

Minimizing Electrical Woes In Your Motorhome

A look at some of the ills that can plague electrical connections in a motorhome, and information about a product that helps to keep these connections "clean."

By GARY BUNZER

Ponder for a moment just how many items on a modern motorhome are powered or energized by some form of electrical current. Not including the cabinets, sofa cushions, and other soft goods, quite a few of our amenities are electrical in some sense. Because of the advances in electronic applications, gone are the days of "overriding" the system or "by-passing" the controls. Today, without a healthy 12-volt-DC battery system, it is nigh impossible to operate the refrigerator or the furnace, let alone find that satellite, make those ice cubes, or spin those discs (CDs, that is).

Whether we take into account high voltage or low voltage, battery power, shore power, generator power, or solar power, each circuit that uses electrical current involves some type of power supply, resistive unit, and a method of delivery. The purpose of this article is to bring to your attention not only the problems that may sometimes affect your RVing plans, but also to bring to the table a solution, a preventive cure that will help to minimize those problems, if not eliminate them altogether.

The method of delivery alluded to above usually is facilitated by the use of electrical conductors or wires. Batteries are wired together; the appliances are wired into the system; the convertor connects the AC system to the DC system, etc. In a perfect world, these wires run, unabated, from the power supply to the electrical product and, many times, back again. The stopping points for these wires oftentimes involve various methods of termination. Some are connected to screw-type terminal blocks; some are attached using crimped-on ring or spade terminals. Many are connected to a plastic multiplug encasing many wires at once, which then connects to another multiplug or slips over thin edge connectors on printed circuit boards (similar to those in Photo A). Virtually all LP-gas appliances, roof air conditioners, monitor panels, generators, convertors, radios, inverters, etc. use some form of a multiplug. Therein lies the bugaboo. At any point where a wire is terminated and connected to a device, there is also the probability of electrical contamination appearing over time — contamination that includes metallic oxides and thin layers of chloride film.

We've all seen the worst of neglected battery terminals, which seemingly have living green and yellow organisms growing around the terminal wing nuts. Granted, many of us would indeed take the time to clean those battery terminals,

continued



most likely because the neglect is easily visible. But how many of us would take the time and effort to ensure that the printed circuit board contacts are clean and bright on the appliances? Or that the shore power cord contacts are clean? What about the umbilical between the motorhome and towable? The fact is, many of the ills associated with erratic LP-gas appliance operation and battery charging/discharging, just to name two areas, can be directly attributed to contaminated contacts on the printed circuit boards or at the multiplug connections. I would wager that the majority of electrical symptoms are a direct result of corroded and oxidized contact points at wire terminations. And most are avoidable.

The physical and chemical changes in the surface condition of electrical or electronic connectors often are cited as the primary causes of degraded performance of components and equipment. Add the dust, soot, smoke, and other

gunk that hangs in our atmosphere, and strange, discolored films will form on the contact surfaces, impeding the flow of electrons. Oftentimes, amid other intermittent ills frequently blamed on the battery or other components, the result is erratic operation of appliances, less than pristine battery charging, blown fuses, sticking relay contacts, poor electrical grounding and bonding, etc.

I've seen the printed circuit boards of LP-gas appliances replaced erroneously when the cause all along was simply an oxidized contact strip on the

edge connector. Technicians, unfortunately, may fail to inspect these important contact points and be lulled into a false sense of accomplishment when the new printed circuit board fixes the problem. It could be that installing the new board simply scraped away enough of the contamination to make a better contact, albeit temporarily. Unless the process is stopped, that new board could be diagnosed as "faulty" soon enough also. The same temporary result may have been achieved by sim-

continued

...many of the ills associated with erratic LP-gas appliance operation and battery charging/discharging, just to name two areas, can be directly attributed to contaminated contacts on the printed circuit boards or at the multiplug connections.

ESSEX CREDIT

New - Used - Refinance



*We can help you
hit the road
less traveled.*

*Get the RV loan
you want today!
Our low rates and
experienced staff guide
you through the loan
process smoothly
and efficiently*

1-866-377-3948

*Our Automated 24/7
Loan by Phone*

1-800-432-7549

information you will need

location number: 38

Security ID: 22

www.essexcredit.com

Simple contact "cleaners" may wash away dirt, dust, and grime, but they prove ineffective at removing oxidation and surface sulfides. ... The only true method of eliminating them is by chemical action and reaction.



Photo B

ply unplugging and plugging in the existing board a few times.

Oxidized contact surfaces, as well as chloride films (prevalent in coastal communities), indeed need periodic attention. Most electrical dysfunctions can be avoided by effectively ridding contact points of such contaminants via an annual cleaning. Many different contact cleaners are available, but most apply only a temporary "washing" to an area that may need more permanent chemical attention. Here's why.

Oxides, sulfides, and forms of chloride contamination attach themselves to the thin layers of the contacts on most printed circuit boards. Though more evident with gold-plated contacts, the thin traces of RV appliance boards are negatively affected and become "blistered" to the point of causing added resistance to that portion of the circuit. (See Photo B.) This added resistance impedes the performance of any electronic function and can be the cause of intermittent operation. The technical term for this blistering is "dendrite corrosion," but the result is that the contact portion is greatly reduced, almost insulated to a degree, and erratic operation of that appliance is sure to follow and become worse as time goes on. Simple contact "cleaners" may wash away dirt, dust, and grime, but they prove ineffective at removing oxidation and surface sulfides. These tough contaminants actually attach to and become an integral part of the contact metal. The only true method of eliminating them is by chemical action and reaction.

