

COMPONENT PARTS

AT06S-01

PRECAUTION

GENERAL NOTES:

The automatic transmission is composed of highly precision-finished parts, necessitating careful inspection before reassembly because even a small nick could cause fluid leakage or affect performance. The instructions here are organized so that you work on only one component group at a time. This will help avoid confusion from similar-looking parts of different sub-assemblies being on your workbench at the same time. The component groups are inspected and repaired from the converter housing side. As much as possible, complete the inspection, repair and reassembly before proceeding to the next component group. If a defect is found in a certain component group during reassembly, inspect and repair this group immediately. If a component group cannot be assembled because parts are being ordered, be sure to keep all parts of that group in a separate container while proceeding with disassembly, inspection, repair and reassembly of other component groups.

AT

Recommended ATF: Type T-IV or equivalent

GENERAL CLEANING NOTES:

- (a) All disassembled parts should be washed clean and any fluid passages and holes should be blown through with compressed air.
- (b) Dry all parts with compressed air—never use shop rags.
- (c) When using compressed air, always aim away from yourself to prevent accidentally spraying automatic transmission fluid or kerosene on your face.
- (d) The recommended automatic transmission fluid or kerosene should be used for cleaning.

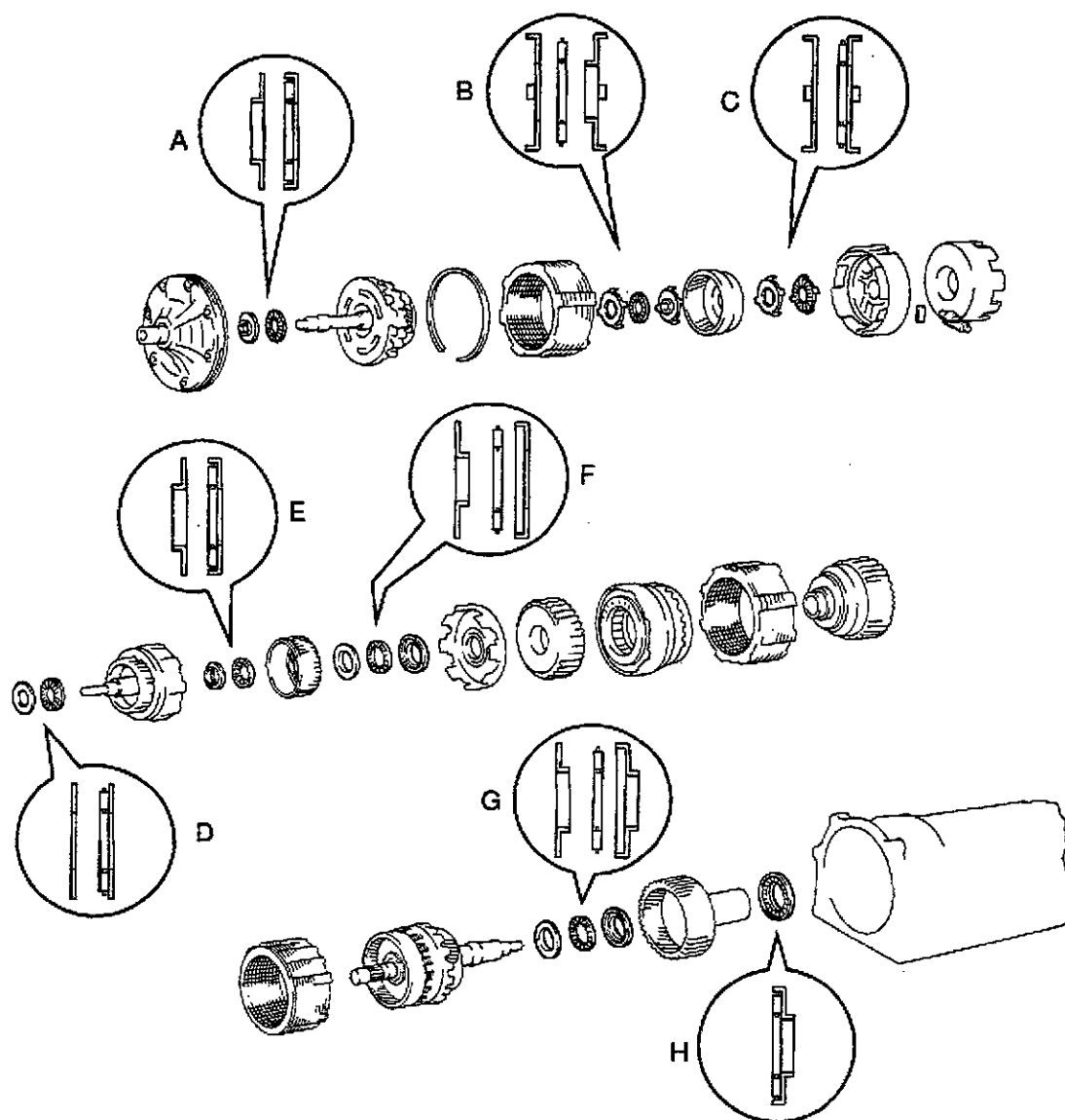
PARTS ARRANGEMENT:

- (a) After cleaning, the parts should be arranged in the correct order to allow efficient inspection, repairs, and reassembly.
- (b) When disassembling a valve body, be sure to keep each valve together with the corresponding spring.
- (c) New discs for the brakes and clutches that are to be used for replacement must be soaked in transmission fluid for at least 15 minutes before reassembly.

GENERAL REASSEMBLY:

- (a) All oil seal rings, clutch discs, clutch plates, rotating parts, and sliding surfaces should be coated with transmission fluid prior to reassembly.
- (b) All gaskets and rubber O-rings should be replaced.
- (c) Do not use adhesive cements on gaskets and similar parts.
- (d) Make sure that the ends of a snap ring are not aligned with one of the cutouts and are installed in the groove correctly.
- (e) If a worn bushing is to be replaced, the subassembly containing that bushing must also be replaced.
- (f) Check thrust bearings and races for wear or damage. Replace if necessary.
- (g) Use petroleum jelly to keep parts in place.
- (h) When working with FIPG material, you must observe the following.
 - Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.
 - Thoroughly clean all components to remove all the loose material.
 - Clean both sealing surfaces with a non-residue solvent.
 - Parts must be reassembled within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.

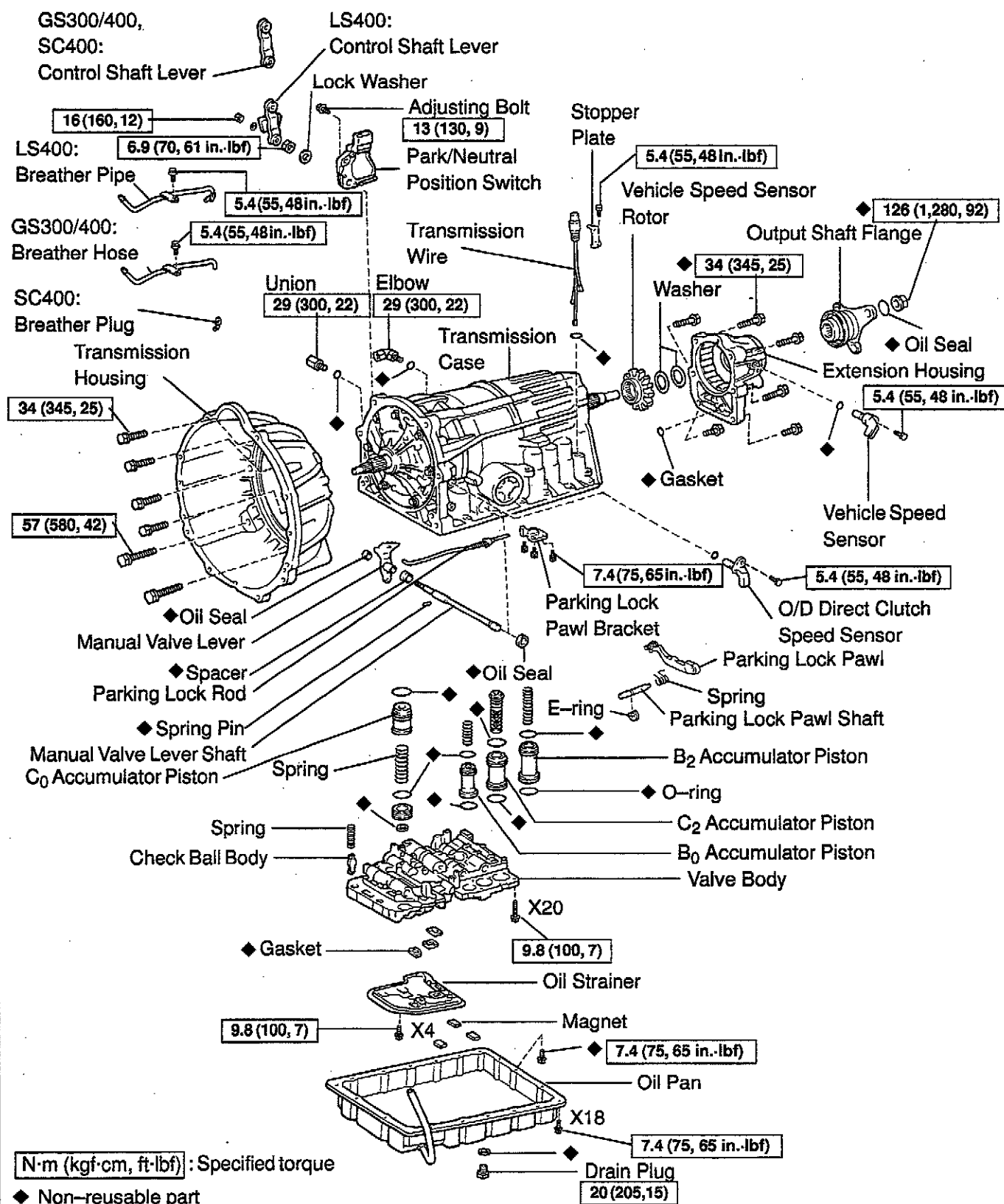
BEARING AND RACES INSTALLATION POSITION AND DIRECTION



D01470

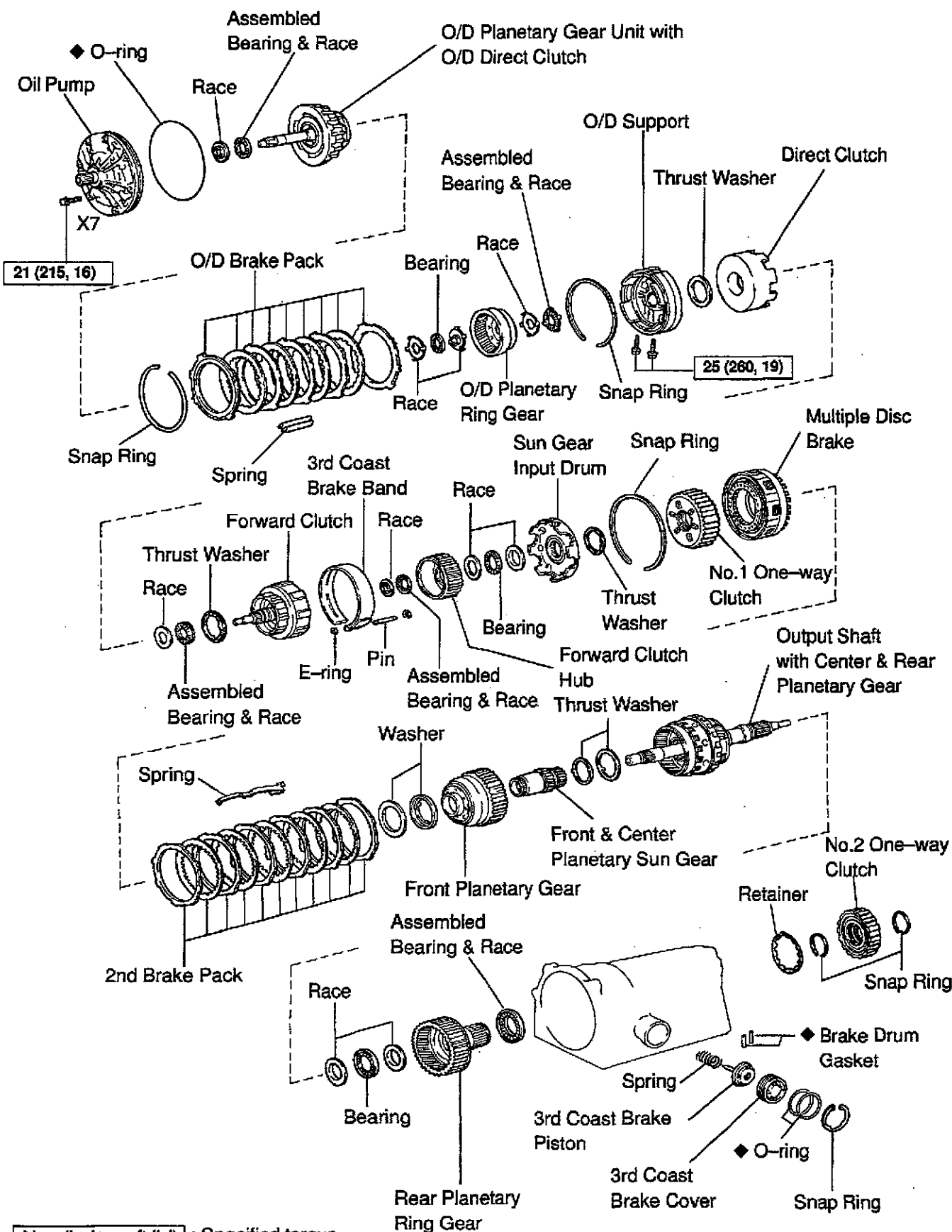
Mark	Front Race Diameter Inside / Outside mm (in.)	Thrust Bearing Diameter Inside / Outside mm (in.)	Rear Race Diameter Inside / Outside mm (in.)
A	28.1 (1.106) / 47.5 (1.870)	28.8 (1.134) / 50.4 (1.984)	—
B	27.2 (1.070) / 42.0 (1.654)	25.9 (1.020) / 47.0 (1.850)	24.0 (0.945) / 48.0 (1.890)
C	37.1 (1.461) / 59.0 (2.323)	33.6 (1.323) / 50.3 (1.980)	—
D	37.0 (1.457) / 51.0 (2.008)	33.5 (1.319) / 47.8 (1.882)	—
E	26.2 (1.031) / 41.1 (1.618)	26.3 (1.035) / 44.0 (1.732)	—
F	32.5 (1.280) / 59.0 (2.323)	43.5 (1.712) / 59.8 (2.354)	43.5 (1.712) / 61.5 (2.421)
G	39.2 (1.543) / 56.8 (2.236)	40.7 (1.602) / 57.0 (2.244)	41.2 (1.620) / 59.8 (2.354)
H	—	52.9 (2.083) / 70.6 (2.780)	—

COMPONENTS



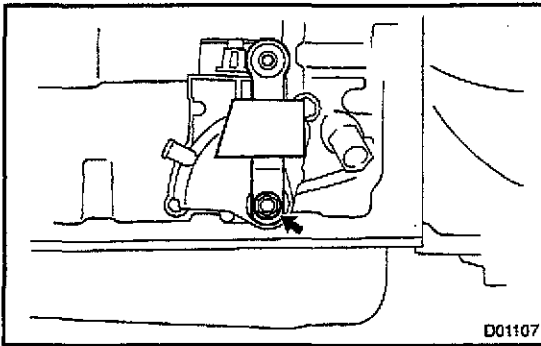
AT

AT



N·m (kgf·cm, ft·lbf) : Specified torque

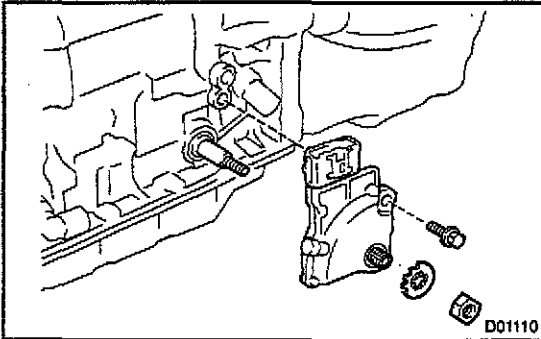
◆ Non-reusable part



DISASSEMBLY

1. REMOVE CONTROL SHAFT LEVER

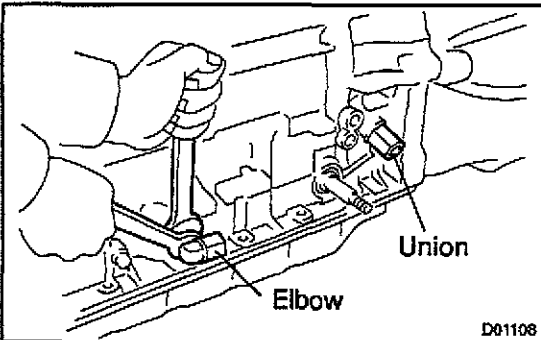
Remove the nut, washer and control shaft lever.



2. REMOVE PARK/NEUTRAL POSITION SWITCH

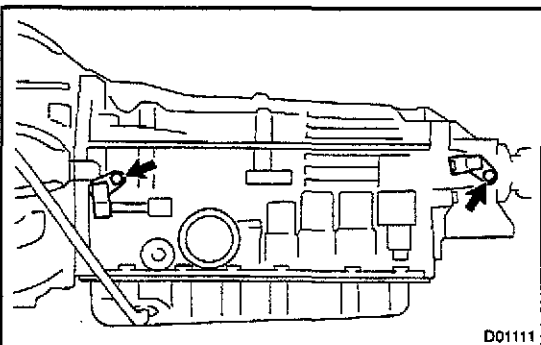
- (a) Using a screwdriver, unstake the lock washer.
- (b) Remove the lock washer, nut and bolt.
- (c) Remove the park/neutral position switch.

AT



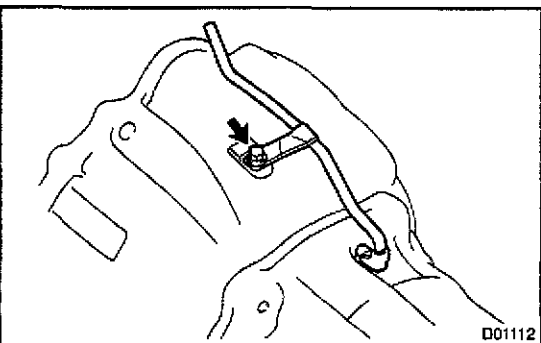
3. REMOVE UNION AND ELBOW

- (a) Remove the union and elbow.
- (b) Remove the 2 O-rings from the union and elbow.



