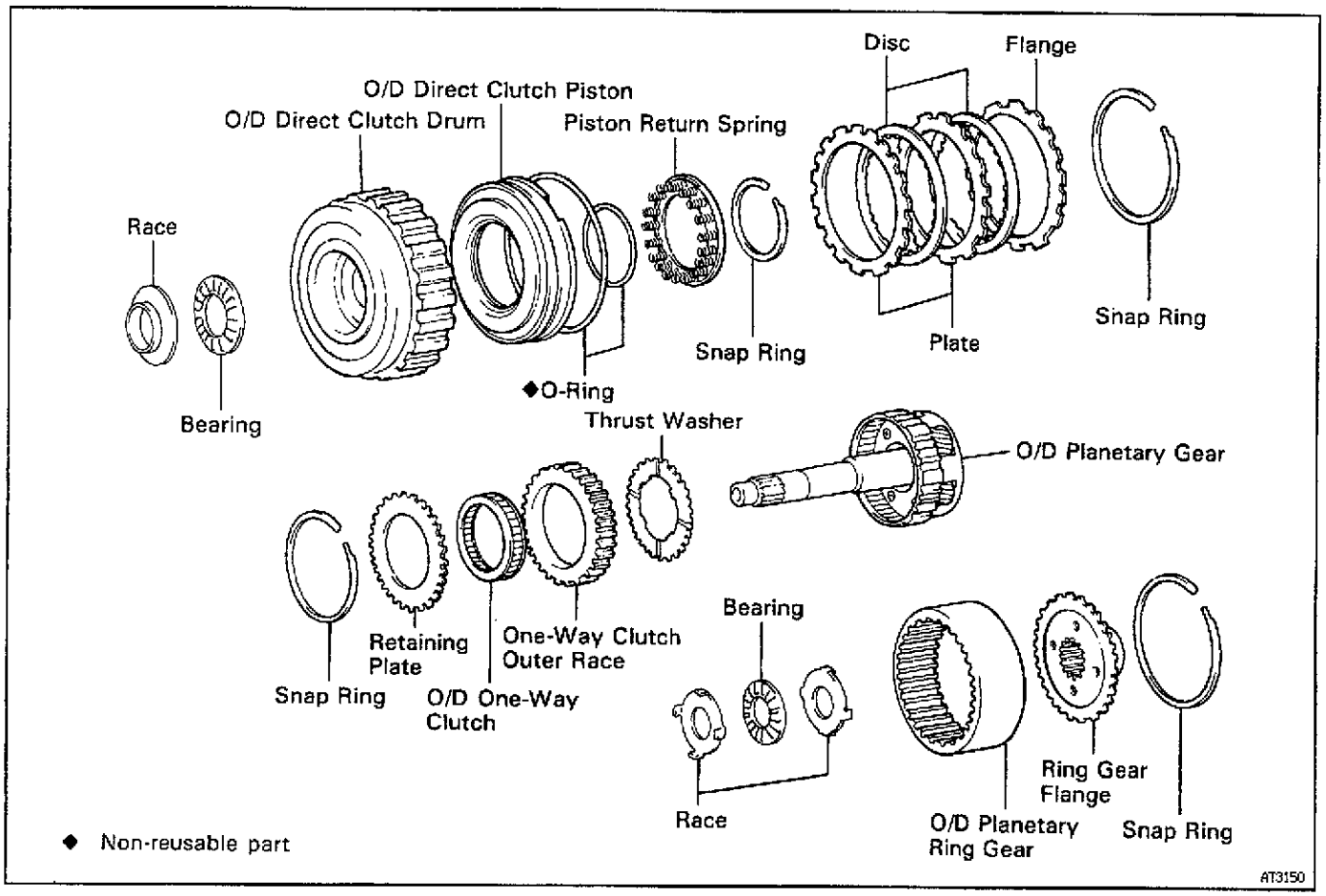
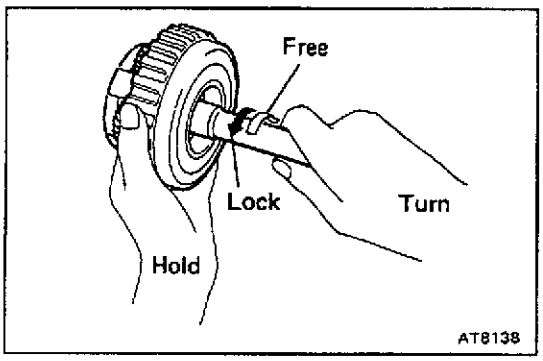
OVERDRIVE DIRECT CLUTCH

