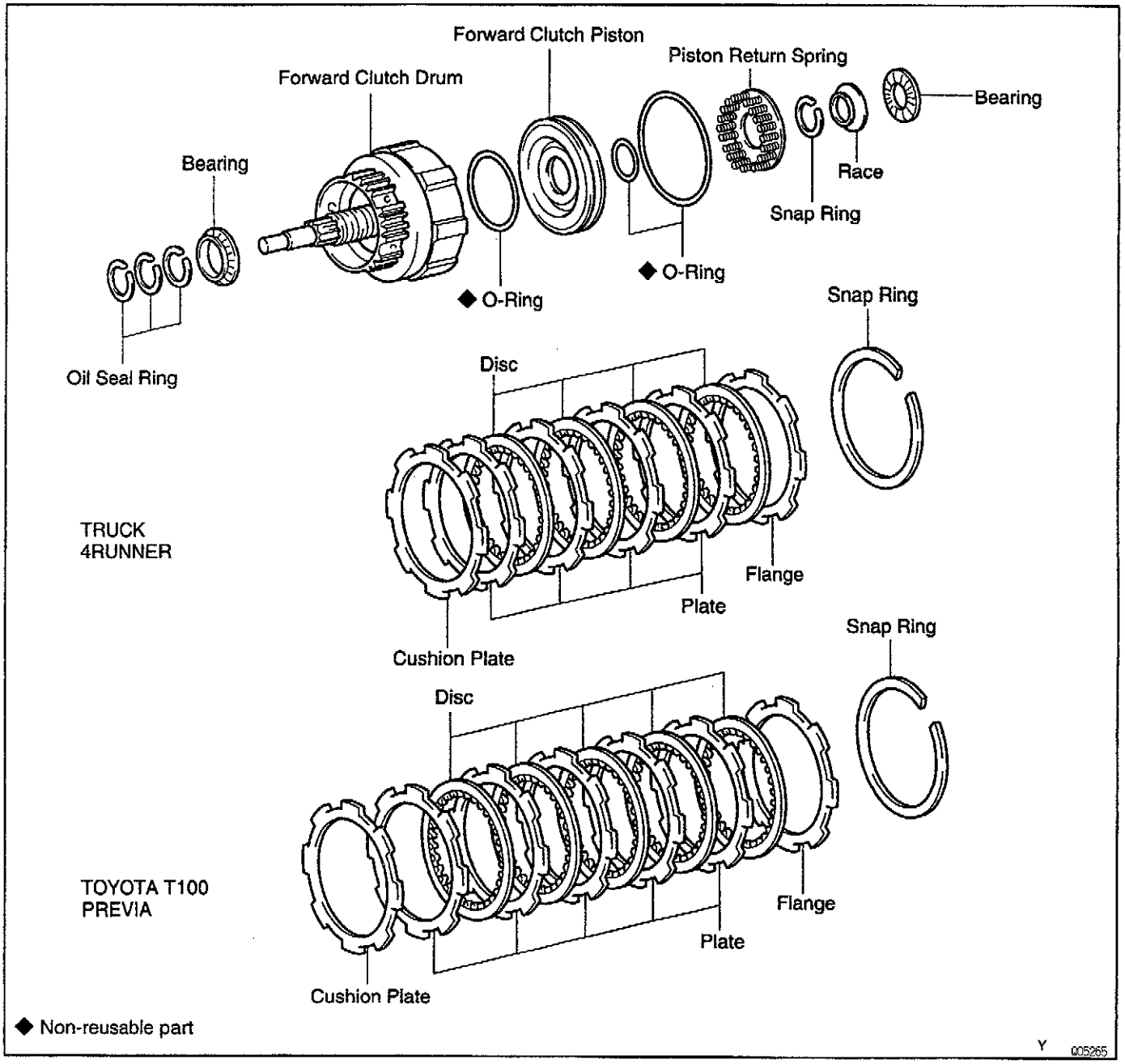
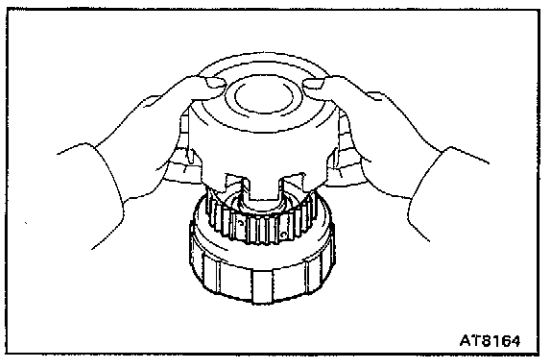
FORWARD CLUTCH

