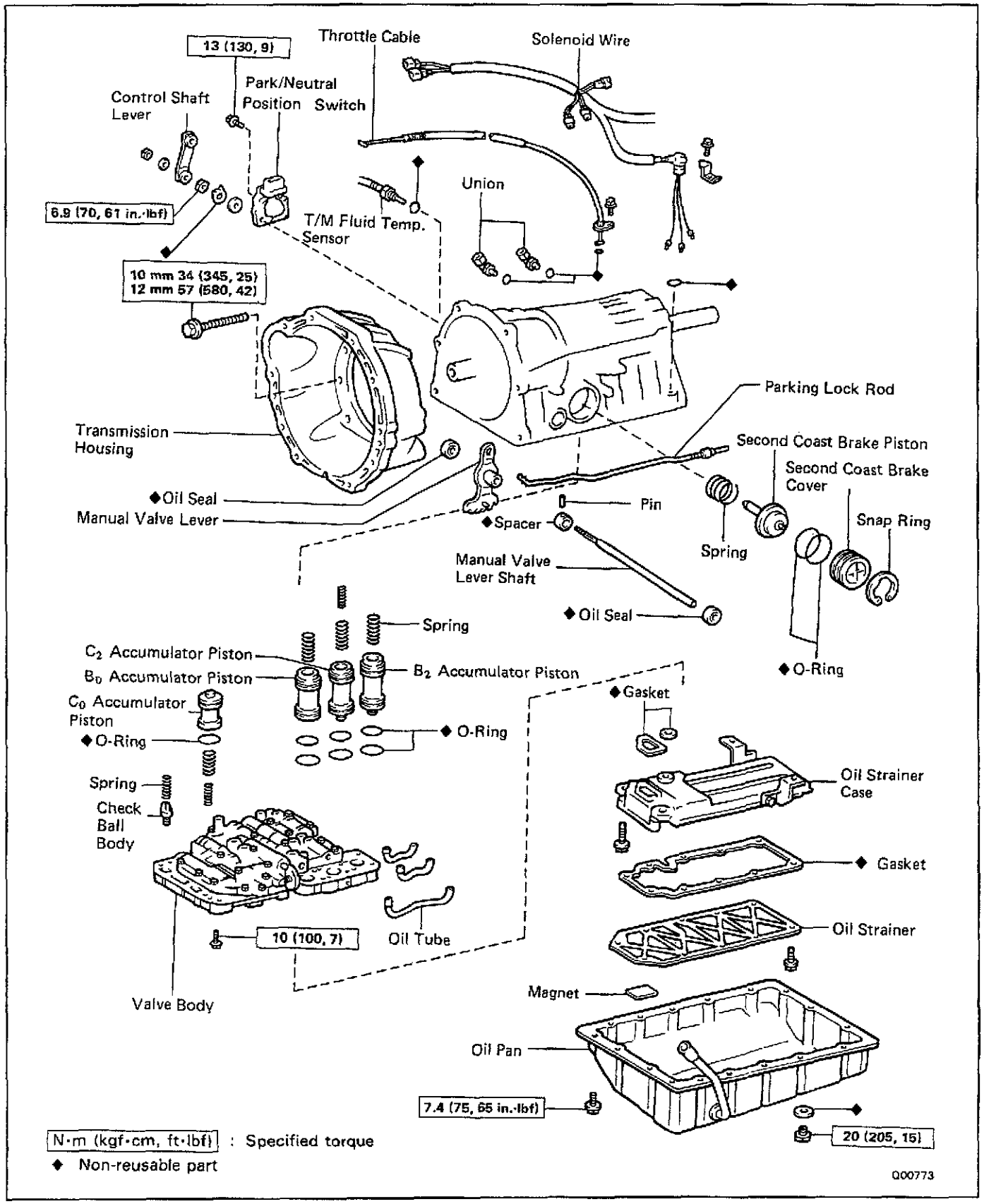
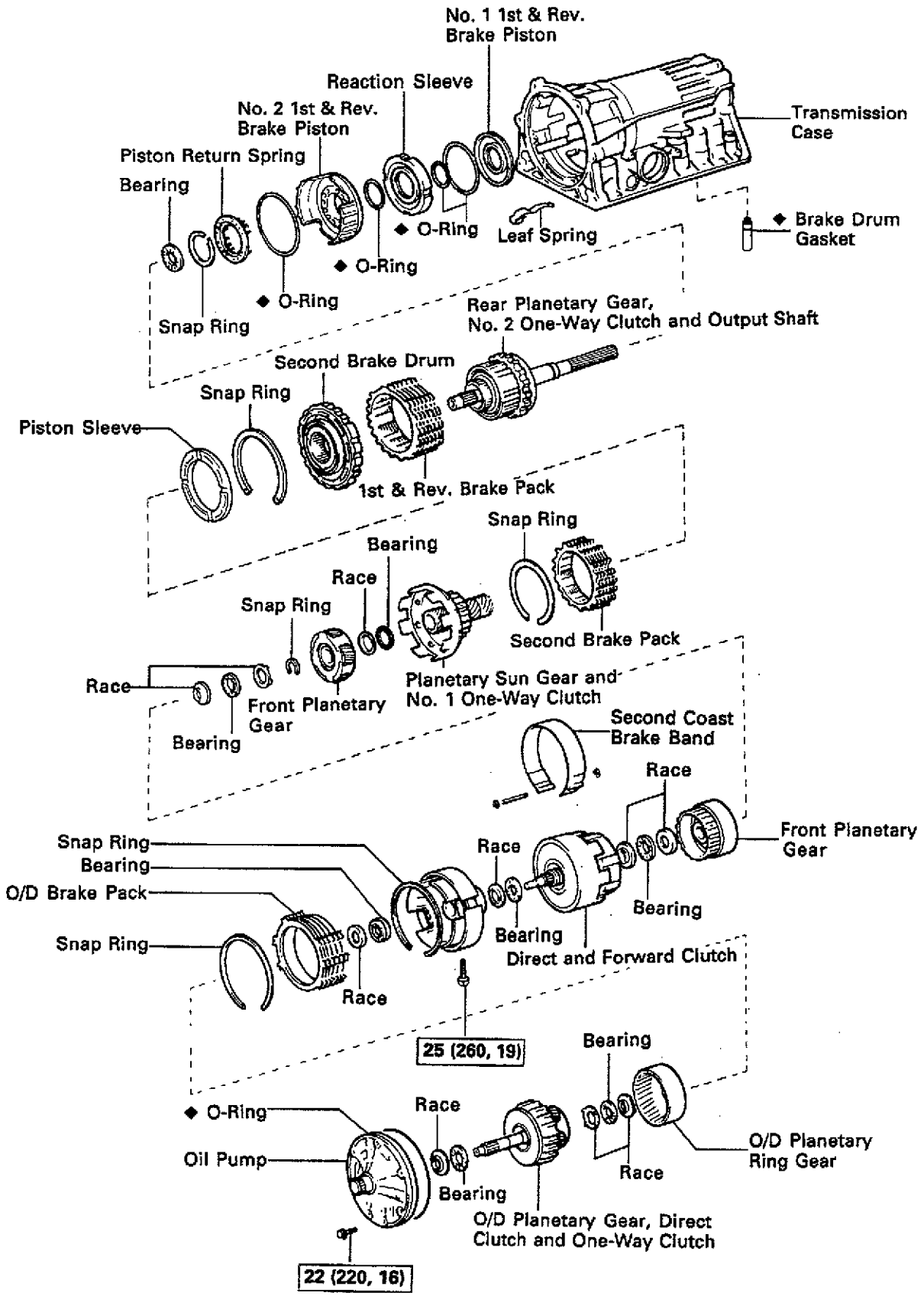
COMPONENT PARTS REMOVAL