COMPONENTS

AT0HA-01





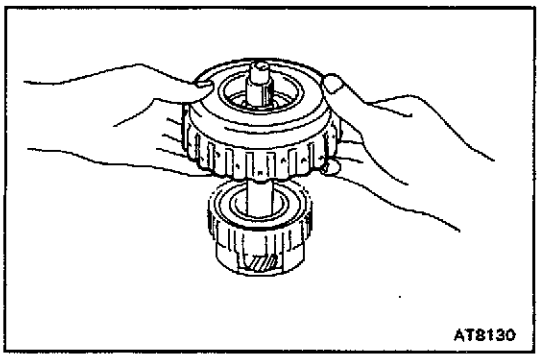
AT0HB-02

OVERDRIVE PLANETARY GEAR, OVERDRIVE DIRECT CLUTCH AND OVERDRIVE ONE—WAY CLUTCH DISASSEMBLY

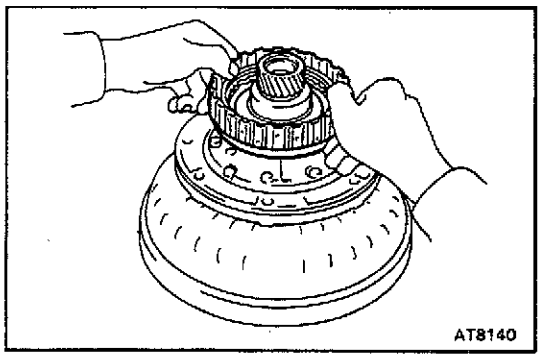
1. CHECK OPERATION OF ONE—WAY CLUTCH

Hold the O/D direct clutch drum and turn the input shaft.

Check that the input shaft must be able to turn freely clockwise and locks counterclockwise.

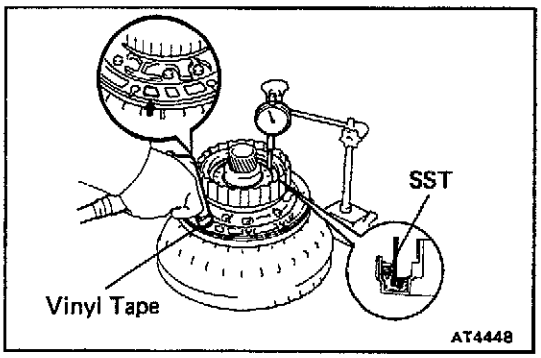


2. REMOVE OVERDRIVE DIRECT CLUTCH ASSEMBLY FROM OVERDRIVE PLANETARY GEAR

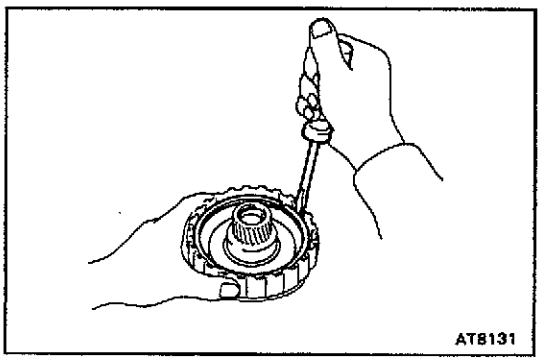


3. CHECK PISTON STROKE OF OVERDRIVE DIRECT CLUTCH

(a) Place the oil pump onto the torque converter clutch, and then place the O/D direct clutch assembly onto the oil pump.

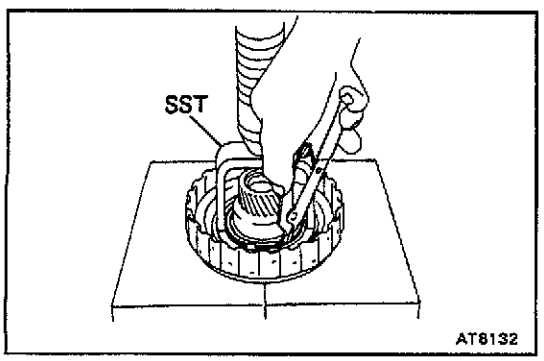


(b) Using SST and a dial indicator, measure the O/D direct clutch piston stroke while applying and releasing compressed air (392 – 785 kPa, 4 – 8 kgf/cm², 57 – 114 psi).
SST 09350 – 30020 (09350 – 06120)
Piston stroke:
1.85 – 2.15 mm (0.0728 – 0.0846 in.)
If the values are non – standard, inspect the discs.