COMPONENTS

AT05P-04

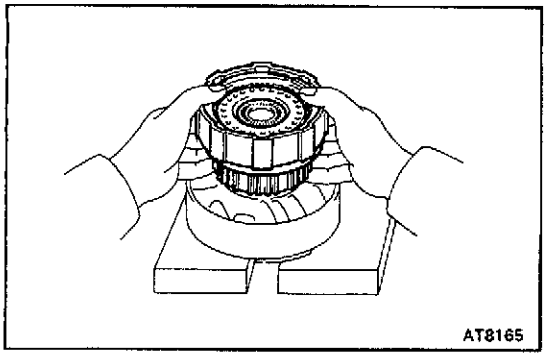




FORWARD CLUTCH DISASSEMBLY

AT05Q-06

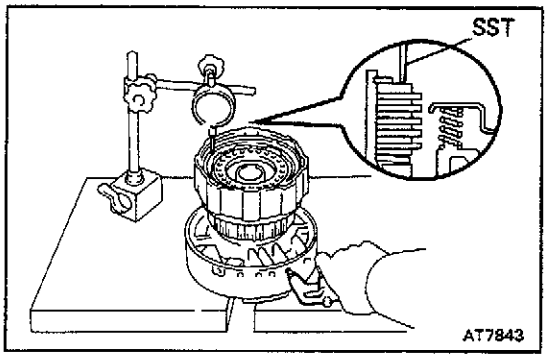
1. REMOVE FORWARD CLUTCH FROM DIRECT CLUTCH



2. PLACE FORWARD CLUTCH ONTO OVERDRIVE SUPPORT

(a) Place wooden blocks or similar, to prevent forward clutch shaft from touching the work stand, and place the O/D support on them.

(b) Place the forward clutch onto the O/D support.



3. CHECK PACK CLEARANCE OF FORWARD CLUTCH

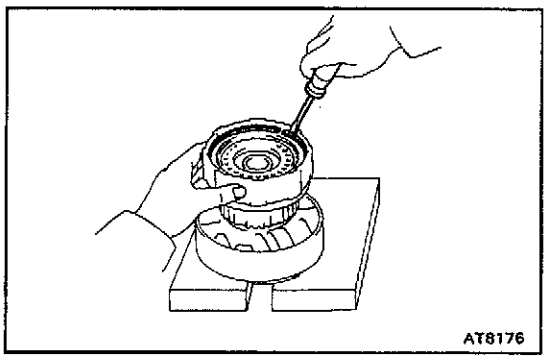
Using SST and a dial indicator, measure the forward clutch piston stroke while applying and releasing compressed air (392–785 kPa, 4–8 kgf/cm², 57–114 psi).

SST 09350–30020 (09350–06120)

Pack clearance:

0.4–0.8 mm (0.016–0.031 in.)

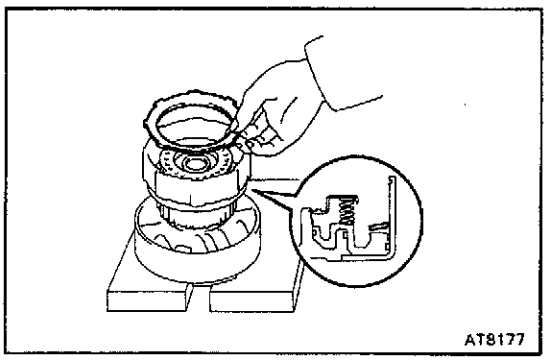
If the values are non–standard, inspect the discs.



