

Information About This Manual

The Owner's Manual does not cover every aspect of all models manufactured by Four Wheel Campers, Inc. Each owner should read this manual thoroughly and heed the warnings given herein, as well as those warnings given in the component instruction manuals contained in the Owner's Information Package.

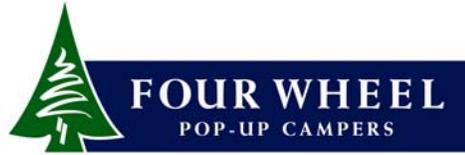
NOTE: Some equipment and features described or shown in this package may be optional or unavailable on some models. Due to the continuous product improvement program at Four Wheel Campers, Inc. it is possible that recent product changes may not be included in this manual.

Specifications may change without notice. The instructions included in this manual are intended to be a guide, and in no respect extend the responsibility of the manufacturer beyond the limited warranty as presented in this manual. Photographs or illustrations in this manual are representative of function and may not be specific in their depiction of actual equipment, fabrics, interior or exterior décor or design options as installed on or in your camper.

While Four Wheel Campers has provided basic instructions on how to use your camper, it is ultimately your responsibility to make sure you fully understand how to use the camper prior to operation. To fulfill this responsibility, in addition to the instructions received from the dealer, you must read all instructional material furnished with the camper. If you do not understand how to operate any appliance or equipment, please call our factory for further instructions.

Product changes

Not all models include all features. Product information and photography included is as accurate as possible at the time of publication. For the most current product information and changes please visit our website at www.fourwh.com or contact our factory. Subsequent modifications may be evident in the actual product. Specifications are subject to change without notice. All weights, fuel, liquid capacities and dimensions are approximate.



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Dear New Owner:

All of us here at Four Wheel Campers want to thank you for your decision to purchase our camper. This Owners Manual is provided to assist you in details regarding operation procedures, troubleshooting, and maintenance of your new camper. Manuals provided by appliance manufacturers are included with your camper to provide in depth operating instructions – please read them thoroughly.

Our goal here at Four Wheel Campers is to build the highest quality campers and provide the highest quality service. If at anytime you need further assistance, information, or service, please do not hesitate to call and speak with any of our factory representatives.

So, ***congratulations***, and welcome to the family. We hope you'll have the time to send us a note telling us about your travels and experiences with your camper, and give us any suggestions you may have about our product.

Sincerely,

Tom Hanagan - the sales, production, and admin staff - and factory technicians at Four Wheel Campers

RAISING & LOWERING THE ROOF

The first issue in raising the roof is to release the 6 roof latches located around the perimeter of the camper. The cam latches are released by pulling the latch handle downward, which releases the tension between the roof bracket and the latch connector. Pull down on the roof slightly and pull the latch connector off and away from the roof bracket. The latch connector will now be resting against the latch handle in a down position. After releasing all six latches the roof is now ready to be lifted from the inside of the camper.

A common error is that when the latch handle is released, the latch connector stays hooked to the roof bracket. When the owner attempts to raise the roof with a latch still connected, the roof frame will be bent, creased, or otherwise damaged as the roof is pushed upward. The roof is extremely difficult to repair, so:

Insure that all 6 roof latches are fully released!

To raise the roof you must enter the camper and position yourself at the rear, facing the door. The door must be in the open position to allow the camper to fill with air as you raise the roof. You cannot raise the roof unless you allow air into the area that is being expanded. You always raise the roof from the rear due to the proximity of the rear door. This is the largest opening and will allow the most amount of air to be displaced while lifting the roof.

By pushing upward on the lift panel slightly, retract the barrel bolt that supports the end panel when the roof is down. Placing one hand on the ceiling support, located above your head, you push the roof upwards, and push outward on the end panel with the other hand until the lift panels are extended vertically, and just past center. Be sure to use more pressure pushing up than out so as not to overstress the lift panels. Attach the panel strap to the knob on upper lift panel by wrapping around the knob and snapping into place. This will insure the lift panels will remain in the extended position during strong winds.

Next, position yourself facing forward, at the front end of the camper. Place a hand on the ceiling support and push upwards, and outward with the other hand grasping the lift handle bow until the forward lift panels are extended and can be locked into place with the button strap around the handle. Again, be sure to use more pressure pushing up than out, as the lift handle can be bent if overstressed.

The roof is now secured and in the fully extended position.

