

Part 2

Transaxle Removal Procedure

Note on all the raising and lowering of vehicle instructions: I put all 4 wheels in the air using jack stands and used a small step stool to reach into the engine compartment vice lowering the vehicle again. However, the jack stands have to be tall enough so the transaxle can be removed.

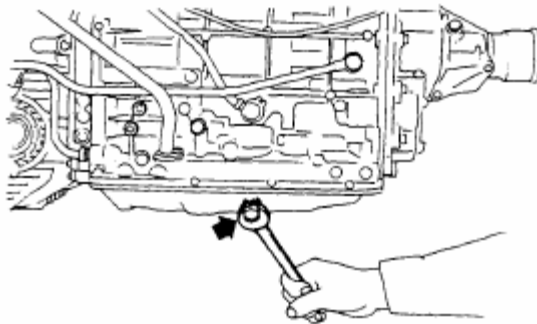
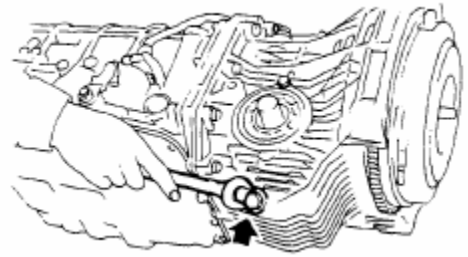
- 1) Open hood fully. Disconnect the negative battery terminal. Remove throttle body cover and air intake boot. Remove torque strut (dog-bone). Disconnect transmission air vent hoses from torque strut bracket and remove bracket from transmission case.
- 2) Disconnect transmission harness connectors. Disconnect transmission ground terminal connector. Disconnect vehicle speed sensor. Disconnect left and right O2 sensors.
- 3) Raise and support vehicle. Drain ATF into suitable container, recycle - do not reuse. Remove lower starter nut. Lower vehicle. Disconnect starter wiring. Remove starter. Remove torque converter service hole plug. Remove torque converter-to-drive/flex plate bolts. Rotate the engine to bring bolts to service plug hole. I do not know the preferred method to do this, but rotated the engine on my car through use of a beaker bar/socket on the large nut at the crankshaft pulley. Install Engine Support (927670000), or suitable substitute in place of torque strut. This is necessary, or when the transaxle is separated from the engine, the engine will rotate forward into the radiator assembly causing damage. Although I would not say this was an optimum solution, I used a strap clamp threaded through the A/C support bracket, up over the top of the intake manifold, and through the hole left when the dog-bone was removed.
- 4) Remove bolts holding right upper side of transmission to engine. Remove transmission and differential dipsticks.
- 5) Raise vehicle and remove engine undercover. Remove front exhaust pipes and rear catalyst converter. Remove front exhaust cover.
- 6) Remove drive shaft to companion flange bolts of rear differential. Remove bolts holding drive shaft center support bearing to body. Remove drive shaft from transmission. Plug opening in transmission after removal of drive shaft. Remove selector cable from selector lever assembly. Remove selector cable bracket from body. Remove performance rod. It took me a while to realize exactly what constituted the performance rod. It's the black bar tying together the lower sides of the uni-body frame, much like a strut tower brace, only on the underside of the car.
- 7) Remove ball joint of lower control arm from knuckle arm of housing. Alternately (and what I did), remove three bolts holding the knuckle to lower A-arm⁽³⁾. Take out the two (2) outer bolts before removing the single inner bolt to prevent the outer nuts from being trapped by the ball joint as the A-arm attempts to pull away from the hub assembly. Remove stabilizer link from mounting bracket (not needed with 3-bolt trick). Remove brake hose and ABS sensor harness from starter bracket (not needed with 3-bolt trick). Remove spring pin holding axle shaft to front differential drive shaft. Pull out on knuckle to free shaft from axle stub, and remove axle shaft from transmission.
- 8) Disconnect ATF cooler hoses from pipes on the transmission (left side near firewall). Remove nuts holding lower side of transmission to engine. Support transmission with transmission jack. Remove bolts securing rear cross-member to body. Ensuring torque converter stays with transmission, pull transmission away from engine and remove transmission from vehicle. Be cautious to avoid damage to the steering rack and associated hoses, fittings, etc.

Note: In the following disassembly/assembly pages referenced tools will sometimes appear like the following (all caps): PULLER SET (899524100). This means a special tool with the Subaru part number following in the parentheses.

Transaxle Disassembly

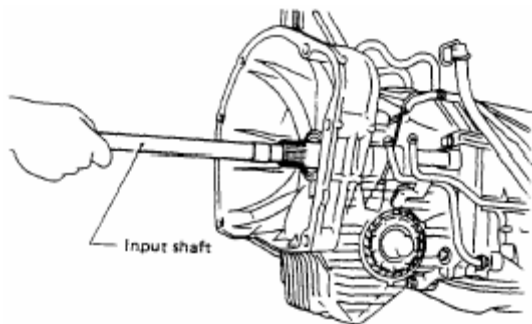
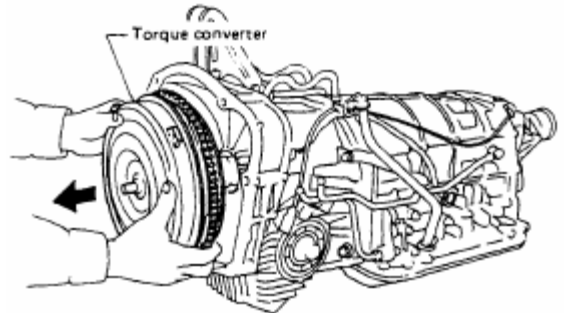
External Parts

- 1) Place the transmission unit on a workbench, with the oil pan facing down. Be careful not to bend or damage external parts.
- 2) Remove the drain plug, and drain differential oil if not already accomplished. Tighten the plug temporarily after draining.



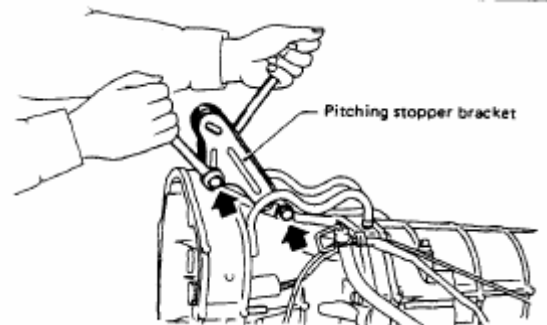
- 3) Remove the drain plug, and drain automatic transmission fluid (ATF) if not done so already. Tighten the plug temporarily after draining.

- 4) Extract the torque converter horizontally. Be careful not to scratch the bushing inside the oil pump shaft.

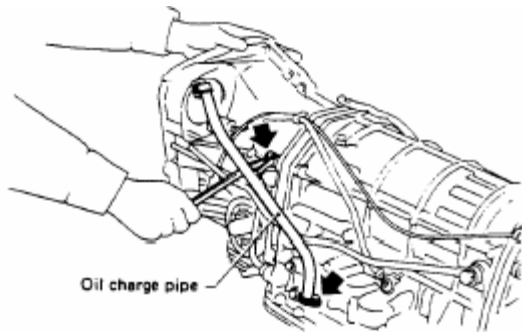
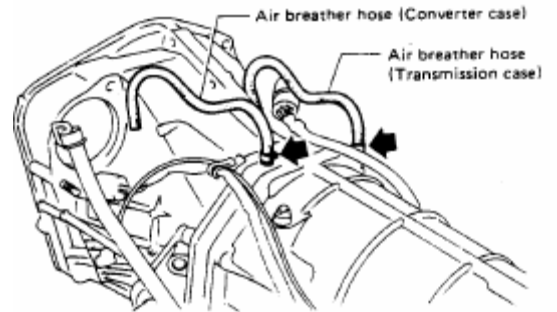


- 5) Remove the input shaft. Be careful not to scratch the bushing.

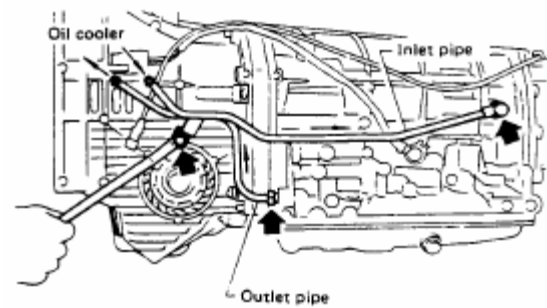
- 6) Remove the pitching stopper bracket.



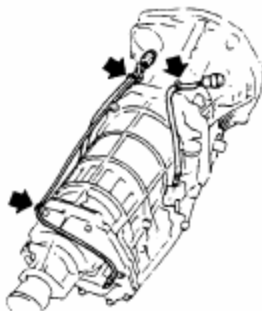
- 7) Disconnect the air breather hose.
 Number of hoses: AWD = 2, FWD = 1



- 8) Remove the oil charger (fill) pipe, and remove the O-ring from the flange face. Attach the O-ring to the pipe.



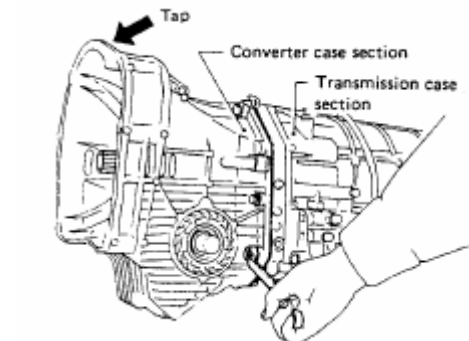
- 9) Remove the oil cooler inlet and outlet pipes.



- 10) Remove clips from the harnesses.
 Number of harnesses: AWD = 3, FWD = 2

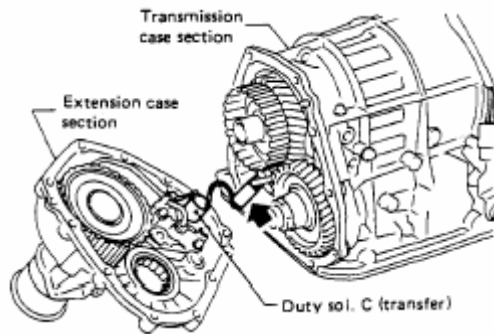
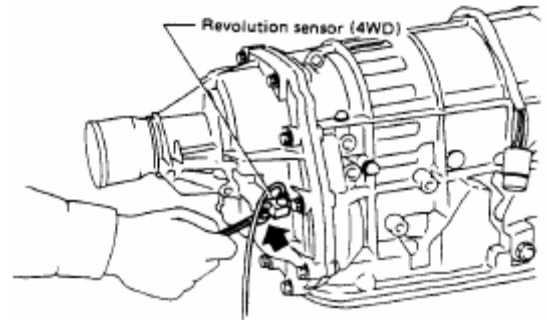
Separation of Converter Case and Transmission Case Sections

- 1) Remove bolts/nuts. Separate these cases while tapping lightly on the housing.
- 2) Be careful not to damage the oil seal and bushing inside the converter case by the oil pump cover.