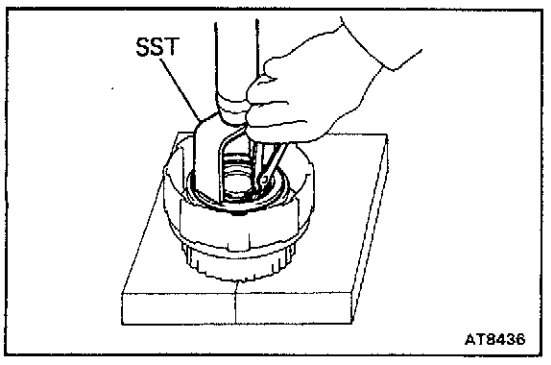
4. REMOVE FLANGE, PLATES AND DISCS

(a) Using a screwdriver, remove the snap ring from the forward clutch drum.

(b) Remove the flange, plates and discs.
1 flange, 4 plates and 4 discs



5. REMOVE CUSHION PLATE

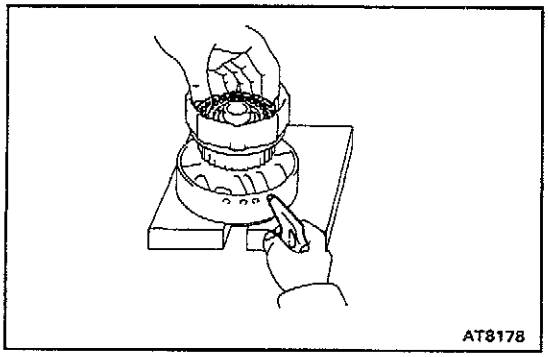


6. REMOVE PISTON RETURN SPRING

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

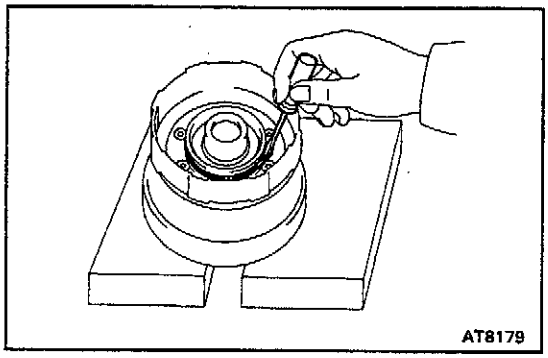
(b) Using snap ring pliers, remove the snap ring.

(c) Remove the piston return spring.

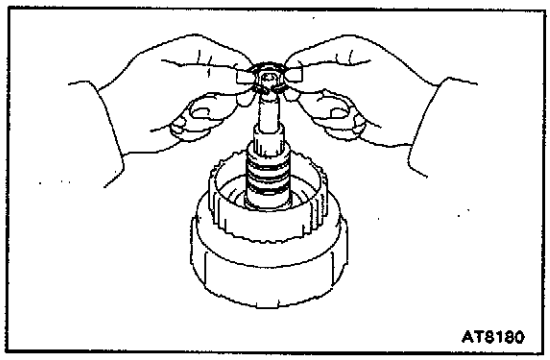


7. REMOVE FORWARD CLUTCH PISTON

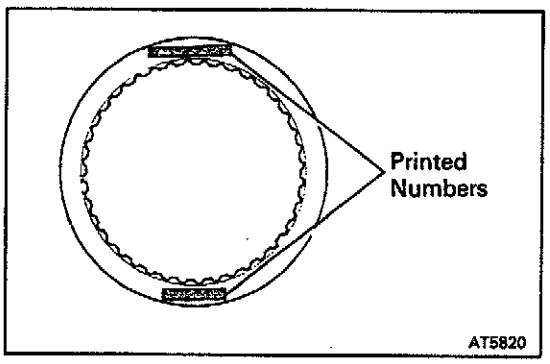
(a) Place the forward clutch drum onto the O/D support.
(b) Hold the forward clutch piston with hand, apply compressed air to the O/D support to remove the forward clutch piston.
(c) Remove the forward clutch piston.
(d) Remove the 2 O–rings from the piston.



