INSTALLATION OF COMPONENT PARTS

(See page AT-2 to 7)

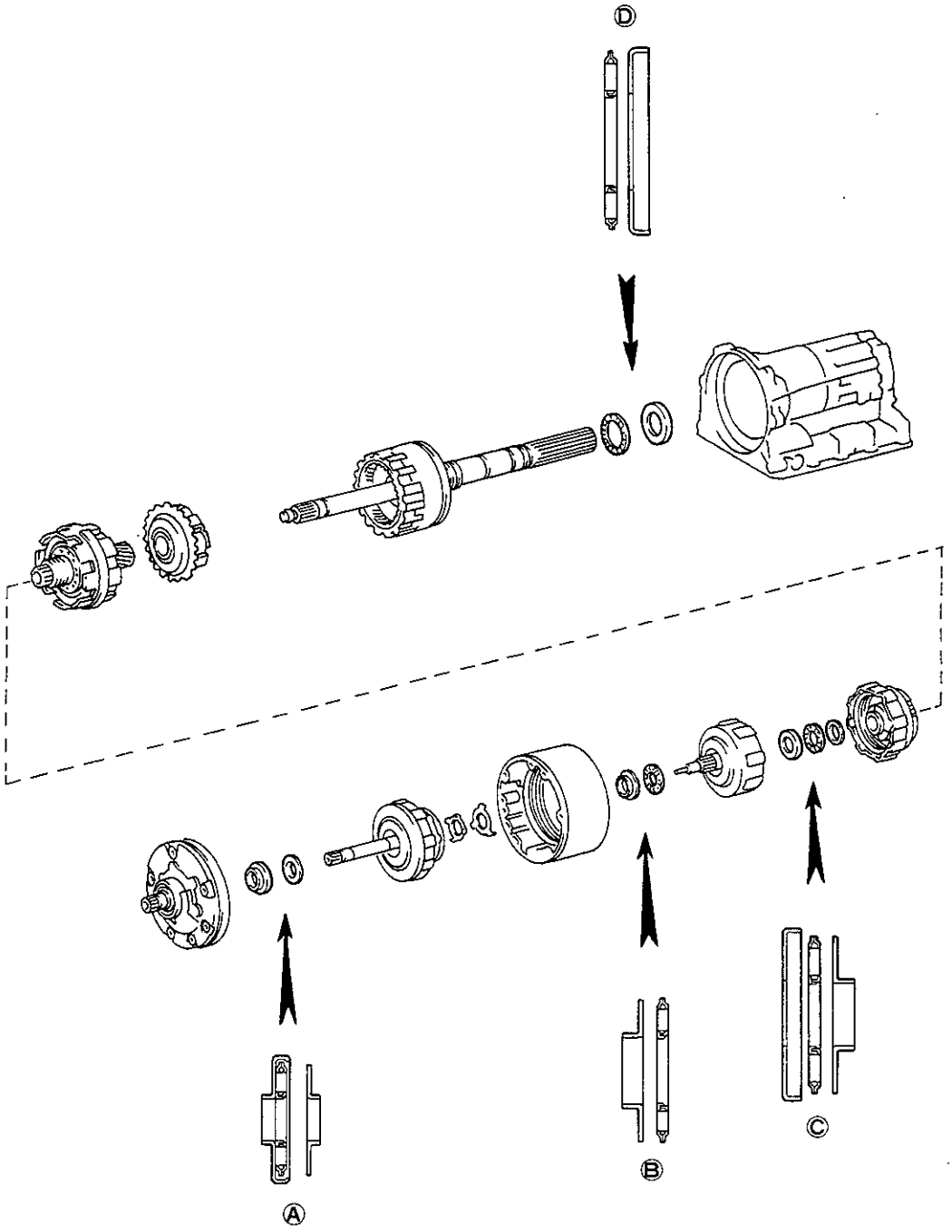
Disassembly, inspection and assembly of each component group have been indicated in the preceding chapter. Before assembly, make sure again that all component groups are assembled correctly.
If something wrong is found in a certain component group during assembly, inspect and repair this group immediately.

Recommended ATF: DEXRON® II

GENERAL NOTES:

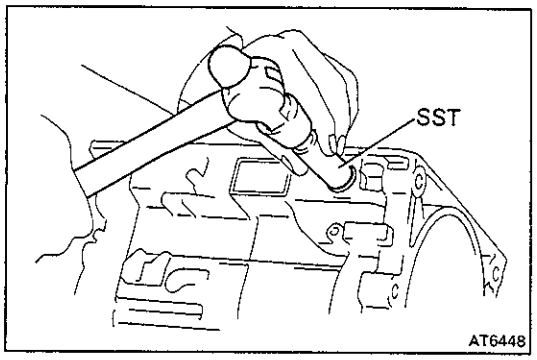
1. **The automatic transmission is composed of highly precision-finished parts, necessitating careful inspection before assembly because even a small nick could cause fluid leakage or affect performance.**
2. **Before assembling new clutch discs, soak them in automatic transmission fluid for at least 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.**

INSTALLATION POSITION AND DIRECTION OF BEARING AND RACES



mm (in.) AT6267

	Front Bearing Race		Thrust Bearing		Rear Bearing Race	
	Inner Diameter	Outer Diameter	Inner Diameter	Outer Diameter	Inner Diameter	Outer Diameter
Ⓐ	—	—	24.3 (0.957)	43.2 (1.701)	24.3 (0.957)	39.1 (1.539)
Ⓑ	24.1 (0.949)	37.3 (1.469)	23.4 (0.921)	37.5 (1.476)	—	—
Ⓒ	30.1 (1.185)	48.5 (1.909)	28.4 (1.118)	46.4 (1.827)	27.6 (1.087)	44.5 (1.752)
Ⓓ	—	—	38.2 (1.504)	55.2 (2.173)	39.2 (1.543)	57.5 (2.264)

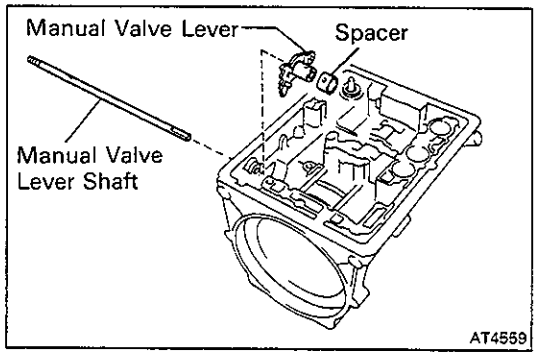


1. **INSTALL MANUAL VALVE LEVER, SHAFT AND OIL SEALS**

(a) Using SST, drive in two new oil seals as far as they will go.

SST 09350-20015 (09361-30011)

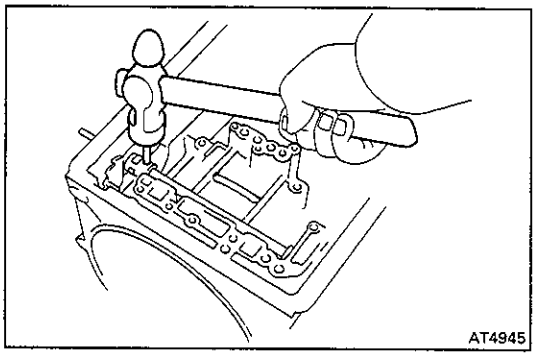
(b) Coat the oil seal lips with MP grease.



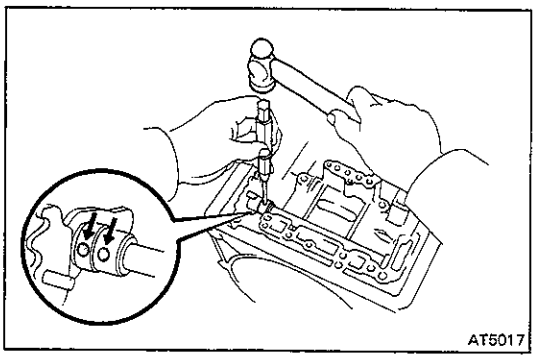
(c) Assembly a new spacer to the manual valve lever.

(d) Install the manual valve lever shaft to the transmission case through the manual valve lever.

NOTICE: Be careful not to damage the oil seal.

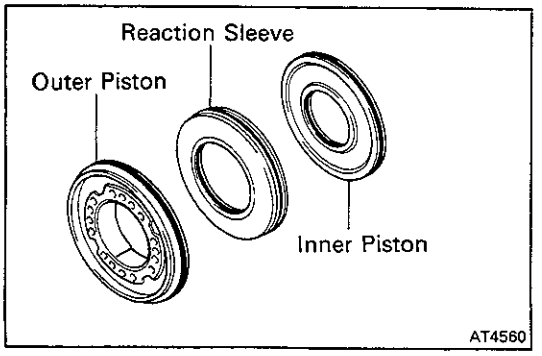


(e) Drive in the pin to the shaft.



(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.



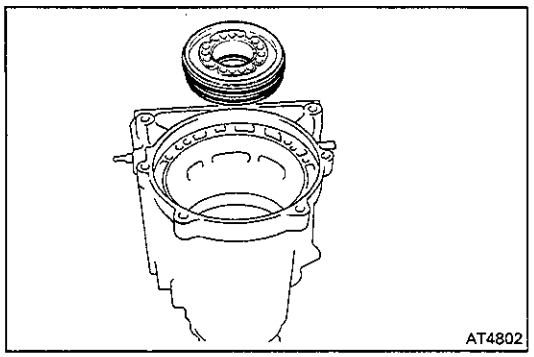
2. **INSTALL COMPONENTS OF NO.3 BRAKE PISTON**

(a) Coat five new O-rings with ATF.

(b) Install the O-rings to the inner piston, reaction sleeve and outer piston.

