Chapter 8 Clutch and driveline

Contents

Specifications

Clutch

Clutch hydraulic system fluid type	See Chapter 1
Clutch disc minimum thickness	0.039 in (1.0 mm)
Clutch release lever free play (adjustable models only)	0.14 to 0.18 in (3.5 to 4.5 mm)

Driveline

Driveshaft runout limit	0.016 in (0.4 mm)
Driveaxle length (4WD models)	
Right side	24.49 in (622 mm)
Left side	21.81 in (554 mm)
U-joint snap-ring thickness	0.0571 in (1.45 mm) 0.0583 in (1.48 mm) 0.0594 in (1.51 mm) 0.0606 in (1.54 mm) 0.0618 in (1.57 mm) 0.0630 in (1.60 mm) 0.0642 in (1.63 mm)

Rear axle

Rear axle shaft end play	
1984 and earlier	
First installed	0.026 to 0.033 in (0.65 to 0.85 mm)
Second installed	0.002 to 0.006 in (0.05 to 0.15 mm)
1986 and later	
First installed	0.026 to 0.037 in (0.65 to 0.95 mm)
Second installed	0.002 to 0.010 in (0.05 to 0.25 mm)

Torque specifications

	Ft-lbs
Clutch	
Pressure plate-to-flywheel bolts	
B1600, B1800, B2000 and B2200	13 to 20
B2600	
Through 1988	16 to 24
1989 and later	18 to 26
Transmission-to-engine bolts	
1984 and earlier	51 to 65
1986 and later	27 to 38
Driveline	
U-joint flange-to-differential companion flange	
1984 and earlier	40 to 47
1986 and 1987	36 to 43
1988 and later	20 to 22
Center U-joint yoke-to-intermediate shaft nut	116 to 130
Center bearing support-to-frame bolts	27 to 39
Rear axle	
Rear axle bearing retainer/brake backing plate-to-axle housing nuts	
1984 and earlier	33 to 36
1986 and later 2WD	65 to 80
4WD	72 to 87
Rear axle housing-to-leaf spring U-bolt nuts	
1987 and earlier	47 to 57
1988 and later	62 to 101
Differential-to-axle housing bolts	17 to 20
Front axle (4WD)	
Front crossmember-to-frame bolts	57
Center crossmember-to-frame bolts	69 to 85
Center crossmember-to-differential bolts	57
Differential-to-axle housing bolts	17 to 20
Freewheel hub cover-to-hub body bolts	22 to 25
Wheels	
Wheel lug nuts	
1981 and earlier	58 to 65
1982 thru 1984	
Standard wheels	72 to 80
Styled wheels	87 to 94
1986 and later	87 to 108

1 General information

The information in this Chapter deals with the components from the rear of the engine to the rear wheels and to the front wheels on 4WD models, except for the transmission and transfer case (4WD models), which are dealt with in the previous Chapter. For the purposes of this Chapter, these components are grouped into four categories; clutch, driveshaft, front axle and rear axle. Separate Sections within this Chapter offer general descriptions and checking procedures for each of these groups.

Since nearly all the procedures covered in this Chapter involve working under the vehicle, make sure it's securely supported on sturdy jackstands or on a hoist where the vehicle can be easily raised and lowered.

2 Clutch — description and check

Refer to illustration 2.1

1 All models equipped with a manual transmission feature a single dry plate, diaphragm spring-type clutch (**see illustration**). The actuation is through a hydraulic system.

2 When the clutch pedal is depressed, hydraulic fluid (under pressure from the clutch master cylinder) flows into the release cylinder. Because the release cylinder is connected to the clutch fork, the fork moves the release bearing into contact with the pressure plate release fingers, disengaging the clutch disc.

3 Early models have an adjustable release cylinder pushrod to adjust the free-play in the clutch release lever. On later models, no such adjustment is possible.

4 Terminology can be a problem regarding the clutch components because common names have in some cases changed from that used by the manufacturer. For example, the driven plate is also called the clutch plate or disc, the clutch release bearing is sometimes called a throwout bearing, the release cylinder is sometimes called the operating or slave cylinder.

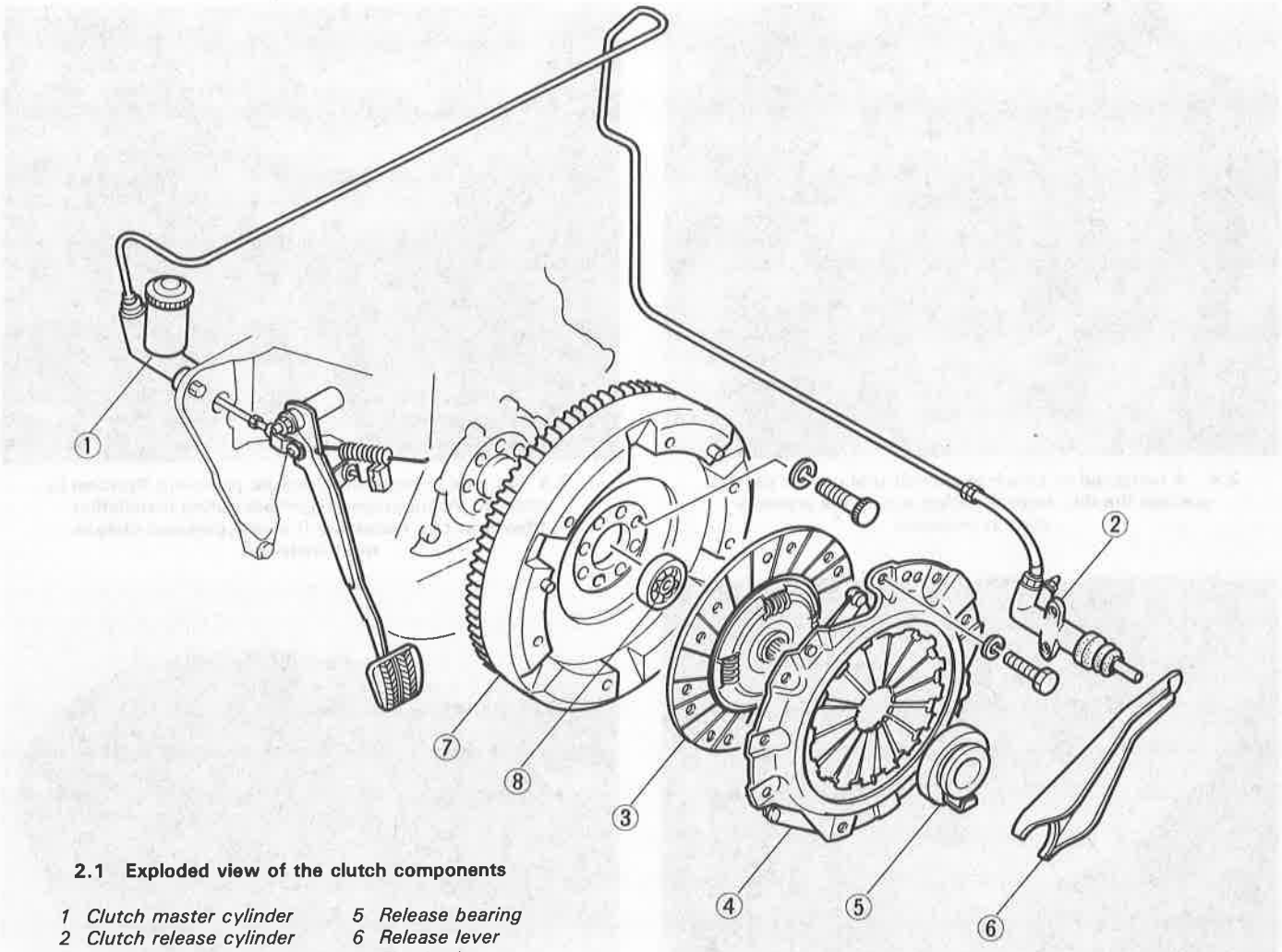
5 Due to the slow wearing qualities of the clutch, it is not easy to decide when to go to the trouble of removing the transmission in order to check the wear on the friction lining. The only positive indication that something should be done is when it starts to slip or when squealing noises during engagement indicate that the friction lining has worn down to the rivets. In such instances it can only be hoped that the friction surfaces on the flywheel and pressure plate have not been badly worn or scored.

6 A clutch will wear according to the way in which it is used. Much intentional slipping of the clutch while driving — rather than the correct selection of gears — will accelerate wear. It is best to assume, however, that the disc will need replacement at about 40,000 miles (64,000 km).

7 Because of the clutch's location between the engine and transmission, it cannot be worked on without removing either the engine or transmission. If repairs which would require removal of the engine are not needed, the quickest way to gain access to the clutch is by removing the transmission as described in Chapter 7.

8 Other than to replace components with obvious damage, some preliminary checks should be performed to diagnose a clutch system failure.

a) The first check should be of the fluid level in the clutch master cylinder. If the fluid level is low, add fluid as necessary and re-test.



2.1 Exploded view of the clutch components

1 Clutch master cylinder
2 Clutch release cylinder
3 Clutch disc
4 Pressure plate
5 Release bearing
6 Release lever
7 Flywheel
8 Pilot bearing

If the master cylinder runs dry, or if any of the hydraulic components are serviced, bleed the hydraulic system as described in Section 8.

b) To check "clutch spin down time", run the engine at normal idle speed with the transmission in Neutral (clutch pedal up — engaged). Disengage the clutch (pedal down), wait nine seconds and shift the transmission into Reverse. No grinding noise should be heard. A grinding noise would indicate component failure in the pressure plate assembly or the clutch disc.

c) To check for complete clutch release, run the engine (with the brake on to prevent movement) and hold the clutch pedal approximately 1/2-inch from the floor mat. Shift the transmission between 1st gear and Reverse several times. If the shift is not smooth, component failure is indicated. Measure the release cylinder pushrod travel. With the clutch pedal completely depressed the release cylinder pushrod should extend substantially. If the pushrod will not extend very far or not at all, check the fluid level in the clutch master cylinder.

d) Visually inspect the clutch pedal bushing at the top of the clutch pedal to make sure there is no sticking or excessive wear.

e) Under the vehicle, check that the release lever is solidly mounted on the ball stud.

Note: *Because access to the clutch components is an involved process, any time either the engine or transmission is removed, the clutch disc, pressure plate assembly and release bearing should be carefully inspected and, if necessary, replaced with new parts. Since the clutch disc is normally the item of highest wear, it should be replaced as a matter of course if there is any question about its condition.*

3 Clutch components — removal, inspection and installation

Refer to illustrations 3.4, 3.5, 3.8, 3.10, 3.12a, 3.12b and 3.14

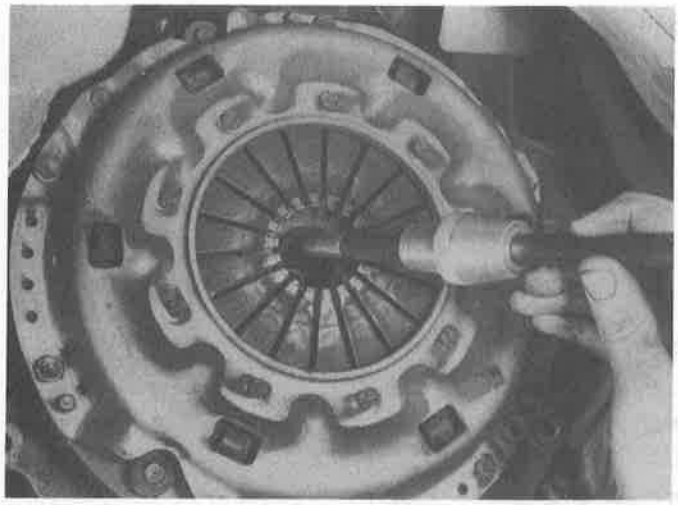
Warning: *Dust produced by clutch wear and deposited on clutch components contains asbestos, which is hazardous to your health. DO NOT blow it out with compressed air and DO NOT inhale it. DO NOT use gasoline or petroleum-based solvents to remove the dust. Brake system cleaner should be used to flush the dust into a drain pan. After the clutch components are wiped clean with a rag, dispose of the contaminated rags and cleaner in a covered container.*

Removal

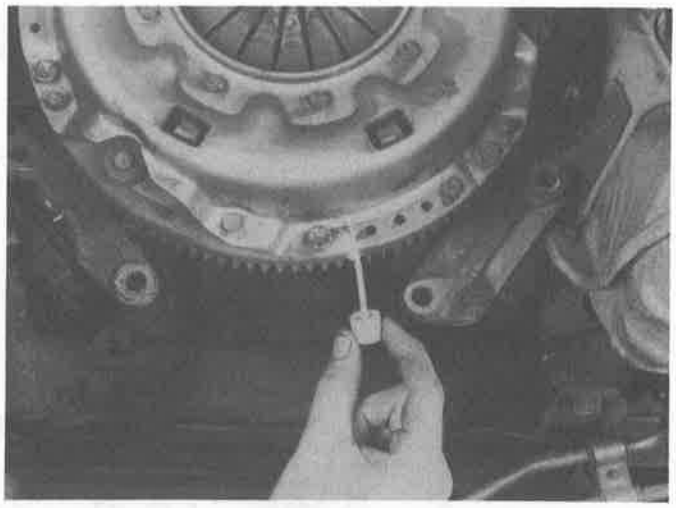
1 Access to the clutch components is normally accomplished by removing the transmission, leaving the engine in the vehicle. If, of course, the engine is being removed for major overhaul, then the opportunity should always be taken to check the clutch for wear and replace worn components as necessary. The following procedures assume that the engine will stay in place.

