

# Chapter 7 Part A

## Manual transmission

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### Specifications

<b>Torque specifications.....</b>	<b>Ft-lbs</b>
Clutch bellhousing-to-engine bolt	
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W42, 46, 50.....	37 to 50
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#### 1 General information

Refer to illustrations 1.1a and 1.1b

All vehicles covered in this manual are equipped with either a 4 or 5-speed manual transmission or an automatic transmission (see illustrations). All information on the manual transmission is included in this Part of Chapter 7. Information on the automatic transmission can be found in Part B. Information on the transfer case used on 4WD models can be found in Part C.

Due to the complexity, unavailability of replacement parts and the special tools necessary, internal repair procedures for the manual transmission is not recommended for the home mechanic. The information contained within this manual will be limited to general information, seal replacement and removal and installation procedures.

Depending on the expense involved in

having a faulty transmission overhauled, it may be an advantage to consider replacing the unit with either a new or rebuilt one. Your local dealer or transmission shop should be able to supply you with information concerning cost, availability and exchange policy. Regardless of how you decide to remedy a transmission problem, you can still save considerable expense by removing and installing the unit yourself.

#### 2 Oil seal replacement

1 Oil leaks frequently occur due to wear of the extension housing oil seal and bushing, and/or the speedometer drive gear oil seal and O-ring. Replacement of these seals is relatively easy, since the repairs can usually be performed without removing the transmission from the vehicle.

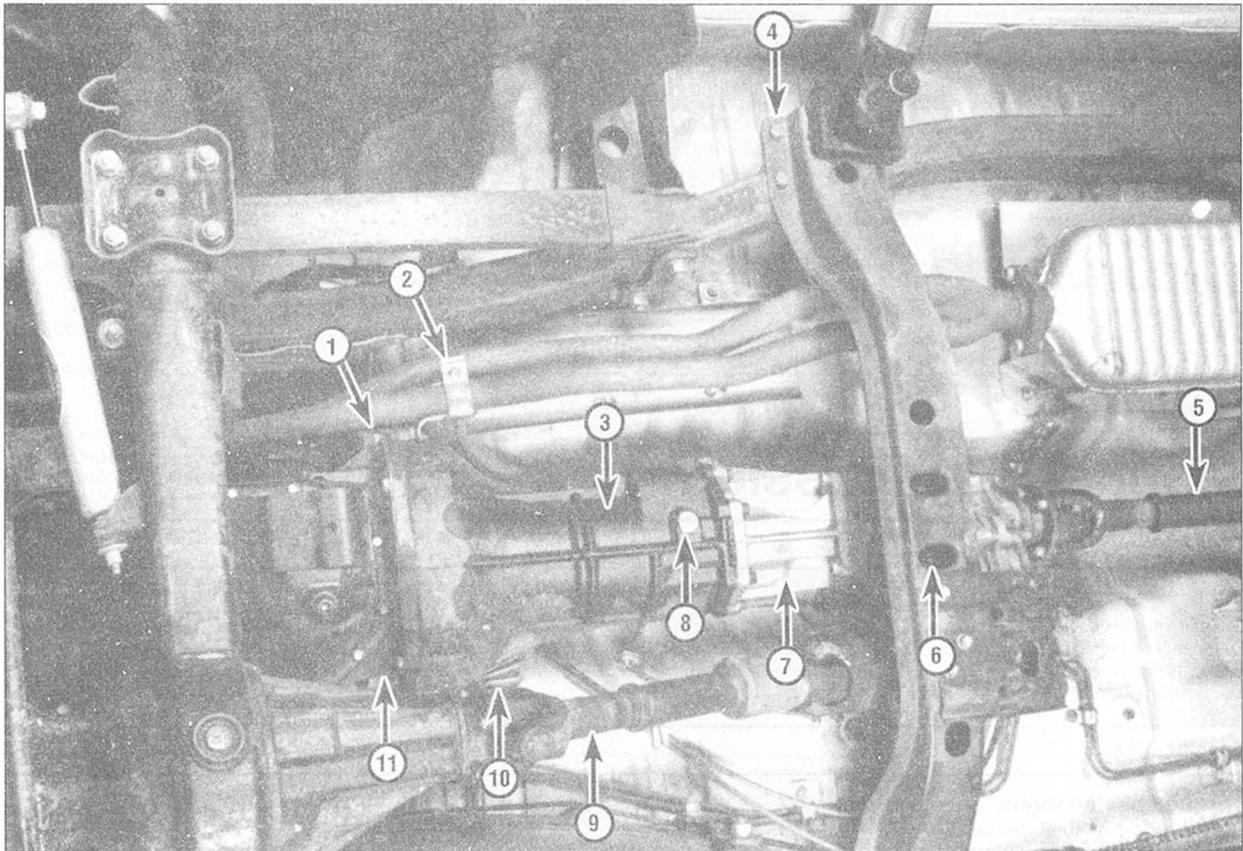
#### Extension housing

2 The extension housing oil seal is located at the extreme rear of the transmission, where the driveshaft is attached. If leakage at the seal is suspected, raise the rear of the vehicle and support it securely on jackstands. Be sure to block the front wheels to keep the vehicle from rolling. If the seal is leaking, transmission lubricant will be built up on the front of the driveshaft and may be dripping from the dust shield at the rear of the transmission.

3 Refer to Chapter 8 and remove the driveshaft.

4 Using a soft-faced hammer, carefully tap the dust shield to the rear and remove it from the transmission. Be careful not to distort it.

5 Using a screwdriver or pry bar, carefully pry the oil seal and bushing out of the rear of the transmission. Do not damage the splines on the transmission output shaft.