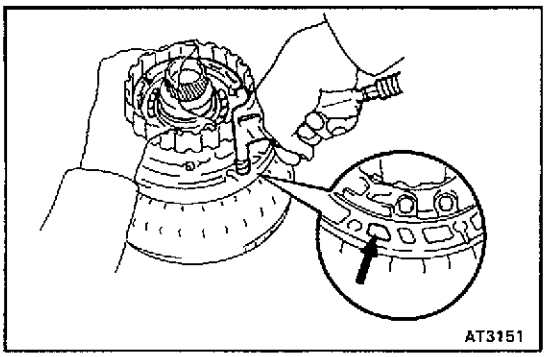
4. REMOVE FLANGE, PLATES AND DISCS

(a) Remove the snap ring from the O/D direct clutch drum.
(b) Remove the flange, plates and discs.



5. REMOVE PISTON RETURN SPRING

(a) Place SST on the spring retainer and compress the return spring with a shop press.
SST 09350 – 30020 (09350 – 07040)
(b) Using snap ring pliers, remove the snap ring.
(c) Remove the piston return spring.



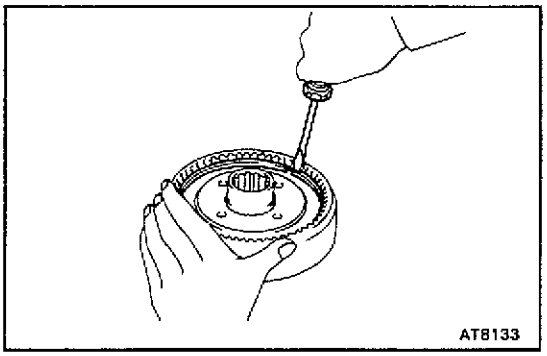
6. REMOVE OVERDRIVE DIRECT CLUTCH PISTON

(a) Place the oil pump onto the torque converter clutch and then place the O/D direct clutch onto the oil pump.

(b) Hold the O/D direct clutch piston with hand, apply compressed air to the oil pump to remove the O/D direct clutch piston.

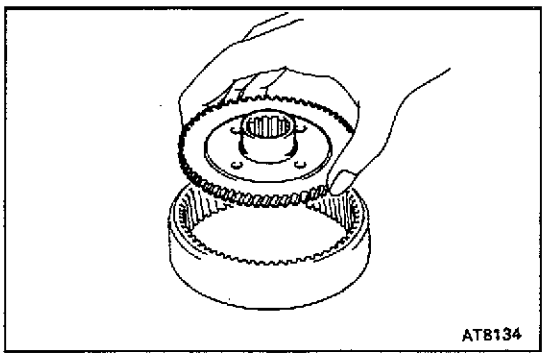
(c) Remove the O/D direct clutch piston.

(d) Remove the 2 O–rings from the piston.

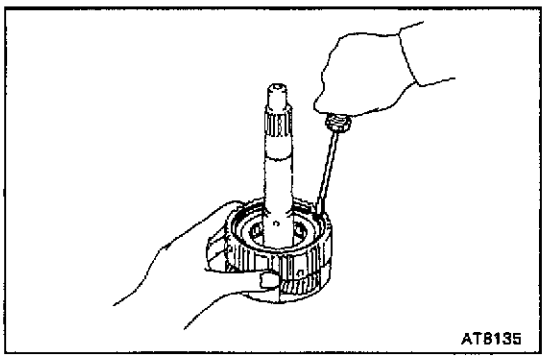


7. REMOVE RING GEAR FLANGE

(a) Remove the snap ring.

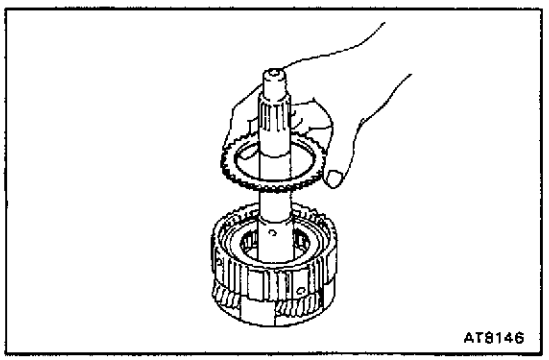


(b) Remove the ring gear flange.