2 Remove the release cylinder (see Section 7).

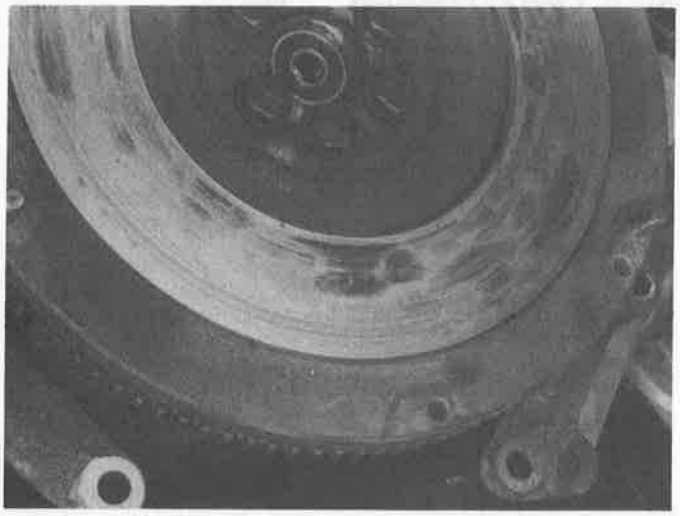
3 Referring to Chapter 7 Part A, remove the transmission from the vehicle. Support the engine while the transmission is out. Preferably, an engine hoist should be used to support it from above. However, if a jack is used underneath the engine, make sure a piece of wood is used between the jack and oil pan to spread the load. **Caution:** *The pickup for the oil pump is very close to the bottom of the oil pan. If the pan is bent or distorted in any way, engine oil starvation could occur.*



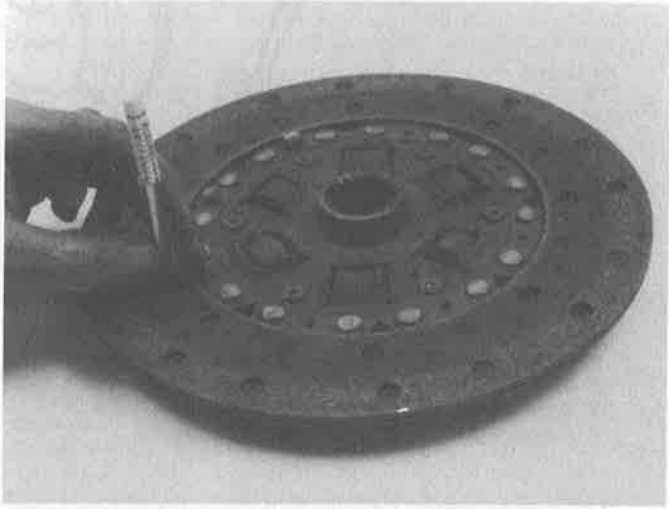
3.4 A metal rod or clutch alignment tool can be used to prevent the disc from dropping out as the pressure plate is removed



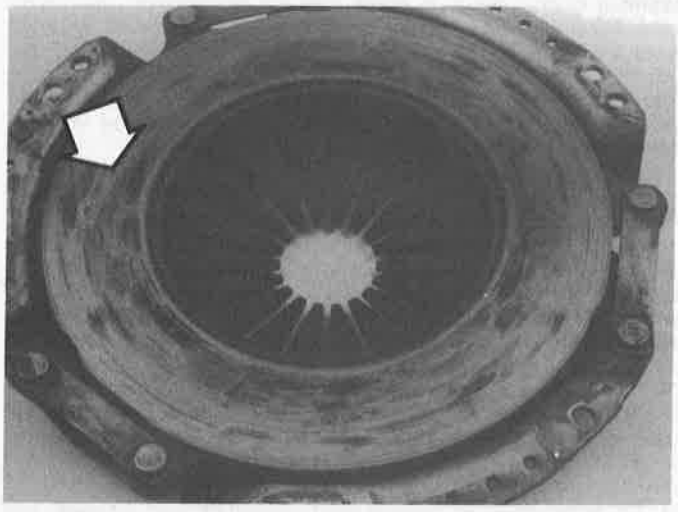
3.5 Be sure to mark the pressure plate and flywheel in order to insure proper alignment during installation (this won't be necessary if a new pressure plate is to be installed)



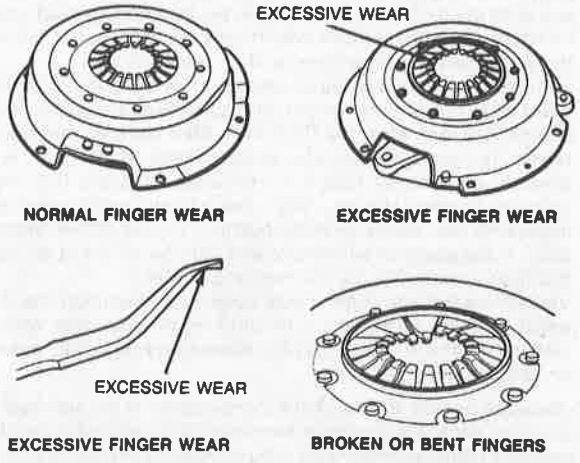
3.8 Check the flywheel for cracks, hot spots and other obvious defects (slight imperfections can be removed by a machine shop)



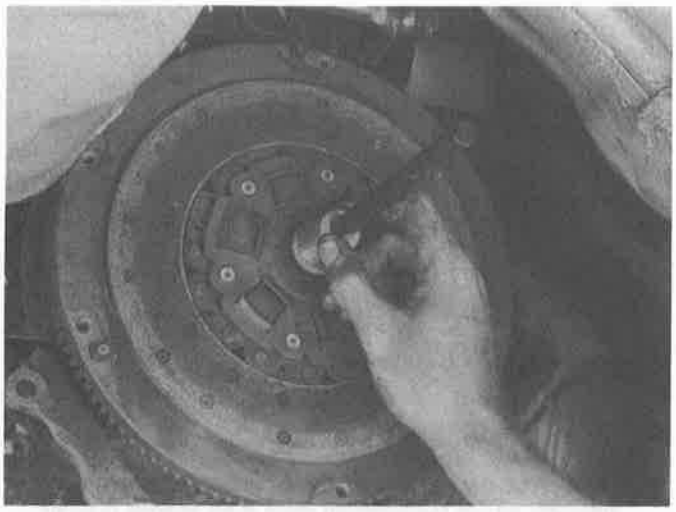
3.10 Once the clutch disc is removed, the rivet depth can be measured and compared to the Specifications



3.12a Examine the pressure plate friction surface for score marks, cracks and evidence of overheating



3.12b Replace the pressure plate if the diaphragm spring fingers exhibit these signs of wear



3.14 Hold the clutch in place with a clutch alignment tool then install the pressure plate

4 To support the clutch disc during removal, install a clutch alignment tool through the clutch disc hub **(see illustration)**.
5 Carefully inspect the flywheel and pressure plate for indexing marks. The marks are usually an X, an O or a white letter. If they cannot be found, apply marks yourself so the pressure plate and the flywheel will be in the same alignment during installation (**see illustration**).
6 Turning each bolt only 1/2-turn at a time, slowly loosen the pressure plate-to-flywheel bolts. Work in a diagonal pattern and loosen each bolt a little at a time until all spring pressure is relieved. Then hold the pressure plate securely and completely remove the bolts, followed by the pressure plate and clutch disc.

Inspection

7 Ordinarily, when a problem occurs in the clutch, it can be attributed to wear of the clutch disc assembly. However, all components should be inspected at this time.
8 Inspect the flywheel for cracks, heat checking, grooves or other signs of obvious defects **(see illustration)**. If the imperfections are slight, a machine shop can machine the surface flat and smooth, which is highly recommended regardless of the surface appearance. Refer to Chapter 2 for the flywheel removal and installation procedure.
9 Inspect the pilot bearing (Section 5).
10 Inspect the lining on the clutch disc. There should be at least 1mm of lining above the rivet heads. Check for loose rivets, warpage, cracks, distorted springs or damper bushings and other obvious damage **(see illustration)**. As mentioned above, ordinarily the clutch disc is replaced as a matter of course, so if in doubt about the condition, replace it with a new one.
11 Ordinarily, the release bearing is also replaced along with the clutch disc (see Section 4).
12 Check the machined surfaces of the pressure plate **(see illustrations)**. If the surface is grooved or otherwise damaged, replace the pressure plate. Also check for obvious damage, distortion, cracking, etc. Light glazing can be removed with medium grit emery cloth. If a new pressure plate is indicated, new or factory-rebuilt units are available.

Installation

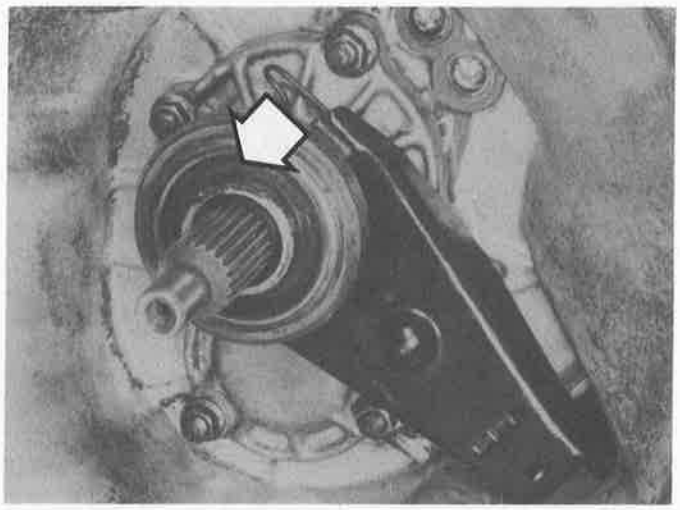
13 Before installation, carefully wipe the flywheel and pressure plate machined surfaces clean with a rubbing-alcohol dampened rag. It's important that no oil or grease is on these surfaces or the lining of the clutch disc. Handle these parts only with clean hands.
14 Position the clutch disc and pressure plate with the clutch held in place with an alignment tool **(see illustration)**. Make sure it's installed properly (most replacement clutch discs will be marked "flywheel side" or something similar – if not marked, install the clutch with the damper springs or bushings toward the transmission).
15 Tighten the pressure plate-to-flywheel bolts only finger tight, working around the pressure plate.
16 Center the clutch disc by ensuring the alignment tool is through the splined hub and into the pilot bearing in the crankshaft. Wiggle the tool up, down, or side-to-side as needed, to bottom the tool in the pilot bearing. Tighten the pressure plate-to-flywheel bolts a little at a time, working in a criss-cross pattern to prevent distorting the cover. After all of the bolts are snug, tighten them to the specified torque. Remove the alignment tool.
17 Using high temperature grease, lubricate the inner groove of the release bearing (refer to Section 4). Also place grease on the fork fingers.
18 Install the clutch release bearing as described in Section 4.
19 Install the transmission, release cylinder and all components removed previously, tightening all fasteners to the proper torque specifications.

4 Clutch release bearing – removal and installation

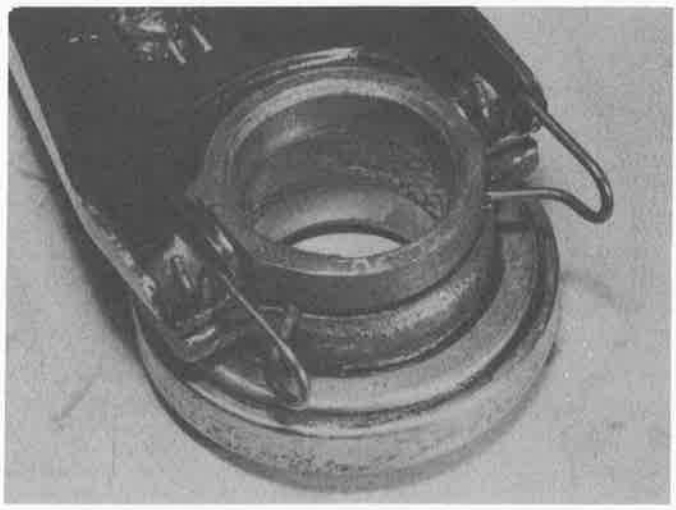
Refer to illustrations 4.4a, 4.4b, 4.5 and 4.8

Removal

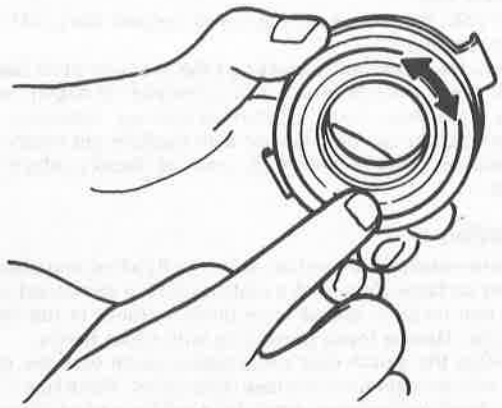
1 Disconnect the negative cable from the battery.
2 Remove the transmission (Chapter 7).
3 Remove the clutch release fork from the ball stud by pulling it straight off.
4 Slide the release bearing off the transmission input shaft bearing retainer, then unclip the bearing from the release fork **(see illustrations)**.
Note: *Later models do not use a spring clip to retain the bearing.*



4.4a Slide the release bearing off the transmission input shaft bearing retainer (with the release lever still attached)



4.4b The release bearing is held to the clutch release lever by a spring clip (early styles)



4.5 Check the release bearing to make sure it rotates smoothly

5 Hold the bearing and turn the inner portion **(see illustration)**. If the bearing doesn't turn smoothly or if it's noisy, replace it with a new one. Wipe the bearing with a clean rag and inspect it for damage, wear and cracks. Don't immerse the bearing in solvent – it's sealed for life and to do so would ruin it.