A70H3-01

COMPONENTS



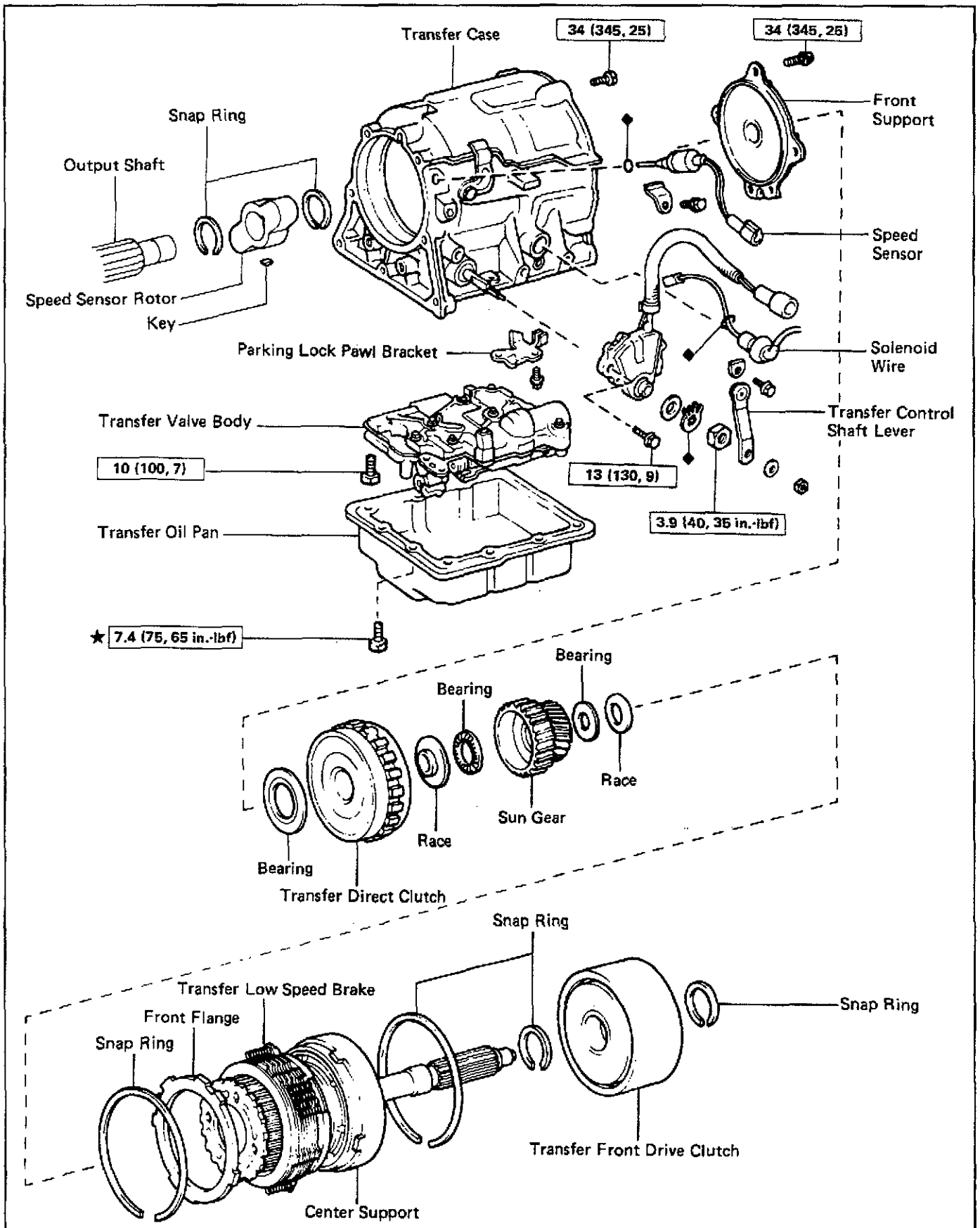


N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

AT6654

AT

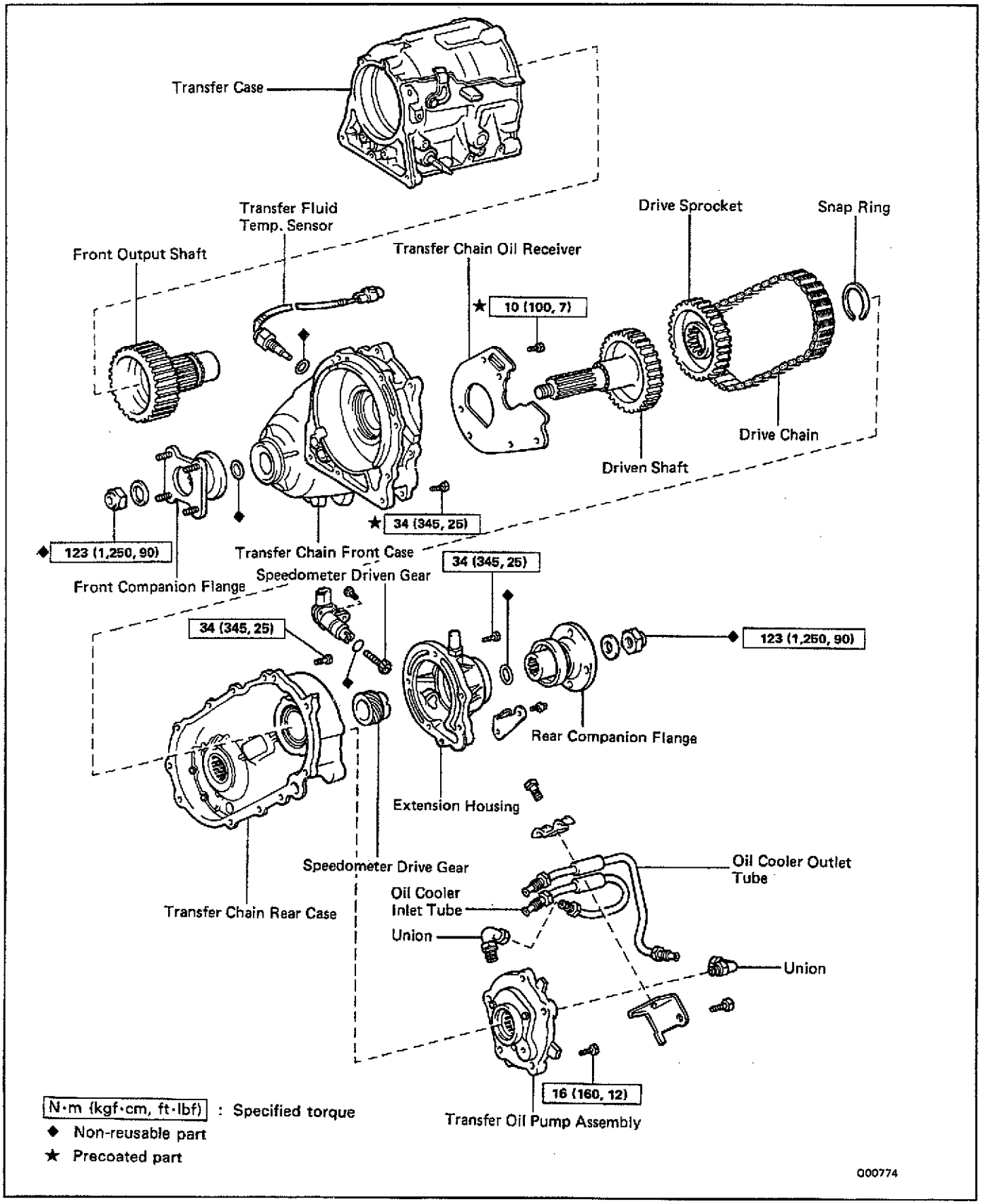


N·m (kgf·cm, ft·lbf) : Specified torque

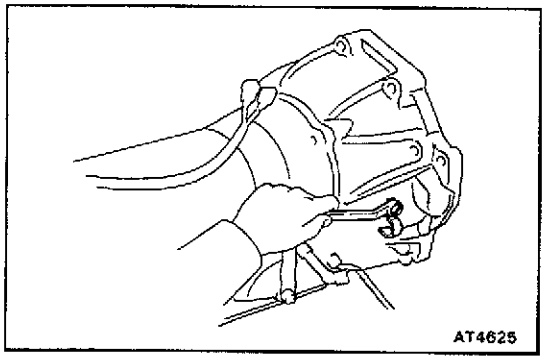
◆ Non-reusable part

★ Precoated part

AT3189


Transfer Case
Transfer Fluid Temp. Sensor
Front Output Shaft
Transfer Chain Oil Receiver
★ 10 (100, 7)
Drive Sprocket
Snap Ring
Drive Chain
Driven Shaft
★ 34 (345, 25)
◆ 123 (1,250, 90)
Transfer Chain Front Case
Front Companion Flange
Speedometer Driven Gear
34 (345, 25)
34 (345, 25)
◆ 123 (1,250, 90)
Rear Companion Flange
Extension Housing
Speedometer Drive Gear
Transfer Chain Rear Case
Oil Cooler Outlet Tube
Oil Cooler Inlet Tube
Union
Union
16 (160, 12)
Transfer Oil Pump Assembly
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
★ Precoated part
Q00774

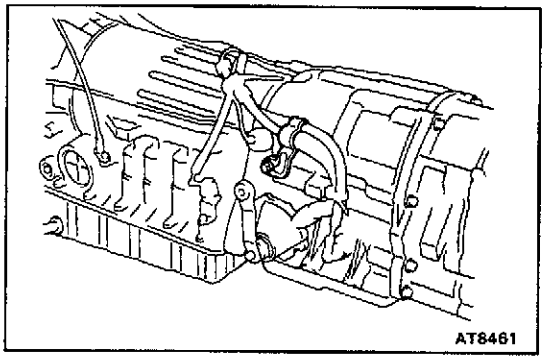
AT

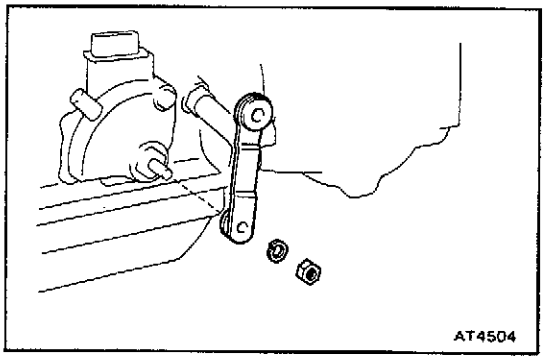


TRANSFER DISASSEMBLY

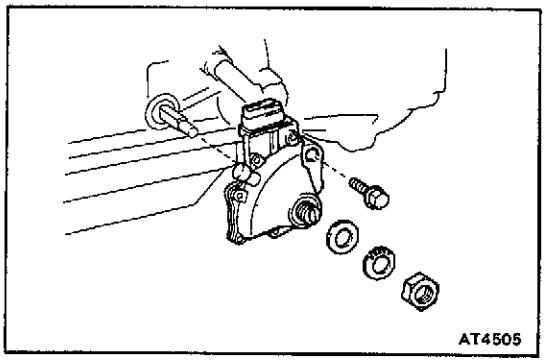
AT0H4–02

1. REMOVE WIRE HARNESS CLAMPS



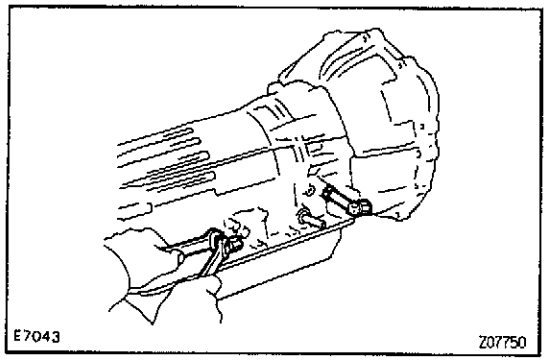


2. REMOVE TRANSMISSION CONTROL SHAFT LEVER



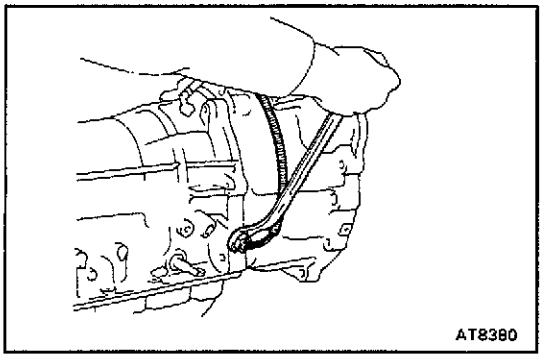
3. REMOVE PARK/NEUTRAL POSITION SWITCH

(a) Unstake the lock washer.
(b) Remove the nut and bolt, and then remove the park/neutral position switch.
(c) Remove the lock washer and grommet.



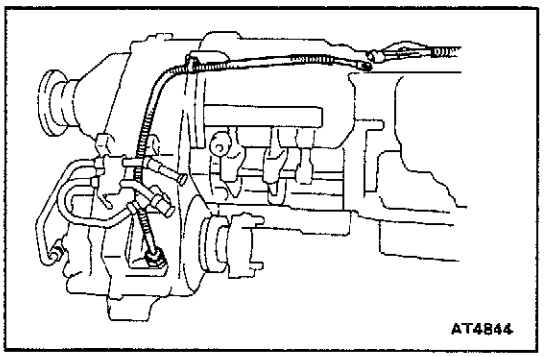
4. REMOVE TRANSMISSION SIDE UNIONS

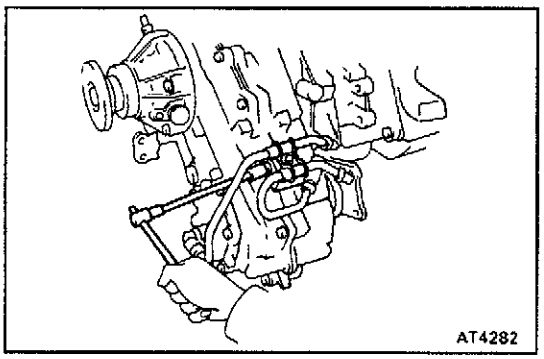
(a) Remove the 2 unions.
(b) Remove the O–ring from both unions.



5. REMOVE TRANSMISSION AND TRANSFER FLUID TEMPERATURE SENSORS

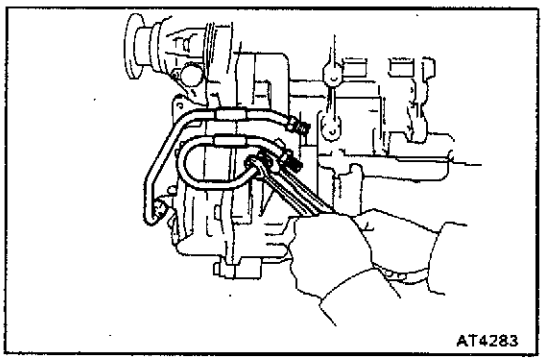
(a) Remove the temperature sensors.
(b) Remove the O–ring from both sensors.



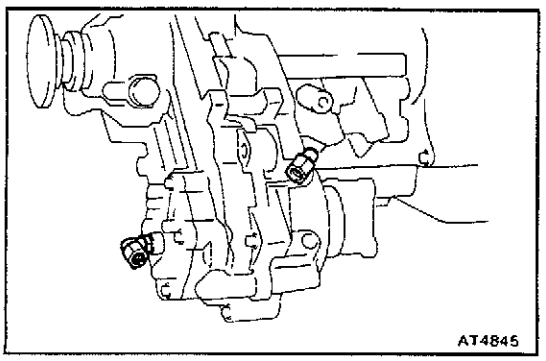


6. REMOVE TRANSFER OIL COOLER TUBES

(a) Remove the 2 bolts.
(b) Remove the tube clamp and bracket.

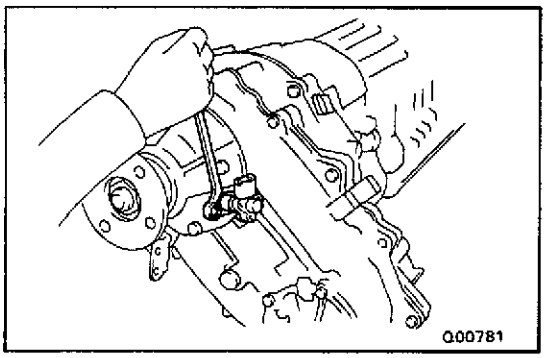


(c) Remove the 2 oil cooler tubes.



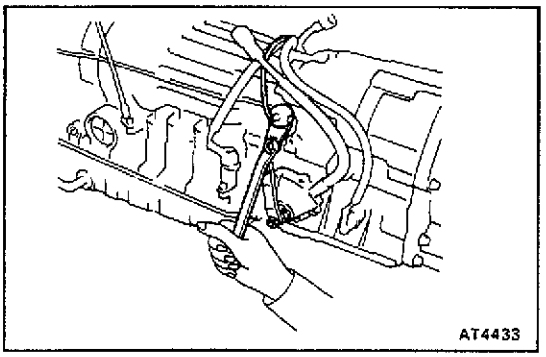
7. REMOVE TRANSFER SIDE UNIONS

(a) Remove the 2 unions.
(b) Remove the O–ring from both unions.



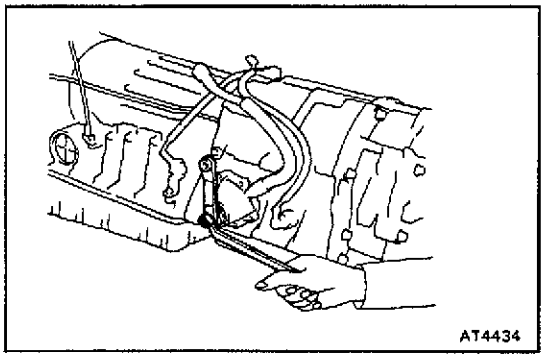
8. REMOVE NO.1 VEHICLE SPEED SENSOR

(a) Remove the bolt and the sensor.
(b) Pull out the driven gear from the sensor.
(c) Remove the O–ring from the sensor.

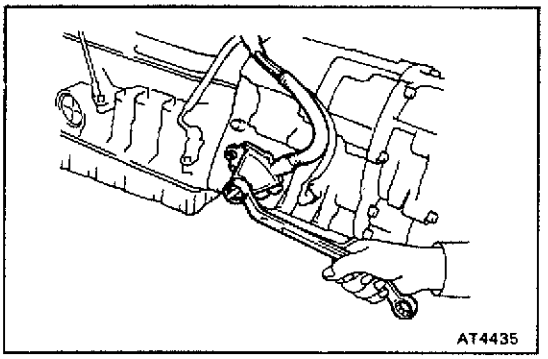


9. REMOVE NO.2 VEHICLE SPEED SENSOR

(a) Disconnect the connector.
(b) Remove the vehicle speed sensor.
(c) Remove the O–ring from it.

