Wheels: This is the second of eight columns covering the operation of the dash warning lamps.

Charge Lamp

This lamp may be labeled one of several names depending on the make, model, and year of the vehicle including:

1. "charge"
2. "ALT" (for alternator)
3. "GEN" (for generator)
4. the symbol of a battery

The charge warning lamp comes on when the battery voltage is above the charging system voltage. The warning lamp should come on as a bulb check when the ignition is on and the engine is off. If the charge indicator lamp does not light during this test, there is a fault with the bulb itself or the wiring. If the lamp comes on during driving, have a qualified service technician check it out.

Caution: The proper testing of an alternator does not include disconnecting a battery cable with the engine running. This practice was common 40 years ago but can cause damage to the entire electrical system including destroying the vehicle computer (if equipped) if the procedure is attempted on vehicles built since the early 1970s.

Wheels: How would a service technician go about diagnosing the cause of the problem?

Halderman: The first step is to perform a thorough visual inspection. Often a poor electrical connection or a worn accessory drive belt could be the cause. The next step is to check the charging system for voltage and current (amperes) output. A voltmeter connected to the positive (+) and negative (-) terminals of the battery should read 13.5 V to 15.0 V with the engine operating at a fast idle speed of about 2000 RPM.

NOTE: Some newer vehicles will turn on the charge warning lamp if the voltage is too high. Most older vehicles will only turn on the charge lamp if the voltage is too low.

The charging current can also be tested using a carbon pile tester. This type of tester uses a load control knob that is rotated by the service technician to add increasing electrical load to the battery by squeezing plates of carbon together. The alternator, now called a generator according to the latest Society of Automotive Engineers (SAE) standards, should be able to produce at least 90% of its rated output. If this test fails, the generator (alternator) or wiring is defective.

Wheels: Could a charging system problem be due to a voltage regulator instead of the generator (alternator) itself?

Halderman: Yes and no. Most of the generators now incorporate the voltage regulator in the generator itself or use the vehicle computer to control the voltage output. On older vehicles, it is possible that the voltage regulator could be the cause if a no-charge condition exists. A service technician can use a test called a full-field test to determine if the fault is due to the generator or the voltage regulator (computer).