To lower the roof, you start by insuring there is nothing on the cabinets, or bed, that might interfere with the lowering of the roof. If it has been snowing since you first raised the roof, you will want to make sure that you remove any snow off the roof before lowering it. This is very important! Just a few inches of snow that has a high water content can be very heavy. The roof could come down very quickly and possibly do damage to the roof framing. Be sure the stove cover is cool and placed in the down position. Attach both shock (bungee) cords between the inner privacy panels to assist the liner in folding inwards as you lower the roof. If you have a forward vent on your camper, insure the vent is in the closed position prior to lowering the roof.

Turn off all lights, as the fixtures can become quite hot and burn the flexible liner. You can now unstrap the roof strap from the handle and prepare to lower the roof.

You will need to apply a small amount of upwards pressure on the ceiling support as you begin lowering the roof by pulling the assist handle toward you. Allow the roof to lower slowly, so that the liner pulls inside and that the roof does not come down forcefully, possibly damaging the frame and lift panels. Next, grasp the liner and gently pull it inwards to eliminate having to tuck the material under the roof from the outside.

Go to the rear and undo the panel strap. With the same slight upward pressure to the roof support, pull the lift panel knob in and sit down gently supporting the roof as it closes. Once again, grasp the liner and gently pull it inwards. Push up on the lift panel and align the barrel bolt to the lift panel. Slide the bolt into the lift panel support frame, and lock the bolt. Insure the rear ceiling vent is closed, shut off the ceiling lights, and make sure your cabinets are all closed and ready for travel.

Be sure lights are off and the roof vents are closed tightly!

As you exit the camper and begin securing the roof in the travel position, you'll need to insure the liner will not be pinched when you attach the roof latches. Lift each corner of the camper and tuck the corner of the liner away from where the roof and camper body will meet. Next, attach the latch connector to the roof bracket and then push the latch handle upwards. After securing all 6 roof latches, the next step is to adjust the tension on each roof latch to insure the proper tension is set at each location.

Pull down on the roof next to each roof latch so that the roof seats firmly against the body of the camper. Insure that the latch connector will not release from the roof bracket when you pull down. If the roof latch releases easily without disengaging the latch handle, then you will need to adjust the latch tighter. If there is no movement at all, then you will need to loosen the latch somewhat to prevent creasing or bending the roof frame.

The tension needs to be adjusted periodically to assure there is not too much, or too little, pressure applied. It is also important that the liner not be pinched between the roof and body of the camper.

ELECTRICAL SYSTEM

Depending on the options installed, the electrical system is very direct and easy to troubleshoot. You have 12 volt and 120 volt circuits. The 12-volt circuit comes from your automotive battery, and an auxiliary battery if installed in the camper. The power enters the camper at the front through a three pronged connector, and is routed through the frame to the fuse panel located in the load center, inside the camper. The 120 volt source of power (the outlet) is located on the outside driver side of the camper, and is routed directly to a "load center".

When "shore" power is available, that is, 120 volt power from a source outside the camper, the electronic converter will automatically supply 12 volt power to the lights, furnace, 12 volt receptacles, outside light(s), and ceiling fan. If the camper is not connected to a 120 volt supply, the appliances will operate on 12 volt power from the truck battery and charging system, or, if installed, the auxiliary battery when the vehicle ignition is turned off. The function of the separator switch (with the aux. battery system) is to disengage the truck power supply (i.e. battery) when the truck is turned off, therefore keeping the truck battery fully charged. Disconnect 12 volt power to camper with the master switch (red push/pull knob near fuse panel & circuit breakers) if camper is not being used, over time the alarms may drain the battery.

Notes regarding the red 12v master kill switch inside the camper:

- * The "IN" position means 12v power is not being allowed to power appliances.
- * The "OUT" position means 12v power is being allowed to power appliances.

Regarding the recharging of the campers Auxiliary Battery:

- * When using the truck's charging system or the solar panel, the red 12v master switch can be in the "IN" or "OUT" position to allow recharging of the auxiliary battery.
- * When the camper is plugged into 120v shore power or a generator (electricity) the red 12v master switch can be "IN" or "OUT" to operate appliances. However, when these power sources are being used, the red 12v switch must be pulled "OUT" to allow for recharging of the auxiliary battery through the 30amp power converter.

If you are plugged into shore power (110/120V) and would like your battery to be getting a trickle charge, make sure the red push/pull master switch is in the "ON" position (pulled out). This will allow the camper battery to get a trickle charge through the power converter that is built into the camper (excludes shell models).

