

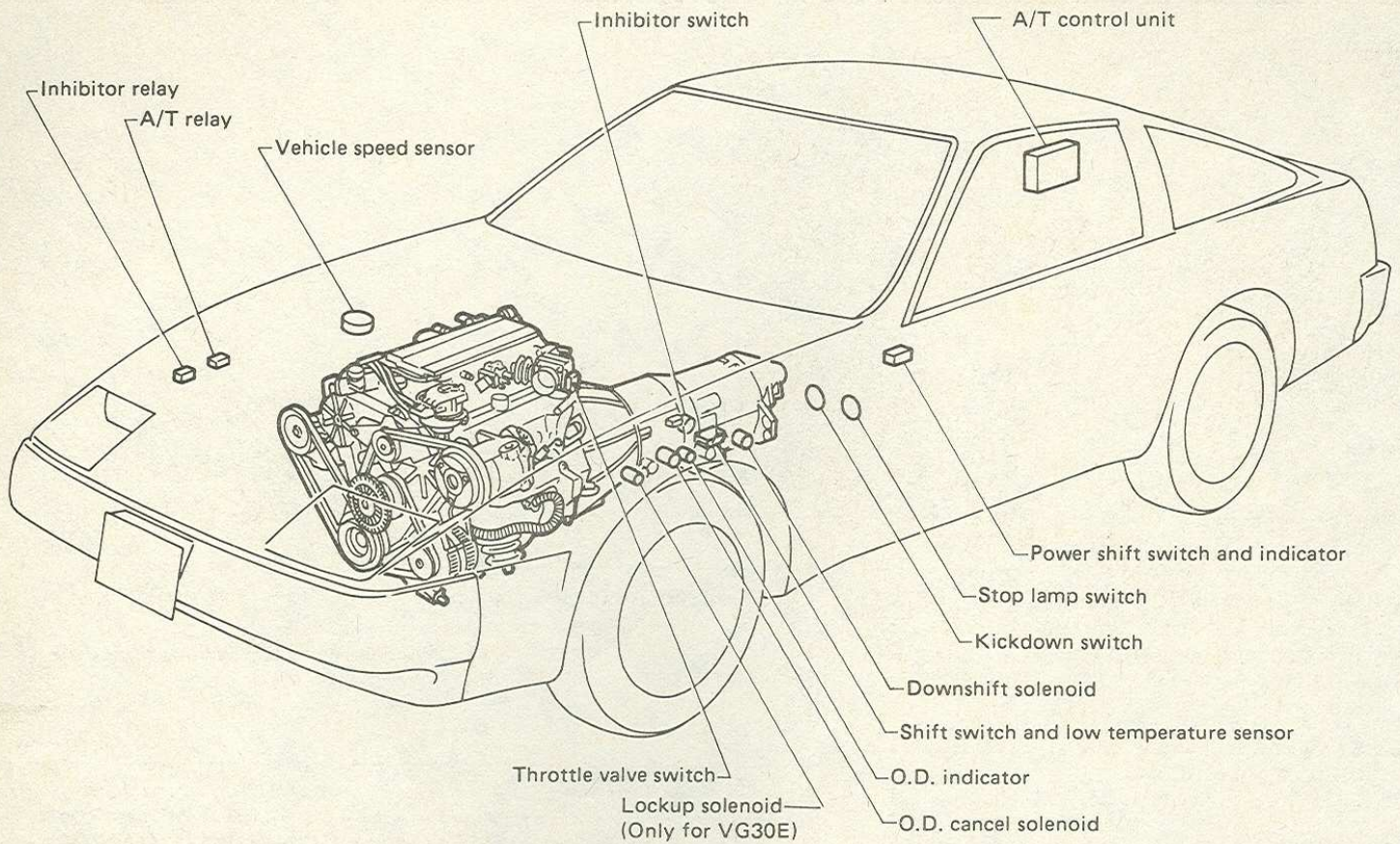
Chapter 7 Part B Automatic transmission

Contents

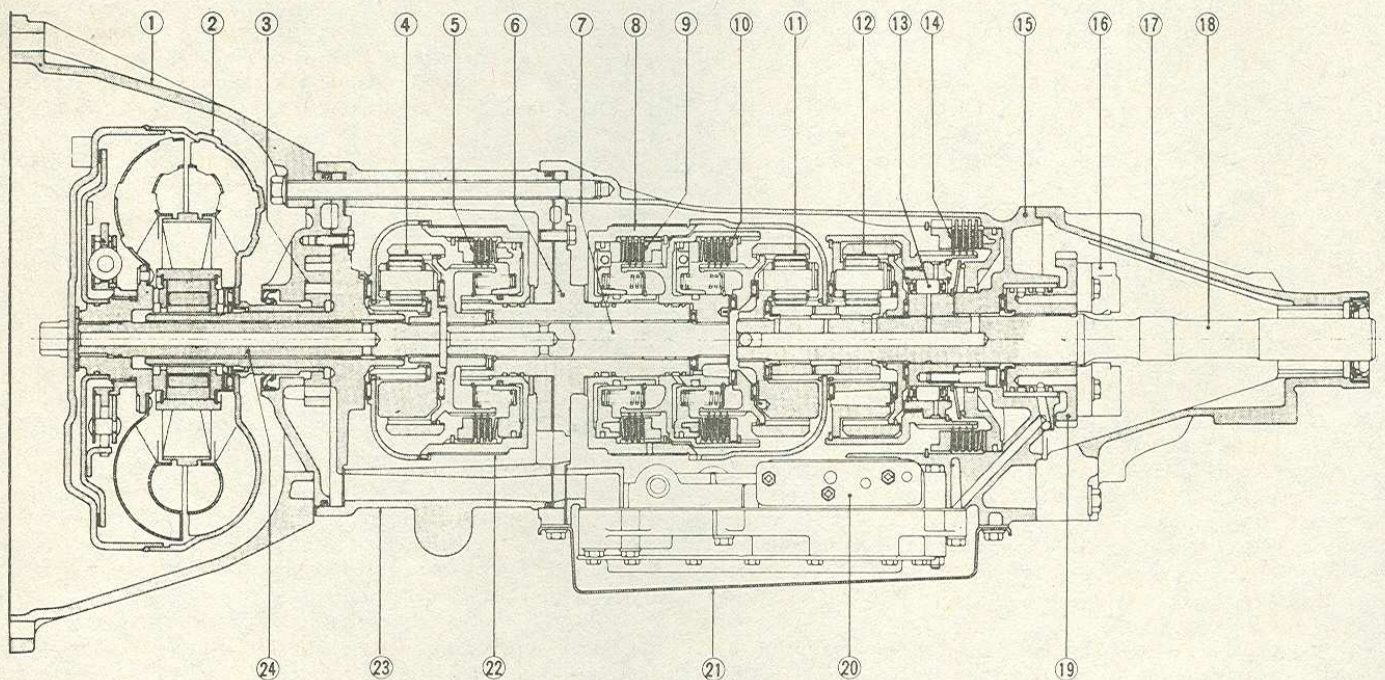
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Specifications

