GMC Unplugged

Adapting the GMC for dry camping

Reasons for “Dry Camping”

- Sometimes the place you want to go has NO facilities.
- Most Forest Service and BLM camping areas have no hook-ups.
- Save money on a trip by overnighting in a rest area or parking lot.

My Reason for Wanting a Motor Home

Annual Thanksgiving Weekend Sand Dune Trip

Went from a borrowed motor home to a t

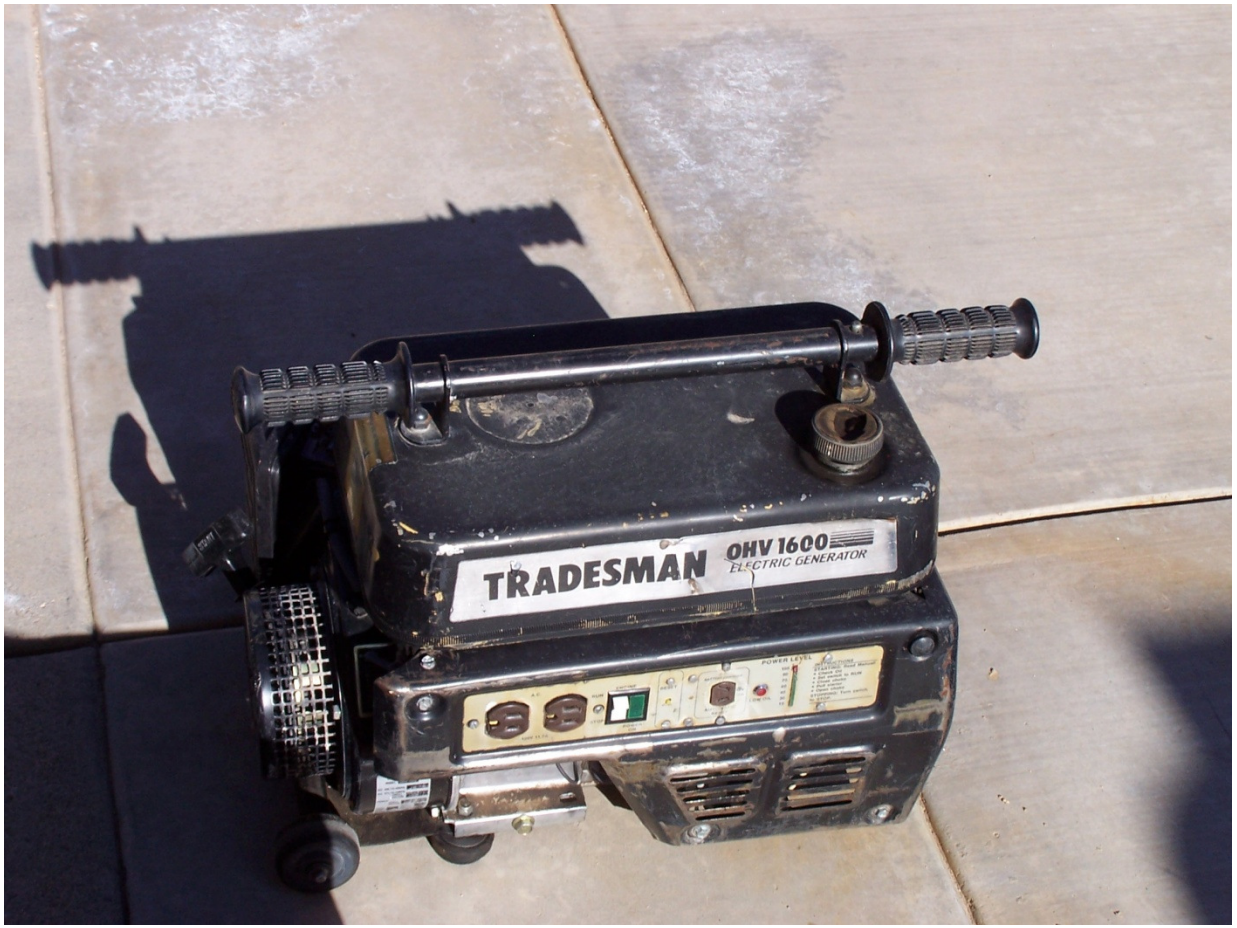
- My dad had a series of motor homes that I had the use of, but when he downsized from a Class-A to a Class-B, I could no longer tow my Jeep trailer with it.
- That started several years of tent camping.
  - Lots of work
  - Poor sleeping arrangements
  - Cold and uncomfortable
  - No “facilities” (other than a bush and a shovel)
  - Outdoor cooking
  - Doable, but not as much fun
  - Arrive home exhausted

The '75 ex Palm Beach as purchased

- Electrical systems as it left the factory except...
  - Two 6-V golf cart batteries
  - Combiner replacing the isolator
  - It still had the original all electric fridge and “buzz box”
- Had to run the Onan for a couple hours per day, morning and evening, to keep the batteries charged.

Generators

To save gas, I started using an old, small, construction generator. It worked okay and used less gas than the Onan



We then went with a 2-KW Honeywell inverter generator. This worked okay too, but was still somewhat noisy and annoying to people around us.