You have been supplied operating manuals for the electrical appliances. Review the contents and operate these appliances according to the procedures provided in each manual. Service issues with these appliances are best handled by an authorized service center rather than our factory, as their centers have specialized training in troubleshooting and repairs.

Trouble Shooting

Your first inspection should be to check the fuses to determine if they have failed and that the circuit breakers have not overloaded. If either of these has occurred, isolate the cause of the overloading or short circuit and rectify the problem before operating the camper electrical systems again. Then check that the three prong fitting between the camper and the truck is still connected properly. If you find these areas in good condition, then the problem might be the battery source.

Next check the electrical connections on the battery, to insure they are tight. Then check the connections on the separator, thermal breaker (if equipped), and automotive battery. If you find all of these connections to be tight, and your automotive battery is good, then the problem might be that the auxiliary battery might need to be replaced. Have a service facility check the condition of the battery before replacing. If you find one light bulb is not operating, it is usually a bulb.

PROPANE SYSTEM

Each new Four Wheel Camper comes equipped with a propane gas system including a regulator designed to provide regulated gas pressure for proper operation of the stove, furnace, refrigerator, and hot water heater (if equipped). The tank is mounted in a vented cabinet on the outside of the camper and is easily removed for filling. The tank is empty when you first receive your camper, and must be purged prior to filling the first time. Always have your tank refilled before it becomes empty.

Before opening the valve on the propane tank, first make sure **ALL** propane appliances inside the camper are turned off. Once you are sure all propane appliances are turned off, then you can safely open the valve on the propane tank. Next, open the propane tank valve. Next, wait a few minutes before turning on any propane appliances inside or outside the camper. This will allow the pressure to build up in the propane hose, the safety check valve will open up, and your camper will then receive the full propane flow it needs to run the appliances. If you haven't used the camper in awhile, and you open the propane tank valve and quickly hop inside the camper and try to use the propane, you might have restricted flow. It is best to open the propane tank, wait a few minutes, and then you can start using the propane appliances. (See the last page attached to this Owner's Manual. It describes how the "check valve" works in the propane system).

Prior to operating the refrigerator, forced air furnace or hot water furnace, you should purge air from the propane supply lines. After raising the roof, light the stove and operate for about one (1) minute. This removes the air in the lines and allows faster and easier lighting of the refrigerator, furnace, and the hot water furnace (if installed).

Before lowering the roof insure the stove grates are cool so that the liner is not damaged when you lower the roof. Last, but not least, insure the stove valve is in the closed position. It is always safer to additionally close the valve located on the outside propane tank before traveling.

Another precaution that needs mention is in regards to cooking on the 2 burner stove. Always insure the pans you use for cooking do not extend outward above the control valves. Either use smaller pans or place the pans on the back of the grates so that the flame does not overheat and damage the knobs.

Propane has a distinct smell added to warn the user of a possible leak. If you smell propane inside the camper, make sure the stove knobs are in the "Off" position, exit the unit immediately, turn off the propane tank valve outside the camper, and allow ventilation through the door and windows to exhaust the vapor. Wait until the scent of the propane is no longer present. Check for valves that might have been left open. A spray bottle with water with a small amount of dish soap added can be used to spray the fittings and lines to inspect for leaks. The soap will bubble if a leak is present.

The gas system is designed for use with liquefied petroleum gas only.

Do not connect natural gas to this system !

WATER SYSTEM

The water system consists of an inboard 12 gallon fresh water tank on the Falcon, Eagle, & Ranger Models, or a 20 gallon fresh water tank on the Hawk, Grandby & Keystone Models. The campers also contain a stainless steel sink, manual or electric water pump, and faucet. The fresh water tank is filled through the lockable external fill door, easily accessed on the outside / driver's side of the camper.

The fresh water tank drain for the Falcon, Eagle & Ranger Models is located on the driver's side, under the lower edge of the camper with a white spigot. On the Hawk, Grandby & Keystone Models the fresh water tank drain is located on the rear wall of the camper / lower driver's side. There is no gray water storage. The water from the sink will drain outside once the external sink drain cap is removed. We suggest using a gray water storage bag, or bucket, to capture the waste water.