Transmission model number		
all except 1984 turbo	E4N71B	
1984 turbo	4N71B	
Transmission model code number		
1985-86		
non-turbo	X8084	
turbo	X8179	
1984		
non-turbo	X8075	
turbo	X8006	
Torque converter assembly (stamped on converter)		
1986		
non-turbo	GXA	
turbo	G	
1985		
non-turbo	GK	
turbo	NGD	
1984		
non-turbo	GK	
turbo	GC	
Stall speed		
non-turbo	2150 to 2450 rpm	
turbo	2500 to 2800 rpm	
Stall torque ratio	2.0:1	
Transmission gear ratios		
1st gear	2.458	
2nd gear	1.458	
3rd gear	1.000	
overdrive	0.686	
reverse	2.182	
Fluid type	Dexron	
Oil capacity	7.0 liters (7-3/8 US qts)	
Torque specifications	Kg-m	Ft-lbs
Converter housing to engine	4.0 to 5.0	29 to 36
Driveplate to crankshaft	14 to 16	101 to 116
Driveplate to torque converter	4.0 to 5.0	29 to 36
Inhibitor switch to transmission case	0.5 to 0.7	3.6 to 5.1
Oil pan to transmission	0.5 to 0.7	3.6 to 5.1
Rear mounting bracket to transmission	3.2 to 4.3	23 to 31
Rear mounting bracket to rear insulator	3.2 to 4.3	23 to 31
Rear mounting member to body	6.0 to 8.0	43 to 58
Transmission case to converter housing	4.5 to 5.5	33 to 40
Transmission case to rear extension	2.0 to 2.5	14 to 18

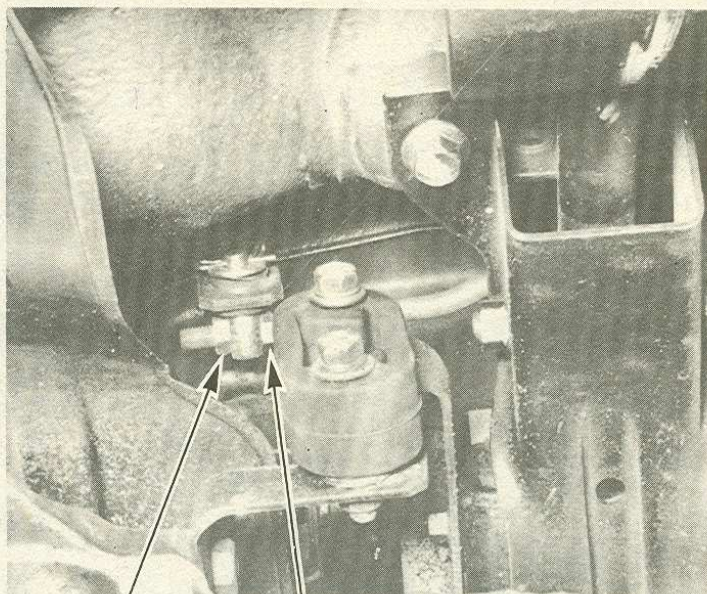


1.1a Automatic transmission electronic control component locations

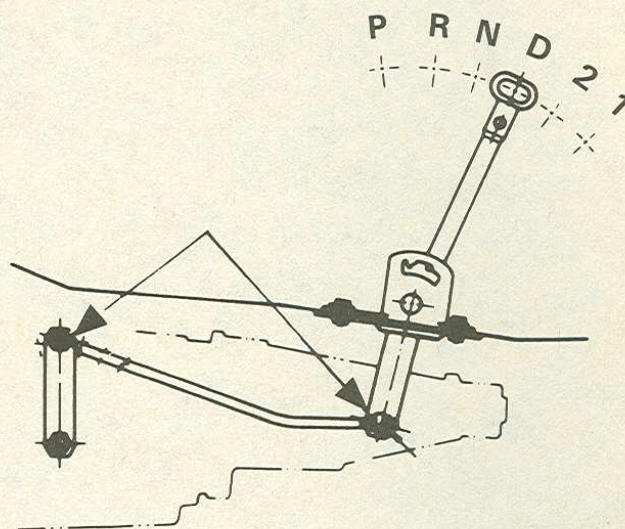


1.1b Automatic transmission internal components

- | | | | |
|-----------------------|-------------------------------|----------------------------|---------------------------|
| 1 Converter housing | 7 Intermediate shaft | 13 One-way clutch | 19 Oil distributor |
| 2 Torque converter | 8 2nd band brake | 14 Low and reverse clutch | 20 Control valve assembly |
| 3 Oil pump assembly | 9 High-reverse clutch (Front) | 15 Transmission case | 21 Oil pan |
| 4 O.D. planetary gear | 10 Forward clutch (Rear) | 16 Governor valve assembly | 22 O.D. band brake |
| 5 Direct clutch | 11 Front planetary gear | 17 Rear extension | 23 O.D. case |
| 6 Drum support | 12 Rear planetary gear | 18 Output shaft | 24 Input shaft |