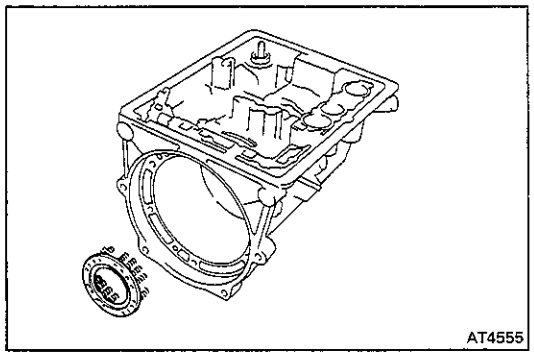
NOTICE: The thinner O-ring goes on the outside of the reaction sleeve.

(c) Assembly the inner piston, reaction sleeve and outer piston.

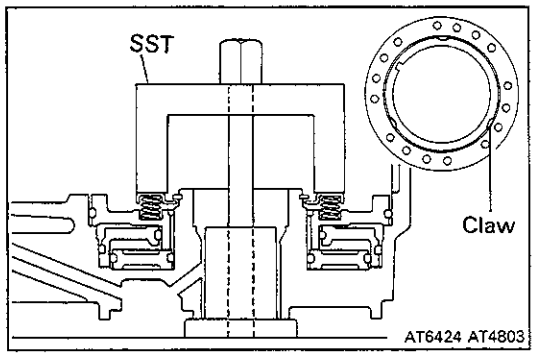


(d) Stand up the transmission case.

(e) Being careful not to damage the O-rings, press in the assembled pistons into the transmission case with hand.



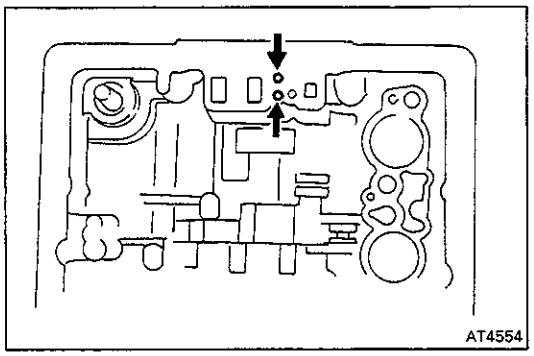
(f) Place the piston return spring onto the outer piston.



(g) Set SST as shown, and compress the return springs with SST.

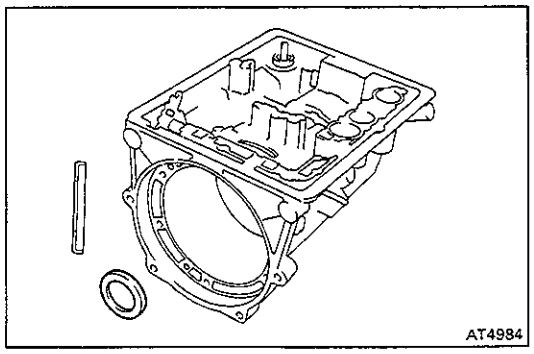
SST 09350-20015 (09369-20040)

(h) Install the snap ring with snap ring pliers. Be sure the end gap of the snap ring is not aligned with the spring seat claw.



3. CHECK NO.3 BRAKE PISTONS MOVING

Make sure the No.3 brake pistons move smoothly when applying and releasing the compressed air into the transmission case.



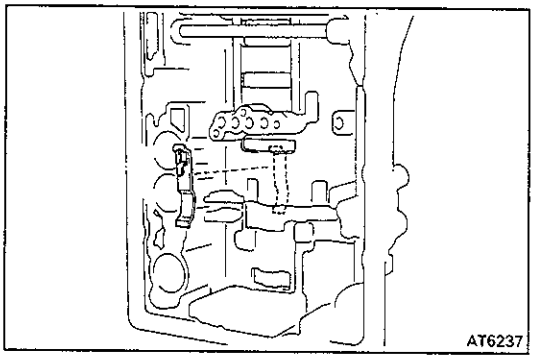
4. INSTALL RACE

Coat the race with petroleum jelly and install it onto the transmission case.

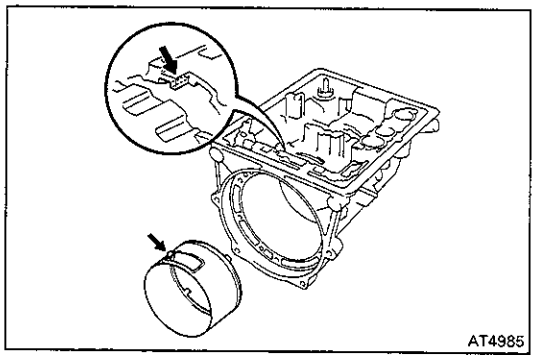
HINT: Race diameter

mm (in.)

	Inside	Outside
Race	39.2 (1.543)	57.5 (2.264)



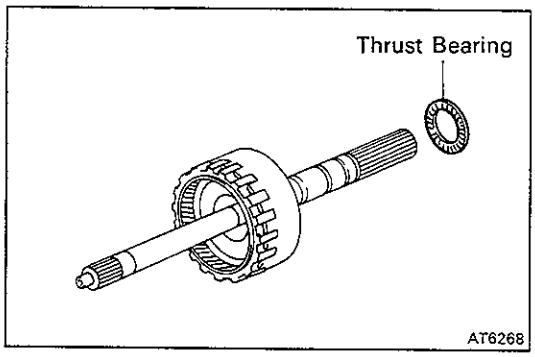
5. INSTALL LEAF SPRING



6. INSTALL BRAKE APPLY TUBE

Install the tube, aligning its locking tab with the cutout of the case.

HINT: Make sure that the lips of the tube end are completely inserted onto the outer piston.



7. INSTALL REAR PLANETARY GEAR UNIT AND OUTPUT SHAFT

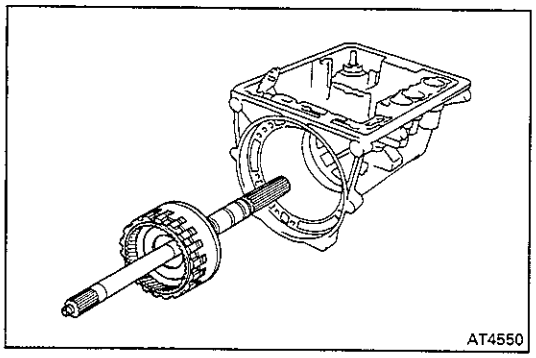
(a) Coat the two bearings with petroleum jelly and install them onto the rear planetary gear unit.

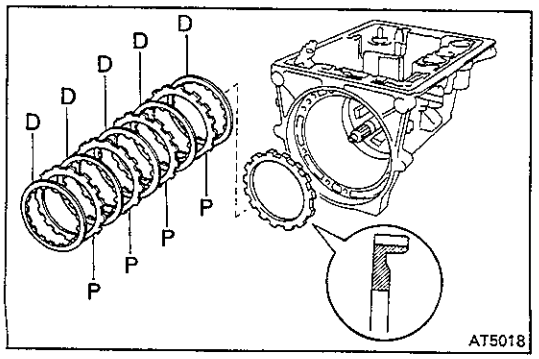
HINT: Bearing diameter

mm (in.)

	Inside	Outside
Thrust bearing	38.2 (1.504)	55.2 (2.173)

(b) Install the rear planetary gear unit to the transmission case.





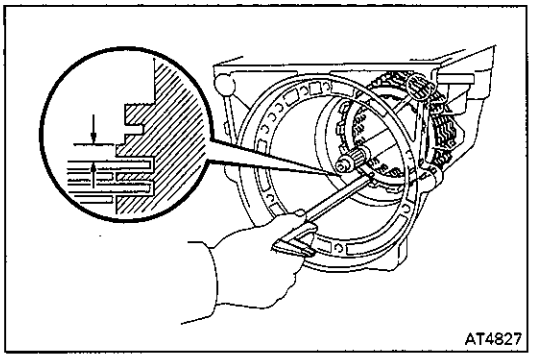
8. INSTALL PRESSURE PLATE, DISCS AND PLATES

(a) Install the pressure plate, the flat surface facing forward.

(b) Install the five discs and four plates.

Install in order: P = Plate D = Disc

D–P–D–P–D–P–D–P–D

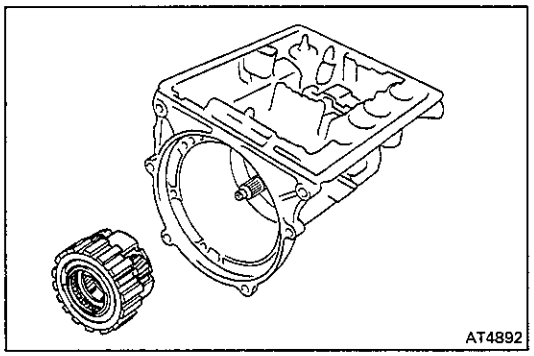


9. CHECK PACK CLEARANCE OF NO.3 BRAKE

Using calipers, measure the clearance between the disc and transmission case as shown in the figure.

Clearance: 0.61 – 2.64 mm (0.0240 – 0.1039 in.)

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

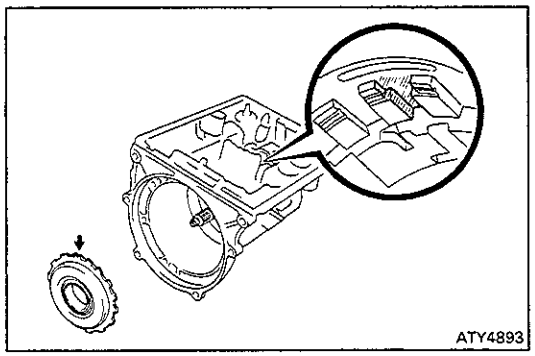


10. INSTALL FRONT PLANETARY GEAR UNIT

(a) Remove the one-way clutch inner race from the planetary gear unit.