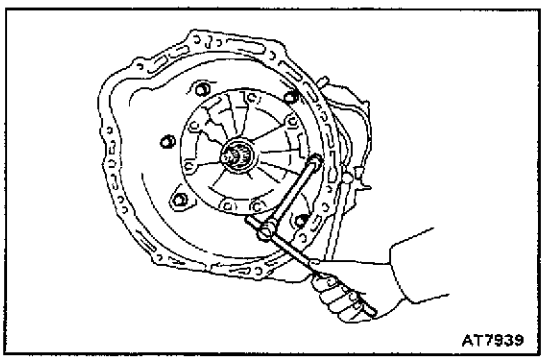


10. REMOVE TRANSFER CONTROL SHAFT LEVER



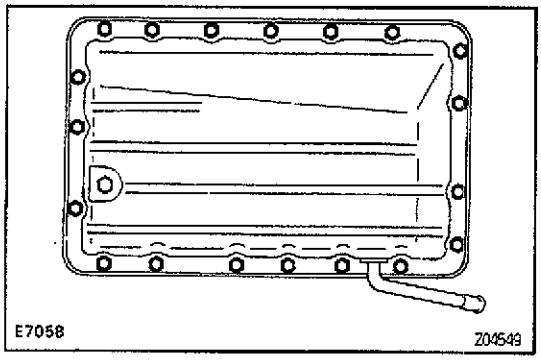
11. REMOVE TRANSFER POSITION SWITCH

(a) Unstake the lock washer.
(b) Remove the nut and bolt, and then remove the transfer position switch.
(c) Remove the lock washer and grommet.



12. REMOVE TRANSMISSION HOUSING

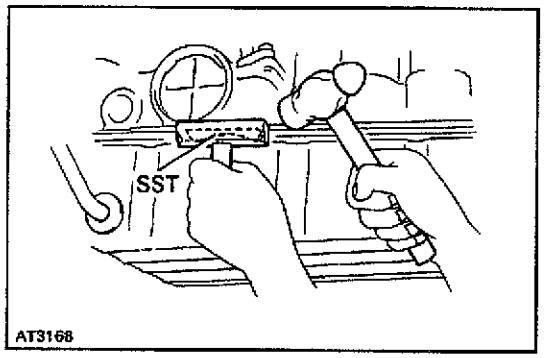
(a) Remove the 6 bolts.
(b) Remove the transmission housing.



13. REMOVE TRANSMISSION OIL PAN

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

(a) Remove the 19 bolts.

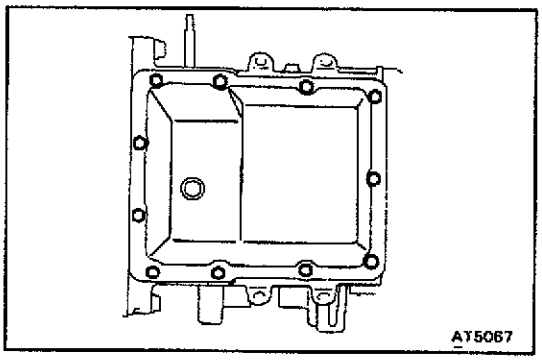


(b) Install the blade of SST between the transmission case and oil pan, cut off applied sealer.
SST 09032—00100

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

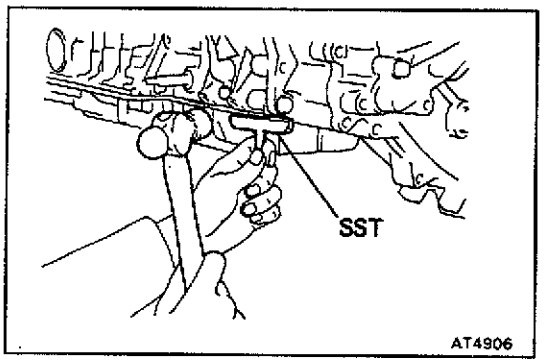
(c) Remove pan by lifting the transmission case.

AT



14. REMOVE TRANSFER OIL PAN

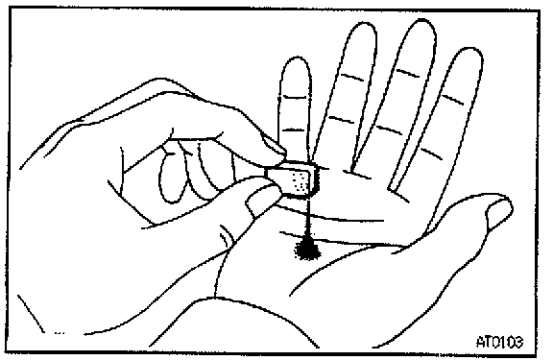
(a) Remove the 11 bolts.



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

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

(c) Remove the transfer oil pan.



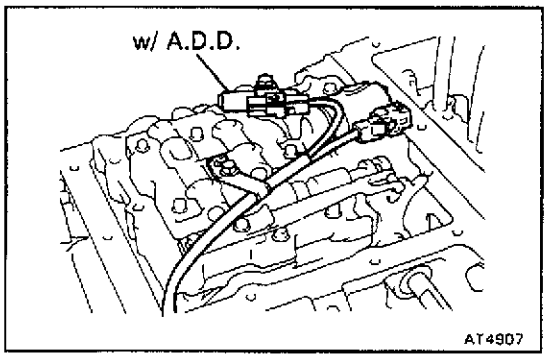
15. EXAMINE PARTICLES IN PANS

Remove the magnets and use them to collect steel particles.

Carefully look at the foreign matter and particles in the pans and on the magnets to anticipate the type of wear you will find in the transmission and transfer:

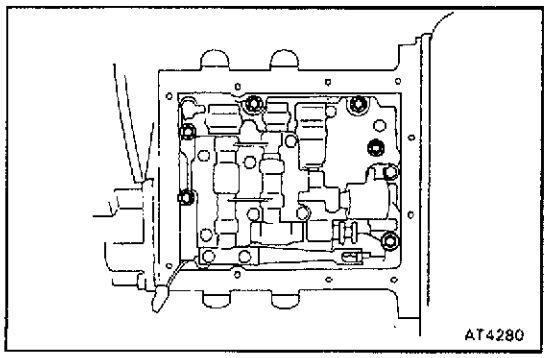
Steel (magnetic): Bearing, gear and clutch plate wear

Brass (non—magnetic): Bushing wear

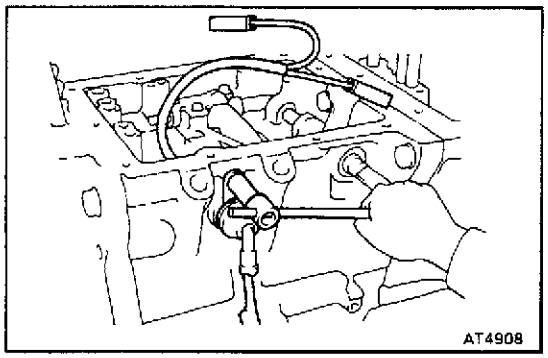


16. REMOVE TRANSFER VALVE BODY AND SOLENOID WIRING

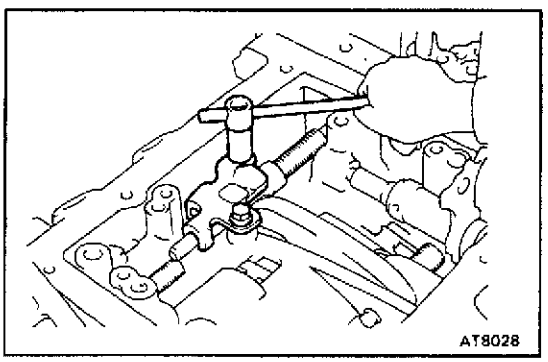
(a) Disconnect the connectors from No. 4 solenoid and transfer pressure switch.



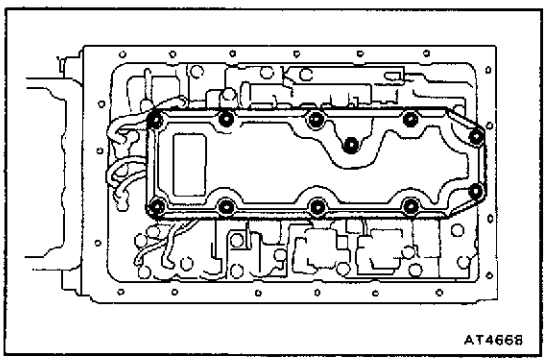
(b) Remove the 6 bolts and valve body.



(c) Remove the solenoid wiring stopper plate.
(d) Pull out the solenoid wiring from the transfer case.
(e) Remove the O–ring from the grommet.

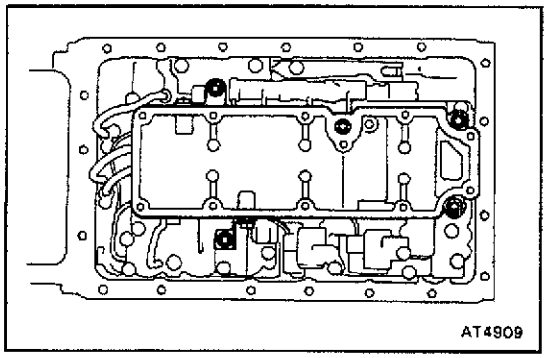


17. REMOVE PARKING LOCK PAWL BRACKET

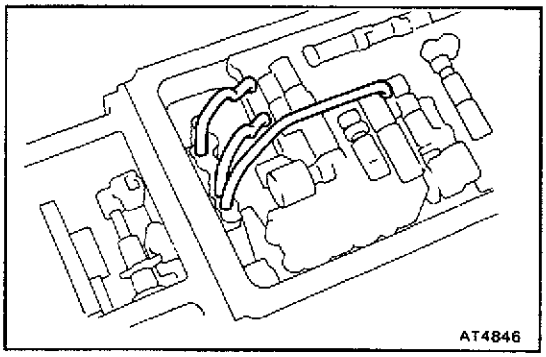


18. REMOVE OIL STRAINER AND GASKETS

(a) Remove the 11 bolts holding the oil strainer to the oil strainer case.
(b) Remove the oil strainer and gasket.



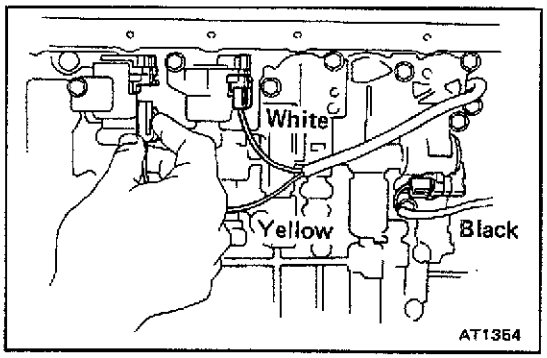
(c) Remove the 5 bolts and oil strainer case.
(d) Remove the 2 gaskets from the case.



19. REMOVE OIL TUBES

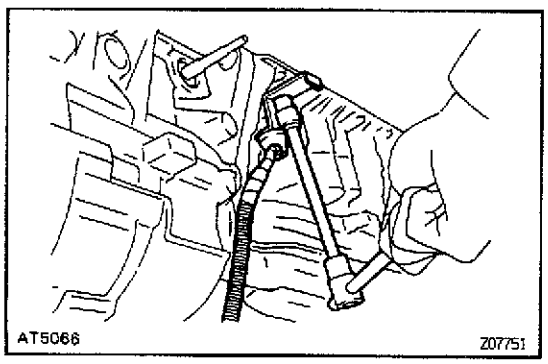
Pry up both tube ends with a large screwdriver and remove the 3 tubes.

A1

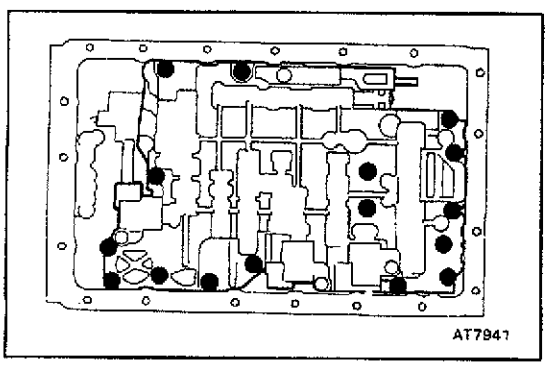


20. REMOVE TRANSMISSION SOLENOID WIRING

(a) Disconnect the 3 connectors from No.1, No.2 and lock–up solenoids.

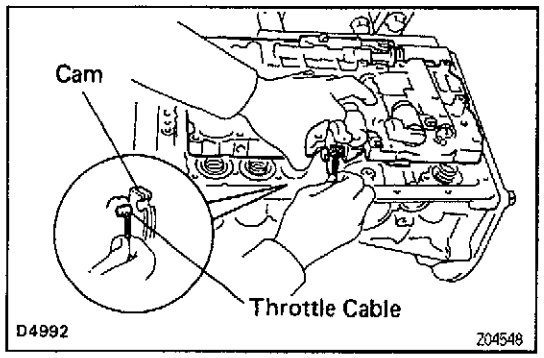


(b) Remove the stopper plate from the case.
(c) Pull out the solenoid wiring from the transmission case.
(d) Remove the O–ring from the grommet.