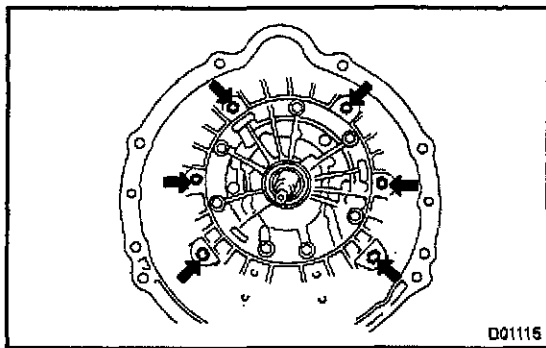
4. REMOVE SPEED SENSOR

- (a) Remove the 2 bolts and 2 speed sensors.
- (b) Remove the O-ring from each one.



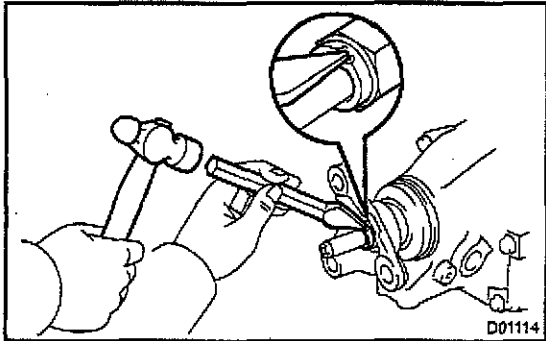
5. REMOVE TRANSMISSION HOUSING

- (a) LS400: Remove the bolt and the breather pipe.
- (b) GS300/400: Remove the bolt and breather hose.
- (c) SC400: Remove the breather plug.



- (d) Remove the 6 bolts.
- (e) Remove the transmission housing.

AT

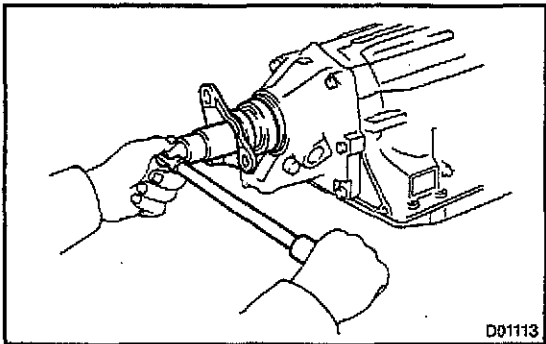


6. REMOVE TRANSMISSION OUTPUT FLANGE

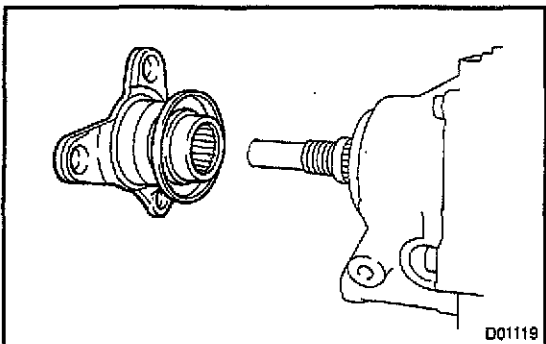
- (a) Using a hammer and chisel, loosen the staked part of the nut.

HINT:

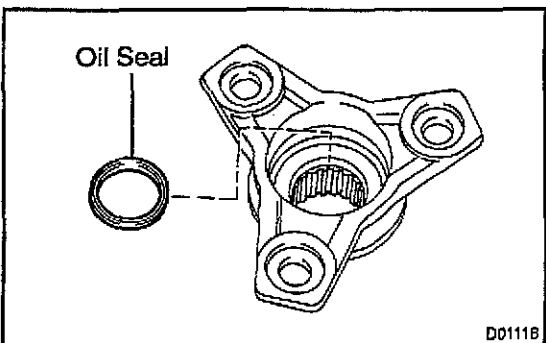
Shift the manual valve lever to the P position.



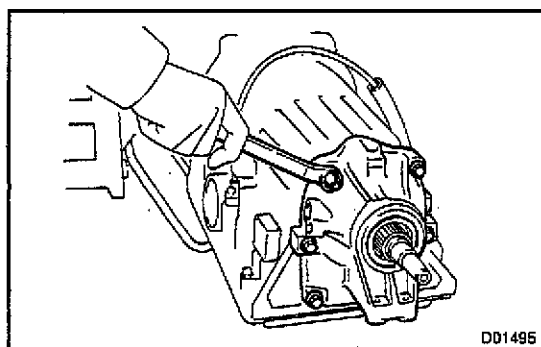
- (b) Using a deeper socket wrench of 30 mm, remove the nut.



- (c) Remove the output flange.



- (d) Remove the oil seal from the output flange.



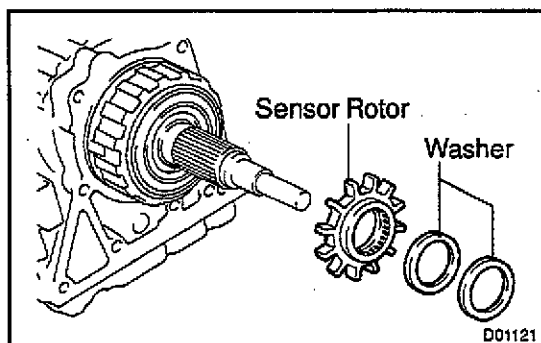
7. REMOVE EXTENSION HOUSING

- (a) Remove the 6 bolts.
- (b) Remove the extension housing.

HINT:

Using a brass bar and hammer.

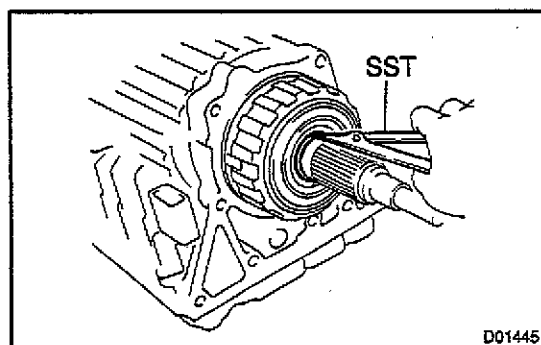
- (c) Remove the gasket from the extension housing.



8. REMOVE VEHICLE SPEED SENSOR ROTOR

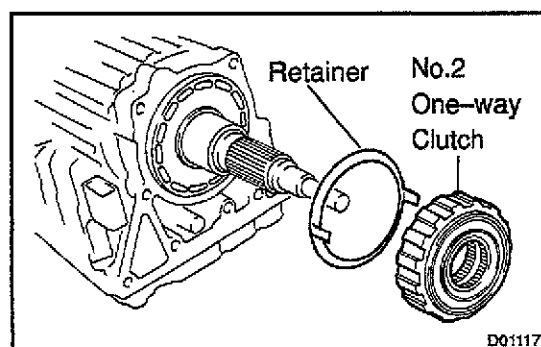
Remove the 2 washers and vehicle speed sensor rotor from the output shaft.

AT

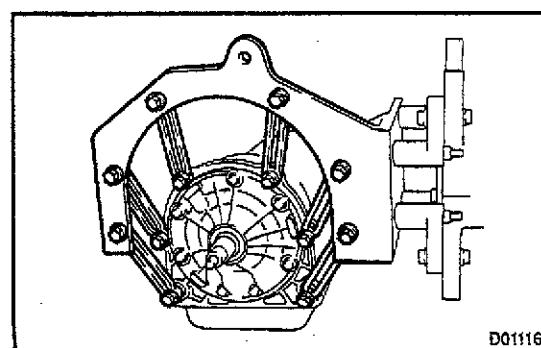


9. REMOVE ONE-WAY CLUTCH

- (a) Using SST, remove the snap ring.
SST 09350-30020 (09350-07070)



- (b) Remove the No.2 one-way clutch and the retainer.



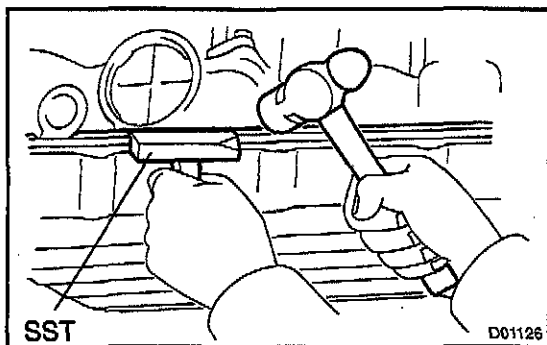
10. INSTALL TRANSMISSION CASE ON OVERHAUL ATTACHMENT

11. REMOVE OIL PAN

NOTICE:

Do not turn the transmission over as this will contaminate the valve body with any foreign matter at the bottom of the pan.

- (a) Remove the 19 bolts.



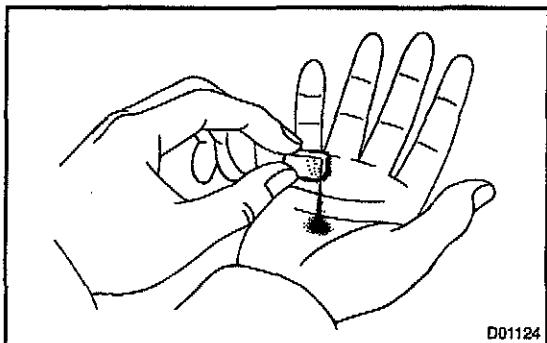
- (b) Insert the blade of SST between the transmission case and oil pan, cut off applied sealer.

SST 09032-00100

NOTICE:

Be careful not to damage the oil pan flange.

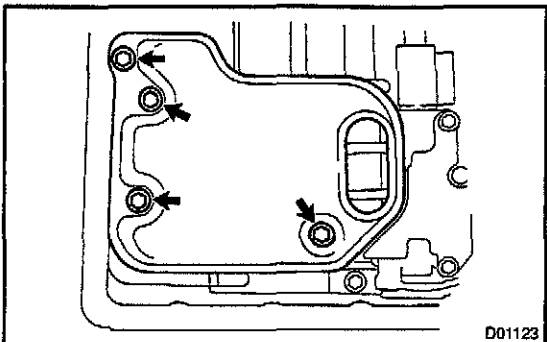
AT



12. EXAMINE PARTICLES IN PAN

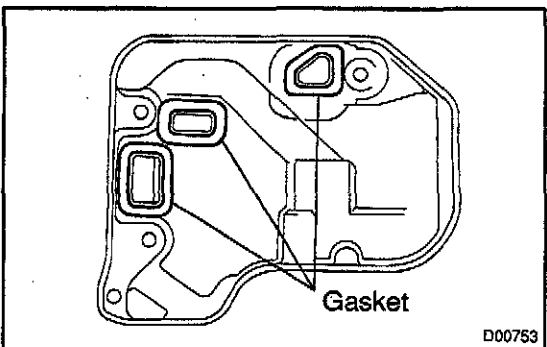
Remove the magnets and use them to collect steel particles. Carefully look at the foreign matter and particles in the pan and on the magnets to anticipate the type of wear you will find in the transmission.

- Steel (magnetic): bearing, gear and clutch plate wear
- Brass (non-magnetic): bushing wear

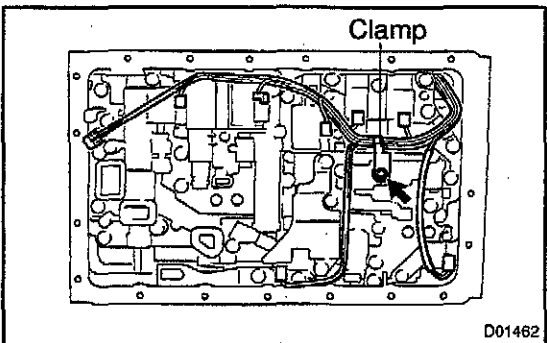


13. REMOVE OIL STRAINER

- (a) Turn over the transmission.
- (b) Remove the 4 bolts holding the oil strainer to the valve body.

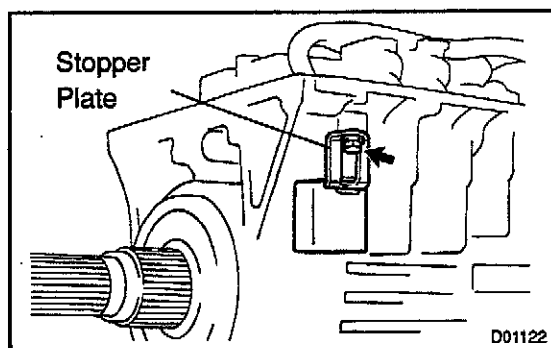


- (c) Remove the 3 gaskets from the oil strainer.

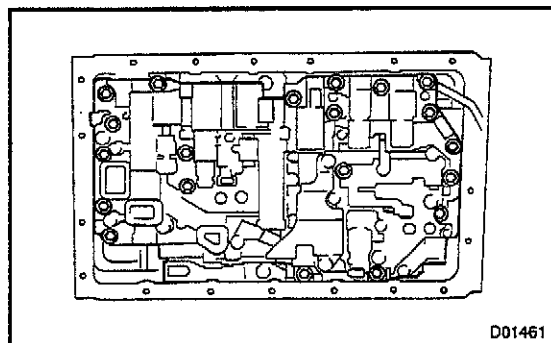


14. REMOVE TRANSMISSION WIRE

- (a) Remove the ATF temperature sensor.
- (b) Remove the bolt and clamp.
- (c) Disconnect the 7 connectors from the shift solenoid valves.

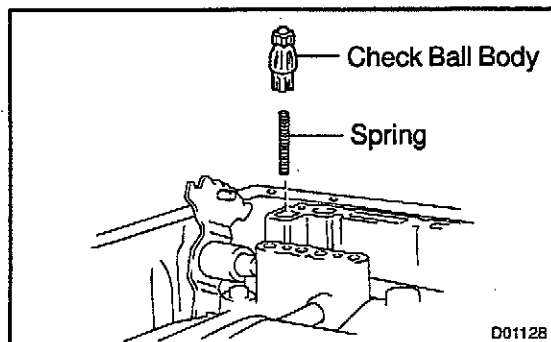


- (d) Remove the bolt and stopper plate from the case.
- (e) Pull the transmission wire out of the transmission case.
- (f) Remove the O-ring from the grommet.



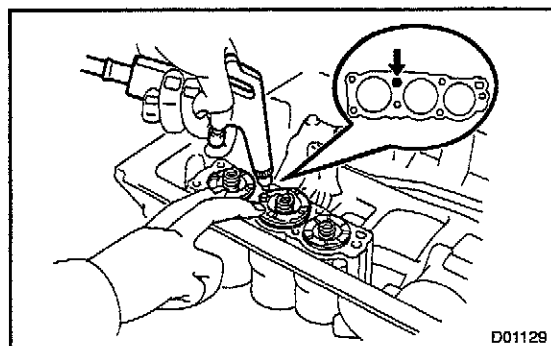
15. REMOVE VALVE BODY

- (a) Remove the 20 bolts.
- (b) Remove the valve body.



16. REMOVE CHECK BALL BODY

Remove the check ball body and spring.

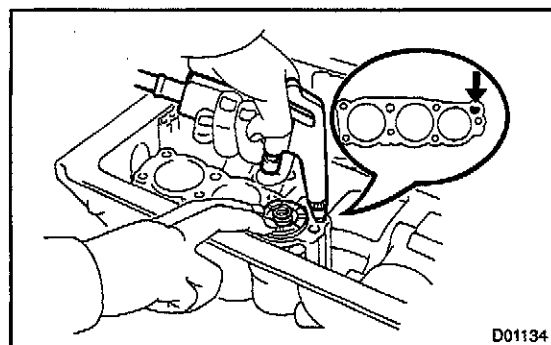


17. REMOVE ACCUMULATOR SPRING AND PISTON

- (a) Applying compressed air to the oil hole, remove the B₂ and C₂ accumulator pistons and springs.
- (b) Remove the O-rings from each pistons.

NOTICE:

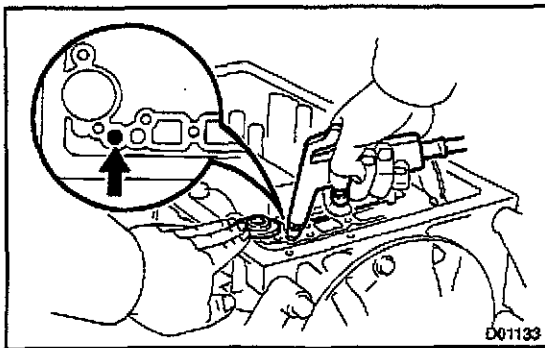
Take care as the B₀ and C₀ accumulator piston may jump out.



- (c) Applying compressed air to the oil hole, remove the B₀ accumulator piston and spring.
- (d) Remove the O-rings from the piston.

NOTICE:

Take care as the C₀ accumulator piston may jump out.

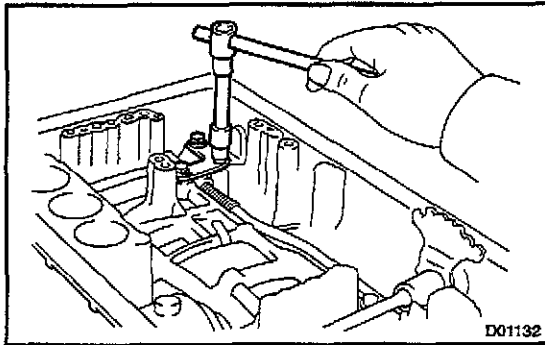


- (e) Applying compressed air to the oil hole, remove the C₀ accumulator piston and spring.

HINT:

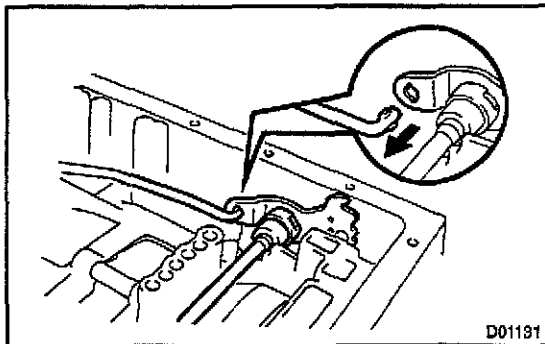
The C₀ accumulator piston is deviated in 2 parts, so if only the top part is removed, after removing the spring reapply compressed air to remove the bottom part.

- (f) Remove the O-rings from the piston.

