

CAMCO

HOW TO

WINTERIZE

Prevent freezing pipes and other damage by winterizing your RV.

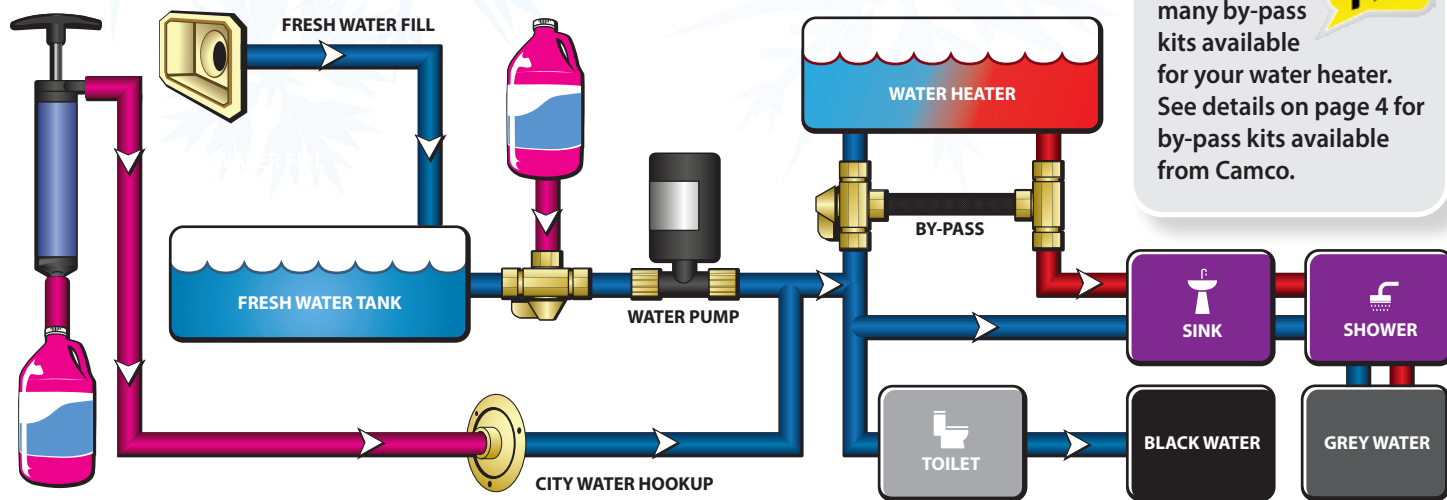
YOUR RV

A Step-by-Step Guide to Winterizing Your RV



How RV Water Systems Work

Your RV's water system draws water from your fresh water tank and/or from the city water hookup. From the fresh water tank, a water pump is used to push water through the RV. (No pump is needed for water coming from the city hookup.) The water from the water tank and city water hookup will always be cold.



Quick TIP
There are many by-pass kits available for your water heater. See details on page 4 for by-pass kits available from Camco.

Preparing Your RV for Storage

You've had a great year in your RV and now it's time to store it for winter. Follow the guide on page 3 to properly winterize and prepare your RV for long or short term storage.

3
YEAR WARRANTY

PRO-TEC

PREMIUM RV COVERS

FEATURES

- Front and rear cinching straps reduce loose fabric for a perfect fit.
- Covered air vents help prevent trapped moisture.
- Zipper entry doors for easy access during covered storage.
- Underbelly strap system for a tight, secure fit.

35 SIZES AVAILABLE



ALL-SEASON PROTECTION

- Air vents help keep unit cooler and prevent billowing in high winds
- 100% breathable material and covered air vents help prevent trapped moisture and mold
- Reinforcement in corners and other high-wear areas for extra durability
- Zipper entry doors for easy access during covered storage
- Front and rear cinching straps reduce loose fabric for a perfect fit
- Underbelly strap system for a tight, secure fit

3 LAYER HIGH-TECH PROTECTION

TYVEK[®]

This product uses Dupont[®] Tyvek[™] material.