2.4 Location of the selector rod locknuts



2.8 Arrows indicate the shifter linkage grommets

1 General information

Refer to illustrations 1.1a and 1.1b

The transmission provides four forward gears and one reverse (see illustrations). Changing of the forward gears is by microcomputer control. The computer receives information from four sets of sensors controlling the upshift and downshift in relation to the vehicle speed and engine torque output, and is dependent upon the vacuum in the intake manifold to actuate the gear change mechanism at the precise time. A manual override switch is provided next to the shifter if the driver desires not to use the overdrive function.

By use of a microcomputer attached to the right rear inside fender panel, the electronically controlled lockup system permits lockup of all forward speeds on 1984–85 models (except 85 turbo models). The 1986 models provide a lockup function of 3rd and overdrive by electronic control.

The transmission has six selector positions:

P — Parking position, which locks the output shaft to the interior wall of the transmission housing. The engine may be started with Park selected and this position should always be selected when adjusting the engine while it is running. Never attempt to select Park when the vehicle is in motion.

R — Reverse gear.

N — Neutral. Select this position to start the engine or when idling in traffic for long periods.

D — Drive, for all normal motoring conditions.

2 — Locks the transmission in second gear for wet road conditions or steep hill climbing or descents. **Caution:** The engine can be over-revved in this position.

1 — The selection of this gear above speeds of approximately 25 mph (40 kph) will engage second gear and, as the speed drops below 25 mph (40 kph) the transmission will lock into first gear. Provides maximum retardation on steep descents.

Due to the complexity of the automatic transmission unit, any internal adjustment or servicing should be left to the Nissan dealer or other qualified transmission specialist. The information given in this Chapter is therefore confined to those operations which are considered within the scope of the home mechanic. An automatic transmission should give many miles of service provided normal maintenance and adjustment is carried out. When the unit requires major overhaul, consideration should be given to exchanging the old transmission for a reconditioned one, the removal and installation being well within the capabilities of the home mechanic as described later in this Chapter.

The routine maintenance schedule in Chapter 1 calls for an automatic transmission fluid change once every 30,000 miles. This interval should be shortened to every 15,000 miles if the car is normally driven under

one or more of the following conditions: Heavy city traffic, where the outside temperature normally reaches 90° or higher; In very hilly or mountainous areas; If a trailer is frequently pulled. Refer to Chapter 1 for the proper procedures for checking and changing the automatic transmission fluid and filter.

The automatic transmission uses an oil cooler, located at the radiator, to prevent excessive temperatures from developing inside the transmission. Should the oil cooler need flushing or other servicing, take it to a dealer or other radiator specialist.

If rough shifting or other malfunctions occur in the automatic transmission, check the following items first before assuming the fault lies within the transmission itself: The fluid level, the kickdown switch adjustment, manual shift linkage adjustment and engine tune. All of these elements can adversely affect the performance of the transmission.

Periodically clean the outside of the transmission housing, as the accumulation of dirt and oil is liable to cause overheating of the unit under extreme conditions.

When towing a vehicle equipped with an automatic transmission restrict the towing speed to below 20 mph and towing distance to less than 20 miles. If speed or distance is greater it is advised to remove the driveshaft so not to damage the transmission.

2 Shift linkage — adjustment

Refer to illustrations 2.4 and 2.8

1 To check the manual shift linkage adjustment, move the shifter through the entire range of gears. You should be able to feel the detents in each gear. If these detents are not felt or if the pointer is not properly aligned with the correct gear selection, the shift linkage should be adjusted in the following manner.

2 With the engine off, place the shift lever in Neutral.

3 Raise vehicle and support it securely on jackstands.

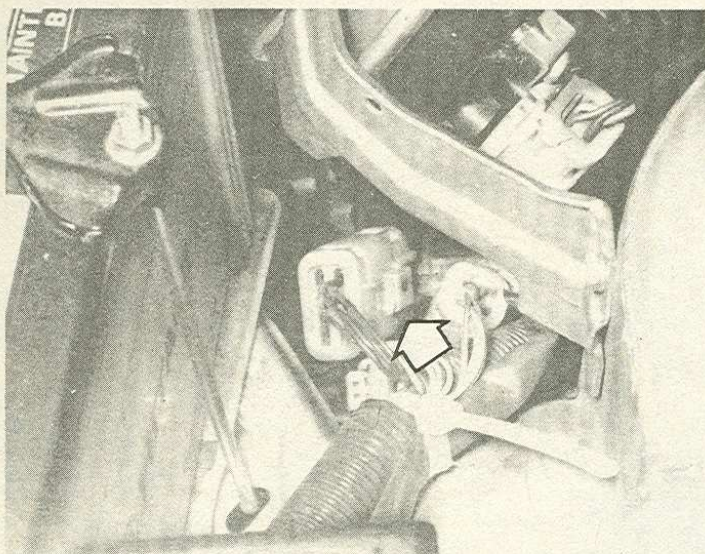
4 Working underneath the car, loosen the shifter linkage locknuts (see illustration).

5 Move the shift lever so that it is correctly aligned with the **N** position.

6 Move the selector lever on the transmission so that it is also correctly aligned in the Neutral position.

7 Tighten the locknuts and recheck the levers. There should be no tendency for the selector rod to push or pull one rod against the other.