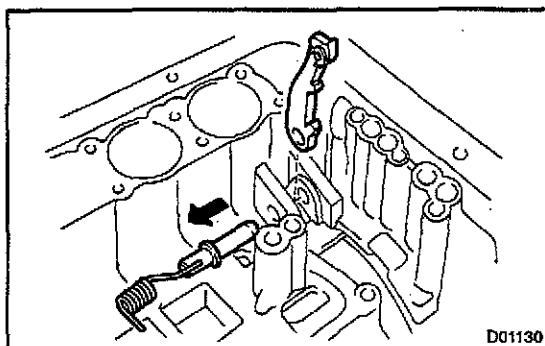


18. REMOVE PARKING LOCK ROD AND PAWL

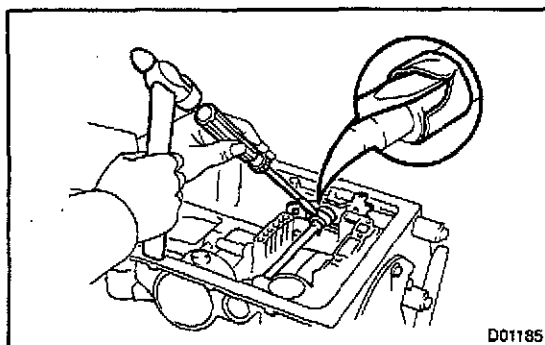
- (a) Remove the 3 bolts and parking lock pawl bracket.



- (b) Disconnect the parking lock rod from the manual valve lever.

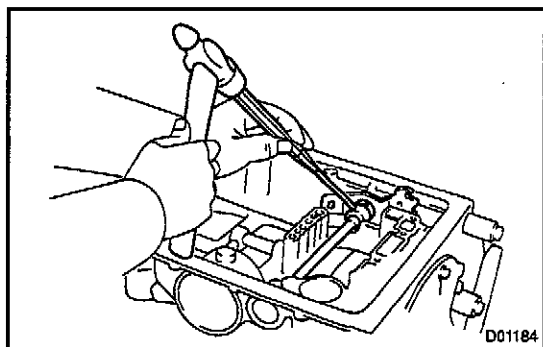


- (c) Pull out the parking lock pawl shaft from the front side, then remove the lock pawl and spring.
(d) Remove the E-ring from the shaft.

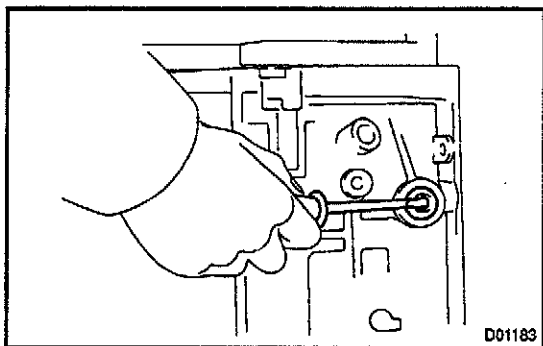


19. REMOVE MANUAL VALVE LEVER SHAFT

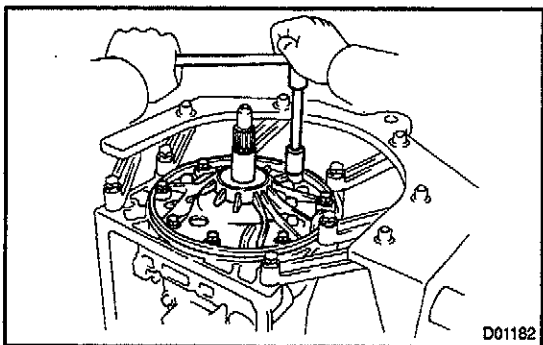
- (a) Using a hammer and screwdriver, cut off the spacer and remove it from the shaft.



- (b) Using a pin punch and hammer, drive out the spring pin.
HINT:
 Slowly drive out the spring pin so it does not fall into the transmission case.
- (c) Pull the manual valve lever shaft out through the case and remove the manual valve lever.

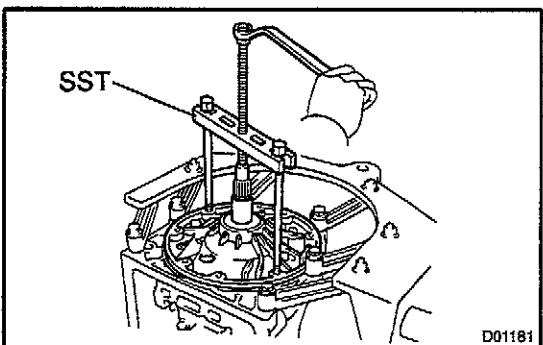


- (d) Using a screwdriver, remove the 2 oil seals.

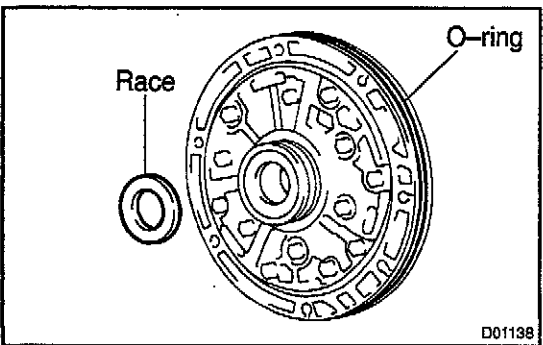


20. REMOVE OIL PUMP

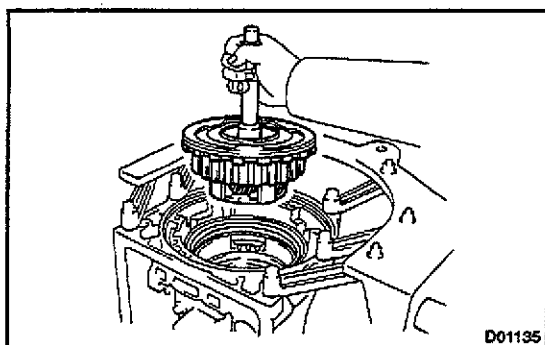
- (a) Remove the 7 bolts holding the oil pump to the transmission case.



- (b) Using SST, remove the oil pump.
 SST 09350-30020 (09350-07020)

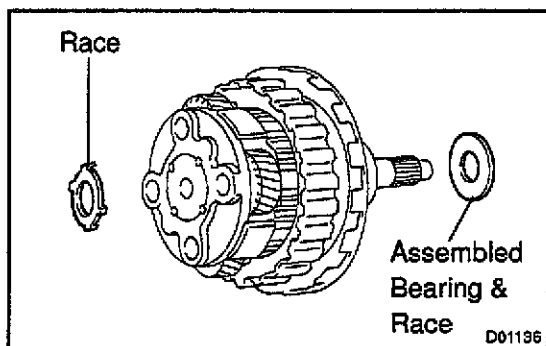


- (c) Remove the race from the oil pump.
 (d) Remove the O-ring from the oil pump.

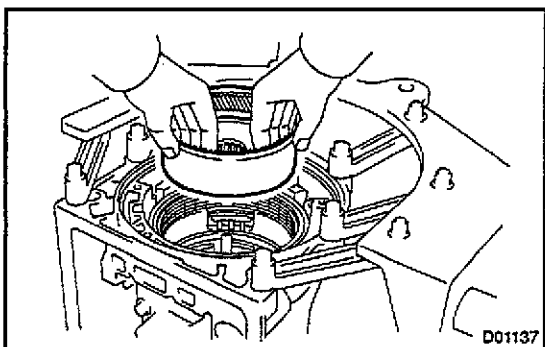


21. REMOVE O/D PLANETARY GEAR UNIT WITH O/D DIRECT CLUTCH

- (a) Remove the O/D planetary gear with the O/D direct clutch from the transmission case.

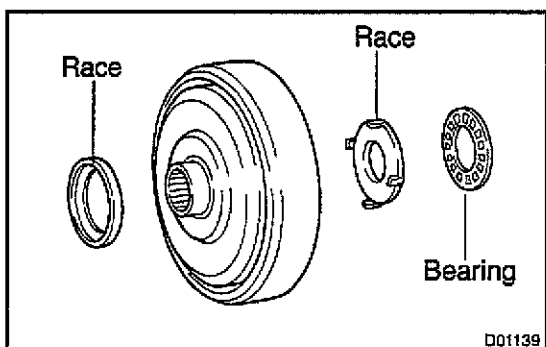


- (b) Remove the race and assembled bearing & race.

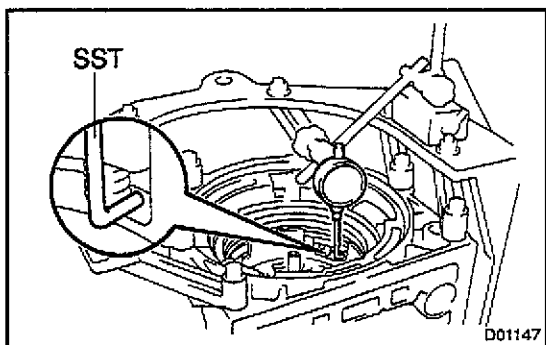


22. REMOVE O/D PLANETARY RING GEAR

- (a) Remove the O/D planetary ring gear from the transmission case.

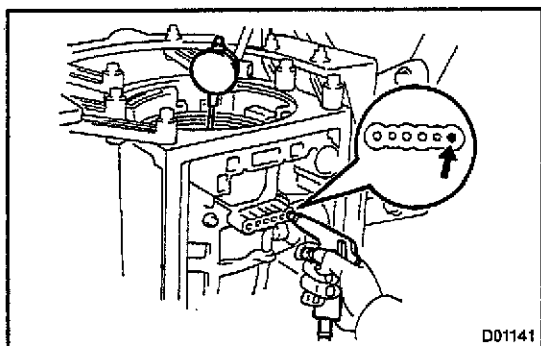


- (b) Remove the bearing and 2 races from the planetary ring gear.



23. CHECK PISTON STROKE OF O/D BRAKE

- (a) Place SST and dial indicator onto the O/D brake piston.
SST 09350-30020 (09350-06120)



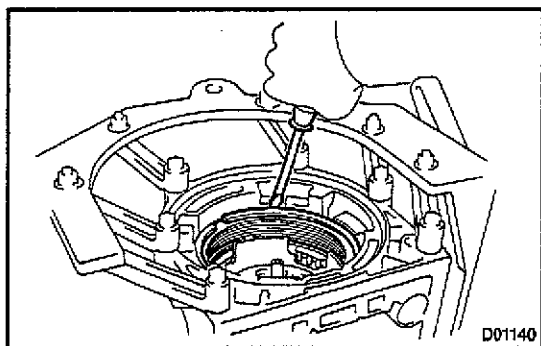
- (b) Measure the stroke while applying and releasing compressed air (392 kPa, 4 kgf/cm², 57 psi).

Piston stroke:

1UZ-FE: 1.40 – 1.70 mm (0.055 – 0.067 in.)

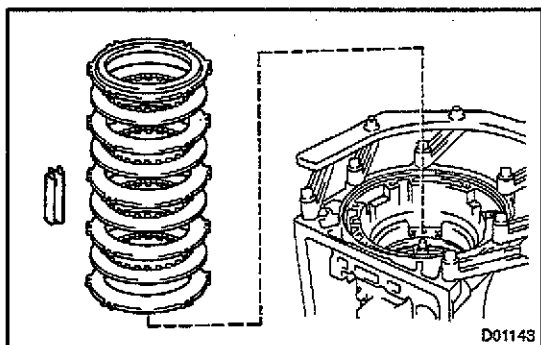
2JZ-GE: 1.32 – 1.62 mm (0.052 – 0.064 in.)

If the stroke is non-standard, inspect the discs.



24. REMOVE FLANGE, PLATE AND DISC OF O/D BRAKE

- (a) Using a screwdriver, remove the snap ring.



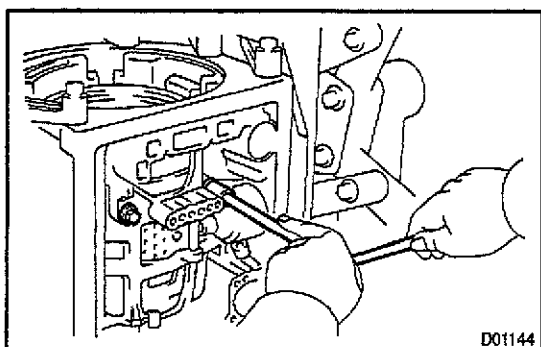
- (b) Remove the O/D brake pack as a set.

HINT:

1UZ-FE: 2 flange, 3 plates and 4 discs

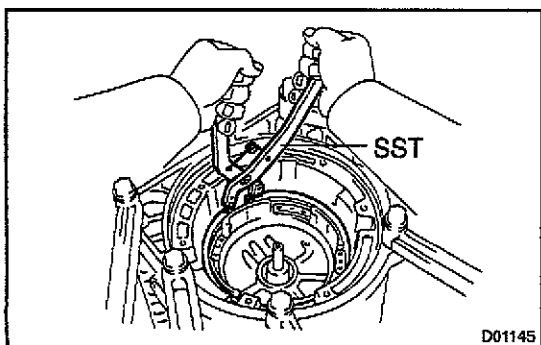
2JZ-GE: 2 flange, 2 plates and 3 discs

- (c) Remove the spring from the case.

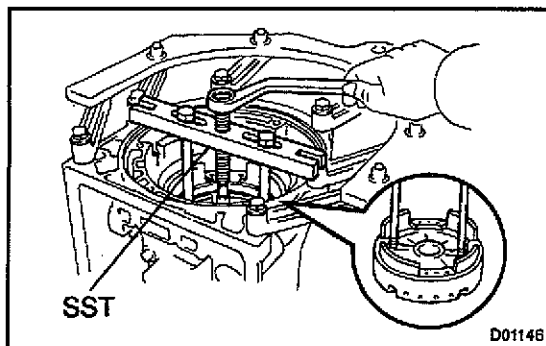


25. REMOVE O/D SUPPORT ASSEMBLY

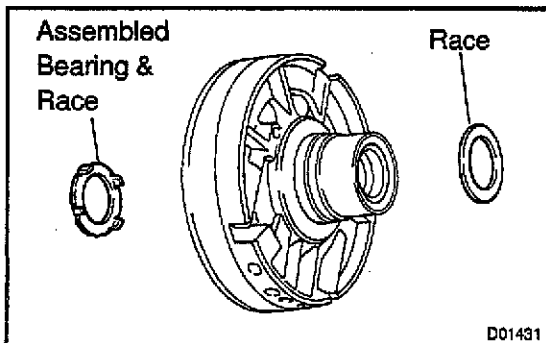
- (a) Remove the 2 bolts holding the O/D support assembly from the case.



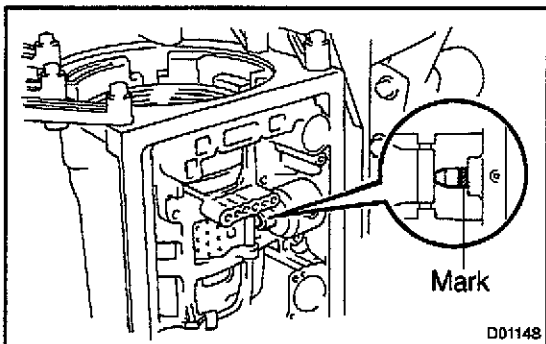
- (b) Using SST, remove the snap ring.
SST 09350-30020 (09350-07060)



- (c) Using SST, remove the O/D support assembly.
SST 09350-30020 (09350-07020)

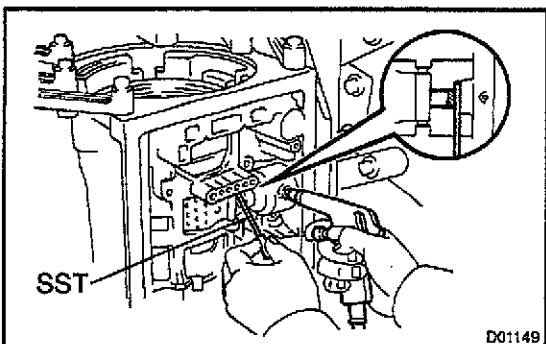


- (d) Remove the assembled bearing & race and race from the O/D support.



26. CHECK PISTON ROD STROKE OF 3RD COAST BRAKE

- (a) Using a water proof pen, place a mark in the 3rd coast brake piston rod, as shown in the illustration.

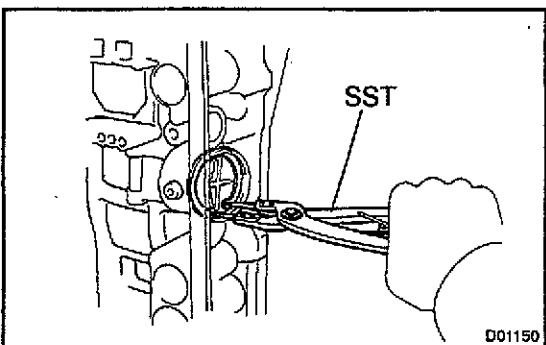


- (b) Using SST, measure the stroke while applying compressed air (392 kPa, 4 kgf/cm², 57 psi).

SST 09240-00020

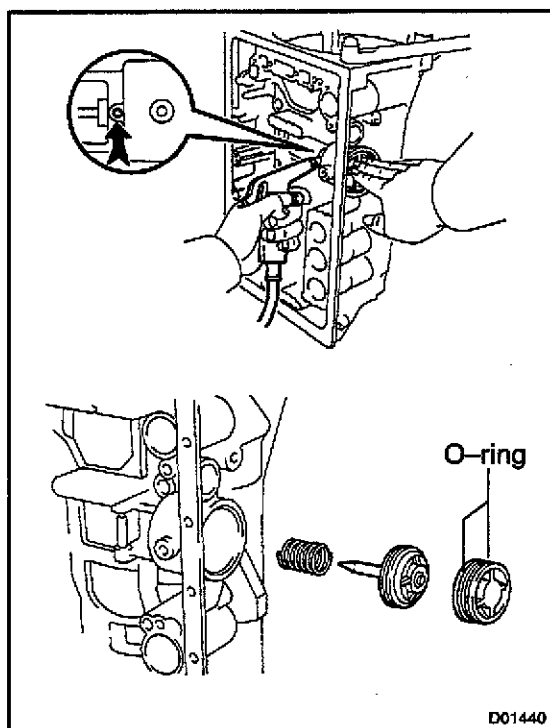
Piston rod stroke: 2.0 – 3.0 mm (0.079 – 0.118 in.)

If the stroke is non-standard, inspect the brake band.