LED Lighting

The next step was to reduce power consumption by converting the most used lights to LEDs

Type of Lighting	Amps Used
Incandescent	1.2 amps
12” fluorescent	.9 amps
24 LED (as shown top photo)	.6 amps
LED puck light (as shown bottom photo)	.1 amp
3 – 3 LED strips	.1 amp

Three Way Refrigerator

Next, we replaced the swing motor Norcold with a new three-way heat absorption fridge. It uses more power when operating on AC power, but MUCH less while operating on propane

Power Inverter

The next addition was an inverter to run the TV, Satellite box, laptops, etc.

* I asked around, and was told that a modified “square wave” inverter would run everything we wanted to run.

* I checked the appliances with a Kill-A-Watt meter, and determined we would need at least 350 watts.

* I doubled that and on the advice of a friend, bought a HF 750 watt inverter.

* I wired it into the main 12-V power terminal and ground in the rear of the electrical cabinet with the cables provided.

Since the inverter had 120-V outlets, I used two outdoor extension cords to wire in a dedicated inverter powered outlet in each seat base.

The smaller inverter was chosen to reduce the draw at idle, and is turned off whenever it's not in use.

Even though I paid a little extra for the extended warranty, I have not had to use it. The Harbor Freight inverter has worked fine for three years and runs our stuff just fine.

Trimetric 2025 Battery Meter

- To accurately monitor battery usage, I installed a battery meter. It's like a gas gauge for the batteries.

- It provides readouts of:
- Voltage
- Amps/watts in or out
- Amps/watts down
- Percent of charge
- Reading is through a shunt resistor

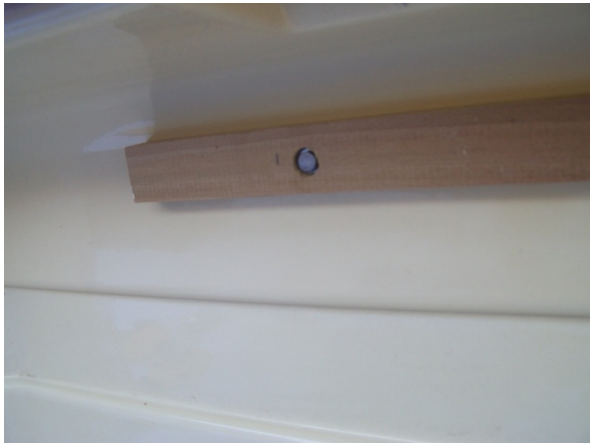
Adding Solar Charging

Solar

- What comes out needs to go back in:
- The solar replenishes the batteries without use of a generator
- We can run computers, recharge phones, etc. during the day without depleting the batteries
- Whatever we use at night goes back in during daylight hours
- We get 4 – 6 amps of charge on a sunny day
- More if we tilt the panel.

Panel tilt and pod reinforcement






Pod Reinforcing

- Due to the weight (about 28 pounds) of the panel, I had to reinforce the pod
- I built a framework out of 1 X 2 Poplar to transfer the load from the top to the bottom of the pod
- I bolted pieces of 1 X 2 to the underside of the lid to mount the panel to
- I riveted a 1-1/4” X 1/8” aluminum strap around the hinge side of the pod.

Tilting the panel

- If we are parked with the nose facing West, I can tilt the panel toward the sun
- This increases the power output by a couple amps
- Two wooden props are stored in the pod
- Footman loops provide tie down points in case of wind
- This is usually not worth the effort for the minimal gain

Parts Used in the Solar Installation

The parts all came from Northern Arizona Wind and Sun

< www.windsun.com >

- **Kyocera Solar KD140SX-UFBS**

* **Xantrex C35 Solar Charge Controller**

* **XLP Heavy Duty Wire #6 Stranded**

* **Trimetric TM-2025-RV 12-48 Volt Battery Monitor System**

****** **Plus various terminals and fuse holders/fuses**

Water and Waste

- For long trips, we carry extra water in 6 or 7 gallon containers
- We also carry a couple of 6 gallon containers designated for waste water.
- The Macerator makes it easy to pump from the holding tank

- We haven't tackled the issue of hot water yet...
- But several people have installed on demand propane water heaters
- We just heat water on the stove if we need to, or fire up the Onan for a while to heat water.

Then and Now

Tent Camping	The GMC with mods
• Uncomfortable	• Comfortable
• No facilities (except that shovel & bush)	• Flush toilet
• Cook outside even if rainy, windy or cold	• Cook inside especially if windy
• Very noisy	• Can watch the BIG game even at the sand dunes
	• Can keep phones & computer charged
	• Didn’t run the generator!!

Dry Camping water/energy savers

- Use basin when doing dishes
- Use Paper plates
- Water saver shower head
- Take “Navy” showers
- Dry shampoo

- Plan menu that only uses grill/gas stove (NOT the microwave).
- Think back to the old days (oh yeah, we heated H20 on the stove!)
- Radiant Propane heater

Potential Future Improvements

- Additional Solar Panels (mounted on AC units)
- On demand water heater
- Additional house battery bank
- Larger inverter