

Chapter 11

Automatic Transmission

Contents

Description	153
Routine Maintenance	154
Trouble Shooting	156
Kickdown Cable	157
Band Adjustments	157
Overdrive Switch and Selector Handle	157
Selector Linkage	158
Selector Assembly	158
Inhibitor Switch	159
Second Start and Power Switch	160
Oil Seals	160
Transmission Assembly	161
Propeller Shafts	163
Transfer Case	163

Specifications

Model	A343F
Type	4 speed with a lockup torque converter and two modes of operation
Lubricant:	
Type	Dexron II or III
Capacity (approximate) —	
Dry refill	10.2 litres
Service refill	2.0 litres
Gear ratios:	
First	2.804:1
Second	1.531:1
Third	1.000:1
Overdrive	0.753:1
Reverse	2.393:1

TORQUE WRENCH SETTINGS

Brace nuts and bolts	65 Nm
Converter housing cover bolts	18 Nm
Cooler pipe clamp bolts:	
10 mm head	5 Nm
12 mm head	12 Nm
Cooler pipe flare nuts	34 Nm
Crossmember to chassis nuts and bolts	65 Nm
Drain plug	20 Nm
Driveplate to crankshaft	85 Nm
Elbow lock nut	29 Nm
Engine mounting to crossmember bolts	18 Nm
Engine mounting to transmission bolts	65 Nm
Engine pipes to manifold nuts	45 Nm
Engine pipe to resonator flange bolts	52 Nm
Filler pipe retaining nut and bolt	12 Nm
Inhibitor switch retaining bolt	13 Nm

Oil pan bolts	7.5 Nm
Oil strainer to valve body	10 Nm
Propeller shaft flange nuts and bolts	74 Nm
Solenoid valve to valve body	10 Nm
Stabiliser bar bracket bolts	25 Nm
Starter motor retaining bolts	39 Nm
Temperature sensor	15 Nm
Torque converter housing to transmission bolts:	
14 mm head	34 Nm
17 mm head	57 Nm
Torque converter to drive plate bolts	41 Nm
Transfer case to transmission bolts	24 Nm
Transmission fluid temperature sensor	15 Nm
Transmission shift rod to shift lever	13 Nm
Transmission to engine bolts	72 Nm
Valve body to transmission case	10 Nm

Description

The A343F automatic transmission is an electronically controlled four speed transmission with a lockup torque converter and an overdrive fourth gear.

The hydraulic system consists of an oil pump and a set of valves and solenoids contained in a valve body. The valve body directs hydraulic pressure to the clutches and band.

The transmission fluid is circulated through an oil cooler located in the radiator. The oil cooler is connected to the transmission by pipes.

The fluid level is checked with a dipstick at the transmission filler pipe on the right hand side of the engine.

The solenoids are controlled by the engine ECU. The ECU receives signals relating to throttle position, engine speed, vehicle speed, transmission oil temperature, the Second Start and Power switch position, selector position and air conditioner compressor operation to determine the correct gear ratio required.

An inhibitor switch is mounted to the right hand side of the transmission. It ensures that the engine can only be started in Park or Neutral. The reverse lamp switch and a gear position switch, for the instrument panel, are also incorporated within the inhibitor switch.

A second start function enables the stationary vehicle to start moving in second gear, to provide more traction in slippery conditions.

A failsafe mode in the ECU enables a vehicle with an electronic malfunction to be driven for repairs, albeit with reduced performance. If the transmission overheats, the A/T warning lamp will illuminate until the transmission returns to the normal operating temperature. If the lamp illuminates, pull the vehicle to the side of the road and allow the engine to idle in Park until the warning lamp is extinguished.

154 | Automatic Transmission

The selector lever is mounted to the floor. A button on the selector lever must be depressed to clear a gate on the change mechanism in order to shift out of the Park position or into First or to select either Reverse, Park or Neutral when changing up. This is a safety device to prevent the driver accidentally selecting these positions while the vehicle is travelling forward. It is necessary for the selector lever to be positioned in Neutral or Park before the engine can be started. The parking pawl, which restrains the vehicle when Park is selected, will not hold the vehicle when the transfer case is in Neutral. If Park is selected with the transfer case in Neutral, the A/T P warning lamp will illuminate.

Two shift modes can be selected using the Power (ECT) switch. The Power On position is for optimum performance and responsiveness. The Power Off position is for economy and driveability. When tuning or testing the engine, the handbrake must be firmly applied and the transmission must be in Park or Neutral. If the vehicle must be towed, the propeller shafts should be removed.

The transmission can be removed from the vehicle as an assembly without removing the engine.

i As extensive knowledge and equipment is required to test and overhaul the automatic transmission, it is not considered a viable repair proposition for the home mechanic.

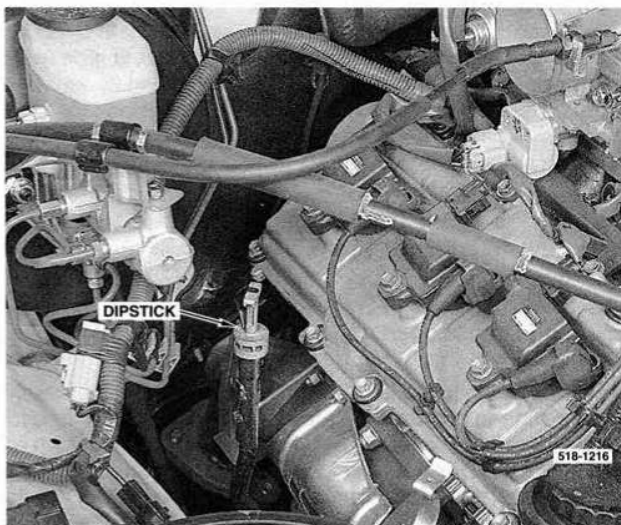
However, if the transmission must be removed for overhaul by a specialist or replacement with an exchange unit, the removal and installation procedures are described at the end of this chapter.

Routine Maintenance

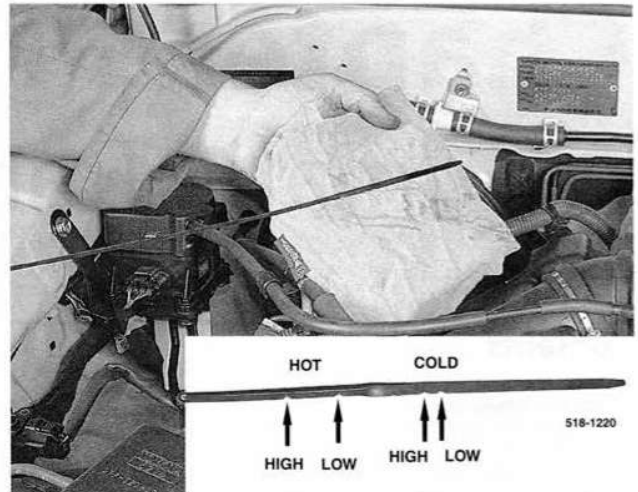
TRANSMISSION FLUID

Only the specified automatic transmission fluid should be used when topping up or changing the fluid in the transmission.

