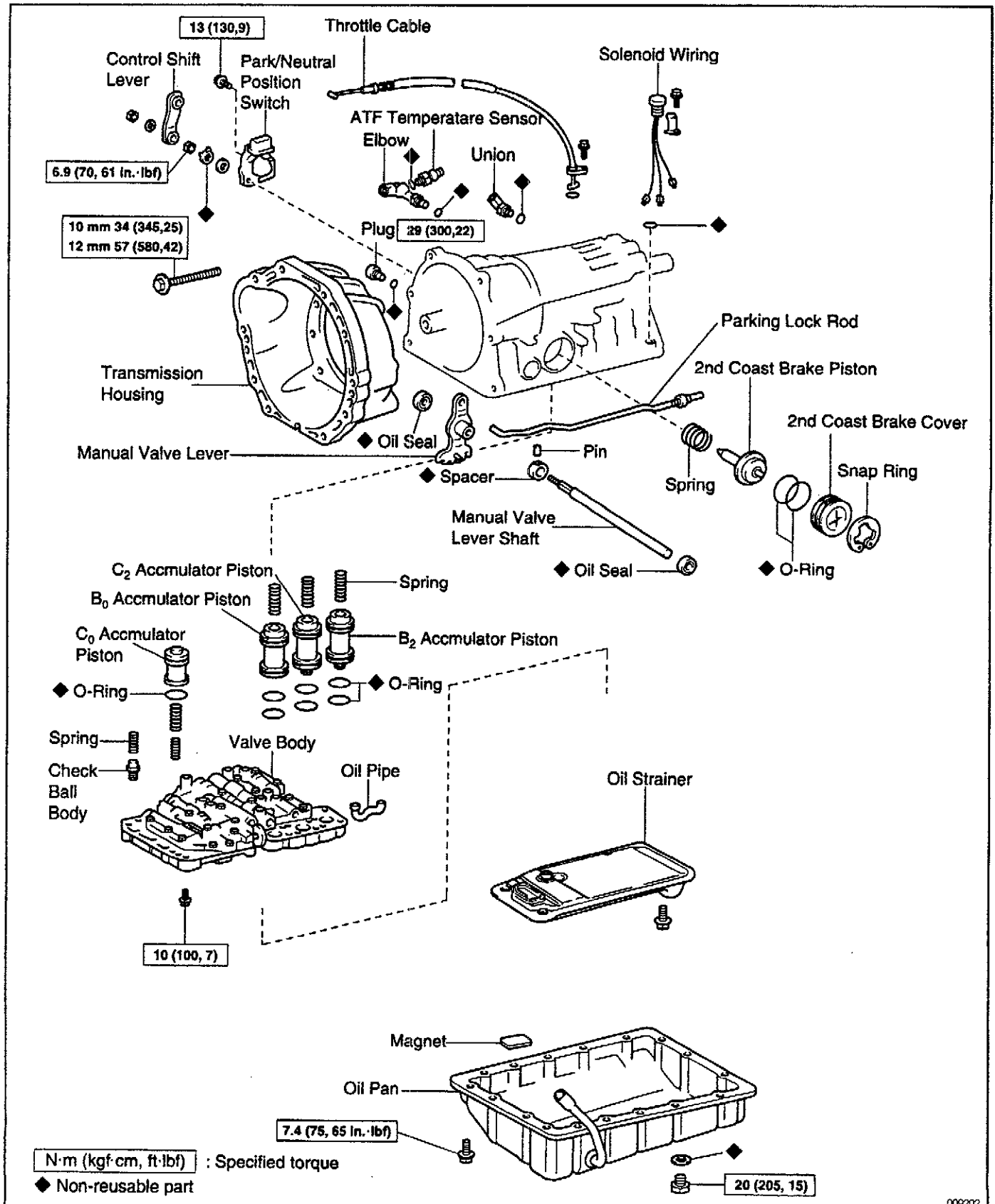
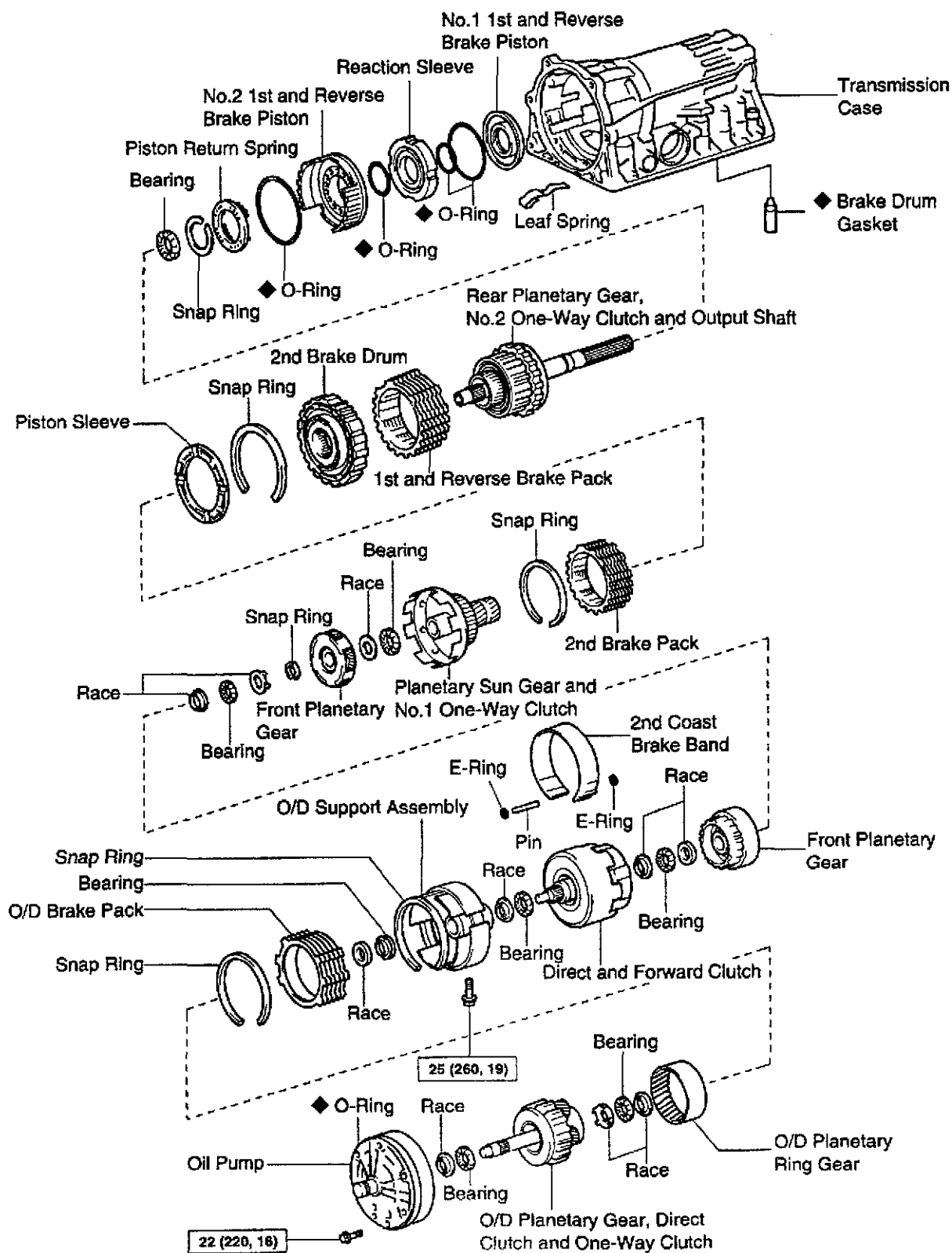


# COMPONENT PARTS REMOVAL COMPONENTS

AT004-03

AT



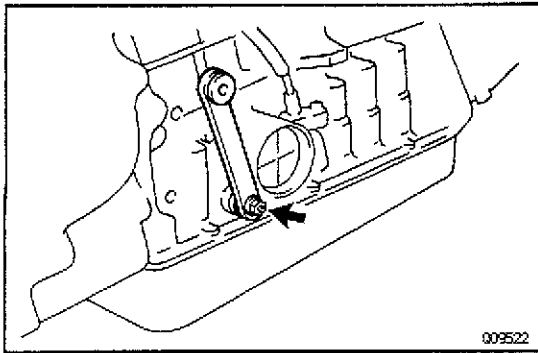


N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

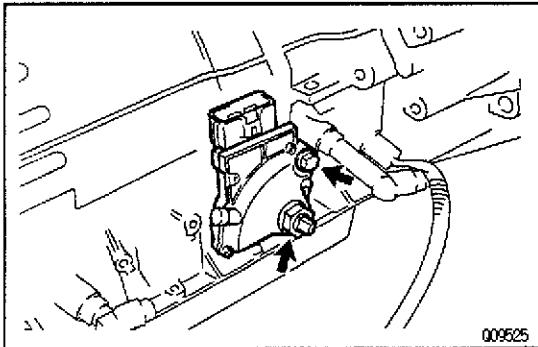
## TRANSMISSION DISASSEMBLY

### 1. REMOVE TRANSMISSION CONTROL SHAFT LEVER



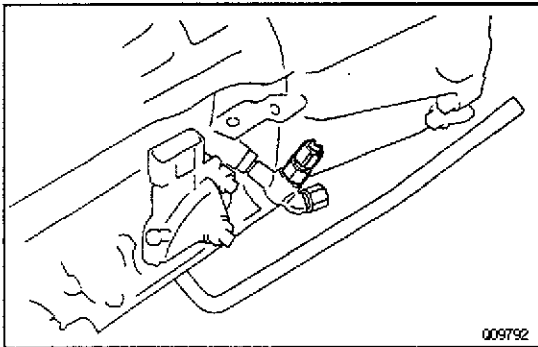
### 2. REMOVE NEUTRAL START SWITCH

- Unstake the lock washer.
- Remove the nut and bolt, and then remove the neutral start switch.
- Remove the lock washer and grommet.