Separation of Transmission Case & Extension Section (AWD)/Cover Section (FWD)

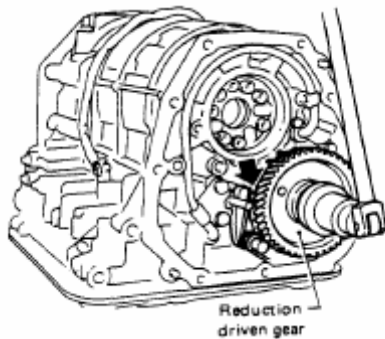
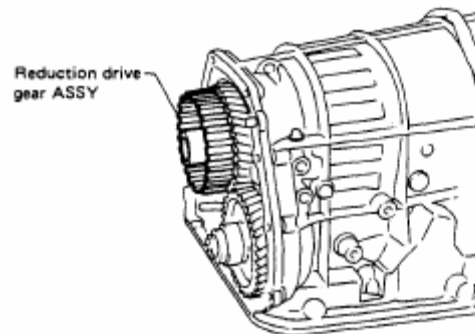
1) Remove the revolution sensor (AWD only).



2) While pulling the extension away slightly, disconnect the connector for duty solenoid C (transfer). Use care not to pull the rear housing away too far or you may damage the wiring harness, there is not a lot of slack.
3) Separate the sections.

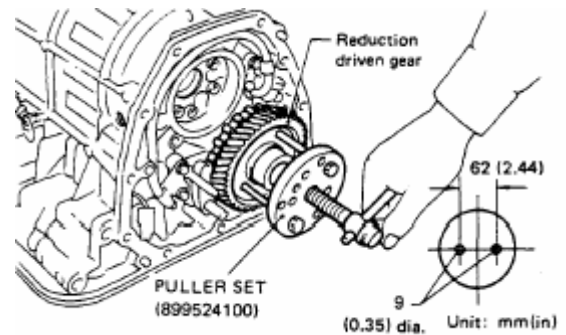
Transmission Case Section

1) Remove the reduction drive gear assembly

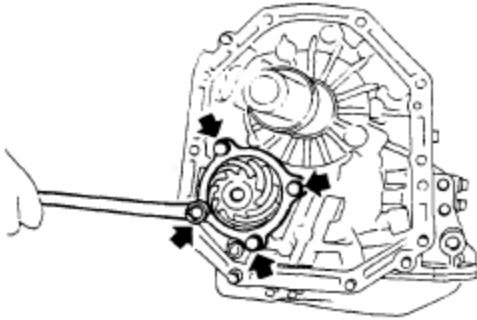
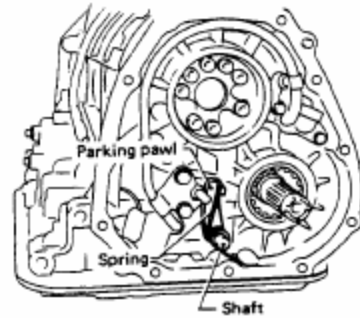


2) Remove the reduction driven gear.

a. Straighten the staked portion, and remove the lock nut. Set the range selector lever to "P".
b. Using the PULLER SET (899524100), extract the reduction driven gear. Drill two holes in the puller – see diagram.



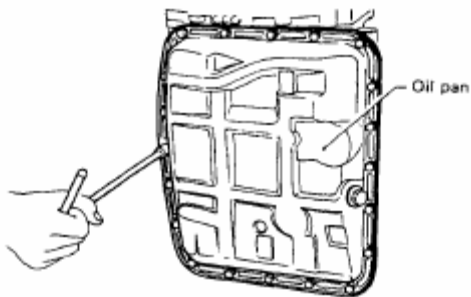
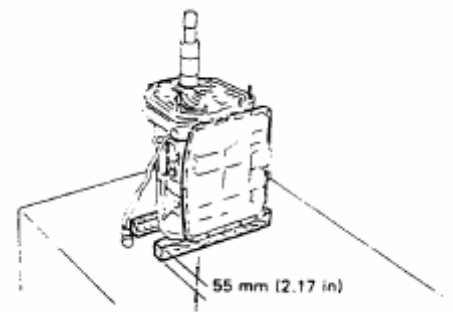
3) Remove the parking pawl, return spring and shaft.



4) Loosen the taper roller bearing mounting bolts.

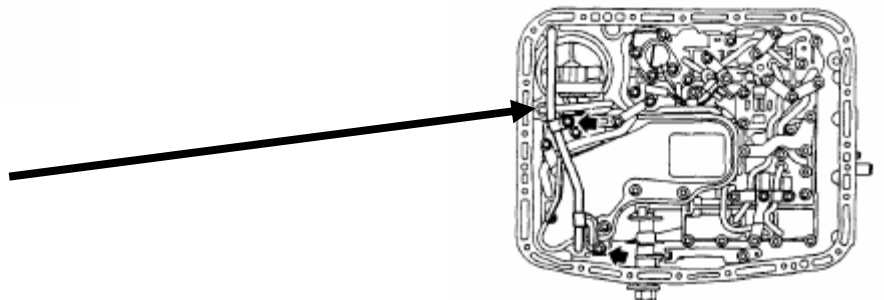
5) Remove the revolution sensor (FWD). Leave the sensing element in the transmission case.

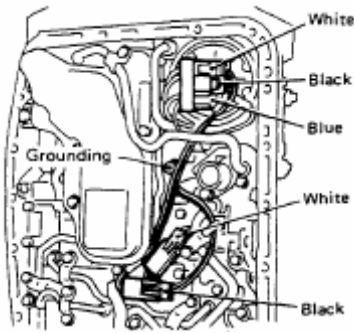
6) Place two wooden blocks on the workbench, and stand the transmission case with its rear end facing down.
a. Be careful not to scratch the rear-mating surface of the transmission case.
b. Note that the parking rod and drive pinion protrude from the mating surface.



7) Remove the oil pan and gasket. Tap the corners of the oil pan when removing.

8) Remove the oil cooler outlet pipe. Be careful not to twist the pipe.

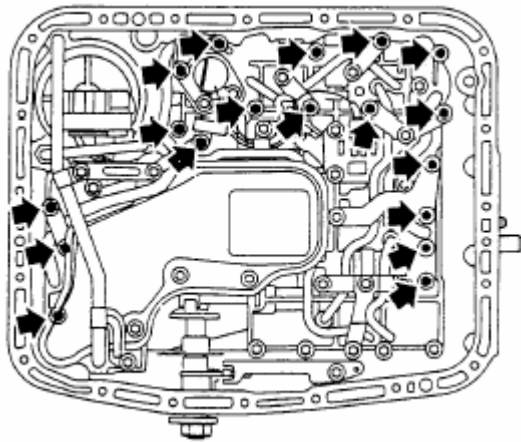




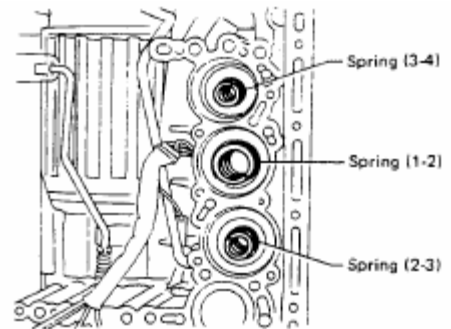
9) Disconnect the harness connectors for the solenoids and duty solenoids and the ground cord. Note their placement.



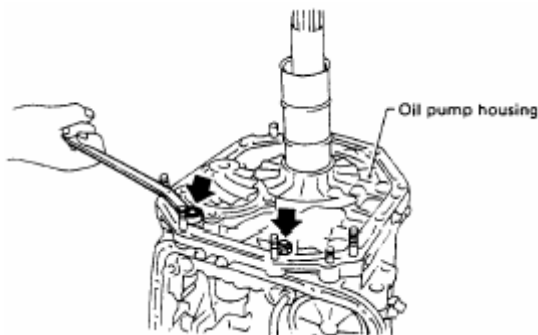
10) Remove the oil strainer (internal filter).



11) Remove the control valve body (18 bolts). Note the strainer is still in the illustration even though it was removed in step 10 above.

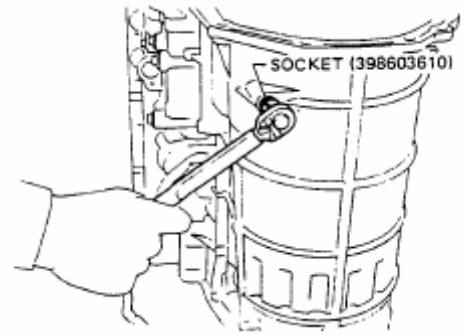
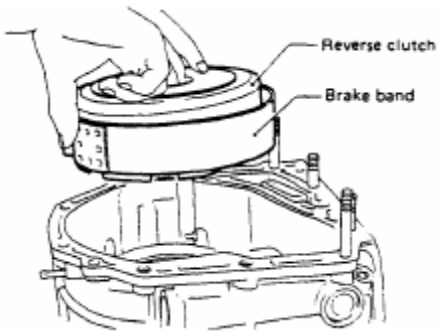


12) Remove three accumulator springs.



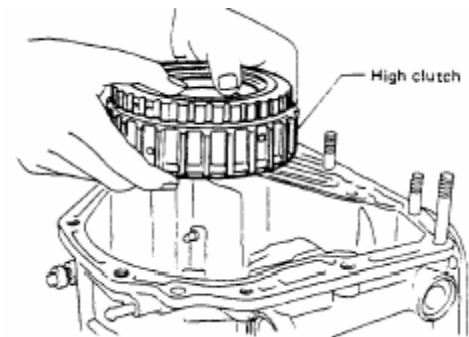
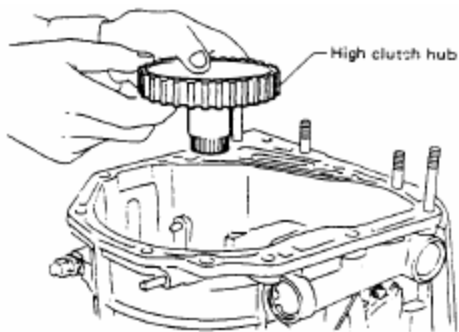
13) Tighten the reverse clutch drum lightly by turning the adjusting screw. Then remove the oil pump housing. Be careful not to lose the total endplay adjusting thrust washer.

14) Loosen the brake band adjusting screw, and take out the strut.



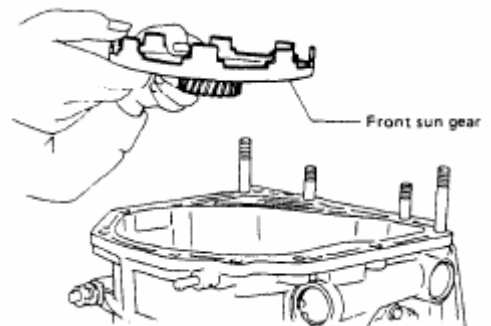
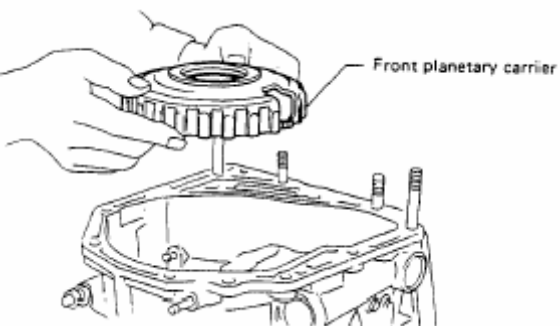
15) Remove the brake band and reverse clutch. Contract the brake band with a clip.