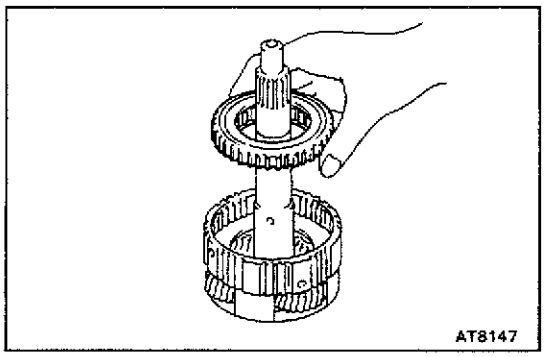


8. REMOVE RETAINING PLATE

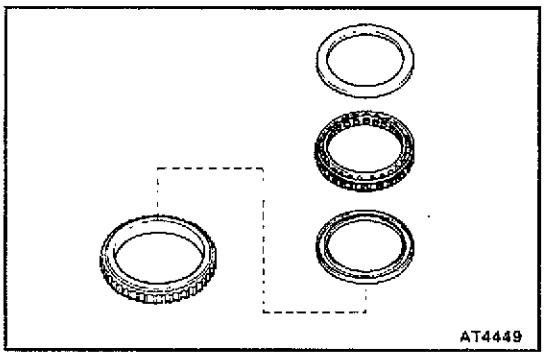
(a) Remove the snap ring.



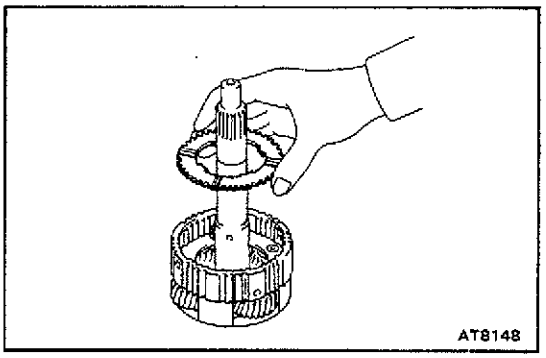
(b) Remove the retaining plate.



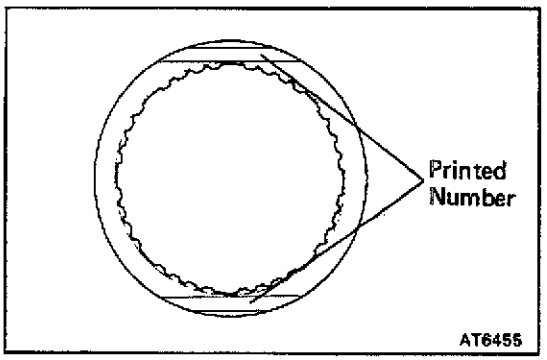
9. **REMOVE OVERDRIVE ONE–WAY CLUTCH WITH OUTER RACE**



10. **REMOVE ONE–WAY CLUTCH FROM OUTER RACE**



11. **REMOVE THRUST WASHER**



OVERDRIVE PLANETARY GEAR AND OVERDRIVE DIRECT CLUTCH INSPECTION

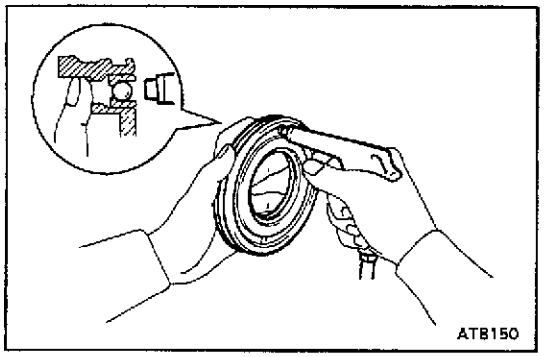
AT0HC–02

1. **INSPECT DISC, PLATE AND FLANGE**

Check to see if the sliding surface of the disc, plate and flange are worn or burnt. If necessary, replace them.