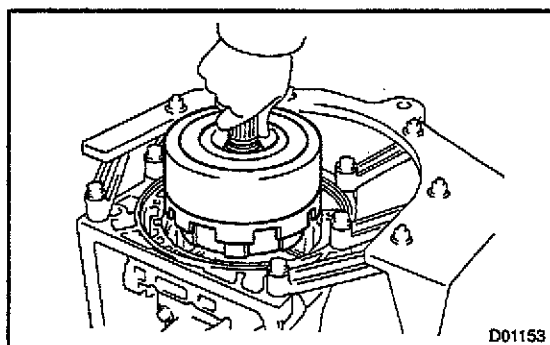


27. REMOVE 3RD COAST BRAKE COVER, PISTON ASSEMBLY AND SPRING

- (a) Using SST, remove the snap ring.
SST 09350-30020 (09350-07060)

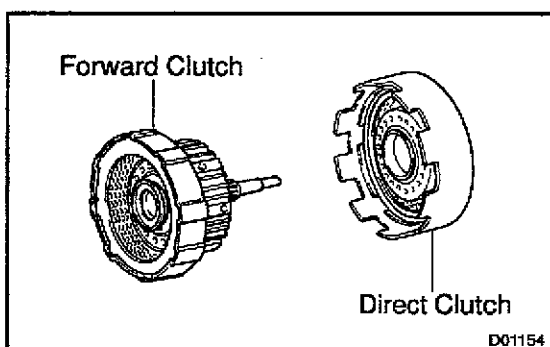


- (b) Applying compressed air to the oil hole, remove the 3rd coast brake cover, piston assembly and spring.
- (c) Remove the 2 O-rings from the cover.

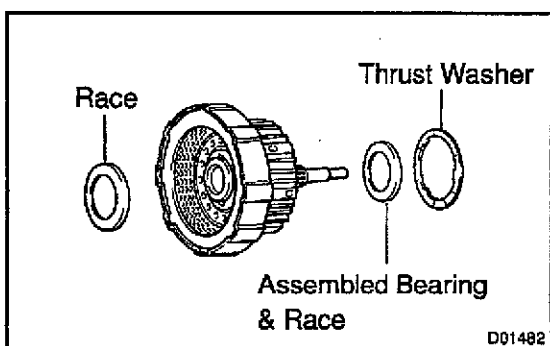


28. REMOVE DIRECT CLUTCH WITH FORWARD CLUTCH

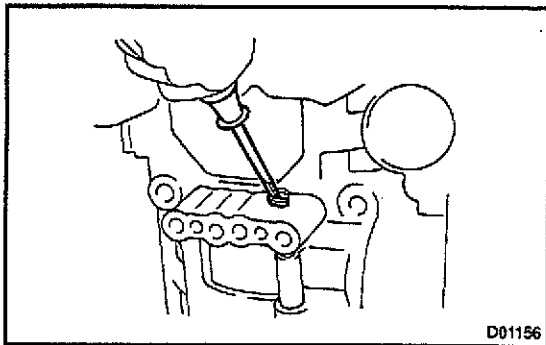
- (a) Remove the direct clutch with forward clutch from the case.



- (b) Remove the direct clutch from the forward clutch.



- (c) Remove the assembled bearing & race, thrust washer and race from the forward clutch.

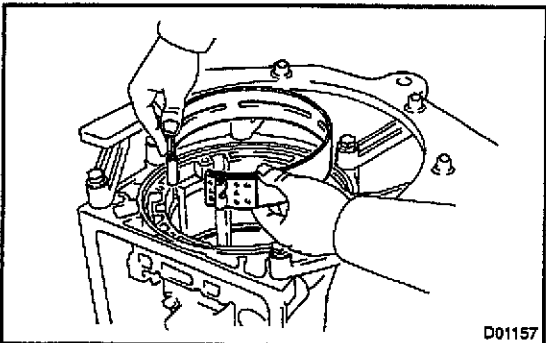
**29. REMOVE 3RD COAST BRAKE BAND**

- (a) Using a screwdriver, remove the E-ring from the pin.

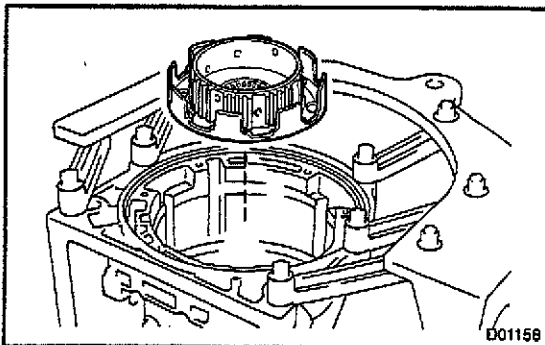
HINT:

Apply the grease to the E-ring and pin before the work so that the ring does not fly out.

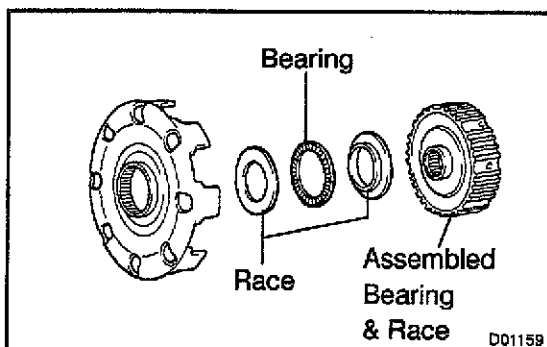
- (b) Remove the pin from the brake band.
(c) Remove the E-ring from the pin.



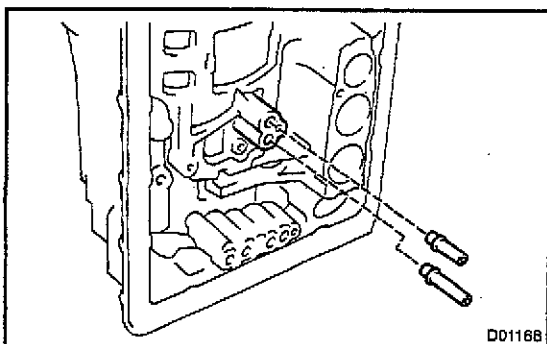
- (d) Remove the 3rd coast brake band from the case.

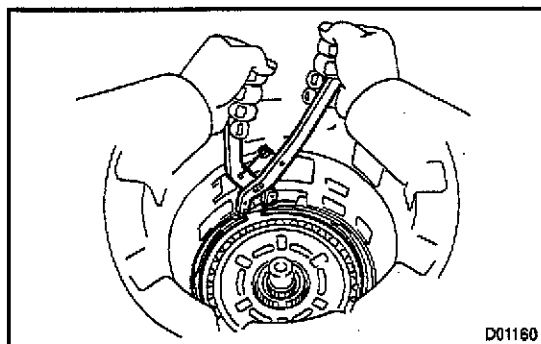
**30. REMOVE FORWARD CLUTCH HUB AND SUN GEAR INPUT DRUM**

- (a) Remove the forward clutch hub and the sun gear input drum.



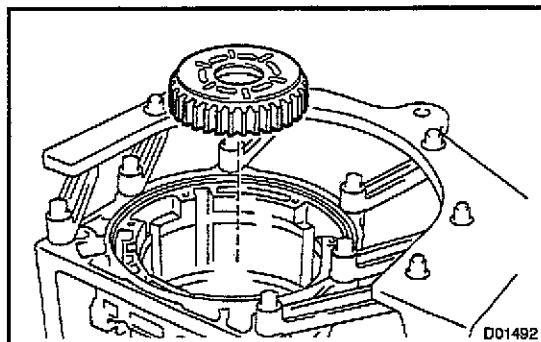
- (b) Remove the assembled bearing & race, 2 races, bearing and sun gear input drum, from forward clutch hub.

**31. REMOVE 2 BRAKE DRUM GASKETS**

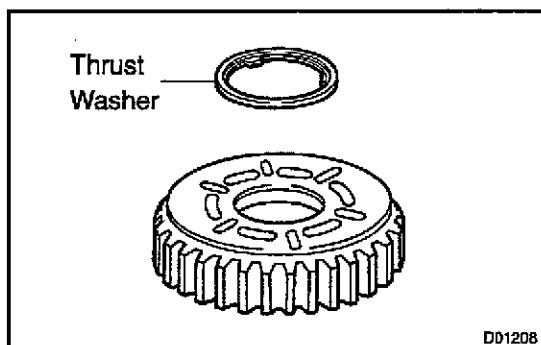


32. REMOVE NO.1 ONE-WAY CLUTCH MULTIPLE DISC BRAKE AND FRONT PLANETARY GEAR

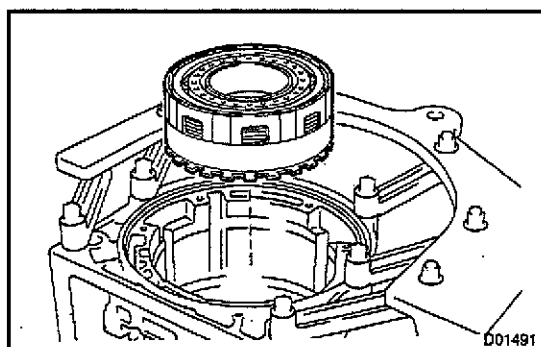
- (a) Using SST, remove the snap ring.
SST 09350-30020 (09350-07060)



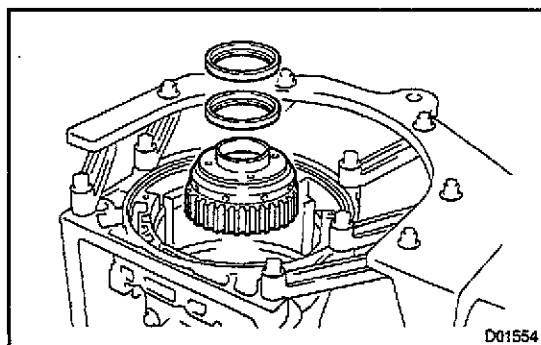
- (b) Remove the No.1 one-way clutch from the case.



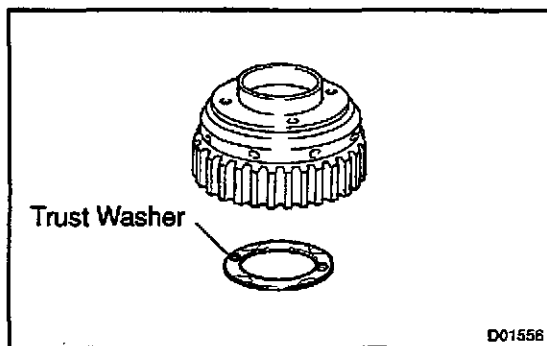
- (c) Remove the thrust washer from the No.1 one-way clutch.



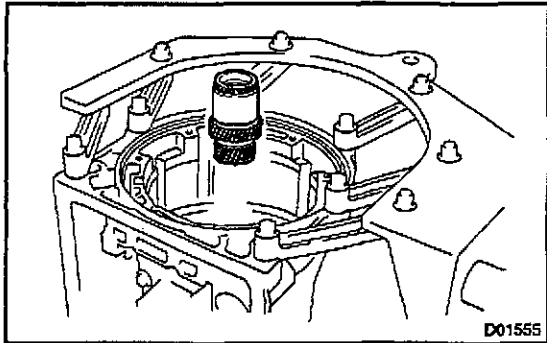
- (d) Remove the multiple disc brake from the case.



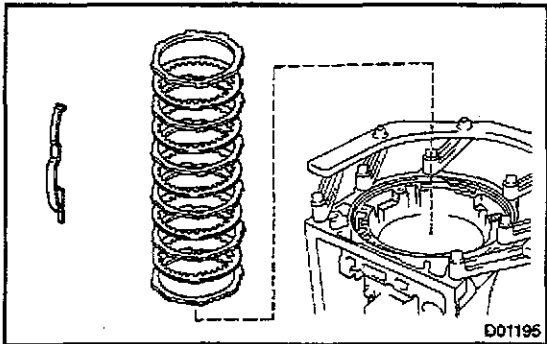
- (e) Remove the 2 washers and front planetary gear from the case.



- (f) Remove the thrust washer from the front planetary gear.

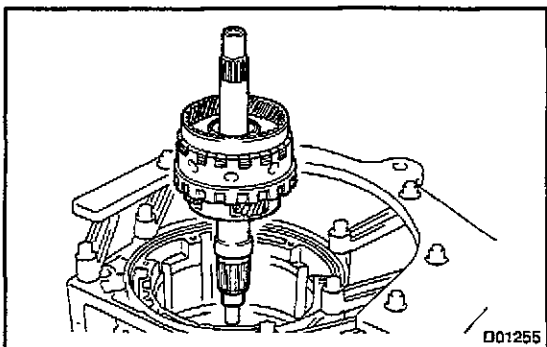


- (g) Remove the front & center planetary sun gear from the case.

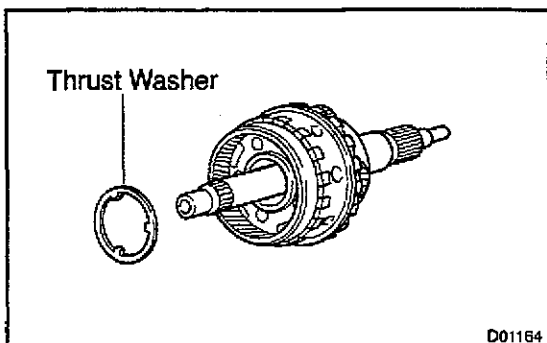


33. REMOVE OUTPUT SHAFT WITH CENTER & REAR PLANETARY GEAR

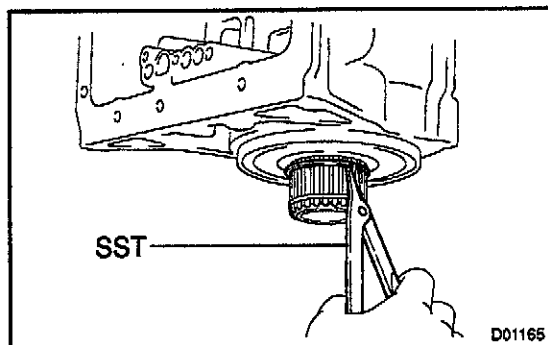
- (a) Remove the 2nd brake pack (flange, 5 discs and 5 plates) from the case.
- (b) Remove the spring from the case.



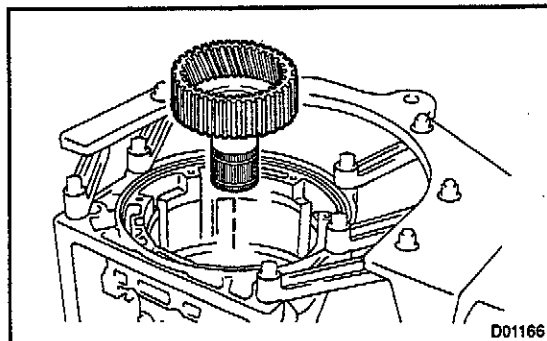
- (c) Remove the output shaft with center & rear planetary gear from the case.



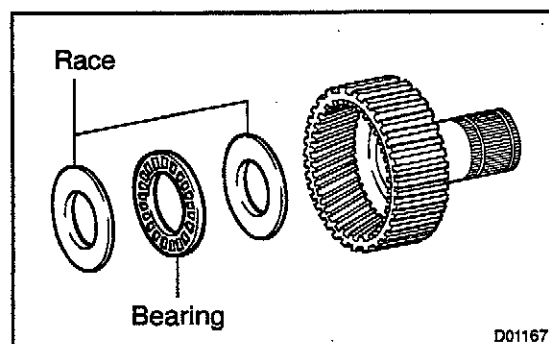
- (d) Remove the thrust washer from the output shaft with center & rear planetary gear.

**34. REMOVE REAR PLANETARY RING GEAR**

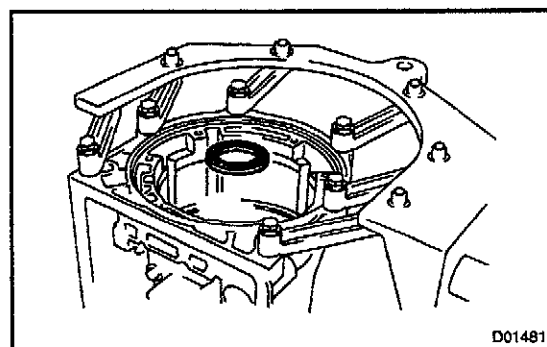
- (a) Using SST, remove the snap ring.
SST 09350-30020 (09350-07070)



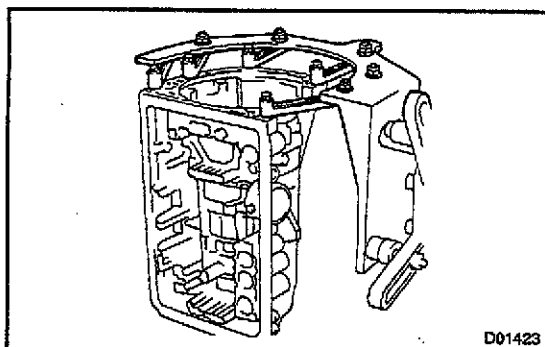
- (b) Remove the rear planetary ring gear from the case.



- (c) Remove the assembled bearing & race and 2 races from the rear planetary ring gear.

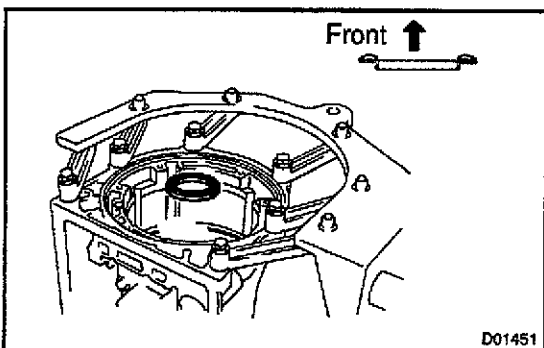


- (d) Remove the assembled bearing & race from the case.