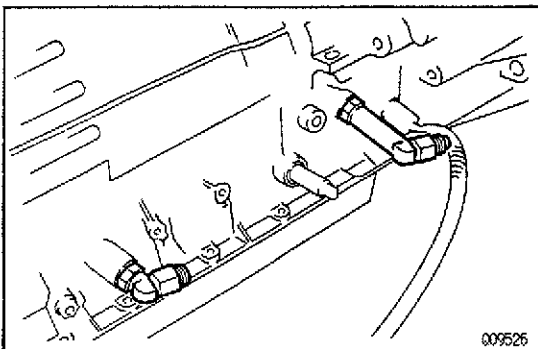
### 3. 1KZ-TE Engine: REMOVE ATF TEMPERATURE SENSOR

- Remove the ATF temperature sensor.
- Remove the O-ring from the sensor.



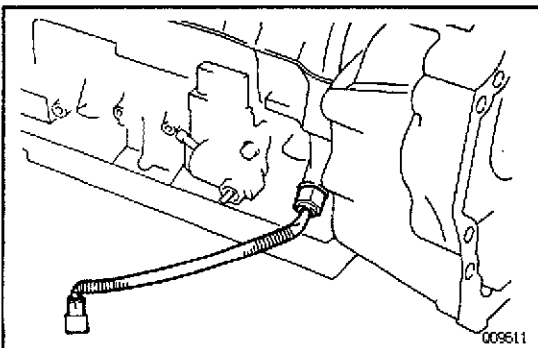
### 4. REMOVE TRANSMISSION SIDE UNION AND ELBOW

- Remove the union and elbow.
- Remove the O-rings from the union and elbow.



### 5. 3RZ-FE, 5VZ-FE Engine: REMOVE ATF TEMPERATURE SENSOR

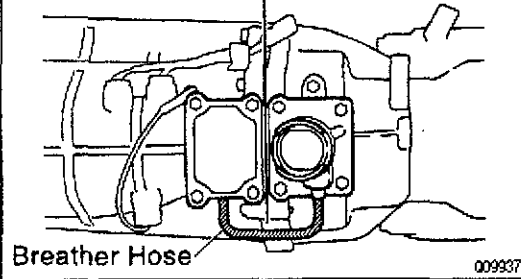
- Remove the ATF temperature sensor.
- Remove the O-ring from the sensor.



AT

**3RZ-FE, 1KZ-TE**

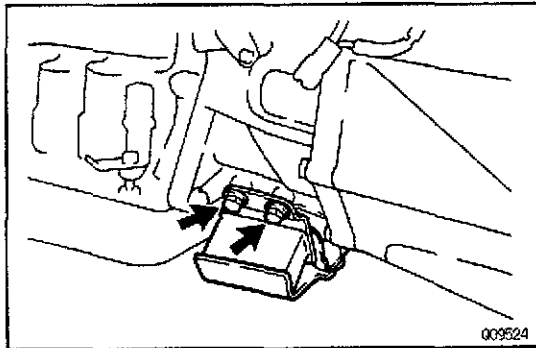
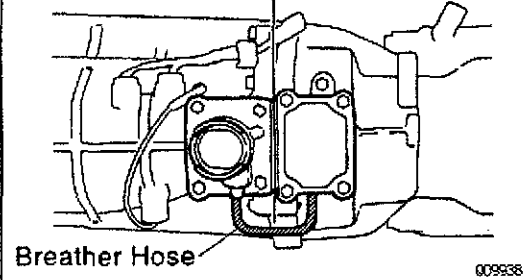
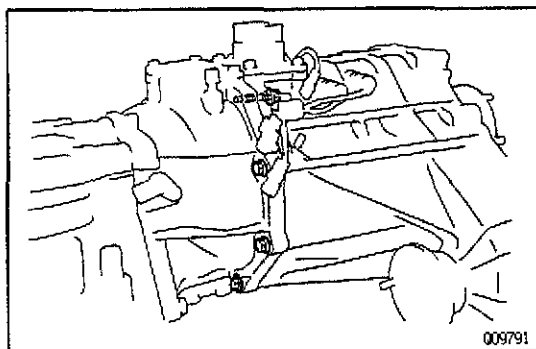
Transfer Side | Transmission Side

**6. REMOVE BREATHER HOSE**

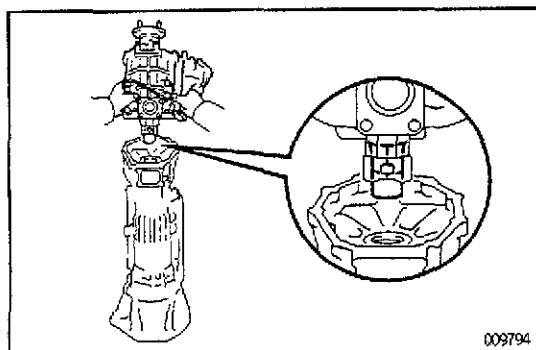
Remove the breather hose from transfer upper cover and transmission control retainer.

**5VZ-FE**

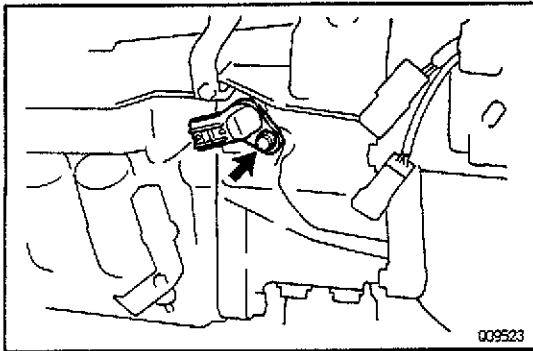
Transfer Side | Transmission Side

**7. REMOVE ENGINE REAR MOUNTING****8. REMOVE TRANSFER FROM TRANSMISSION**

(a) Remove the transfer adaptor rear mounting bolts.

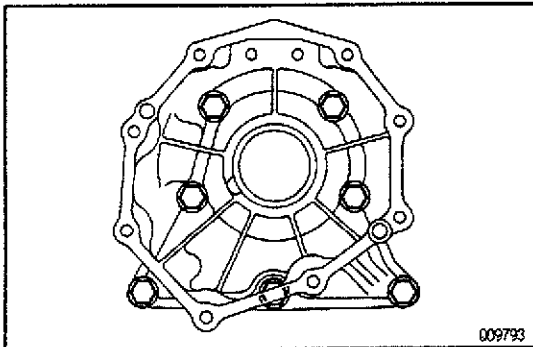


(b) Pull the transfer straight up and remove it from the transmission.



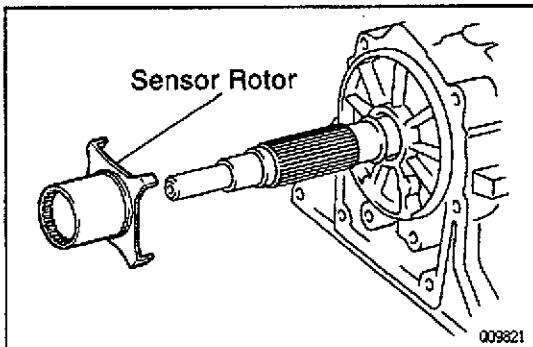
**9. REMOVE SPEED SENSOR**

- (a) Remove the bolt and speed sensor.
- (b) Remove the O—ring from the sensor.



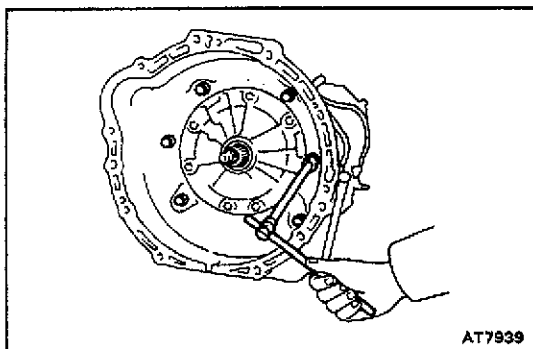
**10. REMOVE TRANSFER ADAPTER**

Remove the 7 bolts and case.



