

# OVERDRIVE DIRECT CLUTCH COMPONENTS

AT04J-01

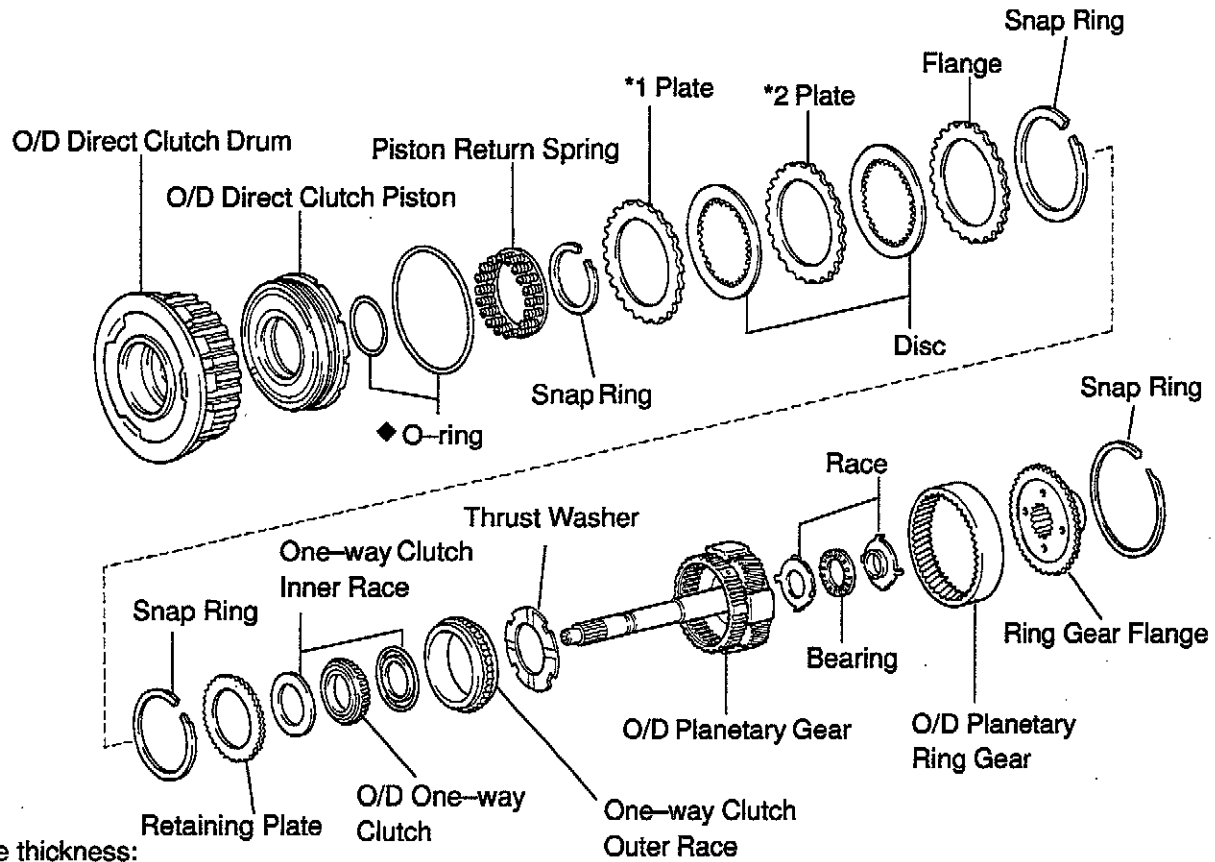


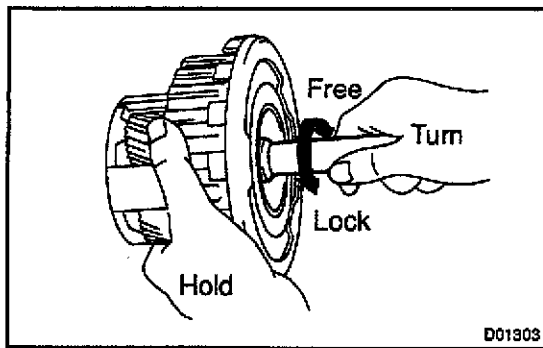
Plate thickness:

\*1: 2.0 mm (0.079 in.)

