

## SPECIFICATIONS

|                                                                    |                            |
|--------------------------------------------------------------------|----------------------------|
| Type .....                                                         | Single, dry plate          |
| Operation .....                                                    | Cable                      |
| Pressure plate .....                                               | Diaphragm                  |
| Spigot bearing .....                                               | Prelubricated ball bearing |
| Release bearing .....                                              | Prelubricated              |
| Clutch driven plate diameter:                                      |                            |
| 1979-1987 two wheel drive models ...                               | 200 mm                     |
| 1979-1984 four wheel drive and<br>Utility models .....             | 200 mm                     |
| 1985-1987 four wheel drive Sedan<br>and Station Wagon models ..... | 225 mm                     |
| Clutch driven plate maximum runout:                                |                            |
| 200 mm diameter plate .....                                        | 0.7 mm at<br>95 mm radius  |
| 225 mm diameter plate .....                                        | 0.7 mm at<br>107 mm radius |
| Minimum amount of friction material ....                           | 0.3 mm<br>above the rivet  |
| Free play at clutch release lever:                                 |                            |
| 1979-1987 two wheel<br>drive models .....                          | 2.0-3.0 mm                 |
| 1979-1984 four wheel drive and<br>Utility models .....             | 2.0-3.0 mm                 |
| 1985-1987 four wheel drive Sedan<br>and Station Wagon models ..... | 3.0-4.0 mm                 |
| Free play at clutch pedal:                                         |                            |
| 1979-1984 and<br>Utility models .....                              | 13.0-20.0 mm               |
| 1985-1987 Sedan and<br>Station Wagon models .....                  | 10.0-20.0 mm               |

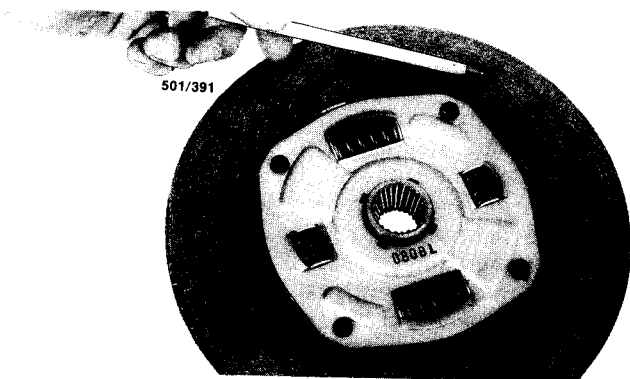
## TORQUE WRENCH SETTINGS

Pressure plate to flywheel bolts ..... 17 Nm

### 1. CLUTCH TROUBLE SHOOTING

#### CLUTCH SLIPPING

- (1) Weak or broken pressure plate diaphragm spring Check and renew pressure plate assembly.
- (2) Worn driven plate facings: Check and renew clutch driven plate.



Renew the clutch driven plate if the friction material is worn down, or is within 0.3 mm of the rivets.

- (3) Worn or scored flywheel face: Check and renew flywheel and ring gear.
- (4) Worn or scored pressure plate face: Check and renew pressure plate assembly.
- (5) Insufficient pedal free travel: Check and adjust pedal free travel.
- (6) Pedal and cable operation fouling: Check and repair, or renew as necessary.
- (7) Release bearing insecure in lever: Check and repair, or renew as necessary.

*NOTE: In most cases clutch slippage is first evident by a marked increase in engine revs for no apparent reason when pulling up a steep hill. The clutch condition can be positively diagnosed as follows: With the handbrake firmly applied and with the road wheels chocked, place the transmission in top gear and with the engine revving at 1500 rpm, slowly release the clutch. Clutch slippage is evident if the engine does not stall. Make the test as quickly as possible to prevent any further clutch damage.*

#### CLUTCH SHUDDER

- (1) Oil on (gummy) driven plate facings: Check and renew clutch driven plate.
- (2) Scored pressure plate or flywheel face: Renew pressure plate assembly or flywheel and ring gear.
- (3) Loose or damaged driven plate hub: Check and renew clutch driven plate.
- (4) Loose driven plate facings: Check and renew clutch driven plate.
- (5) Cracked pressure plate face: Renew clutch pressure plate assembly.
- (6) Weak or damaged pressure plate diaphragm: Check and renew the pressure plate assembly.