REASSEMBLY

1. INSTALL TRANSMISSION CASE ON OVERHAUL ATTACHMENT

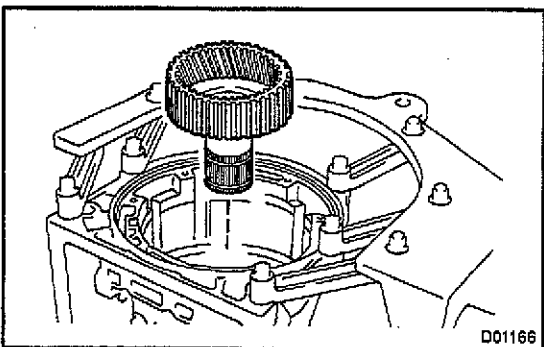


2. INSTALL REAR PLANETARY RING GEAR

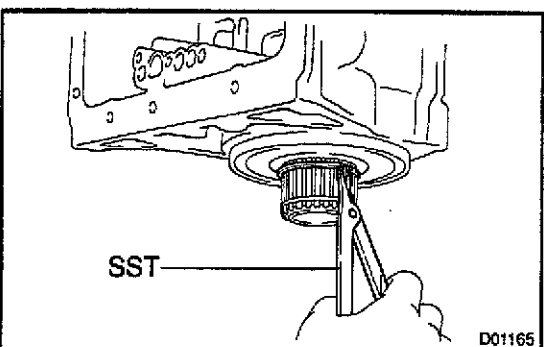
(a) Install the assembled bearing & race.

Assembled bearing & race diameter: mm (in.)

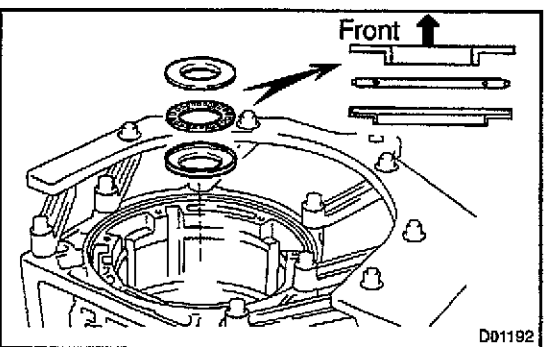
	Inside	Outside
Assembled bearing & race	52.9 (2.083)	70.6 (2.780)



(b) Install the rear planetary ring gear.



(c) Using SST, install the snap ring. SST 09350-03002 (09350-07070)

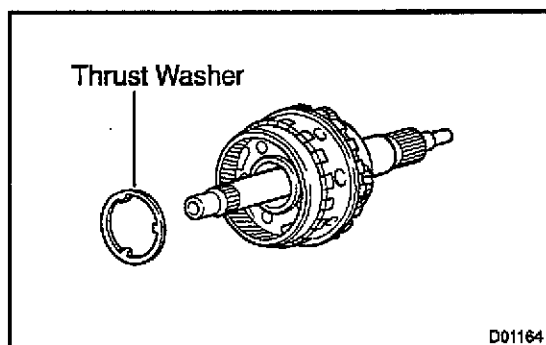


3. INSTALL OUTPUT SHAFT WITH CENTER AND REAR PLANETARY GEAR

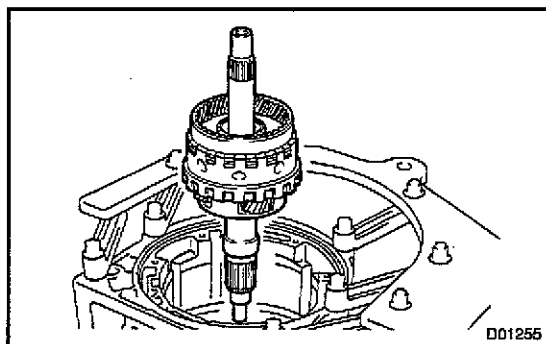
(a) Install the 2 races and bearing onto the rear planetary ring gear.

Bearing and race diameter: mm (in.)

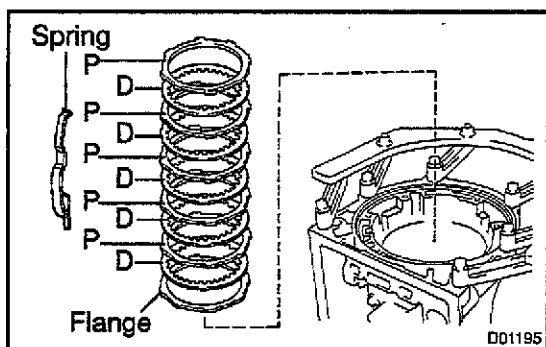
	Inside	Outside
Race	39.2 (1.543)	56.8 (2.236)
Bearing	40.7 (1.602)	57.0 (2.244)
Race	41.2 (1.620)	59.8 (2.354)



- (b) Install the thrust washer to the output shaft with center & rear planetary gear.



- (c) Install the output shaft with center & rear planetary gear.



4. INSTALL FRONT PLANETARY GEAR

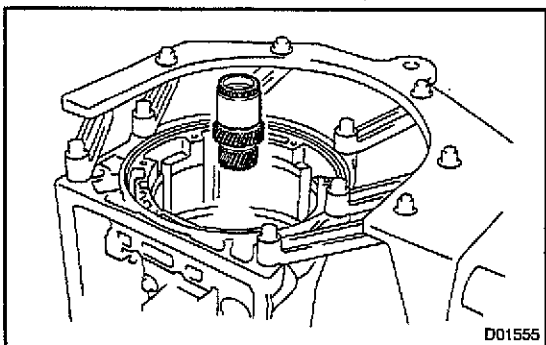
- (a) Install the spring to the case.
 (b) Install the 2nd brake pack (5 plates, 5 discs and flange).

Install in order: P = Plate, D = Disc

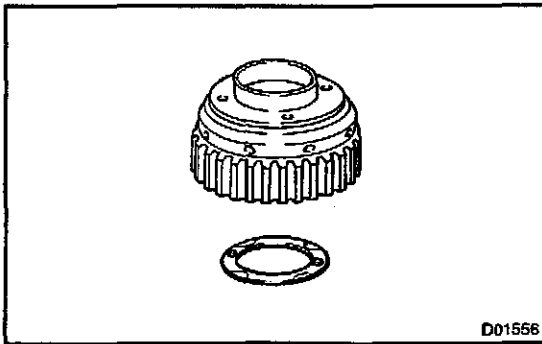
P - D - P - D - P - D - P - D - P - D

Flange thickness: mm (in.)

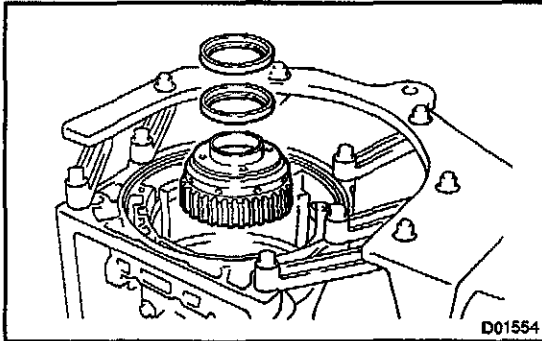
No.	Thickness	No.	Thickness
21	2.1 (0.083)	27	2.7 (0.106)
23	2.3 (0.091)	29	2.9 (0.114)
25	2.5 (0.098)	31	3.1 (0.122)



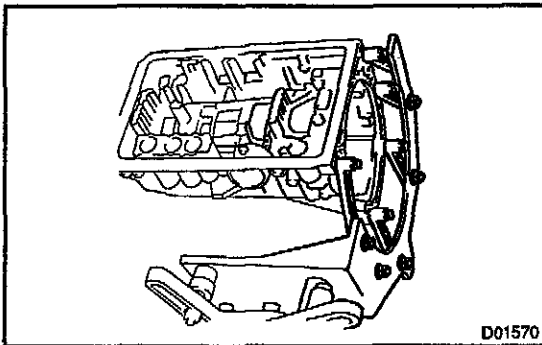
- (c) Install the front & center planetary sun gear from the case.



- (d) Coat the thrust washer, with petroleum jelly and install it onto front planetary gear.

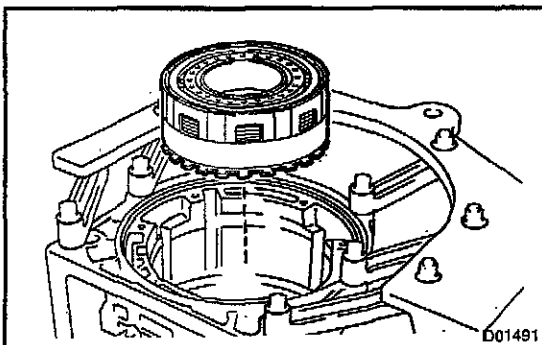


- (e) Install the front planetary gear and 2 washers from the case.

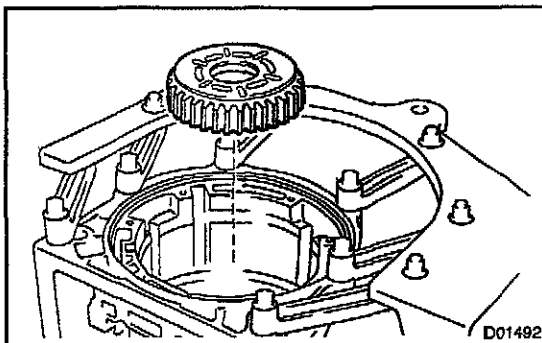


5. INSTALL MULTIPLE DISC BRAKE AND NO.1 ONE-WAY CLUTCH

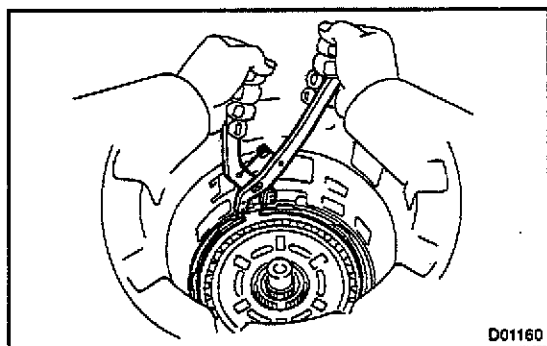
- (a) Lay the transmission case.



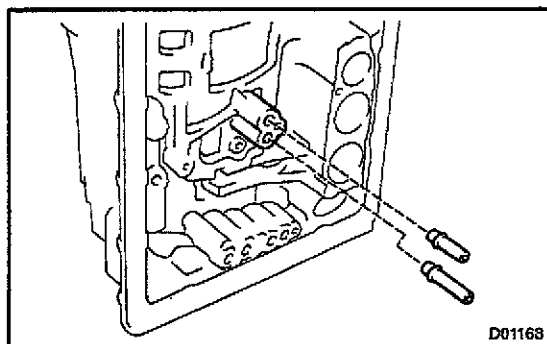
- (b) Install the multiple disc brake to the case.



- (c) Install the No.1 one-way clutch to the multiple disc brake.

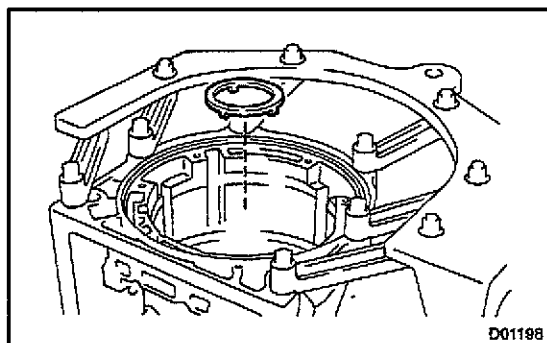


- (d) Using SST, install the snap ring.
SST 09350-30020 (09350-07060)



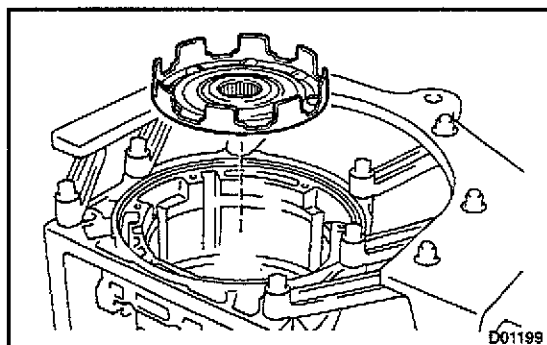
6. INSTALL BRAKE DRUM GASKET

- (a) Coat 2 new gaskets with ATF.
(b) Install the 2 brake drum gaskets.

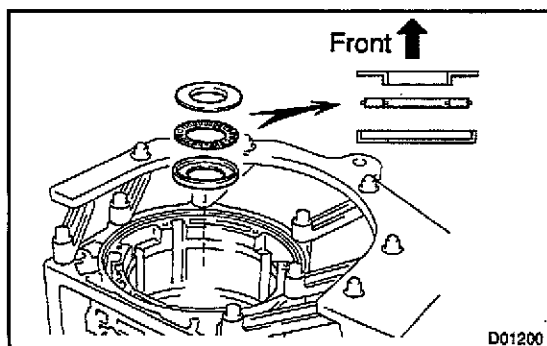


7. INSTALL SUN GEAR INPUT DRUM

- (a) Install the thrust washer.



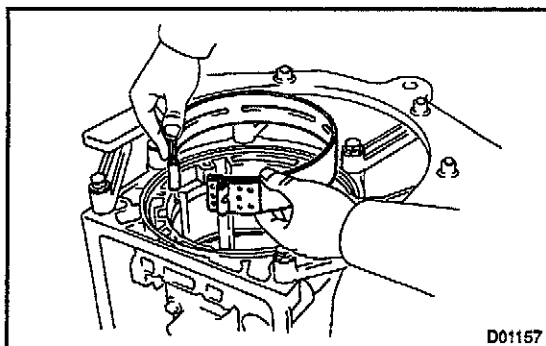
- (b) Install the sun gear input drum.



- (c) Coat the bearing, 2 races with petroleum jelly and install them onto the sun gear input drum.

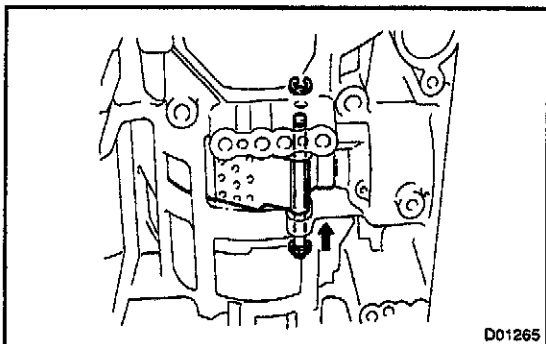
Bearing and race diameter: mm (in.)

	Inside	Outside
Race	32.5 (1.280)	59.0 (2.323)
Bearing	43.5 (1.712)	59.8 (2.354)
Race	43.5 (1.712)	61.5 (2.421)

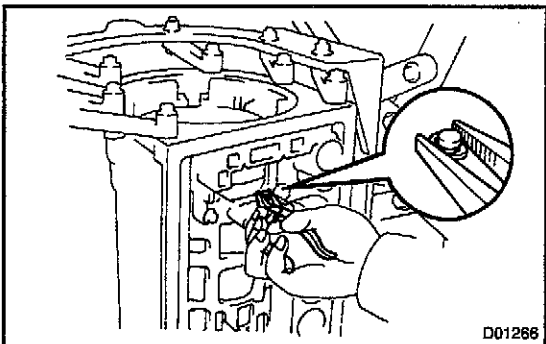


8. INSTALL 3RD COAST BRAKE BAND

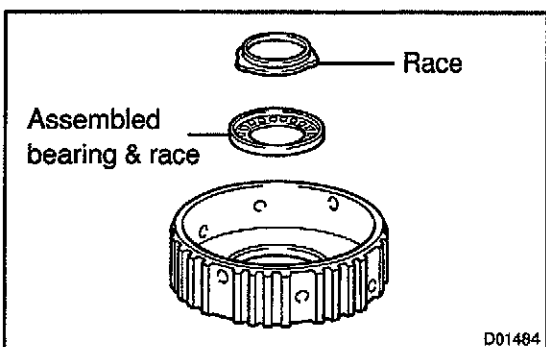
- (a) Install the 3rd coast brake band to the transmission case.



- (b) Install the E-ring to the pin.
(c) Install the pin through the brake band.



- (d) Using a needle nose plier, install the E-ring to the pin.



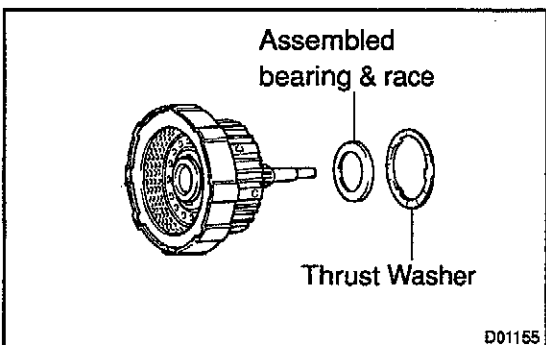
9. INSTALL DIRECT CLUTCH WITH FORWARD CLUTCH

- (a) Coat the assembled bearing & race, race with petroleum jelly and install them onto the forward clutch hub.

Assembled bearing & race and diameter:

mm (in.)

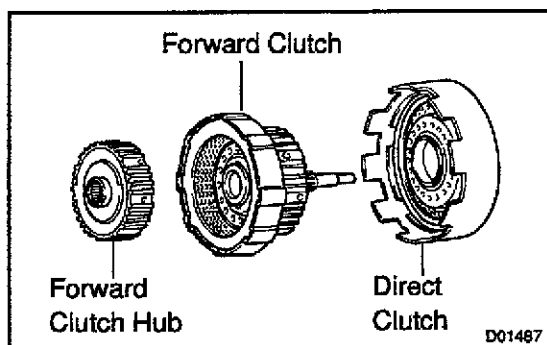
	Inside	Outside
Assembled bearing & race	26.3 (1.035)	44.0 (1.732)
Race	26.2 (1.031)	41.1 (1.618)



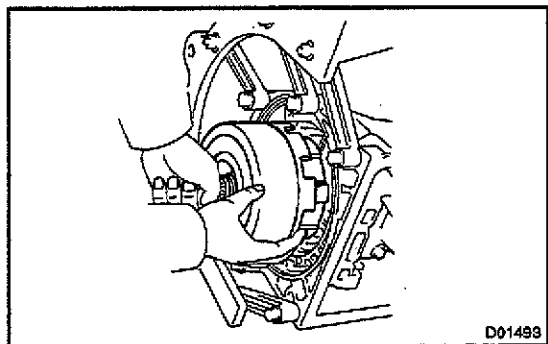
- (b) Install the assembled bearing & race and thrust washer to the forward clutch.

Assembled bearing & race diameter: mm (in.)

