

DIAGNOSIS (Continued)

In order to check the charging system, the use of Rotunda Starting/Charging VAT-40 Tester 078-00005 or equivalent is suggested. Connect the tester to the battery positive and negative posts and also connect the current probe to the generator + output lead (to measure generator output). (When measuring generator output, the tester can also be connected to the battery positive or negative cable. In this case, all electrical accessories must be turned off and 10-15 amps added to the reading on the tester due to the engine operation). With the engine running at 2000 rpm, adjust the tester load bank to determine the output of the generator. The generator output should be near to, or exceed the generator rating (27°C (80°F) ambient). Check out the charging system as indicated and service if required.

NOTE: Refer to the tester test procedure manual for complete directions on checking out the charging system.

Isolating the Concern

Battery and starting system concerns can be caused by poor charging system performance. It is also reasonable to suspect the charging system because of an overload in another area of the electrical system.

To avoid guesswork, it is necessary to isolate the battery, the charging system, and the electrical circuits to correctly identify the area where the difficulty lies. Check the battery first before performing any electrical system diagnosis. The battery must be in proper state of charge and operation before the other areas of the electrical system can perform normally.

Battery Check

Check battery to see if it has the capacity and ability to accept and hold a charge. Refer to Section 14-01, Battery. If the battery is good, then the charging system should be checked to see that it performs its function of keeping the battery charged.

Model	Tester
078-00005	Digital Volt-Ohmmeter
078-00004	Ohm Tester
078-00003	Starting/Charging Tester

The battery capacity, specific gravity and cell comparison test (low-maintenance batteries only) will determine the ability of a battery to accept and hold a charge. If the battery cannot meet the specifications, replace it with a new fully charged battery before further diagnosis of other areas of the electrical system.

If the battery is found to meet the required specifications, it should be fully charged before proceeding with the diagnosis of other electrical system components.

Charging System Test

The Charging System Test should be performed before testing any of the individual charging system components. Its "road-map" type of layout should reduce confusion in determining "what to do next" and speed up diagnosis. The component tests will determine the type of component service to be performed.

Use Rotunda Digital Volt-Ohmmeter 007-00001 or equivalent and a test lamp to test the system. Special care should be given when using the ohmmeter near "hot" circuits. The component to be checked should be disconnected from the circuit or the battery terminals should be disconnected.

CAUTION: Damage to the component could occur, if the circuit is allowed to remain intact.

Rotunda Charging/Starting Analyzer 059-00002 or equivalent is available for testing the charging system. Test instructions are provided with the analyzer.

NOTE: When checking generator output current with the Rotunda Analyzer at the battery cable, add 10 to 15 amps to the reading because of charge current removed for engine operation.