20.5d Cleaning the battery cable clamp with the special tool

10 If the vehicle is not being used for an extended period, disconnect the battery cables and have the battery charged approximately every six weeks.

Cleaning

11 Corrosion on the battery hold-down components and inner fender panel can be removed by washing with a solution of water and baking soda. Once the area has been thoroughly cleaned, rinse it with clear water.

12 Corrosion on the battery case and terminals can also be removed with a solution of water and baking soda and a stiff brush, Be careful that none of the solution is splashed into your eyes or onto your skin (wear protective gloves). Do not allow any of the baking soda and water solution to get into the battery cells. Rinse the battery thoroughly once it is clean.

13 Metal parts of the vehicle which have been damaged by spilled battery acid should be painted with a zinc-based primer and paint. Do this only after the area has been thoroughly cleaned and dried.

Charging

14 As mentioned before, if the battery's specific gravity is below the specified level, the battery must be recharged.

15 If the battery is to remain in the vehicle during charging, disconnect the cables from the battery to prevent damage to the electrical system.

16 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. Also, do not plug in the battery charger until the connections have been made at the battery posts.

17 The average time necessary to charge a battery at the normal rate is from 12 to 16 hours. Always charge the battery slowly. A quick charge or boost charge is hard on a battery and will shorten its life. Use a battery charger that is rated at no more than 1/10 the amp/hour rating of the battery.

18 Remove all of the cell caps and cover the holes with a clean cloth to prevent the spattering of electrolyte. Hook the battery charger leads to the battery posts (positive to positive, negative to negative), then plug in the charger. Make sure it is set at 12 volts if it has a selector switch.

19 Watch the battery closely during charging to make sure that it does not overheat.

20 The battery can be considered fully charged when it is gassing freely and there is no increase in specific gravity during three successive readings taken at hourly intervals. Overheating of the battery during charging at normal charging rates, excessive gassing and continual low specific gravity readings are indications that the battery should be replaced with a new one.

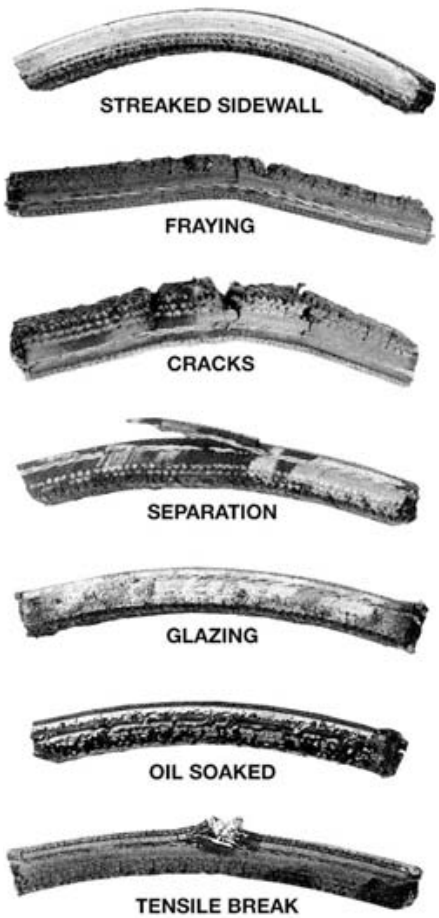
21 Drivebelt check and adjustment

Refer to illustrations 21.3, 21.4 and 21.12

1 The drivebelts, or V-belts as they are sometimes called, are located at the front of the engine and play an important role in the overall operation of the vehicle and its components. Due to their function and material make-up, the belts are prone to failure after a period of time and should be inspected and adjusted periodically to prevent major engine damage.