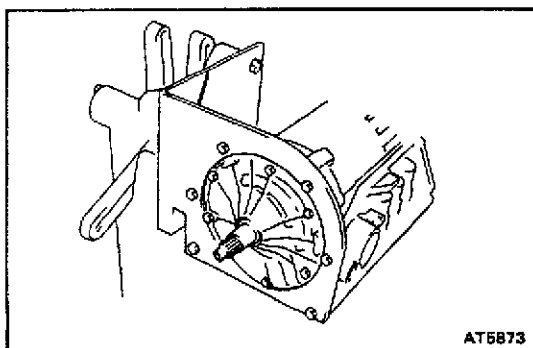
**11. REMOVE SPEED SENSOR ROTOR AND KEY**

- (a) Remove the throttle cable mounting bolts.
- (b) Using a snap ring expander, remove the snap ring.
- (c) Remove the sensor rotor and key.



**12. REMOVE TRANSMISSION HOUSING**

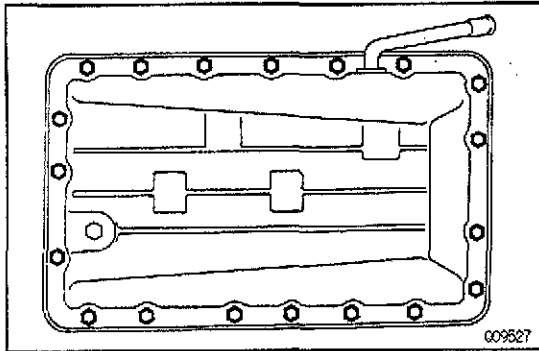
- (a) Remove the 6 bolts.
- (b) Remove the transmission housing.



**13. INSTALL TRANSMISSION CASE**

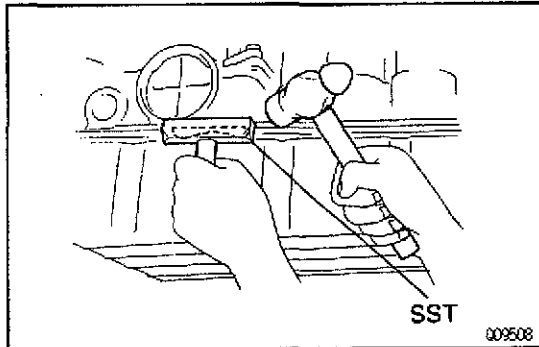
Install the transmission case on the overhaul attachment.

AT

**14. REMOVE OIL PAN**

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

- (a) Remove the 19 bolts.

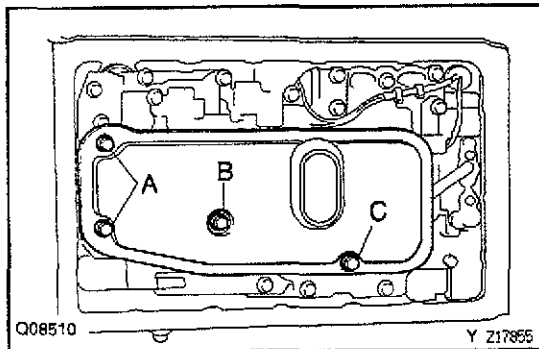


- (b) Install the blade of SST between the transmission case and oil pan, cut off applied sealer.

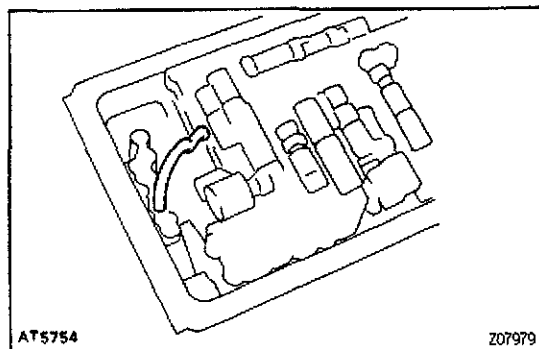
SST 09032-00100

**NOTICE:** Be careful not to damage the oil pan flange.

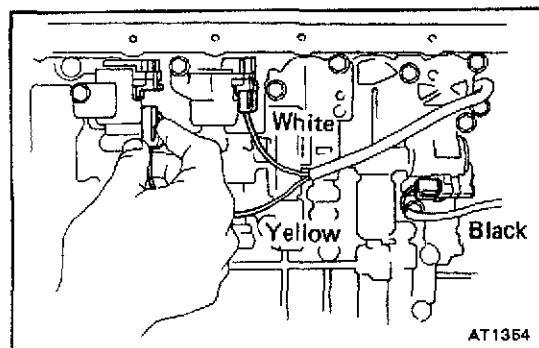
- (c) Remove the pan by lifting the transmission case.

**15. REMOVE OIL STRAINER AND GASKETS**

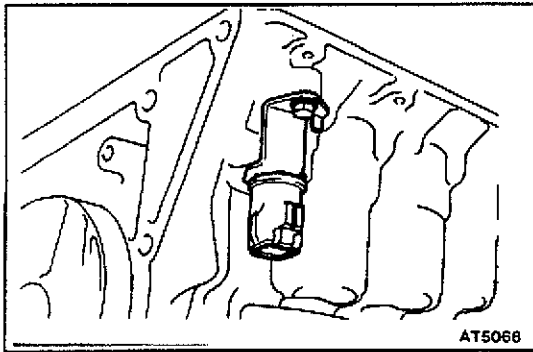
- (a) Remove the 4 bolts and oil strainer case.
- (b) Remove the gaskets from the oil strainer case.

**16. REMOVE OIL PIPE**

Pry up pipe ends with a large screwdriver and remove the pipe.

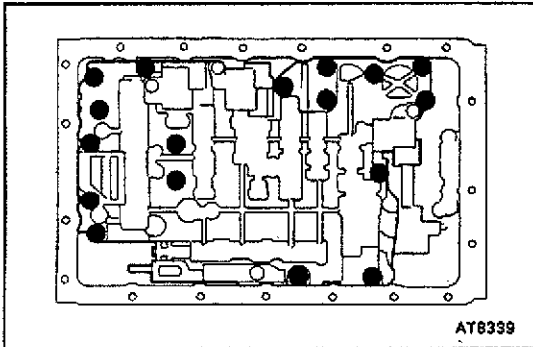
**17. REMOVE SOLENOID WIRING**

- (a) Disconnect the 3 connectors from the No.1, No.2 and SL solenoid valves.



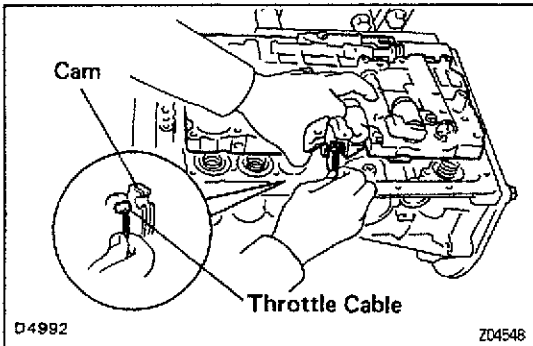
- (b) Remove the stopper plate from the case.
- (c) Pull out the solenoid wiring from the transmission case.
- (d) Remove the O—ring from the grommet.

AT

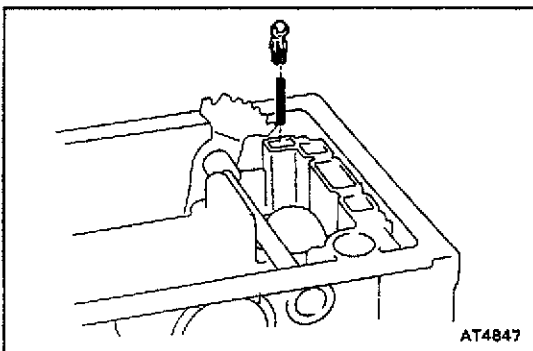


## **18. REMOVE VALVE BODY**

- (a) Remove the 17 bolts.

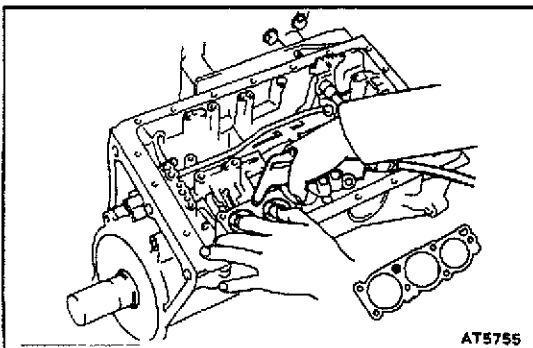


- (b) Disconnect the throttle cable from the cam and remove the valve body.



