

Camping Tips Presentation from the Endurance Clinic March 19, 71L Ranch, Cat Springs, Texas

By Carol Grosvenor

This is an update of the 2016 clinic notes with additions relating to electric power.

Introduction:

I have been a camper most of my life, and a horse camper about 25 years, starting with a tiny two-horse bumper pull and a Jeep, so I have used most types of camping equipment over the years. Recently, I have revamping my living quarters trailer and have found a number of items that make camping much easier. This presentation is geared to the beginning horse camper who is probably pulling a 2-horse bumper pull, and needs to get started without breaking the bank, but still be able to be comfortable enough to compete in the coming winter months. I have also added some other items that you might want to get later. Many of these products can be purchased anywhere, but some have to be bought online because they aren't readily available in stores or are cheaper online.

When you buy this stuff, think about how big it is and what it weighs. Try to get the lightest, smallest product that will work for you. The cot and sleeping bag is the only exception.

The Essentials for you:

An LED headlamp, the brighter, the better. This is the one I showed you.

[Energizer Vision LED Headlamp](#) (\$15, Academy)



The **Mr. Buddy Heater**, a small propane heater available at Home Depot and Tractor Supply. These come in different sizes, but you don't need a large one. These can be used with propane canisters or a 20 lb. refillable tank mounted on the tongue of your trailer. The canisters last only 6 hours on the low setting, so you will need to plan for at least 2 or 3 a day. Most places sell these for about \$80. Mine was attached to an exterior propane tank. They are the go-to camping heater for RV boondockers.

Lowest price (\$72)

[Mr. Heater Buddy Portable Propane Heater w/Fuel Filter](#)

A folding cot with a mattress or foam pad. This is a very important purchase! The military cots are narrow and not very comfortable. These two have a little foam mattress and look fairly comfortable. You won't ride well if you don't sleep well.

[LL Bean, Compact Swedish Folding Cot \(\\$100\)](#)

[Academy, Coleman Comfortsmart Delux Cot, \\$90](#)

A small, folding camping table to put by the bed. Walmart sells the aluminum ones like I had in the dome, but Camping World and Wal Mart both sell a similar one in plastic.

These can be purchased in plastic for about half the cost. Walmart, Container Store and Target all sell storage bins that may work for tables and dressers. See the bumper pull set up photos for ideas.

[TravelChair Side Canyon Aluminum Folding Camp Table](#)

A folding camping table if you plan to cook outside. I prefer aluminum since they are lighter weight. Academy and Camping World sell these, but not exactly like the lightweight model below.

Amazon:

[Wenzel aluminum camp table \(folds in half\) \\$48](#)





A propane camping stove and camping coffee pot if you plan to cook anything. Academy has these. The one I got has a grill on one side, which has been worth the extra cost if you grill meat. **The plain stove, without the grill, is about \$40.** They use propane canisters. [Amazon, Coleman Camp Propane Grill/Stove \\$78.66](#)

[Amazon, \\$12, Stansport Camper's Cook Ware 277 \(9 cup aluminum coffee pot\)](#)

A lightweight camping chair, available everywhere.

One or two coolers.

There are many options available in a wide price range, with Yeti coolers being the top, and most expensive brand, and they don't have wheels on them. Keep the cooler in the shade, under the truck or in the trailer. Don't leave it in the truck if the weather is warm. Check reviews before buying.

I have a large Igloo cooler, purchased at Academy. It lasts 5 days under 90 degrees, about 2 or 3 at 100 degrees. Use 40 pounds of ice or freeze milk jugs or blocks. [Igloo Glide Pro Cooler \(110 Quart\), \\$90, Amazon](#)

I also have three smaller, similar Igloo coolers, which I use in cooler weather. They are easier to handle, but they won't keep food cold as long.

A DC (direct current, battery-operated lamp or lantern) or more than one. Some of these can be charged with a USB charging port, allowing you to easily recharge it in your truck.



[Battery powered LED lamps and lanterns, Amazon](#)

The one I used in the dome was a Suboos. It is charged with a USB charger, \$19 Amazon, shown on left.