SPUN BOND POLYPROPYLENE

SPUN BOND POLYPROPYLENE

Also remember to:

- Remove any food that can spoil from your RV.
- Prop your refrigerator door open to help prevent mildew.
- Clean storage areas, oven, range, refrigerator and areas around dinette.
- Examine seals around exterior doors and windows. Caulk if necessary.
- Check the roof for small leaks or other damage. Make repairs if necessary.
- Check plumbing vents, roof vent, and air condition shroud.
- Leave your hot water heater plug/valve open during the winter months or use a vented drain plug to keep insects out.
- Disconnect your 120 volt line cord and store away.
- Clean and store your sewer hoses.
- Replace bumper caps.
- Park with emergency brake on and use wheel chocks.
- Stabilize your RV. Make sure it does not rock when you walk inside it.
- Keep RV out of direct sunlight if possible.
- Now is a good time to wash and wax.
- Clean the awning. Do not use a dish detergent. They contain de-greasers which can cause your awning to dry out and crack. Camco's Awning Cleaner (41028) is recommended to clean, moisturize and remove mildew.

How to Winterize Your RV

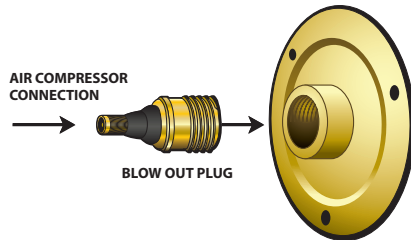
Step-by-Step Guide to Winterizing Your RV

The following are general suggestions. Read your owner's manual for winterization methods specific to your RV.

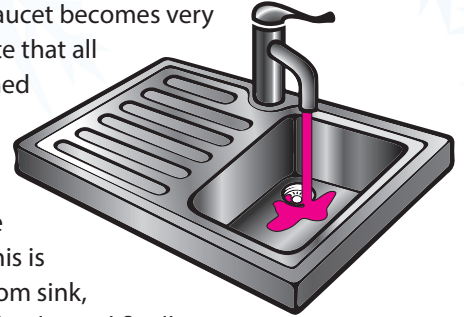
Note: For winterizing your ice maker, dishwasher or washing machine, please see appliance manual or contact RV service center.

1. Disconnect the outside water source. DO NOT DRAIN THE WATER HEATER until after you have filled your pipes with antifreeze.
2. Bypass your water heater. See page 4, Bypassing the Water Heater and follow all steps before continuing. Bypass any in-line or under-sink water filtration systems.
3. Open the petcock to drain as much water from your pipes as possible. Open the water taps and flush the toilet to drain any remaining water from the system.

4. After draining as much water as possible, it is recommended a Blow Out Plug (36103, 36153, 36143, 36133, 36170) be attached to the Water Intake Fitting. Apply air pressure from an oil-less air compressor to drain the remaining water. Although blowing out the remaining water is not required, the remaining water will dilute your antifreeze. Close all faucets and petcock when complete.



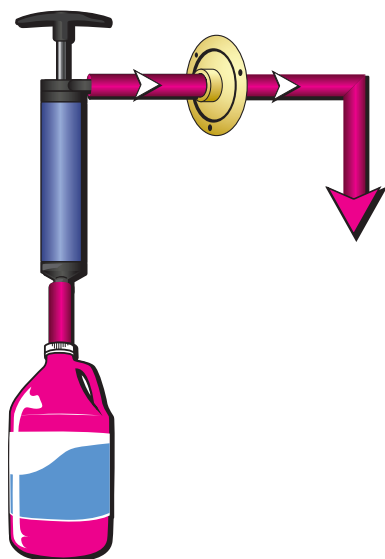
5. You can add antifreeze either from the inside using the Water Pump Conversion Kit (36543) or from the outside using a hand pump (36003). Be sure to check your progress by opening up one faucet at a time, starting from the highest and working to the lowest point in the fresh water system. Begin with the kitchen faucet. Open the HOT side of the kitchen faucet ONLY. Pump antifreeze until flow from the faucet becomes very pink. This will indicate that all water has been flushed from your system. Close faucet. Repeat on COLD side. Continue to the next lower fixture. This is normally the bathroom sink, then the shower and toilet and finally the outdoor shower.



6. Pour at least 2 pints of antifreeze into all sink and shower drains. The ice maker, washing machine and external shower will also need to be winterized. Look for this information in your appliance manuals.
7. Open drain plug/valve on water heater and leave open.
8. Finally, leave antifreeze in lines until spring. Do not drain.