It is important that the transmission fluid is maintained at the correct level or erratic transmission operation may occur. The fluid should be changed at the intervals recommended in Routine Maintenance (chapter 2).



Location of the automatic transmission dipstick.



Checking the automatic transmission fluid level. Inset shows the dipstick markings.

When working on the automatic transmission, cleanliness is essential. Do not reuse transmission fluid and do not allow foreign matter to enter the filler tube.

To Check and Top Up

The transmission fluid can be checked either hot or cold. However to obtain a more accurate reading it is recommended to check the fluid level between the Hot marks with the engine and transmission at operating temperature.

i If the transmission fluid level is low, locate and rectify the source of the leakage.

- 1 If the engine is cold, ensure that the handbrake is engaged, start the engine and move the selector through all gear positions and select Park.
- 2 With the engine idling, withdraw the dipstick from the filler tube. Wipe the dipstick with a clean lint free cloth. Insert the dipstick and withdraw it again.
- 3 Ensure that the level is between the marks in the Cold range of the dipstick. If necessary, top up the transmission fluid.

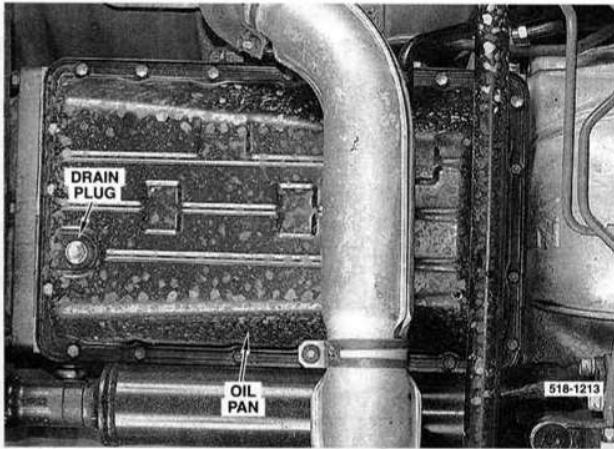
TIP With the fluid level correct cold, drive the vehicle until the engine and transmission reach operating temperature. Check that the fluid is now between the Hot marks

- 4 With the engine at operating temperature the level must be between the hot marks on the dip stick. If necessary, top up the transmission fluid.

i It is important that the specified fluid is used. Overfilling the transmission may result in foaming of the fluid and erratic operation.

To Drain and Refill

- 1 Bring the transmission to operating temperature, raise the front and rear of the vehicle and support on chassis stands so that the vehicle is reasonably level. Refer to General Information (chapter 1) for the positions of the jacking points.



Location of the automatic transmission drain plug.

- 2 Place a container under the transmission oil pan and remove the drain plug. Allow the transmission fluid to drain from the oil pan.

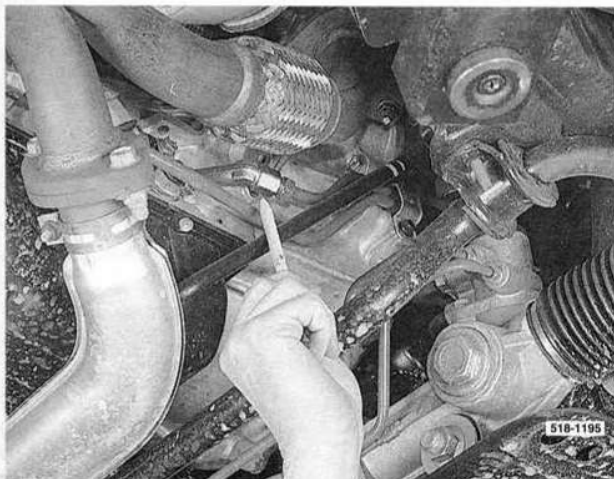


Use care to avoid scalding as the fluid may be very hot.

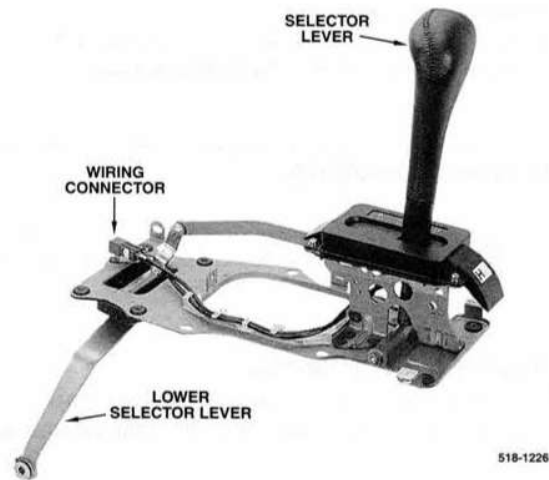
- 3 Install the drain plug and tighten to the specified torque.
- 4 Fill the transmission with approximately 2 litres of the specified fluid.
- 5 Start and idle the engine for approximately three minutes.
- 6 Move the selector lever slowly through all positions and return to Park.
- 7 Check the fluid level, as previously described.

Fluid Leakage

- 1 Raise the front of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
- 2 Check the seals and gasket for oil seepage and leaks.
- 3 Check the transmission oil cooler pipe connections at the transmission housing and at the lower radiator tank. Where fitted, check any external oil cooler for signs of leakage.



Check the oil cooler lines for leakage.

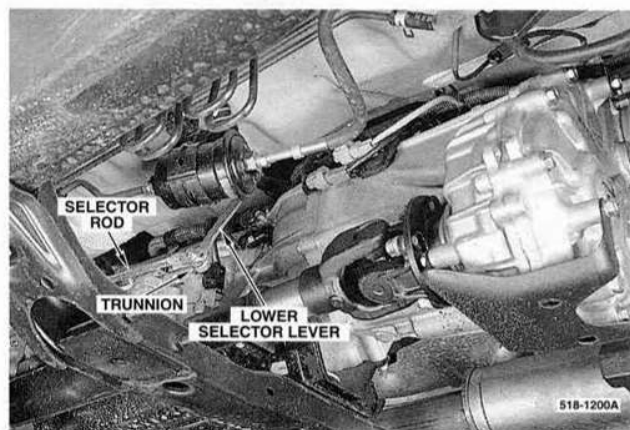


Selector assembly removed.

