

**FIGURE 25-1** Two horns are used on this vehicle. Many vehicles use only one horn, often hidden underneath the vehicle.



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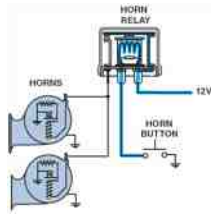
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**FIGURE 25-2** A typical horn circuit. Note that the horn button completes the ground circuit for the relay.



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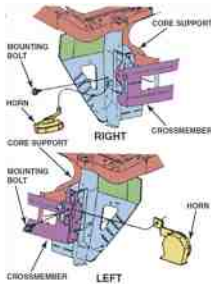
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**FIGURE 25-3** Horns typically mount to the radiator core support or bracket at the front of the vehicle.



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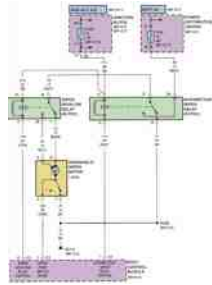
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FIGURE 25-4 A circuit diagram is necessary to troubleshoot a windshield wiper problem.



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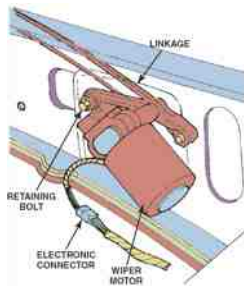
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FIGURE 25-5 The motor and linkage bolt to the body and connect to the switch with a wiring harness.



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FIGURE 25-6 A typical wiper motor with the housing cover removed. The motor itself has a worm gear on the shaft that turns the small intermediate gear, which then rotates the gear and tube assembly, which rotates the crank arm (not shown) that connects to the wiper linkage.



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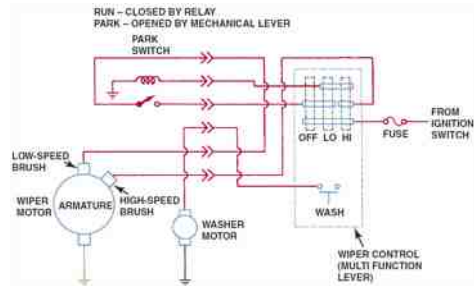
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**FIGURE 25-7** A wiring diagram of a two-speed windshield wiper circuit using a three-brush, two-speed motor. The dashed line for the multifunction lever indicates that the circuit shown is only part of the total function of the steering column lever.




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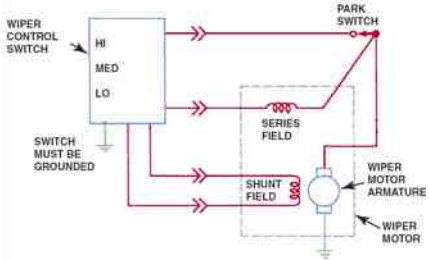
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**FIGURE 25-8** A wiring diagram of a three-speed windshield wiper circuit using a two-brush motor, but both a series-wound and a shunt field coil.




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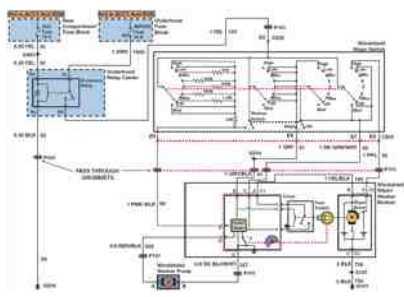
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**FIGURE 25-9** A variable pulse rate windshield wiper circuit. Notice that the wiring travels from the passenger compartment through pass-through grommets to the underhood area.




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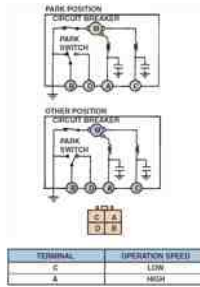
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FIGURE 25-10 A wiper motor connector pin chart.




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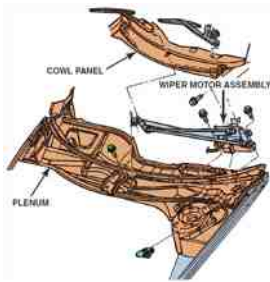
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FIGURE 25-11 The wiper motor and linkage mount under the cowl panel on many vehicles.




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FIGURE 25-12 A single wiper arm mounts directly to the motor on most rear wiper applications.




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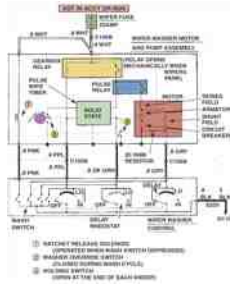
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FIGURE 25-13 Circuit diagram of a rheostat-controlled, electronically timed interval wiper.




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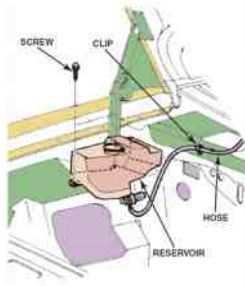
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FIGURE 25-14 Disconnect the hose at the pump and operate the switch to check a washer pump.




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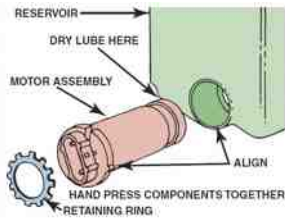
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FIGURE 25-15 Washer pumps usually install into the reservoir and are held in place with a retaining ring.




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**FIGURE 25-16** A typical rain sensing module located on the inside of the windshield near the inside rearview mirror.



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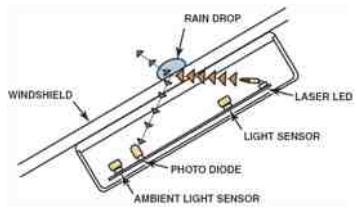
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**FIGURE 25-17** The electronics in the rain sense wiper module can detect the presence of rain drops under various lighting conditions.



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**FIGURE 25-18** A squirrel cage blower motor. A replacement blower motor usually does not come equipped with the squirrel cage blower, so it has to be switched from the old motor.



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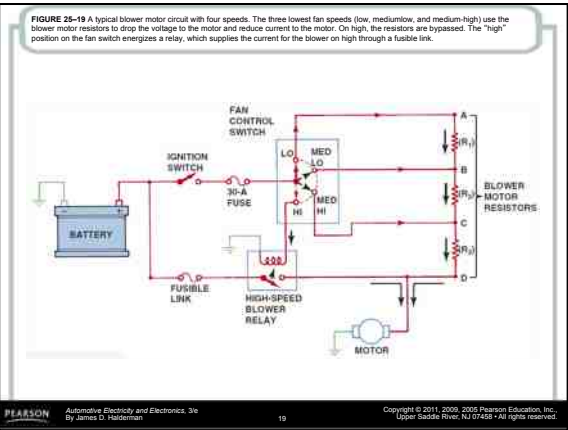
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**FIGURE 25-22** Using a mini AC/DC clamp-on multimeter to measure the current draw of a blower motor.



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