HINT:

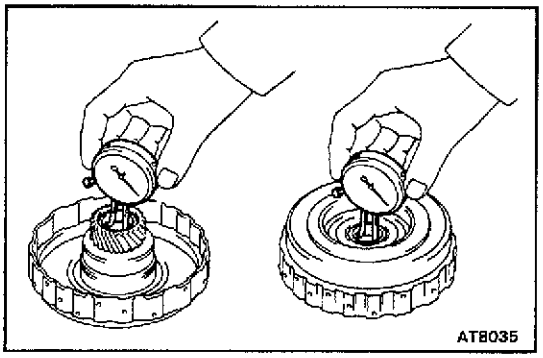
- If the lining of the disc is peeling off or discolored, or even if a part of the printed numbers are defaced, replace discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.



2. CHECK OVERDRIVE DIRECT CLUTCH PISTON

(a) Check that the check ball is free by shaking the piston.

(b) Check that the valve does not leak by applying low–pressure compressed air.



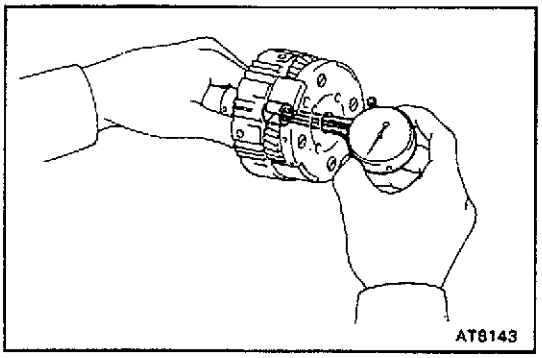
3. CHECK OVERDRIVE DIRECT CLUTCH DRUM BUSHINGS

Using a dial indicator, measure the inside diameter of the clutch drum bushings.

Maximum inside diameter:

27.11 mm (1.0673 in.)

If the inside diameter is greater than the maximum, replace the clutch drum.



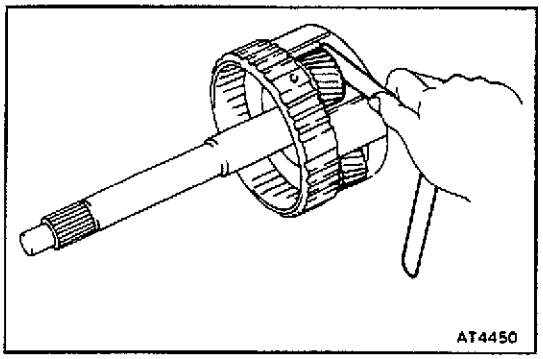
4. CHECK OVERDRIVE PLANETARY GEAR BUSHING

Using a dial indicator, measure the inside diameter of the planetary gear bushing.

Maximum inside diameter:

11.27 mm (0.4437 in.)

If the inside diameter is greater than the maximum, replace the planetary gear.



5. MEASURE PLANETARY PINION GEAR THRUST CLEARANCE

Using a feeler gauge, measure the planetary pinion gear thrust clearance.

Standard clearance:

0.20–0.60 mm (0.0079–0.0236 in.)

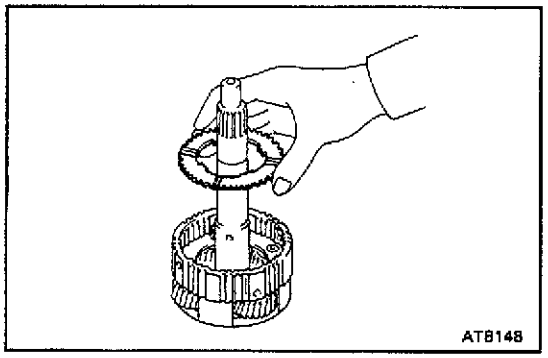
Maximum clearance:

1.00 mm (0.0394 in.)

If the clearance is greater than the maximum, replace the planetary gear assembly.