1.1a Typical 4WD transmission and related components

- |                              |                           |                            |
|------------------------------|---------------------------|----------------------------|
| 1 Transmission housing bolts | 5 Rear driveshaft         | 9 Front driveshaft         |
| 2 Exhaust pipe clamp         | 6 Rear mounting bolts     | 10 Clutch release cylinder |
| 3 Transmission               | 7 Transfer case           | 11 Starter                 |
| 4 Rear support member bolts  | 8 Transmission drain plug |                            |

6 If the oil seal and bushing cannot be removed with a screwdriver or pry bar, it may be necessary to obtain a special seal removal tool, available at your dealer or an auto parts store.

7 Using a large section of pipe or a very large deep socket as a drift, install the new oil seal. Drive it into the bore squarely and make sure that it is completely seated. Install a new bushing using the same method.

8 Reinstall the dust shield by carefully tapping it into place.

Lubricate the splines of the transmission output shaft and the outside of the driveshaft sleeve yoke with lightweight grease, then install the driveshaft. Be careful not to damage the lip of the new seal.

### Speedometer driven gear

9 The speedometer cable and driven gear housing is located on the side of the extension housing. Look for transmission oil around the cable housing to determine if the seal and O-ring are leaking.

10 Disconnect the cable housing with pliers.

11 Using a wrench, remove the speedometer driven gear housing.

12 Remove the driven gear from the housing.

13 Using a hook, remove the seal.

14 Using a small socket of the appropriate diameter or other similar tool as a drift, install the new seal.

15 Install a new O-ring to the driven gear housing and reinstall the driven gear housing and cable assembly to the extension housing.

### 3 Shift lever - removal and installation

Refer to illustration 3.3

1 Remove the console (if equipped) and shift boot screws.

2 Place the shift lever in Neutral.

3 Remove the shift lever retainer-to-transmission bolts/screws (see illustration).

4 To disconnect the shift lever from the transmission, on some older models, a special tool, available from Toyota dealers, is

needed to detach the shift lever.

5 Lift the shift lever assembly from the transmission.

6 Installation is the reverse of removal.

### 4 Manual transmission - removal and installation

#### Removal

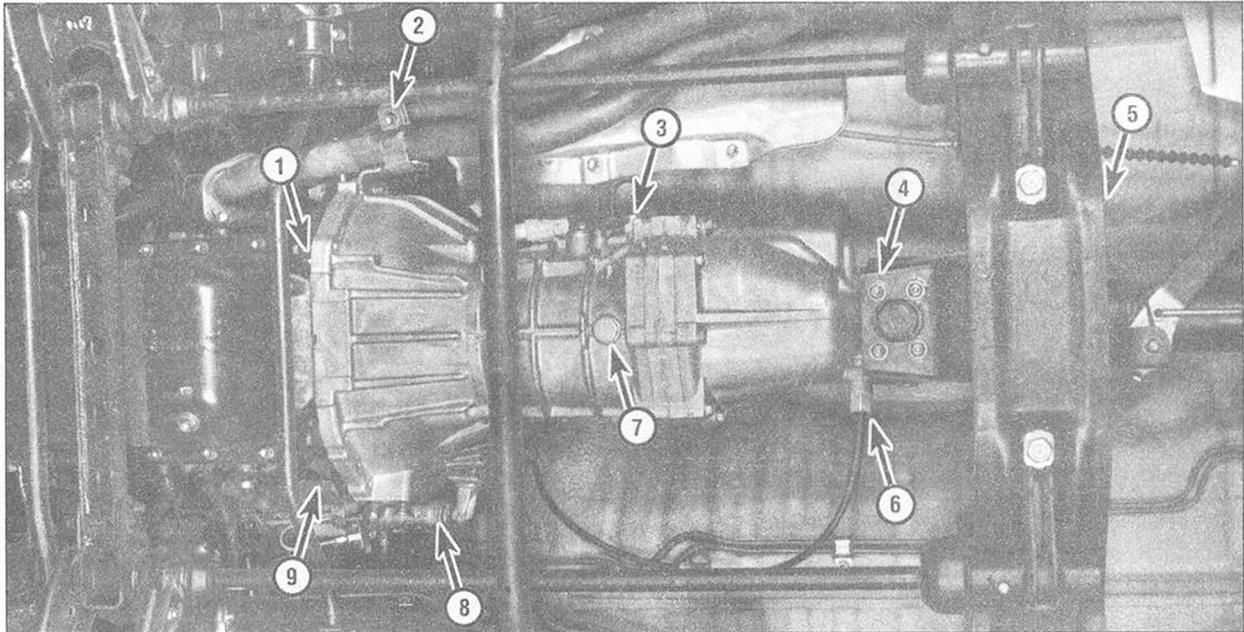
1 Disconnect the negative cable at the battery.

2 On 1989 and later models, remove the fan shroud.

3 From inside the vehicle, remove the shift lever (see Section 3). On 4WD models, use pliers to disengage the snap-ring and remove the transfer case shift lever.

4 Raise the vehicle and support it securely on jackstands.

5 Disconnect the speedometer cable and electrical connections from the transmission and, if equipped, the transfer case (see illustrations 1.1a and 1.1b).



1.1b Typical 2WD transmission and related components

- 1 Transmission housing bolts
- 2 Exhaust pipe clamp
- 3 Back-up light switch connector

- 4 Rear mounting bolts
- 5 Rear bracket bolts
- 6 Speedometer cable

- 7 Transmission drain plug
- 8 Clutch release cylinder
- 9 Starter

6 Remove the driveshaft (Chapter 8).

7 Drain the transmission and, if equipped, the transfer case.

8 Remove the starter motor, if possible. On some newer models you may not be able to remove the starter until the clutch release cylinder and various mounting brackets are out of the way and the transmission is partially lowered.