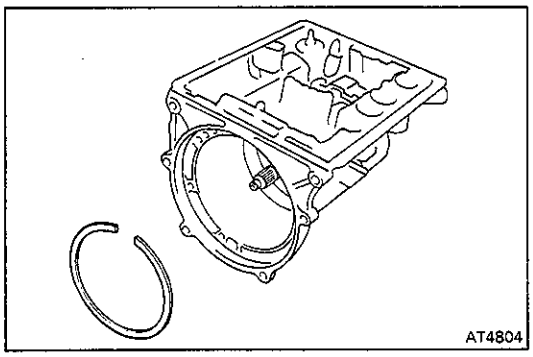
(b) Install the front planetary gear unit.

HINT: Mesh the splines of the planetary gear with the flukes of the discs by rotating and pushing the planetary gear.

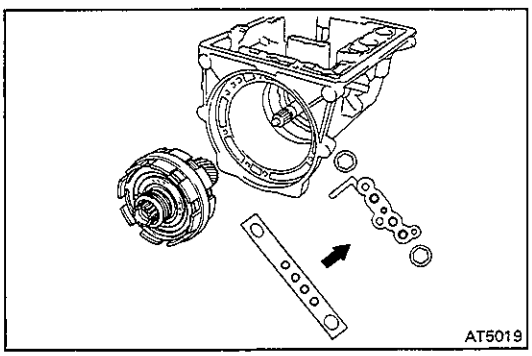


(c) Position the notched tooth of the inner race toward the valve body side of the case. Push it into place.

HINT: The inner race is correctly installed if the snap ring groove is fully visible.

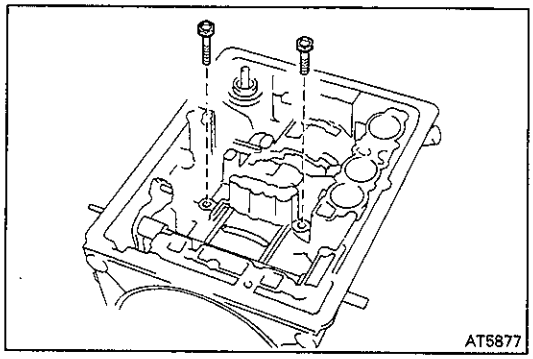


(d) Using a screwdriver, install the snap ring.



11. INSTALL CENTER SUPPORT

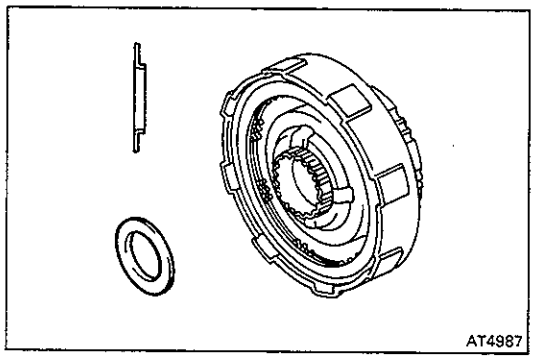
(a) Aim the bolt and oil holes of the center support toward the valve body side, and align them with the bolt and oil holes of the transmission case and insert.



(b) Tighten the two bolts.

HINT: First tighten the accumulator piston side.

Torque: 260 kg-cm (19 ft-lb, 25 N·m)



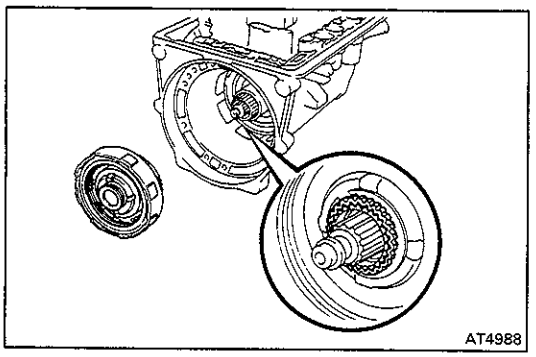
12. INSTALL REAR CLUTCH

(a) Coat the race with petroleum jelly and install it onto the rear clutch.

HINT: Race diameter

mm (in.)

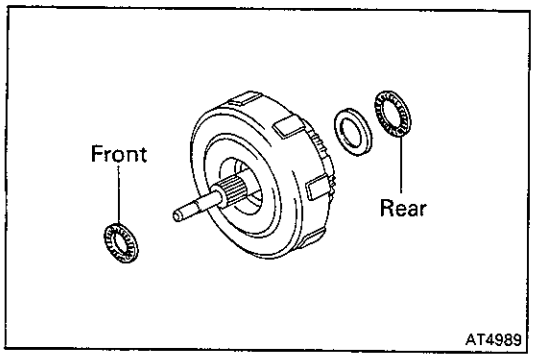
	Inside	Outside
Race	27.6 (1.087)	44.5 (1.752)



(b) Install the rear clutch.

HINT:

- Mesh the splines of the rear clutch with the flukes of the disc by rotating and pushing the rear clutch.
- If the rear clutch is fully meshed with the center support, the splined center of the clutch will be flush with the end of the sun gear shaft.



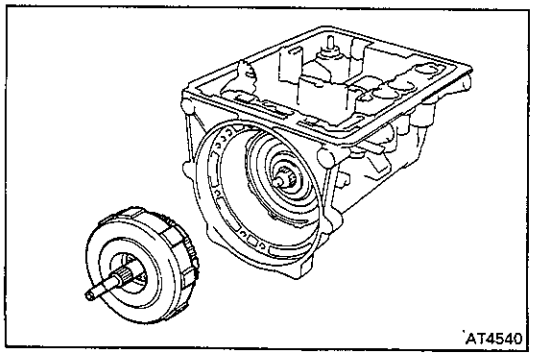
13. INSTALL FRONT CLUTCH

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

HINT: Bearing and race diameter

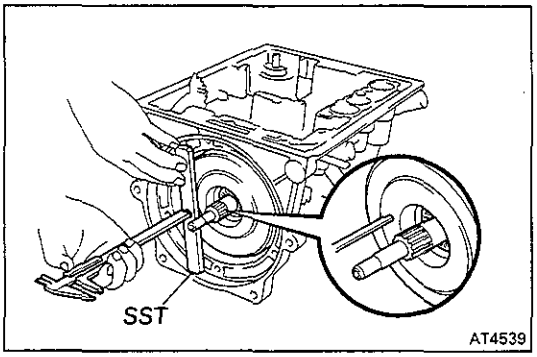
mm (in.)

	Inside	Outside
Bearing (Front)	23.4 (0.921)	37.5 (1.476)
Race	30.1 (1.185)	48.5 (1.909)
Bearing (Rear)	28.4 (1.118)	46.4 (1.827)



(b) Install the front clutch.

HINT: Mesh the splines of the front clutch with the flukes of the discs by rotating and pushing the front clutch.



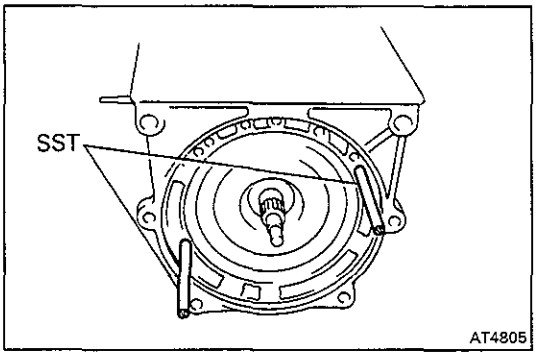
14. MEASURE INSTALLATION DISTANCE OF FRONT CLUTCH

(a) Place SST on the transmission case.

SST 09350-20015 (09370-12010)

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

If the distance corresponds to that during disassembly, the front clutch is installed correctly.

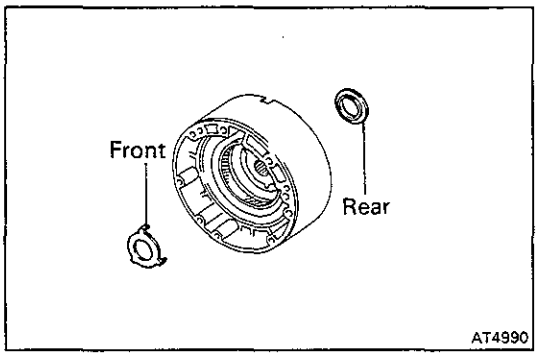


15. INSTALL OVERDRIVE CASE

(a) Finger tighten two SST on the transmission case.

HINT: *Remove the SST after installation of the oil pump.*

SST 09350-20015 (09362-30011)

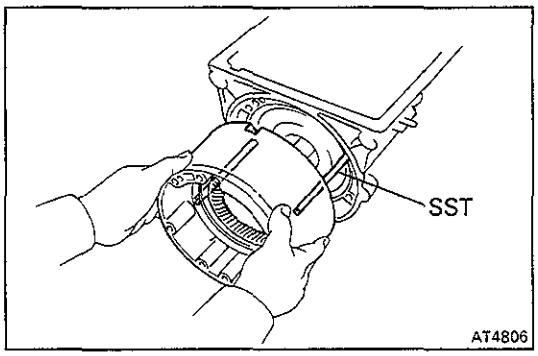


(b) Coat the race and thrust washer with petroleum jelly and install them onto the overdrive case.

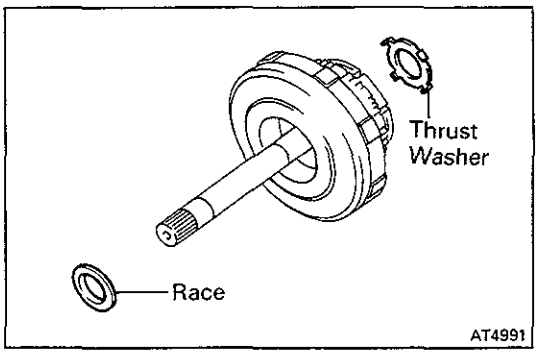
HINT: Races diameter

mm (in.)

	Inside	Outside
Race	24.1 (0.949)	37.3 (1.469)



(c) Insert the overdrive case gently through the two guide bolts (SST) with cutout portion of the case facing the valve body side.



