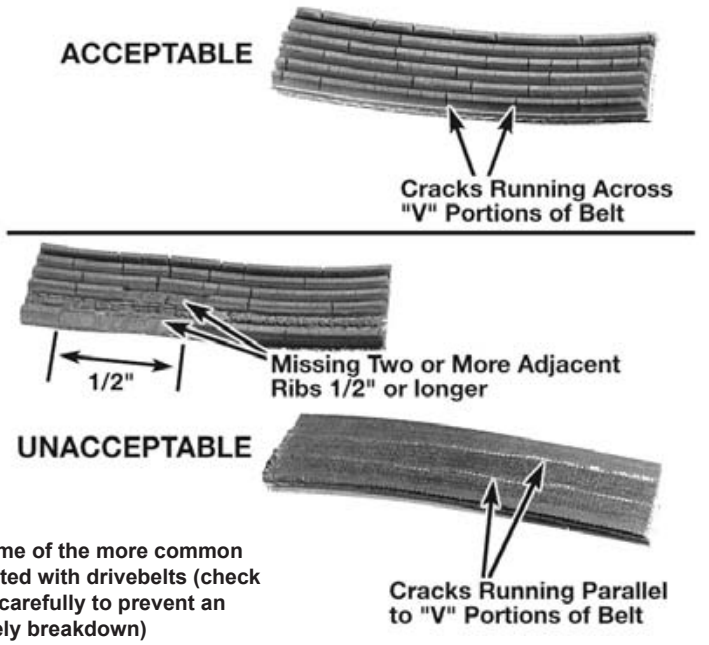


9.3 Here are some of the more common problems associated with drivebelts (check the belts very carefully to prevent an untimely breakdown)

charger (sometimes called a “trickle” charger). They are the safest and put the least strain on the battery. They are also the least expensive. For a faster charge, you can use a higher amperage charger, but don’t use one rated more than 1/10th the amp/hour rating of the battery. Rapid boost charges that claim to restore the power of the battery in one to two hours are hardest on the battery and can damage batteries not in good condition. **Caution:** *Toyota specifies that a “quick-charge” system not be used*.

16 The average time necessary to charge a battery should be listed in the instructions that come with the charger. As a general rule, a trickle charger will charge a battery in 12 to 16 hours.

9 Drivebelt check, adjustment and replacement (every 7500 miles or 6 months)

Warning: *Make sure power to the hybrid system is turned Off before performing any work on this vehicle. Also, on models equipped with the Smart Key system, place the key in a secure spot at least 20 feet away from the work area.*

Check

Refer to illustration 9.3

1 The water pump, alternator and, on 2003 and earlier models, the air conditioning compressor, are driven by one serpentine belt. Because of their composition and the stresses they are subjected to, drivebelts stretch and deteriorate as they get older. They must therefore be inspected periodically.

2 The serpentine belt has an adjuster bolt which applies tension to the belt via an idler pulley.

3 With the engine off, open the hood and locate the drivebelt. With a flashlight, check the belt for separation of the adhesive rubber on both sides of the core, core separation from the belt side, a severed core, separation of the ribs from the adhesive rubber, cracking or separation of the ribs, and torn or worn ribs or cracks in the inner ridges of the ribs **(see illustration)**. Also check for fraying and glazing, which gives the belt a shiny appearance. Both sides of the belt should be inspected, which means you will have to twist the belt to check the underside. Use your fingers to feel the belt where you can’t see it. If any of the above conditions are evident, replace the belt (go to Step 4).

Adjustment/replacement

Refer to illustrations 9.4

4 Loosen the lock nut, then loosen the tension on the belt by turning the adjuster bolt **(see illustration)**. Remove the belt.

5 Route the new belt over the pulleys. Tighten the adjuster bolt until the belt is adequately tight (1/2” deflection when a 20 pound load is applied).

6 Tighten the lock nut to the torque value listed in this Chapter’s Specifications. Make sure the belt is properly centered in the pulleys.

Drivebelt tensioner pulley replacement

7 To replace a tensioner that exhibits binding or a worn-out bearing/pulley, remove the drivebelt (see Step 4) then unscrew the mounting nut.

8 Installation is the reverse of the removal procedure.

9 Install the drivebelt (see Steps 5 and 6), then tighten the nut to the torque value listed in this Chapter’s Specifications

10 Underhood hose check and replacement (every 7500 miles or 6 months)

Warning: *Make sure power to the hybrid system is turned Off before performing any work on this vehicle. Also, on models equipped with the Smart Key system, place the key in a secure spot at least 20 feet away from the work area.*

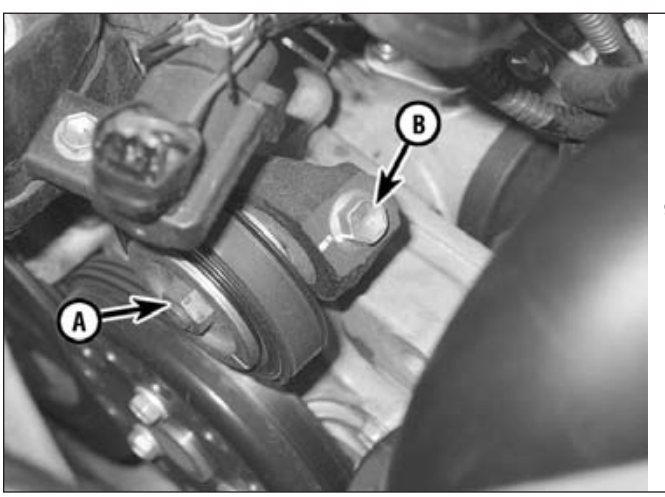
Caution: *Replacement of air conditioning hoses must be left to a dealer service department or air conditioning shop that has the equipment to recover the refrigerant. Never remove air conditioning components or hoses until the system has been depressurized.*