## **19. REMOVE CHECK BALL BODY**

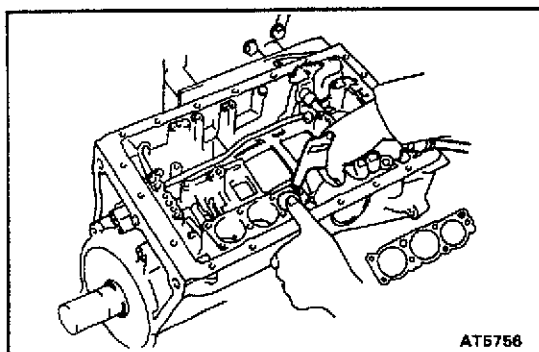
Remove the check ball body and spring.



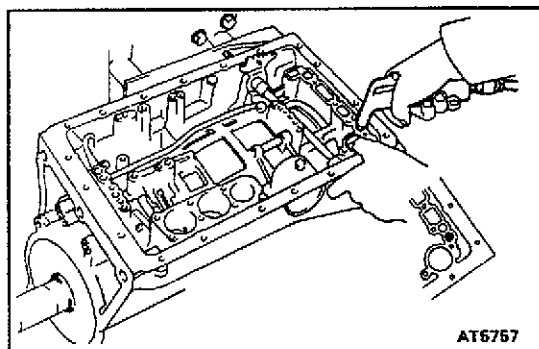
## **20. REMOVE ACCUMULATOR PISTONS AND SPRINGS**

- (a) Applying compressed air to the oil hole, remove the B<sub>2</sub> and C<sub>2</sub> accumulator pistons and 3 springs.
- (b) Remove the O—ring from each piston.

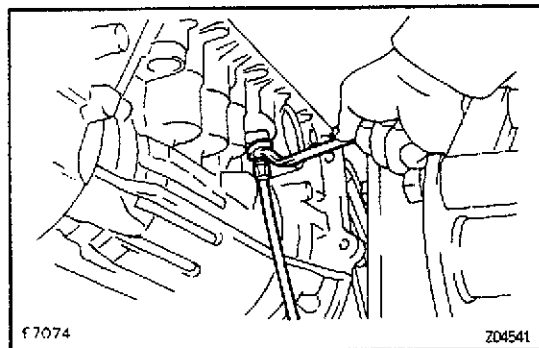
AT



- (c) Applying compressed air to the oil hole, remove the B<sub>0</sub> accumulator piston and spring.

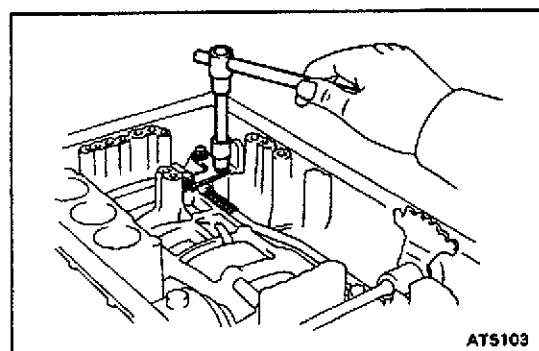


- (d) Applying compressed air to the oil hole, remove the C<sub>0</sub> accumulator piston and spring.  
 (e) Remove the O-ring from the piston.



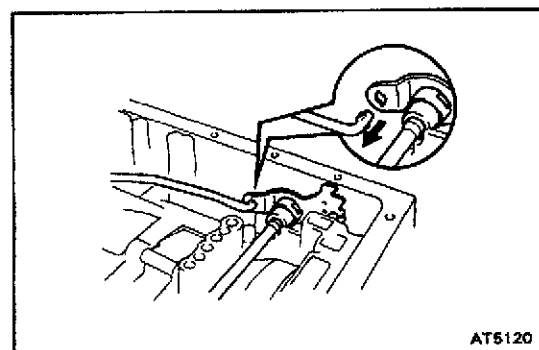
## 21. REMOVE THROTTLE CABLE

- (a) Remove the retaining bolt and pull out the throttle cable.  
 (b) Remove the O-ring from the cable.



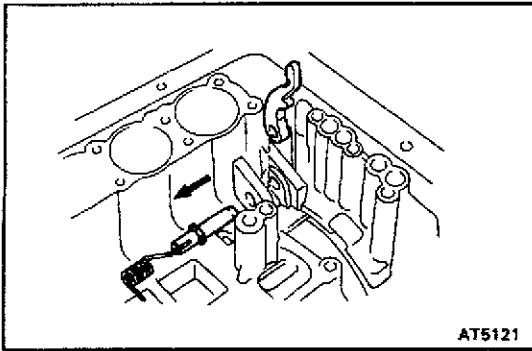
## 22. REMOVE PARKING LOCK ROD AND PAWL

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



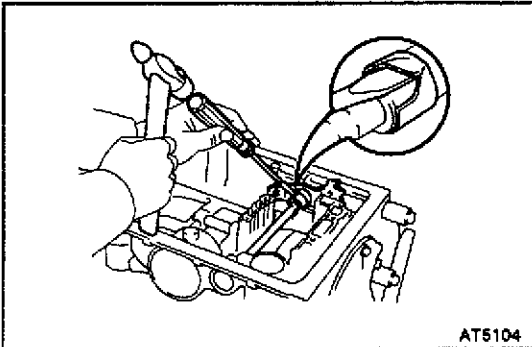
- (b) Disconnect the parking lock rod from the manual valve lever.





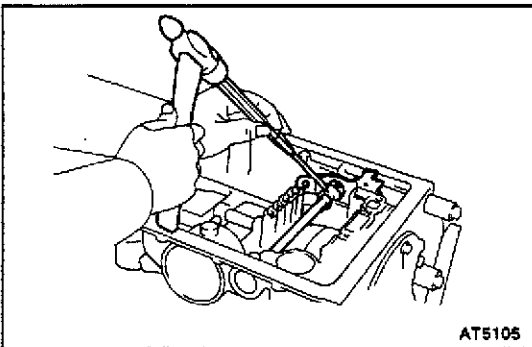
- (c) Remove the E—ring from the shaft.
- (d) Pull the parking lock pawl shaft out from the front side, then remove the pawl and spring.

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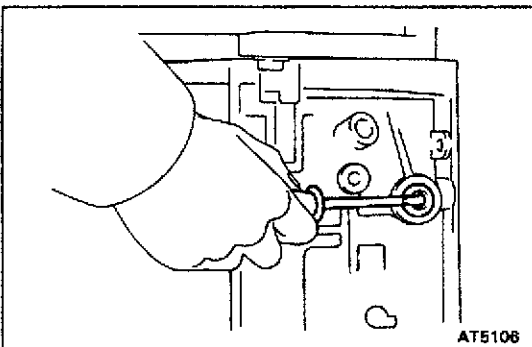


**23. REMOVE MANUAL VALVE LEVER SHAFT**

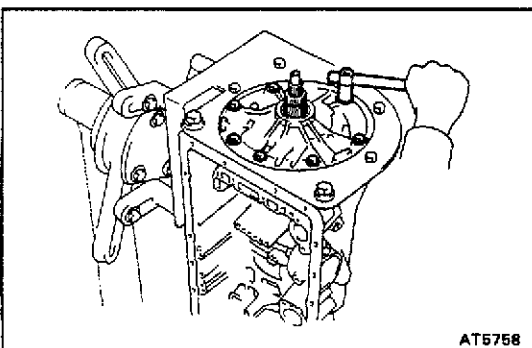
- (a) Using a screwdriver and hammer, cut off the spacer and remove it from the shaft.



- (b) Using a pin punch, 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.



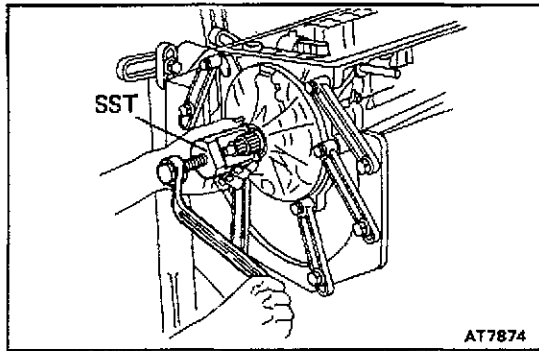
- (d) Using a screwdriver, remove the 2 oil seals.