- 4 If the source of the leak cannot be easily identified, it may be necessary to clean the transmission housing with suitable degreasing fluid and repeat the inspection after driving the vehicle for a short distance.

GEAR SELECTOR AND LINKAGE

- 1 Check the selector linkages and bushes for wear or damage.
- 2 Check the adjustment of the selector linkages by starting the vehicle in Park and Neutral.
- 3 Apply the foot and handbrake and attempt to start the vehicle in Reverse or in Drive. If the vehicle starts in any gear, check the adjustment of the inhibitor switch as described later in this chapter.
- 4 Check the operation of the reverse lamp. Apply the handbrake, turn the ignition On and place the transmission in Reverse. Ensure that the reverse lamp only operates when the vehicle is in Reverse.
- 5 Ensure that the gear selector can only be moved after pressing the button on the side of the selector handle in the following situations:
From Park to Reverse.
From Neutral to Reverse.
From Reverse to Park.
From 2 to L.



Location of the selector rod and trunnion.

156 | Automatic Transmission

PROPELLER SHAFT

Routine maintenance items relating to the propeller shaft are described in Part 3 of Manual Transmission (chapter 10).

Trouble Shooting

i The following transmission faults may be caused by conditions that can be rectified within the scope of the information given in this chapter.

NO DRIVE IN ANY POSITION

- 1 Transfer case in neutral: Select high or low range.
- 2 Selector rod loose or separated from the selector lever or shift lever.

NO DRIVE IN D POSITION

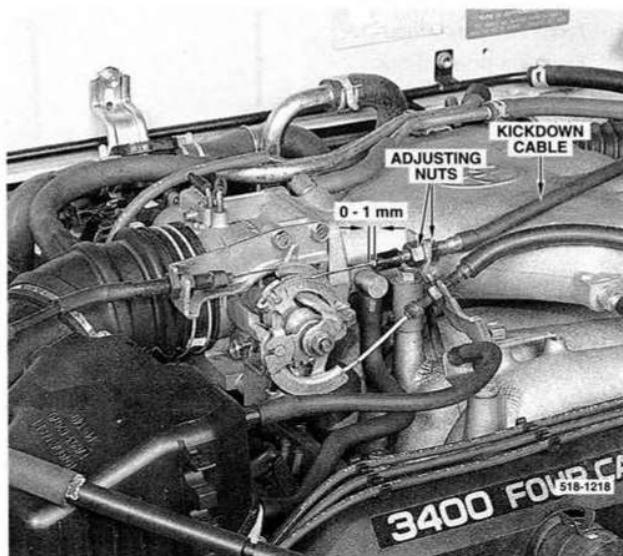
- 1 Incorrect transmission fluid level: Drain or top up the transmission fluid to the correct level.
- 2 Incorrectly adjusted selector linkage: Check and adjust the selector linkage.
- 3 Incorrect or contaminated fluid in the transmission: Drain and refill with the recommended grade of fluid.

NO REVERSE IN R POSITION

- 1 Low fluid level in the transmission: Check the fluid level and top up if necessary.
- 2 Incorrectly adjusted selector linkage: Check and adjust the selector linkage.

NO HOLD IN PARK POSITION

- 1 Incorrectly adjusted selector linkage: Check and adjust the selector linkage.
- 2 Worn, loose or bent selector linkage, bushes etc: Check the linkage and repair or renew as necessary.
- 3 Shift lever loose on the selector shaft: Repair or renew the shift lever.



Location of the kickdown cable adjusting point.

SLIPPING OR ROUGH IN UPSHIFT

- 1 Low fluid level in the transmission: Check the fluid level and top up if necessary.
- 2 Incorrectly adjusted kickdown cable: Check and adjust the cable as described later in this chapter.

NO TRANSMISSION KICKDOWN

- 1 Incorrectly adjusted kickdown cable: Check and adjust the cable as described later in this chapter.
- 2 Incorrectly adjusted throttle cable: Check and adjust the throttle cable as described in Fuel and Engine Management (chapter 7).

STARTER MOTOR WILL NOT OPERATE IN P OR N POSITIONS, OR WILL OPERATE IN ANY POSITION

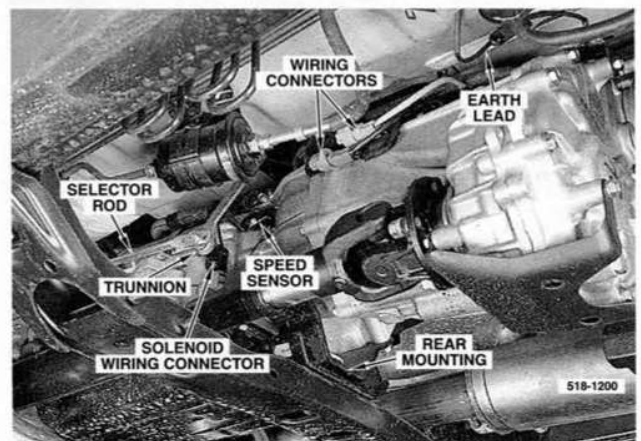
- 1 Incorrectly adjusted or worn selector linkage and bushes: Adjust the selector rod or renew the linkage and bushes.
- 2 Inhibitor switch faulty or incorrectly adjusted: Check, adjust and tighten or renew as necessary.
- 3 Starter motor faulty: Check as described in Engine Electrical (chapter 6).

MANUAL SHIFTING TEST

The following tests can be performed to determine if a transmission that is not operating correctly, has a mechanical or electrical fault.

- 1 Disconnect the solenoid wiring connector.
- 2 Drive the vehicle with the selector lever in L (low gear), the vehicle should drive in first gear.
- 3 While the vehicle is moving in L, move the selector lever to 2 (second gear), the transmission should now shift to third gear.
- 4 While the vehicle is moving in 2, move the selector lever to D (drive), the transmission should now shift to overdrive (fourth gear).
- 5 Stop the vehicle and shift to R (reverse), the vehicle should move in reverse.
- 6 If the transmission does not operate as described above, a fault is indicated within the mechanical components of the transmission.

If the transmission operates as described in the above procedures, a fault is indicated within the electrical components of the transmission or related electrical components.