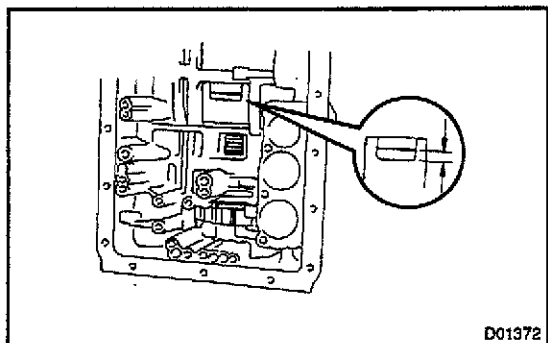
	Inside	Outside
Assembled bearing & race	33.5 (1.319)	47.8 (1.882)



- (c) Install the direct clutch and forward clutch hub to the forward clutch.



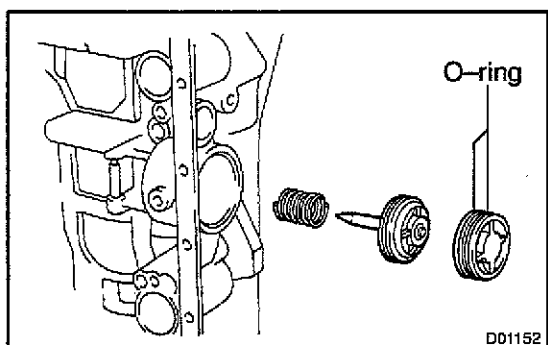
- (d) Insert the direct clutch with forward clutch to the case.



- (e) With the case set upright, using vernier calipers, measure the distance between the sun gear input drum and direct clutch drum.

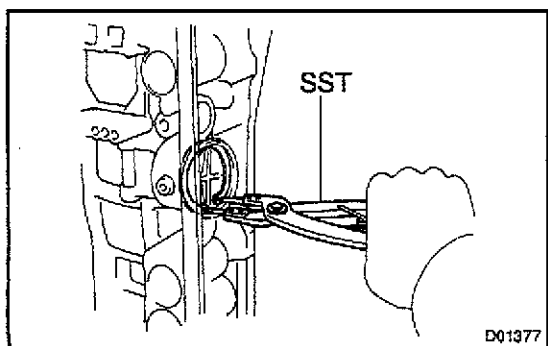
Height: 4.1 – 6.0 mm (0.161 – 0.236 in.)

If the height is non-standard, check for improper installation.

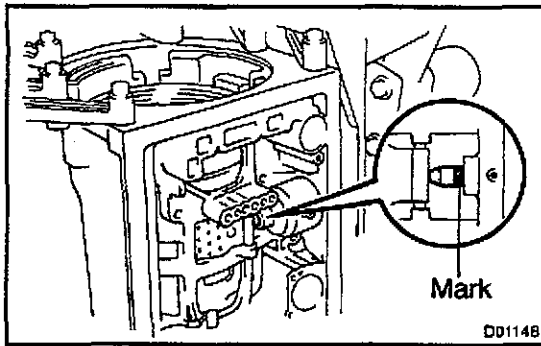


10. INSTALL 3RD COAST BRAKE COVER, PISTON ASSEMBLY AND SPRING

- (a) Coat 2 new O-rings with ATF and install them to the cover.
 (b) Install the spring, piston assembly and cover to the case.

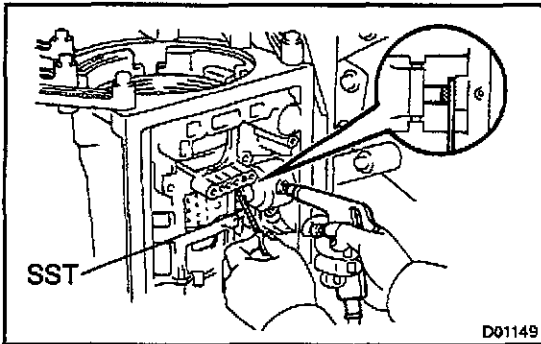


- (c) Using SST, install the snap ring.
 SST 09350-30020 (09350-07060)



11. CHECK PISTON ROD STROKE OF 3RD COAST BRAKE

- (a) Place a mark on the 2nd coast brake piston rod.



- (b) Using SST, measure the stroke while applying and releasing compressed air (392 kPa, 4 kgf/cm², 57 psi).

SST 009240-00020

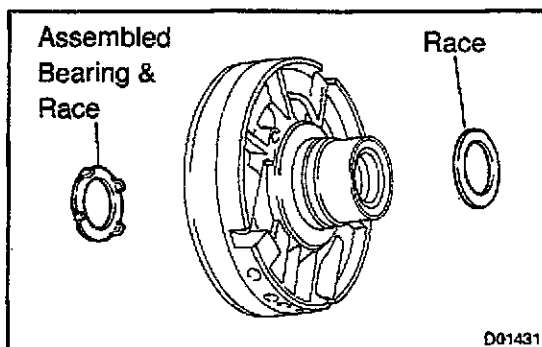
Piston rod stroke: 2.0 – 3.0 mm (0.079 – 0.118 in.)

If the stroke is more than the specified, replace the piston rod with a longer one.

Piston rod length: mm (in.)

77.65 (3.057)	79.90 (3.146)
78.40 (3.086)	80.65 (3.175)
79.15 (3.116)	

If it is still more than standard value, replace the brake band with a new one.

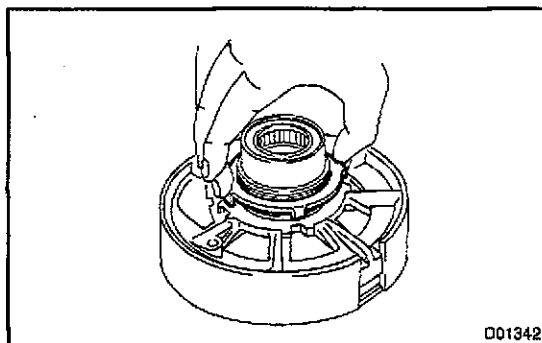


12. INSTALL O/D SUPPORT ASSEMBLY

- (a) Coat the assembled bearing & race and race with petroleum jelly and install them onto the O/D support assembly.

Assembled bearing & race and race diameter:
mm (in.)

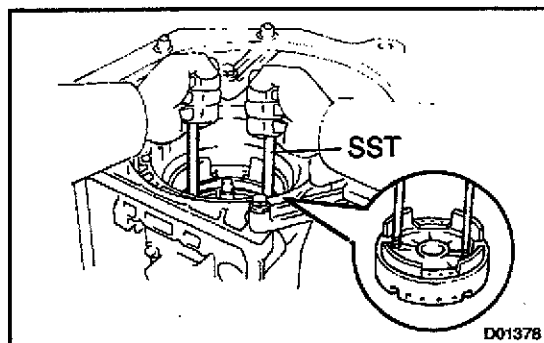
	Inside	Outside
Assembled bearing & race	33.6 (1.323)	50.3 (1.980)
Race	37.0 (1.457)	51.0 (2.008)



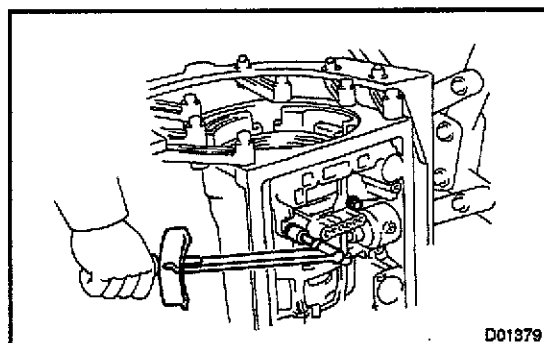
- (b) Coat the thrust washer with petroleum jelly and install it onto the O/D support assembly.

HINT:

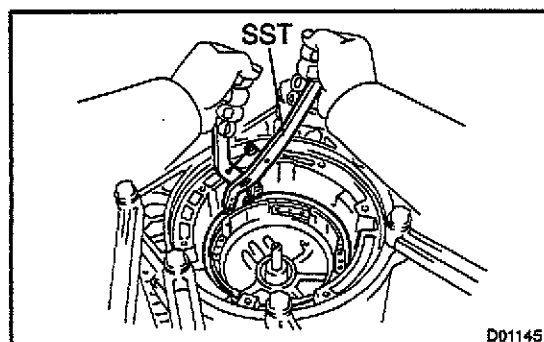
Make sure that the lug shapes match the holes on the O/D support.



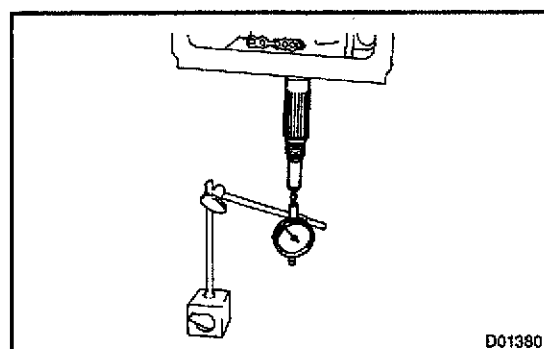
- (c) Using 2 bolts of SST, face the bolt and oil holes of the O/D support toward the valve body side, align them with the bolt holes of the transmission case and install the bolts.
SST 09350-30020 (09350-07020)



- (d) Install the 2 bolts.
Torque: 25 N·m (260 kgf·cm, 19 ft·lbf)



- (e) Using SST, install the snap ring.
SST 09350-30020 (09350-07060)



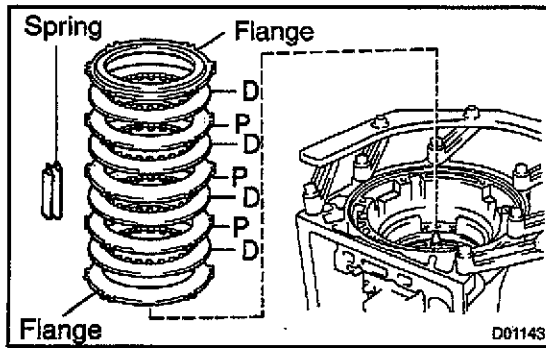
13. CHECK OUTPUT SHAFT

- (a) Using a dial indicator, measure the end play of the output shaft with hand.

End play: 1.63 – 2.89 mm (0.064 – 0.114 in.)

If the values are non-standard, check for improper installation.

- (b) Check to see that output shaft rotates smoothly.



14. INSTALL FLANGES, PLATES AND DISCS OF O/D BRAKE

- (a) Install the 4.0 mm (0.157 in.) thick flange (flat ring) with the rounded-edge side of the flange facing the disc.
- (b) Install the O/D brake pack.

HINT:

1UZ-FE: 3 plates, 4 discs and 2 flanges

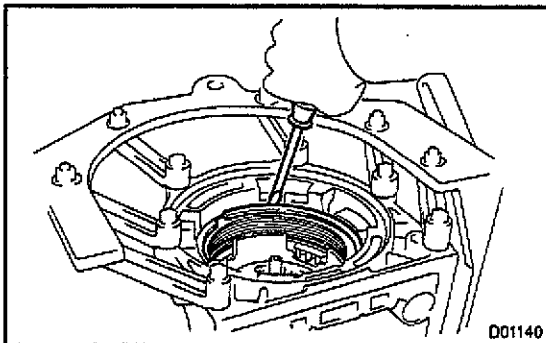
2JZ-GE: 2 plates, 3 discs and 2 flanges

Install in order: P = Plate, D = Disc

1UZ-FE: D - P - D - P - D - P - D

2JZ-GE: D - P - D - P - D

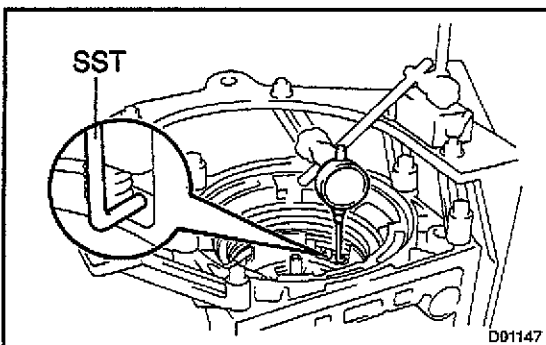
- (c) Install the flange (stepped ring) with the flat side of the flange facing the disc.
- (d) Install the spring to the case.



- (e) Using a screwdriver, install the snap ring.

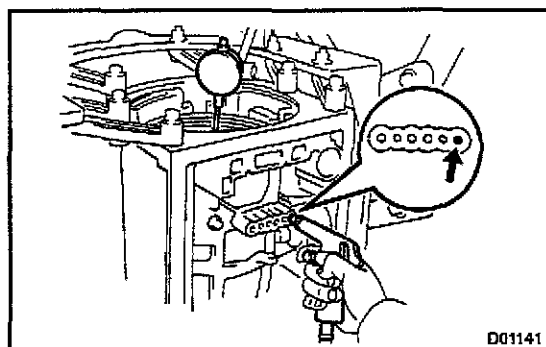
NOTICE:

Be sure the end gap of the snap ring is not aligned with cut-out portion of the brake drum.



15. CHECK PISTON STROKE OF O/D BRAKE

- (a) Place SST and a dial indicator onto the O/D brake piston.
SST 09350-30020 (09350-06120)



- (b) Measure the stroke while applying and releasing compressed air (392 kPa, 4 kgf/cm², 57 psi).

Piston Stroke:

1UZ-FE: 1.40 – 1.70 mm (0.055 – 0.067 in.)

2JZ-GE: 1.32 – 1.62 mm (0.052 – 0.064 in.)

If the piston stroke is less than the limit, parts may have been assembled incorrectly, so check and reassemble again.

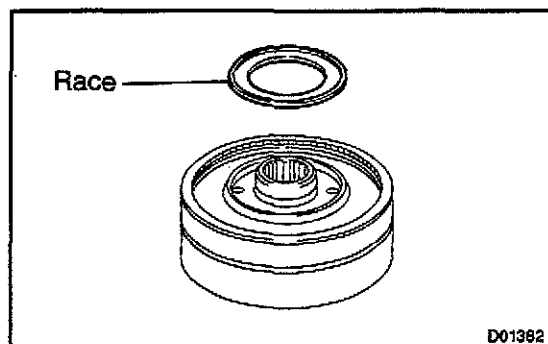
If the piston stroke is non-standard, select another flange.

HINT:

There are 7 different thickness for the flange.

Flange thickness: mm (in.)

No.	Thickness	No.	Thickness
77	3.3 (0.130)	81	3.8 (0.150)
78	3.5 (0.138)	82	3.9 (0.154)
79	3.6 (0.142)	83	4.0 (0.157)
80	3.7 (0.146)	—	—

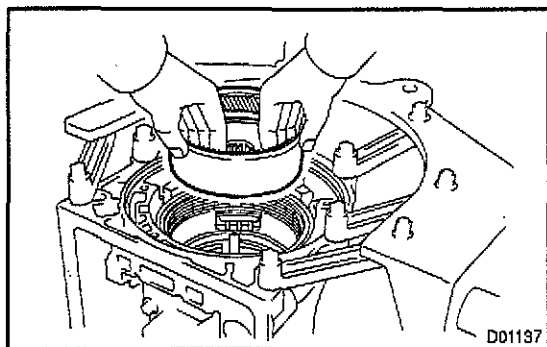


16. INSTALL O/D PLANETARY GEAR UNIT WITH O/D DIRECT CLUTCH & O/D ONE-WAY CLUTCH

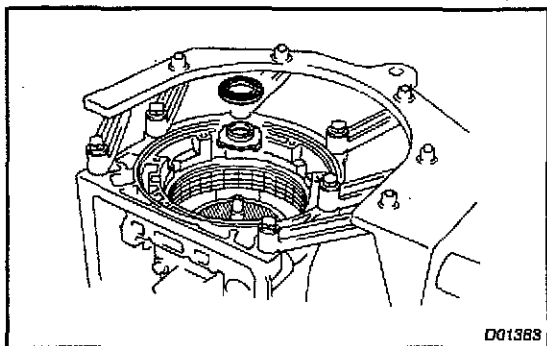
- (a) Coat the race with petroleum jelly and install it onto the O/D planetary ring gear.

Race diameter: mm (in.)

	Inside	Outside
Race	37.1 (1.461)	59.0 (2.323)



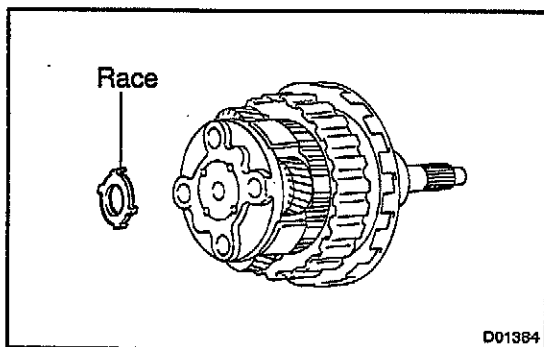
- (b) Install the O/D planetary ring gear.



- (c) Install the bearing and race onto the O/D planetary ring gear.

Bearing and race diameter: mm (in.)

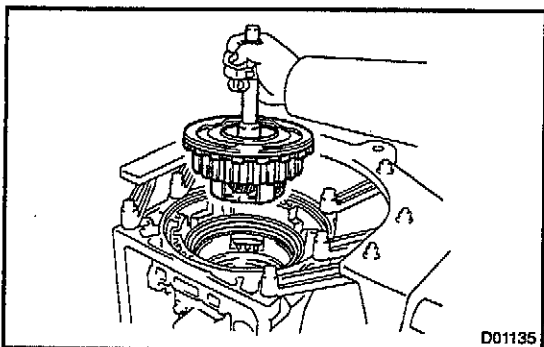
	Inside	Outside
Bearing	25.9 (1.020)	47.0 (1.850)
Race	24.0 (0.945)	48.0 (1.890)



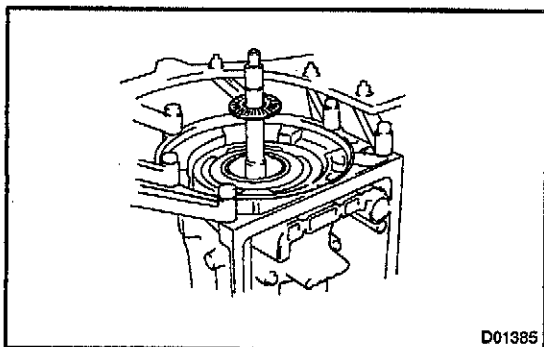
- (d) Coat the race with petroleum jelly and install it onto the O/D planetary gear.

Race diameter: mm (in.)