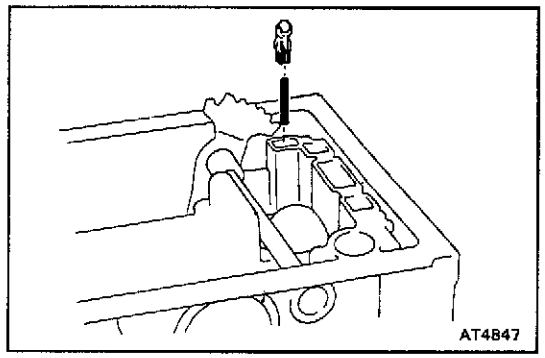


21. REMOVE TRANSMISSION VALVE BODY

(a) Remove the 16 bolts.

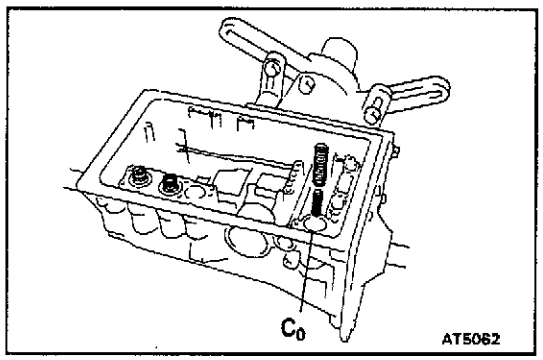


(b) Disconnect the throttle cable from the cam and remove the valve body.

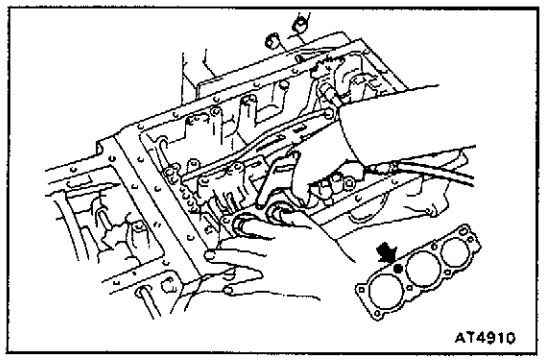


22. REMOVE CHECK BALL BODY, ACCUMULATOR SPRINGS, PINS AND PISTONS

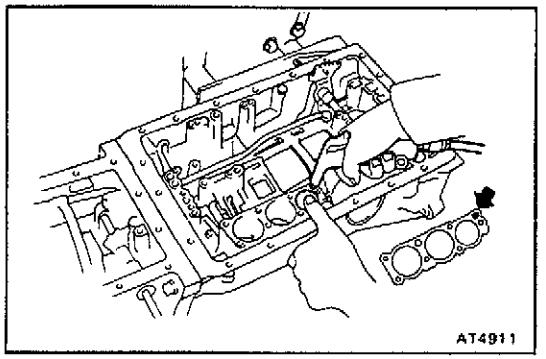
(a) Remove the check ball body and spring.



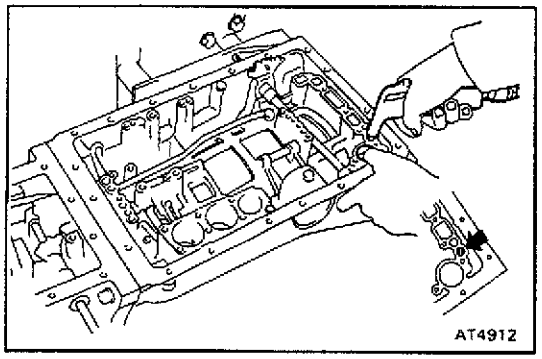
(b) Remove the 2 springs from the C_0 accumulator piston.



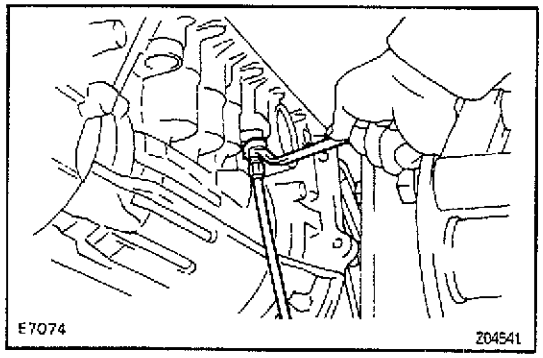
(c) Applying compressed air to the oil hole, remove the B_2 and C_2 accumulator pistons and 3 springs.



(d) Applying compressed air to the oil hole, remove the B_0 accumulator piston and spring.



(e) Applying compressed air to the oil hole, remove the C_0 accumulator piston.

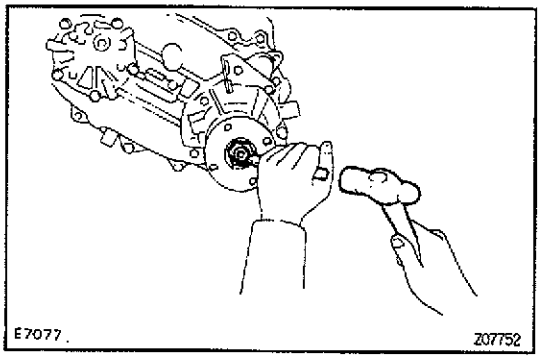


23. REMOVE THROTTLE CABLE

(a) Remove the retaining bolt and pull out the throttle cable.

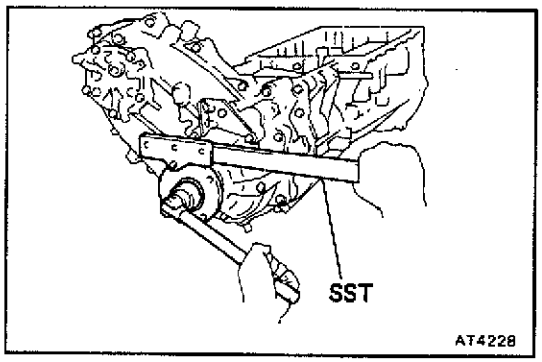
(b) Remove the O—ring from the cable.

AT



24. REMOVE REAR COMPANION FLANGE

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



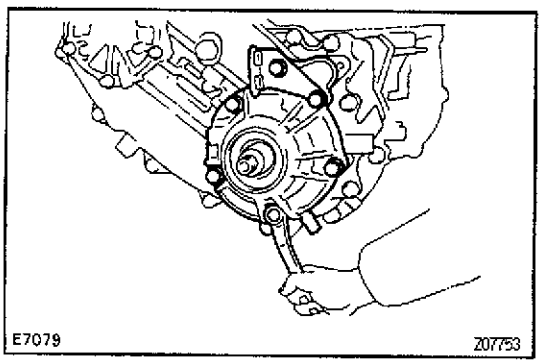
(b) Using SST to hold the flange, remove the nut and washer.
SST 09330—00021

(c) Remove the companion flange.

(d) Remove the O—ring from the companion flange inner.

25. REMOVE FRONT COMPANION FLANGE

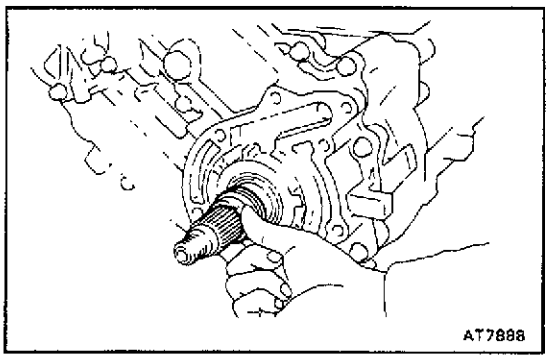
Remove the front companion flange in the same way as the rear companion flange.



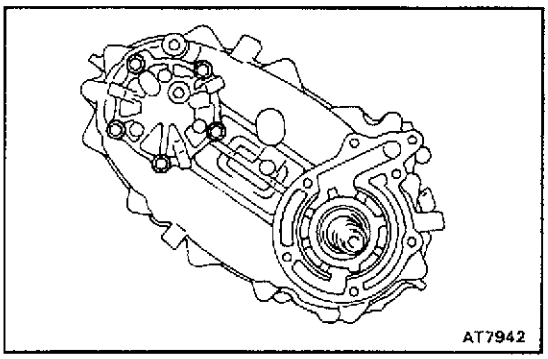
26. REMOVE TRANSFER EXTENSION HOUSING

(a) Remove the 6 bolts.

(b) Separate the extension housing.



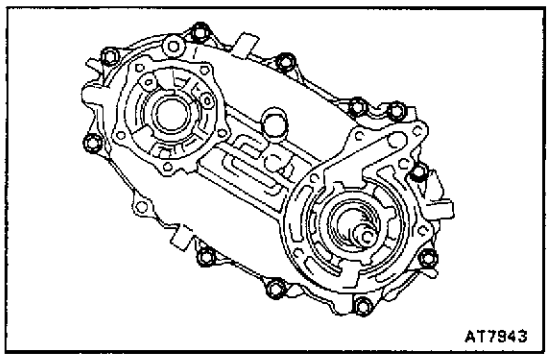
27. REMOVE SPEEDOMETER DRIVE GEAR



28. REMOVE OIL PUMP ASSEMBLY

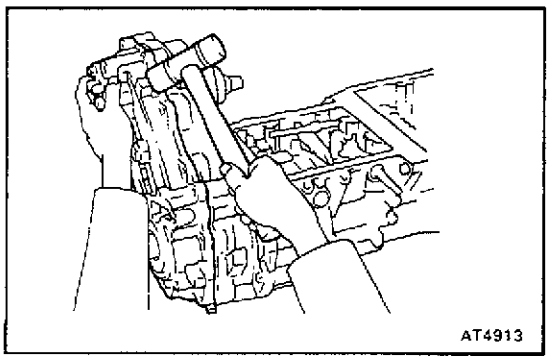
(a) Remove the 5 bolts.

(b) Separate the oil pump assembly.

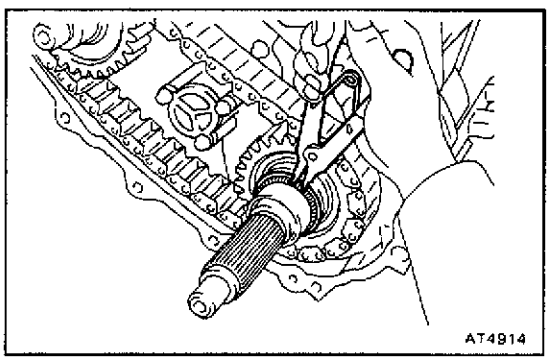


29. REMOVE TRANSFER CHAIN REAR CASE

(a) Remove the 11 bolts.

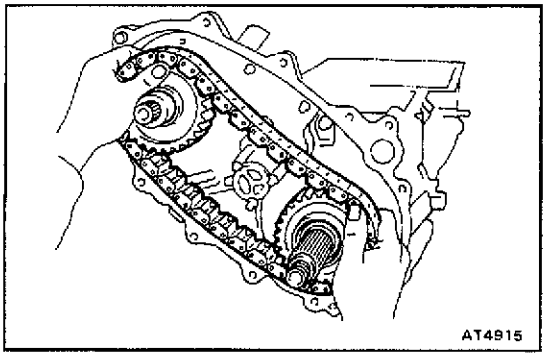


(b) Using a plastic hammer, separate the transfer chain rear case from the transfer chain front case.

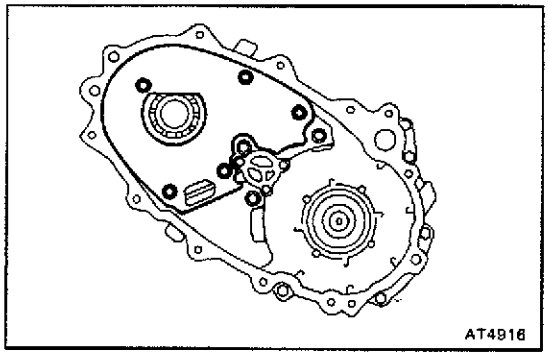


30. REMOVE DRIVE CHAIN WITH DRIVE SPROCKET AND DRIVEN SHAFT

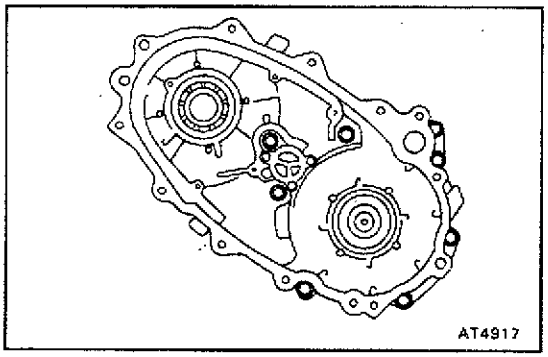
(a) Remove the snap ring.



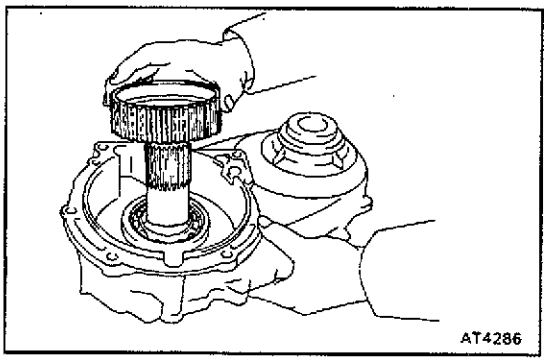
(b) Pull out the chain with the drive sprocket and driven shaft.



