

## **INSTALLATION OF COMPONENT PARTS (A340E)**

(See pages AT-25 to AT-28)

Disassembly, inspection and assembly of each component group have been indicated in the preceding chapter. Before assembly, make sure again that all component groups are assembled correctly.

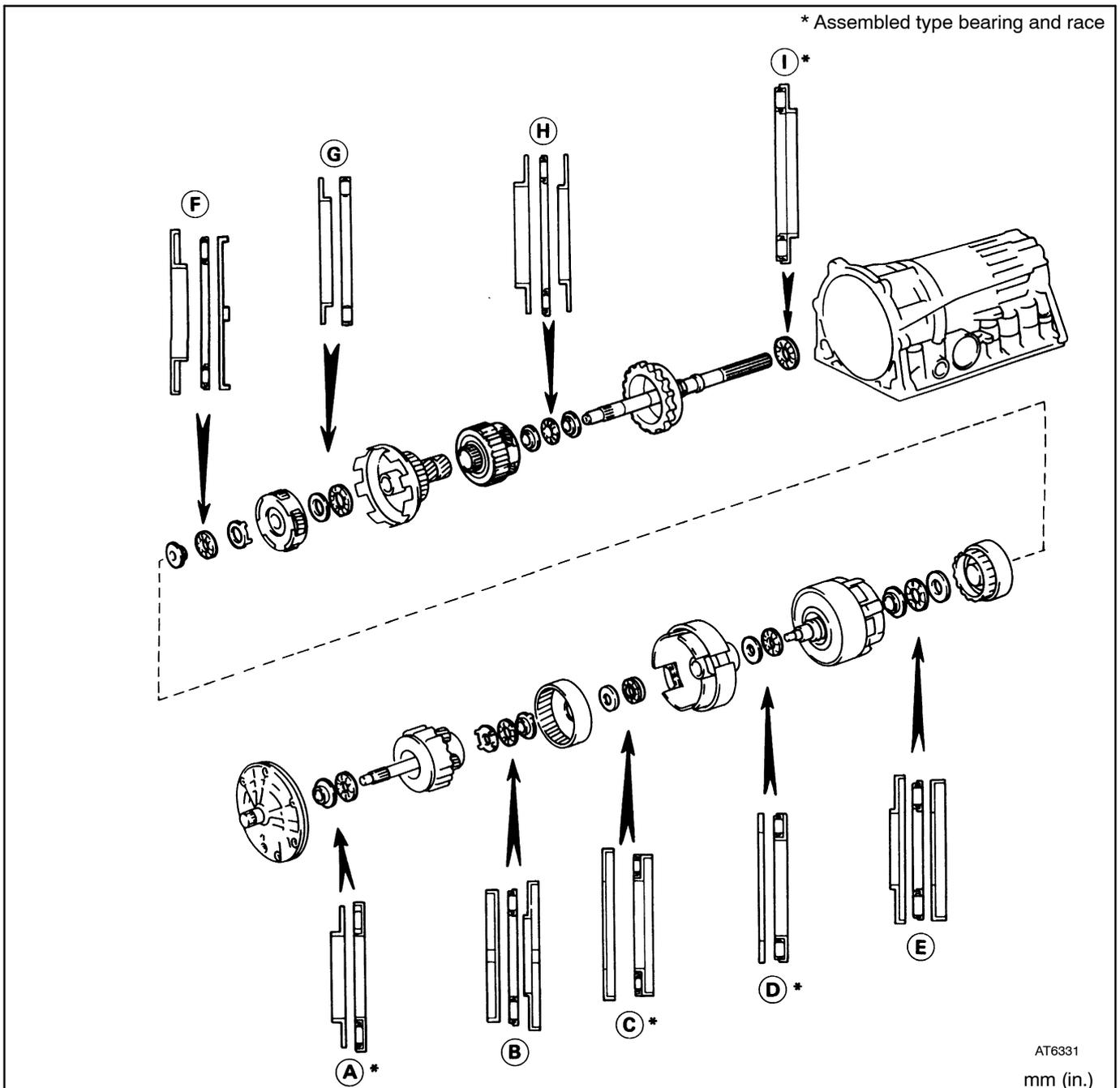
If something wrong is found in a certain component group during assembly, inspect and repair this group immediately.

Recommended ATF: DEXRON® II

### **GENERAL NOTES:**

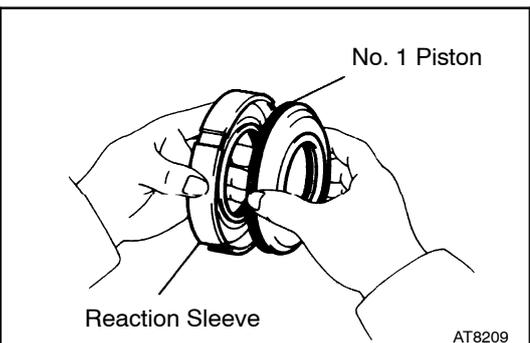
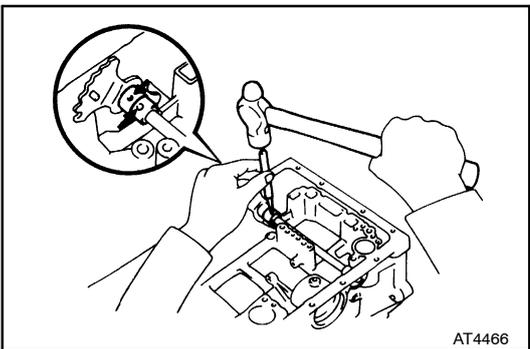
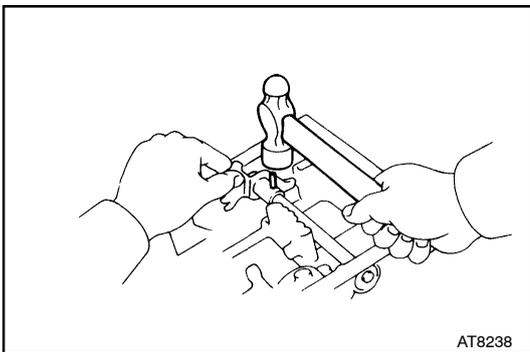
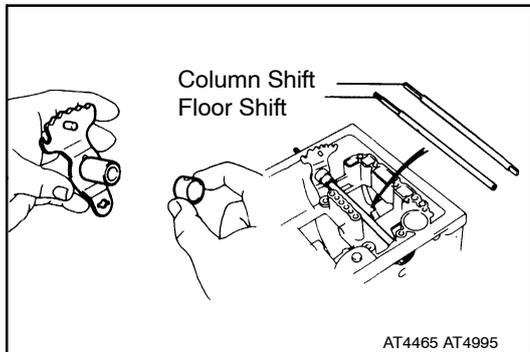
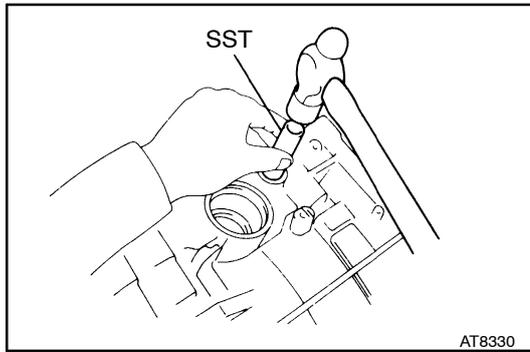
1. The automatic transmission is composed of highly precision-finished parts, necessitating careful inspection before assembly because even a small nick could cause fluid leakage or affect performance.
2. Before assembling new clutch discs, soak them in automatic transmission fluid for at least fifteen minutes.
3. Apply automatic transmission fluid on sliding or rotating surfaces of parts before assembly.
4. Use petroleum jelly to keep small parts in their place.
5. Do not use adhesive cements on gaskets and similar parts.
6. When assembling the transmission, be sure to use new gaskets and O-rings.
7. Dry all parts with compressed air – never use shop rags.
8. 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 assembled within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.

### INSTALLATION POSITION AND DIRECTION OF BEARINGS AND RACES



AT6331  
mm (in.)

	Front Bearing Race		Thrust Bearing		Rear Bearing Race	
	Inner Diameter	Outer Diameter	Inner Diameter	Outer Diameter	Inner Diameter	Outer Diameter
<b>(A)</b>	28.1 (1.106)	47.3 (1.862)	28.9 (1.138)	50.2 (1.976)	—	—
<b>(B)</b>	27.1 (1.067)	41.8 (1.646)	26.0 (1.024)	46.8 (1.843)	24.2 (0.953)	47.8 (1.882)
<b>(C)</b>	SUPRA 37.2 (1.465) Others 37.1 (1.461)	58.8 (2.315)	33.7 (1.327)	51.1 (2.012)	—	—
<b>(D)</b>	36.8 (1.449)	50.9 (2.004)	33.7 (1.327)	47.6 (1.874)	—	—
<b>(E)</b>	26.0 (1.024)	48.9 (1.925)	26.0 (1.024)	46.7 (1.839)	26.8 (1.055)	47.0 (1.850)
<b>(F)</b>	30.6 (1.205)	53.6 (2.110)	32.6 (1.283)	47.7 (1.878)	34.3 (1.350)	47.0 (1.850)
<b>(G)</b>	33.7 (1.327)	47.6 (1.874)	35.5 (1.398)	47.7 (1.878)	—	—
<b>(H)</b>	28.8 (1.134)	44.8 (1.764)	30.1 (1.185)	44.7 (1.760)	27.8 (1.094)	44.8 (1.764)
<b>(I)</b>	—	—	39.2 (1.543)	57.7 (2.272)	—	—

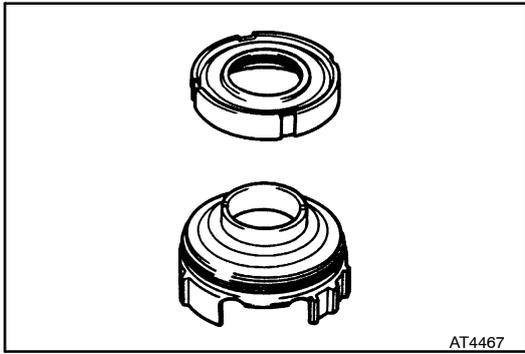


## 1. INSTALL MANUAL VALVE LEVER, SHAFT AND OIL SEALS

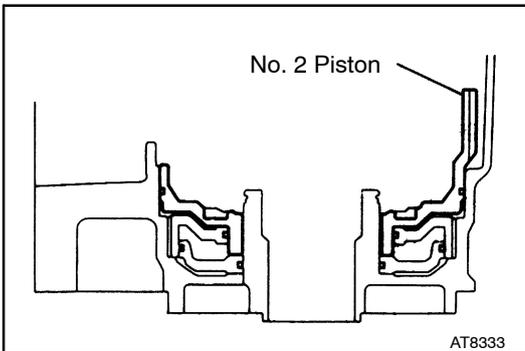
- (a) Using SST, drive in two oil seals.  
SST 09350-30020 (09350-07110)
- (b) Coat the oil seal lip with MP grease.
- (c) Assemble a new spacer to the manual valve lever.
- (d) Install the manual valve lever shaft to the transmission case through the manual valve lever.
- (e) Drive in the pin to the shaft.
- (f) Match the spacer hole to the lever calking hollow and calk the spacer to the lever.
- (g) Make sure the manual valve lever shaft turns smoothly.