[Suboos Camp lantern, \\$19 Amazon](#)

A friend recommended a collapsible, lightweight solar lantern that can also be charged with a USB charger. [LuminAid PackLite USB Solar Lantern, \\$20, Amazon](#)



A sleeping bag rated to at least 0 degrees F. The rating means you won't freeze to death at that temperature, but it doesn't mean you will be warm, so go warmer. Our coldest rides in Texas are about 25 degrees F. Get the warmest one you can afford, as well as a liner. If you don't like sleeping bags, then a down comforter and wool or polar fleece blankets will work, or you can use all of them together. Consider wearing a ski cap on your head and gloves if it is really cold. Wrap your blanket underneath the mattress for extra insulation. Some people also opt for flannel or fleece sheets.

I haven't used this particular bag, but have used one similar to it. They are bulky, but warm. Since, we don't backpack, it should work well at ridecamp. My 32 degrees-rated backpacking mummy bag was terrible. [Teton Sports Celsius XL- -32C/-25F Sleeping bag, \\$78, Amazon](#)

A porta-potty. This can be as simple as a bucket with a toilet seat and kitty litter or an RV porta-potty that uses the same type of **chemicals as an RV toilet.** You'll also need the **RV toilet paper for those.**

You can get all this at Wal-Mart in the RV section. Walmart sells one for about \$70.

Many options, but this one is a best seller.

[Camco, 41541, \\$67, Amazon Camco, 41541, \\$67, Amazon](#)

Some type of storage system for your clothes, food and vet supplies. Check out lightweight plastic stacking drawers at WalMart or Target (see photo above). It is easier to find your clothes and stuff if it is not in a dark suitcase. Remember, you will be dressing and undressing in the dark. You may want to get some extra portable hooks. You can also use freezer baggies to prepack your socks, underwear, t-shirts and riding pants so that you just pull out a bag for the day.

Baby Wipes on the roll. When you don't have access to much running water, you can clean up easily with baby wipes. Pick these up at the grocery store.



Bottled water with a spigot can be mounted above a bowl to serve as a makeshift sink.

Water jugs for inside the trailer and hauling horse water.

[Coleman 5 gallon water carrier, \\$16, Amazon](#)

Collapsible garden wagon

These collapsible cloth wagons are handy for carrying muck buckets, water jugs, feeds and tack and supplies to the hold areas on rides where it is too far to go back to the trailer.

These are available in many places, but Academy shows the lowest price.

[Folding sports wagon with removable bed, \\$45, Academy](#)

Food and drink for the human.

Hydration is a big issue, even in cold weather. I recommend some type of personal hydration pack, like a [Camelbak](#). For endurance, you will want the 3-liter size to stay hydrated. Dick's Sporting Goods, Academy and REI are the best places to look. [Outdoor GearLab](#) has a detailed article on various brands and designs. I only use water in my pack, and carry bottled drinks with Electrolytes in my saddlebag, but you can put the electrolyte drink in the pack. Adding ice cubes will keep the water cool all day.

Electrolytes for the human.

Gatorade G 2 has 30 calories per bottle and isn't too sweet. Regular Gatorade is too sweet for most people.

[Nunn's](#) are electrolyte hydration tablets that you can add to a water bottle, adding a slight flavor, but no calories. These are available in the lemonade and tea section at HEB, Academy and sports stores. About \$5-6 for 10 tablets. Another recommended option, which includes both Vitamin C and B, is [Emergen-C](#), \$17 for a 60-count box, Amazon (no artificial sweeteners, no caffeine).

Gel packs, used by runners and bikers, like [Gu](#) and [Clif Gel](#), also available [with caffeine](#), are a quick calorie picker-upper. My runner buddy and I like the strawberry Clif and the mocha for the caffeine. They provide immediate electrolytes and carbohydrates, but are easy to digest. These are in the health food section at HEB, near the energy bar section. I like the [Kind bars](#), and suggest packing some energy bars, too, but be careful not to get ones with chocolate in them because they melt and get messy.

Benadryl and a pain reliever such as Aleve. Benadryl can save a life if someone has an allergic reaction on trail. It also doubles as a sleeping pill.

Chocolate milk, made with whole milk, not 2%. This is a great post-ride recovery drink, seriously, due to the combination of both carbohydrates and protein. One bottle is all you need.