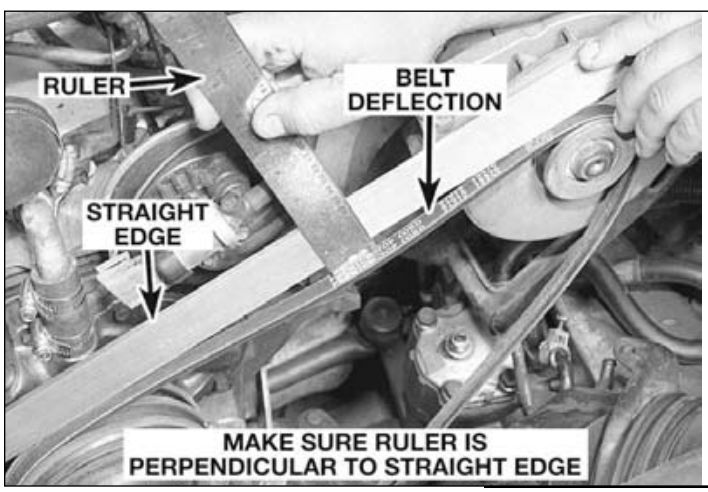
2 The number of belts used on a particular vehicle depends on the accessories installed. Drivebelts are used to turn the alternator, power steering pump, water pump and air-conditioning compressor. Depending on the pulley arrangement, a single belt may be used to drive more than one of these components.

3 With the engine off, open. the hood and locate the various belts at the front of the engine. Using your fingers (and a flashlight, if necessary), move along the belts checking for cracks and separation of the belt plies. 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 **(see illustration)**.

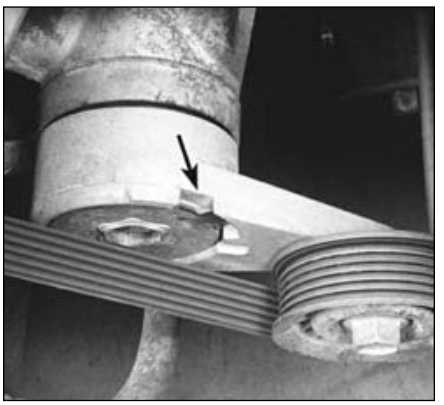


21.3 Here are some of the more common problems associated with drivebelts (check the belts very carefully to prevent an untimely breakdown)

4 The tension of each belt is checked by laying a straightedge, such as a wooden stick, across the longest free span (distance between two pulleys) of the drivebelt to be measured. Apply pressure with your hand and see how much the belt moves down (deflects). A rule of thumb is that if the dis-



21.4 Measuring drivebelt deflection with a straightedge and ruler



21.12 The wear indicator should be between the Min and Max acceptable marks on 5.0L and 5.8L V8 engines

tance from pulley center-to-pulley center is between 7 and 11 inches, the belt should deflect 1/4-inch. If the belt is longer and travels between pulleys spaced 12 to 16 inches apart, the belt should deflect 1/2-inch **(see illustration)**.

5 If it is necessary to adjust the belt tension, either to make the belt tighter or looser, it is done by moving the belt driven component on a bracket or by moving an idler pulley.

6 For each component there will be an adjustment or strap bolt and a pivot bolt. Both bolts must be loosened slightly to enable you to move the component.

7 After the bolts have been loosened, move the component away from the engine to tighten the belt or toward the engine to loosen the belt. Hold the component in position and check the belt tension. If it is correct, tighten the bolts until just snug, then recheck the tension. If it is correct, tighten the bolts.

8 It will often be necessary to use some sort of pry bar to move the component while the belt is adjusted. If this must be done to gain the proper leverage, be very careful not to damage the component being moved or the part being pried against. If an idler pulley is used to tension the belt, it may have a square hole in it to accept a breaker bar, which can be used to lever the idler pulley and tension the belt.

Drivebelt check and replacement - serpentine type

9 Many later models are equipped with a single serpentine drivebelt. This drivebelt is located at the front of the engine. The belt drives the water pump, alternator, power steering pump, air conditioner compressor and thermactor air pump. The condition and tension of the drivebelt is critical to the operation of the engine and accessories. Excessive tension causes bearing wear, while insufficient tension produces slippage, noise, component vibration and belt failure. Because of the belt composition and the high stress to which it subjected, the drivebelt will stretch and continue to deteriorate as it gets older. As a result, it must be periodically checked. The serpentine belt has an automatic tensioner and requires no adjustment for the life of the belt.

Check

10 The “serpentine” type belt is a single V-ribbed belt and is used to drive all accessories and is so called because of the winding path it follows between the various drive, accessory and idler pulleys.