## 2. INSTALL COMPONENTS OF FIRST AND REVERSE BRAKE PISTON

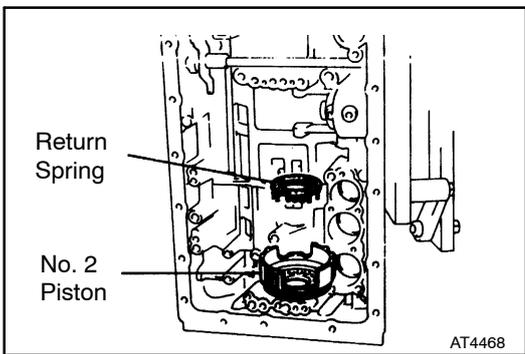
- (a) Coat three new O-rings with ATF.
- (b) Install the two O-rings on No. 1 piston.
- (c) Install the O-ring on the reaction sleeve.
- (d) Install the No. 1 piston to the reaction sleeve.



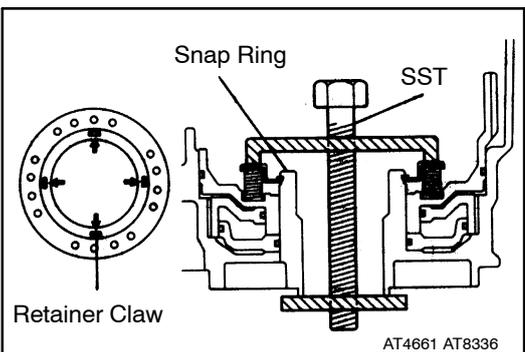
- (e) Coat a new O-ring with ATF and install it on No. 2 piston.
- (f) Install No. 1 piston with the reaction sleeve onto No. 2 piston.



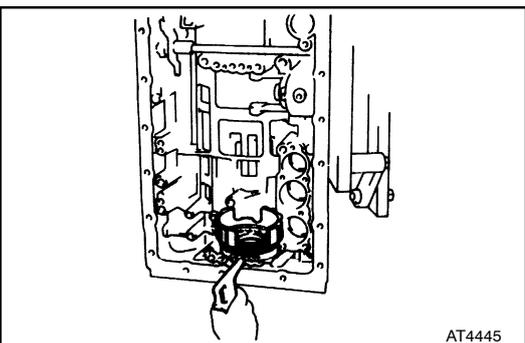
- (g) Align the teeth of No. 2 piston into the proper grooves.
- (h) Being careful not to damage the O-rings, press in No. 2 and No. 1 first and reverse brake pistons into the transmission case.



- (i) Place the piston return spring onto No. 2 piston.

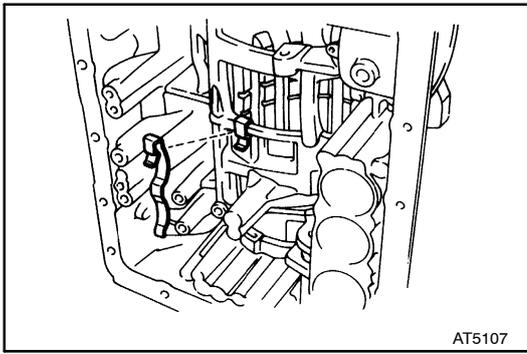


- (j) Set SST as shown, and compress the return-spring with SST.
- SST 09350-30020 (09350-07050)
- (k) Install the snap ring with a screwdriver. Be sure the end gap of the snap ring is not aligned with the spring retainer claw.



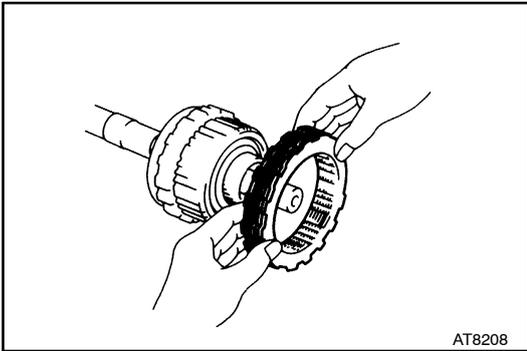
### 3. CHECK FIRST AND REVERSE BRAKE PISTONS MOVING

Make sure the first and reverse brake pistons move smoothly when applying and releasing the compressed air into the transmission case.



AT5107

**4. INSTALL LEAF SPRING**



AT8208

**5. INSTALL REAR PLANETARY GEAR UNIT WITH SECOND BRAKE DRUM, FIRST AND REVERSE BRAKE PACK AND OUTPUT SHAFT**

(a) Reinstall the original flange, the rounded edge facing forward.

(b) Install the plates and discs.

Install in order: P = Plate D = Disc

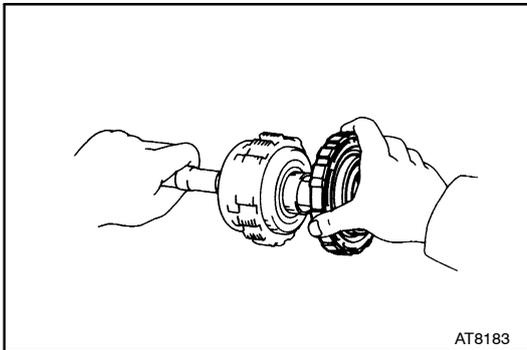
**(7M-GTE)**

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

**(Others)**

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

(c) Install the second brake drum assembly.



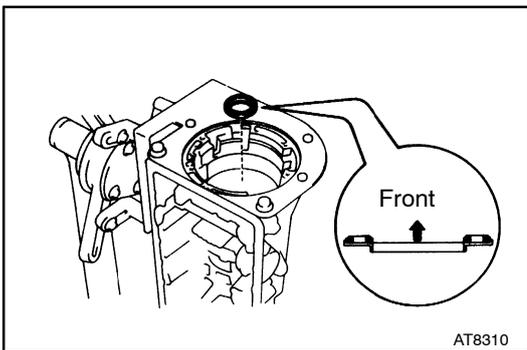
AT8183

(d) Coat the assembled bearing and race with petroleum jelly and install it onto the case.

HINT: Assembled bearing and race diameter

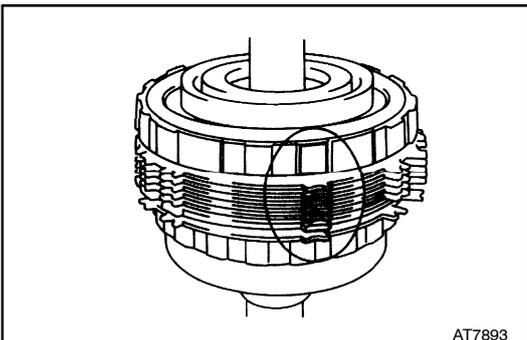
mm (in.)

	Inside	Outside
Bearing and race	39.2 (1.543)	57.7 (2.272)

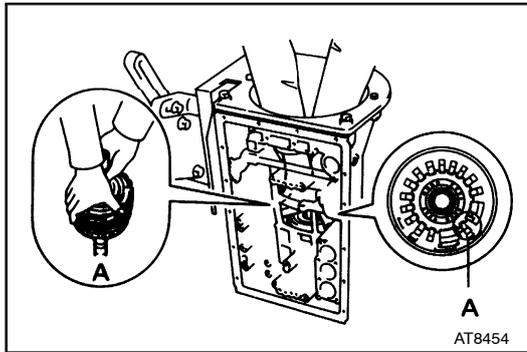


AT8310

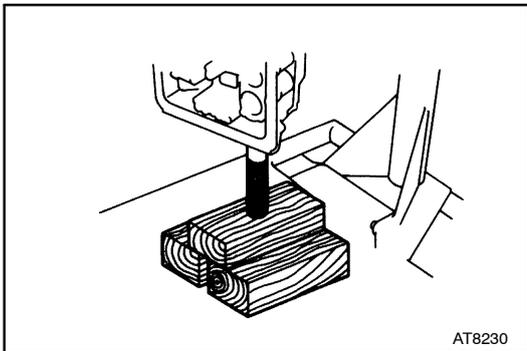
(e) Align the teeth of the second brake drum, flange, discs and plates as shown in the figure.



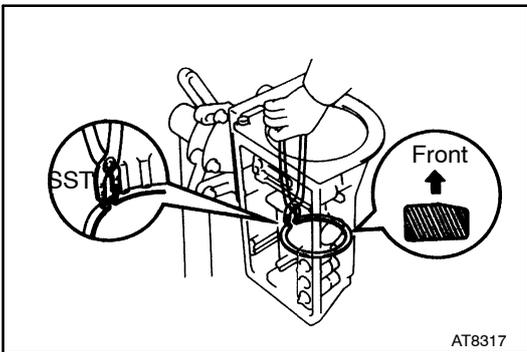
AT7893



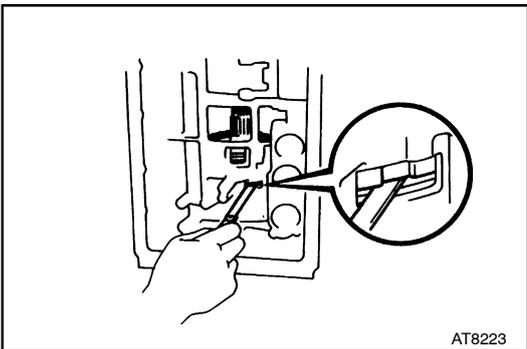
- (f) Align the splines of the transmission case and the assembled rear planetary gear, second brake drum, first and reverse brake pack and output shaft, indicated by A.



- (g) Hold the output shaft with wooden blocks.



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



**6. CHECK PACK CLEARANCE OF FIRST AID REVERSE BRAKE**

Using a thickness gauge, measure the clearance between the plate and second brake drum as shown in the figure.

**Clearance:**

**(7M-GTE)**

**0.70 – 1.22 mm (0.0276 – 0.0480 in.)**

**(Others)**

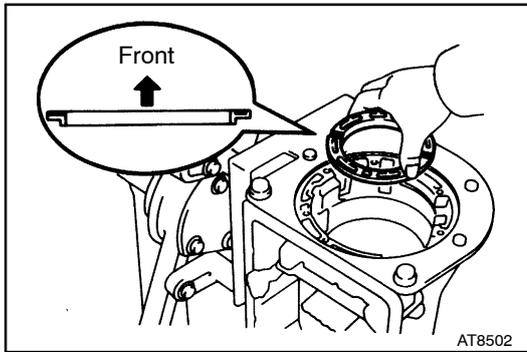
**0.60 – 1.12 mm (0.0236 – 0.0441 in.)**

If the values are nonstandard, select another flange.

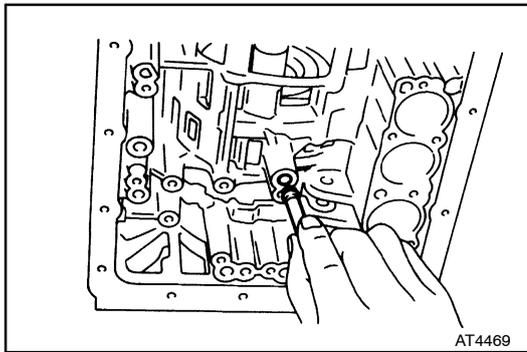
HINT: There are six different thicknesses for the flange.

mm (in.)