8. REMOVE O – RING FROM FORWARD CLUTCH DRUM



9. REMOVE 3 OIL SEAL RINGS



FORWARD CLUTCH INSPECTION

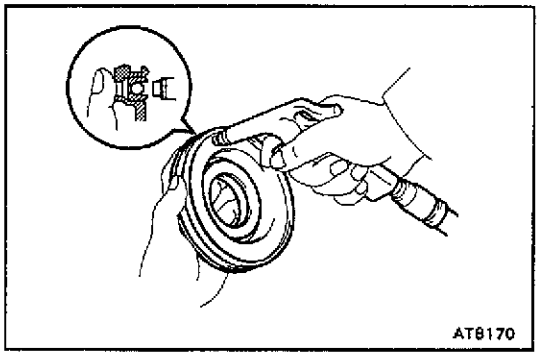
AT05R–05

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:

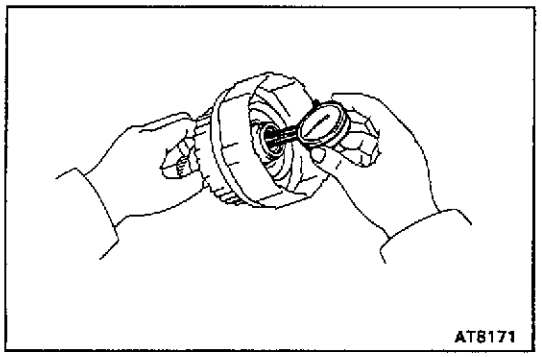
- If the lining of the disc is peeling off or discolored, or even if a part of the printed numbers are defaced, replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.


AT8170

2. CHECK FORWARD 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.

AT


AT8171

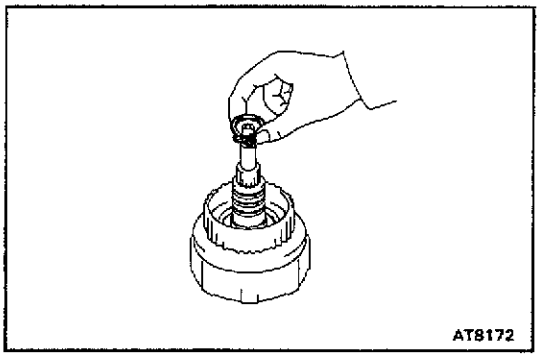
3. CHECK FORWARD CLUTCH DRUM BUSHING

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

Maximum inside diameter:

24.08 mm (0.9480 in.)

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


AT8172

FORWARD CLUTCH ASSEMBLY

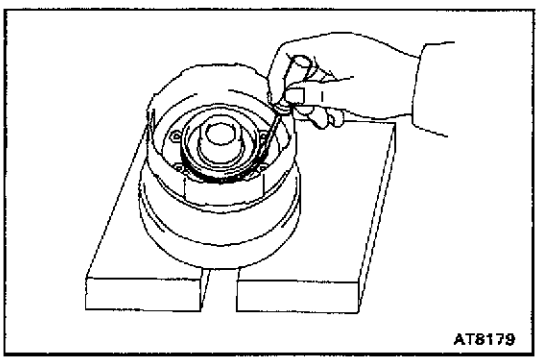
AT055–07

1. INSTALL OIL SEAL RINGS

(a) Coat the 3 oil seal rings with ATF.
(b) Install the 3 oil seal rings to the forward clutch drum groove, then snug them down by squeezing their ends together.

NOTICE: Do not spread the ring ends more than necessary.

HINT: After installing the oil seal rings, check that they rotate smoothly.