	Inside	Outside
Race	27.2 (1.071)	42.0 (1.654)



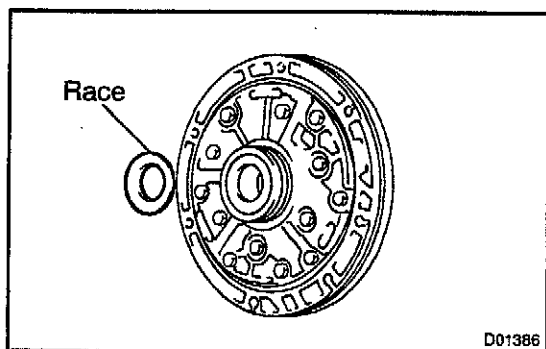
- (e) Install the O/D planetary gear with the O/D direct clutch & O/D one-way clutch.



- (f) Install the assembled bearing & race onto the O/D direct clutch.

Assembled bearing & race diameter: mm (in.)

	Inside	Outside
Assembled bearing & race	28.8 (1.134)	50.4 (1.984)



17. INSTALL OIL PUMP INTO CASE

- (a) Coat the race with petroleum jelly and install it onto the oil pump.

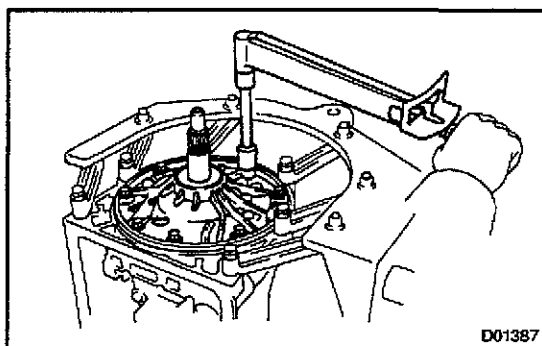
Race diameter: mm (in.)

	Inside	Outside
Race	28.1 (1.106)	47.5 (1.870)

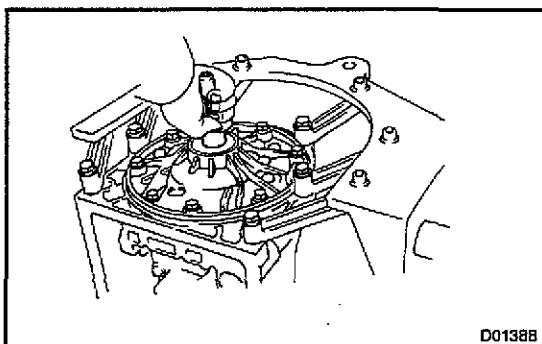
- (b) Coat a new O-ring with ATF and install it around the pump body.
- (c) Place the oil pump through the input shaft, and align the bolt holes of the pump body with the transmission case.
- (d) Hold the input shaft, and lightly press the oil pump body to slide the oil seal rings into the overdrive direct clutch drum.

NOTICE:

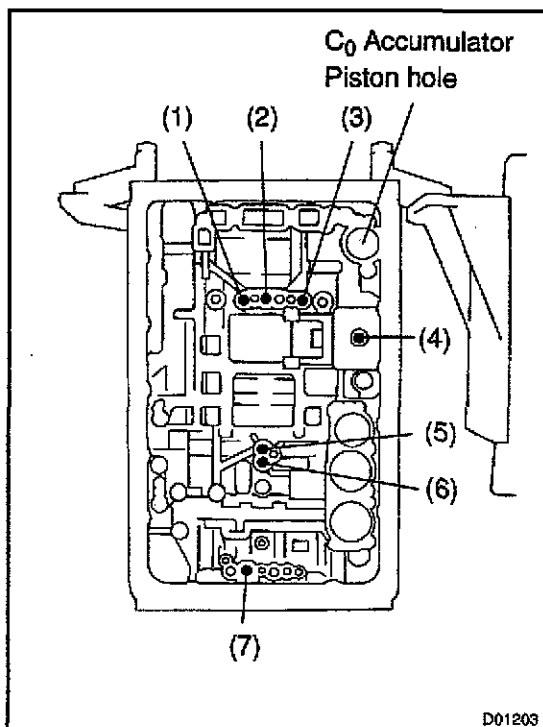
Do not push on the oil pump strongly, or the oil seal ring will stick to the direct clutch drum.



- (e) Install the 7 bolts.
Torque: 21 N·m (215 kgf·cm, 16 ft·lbf)



- 18. CHECK INPUT SHAFT ROTATION**
Make sure the input shaft rotates smoothly.



19. INDIVIDUAL PISTON OPERATION INSPECTION

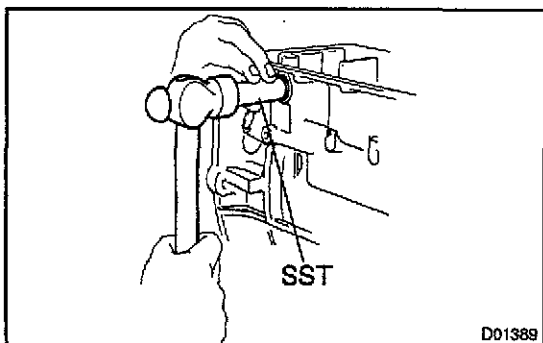
Check for the sound of operation while applying compressed air into the oil holes indicated in the illustration.

HINT:

When inspecting the O/D direct clutch, check with the C₀ accumulator piston hole closed.

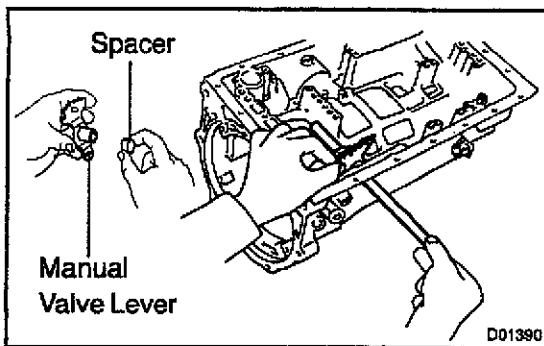
If there is no noise, disassemble and check the installation condition of the parts.

- (1) Forward clutch
- (2) Direct clutch
- (3) O/D brake
- (4) 3rd coast brake
- (5) 3rd brake
- (6) 2nd brake
- (7) 1st & reverse brake

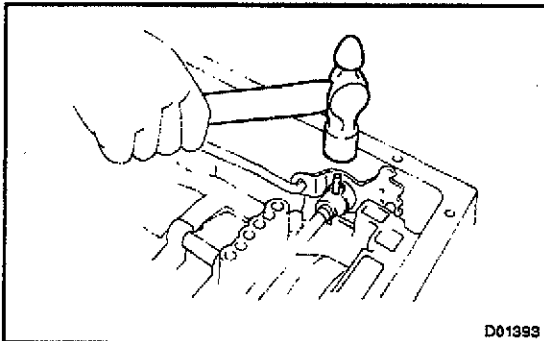


20. INSTALL MANUAL VALVE LEVER, SHAFT AND OIL SEAL

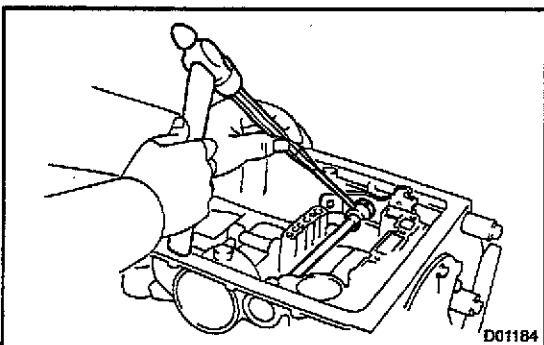
- (a) Using SST, drive in a 2 new oil seals.
SST 09350-30020 (09350-07110)
- (b) Coat the oil seal lip with MP grease.



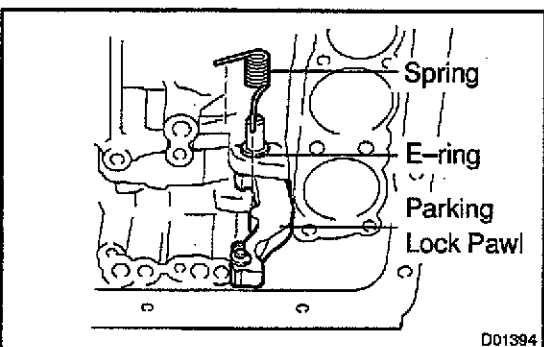
- (c) Install a new spacer to the manual valve lever.
- (d) Install the manual valve lever shaft to the transmission case through the manual valve lever.



- (e) Using a hammer, drive in a new spring pin.

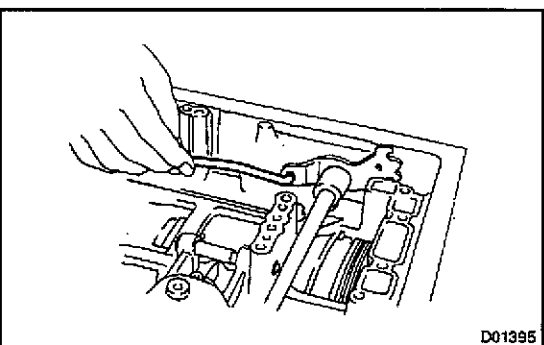


- (f) Match the manual valve lever indentation with the spacer hole and stake them together with the punch.
- (g) Make sure the shaft rotates smoothly.

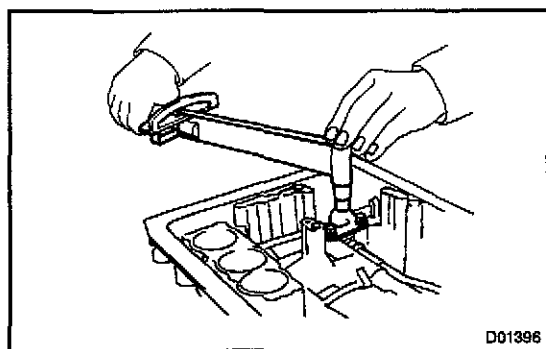


21. INSTALL PARKING LOCK PAWL AND ROD

- (a) Install the E-ring to the shaft.
- (b) Install the parking lock pawl, shaft and spring.

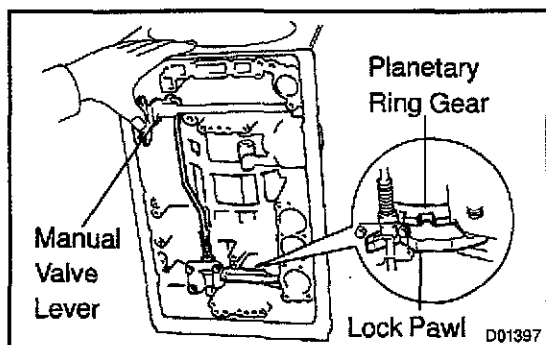


- (c) Connect the parking lock rod to the manual valve lever.

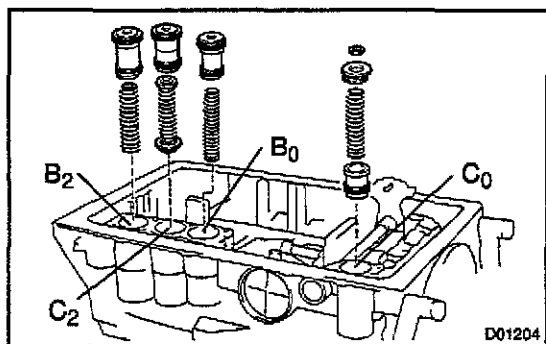


- (d) Place the parking lock pawl bracket onto the transmission case and torque the 3 bolts.

Torque: 7.4 N·m (75 kgf·cm, 65 in.-lbf)



- (e) Shift the manual valve lever to the P position, and confirm the planetary ring gear is correctly locked up by the lock pawl.

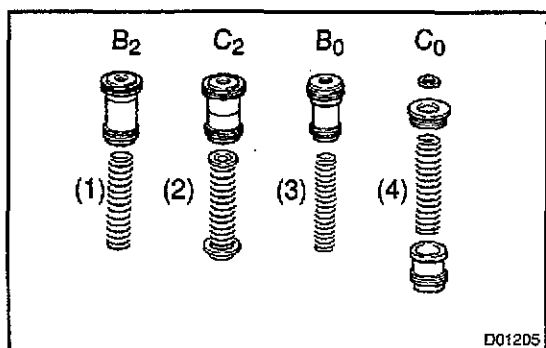


22. INSTALL ACCUMULATOR SPRINGS AND PISTONS

- (a) Coat new O-rings with ATF and install them to the pistons.
 (b) Install the 4 springs and 4 accumulator pistons to the holes.

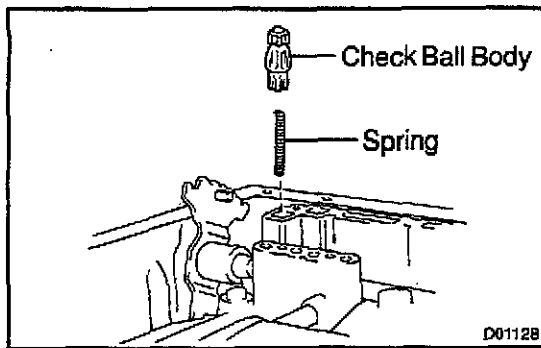
HINT:

The pistons are marked in relief with either C₀, B₀, C₂ or B₂ to discriminate each other.

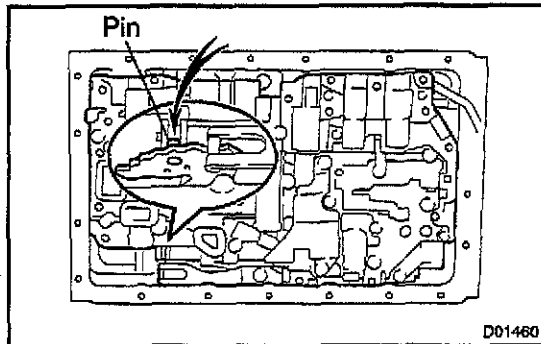


Accumulator spring:

Spring		Free length Outer diameter mm (in.)	Color
(1) B ₂		80.91 (3.185) 19.97 (0.786)	Pink & white
(2) C ₂ 1UZ-FE:	Inner	35.80 (1.409) 14.00 (0.551)	None
	Outer	89.41 (3.520) 19.70 (0.776)	
(2) C ₂ 2JZ-GE:	Inner	35.80 (1.409) 14.00 (0.551)	White
	Outer	81.86 (3.223) 19.70 (0.776)	
(4) B ₀		69.40 (2.732) 16.25 (0.640)	White
(5) C ₀		65.00 (2.559) 20.59 (0.811)	None

**23. INSTALL SPRING AND CHECK BALL BODY**

- (a) Align the groove of the manual valve with the pin of the lever.

**24. INSTALL VALVE BODY**

- (b) Install the 20 bolts.

Torque: 9.8 N·m (100 kgf·cm, 7 ft·lbf)

HINT:

Each bolt length is indicated below.

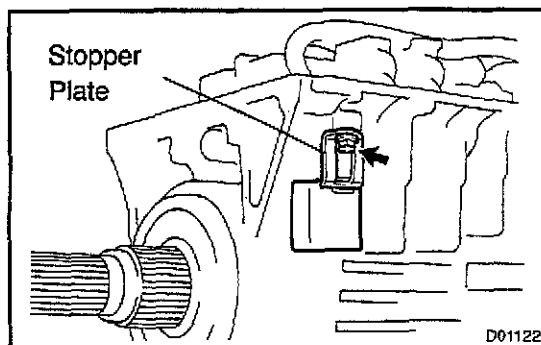
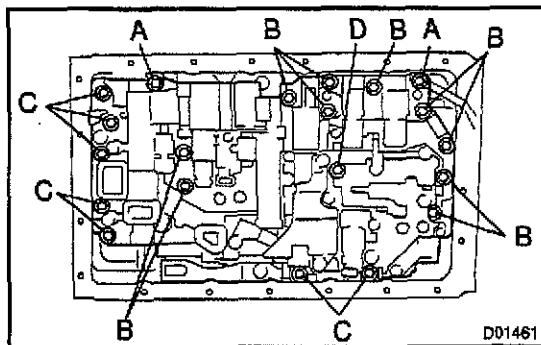
Bolt length:

Bolt A: 23 mm (0.866 in.)

Bolt B: 28 mm (1.102 in.)

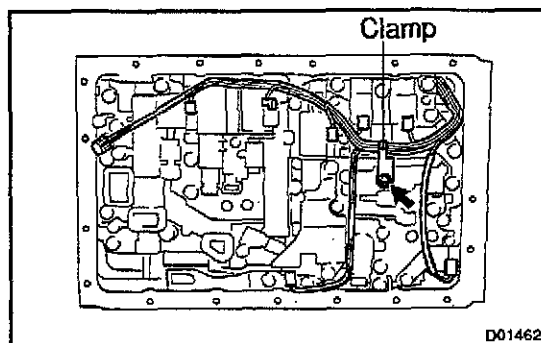
Bolt C: 36 mm (1.417 in.)

Bolt D: 55 mm (2.165 in.)

**25. INSTALL TRANSMISSION WIRE**

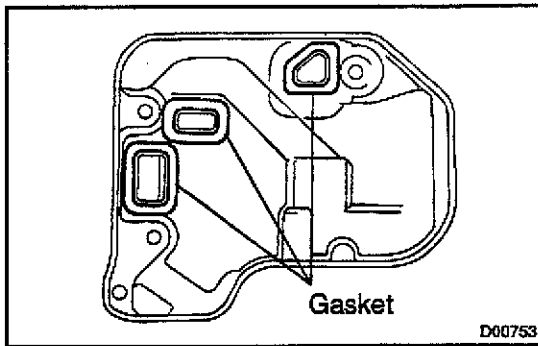
- (a) Coat a new O-ring with ATF and install it to the transmission wire.
- (b) Insert the transmission wire to the case and install the stopper plate with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

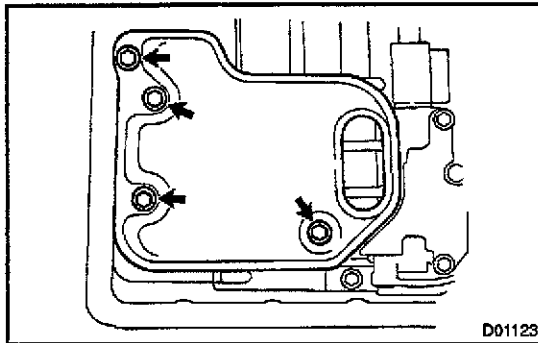


- (c) Connect the 7 solenoid connectors.
- (d) Install the ATF temperature sensor.
- (e) Install the clamp and bolt.