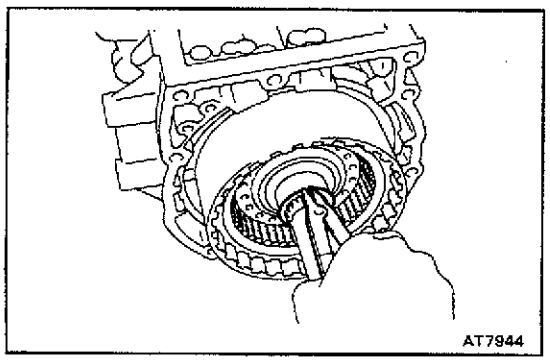
31. REMOVE TRANSFER CHAIN OIL RECEIVER



32. REMOVE TRANSFER CHAIN FRONT CASE WITH FRONT OUTPUT SHAFT

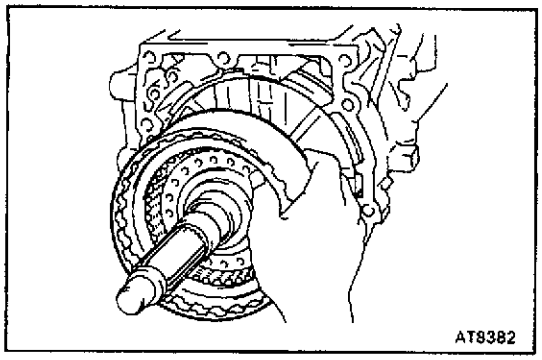


33. REMOVE FRONT OUTPUT SHAFT FROM TRANSFER CHAIN FRONT CASE

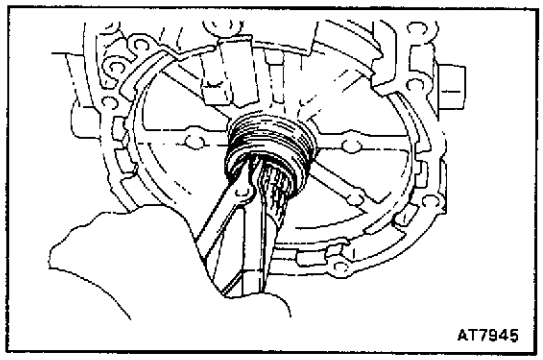


34. REMOVE TRANSFER FRONT DRIVE CLUTCH

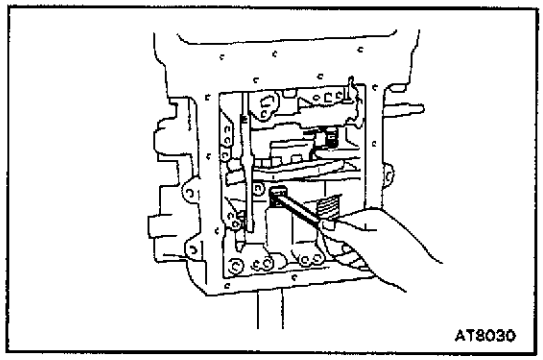
(a) Using snap ring pliers, remove the snap ring.



(b) Grasp and pull out the transfer front drive clutch.



(c) Remove the snap ring from the output shaft.



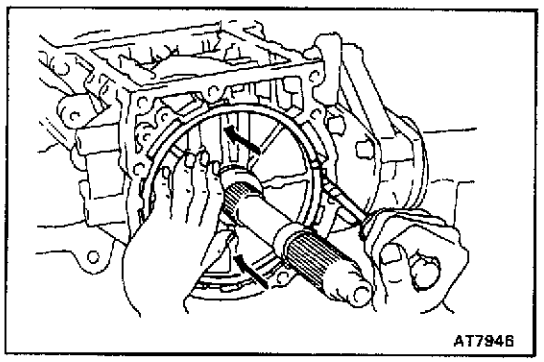
35. CHECK PACK CLEARANCE OF TRANSFER LOW SPEED BRAKE

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

Clearance:

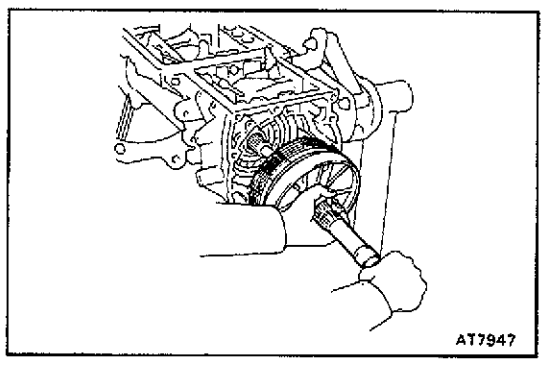
0.91 – 2.10 mm (0.0358 – 0.0827 in.)

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

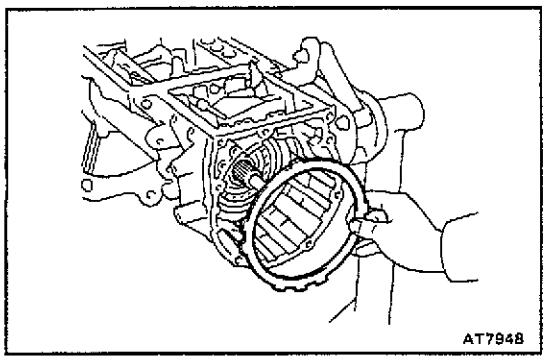


36. REMOVE TRANSFER CENTER SUPPORT AND TRANSFER LOW SPEED BRAKE

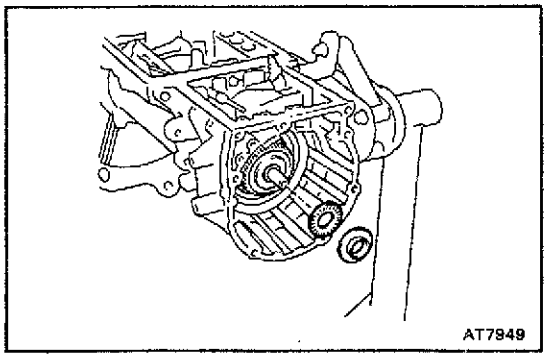
(a) Pushing the center support forward, remove the snap ring with a screwdriver.



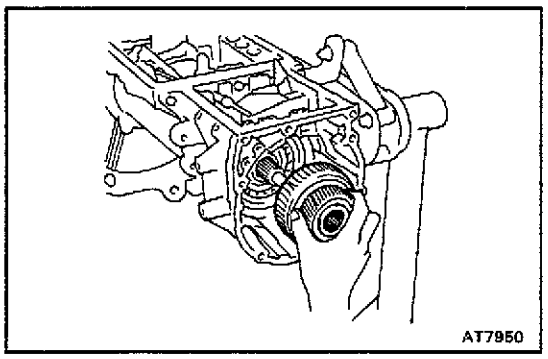
(b) Grasp the shaft and pull out the transfer center support with the transfer low speed brake assembly.



(c) Remove the front flange from the case.

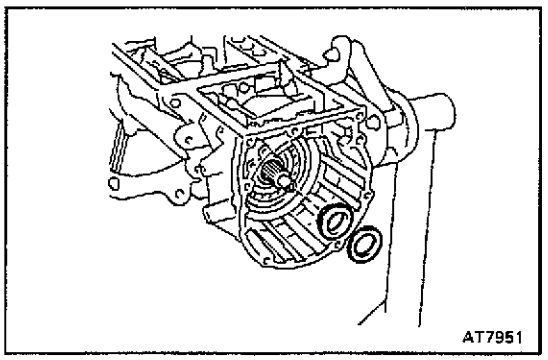


(d) Remove the race and assembled bearing and race from the sun gear.

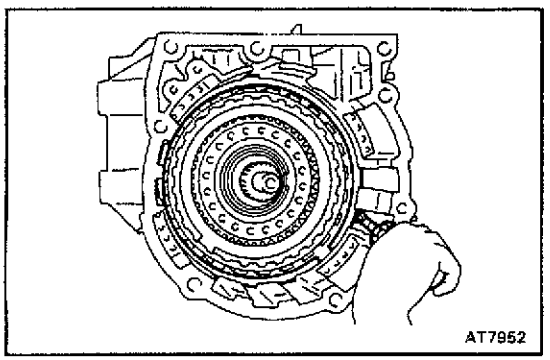


37. REMOVE SUN GEAR

(a) Pull out the sun gear.

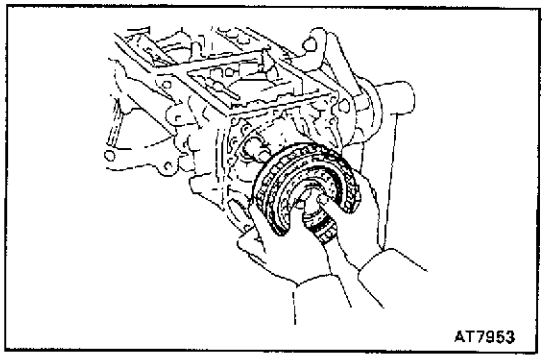


(b) Remove the race and assembled bearing and race from the transfer direct clutch.

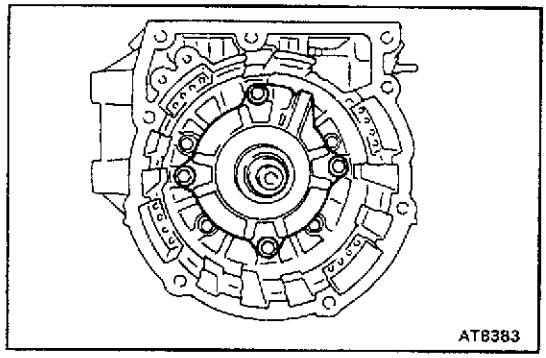


38. REMOVE TRANSFER DIRECT CLUTCH

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

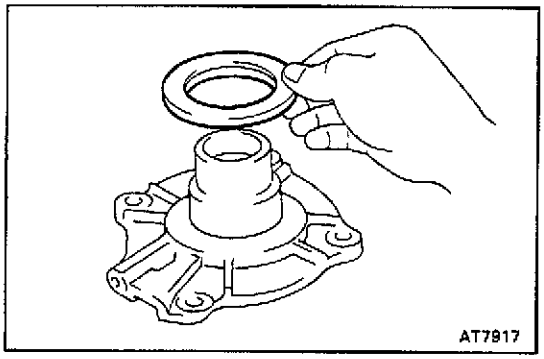


(b) Remove the transfer direct clutch from the transfer case.

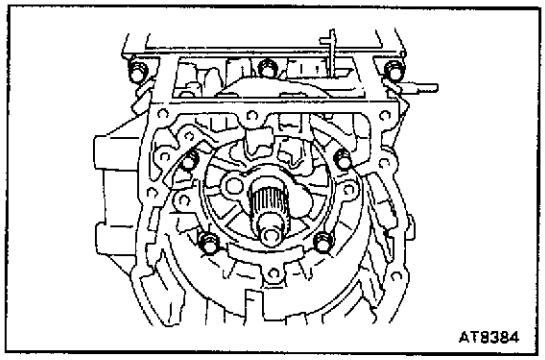


39. REMOVE FRONT SUPPORT

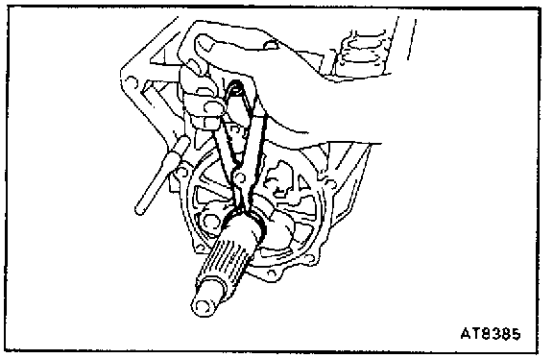
(a) Remove the front support from the transfer case.



(b) Remove the assembled bearing and race from the front support.

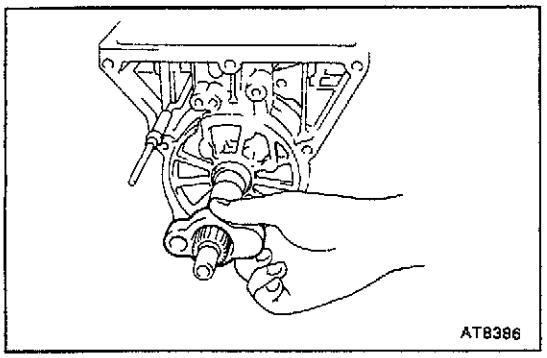


40. REMOVE TRANSFER CASE

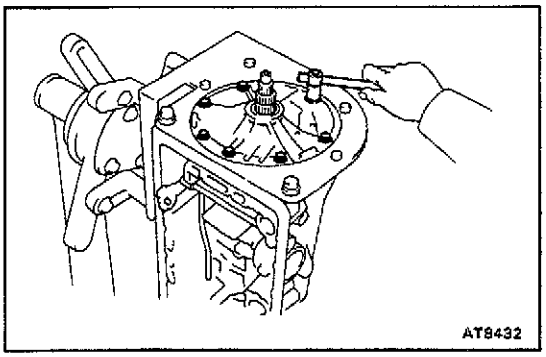


41. REMOVE SPEED SENSOR ROTOR AND KEY

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



(b) Remove the sensor rotor and key.
(c) Using snap ring pliers, remove the front snap ring.