Installation

6 Lubricate the clutch fork ends where they contact the bearing lightly with molybdenum disulphide grease. Apply a thin coat of the same grease to the inner diameter of the bearing and also to the transmission input shaft bearing retainer.

7 Install the release bearing on the clutch fork so that both of the fork ends fit into the bearing tabs. Make sure the spring clip seats in the bearing hub groove (early models).

8 Lubricate the clutch release fork ball socket with molybdenum disulphide grease and push the fork onto the ball stud until it's firmly seated. Check to see that the bearing slides back and forth smoothly on the input shaft bearing retainer **(see illustration)**.

9 The remainder of the installation is the reverse of the removal procedure, tightening all bolts to the specified torque.

5 Pilot bearing – inspection, removal and installation

Refer to illustrations 5.5, 5.9, 5.10 and 5.11

1 The clutch pilot bearing is a needle roller type bearing which is pressed into the rear of the crankshaft. Its primary purpose is to support the front of the transmission input shaft. The pilot bearing should be inspected whenever the clutch components are removed from the engine. Due to its inaccessibility, if you are in doubt as to its condition, replace it with a new one. **Note:** *If the engine has been removed from the vehicle, disregard the following steps which do not apply.*

2 Remove the transmission (refer to Chapter 7 Part A)

3 Remove the clutch components (Section 3).

4 Using a clean rag, wipe the bearing clean and inspect for any excessive wear, scoring or obvious damage. A flashlight will be helpful to direct light into the recess.

5 Check to make sure the pilot bearing turns smoothly and quietly **(see illustration)**. If the transmission input shaft contact surface is worn or damaged, replace the bearing with a new one.

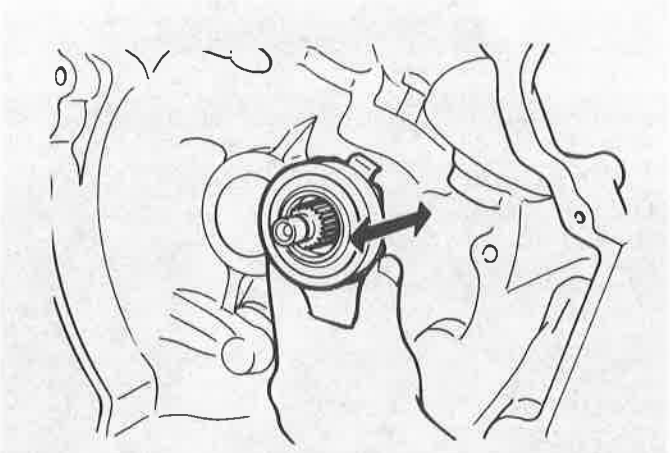
6 Removal can be accomplished with a special puller but an alternative method also works very well.

7 Find a solid steel bar which is slightly smaller in diameter than the bearing. Alternatives to a solid bar would be a wood dowel or a socket with a bolt fixed in place to make it solid.

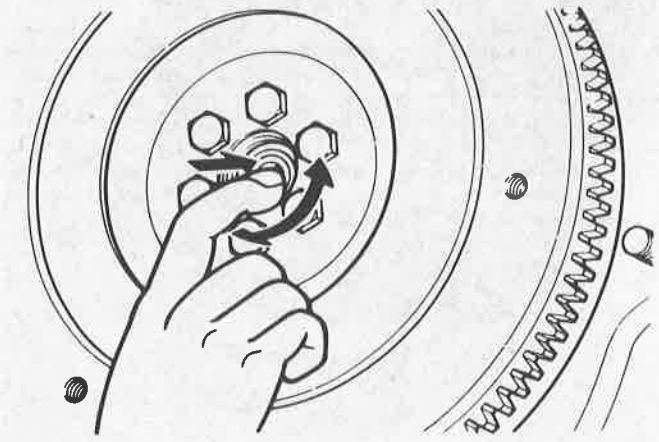
8 Check the bar for fit – it should just slip into the bearing with very little clearance.

9 Pack the bearing and the area behind it (in the crankshaft recess) with heavy grease **(see illustration)**. Pack it tightly to eliminate as much air as possible.

10 Insert the bar into the bearing bore and lightly hammer on the bar, which will force the grease to the backside of the bearing and push



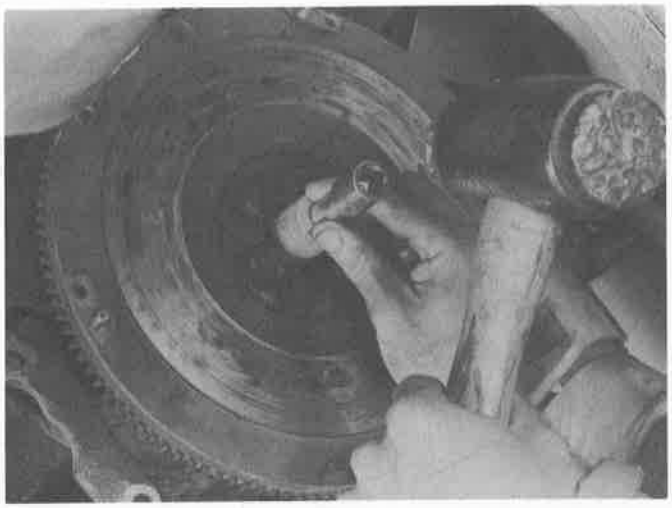
4.8 The release bearing should slide back and forth smoothly on the transmission input shaft bearing retainer



5.5 Turn the pilot bearing by hand while pressing in on it – if it is rough or noisy, a new one should be installed

5.9 Fill the cavity behind the pilot bearing with grease . . .

5.10 . . . then force the bearing out hydraulically with a steel rod slightly smaller than the bore in the bearing — when the hammer strikes the rod, the grease will transmit force to the backside of the bearing and push it out



5.11 Using a hammer and socket, carefully drive the new bearing into place

it out **(see illustration)**. Remove the bearing and clean all grease from the crankshaft recess.

11 To install the new bearing, lubricate the outside surface with oil then drive it into the recess with a hammer and a socket with an outside diameter that matches the bearing outer race **(see illustration)**.

12 Pack the bearing with lithium base grease (NLGI No.2). Wipe off all excess grease so the clutch lining will not become contaminated.

13 Install the clutch components, transmission and all other components removed to gain access to the pilot bearing.

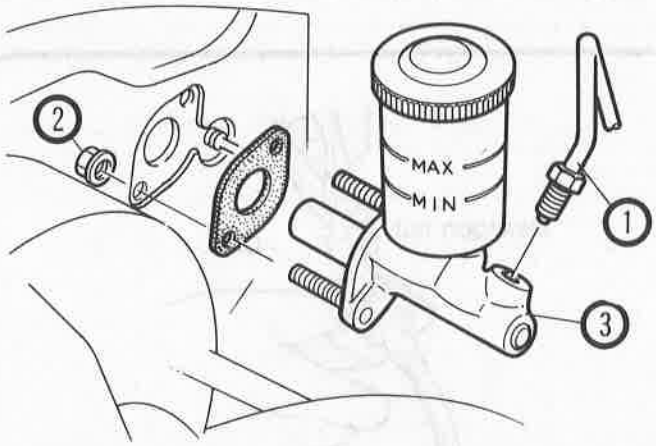
6 Clutch master cylinder — removal, overhaul and installation

Refer to illustrations 6.1, 6.3, 6.4 and 6.6

Caution: *Do not allow brake fluid to contact any painted surfaces of the vehicle, as damage to the finish may result.*

Removal

1 Disconnect the hydraulic line from the master cylinder and drain the fluid into a suitable container **(see illustration)**.



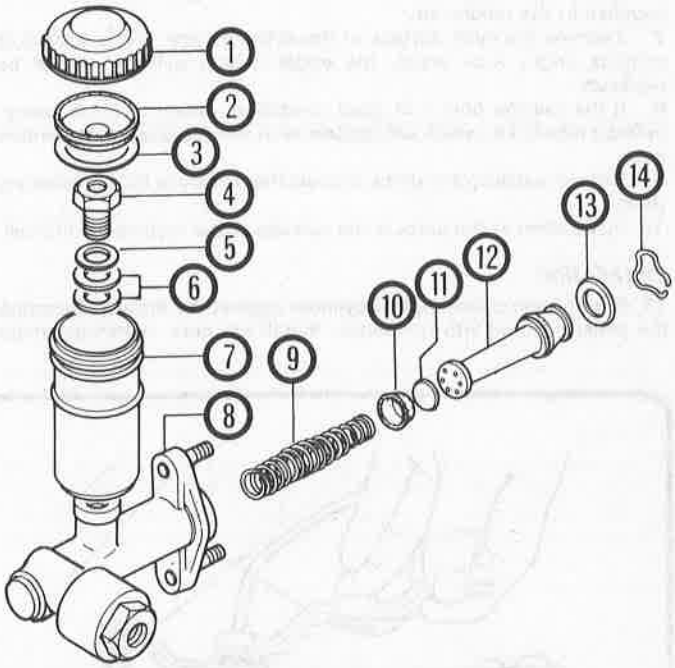
6.1 Clutch master cylinder mounting details

1 Hydraulic line
2 Mounting nut
3 Master cylinder body

2 Remove the master cylinder flange mounting nuts from under the dash and withdraw the unit from the engine compartment.

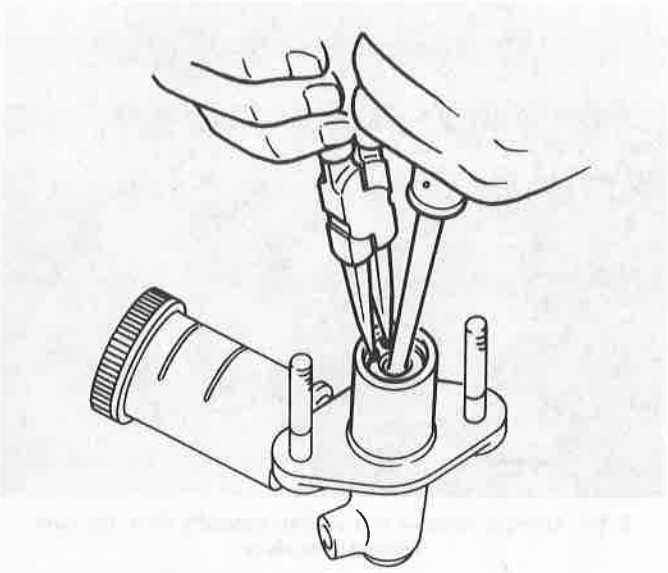
Overhaul

3 Remove the hold-down bolt and pull off the reservoir tank **(see illustration)**. Later models do not have a hold down bolt, so simply pry the reservoir off the cylinder using a screwdriver.

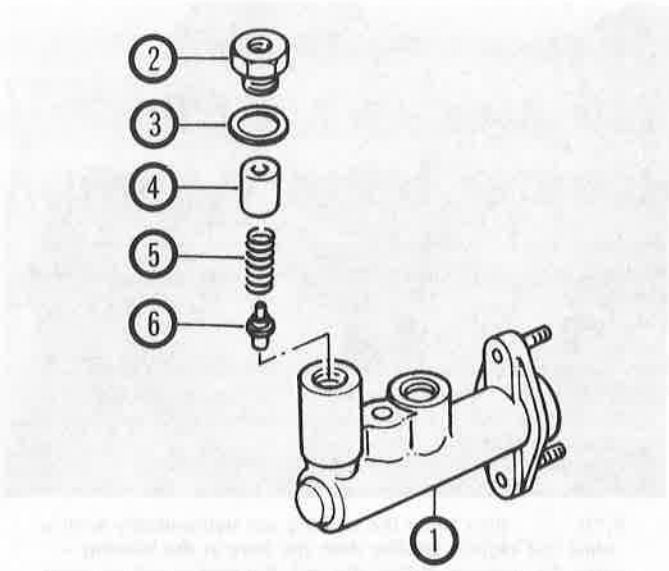


6.3 Exploded view of the clutch master cylinder

1 Cap
2 Fluid baffle
3 Seal
4 Hold-down bolt
5 Washer
6 Cone spring
7 Reservoir
8 Cylinder body
9 Spring
10 Primary piston cup
11 Spacer
12 Piston and secondary cup assembly
13 Piston stop washer
14 Piston stop ring (snap-ring)



6.4 Using a Phillips screwdriver, push down on the piston and remove the snap-ring with a pair of snap-ring pliers (early models use a different kind of retaining ring which can be pried out with a small screwdriver)



6.6 Exploded view of the one-way fluid valve

1 Cylinder body
2 Outlet fitting
3 Washer
4 Piston one-way valve
5 Return spring
6 Pin

4 Push the piston down and remove the snap-ring with a pair of snap-ring pliers or a small screwdriver **(see illustration)**.
5 Pull out the piston assembly and spring.
6 Some models have a one-way fluid valve incorporated under the outlet fitting. Unscrew the fitting and remove the piston one-way valve, spring and pin **(see illustration)**. Replace these parts with new ones supplied in the rebuild kit.
7 Examine the inner surface of the cylinder bore. If it is scored or exhibits bright wear areas, the entire master cylinder should be replaced.
8 If the cylinder bore is in good condtition, obtain a clutch master cylinder rebuild kit, which will contain all of the necessary replacement parts.
9 Prior to installing any parts, first dip them in brake fluid to lubricate them.
10 Installation of the parts in the cylinder is the reverse of removal.

