Automotive Electricity and Electronics, 6th Edition
Chapter 20

Name_____

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

1) Why are there two windings in the starter solenoid?

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2) What is the difference between the control circuit and the power (motor) circuit sections of a typical cranking circuit.?

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3) Why does a gear-reduction unit reduce the amount of current required by the starter motor?

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4) What are the symptoms of a defective starter drive?

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5) What are the parts of a typical starter?

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1) The heavier-gauge winding (called the pull-in winding) is needed to draw the plunger into the solenoid and is grounded through the starter motor. The lighter-gauge winding (called the hold-in winding), which is grounded through the starter frame, produces enough magnetic force to keep the plunger in position. The main purpose of using two separate windings is to permit as much current as possible to operate the starter and yet provide the strong magnetic field required to move the starter drive into engagement.
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2) The control circuit includes those wires and components that carry a relatively small current, such as the ignition switch, safety switch, and solenoid. The power circuit carries the heavy current needed to crank the engine and includes the battery itself, plus the battery cables, solenoid, and starter motor.
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3) A gear reduction starter allows the armature to rotate faster than in a direct drive starter, which causes the starter to produce more CEMF, thereby reducing the current draw from the battery.
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4) A defective starter drive will cause the starter to whine and not rotate the engine flywheel.
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5) Parts of a typical starter include: main field housing, commutator-end housing and drive-end housing, plus the armature, field coils, brushes, and starter drive.
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