11 With the engine off, open the hood and locate the drive belt at the front of the engine. With a flashlight, check the belt for separation of the rubber plies from each side of the core, a severed core, separation of the ribs from the rubber, cracks, torn or worn ribs and cracks in the inner ridges of the ribs. Also check for fraying and glazing, which gives the belt a shinny appearance. Cracks in the rib side of the V-ribbed belts are acceptable, as are small chunks missing from the ribs. Both sides of the belt should be inspected, which means you’ll have to twist it to check the underside. Use your fingers to feel a belt where you can’t see. If any of the above conditions are evident, replace the belt as described in the following Steps.

12 To check the tension of the serpentine belt, look at the wear indicator (Fig. 21.12). It should be between the Min and Max acceptable marks. If it is not between the two marks, replace the belt.

Replacement

13 Install a 5/8-inch or 16 mm box-end wrench on the tensioner pulley bolt and lift the tensioner arm and pulley away from the belt.

14 Remove the old belt and release the tensioner slowly. **Caution:** *Do not allow the tensioner to snap back after the belt is removed because this may damage the tensioner.*

15 Install a new belt over each pulley, making sure that all six belt ribs are correctly seated in each pulley groove.

16 Move the tensioner arm back away and place the belt under the pulley. Slowly release the tensioner back onto the belt.

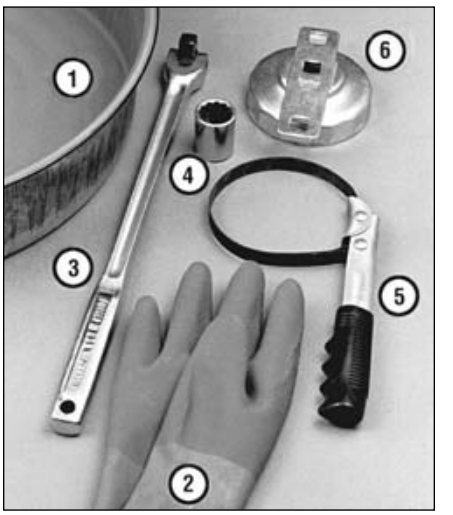
22 Engine oil and filter change

Refer to illustrations 22.3, 22.9, 22.13 and 22.19

1 Frequent oil changes may be the best form of preventative maintenance available to the home mechanic. When engine oil ages, it becomes diluted and contaminated, leading to premature engine wear.

2 Although some sources recommend oil filter changes every other oil change, we feel that the minimal cost of an oil filter and the relative ease with which it is installed dictate that anew filter be used whenever the oil is changed.

3 The tools necessary for an oil and filter change are a wrench to fit the drain plug at the bottom of the oil pan, an oil filter wrench to remove the old filter, a container with at least a six quart capacity to drain the old oil into and a funnel or oil can spout to help pour fresh oil into the engine **(see illustration)**.



22.3 These tools are required when changing the engine oil and filter

1 ***Drain pan*** *- It should be fairly shallow in depth, but wide in order to prevent spills*
2 ***Funnel*** *- To prevent spills when adding oil to the engine (particularly the six cylinder)*
3 ***Filter wrench*** *- Shown is a metal band-type wrench, but other types will work as well*
4 ***Breaker bar*** *- Sometimes the oil drain plug is pretty tight and a long breaker bar is needed to loosen it*
5 ***Socket*** *- To be used with the breaker bar or a ratchet (must be the correct size to fit the drain plug)*
6 ***Can opener*** *- Used to open the new oil cans*
7 ***Oil spout*** *- Can be used in place of the funnel when adding oil to the engine (particularly a V8)*
8 ***Rubber gloves*** *- When removing the drain plug and filter it is inevitable that you will get oil on your hands(the gloves will prevent burns)*

4 You should have plenty of clean rags and newspapers handy to mop up any spills. Access to the underside of the vehicle is greatly improved if the vehicle can be lifted on a hoist, driven onto ramps or supported by jackstands. **Warning:** *Do not work under a vehicle which is supported only by a bumper, hydraulic or scissors jack.*

5 If this is your first oil change on the vehicle, it is recommended that you crawl underneath and familiarize yourself with the locations of the oil drain plug and the oil filter. The engine and exhaust components will be warm during the actual work, so it is a good idea to figure out any potential problems before the engine is started.

6 Allow the engine to warm to normal operating temperature. If new oil or any tools are needed, use this warm-up time to gather