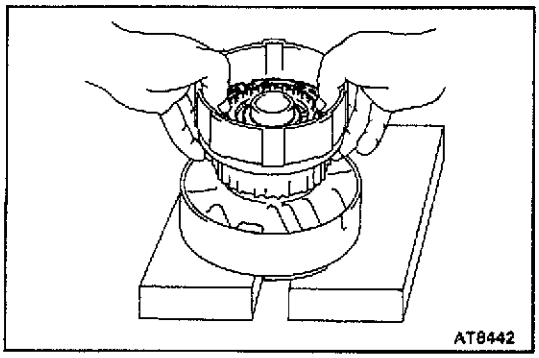

AT8179

2. INSTALL NEW O–RING TO FORWARD CLUTCH DRUM

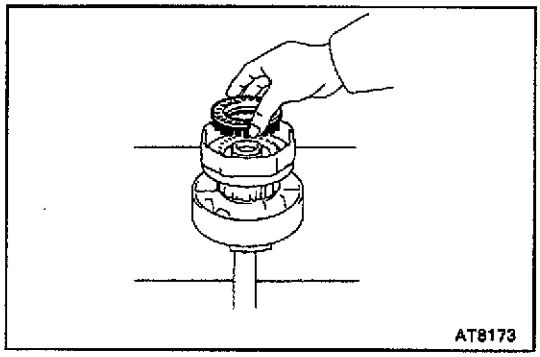
Coat a new O–ring with ATF and install it on the forward clutch drum.

3. INSTALL FORWARD CLUTCH PISTON

(a) Coat new O–rings with ATF and install them on the forward clutch piston with a screwdriver.

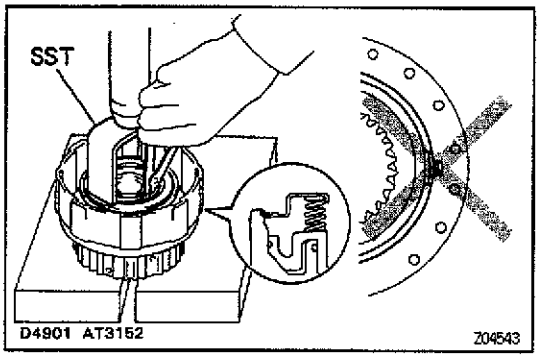


(b) Being careful not to damage the O–rings, press the clutch piston into the forward clutch drum with both hands.



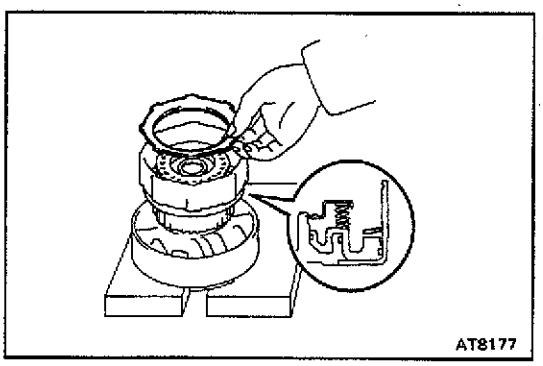
4. INSTALL PISTON RETURN SPRING

(a) Install the piston return spring.

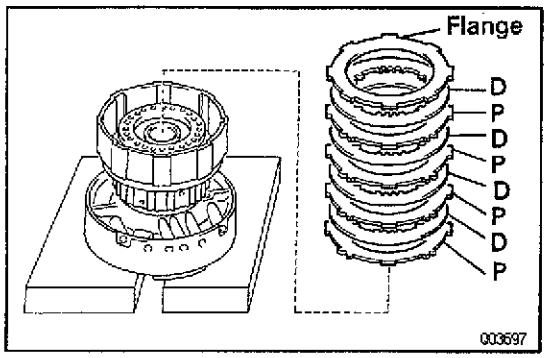


(b) Place SST on the spring retainer, and compress the return spring with a shop press.
SST 09350–30020 (09350–07040)