To operate the hand water pump manually (most models), simply rock the lever back and forth until water is dispensed from the faucet. The electric water pump option adds convenience to your camping. To use the electric water pump, first pull the hand pump lever a few times (until water comes out) and leave the handle forward slightly so the valve is open, then turn the pump on with the switch located on the monitor panel on the front of the cabinet. It is not suggested to run the water pump dry for any length of time. Possible damage could result to the water pump motor. When finished, turn the switch off. Be sure to "lock" the lever in the closed position when finished or traveling. The Hawk, Grandby & Keystone models have a pressurized water system and an on-demand water pump. One you

have water in the fresh water tank, turn the water pump switch to the “on” position (located on the small “water / battery monitor”) on the front of the kitchen cabinets. This will start to pressurize the water system. Open the hot and cold faucets slightly at the sink and also on the outside shower controls to allow air to bleed from the water lines. The pressurized system with the on-demand water pump can be left on all the time provided there is water in the fresh water tank. The on-demand water pump will automatically shut off once it reaches a certain pressure. When traveling or when finished using the camper it is always best to shut off the water pump.

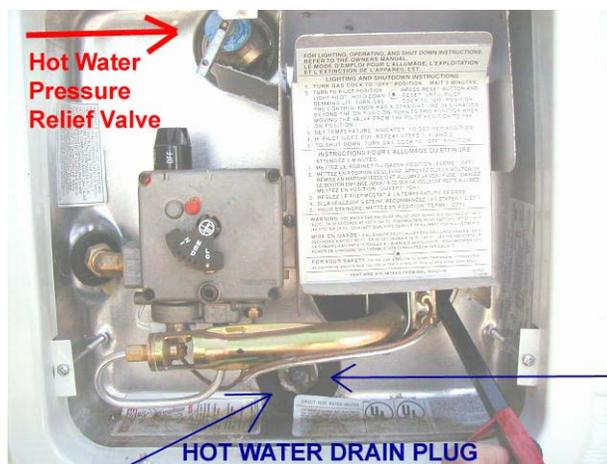
IF YOU ARE GOING TO HOOK A HOSE UP TO THE CAMPER USING THE CITY WATER CONNECTION, YOU MUST USE A WATER PRESSURE REGULATOR TO AVOID POSSIBLE WATER LEAKS DUE TO OVER PRESSURING.

After the water pump is off, you can also open the hot and cold faucets at the sink to remove any excess water pressure from the system.

Sanitize the water system by flushing the system with a mild bleach solution. Use a dilution ratio recommended by your local health department, or use a commercial sanitizing product following the appropriate directions. After filling the water tank, allow to stand for three hours, then drain and flush with fresh water. Excessive odor or taste from the sanitizing solution can be removed following instructions from your health authority, or following commercial preparation instructions. It is recommended that the system be sanitized prior to initial use, or after long periods of standing unused. If the camper will be stored in freezing conditions, be sure to drain the water system and winterize the camper to prevent damage from frozen water lines.

If your camper is equipped with the “Hot Water Heater” it is always best to drain the hot water tank before storing the camper. There is a drain plug on the outside / bottom of the hot water tank that can be unscrewed to allow the water to drain out. Attached to this drain plug is the Anode Rod for the hot water heater. Please check and replace every year or two. The manufacturer of the hot water heater recommends replacing the Anode Rod once approx. 75% of it has corroded away.

*** CAUTION – BE SURE TO RELEASE THE WATER PRESSURE IN THE HOT WATER TANK BEFORE YOU REMOVE THE ANODE ROD !**



If you store the camper with the hot water tank full of water, the Anode Rod will have a tendency to corrode faster and possibly gunking up the water lines in the camper with a chalky residue. It is always best to flush out the hot water tank periodically to remove any sediment from the bottom of the tank and store the camper with the hot water tank empty.

(SEE BACK PAGES ATTACHED ON HOT WATER TANK INFO & WINTERIZING YOUR CAMPER)

TURNBUCKLE SECURING PROCEDURES

Your camper is secured to the bed of your truck with a system of eyebolts, and turnbuckles. Access panels located in four locations, inside the camper, allows access to each turnbuckle.

Each turnbuckle must be checked periodically to insure the proper tension is applied. There are two front turnbuckles, and two rear. The driver's side access panels are visible beneath the kitchen galley; the passenger side portholes are beneath the couch seat cushion. Turn the turnbuckles to either tighten or loosen the connection between the eyebolts on the camper, and the eyebolts in the bed of your truck.