9 Unbolt the clutch release cylinder and fasten it out of the way.

10 Remove the exhaust system components as necessary for clearance (Chapter 4).

11 Support the engine. This can be done from above by using an engine hoist, or by placing a jack (with a block of wood as an insulator) under the engine oil pan. The engine should remain supported at all times while the transmission is out of the vehicle.

12 Support the transmission with a jack - preferably a special jack made for this purpose. Safety chains will help steady the transmission on the jack.

13 Remove the rear transmission support-to-crossmember nuts and bolts.

14 Remove the nuts from the crossmember bolts. Raise the transmission slightly and remove the crossmember.

15 Remove the bolts securing the transmission clutch housing to the engine.

16 Make a final check that all wires and hoses have been disconnected from the transmission and transfer case (4WD models) and then move the transmission and jack toward the rear of the vehicle until the clutch

housing is clear of the engine dowel pins. Keep the transmission level as this is done. Be careful not to damage the extension housing dust deflector (4WD models).

17 Lower the transmission clutch housing and remove it from under the vehicle. **Caution:** Do not depress the clutch pedal while the transmission is removed from the vehicle.

18 The clutch components now can be inspected (Chapter 8). In most cases, new clutch components should be installed as a matter of course if the transmission is removed.

### Installation

19 If removed, install the clutch components (Chapter 8).

20 With the transmission clutch housing secured to the jack as on removal, raise it into position behind the engine and then carefully slide it forward, engaging the clutch housing over the dowel pins. Do not use excessive force to install the transmission-if it does not slide into place, readjust the angle of the transmission so it is level.

21 Install the transmission/clutch housing-to-engine bolts. Tighten the bolts to the specified torque.

22 Install the crossmember and transmission support. Tighten all nuts and bolts securely.

23 Remove the jacks supporting the transmission and the engine.

24 Install the various items removed previously, referring to Chapter 8 for the installa-

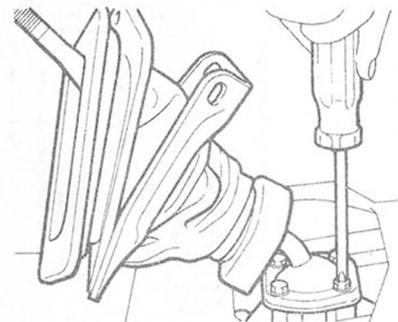
tion of the driveshaft and Chapter 4 for information regarding the exhaust system components.

25 Make a final check that all wires, hoses and the speedometer cable have been connected and that the transmission and if equipped, transfer case have been filled with lubricant to the proper level (Chapter 1). Lower the vehicle.

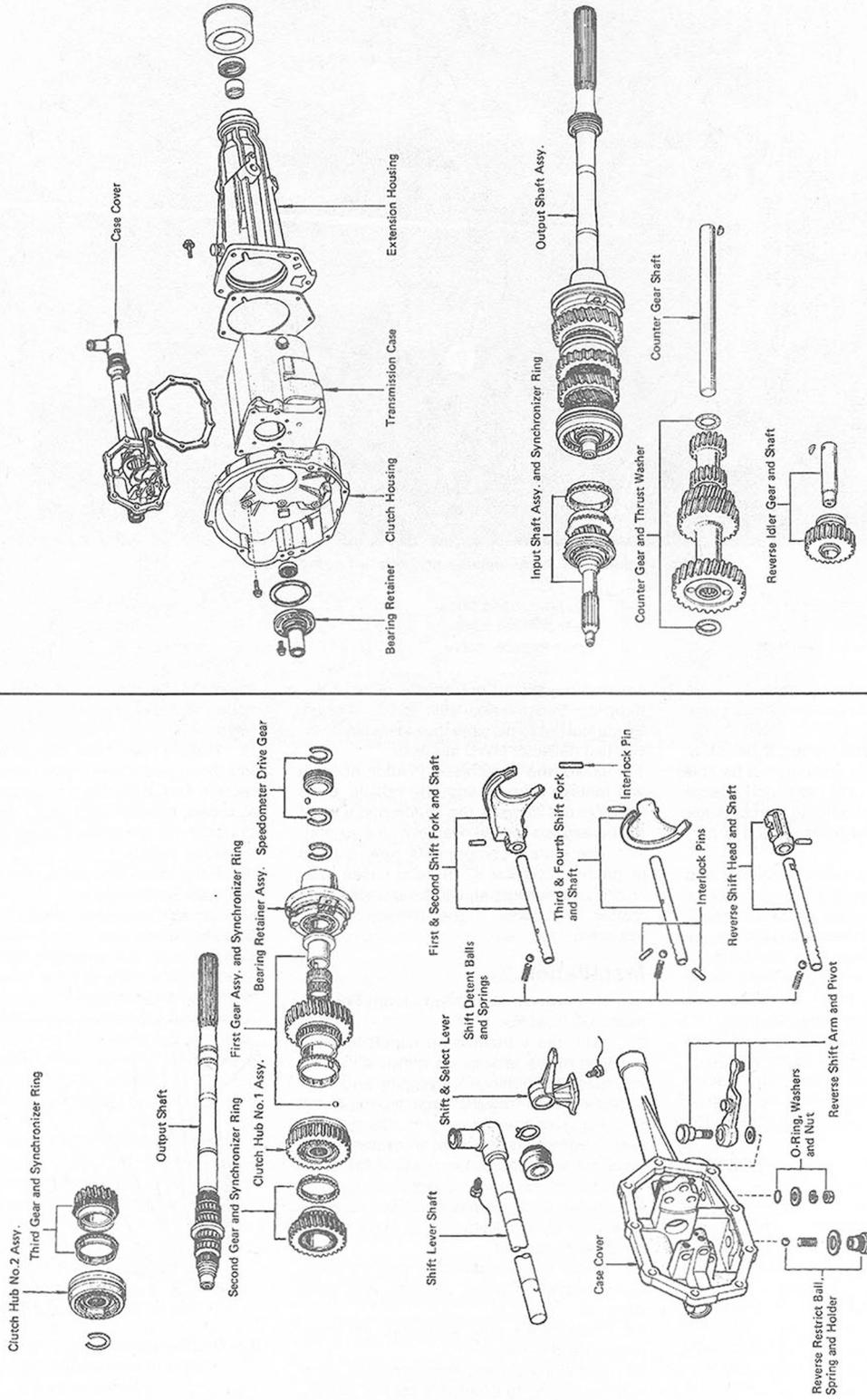
26 From inside the vehicle connect the shift lever (see Section 2).

