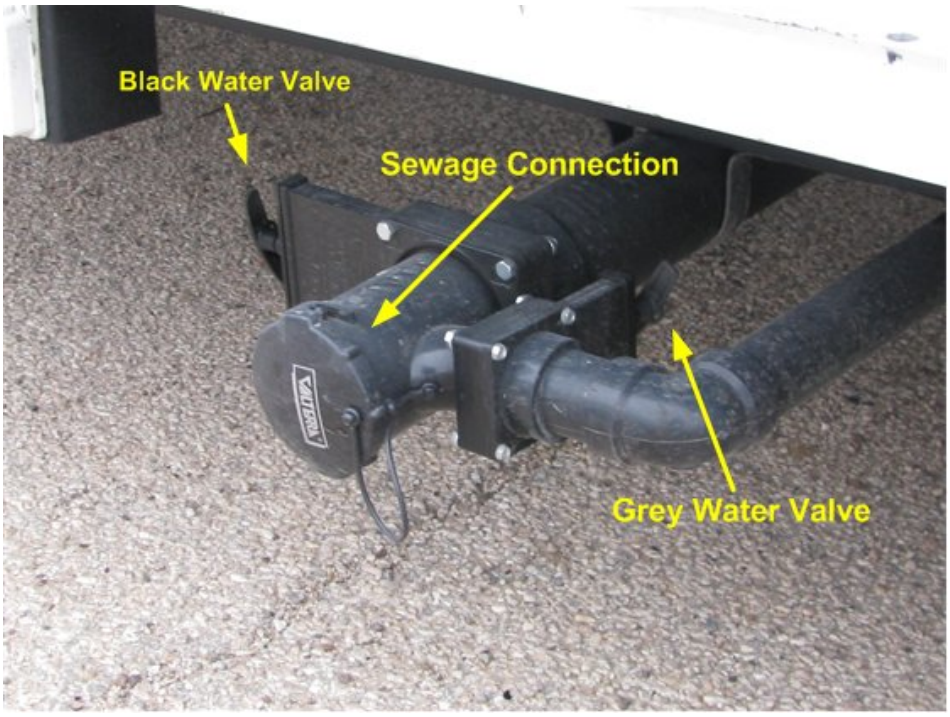
- There is a 6 gallon hot water heater that runs off of propane. You must have water in the system before lighting the water heater. WARNING: You can damage the hot water heater if you light it without water in the system. More detailed instructions regarding hot water heater activation are located on page 42.
- There is a 40 gallon fresh water tank with a 32 gallon grey water tank and a 24 gallon black water tank.
- There is a 17 inch height manual flush toilet

- **EMPTYING THE WASTE-WATER SYSTEM**

Avoid dumping tanks that are not at least 2/3 full. If you have to dump, add water to the tanks until they become at least 2/3 full. This will help promote all the solids and particles to become suspended in the water and flow out of the tank. If you are going to travel before dumping, you can add some dish washing detergent (1/4 cup to a tank) and let it slosh around. **[Caution: Too much soap may cause excessive foaming!]**

- Start by pulling up to the trailer dump station. Place your black holding-tank drain valve as close to the opening of the dump station as possible. This will ensure that if there is an accident, it will be contained in the dumping area.
- To avoid any contamination, put on disposable gloves before removing your sewer hose. Ensure both the gray and black water valves are both closed before removing the cap to the holding-tank drain opening.

- Always use an elbow and a hose ring to connect the sewer hose to the dump station hole as this will hold the hose in place and avoid any splatter. If the ring or the elbow is not available, insert the end of the sewer hose into the dump station hole about eight to twelve inches. Use the hole's cover, a brick, or something heavy enough to hold the sewer hose in place so it doesn't work its way out of the hole. [Caution: **Do not** use an object that could fall into the hole as this scenario could cause a blockage in the dump station.]
- Check the sewer hose to ensure the hose is securely clamped to the adapter that attaches to the holding-tank drain outlet. You can tell the hose is properly attached to the adapter when the tabs on the adapter are lined up with the stubs on the tank drain. A partially attached hose is more common than you think and can cause drainage problems.
- Once everything is secured, open the black water tank valve first. You will hear the rush of water draining through the hose which will eventually start to slow down and finally become just a light trickle. There is a possibility that some solids may still stay lodged at the bottom of the tank and on the tank sidewall.
- Next, fill the toilet bowl with water using the internal pump and water from your fresh tank. Flush the toilet several times to help rinse out the tank.
- Open the gray tank valve. As mentioned above, you will hear the rush of water draining through the hose which will eventually start to slow down and finally become just a light trickle. Close the gray tank valve.
- If there is a fresh supply of water, then rinse the tanks again by filling them at least ¼ to ½ full and then dump them.
- Recheck to assure that both the black and gray water tank valves are closed. Disconnect the sewer hose from your tank outlet.
- Lift the end of the sewer hose (the end you just disconnected) to completely drain the hose into the dump station. If a non-potable water hose is available, run water through the sewer hose to rinse it out. Remove the sewer hose from the dump station hole and rinse the outside of the hose. Rinse the area around the hole to ensure that any spillage has been cleaned up. Cover the dump station hole and replace the tank outlet cover.
- Add three to give gallons of water (about three full bowl flushes) to your black tank and then add the appropriate amount of holding-tank treatment. If you typically use a treatment for your gray tank, add that as well. This will ensure that everything stays moist and healthy in the tank until your next deployment.



- **PROPANE SYSTEM**

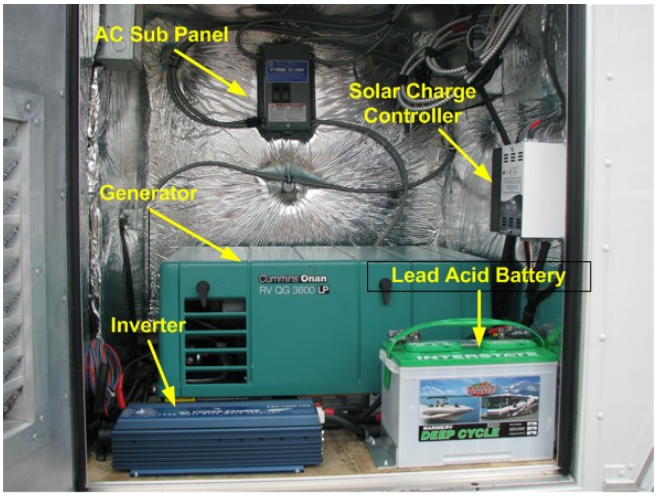
  There are two 40 pound propane tanks mounted on the tongue of the trailer. These two propane tanks provide enough fuel to run the generator for an estimated 28 to 32 hours continuously, depending on the load. The propane tanks also supply propane to the refrigerator and hot water heater. The propane hose connections are standard connections typically found on the most common portable propane tanks. There is a central valve that both regulates the pressure and determines what bottle the propane is being drawn from. Flip the lever towards the tank you wish to use for fueling the system, or straight up and down to draw from both tanks. In the picture below, the propane would be drawn from the right tank only.

POWER SYSTEM

The trailer can be powered from three sources:

GENERATOR

The generator is an on-board 3600 watt Onan natural gas (LP) generator. There is a lead acid battery in the generator compartment. This battery is for starting and running the generator. There is not a charge system on the generator like many small gasoline motors. If this battery is disconnected during the generator operation, it will shut down due to lack of electrical power to the generator. The battery is attached to the solar charge controller. The Controller provides the battery with a 2 amp trickle charge when needed and under normal conditions will keep the battery at full charge.



BATTERY BANK

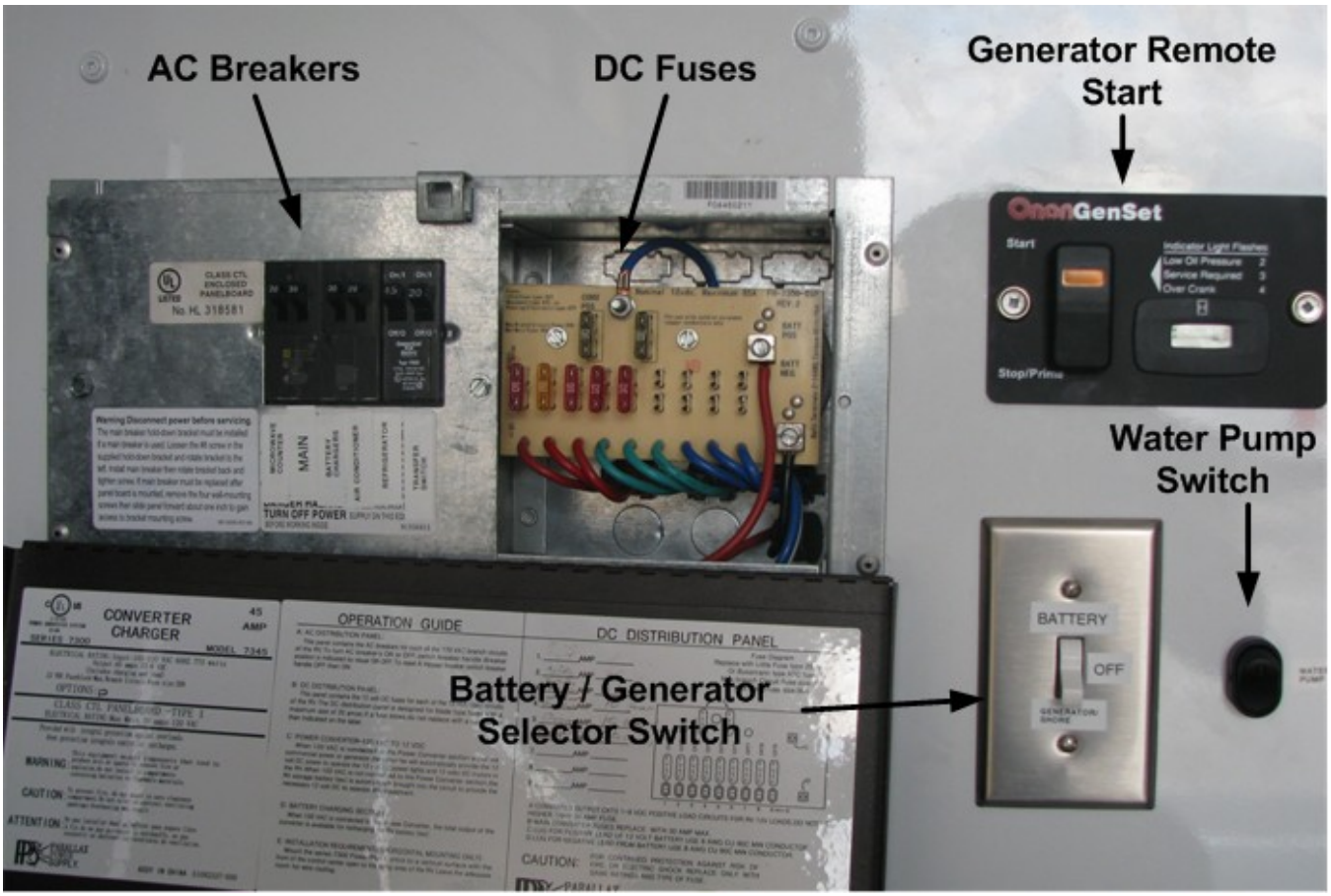
The battery bank located in the rear floor hatch provides up to 1500 watts continuous power rated at a capacity of approximately 850 Amp Hours.