8 Again run the shifter through the entire range of gear positions. If there are still problems, the grommets that connect the selector rods with the levers may be worn or damaged and should be replaced (see illustration).

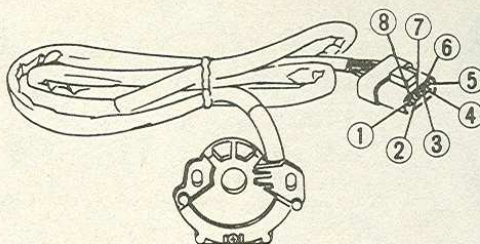


3.1 The inhibitor switch electrical connector (arrow) is located next to the battery so tests can be performed without raising the vehicle

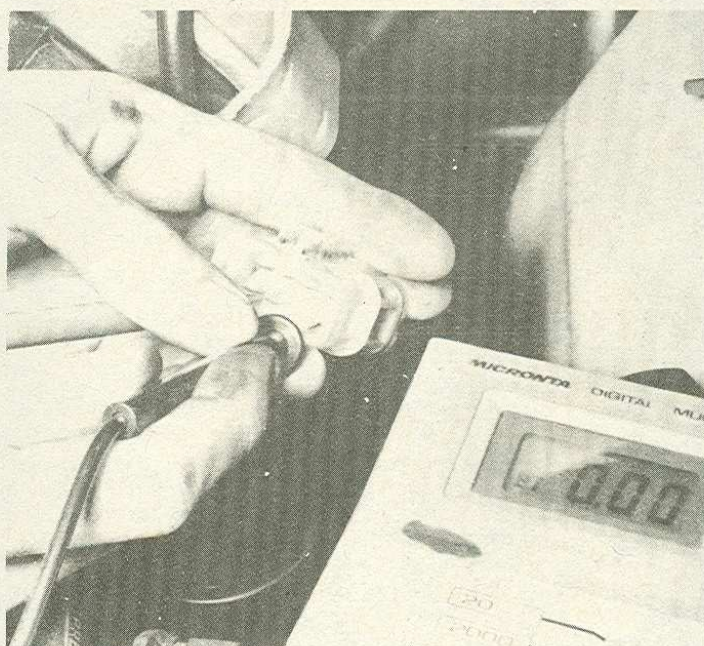


3.4 With the ohmmeter leads on the one and three terminals there should be continuity

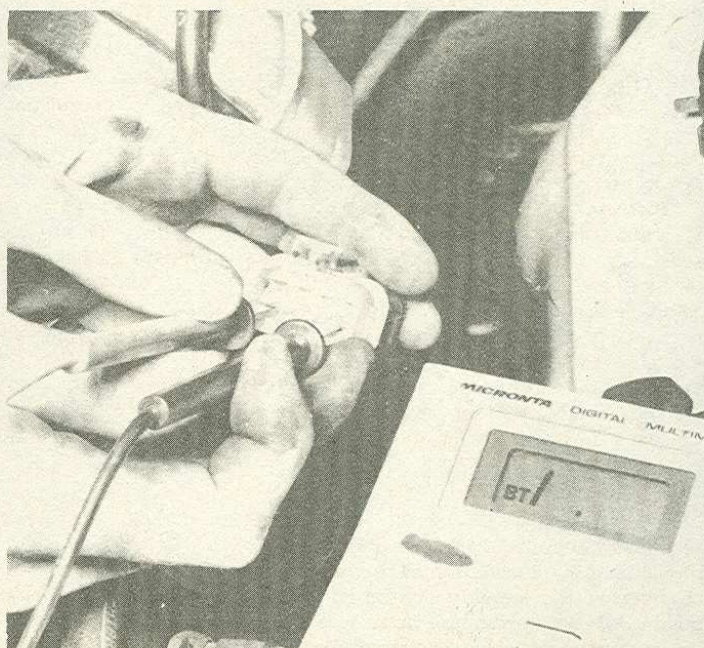
	P	R	N	D	2	1
1						
2						
3						
4						
5						
6						
7						
8						



3.3 Inhibitor switch electrical pin numbering for all models except 1984 turbo



3.5 With the shifter in Neutral and the ohmmeter leads on terminals one and four there should be continuity



3.6 With the shifter in Drive there should be no continuity through the one and four terminals

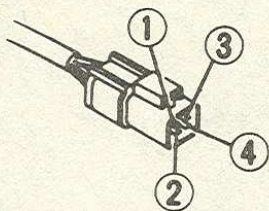
3 Inhibitor switch — adjustment and testing

Refer to illustrations 3.1, 3.3, 3.4, 3.5, 3.6, 3.9, 3.15 and 3.16

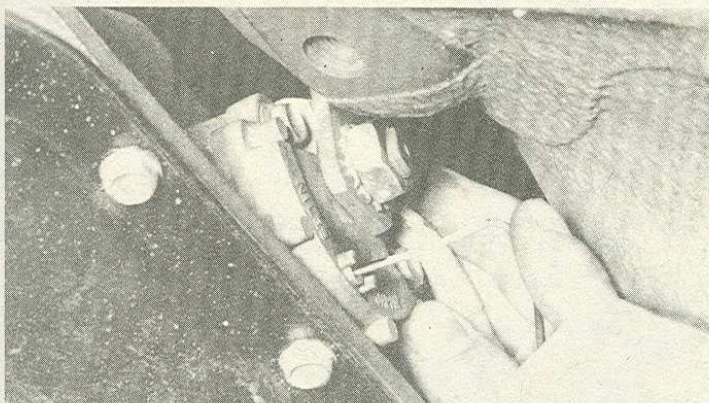
Testing — all models except 1984 turbo

- 1 The inhibitor switch electrical connector is located next to the battery. Identify the connector by its eight attaching wires (all models except 1984 turbo) (see illustration).
- 2 Disconnect the connector.
- 3 Verify that the shift selector is in the Park position and place the leads of an ohm meter to the number two and five terminals (see illustration) and the meter should show continuity.
- 4 Place the shifter in Reverse and there should be no continuity between the two and five terminals. Continuity should now be between the one and three terminals (see illustration).
- 5 Place the shifter in Neutral and terminals one and three will no longer have continuity and terminals one and four will show continuity (see illustration).
- 6 Place the shifter lever in Drive and you will lose continuity in the one and four terminals (see illustration).