27 On 4WD models, install the transfer case shift lever.

28 Connect the negative battery cable. Road test the vehicle for proper operation and check for leakage.

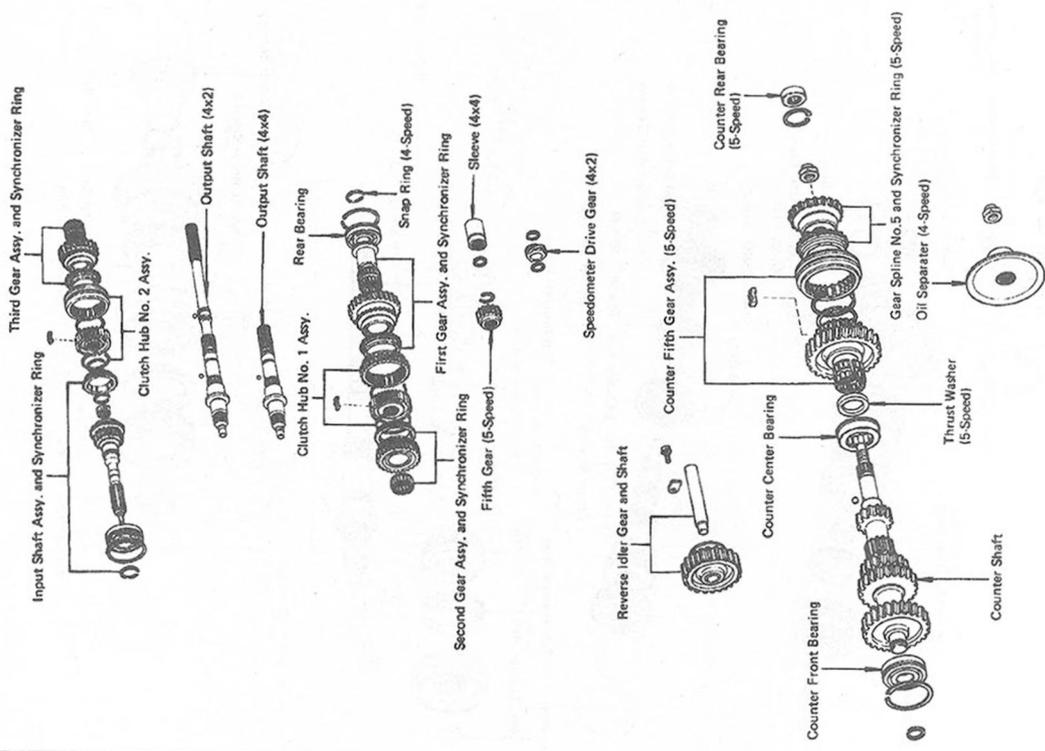


3.3 On some models a screwdriver can be used to remove the shift lever bolts/screws