16) Take out the high clutch.

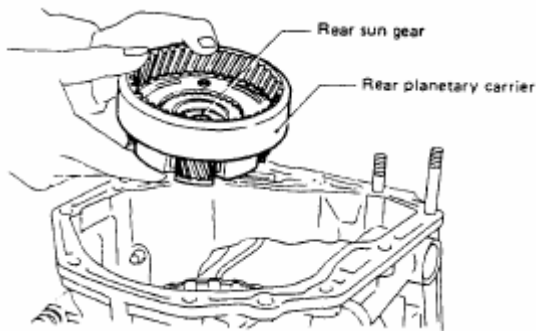


17) Take out the high clutch hub.

18) Take out the front sun gear.



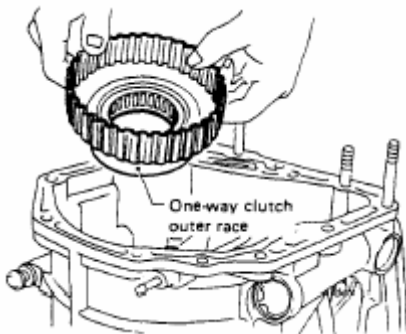
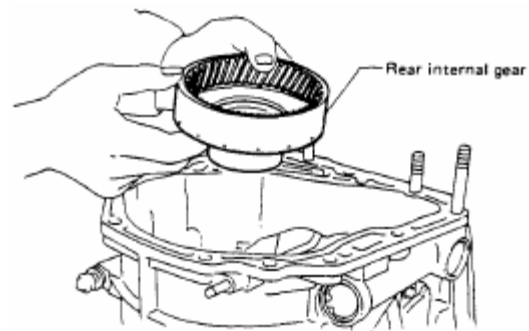
19) Take out the front planetary carrier.



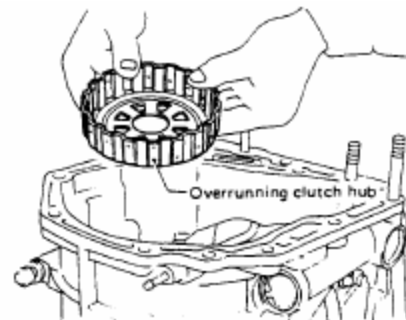
20) Take out the rear planetary carrier and rear sun gear. *The following are causes for rear planetary failure which have been documented:*

- a) *Restricted flow through the radiator cooler.*
- b) *Kinked or obstructed radiator cooler lines.*
- c) *Improper ATK-50 filter kit installation or hose routing.*
- d) *Debris restricting ATF flow through the input shaft or its oil feed holes.*
- e) *Reuse of a heat damaged input shaft (where the internal seal has become deformed).*
- f) *Orifice plug missing from the rear of the reduction shaft.*
- g) *Bushing missing from the front of the reduction shaft.*

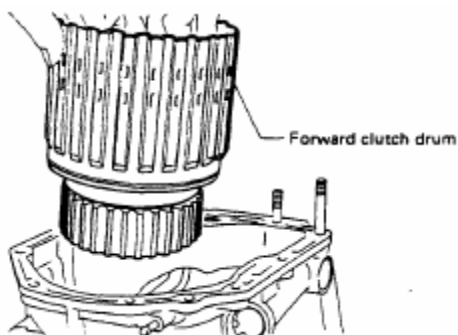
21) Take out the rear internal gear.



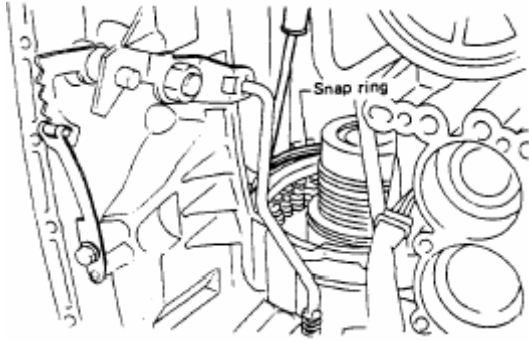
22) Take out the one-way clutch outer race.



23) Take out the overrunning clutch hub.

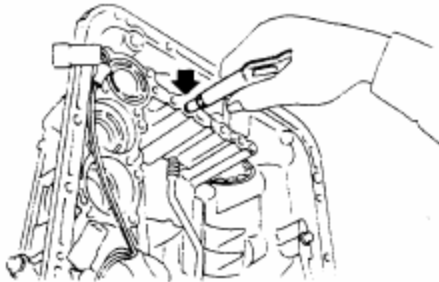
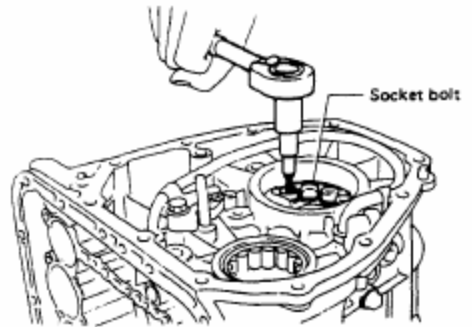


24) Take out the forward clutch drum.



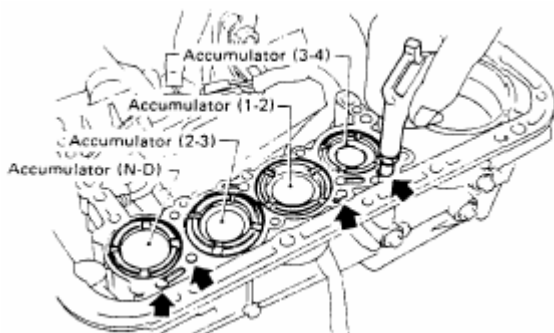
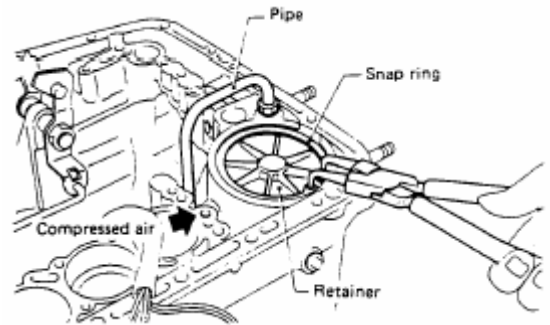
25) Take out the low & reverse brake section.
 a. Remove the snap ring. Then remove the retaining plate, drive plates, driven plates, and dish plates as a unit.

b. Turning the case upside down, take out the one-way clutch inner race and spring retainer CP.



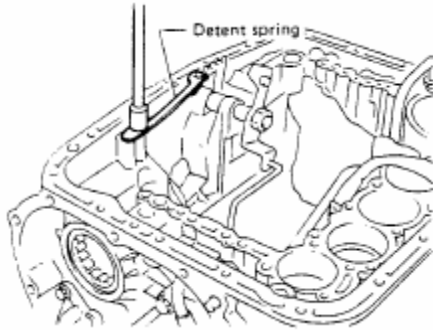
c. Take out the low & reverse piston by applying compressed air.

26) After removing the snap ring (inner), take out the servo piston by applying compressed air from the release pressure side. Hold the servo piston with a rag so that it will not be ejected with the air pressure. In this case, do not allow your finger to be pinched between the pipe and retainer.



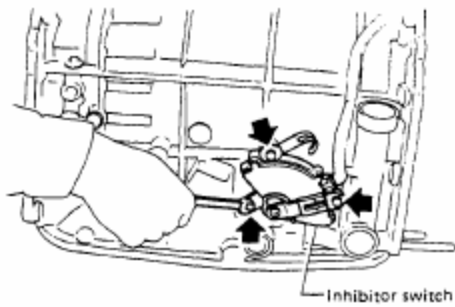
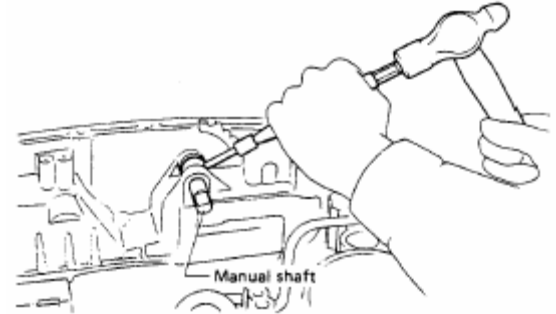
27) Apply compressed air from the operating pressure side, and take out accumulator (3-4), accumulator (1-2), accumulator (2-3), and accumulator (N-D).

28) Remove the range select lever.



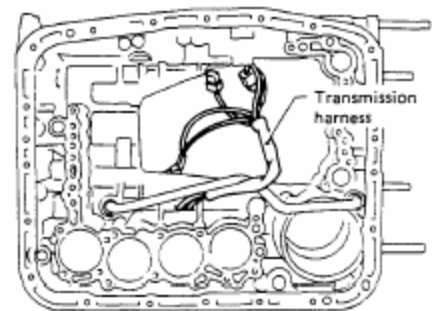
29) Remove the detent spring.

30) Remove the parking rod together with the manual lever. Then remove the manual shaft by pulling off the straight pin. Be careful not to damage the lips of the press-fitted oil seal in the case.



31) Remove the inhibitor switch.

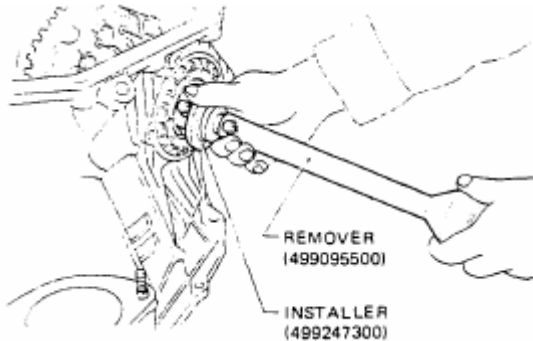
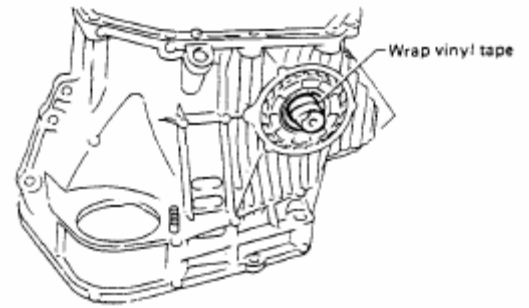
32) Remove the transmission harness. Be careful not to damage the cord insulation.



Converter Case Section

1) Wrap the axle-shaft splines with vinyl tape.

2) Remove the differential side retainer. Hold the differential case assembly by hand to avoid damaging retainer mounting hole of the converter case and speedometer gears.

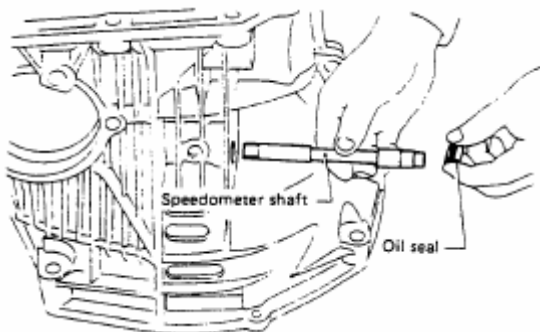
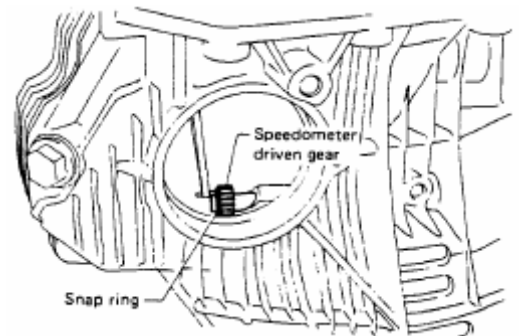


3) Extract the axle shaft. Do not reuse the circlip.