Breakfast foods: Peanut butter and jam on bread, banana, yogurt, oatmeal, hard-boiled eggs, cottage cheese, but nothing too heavy.



Basics for the Horse:

The simplest and least expensive set up for the horse is the \$20 rope picket line I showed you. That was done with a 100-foot piece of rope from Tractor Supply (about \$17) and a sliding brass ring clip, about \$4 at Tractor Supply. You will also need old girths, towels or something else to protect the bark on the trees. See photos below.

A **stepladder** will be needed to tie the rope high enough, as well as be get in and out of the truck bed for water, and can double as a mounting block. I use a [2-foot Werner aluminum ladder from Zoror \(\\$32\)](#). It also easily fits in the tack compartment of the trailer.

Chains and clips for your buckets:

You can also use bungee cords, but I like the chains because they can be used at different distances. Get several different ones between 2 and 3 feet long. Tractor Supply will cut the chains for you. The ones I showed you were coated in plastic, so safer for the horses.

[100-foot rope \(Tractor Supply, \\$13\)](#)



A swivel brass clip for each chain, available at Tractor Supply or most feed stores is used to attach the horse's leadrope. I wasn't able to find this on their site, but below is a picture. They are about \$3.50 each. You will need one per horse. The swivel section is loaded onto the rope before you tie the second side to the tree or trailer. To add more than one horse to a long string, put a knot or loop in the rope so that the clip is confined to one section of the rope. You will need to protect the tree's bark with an old girth or towel.



Other options for containment are portable pens, [HiTie \(\\$276 at Valley Vet\)](#) systems and electric fences. [Speedrite Equine, \\$330, Valley Vet.](#)

Water and the electric fence. When you put up an electric fence, you use a grounding rod, which you can buy at a place like Tractor Supply. This is a metal rod that isn't rusted, something conductive works best (steel or copper). Then you will connect the wire from the fence connector to your battery and use a ground wire from the battery to the grounding rod. If the ground is too dry the fence won't have much of a charge, so pour water at the base of the rod, as the water will make it more conductive, with a higher charge on the fence. If the soil is moist, this isn't necessary. Tie something bright, like a rope shown in

photo, on the rod so no one trips on it. Horses need 2000 to 3000 volts on the fence. A voltmeter is shown hanging on the electric tape on the left side of the photo.

5 gallon buckets for water and feed (shown above). I suggest giving each horse **2 water buckets** instead of one. They often need more than one bucket or could spill a bucket or poop in one. You can use a feed tray or bucket for your grain. Hay can be given on the ground or from a haynet, but if you use a haynet, it needs to be tied high enough that the horse can't get his feet in it. If picketing, tie the bucket tightly to the base of the tree with the chain.

Water jugs. Buy one or two 5-gallon water jugs to use for toting water from your truck to your horse's pen. It is much easier to tote it in a jug with a lid than a sloshing bucket of water.

[Coleman 5 gallon water carrier, \\$16, Amazon](#)

A **muck bucket** with rope handles for either water, feed or muck.

Garbage or contractor's bags for muck if it has to be hauled out.

Garbage pail with lid.

Small bucket. One small bucket, 2.5 gallon, is convenient for feeding grain and refilling your water buckets, since it is lightweight.

A cooler, a rump rug, and or a blanket.

Many people use all of these. Use as needed, but after a ride, the horse may be colder than he normally would be. At winter rides, you may need one to keep the horse warm during the holds. The cooler I showed you was cotton and purchased from Dover Saddlery. Todd showed you his fleece one, much like the one below. The Weatherbeeta is a good, rather inexpensive, water repellent and durable turnout rug.

[Fleece cooler from Stateline Tack \\$33](#)

[Weatherbeeta turnout blanket, about \\$100, Smartpak](#)

Cantle or Pommel Bag

You may want to be able to carry some of the following with you: snacks, water, basic first aid supplies, a hoof pick, a knife, a leadrope, extra set of reins, an extra boot, your phone, and your vet card. In endurance, large hanging saddlebags over the flanks can cause kidney damage, so all packs need to be on the saddle or on your back. [Distance Depot](#) carries this type of tack for English, endurance and western saddles. [Pommel bags](#) and [cantle bags](#). These are \$57 each.