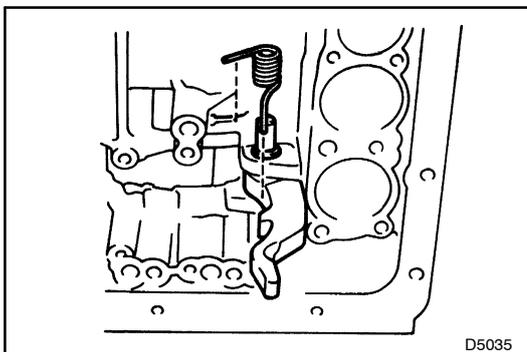
No.	Thickness	No.	Thickness
50	5.0 (0.197)	53	4.4 (0.173)
51	4.8 (0.189)	54	4.2 (0.165)
52	4.6 (0.181)	55	4.0 (0.157)



## 7. INSTALL SECOND BRAKE PISTON SLEEVE

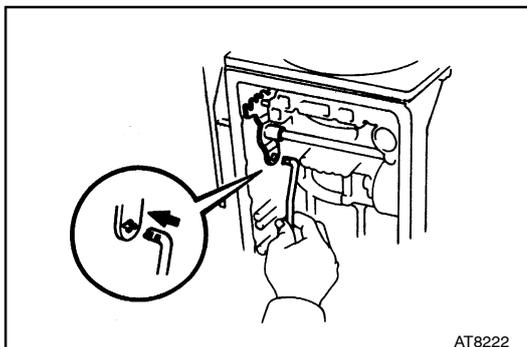


## 8. INSTALL NEW BRAKE GASKET

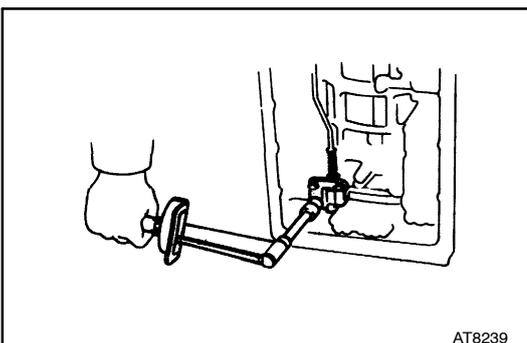


## 9. INSTALL PARKING LOCK PAWL AND ROD

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

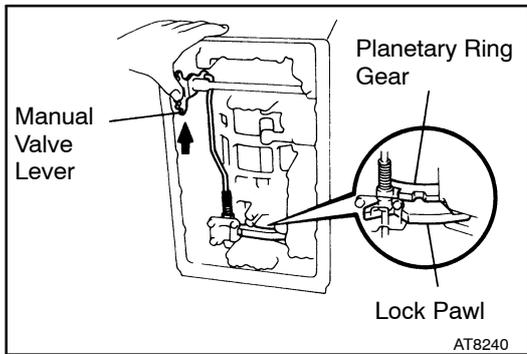


- (c) Connect the parking lock rod to the manual valve lever.

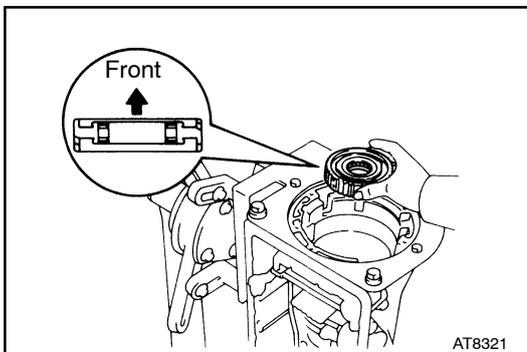


- (d) Install the parking lock pawl bracket and torque the bolts.

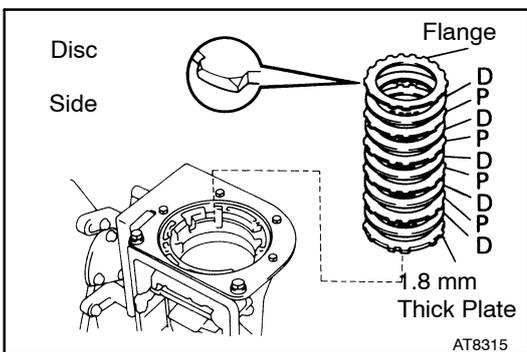
**Torque: 75 kg-cm (65 in.-lb, 7.4 N-m)**



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

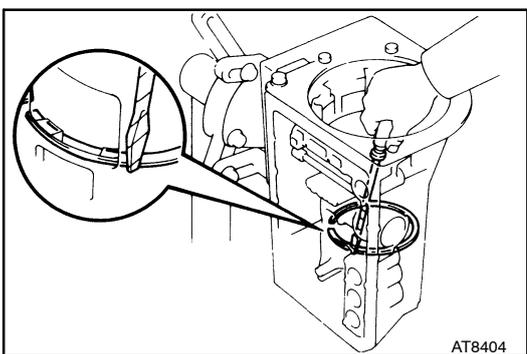


**10. INSTALL NO. 1 ONE-WAY CLUTCH**

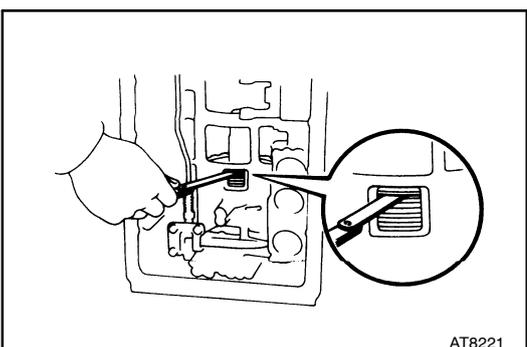


**11. INSTALL FLANGE, PLATES AND DISCS OF SECOND BRAKE**

- (a) Install the 1.8 mm (0.071 in.) thick plate with the rounded edge side of the plate facing the disc.
- (b) Install the plates and discs.  
Install in order: P = Plate, D = Disc  
P-D-P-D-P-D-P-D-P-D
- (c) Install flange with the rounded edge of the flange facing the disc.

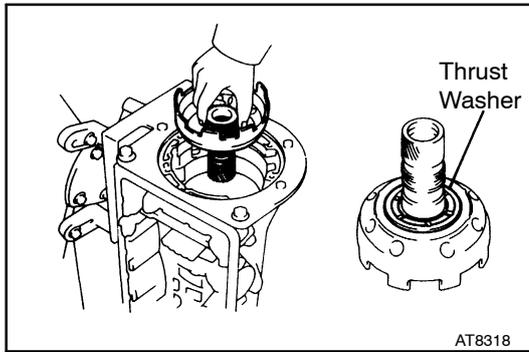


- (d) Install snap ring.



**12. CHECK PACK CLEARANCE OF SECOND BRAKE**

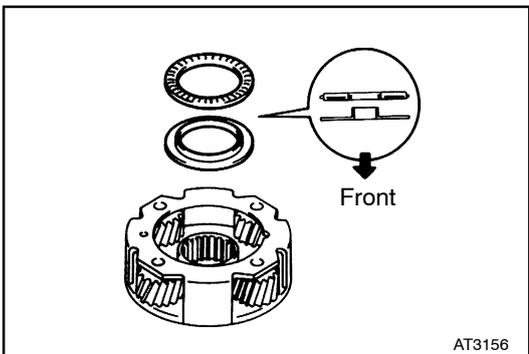
Using a thickness gauge, measure the clearance between the snap ring and flange as shown in the figure. **Clearance: 0.62 – 1.98 mm (0.0244 – 0.0780 in.)** If the values are nonstandard, check for an improper installation.



**13. INSTALL PLANETARY SUN GEAR**

While turning the planetary sun gear clockwise, install it into No. 1 one-way clutch.

HINT: Confirm that the thrust washer is installed correctly.



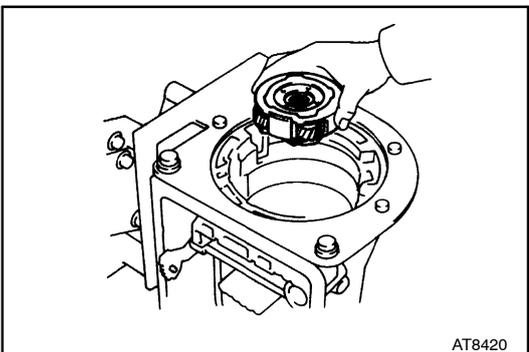
**14. INSTALL FRONT PLANETARY GEAR**

(a) Coat the bearing and race with petroleum jelly and install them onto the front planetary gear.

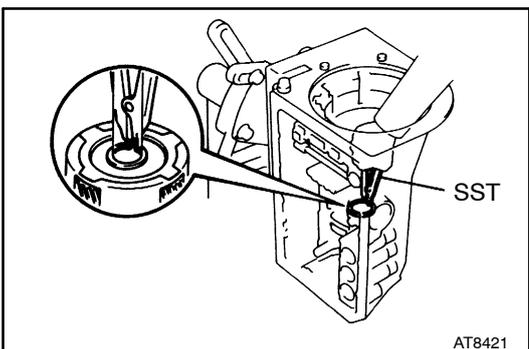
HINT: Bearing and race diameter

mm (in.)

	Inside	Outside
Bearing	35.5 (1.398)	47.7 (1.878)
Race	33.7 (1.327)	47.6 (1.874)



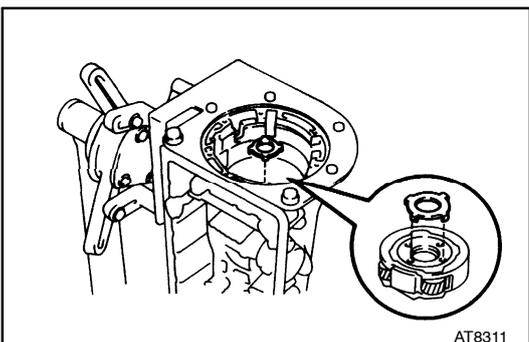
(b) Install the front planetary gear to the sun gear.



(c) Using SST, install the snap ring.

SST 09350-30020 (09350-07070)

(d) Remove the wooden blocks under the output shaft.

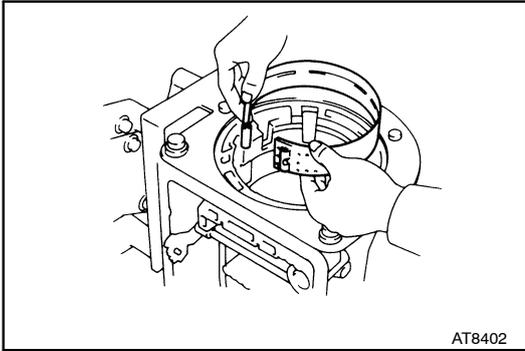


(e) Coat the bearing race with petroleum jelly and install it onto the front planetary gear.

HINT: Race diameter

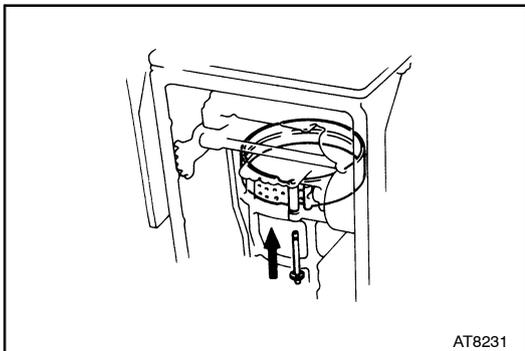
mm (in.)