16. INSTALL OVERDRIVE PLANETARY GEAR UNIT WITH OVERDRIVE DIRECT CLUTCH AND ONE-WAY CLUTCH

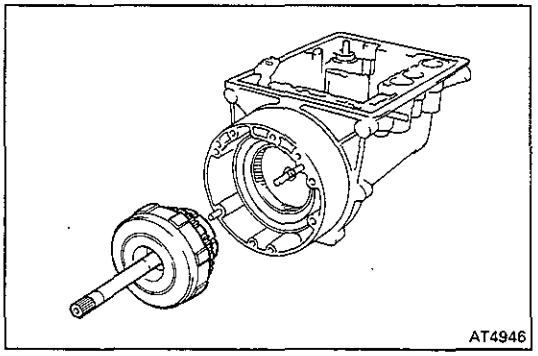
(a) Coat the thrust washer with petroleum jelly and install it onto the overdrive planetary gear.

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

HINT: Race diameter

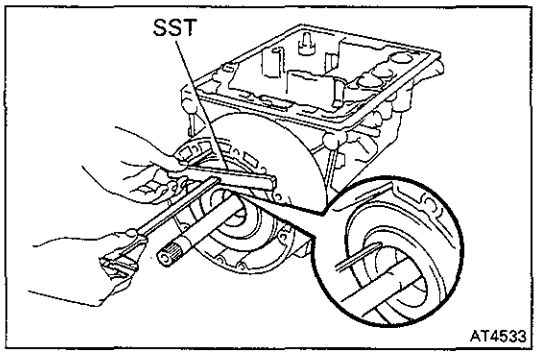
mm (in.)

	Inside	Outside
Race	24.3 (0.957)	39.1 (1.539)



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

HINT: Mesh the splines of the overdrive planetary gear with the flukes of the discs by rotating and pushing the overdrive planetary gear.



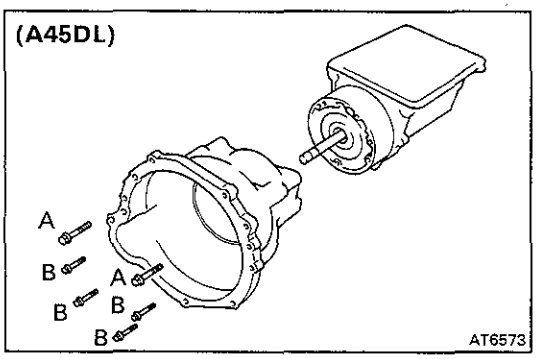
17. MEASURE INSTALLATION DISTANCE OF OVERDRIVE DIRECT CLUTCH

(a) Place SST on the overdrive case.

SST 09350-20015 (09370-12010)

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

If the distance corresponds to that during disassembly, the overdrive direct clutch is installed correctly.



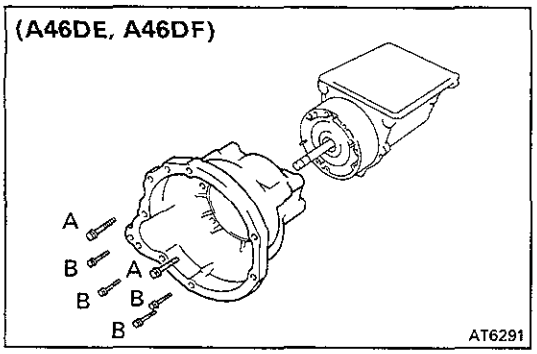
18. INSTALL TRANSMISSION HOUSING

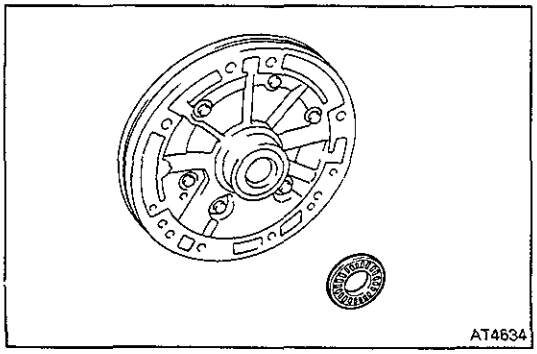
(a) Coat a new O-ring with ATF and install it around the overdrive case.

(b) Install the transmission housing and six bolts.

(c) Tighten the bolts.

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





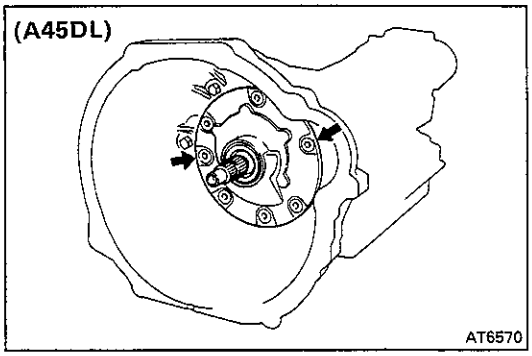
19. INSTALL OIL PUMP

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

HINT: Assembled bearing and race diameter

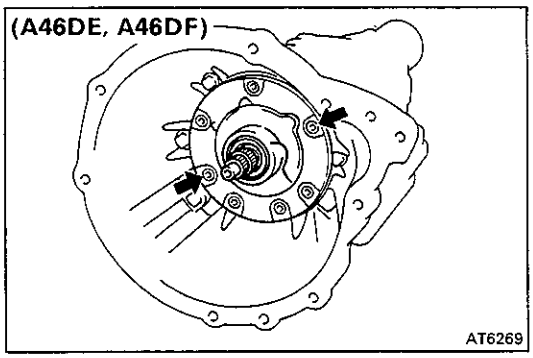
mm (in.)

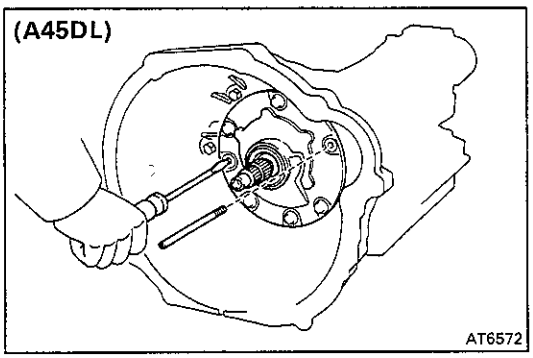
	Inside	Outside
Bearing and race	24.3 (0.957)	43.2 (1.701)



(b) Coat a new O-ring with ATF and install it around the pump body.

(c) Install the oil pump gently through the two guide bolts (SST).



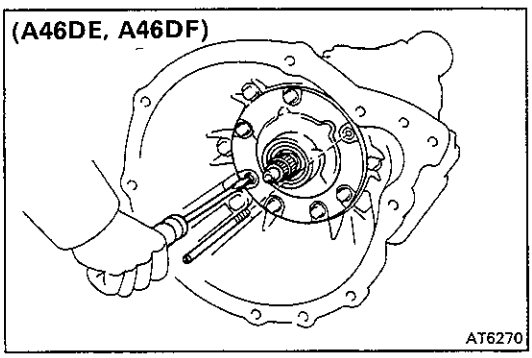


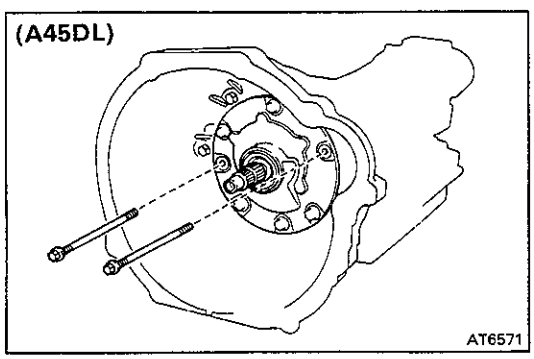
(d) Apply sealant to the bolt heads.

Sealant: Part No. 08833-00080 THREE BOND 1344, LOCTITE 242 or equivalent

(e) Finger tighten the five bolts.

(f) Using a screwdriver, remove the two SST.

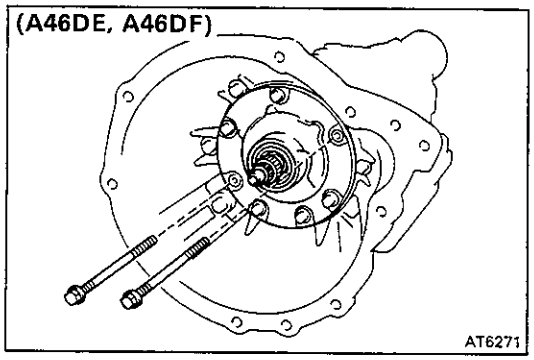


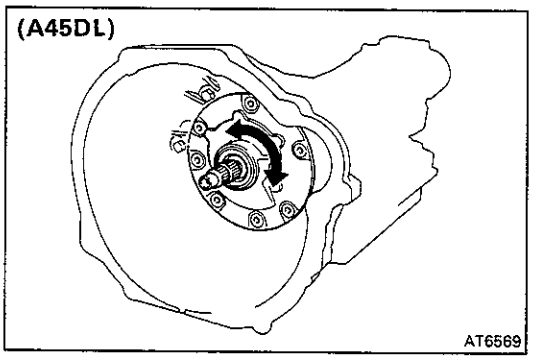


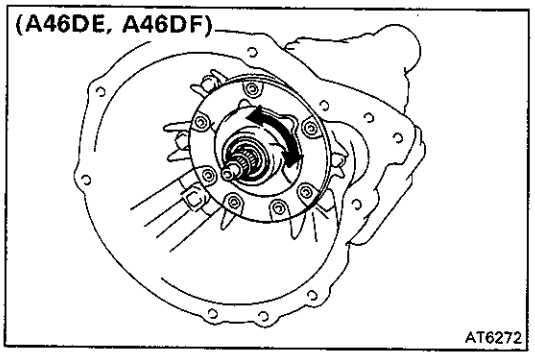
(g) Finger tighten the two bolts.

(h) Tighten all bolts.