Distance Depot carries all kinds of tack specific to endurance, including combination halter/bridles, biothane tack, endurance saddles, etc.

Packing the feed:

I pack my feed, including the additives, in prepackaged [paper lunch sacks](#); from HEB in the Ziploc bag section. I tape them shut with masking or painter's tape. On the bag, write the horse's name, the date it was packed, AM or PM, and it can also say the day of the week to be used. This makes it quick and easy for someone else to feed for you, or you to feed multiple horses. You won't be mixing supplements in the dark—you just tear open the bag and feed it. Paper works better than plastic because sometimes the horses try to tear into the bag. It won't hurt them if they eat a little paper. Bring along some extra feed bags and extra feed in case you are delayed returning home.



Hay and Grain:

Everyone uses different supplements and feeds differently, but discuss that with your vet or a nutritional expert, like [Jennifer Masters](#), the TERA V-P and feed store owner/nutritionist. Bring a bit of extra hay. One or one and a half bales should suffice for a weekend ride.

Electrolytes for the horse. Generally on the rides people use the tubed electrolytes because they are easy to carry and require no mixing. If you mix your own, you'll need applesauce or molasses to add to the syringe, along with the electrolyte powder and a few drops of water. [Distance Depot offers many products for both the horse and human.](#)

Folding saddle rack. This isn't a must have, but it can be very nice to have at the hold, if you want to take off your horse's saddle. [Single saddle folding western saddle rack \\$23, Valley Vet](#)

Sponge for horse. The sponges are usually tied by a rope and weighted clip to the saddle and dipped in creeks or water. [Distance Depot sells different options,](#) (\$15 to \$45) or you can make your own with a sponge, clips and a leash for much less.

Vet kit. The Horse Forum offers a great list on items for your kit. I showed you mine, but didn't go into detail.

Ice boots are nice for injuries or after a long ride, if you have access to a freezer. If not, and you want to wrap your horse's legs after the ride, the cotton bandages and polo wraps below work well.

Leg bandages and polo wraps (\$15). My daughter, an equine vet, doesn't think the heaviest padded wraps work best. She prefers we use [lighter weight ones, like these-- \\$18 from horse.com.](#) You will also need a set of polo wraps. These can be used after a ride to give the horse some support, while trailering, and on top of a wound bandage.



Equine first aid manual. [Dr. Kellon's Guide to First Aid for Horses](#) is highly rated.

Stethoscope. These can be purchased very cheaply, but they aren't very good, and they are uncomfortable. The [Littmann \(\\$65, Medisave.net\)](#) is recommended for being a good, but relatively inexpensive stethoscope.

Lunge line and whip. This is particularly important for greener horses. You may need to calm down and help center your horse before the ride.

Water tank for your horse. At most rides, you will need to haul your own water. I have a 65-gallon tank in the back of my truck, but a lower profile tank would be easier to see over when hooking up the truck. You may need to buy a **spigot** for your water tank (see the one in the photo in front of the tank). If so, buy a metal one instead of plastic, because those break. **Tractor Supply** sells the tanks and faucets. Get a **short hose**, 6 to 10 feet, so that it will work better, and open the tank's lid when you turn on the faucet, otherwise it creates a vacuum and the water won't flow. We use an old stall guard to keep it in place in the truck bed. [55-gallon low profile water tank, \\$130 from Tanks for Less](#)

Breakaway halter, if haltered while penned up. These halters have a thin leather strip on the halter that is designed to break in case the horse gets it caught on something. If you leave a halter on while your horse is in penned up in the event that he escapes somehow, this should keep him from getting hurt.

Rope halter worn under bridle or **combination halter/bridle.** Don't leave a rope halter on when horse is in a pen or unattended. The rope halter or combination halter/bridle gives you quick access to a halter when and if you need to get off and lead your horse, or at the vet checks.

Setting up your trailer or tent

Tent or trailer?