4) Remove the differential case assembly.

- a. Remove the seal pipe if it is attached (discard the seal pipe as a new one should be used).
- b. Be careful not to damage the retainer mounting hole of the converter case and the speedometer gears.

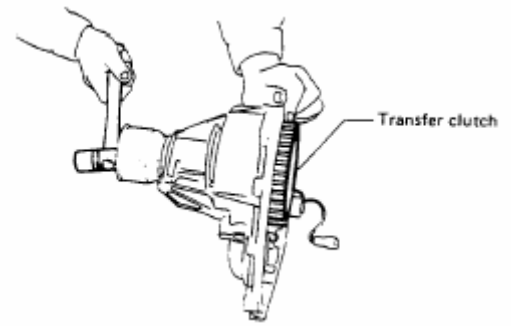
5) Remove the snap ring. Then remove the speedometer driven gear.



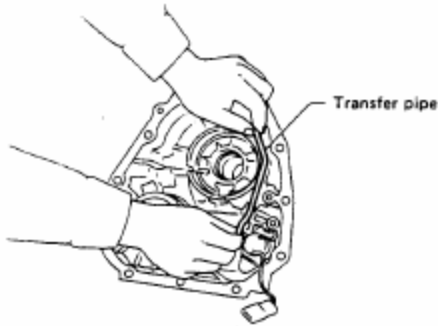
6) Tap out the speedometer shaft to the outside of the case, and remove the oil seal.

Extension Section

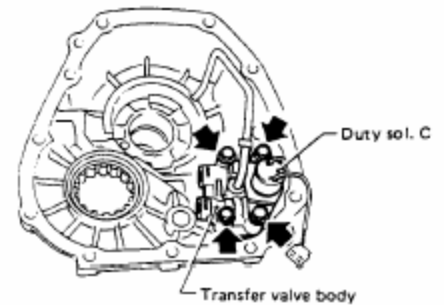
1) Take out the transfer clutch by lightly tapping the end of the rear drive shaft. Be careful not to damage the oil seal in the extension.



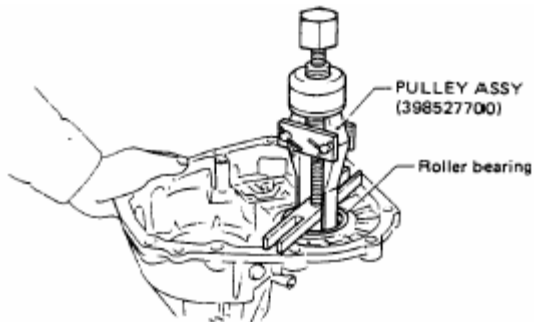
2) Remove the transfer pipe. Be careful not to bend the pipe.



3) Remove duty solenoid C and the transfer valve body.
a. Take out the inlet filter.
b. Do not damage the D-ring.



4) Take out the roller bearing.

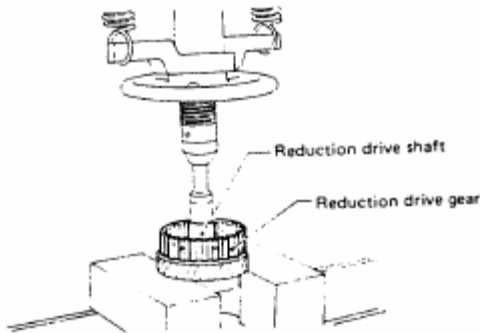
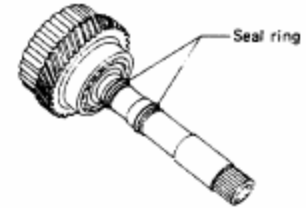


Component Disassembly, Inspection and Reassembly

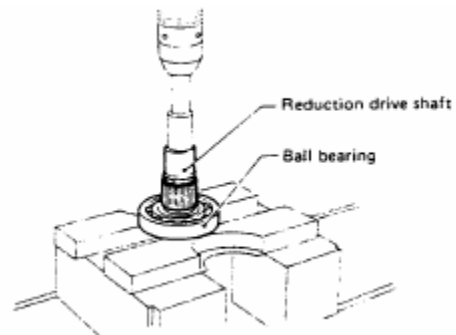
Reduction Drive Gear

DISASSEMBLY

- 1) Take out the seal rings. Be careful not to damage the seal rings.
- 2) Take out the snap ring. Be careful not to damage the splines.



- 3) Using a press, remove the reduction drive gear.



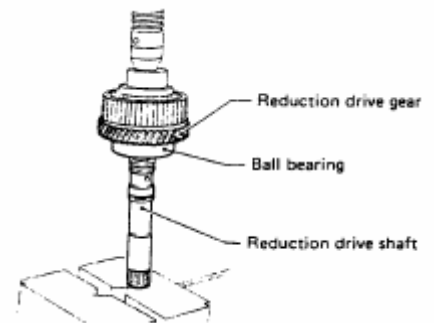
- 4) Using a press, remove the ball bearing.

INSPECTION

Make sure that each component is free of harmful gouges, cuts, and dust.

ASSEMBLY

- 1) Press-fit the ball bearing and reduction drive gear to the shaft.
- 2) AWD: Fit the snap ring securely in the snap ring groove on the shaft.
FWD: Press-fit the ball bearing using a press, then fit the snap ring to the snap ring groove on the shaft.
- 3) Attach two seal rings. To make subsequent assembly easier, apply petroleum jelly to the grooves of the shaft and to the exterior of the seal ring.

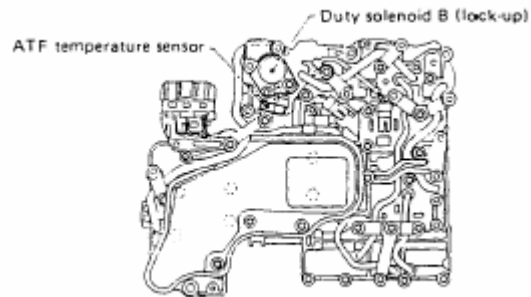
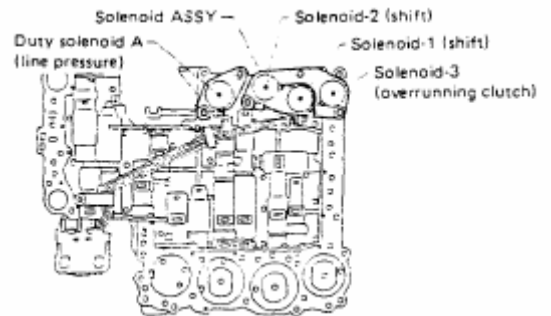


Whenever the reduction drive shaft is being serviced and/or replaced, make sure the orifice plug (21 x 6) is securely in place at the end of the reduction shaft. When replacing the reduction drive shaft, the orifice plug is not included with the shaft. The plug must be ordered separately.

Control Valve Body

DISASSEMBLY

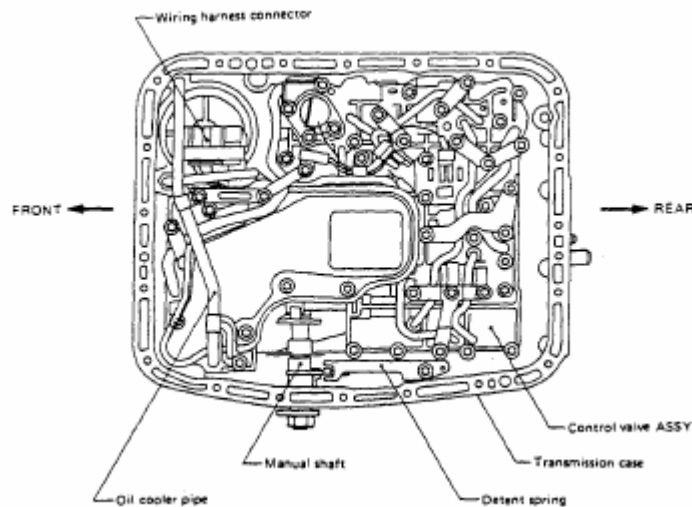
- 1) Remove the following parts from the upper valve body.
 - a. Solenoid assembly (shift 1-2-3)
 - b. Duty solenoid A (line pressure)



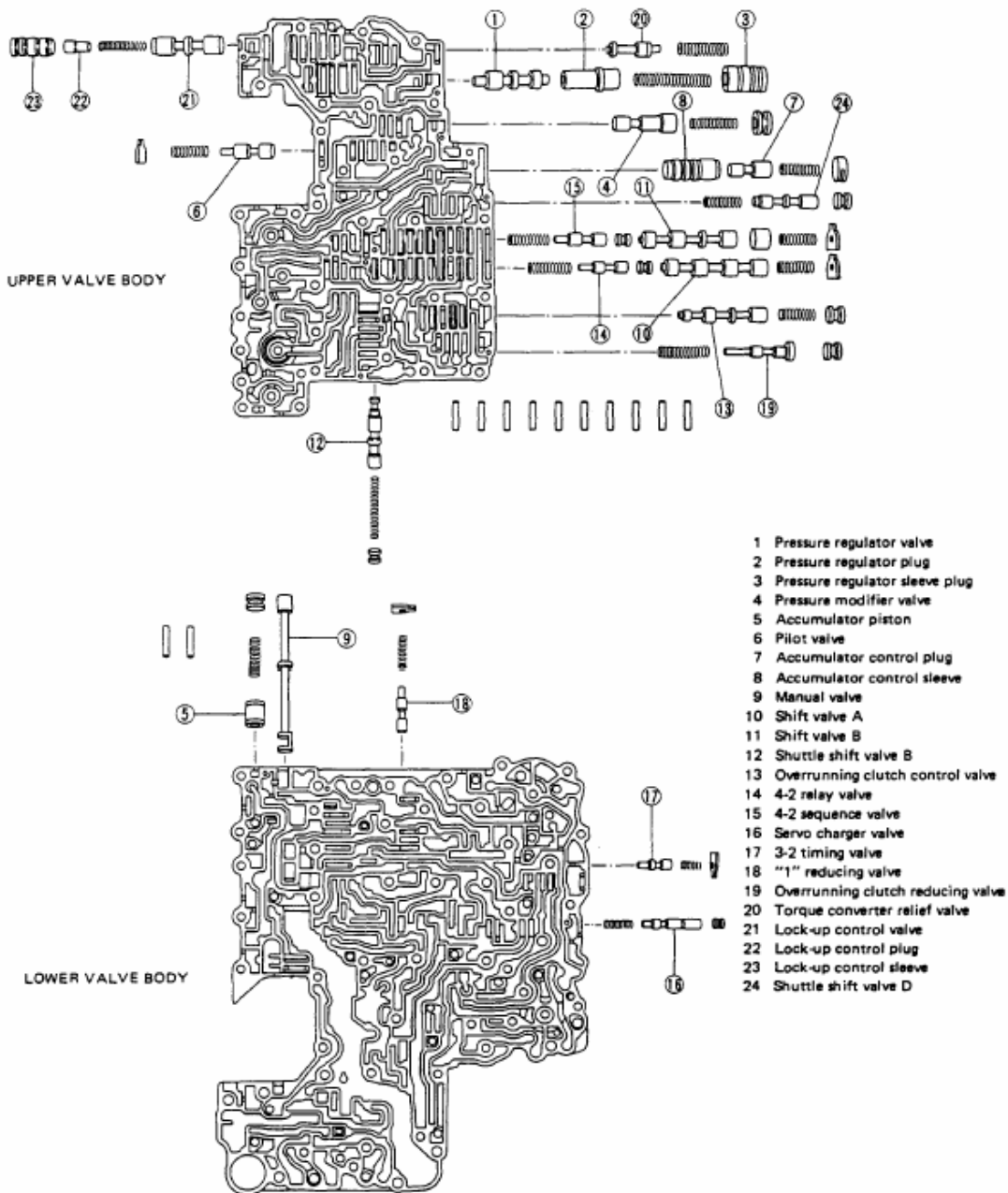
- 2) Remove the following parts from the lower valve body.
 - a. Duty solenoid B (lock-up)
 - b. ATF temperature sensor

- 3) Separate the upper valve body and lower valve body.
 - a. Do not lose the nine (9) steel balls contained in the upper valve body.
 - b. Do not lose an orifice and a strainer contained in the lower valve body.
 - c. Remove the upper-lower valve body tightening bolts. Then remove two reamer bolts.