\*2: 2.5 mm (0.098 in.)

◆ Non-reusable part

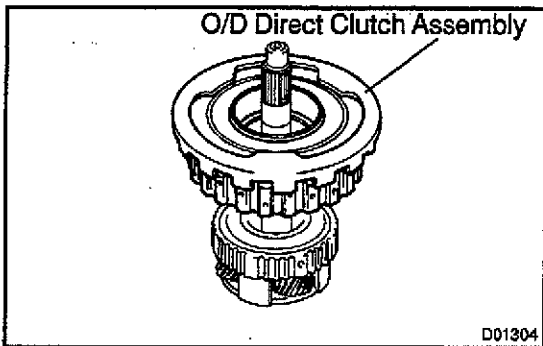
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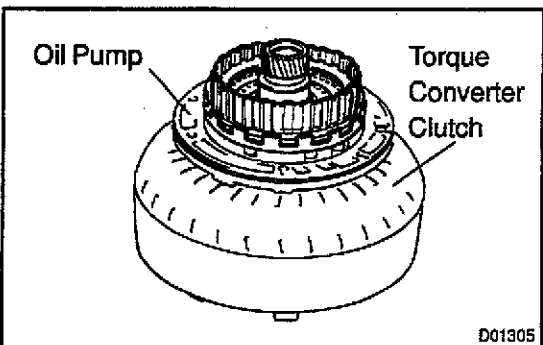
## DISASSEMBLY

### 1. CHECK OPERATION OF ONE-WAY CLUTCH

Hold the O/D direct clutch drum and turn the input shaft. The input shaft turns freely clockwise and locks counterclockwise.

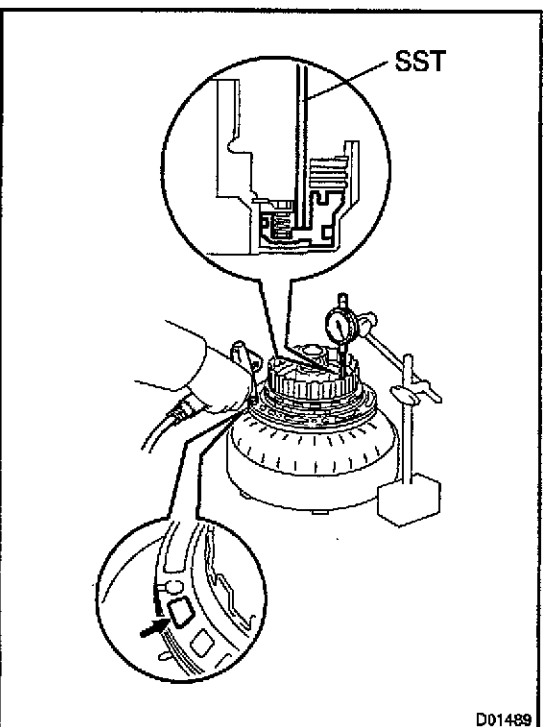


### 2. REMOVE O/D DIRECT CLUTCH ASSEMBLY FROM O/D PLANETARY GEAR



### 3. CHECK PISTON STROKE OF O/D 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.

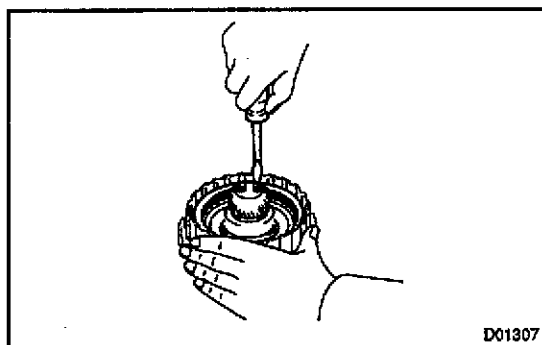


(b) Using SST and a dial indicator, measure the O/D direct clutch piston stroke while applying and releasing compressed air (392 kPa, 4 kgf/cm<sup>2</sup>, 57 psi).