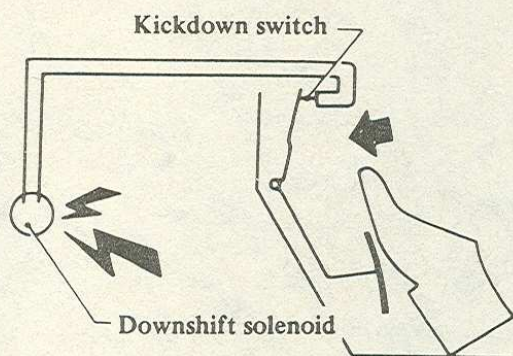
	P	R	N
1	○		○
2	○		○
3		○	
4		○	



3.9 Inhibitor switch numbering for 1984 turbo only



3.16 Pass a wire through the adjusting hole then tighten the adjusting bolts



4.2 With the engine off but the ignition switch on you should hear the solenoid click when the throttle is fully depressed

Testing — 1984 turbo model

7 The inhibitor switch electrical connector is located next to the battery. Identify the connector by four attaching wires for the 1984 turbo model. If identifying it is a problem locate the inhibitor switch on the transmission and follow the wire up to the connector.

8 Disconnect the connector.

9 Verify that the shift selector is in the Park position and place the leads of ohmmeter on the number one and two terminals (see illustration) and the meter should show continuity.

10 Place the shifter in Reverse and there should be no continuity at the one and two terminals. Continuity should now be between the three and four terminals.

11 Place the shifter in Neutral and terminals three and four will not have continuity and terminals one and two will show continuity.

12 Place the shifter lever in drive and you will lose continuity in all terminals.

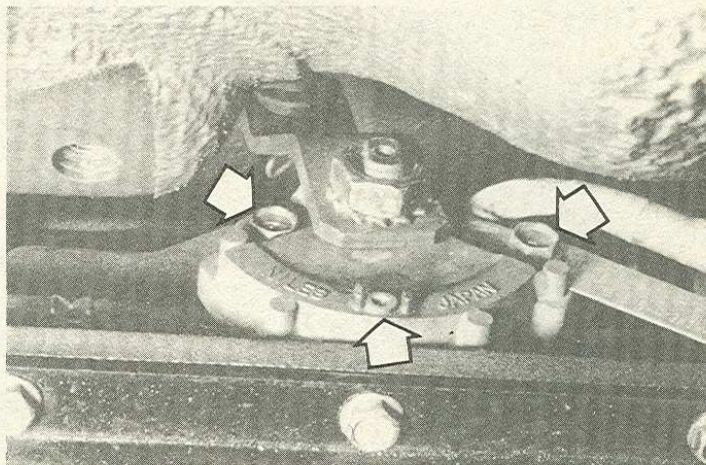
Adjustment

13 Place the shifter in Neutral.

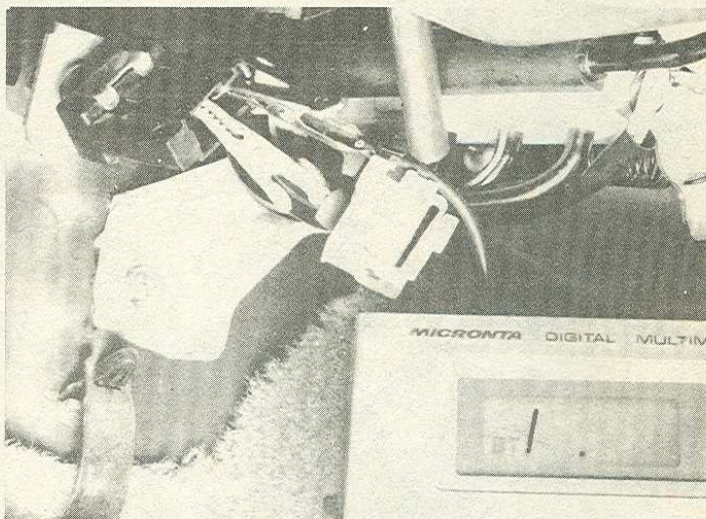
14 Raise the vehicle support it securely on jackstands.

15 Remove the inhibitor switch adjustment hold-down screw and loosen the two adjustment bolts (see illustration).

16 Rotate the inhibitor switch until the hole left by the removed screw will accept a 0.079 inch diameter wire (see illustration). Once the hole accepts the wire, tighten the two adjustment bolts and remove the wire.



3.15 Loosen the two switch adjustment bolts and then remove the adjusting hole screw (arrows)



4.6 The meter should show no continuity with the pedal up

17 Replace the adjustment hold-down screw.

18 Repeat ohmmeter tests. If any of the tests fail, replace the inhibitor switch.

4 Kickdown switch — adjustment

Refer to illustrations 4.2, 4.6 and 4.7

1 The kickdown switch, coupled with the downshift solenoid, causes the transmission to downshift when the accelerator pedal is fully depressed. This is to provide extra power when passing. If the transmission is not downshifting upon full throttle, the system should be inspected.