From the outside...

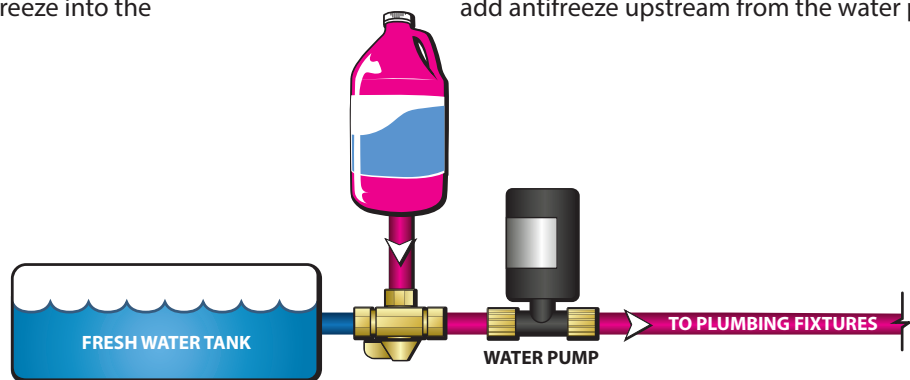
a hand pump can be used to push the antifreeze into the system, bypassing the water pump.



OR

From the inside...

add antifreeze upstream from the water pump.



Key points to remember:

- Work from highest to lowest point
- Don't forget to flush toilet to fill its line with Antifreeze
- Drain water heater last



How to By-Pass Your RV Water Heater

Bypassing the water heater can save you money by not having to fill the water heater with antifreeze, saving as much as 6 to 8 gallons of antifreeze. Some RVs come with a by-pass system pre-installed but many do not. Before you start:

1. Make sure to turn off all power to the water heater (the electric water heaters usually have their own power on-off switch).
2. Disconnect the water supply.
3. Make sure the water heater gas pilot is NOT lit.

Make sure your water heater remains full of water. If you have a by-pass system in place go to step 3.

1. If you need to install a by-pass system, disconnect hot and cold lines going into and out of the water heater.
2. Connect by-pass. (See package instructions.) Be sure to use 3 to 5 turns of Teflon tape when attaching each connection.
3. Close off hot and cold lines going in and out of the water heater.
4. Open the by-pass.

By-Pass Kits



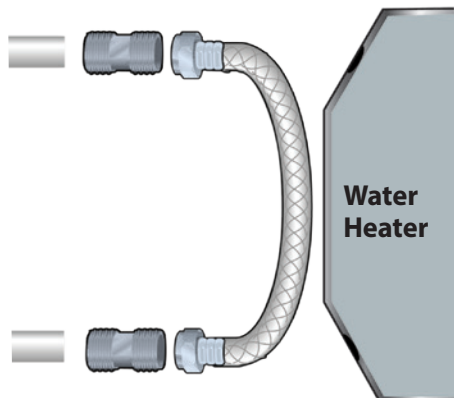
★★★★ GOOD

Easy seasonal winterizing is yours with the Camco Seasonal By-Pass Kit. The most economical of our kits, the RV Seasonal By-Pass Kit requires a simple temporary hookup for winterizing. Remove in the spring, and re-connect during winter months.

Seasonal By-Pass Kit

This temporary by-pass kit allows you to hook up for winterizing and remove in the spring for reconnecting the system. Comes with kink-resistant nylon reinforced hose.

35713 Seasonal By-Pass Kit



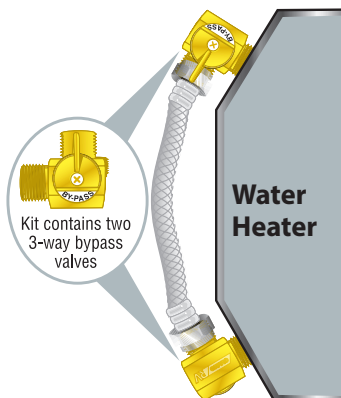
★★★★★ BETTER

Once installed, the RV Supreme Permanent By-Pass Kit allows you to drain your water heater and forget your RV for the winter.