(Bumper pull on right, truck tent next page)





I haven't camped at an endurance ride in a tent, but I have tent camped in winter, down to about 25 degrees. In a tent, you can't safely use a heater; so if you go that route, get that serious winter sleeping bag, down comforter, sleep in a ski cap, gloves and warm clothes like sweats. Some people sleep with their dogs; use a hot water bottle and/or hand and foot warmers. If you can stay warm enough, your riding won't be affected. Tents are warmer than horse trailers, but not very

comfortable if it rains. Tents on the ground are not recommended for safety reasons. If the horses were to get loose and stampede, you could get trampled. A truck tent is safer. These come in different sizes for different size trucks. You can also buy an air mattress that fits inside it. Takes two people to set up. Shown on left: [Napier Backroadz Truck Tent #13044](#), \$130. Pricier ones have an awning.

Being comfy in your trailer

If you sleep in an uninsulated horse trailer, use the Mr. Buddy heater, but make sure you have some windows or slats open. Some trailers will already be designed to add Plexiglas window slats. If not, you can order from a glass or plastics shop. In Austin, [Austin Plastics and Supply](#) is such a supplier. Some people wrap the windows in plastic, or use shower curtains to block the wind. Magnets can be used on metal trailers to hold down tarps. Trailers can leak from condensation or rain, so you'll want to do a rain test with a hose before you sleep in it. If you find leaks, repair them before you go. There will be some condensation, though. Trailer shown is a 3-horse aluminum bumper-pull with queen-size air mattress bed. Behind the curtain is a porta-potty and dresser.

Sweep it out, put down a carpet (shown above), tarp or [RV camp mat](#) on your floor to make it a little cleaner and for some insulation. The Mr. Buddy is extremely warm, even on the low setting, so if you close up most of the windows (except for ventilation openings), you should be warm enough. The second trailer owner uses a generator to power her electric heater.

Bumper Pull Camping Setups

Photos courtesy of Facebook group [Horse Trailer Conversion II](#) page. Those people have great ideas and tips on trailer conversions and camping.





More Luxury & 12 volt power

Deep Cycle Marine Batteries for more luxury

You can install two 6-volt golf cart or deep cycle batteries, or one 12-volt deep cycle battery. Deep cycle means it can be charged many more times than a car battery and it can be further discharged without as much damage. A 12-volt system can power a 12-volt water pump, LED lights, small DC fans, an electric jack, an awning, run a 12-volt bunk warmer, charge your phone, and USB devices as well as run a small inverter. *All batteries are not created equal!* A truck (quick-starting engine battery) is NOT what you need. High quality deep cell batteries should last many years. Most likely, for a bumper pull, you will use one 12-volt marine battery mounted on the tongue of the trailer inside a battery box. These batteries can't be safely used inside the trailer because they emit toxic gas, so they need to be outside.

Best options on batteries are the **Trojan T105 (6 volt), Interstate and US Batteries**. The price difference is amp hours, abbreviated as AH, or noted as reserve capacity (RC). If amp hours are not on the label, consult the distributor. If using two batteries in combination, they need to be exactly the same type, the

same age, and purchased at the same time. Batteries must be charged often so they don't lose their charge, as that will shorten their lifespan.

The higher the amp hour rating, the longer they can run without recharging, with higher storage batteries being more expensive. These can also be used with solar installations, and are not the same as starter batteries for your car, or the cheaper, hybrid marine batteries sold at places like Walmart. Don't buy those. They are cheaper, but they won't last as long.

The best place in Austin to get advice on batteries is from **Austin's Battery Giant Store**. The owner is Larry Metzger, a retired electrical engineer. He will sell you exactly what you need, not more or less, and he'll explain it all to you. However, the shop is small and in the back of a crowded shopping center, so don't bring your trailer. Measure the space available before you buy your battery. Battery boxes (usually made of black plastic), come in different sizes and can be ordered online, but all these batteries are slightly different sizes. Unless you are doing a solar system and need more storage, you'll probably need one or two 12-volt batteries. If you are running an electric awning or electric/hydraulic jack, you may want more than one.

Address: 500 E Ben White Blvd Ste D800, Austin, TX 78704. Phone number (512) 291-3358.