General

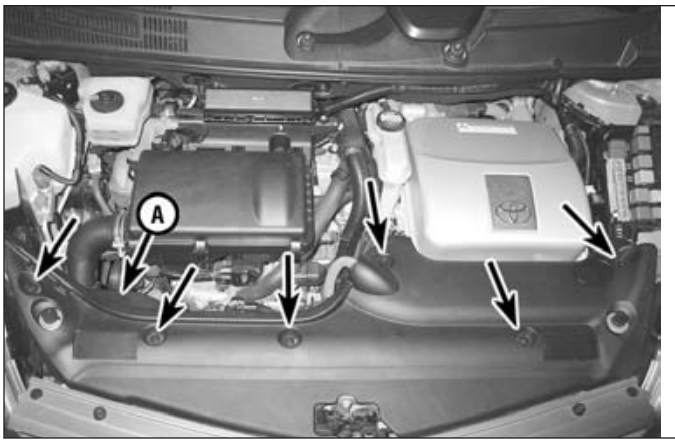
1 High temperatures in the engine compartment can cause the deterioration of the rubber and plastic hoses used for engine, accessory and emission systems operation. Periodic inspection should be made for cracks, loose clamps, material hardening and leaks.

2 Information specific to the cooling system hoses can be found in Section 11.

3 Some, but not all, hoses are secured to



9.4 Drivebelt tensioner lock bolt (A) and adjuster bolt (B)



11.3 Remove the plastic fasteners and lift off the radiator cover for access to the radiator cap ("A" indicates cap location)

the fittings with clamps. Where clamps are used, check to be sure they haven't lost their tension, allowing the hose to leak. If clamps aren't used, make sure the hose has not expanded and/or hardened where it slips over the fitting, allowing it to leak.

Vacuum hoses

4 It's quite common for vacuum hoses, especially those in the emissions system, to be color coded or identified by colored stripes molded into them. Various systems require hoses with different wall thickness, collapse resistance and temperature resistance. When replacing hoses, be sure the new ones are made of the same material.

5 Often the only effective way to check a hose is to remove it completely from the vehicle. If more than one hose is removed, be sure to label the hoses and fittings to ensure correct installation.

6 When checking vacuum hoses, be sure to include any plastic T-fittings in the check. Inspect the fittings for cracks and the hose where it fits over the fitting for distortion, which could cause leakage.

7 A small piece of vacuum hose (1/4-inch inside diameter) can be used as a stethoscope to detect vacuum leaks. Hold one end of the hose to your ear and probe around vacuum hoses and fittings, listening for the "hissing" sound characteristic of a vacuum leak. **Warning:** *When probing with the vacuum hose stethoscope, be very careful not to come into contact with moving engine components such as the drivebelt, cooling fan, etc.*

Fuel hose

Warning: *Gasoline is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area, and don't work in a garage where a gas-type appliance (such as a water heater or a clothes dryer) is present. Since gasoline is carcinogenic, wear fuel-resistant gloves when there's a possibility of being exposed to fuel, and, if you spill any fuel on your skin, rinse it off immediately with soap and water. Mop up any spills immediately and do not store fuel-soaked rags where they could ignite. The fuel system is under constant pressure, so, if any fuel lines are to be disconnected, the fuel pressure in the system must be relieved first. When you perform any kind of work on the fuel system, wear safety glasses and have a Class B type fire extinguisher on hand.*

8 Check all rubber fuel lines for deterioration and chafing. Check especially for cracks in areas where the hose bends and just before fittings, such as where a hose attaches to the fuel filter.

9 High quality fuel line, specifically designed for fuel injection systems, must be used for fuel line replacement. **Warning:** *Never use anything other than the proper fuel line for fuel line replacement.*

10 Spring-type clamps are commonly used on fuel lines. These clamps often lose their tension over a period of time, and can be "sprung" during removal. Replace all spring-type clamps with screw clamps whenever a hose is replaced.

Metal lines

11 Sections of metal line are often used for fuel line between the fuel pump and fuel injection unit. Check carefully to be sure the line has not been bent or crimped and that cracks have not started in the line.

12 If a section of metal fuel line must be replaced, only seamless steel tubing should be used, since copper and aluminum tubing don't have the strength necessary to withstand normal engine vibration.

13 Check the metal brake lines where they enter the master cylinder and brake proportioning unit (if used) for cracks in the lines or loose fittings. Any sign of brake fluid leakage calls for an immediate thorough inspection of the brake system.

11 Cooling system check (every 7500 miles or 6 months)

Refer to illustrations 11.3 and 11.4

Warning 1: *Wait until the engine is completely cool before beginning this procedure.*

Warning: *Make sure power to the hybrid system is turned Off before performing any work on this vehicle. Also, on models equipped with the Smart Key system, place the key in a secure spot at least 20 feet away from the work area.*

11.4 Hoses, like drivebelts, have a habit of failing at the worst possible time - to prevent the inconvenience of a blown hose, inspect them carefully as shown here

1 Many major engine failures can be attributed to a faulty cooling system. The cooling system also cools the transaxle fluid and thus plays an important role in prolonging transaxle life.

2 The cooling system should be checked with the engine cold. Do this before the vehicle is driven for the day or after the engine has been shut off for at least three hours.

3 Remove the radiator cover **(see illustration)**, then remove the radiator cap by turning it to the left until it reaches a stop. If you hear a hissing sound (indicating there is still pressure in the system), wait until it stops. Now press down on the cap with the palm of your hand and continue turning to the left until the cap can be removed. Thoroughly clean the cap, inside and out, with clean water. Also