

Owner's Manual

2016 210 Popular



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HOWTO: Monitor Panel

The monitor panel is located inside the side door, above the doorframe. Depending on the options you have, there may be a gasoline generator starter switch and hour run meter to the right.

Battery Disconnect Switch

The battery disconnect switch turns the coach battery power off and on. When off, it prevents your coach batteries from being drained while the Roadtrek is not in use. The lights, the water pump, the fan, the refrigerator control board, even the igniters for the propane cooktop need 12 volt power from the batteries. If something electrical in your Roadtrek doesn't work, the first thing to check is to make sure the battery disconnect switch is on.

The battery disconnect switch is on the bottom left corner of the monitor panel. To its immediate right is a blue indicator light which illuminates to show you when the switch is on.



Monitor Panel with standard inverter and optional gasoline generator



Battery disconnect switch



Standard inverter switch

You will hear a "clunk" as the battery disconnect switch is pressed - this is a big relay connecting the coach batteries to the electrical loads.

If you hear a clunk-clunk, or nothing at all, it's possible that your batteries are depleted to the point where they cannot drive the relay. The best way to charge your batteries in this situation is to start your vehicle engine and try again after it has charged for a while. Once the relay is working, you can continue to charge with the generator or shore power.

Inverter Switch

Just as the battery disconnect switch powers the lights, fan, and other 12 volt electrical loads, the standard inverter takes 12 volt power from your coach batteries and changes it into 120 volt electricity. It powers some of the smaller 120 volt alternating current loads, such as the TV and DVD player. This is the regular electricity you have in your house. With this inverter, you can watch television or play a DVD while you are camping, without the need to plug into shore power or run your generator.

The inverter is rated for 750 watts maximum output. Larger loads such as the air conditioner or microwave are too big to run on the power produced by the inverter, and will not operate unless you plug in to shore power or start your generator. The inverter will shut off if you try to draw too much power through it.

The inverter switch is on the left side of the monitor panel, above and to the right of the battery disconnect switch. It has an indicator light inside it that comes on to let you it's on. If you are not using any 120 volt electricity, turn the inverter off to conserve battery power, since it uses a small amount of electricity even when it's not powering any appliances.

The inverter will also shut off if the battery voltage falls below a certain level. This is to protect your batteries, wiring, and the inverter itself from damage. Your battery voltage drops under load, so it is possible to have the inverter cut off under high load when the battery voltage is normal with no load. If this happens, try turning off any power-hungry appliances and trying again. Things like electric toasters, electric curlers and hair dryers, or anything else that produces heat are usually energy hogs. Most appliances have the wattage indicated on a label somewhere on the appliance. With practice, you will learn what you can and can't run within the 750 watt limit.

Inverter Switch With Optional Engine Generator and 2500 Watt Inverter

Instead of the regular inverter switch on the monitor panel, your inverter switch will be back in the rear lounge area on the passenger side, just to the right of the thermostat. The switch has three positions: off in the middle position, power save auto in the top position, and power save off in the bottom position.

In the power save auto setting, when you're not using anything with 120 volt power, the inverter will put itself to sleep. In this mode, it still uses a small amount of power. If you turn on a 120 volt appliance, it senses a load and will come back on in about 20 seconds. If you select power save auto you'll reduce the electricity it takes to keep the inverter powered, and your batteries will require less recharging.



The inverter checks for a load by turning on the power briefly and checking if appliances are connected. This can cause some appliances, such as the microwave to turn on and off. If this happens, either unplug the appliance or turn the inverter off or on.



2500 watt inverter switch

Pressing the bottom of the switch selects power save off. When this setting is selected, the inverter will be on continuously. There is a shore power indicator light to the right of the switch to tell you the system is receiving shore power. There is also a battery charging indicator light to tell you when the batteries are being charged by shore power.

Patio Light

On the monitor panel, the top left switch is the patio light switch. Press the top of the button to turn the lights on, and the bottom to turn them off. These are LED lights and use very little power.



Patio light switch



Water pump switch on (blue indicator light lit)

Water Pump Switch

The centered switch to the right of the leftmost four switches is the water pump switch. It should be on only when you have water in the fresh water tanks and wish to use the sinks, showers, or toilet. The pump should not be run without water. As with the patio light switch, pressing the top of the button turns the pump on, and pressing the bottom turns it off.

Water Heater Switch

The water heater switch is to the right of the water pump switch. As with all the other switches on the monitor panel, the battery disconnect switch must be on for the water heater to work. Even though the water heater uses propane to heat the water, all the igniters and controls are electrical. Be sure that the water heater is full of water before turning it on - if water comes out of the hot water faucets when they are opened, the water heater has water in it. After turning it on, the red light to the right of the switch will come on for a few seconds, then go off as the burner ignites. If the light keeps going off and on, your burner is not lighting. Make sure that you have propane in your propane tank and that the main valve is open. If the stove burners light, your propane supply is good.



Water heater switch and red indicator light



Tank level indicators

Tank Levels and Battery Charge Indicator

To the right of the monitor panel switches are the indicator lights for the battery charge level, the propane tank level, the fresh water tank level for each of the two tanks, and the black and gray water tank levels. Press the button for each to see the display. These will give you an approximate reading, to the nearest third, of how much is in each tank.

Roadtrek recommends that you keep a small amount of water in your gray and black tanks at all times. This will reduce the likelihood of material sticking to the inside of the tank.

The four indicator lights for the battery are low, fair, good, and charging. Battery voltage dips under load; the greater the load the greater the voltage dip. A battery under heavy load will show much lower state than one at rest.

The propane indicators will show full when the tank is at its maximum capacity. Because of the safety-related need for a vapor space at the top of the propane tank, the maximum fill capacity is 80% of the volume of the tank. Your 38 liter/10 gallon propane tank is full when it holds 30.4 liters/8 gallons of propane. There is another gauge directly on the tank that you can see behind the propane fill door on the back bumper. This gauge has finer gradations and will give you more information about your propane level than the indicator light display will.



Generator switch, prime/off position



Generator hour meter

Optional Gasoline Generator Switch and Hour Meter

To start the generator, first push the bottom of the rocker switch for 5 seconds to PRIME, then push the top of the switch to START. Allow the generator to run for a couple of minutes before turning on heavy loads such as the air conditioner.