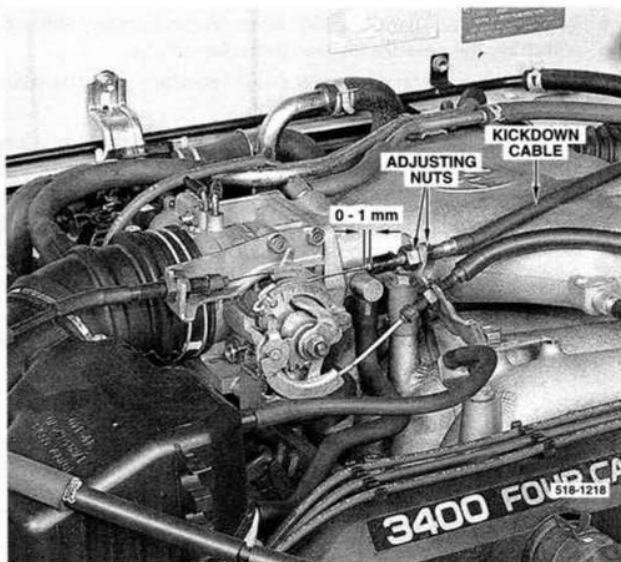
Location of components on the left hand side of the transmission.

- 7 Connect the wiring to the solenoid and clear the fault codes in the ECU by removing the EFI fuse from the engine compartment fuse and relay box for at least 30 seconds.

Kickdown Cable

TO ADJUST

- 1 Have an assistant depress the throttle pedal fully and confirm that the throttle is fully open. If necessary adjust the throttle cable as described in Fuel and Engine Management (chapter 7).
- 2 Ensure that the throttle is fully released.
- 3 Check that the cable is not slack and if necessary loosen the outer cable adjusting nuts and adjust the outer cable until the distance between the stopper and the outer cable is between 0 – 1 mm.
- 4 Tighten the outer cable adjusting nuts and recheck the distance between the stopper and the outer cable.



Kickdown cable adjusting point. With the throttle pedal released check that the distance between the protruding end of the stopper on the cable and the outer cable end is 0 – 1 mm.

TO REMOVE AND INSTALL

To remove the kickdown cable, it is necessary to remove the valve body from the transmission.

Therefore it is recommended that the renewal of the kickdown cable be performed by an authorised dealer or an automatic transmission specialist.

Band Adjustments

There is no band adjustment facility on this model transmission. The only way to check the serviceability of the brake band is to measure the piston rod stroke of the band actuator. If the piston rod stroke exceeds a specified limit, the band must be renewed.

To do this special tools and equipment are required, firstly to dismantle the transmission and then to check the piston rod

stroke. Therefore it is best entrusted to an authorised dealer or an automatic transmission specialist.

The brake band and clutch material is of better quality than traditional automatic transmissions fitted to older vehicles. Therefore the manufacturer does not consider checking the band adjustment to be a service procedure and is only necessary during a transmission overhaul

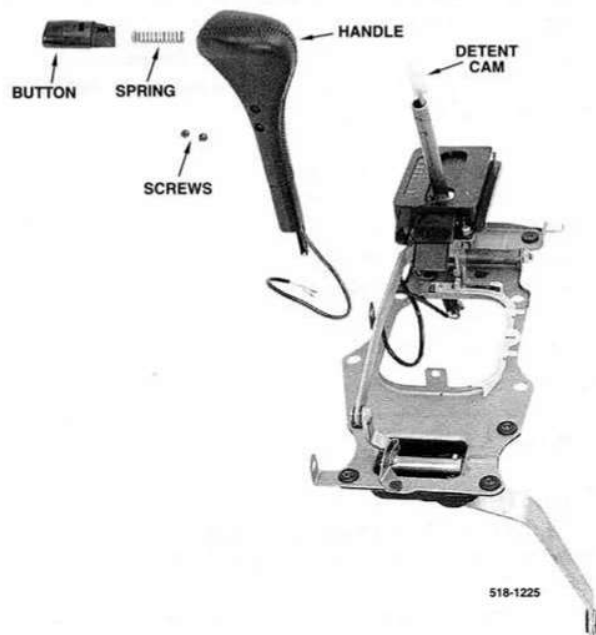
Overdrive Switch and Selector Handle

TO TEST SWITCH

- 1 Remove the transfer shift lever knob.
- 2 Carefully prise up and partially remove the upper console panel. Disconnect the Second Start and Power switch wiring connector and place the console panel clear of the work area.
- 3 Disconnect the overdrive switch wiring connector.
- 4 Follow the wires from the switch and at the connector check for continuity between the terminals of the white wires when the switch is in the Off position. When the switch is in the On position continuity should not exist.
- 5 If necessary renew the switch.

TO REMOVE AND INSTALL

- 1 Remove the transfer shift lever knob.
- 2 Carefully prise up and partially remove the upper console panel. Disconnect the Second Start and Power switch wiring connector and place the console panel clear of the work area.
- 3 Disconnect the overdrive switch wiring connector and release the wiring from the clips retaining it to the selector lever assembly.
- 4 Follow the wiring from the overdrive switch to the connector. Insert a suitable thin probe through the front of



Selector assembly with the selector handle removed.

158 | Automatic Transmission



Overdrive switch components removed from the handle.

- the connector, depress the tab retaining the terminal in the and pull the wire from the rear of the connector. Repeat the procedure on the other wire.
- Remove the screws retaining the handle to the selector lever and while holding the detent button, slide the handle from the lever.
 - Remove the button and spring from the handle.
 - Using electrical tape or similar, secure a suitable length of string to the end of the wiring to aid with installing the overdrive switch.
 - Remove the retaining screw from the button aperture and remove the switch holder from the handle while simultaneously feeding the wiring and string through the handle.
 - When the string emerges from the top of the handle, secure it to the top of the handle.
 - Hold the overdrive switch button fully depressed and ease the switch sideways from the holder. If the switch is to be renewed, cut the end of the string from the old switch.

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

- Install the overdrive switch to the button holder.
- Secure the string protruding from the top of the handle to the end of the switch wires.
- Progressively feed and pull the wiring through the handle with the string. Install the holder and switch to the handle and tighten the retaining screw.
- Insert the spring and button into the handle and install the handle to the lever. Tighten the retaining screws.
- Install the wiring into the clips and install the spades into the wiring connector, ensuring that the tabs lock in the connector.
- Install the upper console panel.

Selector Linkage

TO ADJUST

- Raise the front of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
- Working beneath the vehicle, remove the bolts retaining the small stoneguard adjacent to the left hand side of the transmission.

- Loosen the trunnion nut retaining the selector rod to the selector assembly so that the rod can slide smoothly.
- Move the shift lever on the side of the transmission fully back and then two notches forward to the neutral position.
- Have an assistant move the selector lever inside the vehicle to the Neutral position and hold the selector slightly towards Reverse.
- Tighten the trunnion nut securely.
- Check the operation of the selector and inhibitor switch as described later under the Inhibitor Switch heading

TO REMOVE AND INSTALL

- Raise the front and rear of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
- Working beneath the vehicle, remove the bolts retaining the small stoneguard adjacent to the left hand side of the transmission.
- Remove the clip retaining the trunnion to the lower selector lever.
- Remove the nut from the shift lever on the transmission and withdraw the selector linkage from the vehicle.

