

The Preventive Maintenance Series

Mike Dawson

Electrical Tips.3: Open circuits

The first thing to check if you have a non-functioning accessory is the fuse panel. Use a test light to check the outlet side of the fuse holder on the holder itself and not the end of the fuse. This eliminates two common areas that could be confusing in your diagnosis; one is the Chinese fuse which may let the end of the filament separate from the cap while the center looks perfect, and the second is the rusty fuse holder that loses contact with the end of the fuse.

An “open” in the circuit can be either on the positive or negative side, so use of a test light or voltmeter to check potential difference is important. When using a test light you would check the positive side by grounding the test light lead to the body and using the probe on the positive feed side of the accessory. Check the ground side of the accessory by hooking the test light lead to a known good 12 volt positive source and use the probe to check the ground. When using a voltmeter to test either positive or ground it would just be a matter of reversing the leads.

There are a lot of age related electrical problems that are typical throughout the Corvair line. The following are some of the more common examples:

- A totally dead electrical system on an early model (car or FC) can be the 10 gauge wire in the multi connector located on the left side of the engine compartment; forward left on cars, center left on FC models. Old age causes this high amp wire connection to fail, so avoid this potential problem by splicing in a 10 gauge wire to bypass the connector and soldering your repair. This multi connector was only used for assembly purposes and therefore never disconnected, such as during engine removal.
- A complete loss of either high or low beam headlights will usually be caused by the dimmer switch or its plug-in connector. Old age and water are the culprits. New switches are readily available, as are the connectors, so inspect these two items and head off problems. A related item is the headlight switch which contains a circuit breaker to protect the headlight system. It will flash the lights on and off if you have a short or add high amp driving lights that are beyond its capacity. A relay can be added for additional driving lights if necessary.
- Late model cars can suddenly develop strange dashboard displays: gas gauge reads overfull, high beam indicator on, both turn signal lights lit, plus others. This is caused by loss of the ground to the dashboard assembly which is mounted in plastic and grounded by a single metal strap with a screw. The screw is vertical just to the left of the steering column at the bottom of the dash. Usually the screw is loose, but sometimes the metal strap has been bent out of place. Rarely there

can be a second loose screw located higher up on the back that connects the separate cluster ground straps.

- An overfull reading on your gas gauge (any Corvair) that is not caused by a dashboard ground may be the ground wire from the sending unit on the right side of the gas tank near the bottom that extends to the body and is secured by a screw. Corrosion or damage is usually the problem, however if the ground wire is good, you most likely have an open in the sending unit itself.
- Many Corvairs have low heater blower speeds due to a poor ground at the heater box to body mount. Use a voltmeter to check for voltage drop with the motor on high speed or simply attach a jumper wire to a good ground and scrape it on the motor housing while it is running. If the speed increases, add a permanent ground wire to the motor or heater box.
- All Corvair tail light sockets and front turn signal sockets are prone to loss of grounds and can become inoperative or do strange things. This includes parking lights, running lights and brake lights. Skillful use of a test light or voltmeter will quickly sort out the issue. You may find loss of ground between the socket assembly and the body, and in some applications between the inner and outer sockets. Keep in mind that all of those socket assemblies are grounded to the body simply by friction fit and fasteners and that the inner sockets on early rears and late fronts are a press fit. The pop-in plastic sockets on late rears and early fronts were a poor design which lost their ground regularly. A good replacement is an all metal socket available from any of the auto parts stores.

One additional problem that can occur on the early rear sockets is an “open” between the base contacts on the 1157 bulbs and the two power supply tabs in the inner socket. The spring tension on the tabs is lost due to corrosion. One temporary fix might be to use penetrating oil and needle nose pliers to free up the springs – another might be to add a drop of solder to the bulb base contacts to extend them slightly. Finish off the added solder with a file to make the contacts even.