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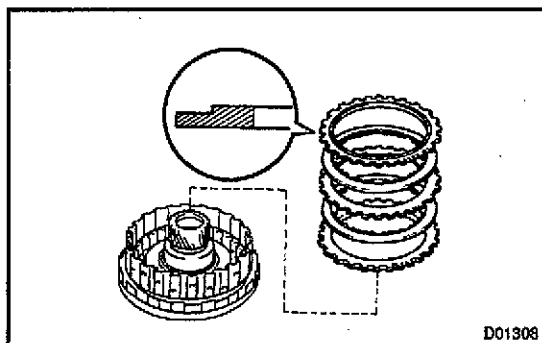
**Piston stroke: 0.85 – 1.10 mm (0.033 – 0.043 in.)**

If the stroke is non-standard, inspect the discs.

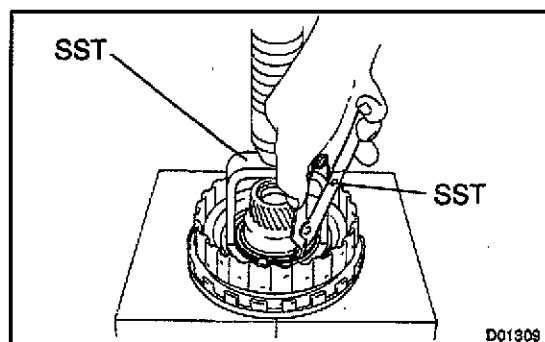


#### 4. REMOVE FLANGE, PLATE AND DISC

- (a) Using a screwdriver, remove the snap ring from the O/D direct clutch drum.



- (b) Remove the flange, 2 plates and 2 discs.



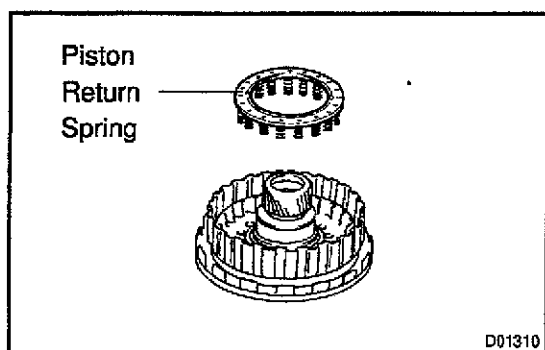
#### 5. REMOVE PISTON RETURN SPRING

- (a) Place SST on the spring retainer and compress the return spring with a press.

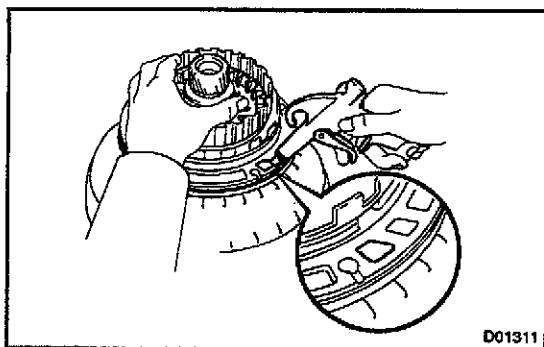
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- (b) Using SST, remove the snap ring.

SST 09350-30020 (09350-07070)



- (c) Remove the piston return spring.



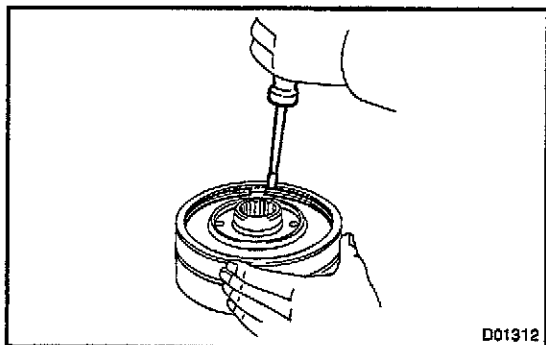
## 6. REMOVE O/D DIRECT CLUTCH PISTON

- (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, and apply compressed air (392 kPa, 4 kgf/cm<sup>2</sup>, 5 psi) to the oil pump to remove the O/D direct clutch piston.
- (c) Remove the O/D direct clutch piston.