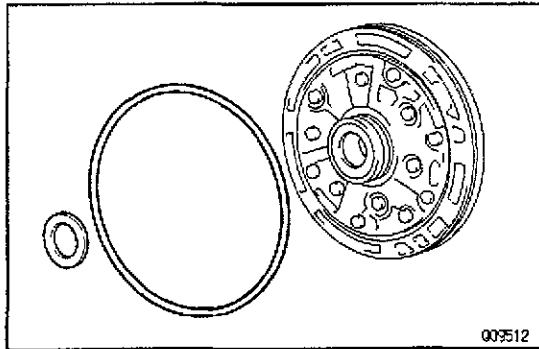
**24. REMOVE OIL PUMP**

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

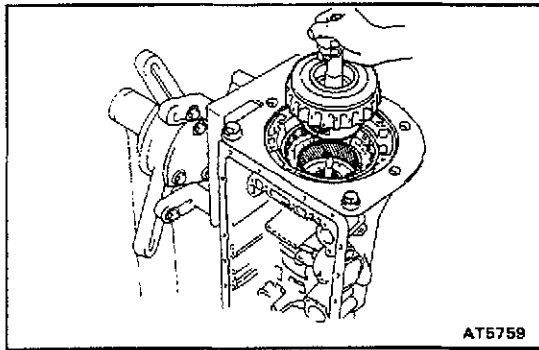
AT



- (c) Using SST, remove the oil pump.  
SST 09610–20012

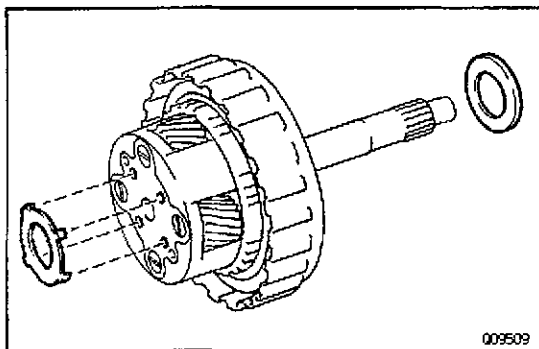


- (d) Remove the race from the oil pump.  
(e) Remove the O–ring from the oil pump.

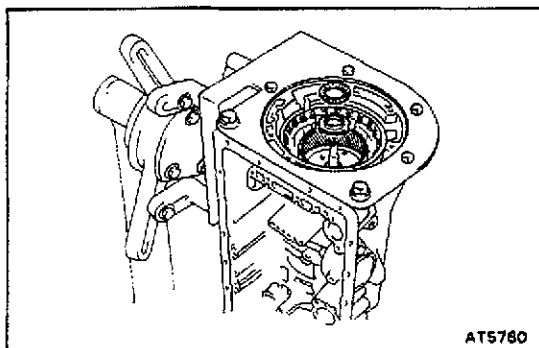


## 25. REMOVE O / D PLANETARY GEAR WITH O / D DIRECT CLUTCH AND ONE–WAY CLUTCH

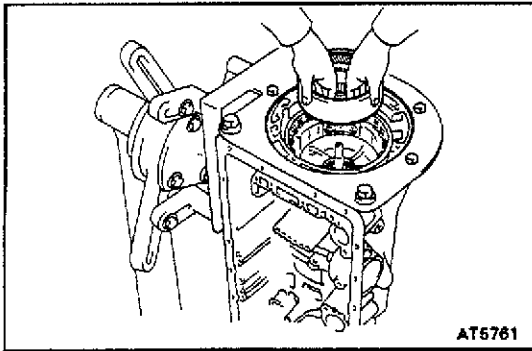
- (a) Remove the O/D planetary gear with the O/D direct clutch and one–way clutch from the transmission case.



- (b) Remove the assembled bearing and race.

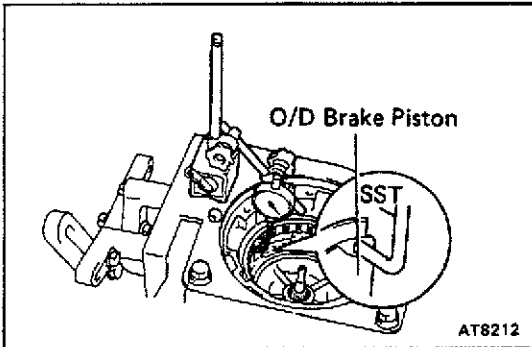


- (c) Remove the bearing and race.



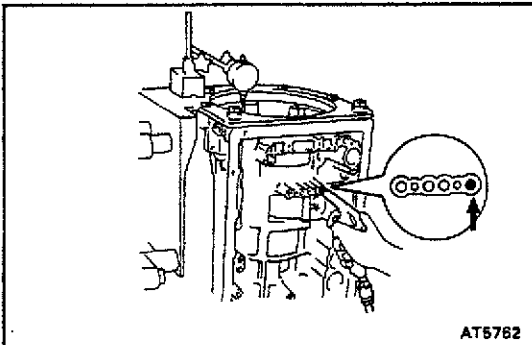
- (d) Remove the O/D planetary ring gear from the transmission case.

AT



## **26. 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—785 kPa, 4—8kgf/cm<sup>2</sup>, 57—114 psi).

**Piston stroke:**

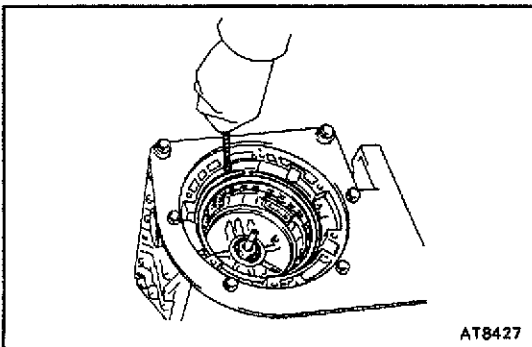
**3RZ—FE, 5VZ—FE:**

1.40 — 1.70 mm (0.0551 — 0.0669 in.)

**1KZ—TE:**

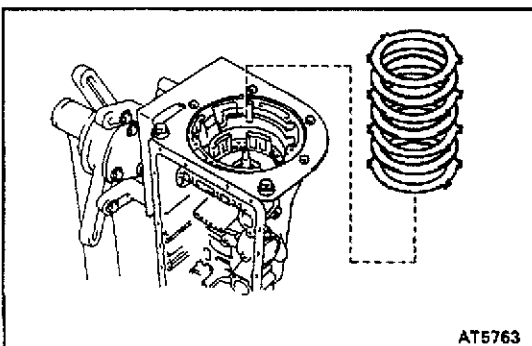
1.32 — 1.62 mm (0.0520 — 0.0638 in.)

If the values are non—standard, inspect the disc.

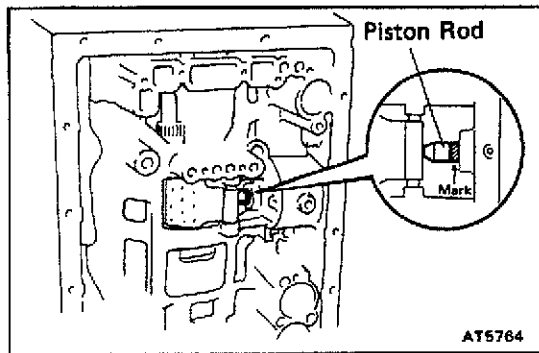


## **27. REMOVE FLANGES, PLATES AND DISCS OF O/D BRAKE**

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

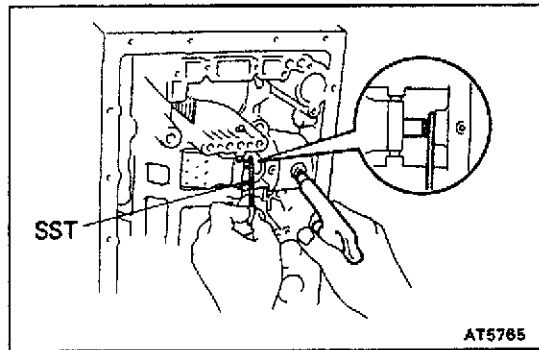


- (b) Remove the flanges, plates and discs as a set.



## 28. CHECK PISTON ROD STROKE OF 2ND COAST BRAKE

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

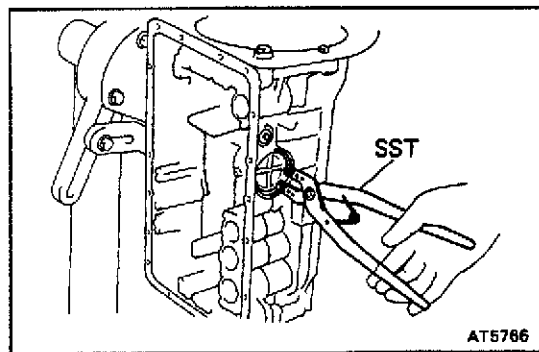


- (b) Using SST, measure the stroke while applying compressed air (392 – 785 kPa, 4 – 8 kgf/cm<sup>2</sup>, 57 – 114 psi.)

SST 09350–30020 (09350–00020)

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

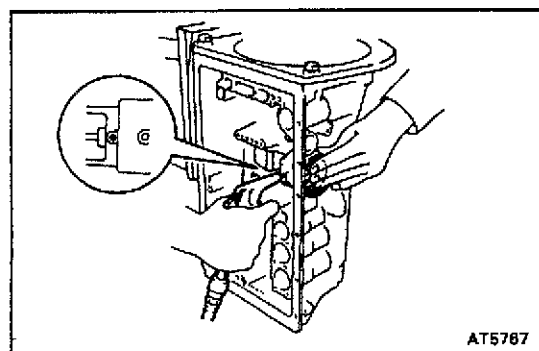
If the values are non-standard, inspect the brake band.