*NOTE: Clutch shudder is usually most evident when reversing up an incline. As loose or damaged engine mountings are a cause for clutch shudder, thoroughly check the engine mounting rubbers and mounting hardware for damage or looseness before removing the clutch for inspection.*

#### CLUTCH GRAB

- (1) Gummy driven plate facings: Renew clutch driven plate.
- (2) Cracked pressure plate face: Renew clutch pressure plate assembly.
- (3) Loose or broken engine mountings: Check and renew engine mountings as necessary.
- (4) Clutch pedal free play excessive: Check and adjust if necessary.
- (5) Crankshaft/flywheel spigot bearing faulty: Check and renew as necessary.
- (6) Pedal and cable operation fouling: Check and repair, or renew as necessary.



Check the engine mountings for wear and deterioration.

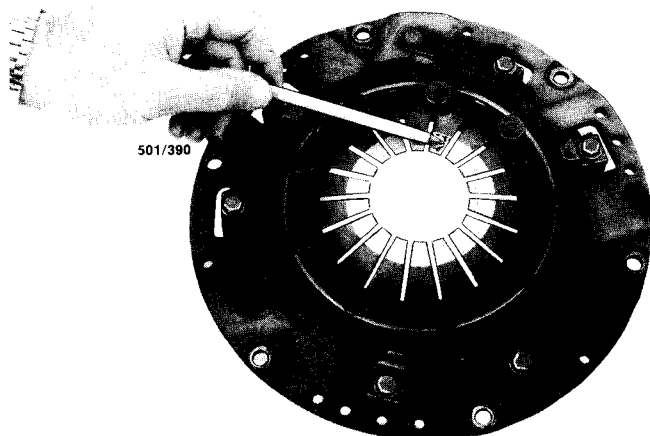
### INSUFFICIENT CLUTCH RELEASE

- (1) Frayed or broken clutch cable: Check and renew clutch cable.
- (2) Worn or damaged release mechanism: Check and renew components as necessary.
- (3) Warped or cracked clutch driven plate: Renew clutch driven plate.

*NOTE: Visually check that the clutch cable operates the actuating lever at the clutch housing before removing the clutch for inspection.*

### CLUTCH NOISE

- (1) Dry or worn release bearing: Check and renew bearing.
- (2) Damaged pressure plate diaphragm spring: Check and renew pressure plate assembly.
- (3) Insufficient pedal free play: Check and adjust pedal free play.
- (4) Worn, or dry spigot bearing: Check and renew as necessary.



Check the clutch pressure plate diaphragm fingers for scoring and other damage.

(5) Excessive crankshaft end play: Renew main bearings, refer to the Engine section.

(6) Engine torque stay rod incorrectly adjusted, 1979-1984 and Utility models only: Adjust the torque stay rod, refer to the Engine section.

(7) Clutch cable incorrectly routed: Adjust the cable as necessary.

(8) Clutch driven plate rivets loose: Renew clutch driven plate.

*NOTE: Lightly depress the clutch pedal with the engine running to check for release bearing noise. If the release bearing is faulty and has to be renewed, always check the other clutch components.*

## 2. DESCRIPTION

The clutch for the two wheel and four wheel drive transmission consists of a single dry driven plate, a diaphragm pressure plate and a prelubricated release bearing.

The driven plate is located between the pressure plate and the flywheel and transmits the drive from the engine to the transmission. The drive is cushioned by damper springs interposed between the driven plate hub and the driven plate friction surfaces.

On the diaphragm pressure plate, when the diaphragm fingers are depressed the driven plate mating surface on the pressure plate is withdrawn slightly to the rear allowing the drive plate to be independent of the flywheel and to disengage the clutch.

When the clutch is released the diaphragm fingers and the driven plate mating surface return to their engaged position and the driven plate and flywheel are as one unit transmitting drive to the transmission.

The transmission input shaft is supported by a pre-lubricated spigot bearing, located in the crankshaft on 1979-1980 models and on the flywheel on 1981-1987 models.

The clutch release bearing actuated by the release lever depresses the pressure plate diaphragm fingers during disengagement of the clutch and allows them to return during engagement by moving along the transmission input shaft bearing retainer tube.

The release bearing is pre-lubricated and is located on a carrier on all models except 1985-1987 four wheel drive models, where the bearing and carrier are one integral assembly.

