

11.6a Battery terminal corrosion usually appears as light, fluffy powder



11.6b Removing a cable from the battery post with a wrench - sometimes a special battery pliers is required for this procedure if corrosion has caused deterioration of the nut hex (always remove the ground cable first and hook it up last!)



11.7a When cleaning the cable clamps, all corrosion must be removed (the inside of the clamp is tapered to match the taper on the post, so don't remove too much material)

not torn or damaged. It should completely cover the terminal. Look for any corroded or loose connections, cracks in the case or cover or loose hold-down clamps. Also check the entire length of each cable for cracks and frayed conductors.

6 If corrosion, which looks like white, fluffy deposits (see illustration) is evident, particularly around the terminals, the battery should be removed for cleaning. Loosen the cable clamp bolts with a wrench, being careful to remove the ground cable first, and slide them off the terminals (see illustration). Then disconnect the hold-down clamp bolt and nut, remove the clamp and lift the battery from the engine compartment.

7 Clean the cable clamps thoroughly with a battery brush or a terminal cleaner and a solution of warm water and baking soda (see illustration). Wash the terminals and the top of the battery case with the same solution but make sure that the solution doesn't get into the battery. When cleaning the cables, terminals and battery top, wear safety goggles and rubber gloves to prevent any solution from coming in contact with your eyes or hands. Wear old clothes too - even diluted, sulfuric acid splashed onto clothes will burn holes in them. If the terminals have been extensively corroded, clean them up with a terminal cleaner (see illustration). Thoroughly wash all cleaned areas with plain water.

8 Make sure that the battery tray is in good condition and the hold-down clamp bolt or nut is tight. If the battery is removed from the tray, make sure no parts remain in the bottom of the tray when the battery is reinstalled. When reinstalling the hold-down clamp bolt or nut, do not overtighten it.

9 Information on removing and installing the battery can be found in Chapter 5. Information on jump starting can be found at the front of this manual. For more detailed battery checking procedures, refer to the *Haynes Automotive Electrical Manual*.

Cleaning

10 Corrosion on the hold-down compo-

nents, battery case and surrounding areas can be removed with a solution of water and baking soda. Thoroughly rinse all cleaned areas with plain water.

11 Any metal parts of the vehicle damaged by corrosion should be covered with a zinc-based primer, then painted.

Charging

Warning: When batteries are being charged, hydrogen gas, which is very explosive and flammable, is produced. Do not smoke or allow open flames near a charging or a recently charged battery. Wear eye protection when near the battery during charging. Also, make sure the charger is unplugged before connecting or disconnecting the battery from the charger.

12 Slow-rate charging is the best way to restore a battery that's discharged to the point where it will not start the engine. It's also a good way to maintain the battery charge in a vehicle that's only driven a few miles between starts. Maintaining the battery charge is particularly important in the winter when the battery must work harder to start the engine and electrical accessories that drain the battery are in greater use.

13 It's best to use a one or two-amp battery 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. This type of charging should only be used in emergency situations.

14 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.



11.7b Regardless of the type of tool used to clean the battery posts, a clean, shiny surface should be the result

12 Drivebelt check, adjustment and replacement (every 6000 miles or 6 months)

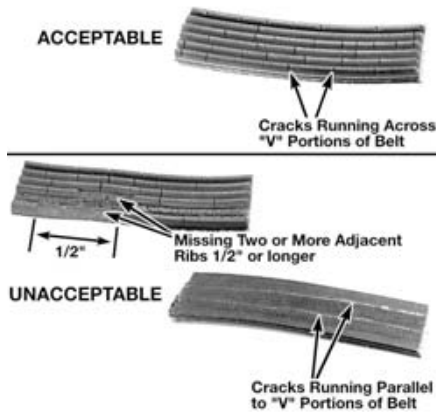
Refer to illustrations 12.3, 12.4, 12.5, 12.6 and 12.10

Check

1 The alternator, power steering pump and air conditioning compressor drivebelts, also referred to as simply "fan" belts, are located at the right end of the engine. The good condition and proper adjustment of the alternator belt is critical to the operation of the engine. Because of their composition and the high stresses to which they are subjected, drivebelts stretch and deteriorate as they get older. They must therefore be periodically inspected.

2 The number of belts used on a particular vehicle depends on the accessories installed. One belt transmits power from the crankshaft to the alternator and air conditioning. If the vehicle is equipped with power steering, the pump is driven by its own belt.