To stop the generator, first shut down all heavy loads, let the generator run for a few minutes to cool down, then press the STOP (bottom) side of the rocker switch.

The hour meter keeps track of how many hours your generator has been running. This is important for servicing intervals such as oil changes, etc. See your Cummings/Onan generator service manual for details. There is a break-in oil change after the first 20 to 50 hours of use. You also need to exercise your generator every month by running it for an hour under moderate load.

HOWTO: Setting Up Your Campsite

What Do You Need To Hook Up?

In a Roadtrek, the answer to this question is - a lot less than you think. Rather than slog through the setup ordeal that Class As and fifth wheels and other trailers go through, Class Bs are much more nimble. We travel light and can set up and pack up in minutes. Let's look at the differences in these different types of units and see why.

Most big rigs and trailers don't really have a self-contained philosophy - they're basically like sticks and bricks homes on wheels, which require what campgrounds call "full hookups" (electricity, water, and sewer connections at each campsite) to function. Roadtreks have big fresh water and holding tanks that the other types of RVs lack, so it's usually easier just to plug into the electricity, and not bother with the water and sewer hookups. This makes your hookup procedure a five minute process - park in a level spot and plug in. Maybe hook up the cable TV, too, if they have it at the campsite, but that's about it.

It's a different philosophy because most large RVs plunk down and don't move once they get to a campsite. They have a towed vehicle - or the truck they haul their trailer with - to take short trips around the area. Since you don't have a tow vehicle like the big rigs, you need to be able to head out to the store or go sightseeing in your Roadtrek, so the less elaborate the set-up and pack-up procedures, the better.



Full hookups - electric, water, and sewer - plus lots of company

Connected Fresh Water vs. Using your Tanks

There's no real advantage to leaving the water hooked up all the time - it's easier just to get your hose out and fill your tanks, and then put the hose away. No leaks, no hose to trip over, no need to disassemble and store all that stuff when it's time to hit the road again. In a campground with shower facilities, your water supply will last for days, and when it runs out you just get the hose back out, fill it up again, and you're ready for another few days.

Sewer Hookup vs. Dumping

The advantage of using your tanks for fresh water over a more permanent water hookup is that you're automatically reminded of when your waste water tanks are full. When you're close to running out of fresh water, that means it's time to dump your wastewater tanks. With a more permanent hookup, the reminder may be waste water backing up in your sink or toilet, which is not nearly as pleasant. The tank level indicators only tell you to the nearest third what your tank levels are.

Since you have a waste water discharge pump, the big rig's semi-permanent giant sewer hose on an inclined pathway to the dump won't work for you - you have to run the pump anyway, so why not just dispense with all that unsightly and potentially hazardous plumbing? Full hookup sites have a handy sewer dump right at your campsite. When your fresh water runs low, refill your fresh water tanks, dump your waste water holding tanks, and you're good to go, plus you can drive off anytime merely by stowing your electrical cord.



Filling your tanks

Simplify, Simplify

Campgrounds capitalize on the helplessness of non-self-contained RVs by charging a premium for full hookup sites. You aren't helpless. With an electric-only hookup, you drive a short distance to the campground's fresh water source and waste water dump every few days. Do it on the way to the store or other trip that you're going to take anyway, and it's no bother. In addition to saving money, you'll also have a choice of more campsites, since not all of them have full hookups, or the even better choice of no campsite at all to take advantage of the E-Trek's extended boondocking capability. You can stay out there until you run out of groceries if you want.

Freedom from hookups also opens up a whole range of national and provincial forest campgrounds with limited or no hookups to you. There is also dispersed camping in national forests and crown lands and other boondocking options, where you find your own campsite. There are rules for where you can and can't boondock, so check the forest websites or drop in at the ranger station for information. Once you're out there, don't look around for those big rigs who are dependent on hookups - they're all back in town. It's just you and nature, with the occasional backpacker.



Why drive all the way back to town just to smell someone else's woodsmoke? Camp where you are.

Leveling your Roadtrek

Roadtreks don't have or need the built-in leveling jacks and stands large RVs have - it's usually easy enough to move back and forth in your campsite until you're reasonably level. However, many Roadtrek owners buy and carry leveling blocks for those places where finding a level spot is difficult. These are available in most camping supply stores or can be ordered online. They go under your tires, and can be stacked in various combinations to lift the low corner or end of your vehicle enough to get comfortable. Many Roadtrek owners install a small bubble level in an inconspicuous place visible from the driver's seat to assist with the leveling process.

How level is level? In general, if it's level enough to be comfortable for you, it's probably good enough for your plumbing. If you have a choice, it's better to have the front of the Roadtrek very slightly higher than the back for air conditioner condensate drainage. If you're not running your air conditioner, it doesn't matter.



Leveling blocks

HOWTO: Shore Power

Connecting To Shore Power

Your Roadtrek has a shore power cord, which is permanently attached inside the rear driver's side compartment, behind the rear wheel. Open this compartment and pull the cord out to attach to the campsite or house electrical outlet. There is a notch in the lower right edge of the compartment floor to allow you to feed the cord through and close the storage compartment door.



Driver's side rear compartment



Cord fed through
"mousehole"

Campsite Connections

Most RV parks and campgrounds have AC power of various voltages and amperages available at each site. The power will typically be in a pedestal with a cover that flips up. If you cannot find your power pedestal or you're not sure how to open it, ask the campground personnel.



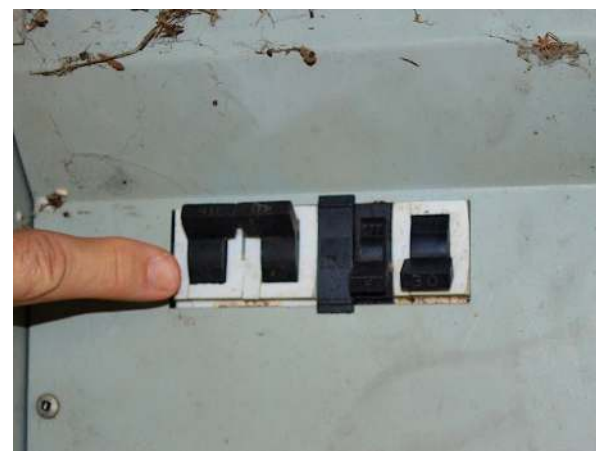
50A outlet



30A outlet



15A outlet



Breakers

A typical campsite's power pedestal will have three types of plug-in receptacles: 15 amp, 30 amp and 50 amp. The 15A receptacle is typically the same as you would find in your home. The 30A and 50A receptacles are specific to the RV industry. Other receptacles look similar but may not be wired the same. If in doubt, check with campground personnel.