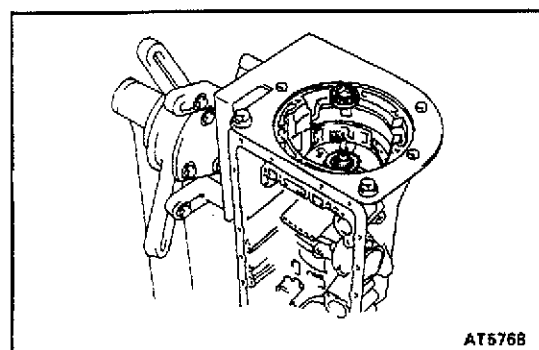
## 29. REMOVE 2ND COAST BRAKE COVER, PISTON ASSEMBLY AND SPRING

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

SST 09350–30020 (09350–07060)

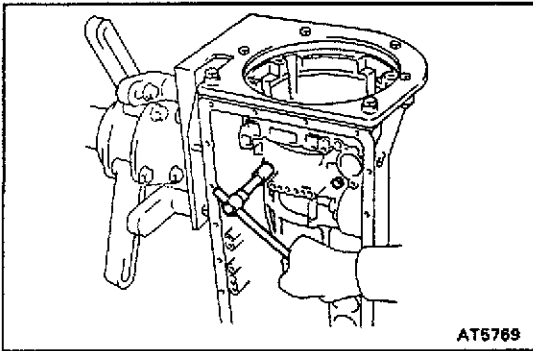


- (b) Applying compressed air to the oil hole, remove the 2nd coast brake cover, piston assembly and spring.  
(c) Remove the 2 O-rings from the cover.

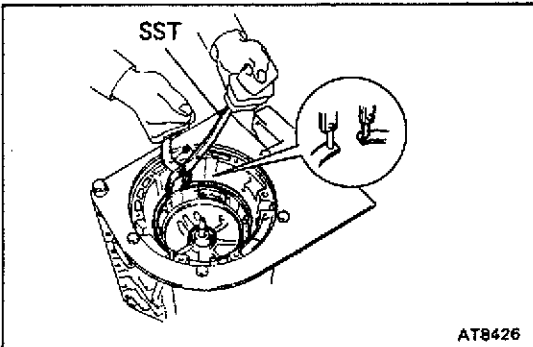


## 30. REMOVE O/D SUPPORT ASSEMBLY

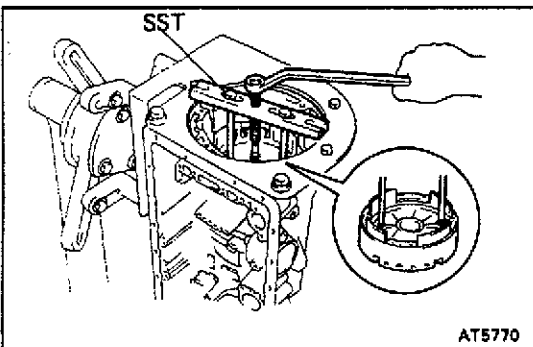
- (a) Remove the assembled bearing.



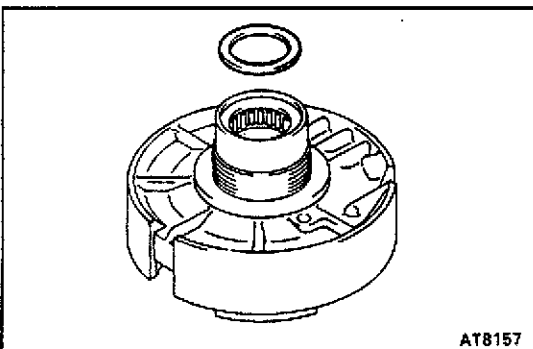
- (b) Remove the 2 bolts holding the O/D support assembly to the case.



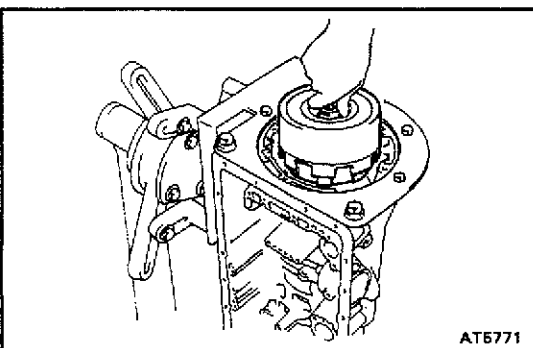
- (c) Using SST, remove the snap ring.  
SST 09350-30020 (09350-07060)



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

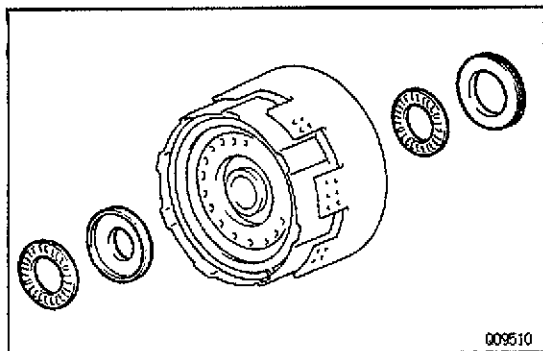


- (e) Remove the race.

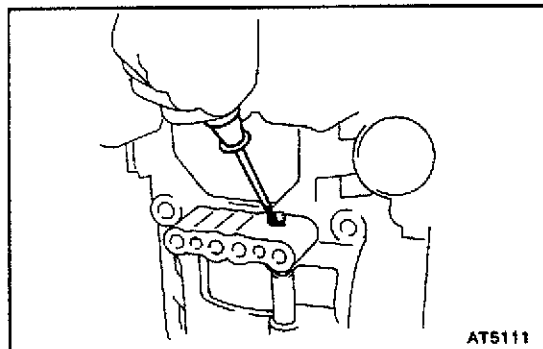


### **31. REMOVE DIRECT CLUTCH WITH FORWARD CLUTCH**

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

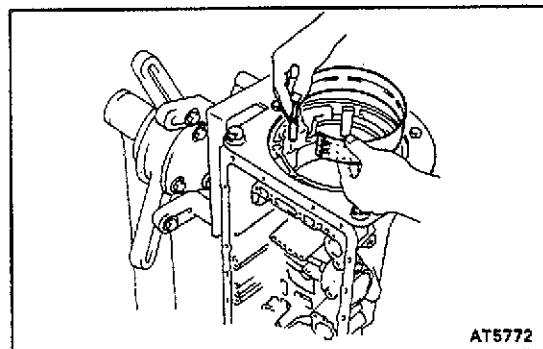


- (b) Remove the 2 bearings and races.

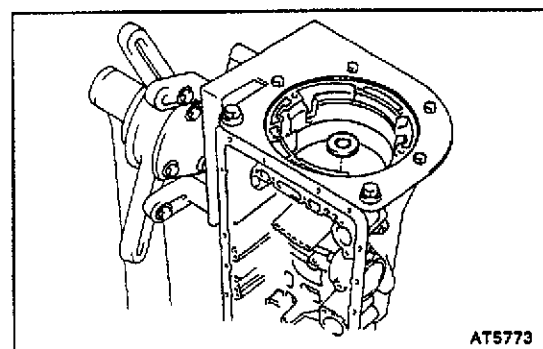


### 32. REMOVE 2ND COAST BRAKE BAND

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

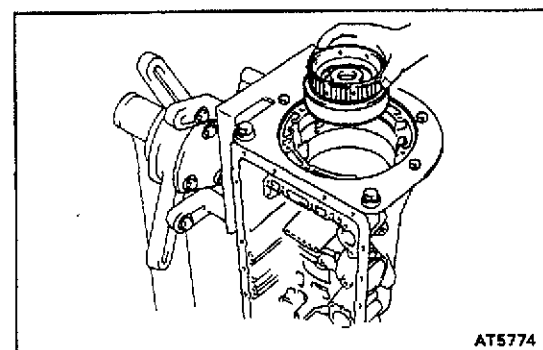


- (c) Remove the 2nd coast brake band from the case.

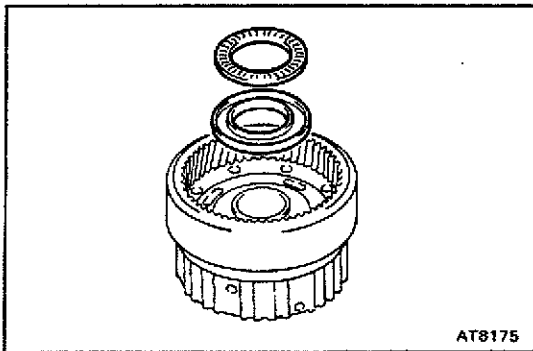


### 33. REMOVE FRONT PLANETARY GEAR UNIT

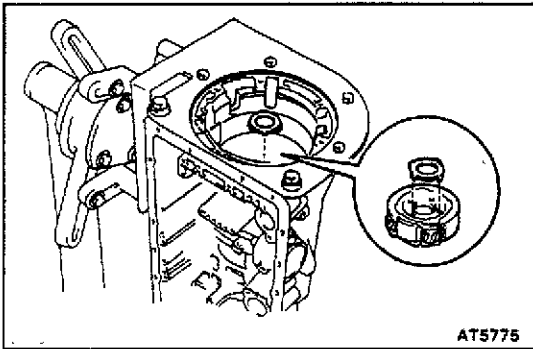
- (a) Remove the race.