AT0HD–02

OVERDRIVE PLANETARY GEAR, OVERDRIVE DIRECT CLUTCH AND OVERDRIVE ONE–WAY CLUTCH ASSEMBLY

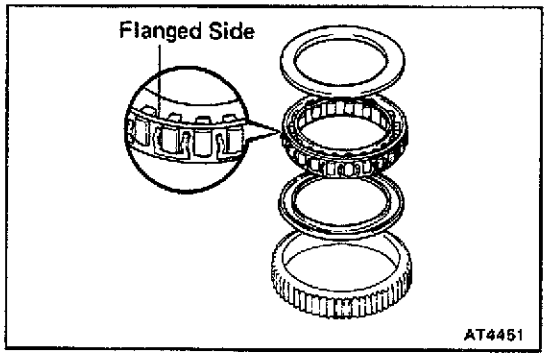

AT8148

1. INSTALL THRUST WASHER TO OVERDRIVE PLANETARY GEAR

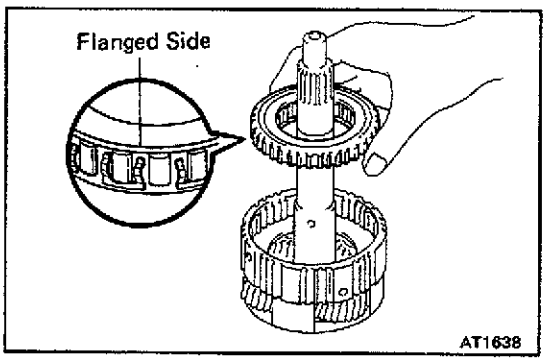
Install the thrust washer to the overdrive planetary gear, the groove side facing upward.

2. INSTALL OVERDRIVE ONE–WAY CLUTCH

(a) Install the one–way clutch into the outer race, the flanged side of the one–way clutch facing upward.

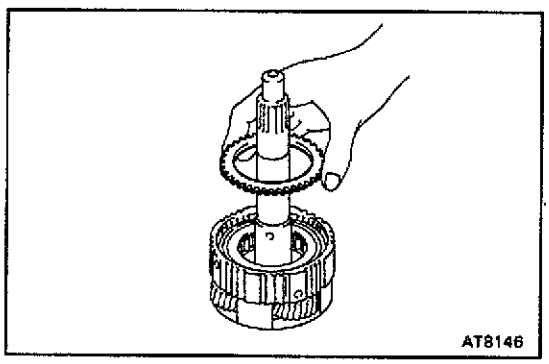


AT4451



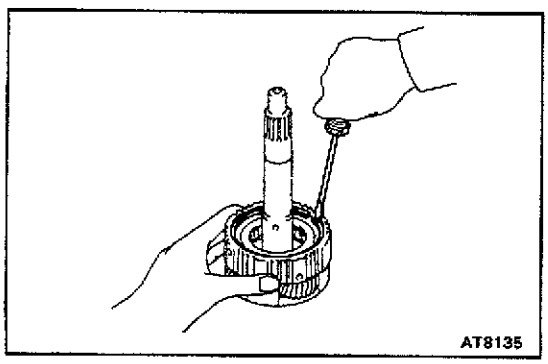
AT1638

(b) Install the overdrive one–way clutch with the outer race to the overdrive planetary gear.

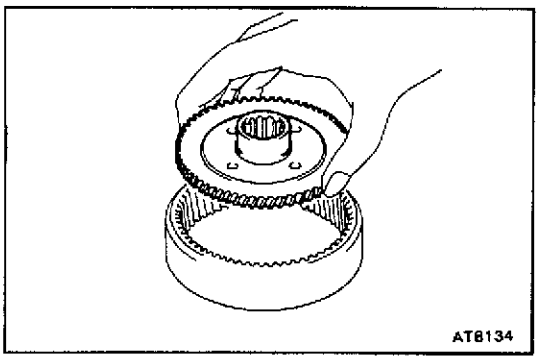

AT8146

3. INSTALL RETAINING PLATE

(a) Install the retaining plate.

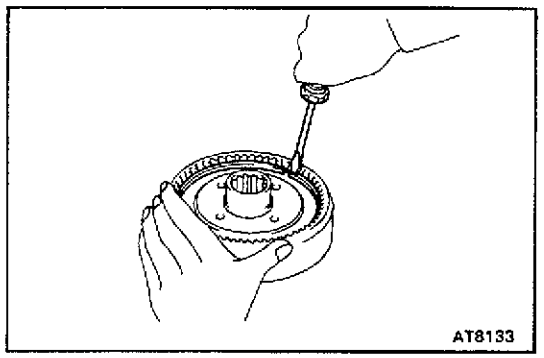

AT8135

(b) Install the snap ring.