The pedestal will also typically have individual breakers for the 15A, 30A, and 50A services. Many campgrounds turn off unused breakers so check that the breaker for the plug you will be using is turned on.

Your Roadtrek is equipped with a 30 Amp cord. Most power pedestals have a 30 amp receptacle.



15A to 30A adapter



50A to 30A adapter

It is possible that a campground (or perhaps a friend's driveway) will not have a 30A receptacle available for your use. You can purchase a 15A to 30A adapter and connect to an ordinary 15A household outlet.

Be aware that in those situations, you will have limited power compared to a 30A circuit. You will be able to run a single large appliance at a time; you may need to turn off your air conditioner if you want to use the microwave, for example.

If you exceed the current capacity of the receptacle you may pop the breakers in the pedestal. If this happens, turn off some appliances and reset the breaker.

It is also possible that you will find a 50A receptacle. Again, you can purchase a 50A to 30A adapter. In this case your power should not be limited as you will have the full 30 amps available. Although you are connected to a 50A service, you can only draw 30A; there is no advantage to connecting to a 50A service if a 30A service is available.

HOWTO: Potable Water Use

Your Roadtrek can operate in either fully self-contained mode, or can be connected to a water supply such as a campsite's faucet.

Connecting to a Water Supply

The city water connection is in the driver's side rearmost compartment. Unscrew the white plastic protective cap and connect your clean hose to the water faucet and this connection point. Turn the faucet on and check for leaks, tightening the connections as necessary.

 Campgrounds and municipalities vary greatly in supplied water pressure. Before connecting to external water supplies, purchase and install a pressure regulator inline with the water connection.

In a typical campground you may see the faucet with a backflow preventer attached. These look similar to a pressure regulator but do not affect the pressure. The backflow preventor is there to protect the campground. You need the pressure regulator to protect yourself from excess pressure.



Backflow preventer



Typical water pressure regulator

❗ If you have any doubts about a water supply pressure situation, you can always fill your tanks from the water source using the gravity fill, and use the water pump to supply water from the tanks.

You can connect to a city water connection when your Roadtrek is configured in the summer operation mode. The city water inlet connection is located in the small compartment just behind the driver's side rear tire.

⚠ Roadtrek recommends that you use a potable-water hose. These are usually white in color.



City water fill location



City water valve in closed (handle vertical) position



Attaching pressure regulator to city water fill location

To connect the Roadtrek's water system to an outside source:

- Turn the water pump off.
- Close the city water valve by turning the handle to the vertical position.
- Close all interior faucets.
- Flush old water and any contaminants out of the water supply faucet.
- Connect your fresh water hose to the faucet.
- Attach your pressure regulator to the Roadtrek's city water connection.
- Attach a fresh water hose to the the pressure regulator.
- Slowly open the faucet of the city water source.

- The city water connection by-passes the water pump and fresh water tank. Therefore, the use of these items is not necessary when connected directly to an external water source.

To disconnect the city water connection:

- Turn off the external water source.
- Open a faucet to relieve the pressure in the system. Failure to do so will not damage your vehicle, but may result in an unexpected shower when you disconnect the hose. The outside shower faucet next to the city water connection is a convenient place to do this.
- Make sure the the city water valve is closed (handle vertical).
- Remove the hose from the city water connection, and replace the cap on the fill connection.
- Disconnect the hose from the supply faucet and stow it in your storage compartment. Connecting the ends is a handy way to prevent dirt or other contaminants from entering the hose while stored.



❗ If you hear your pump running and water pressure is low inside the vehicle after disconnecting from an external water source, it is because you have not properly positioned the city water valve. Make sure the black plastic handle is vertical, and perpendicular to the water line when your water system is in self-contained mode.

Two-Tank System in Self-Contained Mode

There are two fresh water tanks in your Roadtrek, the internal tank under the passenger side bench, and the external tank under the driver's seat. Each has its own gravity fill on the rear door passenger side door frame and driver's door frame, respectively.



Front (exterior) tank gravity fill



Rear (internal) tank gravity fill

There is a manual valve to select which tank your water pump draws water from. There is also a water line connecting the two tanks with a manual valve on it, so when this line is open water drains from the higher internal tank to the lower external tank. In non-freezing weather, the easiest way to use the system is to leave the valve on the line connecting the tanks open, and set the tank selector valve to draw water from the lower external tank. As you use water from this tank, water from the internal tank replenishes it by gravity, so you can use all of the water from both tanks simply by filling them up and turning on the water pump.

To access the tank selector valve and the tank isolator valve, open the door on the side of the driver's side bench facing the aisle, just to the left of the refrigerator. The tank selector valve has a long plastic covered handle, usually either yellow or red. When this handle is vertical, the tank selector valve is drawing water from the internal tank. You want it to be horizontal and pointing toward the driver's side of the vehicle - that's the position where it's drawing water from the external tank.



Tank selector valve in exterior tank position



Tank isolator valve in open position

The tank isolator valve is just a couple of inches to the rear of the vehicle from the tank selector valve (to your left as you look into this cabinet) and is a smaller black plastic handle on a white water line. You want this handle to be pointed along the water line (open), not across it (closed). Leave the other two black-handled valves on the left side of this enclosure alone - those are the outside shower cutoff valves. Set the tank selector and isolator valves in these positions for warm weather operation, and simply fill up your tanks when they run out. You don't have to change a thing until you need to operate in winter mode, or winterize the system. To see how to do that, check out the HOWTO: Summer and Winter Mode and the HOWTO: Water System Winterizing sections.