COMPONENTS ATTACHED TO CONTROL VALVE



CONTROL VALVE

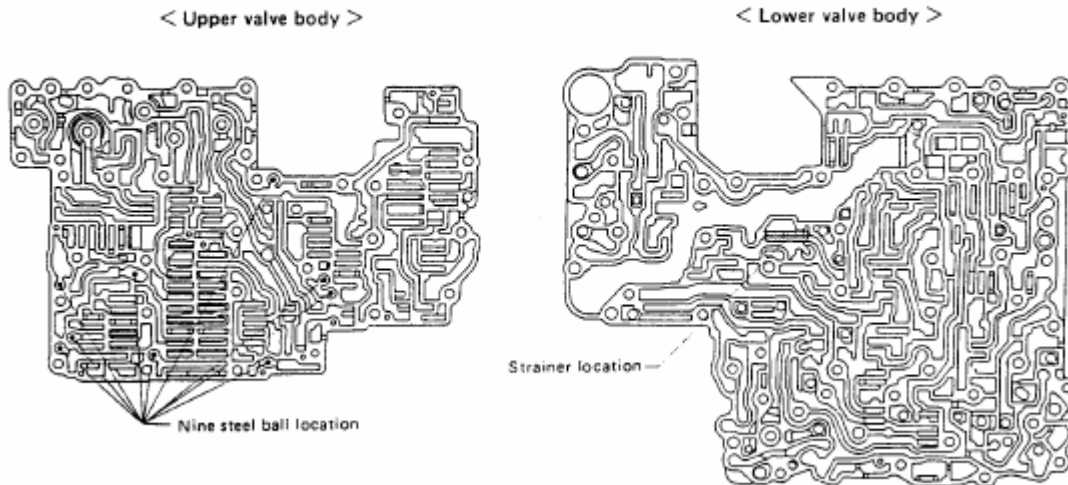


During ordinary servicing, clean the control valve bodies in this condition, without further disassembly. In the event of a seized clutch or other problem, disassemble the control valve bodies further, and clean the component parts.

ASSEMBLY

Reverse the disassembly sequence, paying attention to the following points:

- Be sure to properly position the steel balls, orifice and strainer.

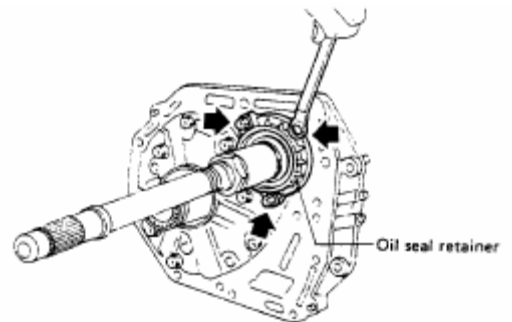
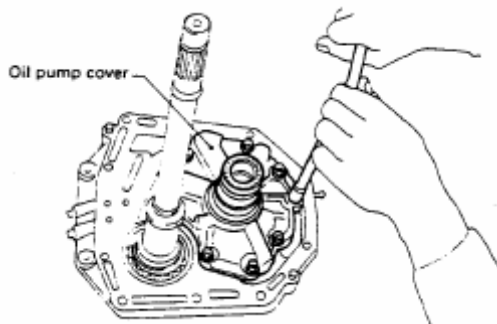


- b. Tighten two reamer bolts. Then tighten the upper-lower valve body tightening bolts.
 Tightening torque: 5.1 - 6.5 ft-lb
 7 - 9 N-m (0.7 - 0.9 kg-m)

Oil Pump

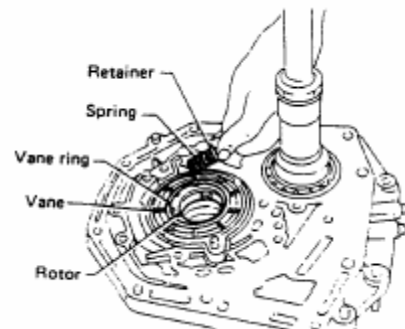
DISASSEMBLY

- 1) Remove the oil seal retainer. Also, remove the O-ring and oil seal (air breather).



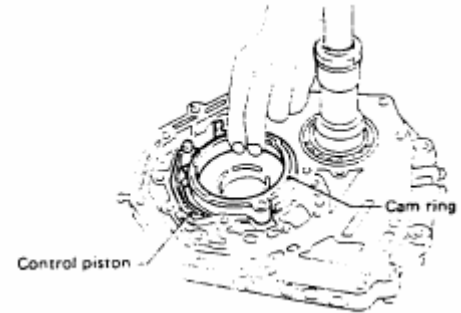
- 2) Remove the oil pump cover. Lightly tap the end of the stator shaft to remove the cover.

- 3) Remove the retainer and return spring. Then remove the rotor, two vane rings and nine vanes.



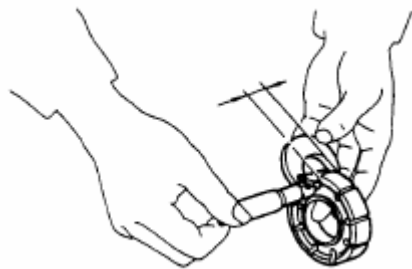
4) Remove the cam ring and control piston. Also, remove the O-ring, friction ring, two side seals, and plain seal.

5) Remove two seal rings (R) and two seal rings (H).



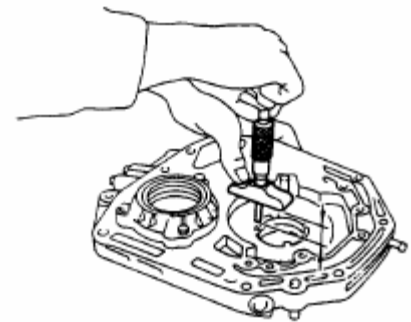
INSPECTION

1) Make sure that each component is free of harmful gouges, cuts, and dust.



2) Selection of oil pump components (rotor, vanes, control piston, and cam ring):

- a. Using a micrometer, measure the height of the rotor, vanes, control piston and cam ring in at least four positions. (Measure the height at one place for each of the nine vanes)
 - a-1. Remove the control piston seals when measuring.
 - a-2. Remove the friction ring from the cam ring when measuring.



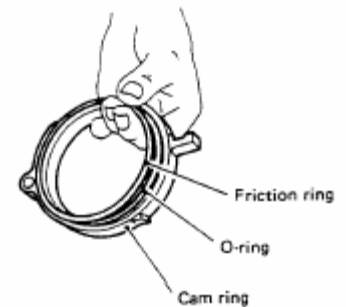
b. Using a depth gauge, measure the depth of the oil pump housing from the contact/sliding surface of the above-mentioned component parts in the same manner as above.

c. Make sure that the clearances are within the specified wear limits. If the wear limit is exceeded, select pump components so that the standard clearance can be obtained. Select vanes that are the same height as the rotor.

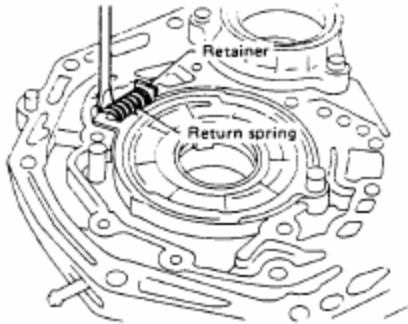
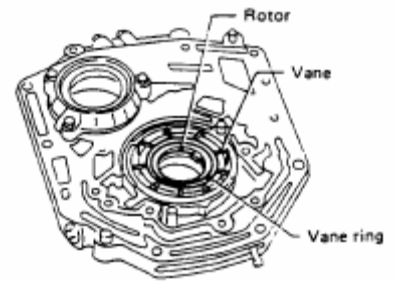
	Wear limit	Standard value
Rotor, control piston, vanes	0.0021in (0.054mm)	0.0012-0.0017in (0.030-0.044mm)
Cam ring	0.0013in (0.034mm)	0.0004-0.0009 in (0.010-0.024mm)

ASSEMBLY

1) Coat both the O-ring and friction ring with petroleum jelly and attach to the cam ring. Then fit them into the oil pump housing.

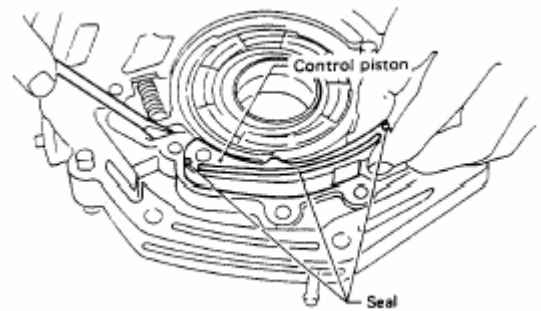


2) Install the vane ring, rotor, vanes, and vane ring into the housing in this sequence.



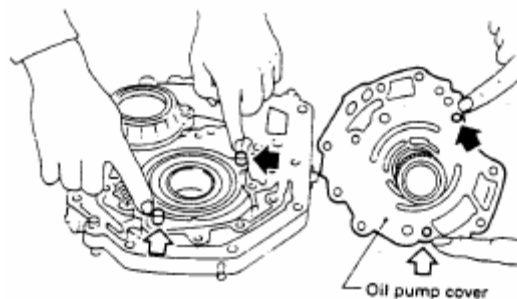
3) Install the return spring and retainer between the housing and cam ring.

4) Install the control piston to the oil pump housing. Fit the seal in the piston groove, with the red seals facing the top side. (Two side seals and one plain seal are attached)



5) Set the rotor at the center of the housing bore. Apply ATF abundantly to each rotary portion.