	Inside	Outside
Race	34.3 (1.350)	47.8 (1.882)

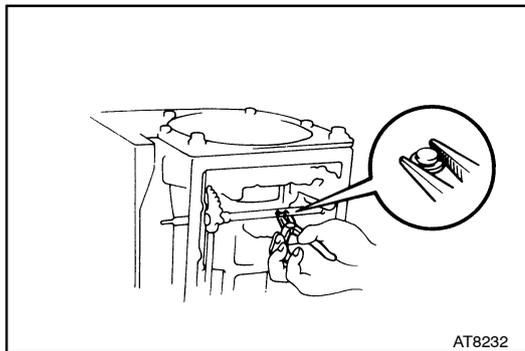


**15. INSTALL SECOND COAST BRAKE BAND**

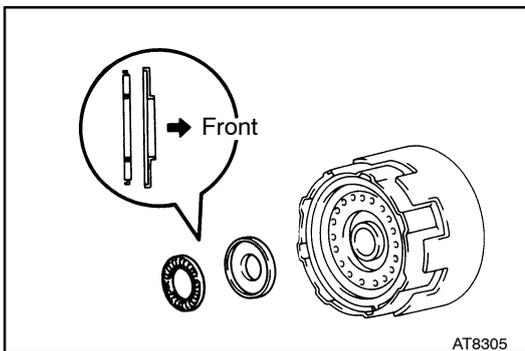
(a) Install the second coast brake band to the case.



(b) Install the pin through the brake band.



(c) Install the E-ring to the pin.



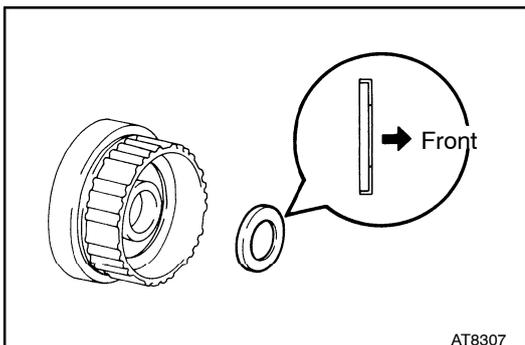
**16. INSTALL FRONT PLANETARY RING GEAR TO FORWARD AND DIRECT CLUTCH**

(a) Coat the bearing and race with petroleum jelly and install them onto the forward clutch.

HINT: Bearing and race diameter

mm (in.)

	Inside	Outside
Bearing	26.0 (1.024)	46.7 (1.839)
Race	26.0 (1.024)	48.9 (1.925)

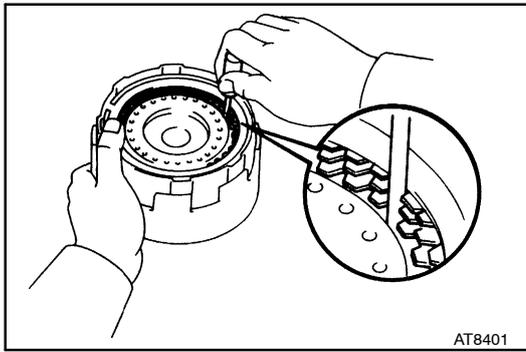


(b) Coat the race with petroleum jelly and install it onto the front planetary ring gear.

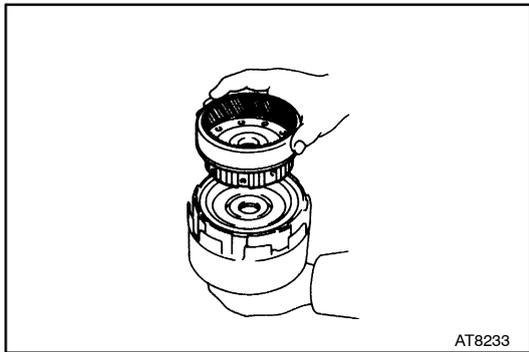
HINT: Race diameter

mm (in.)

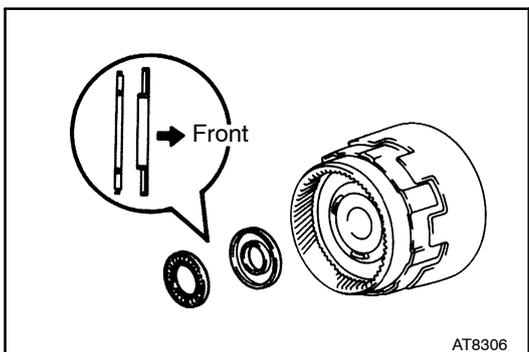
	Inside	Outside
Race	26.8 (1.055)	47.0 (1.850)



(c) Align the flukes of the discs in the forward clutch.



(d) Align the splines of the front planetary ring gear with the flukes of the discs and install the front planetary ring gear to the forward clutch.



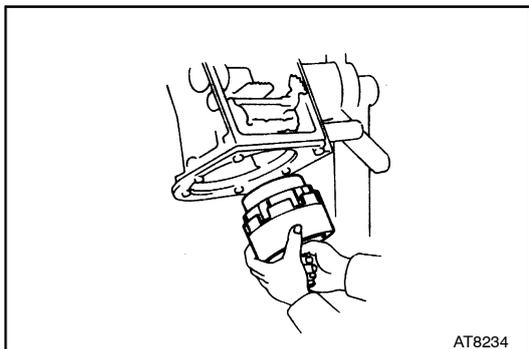
**17. INSTALL ASSEMBLED DIRECT CLUTCH, FORWARD CLUTCH AND FRONT PLANETARY RING GEAR INTO CASE**

(a) Coat the bearing and race with petroleum jelly and install them onto the ring gear.

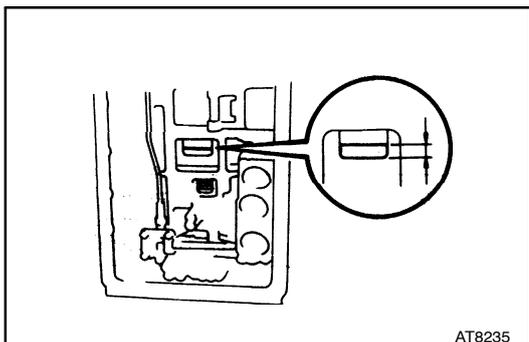
HINT: Bearing and race diameter

mm (in.)

	Inside	Outside
Bearing	32.6 (1.283)	47.7 (1.878)
Race	30.6 (1.205)	53.6 (2.110)



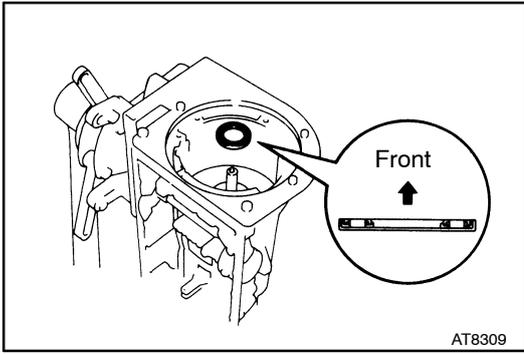
(b) Install the assembled direct clutch, forward clutch and front planetary ring gear into the transmission case.



(c) Using vernier calipers, measure the distance between the sun gear input drum and direct clutch drum as shown in the figure.

**Height: 9.8 – 11.8 mm (0.386 – 0.465 in.)**

If the values are nonstandard, check for an improper installation.

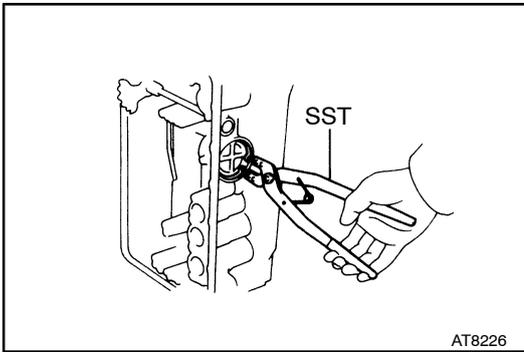


- (d) Coat the assembled bearing and race with petroleum jelly and install it onto the forward clutch.

HINT: Assembled bearing and race diameter

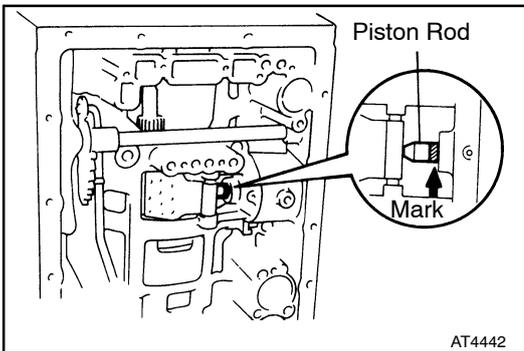
mm (in.)

	Inside	Outside
Bearing and race	33.7 (1.327)	47.6 (1.874)



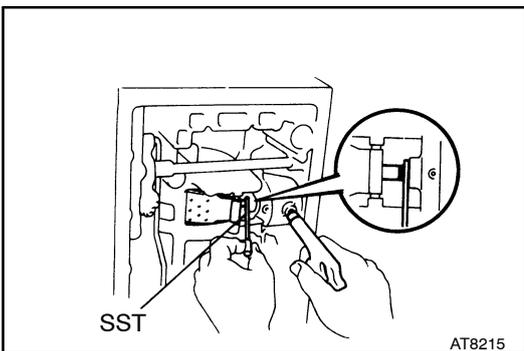
**18. INSTALL SECOND COAST BRAKE COVER, PISTON ASSEMBLY AND SPRING**

- (a) Coat two 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)



**19. CHECK PISTON ROD STROKE OF SECOND COAST BRAKE**

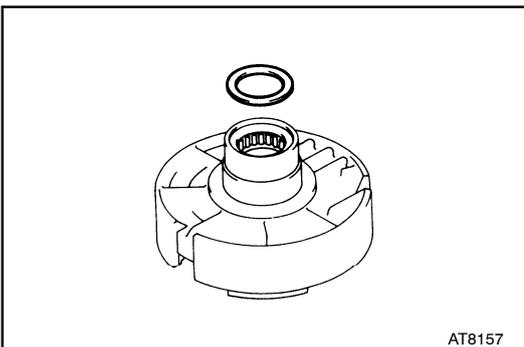
- (a) Place a mark on the second coast brake piston rod as shown in the figure.



- (b) Using SST, measure the stroke applying the compressed air (4 – 8 kg/cm<sup>2</sup>, 57 – 114 psi or 392 – 785 kPa) as shown in the figure.

SST 09240-00020

**Piston rod stroke: 1.5 – 3.0 mm (0.059 – 0.118 in.)**



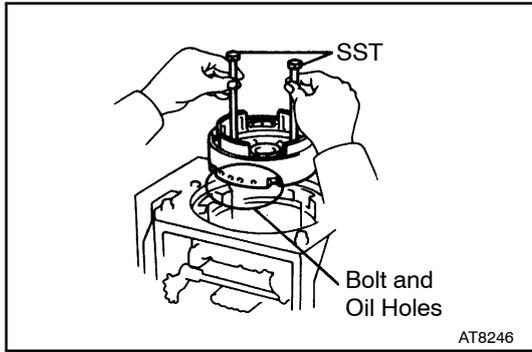
**20. INSTALL OVERDRIVE SUPPORT ASSEMBLY**

- (a) Coat the race with petroleum jelly and install it onto the overdrive support assembly.