The release mechanism is actuated by the clutch pedal via a cable to the release lever, the release lever is located behind the release bearing assembly, it pivots backwards and forwards on a pivot bolt on the transmission and is returned to the engaged position by a return spring on the lever.

On models equipped with the hill holder no release lever return spring is installed, as the return action of the hill holder cable returns the clutch release lever to the engaged position.

The cable and the clutch operation are adjusted by an adjusting nut on the cable at the release lever to give the specified clearance at the lever and pedal, to ensure the clutch fully engages and disengages.

On 1985-87 four wheel drive models equipped with a hill holder, the clutch operation differs in that a pressure hold valve control cable is connected to the clutch release lever and a bracket on the transmission. By the use of the adjusting nut, the inner cable can be shortened or lengthened.

During the application of the brake and the disengagement of the clutch, the release lever pulls the hill holder cable which operates the pressure hold valve. This prevents the hydraulic pressure in the brake line from decreasing and holds the brakes on, even when the brake pedal is released. During engagement of the clutch the hill holder cable returns allowing the brakes to be released.

On models equipped with the pedal effort reducing mechanism, the clutch pedal, by means of an integral arm and spring, is assisted during the operational movements.

### 3. CLUTCH UNIT

#### Special Equipment Required:

To Instal — Clutch aligning tool

#### TO REMOVE

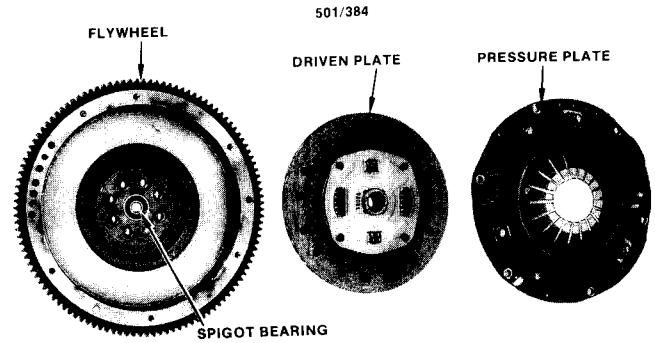
- (1) Remove the transaxle from the vehicle as described in the Manual Transaxle section.
- (2) Mark the pressure plate cover in relation to the flywheel so that they may be assembled to their original positions.
- (3) Progressively loosen and remove the pressure plate assembly retaining bolts and washers, working in a diagonal fashion across the assembly.
- (4) Remove the pressure plate and driven plate from the flywheel.

#### TO CHECK AND INSPECT

- (1) Check the driven plate facings. If the driven plate facings are worn, highly glazed or gummy with oil, renew the driven plate as an assembly. If the driven plate is still serviceable, do not allow any cleaning fluid, oil or grease to contaminate the plate facings.
- (2) Check the driven plate runout. If the runout exceeds the Specifications at the radius specified, renew the driven plate.

*NOTE: The driven plate must be renewed when the facings are worn down to or within 0.3 mm of the rivet heads. Should there be any traces of oil on the facings the source has to be investigated and rectified.*

- (3) Check the hub of the driven plate for looseness and the damper springs for wear and breakage.



View of flywheel, clutch driven plate and pressure plate assembly.

- (4) Check the pressure plate assembly for wear on the diaphragm spring fingers, diaphragm spring and a cracked or distorted cover. Check that the pressure plate face is not badly scored. Renew the pressure plate assembly as necessary.

- (5) Check the flywheel face for heat cracks, burn marks and scoring. Renew the flywheel when the damage is severe.

- (6) Check the spigot bearing in the crankshaft/flywheel for smoothness of operation and damage, renew as necessary.

*NOTE: The spigot bearing is pre-lubricated and should not be immersed in cleaning solvent.*

- (7) It is advisable to remove the clutch release bearing and carrier and inspect the components before installing the transaxle. See Clutch Release Mechanism.

*NOTE: If the pressure plate and/or clutch plate are unserviceable, this is grounds to suspect that the release bearing is also due to be renewed. For removal and installation of the flywheel, refer to the Engine section.*

#### TO INSTAL

*NOTE: When renewing the clutch always check that the correct clutch has been supplied.*

- (1) If the flywheel was removed, instal the flywheel as described in the Engine section.
- (2) If the release mechanism was removed for inspection, instal the release mechanism as described under the following heading.
- (3) Thoroughly clean the flywheel and pressure plate faces.
- (4) Position the clutch driven plate on the flywheel with the raised cushion spring section towards the transmission side.
- (5) Position the pressure plate on the flywheel aligning the marks if the original components are reused.

