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Inverter strategy for motorhomes

Refrigerator

A motorhome with an inverter can have up to three potential power sources for its refrigerator. When you are hooked to campground power it is powered by a 120 volt external electric source. It may also be powered by propane gas or by the house batteries through the inverter that converts battery power to 120 volts.

When the motorhome refrigerator has the power switch set to "auto" it will automatically choose its power source from the priority order of: 120 volt external power, 120 volt from batteries through the inverter, and finally gas. With "auto" turned off, it will only run on "gas". With this in mind suggestions for efficient use are in order.

When unplugging external power at a campsite, the refrigerator that was set to "auto" and has been running on external power will switch to gas if the inverter is switched "off". It will switch to inverter electric power if the inverter is switched "on". This power comes from the house batteries, through the inverter. As you start the motorhome engine the alternator will produce enough energy to charge the house batteries and stay ahead of the inverter draw that is powering the refrigerator. In this mode the refrigerator will use inverter electric power during the whole day of driving and will avoid using any propane to power itself. This is much safer since we have always been told to "turn off the refrigerator propane while traveling." Engine-shut-down stops for lunch shorter than one hour can be handled easily by the batteries through the inverter. Tours lasting longer have me choosing the "gas" setting when I turn off the engine, thus saving the house batteries.

Two reminders are in order. First when entering a no-services campsite and turning off the motorhome engine, remember to manually switch the refrigerator from "auto" to "gas". Otherwise the refrigerator will drain the house batteries until there is not sufficient current to maintain electric refrigeration, and then it will switch to "gas". *Since shallow cycling is best for battery health and longevity, one should avoid flattening the house batteries in this manner.*

Second, when leaving the no-services campsite, remember to switch to "auto" when you start the motorhome engine. That will allow you to travel with inverter-electric instead of the "gas" you have been running on. If you forget you will needlessly use some propane, but it will have no detrimental effect on any system.

The refrigerator does not have the ability to switch automatically from "gas" to any other power source when "auto" is not lit. This setting allows you to attend an international rally and have gas powered refrigeration, even though you are hooked to the 3 Amp electrical power designed to keep the batteries charged.

If this is a little confusing, always remember to ask yourself whether the refrigerator power setting needs adjusted each time you start the motorhome engine or turn it off. Use inverter power where possible and save the propane!

Electric Heaters

Many all-year campers use one or more ceramic heaters to knock the chill off the interior of the motorhome. If the heater is plugged into a wall socket that is fed through an inverter circuit, extra precautions are necessary. When campground power goes out, you may not notice it, you may not even be there, or you may be asleep. In the latter two cases the heater will drain your house batteries flat. As was pointed out in the previous section, *shallow cycling is best for battery health and longevity.*

There are two ways to avoid the problem. First alternative, turn off the inverter. Then if the power goes out, the house batteries will not feed the heater through the inverter. Before you drive the motorhome away from the campsite in the morning, remember to turn the inverter back on, so your alternator will provide electrical service while driving and can power your refrigerator. If your owner's manual tells you to keep the inverter switched "on" at all times to keep your batteries charged, try this second way. Second alternative, find the wall sockets that are not on the inverter circuit and only use them to feed the heaters. These non-inverter circuit plugs are most frequently found at the back of the bedroom or behind where the optional washer-dryer would be/is installed. To find non-inverter-circuit wall sockets, unplug external power, then turn the inverter "on". Use a 120 volt lamp and plug it in each wall socket. Non-inverter-circuit plugs will not light the lamp. If power goes out the heaters will stop functioning, but will not drain your house batteries.