HINT: Race diameter

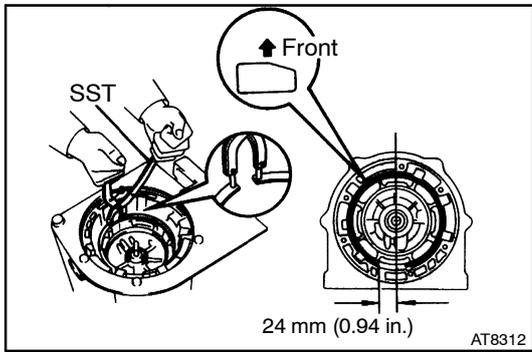
mm (in.)

	Inside	Outside
Race	36.8 (1.449)	50.9 (2.004)



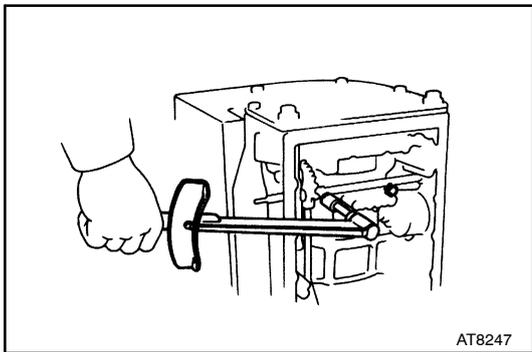
- (b) Using two bolts of SST, aim the bolt and oil holes of the overdrive support toward the valve body side, and align them with the bolt holes of the transmission case and insert.

SST 09350-30020 (09350-07020)



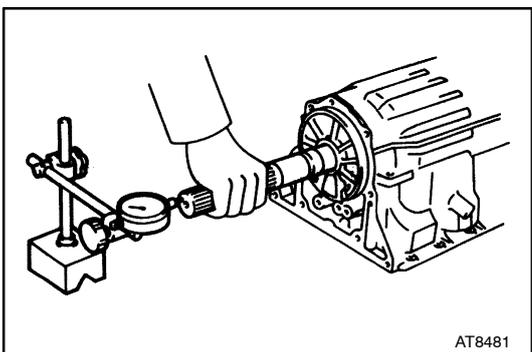
- (c) Using SST, install the snap ring as shown in the figure.

SST 09350-30020 (09350-07060)



- (d) Install and torque the two bolts.

**Torque: 260 kg-cm (19 ft-lb, 25 N-m)**



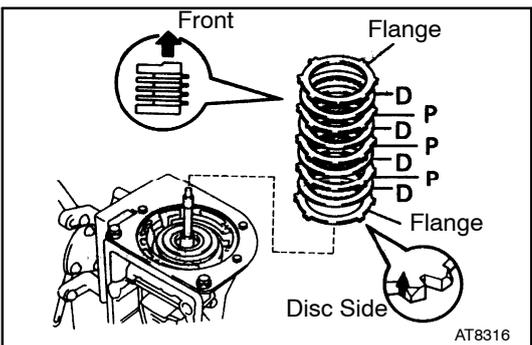
**21. CHECK OUTPUT SHAFT**

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

**End play: 0.27 – 0.86 mm (0.0106 – 0.0339 in.)**

If the values are nonstandard, check for an improper installation.

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



**22. INSTALL FLANGES, PLATES AND DISCS OF OVER-DRIVE 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 plates and discs.

Install in order: P = Plate D = Disc

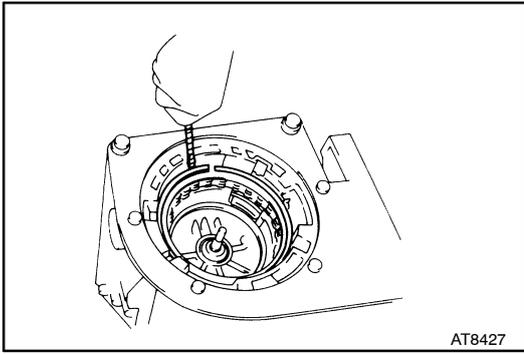
**(7M-GTE)**

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

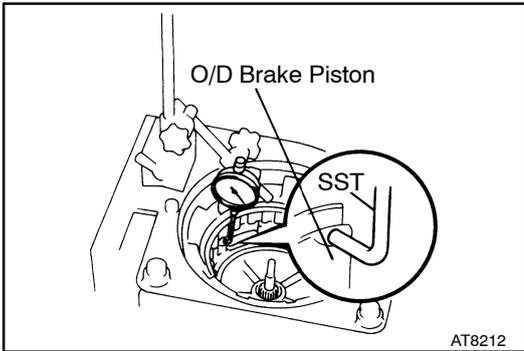
**(Others)**

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

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



(d) Install the snap ring.



**23. CHECK PISTON STROKE OF OVERDRIVE BRAKE**

(a) Place SST and a dial indicator onto the overdrive brake piston as shown in the figure.

SST 09350-30020 (09350-06120)

(b) Measure the stroke applying and releasing the compressed air (4 – 8 kg/cm<sup>2</sup>, 57 – 114 psi or 392 – 785 kPa) as shown in the figure.

**Piston stroke:**

**(7M-GTE)**

**1.75 – 2.05 mm (0.0689 – 0.0807 in.)**

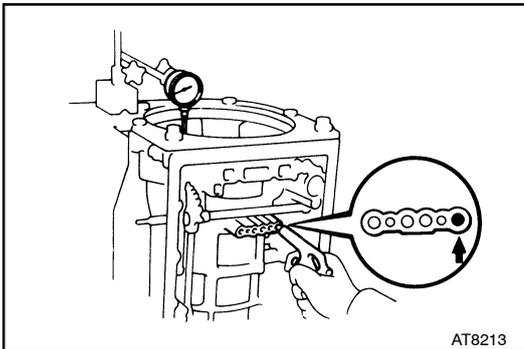
**(Others)**

**1.40 – 1.70 mm (0.0551 – 0.0669 in.)**

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

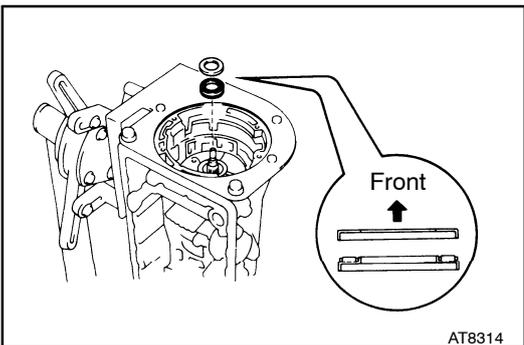
If the piston stroke is nonstandard, select another flange.

HINT: There are seven different thicknesses for the flange.



Flange thickness mm (in.)

No.	Thickness	No.	Thickness
26	3.3 (0.130)	11	3.8 (0.150)
25	3.5 (0.138)	23	3.9 (0.154)
12	3.6 (0.142)	None	4.0 (0.157)
24	3.7 (0.146)		



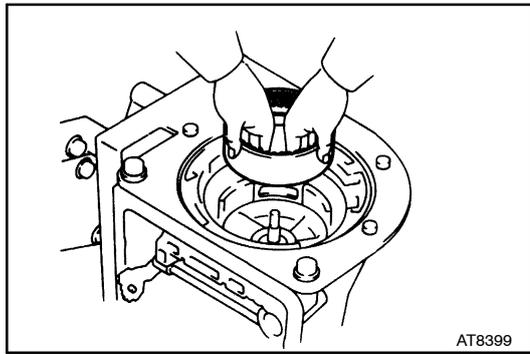
**24. REMOVE FLANGE, PLATES AND DISCS OF OVERDRIVE BRAKE**

(a) Remove the snap ring.

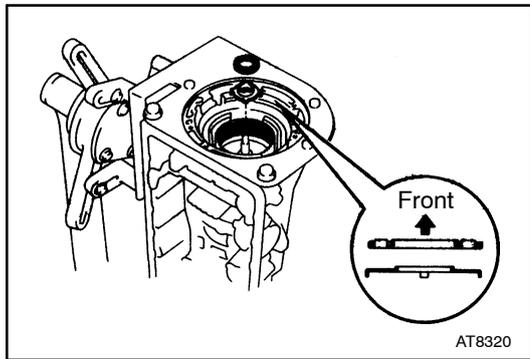
HINT: Bearing and race diameter

mm (in.)

	Inside	Outside
Bearing	33.6 (1.323)	50.3 (1.980)
Race	37.1 (1.461)	59.0 (2.323)



(b) Remove the flanges, plates and discs.

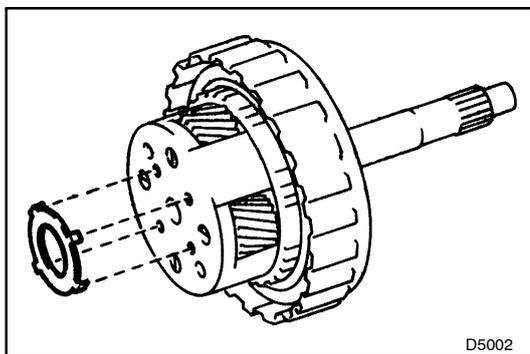


(c) Coat the bearing and race with petroleum jelly and install them onto the planetary ring gear.

HINT: Bearing and race diameter

mm (in.)

	Inside	Outside
Bearing	26.0 (1.024)	46.8 (1.843)
Race	24.2 (0.953)	47.8 (1.882)

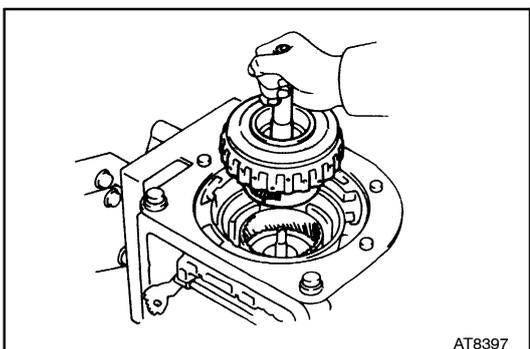


(d) Coat the race with petroleum jelly and install it onto the planetary ring gear.

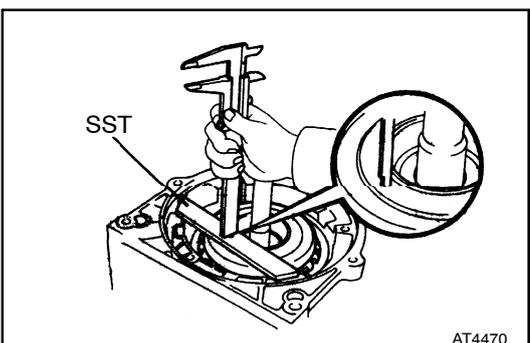
HINT: Race diameter

mm (in.)

	Inside	Outside
Race	27.1 (1.067)	41.8 (1.646)



(e) Install the overdrive planetary gear with overdrive direct clutch and one-way clutch.



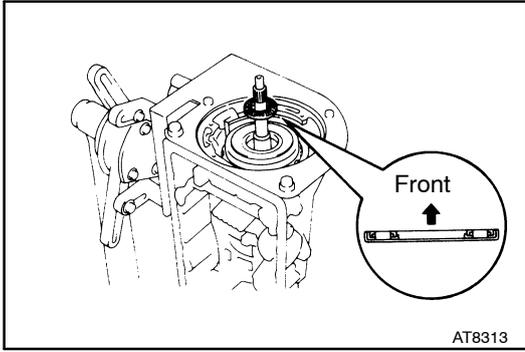
(f) Place SST on the transmission case.