EXTERNAL POWER CONNECTOR

The trailer has an external power connector that can handle up to 30Amps of “shore” power supplied from a building, external generator, or other source. If connected to a 30Amp circuit, this connection will supply up to 3600 watts – the same as the generator. Connected to a 20A circuit, it provides up to 2400 watts. On a standard 15Amp house circuit, only 1800 watts can be accessed.

The trailer has a renewable energy system consisting of both solar and wind power generation elements. This system is for recharging the batteries ONLY and should never be used in calculating how much total energy load can be pulled by the trailer loads. Both of these sources feed into charge controllers and ONLY charge the batteries.

The above elements make up the trailer's Power system. There are two separate components of the power system; AC power and DC power. Both systems are located in an AC/DC power panel and a sub AC panel. The main AC/DC panel is located on the interior wall or the trailer to the right of the TV.



The AC only sub panel (pictured below) is located in the generator compartment.

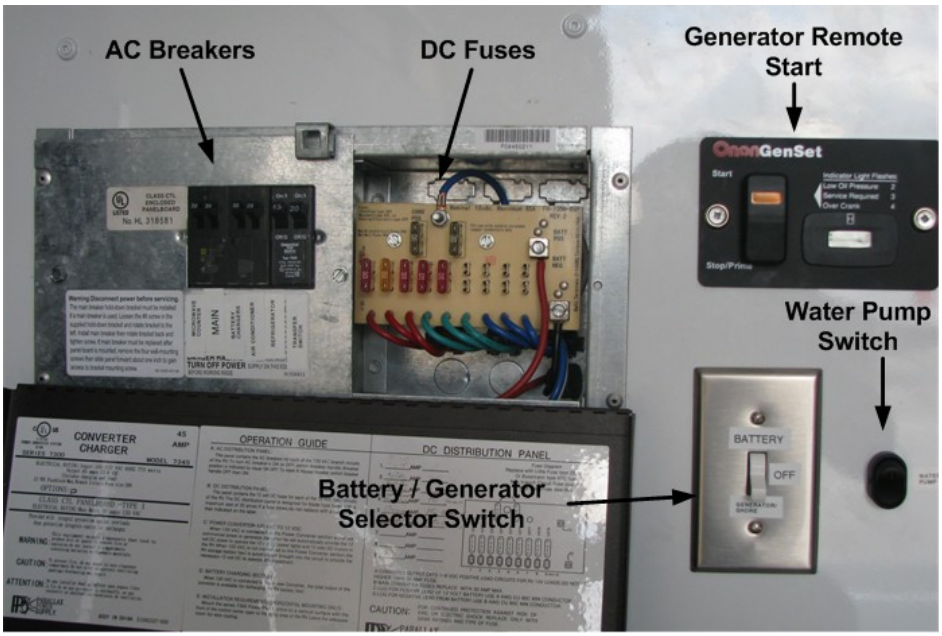
The AC only sub panel is energized using either shore or generator power **OR** power supplied from the inverter. This is determined by the position of a three way "toggle" switch (pictured above as battery/generator selector switch) located just to the right of the Primary AC/DC power panel.

It is important that you understand how these two systems operate.

AC POWER SYSTEM

The AC portion of the power panel is the left half of the unit. It is the portion with the circuit breakers. Each of the breakers is labeled accordingly. They are as follows (from left to right):

- Main – this is the main breaker for the shore/inverter power into the system.
- Second – this is the breaker that controls power to the Air Conditioner unit.
- Third – supplies power to the refrigerator.
- Fourth – supplies power to the battery chargers.
- Fifth – supplies power to the microwave and front receptacle next to the microwave.
- Transfer switch – supplies power from the shore/generator to the toggle switch.



You will notice in the drawing that the air conditioner, microwave and battery chargers will only run off the generator OR shore power. YOU MAY ONLY RUN ONE OF THESE DEVICES AT A TIME! If you attempt to run them at the same time you may trip a circuit breaker and risk shutting down the entire trailer. The battery chargers are controlled by a circuit breaker located in the AC/DC power panel and are labeled "Chargers". They

will charge at full capacity while running off the generator. If you are running shore power and do not have a full 30 amp circuit feeding the AC power system, the battery chargers will back down to the best charge rate possible, given the available power. Running at full capacity the charges will use up to 24 amps at 110 volts. The air conditioner and the microwave are on separate breakers. All the breakers are clearly labeled in the AC/DC power panel inside the trailer. Just to the right of the internal AC/DC power panel is a three way toggle switch. This switch moves the remaining outlets between shore/generator power and inverter power. The following outlets are fed by the sub-panel located in the generator compartment:

- The two outlets on the back wall on either side of the door
- The outlet in the floor of the trailer
- The outlet behind the equipment rack
- The outlet behind the TV on the wall
- The outside outlet next to the front door
- The power for the external flood light

DC POWER SYSTEM

The DC power panel is located just to the right of the circuit breakers in the internal AC/DC power panel. 12 volt power is supplied to the system from the battery bank located in the main battery compartment under the floor in the rear of the trailer. This portion of the panel controls all the 12 volt DC circuits. Each one of these circuits is protected by the use of fuse.

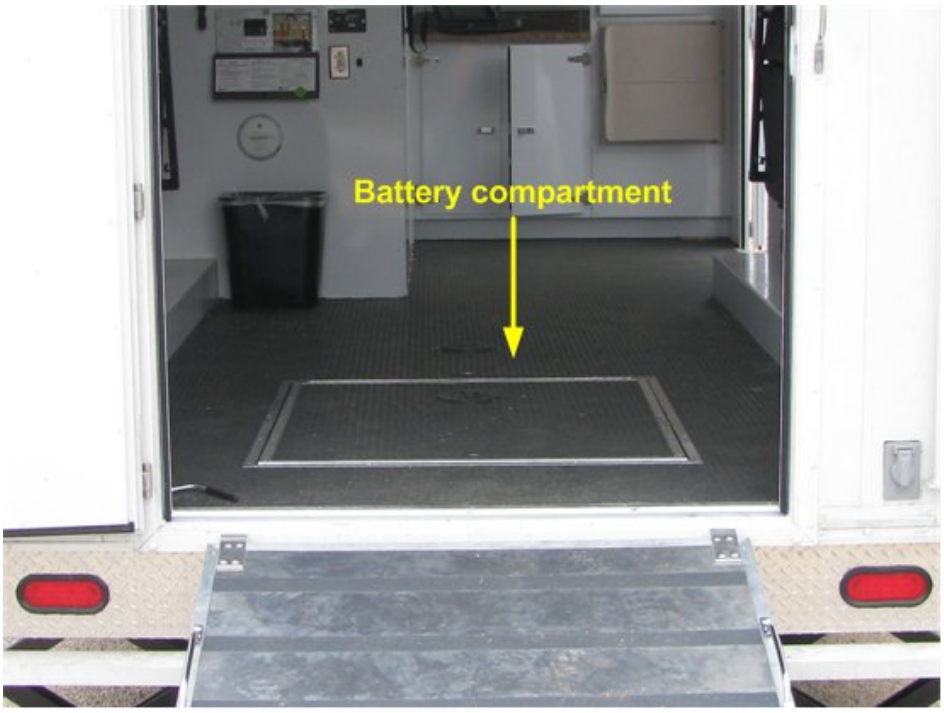
The circuits are as follows from left to right:

- ***10A*** - Interior overhead lights
- ***10A*** - Restroom dome light
- ***10A*** - Interior reading light
- ***10A*** - 12 volt feed to refrigerator
- ***10A*** - Water pump
- ***10A*** - Exterior porch light

There are two main fuses for the system located above the previously mentioned fuses. Both of these are 30A fuses.

BATTERY COMPARTMENT

This compartment is located in the rear of the trailer on the floor.



It is accessed by lifting up the access panel in the floor. These batteries supply power directly to the DC components and to AC power inverter located in the generator compartment. Power is supplied through 2/0 cables. Located in the generator compartment near the inverter is a fuse holder that holds a 150 amp ANL type fuse. This protects the 12 volt batteries from accidental shorts.