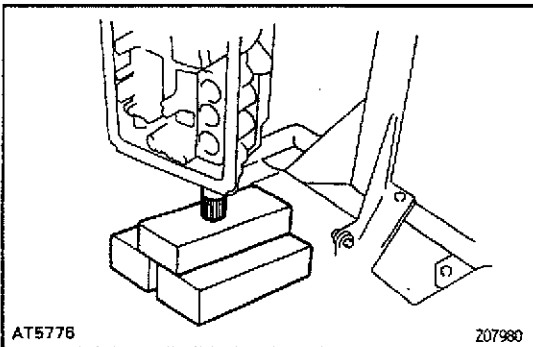
- (b) Remove the front planetary ring gear from the case.



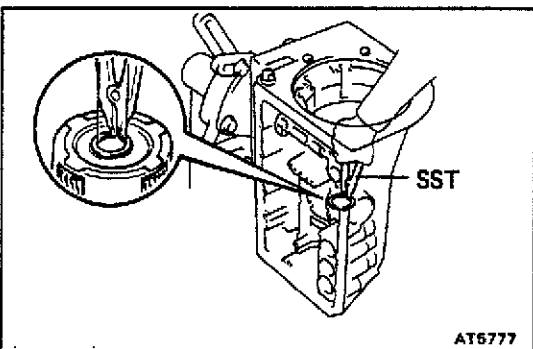
(c) Remove the bearing and race.



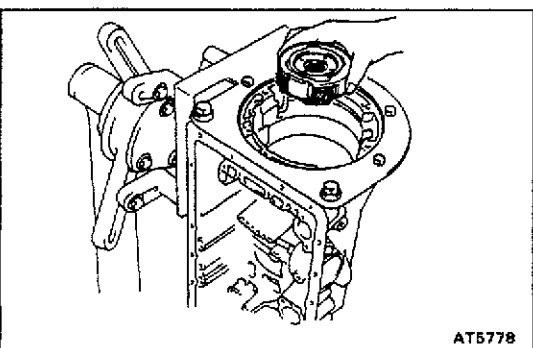
(d) Remove the race.



(e) With wooden blocks or equivalent under the output shaft, stand the transmission on the output shaft.

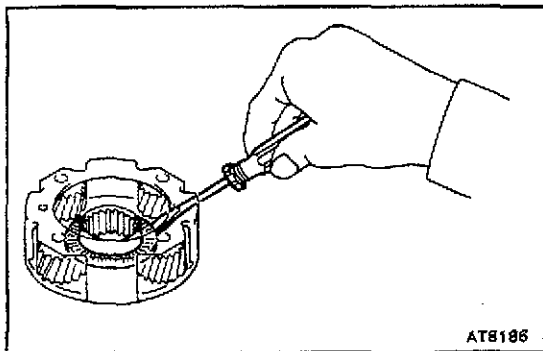


(f) Using SST, remove the snap ring.  
SST 09350-30020 (09350-07070)



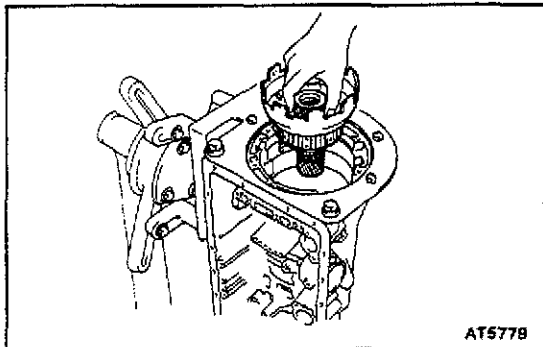
(g) Remove the front planetary gear from the case.

AT



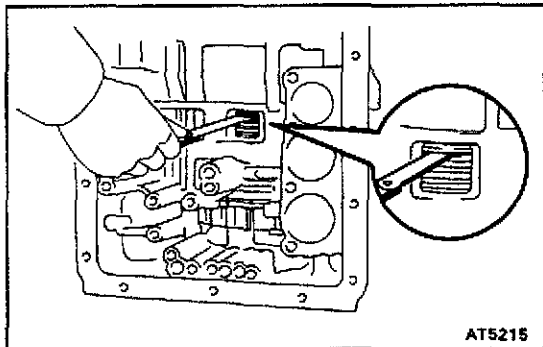
AT8186

- (h) Using a screwdriver, remove the bearing and race from the front planetary gear.



AT5778

### 34. REMOVE PLANETARY SUN GEAR WITH NO.1 ONE-WAY CLUTCH



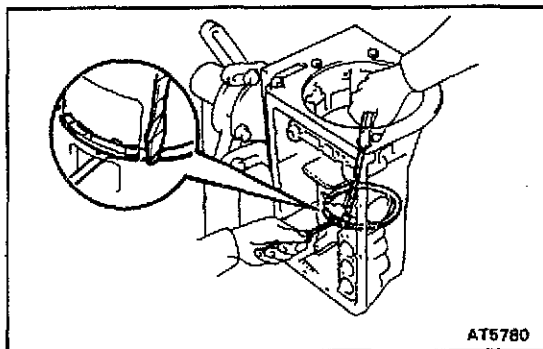
AT5215

### 35. CHECK PACK CLEARANCE OF 2ND BRAKE

Using a feeler gauge, measure the clearance between the snap ring and flange.

Pack clearance: 0.62 — 1.98 mm (0.0244 — 0.0780 in.)

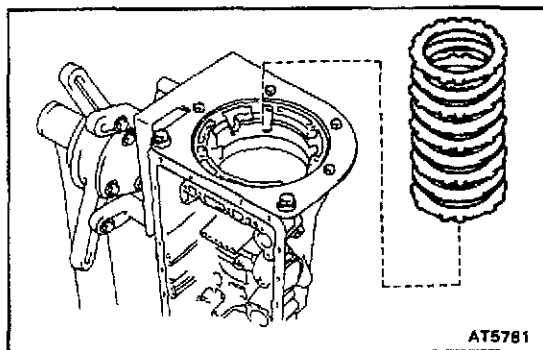
If the values are non-standard, inspect the disc.



AT5780

### 36. REMOVE FLANGE, PLATES AND DISCS OF 2ND BRAKE

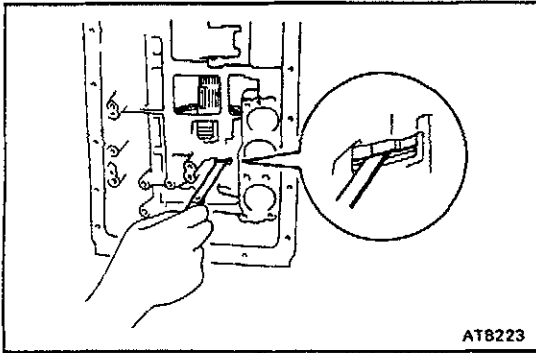
- (a) Using 2 screwdrivers, remove the snap ring.



AT5781

- (b) Remove the flange, plates and discs as a set.





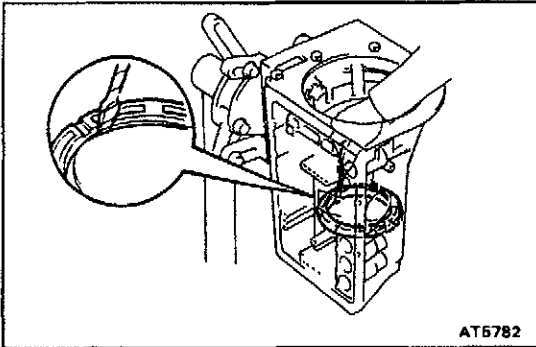
**37. CHECK PACK CLEARANCE OF 1ST AND REVERSE BRAKE**

Using a feeler gauge, measure the clearance between the plate and second brake drum.

**Pack clearance: 0.60 — 1.12 mm (0.0236 — 0.0441 in.)**

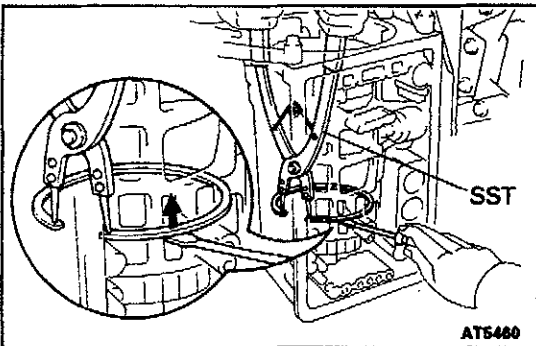
If the values are non—standard, inspect the discs.