*NOTE: Ensure that the pressure plate is installed the 'O' mark at least 120 degrees from the 'O' mark on the flywheel or the residual balance of the assembly will be wrong.*

(6) Loosely instal the pressure plate retaining bolts.

(7) Align the hub of the clutch driven plate with the spigot bearing in the centre of the flywheel using the clutch alignment tool.

(8) Progressively tighten the pressure plate retaining bolts in a diagonal sequence finally tightening the bolts to the specified torque.

(9) Withdraw the alignment tool.

(10) Sparingly lubricate the splines of the transaxle input shaft with a high melting point grease. Install the transaxle assembly, if necessary referring to the Manual Transaxle section for the correct procedure.

(11) Check and adjust the clutch pedal free play as described under Clutch Adjustments in this section.

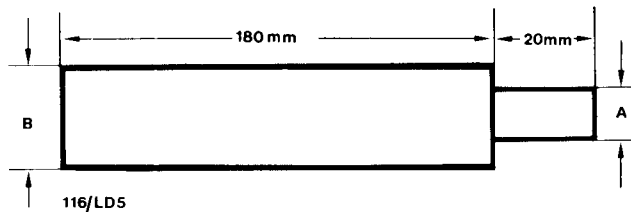


Illustration showing clutch aligning tool. The tool can be readily fabricated from a length of round section wood or metal. Dimension A = diameter of transaxle input shaft spigot. Dimension B = inside diameter of driven plate hub.

#### 4. CLUTCH RELEASE MECHANISM

##### Special Equipment Required:

To Remove and Instal — Suitable press and press plates

##### TO REMOVE

(1) Remove the transaxle from the vehicle as described in the Manual Transaxle section.

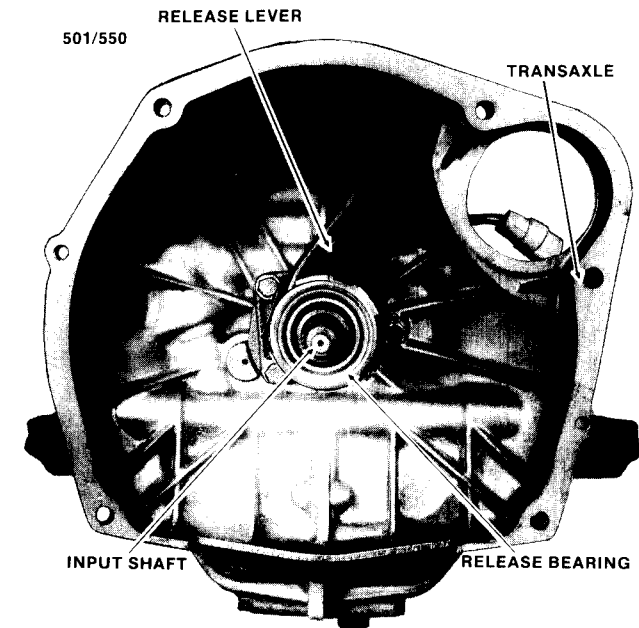
(2) Remove the rubber boot from the clutch release lever.

(3) Remove the retaining clips from the release bearing and remove the bearing/carrier from the input shaft bearing retainer tube.

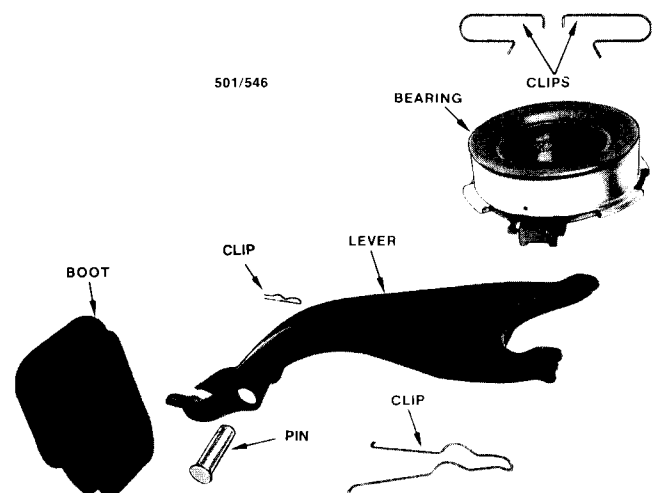
(4) Remove the return spring where installed from the release lever.