The batteries housed in this compartment are Lithium Iron Phosphate batteries. While the basis of the chemistry is the same as traditional "Lithium" batteries, this chemistry (LiFePo4) is safe from oxidation and overheating. The real advantage of these batteries, besides the safety, is the exceptional life expectancy, power to weight ratio, and ability to supply exceptionally high output currant as compared to traditional lead acid or lithium chemistry batteries.

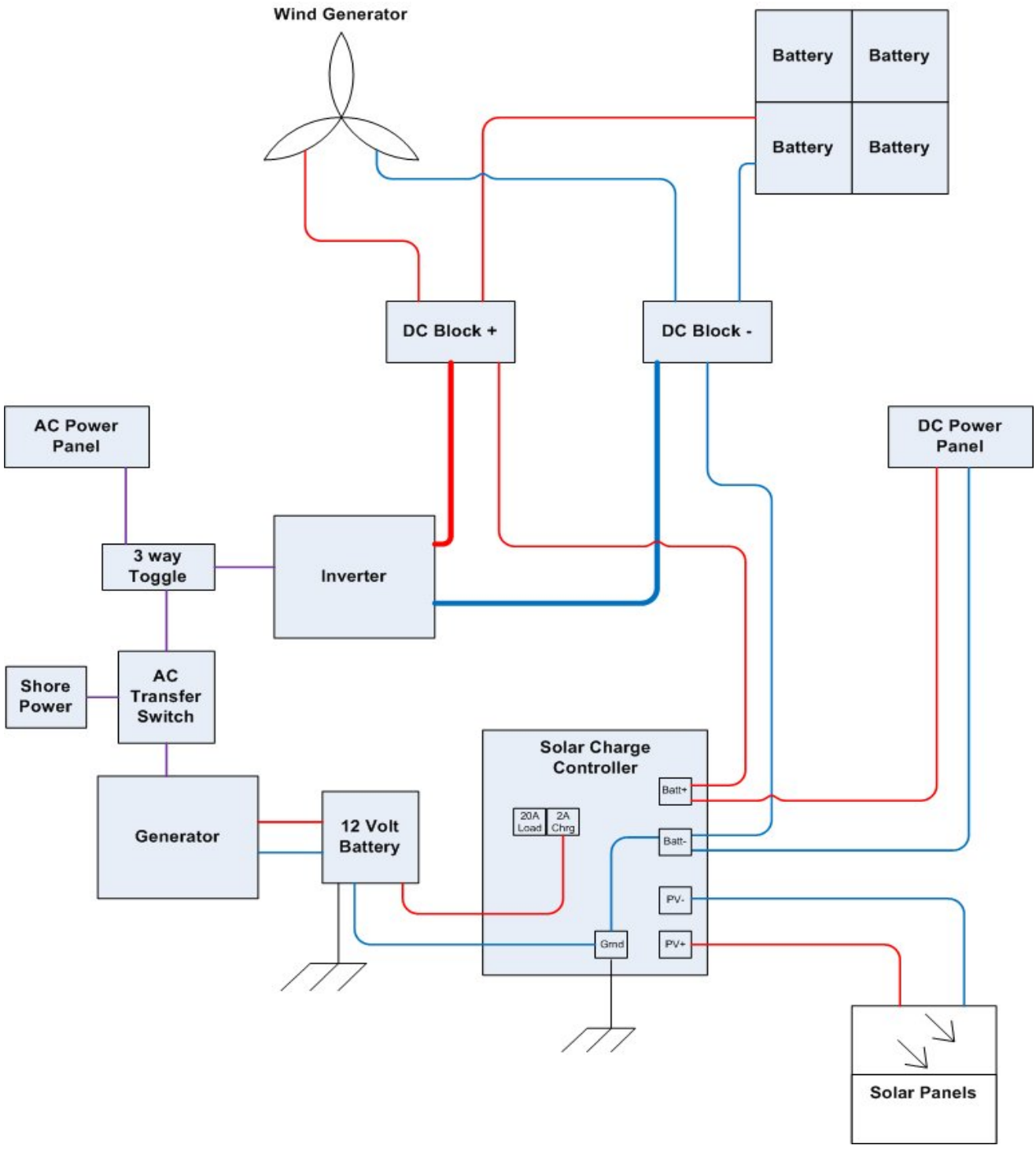
DC TO AC INVERTER

The DC to AC inverter is located in the generator compartment. It is supplied by 12 volt power from the battery compartment and then inverts the power to 110 volt AC power. The inverter is capable of running all critical equipment as well as additional equipment. It will not, however, run the air conditioner, microwave, or battery chargers. Any additional equipment must not exceed the rating for the inverter. It is critical to add up the power draw and make sure it does not exceed 1500 watts total on the battery system. Remember that the more power you draw the shorter time you will be able to run without the generator. There is more detailed information on this as well as the normal draws of the equipment starting on page 20.

BATTERY CHARGERS

There are four chargers in the battery compartment. Each charger is attached to a single battery. These chargers are for charging run down batteries faster than the solar panels or wind generators can. In the event that you are deployed and you need to run these chargers, it is recommended that this is the only high draw load on the generator at once.

WIRING DIAGRAM



There is an auto-switch that switches between the generator and the external “shore” connector. When it senses external power, it will use that power rather than the generator. It is important to note that the shore power and generator power are NOT additive. The trailer will operate on shore power OR generator power. [NOTE: The generator can be running on idle while the auto-switch is pulling power from the external shore power connector. In this case, the generator should be turned off to conserve fuel.]

A transfer switch, accessible from the power panel inside the trailer, offers the ability to switch certain systems to run from the battery system instead of the shore/generator auto-switch. Use this switch to access battery power when no shore power or generator power is available. The transfer switch will power selected parts of the trailer that are not considered to be high-drain power consumers, namely, the air conditioner and microwave. These two items may only be operated on shore or generator power. They are not wired into the battery/inverter system.

[Pictured above is the transfer switch on the lower right of the Power Control Panel. It has three positions: "Battery", "Off", and "Generator/Shore". Also shown are the AC breakers at top left. The MAIN breaker is here, as well as the dedicated battery charger breaker.]

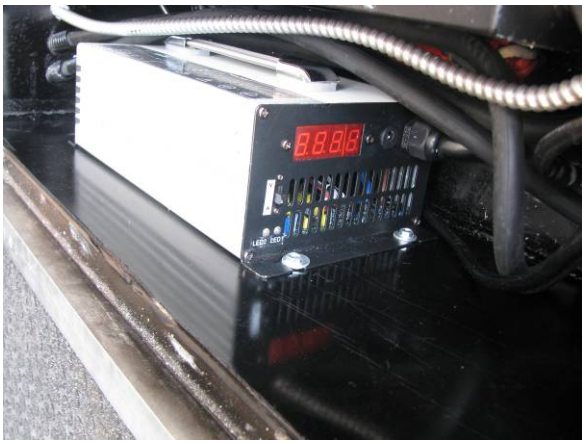
To run off of battery power, it will be necessary to ensure that the inverter is turned on. Look for the inverter in the generator compartment. The inverter can be mounted, as shown here (the rectangular blue unit in the bottom left) or on the rear wall just above the generator.

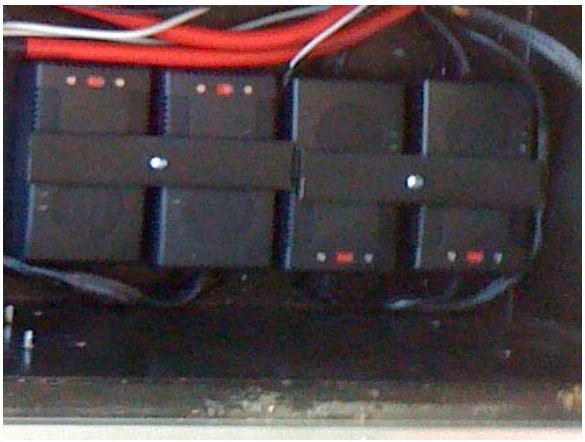
Look for a power switch on the side of the inverter. Depending on the model type, it will either be a rocker switch or a pressure switch located on the side of the unit facing the front of the trailer. Be sure to turn the inverter off when stowing the trailer. It is a constant drain on the batteries and could cause them to discharge, as well as shorten their usable life.

The trailer has a number of systems that require power, some more hungry for energy than others:

HIGH CURRENT DRAW DEVICES

- **AIR CONDITIONER/HEATER**: The air conditioner and heater (RV Products model number 8333E876 with 13,500 cooling BTUs and 5600 heating BTUs) are by far the biggest drain on power. This unit consumes between 1500 and 2000 watts while cooling and 1800 watts when heating. Consider that this unit, while cycling cooling or heating, could be taking up half your available generator/shore power. **[Caution: Never run the microwave while the air conditioner/heater or the battery chargers are running. Only one of these high-load systems can run at a time. The chargers can be turned off via their dedicated breaker in the main AC panel.]**
- **MICROWAVE**: The microwave (LG model number LMA1180ST), draws a peak load of 1450 watts. **[Caution: Never run the microwave while the air conditioner/heater or the battery chargers are running. Only one of these high-load systems can run at a time. The chargers can be turned off via their dedicated breaker in the main AC panel.]**
- **BATTERY CHARGERS:** There are four battery chargers wired on a dedicated 30Amp circuit with its own breaker on the main AC panel. These chargers can deliver a maximum of 2000 watts of power to the batteries when recharging them on a "bulk" charge. A bulk charge occurs after heavy battery usage. The batteries charge whenever shore or generator power is available. **[Caution: Never run the microwave while the air conditioner/heater or the battery chargers are running. Only one of these high-load systems can run at a time. The chargers can be turned off via their dedicated breaker in the main AC panel.]**





[Above are the two models of chargers used in the trailers. Chargers can pull as much 500 watts each. The model in the picture on the left can be switched off individually via a rocker switch on the back of each unit. The charger on the right does not have switches on the units. All can be controlled simultaneously (the preferable method) by switching their dedicated breaker on and off. Additionally the charger on the left has a switch on the front of the unit near the readout which allows you to choose between volts or amps on the LED readout.]