If you are driving for extended distances and don't want to carry extra water you don't need (36 gallons of water weighs 300 pounds, and it takes fuel to lug that much weight cross country), just put water in the front (exterior) tank at the driver's door gravity fill, and leave the back (interior) tank empty. You will still have 20 gallons or so of water for use, and will travel lighter with a better weight distribution since your rear axle will be about 85 pounds lighter. Every little bit helps. Of course, once you get to the area where you're going to camp, fill up both tanks before you head out boondocking so you can stay out for a longer time without running out of water.

HOWTO: Waste Water Dumping

Wastewater storage and dumping

Your house is permanently connected to your septic system or a municipal sewer; you don't have to worry about the wastewater you generate because gravity takes it away. Your Roadtrek doesn't have that connection, and has to hold any wastewater until you have the opportunity to dump it at an approved dump station.



Most municipalities have severe penalties for improper disposal of human waste, especially into a watershed - fines can be several thousand dollars, and it's often a felony. Even if it's "just gray water", it will still flunk a coliform bacteria test because of the common discharge hose, which is difficult to explain to a judge. Never dispose of wastewater unless you're sure you are at an approved dump station.

Tanks

Your vehicle is equipped with a gray holding tank and a black holding tank. The gray tank holds the sink and shower water. The black tank holds the toilet waste. As a result the black tank is a lot nastier than the gray tank.

Waste Water Discharge Pump

Your Roadtrek is equipped with a waste water disposal pump to make dumping your tanks easier and cleaner. The macerator in this pump grinds up any solids in the system and pumps the resulting wastewater out to the dump station.



Do not throw any paper towels, personal wipes, rags, baby wipes, tampons, hairballs, etc. into the toilet. The macerator is not capable of handling these types of solids and will jam or be damaged. Use toilet paper intended for RVs or septic systems.



If in doubt, take a tissue, and leave it in a glass of water. Stir with a spoon a couple of times. If it falls apart into a gooey slurry after a few minutes it's safe for your tank. If it stays together, swells up, or clumps into a solid mass, it's not safe and should be disposed of in the trash and not down the toilet.

- ❗ If possible, you want to dump the tanks after driving as the movement of the vehicle will have sloshed the water in the tanks, loosening any solids.
- ❗ Make sure the tanks are as full as possible before dumping - you may wish to use a hose or bucket to add water to the black water tank through the toilet if it is less than 1/2 full.
- ❗ You should dump the black tank first, then the gray tank. The water in the gray tank is considerably cleaner, and will rinse any remaining solids from the hose and the macerator. You should dump both tanks in sequence if possible.

Dumping the tanks



Sprinter side compartments



210 Popular side compartment

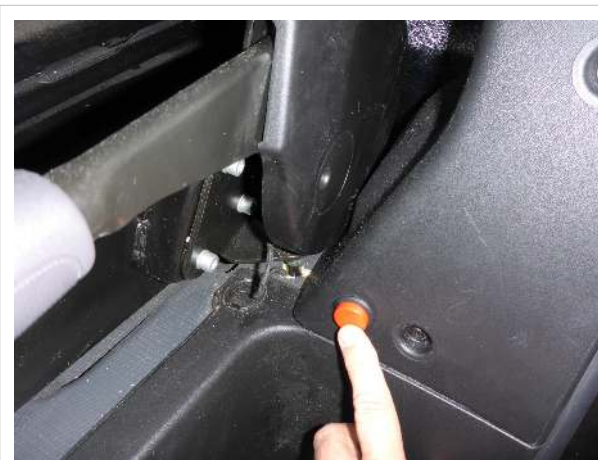
- Open the compartment doors or drawer behind the driver. This will expose the green waste water discharge hose and controls.

⚠ Depending on your model, your hose and dump valve location may look a bit different. Take the time to identify all of the components before you start.

- Open the driver's door and locate the waste water pump switch. It is a red pushbutton located on the driver's seat base or on the B pillar.



Macerator button on base of driver's seat



Macerator button on the B pillar behind driver

- Remove the waste water discharge hose from storage by pulling it straight out far enough to reach the dump.
- Insert the waste water discharge hose outlet into the dump station waste receptacle.
- Open the valve on the end of the sewage discharge hose by turning the black plastic handle to align with the hose.



Extending the hose



Open the dump hose valve

- There are two ways to secure the hose in the dump station waste receptacle four inch pipe. In the white box that came with your Roadtrek there is a rubber doughnut, which goes over the discharge nozzle and can be wedged into the waste receptacle to hold the waste water discharge hose in place. Some RV parks require you to use a doughnut. If you trust gravity more than friction, or don't want to store the doughnut between uses, use a rock to weight the hose down. Either way, make sure the hose doesn't get loose when you turn the pump on.



The discharge stream is forceful and will knock the hose out of the drain if you do not weight it down or secure it in the drain with the doughnut. It is much easier and more sanitary to secure it before turning the pump on than it is to chase it around afterwards.



Rubber doughnut installed on nozzle



Rock used as weight to hold the hose

- Push the jogger handle in and turn it to loosen any materials in the macerator. Pull the jogger handle out.
- Open the black water tank gate valve by pulling the black handle out. It will come out approximately three inches (8 cm) and stop.
- Press and hold the waste water pump button until the tank is empty.
- Close the black water tank valve by pushing in on the handle.
- Open the grey water tank gate valve by pulling the grey handle out. It will come out approximately 1 1/2 inches (4 cm) and stop.
- Press and hold the waste water pump red button until the grey waste tank is empty.
- Close the gray tank valve by pushing it back in to the original position.



Open the black valve



Open the gray valve

 Always dump the black tank first and the gray tank second. The graywater will help flush any remaining solids from the dump hose. If you wish to rinse the system, pour water down the toilet and sink, and dump again.

- Close the discharge valve on the end of the waste water hose.
- Rinse off the dump area and the dump hose.
- Return the waste water hose to its storage compartment by pushing the green hose back onto the reel.
- Add about $\frac{1}{2}$ gallon of fresh water to the black tank. While you're doing this, add a packet of black holding tank chemicals to the tank.

 Do not toss the packet into the toilet, even if it claims to be `dissolvable`. It may not be dissolvable enough for the macerator. Tear open the packet and pour the contents into the black tank, and dispose of the packet in the trash. The contents of the powder packets can be irritating to your eyes and nose, so hold the packet low to the bowl and try to pour directly into the tank.