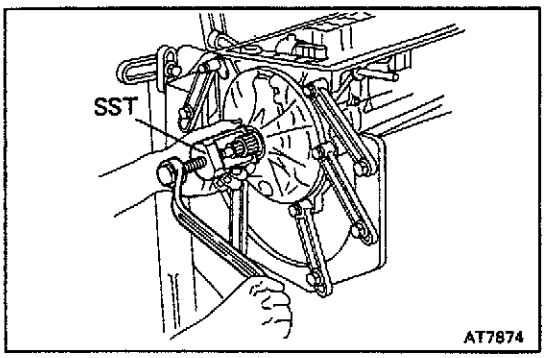
TRANSMISSION DISASSEMBLY

AT0N5-02

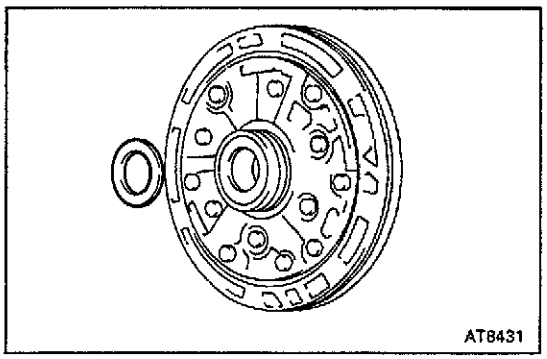
AT

1. REMOVE OIL PUMP

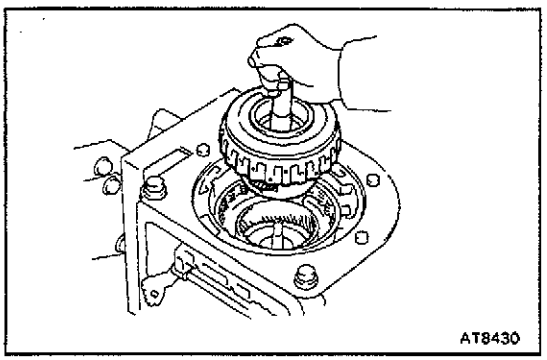
(a) Stand up the transmission.
(b) Remove the 7 bolts holding the oil pump to the transmission case.



(c) Using SST, remove the oil pump.
SST 09610—20012
(d) Remove the O—ring from it.

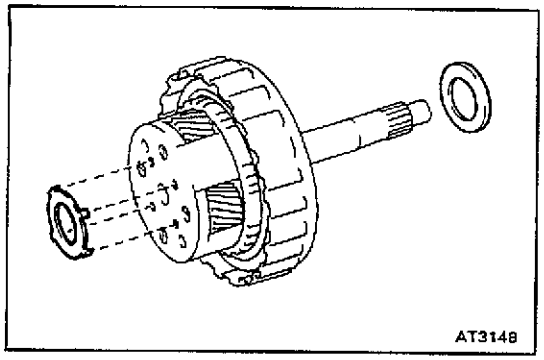


(e) Remove the race from the oil pump.

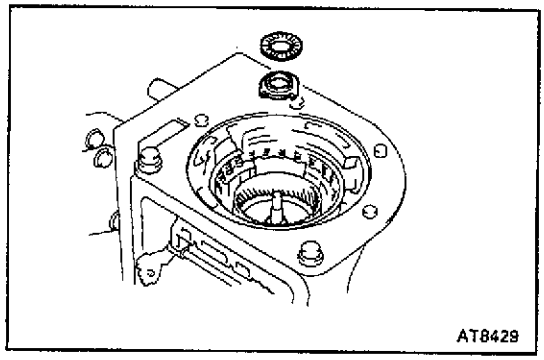


2. REMOVE OVERDRIVE PLANETARY GEAR UNIT WITH OVERDRIVE DIRECT CLUTCH AND ONE—WAY CLUTCH

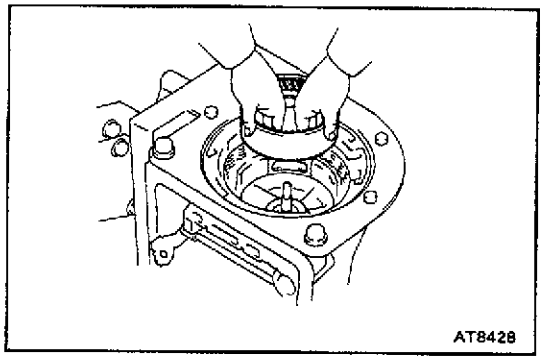
(a) Remove the overdrive planetary gear with the overdrive direct clutch and one—way clutch from the transmission case.



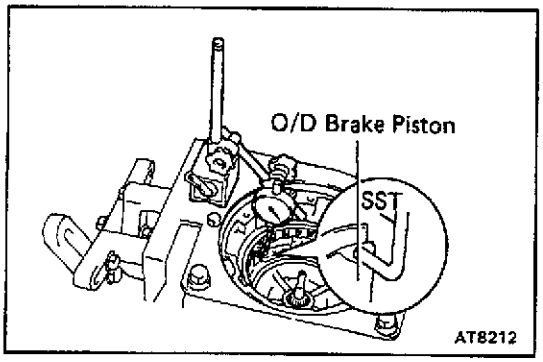
(b) Remove the race and assembled bearing and race.



(c) Remove the bearing and race from the overdrive planetary ring gear.

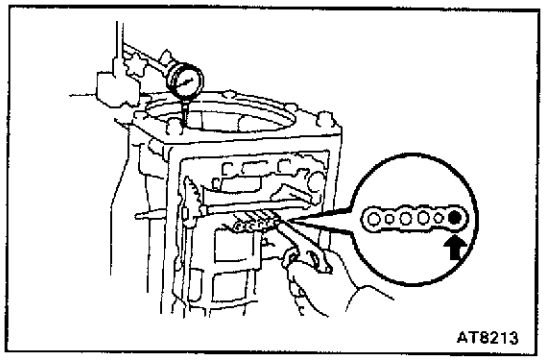


(d) Remove the overdrive planetary ring gear from the transmission case.

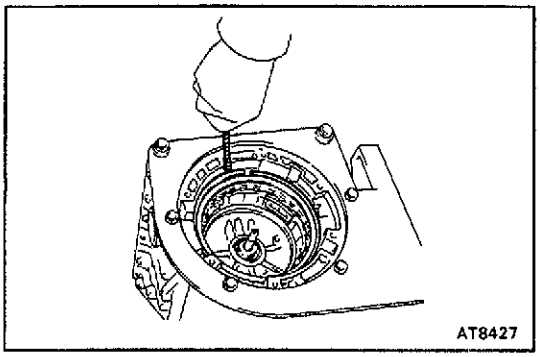


3. CHECK PISTON STROKE OF OVERDRIVE BRAKE

(a) Place SST and a dial indicator onto the overdrive brake piston.
SST 09350—30020 (09350—06120)

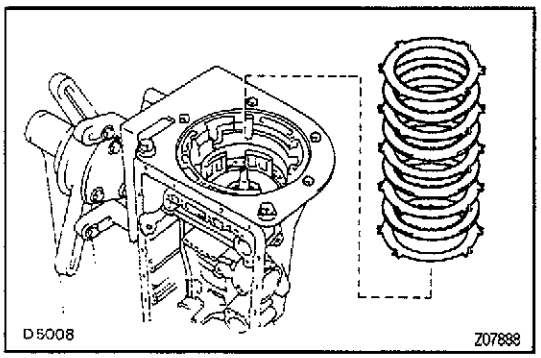


(b) Measure the stroke while applying and releasing compressed air (392 — 785 kPa, 4 — 8 kgf/cm², 57 — 114 psi).
Piston stroke:
1.40 — 1.70 mm (0.0551 — 0.0669 in.)
If the values are non—standard, inspect the discs.

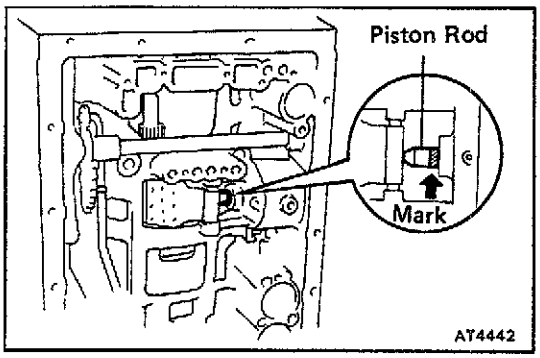


4. REMOVE FLANGES, PLATES AND DISCS OF OVER-DRIVE BRAKE

(a) Remove the snap ring.

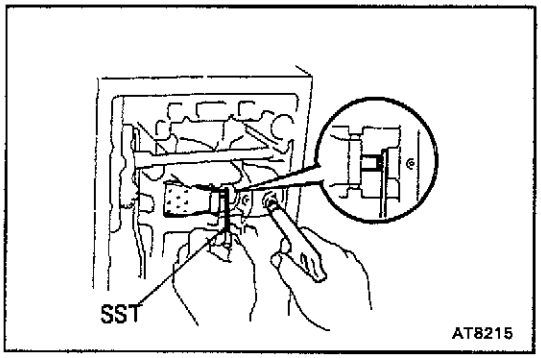


(b) Remove the flanges, plates and discs as a set.
HINT: 2 flanges, 3 plates and 4 discs

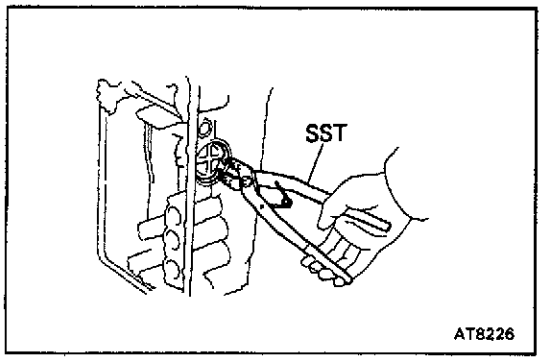


5. CHECK PISTON ROD STROKE OF SECOND COAST BRAKE

(a) Place a mark on the second coast brake piston rod.

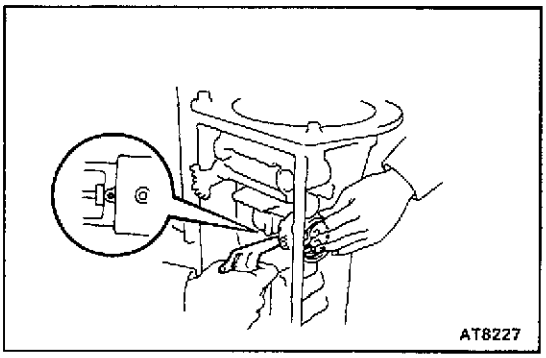


(b) Using SST, measure the stroke while applying and releasing compressed air (392 – 785 kPa, 4 – 8 kgf/cm², 57 – 114 psi).
SST 09240–00020
Piston rod stroke:
1.5 – 3.0 mm (0.059 – 0.118 in.)
If the values are non–standard, inspect the brake band.

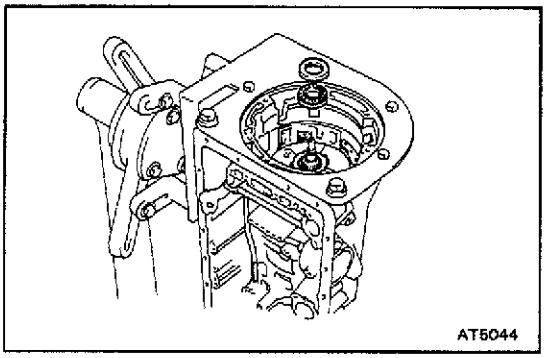


6. REMOVE SECOND COAST BRAKE COVER, PISTON ASSEMBLY AND SPRING

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

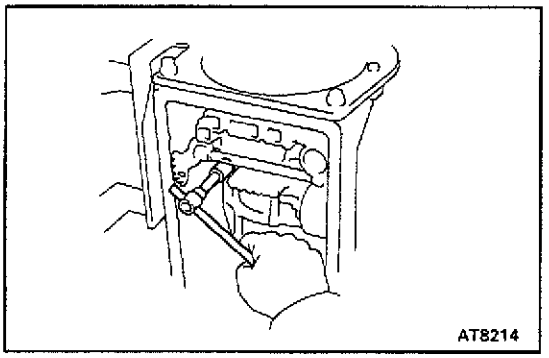


(b) Applying compressed air to the oil hole, remove the second coast brake cover, piston assembly and spring.
(c) Remove the 2 O–rings from the cover.

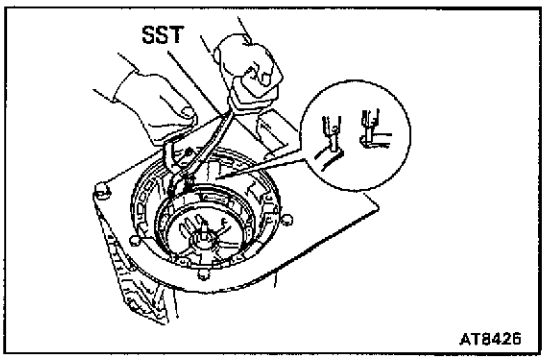


7. REMOVE OVERDRIVE SUPPORT ASSEMBLY

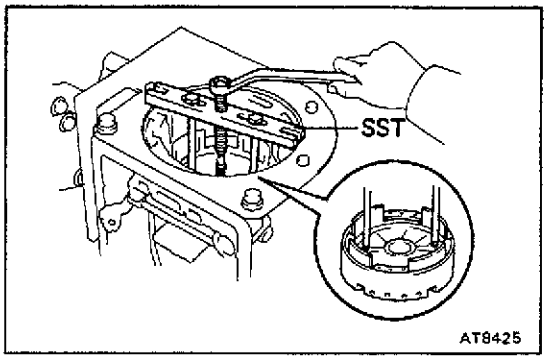
(a) Remove the 2 races and bearings.