Supreme By-Pass Kits, Permanent

Simple, permanent installation of this kit reduces the amount of antifreeze required to winterize by bypassing your RV water heater. Save gallons of antifreeze by not filling your water heater with antifreeze when you winterize. Brass valves provide non-restrictive flow. Comes with kink-resistant nylon reinforced hose.

- 35953 With 8" hose for 6 gallon tank
- 35963 With 12" hose for 10 gallon tank
- 37463 By-pass valve replacement



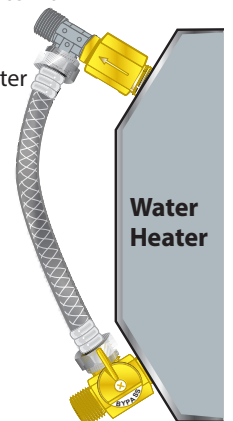
★★★★★ BEST

The Quick Turn RV Permanent By-Pass Kit allows you to bypass your water heater and save antifreeze while winterizing. This permanently installed system saves you time and money every year. Once installed, this kit will allow you to bypass your water heater with the simple turn of a valve. Easy to install; designed to last the life of your RV.

Quick-Turn By-Pass Kit, Permanent

Save on antifreeze when you winterize with this easily-installed water heater by-pass kit. Sturdy, brass back flow preventer and 100% shut-off valve lets you by-pass the water heater with a single turn.

- 35983 Quick-Turn By-Pass Kit
- 35985 By-Pass Valve Replacement
- 23303 Backflow Preventer Replacement



FAQ

Q. How much water should you add to your -50 RV Antifreeze to achieve a -25°F burst protection?

A. See instructions included on the antifreeze label. Use a refractometer to confirm freeze protection.

Q. I had some -50 RV antifreeze stored in my garage and I noticed it was frozen. Is the product defective?

A. No. Propylene glycol antifreezes are designed to provide burst protection to temperatures of -50°F or below. Ice crystals will start to form in -50 RV Antifreeze at temperatures around +10°F and will appear to be solid ice at around -10°F to -15°F. Propylene glycol based antifreezes continue to contract and will not expand until temperatures of -50°F are reached, thus providing burst protection for pipes.

Q. I understand that most antifreezes are toxic, yet most claim that RV antifreeze products are not harmful. How is that possible?

A. Most automotive antifreezes are made from ethylene glycol, which is highly toxic. RV antifreezes are made from propylene glycol which is considered GRAS (Generally Regarded As Safe) by the U.S. Government. Propylene glycol is used in many consumable products such as ice cream, candy and even cosmetics. Therefore, it is the product to use when winterizing potable water systems.

Q. How can I test the antifreeze in my plumbing system to make sure I have the proper burst protection?

A. Unfortunately, there is no reliable and economical tester in the market for the RV or boat owner. The best assurance is to follow the instructions on the label and be careful to remove all water from the system before winterizing to avoid dilution of the antifreeze. An instrument called a refractometer accurately reads both freeze point and burst point of the propylene glycol solution.

Q. What is the difference between freeze point and burst point of antifreeze?

A. The freeze point is the temperature of the solution at which ice crystals will start to form in the solution and it will have difficulty flowing. This temperature is around +10°F with -50 RV Antifreeze. This temperature is not indicative of the winterizing protection. The burst point is the temperature where the solution will begin to expand and cause the pipes to burst. A unit winterized properly with -50 RV Antifreeze should show a freeze point of around +10°F which indicates a burst protection of -50°F.

Q. I have seen antifreeze on the market offering different degrees of protection and applications, what is the difference?

A. There are a number of different antifreezes for different applications. The primary difference is in the formulations and amount of propylene glycol used. -50 RV antifreezes and -100 antifreezes are for colder climates and marine engine winterization.

Q. I have a boat with an inboard/outboard engine that I need to winterize. What is the best method to use?

A. There are several methods used by Marine dealers to winterize. You should refer to your owners manual for winterizing tips and recommendations. Some dealers use a VAT method where the out-drive is lowered into an antifreeze solution and the engine is run for a few minutes at operating temperature, making sure all the water is purged and the antifreeze solution is throughout the system. Another method requires the removal of the thermostat, opening of all petcocks to drain water from the engine block and then pouring the antifreeze into the engine block until the solution runs out of the petcocks. Camco offers the Do-It-Yourself Boat Winterizer which requires approximately 5 gallons of antifreeze for a proper winterization. Instructions for using the Do-It-Yourself Boat Winterizer should be followed closely.