 The waste water discharge pump will be damaged if allowed to operate dry for any length of time. Turn off the pump as soon as the solid stream of liquid begins to sputter, and the pump's sound changes.

Jammed waste water pump



Sprinter macerator manual crank knob



Chevy macerator manual crank knob

If the waste water discharge pump stops while you are pushing the button, it's jammed. Something has gotten caught up in the blades. Release the button to stop the pump.

- Locate the manual waste water pump knob.
- Push in on the knob and turn clockwise; you will feel the knob engage the pump shaft.
- Turn the knob first in one direction and then the other to loosen the obstruction.
- Once the obstruction is loose, continue dumping.

HOWTO: Cable and TV Reception

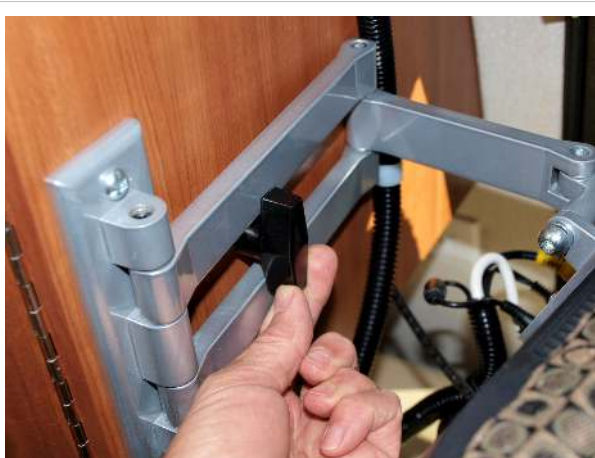
Your Roadtrek comes with a home theatre system. This consists of a TV, a DVD player, the speaker system and the radio in the dash, along with a rooftop TV antenna and a cable TV connection.

The TV and home theatre system are located in the rear on the passenger side. The Cable TV/Antenna switch and power injector for the built-in antenna are in the cabinet just above the DVD player.

The TV and the home theatre system must be on to use the system. Both the television and the DVD player use 120 volt current, so the inverter, generator, or shore power must be used. Refer to the Electrical System for instructions on 120 volt AC power.

The TV and DVD are supplied with remote controls.

The home theatre system has inputs for media devices. Read the Owner's manual for full details.



TV Bracket release



DVD player

The TV is stowed against the wall on a hinged bracket. The bracket is secured with a large thumbscrew. Turn the thumbscrew horizontally to release the bracket and vertically to secure the bracket to the wall.

Once released, you can swing the TV to a comfortable viewing position.



Always stow the TV with the bracket secured to the wall for travel.



TV antenna switch and power injector



Rear speaker switch

Over-the-air TV

To watch TV using the Roadtrek rooftop antenna:

- Have 120 volt AC power available (inverter on OR shore power plugged in OR generator running)
- Turn on TV and home theatre system
- Make sure the power injector is on (the barrel connector is plugged into the top of the injector)
- Set the speaker selector to "SURROUND"
- Set the antenna/cable TV switch to Antenna

DVD

To watch a DVD:

- Have 120 volt AC power available (inverter on OR shore power plugged in OR generator running)
- Turn on TV and home theatre system
- Set the speaker selector to "SURROUND"

Cable TV

To connect your Roadtrek to cable TV at a campsite or even in your driveway, first locate the Roadtrek's cable TV connection inside the rearmost driver's side compartment, behind the rear wheel. It has a square gray plastic cover about 3 cm on each side which is hinged at the top, and opens to expose the barrel connector the cable hooks to.

You need a length of coaxial TV cable to reach from the cable TV outlet to your Roadtrek's connection point. These are sold in electronic supply and camping supply stores and come in lengths of 25, 50, and 100 feet. The cable is typically sold as RG-59U or RG-6 with F-type connectors. The RG-6 is preferable but either will work.



TV cable connected



Push the small button
to select Antenna or
Cable

Screw the cable onto the barrel connectors at each end. If you route it through the "mousehole" in the bottom right side of the compartment floor, you can close the compartment door without crimping the wire.

Push the bottom button on the A-B switch in the cabinet above the TV. The bottom button connects your TV to the cable connection, and the top button connects it to the over-the-air signals from your rooftop antenna.

Speaker Switch

The speaker switch is located in the same cabinet as the Cable/Antenna switch. You can select Surround, Off, or Automotive.

In the Surround position, the rear speakers (the speakers above the bed) will work with the TV/home theatre system. In the Off position the speakers are off. In the Automotive position, the speakers are connected to the dash radio.



Rear speaker switch

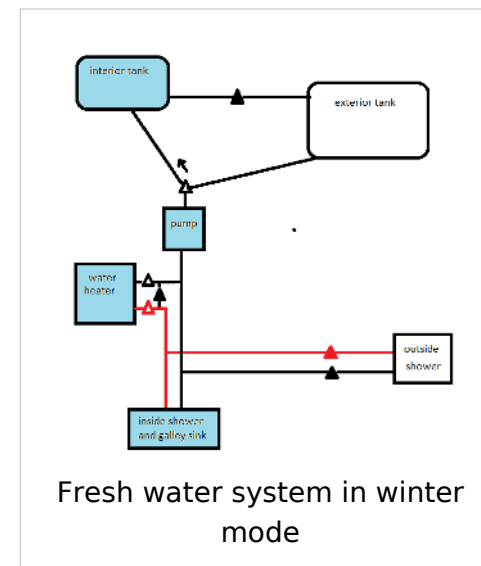
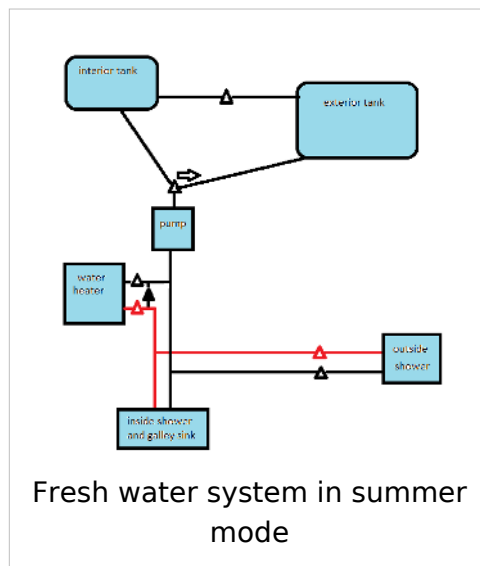
HOWTO: Propane System

1. REDIRECT HOWTO: Propane System/All

HOWTO: Summer and Winter Mode

Summer and Winter Mode

The 190 and 210 Popular models have the capability to operate in mildly sub-freezing conditions, provided the water system is properly configured. To better understand this it is best to know how the plumbing is configured. The diagrams below show how water is supplied in each mode. Solid triangles are closed valves; hollow triangles are open valves.