The battery system is an advanced, lithium iron phosphate system capable of charge capacities 2.5 times higher than traditional lead-acid batteries. These lithium batteries are made with a new lithium chemistry that is not susceptible to catastrophic failure in overcharge or undercharge conditions, as are most lithium batteries. The number of charge/discharge cycles is superior; 2000-3000 rather than 500-1000. There are four 12V batteries with approximately 220 Amp Hours charge capacity each. Lead-acid batteries of the same size and weight have only 85 Amp Hours.

To ensure the health of these batteries, they should be inspected every six months. Fully charged voltage is approximately 13.6V. Any reading under 10.8 is considered unhealthy. The chargers will charge with a "bulk" charge if the voltage is under about 13.0V. After coming close to their 13.6 V nominal voltage rating, they will limit the amount of current pushed into the batteries. This type of charging is called a "top-off" or "maintenance" charge. A bulk charge is usually between 20 and 40 Amps. A "top-off" charge is usually below 5 Amps. If you have the chargers with the readouts you can observe the Amps being pushed into a battery by switching a charger's front panel switch to 'A'. The number of charging Amps will be displayed on the LED.

If supplied with a sufficient power source, the batteries will bulk charge at 40 Amps/12V each. Since Power equals Voltage times Amperage (P=VA) each charger is capable of pulling around 500 watts. This is important to keep in mind, in light of the other heavy loads on the trailer power system. **[Caution: If the batteries are bulk**

charging, that is, charging at over 20 Amps each as read on each charger's LED display, do not operate the microwave or air conditioner/heater.]

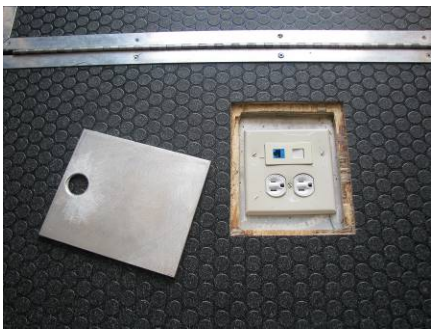
[Exterior Halogen Flood lamp – 660watts]

- **FLOOD LAMP**: The flood lamp should always be plugged in with the cord running behind the awning support. This light is also a very high power device. Its use should be considered carefully in light of other electrical loads that might be present.

OTHER ELECTRICAL LOADS

- **TELEVISION**: A 46" Sharp Aquos LCD television is installed with an average drain of 150 watts.
- **COMMUNICATIONS RACK:** This rack has a peak consumption of 400watts when the UPS is charging and approximately **220 watts** in normal operation.
- **REFRIGERATOR:** The refrigerator is a Norcold model N260.3X, 2.4 cubic feet with an average drain of 150 watts. The refrigerator can run off any of the 3 power sources; DC, AC and natural gas. Refer to the manufacturer's manual for operating instructions.
- **EXTERIOR LAMP:** This light is next to the door and draws 30 watts
- **INTERIOR LIGHTING:** These lights draw 17 watts.
- **READING LIGHT:** – This light draws 2 watts.

Power can also be consumed by plugging loads into the various electrical outlets available within the interior and on the exterior of the trailer. These standard electrical outlets are located in the following places: behind sink, on either side of back door, in a hidden panel under the table, on the exterior next to the side door. **[Caution: Be sure to account for any loads plugged into these outlets when calculating the full wattage load pulling from the trailer's electrical supply systems.]**



[There are receptacles next to the side door and one in the floor.]

While running on batteries, the total load can be no more than 1500 watts. The air conditioner and microwave will be inoperable while running on batteries.

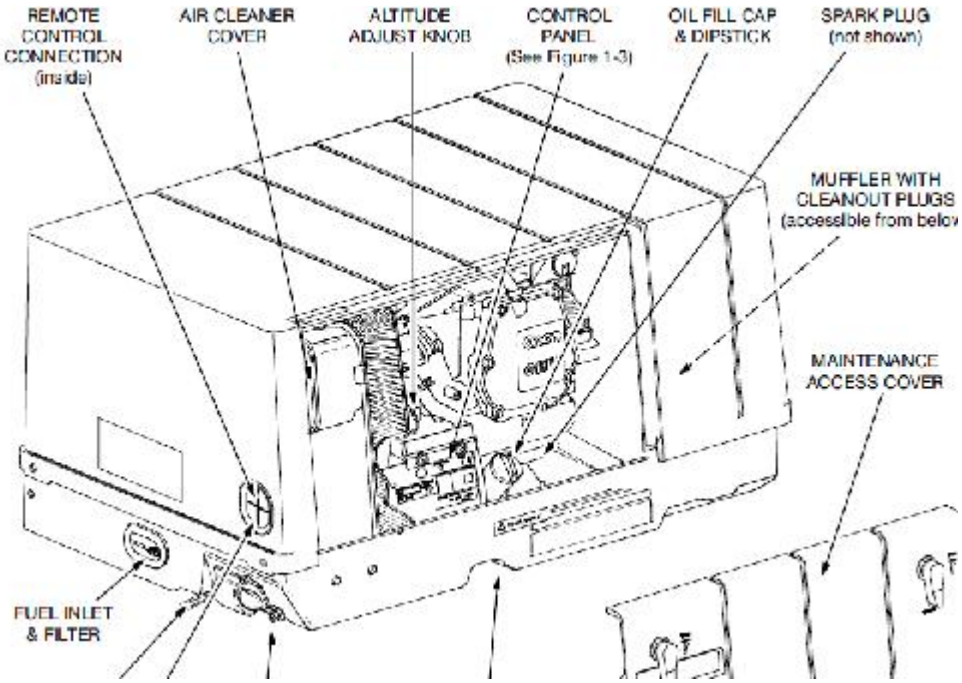
While on generator or externally connected shore power, the trailer can support a total load of up to 3600 watts. If this threshold is exceeded, the generator's built-in breaker will trip. Or, if running on shore power, the circuit coming from the building or other external power source may be overloaded.

PRIMING THE GENERATOR

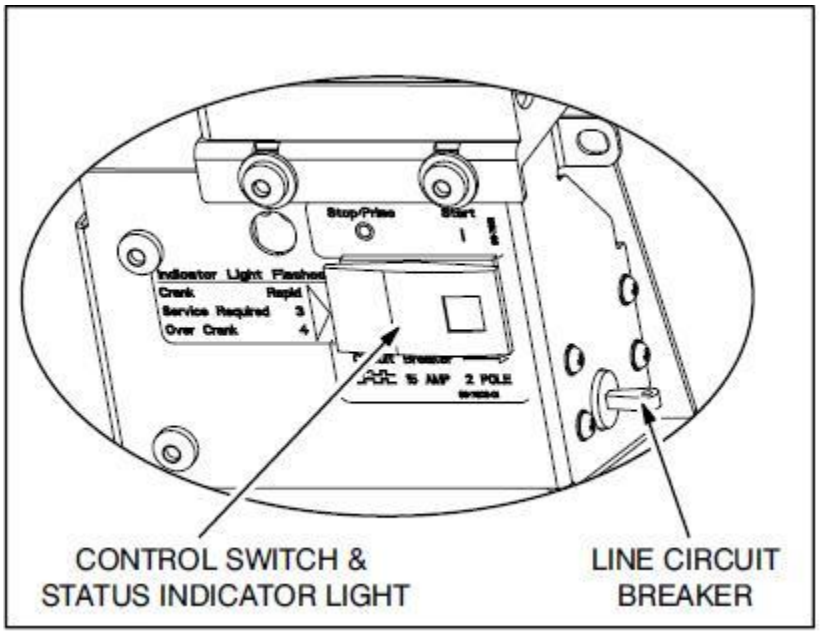
To turn the generator on and off, use the rocker switch located near the main AC panel inside the trailer.

When starting the generator for the first time it is important to prime the system before attempting to start it. This is done by pressing the rocker switch to the stop/prime position until the light illuminates. You may have to prime the system up to 5 times to purge all air out of the lines. After the generator starts for the first time you will not have to prime it again, unless you disconnect the propane tanks.

To reset the generator breaker, turn off the generator and access the generator control panel as shown below:



Once you've found the control panel, look to its right for the breaker switch as shown below:



Refer to the generator manual for maintenance procedures, including inspection of and replacement of oil. [Caution: The generator has its own 12V battery that requires regular inspection and maintenance.]

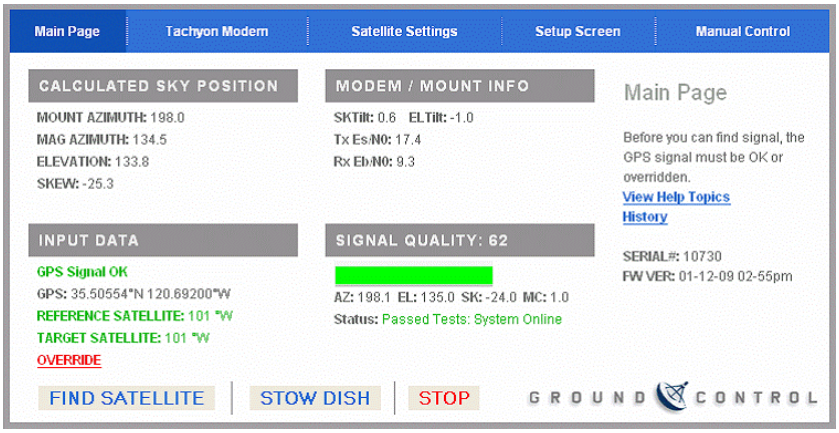
COMMUNICATIONS SYSTEM

While deployed, you are able to access the internet.