**AT**



**38. REMOVE 2ND BRAKE PISTON SLEEVE**

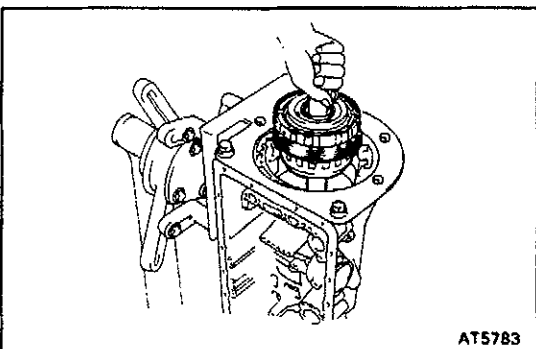
Using a screwdriver, remove the 2nd brake piston sleeve.



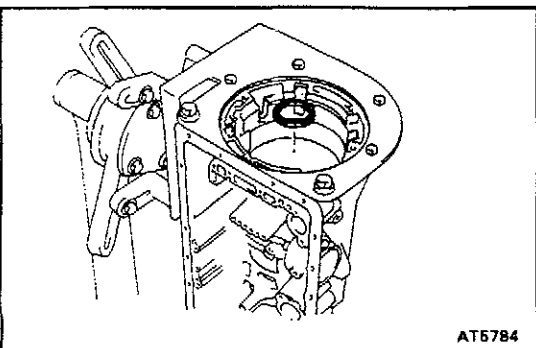
**39. REMOVE REAR PLANETARY GEAR WITH 2 ND BRAKE DRUM, 1ST AND REVERSE BRAKE PACK AND OUTPUT SHAFT**

- (a) Using SST and 2 screwdrivers, remove the snap ring.  
SST 09350—30020 (09350—07060)

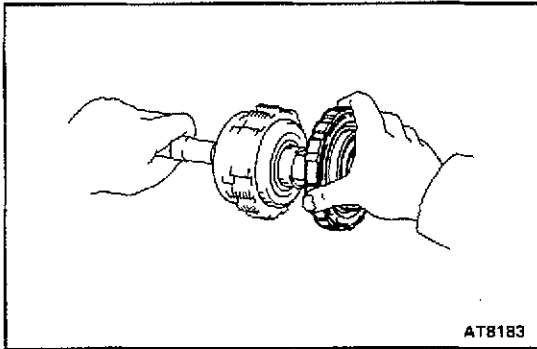
- (b) Remove the rear planetary gear, 2nd brake drum, 1st and reverse brake pack and output shaft as an assembly.



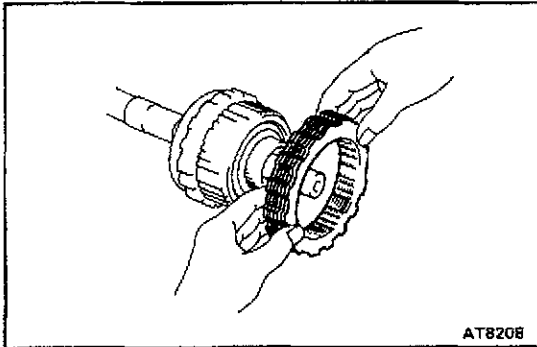
- (c) Remove the assembled thrust bearing from the case.



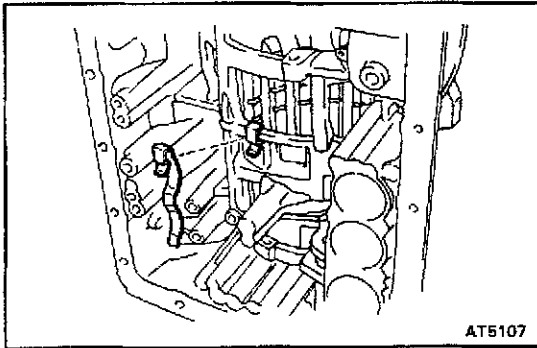
AT



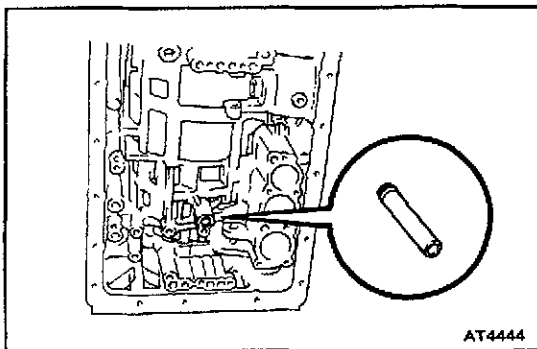
(d) Remove the 2nd brake drum assembly.



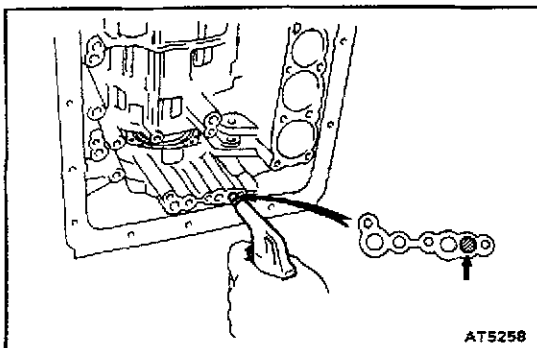
(e) Remove the cushion plate, flange, plates and discs of the 1st and reverse brake.



#### 40. REMOVE LEAF SPRING

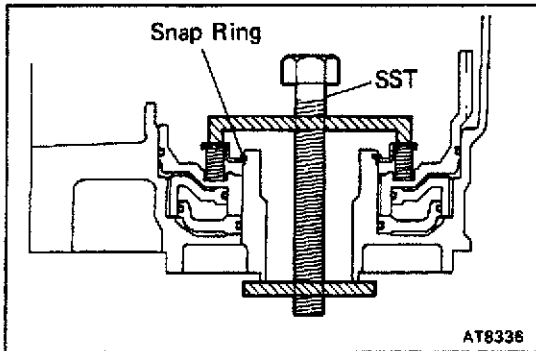


#### 41. REMOVE BRAKE DRUM GASKET



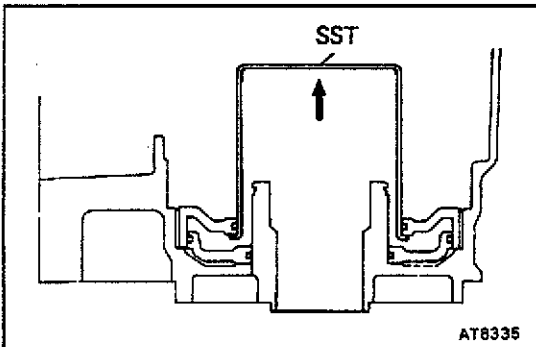
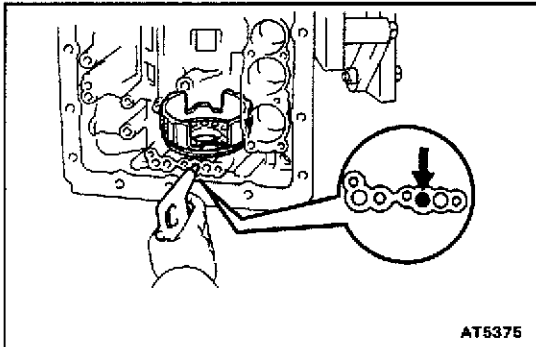
#### 42. CHECK PISTON STROKE OF 1ST AND REVERSE BRAKE

Make sure the 1st and reverse brake pistons move smoothly when applying and releasing the compressed air into the transmission case.

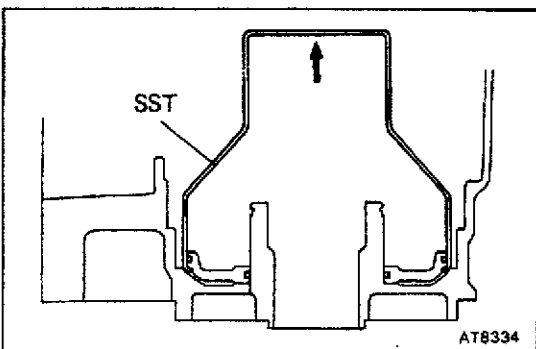


**43. REMOVE COMPONENTS OF 1 ST AND REVERSE BRAKE PISTON**

- (a) Set SST on the spring retainer, and compress the return spring.  
SST 09350-30020 (09350-07050)
- (b) Remove the snap ring with snap ring pliers.
- (c) Remove the piston return spring.
- (d) Hold the No.2 1st and reverse brake piston with hand, apply compressed air to the transmission case to remove the No.2 1st and reverse brake piston.
- (e) Remove the No.2 1st and reverse brake piston.  
If the piston does not pop out with compressed air, lift the position out with needle-nose pliers.
- (f) Remove the O-ring from the No.2 piston.



- (g) Install SST behind the reaction sleeve and gradually lift it out on the transmission case.  
SST 09350-30020 (09350-07080)
- (h) Remove the O-ring from the reaction sleeve.



- (i) Install SST behind the No.1 brake piston and gradually lift it out of the transmission case.  
SST 09350-30020 (09350-07090)
- (j) Remove the 2 O-rings from the No.1 piston.

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