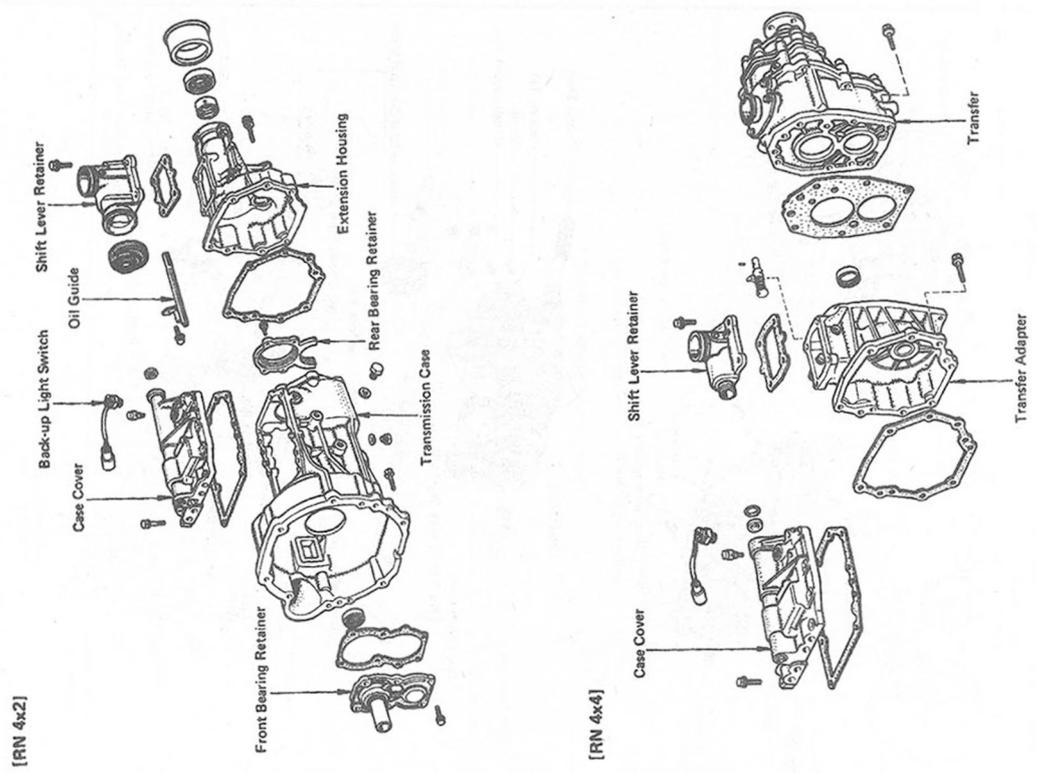


5.4a L43 transmission output shaft and shift assembly details

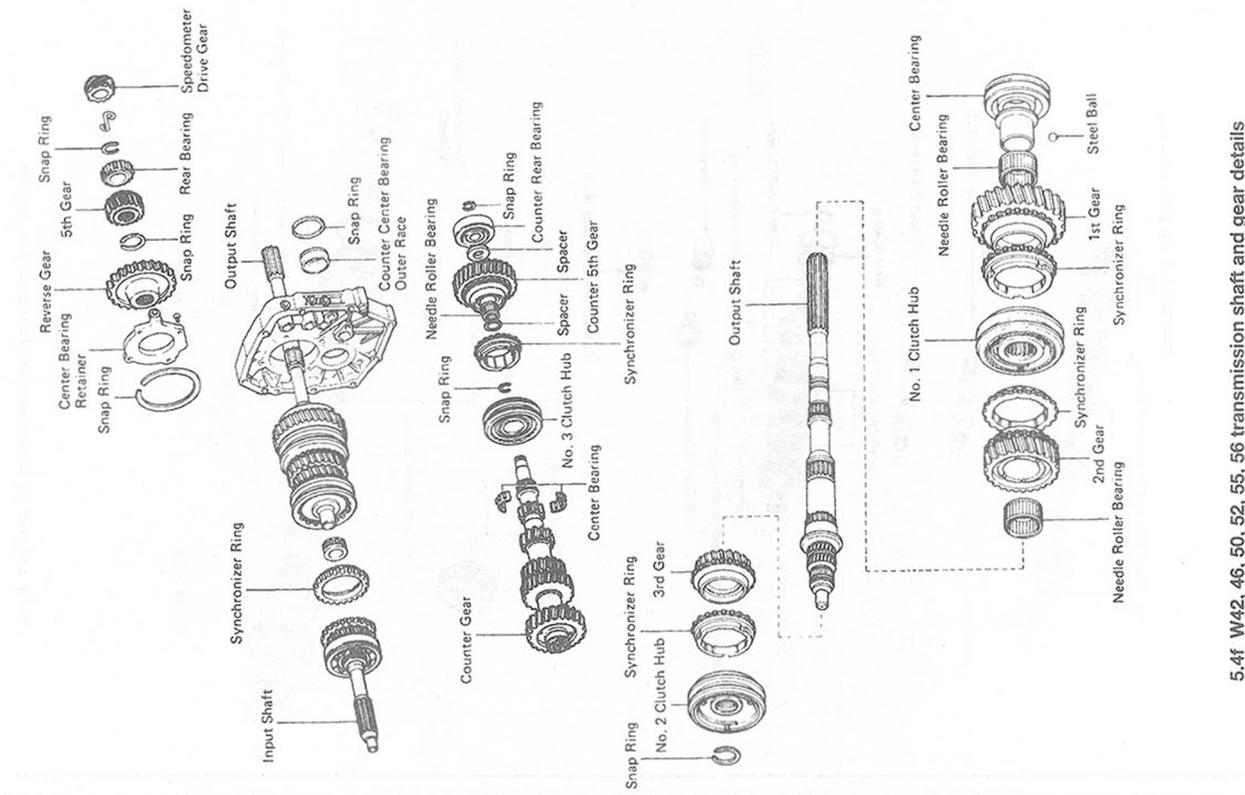
5.4b L43 transmission case and input shaft and gear details



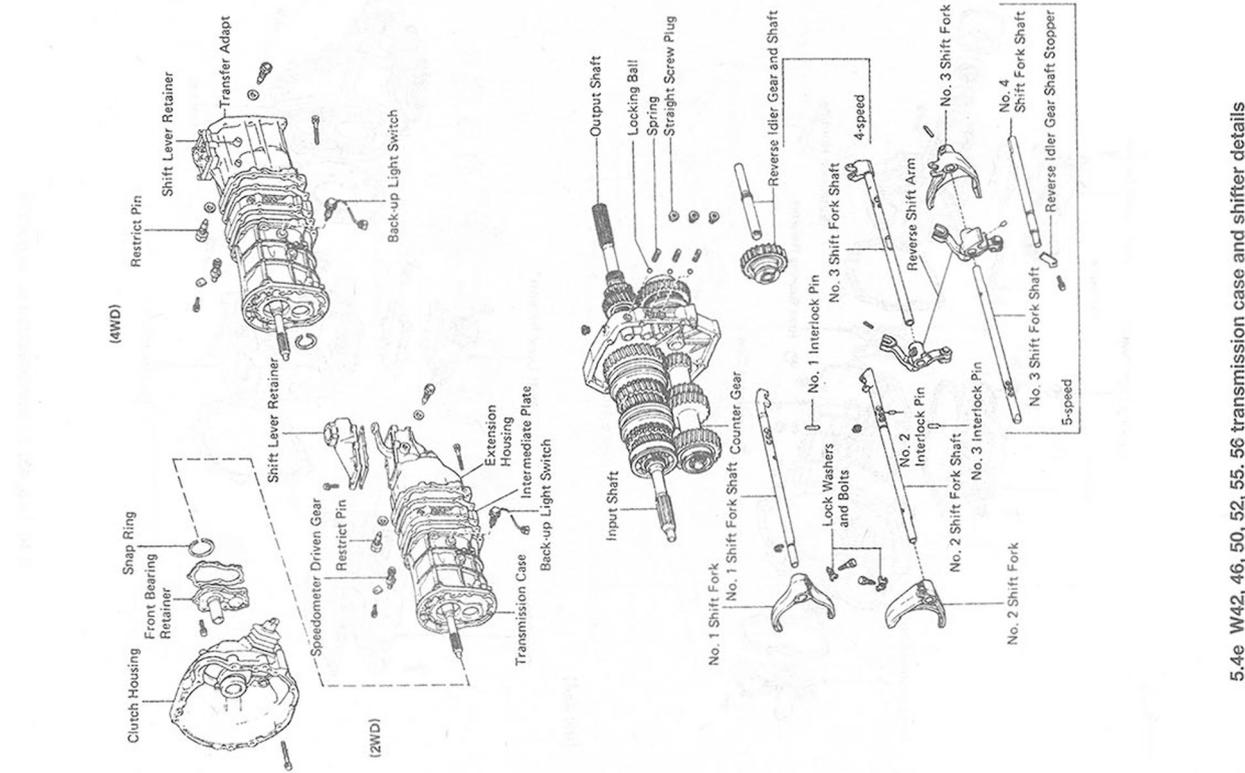
5.4d L45, 48, 52 transmission shaft and gear details