Installation

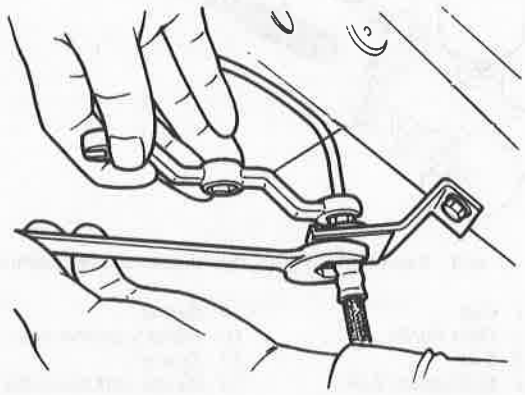
11 Position the clutch master cylinder against the firewall, inserting the pedal pushrod into the piston. Install the nuts, tightening them securely.
12 Bleed the clutch hydraulic system following the procedure in Section 8, then check the pedal height and free play as described in Chapter 1.

7 Cluch release cylinder — removal, overhaul and installation

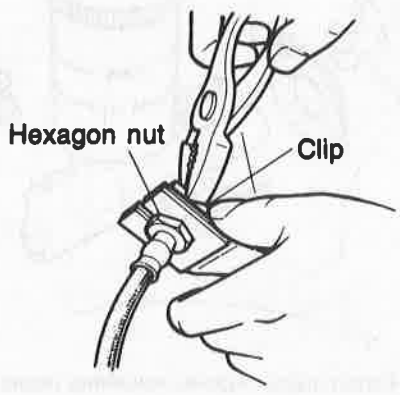
Refer to illustrations 7.2a, 7.2b and 7.5

Removal

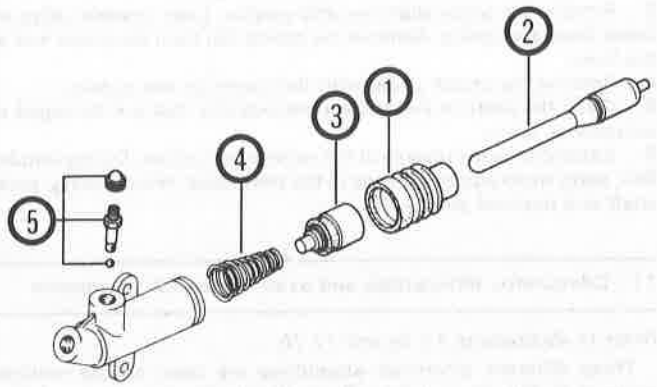
1 The clutch release cylinder is located on the side of the transmission bellhousing.
2 Using a flare-nut wrench, disconnect the clutch line from the hose at the support bracket, then remove the U-clip that retains the hose to the bracket **(see illustrations)**.
3 Unscrew the hose from the release cylinder.
4 Remove the two bolts and pull off the release cylinder. Early models have a return spring which must be unhooked from the release lever.



7.2a Completely loosen the clutch hydraulic line fitting from the clutch release cylinder hose . . .



7.2b . . . then pull the clip of thee hose end and remove the hose from the bracket



7.5 Exploded view of the release cylinder

1 Boot
2 Pushrod
3 Piston and cup assembly
4 Return spring
5 Bleeder screw, ball and cap

Overhaul

5 Pull off the dust boot and pushrod and then tap the cylinder gently on a block of wood to extract the piston and spring **(see illustration)**.
6 Unscrew and remove the bleeder screw.
7 Examine the surfaces of the piston and cylinder bore for scoring or bright wear areas. If any are found, discard the cylinder and purchase a new one.
8 If the components are in good condition, wash them in clean brake fluid. Remove the seal and discard it, noting carefully which way the seal lips face.
9 Obtain a repair kit which will contain all the necessary new items.
10 Install the new seal using your fingers only to manipulate it into position. Be sure the lips face in the proper direction.
11 Dip the piston assembly in clean brake fluid before installing it and the spring into the cylinder.
12 Reinstall the bleeder.
13 Complete the reassembly by installing the pushrod and the dust cover. Be sure the dust cover is secure on the cylinder housing.

Installation

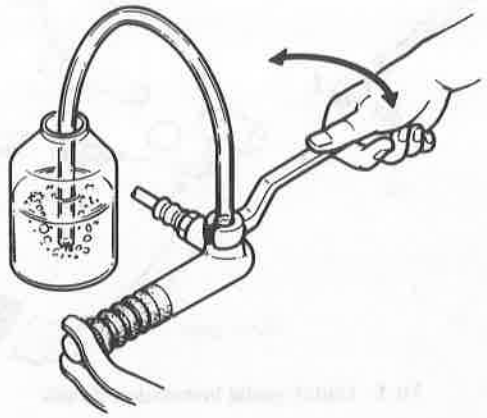
14 Installation is the reverse of the removal procedure. After the cylinder has been installed, bleed the clutch hydraulic system as described in Section 8, then check the release lever free play (Section 9).

8 Clutch hydraulic system — bleeding

Refer to illustration 8.3

Caution: *Do not allow the brake fluid to contact any painted surface of the vehicle, as damage to the finish will result.*

1 Bleeding will be required whenever the hydraulic system has been dismantled and reassembled and air has entered the system.
2 First fill the fluid reservoir with clean brake fluid which has been stored in an airtight container. Never use fluid which has drained from the system or has bled out previously,as it may contain grit.
3 Attach a rubber or plastic bleed tube to the bleeder screw on the release cylinder and immerse the open end of the tube in a glass jar containing an inch or two of fluid **(see illustration)**.
4 Open the bleeder screw about half a turn and have an assistant quickly depress the clutch pedal completely. Tighten the screw and then have clutch pedal slowly released with the foot completely removed. Repeat this sequence of operations until air bubbles are no longer ejected from the open end of the tube beneath the fluid in the jar.
5 After two or three strokes of the pedal, make sure the fluid level in the reservoir has not fallen too low. Keep it full of fresh fluid, otherwise air will be drawn into the system.
6 Tighten the bleeder screw on a pedal down stroke (do not overtighten it), remove the bleed tube and jar, top-up the reservoir and install the cap.
7 If an assistant is not available, alternative 'one-man' bleeding operations can be carried out using a bleed tube equipped with a one-way valve or a pressure bleed kit, both of which should be used in accordance with the manufacturer's instructions.

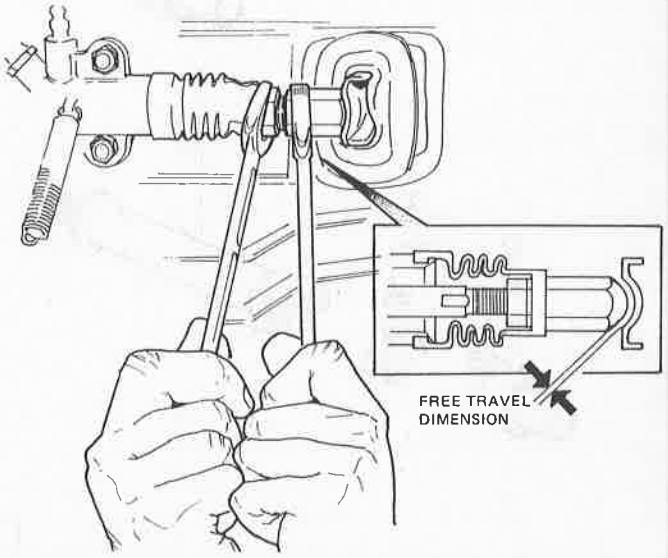


8.3 Open the bleeder screw on the release cylinder when the pedal is held to the floor. Bubbles in the system will pass through the hose and into the fluid. Repeat this procedure until all air is expelled.

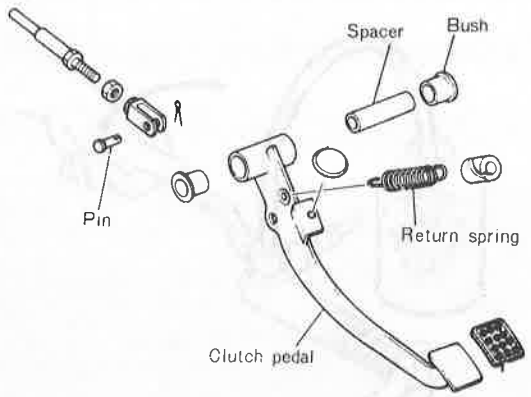
9 Clutch release lever — free play adjustment

Refer to illustration 9.3

1 Raise the vehicle and support it securely on jackstands.
2 Unhook the release lever return spring at the lever.
3 Peel back the rubber boot far enough to expose the locknut then turn the adjusting nut to obtain the specified clearance between the end of the adjusting screw and the release fork **(see illustration)**.
4 After completion of the adjustment, tighten the locknut securely, pull the rubber boot over the nut and install the return spring.



9.3 Loosen the locknut while holding the adjusting nut from turning, then turn the adjusting nut to obtain the specified clearance between the release lever and the pushrod end



10.1 Clutch pedal installation details

10 Clutch pedal assembly — removal and installation

Refer to illustration 10.1

1 Remove the pedal return spring **(see illustration)**.
2 Disconnect the master cylinder pushrod from the pedal by removing the spring clip and pulling out the pushrod pin.
3 Remove the pedal shaft nut and washer. Later models utilize an assist lever and spring. Remove the spring clip from the lower end of the lever.
4 Remove the clutch pedal with the bushings and spacer.
5 Clean the parts in solvent and replace any that are damaged or excessively worn.
6 Installation is the reverse of the removal procedure. During installation, apply multi-purpose grease to the pedal boss, return spring, pedal shaft and pushrod pin.

11 Driveshafts, differentials and axles — general information

Refer to illustrations 11.1a and 11.1b

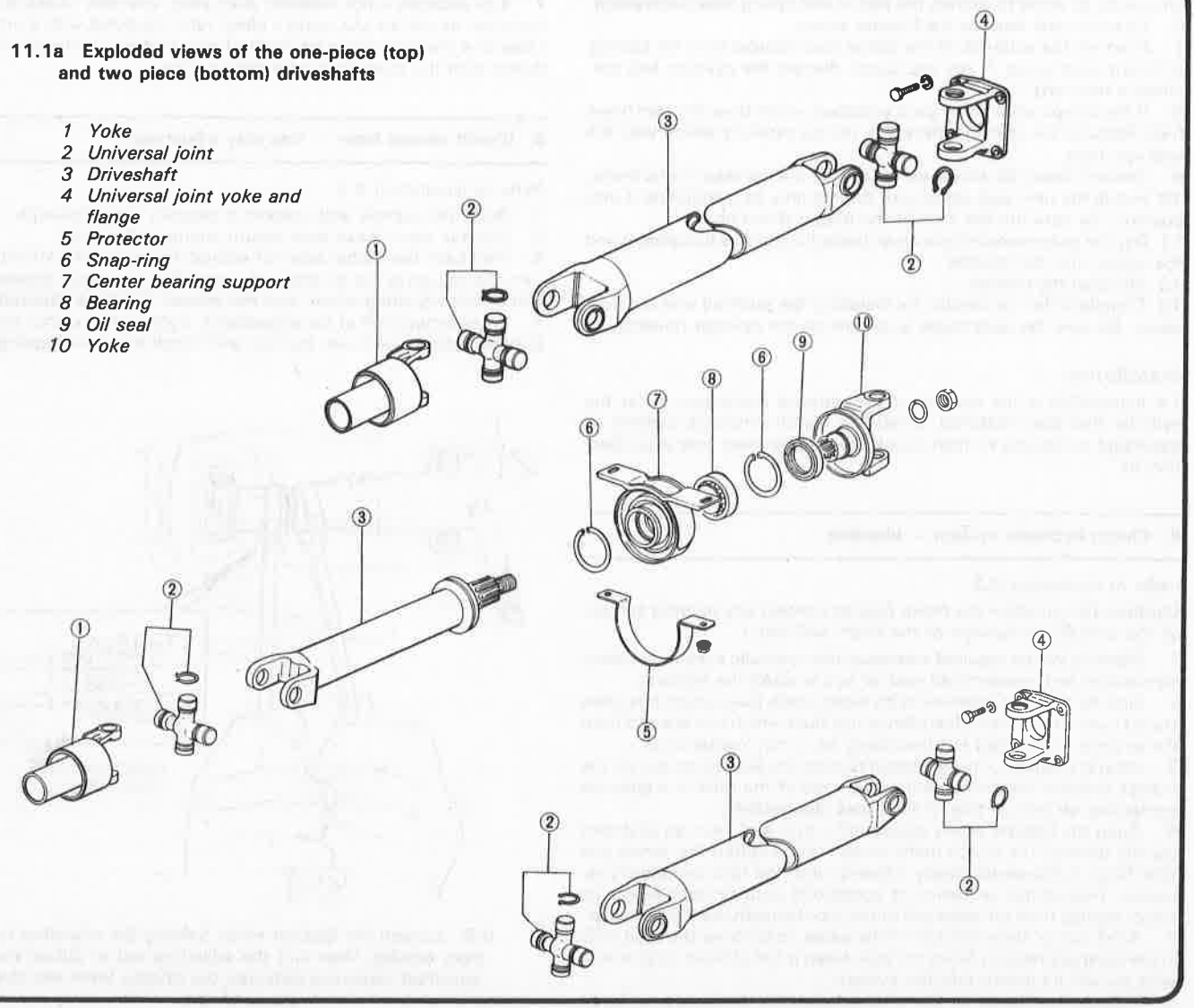
Three different driveshaft assemblies are used on the vehicles covered in this manual **(see illustrations)**. Some use a one-piece driveshaft which incorporates two universal joints, one at either end of the shaft.