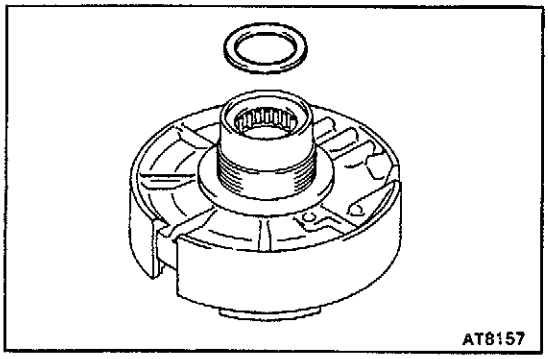
(b) Remove the 2 bolts holding the overdrive support assembly to the case.



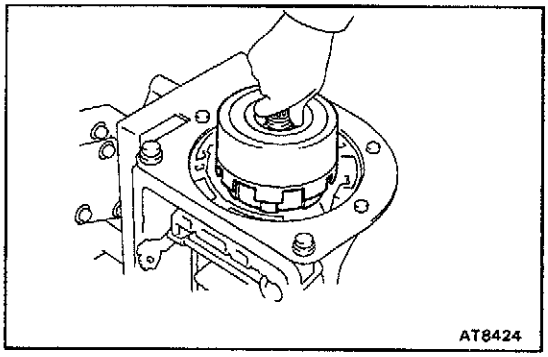
(c) Using SST, remove the snap ring.
SST 09350–30020 (09350–07060)



(d) Using SST, remove the overdrive support assembly.
SST 09350–30020 (09350–07020)

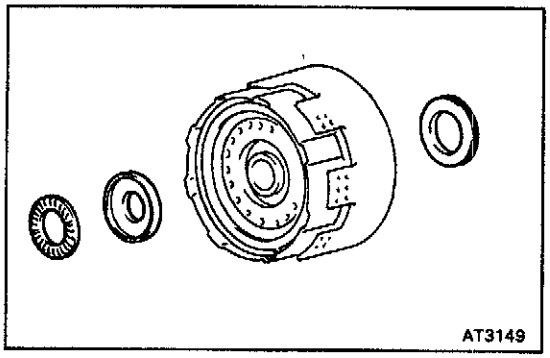


(e) Remove the race.

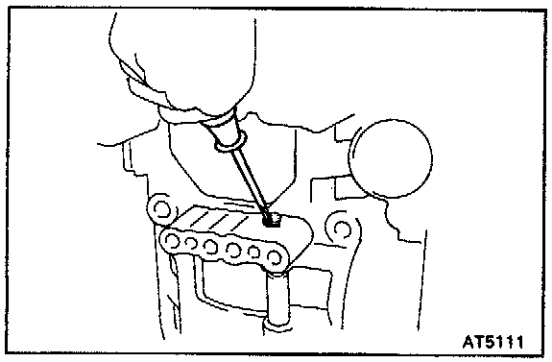


7. REMOVE DIRECT CLUTCH WITH FORWARD CLUTCH

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



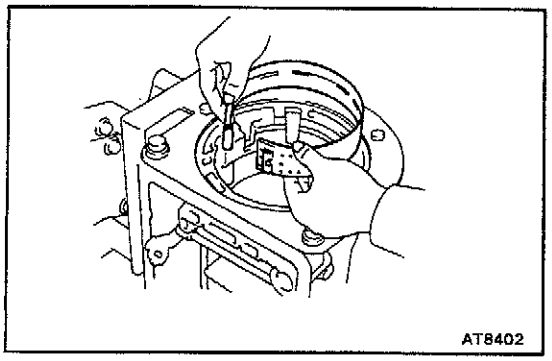
(b) Remove the 2 bearings and race.



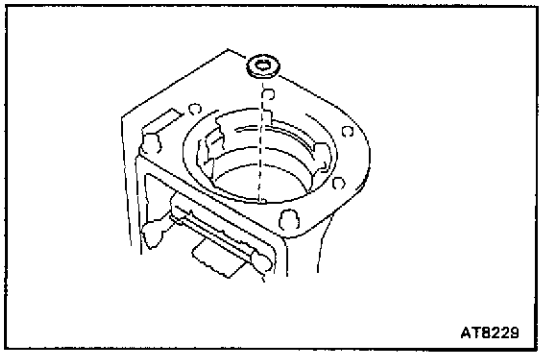
8. REMOVE SECOND COAST BRAKE BAND

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

(b) Remove the pin from the brake band.

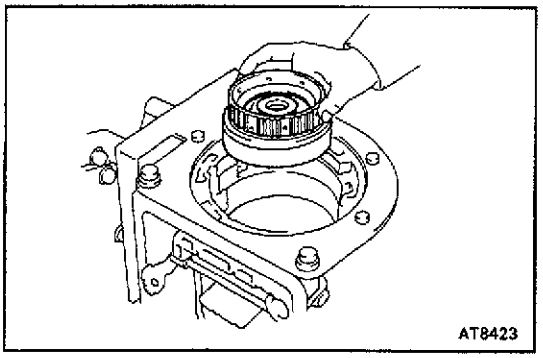


(c) Remove the second coast brake band from the case.

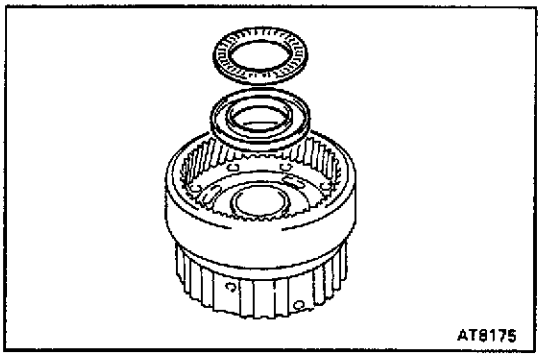


9. REMOVE FRONT PLANETARY GEAR UNIT

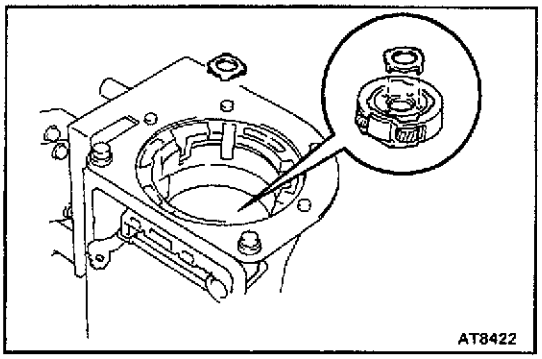
(a) Remove the race.



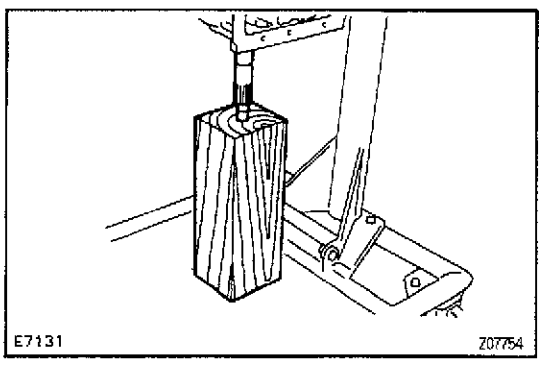
(b) Remove the front planetary ring gear from the case.



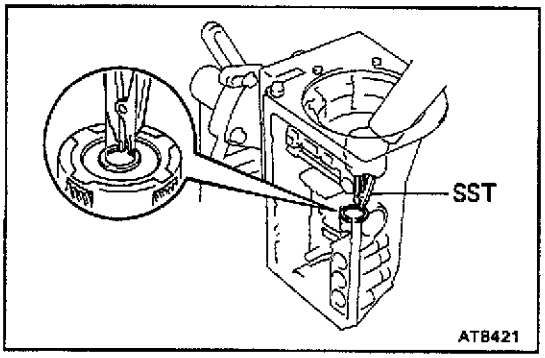
(c) Remove the bearing and race.



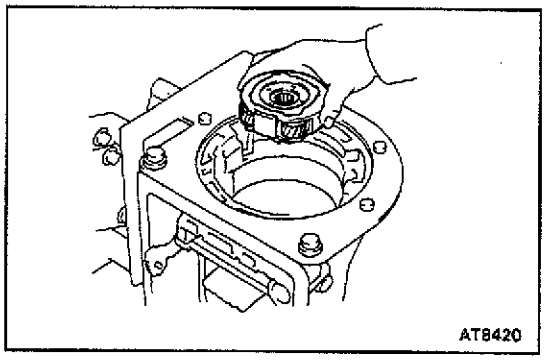
(d) Remove the race.



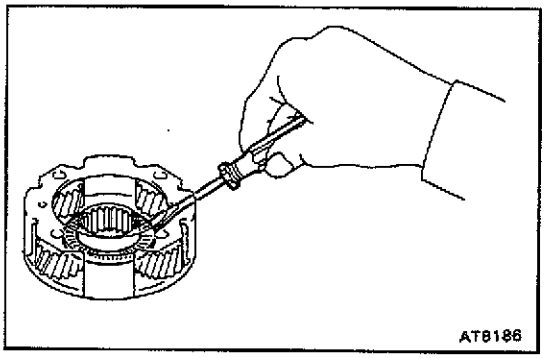
(e) With wooden blocks under the output shaft, stand the transmission on the output shaft.



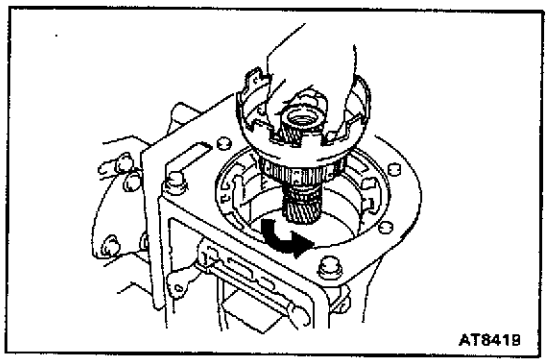
(f) Using SST, remove the snap ring.
SST 09350–30020 (09350–07070)



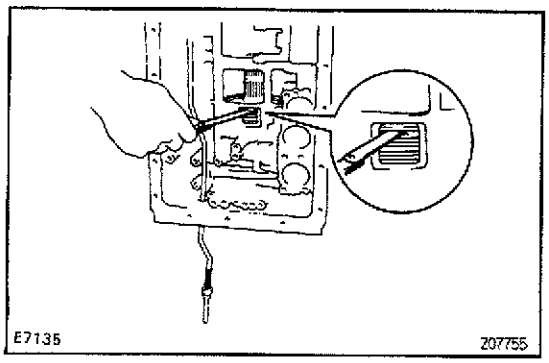
(g) Remove the front planetary gear from the case.



(h) Remove the bearing and race from the front planetary gear.



10. REMOVE PLANETARY SUN GEAR WITH NO. 1 ONE –WAY CLUTCH



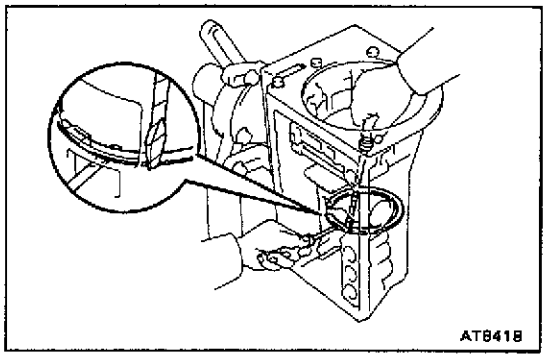
11. CHECK PACK CLEARANCE OF SECOND BRAKE

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

Clearance:

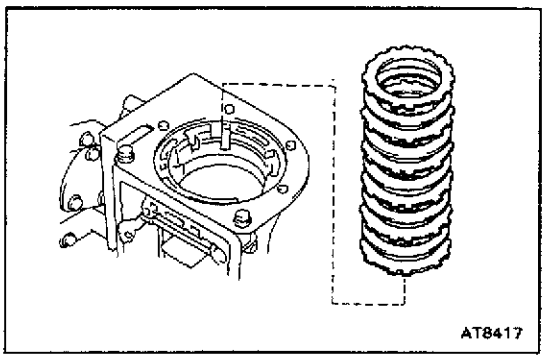
0.62 – 1.98 mm (0.0244 – 0.0780 in.)