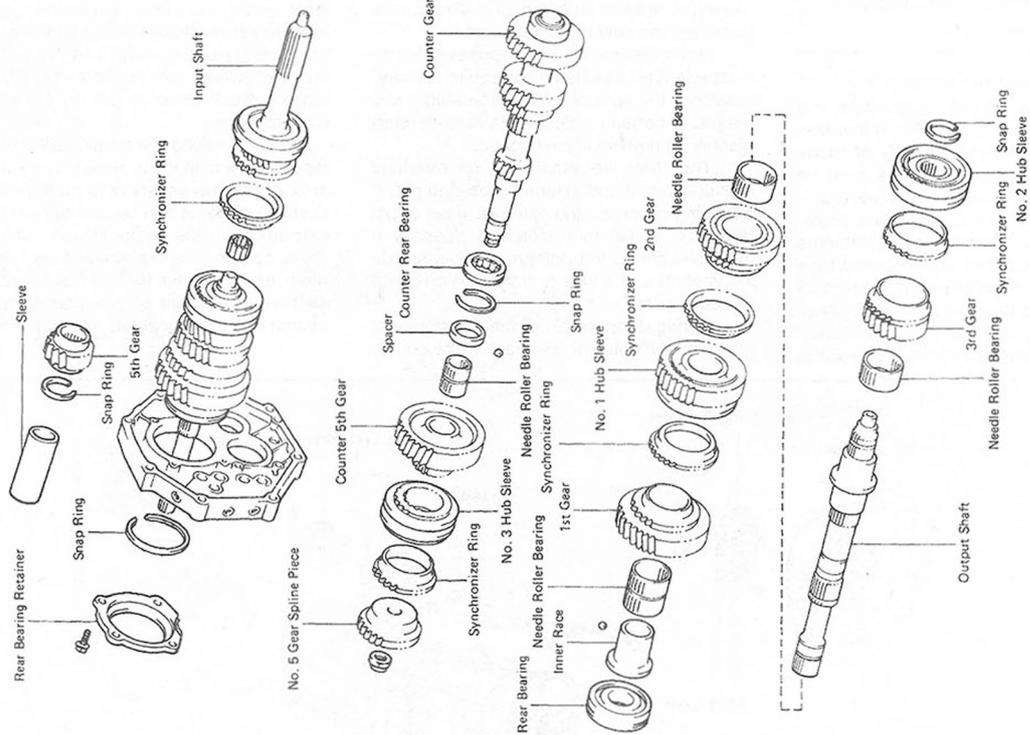
5.4c L45, 48, 52 transmission case details



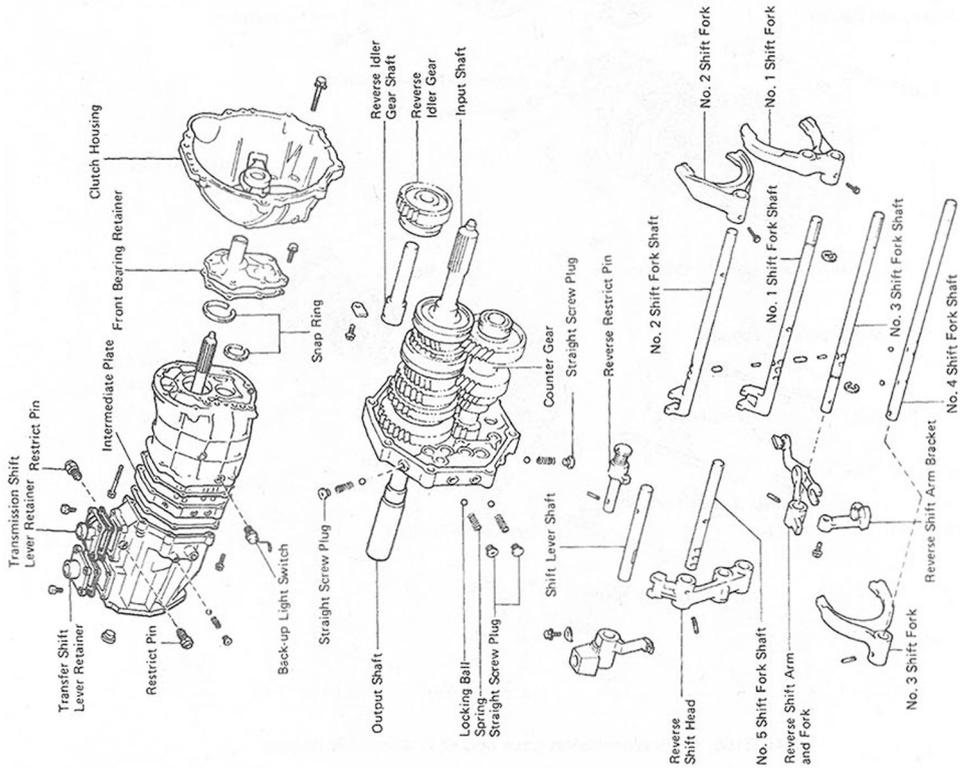
5.4f W42, 46, 50, 52, 55, 56 transmission shaft and gear details