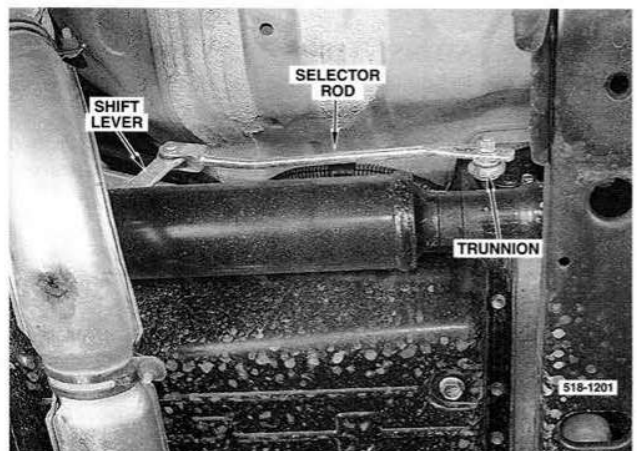
Installation is a reversal of the removal procedure with attention to the following points:

- Install the shift lever to the shaft on the transmission ensuring that the slot in the lever engages the flats on the shaft.
- Install a new lock washer, the nut and tighten the nut securely. Bend at least two tabs to lock the nut.
- Install the trunnion to the lower selector lever and insert the clip securely.
- Check and if necessary adjust the linkage as previously described.

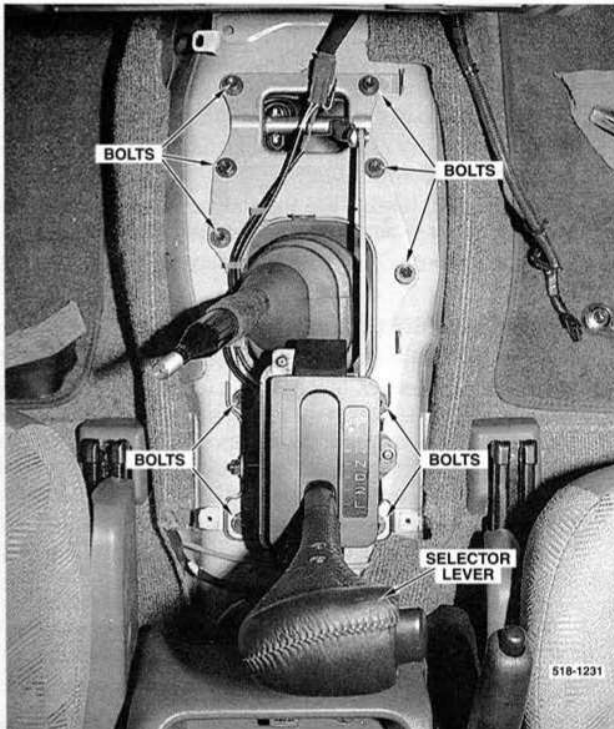
Selector Assembly

TO REMOVE AND INSTALL

- Raise the front and rear of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
- Ensure that the selector lever is in Park.

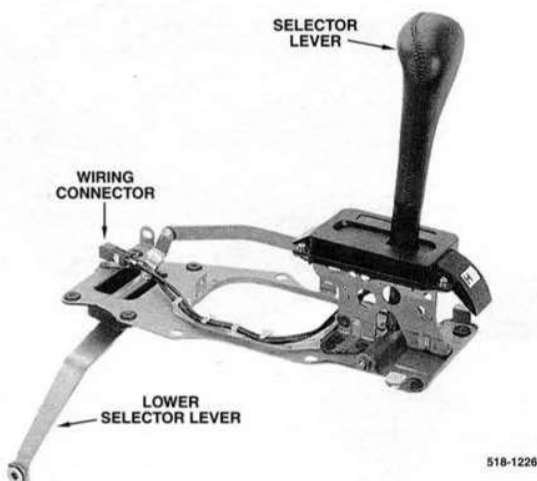


To adjust the selector linkage, loosen the nut on the trunnion.



Location of the selector assembly retaining bolts, viewed with the centre console removed.

- 3 Working beneath the vehicle remove the clip retaining the selector rod trunnion to the lower selector lever. Separate the rod from the lever.
- 4 Working inside the vehicle, remove the centre console. Refer to Body (chapter 17).
- 5 Disconnect the wiring connector at the front of the selector assembly.
- 6 Remove the bolts retaining the selector assembly to the floor.
- 7 Partially lift the assembly and disconnect the rubber transfer lever cover from the assembly by removing the spacers from the bolt holes and peeling the cover from the assembly.
- 8 Withdraw the selector assembly from the vehicle.



Selector assembly removed.

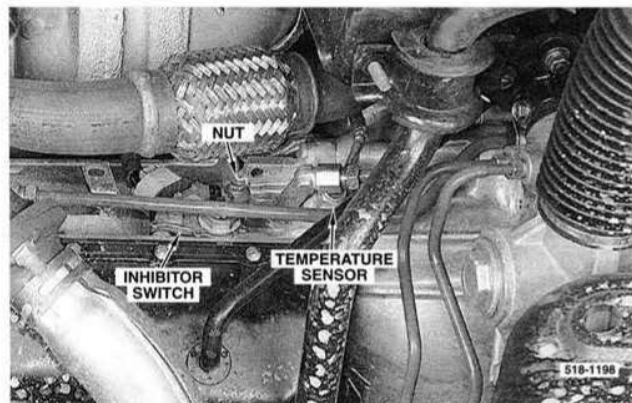
Installation is a reversal of the removal procedure with attention to the following points:

- 1 Partially install the selector assembly to the vehicle but do not install the retaining bolts at this stage.
- 2 Install the transfer lever cover to the position noted on removal. Install the spacers to the bolt holes.
- 3 Install the retaining bolts and tighten securely. Connect the wiring connector.
- 4 Install the centre console. Refer to Body (chapter 17).
- 5 Install the selector rod trunnion to the lower selector arm and adjust the selector linkage as previously described.

Inhibitor Switch

TO CHECK AND ADJUST

- 1 Check that the reversing lamps only illuminate when the selector lever is in the Reverse position with the ignition On.
- 2 Check that the starter motor will only crank the engine when the selector lever is in the Park or Neutral position.
- 3 If the reverse lamps illuminate in any position other than Reverse or the starter motor cranks the engine in any position other than Park or Neutral, check the selector linkage adjustment as previously described. Repeat steps 1 and 2 and if necessary, adjust the inhibitor switch as follows:
 - a Raise the front of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
 - b Place the selector lever in Neutral.
 - c Check that the flat sides on the shaft are parallel with the line on the inhibitor switch.