- 6) Install the oil pump cover. Tightening torque: 18.1 ± 1.4 ft-lb, 25 ± 2 N-m (2.5 ± 0.2 kg-m)
- Align both pivots with the pivot holes of the cover, and install the cover being careful not to apply undue force to the pivots.
 - After assembling, turn the oil pump shaft to check for smooth rotation of the rotor.

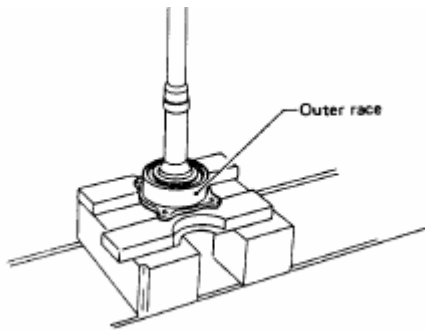


Install the oil seal retainer and seal rings (R) and (H) after adjusting the drive pinion backlash and tooth contact.

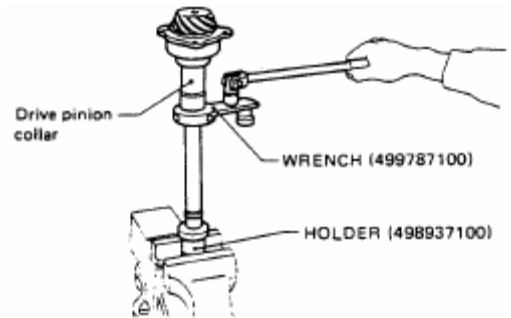
Drive Pinion Shaft

DISASSEMBLY

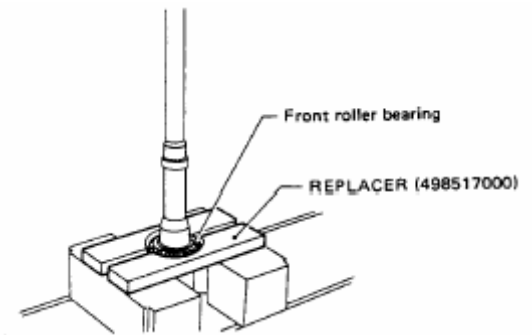
1) Straighten the staked portion of the lock nut, and remove the lock nut while locking the rear spline portion of the shaft. Then pull off the drive pinion collar. Remove the O-ring



2) Using a press, separate the race from the shaft.

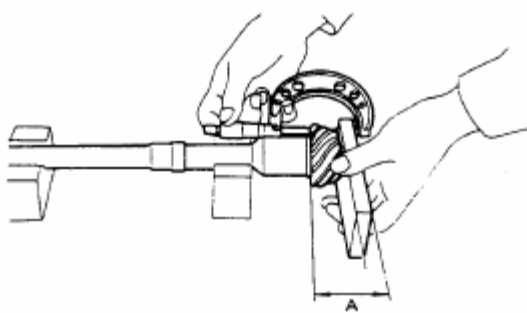


3) Using a press, separate the front roller bearing from the shaft.



INSPECTION

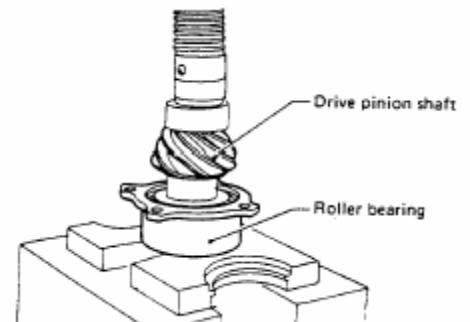
Make sure that all component parts are free of harmful cuts, gouges, and other faults.



ASSEMBLY

1) Measure dimension "A" of the drive pinion shaft.

2) Using a press, force-fit the roller bearing in position. Do not change the relative positions of the outer race and bearing cone.



3) After fitting the O-ring to the shaft, attach the drive pinion collar to the shaft. Be careful not to damage the O-ring.

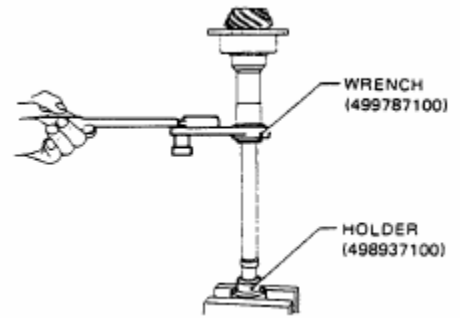
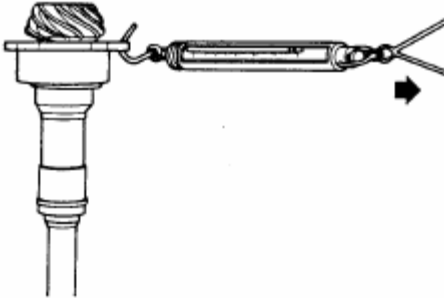
4) Tighten the lock washer and lock nut.

Tightening torque: 83.2 ± 3.6 ft-lb

113 ± 5 N-m (11.5 ± 0.5 kg-m)

a. Pay attention to the orientation of lock washer.

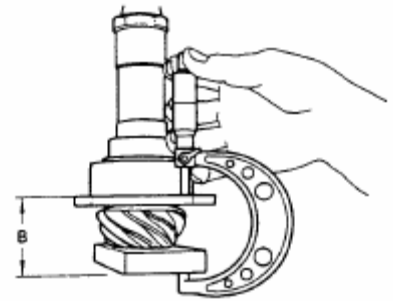
b. When using "900 QL", tighten it to 65 ft-lb, 88 N-m (9 kg-m).



5) Measure the starting torque of the bearing. Make sure the starting torque is within the specified range. If out of the allowable range, replace the roller bearing.
Starting torque: 2.6 - 16.4 inch-lb,
0.3 - 2.0 N-m (3 - 20 kg-cm)

6) Stake the lock nut securely at two places.

7) Measure dimension "B" of the drive pinion shaft.

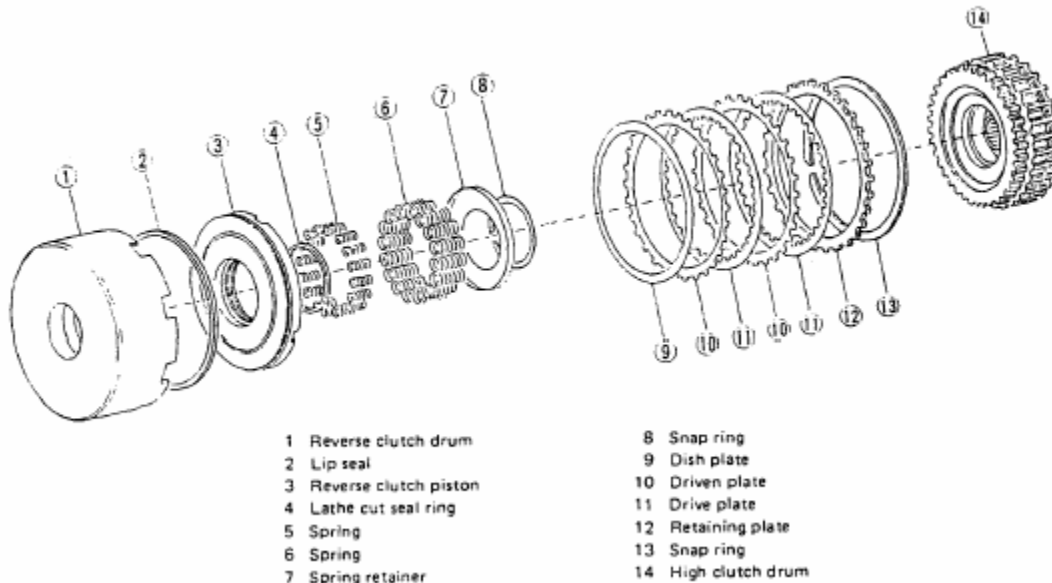


8) Determine the thickness t (mm) of the drive pinion shim. The number of shims must be three or less.
 $t=6.5-0.0125-(B-A)$

Reverse Clutch

DISASSEMBLY

1) Remove the snap ring, and take out the retaining plate, drive plates, driven plates, and dish plate.



2) Using the COMPRESSOR (398673600), INSTALLER (398177700) and PLIERS (399893600), remove the snap ring and take out the spring retainer and springs.

3) Take out the piston by applying compressed air.

INSPECTION

- 1) Drive plate facing for wear and damage
- 2) Snap ring for wear, return spring for breakage or setting, and spring retainer for deformation
- 3) Lip seal and lathe cut seal ring for damage
- 4) Piston check ball for operation

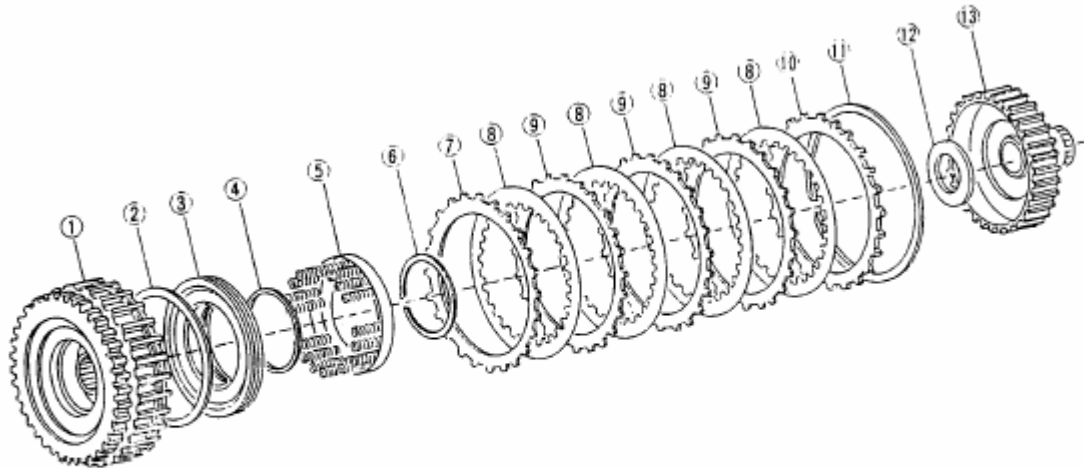
ASSEMBLY

- 1) Using the same special tools as those used in disassembling, assemble piston the return springs, spring retainer and snap ring.
- 2) Assemble the dish plate, driven plates, drive plates and retaining plate in that order and attach the snap ring.
- 3) Checking operation: Apply compressed air intermittently to the oil hole, and check the reverse clutch for smooth operation.
- 4) Measuring clearance (Retaining plate selection).
Standard value: 0.020 - 0.031 in (0.5 - 0.8 mm) Allowable limit: 0.047 in (1.2 mm)

High Clutch

DISASSEMBLY

- 1) Remove the snap ring, and take out the retaining plate, drive plates, and driven plates.



- | | |
|--------------------------|--------------------------|
| 1 High clutch drum | 8 Drive plate |
| 2 Lathe cut seal ring | 9 Driven plate (Thicker) |
| 3 High clutch piston | 10 Retaining plate |
| 4 Lathe cut seal ring | 11 Snap ring |
| 5 Spring retainer CP. | 12 Thrust needle bearing |
| 6 Snap ring | 13 High clutch hub |
| 7 Driven plate (Thinner) | |

- 2) Using the COMPRESSOR (398673600), INSTALLER (398177700), and PLIERS (399893600), remove the snap ring and take out the spring retainer CP.
- 3) Apply compressed air to the clutch drum to remove the piston.