5.4e W42, 46, 50, 52, 55, 56 transmission case and shifter details



5.4h G52 transmission shaft and gear details



5.4g G52 transmission case and shift assembly details

**5 Manual transmission overhaul - general information**

Refer to illustrations 5.4a through 5.4m

Overhauling a manual transmission is a difficult job for a do-it-yourselfer. It involves the disassembly and reassembly of many small parts. Numerous clearances must be precisely measured and, if necessary, changed with select fit spacers and snap-rings. As a result, if transmission problems arise, it can be removed and installed by a competent do-it-yourselfer, but overhaul should be left to a transmission repair shop. Rebuilt transmissions may be available-check with your dealer parts department and

auto parts stores. At any rate, the time and money involved in an overhaul is almost sure to exceed the cost of a rebuilt unit.

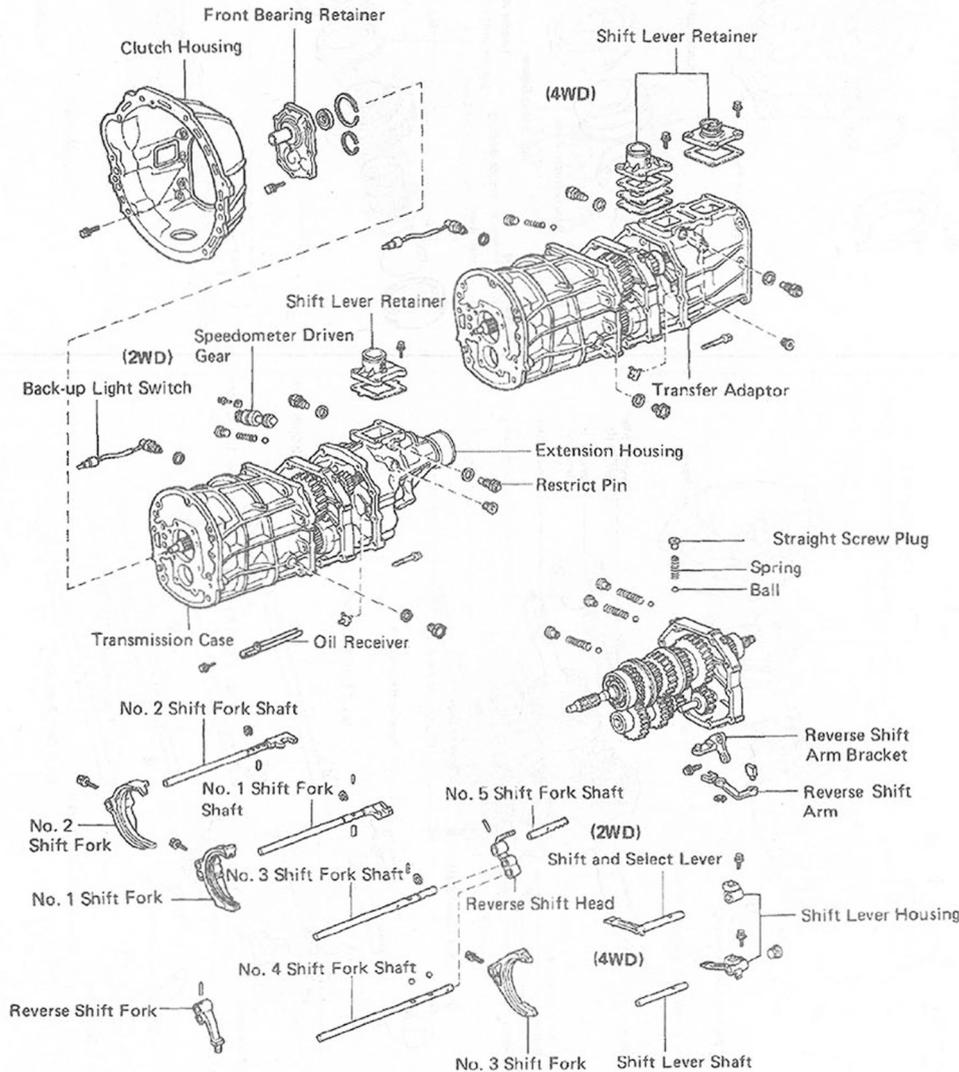
Nevertheless, it's not impossible for an inexperienced mechanic to rebuild a transmission if the special tools are available and the job is done in a deliberate step-by-step manner so nothing is overlooked.

The tools necessary for an overhaul include internal and external snap-ring pliers, a bearing puller, a slide hammer, a set of pin punches, a dial indicator and possibly a hydraulic press. In addition, a large, sturdy workbench and a vise or transmission stand will be required.