Torque: 215 kg-cm (16 ft-lb, 21 N·m)

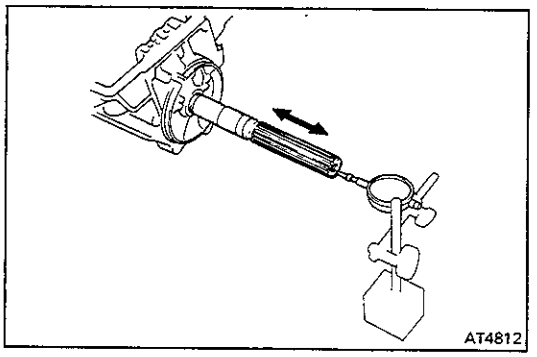






20. CHECK INPUT SHAFT ROTATION

Make sure the input shaft rotates smoothly.



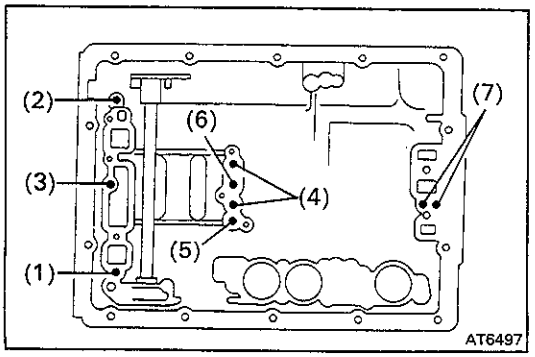
21. CHECK OUTPUT SHAFT

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

End play: 0.3 – 0.9 mm (0.012 – 0.035 in.)

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

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

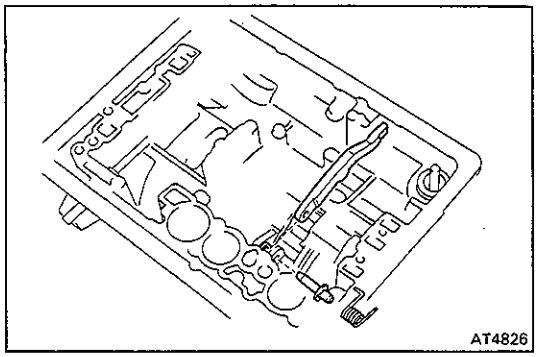


22. INDIVIDUAL PISTON OPERATION INSPECTION

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

(1) O/D direct clutch
(2) O/D brake
(3) Rear clutch
(4) Front clutch
(5) No.1 brake
(6) No.2 brake
(7) No.3 brake

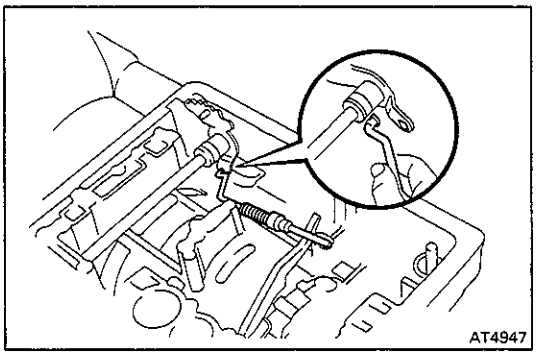
If there is no noise, disassemble and check the installation condition of the parts.



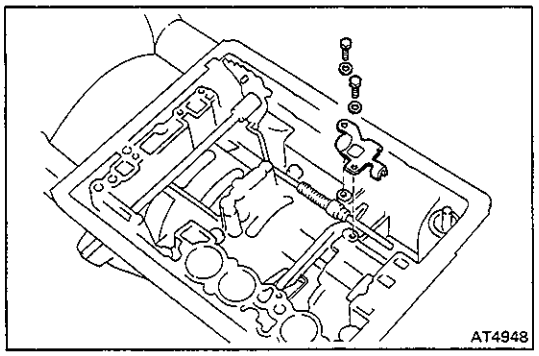
23. INSTALL PARKING LOCK PAWL AND ROD

(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.

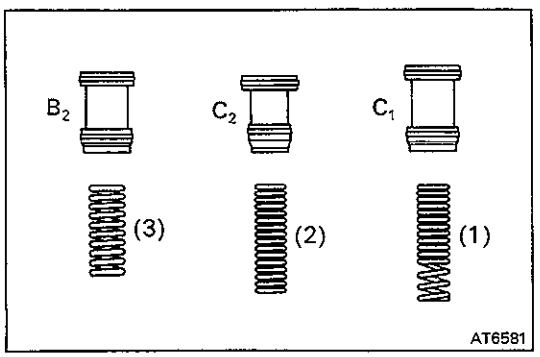


(d) Install the parking lock pawl bracket.

(e) Install and tighten the two bolts with the wave washers.

Torque: 75 kg-cm (65 in.-lb, 7.4 N·m)

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



24. INSTALL ACCUMULATOR SPRINGS AND PISTONS

(a) Coat new O-rings with ATF and install them to the pistons.

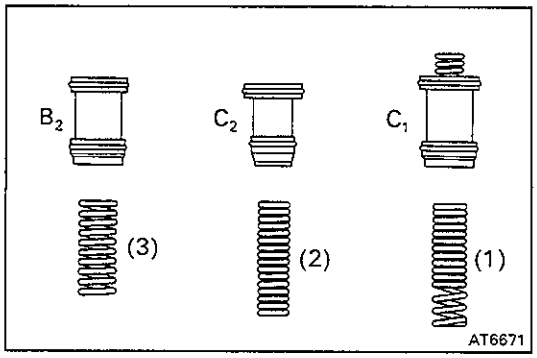
(b) Install the springs and accumulator pistons as shown.

(A45DL: 2L) mm (in.)

Spring	Free Length	Outer Diameter	Color
(1)	64.7 (2.547)	17.5 (0.689)	None
(2)	59.0 (2.323)	16.5 (0.650)	Light Blue
(3)	66.5 (2.618)	17.9 (0.705)	None

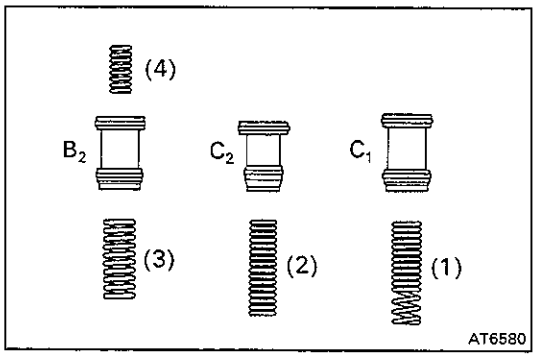
(A45DL: 3L) mm (in.)

Spring	Free Length	Outer Diameter	Color
(1)	64.7 (2.547)	17.5 (0.689)	None
(2)	59.8 (2.354)	16.6 (0.654)	Green
(3)	66.5 (2.618)	17.9 (0.705)	None



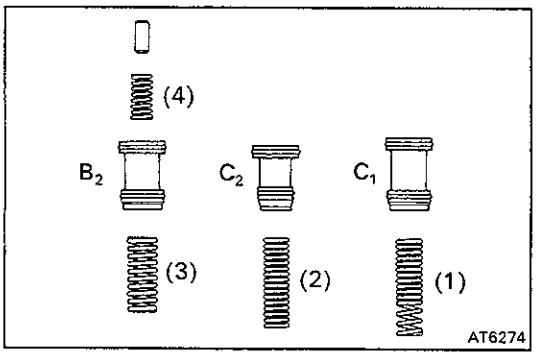
(A45DL: 2RZ-E) mm (in.)

Spring	Free Length	Outer Diameter	Color
(1)	57.2 (2.252)	17.5 (0.689)	Pink
(2)	57.4 (2.260)	15.9 (0.626)	None
(3)	66.7 (2.626)	17.3 (0.681)	Red



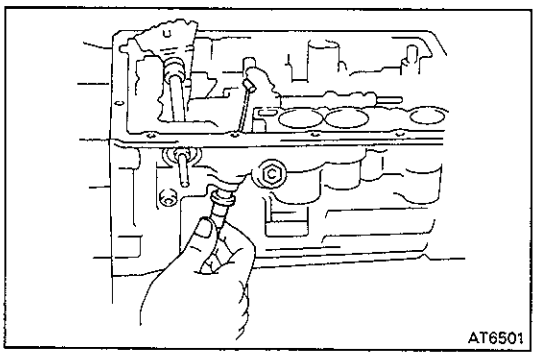
(A45DL: 1RZ, 2RZ) mm (in.)

Spring	Free Length	Outer Diameter	Color
(1)	64.7 (2.547)	17.5 (0.689)	None
(2)	61.2 (2.409)	16.5 (0.650)	Yellow
(3)	55.2 (2.173)	18.3 (0.720)	Light Green
(4)	35.1 (1.382)	16.2 (0.638)	Red



(A46DE, A46DF) mm (in.)

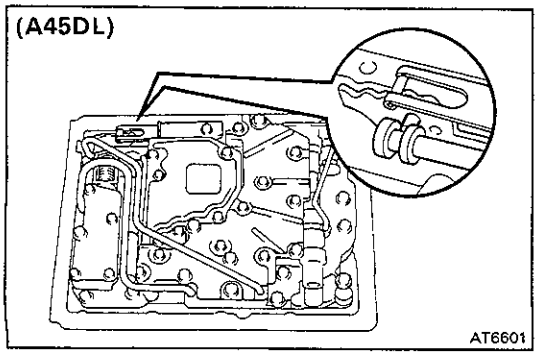
Spring	Free Length	Outer Diameter	Color
(1)	64.7 (2.547)	17.5 (0.690)	None
(2)	57.4 (2.260)	15.9 (0.626)	None
(3)	51.6 (2.031)	15.4 (0.606)	Yellow
(4)	32.0 (1.260)	18.4 (0.724)	Red



25. INSTALL THROTTLE CABLE

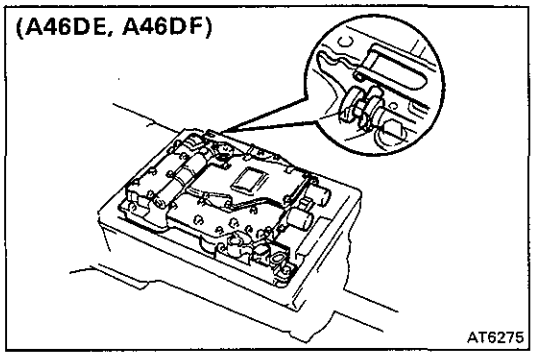
(a) Coat a new O-ring with ATF and install it to the cable.