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

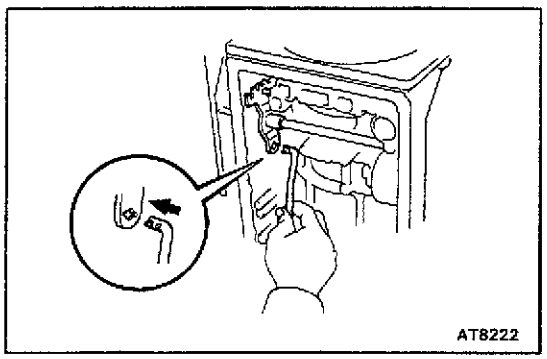


12. REMOVE FLANGE, PLATES AND DISCS OF SECOND BRAKE

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

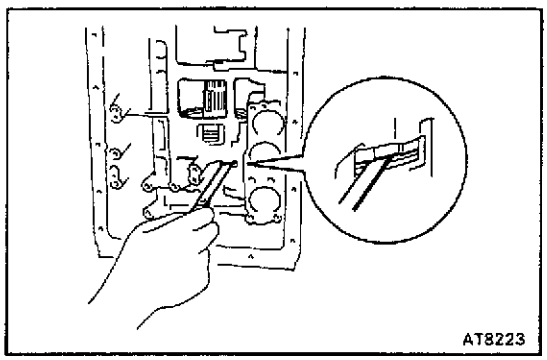


(b) Remove the flange, plates and discs as a set.
HINT: 1 flange, 5 plates and 5 discs



13. REMOVE PARKING LOCK ROD

Disconnect the parking lock rod from the manual valve lever.



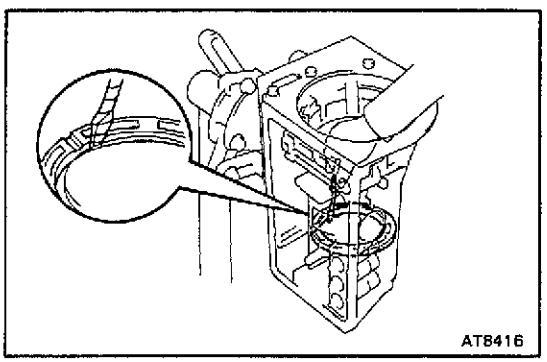
14. CHECK PACK CLEARANCE OF FIRST AND REVERSE BRAKE

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

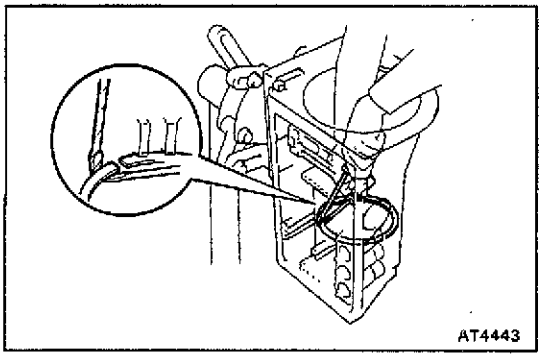
Clearance:

0.60 – 1.32 mm (0.0236 – 0.0520 in.)

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

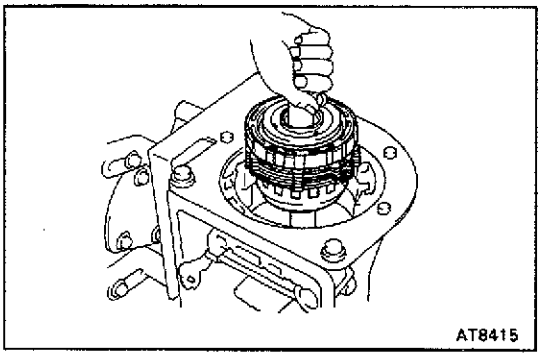


15. REMOVE SECOND BRAKE PISTON SLEEVE

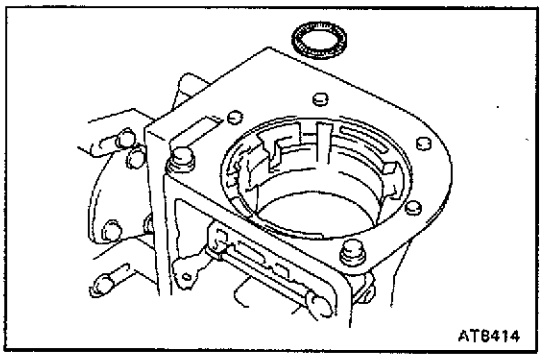


16. REMOVE REAR PLANETARY GEAR UNIT WITH SECOND BRAKE DRUM, FIRST AND REVERSE BRAKE PACK AND OUTPUT SHAFT

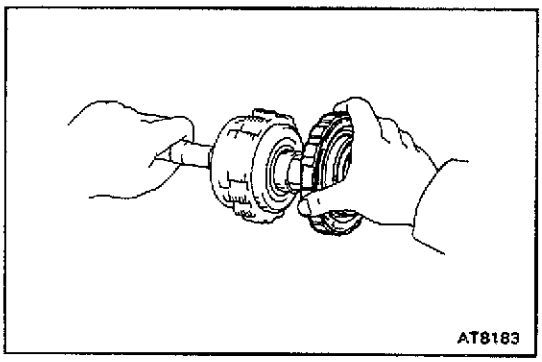
(a) Using 2 screwdrivers, remove the snap ring.



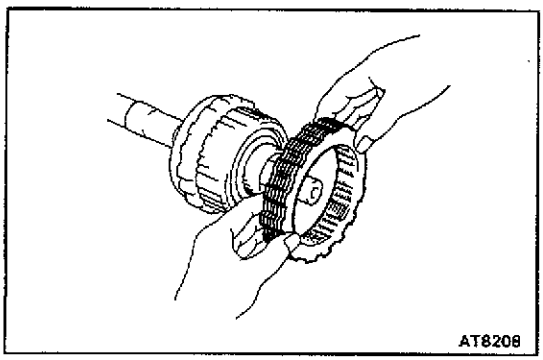
(b) Remove the rear planetary gear, second brake drum, first and reverse brake pack and output shaft as an assembly.



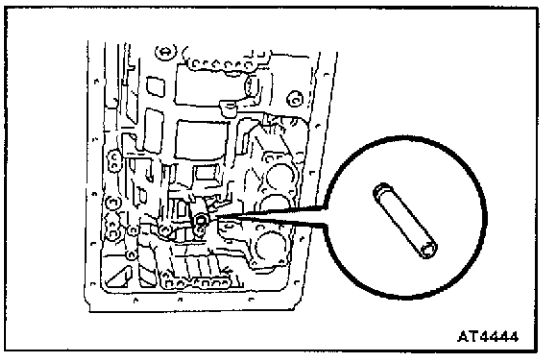
(c) Remove the assembled thrust bearing and race from the case.



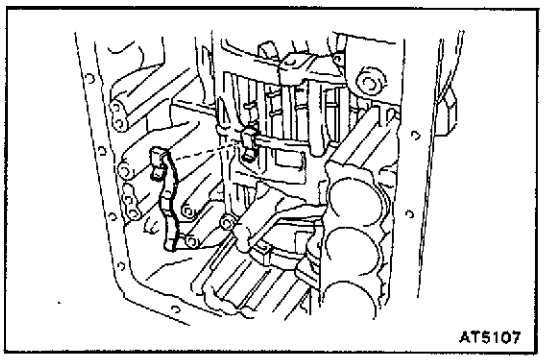
(d) Remove the second brake drum assembly.



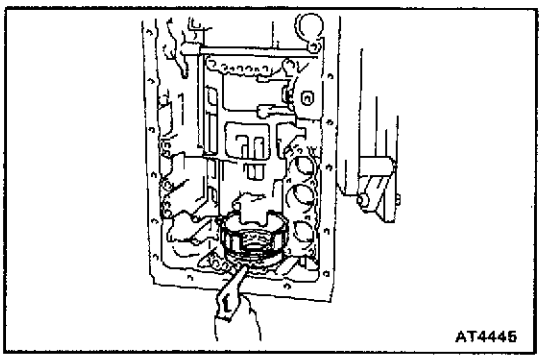
(e) Remove the cushion plate, flange, plates and discs of the first and reverse brake.
HINT: 1 cushion plate, 1 flange, 7 plates and 6 discs



17. REMOVE BRAKE DRUM GASKET

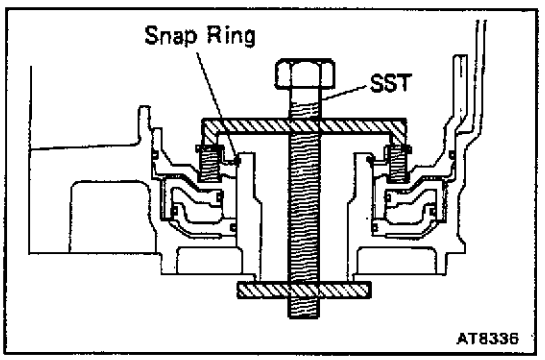


18. REMOVE LEAF SPRING



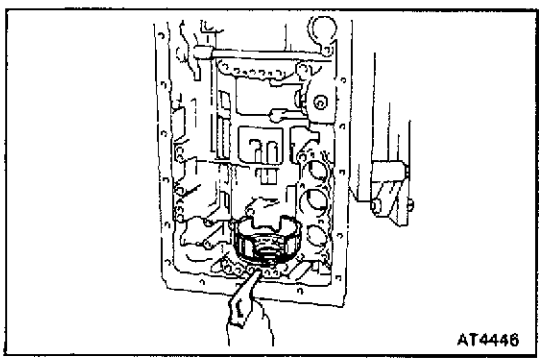
19. CHECK FIRST AND REVERSE BRAKE PISTONS MOVING

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

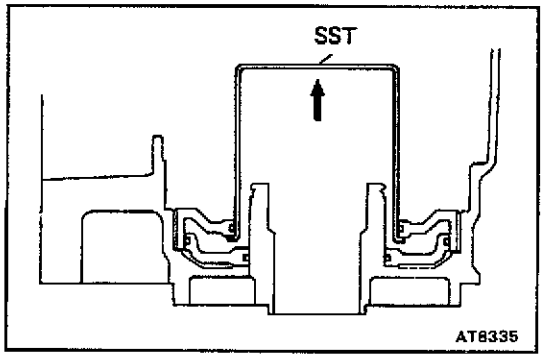


20. REMOVE COMPONENTS OF FIRST AND REVERSE BRAKE PISTON

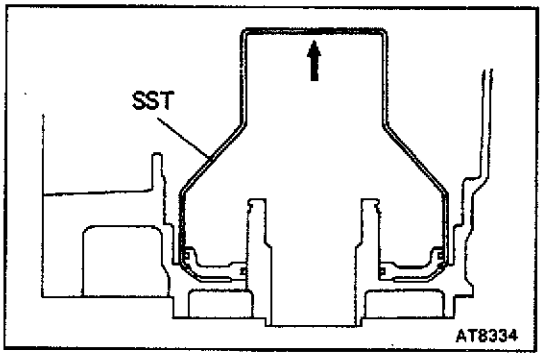
(a) Set SST on the spring retainer, and compress the return spring.
SST 09350—30020 (09350—07050)
(b) Remove the snap ring with snap ring pliers.
(c) Remove the piston return spring.



(d) Hold the No.2 first and reverse brake piston, apply compressed air to the transmission case to remove the No.2 first and reverse brake piston.
(e) Remove the No.2 first and reverse brake piston.
If the piston does not pop out with compressed air, lift the piston out with needle—nose pliers.
(f) Remove the O—ring from the No.2 piston.

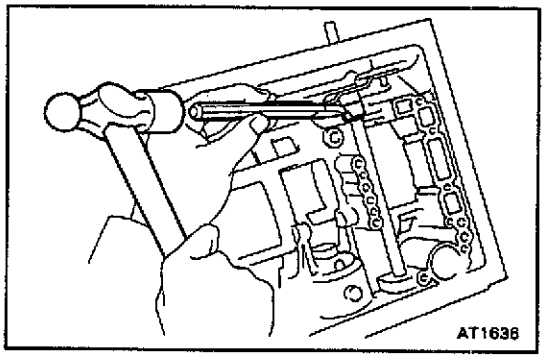


(g) Install SST behind the reaction sleeve and gradually lift it out of the transmission case.
SST 09350–30020 (09350–07080)
(h) Remove the O–ring from the reaction sleeve.



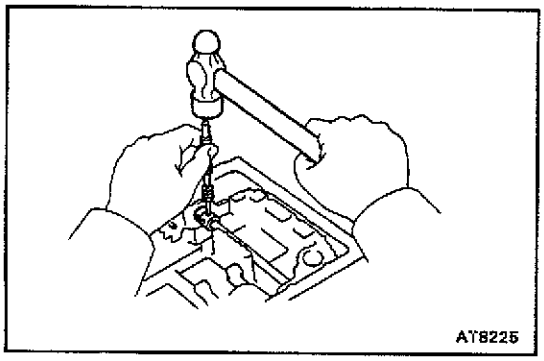
(i) Install SST behind the No.1 brake piston and gradually lift it out of the transmission case.
SST 09350–30020 (09350–07090)
(j) Remove the 2 O–rings from the No.1 piston.

AT

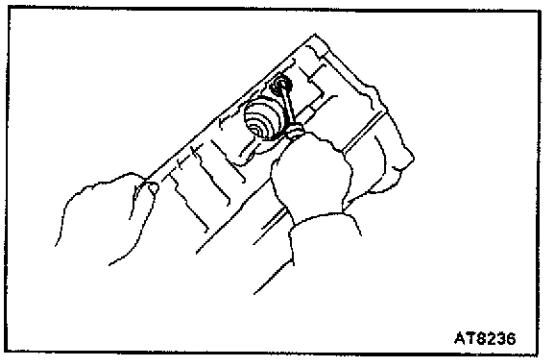


21. REMOVE MANUAL VALVE LEVER SHAFT AND OIL SEALS

(a) Using a chisel, cut off the spacer and remove it from the shaft.



(b) Using a pin punch, drive out the pin.
(c) Pull the manual valve lever shaft out through the case, and remove the lever.



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