3 With the engine off, open the hood and locate the drivebelts at the left end of the engine. With a flashlight, check each belt for separation of the adhesive rubber on both sides of the core, core separation from the



12.3 Check the multi-ribbed belt for signs of wear like these – if the belt looks worn, replace it

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 8).

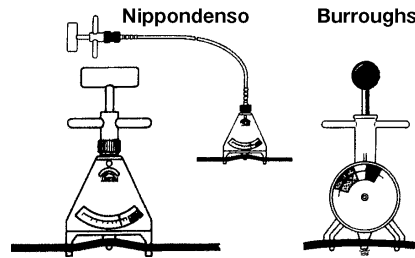
4 To check the tension of each belt in accordance with factory specifications, install either a Nippondenso or Burroughs belt tension gauge on the belt (**see illustration**). Measure the tension in accordance with the manufacturer's instructions and compare your measurement to the specified drivebelt tension for either a used or new belt. **Note:** A "used" belt is defined as any belt which has been operated more than five minutes on the engine; a "new" belt is one that has been used for less than five minutes.

5 If you don't have either of the above tools, and cannot borrow one, the following rule of thumb method is recommended: Push firmly on the belt with your thumb at a distance halfway between the pulleys and note how far the belt can be pushed (deflected). Measure this deflection with a ruler (**see illustration**). The belt should deflect 1/4-inch if the distance from pulley center to pulley center is between 7 and 11 inches; the belt should deflect 1/2-inch if the distance from pulley center to pulley center is between 12 and 16 inches.

Adjustment

6 If the alternator/air conditioner compressor belt must be adjusted, loosen the alternator pivot bolt located on the front left corner of the block. Loosen the locking bolt and turn the adjusting bolt (**see illustration**). Measure the belt tension in accordance with one of the above methods. Repeat this step until the air conditioning compressor drivebelt is adjusted.

7 Adjust the power steering pump belt by



12.4 If you are able to borrow either a Nippondenso or Burroughs belt tension gauge, this is how it's installed on the belt - compare the reading on the scale with the specified drivebelt tension

loosening adjustment bolt that secures the pump to the slotted bracket and pivot the pump (away from the engine to tighten the belt, toward it to loosen it). Repeat the procedure until the drivebelt tension is correct and tighten the bolt.

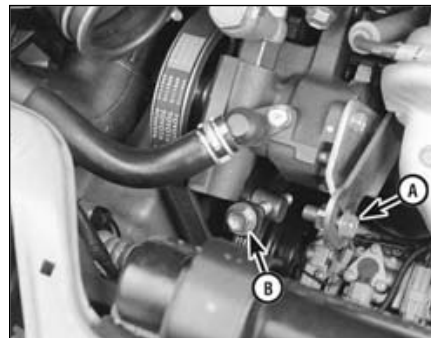
Replacement

8 To replace a belt, follow the above procedures for drivebelt adjustment but slip the belt off the crankshaft pulley and remove it. If you are replacing the power steering pump belt, you will have to remove the air conditioning compressor belt first because of the way they are arranged on the crankshaft pulley. Because of this and because belts tend to wear out more or less together, it is a good idea to replace both belts at the same time. Mark each belt and its appropriate pulley groove so the replacement belts can be installed in their proper positions.

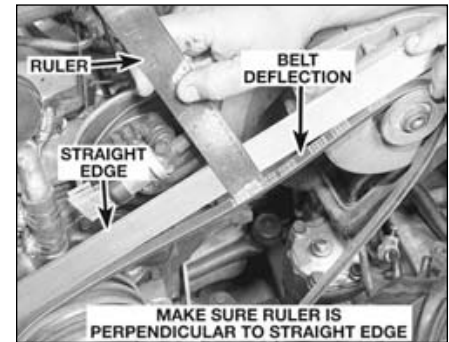
9 Take the old belts to the parts store in order to make a direct comparison for length, width and design.

10 After replacing the drivebelt, make sure that it fits properly in the ribbed grooves in the pulleys (**see illustration**). It is essential that the belt be properly centered.

11 Adjust the belt(s) in accordance with the procedure outlined above.



12.6 After loosening the pivot bolt and nut (A), a socket with an extension can be used to turn the adjusting bolt (B)



12.5 Measuring drivebelt deflection with a straightedge and ruler

13 Underhood hose check and replacement (every 6000 miles or 6 months)

Caution: Replacement of air conditioning hoses must be left to a dealer service department or air conditioning shop that has the equipment to depressurize the system safely. 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 14.

3 Some, but not all, hoses are secured to 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



CORRECT



WRONG

12.10 When installing a multi-ribbed belt, make sure that it is centered - it must not overlap either edge of the pulley