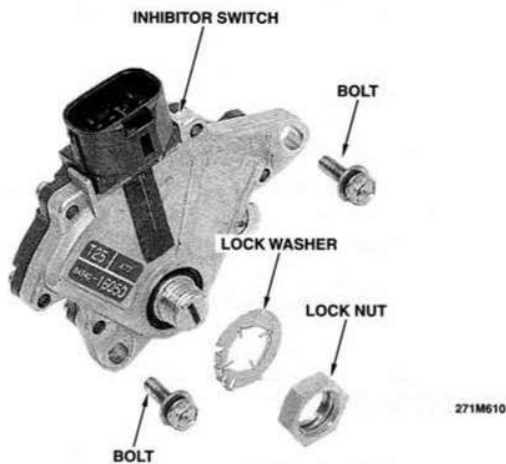
Location of the inhibitor switch.

- d If necessary, loosen the bolts and rotate the inhibitor switch until the flat sides on the shaft are parallel with the line on the inhibitor switch.
- e Tighten the bolts to the specified torque.
- f Repeat steps 1 and 2. If the reverse lamps still don't operate only in reverse, or the starter motor won't operate in Park or Neutral, renew the inhibitor switch.

TO REMOVE AND INSTALL

- 1 Raise the front of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.

160 | Automatic Transmission



Inhibitor switch components.



Allow the engine to cool as the exhaust components are in close proximity

- 2 Disconnect the wiring connector from the inhibitor switch.
- 3 Bend the tabs on the locking washer back. Remove the nut, and lock washer.
- 4 Remove the bolts retaining the inhibitor switch to the transmission. Withdraw the inhibitor switch.

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

- 1 Using a screwdriver, carefully rotate the centre slot in the inhibitor switch to align with the flats on the selector shaft.
- 2 Install the inhibitor switch to the transmission. Set the adjustment as previously described before tightening the retaining bolts.
- 3 Install a new lock washer and the nut.
- 4 Tighten the nut securely and bend the locking tabs over the flat of the nut.
- 5 Install the wiring connector.

Second Start and Power Switch

TO REMOVE AND INSTALL

The procedure to remove and install the Second Start and Power switch (mode switch) is described in Body Electrical (chapter 16).

Oil Seals

TO RENEW REAR TRANSMISSION HOUSING OIL SEAL

- 1 Raise the front and rear of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
- 2 Remove the transfer case as described under the Transfer Case Assembly heading in Part 2 of Manual Transmission (chapter 10)
- 3 Drill a small hole in the seal being careful not to drill too far and partially install a small self tapping screw. Using pliers pulling on the screw, remove the seal.

- 4 Check the oil seal housing and remove any dirt or burrs. Clean the housing with lint free cloth and carefully tap the new oil seal into the housing, ensuring that the lip of the seal faces inward, until the seal is fully seated in the housing. Lubricate the lip of the seal with multipurpose grease.
- 5 Install the transfer case as described under Part 2 of Manual Transmission (chapter 10).
- 6 Check the fluid level of the transmission and refill with the specified transmission fluid, as previously described.
- 7 Check the transfer case fluid level and top up as required.

TO RENEW TORQUE CONVERTER OIL SEAL

- 1 Remove the transmission as described later in this chapter.
- 2 Place a straight edge across the front of the torque converter housing and while pushing the converter towards the rear of the transmission, measure the distance between the straight edge and one point on the converter. Mark the measuring point on the converter, using a felt pen and note the measurement.
- 3 Place absorbent paper or cloth under the transmission. Carefully remove the torque converter from the housing.



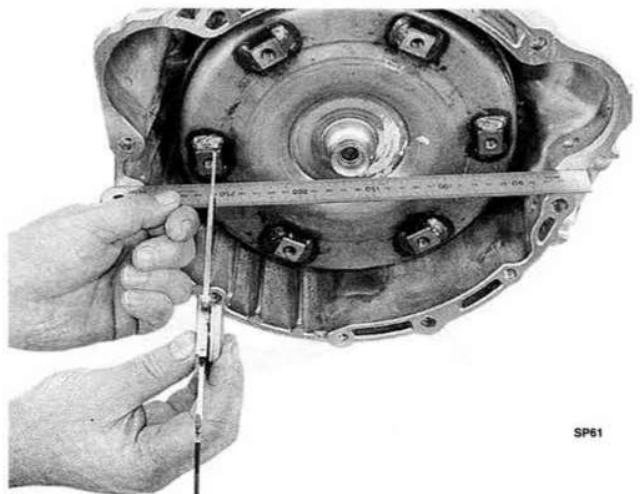
Oil will leak from the torque converter once removed from the transmission. Sit the torque converter with the shaft facing up and cover the opening to prevent the entry of dirt.

- 4 Drill a small hole in the seal being careful not to drill too far and partially install a small self tapping screw. Using pliers pulling on the screw, remove the seal.
- 5 Inspect the seal running surface of the torque converter for grooves or damage. Plug the torque converter opening with lint free cloth to prevent entry of dirt and polish out very fine imperfections using fine wet and dry paper.

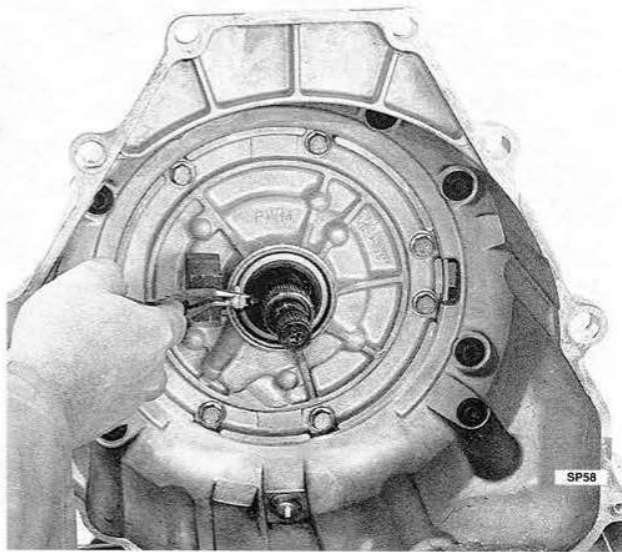


If the grooves are excessive, the torque converter should be referred to a transmission specialist for repairs, or an exchange torque converter installed.

- 6 Using a lint free cloth, clean the seal housing. Check the housing for damage.
- 7 Drive the new oil seal, with the lip facing the transmission, into the housing using a tube or mandrel that pushes on the outer circumference of the oil seal. The face of the new oil seal must be flush with the front of the housing.