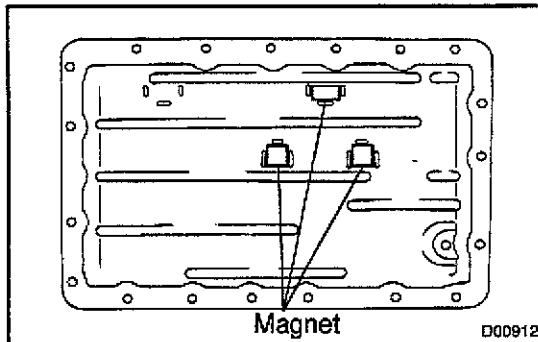
Torque: 6.4 N·m (65 kgf·cm, 56 in·lbf)

**26. INSTALL OIL STRAINER AND GASKET**

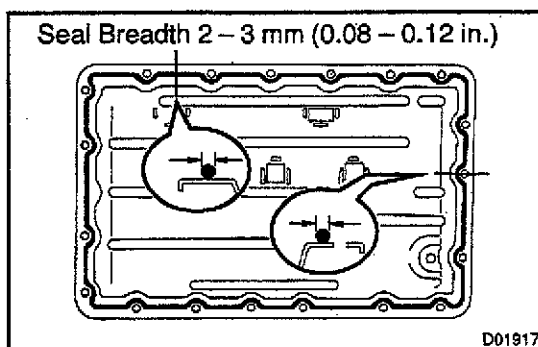
- (a) Install new 3 gaskets to oil strainer.



- (b) Install the oil strainer with the 4 bolts.
Torque: 9.8 N·m (100 kgf-cm, 7 ft-lbf)

**27. INSTALL OIL PAN**

- (a) Install the 3 magnets in the oil pan.

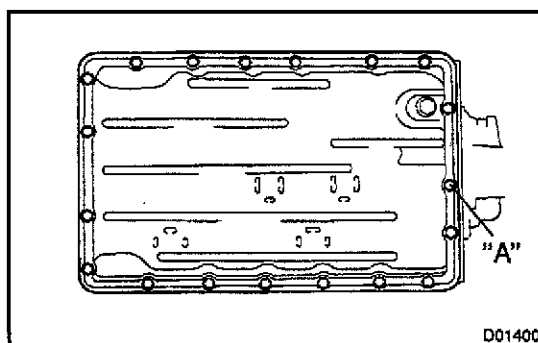


- (b) Remove any FIPG material and be careful not to drop oil on the contacting surfaces of the transmission case and oil pan.

- (c) Apply FIPG to the oil pan.

FIPG:

Part No.08826-00090, THREE BOND 1281 or equivalent

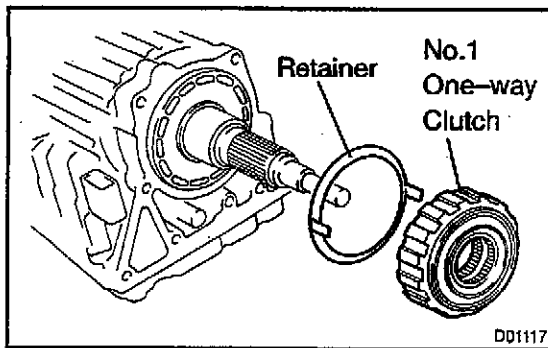


- (d) Install and torque the 19 bolts.

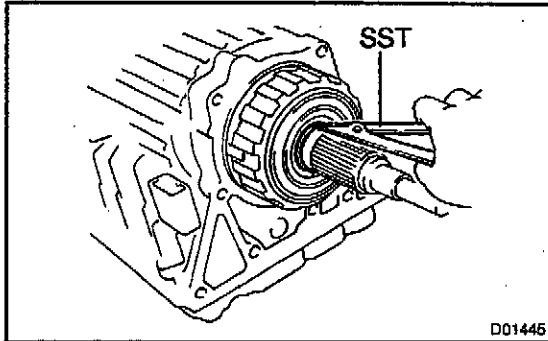
Torque: 7.4 N·m (75 kgf-cm, 65 in.-lbf)

HINT:

Replace the only "A" bolt with a new one.

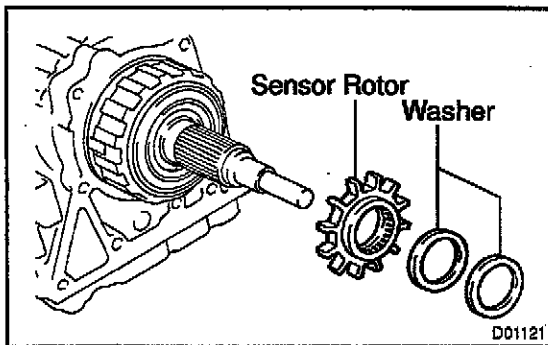
**28. INSTALL ONE-WAY CLUTCH**

- (a) Install the retainer and the No.2 one-way clutch.

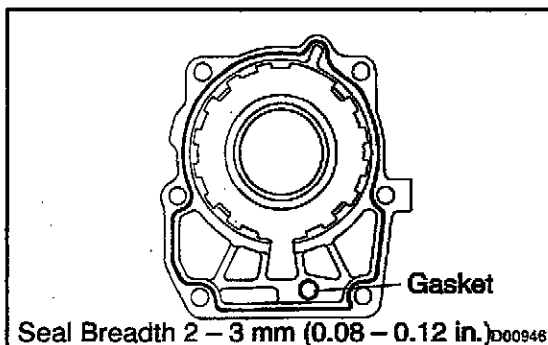


- (b) Using SST, install the snap ring.

SST 09350-30020 (09350-07070)

**29. INSTALL VEHICLE SPEED SENSOR ROTOR**

Install the vehicle speed sensor rotor and 2 washers.

**30. INSTALL EXTENSION HOUSING**

- (a) Install the gasket from the extension housing.

HINT:

Take care not to drop the gasket.

- (b) Clean the threads of the bolts and case with white gasoline.

- (c) Apply FIPG to the extension housing.

FIPG:

Part No.08826-00090, THREE BOND 1281 or equivalent

- (d) Install the extension housing with new 6 bolts.

Torque: 34 N·m (345 kgf·cm, 25 ft·lbf)

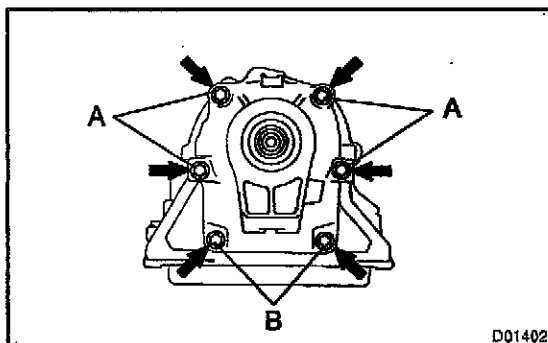
HINT:

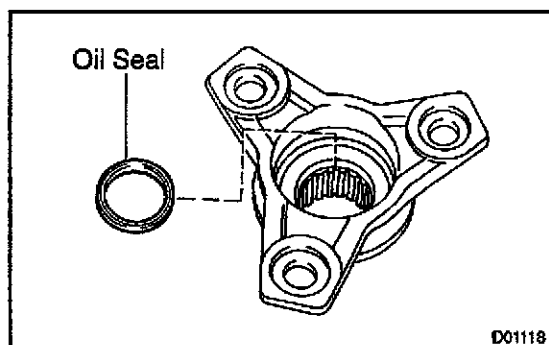
Each blot length is indicated below.

Bolt length:

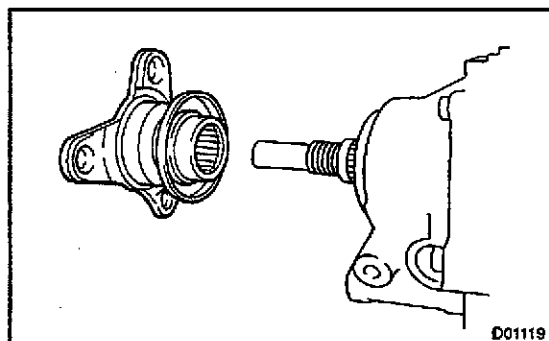
Bolt A: 45 mm (1.772 in.)

Bolt B: 35 mm (1.378 in.)

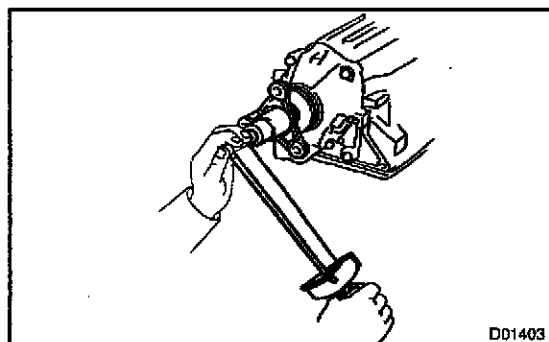


**31. INSTALL TRANSMISSION OUTPUT FLANGE**

- (a) Using SST, install a new oil seal to the output flange.
 SST 09950-60010 (09951-00350)
 09950-70010 (09951-07100)



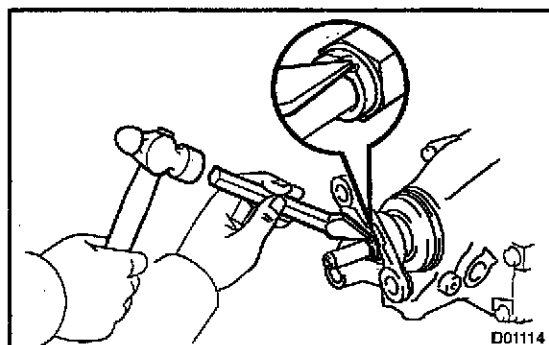
- (b) Install the output flange.



- (c) Using a deeper socket wrench of 30 mm, install a new nut.
Torque: 126 N·m (1,280 kgf·cm, 92 ft·lbf)

HINT:

Shift the manual valve lever to the P position.



- (d) Using a hammer and chisel, stake the nut.

32. REMOVE TRANSMISSION CASE FROM OVERHAUL ATTACHMENT**33. INSTALL TRANSMISSION HOUSING**

- (a) Clean the threads of the bolts and case with white gasoline.

- (b) Apply seal packing or equivalent to the 6 bolts.

Seal packing:

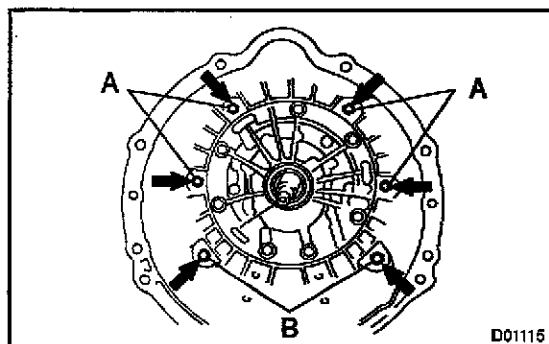
Part No. 08833-00070, THREE BOND 1324 or equivalent.

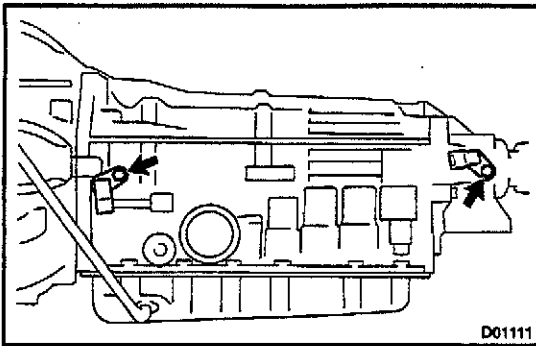
- (c) Install the transmission housing with the 6 bolts.

Torque:

A (14 mm bolt): 34 N·m (345 kgf·cm, 25 ft·lbf)

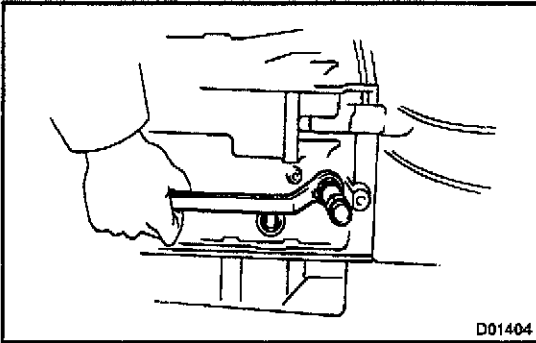
B (17 mm bolt): 57 N·m (580 kgf·cm, 42 ft·lbf)



**34. INSTALL VEHICLE SPEED SENSORS**

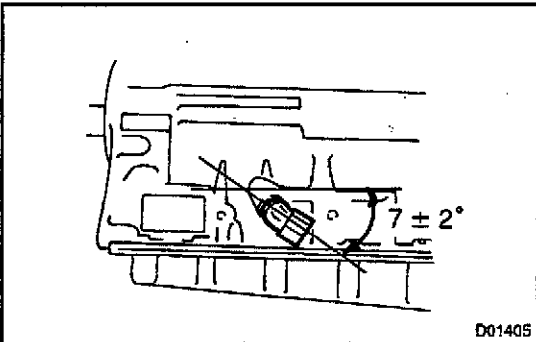
- (a) Coat 2 new O-rings with ATF and install it to the speed sensor.
- (b) Install the 2 vehicle speed sensors.
- (c) Install the bolts.

Torque: 5.4 N·m (55 kgf·cm, 48 in.-lbf)

**35. INSTALL UNION AND ELBOW**

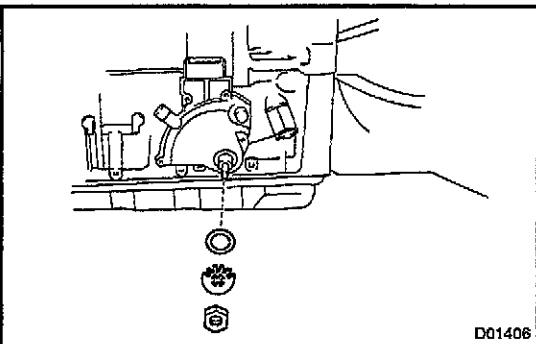
- (a) Coat 2 new O-rings with ATF, install them to union and elbow.
- (b) Install the union.

Torque: 29 N·m (300 kgf·cm, 22 ft-lbf)



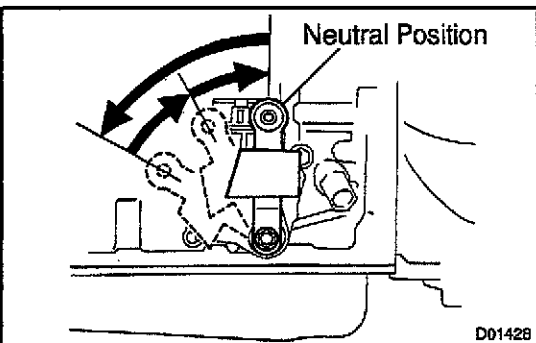
- (c) Install the elbow.

Torque: 29 N·m (300 kgf·cm, 22 ft-lbf)

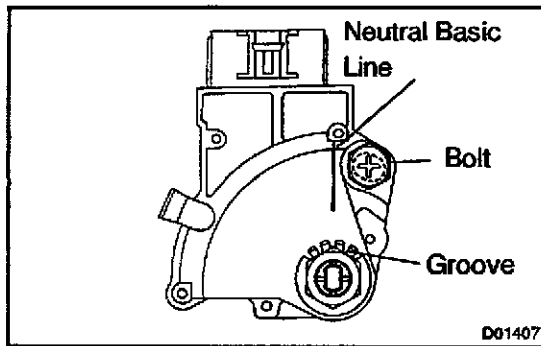
**36. INSTALL PARK/NEUTRAL POSITION SWITCH**

- (a) Install the park/neutral position switch onto the manual valve lever shaft and temporarily install the adjusting bolt.
- (b) Install the grommet and a new lock washer. Install and torque the nut.

Torque: 6.9 N·m (70 kgf·cm, 61 in.-lbf)

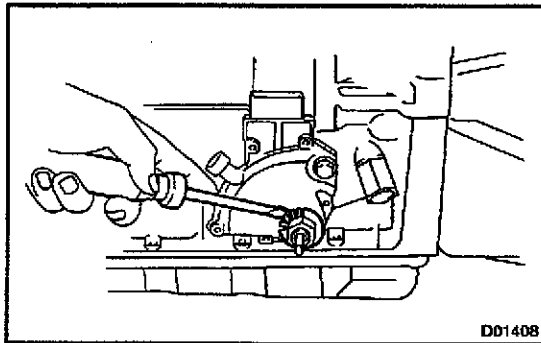


- (c) Using the control shaft lever, fully turn the manual lever shaft back and return 2 notches. It is now in neutral.



- (d) Align the neutral basic line with the switch groove, and tighten the adjusting bolt.

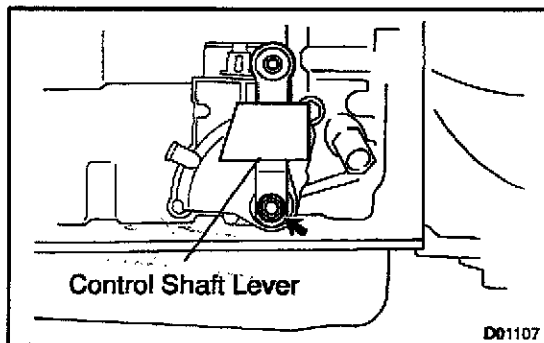
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)



- (e) Using a screwdriver, bend the tabs of the lock washer.

HINT:

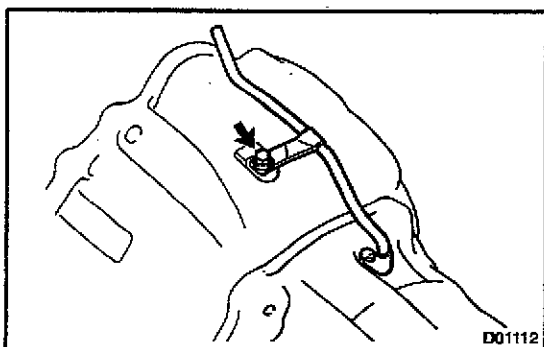
Bend at least 2 of the lock washer tabs.



37. INSTALL CONTROL SHAFT LEVER

Install the washer and nut to the control shaft lever.

Torque: 16 N·m (160 kgf·cm, 12 ft·lbf)



38. INSTALL BREATHER PIPE

- (a) Install the breather pipe and bolt.

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

- (b) Install the breather hose and bolt.

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

HINT:

GS 400: Breather hose 205 mm (8.071 in.)

GS 300: Breather hose 400 mm (15.748 in.)

- (c) Install the breather plug.