

FIGURE 13-1 A freely suspended natural magnet (lodestone) will point toward the magnetic north pole.



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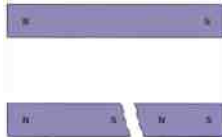
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FIGURE 13-2 If a magnet breaks or is cracked, it becomes two weaker magnets.



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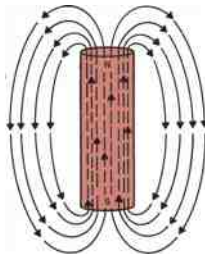
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FIGURE 13-3 Magnetic lines of force leave the north pole and return to the south pole of a bar magnet.



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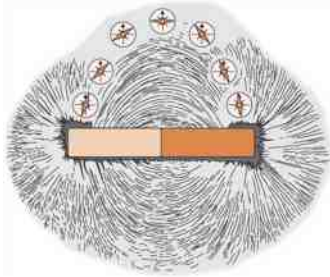
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FIGURE 13-4 Iron filings and a compass can be used to observe the magnetic lines of force.



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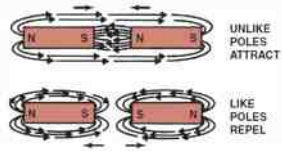
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FIGURE 13-5 Magnetic poles behave like electrically charged particles—unlike poles attract and like poles repel.



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FIGURE 13-6 A crankshaft position sensor and reluctor (notched wheel).



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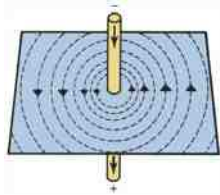
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FIGURE 13-7 A magnetic field surrounds a straight, current-carrying conductor.



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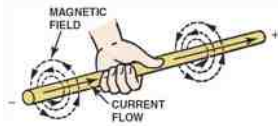
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FIGURE 13-8 The left-hand rule for magnetic field direction is used with the electron flow theory.



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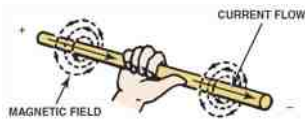
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FIGURE 13-9 The right-hand rule for magnetic field direction is used with the conventional theory of electron flow.



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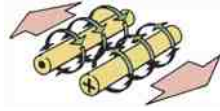
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FIGURE 13-10 Conductors with opposing magnetic fields will move apart into weaker fields.



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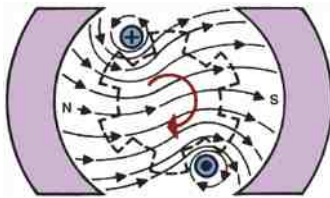
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FIGURE 13-11 Electric motors use the interaction of magnetic fields to produce mechanical energy.



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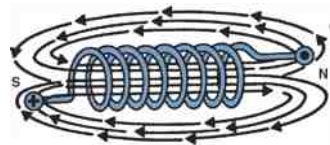
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FIGURE 13-12 The magnetic lines of flux surrounding a coil look similar to those surrounding a bar magnet.



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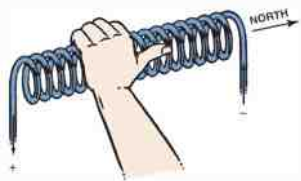
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FIGURE 13-13 The left-hand rule for coils is shown.



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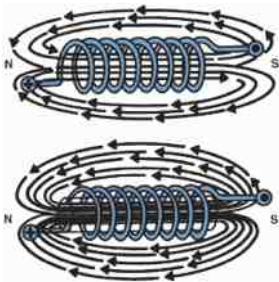
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FIGURE 13-14 An iron core concentrates the magnetic lines of force surrounding a coil.



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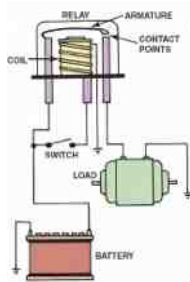
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FIGURE 13-15 An electromagnetic switch that has a movable arm is referred to as a relay.