SATELLITE UPLINK

The communications system utilizes a satellite uplink in order to get online. In order to use the system, you must follow these steps:

1. Ensure the Communications rack within the trailer is powered up.
2. Verify that the black “Ground Control” unit has an illuminated “stowed” light and that the “error” light is not illuminated.
3. Press the “find satellite” button. The dish on top of the trailer will now begin to self align.
4. Open your browser and enter the URL http://192.168.x.4 (where X is the first 3 digits of the trailer’s phone extension). This will bring up a status page of the alignment process.
5. Once the “Signal Quality” area shows “passed” you should have internet connectivity.



6. Verify connectivity by navigating to http://www.google.com.

Once the system is no longer in use and you wish to stow it, press and hold the "Stow" button. Once the dish has been completely stowed, the "stowed" indicator will light up. At this point it is safe to power off all devices.

ACCESSING THE INTERNET

Access to the internet can be achieved by either connecting to the wireless network or by utilizing the traditional wired network. DHCP is provided so there is no IP configuration necessary. Once connected, you will have access to the resources you desire in the same ways you would at your home or office.

TELEPHONY

In order to use your trailer's telephones, you must follow the above steps to get internet connectivity. Once connected, ensure that the Cisco 2800 router has power and that its lights are on. Your telephones should automatically power up and get an extension. Once you see your extension number you will be able to call other extensions as well as the outside world. In order to make an external call you must dial a "**7**" to get an outside line.

VIDEO CONFERENCING

Each trailer is supplied with a software-based video conference system. The system runs on the server on the rack and utilizes a USB camera and external microphone. This system uses the television as a monitor. The software is operated in the same manner as any traditional Polycom unit. You can connect to any video conferencing unit accessible to the internet, as well as any on the TALHO network.

To use the video conferencing system, you must follow the above steps to get internet connectivity. Once connected, double click the Polycom PVX icon on your desktop. This will bring up a preview screen on the

trailer's camera. To the right of that preview, you will see a directory and a speed-dial icon. There have been some entries pre-configured for your use. Click on speed-dial and select an entry. Make sure the entry you selected is prepared for your call. This should automatically connect you via video conferencing to your desired location.

MOBILE THREATNET XM WEATHER SERVICE

Your server comes preconfigured with XM's "Master Mariner" service plan and the Baron Services Mobile ThreatNet application. No internet connectivity is necessary in order to use this. To begin, double-click the "ThreatNet" icon on your desktop and when prompted choose "normal" mode. Do not select "demo". The system will take anywhere from 30 seconds to 2 minutes to download the latest weather information. On the left side you will see function buttons. If you press the "radar" button the radar information should appear. Other useful buttons you should familiarize yourself with for quick reference are "fronts", "winds", and "strikes". For more detailed information you may refer to the online manual by selecting "help" and then "manual".

ACU-M RADIO INTEROPERABILITY DEVICE

The trailer is equipped with a radio interoperability unit so you can connect up to 4 dissimilar radio systems. Due to the complexity of this system it is best to consult the manufacturer's manual for further instruction on how to use the system.

AM RADIO STATION

The trailer comes equipped with an AM radio station. The default frequency is 1680 AM. If that channel already exists in your area and is picking up a broadcast, you will need to change the system's frequency.

- Choose a "quiet channel" if an alternate is required). Drive around your chosen broadcast area and listen for clear channels. Please note that car radios are usually more sensitive than portable units so that should be taken into consideration. If you want to broadcast at night, you need to test for clear channels during that time. It may be more difficult to broadcast at night because sky-waves from higher-powered radio stations reach into your broadcast area and reduce your effective transmit range. Try to choose one of the highest 43 channels available for the Procaster™ unit by setting the option switch accordingly. The higher the frequency, the better the range because of the restrictive short antenna length.

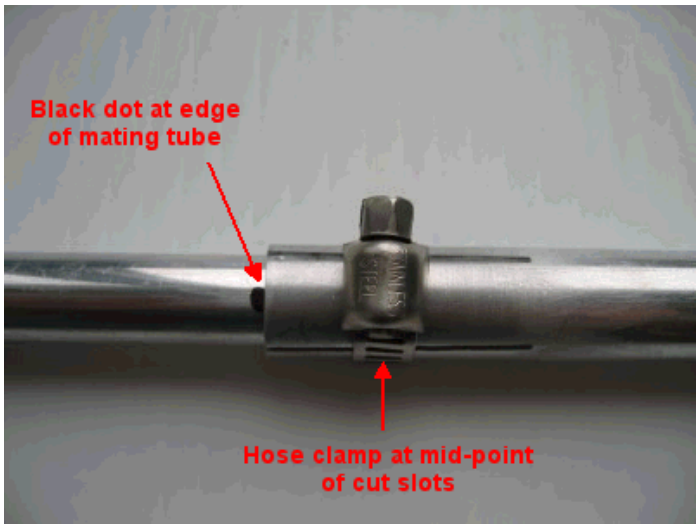
- Once you choose a channel (if necessary), locate the unit on the roof of the trailer.

- Next, assemble the antenna. The antenna consists of 3 aluminum tubes (a large 5/8" tube, medium 1/2"tube and small 3/8"tube) which are assembled together. These sections are held together using 2 stainless steel pipe clamps located at the mid-point of the slots.

- Join the large tube to the medium tube:
  - insert the medium tube into the slotted end of the large tube
  - line up the black dot on the medium tube with the edge of the large tube
  - tighten pipe clamp snugly using a 1/4" nut driver

- Join the small tube to the medium tube:
  - insert the small tube into the slotted end of the medium tube
  - line up the black dot on the small tube with the edge of the medium tube
  - tighten pipe clamp snugly using a 1/4" nut driver

- Mount the antenna in a vertical position:
  - Using a wing nut, place the bottom hole of the antenna on the AM station base. You will use the post closest to the entry point of the external cabling.
  - Mount the aluminum strip to the other bolt on the AM station base.
  - Mount the strip to the antenna using the provided wing bolt and wing nut.



- Configure the channel settings, if necessary. Using the 10-position option switch, choose the desired broadcast frequency and other features. Always choose the highest clear frequency possible. The short length of the antenna is more efficient at higher frequencies and you will have better range. The switches numbered 1 through 6 select the channel. All of the others should be left at their default positions. Use the table below to set the switches to your desired channel.

Freq kHz	S1	S2	S3	S4	S5	S6
1290	ON	ON	ON	ON	ON	ON
1300	OFF	ON	ON	ON	ON	ON
1310	ON	OFF	ON	ON	ON	ON
1320	OFF	OFF	ON	ON	ON	ON
1330	ON	ON	OFF	ON	ON	ON
1340	OFF	ON	OFF	ON	ON	ON
1350	ON	OFF	OFF	ON	ON	ON
1360	OFF	OFF	OFF	ON	ON	ON
1370	ON	ON	ON	OFF	ON	ON

1380	OFF	ON	ON	OFF	ON	ON
1390	ON	OFF	ON	OFF	ON	ON
1400	OFF	OFF	ON	OFF	ON	ON
1410	ON	ON	OFF	OFF	ON	ON
1420	OFF	ON	OFF	OFF	ON	ON
1430	ON	OFF	OFF	OFF	ON	ON
1440	OFF	OFF	OFF	OFF	ON	ON
1450	ON	ON	ON	ON	OFF	ON
1460	OFF	ON	ON	ON	OFF	ON
1470	ON	OFF	ON	ON	OFF	ON
1480	OFF	OFF	ON	ON	OFF	ON
1490	ON	ON	OFF	ON	OFF	ON
1500	OFF	ON	OFF	ON	OFF	ON
1510	ON	OFF	OFF	ON	OFF	ON
1520	OFF	OFF	OFF	ON	OFF	ON
1530	ON	ON	ON	OFF	OFF	ON
1540	OFF	ON	ON	OFF	OFF	ON
1550	ON	OFF	ON	OFF	OFF	ON
1560	OFF	OFF	ON	OFF	OFF	ON
1570	ON	ON	OFF	OFF	OFF	ON
1580	OFF	ON	OFF	OFF	OFF	ON

1590	ON	OFF	OFF	OFF	OFF	ON
1600	OFF	OFF	OFF	OFF	OFF	ON
1610	ON	ON	ON	ON	ON	OFF
1620	OFF	ON	ON	ON	ON	OFF
1630	ON	OFF	ON	ON	ON	OFF
1640	OFF	OFF	ON	ON	ON	OFF
1650	ON	ON	OFF	ON	ON	OFF
1660	OFF	ON	OFF	ON	ON	OFF
1670	ON	OFF	OFF	ON	ON	OFF
1680	OFF	OFF	OFF	ON	ON	OFF
1690	ON	ON	ON	OFF	ON	OFF
1700	OFF	ON	ON	OFF	ON	OFF
1710	ON	OFF	ON	OFF	ON	OFF

[Note: The frequencies in the shaded area are recommended for best range.]

- Once the channel has been configured, you may close the lid and return inside the trailer.

- Find the black box mounted to the right side of the server rack. You should have a 3.5mm audio jack to plug your audio source into. On the back of the black box there is a power connection. Verify that the audio source is connected and that the unit is powered on. A good example of an audio source would be an MP3 player or a NOAA radio.

- In a car, tune to the station to the default 1680 and verify you can hear your audio source.