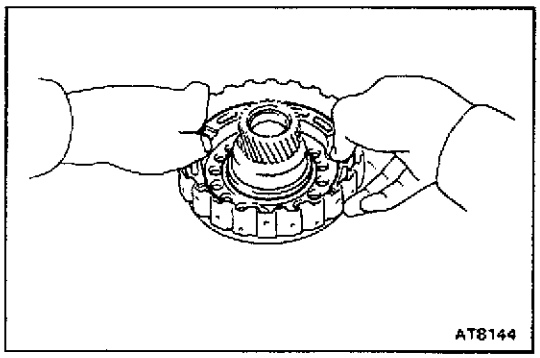


4. INSTALL RING GEAR FLANGE TO OVERDRIVE PLANETARY RING GEAR

(a) Install the ring gear flange.



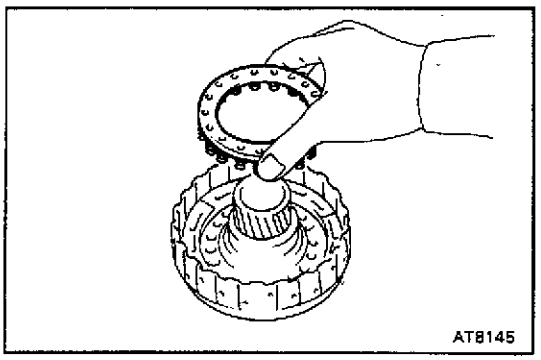
(b) Install the snap ring.



5. INSTALL OVERDRIVE DIRECT CLUTCH PISTON

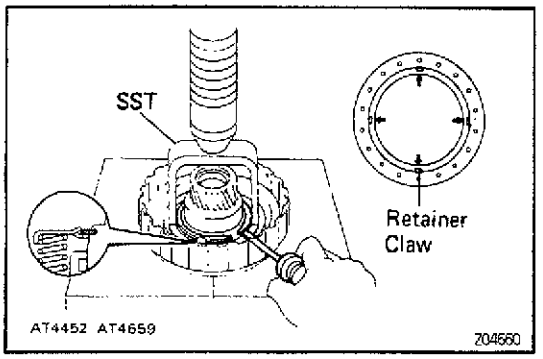
(a) Coat new O–rings with ATF and install them on the O/D direct clutch piston.

(b) Being careful not to damage the O–rings, press in the direct clutch piston into the clutch drum with both hands.



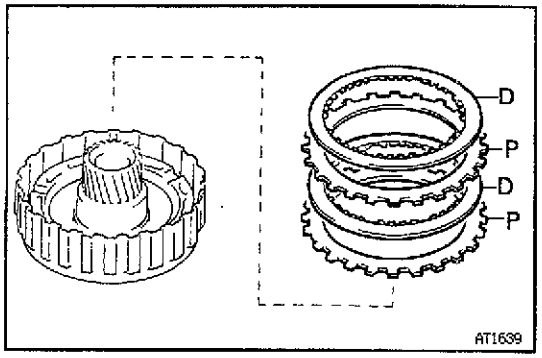
6. INSTALL PISTON RETURN SPRING

(a) Install the piston return spring to the piston.



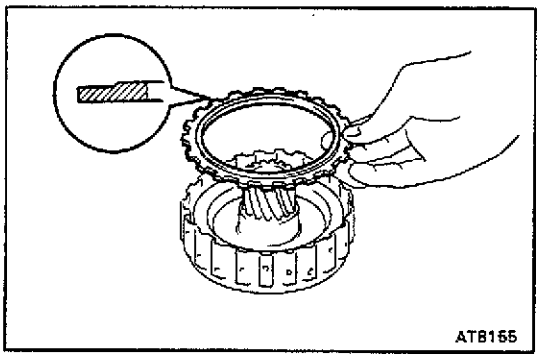
(b) Place SST on the spring retainer, and compress the return spring with a shop press.
SST 09350–30020 (09350–07040)

(c) Install the snap ring with a screwdriver. Be sure the end gap of the snap ring is not aligned with the spring retainer claw.