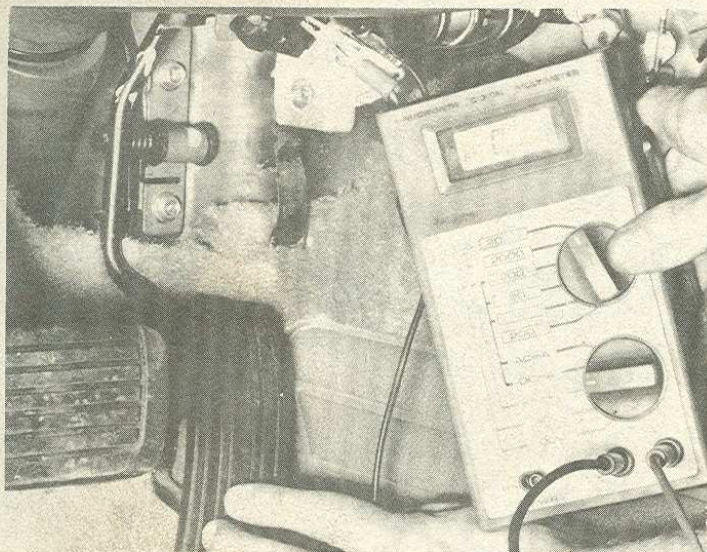
2 With the engine off, but the ignition on, depress the accelerator pedal all the way and listen for a click just before the pedal bottoms (see illustration).

3 If no click is heard, locate the kickdown switch at the upper post of the accelerator pedal. Loosen the locknut and, with the pedal still depressed, extend the switch until it makes contact with the post and clicks. The switch should click only as the pedal bottoms. If it clicks too soon, it will cause the transmission to downshift on part throttle.

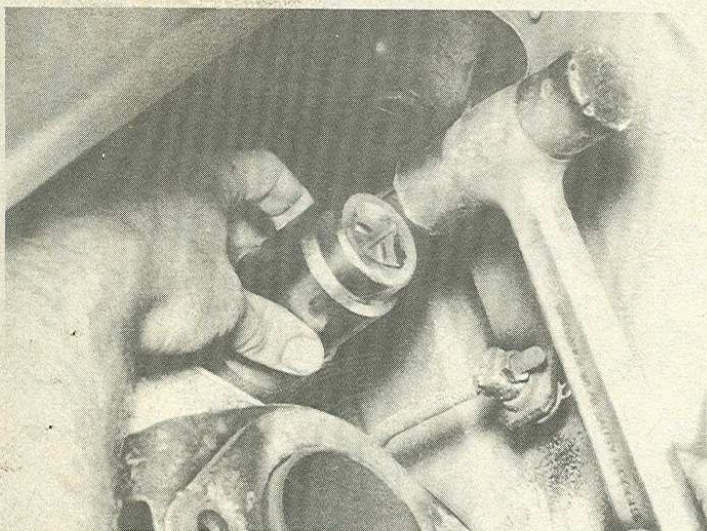
4 Tighten the locknut and recheck the adjustment.

5 If the kickdown switch adjustment is correct but the transmission still will not downshift, check that there is continuity when the switch is activated by removing the connector from the switch and connecting an ohmmeter to the switch.

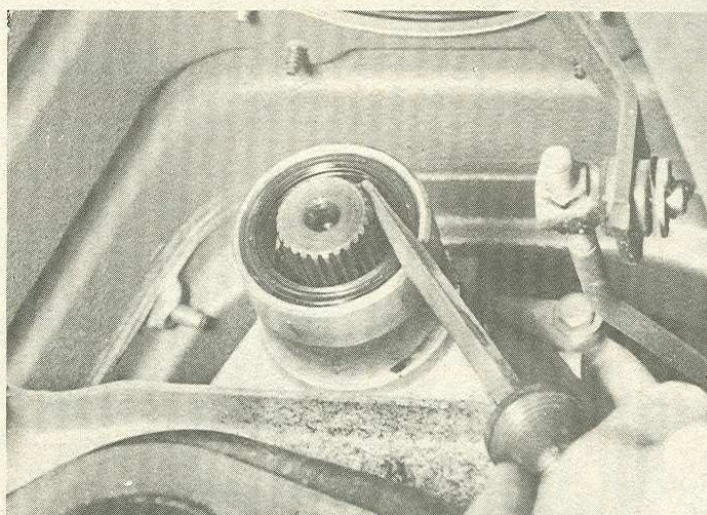
6 With the pedal not depressed, the meter should show no continuity (see illustration).



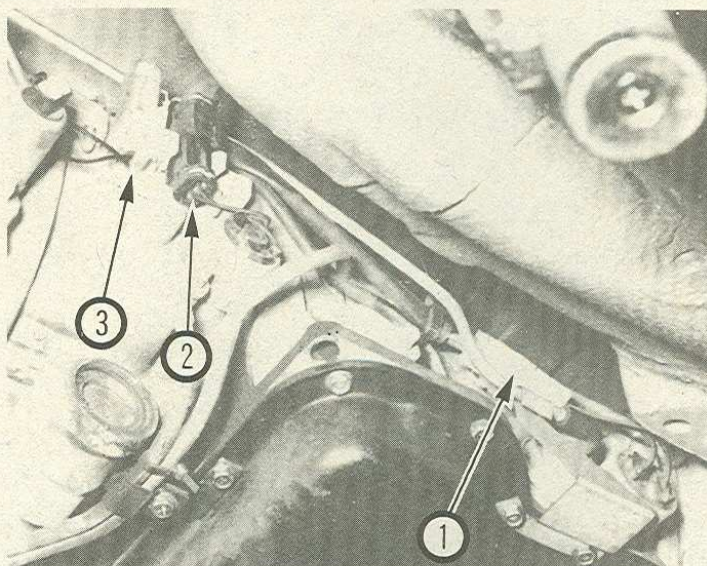
4.7 Depress the pedal all the way and the meter should show continuity