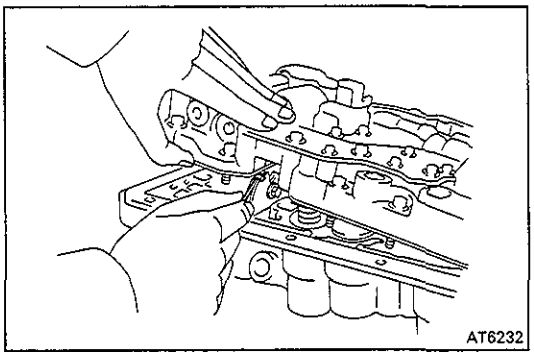
(b) Install the cable to the case.



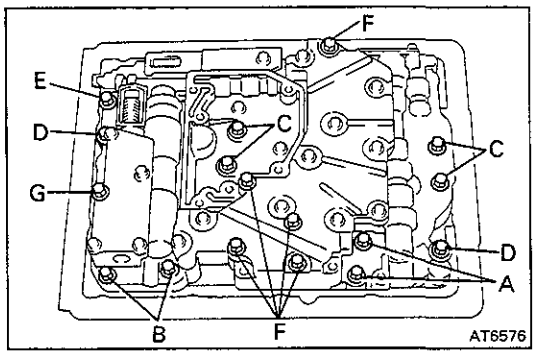
26. INSTALL VALVE BODY

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





(b) Connect the throttle cable to the cam.



(A45DL)

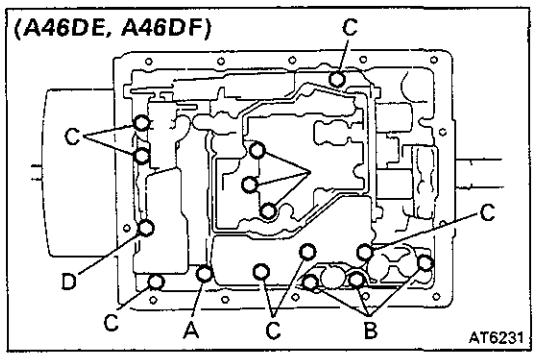
(c) Install the seventeen bolts.

HINT: Each bolt length (mm, in.) is indicated below.

Torque: 100 kg-cm (7 ft-lb, 10 N·m)

Bolt length:

A	**20 mm (0.79 in.)**
B	**25 mm (0.98 in.)**
C	**30 mm (1.18 in.)**
D	**36 mm (1.42 in.)**
E	**40 mm (1.57 in.)**
F	**55 mm (2.17 in.)**
G	**64 mm (2.52 in.)**



(A46DE, A46DF)

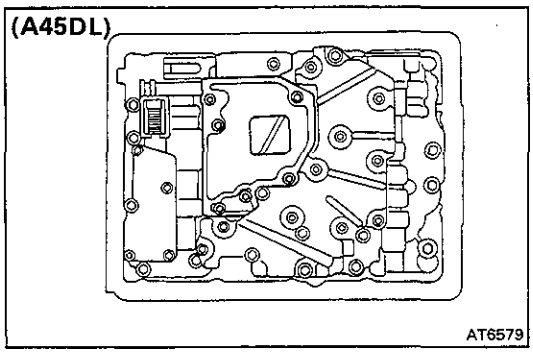
(c) Install the fifteen bolts.

HINT: Each bolt length (mm, in.) is indicated below.

Torque: 100 kg-cm (7 ft-lb, 10 N·m)

Bolt length:

A	**25 mm (0.98 in.)**
B	**30 mm (1.18 in.)**
C	**47 mm (1.85 in.)**
D	**60 mm (2.36 in.)**



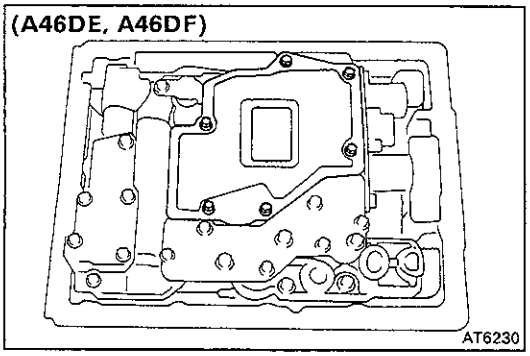
27. INSTALL OIL STRAINER

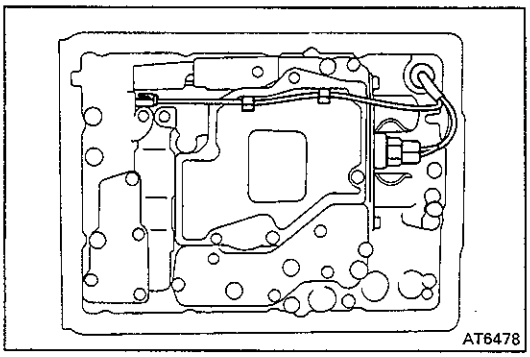
(a) Install new gasket to the oil strainer.

(b) Install the oil strainer to the valve body.

(c) Install and tighten the six bolts.

Torque: 55 kg-cm (48 in.-lb, 5.4 N·m)



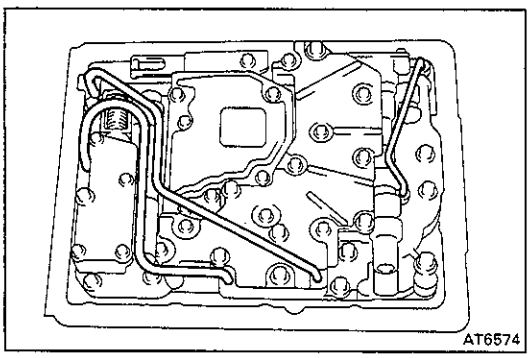


28. (A46DE, A46DF)
INSTALL SOLENOID WIRING

(a) Insert the wiring in the transmission case.

(b) Install the bolt, lock plate and the grommet to the transmission case.

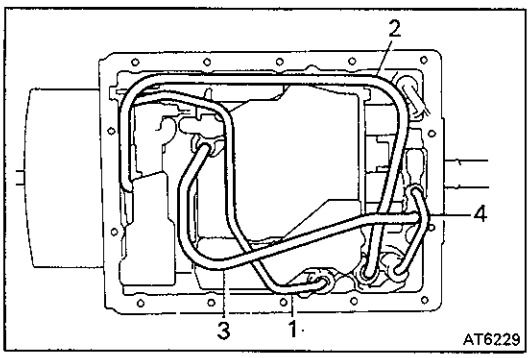
(c) Connect the connector to the No.1 and No.2 solenoid and the No.3 solenoid.



29. INSTALL OIL TUBES
(A45DL)

Using a plastic hammer, install the three tubes into position.

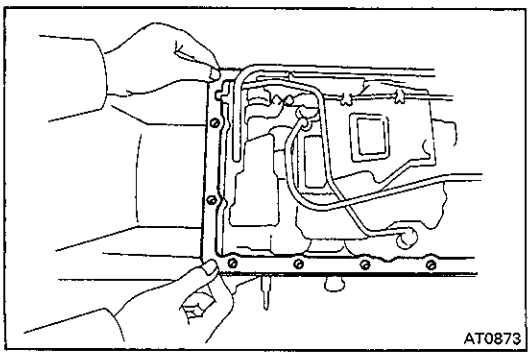
NOTICE: Be careful not to bend or damage the tubes.



(A46DE, A46DF)

Using a plastic hammer, install the four tubes into position.

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



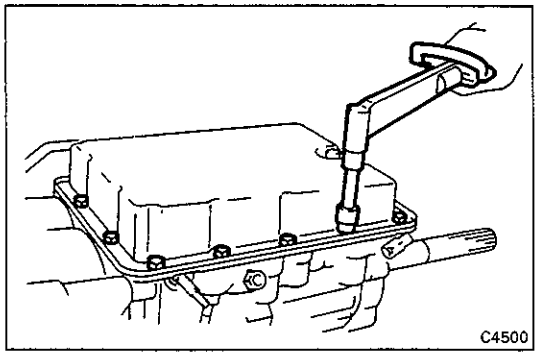
30. INSTALL OIL PAN

(a) Install the two magnets in the oil pan.

NOTICE: Make sure that the magnets do not interfere with the oil tubes.

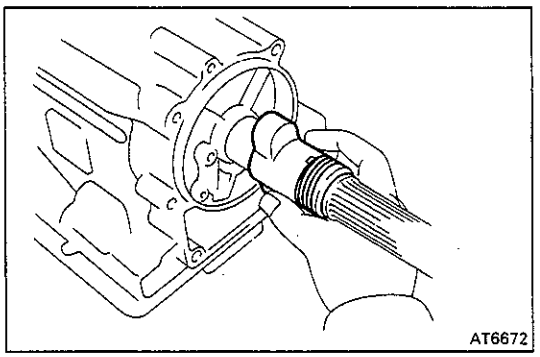
(b) Install a new gasket to the transmission case.

HINT: Align the cut part of the gasket and case.



(c) Install and tighten the fourteen bolts.

Torque: 45 kg-cm (39 in.-lb, 4.4 N·m)

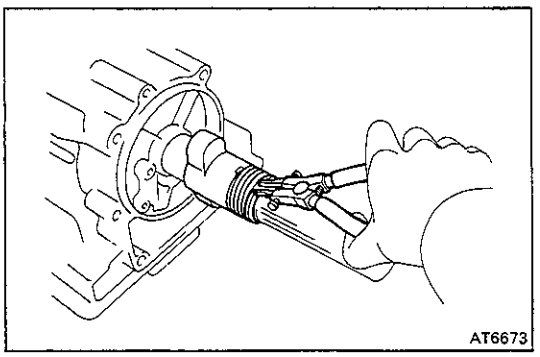


31. (A46DE)
INSTALL SENSOR ROTOR AND SPEEDOMETER DRIVE GEAR

HINT: Install the larger diameter snap ring (brass colored) at the front side.