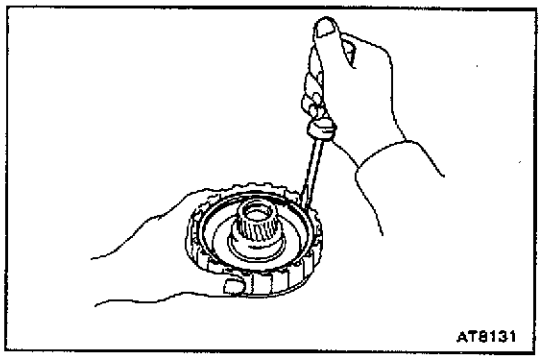


7. INSTALL PLATES, DISCS AND FLANGE

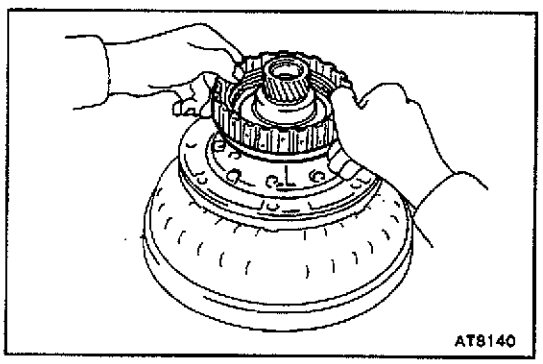
(a) Install the plates and discs.
Install in order: P = Plate D = Disc
P–D–P–D



(b) Install the flange, the flat end facing downward.

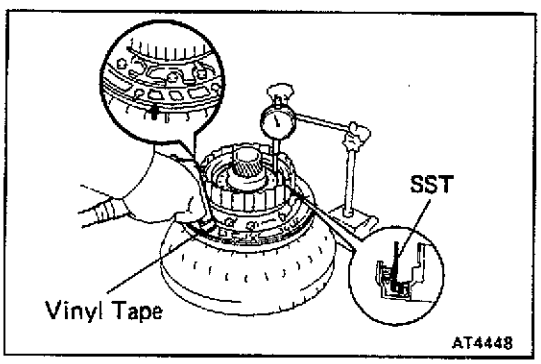


(c) Install the snap ring.



8. CHECK PISTON STROKE OF OVERDRIVE DIRECT CLUTCH

(a) Place the oil pump onto the torque converter clutch, and then place the O/D direct clutch assembly onto the oil pump.



(b) Using SST and a dial indicator, measure the overdrive direct clutch piston stroke while applying and releasing compressed air (392–785 kPa, 4–8 kgf/cm², 57–114 psi).
SST 09350–30020 (09350–06120)
Piston stroke:
1.85–2.15 mm (0.0728–0.0846 in.)

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

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

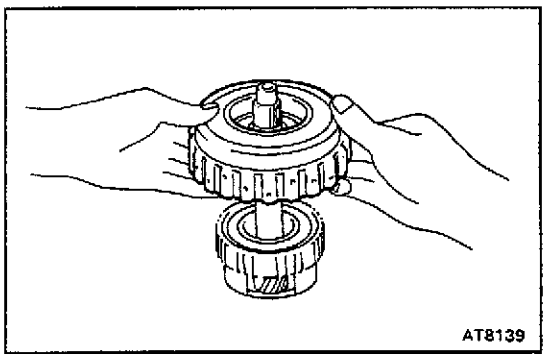
HINT: There are 6 different thicknesses for the flange.

Flange thickness

mm (in.)

No.	Thickness	No.	Thickness
16	3.6 (0.142)	19	3.3 (0.130)
17	3.5 (0.138)	20	3.2 (0.126)
18	3.4 (0.134)	21	3.1 (0.122)

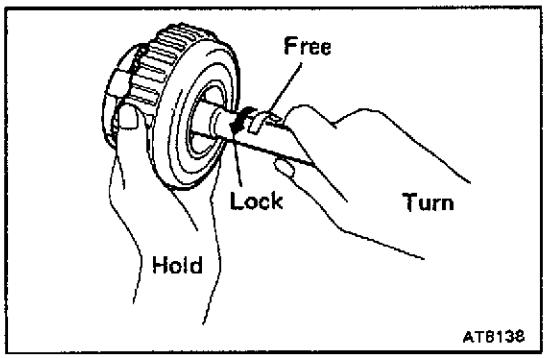
AT



9. INSTALL OVERDRIVE DIRECT CLUTCH ASSEMBLY

(a) Align the flukes of the discs in the direct clutch.

(b) Install the direct clutch assembly onto the O/D planetary gear.



10. CHECK OPERATION OF ONE–WAY CLUTCH

Hold the O/D direct clutch drum and turn the input shaft.

Check that the input shaft must be able to turn freely clockwise and locks counterclockwise.