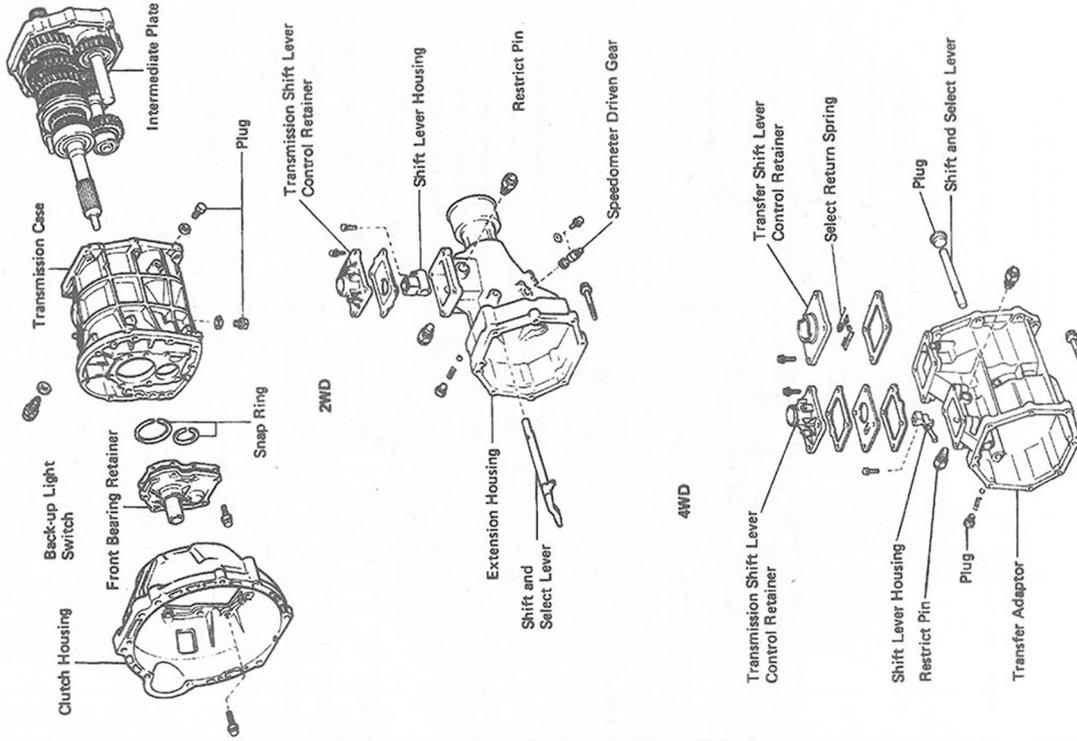
During disassembly of the transmission, make careful notes of how each piece comes

off, where it fits in relation to other pieces and what holds it in place. Exploded views are included (see illustrations) to show where the parts go-but actually noting how they are installed when you remove the parts will make it much easier to get the transmission back together.

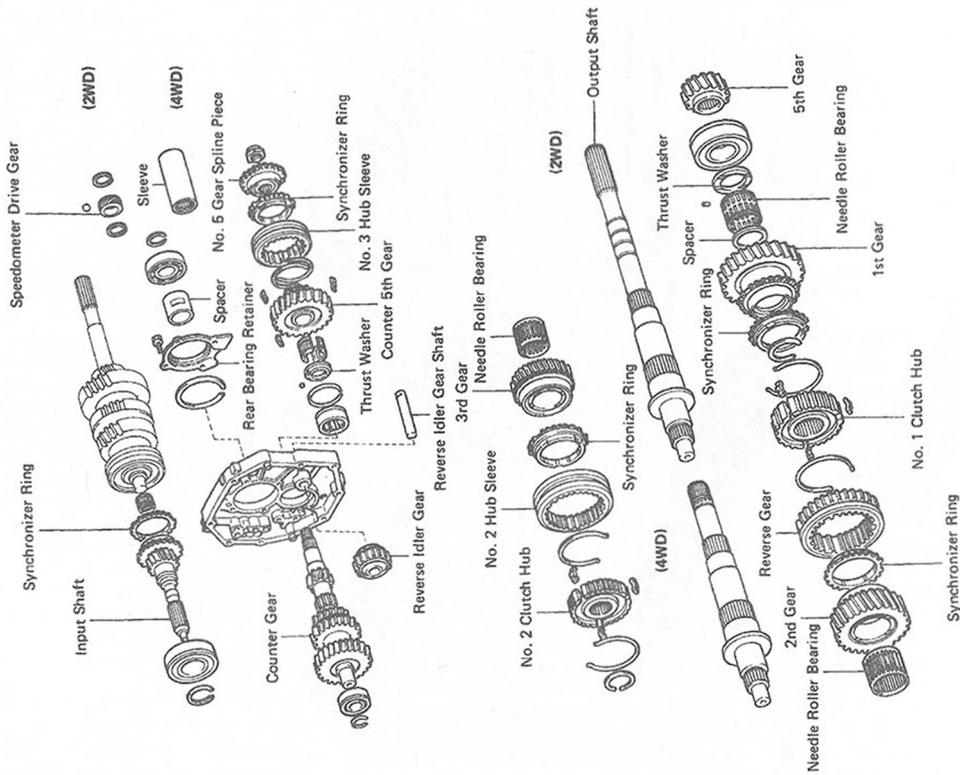
Before taking the transmission apart for repair, it will help if you have some idea what area of the transmission is malfunctioning. Certain problems can be closely tied to specific areas in the transmission, which can make component examination and replacement easier. Refer to the Troubleshooting section at the front of this manual for information regarding possible sources of trouble.



5.4i R150, 151 transmission case and shift assembly details



5.4k G40, 57, 58 transmission case details



5.4j R150, 151 transmission shaft and gear assembly details

