

MY FUSE KEEPS BLOWING

PROBLEM: When I am parked my water pump and several other DC circuits work fine. However, when I drive the fuse for this circuit blows so that it must be changed when I stop again. This has been going on for several months in my Classic Motorhome and I have tried to find the wire that is shorting out but have not been successful. Any suggestions?

ANSWER: This, unfortunately, is a relatively frequent problem for our aluminum trailers and motorhomes. As our units age the constant vibration and bouncing of the wires/ wire bundles can wear through the insulation and cause short circuits. The coach wiring goes through holes drilled into the aluminum ribs, end shells, roofs, belly pans etc., which usually have plastic grommets to prevent the shorts. Occasionally a rivet or mounting screw will be close to a wire or actually pierce some insulation. Any of these could result in intermittent short circuits. Trying to find these in the walls or under the belly pan is usually a fruitless undertaking.

The first step is to identify all of the circuits that are on the particular fuse that is blowing. Usually the circuits in an RV are wired in a chain (called a daisy chain) starting at the fuse box and connected from each item to the extremities of the RV. If you can get at the connections for the various items that are not working, you can disconnect parts of the chain and see if the short goes away. You then run a new wire to replace the part of the circuit that is causing the problem. This only works on rare occasions.

Never increase the size of the fuse! The fuse is sized to protect the wires so that a 10 amp water pump might have 20 amp rated wires. By using a 15 amp fuse if the pump motor shorts out the fuse will blow before the wire rating is exceeded. The worst and most expensive problem you can have is burning up the wires inside a wall.

Since you are getting the short circuit only while you are traveling you could simply remove the fuse and reinsert it when you stop. You have an automotive ATC type fuse with two prongs on the end in your DC fuse panel. A better solution is to purchase an ATC style circuit breaker. These are available from amazon.com and made by Imperial or Bussman. They are the same plug in size, but are just a little longer and are available in 10, 15, 25 and 30 amperes. These will open when the short is present and close when it is gone and you are stopped. Essentially, they automatically remove the fuse while you are traveling and reinsert it when the short no longer occurs. Considering the costs involved in trying to find the actual short this is a reasonable approach. Resettable ATC circuit breakers are also available, which require you to physically reset them when a short has occurred similar to an AC voltage panel. I have used these ATC breakers for years as an aid in troubleshooting DC circuit problems. Good luck.