

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1) Describe how to test the voltage drop of the charging circuit.

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2) What are the steps taken to perform a voltage drop test of the cranking circuit?

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3) How is a battery drain test performed?

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4) Describe the results of a voltmeter test of a battery and its state of charge?

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5) How does a technician measure the amperage output of a alternator?

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6) List the steps for performing a battery load test.

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## Answer Key

Testname: ENGINEPERF5\_SHORT15

1) To test the voltage drop of the insulated charging circuit, attach one voltmeter test lead to the output terminal of the alternator and the other test lead to the positive terminal of the battery. Start the engine and turn on the headlights and observe the voltmeter. Repeat the test for the ground side.

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2) Set a digital multimeter to read DC volts. Touch one meter lead to one end of the circuit, such as the positive terminal of the battery and the other lead to the "B" terminal of the starter. Crank the engine and observe the reading. Repeat for the ground side of the circuit.

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3) A battery drain test is performed using either a clamp-on ammeter or by connecting an ammeter in series between the negative terminal of the battery and the disconnected negative battery cable end. A disconnect tool can also be used.

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4) After removing the surface charge, a battery voltage of 12.6 volts or higher indicates a fully charged battery. If 12.4 volts, it is 75% charged; 12.2 volts is 50% charged, and if 12.0 volts, the battery is only 25% charged.

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5) To test the amperage output of the alternator, use a carbon-pile tester, such as a Sun VAT-40 to provide the load with the engine running at 2,000 RPM. Load the alternator using the load knob. Observe the output on the meter.

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6) A battery load test involves removing the surface charge, loading the battery to  $\frac{1}{2}$  of the CCA rating for 15 seconds, and observing the voltage at the end of the time with the load still applied. A good battery should be able to maintain at least 9.6 volts at the end of the test.

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