<http://www.batterygiant.com/6-Volt-Golf-Cart-Batteries>

[Austin Battery Giant Store.](#)

Read more on batteries before you buy: <https://www.solar-electric.com/deep-cycle-battery-faq.html>

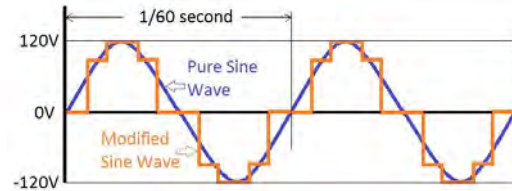
New information 2018

In my first presentation, I didn't say much about electricity and generators, but I see that people have questions about these. If you buy or redo your trailer to turn it into a living quarters trailer, you need to understand some basic things about batteries, generators, inverters, converters and sine waves. Please research any of these buys carefully. Buying a cheap generator, for example, can fry your electronic equipment.

Sine Waves

There are three types of sign waves that an inverter can use. The cleanest and best one is the **Pure Sine Wave** (PSW). This is equivalent to standard AC power and is best to get if you run any type of electronic equipment. These are the most expensive, but you won't have to replace equipment because you used the wrong inverter. The next is a **Modified Sine Wave** (MSW), and is not as a rougher sine wave. It will be ok for lights and fans.

The last is the **Square Sine Wave** (SSW), which will be the roughest. So, pay attention to this when you buy one of these devices. You will see these initials on the labeling. [Read more.](#)



The difference between AC and DC power

Direct Current

DC (direct current), invented by Thomas Edison, can only go one direction, and it can't travel very far. DC power is great for charging your cell phone and running your laptop or something with a microprocessor in it. DC power is stored in your batteries, and it will power the items in your rig that don't involve heating and cooling. That would be: lights, fans, pumps, hydraulic and electric jacks, and awnings. It is possible to power refrigerators and heaters with DC power (from your batteries) converted to AC, but it requires so much power, that it isn't practical for a horse trailer unless it's a tiny refrigerator. You would need more batteries and panels than there is room for on a trailer, not to mention the weight of the batteries. My system with 4 6-volt batteries is about as big as a horse trailer solar system can be.

You will see **DC coolers** on the market, but they are very expensive, and likely require quite a bit of solar power and batteries to run. The pictures are very deceptive, showing one solar panel beside the cooler. If the solar energy has to be used at night or in the rain, it has to be stored in a battery!

Alternating Current

AC (alternating current), invented by Nikola Tesla, can go both directions on the same wire, can travel for many miles, and is much more powerful. It does this by using magnets that produce a sine wave, and

transformers to change the voltage. It is what you have at your house, on a hookup, and is also known as “shore power” in the RV or nautical worlds. It is the power you have to have to power the heavy lifters—air conditioners, some refrigerators, and heaters. AC power is what a standard generator provides. If you use a battery to store the power then it is output as DC power. Most DC power used for RVs is 12-volt, and most AC power is 120 volt.

Generators & Inverter Generators



These terms are used interchangeably, but they are not the same thing. Generators produce a rough sine wave that is ok for non-digital appliances, lamps, and power tools. This rough sine wave will cause items with a micro-processor to overheat, not run, or it may ruin the device. So, if you opt for one of the cheaper, louder generators don't plug in your cell phone, laptop or digital microwave, because you will ruin them. This is a 7500-watt generator (not great for camping- big, loud and heavy, 201 lbs, 7500 watts). I don't recommend these for camping. I had one once, and it was so loud we couldn't hear anything at the campsite.



Inverter Generators

These are more expensive, a newer technology, and they produce a sine wave that is about the same as AC power. They won't ruin your digital equipment, they are lighter weight, quieter, and they produce enough power for your trailer. It takes about 3500 to 4000 watts to run a RV air conditioner, so you should look at getting one in that size range if you plan to run an air conditioner, or two small ones. A small space heater is 1500 watts, so if that is all you need, then 2000 or 2500 watts will be fine. I have recently bought 2 2000-watt Yamaha generators (pictured

below). According to my research, the best three brands are [Onan](#) (about \$3000), which are installed in most RVs and LQs with a factory-installed generator, [Honda](#) (about \$2500 for 2 2000s) and [Yamaha](#) (about \$2300).