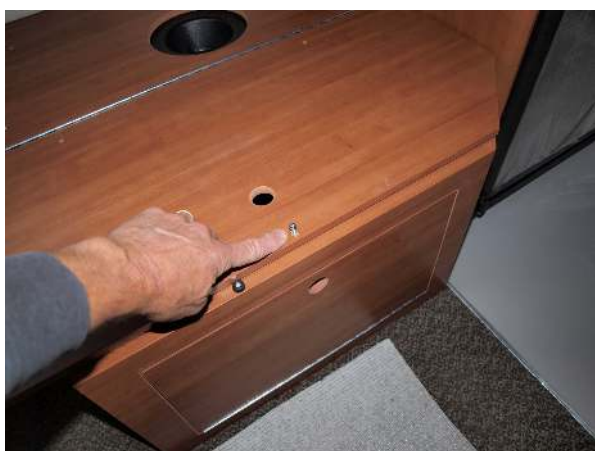


In summer mode, both fresh water tanks are in use. The interior tank is inside the vehicle and is filled via the gravity fill in the back door frame, and the exterior tank is below the vehicle, and filled via the gravity fill in the driver's door post. The water line between the two is open, so water flows from the higher interior tank to the lower exterior tank as the water pump draws water from the exterior tank.

In winter mode, the line between the two tanks is closed, and the exterior tank is drained to prevent it from freezing. The outside shower water lines are closed and drained to prevent them from freezing, and the water pump draws water from the interior tank, which is protected from freezing by cabin heat. The hot water heater will also not freeze if left running. In this way, hot and cold running water continues to be supplied to the galley sink, toilet, and shower.

⚠ "Winter mode" and "winterized" are two different things. Winter mode protects the water in the system from mildly sub-freezing conditions as long as the Roadtrek is adequately heated and in use. If you plan extended stays in sub-freezing conditions or if you store your vehicle in freezing conditions, you must winterize to avoid damage to the water system. To prepare your vehicle for really cold weather, see HOWTO: Water System Winterizing

- Open the lid on the side bench enclosure by removing the side bench's cushion and table to expose the hinged lid. Undo the Robertson head screw to raise the lid. Once you know where these valves are you can just open the access door on the front, but it's best to unscrew the top to give you a full view if you're not familiar with these controls.



Screw to open water valve enclosure



Lid raised to expose valves and water pump

Switching from Summer to Winter Mode

- Open the enclosure under the driver's side bench just to the left of the refrigerator, and close the tank isolator valve connecting the two fresh water tanks by turning the black plastic handle so that the handle is across (perpendicular to) the water line, pointing toward the rear of the vehicle.
- Drain the exterior tank by opening the valve under the driver's door step. The valve is open when the black plastic handle is aligned with the water line. It may take several minutes for the water to drain out.



Tank isolator valve in closed position (black plastic handle pointed toward the back of the vehicle). This valve is located inside the enclosure, under the driver's side bench.



Exterior tank drain, located under the driver's door step. To open the valve and drain the tank, turn the handle so that it points along the water line.

- Run the water pump briefly to drain water from the water line to the exterior tank, then switch the tank selector valve from the exterior to the interior tank.

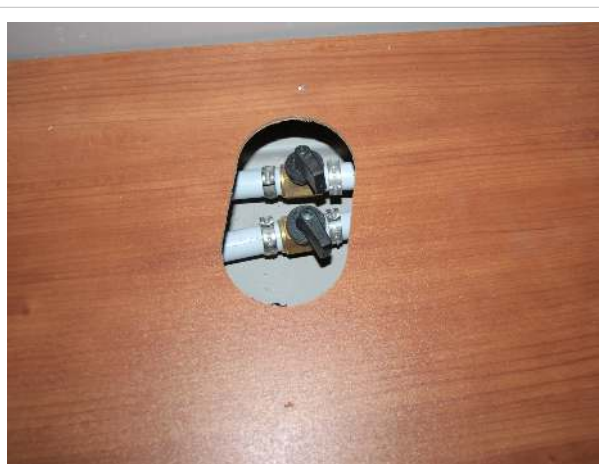


Tank selector valve in exterior tank position (colored plastic handle pointed toward driver's side of Roadtrek). Tank isolator valve is open, allowing water to drain from interior tank to exterior tank.



Tank selector valve in interior tank position, with the colored plastic handle pointed up. Tank isolator valve is closed, preventing water from flowing into the exterior tank.

- Close the two shutoff valves going to the outside shower faucet. These valves are visible through an access hole in the enclosure floor just to the rear of the other valves. To shut these valves, turn them so that the black plastic handles are across the water line.



Outside shower valves, shown closed



Outside shower valves, shown open

- Open the outside shower faucets to drain the water from the lines. There will be no water pressure; just let the small amount of water remaining in the lines dribble out. Leave these faucets open.

In winter mode, remember that you need to keep the interior temperature at least 60 degrees F (15 C) by running the propane furnace or heat pump, and keep the water heater running. Also remember that the waste water tanks are not protected from freezing. If you use them, mix pink RV antifreeze with whatever you put down the drain 50/50. If you do not use them, drain and winterize the waste water system.

Switching from Winter to Summer Mode

- Check to be sure the exterior tank drain valve under the driver's door step is closed, and fill the exterior tank using the gravity fill on the driver's door post.
- Open the tank isolator valve to connect the two tanks. In winter mode the handle is across the line - turn it so that the handle points along the line.



Tank isolator valve in open position (black plastic handle pointed along line). This valve is located inside the water control enclosure under the driver's side bench to the left of the refrigerator.