SST 09350 – 36010 (09350 – 06090)

(g) Using calipers, measure distance between the tops of SST and the clutch drum.

**Standard distance: 15.5 – 16.5 mm  
(0.610 – 0.650 in.)**

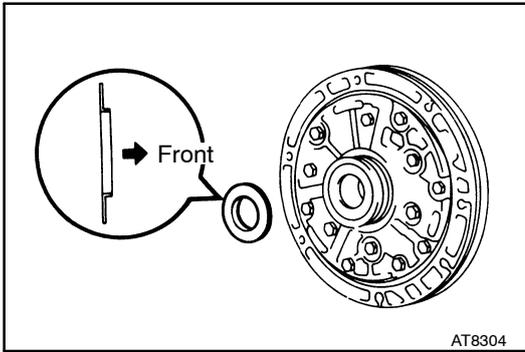
If the values are nonstandard, check for an improper installation.



- (h) Coat the assembled bearing and race with petroleum jelly and install it onto the O/D direct clutch.

HINT: Assembled bearing and race diameter

	mm (in.)	
	Inside	Outside
Bearing and race	28.9 (1.138)	50.2 (1.976)

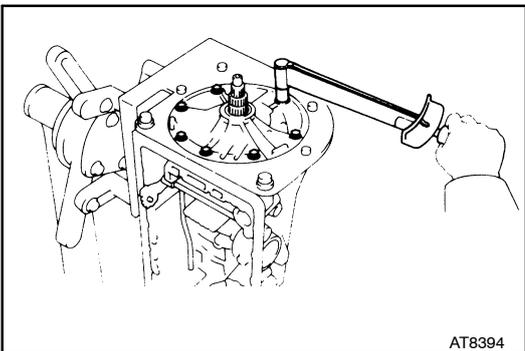


**25. INSTALL OIL PUMP INTO CASE**

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

HINT: Race diameter

	mm (in.)	
	Inside	Outside
Race	28.1 (1.106)	47.3 (1.862)

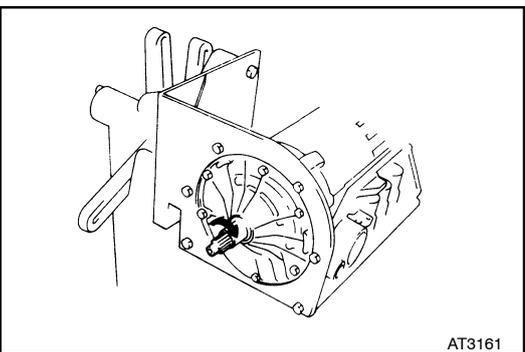


- (b) Coat a new O-ring with ATF and install it around the pump body.
- (c) Place the oil pump through the input shaft, and align the bolt holes of the pump body with the transmission case.
- (d) Hold the input shaft, and lightly press the oil pump body to slide the oil seal rings into the O/D direct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

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

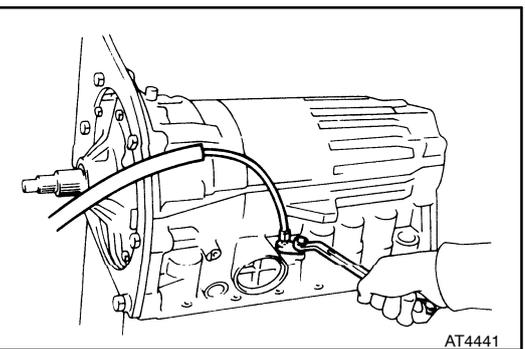
- (e) Install seven bolts.

**Torque: 220 kg-cm (16 ft-lb, 22 N-m)**



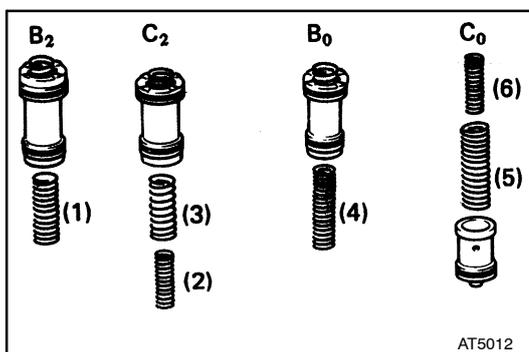
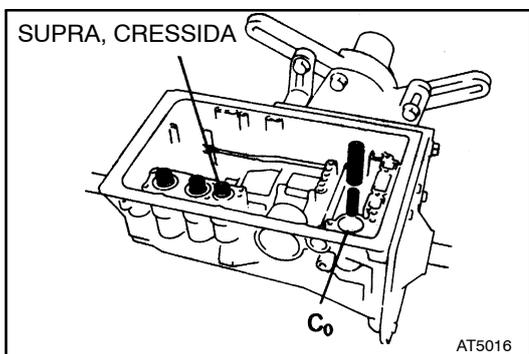
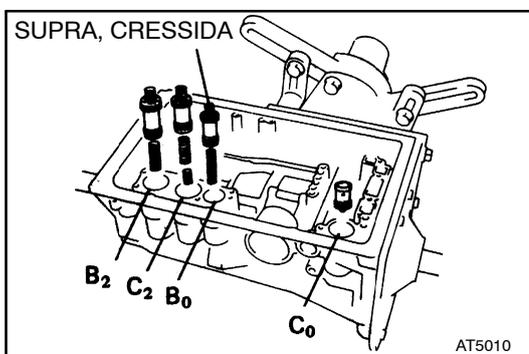
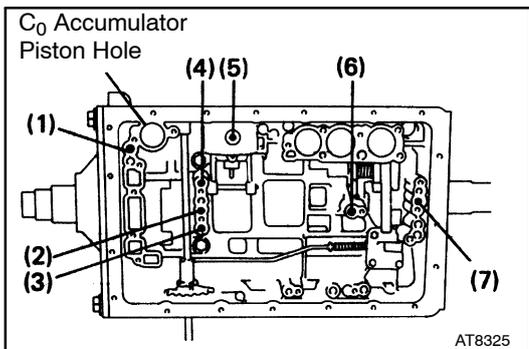
**26. CHECK INPUT SHAFT ROTATION**

Make sure the input shaft rotates smoothly.



**27. INSTALL THROTTLE CABLE**

- (a) Coat a new O-ring with ATF and install it to the cable.
- (b) Install the cable to the case.



**28. INDIVIDUAL PISTON OPERATION INSPECTION**

Check for the sound of operation while applying compressed air into the oil hole indicated in the figure.

- (1) O/D direct clutch
- (2) Direct clutch
- (3) Forward clutch
- (4) O/D brake
- (5) Second coast brake
- (6) Second brake
- (7) First and reverse brake

HINT: When inspecting the O/D direct clutch, check with the C<sub>0</sub> accumulator piston hole closed.

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

**29. INSTALL ACCUMULATOR SPRINGS AND PISTONS**

- (a) Coat new O-rings with ATF and install them to the pistons.
- (b) Install the three springs and four accumulator pistons to the bore as shown in the figure.

HINT: The pistons are marked in relief with either C-0, B-0, C-2 or B-2 to differentiate between them.

- (c) Install the two springs to the C<sub>0</sub> accumulator piston.

**• Spring**

(SUPRA)

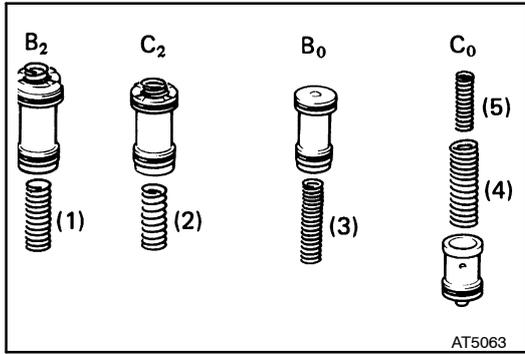
mm (in.)

Spring		Free length	Outer diameter	Color	
(1)	B <sub>2</sub>	7M-GE	73.4 (2.890)	19.9 (0.783)	Red
		7M-GTE	72.6 (2.858)	19.9 (0.783)	Light Gray
(2)	Inner	42.1 (1.657)	14.7 (0.579)	Pink	
(3)	C <sub>2</sub> Outer	7M-GE	64.0 (2.520)	20.2 (0.795)	Green
		7M-GTE	70.3 (2.768)	20.2 (0.795)	Pink
(4)	B <sub>0</sub>	62.0 (2.441)	16.0 (0.630)	Green	
(5)	Outer	74.6 (2.937)	20.9 (0.823)	Orange	
(6)	C <sub>0</sub> Inner	46.0 (1.811)	14.0 (0.551)	Yellow	

(CRESSIDA)

mm (in.)

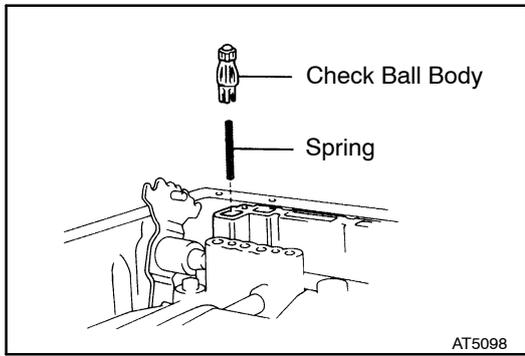
Spring		Free length	Outer diameter	Color
(1)	B <sub>2</sub>	70.5 (2.776)	19.7 (0.776)	Green
(2)	C <sub>2</sub>	Inner	42.1 (1.657)	Pink
(3)		Outer	70.3 (2.768)	20.2 (0.795)
(4)	B <sub>0</sub>	62.0 (2.441)	16.0 (0.630)	Green
(5)	C <sub>0</sub>	Outer	74.6 (2.937)	Orange
(6)		Inner	46.0 (1.811)	14.0 (0.551)



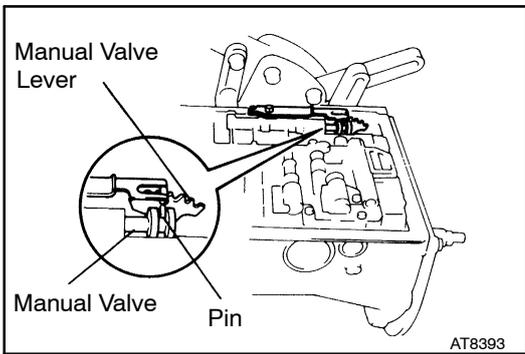
(TRUCK, 4RUNNER)

mm (in.)