Each turnbuckle needs to be tightened hand tight first, and then a half turn to a full turn tighter using a lever, such as a long screwdriver. The first few times you travel with your camper, and especially on the first trip, the turnbuckles will loosen. After about the first 25 miles, check the tension on all four turnbuckles, then check again frequently as needed.

If you find a turnbuckle loose, check to insure the camper is still square on the bed of your truck. Once the camper is square, tighten the front turnbuckles first, and then tighten the rear set.

Soon, everything will season, and you will notice that while performing the checks, the turnbuckles are still usually tight. **BUT**, occasionally check the tension, especially when driving on curvy mountain roads, or off road. It is always better to be safe than sorry by checking them more often than not at all.

MAINTENANCE PROCEDURES

Exterior:

Your new camper has aluminum siding and roof, with a very durable baked enamel paint finish. We suggest maintaining the finish by washing with a solution of mild detergent and water. The best product we have found for keeping the outside of the camper clean and shiny is called "Protect All" (www.ProtectAll.com). It can be purchased from us here at Four Wheel Camper or you can usually buy it at most local RV supply stores and places like Wal-Mart. An application of this product also aids in washing of insects and road soils from the front surfaces of the camper.

When storing the camper, ensure the camper is clean, dry, and condensation has been allowed to evaporate before the roof is lowered for an extended period of time. Before storage, leave the camper in the open position for a period, when possible, and allow ventilation to circulate through the interior. The lower access panels may provide dry air to ventilate the interior. Open the roof vent, also, just enough to allow air to pass into the camper.

The key to the maintenance of your vinyl liner is to keep it dry and clean. Be sure the liner is dried thoroughly before storing for any extended period of time.

We suggest that at the beginning of the camping season you clean the liner thoroughly inside and out. A mixture of warm water and mild detergent can be used to clean the liner and all the window panels.

A protective conditioner, such as the "303" product (www.303-products.com), may be applied to the vinyl surface (pop-up material), both on the inside, and outside of the liner. **Do Not** use any water exclusion products, such as "Armor-all". These oil-based products can damage vinyl. Product 303 conditioner also works well with all the rubber seals for the doors, vents, and windows. Don't forget the rubber insert for the door stop. Product 303 can be purchased from Four Wheel Campers or from most auto parts and Marine Supply shops.

Interior:

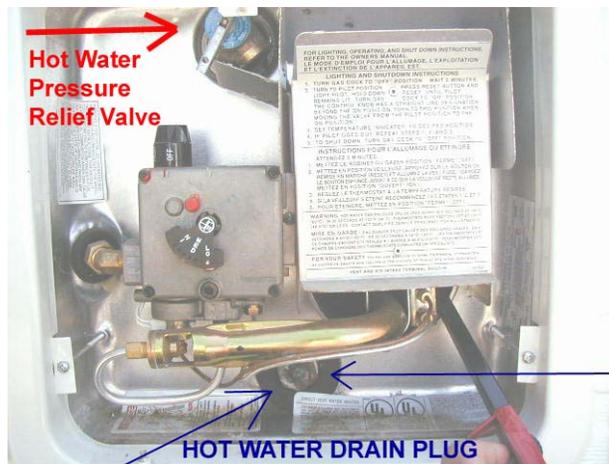
Always remove the upper bed cushions to allow condensation to dry after using the camper. Either put the cushions upright on the floor, or remove them to a well ventilated area. If you leave them in the camper, and the roof is down, accumulated moisture will cause mold and mildew.

All of the cushions and curtains are hand washable or dry cleanable. We do not suggest you wash them in a washing machine. This will damage the zippers, and possibly the sewn seam, of the cushions.

Winterizing the Hot Water / Outdoor Shower System:

To reduce the possibility of fractures and splits in the system's water tanks, lines, and pressurizing pump in climates where the temperature is below freezing (32 degrees F; 0 degrees C), it is recommended that as much water as possible be drained from the system, or you can add a mixture of water and non-toxic antifreeze to the campers water system (Please contact the companies at the bottom of this page for more info regarding non-toxic antifreeze, mixture ratio, and important safety info). If your camper is equipped with the "Hot Water Heater", it is **NOT** recommended that you use anti-freeze in the campers water system unless you remove the anode rod and replace it with a $\frac{3}{4}$ " drain plug.

