

Yamaha Generator Ground Problem

Question: I have a Flying Cloud trailer which when plugged into shore power works fine. When I plug my polarity indicator in any trailer outlet I get a good indication. When I plug my trailer into my Yamaha EF2000 generator I get one yellow light, which indicates an 'open ground'. I have checked my generator and trailer for a broken wire or some short and found no problem.

Answer: This Yamaha model has the ability to hook two units together and get twice the power. This is just like the Honda generators. In order to do this the output lines (neutral and hot) must be floating so the two generators can automatically adjust and synchronize. This allows the two generators to share the load and provide double the output capacity. This means the ground and neutral on the Yamaha are not connected, which is exactly the indication you are getting.

This can be a serious safety issue since the trailer body can have voltage on it and give you a bad shock especially if the ground is wet or you are standing in a puddle (I actually measured 85 volts between the trailer body and the generator on a rainy day). In a shore power hookup the neutral is directly grounded in the main voltage supply box. In a motorhome the generator neutral is internally grounded. In a high power Inverter the neutral is grounded when it is used as the primary 120 VAC source. Your trailer has floating neutral and hot lines so the source 120 VAC must always provide the ground. A simple ohm meter test can confirm that both trailer lines are floating relative to the chassis ground.

If you are never going to hook two generators together and have them synchronize then you can permanently ground the neutral on the back of the outlet socket. If you want to consider using two generators or do not want to modify the generator then you can make a special adaptor, which can be easily removed. Make a short 3-wire cable (10 inches is fine) with a 20 amp male plug and a 30 amp female end. Connect the neutral to ground inside the female 30 amp end, which will provide the proper grounding function as well as the proper adaptor. You should locate the special adaptor in close proximity to the generator and use at least #10 or #12 wire.

The simplest approach (if you do not need both 20 amp outputs) is to take a 20 amp male plug, connect the neutral line to ground and plug it in. Use a waterproof plug and seal the wire input area.

By the way neither Honda nor Yamaha will answer any questions or acknowledge this as a problem since it could be a liability issue. Both of them recommend using ground rods in close proximity to both the trailer and the generator.