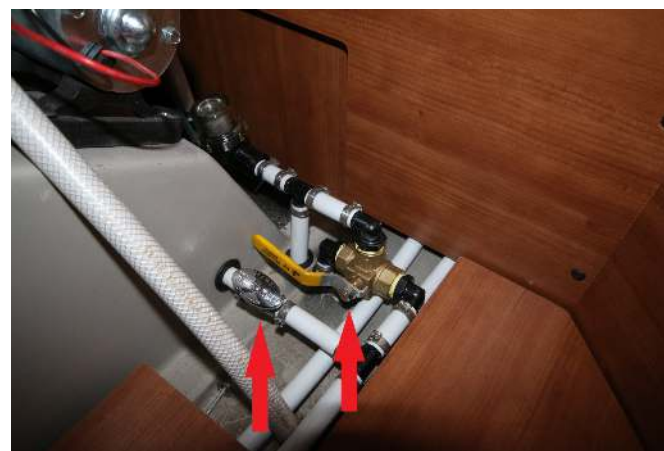


Exterior tank drain, located under the driver's door step. To open the valve and drain the tank, turn the handle so that it points along the water line.

- Switch the tank selector valve from the interior to the exterior tank by moving it from the vertical position to a horizontal one pointing toward the driver's side of the vehicle.



Tank selector valve on the left in closed or interior position. Tank selector valve on the right in interior tank position, with the colored plastic handle pointed up.



Tank isolator valve on the left in open or exterior position. Tank selector valve on the right in exterior tank position (colored plastic handle pointed to the driver's side of the Roadtrek).

- Open the two shutoff valves going to the outside shower by placing the handles parallel to the water lines, and close the outside shower faucet after running water through them briefly to flush air and any contaminants.



Outside shower valves, shown closed



Outside shower valves, shown open

HOWTO: Water System Winterizing

Do you really need to winterize?



If your Roadtrek is going to remain heated to comfortable temperatures, and the temperatures during the day are well above freezing (above 40 deg. F or above 4 deg. C) and the forecast is for temperatures just below freezing for a few hours at night with calm winds, then you don't need to winterize. The heat in your Roadtrek is enough to keep the lines from freezing.



If the forecast is for extended cold periods, with daytime temperatures at or below freezing, if you're not heating your Roadtrek, or if you expect sustained winds and the roads and ground is already frozen, you need to winterize.



As always, you are final judge and you need to do what is comfortable and makes you feel good. If you are not comfortable with leaving water in your lines when it gets cold, and you will sleep better, go ahead and winterize.

How to winterize using anti-freeze



Typical non-toxic RV antifreeze



Water valves enclosure

This procedure can be done in less an hour with only one specialized tool, a 1-1/16 inch (27 mm) socket and a ratchet or breaker bar.

- Get 2-3 gallons of RV antifreeze.



DO NOT use automotive antifreeze. It is toxic. RV antifreeze is non-toxic and safe for potable water lines.

- Dump and rinse the gray and black tanks if they are not already empty.
- Turn off the water pump and open your single lever galley faucet, putting it in the middle halfway between the hot and cold settings.



Location of the tank isolator valve shown in the open (i.e. tanks connected) position; note valve is in-line with pipe



Freshwater tank drain valve, shown closed

- Drain the fresh water tanks by opening the black tank isolator valve on the water line connecting the two fresh water tanks (in the water valve enclosure under the diver's side bench, on the floor), and opening the drain for the exterior tank under the driver's door. Let this drain for at least 30 minutes. Close the valve between the tanks and the drain for the exterior tank.



Tank selector lever in the interior (vertical) position



Tank selector lever in the exterior (horizontal) position

- Switch the plastic covered tank selector lever to the interior tank position (handle vertical), and turn the water pump back on. Put the galley faucet in the cold position, and open it. If the interior tank is empty, the open galley sink faucet should sputter. If it emits a steady stream of water, the tank is not empty. You will need to run the water until it is empty, either catching it in a container and throwing it outside, or running it down the sink and re-dumping the gray water tank. Do so if necessary, and then turn the water pump off. Return the galley sink lever to its open position halfway between hot and cold.



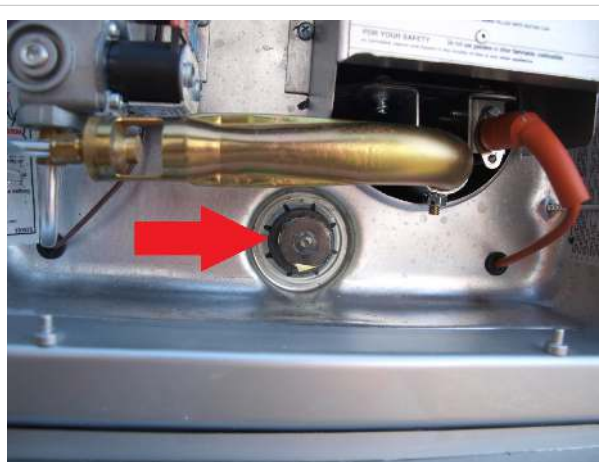
Water heater cover removal (turn tab vertically to remove cover)



Water heater pressure relief valve

- Make sure the water heater is turned off on the monitor panel switch. Go outside and take the cover off the water heater. Pop open the pressure relief valve at the top of the water heater. A small amount of water might flow out.

✗ If water is gushing out continuously, STOP! Go back to the beginning of this guide. DO NOT remove the anode rod until you figure out what's going on. You either left the water pump on, or you are hooked up to city water.



Water Heater Anode



Water heater anode with some corrosion, but probably cleanable and usable for another year.

- Drain the water heater by removing the anode rod. You will need a 1-1/16" socket and a ratchet or breaker bar.

⚠ This is a good time to rinse out the water heater and inspect the anode rod. If the anode rod looks spongy or all that is left is a rusty iron rod, throw it away and buy and install a new anode rod. Use teflon tape on the threads to reinstall the anode rod. Do not overtighten.