*** CAUTION – BE SURE TO RELEASE THE WATER PRESSURE IN THE HOT WATER TANK BEFORE YOU REMOVE THE ANODE ROD !**



1. Drain the Hot Water Tank:

Drain the Hot Water Heater 3 or 4 Gallon Hot Water Tank by removing the Hot Water Tank Drain Plug (Anode Rod). This plug is located on the center of the bottom of the hot water tank in the Hot Water Heater Compartment. It is accessed by removing the Hot Water Heater Access Panel on the exterior wall. Remove the Hot Water Tank Drain Plug (Anode

Rod). After water stops flowing from the Hot Water Tank Drain Plug Port, replace the drain plug.

When you remove the drain plug from your water heater, you will see an anode rod attached to it. The anode will probably look corroded and eaten away, but that's the purpose it serves so don't worry about that. Annually, or when the rod has eroded away to about a quarter of its original size, replace it. Simply unscrew the drain plug and screw in a new one.

Suburban water heaters feature an anode rod. The anode equalizes aggressive water action, providing cathodic protection for the tank. It is a very important factor in tank life and should only be removed for inspection, draining or replacement. It is removable using a 1-1/16" socket.

All Suburban water heaters are protected by a magnesium or aluminum anode to prolong the life of the tank. Under normal use, the anode rod will deteriorate. Because of this, we recommend it be replaced annually or when consumption or weight loss of the rod is greater than 75%. Note: Water with high levels of iron and/or sulfate will increase the rate of deterioration. To extend anode life, drain water from tank whenever the RV is not being used. Avoid any extended time of non-use with water in the tank.

*** IMPORTANT HOT WATER TANK NOTES**

Drain the water heater completely, particularly if you are introducing antifreeze into the plumbing system. Antifreeze can be very corrosive to the anode rod inside of the hot water heater. The result will be accelerated deterioration of the rod and heavy sediment in the tank. If you intend to winterize by adding antifreeze into the system, remove the anode rod from the tank (storing it for the winter) and replace it with a 3/4" drain plug.

2. Drain the Shower Head and Hose:

Open the door to the Outdoor Hot Water Shower Compartment near the rear of the camper on the driver's side. Remove the shower head and hose. Extend the hose until it is straight. With the hose straightened, position the showerhead so that it is lower than where the hose is attached to the shower compartment. Turn on both the cold and hot water valves until the water stops flowing from the showerhead. Close the water valves.

3. Drain the 20 Gallon Freshwater Tank and Drain Line:

The 20 Gallon Freshwater Reservoir, located under the camper's front seat, and its drain line are drained at the drain valve located on the driver's side rear exterior wall near the camper entry door, open the valve and leave it open.

4. Drain the Water Pump:

Run the Water Pump for approximately 15 to 30 seconds or as long as water is flowing from the sink faucet with both the hot and cold water valves opened to drain as much remaining water from the system as possible. Turn the water pump off, and leave both water valves open so that any excess water that might freeze, will have room for expansion (instead of cracking a water line).

5. Add Non-Toxic Antifreeze

Add the correct amount of properly prepared **non-toxic** RV Antifreeze and water solution to the Freshwater Reservoir at the Potable Water Port on the driver's side of the camper. See antifreeze manufacturer's mixture recommendations.

Run the system water pump until antifreeze/water mixture flows from the sink faucet and showerhead. Close all valves.

Stow the showerhead and hose to the Outdoor Hot Water Shower Compartment.

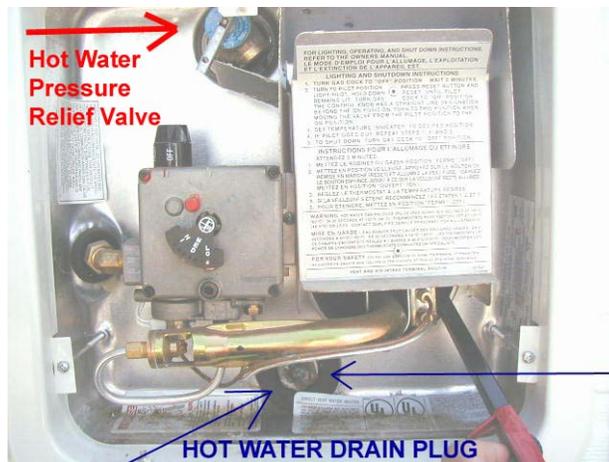
Drain the sink and replace the cap on the sink's gray water spout.