5.3 Use a socket to drive the new seal into the extension housing



5.2 Carefully pry the oil seal from the rear extension housing of the transmission



6.7 Locate the electrical connectors (arrows) and disconnect them

7 Fully depress the pedal and the meter should show continuity (see illustration).

8 If either continuity test fails, replace the kickdown switch.

5 Transmission rear oil seal — replacement

Refer to illustrations 5.2 and 5.3

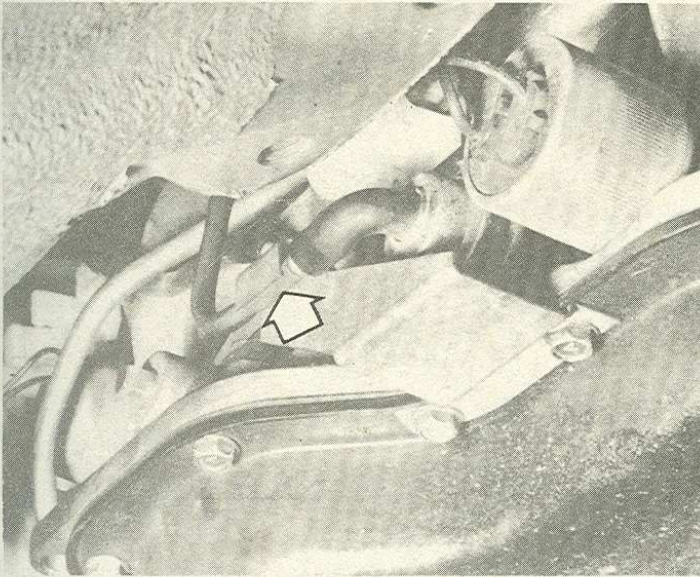
- 1 Remove the driveshaft as described in Chapter 8.
- 2 Being careful not to damage the output shaft or transmission housing, use a screwdriver to pry out the old seal (see illustration).
- 3 Apply a coat of gear oil to the lips of the new seal and drive it into place using a socket (see illustration).
- 4 Reinstall the driveshaft.

6 Transmission — removal and installation

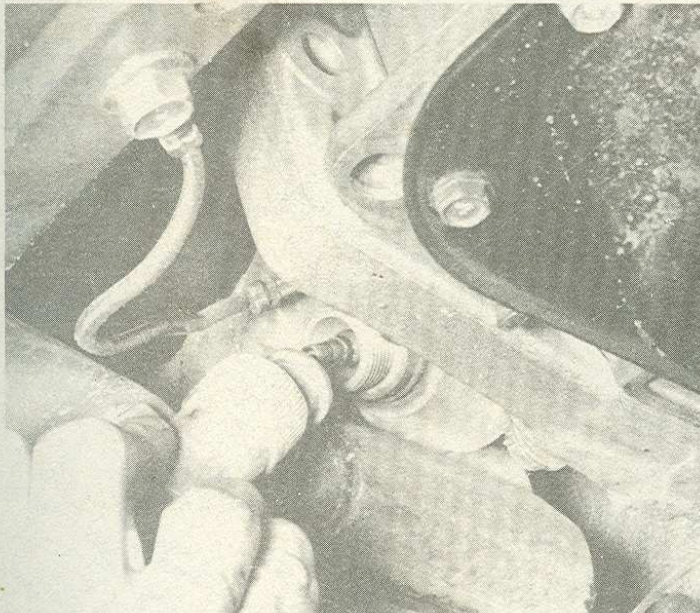
Refer to illustrations 6.7, 6.9, 6.10, 6.11, 6.13, 6.17 and 6.19

- 1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the negative terminal of the battery.

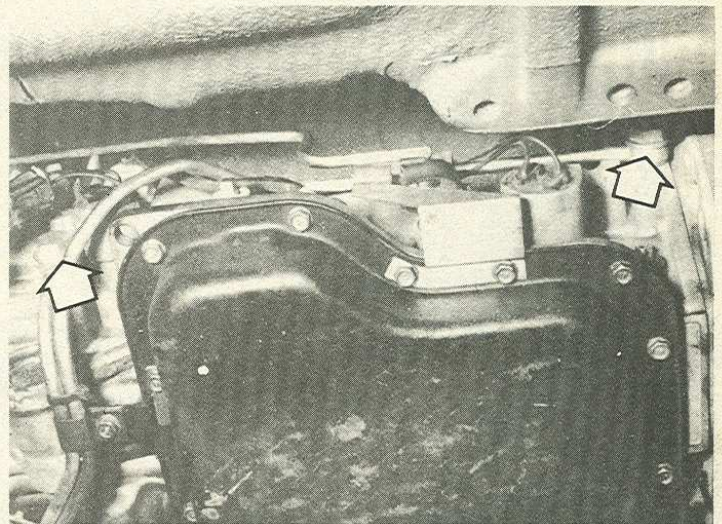
- 2 Raise the vehicle and support it securely on jackstands.
- 3 Drain the transmission fluid and replace the pan to keep dirt from entering the transmission (Chapter 1).
- 4 Remove the driveshaft (Chapter 8).
- 5 Remove the starter (Chapter 5).
- 6 Remove the exhaust front tube (Chapter 4).
- 7 On the left side of the transmission, locate the three electrical connectors and disconnect them (see illustration). Move the attached wires out of the way, which will require cutting the tie straps gathering the wires.
- 8 Trace the two remaining wires to the transmission to their connectors near the battery and disconnect them. These wires will remain attached to the transmission.
- 9 Disconnect the vacuum line from the vacuum modulator (see illustration) and detach the metal line from its hold-down bracket.
- 10 Disconnect the two cooling lines at the transmission case and note number and location of the sealing rings on the cooling line retaining bolts (see illustration). Follow the lines and disconnect their holding brackets. Disconnect the lines at the radiator and remove the lines. **Note:** Be prepared to catch fluid leaking from the lines.
- 11 Unscrew the speedometer cable from the transmission (see illustration).
- 12 Disconnect the ground wire attached to the body next to the speedometer cable connector.