### HINT:

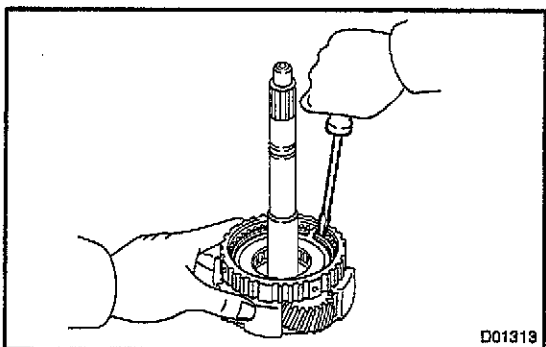
If the piston is at an angle and cannot be removed, press down on the side jutting out and again apply compressed air, or else wind vinyl tape around the piston end and remove it with needle nose pliers.

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



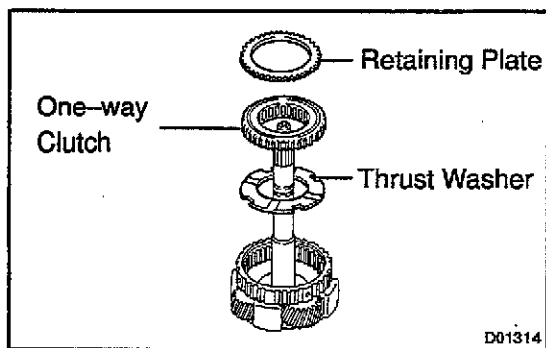
## 7. REMOVE RING GEAR FLANGE

- (a) Using a screwdriver, remove the snap ring.
- (b) Remove the ring gear flange.

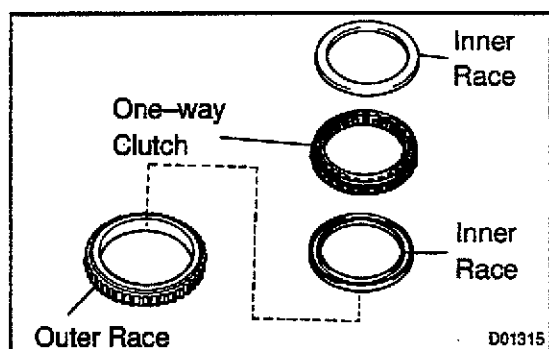


## 8. REMOVE RETAINING PLATE

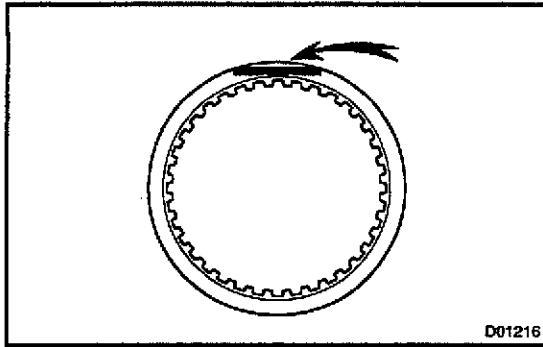
- (a) Using a screwdriver, remove the snap ring.



- (b) Remove the retaining plate, one-way clutch and thrust washer.

**9. REMOVE ONE-WAY CLUTCH FROM OUTER RACE**

Remove the 2 inner races and one-way clutch to the outer race.



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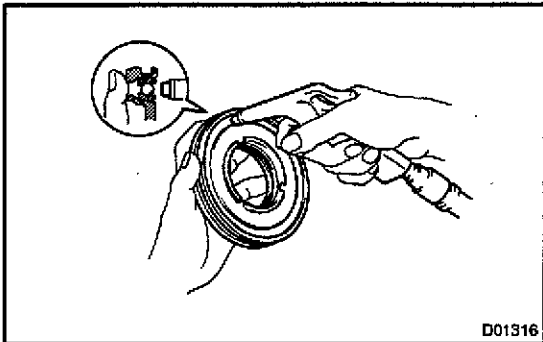
## INSPECTION

### 1. INSPECT DISC AND FLANGE

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

#### HINT:

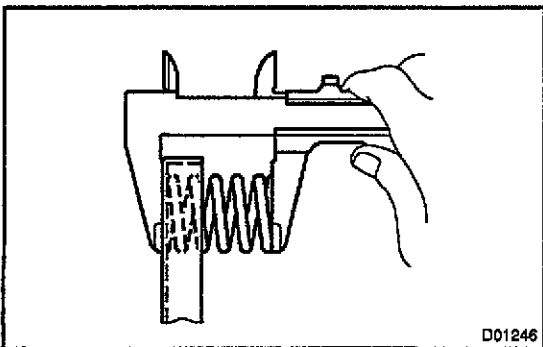
- If the lining of the disc is peeling off or discolored, or even if a part of the printed numbers is defaced, replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.