Others use a two-piece driveshaft which incorporates a center bearing at the rear of the front shaft. This driveshaft uses three universal joints; one at the transmission end, one behind the center bearing and one at the differential flange.

The 4WD vehicles use two driveshafts; the primary shaft runs between the transfer case and the front differential and the rear driveshaft

11.1a Exploded views of the one-piece (top) and two piece (bottom) driveshafts

1 Yoke
2 Universal joint
3 Driveshaft
4 Universal joint yoke and flange
5 Protector
6 Snap-ring
7 Center bearing support
8 Bearing
9 Oil seal
10 Yoke



runs between the transfer case and the rear differential.

All universal joints are of the solid type and can be replaced separate from the driveshaft.

The driveshafts are finely balanced during production and whenever they are removed or disassembled, they must be reassembled and reinstalled in the exact manner and positions they were originally in, to avoid excessive vibration.

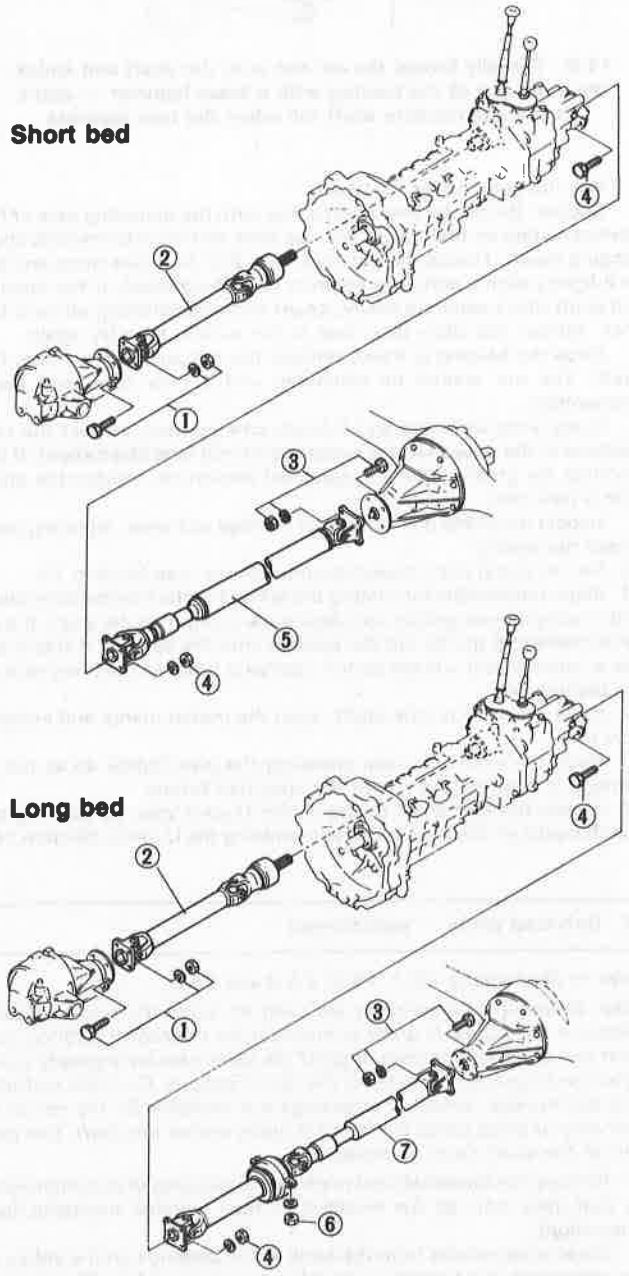
The rear axle is of the semi-floating type, having a 'banjo' design axle housing, which is held in proper alignment with the body by the rear suspension.

Mounted in the center of the rear axle is the differential, which transfers the turning force of the driveshaft to the rear axleshafts, on which the rear wheels are mounted.

The axleshafts are splined at their inner ends to fit into the splines in the differential gears; outer support for the shaft is provided by the rear wheel bearing.

The front axle on 4WD vehicles consists of a frame mounted differential assembly and two driveaxles. The driveaxles incorporate two constant velocity (CV) joints each, enabling them to transmit power at various suspension angles independent from each other.

Because of the complexity and critical nature of the differential adjustments, as well as the special equipment needed to perform the operations, we recommend any disassembly of the differential be done by a dealer service department or other repair shop.



11.1b Exploded views of the 4WD driveshaft assemblies

1 Bolts and nuts
2 Front driveshaft
3 Bolts and nuts
4 Bolts and nuts
5 Rear driveshaft (one-piece)
6 Nuts
7 Rear driveshaft (two-piece)

12 Driveline inspection

1 Raise the rear of the vehicle and support it securely on jackstands.

2 Slide under the vehicle and visually inspect the condition of the driveshaft. Look for any dents or cracks in the tubing. If any are found, the driveshaft must be replaced.

3 Check for any oil leakage at the front and rear of the driveshaft. Leakage where the driveshaft enters the transmission indicates a defective rear transmission seal. Leakage where the driveshaft enters the differential indicates a defective pinion seal. For these repair operations refer to Chapters 7 and 8 respectively.

4 While still under the vehicle, have an assistant turn the rear wheel so the driveshaft will rotate. As it does, make sure that the universal joints are operating properly without binding, noise or looseness. On long bed models, listen for any noise from the center bearing, indicating it is worn or damaged. Also check the rubber portion of the center bearing for cracking or separation, which will necessitate replacement.

5 The universal joint can also be checked with the driveshaft motionless, by gripping your hands on either side of the joint and attempting to twist the joint. Any movement at all in the joint is a sign of considerable wear. Lifting up on the shaft will also indicate movement in the universal joints.

6 Finally, check the driveshaft mounting bolts at the ends to make sure they are tight.

7 On 4WD models, the above driveshaft checks should be repeated on all driveshafts. In addition, check for grease leakage around the sleeve yoke, indicating failure of the yoke seal.

8 Check for leakage at each connection of the driveshafts to the transfer case and front differential. Leakage indicates worn oil seals.

9 At the same time, check for looseness in the joints of the front driveaxles. Also check for grease or oil leakage from around the driveaxles by inspecting the rubber boots and both ends of each axle. Oil leakage at the differential junction indicates a defective side oil seal. Leakage at the wheel side indicates a defective front hub seal, while leakage at the boots means a damaged rubber boot. For servicing of these components, see the appropriate Sections.

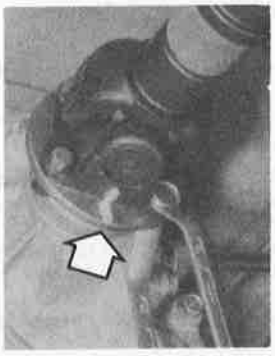
13 Driveshafts — removal and installation

Refer to illustration 13.2

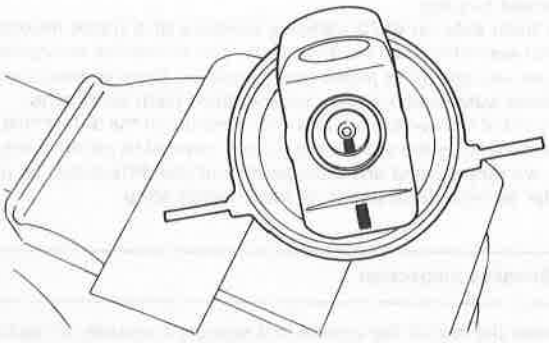
Front driveshaft (4WD)

1 Raise the front of the vehicle and place it on jackstands.

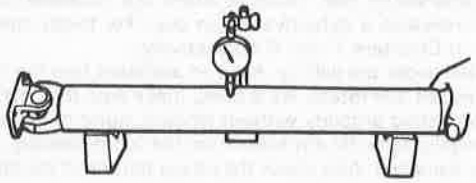
2 Mark the relationship of the front driveshaft flange to the front differential companion flange so they can be realigned upon installation **(see illustration)**.



13.2 Mark the driveshaft flange to the differential companion flange (arrow)



14.4 Mark the intermediate shaft yoke to the shaft to ensure correct installation



14.8 Check the driveshafts for excessive runout, which can quickly destroy a center bearing

3 Remove the four bolts from the front flange.
4 Push the shaft slightly to the rear to disconnect the front flange, lower the driveshaft then pull it forward to remove it from the transfer case.

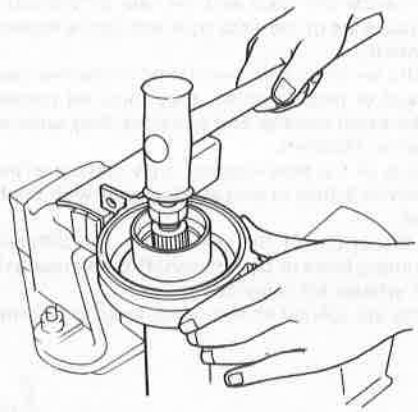
Rear driveshaft

5 Raise the rear of the truck and support it on jackstands.
6 Remove the two bolts holding the center support bearing to the frame (3-joint type).
7 Mark the edges of the driveshaft rear flange and the differential companion flange so they can be realigned upon installation.
8 Remove the four nuts and bolts.
9 Push the shaft forward slightly to disconnect the rear flange.
10 Pull the yoke from the transmission while supporting the driveshaft with your hand (2WD models).
11 Mark the driveshaft flange and the flange on the transfer case so they can be realigned upon installation (4WD).
12 Remove the four nuts and bolts from each flange (4WD).
13 Push the shaft slightly to the rear to disconnect the front flange and gently lower the driveshaft (4WD).
14 While the driveshafts are removed, insert a plug in the transmission to prevent lubricant leakage (2WD models).
15 Installation is the reverse of the removal procedures. During installation, make sure all flange marks line up. When connecting the center bearing support to the frame, first finger-tighten the two mounting bolts, then make sure that the bearing bracket is at right angles to the driveshaft. Tighten all nuts and bolts to the specified torque

14 Center bearing — replacement

Refer to illustrations 14.4, 14.6 and 14.8

1 Remove the driveshaft (see Section 13). Mark the relationship of the center U-joint yokes to each other and to the intermediate shaft.
2 Disassemble the center universal joint.
3 Remove the center joint nut. To keep the shaft from turning, place the yoke in a vise. Don't tighten the vise excessively, as the yoke may become distorted.
4 Mark the intermediate shaft yoke in relation to the threaded portion of the shaft **(see illustration)**.



14.6 Partially thread the old nut onto the shaft and knock the shaft out of the bearing with a brass hammer — don't let the intermediate shaft fall when the two separate

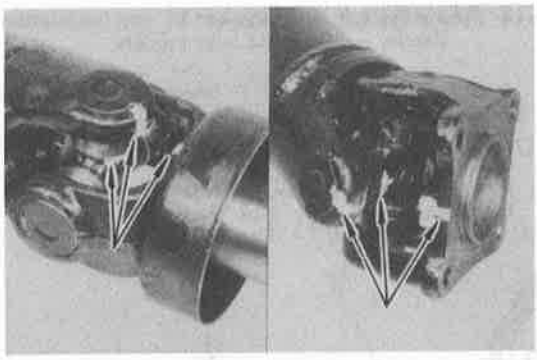
5 Pull the yoke off of the shaft.
6 Support the center bearing in a vise with the mounting ears of the bearing resting on the tops of the vise jaws and the intermediate shaft hanging down. Thread the nut back onto the shaft two turns and tap on it lightly with a soft-face hammer **(see illustration)**. If the bearing and shaft don't separate easily, squirt some penetrating oil onto the shaft splines and allow it to soak in for awhile, then try again.
7 Once the bearing is freed, remove the nut and bearing from the shaft. The nut should be discarded and a new one used upon reassembly.
8 Using a dial indicator and V-block arrangement, inspect the two sections of the driveshaft for excessive runout **(see illustration)**. If the readings are greater than the specified maximum, replace the shaft with a new one.
9 Inspect the yokes and flanges for damage and wear, replacing parts where necessary.
10 For universal joint inspection procedures, see Section 15.
11 Begin reassembly by coating the splines of the intermediate shaft with multi-purpose grease and placing the bearing on the shaft. It may be necessary to gently tap the bearing onto the splines. If this is so, use a hammer and a brass punch, applying force to the inner race of the bearing only.
12 Place the yoke on the shaft, align the match marks and install a new nut.
13 Place the yoke in a vise, clamping the jaws lightly so as not to damage it. Tighten the nut to the specified torque.
14 Attach the rear shaft to the center U-joint yoke by aligning the match marks on the yokes and reassembling the U-joints (Section 15).