(5) Remove the release lever to pivot retaining clip and remove the release lever from the transaxle.

(6) On models with a clutch release bearing and carrier support the bearing on its outer edge on the open jaws of a vice and using a suitable drift and



Installed view of clutch release mechanism.



Dismantled view of clutch release mechanism, 1986 model shown.

alternate blows on the side of the carrier drive the carrier from the bearing.

(7) On models equipped with a hill holder remove the clevis pin retaining clip and pin from the release lever.

(8) Thoroughly clean the release lever, bearing carrier, clevis pin and retaining clips in a suitable solvent.

*NOTE: The release bearing is pre-lubricated and should not be immersed in solvent.*

(9) Check the return spring for tension, wear and damage, renew as necessary.

(10) Check the release bearing for smoothness of

operation and damage, renew as necessary. Pay particular attention to the radial free movement.

(11) Check the release bearing carrier for wear and damage, renew as necessary.

(12) Check the release lever pivot area, pivot bolt and clevis pin for wear and damage, renew as necessary.

### TO INSTALL

(1) Lubricate the release lever bearing holder inner groove and lever contact surface with multi-purpose grease.

(2) Lubricate the input shaft splines and release lever pivot area surfaces with multi-purpose grease.

(3) On models with a clutch release bearing and carrier, using a suitable press and press plates support the bearing and press the bearing onto the carrier until it abuts the carrier shoulder. Check the operation of the bearing for smoothness.

(4) Install the release lever onto its pivot bolt and install the retaining clip.

(5) Install the bearing/carrier to the input shaft bearing retainer tube and release lever and install the retaining clips.

(6) On models equipped with a hill holder, install the clevis pin and retaining clip to the release lever.

(7) Install the rubber boot to the clutch release lever.

(8) Install the return spring where applicable to the release lever.

### 5. CLUTCH PEDAL

#### TO REMOVE AND INSTALL

(1) Working inside the vehicle 1979–1984 and Utility models, remove the pedal retaining clip and washer from the pedal pivot shaft.

(2) On 1985–1987 Sedan and Station Wagon models proceed as follows:

(a) Remove the pedal retaining nut from the pivot shaft.

(b) Remove the pedal retainer bracket to pedal bracket retaining bolts and remove the retainer bracket.

(c) Remove the clutch cable to pedal bracket retaining bolts.

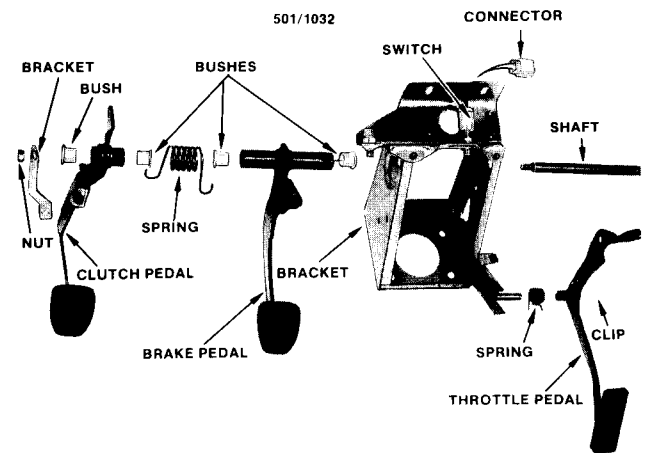
(3) On 1979–1984 and Utility models remove the clutch cable clamp to pedal bracket retaining bolt and remove the clamp.

(4) Remove the pedal and bushes with the attached cable from the pedal bracket.

(5) Remove the cable clevis retaining clip, clevis pin and cable from the pedal. Remove the pedal from the vehicle.

(6) Check the pedal and pedal retaining bracket for cracks and damage, renew as necessary.

(7) Check the pedal pad for wear and splits, renew as necessary.



View of pedals and pedal bracket components removed from the vehicle, 1986 model shown.

Installation is the reversal of the removal procedure with attention to the following points:

(1) Apply grease to the pivot shaft, bushes and moving contact surfaces.

(2) Adjust the clutch pedal free play as described under the Clutch Adjustments heading.