INSPECTION

- 1) Drive plate facing for wear and damage
- 2) Snap ring for wear, return spring for setting and breakage, and spring retainer for deformation
- 3) Lathe cut rings (large) (small) for damage
- 4) Piston check ball for smooth operation

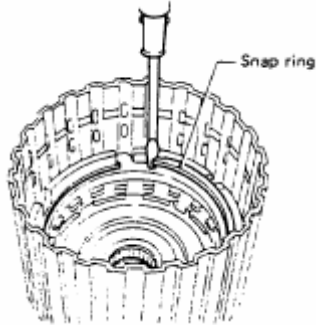
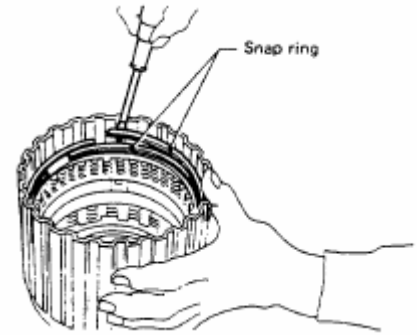
ASSEMBLY

- 1) Using the same special tools as those used in disassembling, assemble the piston, spring retainer CP, and snap ring.
- 2) Install the driven plate (thin), drive plates, driven plates, and retaining plate in that order. Then attach the snap ring.
- 3) Checking operation: Apply compressed air intermittently to the oil hole, and check the high clutch for smooth operation.
- 4) Measuring clearance (Retaining plate selection).
Standard value: 0.071 - 0.087 in (1.8 - 2.2 mm) Allowable limit: 0.102 in (2.6 mm)

Forward Clutch Drum

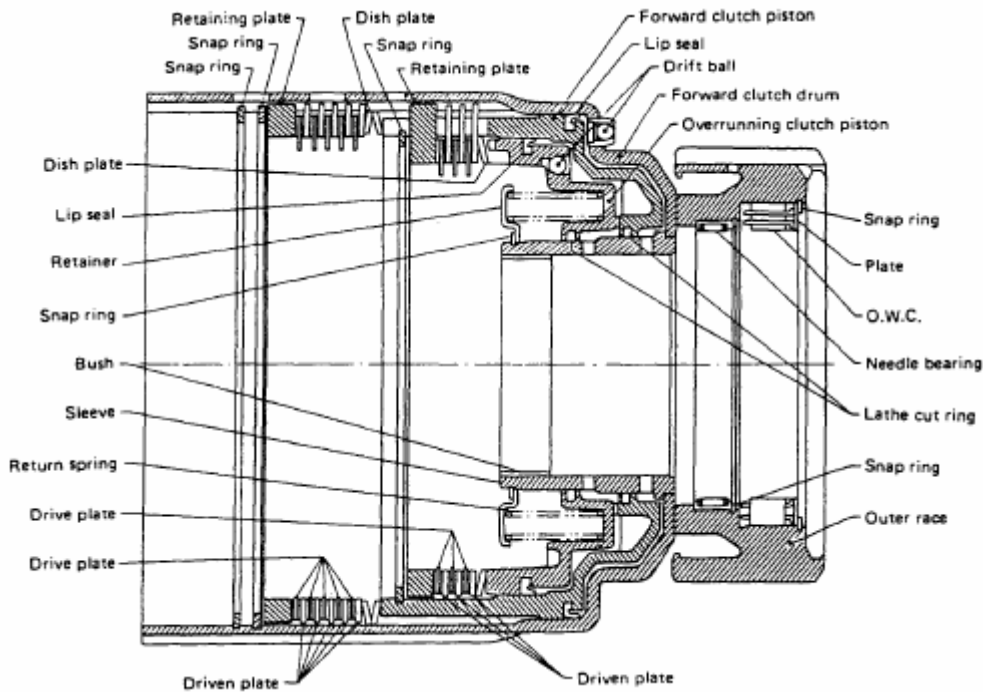
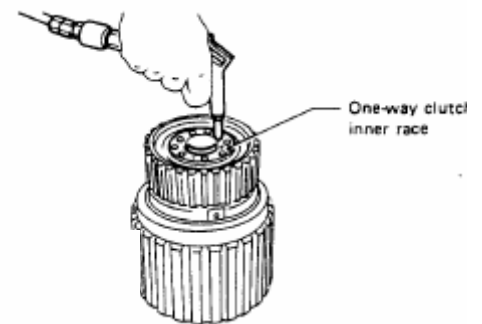
DISASSEMBLY

- 1) Remove two snap rings from the forward clutch drum.
- 2) Remove the retaining plate, drive plates, driven plates and dish plates. (Forward clutch)



- 3) Remove the snap ring from the forward clutch drum.
- 4) Remove the retaining plate, drive plates, driven plates and dish plate. (Overrunning clutch)
- 5) Compress the spring retainer, and remove the snap ring from the forward clutch, by using SEAT (498627100), COMPRESSOR (398673600) and SEAT (498627000).

- 6) Install the one-way clutch inner race to the forward clutch drum, and apply compressed air to remove the overrunning piston and forward piston.
- 7) Remove the one-way clutch after taking out the snap ring.
- 8) Remove the needle bearing after taking out the snap ring.

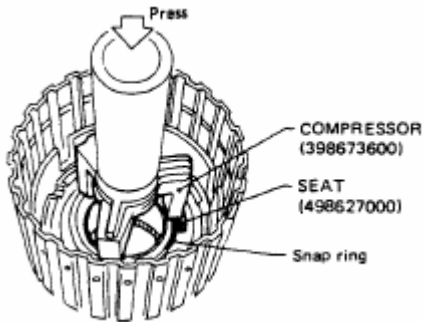
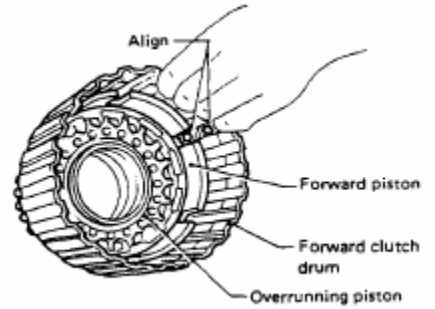


INSPECTION

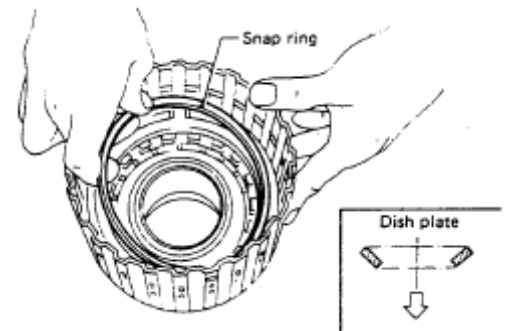
- 1) Drive plate facing for wear and damage
- 2) Snap ring for wear, return spring for setting and breakage, and snap ring retainer for deformation
- 3) Lip seal and lathe cut ring for damage
- 4) Piston and drum check ball for operation

ASSEMBLY

1) Fit the forward piston and overrunning piston to the forward clutch drum. Align the forward piston cutout portion with the spline of the drum.



2) Set the springs and retainer on the piston with a press and attach the snap ring.



3) Install the dish plate, driven plates, drive plates, and retaining plate, and secure with the snap ring. (Overrunning clutch) Pay attention to the orientation of the dish plate.

4) Install the dish plates, driven plates, drive plates, and retaining plate, and secure with the snap ring. (Forward clutch) Pay attention to the orientation of the dish plate.

5) Install the snap ring (for front planetary carrier).

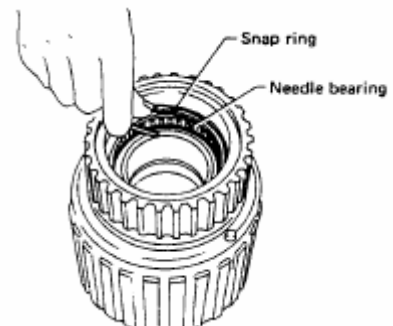
6) Check the forward clutch and overrunning clutch for operation. Set the one-way clutch inner race, and apply compressed air for checking.

7) Checking clearance: If the clearance is out of the specified range, select a proper retaining plate so that the standard clearance can be obtained.

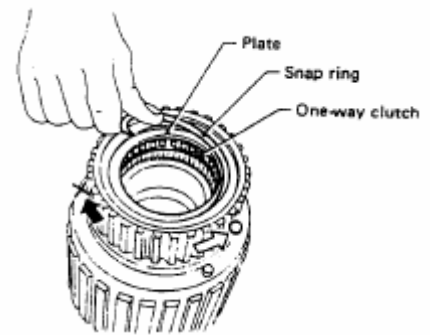


	Standard value in (mm)	Allowable limit In (mm)
Forward clutch	0.45-0.85 (0.0177-0.0335)	0.063 (1.6)
Overrunning clutch	0.039-0.055 (1.0-1.4)	0.079 (2.0)

8) Install the needle bearing, and secure with the snap ring.



9) Install the one-way clutch (1-2) and plate, and secure with the snap ring. Set the inner race. Make sure that the forward clutch is free in the clockwise direction and locked in the counterclockwise direction, as viewed from the front of the vehicle.



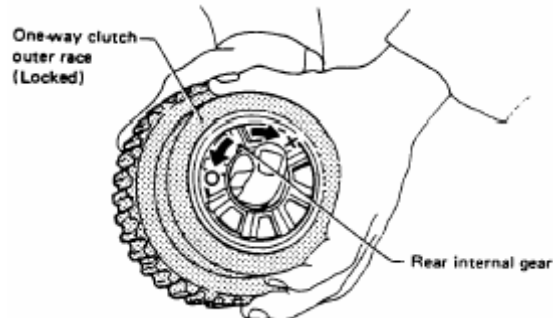
One-Way Clutch Outer Race

DISASSEMBLY

Remove the snap ring. Then remove the one-way clutch (3-4).

INSPECTION

Check the sliding surface and one-way clutch (3-4) for any harmful cuts, damage, or other faults.



ASSEMBLY

Assemble the one-way clutch (3-4), and secure with the snap ring. Pay attention to the orientation of the one-way clutch (3-4). Confirm: Assemble the rear internal gear, and secure the outer race. Make sure that the internal gear is locked in the clockwise direction, and free to rotate in the counterclockwise direction.

Servo Piston

DISASSEMBLY

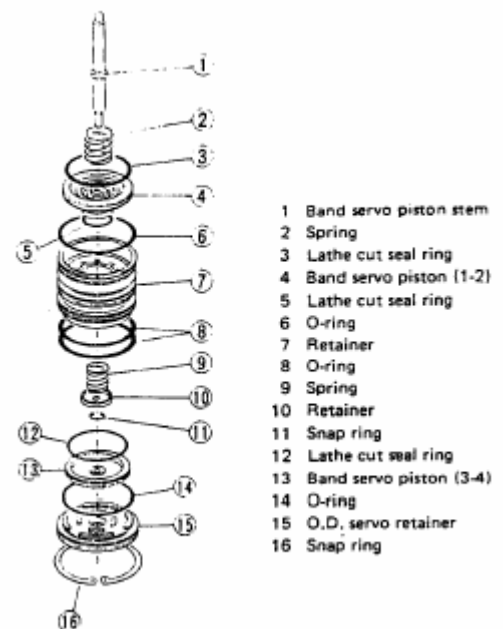
- 1) Remove the spring.
- 2) Remove the band servo piston (3-4).
- 3) While compressing the retainer from above, remove the snap ring. Then remove the retainer, spring and stem.
- 4) Take out the band servo piston (1-2).