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### 2. CHECK O/D DIRECT CLUTCH PISTON

- Check that the check ball is free by shaking the piston.
- Check that the valve does not leak by applying low-pressure compressed air.

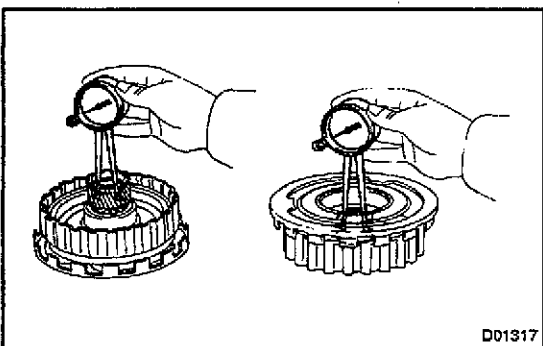


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### 3. CHECK O/D DIRECT CLUTCH RETURN SPRING

Measure the free length of the spring together with the spring seat.

**Standard free length: 15.8 mm (0.622 in.)**



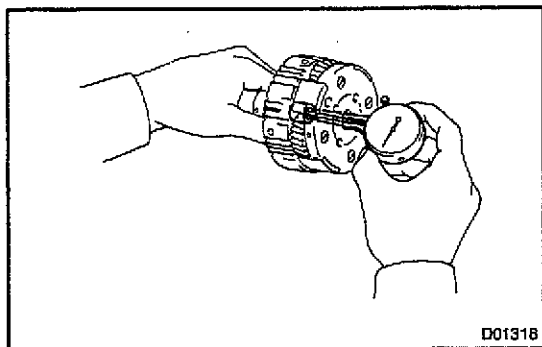
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### 4. CHECK O/D DIRECT CLUTCH DRUM BUSHINGS

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

**Maximum inside diameter: 27.11 mm (1.0673 in.)**

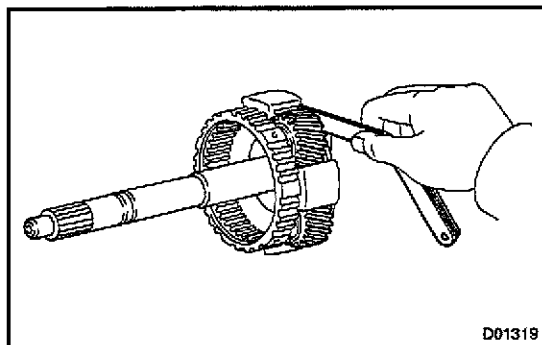
If the inside diameter is greater than the maximum, replace the clutch drum.

**5. CHECK O/D PLANETARY GEAR BUSHING**

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

**Maximum inside diameter: 11.27 mm (0.444 in.)**

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

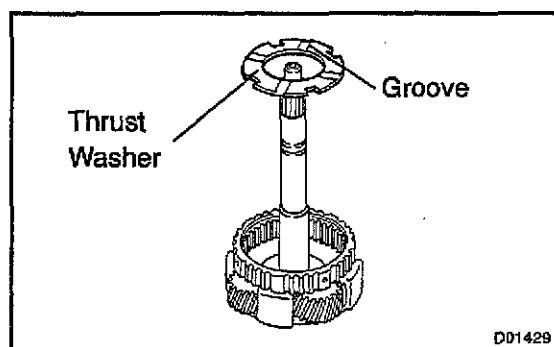
**6. MEASURE PLANETARY PINION GEAR THRUST CLEARANCE**