DEPLOYMENT AND STOWING

Upon reaching your destination you will follow these steps to setup and deploy the trailer:

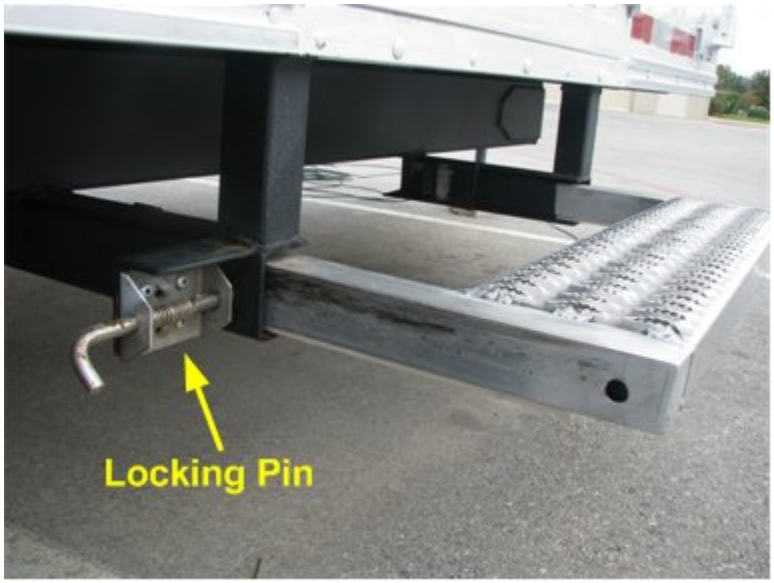
LEVELING THE TRAILER:

You will use the front jack and the two back scissor jacks to level the trailer. You will want a slight tilt to the back street-side of the trailer to aide in the runoff of the roof top air conditioner condensation. The jack handle is stowed under the sink. We advise that you level the trailer and then place the jack handle on the steering wheel of your tow vehicle as a reminder to lift the jacks before you leave the site.

DEPLOYING THE STEP:

Under the front Curb-side door is a step that needs to be manually deployed. There is a locking pin that secures the step in both the "open" and "closed" position.

- Grasp the pin handle, rotate it until it is unlocked, and pull the step out.
- Rotate it back so the pin rubs against the step. The pin should snap into the hole locking the step into the "out" position (as pictured below).

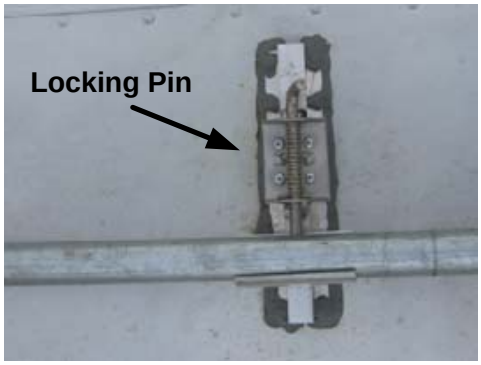


DEPLOYING THE RAMP:

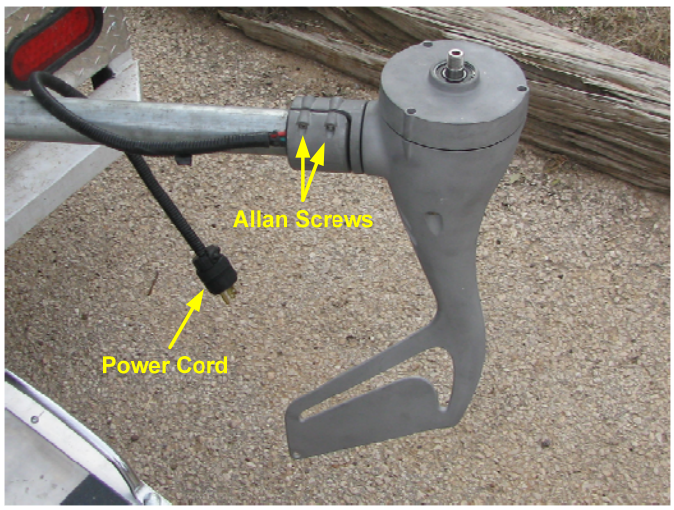
Remove the ramp from the inside of the trailer. It will take two people to move the ramp because of its weight. Place the ramp on the ground with the hooks of the ramp facing the rear door. Lifting by the handles maneuver the door into position and place the hooks into the holders located just below the door frame.

DEPLOYING THE WIND GENERATOR:

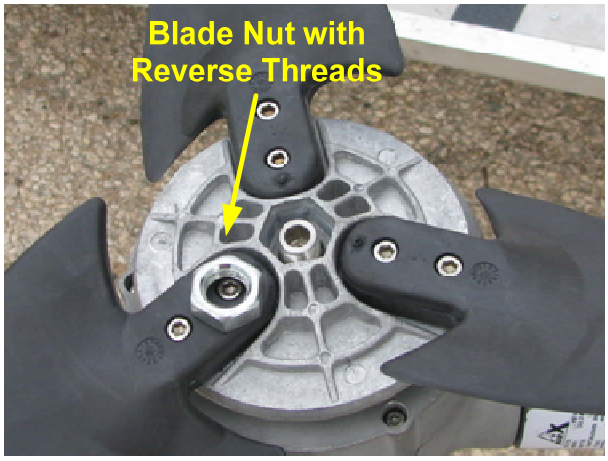
- The wind generator body and all necessary Allen wrenches, extra bolts, and nuts are located in the foam tray located in the front right-side storage compartment.
- Remove the mast from the mount on the top of the trailer by unlatching the locking pin. Hand it down to someone on the ground.



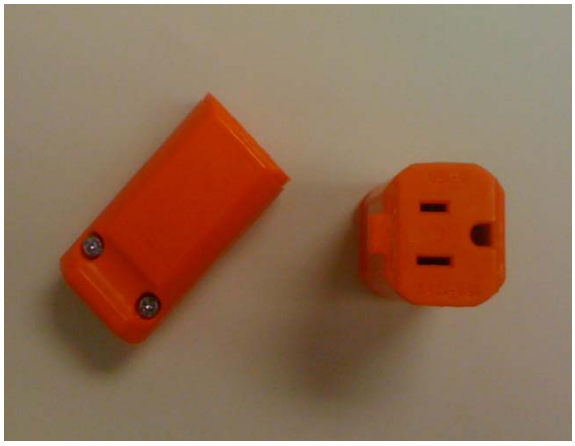
- Lay the mast in the trailer with the generator end hanging out of the back door. If the ramp is deployed you will have to angle the mast to clear the ramp. Slide the wind generator onto the end of the mast with the single slot, using the slot to pass the power wires through from the wind generator. Tighten the four Allen screws to secure the generator to the mast.



- Plug the supplied blank plug into the wind generator power lead. This plug simply makes a connection between the positive and negative leads and activates the internal breaking system on the generator.
- Remove the wind generator blades from the mount in the bathroom. Install the blades on the wind generator using the proper Allen wrench. [**NOTE: The threads on the blade mount are reverse threads.]**



- Next place the plastic nose-cone (pictured on the lower left) on the generator. This is done by aligning the slots in the nose-cone and snapping it in place.



- After the generator and blades are mounted to the mast, use the provided “Break Plug” (pictured on the lower right) to activate the internal breaking system on the wind generator. Simply insert the power lead in to the plug. This plug shorts the ground and the hot wire to activate the internal breaking system. It is important that this plug be used in ALL conditions while raising and lowering the wind generator mast. The internal break does not stop the blades completely but does slow them down enough to reduce the threat of serious bodily injury. Please note that any time the blades are turning there is a possibility of being struck and injured.
- After the generator and blades are mounted on the mast and the “Break Plug” is connected, lean the unit against the trailer using the mast holder to hold up the wind generator. The unit can then be lifted up from the top of the trailer and inserted into the mast holder. It is ideal to have a helper on the ground to guide the mast while it is being lifted from the top.

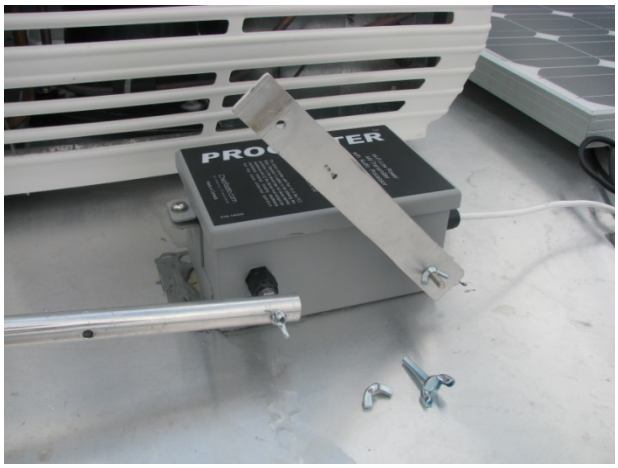
- Run the cable down to the ground. Secure the cable to the mast holder using the Velcro straps that were used in securing the power cable in the storage area. Plug the twist-lock plug into the receptacle and feed the extra cable behind the rear bumper to eliminate any possibility of tripping on the cable lying on the ground. Remove the "Break Plug" from the power leads and plug the leads into the extension cable.
- Next, remove the plug on the power lead of the generator and plug it into the extension cable you previously secured to the mast. **[CAUTION: OPERATE WITH CARE BECAUSE THE BLADES ARE EXTREMELY SHARP. ONCE THE PLUG IS REMOVED FROM THE POWER LEAD THE BLADES CAN TURN AT A HIGH RATE OF SPEED AND MAY CAUSE BODLY INJURY IF THEY COME INTO CONTACT WITH A PERSON OR OBJECT. WHEN APPROACHING THE WIND GENERATOR, APPROACH FROM THE BACK AND HOLD ONTO THE REAR OF THE GENERATOR TO KEEP IT FROM SWINGING AROUND UNEXPECTEDLY. ONLY RAISE OR LOWER THE WIND GENERATOR IN LOW OR PREDICTABLE WIND CONDITIONS.]**

DEPLOYING THE AM RADIO:

To deploy the AM radio station antenna:

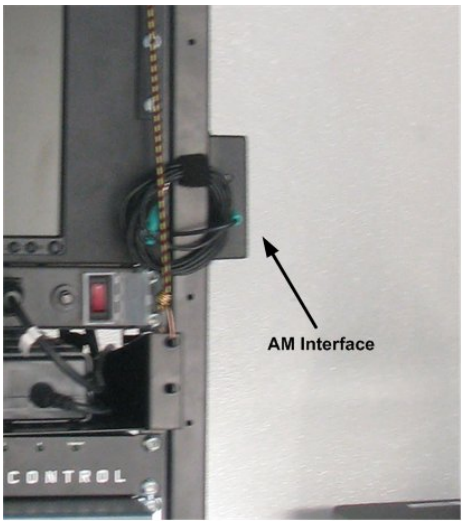
- First loosen the wing nuts to the unit mounted to the roof of the trailer.