(a) Install the larger snap ring and key onto the shaft.

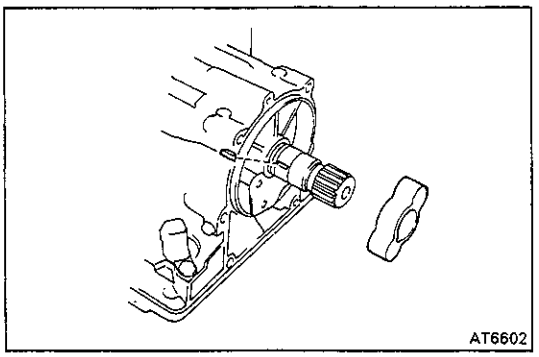
(b) Install the sensor rotor.



(c) Install the lock ball.

(d) Slide the speedometer gear on the shaft.

(e) Using snap ring pliers, install the outer snap ring.

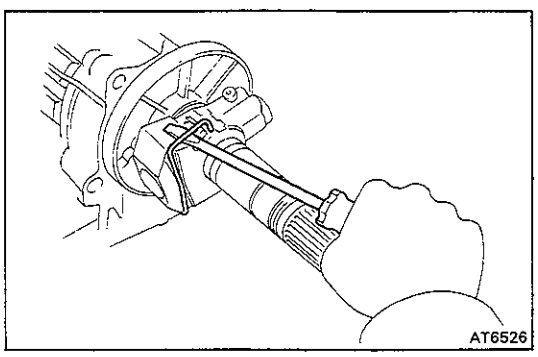


32. (A46DF)
INSTALL SENSOR ROTOR

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

(b) Install the key into the hole on the output shaft.

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

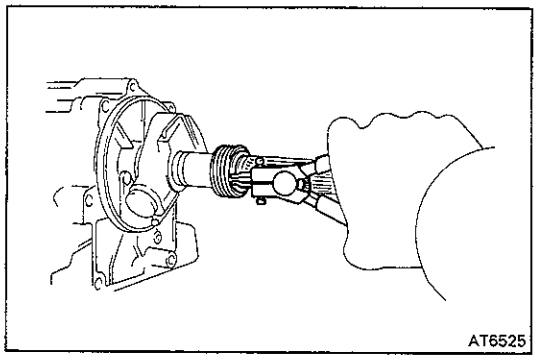


33. (A45DL)
INSTALL GOVERNOR BODY

(a) While lifting the retaining clip with a screwdriver, slide th governor body and insert the retaining clip end into the hole on the output shaft.

(b) Install the lock plate and bolt, and then stake th lock plate.

Torque: 40 kg-cm (35 in.-lb, 3.9 N·m)



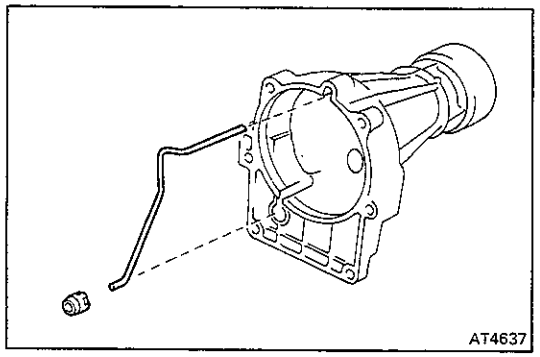
34. (A45DL)
INSTALL SPEEDOMETER DRIVE GEAR

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

(b) Install the ball into the hole on the output shaft.

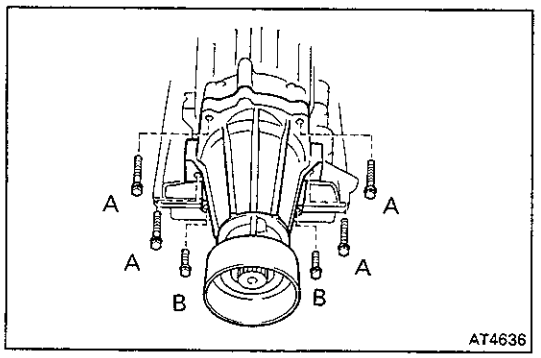
(c) Align the groove of the drive gear with the ball, install the drive gear.

(d) Using snap ring pliers, install the snap ring.



35. (A45DL, A46DE)
INSTALL EXTENSION HOUSING

(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

(c) Apply sealant to the bolt A.

Sealant: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

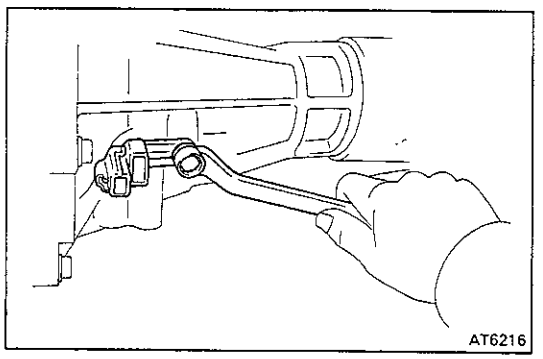
(d) Install and tighten the six bolts.

HINT: The two lower bolts are shorter.

Torque: 345 kg-cm (25 ft-lb, 34 N·m)

HINT: Each bolt length is indicated below.

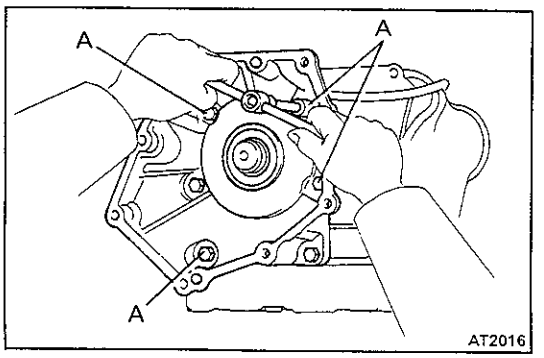
A bolt 45 mm (1.77 in.)
B bolt 35 mm (1.38 in.)



36. **INSTALL NO.2 SPEED SENSOR (A46DE)**

(a) Install the bolt and the No.2 speed sensor.

(b) Install the four bolts and the dynamic damper.



37. (A46DF)
INSTALL TRANSFER ADAPTOR

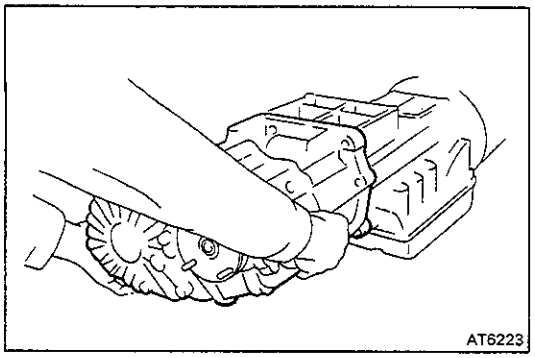
(a) Install transfer adaptor with a new gasket to the case.

(b) Apply sealant to the bolt A.

Sealant: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

(c) Install and tighten the six bolts.

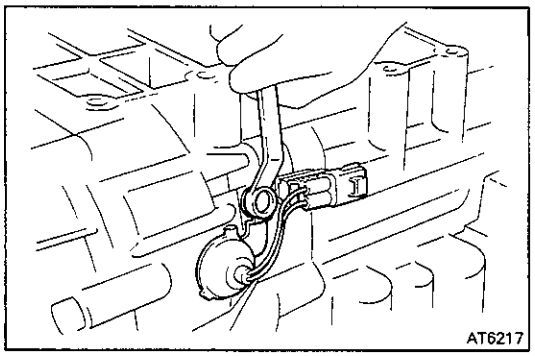
Torque: 345 kg-cm (25 ft-lb, 34 N·m)



38. **(A46DF)**
INSTALL TRANSFER

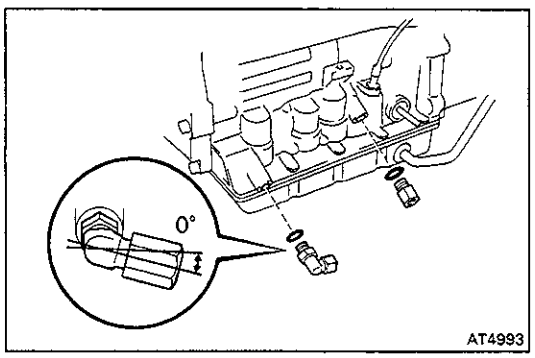
Install the eight bolts and the transfer.

Torque: 455 kg-cm (33 ft-lb, 45 N·m)



39. **(A46DF)**
INSTALL NO.2 SPEED SENSOR

Install the No.2 speed sensor with the bolt.

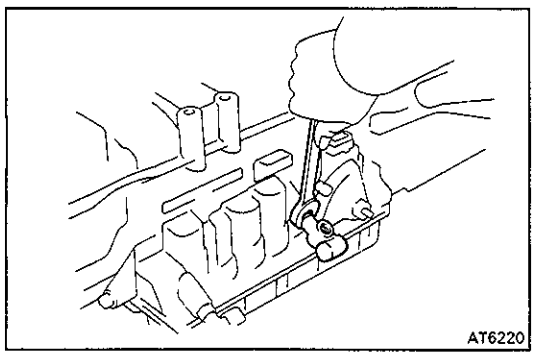


40. **(A45DL, A46DE)**
INSTALL UNION AND ELBOW

(a) Coat new two O-rings with ATF and install them to union and elbow.

(b) Install and tighten the union and elbow.