Spring	Free length	Outer diameter	Color
(1) B <sub>2</sub>	70.5 (2.776)	19.7 (0.776)	Yellow
(2) C <sub>2</sub>	68.5 (2.697)	20.2 (0.795)	Blue
(3) B <sub>0</sub>	66.0 (2.598)	16.1 (0.634)	Purple
(4) C <sub>0</sub>	Outer	74.6 (2.937)	20.3 (0.799)
	Inner	46.4 (1.811)	14.0 (0.551)

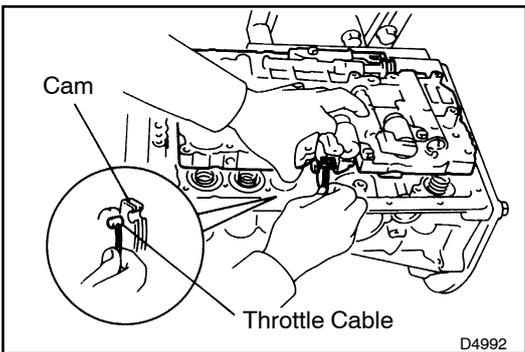


30. INSTALL CHECK BALL BODY AND SPRING

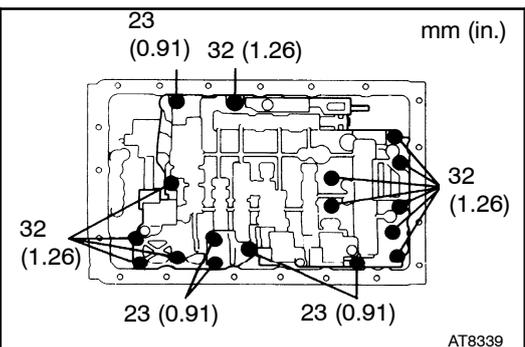


31. INSTALL VALVE BODY

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

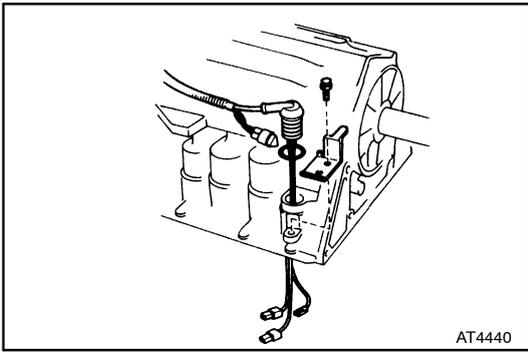


- (b) Connect the throttle cable to the cam.
- (c) Confirm the springs into the accumulator pistons are installed correctly.



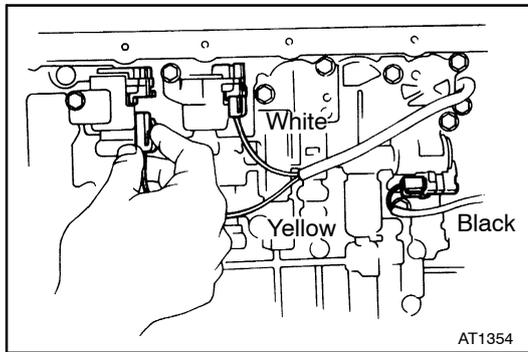
- (d) Install the seventeen bolts.

HINT: Each bolt length (mm, in.) is indicated in the figure.  
**Torque: 100 kg-cm (7 ft-lb, 10 N-m)**

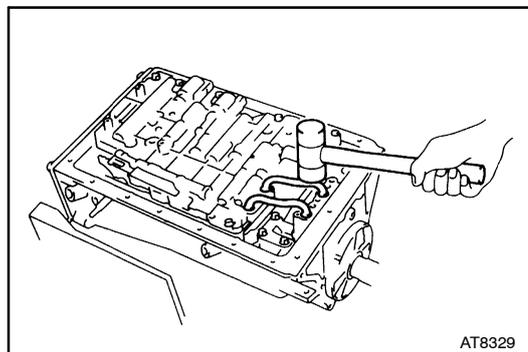


### 32. INSTALL SOLENOID WIRING

- (a) Coat a new O-ring with ATF and install it to the grommet.
- (b) Install the solenoid wiring to the case and install the stopper plate.



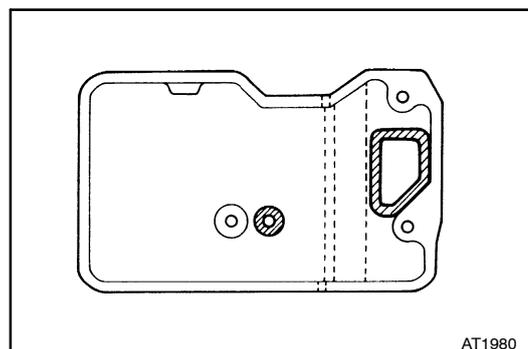
- (c) Connect the connectors to No. 1, No. 2 and lock-up solenoids.



### 33. INSTALL OIL TUBES

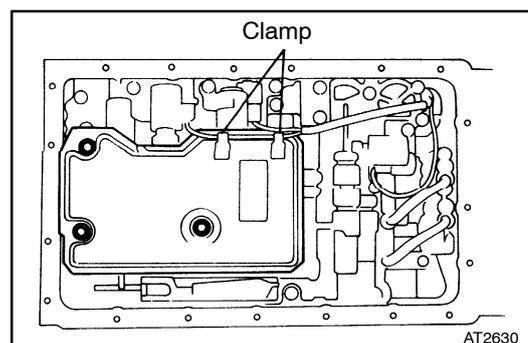
Using a plastic hammer, install the two tubes into position shown in the figure.

**NOTICE: Be careful not to bend or damage the tubes.**

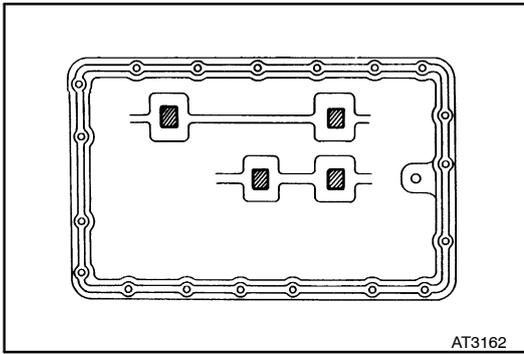


### 34. INSTALL OIL STRAINER AND GASKETS

- (a) Install two new gaskets to the oil strainer.



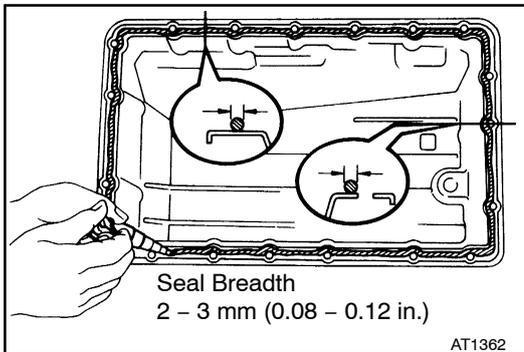
- (b) Install and torque three bolts.  
**Torque: 100 kg-cm (7 ft-lb, 10 N-m)**
- (c) Clamp the solenoid wire.



AT3162

**35. INSTALL MAGNETS IN PAN**

Install the four magnets in the indentations of the oil pan as shown in the figure.



Seal Breadth  
2 – 3 mm (0.08 – 0.12 in.)

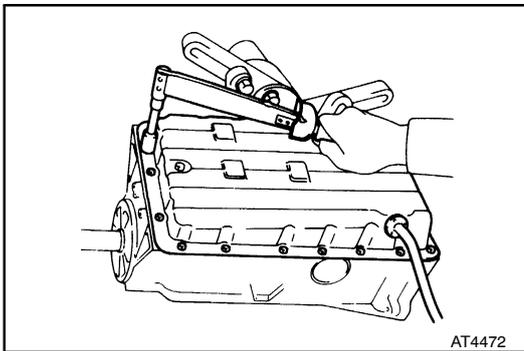
AT1362

**36. INSTALL OIL PAN**

- (a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transmission case and oil pan.
- (b) Apply seal packing to the oil pan shown in the figure.

**Seal packing: Part No. 08826 – 00090, THREE BOND 1281 or equivalent**

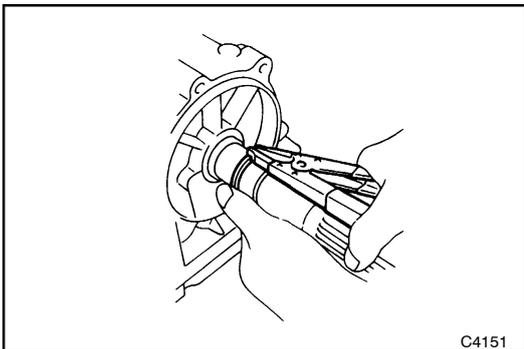
- (c) Install and torque the nineteen bolts.  
**Torque: 75 kg-cm (65 in.-lb, 7.4 N-m)**



AT4472

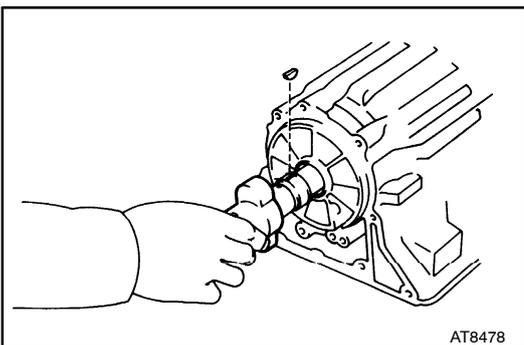
**37. INSTALL SENSOR ROTOR AND KEY**

- (a) Using snap ring pliers, install the snap ring.

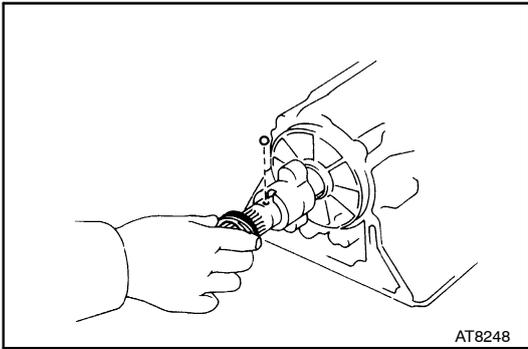


C4151

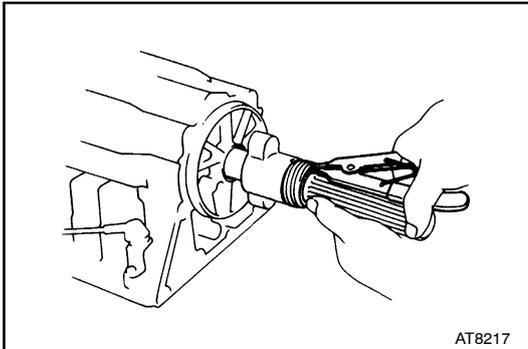
- (b) Install the key on the output shaft.
- (c) Align the groove of the sensor rotor with key, install the sensor rotor.



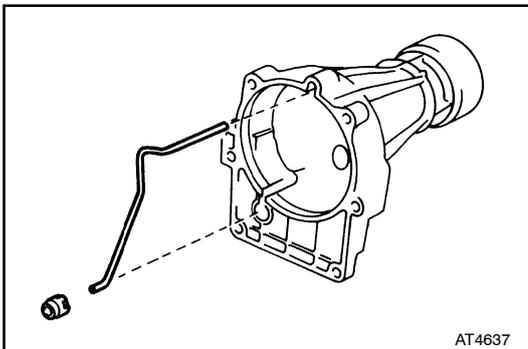
AT8478

**38. INSTALL SPEEDOMETER DRIVE GEAR AND BALL**

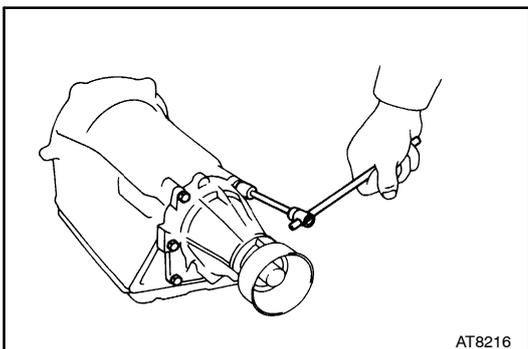
- (a) Install the lock ball on the output shaft.
- (b) Align the groove of the drive gear with the ball, install the drive gear.