15 Universal joints — replacement

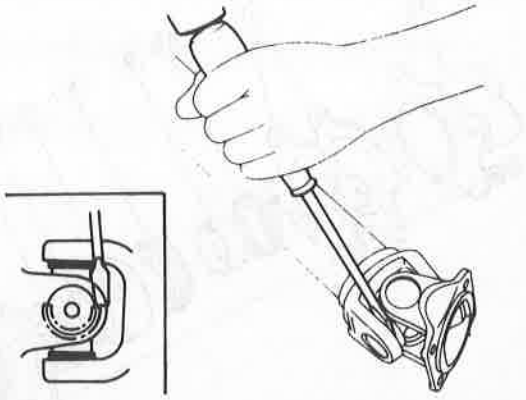
Refer to illustrations 15.1, 15.2, 15.3 and 15.6

Note: *Selective fit snap-rings are used to retain the universal joint spiders in the yokes. In order to maintain the driveshaft balance, you must use replacement snap-rings of the same size as originally used. Selective snap-rings are listed in the Specifications. On 1986 and later long bed models, selective snap-rings are available for the center U-joint only. If loose joints are found at either end of the shaft, that portion of the shaft must be replaced.*

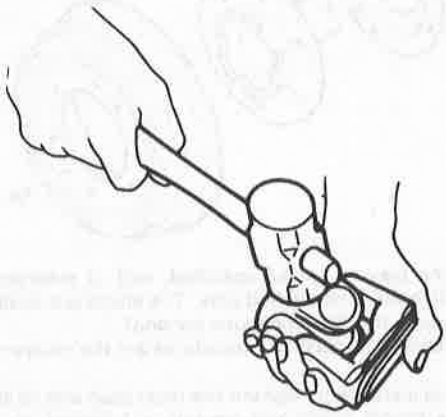
1 Remove the driveshaft and mark the relationship of all components so that they can all be installed in their original positions **(see illustration)**.
2 Clean away all dirt from the ends of the bearings on the yokes so the snap-rings can be removed with a screwdriver **(see illustration)**. If they are very tight, tap the end of the bearing with a punch and hammer to relieve the pressure.
3 Once the snap-rings are removed tap the universal joints at the yoke with a soft-face hammer; the bearings will come out of the housing and can be removed easily **(see illustration)**.
4 Once the bearings are removed from each opposite journal yoke



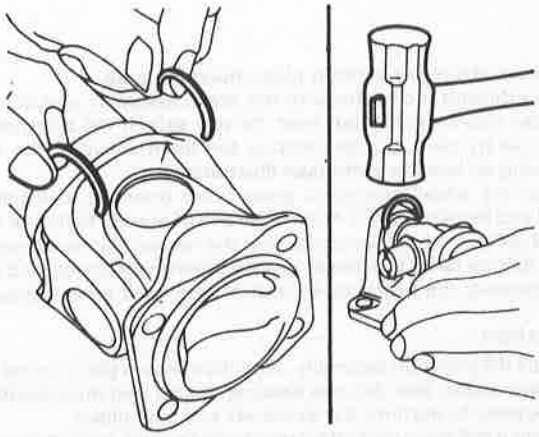
15.1 Place match marks on the driveshaft and yokes to ensure correct reassembly



15.2 Remove the snap-rings from the U-joint bearings by tapping them off with a screwdriver and hammer



15.3 With the snap-rings removed, the bearings can be removed by tapping the yoke with a hammer



15.6 Set the snap-rings in their grooves and tap them into place with a hammer

the journal can be disengaged.

5 In cases of extreme wear or neglect, it is possible that the bearing housings in the driveshaft, sleeve or flange will be worn so much that the bearings are a loose fit in them. In such a case, it will also be necessary to replace the worn component as well.

6 Installation is the reverse of the removal procedure. **Note:** *Be sure to grease the inner surface of the bearings prior to installing them. Some replacement U-joints are equipped with grease fittings – fill the joint with grease after assembly is completed. Also be sure to install the snap-rings in their proper positions as noted at the beginning of this Section* **(see illustration)**. When assembled, the U-joint should have no play in it and should be reasonably stiff, but should still be able to be flexed easily by hand. If it is loose, install the next thickness snap-ring listed in the Specifications.

16 Rear axleshafts, bearings and oil seals – removal and installation

Refer to illustrations 16.1a, 16.1b, 16.8 and 16.11

1 The axleshafts can be removed without disturbing the differential assembly. They must be removed in order to replace the bearings and oil seals and when removing the differential carrier from the rear axle housing **(see illustrations)**. **Note:** *Read the entire Section before starting work.*

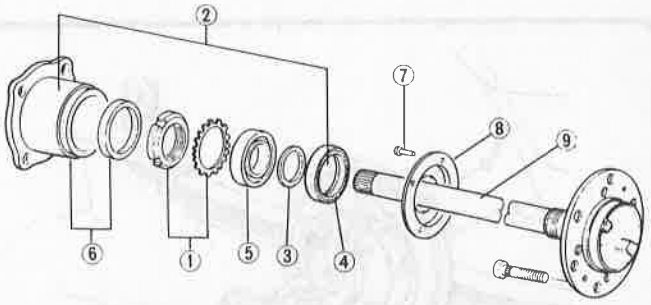
2 Raise the rear of the vehicle and support it securely on jackstands. Block the front wheels to keep the vehicle from rolling.

3 Remove the rear wheels and release the parking brake, then remove the brake drums (see Chapter 9 for details).

4 Remove the drain plug and drain the differential oil into a suitable container. When the draining is complete, finger-tighten the drain plug in place.

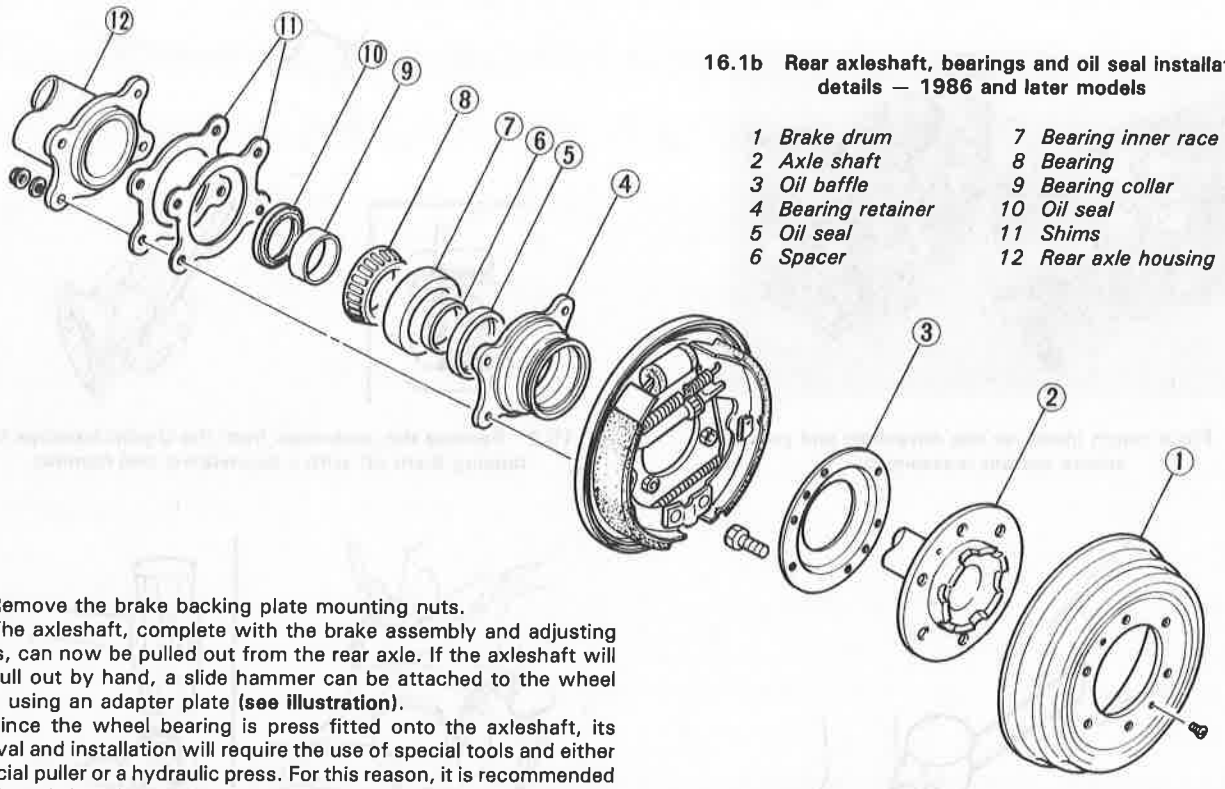
5 Disconnect the brake line from the wheel cylinder (see Chapter 9 for details).

6 Disconnect the parking brake cable from the packing brake lever and the brake backing plate (see Chapter 9).



16.1a Rear axleshaft, bearings and oil seal installation details – 1984 and earlier models

1 Lock nut and washer
2 Bearing housing assembly
3 Spacer
4 Oil seal
5 Bearing
6 Bearing housing
7 Rivet
8 Baffle plate
9 Axle shaft



16.1b Rear axleshaft, bearings and oil seal installation details — 1986 and later models

1 Brake drum
2 Axle shaft
3 Oil baffle
4 Bearing retainer
5 Oil seal
6 Spacer
7 Bearing inner race
8 Bearing
9 Bearing collar
10 Oil seal
11 Shims
12 Rear axle housing

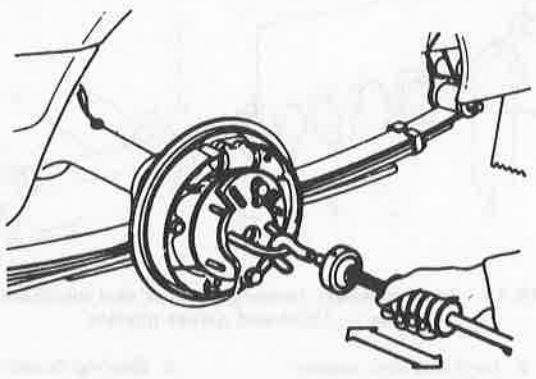
7 Remove the brake backing plate mounting nuts.
8 The axleshaft, complete with the brake assembly and adjusting shims, can now be pulled out from the rear axle. If the axleshaft will not pull out by hand, a slide hammer can be attached to the wheel studs using an adapter plate **(see illustration)**.
9 Since the wheel bearing is press fitted onto the axleshaft, its removal and installation will require the use of special tools and either a special puller or a hydraulic press. For this reason, it is recommended that the axle be taken to a dealer service department or qualified repair shop whenever the bearings, oil seal or axle itself need replacing.

Installation

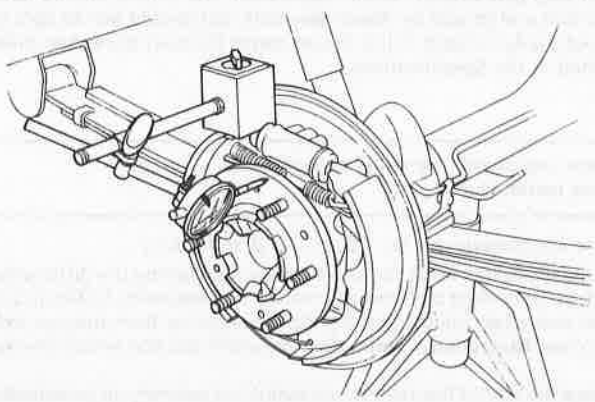
10 Install the axleshaft assembly, with the shims in place on the bearing retainer studs, into the axle housing. Install two nuts, tightening them securely to perform the axleshaft end play check.
11 Mount a dial indicator to the brake backing plate, with the indicator plunger resting on the face of the axle flange **(see illustration)**. Push the axle in as far as possible and set the dial to zero. Now pull out on the axle flange and read the end play measurement. Compare the reading with the standard bearing play listed in the Specifications section at the beginning of this Chapter (**Note:** *The end play will vary depending on whether one or both of the axles are installed — make sure you use the correct specification. If both of the axles have been removed, set the end play for the first axle alone before installing and adjusting the other axle).*
12 If the dial indicator shows the end play to be within specification, install the remaining two bearing retainer nuts and tighten all four nuts to the specified torque.
13 If the end play is not as specified, add or subtract shims, as necessary, to obtain the desired play. The shims are available in four thicknesses (see the Specifications section).
14 The remaining installation procedures are the reverse of those of removal.
15 Following installation, tighten the drain plug and fill the differential with the proper grade and amount of lubricant as specified in Chapter 1.
16 Bleed the brakes following the procedure described in Chapter 9.

17 Rear axle assembly — removal and installation

1 Loosen the rear wheel lug nuts, raise the vehicle and support it securely on jackstands placed underneath the frame. Remove the wheels.
2 Support the rear axle assembly with a floor jack placed underneath the differential.
3 Remove the shock absorber lower mounting nuts and compress



16.8 A rear axle adapter plate and slide hammer may be needed to remove the rear axleshaft assembly



16.11 Check the axleshaft end play with a dial indicator

the shocks to get them out of the way (Chapter 10).
4 Disconnect the driveshaft from the differential companion flange and hang it with a piece of wire from the underbody (Section 13).
5 Remove the brake drums and disconnect the parking brake cables from the parking brake levers.
6 Unclip the cables from the backing plates and pull them through (Chapter 9). Unbolt the load sensing proportioning valve control rod from the axle housing.
7 Disconnect the rear flexible brake hose from the brake line above the rear axle housing. Plug the ends of the line and hose or wrap plastic bags tightly around them to prevent excessive fluid loss and contamination.
8 Remove the U-bolt nuts from under the leaf spring seats (Chapter 10).
9 Raise the rear axle assembly off of the leaf spring and carefully maneuver it out from between the leaf spring and the frame (2WD models). It would be a good idea to have an assistant on hand, as the assembly is very heavy. On 4WD models, lower the assembly from the vehicle.
10 Installation is the reverse of the removal procedure. Be sure to tighten the U-bolt nuts and the driveshaft companion flange bolts to the specified torque.