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



5. INSTALL CUSHION PLATE ROUNDED END DOWN, AS SHOWN



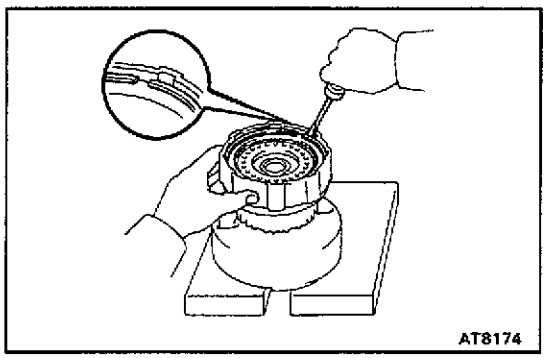
6. INSTALL PLATES, DISCS AND FLANGE

(a) Install in order: P = Plate D = Disc
P–D–P–D–P–D–P–D

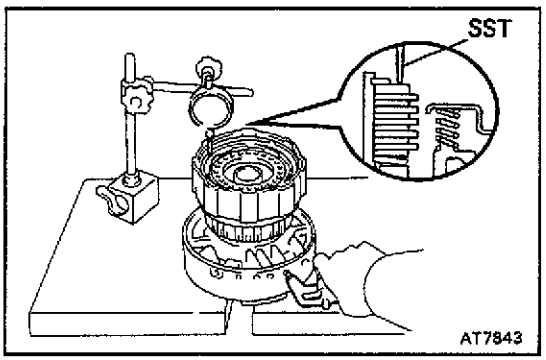
(b) And then install the flange, the rounded edge facing downward.
HINT: There are 8 different thicknesses for the flange.
Flange thickness

mm (in.)

No.	Thickness	No.	Thickness
61	3.0 (0.118)	44	3.8 (0.150)
60	3.2 (0.126)	42	4.0 (0.157)
45	3.4 (0.134)	63	4.2 (0.165)
62	3.6 (0.142)	64	4.4 (0.173)

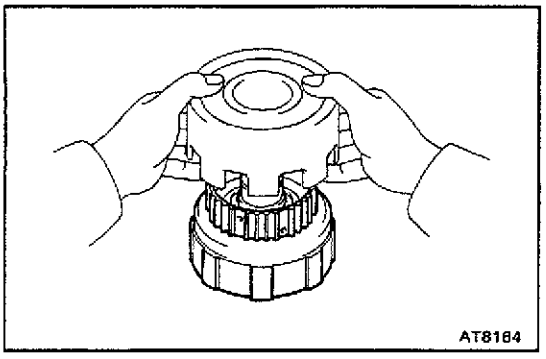


(c) Install the snap ring with a screwdriver. Be sure the end gap of the snap ring is not aligned with the cutout portion of the forward clutch drum.



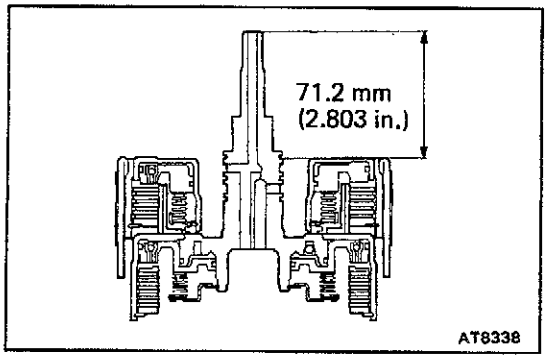
7. CHECK PACK CLEARANCE OF FORWARD CLUTCH

Using SST and a dial indicator, measure the forward clutch piston stroke while applying and releasing compressed air (392–785 kPa, 4–8 kgf/cm², 57–114 psi).
SST 09350–30020 (09350–06120)
Pack clearance:
0.4–0.8 mm (0.016–0.031 in.)
If the values are non–standard, inspect the discs.



8. INSTALL DIRECT CLUTCH TO FORWARD CLUTCH

(a) Make sure that the thrust washer is installed to the direct clutch drum.
(b) Align the flukes of discs in the direct clutch.
(c) Install the direct clutch onto the forward clutch.



(d) Check that the distance from the direct clutch end to the forward clutch end is 71.2 mm (2.803 in.).
If the distance is less than the above value, parts may have been assembled incorrectly, check and reassemble again.