- (c) Using snap ring pliers, install the snap ring.

**39. INSTALL EXTENSION HOUSING AND NEW GASKET**

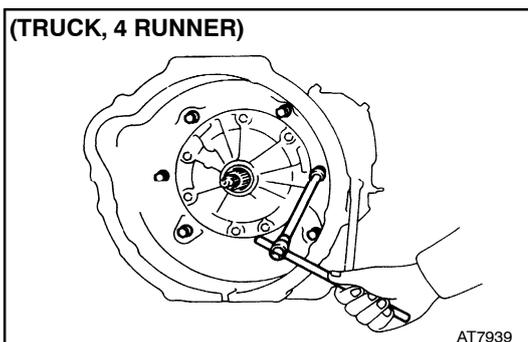
- (a) Install the oil apply tube and a new gasket to the extension housing.



- (b) Install the extension housing with a new gasket to the case. Install and torque the six bolts.

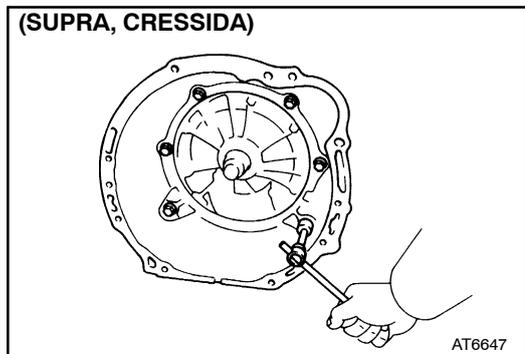
HINT: The two lower bolts are shorter.

**Torque: 370 kg-cm (27 ft-lb, 36 N-m)**

**40. INSTALL TRANSMISSION HOUSING**

Install and torque the six bolts.

**Torque: 10 mm bolt 345 kg-cm (25 ft-lb, 34 N-m)**  
**12 mm bolt 580 kg-cm (42 ft-lb, 57 N-m)**

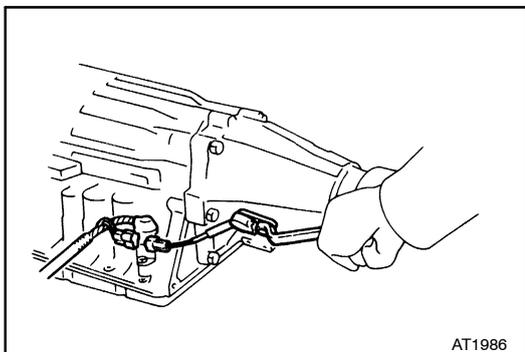


#### 41. INSTALL SPEED SENSOR

- (a) Coat a new O-ring with ATF and install it to the speed sensor.
- (b) Install the speed sensor. Install and torque the bolt.

**Torque: 160 kg-cm (12 ft-lb, 16 N-m)**

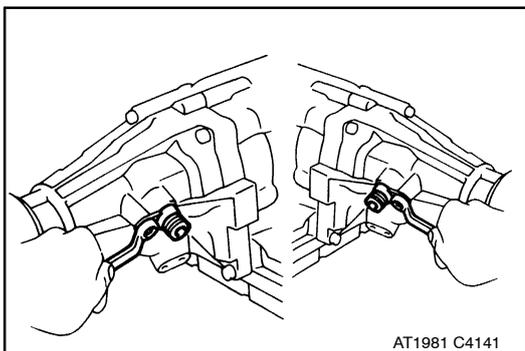
- (c) Connect the connector.



#### 42. INSTALL SPEEDOMETER DRIVEN GEAR

- (a) Coat a new O-ring with ATF and install it to the sleeve.
- (b) Insert the driven gear into the sleeve.
- (c) Install the sleeve to the extension housing.
- (d) Install the lock plate with the bolt.
- (e) Torque the bolt.

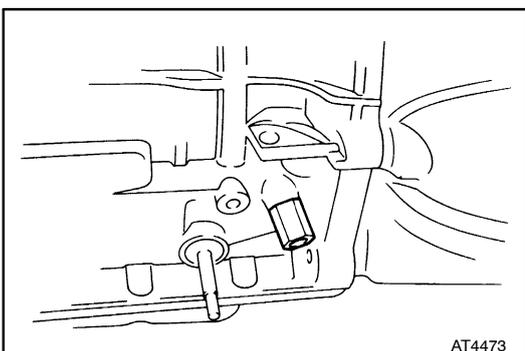
**Torque: 160 kg-cm (12 ft-lb, 16 N-m)**



#### 43. INSTALL UNIONS

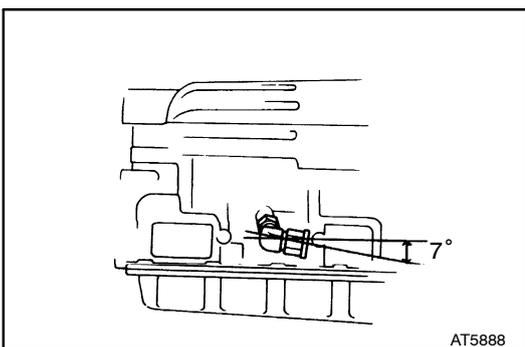
- (a) Coat new two O-rings with ATF and install them to each union.
- (b) Install the front union.

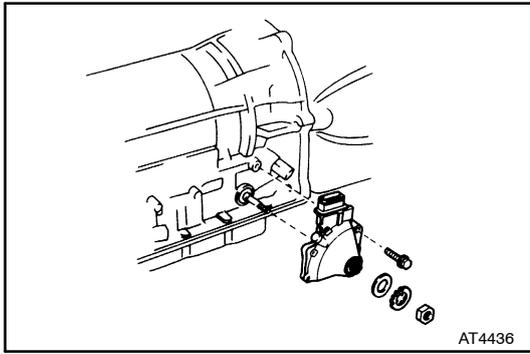
**Torque: 300 kg-cm (22 ft-lb, 29 N-m)**



- (c) Install the rear union as shown in the figure.

**Torque: 300 kg-cm (22 ft-lb, 29 N-m)**

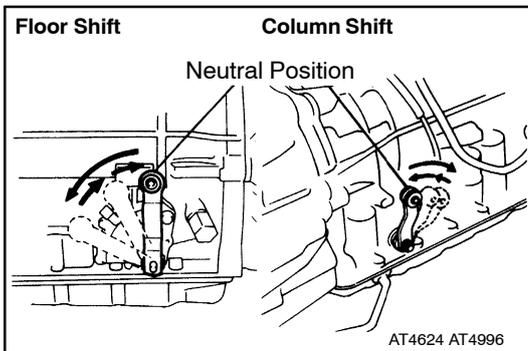




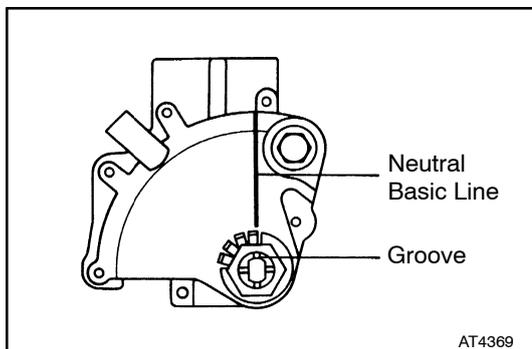
#### 44. INSTALL NEUTRAL START SWITCH

- Install the neutral start switch onto the manual valve lever shaft and temporarily tighten the adjusting bolt.
- Install the grommet and a new lock washer. Install and torque the nut.

**Torque: 70 kg-cm (61 in.-lb, 6.9 N-m)**



- Using the control shaft lever, fully turn the manual valve lever shaft back and return two notches. It is now in neutral.

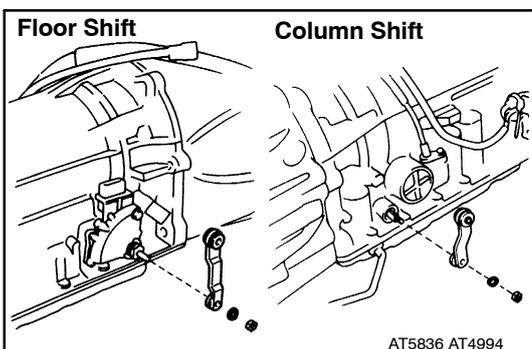


- Align the neutral basic line and the switch groove, and tighten the adjusting bolt.

**Torque: 130 kg-cm (9 ft-lb, 13 N-m)**

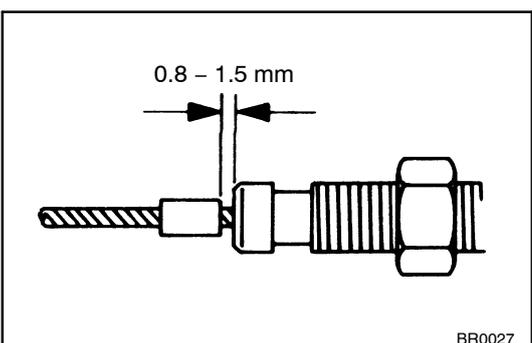
- Bend the tabs of the lock washer.

**HINT:** Bend at least two of the lock washer tabs.



#### 45. INSTALL CONTROL SHAFT LEVER

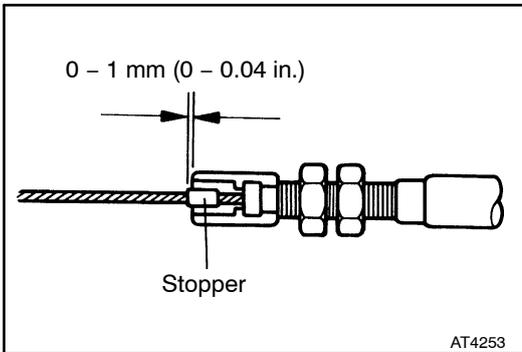
**Torque: 160 kg-cm (12 ft-lb, 16 N-m)**



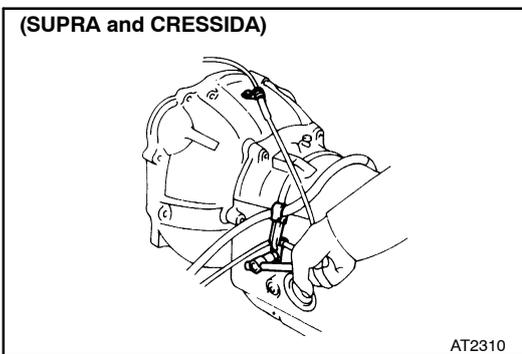
#### 46. IF THROTTLE CABLE IS NEW, STAKE STOPPER ON INNER CABLE (SUPRA, TRUCK, 4 RUNNER)

**HINT:** New cable does not have a cable stopper staked.

- Bend the cable so there is a radius of about 200 mm (7.78 in.).
- Pull the inner cable lightly until a slight resistance is felt, and hold it.
- Stake the stopper, 0.8 - 1.5 mm (0.031 - 0.059 in.) from the end of outer cable.

**(CRESSIDA)**

- (a) Pull the inner cable lightly until a slight resistance is felt, and hold it.
- (b) Stake a stopper on the inner cable as shown in the illustration.

**47. INSTALL WIRE HARNESS CLAMP AND THROTTLE CABLE CLAMP**