Before refilling the camper's 20 Gallon Freshwater System and 3 Gallon Hot Water Tank with fresh/potable water, thoroughly flush the entire system with the pressurizing pump running, to remove the antifreeze.

Winterizing the Standard Camper Water System:

To reduce the possibility of fractures and splits in the system's water tank, lines, and water pump in climates where the temperature is below freezing (32 degrees F; 0 degrees C), it is recommended that as much water as possible be drained from the system, and that a mixture of water and **non-toxic** antifreeze be added. (Please contact the companies at the bottom of this page for more info regarding non-toxic antifreeze, mixture ratio, and important safety info).

*** CAUTION – BE SURE TO RELEASE THE WATER PRESSURE IN THE HOT WATER TANK BEFORE YOU REMOVE THE ANODE ROD !**



1. Drain the 12 Gallon Water Tank:

Drain the water tank by opening the drain cock (twist to open). The drain cock is usually located under the driver's side of the camper or on the rear wall of the camper depending on model. After water stops flowing from this tank drain, close the drain cock.

2. Drain the Electric Water Pump and/or Hand Pump Line:

Either use the hand pump on the sink or run the electric water pump to remove any excess water from this water line. Be careful not to run the electric water pump too long without any water flowing through it. The electric water pump needs water flowing through it to cool the motor.

Unscrew the outside cap to open the sink / gray water drain. The gray water drain will be located outside, on the on the driver's side of the camper. This will allow any water excess water to drain out.

3. Open the Outside Sink / Gray Water Drain:

Add the properly prepared **non-toxic** RV Antifreeze and water solution to the Freshwater Reservoir at the Potable Water Port on the driver's side of the camper. See antifreeze manufacturer's mixture recommendations.

Pump the hand pump or run the electric water pump at the sink until antifreeze/water mixture flows from the sink faucet. Turn electric water pump off and make sure all valves are left open.

Drain the sink one more time and replace the cap on the sink's the gray water spout.

Before refilling the campers Freshwater System for re-use with fresh/potable water, thoroughly flush the entire system with the hand pump or the electric water pump running, to remove as much non-toxic antifreeze as possible.

Camco Antifreeze – 1-336-668-7661 – www.camco.net
Pah-Nol Non-Toxic Antifreeze – 1-800-777-2466 --
www.houghtonchemical.com

SOMETHING TO KEEP IN MIND WHEN YOU ARE FIRST USING PROPANE

THE TYPE-1 (CGA 791) PROPANE CONNECTION

HOW IT WORKS / WHAT IT DOES

TYPE-1 (CGA 791) CONNECTION

This fitting contains an excess-flow check-valve. There are two functions performed by the excess-flow check-valve that will be explained below. This check-valve is designed to close and allow only a small bypass flow (no more than ten cubic feet per hour) of gas any time there is a larger than expected flow through the system. An excess-flow condition can be due to a broken high-pressure gas supply line, and certain types of regulator failure. Also when the service valve is opened normally the excess-flow check-valve will close temporarily until the system is fully pressurized.

FUNCTION #1:

Checks your system for large leaks.

This function is performed each time you turn your gas system on. When you open the cylinder valve, there will be a larger flow of gas from the cylinder valve into the TYPE-1 connector than the system is expected to see. The excess-flow check-valve sees this large flow as a major leak in the system, and shuts down. As stated above it does not shut down completely, there is a small bypass flow. Assuming there are no leaks in the system and there is nothing on, this small bypass flow will slowly charge up the down stream system pressure. Once all of the pressures all the way back to the excess-flow check valve have been satisfied, a small coil spring down stream of the excess-flow check-valve ball will push the excess-flow check-valve ball wide open. Once this happens your system is ready for use. If there is a leak in the system that is smaller than the bypass flow, then the time it takes to charge up the pressure in the down stream system will be extended. If the leak is larger than the bypass flow then the pressure in the down stream system will never charge up, and the excess-flow check-valve will stay in the shutdown position, and there will be restricted fuel supply downstream.

FUNCTION #2:

Reduces gas flow in a failed system.

The excess-flow check-valve is sensitive to the amount of gas that is flowing through it. If the flow through the check valve is greater than it is designed for then the check-valve will close. This excess-flow can be due to a broken high-pressure gas supply line or certain types of regulator failure.

TYPE-1 (CGA 791)



TYPE-1 (CGA 791)