Table of Contents

Understanding and testing the GFCI

Many times I get called to your coach with a complaint of not having any 120vac power at the receptacles. The first thing I check is the GFCI receptacle in the bathroom to see if it is tripped. If it is, I just reset it and most of the time everything is ok. If it trips again, that's when the fun begins.

So how do you know if you're looking at an outlet equipped with GFCI capabilities? You'll see a Test and a Reset button (and perhaps an indicator light) built right into the outlet.

The purpose of the GFCI is to protect you from electrical shock if something is shorted out or when you are around water, i.e. kitchen sink. It is generally accepted that electrical current flowing through the heart in the 50 to 100 ma (milliamp) range is enough to cause ventricular fibrillation and has the potential of becoming lethal. Since your 120vac components usually have currents much higher than this, the need for protection from electrical current leakage lower than this range was designed into the GFCI. The way the GCFI protects you and other components is by monitoring the 120vac current that flows from the power source (shoreline, generator, or inverter) through the black or “hot” wire to the electrical device. The same amount of current that flows to a component, lets say 8 amps to your hair dryer, should flow back to the source via the “white” neutral wire. This occurs 60 times per second thus 60cycle power or (60HZ). The GCFI plug monitors this “balance” between the hot and neutral wires and will interrupt current flow if it senses a low level current differential (leakage) as small as 4 to 6 mA (4/100 to 6/100 of an amp) occurring on the GFCI protected circuit. As you can see this is a very small amount of current imbalance from the power source.

You should know where to find and become familiar with this plug and test it at least once a month. The system must be energized to test the receptacle.

1. Press the “TEST” button located on the face of the receptacle.
2. The “RESET” button will pop out and interrupt power to the receptacle.
3. Simply push the “RESET” button to reactivate. If the “RESET” button will not reset, then you should contact an electrical technician to correct the situation.

Most of you are handy and take care of your coach yourself. Start by removing electrical plugs from the outlets until the GCFI receptacle stops tripping. Most of the time you will find one component that is causing the problem and by removing it and the problem is solved. Another area to look is outside in the utility bay where there is a 120vac receptacle. Any receptacle that is exposed to moisture will cause enough leakage of current to trip the GFCI. As you can see, this type of problem can run you around in circles trying to find where the short is or the component that is causing the problem. While the GFCI affords a high degree of protection, there is no substitute for the knowledge that electricity can be dangerous when carelessly handled or used without reasonable caution.

I hope this helps you understand and gives you some insight on what to do when this problem occurs.

More details can be found in this consumer product safety bulletin: CPSC GFCI Fact Sheet

by Jack Bradshaw - Reprinted from Winter 2009 Motorcader