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

**Standard clearance: 0.2 – 0.6 mm (0.008 – 0.024 in.)**

**Maximum clearance: 1.0 mm (0.039 in.)**

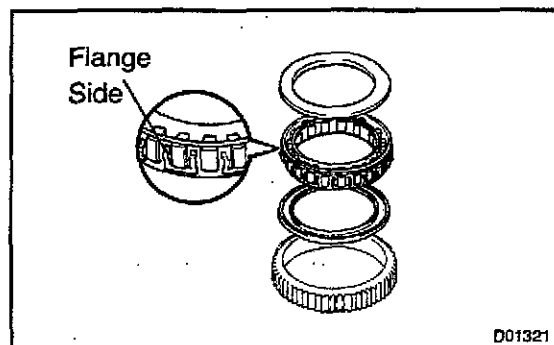
If the clearance is greater than the maximum, replace the planetary gear assembly.



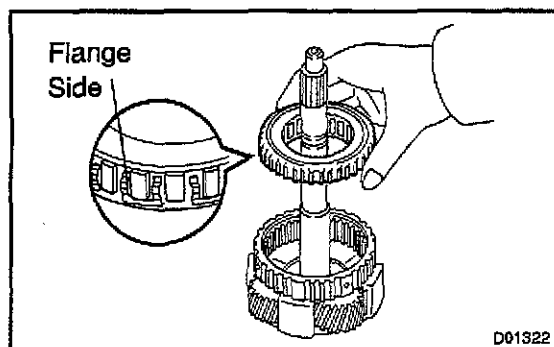
## REASSEMBLY

### 1. INSTALL O/D ONE-WAY CLUTCH

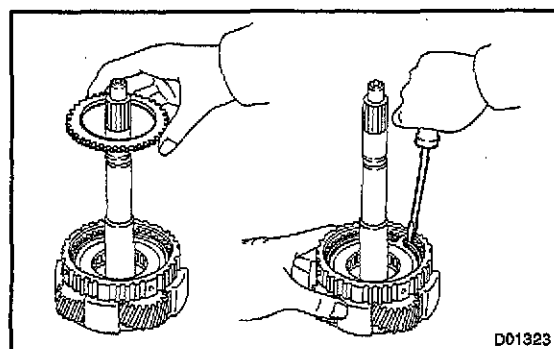
- (a) Install the thrust washer to the O/D planetary gear, the grooved side facing upward.



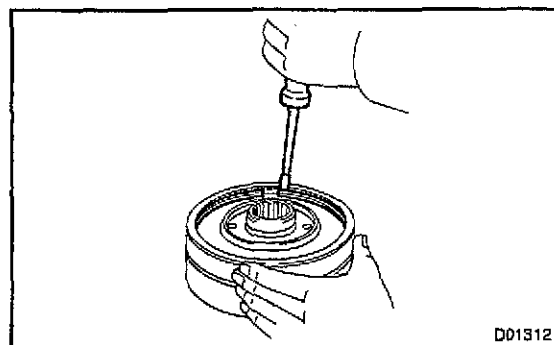
- (b) Install the one-way clutch and 2 inner races into the outer race with the flange side of the one-way clutch facing upward.



- (c) Install the O/D one-way clutch with the outer race to the O/D planetary gear.



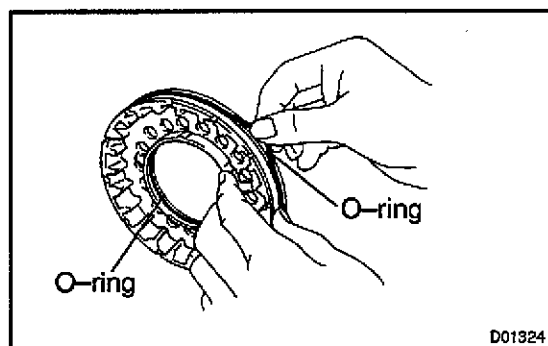
- (d) Install the retaining plate.  
(e) Using a screwdriver, install the snap ring.