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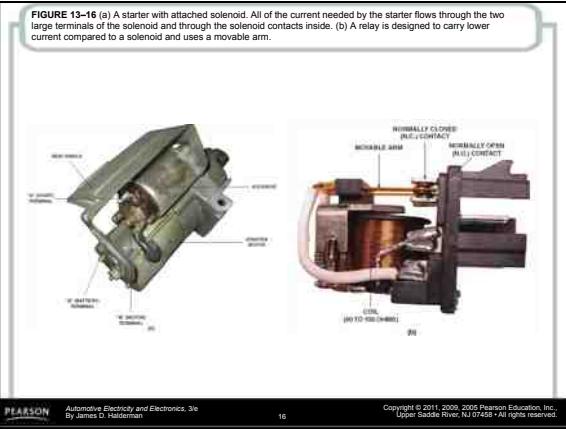
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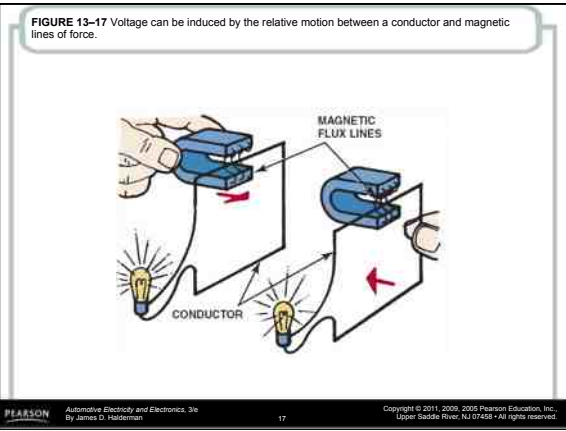
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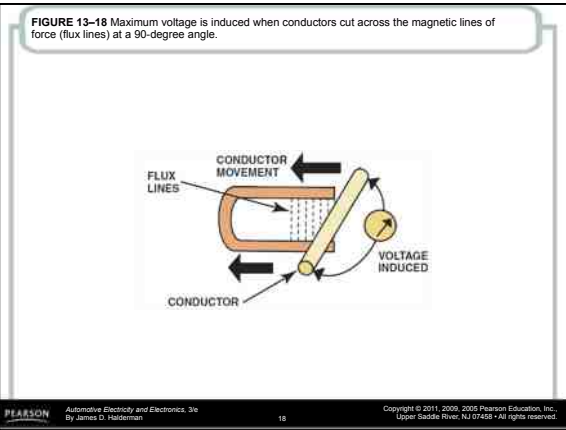
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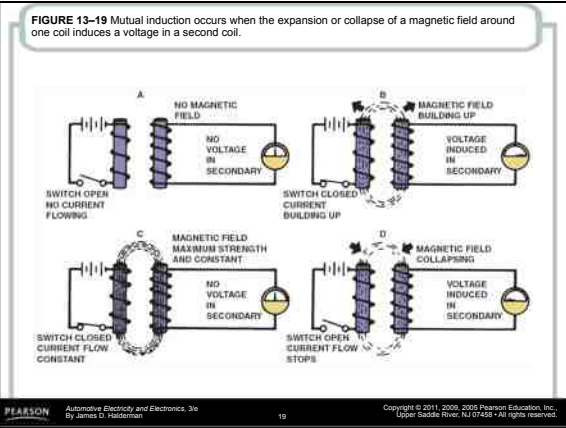
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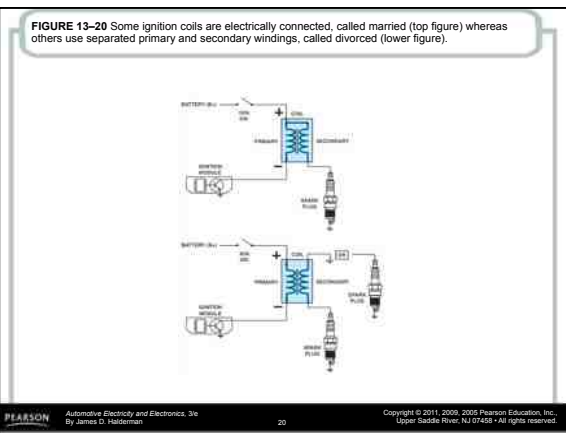
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**FIGURE 13-22** The coil-on-plug (COP) design typically uses a bobbin-type coil.



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**FIGURE 13-23** To help prevent underhood electromagnetic devices from interfering with the antenna input, it is important that all ground wires, including the one from this power antenna, be properly grounded.



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