Water heater bypass valves in the unwinterized, normal position



Water heater bypass valves in the bypass position

- The water heater bypass valves are in the cabinet under the sink, on the left wall. Set the valves to the by-pass position (see photo). The “middle valve” (the one on the horizontal water line connecting the two vertical lines) should be turned in line with the tubing. All handles should have been pointing vertically in the normal, summer use position. Turn each handle 90 degrees to a horizontal position to achieve the bypass position.
- Check to be sure that the fresh water drain on the exterior tank and the black and gray tank valves are all closed. Move the single lever galley faucet all the way to the cold side, and leave it open.
- Add 1 1/2 gallons of non-toxic RV approved antifreeze to the interior tank, and 1/2 gallon to the exterior tank through the gravity fill. Use a funnel and wash any spillage off the paint. Put the tank selector switch in the exterior tank position (handle horizontal, pointed toward driver's side of vehicle).
- Turn the water pump on and allow to prime. Close cold galley sink faucet once you see pink antifreeze coming out. Switch the plastic covered tank selector handle to the interior tank position.
- Move the single lever galley faucet to the hot side, and run until you see pink antifreeze come out. Open both hot and cold faucets in the bathroom sink. Open the toilet valve. Open the hot and cold faucets on the outside shower. Leave the outside shower valves open, or open them if you were in winter mode. Observe the antifreeze flow through all fixtures, then close each fixture. Ensure antifreeze flows into all P-traps (galley sink, washroom sink, and shower). You may also consider adding antifreeze from the extra gallon in the container jug to the shower floor-pan trap.



Valves for outside shower lines, shown open



Valves for outside shower lines, shown closed

- If the water pump loses its prime in this process, add more antifreeze to the interior fresh water tank.
- Open the grey and black waste tank valves, and operate the waste water discharge pump for about 10 seconds. You should see pink antifreeze coming out of the waste water discharge hose.



City water connection valve, shown closed



Water pump filter, inside water heater enclosure

- Turn the city water connection valve on. The water pump will operate. Allow it to run about 20 seconds. Turn city water connection valve off.
- Turn the water pump off and open a galley sink faucet to release back pressure.
- Open the valve on the water line connecting the two fresh water tanks (in the water heater compartment on the floor, left side, at the base of the large speaker) to allow the remaining antifreeze in the interior tank to drain into the exterior tank.
- Open the fresh tank drain line briefly until antifreeze flows out.
- Remove water pump filter if so equipped. Replace water pump filter lid.

Winterizing using compressed air

Roadtrek recommends against using compressed air for winterizing.

Other methods of winterizing

Roadtrek only recommends the winterizing method outlined above using RV antifreeze.

HOWTO: De-Winterizing

If you winterized only for a short time (less than a week) you can skip to the second step.

First step

You will need 4 gallons of water and 2 cups of fresh bleach. (Bleach loses its potency over time; always start with bleach that is less than 6 months old.)

1. Close the connecting valve between interior and exterior tanks. This valve is located under the drivers side bench seat inside the water valve enclosure.



Valve connecting the interior and exterior tank, shown closed



Exterior tank drain, under driver's door step

1. Mix up two gallons of water and one cup of chlorine bleach. Add to the interior tank fresh water fill on the right rear door doorpost.
2. Mix up two gallons of water and one cup of chlorine bleach. Add to the exterior fresh water fill, the one on the driver's doorpost. You now have a chlorine mixture in both water tanks.

3. This is a good time to get some stuff for spring cleaning of your Roadtrek, so drive around for an hour. Let it sit for a couple more hours.
4. Open the connecting valve to the exterior tank and let mixture drain into that tank.
5. Open the exterior tank drain valve and drain both tanks. This can take an hour or so. You can speed up the process by putting the tank selector valve on the interior tank, turning the water pump on, and opening the outside shower faucet until no more water comes out. Close the faucet and turn the water pump off.

This kills any bacteria in the tanks before you distribute them through the entire water system.

Second step

You will need a good supply of fresh water and a cup of chlorine bleach.

- Close the connecting valve.
- Fill the exterior fresh water tank approximately 1/2 full, adding a cup of chlorine bleach halfway through the filling process.



Filling the exterior tank



Tank isolation valve on the left in open or connected position; tank selection valve on the right in exterior tank position

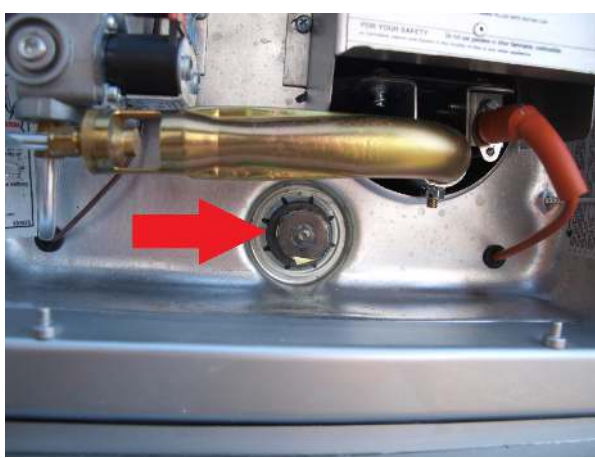


City water valve in closed position

- Put the plastic covered tank selector handle in the exterior tank position (pointed toward the driver's side of the vehicle). Turn on the water pump, and circulate the dilute bleach solution through the entire system. The water heater is still

winterized. Run water out of all three faucets (galley, washroom, and outside shower), hot and cold, until you smell chlorine. With the water pump on, open the city water valve and let the pump push water through the fill line for a minute or so. Close the city water valve.

- Pull the anode rod out of the water heater and flush out the water heater tank with a hose. Install the new anode rod using Teflon tape on the threads, and close the pressure relief valve. Take the system out of water heater bypass mode by turning the three valves on the lines in front of the water heater so that the handles all point vertically.



Anode rod location



Water heater bypass valves in normal position - all handles vertical

- Open the galley sink, move the handle in the hot water direction, and run the water pump until water flows from hot water tap at sink and you smell chlorine. The water heater holds six gallons, so it will take a while for it to fill up.
- Allow the system to sit overnight.
- Drain both tanks completely, fill both fresh water tanks with clean water, and run all faucets for 2-3 minutes each. To help get rid of the residual chlorine smell, pour a half cup of vinegar into each tank, fill, let sit for a few hours, drain, and refill with fresh water.