Method of checking the installed depth of the torque converter.



Method of removing a torque converter seal.

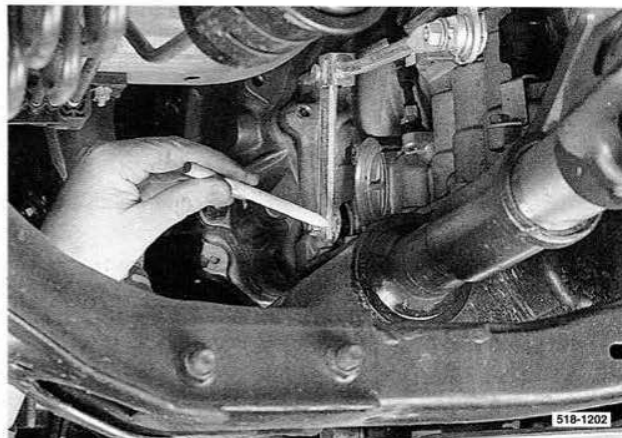


Ensure that the tube or mandrel does not damage the input shaft.

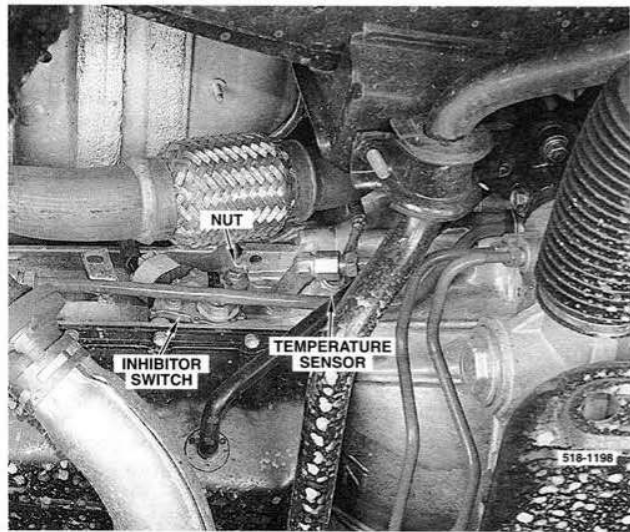
- 8 Apply clean transmission fluid to the running surface of the oil seal and the converter. Do not use petroleum jelly.
- 9 Install the converter to the transmission. Place a straight edge across the torque converter housing. Ensure that the distance between the pen mark and straight edge is as noted on removal.
- 10 If the distance is less, push the converter towards the transmission while carefully rotating the converter, until it is correctly seated.
- 11 Install the transmission as described later in this chapter.
- 12 Check the fluid level and refill with the specified transmission fluid, as previously described.

TO RENEW SELECTOR SHAFT AND INHIBITOR SWITCH OIL SEALS

- 1 Raise the front of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.



Check the selector shaft oil seal for leakage.



Location of the inhibitor switch and transmission fluid temperature sensor.

- 2 To renew the selector shaft oil seal, remove the nut retaining the shift lever to the selector shaft and withdraw the lever from the shaft. Place the rod and lever clear of the work area.
- 3 To renew the inhibitor switch oil seal, remove the inhibitor switch as previously described.
- 4 Carefully lever the seal from the transmission. If necessary, insert a small self tapping screw into the body of the seal. Using pliers, withdraw the seal by gripping the self tapping screw.
- 5 Clean the shaft and the housing using a lint free cloth. Place a piece of thin tape on the shaft to protect the new seal, while installing.
- 6 Coat the lip of a new seal with transmission fluid and drive the oil seal, with the lip facing the transmission, into the housing using a long socket that pushes on the outer circumference of the oil seal. The face of the new oil seal must be flush with the housing.
- 7 Remove the tape and install the shift lever or inhibitor switch. Tighten the retaining nut and/or bolts securely.
- 8 Check the fluid level and refill with the specified transmission fluid, as previously described.

11

Transmission Assembly



To Remove and Install — Suitable trolley jack to which the transmission can be secured

TO REMOVE AND INSTALL

- 1 Disconnect the negative battery terminal.
- 2 Working in the engine compartment, loosen the nuts and disconnect the outer kickdown cable from the bracket. Disengage the cable from the cable clamps in the engine compartment.
- 3 Remove the bolts retaining the fan shroud to the radiator. This prevents the fan hitting and damaging the shroud as the engine tilts while removing the transmission from the vehicle. Refer to Cooling System (chapter 5), if necessary.

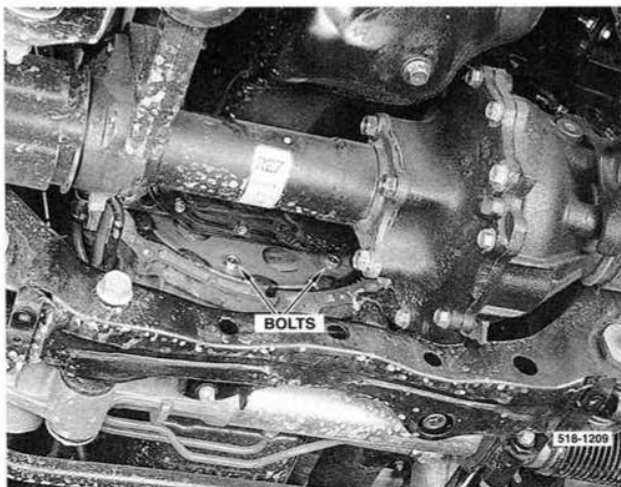
162 | Automatic Transmission

- 4 Raise the front and rear of the vehicle and support on chassis stands. Refer to General Information (chapter 1) for the positions of the jacking points.
- 5 Working beneath the vehicle, remove the stoneguards from beneath the engine and the left hand chassis rail beside the transmission. Remove the clip retaining the trunnion to the selector lever.
- 6 Working inside the vehicle, remove the selector assembly as previously described.
- 7 Remove the transfer case and transfer case shift lever as described in Part 2 of Manual Transmission (chapter 10).
- 8 Drain the transmission fluid as previously described.
- 9 Remove the starter motor as described in Engine Electrical (chapter 6).
- 10 Remove the engine pipes as described in Engine (chapter 4).
- 11 Remove the nut retaining the shift lever to the transmission. Remove the shift lever and selector rod from beneath the vehicle.
- 12 Remove the retaining bolts and then the torque converter housing cover plate from the front of the torque converter housing.
- 13 Mark the driveplate and converter to ensure assembly in the original position.
- 14 Remove the bolts securing the torque converter to the driveplate and lever the torque converter back into the converter housing.