Q. What should I do if I spill some of your RV antifreeze on my driveway or grass?

A. Unlike toxic ethylene glycol, propylene glycol is rated GRAS (Generally Regarded As Safe) by the FDA. Should you spill small amounts on your driveway or grass, hose the area thoroughly with water. Propylene glycol is biodegradable and will dissipate in the water.

Q. Should I use -50 antifreeze or a higher concentration to winterize my marine engine?

A. -50 antifreeze is safe to use for the marine engine application; however, if you are uncertain about getting all of the water purged out of the engine block, we suggest using a more concentrated formulation.

Winterization Supplies From Camco

A. Hand Pump Kit with Fittings

Pump antifreeze directly into your RV water lines and supply tanks. Kit includes flexible connecting line with city water connection.

36003



B. Pump Converter Winterizing Kit

Winterize your RV annually with ease. This permanent kit installs with an adjustable wrench and includes brass valve, siphon hose, Teflon tape and pump adapters.

36543



C. RV Water Heater Drain Plug Kit

Specifically designed for use with RV water heater drain plugs. Angled design conveniently fits in tight spaces and includes prongs for rusted drain valves. Fits both 7/8" and 15/16" drain plugs. Includes two replacement drain plugs.

11633 Water Heater Drain Plug Kit

11630 Water Heater Drain Plugs (set of 2)

11634 Water Heater Drain Plugs (set of 2: 1 vented, 1 standard. Not shown)



D. Blow Out Plugs

Completely clear your water lines with Camco RV Blow Out Plugs. Screw the plug into the city water inlet, open all drains and faucets, attach and activate air pump until all lines are clear.

36103 Plastic

36153 Brass with Schrader Valve

36143 Brass, Quick Connect

36133 Plastic, Black with Schrader Valve

36170 Blow Out Hose Kit w/Ball Valve



E. Odor Absorber

The Camco Odor Absorber is a easy, space-saving way to help trap unpleasant odors in your refrigerator. It can either hang or sit on your refrigerator rack, and it swivels to help maximize contact with air and trap more odors. The inner charcoal bag is replaceable.

44180



F. Mini Dehumidifier

Compact moisture absorber reduces moisture which could lead to odors. Works to remove dampness from the air, helping to reduce mildew, mold and musty odors.

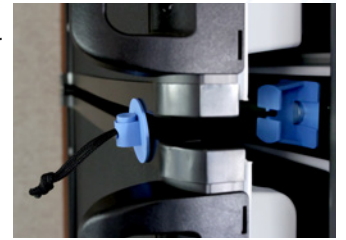
44195



G. Camco RV Fridge Door Stop

The Camco Fridge Door Block holds your fridge and freezer door open during storage to promote airflow and prevent mildew and odors, and also prevents the door from swinging open if your RV or trailer is uneven.

44105



H. Fridge Door Stay

Keeps your refrigerator door held open during storage, improves air circulation and helps prevent mold and odor build-up.

45641



I. Do-It-Yourself Boat Winterizer



Quickly and efficiently service inboard/outboard marine engines. Also recommended for use with outboard engines. The Do-It-Yourself Winterizer allows flushing and preparation of boat engine for winter storage with just five gallons of antifreeze and your flusher. Save time and money, season after season. Great for technicians, too. For front mounted raw water pump systems, use the Flush Adapter, sold separately.

65501 Do-It-Yourself Winterizer

65493 Front Engine Pump Adapter

50141 Dual Flow Motor Flusher



J. RV Winter Readiness Kit Bucket

The Camco RV Winter Readiness Kit helps you prepare your RV for long-term or winter storage. The Blow Out Plug allows you to use your oil-less air compressor to completely clear your water lines before winterizing. The Hand Pump Kit makes adding antifreeze to your water lines easier and less messy, and the Ban Frost Antifreeze Concentrate, which you can dilute in the included bucket, helps to protect your RV's plumbing from bursting in the cold winter months. Meanwhile, the Mini Dehumidifier and Fridge Door Stay keep the air in your RV from becoming musty. Included in the kit is our step-by-step RV Winterizing Guide to make the winterizing process as simple as possible.