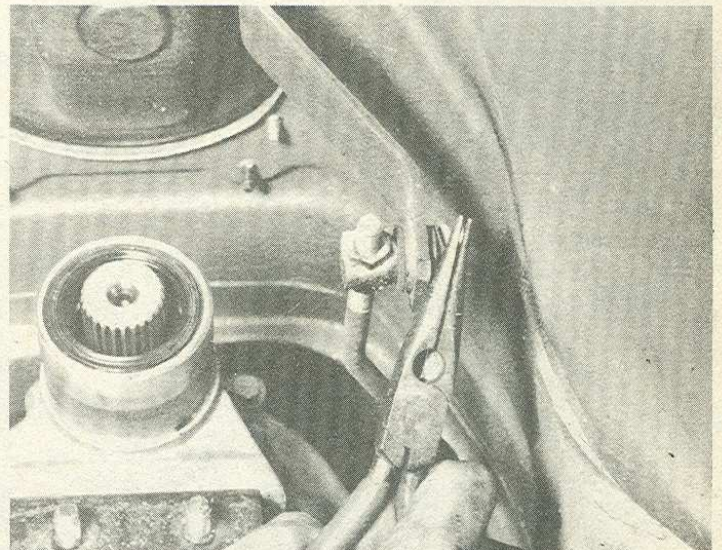
6.9 Disconnect the vacuum modulator hose and remove the metal line from its bracket (arrow)



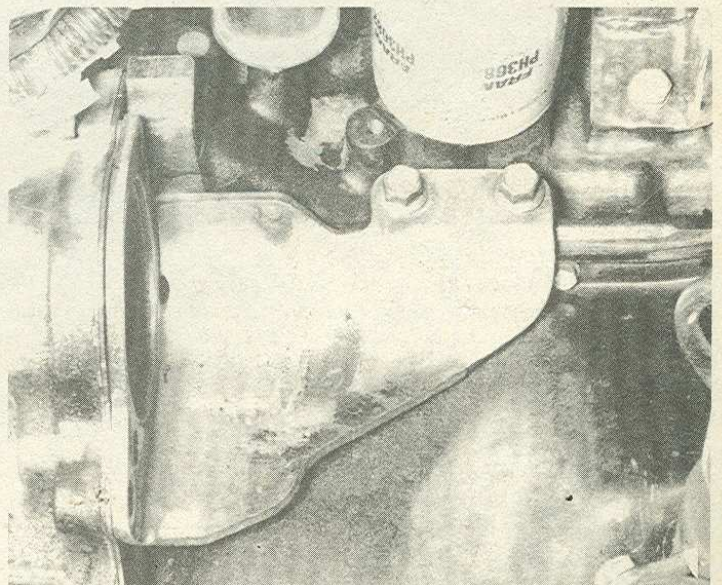
6.11 Unscrew the speedometer cable at the transmission



6.10 Disconnect the coolant lines and note the number and location of the sealing rings on the banjo bolts (arrows)



6.13 Remove the cotter pin to disconnect the shifter linkage from the control linkage



6.17 Remove the starter support bracket by removing the two retaining bolts

- 13 Remove the cotter pin on the shift linkage and disconnect the shifter linkage from the transmission linkage (see illustration).
- 14 Place a jack under the engine oil pan. Use a piece of wood between the jack and pan so not to damage the pan.
- 15 Remove all but two of the transmission to engine bolts and remove the dust shield located between the two components.
- 16 Place a suitable transmission jack under the transmission pan.
- Warning:** *Transmissions are heavy so it is advisable to rent a suitable transmission jack to facilitate removal of the transmission.*
- 17 Remove the two bolts retaining the starter support plate to the engine block (see illustration) and remove the plate.
- 18 Disconnect the torque converter retaining bolts. Use a wrench on the crankshaft bolt to turn the crankshaft to gain access to each of the four retaining bolts through the starter opening.
- 19 Remove the four bolts securing the rear transmission mount crossmember to the body.
- 20 Remove the two remaining transmission retaining bolts and slide the transmission back and down to remove it from the vehicle.
- 21 Installation is the reverse of the removal. Be sure and fill the transmission with the proper amount of fluid and replace the pan gasket with a new one.

7 Overdrive/power pattern control switch — description

The automatic transmission comes equipped with a manual switch to operate the overdrive function of the transmission. The switch is located on the console on 1984–85 models and on the shifter handle on 1986 models. The vehicle shifts into overdrive when the switch is turned on and the indicator light comes on to indicate its function. When the vehicle cruise control *accel* button is pushed the transmission will shift into 3rd from overdrive even with the switch turned on. The transmission will automatically shift through its gears with the switch turned off but will not go into overdrive until the switch is turned on.

The 1984–85 models have as an option, in place of the overdrive switch, a power pattern change switch. The power pattern switch is located in the same place on the console and offers normal or power pattern driving functions. The normal function is available when the switch is turned off and is most effective for everyday driving, giving

the driver maximum fuel efficiency. Even in the off position the switch can be electronically overridden when the accelerator is fully depressed for increased power. The power function comes when the switch is in the *On* position. The indicator light comes on to indicate this function. The transmission shifts down into 3rd gear if the switch is turned on while driving in overdrive.

The power pattern driving mode is most effective for quick acceleration for passing or entering freeways or uphill driving for better control of engine acceleration. The power pattern also offers better engine braking for long downhill slopes.

The vehicle should not be driven for long periods at highway speeds with the overdrive switch turned off. The overdrive function is advised for normal freeway driving but should be turned off in mountainous areas. **Caution:** *If any abnormality occurs in the automatic transmission the overdrive/power pattern indicator light will flicker. If this occurs, the transmission should be checked.*