### 6. CLUTCH CABLE

#### TO REMOVE AND INSTALL

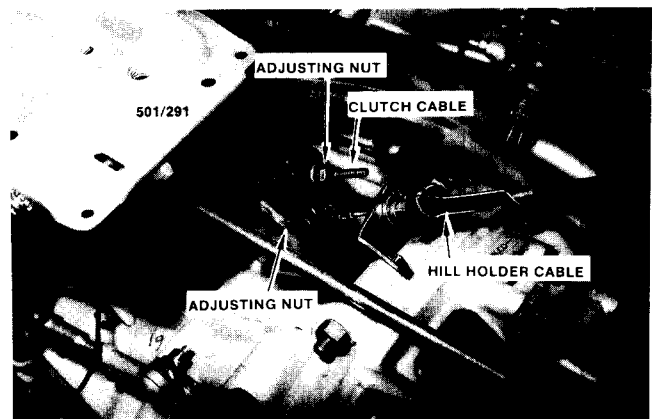
(1) Remove the clutch pedal as previously described.

(2) Remove the clutch cable to pedal bracket retaining clamp and remove the cable from the bracket.

(3) Working in the engine compartment remove the clutch cable from the retaining clip on the transaxle.

(4) Remove the cable to cable bracket retaining clip from the bracket on the transaxle.

(5) Remove the locknut, adjusting nut/domed spacer from the cable.



Installed view of clutch and hill holder cables, 1986 model shown.

(6) Remove the clutch cable from the cable bracket, release lever and bulkhead and remove it from the vehicle.

Installation is the reversal of the removal procedure with attention to the following points:

- (1) Check that the inner cable moves smoothly and easily in the outer cable.
- (2) Lubricate the inner cable with grease.
- (3) Ensure that the installed cable has no sharp bends or restrictions and is routed under the torque stay rod.
- (4) Adjust the clutch pedal free play as described under Clutch Adjustments.

## 7. CLUTCH ADJUSTMENTS

### TO CHECK AND ADJUST CLUTCH PEDAL FREE PLAY

The dimension for the pedal free play is measured by the amount of free play at the clutch release lever and then by the free play at the pedal.

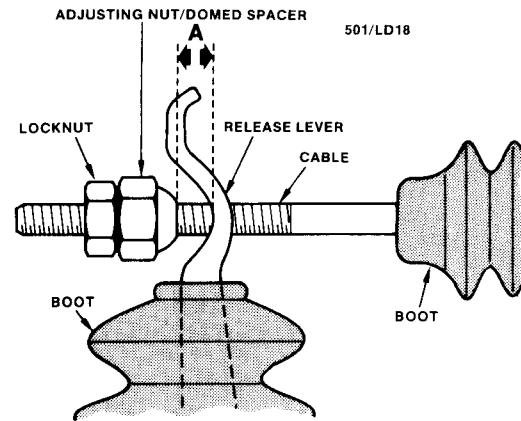
The pedal free play and the release lever free play is controlled by the adjusting nut on the clutch cable and when adjusted to the Specifications should be secured by the cable locknut.

(1) Working in the engine compartment, where installed, remove the clutch release lever return spring(s).

(2) Using a suitable set of feeler gauges inserted between the clutch cable adjusting nut/domed spacer and the inner face of the clutch release lever, check that the free play is within Specifications.

If the free play is not within Specifications, the clearance at the release lever should be adjusted as follows.

(3) Loosen the clutch cable adjusting nut/domed spacer locknut and adjust the adjusting nut/domed spacer in the required direction to obtain the specified



Line diagram of the clutch release lever free play dimensions. 1980–1987 two wheel drive and 1980–1984 four wheel drive and Utility models dimension A = 2.0–3.0 mm. 1985–1987 four wheel drive Sedan and Station Wagon models dimension A = 3.0–4.0 mm.

clearance between the adjusting nut/domed spacer and the inner face of the clutch release lever.

(4) Operate the clutch pedal a number of times by hand and check that free play at the pedal pad is within Specifications. If the pedal free play is not within Specifications the clearance at the release lever should be adjusted as previously described.

(5) When the specified clearance is gained at the clutch pedal, tighten the adjusting nut/domed spacer securely.

(6) Where installed, install the clutch return spring(s) to the release lever.

### TO CHECK AND ADJUST HILL HOLDER CABLE

The check and adjustment procedures for the hill holder cable are fully covered in the Brakes section.