Most other brands do not meet the California emissions standards and can't be used there. There is also a rating on the generator (see right image) saying how many hours it can run and still meet the emissions requirement. Yamaha is rated for 500 hours, Honda 250. Most other brands are only rated for 125 hours. I went with Yamaha over Honda because it was slightly less expensive, had a fuel gauge, had the higher emission rating, is slightly quieter, and had a petroleum lock, which allows you to run all the gas out of the carburetor without completely draining the gas tank, which is what causes the problems with these devices. If you decide to get one with an electric start, be sure and keep its battery in good shape by putting it on a trickle charge from a battery charger and starting it up every month. You should do that with all generators to keep them functioning. They require extremely diligent maintenance, oil changes, regular use, and regular servicing. Two small Hondas or Yamahas can be run in parallel with a special cable (shown in picture). That increases the run time, and you can actually lift them, as they weigh about 50 pounds each. Electric start models are much heavier. Onans are 172 pounds.



Sound (Decibels)

Sound is measured in decibels. The small Hondas and Yamahas run at about 51 decibels on low, and 60 decibels on high. The big generators, as shown above, run at 65-75 decibels. The dB-scale is a logarithmic, or relative scale. This means, that as you double the sound pressure (or the energy in the sound) the index increases by approximately 3. A sound level of 100 dB(A) thus contains twice the energy of a sound level of 97 dB(A). So, what looks like a small difference, is actually big. Pay attention to this when you buy one!



Inverters (DC to AC)

An inverter is a device that changes DC power into AC power. They come in all different wattages. I have a small 200 watt one that I use to run the lamp in my trailer, but since it isn't a pure sine wave machine, I don't run a computer off of it. Inverters large enough to run equipment like a microwave will be very heavy, they get hot, and they require an interior space without moisture. You may not have room for a very big one in your trailer. This [400-watt PSW inverter](#) on left (KISAE 400 Watt 12V Pure Sine Inverter SW1204) can power your computer for \$119. This MSW inverter will work fine with an LED lamp or fan. [Bestek](#)

[200W Power Inverter DC 12V to 110 AC inverter, \\$29, Amazon](#)

Converters (AC to DC)

Converters come in many RVs and LQ trailers, and they do the opposite of an inverter. They take AC power (from shore or your generator) and turn it into DC power for your 12-volt devices such as your lights and water pump. These are usually built into a cabinet somewhere in an LQ. Converters are also used in solar systems to convert sunlight to DC power for storage in the batteries. They also control the amount of energy flowing into the batteries so the voltage doesn't get too high.



RV Power Outlets and an Inverter

If you have batteries, you can then add the cigarette lighter with USB ports, called a [RV Wall Mount 12V-VPA \(\\$18 from Amazon\)](#) inside your trailer. This is wired directly from the DC (direct current) from the trailer's battery. I also had a small 200-watt inverter that can be plugged into the cigarette lighter port allowing you to connect a lamp or fan.

One battery is not able to run a refrigerator, microwave, air conditioner or anything requiring heat without solar panels, more batteries, bigger inverters, and is much more complicated and expensive, so the propane stove, heater and coolers are much less expensive to use.

[12-Volt Bunk Warmer \(\\$100 at Iowa80.com\)](#)

If you have a 12-volt marine battery or the 2 6-volt marine batteries with a large number of amp hours, this may be an option to consider. It will need to run off your battery. At 6.2 amps x 8 hours (use time) x 1.56 (Peukert's law battery discharging rate), it would use about 78 amp hours. This means, you would probably be able to get one or two nights use out of it, depending on your available hours, if you were frugal with your battery usage, or charge your battery with a generator if it gets too low.

Approximately 10% Energy Loss in Energy Conversion

As you can see, all these devices change one form of energy into another. Whenever that happens, there is a net loss of energy of about 10%. If you're planning out your energy usage to buy a generator, for example, take that into account. If you can charge your phone off the DC USB outlet on your truck as an example, that will use less energy than if you were to plug your small inverter into the cigarette lighter (your DC outlet), turn it into AC power and plug your phone charger into the inverter's AC outlet. This doesn't matter much for a phone, but it will matter for larger appliances or the whole system.