18 Front axle assembly — removal and installation

Refer to illustration 18.6

1 Loosen the wheel lug nuts, raise the front of the vehicle and support it securely on jackstands. Remove the wheels.
2 Remove the four bolts that secure the engine undercover and remove the cover.
3 Drain the front differential gear oil then reinstall the drain plug finger tight (see Chapter 1).
4 Remove the front driveaxles (see Section 21).
5 Place match marks on the front driveshaft to front differential companion flange, then remove the driveshaft (see Section 13).
6 Support the front axle assembly with two floor jacks — one under the differential and one under the extension tube. Remove the center and front crossmember-to-frame mounting bolts **(see illustration)**.
7 Slowly lower the assembly from the vehicle.
8 Installation is the reverse of the removal procedure. Be sure to tighten the companion flange and crossmember bolts to the specified torque.

19 Differential — removal and installation

1 Raise the vehicle and support it securely on jackstands. Block the wheels to keep the vehicle from rolling.
2 Remove the drain plug and drain the differential oil into a suitable container, then reinstall the drain plug finger-tight.

Rear differential

3 Remove the rear axleshafts (see Section 16).
4 Disconnect the driveshaft flange from the companion flange (see Section 13). Hang the driveshaft out of the way with a piece of wire.
5 Remove the bolts from the differential carrier assembly and pull out the differential assembly. The mounting bolts should be loosened in steps, following a criss-cross pattern. If the differential is stuck to the axle housing, loosely install two of the bolts, then strike the differential with a hammer and block of wood to dislodge it.
6 The overhaul of the differential unit is not within the scope of the home mechanic, due to the specialized gauges and tools which are required. Where the unit requires servicing or repair, due to wear or excessive noise, it is most economical to exchange it for a factory reconditioned assembly.
7 Before reinstalling the differential, scrape all traces of old gasket from the mating surfaces of the axle housing. Position a new gasket on the housing (use a silicone-type gasket sealant). Later models use silicone sealant only.
8 Installation is the reverse of the removal procedure. Be sure to tighten the bolts to the specified torque.
9 Following installation, fill the differential with the proper grade and quantity of lubricant (see Chapter 1).

Front differential

10 Remove the front axle assembly from the vehicle following the procedure outlined in Section 18.
11 Perform steps 5 through 9 above.

20 Freewheel hub assembly (4WD) — removal, overhaul and installation

Refer to illustrations 20.3, 20.4, 20.6, 20.7, 20.11, 20.14, 20.15, 20.17, 20.22 and 20.23

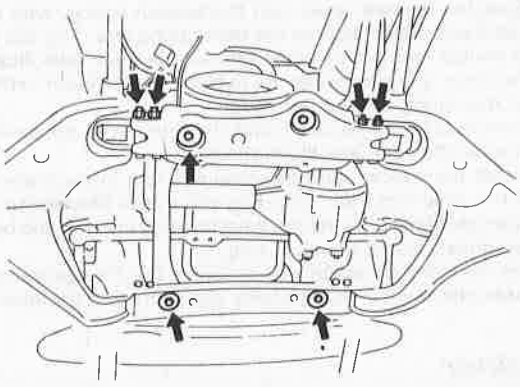
Note: *When disassembling the freewheel hub, pay very close attention to the way the parts fit together. If confusion is a possibility, make a sketch as they are disassembled and lay them out in order of removal.*

Removal

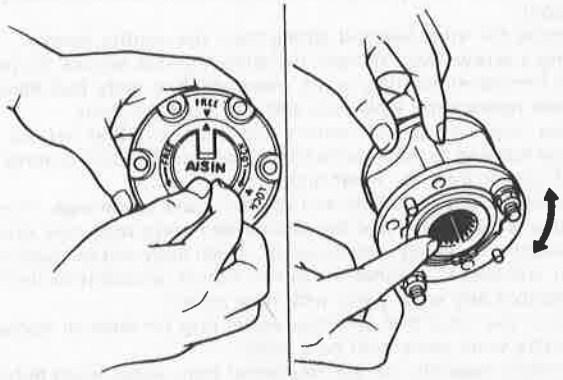
1 Set the hub control handle to the Free position.
2 Remove the six bolts and slide the freewheel hub out of the front hub.

Overhaul

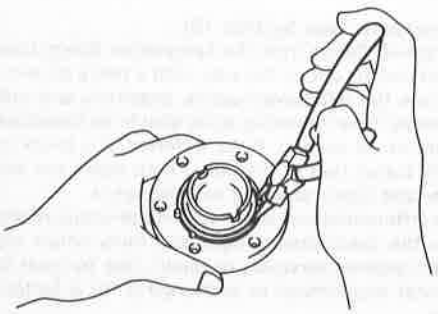
3 To check the operation of the freewheel hub, temporarily install two bolts through the hub to hold it together, then confirm that the control handle turns easily and the inner hub rotates smoothly when the hub is set in the Free position **(see illustration)**. The inner hub should not turn when the control handle is placed in the Lock position.



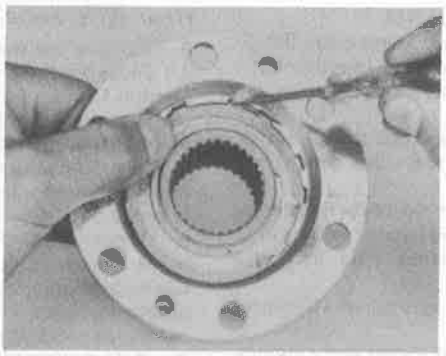
18.6 Remove the indicated crossmember bolts (arrows) — the front axle assembly must be supported before this is done



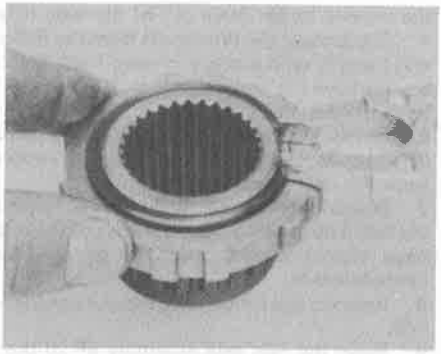
20.3 The inner hub should rotate freely when the control knob is in the Free position



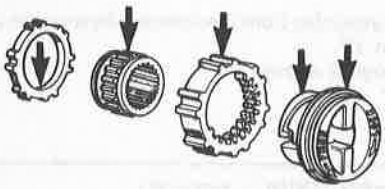
20.4 Remove the snap-ring that retains the control handle to the cover



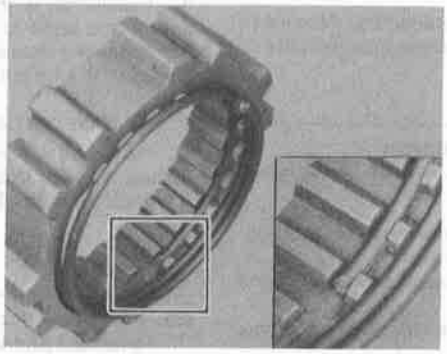
20.6 Removing the snap-ring retaining the inner hub and hub ring to the hub body



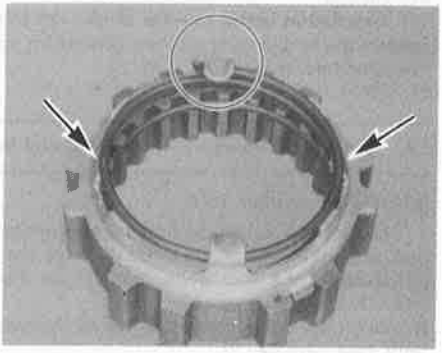
20.7 Removing the snap-ring retaining the hub ring to the inner hub



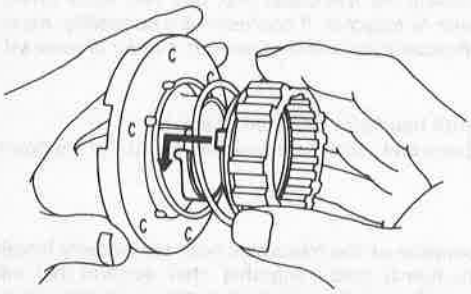
20.11 Lubricate the indicated areas with multi-purpose grease



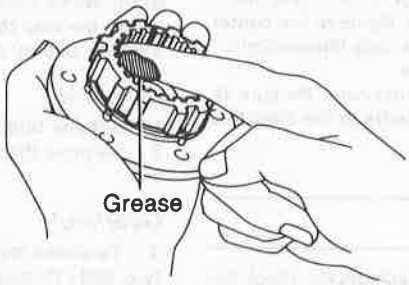
20.14 Proper alignment of the tension spring in the clutch



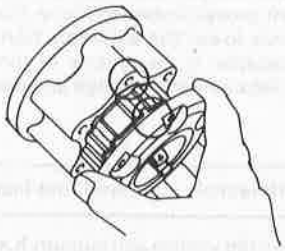
20.15 Spring end abuts one of the large tabs and the top ring rests on the small tabs of the follower pawl



20.17 Install the clutch hub to the clutch cover



20.22 Lubricate the inner hub splines with multi-purpose grease

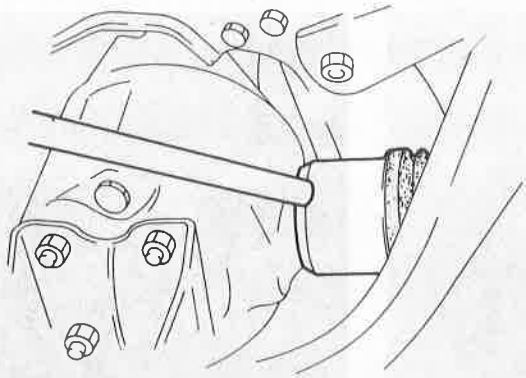


20.23 Align the clutch follower tabs with the hub body and install the clutch assembly

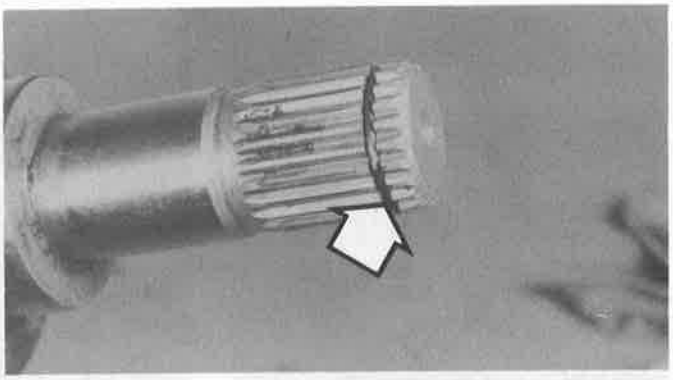
4 Using snap-ring pliers, remove the snap-ring from the underside of the hub cover, then remove the control handle from the cover **(see illustration)**.
5 Remove the steel ball and spring from the control handle.
6 Using a screwdriver, remove the snap-ring that retains the inner hub and freewheel hub ring to the freewheel hub body **(see illustration)**, then remove the inner hub and ring from the body.
7 Using snap-ring pliers, remove the snap-ring that retains the freewheel hub ring to the inner hub **(see illustration)**, then remove the ring and spacer from the inner hub.
8 Inspect the cover, handle and seal for wear or damage. If wear or damage is found, replace the appropriate parts with new ones.
9 Inspect the hub body, clutch spring, clutch body and follower pawl for wear and make sure that the clutch moves smoothly in the hub body. Replace any worn parts with new ones.
10 Inspect the inner hub and free wheel ring for wear or damage. Replace any worn parts with new ones.
11 To begin assembly of the freewheel hub, apply multi-purpose grease to the contact surfaces of all parts **(see illustration)**.
12 Attach a new seal and the spring and ball to the control handle.
13 Insert the handle into the cover and install the snap-ring.
14 Install the tension spring in the clutch, with the spring end aligned with the initial groove **(see illustration)**.
15 Place the follower pawl over the tension spring, with one of the large tabs positioned against the bent spring end. The top coil of the spring should rest on the small tabs of the pawl **(see illustration)**.
16 Place the spring between the hub cover and clutch, with the large end of the spring toward the cover.
17 Compress the spring and install the clutch with the pawl tab fitted into the handle cam **(see illustration)**.
18 Install the spacer and freewheel hub ring in the inner hub, then install the snap-ring with snap-ring pliers **(see illustration 20.7)**.
19 Insert the inner hub and freeweel hub ring into the hub body. Using a screwdriver, install the snap-ring.
20 Set the control handle and clutch to the Free position.
21 Insert the cover in the hub body and verify that the inner hub turns freely.

Installation

22 Apply grease to the inner hub splines **(see illustration)**.
23 Install the freewheel hub cover onto the body, aligning the follower tabs with the non-toothed lands of the body **(see illustration)**. Tighten the six bolts to the specified torque.



21.10 Use a long drift and a hammer to "pop" the driveaxle out of the differential



21.12 Always replace the spring clip on the inner stub shaft

21 Front driveaxle (4WD) — removal and installation

Refer to illustration 21.10 and 21.12

Removal

1 Loosen the wheel lug nuts, raise the front of the vehicle and support it securely on jackstands. Remove the wheel.
2 Remove the freewheel hub (see Section 20).
3 Unbolt the caliper from the steering knuckle and suspend it with a piece of wire — DON'T let it hang by the brake hose.
4 Using a pair of snap-ring pliers, remove the snap-ring and spacer from the end of the driveaxle.
5 Disconnect the tie-rod end from the steering knuckle arm (Chapter 10).
6 Remove the shock absorber lower mounting bolt and compress the shock absorber as much as possible to get it out of the way.
7 Remove the stabilizer bar-to-lower arm bolt (see Chapter 10).
8 Place a floor jack under the suspension lower arm and raise it slightly, then remove the steering knuckle following the procedure outlined in Chapter 10. Support the outer end of the driveaxle with a piece of wire — allowing it to hang free may damage the inner constant velocity joint.
9 Remove the engine undercover.
10 Using a long drift or pry bar, knock the inner CV joint out of the differential **(see illustration)**, then remove the driveaxle from the vehicle.
11 Inspect the CV joint boots for cracks, holes and tears. Refer to the next Section if the boots need replacing.