INSPECTION

- 1) Check each component for harmful cuts, damage, or other faults.
- 2) Check the O-ring and lathe cut ring for damage.

ASSEMBLY

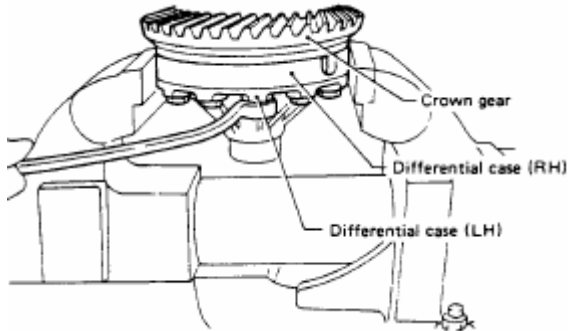
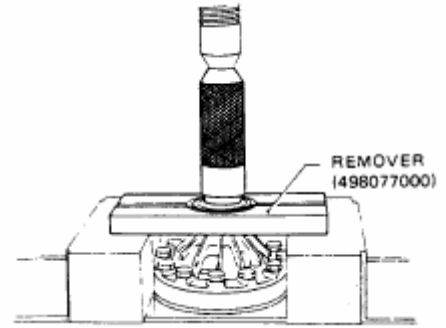
- 1) Install the band servo piston (1-2) to the retainer, and insert the stem.
- 2) Put the spring and retainer on the piston. Fit the snap ring securely while compressing the spring.
- 3) Install the band servo piston (3-4).
- 4) Install the spring securely to the band servo piston (1-2).
 - a. Many different O-rings and lathe cut rings are used. Be careful not to confuse them when installing.
 - b. Be careful not to damage O-rings and lathe cut rings.



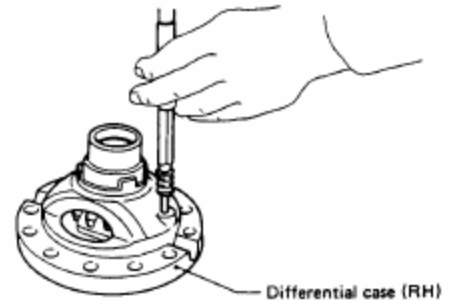
Differential Case

DISASSEMBLY

1) Using a press, remove the taper roller bearing. Be careful not to damage the speedometer drive gear.



2) Secure the case in a vise and remove the crown gear tightening bolts, and then separate the crown gear, case (RH) and case (LH).



3) Pull out the straight pin and shaft, and remove the differential bevel gear, washer, and differential bevel pinion.

INSPECTION

Check each component for harmful cuts, damage, and other faults.

ASSEMBLY

1) Install the washer, differential bevel gear, and differential bevel pinion in the differential case (RH). Insert the pinion shaft, and fit the straight pin. Make sure that the case (RH) is staked in order to lock the straight pin.

2) Install the washer and differential bevel gear to the differential case (LH). Then put the case over the differential case (RH), and connect both cases.

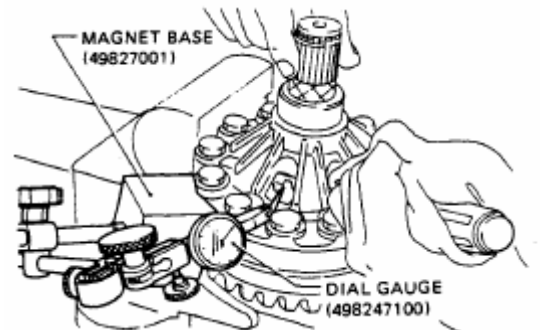
3) Install the crown gear and secure by tightening the bolt.

Standard tightening torque:

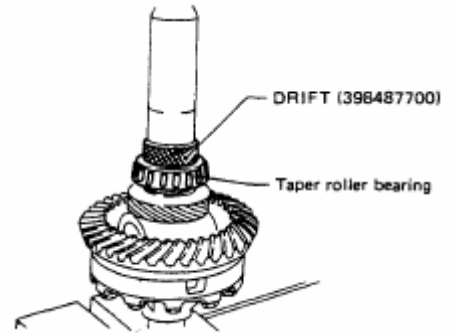
42 - 49 ft-lb, 57 - 67 N-m (5.8 - 6.8 kg-m)

4) Measurement of backlash (Selection of washer). Measure the gear backlash by inserting a dial gauge through the access window of the case. Measure the backlash by applying a pinion tooth between two bevel gear teeth.

Standard value: 0.0051 - 0.0071 in (0.13 - 0.18 mm)



5) Install the speedometer drive gear. Then force-fit the taper roller bearing with a press. Be sure to position correctly the locking end of the speedometer drive gear.



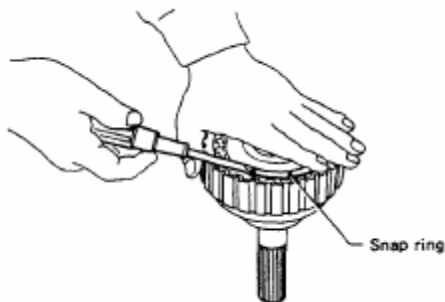
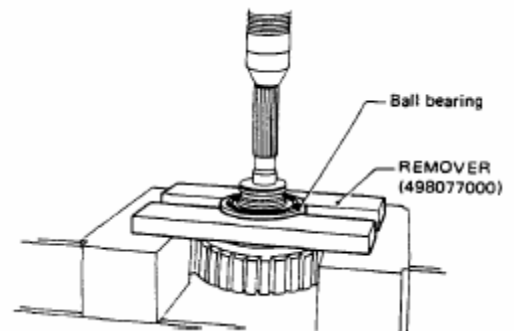
Transfer Clutch



DISASSEMBLY

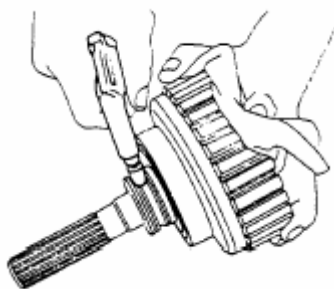
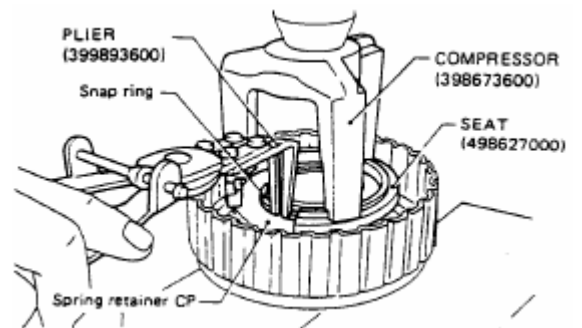
1) Remove the seal ring. Be careful not to damage the seal ring.

2) Using a press, remove the ball bearing. Do not reuse the bearing.



3) Remove the snap ring, and take out the pressure plate, drive plates, and driven plates.

4) Remove the snap ring, and take out the spring retainer CP.



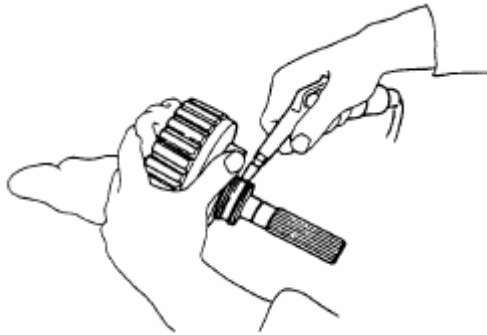
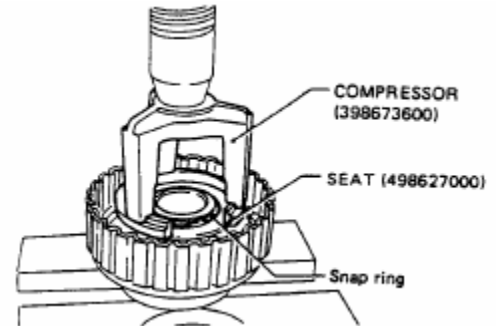
5) Apply compressed air to the rear drive shaft to remove the piston.

INSPECTION

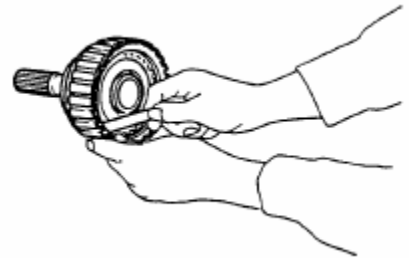
- 1) Check the drive plate facing for wear and damage.
- 2) Check the snap ring for wear, return spring for permanent set and breakage, and spring retainer for deformation.
- 3) Check the lathe cut ring for damage.

ASSEMBLY

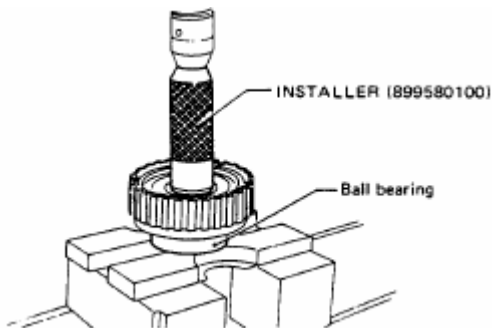
- 1) Install the lathe cut seal ring to the ID/OD of the transfer clutch piston.
- 2) Install the piston and spring retainer, and secure with a snap ring.
- 3) Install the driven plates, drive plates, and pressure plate, and secure with a snap ring.



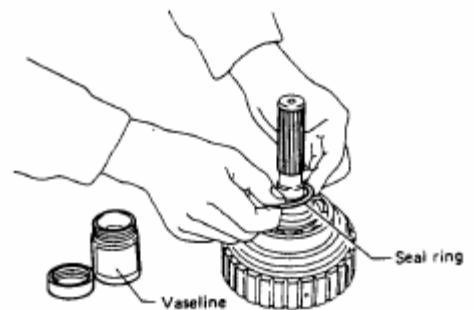
- 4) Apply compressed air to see if the assembled parts move smoothly.



- 5) Check the clearance: If the clearance is not within the specified range, select a proper pressure plate.
Standard value:
0.008 - 0.035 in (0.2 - 0.9 mm)
Allowable limit: 0.063 in (1.6 mm)



- 6) Press-fit the ball bearing.



- 7) Coat the seal ring with petroleum jelly, and install it in the seal ring groove of the shaft. Do not expand the seal ring excessively when installing.

Transfer Valve Body

DISASSEMBLY

- 1) Remove the plate. Then remove the spring and pilot valve together.
- 2) Remove the straight pin and pry out the plug with a screwdriver. Then extract the spring and transfer clutch valve together. Be careful not to damage the valve and valve body.

INSPECTION

Check each component for harmful cuts, damage, or other faults.

ASSEMBLY

To assemble, reverse the removal sequence. Make sure the valve slides smoothly after assembling.