### 2. INSTALL RING GEAR FLANGE TO O/D PLANETARY RING REAR

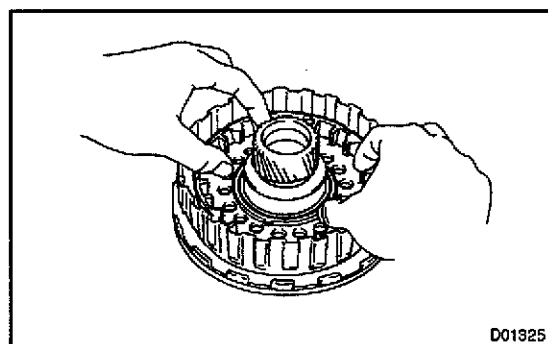
- (a) Install the ring gear flange.  
(b) Using a screwdriver, install the snap ring.



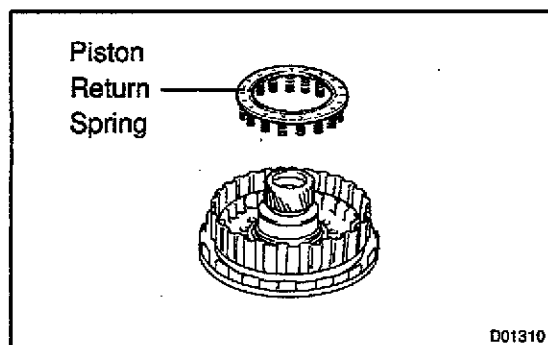


### 3. INSTALL O/D DIRECT CLUTCH PISTON

- (a) Coat 2 new O-rings with ATF and install them on the O/D direct clutch piston.

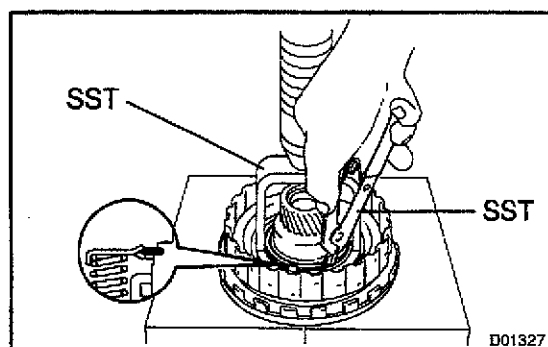


- (b) Being careful not to damage the O-rings, press the direct clutch piston into the clutch drum with both hands.



### 4. 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 press.

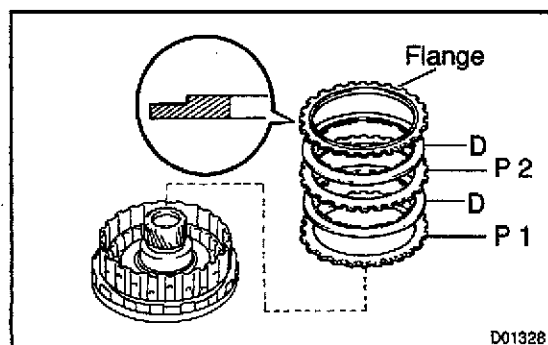
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- (c) Install the snap ring with SST.

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#### NOTICE:

Be sure the end gap of the snap ring is not aligned with the spring retainer claw.



### 5. INSTALL PLATES, DISCS AND FLANGE

- (a) Install the 2 plates and 2 discs.

Install in order: P = Plate, D = Disc

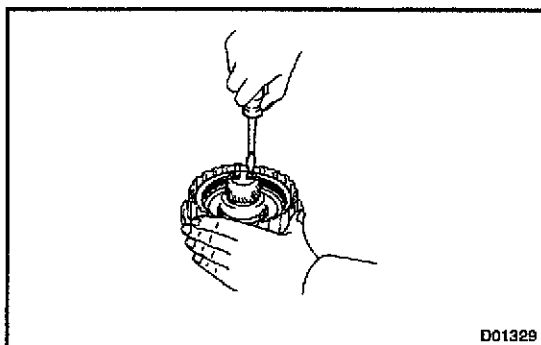
P 1 - D - P 2 - D

Plate thickness:

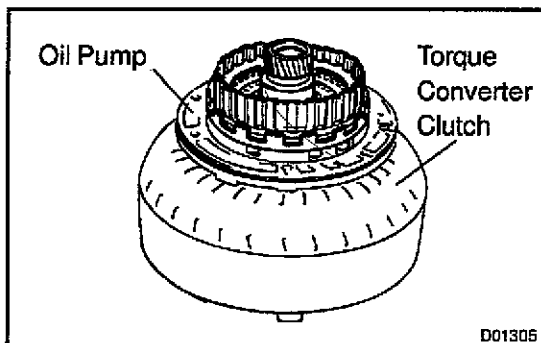
P 1: 2.0 mm (0.079 in.)