Installation

12 If the right side driveaxle is being installed, pry off the old spring clip from the end of the driveaxle stub shaft and install a new one **(see illustration)**. When installing the left driveaxle, this clip is located on the end of the output shaft, and is replaced in the same manner.
13 Lubricate the differential seal (or output shaft seal) with multipurpose grease or gear oil. Slide the inner end of the driveaxle into the differential side gear (or on the left side, onto the output shaft) until a "click" is felt, indicating that the spring clip has seated in its groove in the side gear (or inner joint, on the left side). Try to pull the driveaxle out — if it won't come out, the clip is properly seated.
14 Once again, hang the outboard end of the driveaxle from a piece of wire as was done in Step 8, then position the steering knuckle over the driveaxle stub shaft and between the balljoint studs.
15 The remainder of the installation procedure is the reverse of the removal sequence. Be sure to tighten all fasteners to the specified torque values where indicated.

22 Driveaxle boot replacement and (CV) joint overhaul (4WD)

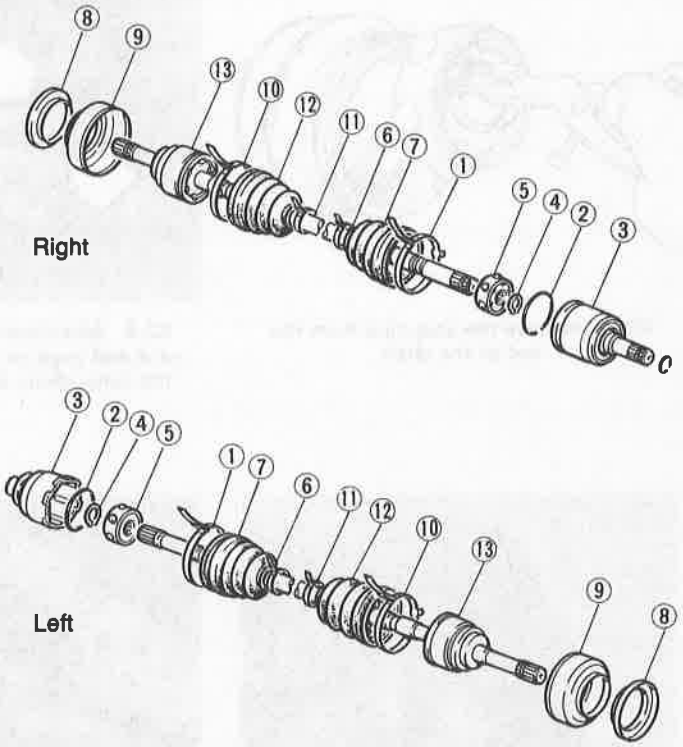
Refer to illustrations 22.3a, 22.3b, 22.4, 22.5, 22.6, 22.8, 22.9, 22.13, 22.14, 22.15, 22.17, 22.19, 22.20, 22.21a, 22.21b and 22.27

Note: *If the CV joints exhibit signs of wear indicating need for an overhaul (usually due to torn boots), explore all options before beginning the job. Complete rebuilt driveaxles are available on an exchange basis, which eliminates much time and work. Whichever route you choose to take, check on the cost and availability of parts before disassembling your vehicle.*

Inner CV joint and boot

Disassembly

1 Remove the driveaxle from the vehicle (Section 21).
2 Mount the driveaxle in a vise. The jaws of the vise should be lined with wood or rags to prevent damage to the axleshaft.
3 Pry the boot clamps loose with a small screwdriver **(see illustrations)**.

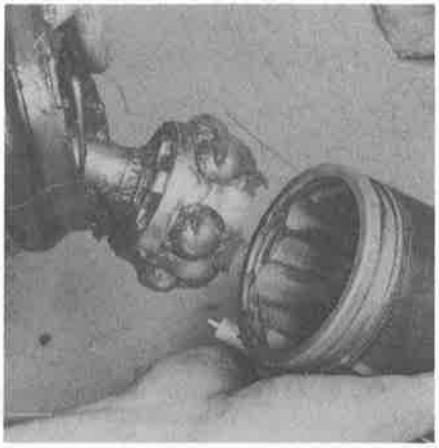


22.3a Driveaxle assemblies — exploded view

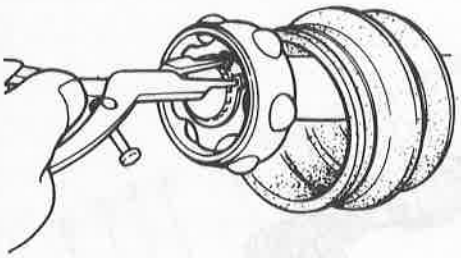
1 Boot clamp
2 Ball retainer
3 Outer race
4 Snap-ring
5 Inner race and cage (bearing) assembly
6 Boot clamp
7 Boot
8 Dust cover
9 Boot protector
10 Boot clamp
11 Boot clamp
12 Boot
13 Outer CV joint and driveaxle assembly

22.3b The boot clamps can be pried open with a small screwdriver

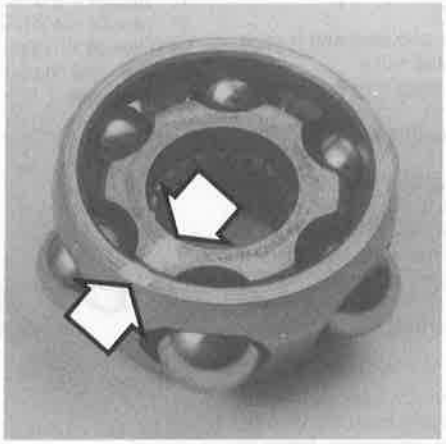
22.4 Pry the wire ring from the outer race with a small screwdriver



22.5 With the retainer removed, the outer race can be pulled off the inner race and cage



22.6 Remove the snap-ring from the end of the shaft

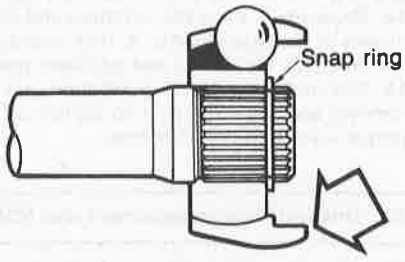


22.8 Make index marks on the inner race and cage so they'll both be facing the same direction when reassembled

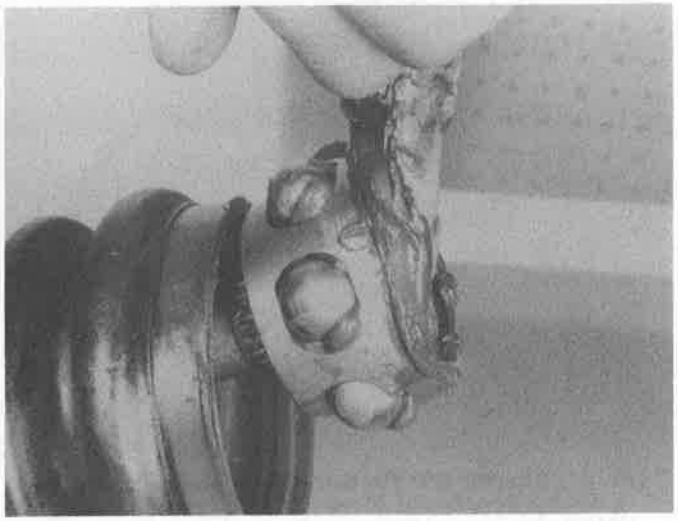
22.9 Pry the balls from the cage with a screwdriver (be careful not to nick or scratch anything)

22.13 Press the balls into the cage through the windows

22.14 Wrap the splined area of the axle with tape to prevent damage to the boot when installing it



22.15 The larger diameter side of the inner race and cage (arrow) must face the end of the shaft



22.17 Pack grease into the bearing until it's completely full

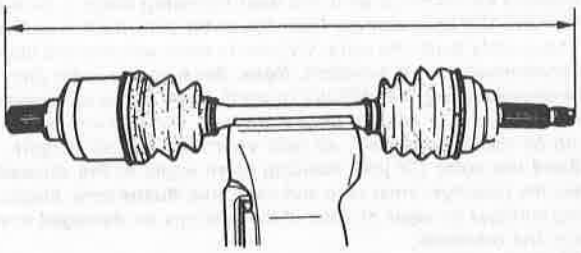
4 Slide the boot back on the axleshaft and pry the wire ring ball retainer from the outer race **(see illustration)**.
5 Pull the outer race off the inner bearing assembly **(see illustration)**.
6 Remove the snap-ring from the end of the axleshaft with a pair of snap-ring pliers **(see illustration)**.
7 Slide the inner bearing assembly off the axleshaft.
8 Mark the inner race and cage to ensure that they are reassembled with the correct sides facing out **(see illustration)**.
9 Using a screwdriver, pry the balls from the cage **(see illustration)**. Be careful not to scratch the inner race, the balls or the cage.
10 Rotate the inner race 90-degrees, align the inner race lands with the cage windows and rotate the race out of the cage.

Inspection

11 Clean the components with solvent to remove all traces of grease. Inspect the cage and races for pitting, score marks, cracks and other signs of wear and damage. Shiny, polished spots are normal and will not adversely affect CV joint performance.

Reassembly

12 Insert the inner race into the cage. Verify that the matchmarks are on the same side. However, it's not necessary for them to be in direct alignment with each other.
13 Press the balls into the cage windows with your thumbs **(see illustration)**.
14 Wrap the axleshaft splines with tape to avoid damaging the boot. Slide the small boot clamp and boot onto the axleshaft, then remove the tape **(see illustration)**.
15 Install the inner race and cage assembly on the axleshaft with the larger diameter side or "bulge" of the cage facing the axleshaft end **(see illustration)**.
16 Install the snap-ring, making sure it seats in it's groove completely.
17 Fill the outer race and boot with the specified type and quantity of CV joint grease (normally included with the new boot kit). Pack the inner race and cage assembly with grease, by hand, until grease is worked completely into the assembly **(see illustration)**.
18 Slide the outer race down onto the inner race and install the wire ring retainer.
19 Wipe any excess grease from the axle boot groove on the outer race. Seat the small diameter of the boot in the recessed area on the axleshaft. Push the other end of the boot onto the outer race and move the race in-or-out to adjust the axle to the proper length **(see illustration)**.
20 With the axle set to the proper length, equalize the pressure in the boot by inserting a dull screwdriver between the boot and the outer race **(see illustration)**. Don't damage the boot with the tool.
21 Install the boot clamps **(see illustrations)**.



22.19 The driveaxle must be set to the proper length (as stated in the Specifications section) before the inner boot clamp is tightened – it is measured from end-to-end

22.20 Equalize the pressure inside the boot by inserting a small screwdriver between the boot and the outer race

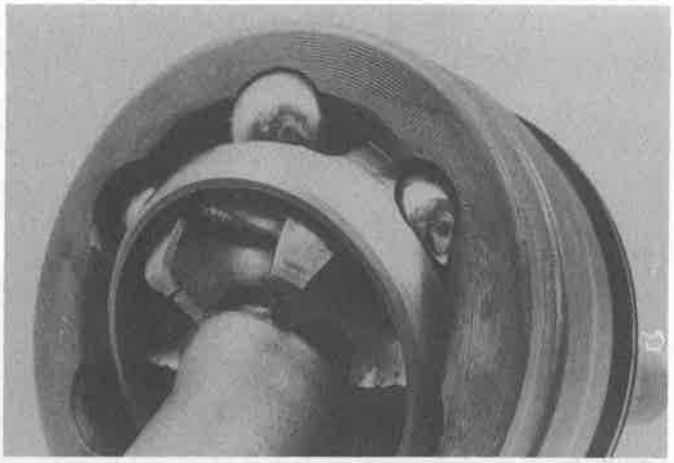
22.21a To install a new clamp, bend the tang downward and . . .

22.21b . . . tap the tabs down to hold it in place

22 Install a new circlip on the stub axle **(see illustration 21.12).**
23 Install the driveaxle as described in Section 21.

Outer CV joint and boot

24 Remove the inner CV joint and boot following Steps 1 through 7.
25 Remove the boot clamps from the outer joint boot (see Step 3)
26 Thoroughly wash the outer CV joint in clean solvent and blow dry with compressed air, if available. **Note:** *Because the outer joint cannot be disassembled, it is difficult to wash away all the old grease and to rid the bearing of solvent once it's clean. But it is imperative that the job be done thoroughly, so take your time and do it right.*
27 Bend the outer CV joint housing at an angle to the driveaxle to expose the bearings, inner race and cage **(see illustration).** Inspect the bearing surfaces for signs of wear. If the bearings are damaged or worn, replace the driveaxle.
28 Slide the new outer boot onto the driveaxle. It's a good idea to wrap vinyl tape around the spline fo the shaft to prevent damage to the boot. When the boot is in position, add the specified amount of grease (included in the boot replacement kit) to the outer joint and the boot (pack the joint with as much grease as it will hold and put the rest into the boot). Slide the boot on the rest of the way and install the new clamps **(see illustrations 22.21a and 22.21b).**
29 Install the inner CV joint and boot as outlined in this Section.
30 Install the driveaxle as described in Section 21.



22.27 After the joint has been cleaned thoroughly, rotate it through its full range of motion and inspect the bearing surfaces for wear or damage — if any of the balls, the race or cage look damaged, replace the driveaxle and outer joint assembly