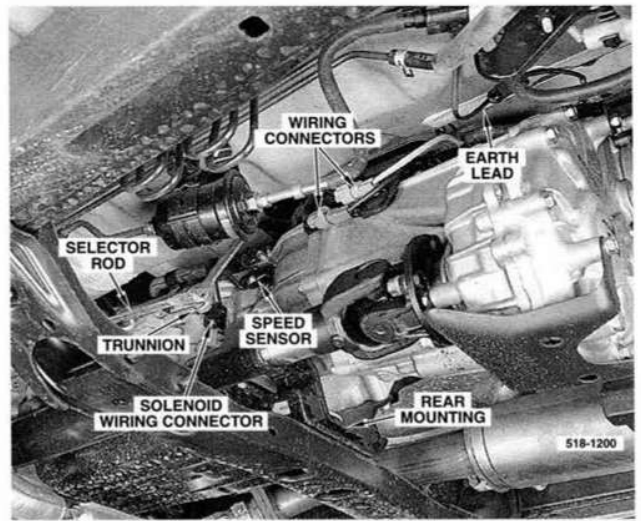


It may be necessary to have an assistant prevent the engine rotating by inserting a lever through the starter motor aperture and engaging the ring gear teeth.

- 15 Remove the retaining bolts and manoeuvre the transmission filler pipe from the engine compartment. Discard the O ring.
- 16 Remove the bolts retaining the transmission oil cooler lines to the torque converter housing. Disconnect the transmission oil cooler lines from the transmission and seal the pipes and the unions.
- 17 Working on the right hand side of the transmission, disconnect the wiring from the transmission fluid temperature sensor and the inhibitor switch. Disconnect the secondary speed sensor and the solenoid connector from the left hand side of the transmission.



Location of the torque converter bolts with the cover plate removed.



Left side of the transmission and transfer case showing various components.



To avoid personal injury or damage to the transmission, it is recommended that the help of an assistant is sought while carrying out the following operations.

- 18 Support the transmission beneath the sump with a block of wood on a trolley jack. Secure the transmission to the jack with a chain.



Care should be taken not to dent the oil pan as the internal fluid filter may be damaged. For the same reason, use care when placing the transmission on the floor or on a workbench.

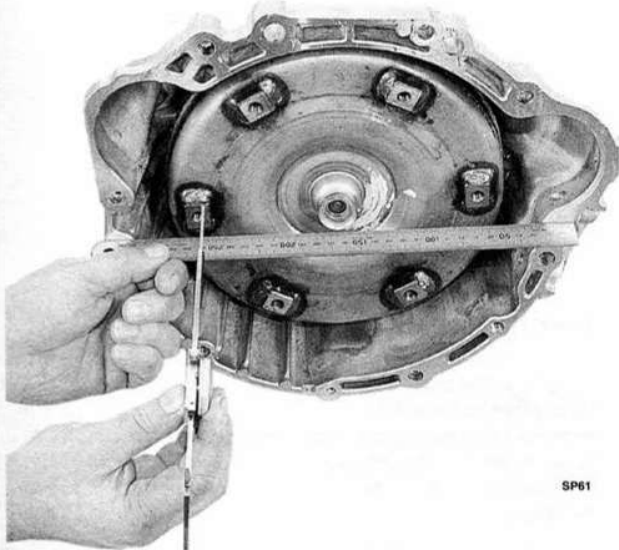
- 19 Remove the bolts retaining the rear mounting to the transmission.
- 20 Raise the jack slightly and remove the bolts retaining the rear mounting crossmember to the chassis. Manoeuvre the crossmember from the vehicle.
- 21 Remove the bolts retaining the transmission to the engine.
- 22 Through the starter motor aperture keep pushing the torque converter away from the engine while carefully sliding the transmission rearwards off the dowels in the rear of the cylinder block.
- 23 Attach suitable retaining straps to the converter housing to retain the converter, lower the jack slowly and withdraw the transmission from beneath the vehicle.



Now is an opportune time to inspect the ring gear and if necessary renew the driveplate. Refer to Engine (chapter 4), if necessary.

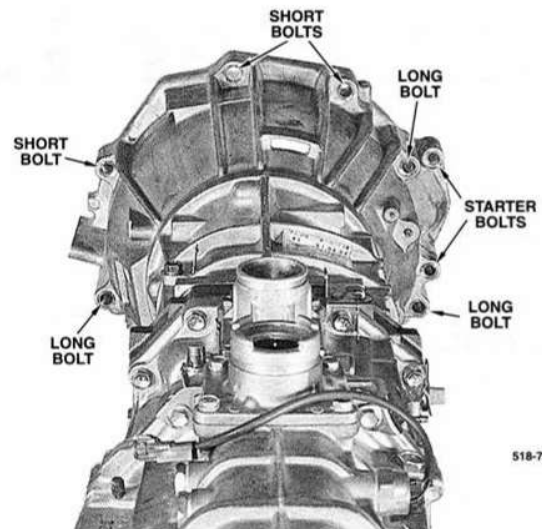
Installation is a reversal of the removal procedure with attention to the following points:

- 1 Ensure that the torque converter is fully engaged in the front of the transmission. Check that the distance between the torque converter mounting nuts and the front face of the torque converter housing is greater than 17.95 mm.
- 2 Ensure that the front face of the converter housing and the rear face of the cylinder block are clean and free of burrs.
- 3 Install the transmission to the engine and tighten the retaining bolts to the specified torque.



Ensure that the torque converter is installed to the depth noted on removal.

- 4 Align the marks on the driveplate and torque converter made during removal.
- 5 Install the bolts securing the torque converter to the driveplate and tighten evenly to the specified torque.
- 6 Install the torque converter cover plate and tighten the retaining bolts securely.
- 7 Ensure that all wiring is securely connected to the transmission and the transfer case.
- 8 Install the shift lever and selector rod to the transmission and tighten the retaining nut securely.
- 9 Install the transfer case shift lever and the transfer case as described in Part 2 of Manual Transmission (chapter 10).
- 10 Install the selector assembly as previously described.
- 11 Install the filler pipe with a new O ring.
- 12 Fill the transmission with the specified transmission fluid.



The position of the long and the short bolts is the same as for the manual transmission shown here.

- 13 Check and if necessary, adjust the selector linkage as previously described.
- 14 Road test the vehicle to ensure that the transmission operates satisfactorily and check the fluid level as previously described.

Propeller Shafts

The procedure to remove and install the propeller shafts and renew the universal joints is fully covered in Part 3 of Manual Transmission (chapter 10).

Transfer Case

A description and procedures relating to the transfer case are covered in Part 2 of Manual Transmission (chapter 10).