CONVENIENCE CENTER SWITCHES (E)

These indicator lights give a general idea of how empty the Fresh, Black or Grey tanks are. For example, pressing the little black button next to GREY causes LED's to appear next to "Empty, 1/3, 2/3 or Full." What you see depends on how the four tank mounted sensors react to a momentary electric current.

The grid below shows you that you can bring 30 gallons of fresh water and store a maximum of 12 gallons in the black (toilet) tank and 18 gallons in the grey (shower/sink). Any more than this and the tanks will overflow with possible trip-ending results.

Gallons	**Empty**	**1/3**	**2/3**	**Full**
GREY	5 or <	6 to 12	13 to 17	18
BLACK	3 or <	4 to 8	9 to 11	12
FRESH	9 or <	10 to 20	21 to 29	30
Volts	**Charged**	**Good**	**Fair**	**Low**
BATTER	13 to 12.5	12.5 to 11.7	11.7 to 11.2	11.2 to 10

So, what do you do when the display reads 2/3? If it's the BLACK tank, you just stop using it until you can empty the trailer. If it's the GREY tank, you have some options depending on where you are, how long it will be till you can dump the trailer and how empty the black tank is. Read the pages on "Boondocking Decision Making" to see what your options are.

The BATTERY indicator is of no use because Absorbed Glass Matt (AGM) batteries shouldn't go below 50% discharge which at 12.2-volts, is somewhere in the middle of the GOOD reading. If the battery LED reaches the FAIR level, it means you have drawn the battery below 100% discharge and further use will seriously damage them. A more advanced battery monitor was added and described in (D) immediately prior to this portion.

KIB MONITOR - HOLDING TANK DESIGN & DEBUGGING

The convenience center described in the GREEN section under "E" is a product of KIB and utilizes the M21 display panel, a K101 pigtail and MP5 tank probe system. Essentially there are four electrical contacts that are exposed in the interior of the tank placed at precise positions from each other. Depending upon the tank fluid level, an electrical current can pass through one or more of these probes and the readings are shown on the black panel in the image above.

If the GREY or BLACK tank readings aren't showing what you know or feel they should be, there are a couple of electrical tests you can run but most likely problem is that slime/debris has solidified on the contacts (see left). This buildup acts as an electrical insulator throwing off the resistance (OHM) readings used to determine which red LED indicator light-up. Most likely, all the tanks need is a good cleaning which you can do on the road. This is probably a good place to remind you to wait until the holding tanks are 2/3 fill before dumping or filling them with water, so they are. While there is no simple fix for the FRESH water tank, the cleaning advice below works 90% of the time for the Grey & Black.

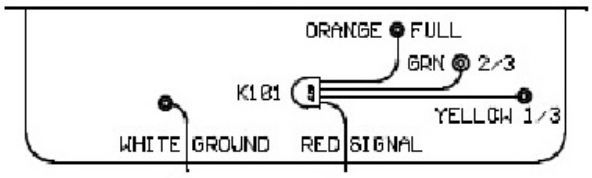
The "GEO Method" is well known in RV circles and the idea is to let a combination of water softener & dish soap clean both the tank and contacts through agitation while driving. The water softener breaks down surface tension allowing the Dawn dish soap to do its job. These two brands are specified because they work!

1) Dump the tanks and fill 2/3 with clean water.
2) Pour 1 cup of Dawn Dishwasher Detergent (the blue stuff) and 1 cup of Calgon Water Softener into the grey and black tanks.
3) Dump a bag of ice cubes down the toilet as these will act as a scouring pad.
4) Take the RV for a drive of 20-minutes or more.
5) Dump and check the readings. If the KIB shows empty, fill the tank and check the readings. If you get wonky results, repeat the cleaning but this should do the trick.

For more advanced debugging, the M-Series troubleshooting manual is included with the trailer binder. A generic wiring diagram from KIB is on the next page and the K101 pigtail can be tested to make sure that the readings below are being shown.

K-101 Resistor Sensor & Wiring

ORANGE	= Sensor on FULL level
BROWN	= Sensor on 2/3 level
YELLOW	= Sensor on 1/3 level
RED	= 12v Power
WHITE	= Ground



To test the K-101, factory manual shows the following:

- RED to ORANGE at 0 OHMS
- RED to GREEN at 68K OHMS
- RED to YELLOW at 188K Ohms.
- Leave the WHITE alone