- Using a wing nut, place the bottom hole of the antenna on the AM station base. You should use the post furthest away from the entry point of the external cabling for this connection.
- Mount the aluminum strip to the other bolt on the AM station base (pictured below).



- Mount the strip to the antenna using the provided wing bolt and wing nut (pictured below).

- Once the antenna is secure, loosen the clamps on the mast and extend it to its full range.
- Go into the trailer and locate the internal interface box affixed to the equipment (pictured below).



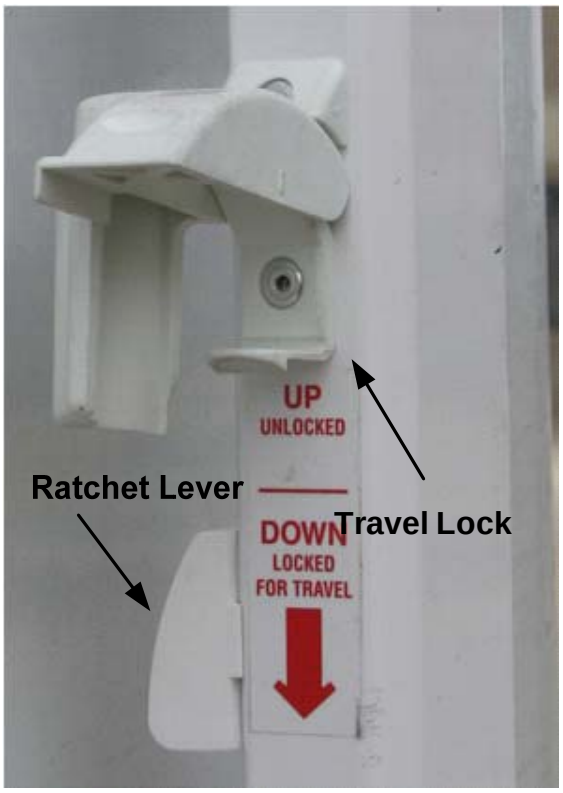
- Attached is a 3.5mm stereo interface cable. Insert this into your audio source and start the audio.
- Test the broadcast by tuning into the appropriate AM frequency on any nearby vehicle.

DEPLOYING THE AWNING:

To deploy the awning you must:

- First, loosen the rafter knobs on both awning support arms (pictured below).

- Release the travel locks on both awning arms (pictured below).



- Switch the ratchet lever on the support arm by sliding the lever on the left arm to the “up unlocked” position. The awning can roll out in this position. This is the correct position for the ratchet lever in order to deploy the awning.
- Hook the pull-strap with the awning rod and roll out the awning (pictured below).

- Slide the rafters up into position on the awning arms. Use downward pressure on the main support arms to tighten the awning in the frame while tightening the rafter arm locks you loosened in the first step (pictured below).

- Raise the awning to the desired height using the handle on each support arm.

SUPPLYING POWER TO THE EQUIPMENT:

- Connect Shore power if available.
- Start the generator if necessary.
- Turn on the inverter located in the generator compartment.
- Power to all of the equipment in the communications rack is supplied by the UPS. This eliminates the need to restart the equipment if the power is transferred from one source to another, such as a shift from generator to shore power. Press the on button on the top of

the UPS to supply power to the rack. If the UPS beeps then there is not power to the unit. Check to assure that all the proper breakers are in the "on" position and make sure that the "supply" transfer switch is in the proper position for the desired power supply.

- Turn on the rack-mounted power strip.

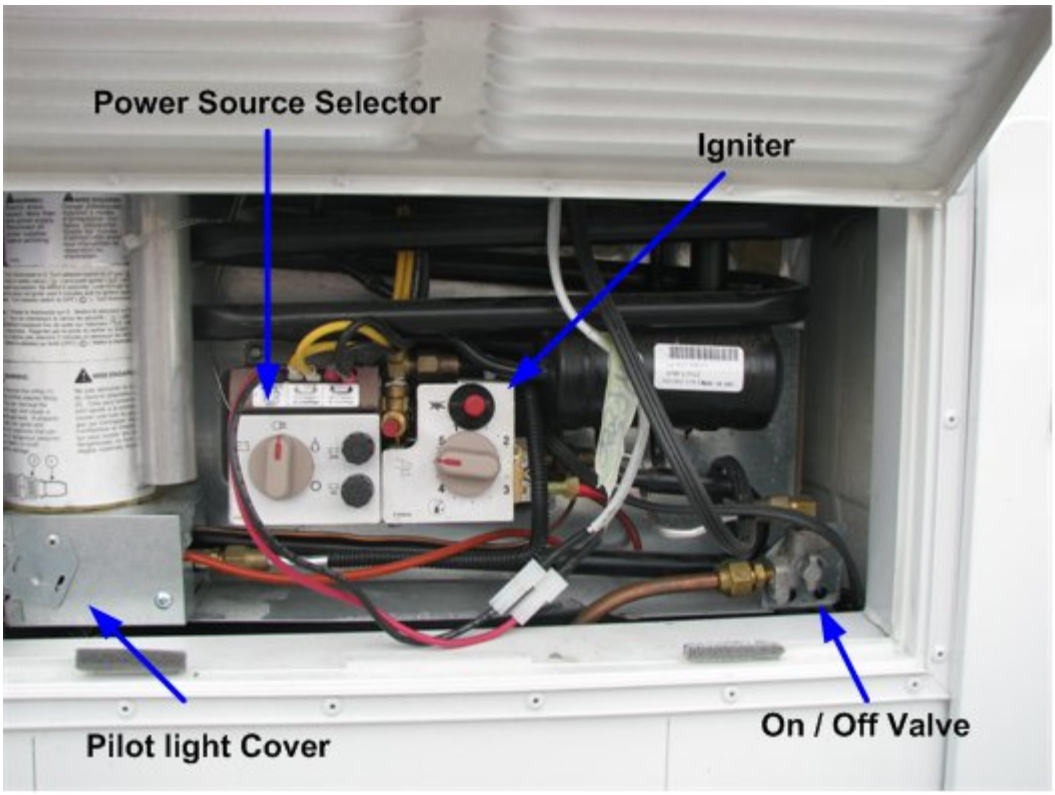
DEPLOYING THE DESIRED INTERIOR CONFIGURATION:

Depending on your preferred method of use, you may want to set up the couches and table. If you want the benches to lay flat then the table will not be usable. To assemble the table:

- Remove the legs from the table and set them aside.
- Remove the table from the mounting bracket and install the legs into the table top.
- Place the legs into the mounts in the floor.
- Shift the benches into the sitting position.

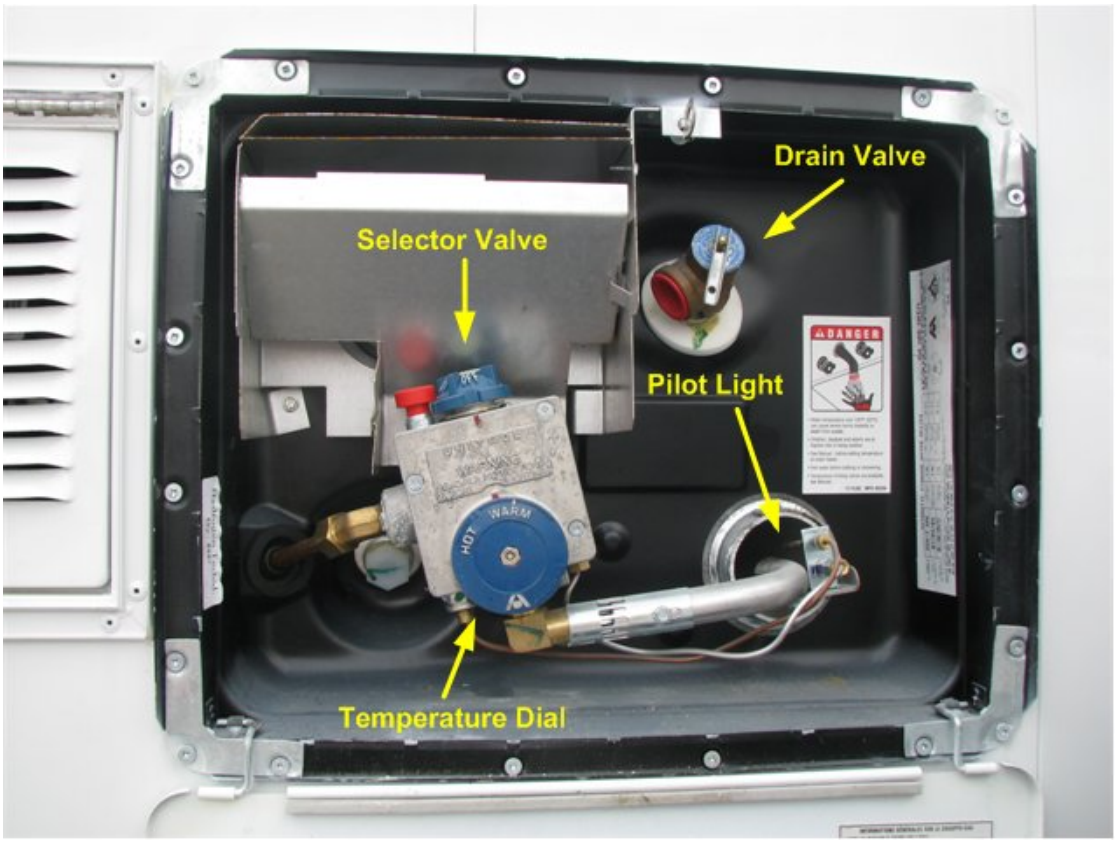
OPERATING THE REFRIGERATOR:

- Open the outside panel and make the selection for the desired power source. You can select from 110 (indicated by a plug icon), 12 volt (indicated by a car battery icon), or propane (indicated by a flame icon). If you are going to use propane you will need to purge the line of air the first time you light the pilot light. To turn the power off, turn the selector to the circular "O" icon to the far right.
- To the right of the valve assembly, locate the "on/off" valve for the propane.
- Turn the valve to the "on" position. Press the igniter and hold it down for 15 to 20 seconds in order to prime the system. Let go and press the igniter a second time. You should hear a clicking sound.
- Check to see if the unit is lit by sliding open the small pilot light cover located over the ignition area. If you can see the flame then the unit is properly lit. The pilot light can be difficult to see on sunny days because it is much smaller than you might expect. The flame is about the size of peanut.
- If the unit it is not lit, repeat the ignition process.



LIGHTING THE HOT WATER HEATER:

Move the hot water heater selector valve to the “light” position. Hold down the red button and light the pilot light with a fireplace lighter. The red button will only go down when the selector valve is in the “light” position. Once lit, let go of the red button and turn the selector to the “on” position. The hot water heater should ignite the main burner almost immediately. You will have hot water in about one half hour. You can select the desired temperature by using the temperature dial on the control unit.


Drain Valve
Selector Valve
Pilot Light
Temperature Dial
DANGER
HOT
WARM

STORAGE PROCEDURES

Unplug any cords from wall outlets; behind sink, on either side of back door, and in the floor.

Turn off the television and secure the remote control to side of the unit.

Stow table and table legs properly.

Fold the couches against wall and secure them with provided the latches.

Stow the satellite dish using the dish controller.

Turn off the power on the rack-mounted power strip.

Turn off the UPS.

Turn off the line conditioner behind the rack.

Ensure that refrigerator is turned off.

Turn off both gas tanks and shift the selector switch to the neutral position.

Turn the inverter off.

Ensure that windmill is stored properly by stowing all parts; the mast, windmill body, and blades.

Stow the ramp on the floor.

Make sure water pump is off.

Disconnect shore power.

Turn off all lights; the bathroom, reading light, main LED lights, exterior door light, and exterior flood lamp.

Lock all doors including the generator compartment.

MAINTENANCE

GENERATOR BATTERY:

On a monthly basis the water level of the battery should be checked. Additionally, there is a 2 amp charger connected that is fed by the solar panels. If the trailer is stored inside a building and does not have sunlight on the panels then the battery voltage should be checked and charged by traditional means when necessary.

MAIN BATTERIES:

Do not allow the main batteries to discharge. It is best to fully charge them at least once a month. If trailer is left outdoors, the solar charger unit will keep batteries maintained and you do not have to check the batteries. If the unit is stored indoors, however, it is important that it is hooked up to shore power so the batteries are allowed to charge for one day a month.

SOLAR PANELS:

Over time the solar panels will accumulate dirt and dust reducing the light that can reach the PV cells. Upon deployment, if you notice there is a buildup on the panels, you can simply wipe them down with a damp cloth. This should be done at least once every six months if not more frequently.

GENERATOR OIL:

The generator oil should be checked every time the trailer is deployed. Check it **BEFORE** starting the generator and check it every eight hours while deployed. See the recommended maintenance schedule below for details.

MAINTENANCE PROCEDURE	MAINTENANCE FREQUENCY							
	Every Day or Every 8 Hours	After First 20 Hours	Every Month	Every 50 Hours	Every 150 Hours	Every 250 Hours	Every 450 Hours	Page
General Inspections	X							3-2
Check Engine Oil Level	X							3-3
Clean and Check Battery			X3					3-5
Clean Spark Arrestor				X				3-6
Change Engine Oil		X1			X2, 3, 4			3-4
Replace Air Filter Element					X2			3-5
Clean Engine Cooling Fins						X2		–
Replace Spark Plug							X5	3-6
Replace Fuel Filter							X5, 6	–
Adjust Valve Lash							X6	–
Clean/Replace Cylinder Head							X6	–

1 − As a part of engine break-in, change the engine oil after the first 20 hours of operation
2 − Perform more often when operating in dusty environments.
3 − Perform more often when operating in hot weather.
4 − Perform at least once a year.
5 − Perform sooner if engine performance deteriorates.
6 − Must be performed by a qualified mechanic (authorized Onan dealer).

WARNINGS AND PRECAUTIONS

TOWING AND HAULING:

- The gross weight of the trailer is approximately 5000 pounds with a tongue weight of 1500 pounds. Make sure your tow vehicle is capable of these specifications.
- Make sure your tow vehicle is equipped with an electronic brake controller.
- Check the brake controller for proper operation and check for proper braking prior to towing the trailer on public streets.
- Make sure that all lights are in working order.
- When pulling the trailer, leave adequate room to stop. The trailer is heavier than most traditional trailers and will take a longer distance stop.
- Check the tire pressure before hauling the trailer and inflate the tires to the manufacturer's recommended pressure.
- Make sure the safety chains and runaway break cable are attached to the vehicle.
- Make sure the latch for the trailer hitch is locked down and assure that it has either a lock or bolt through it to help ensure it will not come unlatched during towing.
- The trailer is 12 feet tall. Keep this in mind while towing the trailer. Pay close attention to low-hanging awnings on buildings and at gas stations.
- When loading the trailer with equipment, load the heavier equipment from the middle of the axel back. Light-weight equipment can be stowed in the front of the vehicle if necessary.
- Make sure that all equipment inside the trailer is secured and will not shift during transportation.
- The calculated tongue weight includes full water tanks. After each use it is recommended that all three tanks be drained. This includes the fresh water tank, grey water tank, and black water tank.
- After stabilizing the trailer with the scissor jacks, we recommend that you place the jack handle on the steering wheel of the tow vehicle. This will ensure that the driver is reminded to lift the jacks before driving off. Failure to stow the jacks will result in damage to the jacks and the trailer frame.
- When traveling, make sure that the propane tanks are secured in the mounts and that the valves are "off". The regulator valve must be in the "off" position, as well.

SET-UP AND STOWING:

- Level the trailer with a slight tilt towards the rear street-side corner. This will encourage the runoff of the air conditioner condensation.
- If you are deploying the awning you will need two people to set it up. If you use it in windy conditions, make sure it is properly secured.
- When deploying the wind generator, pay attention to the sharp windmill blades.
- When using the built-in ladder, make sure that you hold on to both of the top handles while climbing up or climbing down.
- When moving around on top of the trailer, be careful not to get too close to the edge.
- During wet weather the roof of the trailer is very slippery and special care and attention should be taken while on the roof.
- While moving around on the roof, pay attention to where you step. There are cables and equipment mounted on the roof that can cause you to trip and fall.
- If you leave the doors open during operation, make sure to use the provided latches to secure the doors into an open position.

PROPANE SYSTEM

- There is a fire extinguisher on the curb-side wall immediately in front of the sitting area.
- Check the carbon dioxide detector for proper function prior to deployment.
- Make sure the tanks are in working order.
- When lighting appliances for the first time after turning on the tank valves, it will be necessary to purge air out if the lines.
- If an appliance fails to start make sure that the propane flow to the ignition module is turned "off". On the refrigerator there is an "on/off" valve. On the hot water heater there is a valve that must be turned to the "off" position. The generator is electronic.
- Absolutely no smoking is prohibited around the front of the trailer or the generator compartment.
- When removing the tanks from the system, make sure that the selector valve on the regulator is turned to either the "off" position or to the other tank.
- The appliances get hot during operation. Avoid contact with hot surfaces as they may cause burns.

ELECTRICAL SYSTEM

- No open containers should be allowed around any electronics. This includes the sitting area in the trailer as well as the area that holds the electronic equipment.
- Never run the microwave while the air conditioner/heater or the battery chargers are running. Only one of these high-load systems can run at a time. The chargers can be turned off via their dedicated breaker in the main AC panel.
- Take caution if you are working in the battery box. If you accidently short out the batteries you will disable the entire 12 volt system.
- If there is a short in the 12 volt system there is an ANL type fuse that will need to be replaced. At a minimum it will need to be 150 amps. The 12 volt system will not function until this fuse is replaced.
- Pay attention to the load you put on the system. If you overload the system you will trip a breaker and possibly cause power loss to all equipment.
- When connecting to shore power make sure that the extension cable you are using is rated for the proper amperage. Failure to adhere to the minimum required wire gauge could cause a short in the system and possibly result in fire.
- When using the halogen lights be careful not to touch the light as it may become hot during operation.

WIND GENERATOR

- When working with the blades, take extreme caution not to come into contact with the edges, as the blades are extremely sharp.
- Always use the “break plug” to activate the internal breaking system on the wind generator any time that the wind generator IS NOT in the deployed position.