P 2: 2.5 mm (0.098 in.)

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

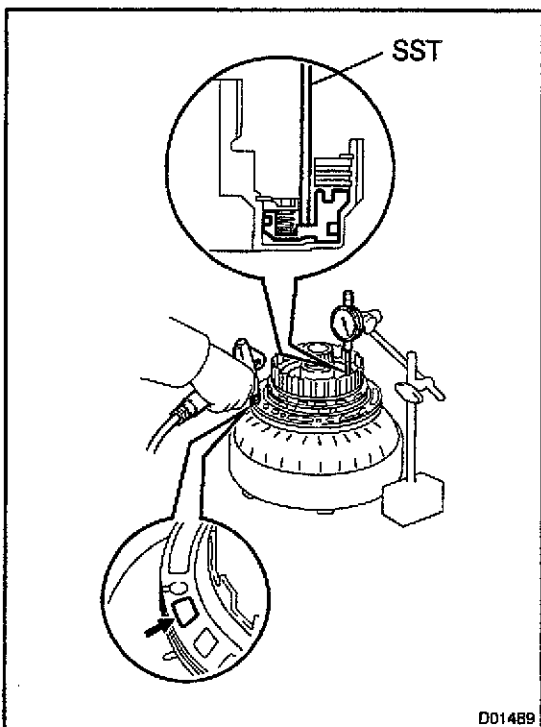


- (c) Using a screwdriver, install the snap ring.



## 6. CHECK PISTON STROKE OF O/D DIRECT CLUTCH

- (a) Place the oil pump onto the torque converter clutch, then place the O/D direct clutch assembly into 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 kPa, 4 kgf/cm<sup>2</sup>, 57 psi).

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**Piston stroke: 0.85 – 1.10 mm (0.033 – 0.043 in.)**

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

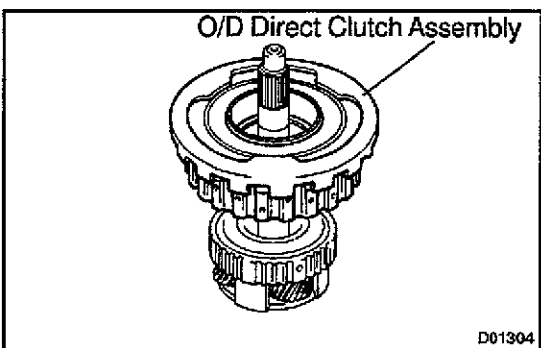
If the stroke is non-standard, select another flange.

**HINT:**

There are 8 flanges in different thickness.

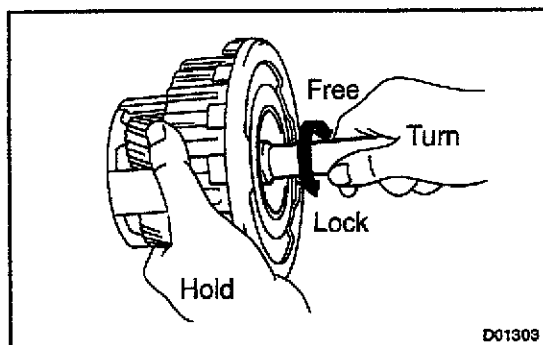
**Flange Thickness: mm (in.)**

No.	Thickness	No.	Thickness
23	3.8 (0.151)	18	3.4 (0.134)
22	3.7 (0.146)	19	3.3 (0.130)
16	3.6 (0.142)	20	3.2 (0.126)
17	3.5 (0.138)	21	3.1 (0.122)



## 7. INSTALL O/D 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.

**8. CHECK OPERATION OF ONE-WAY CLUTCH**

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

Check that the input shaft turns freely clockwise and locks counterclockwise.