36190

K. Taste Pure Premium Heated Drinking Water Hose -40 °F

Keep your water supply flowing even in freezing temperatures.



Camco's Heated Water Hose combines a drinking-water-safe hose with a self-regulating heat source which is encapsulated in an all-weather, PVC jacket for durability. Features machined and Nickel-plated fittings for maximum corrosion protection. $\frac{5}{8}$ " ID

- 22920 12 ft Heated Drinking Water Hose -40°F
- 22922 25 ft Heated Drinking Water Hose -40°F
- 22924 50 ft Heated Drinking Water Hose -40°F

L. Taste Pure Premium Heated Drinking Water Hose -20 °F

Made with an NSF 61 certified, $\frac{5}{8}$ " I.D. drinking water safe hose that is BPA, phthalate and lead free. Won't leach harmful chemicals into water or leave it tasting like plastic. Energy saving thermostat only heats as needed, saving money on the electric bill. Fittings are heavy duty machined and plated for maximum corrosion resistance and the durable exterior jacket protects water hose and electrical components from damage or exposure. $\frac{5}{8}$ " ID



- 22910 12 ft Heated Drinking Water Hose -20°F
- 22911 25 ft Heated Drinking Water Hose -20°F
- 22912 50 ft Heated Drinking Water Hose -20°F

M. Odor Eliminating Bags



Camco's Odor Absorbing Bags helps make any small space smell fresh without the use of fragrances. It is made of 100% Moso bamboo charcoal, a renewable resource, and is reusable for up to two years. Once a month, place the odor absorbing bags in direct sunlight for at least an hour to rejuvenate the bamboo charcoal..

- 44270 Moso Bamboo Charcoal Odor Absorber, 50 Gram/ 2 pack
- 44271 Moso Bamboo Charcoal Odor Absorber,, 200 Grams
- 44273 Moso Bamboo Charcoal Odor Absorber, 500 gram

RV Winterization Checklist

Supplies you may need to winterize

- 2–4 gallons of antifreeze
- Antifreeze pH test strips
- Antifreeze hand pump (36003)
- Antifreeze pump converter kit (36543)
- Blow out plugs (36103, 36133, 36143, 36153, 36170)
- By-Pass kit (See page 4.)
- Cleaners (exterior, roof, awning)
- Set of hand tools for small repairs
- Towels, paper towels
- Trash can
- Wheel chocks
- Caulk
- Pipe insulation



RV Seasonal By-Pass Kit
(35713)



Quick Turn RV
Permanent By-Pass Kit
(35983)



Hand Pump Kit
(36003)



RV Water Heater
Drain Plug Kit
(11633)



Mini Dehumidifier
(44195)

	YEAR				
WINTERIZING YOUR RV					
Preparation:					
Disconnect outside water line.					
Bypass your water heater.					
Turn on water taps to drain water.					
Flush toilets.					
Attach Blow Out Plug to intake fitting and attach air compressor.					
Close all water taps once you have drained as much water as possible.					
Antifreeze: Use ONLY nontoxic antifreeze specifically designed for RVs. Leave antifreeze in lines until spring. Do not drain.					
Kitchen sink:					
1. Open Hot side of kitchen sink faucet ONLY.					
2. Pump antifreeze until flow from faucet becomes very pink.					
3. Close Hot side faucet. Open Cold side of kitchen sink faucet ONLY.					
Bathroom sink					
Tub					
Toilet					
Shower					
Ice maker					
Washing machine					
Exterior showers					
Pour at least 2 pints of antifreeze into all sink and tub drains.					
Water Heater: Open drain plug on water heater. Leave open till spring or use vented drain plug.					
General maintenance:					
Stabilize RV. Make sure it does not rock when you walk inside it.					
Apply emergency brake and use wheel chocks.					
Remove any food that can spoil.					
Clean storage areas (oven, range, refrigerator, and areas around dinette)					
Inspect roof (roof vent covers, plumbing vents and roof seams)					
Wash and wax					
Install RV Cover					