Torque: 350 kg-cm (25 ft-lb, 34 N·m)

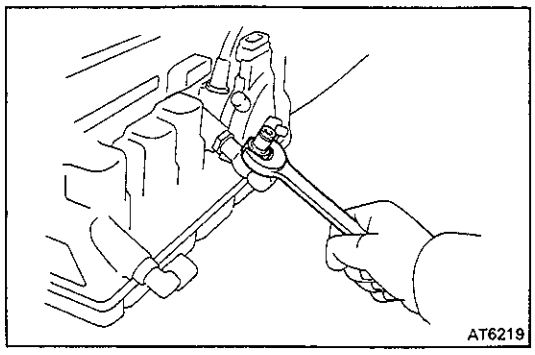


(A46DF)

(a) Coat new two O-rings with ATF and install them to each elbows.

(b) Install and tighten the elbows.

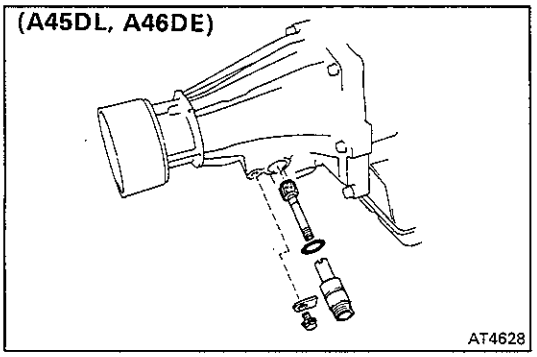
Torque: 350 kg-cm (25 ft-lb, 35 N·m)



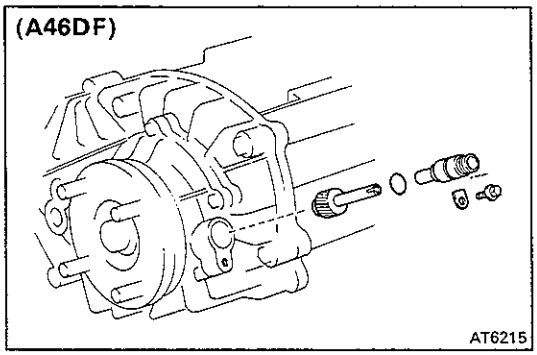
(c) Coat a new O-ring with ATF and install it to the A/T fluid temperature sensor.

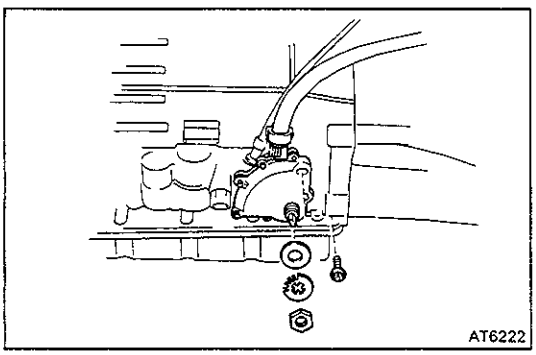
(d) Install and tighten the sensor to the front elbow.

Torque: 350 kg-cm (25 ft-lb, 35 N·m)



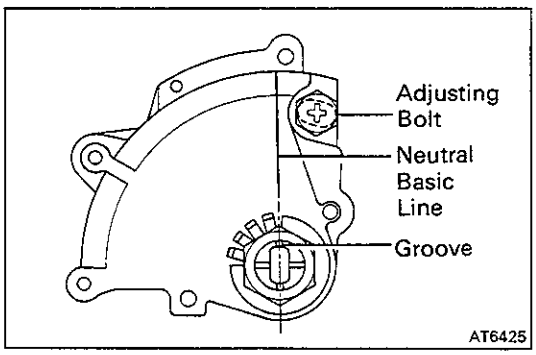
41. **INSTALL SPEEDOMETER DRIVEN GEAR**
   (a) Coat a new O-ring with ATF and install it to the sleeve.
   (b) Insert the driven gear into the sleeve.
   (c) Install the lock plate with the bolt.





42. **INSTALL NEUTRAL START SWITCH**
   (a) Insert the neutral start switch onto the manual valve lever shaft and temporarily tighten the adjusting bolt.
   (b) Install the grommet and a new lock washer. Install and tighten the nut.

   Torque: 40 kg-cm (35 in.-lb, 3.9 N·m)

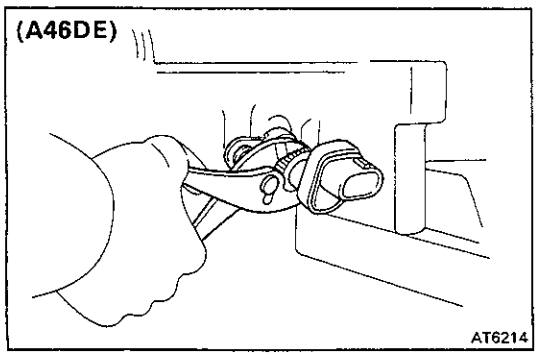


   (c) Align the neutral basic line and the switch groove, and tighten the adjusting bolt.

   Torque: 55 kg-cm (48 in.-lb, 5.4 N·m)

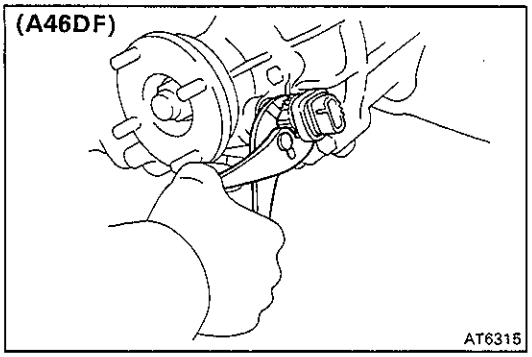
   (d) Bend the tabs of the lock washer.

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

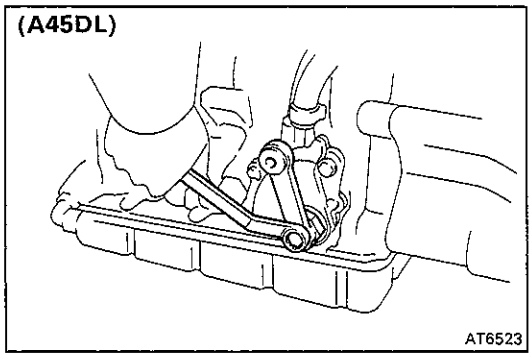


43. **(A46DE, A46DF)**
INSTALL NO.1 SPEED SENSOR

(A46DF)

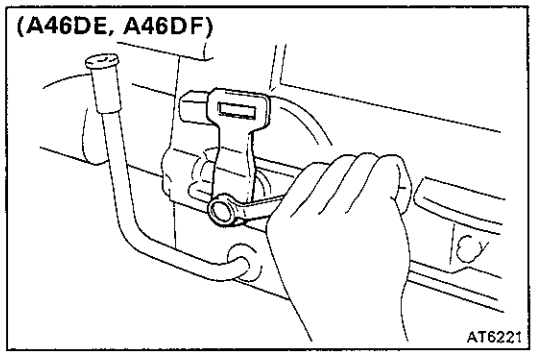


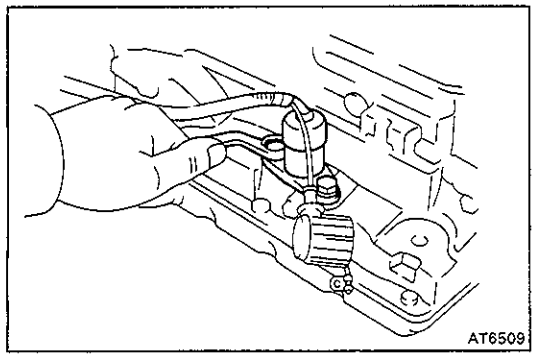
(A45DL)



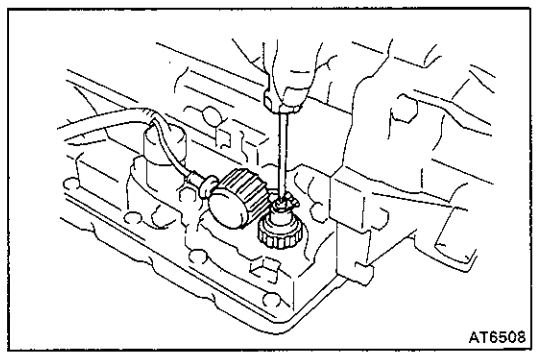
44. INSTALL TRANSMISSION CONTROL SHAFT LEVER

(A46DE, A46DF)



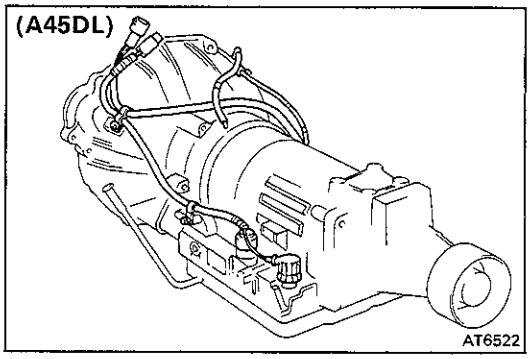


45. (A45DL)
INSTALL O/D SOLENOID

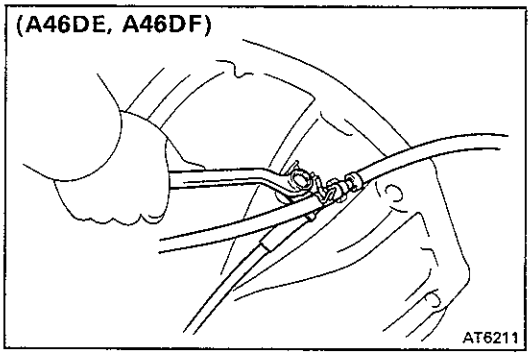


46. (A45DL)
INSTALL KICK-DOWN SWITCH

(A45DL)



(A46DE, A46DF)



47. INSTALL WIRE HARNESS CLAMP AND THROTTLE CABLE CLAMP