


27 HEATING AND AIR CONDITIONING SYSTEMS

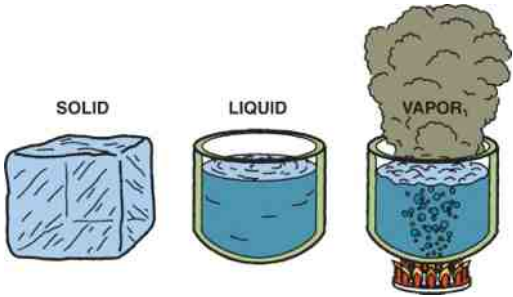
FIGURE 27.3 Heater hoses are the smaller coolant hoses that run from and back to the engine.



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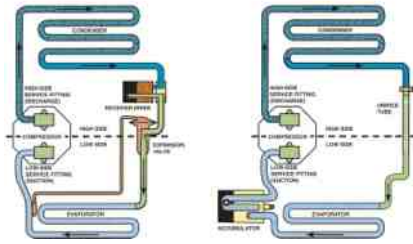
FIGURE 27.4 Water is a substance that can be found naturally in solid, liquid, and vapor states.



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FIGURE 27.5 The evaporator serves to allow the liquid refrigerant to evaporate and absorb heat from the passenger compartment. The evaporator is located inside the passenger compartment in the dash area usually behind the glove compartment.



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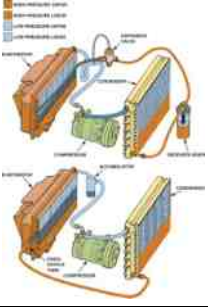
FIGURE 27.6 A typical air conditioning compressor that is belt driven.



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FIGURE 27.7 The evaporator serves the same function for both the orifice-tube and the expansion valve-type air conditioning system and that is to allow the liquid refrigerant to evaporate and absorb heat from the passenger compartment.



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FIGURE 27.8 Air flows through the vent to the passenger compartment. Above this vent on the driver's side is another smaller vent used to demist the driver's door glass.



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FIGURE 27.9 R-134a is available in 12-oz cans as well as larger 30-lb containers.



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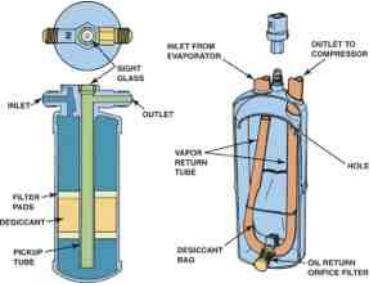
FIGURE 27.10 The label on a Toyota Fuel Cell Hybrid Vehicle (FCHV) showing that CO₂ is being used as the refrigerant.



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FIGURE 27.11 Some systems store excess refrigerant in a receiver-drier, which is located in the high-side liquid section of the system, whereas other systems (orifice-tube systems) store excess refrigerant in an accumulator located in the low-side vapor section of the system.



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FIGURE 27.12 Aluminum tubing lines and the accumulator have service valves that are used to test system pressures and to evacuate and recharge the system using a recovery and recharging machine.



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FIGURE 27.13 An air conditioning thermometer being used to check the discharge temperature at the center vents.



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FIGURE 27.14 An electronic leak detector being used to check for leaks at the hoses and connections of an air conditioning system.



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