CAIG Laboratories Inc. offers products that perform these functions. DeoxIT, specifically, is formulated to dissolve and remove these oxide blisters by chemical reaction. After treatment, a thin residue of organic material is left behind, which coats the contact area, thereby protecting

continued

We've moved to a new location shared with Camping World.

COME VISIT THE ONE-OF-A-KIND ALPIN HAUS AND CAMPING WORLD RV SUPERCENTER!



YOUR MONACO CONNECTION

The Only Full-Line Monaco Dealer in The Northeast.

- Family owned and operated for 39 years
- 15 minutes from the beautiful Adirondack Park
- Authorized Monaco service center
- Largest volume Monaco Dealer in the Northeast

www.alpinhaus.com

866-288-6577

Rt. 5 S West, Exit 27

Adjacent to the NY State Thruway, Amsterdam, NY



Our low overhead allows us to pass along the savings to you. You can save thousands on all models in stock.

Choose from our full line of Monaco including Signature, Executive, Windsor, Dynasty, Diplomat, Knight, Camelot and Cayman models.

Alpin Haus

the surface. DeoxIT also contains additives that prevent the loosened oxides from reattaching, eliminating them when the board is unplugged and plugged back in a few times.

According to CAIG's product information sheet, DeoxIT's properties allow it to work on stationary and moving contacts and connectors with similar as well as dissimilar metals. It will even migrate to an untreated contact (such as a new replacement board) when it connects to a previously treated connector plug. See whether you can tell the difference between the connectors in the "before" and "after" photos (photos C and D).

Take the time to check a couple of the printed circuit board contacts on your LP-gas appliances. If you see any discoloration on the contacts (as in Photo C), it is in need of treatment. Visible discoloration means severe oxidation has already taken place. It will only be a matter of time before erratic performance of that appliance will rear

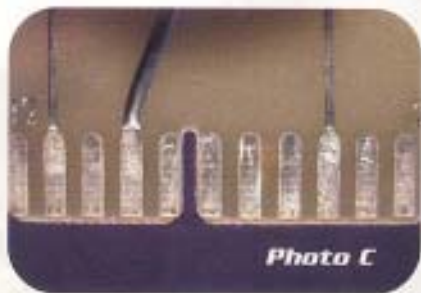


Photo C

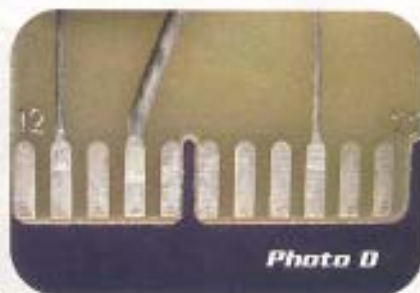


Photo D

its ugly head. And, according to Murphy, it usually will happen at the most inopportune time.

I have been testing the advantages of DeoxIT for a few months now and have observed a definite increase in the effectiveness of the devices I've treated. It works on more than just RV appliance boards and multiplugs. I've used DeoxIT on every battery-powered device I regularly use — flashlights, my cell phone, and even the batteries for the digital camera that shot the photos for this article. As a musician, I've even treated all the gear I use when playing live.

CAIG Laboratories also offers a package of lint-free wipes, swabs, applicators, and cleaning brushes that will fit just about any application you may require.

After considering the advantages and weighing them against the costs of the many crisis repairs we hear about around the campfire, I have now added DeoxIT to my preventive maintenance service kit.

For more information and technical data sheets, or to find the closest dealer in your area, contact CAIG Laboratories, 12200 Thatcher Court, Poway, CA 92064; (800) CAIG-123 (224-4123); or visit www.caig.com.



We didn't invent the one-piece shell...

Beautiful. Practical. Durable. That's the Coach House® Platinum™ Class C motorhome. Thanks to an innovative *seamless* fiberglass shell — reinforced with high-tech composites and protected by a gleaming gelcoat finish — your Coach House Platinum is designed to stay leak-free and squeak-free for years. Inside this tough shell, you will find the roomiest Coach House ever, with 6-foot-3 of headroom, plenty of elbow room, loads of storage room — even a private bathroom with a separate shower. Available in two lengths — 23 feet and 27 feet, plus

slideouts — and a variety of convenient floor plans, the Coach House Platinum sets a new standard in the personal motorhome market.

LOADED WITH STANDARD FEATURES:

Heavy-duty Ford E-450 chassis (gas or diesel) • 3-year/36,000-mile warranty • Aerodynamic seamless body • Marine plywood construction (no particleboard) • 4.0-kw generator • Three-way refrigerator/freezer • Convection oven • Stove • Ducted air conditioner • Solid-surface counters • Concealed propane tank • All-weather plumbing • Trailer hitch • Fully insulated • Converter/charger • Much more!



Coach House Platinum™ 270XL



... we just put a luxury motorhome inside.

Coach House
PLATINUM

COACH HOUSE, INC. • 3480 Technology Drive, Nokomis, FL 34275
Phone (941) 485-0984 • Toll-free (800) 235-0984 • Product video \$7.95
Web: www.coachhousesrv.com • E-mail: info@coachhousesrv.com
Dealer inquiries welcome. Select territories available.