

My experience has been that the charging system on the Cortez with engine air conditioning (120 amp Motorola) is unknown to most mechanics. In our travels, we have had charging system problems twice and almost aborted our trip each time due to the lack of a knowledgeable shop being able to handle us on a while-you-wait basis.

Our most recent charging system failure occurred while I was preparing the Cortez for a long week-end trip with friends. When the engine was started, the ammeter showed no charge and when the lights were turned on, the needle would indicate a discharge. The fan belts were tight and the cables to the alternator, battery, and regulator were all clean and snug.

I had a day to look into the problem before we left so I pulled the alternator and regulator and took them to the shop that had rebuilt the alternator the previous year. They checked out perfectly. Upon reinstallation, everything worked properly. I started the engine several times and everything seemed OK.

The morning we left, the charging system was fine for about 10 minutes and then the ammeter showed no charge again. I called my trusty repair shop and while they could not take the Cortez in for service for several days, the shop owner offered to talk me through a field test. Here's how it goes:

(1) With the engine running at idle, connect a jumper wire from the hot (+) terminal of the battery to the green (field) wire of the regulator. You may need a nail to probe where the wire harness joins the regulator, but I did not. The ammeter should show a substantial charge at idle. If you have no one to look at the ammeter, you can probably tell by the sound of the engine. If the engine slows down, it is because the alternator field has been energized, and the engine is now working to turn the alternator to produce electricity. Do not run this test for more than 5 or 10 seconds at a time since the alternator is unregulated and is capable of producing large amounts of current which might hurt the system. If no charging occurs, the alternator is probably faulty.

(2) With the engine running at idle, connect the wire from the hot (+) terminal of the battery to the red wire of the regulator where it connects to the wiring harness. The ammeter should show a charge but it should be normal for the battery condition and should begin to taper back within a few minutes. If no charging occurs, the regulator is faulty or the wires to it are disconnected or broken.

If test procedure #2 shows proper charging, the system can be jury rigged to bypass the faulty wiring or bad ballast resistor beside the regulator. Open the radiator cover and on the driver's side up front, just above the terminal block, where many of the wires are connected, you will find the ballast resistor for the coil. It is a rectangular ceramic block with two prongs to which are connected a wire from the ignition switch (wire #18) and a wire from the coil (wire #53). Connect a wire from the coil side of the ballast resistor to the red wire terminal of the regulator at the regulator wiring harness. Be sure to keep the original two wires (#18 and #53) connected to the coil ballast resistor or the engine will die as soon as you let the starter key go when starting the engine. In addition, either one of the wires to the regulator ballast resistor should be removed to break the faulty circuit.

(3) With the engine running, perform a touch test with a jumper wire from the hot (+) terminal of the battery to the black wire wire of the regulator. You should get a spark. This shows that the ground circuit of the charging system is complete. Only momentarily touch these connections to test the ground system. If the spark does not occur the ground wire between the alternator and regulator is open or disconnected somewhere. As a temporary repair, run a wire from the black regulator lead to the battery ground (-) terminal and make sure that the ground strap from the alternator to the vehicle frame is tightly bolted and not broken.

Hopefully, you will never have the need to use the above tests, but they may come in handy some Sunday afternoon when no one is available to provide adequate diagnostic service.

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