Schlumberger Portable Power Source

This is a basically a battery that also has a 400-watt inverter built into it. So, it can take the battery's DC power and turn it into AC power. You can use this to charge your phone, run lights, fans, blow up an air mattress, run a computer, possibly power an awning if you run out of power on trailer battery, start a car battery, but probably not a truck. It can be used for a little extra power without doing any additional wiring. Walmart used to sell them, but has discontinued them. The product shown is the closest I could find to the one shown in the second picture in this document. If camping for very long, you would probably need to start up your truck and run it to recharge it. [Schumacher 6 in 1 Jump Starter, \\$140](#)



Battery charger

If you get a marine battery, you will need a [battery charger](#). ([Bigtime Battery, \\$56](#)) A small, portable one is better to carry with you. Some trucks and trailers are wired so that the trailer battery can be charged off the truck, but not all of them. Charge your battery regularly so that it never runs down too far.



Battery Maintenance (volt meters and watering kits)

Batteries are expensive, and they are usually killed because they aren't charged often enough or the water level is too low. Be sure to water the batteries regularly. I bought a battery watering system, which I recommend if your batteries are hard to access. This system allows me to water all 4 batteries in less than a minute. These come in different kits for different types of batteries. Use only distilled water! You can also get a small voltmeter for your batteries. These are inexpensive and work by monitoring fluid levels. A true battery monitor is much more expensive, and is needed for a solar system.

[Multi-volt meter](#), Amazon \$18.75 (many are less)
[Flow-Rite 1 fill battery kit](#) (doesn't include pump) \$40, Amazon
[Flow-Rite 2 fill battery kit](#) (doesn't include pump) \$62, Amazon
[Flow-Rite RV2020 Quik Fill Hand Pump](#) (as shown above) \$27, Amazon



LED light bulbs

You can replace all the light bulbs in your trailer fixtures with LED light bulbs, but these aren't readily available in stores. There will be a number on the existing bulb. Find the replacement LED. Amazon seems to have the best prices, about \$1.80 a light bulb, although the light bulb color can vary wildly. [LED trailer lights](#). The reason for doing this is that LED lights use 1/10th the power of incandescent bulbs. That means you'll have power all weekend, whereas with incandescent bulbs, you could run your battery down and have no lights in very little time.

I don't believe you can replace the bulbs in the existing running lights and brake lights. We replaced the entire fixture, but I may be wrong on that.



Clam Shell, optional outdoor shelter

[Clam Quick-Set Escape 6 Sided Hub Screen Tent](#) (\$228) is the screened shelter. This was the lowest price link I saw for it. You can also purchase sides for the screens to use in rain or cold weather. It really does take about a minute to set it up and take it down, and is much cheaper than an awning. Screen provides bug protection. I don't use this very much, but it is nice if we will be somewhere for several days.

[Aluminum tent stakes for Clam Shell, or tent, \\$9, Amazon \(10 stakes\)](#). The tent stakes that come in the packages easily bend, so you'll want a higher quality tent stake.

[MaxxAir vent cover](#) These little covers can go over fans or vents. You can keep your air vent or fan open and without water leaking in the your trailer if it is raining. Having the vent open can also lower the temperature of the trailer by about 20 degrees in the heat. About \$22.40 - \$25



Miscellaneous Tips:

Bungee cord and tape cheater method for hooking up the gooseneck. A little piece of tape wrapped around the center of the cord hits the gooseneck hitch in the center and helps when backing it up. You can also paint or tape a line down the center of your truck to help line it up.

Lock up your trailer and truck. There is very little theft at rides, but if you're carrying unlocked generators, compressors, spare tires, gas cans and your tack in an unlocked or open truck or trailer, you could get it stolen. I suggest taking the really valuable stuff out of the trailer and truck for day rides in public parks.



Tires. That information was very important! Be sure to check your tires and tire pressure on truck and trailer, take a spare, even two for long trips. Don't use old tires. Use **14 ply radial tires**, and don't drive over 65 mph when hauling. Bring a compressor if you're going a long distance with limited access to help. Have **tire-changing equipment** in your truck.

Toolbox: Even if you have never had one, put together a good toolbox for your truck and take it with you whenever you go. You'll use it constantly! You'll need a hammer, a rubber mallet for an electric fence, wrenches, wire cutters, pliers, screw drivers, a tape measure, scissors, a box cutter, knife, duct tape, wire, extra fuses for your truck and trailer, volt tester, etc.

Nylon Zip Ties. These little things and a **pocketknife** belong in everyone's saddlebag in case you have to repair a piece of tack on the trail. [Walmart](https://www.walmart.com) has them in all sizes; most packages are under \$5.