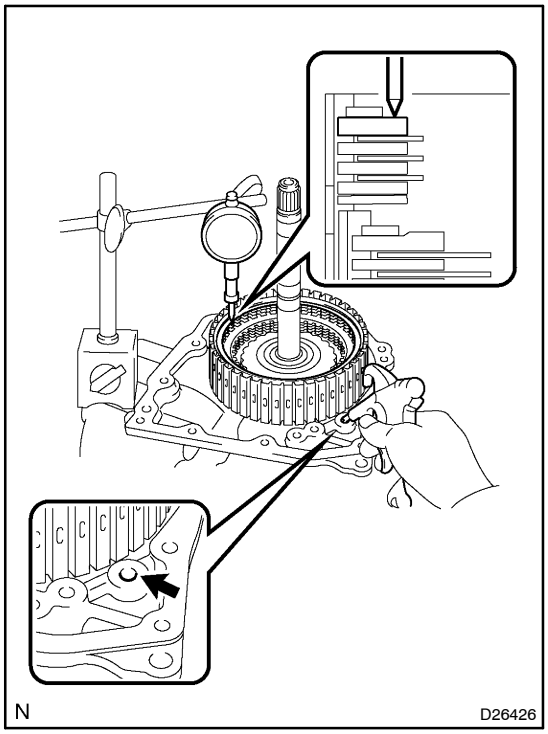
DIRECT CLUTCH ASSY (U151E/U151F)

400H2–02

OVERHAUL



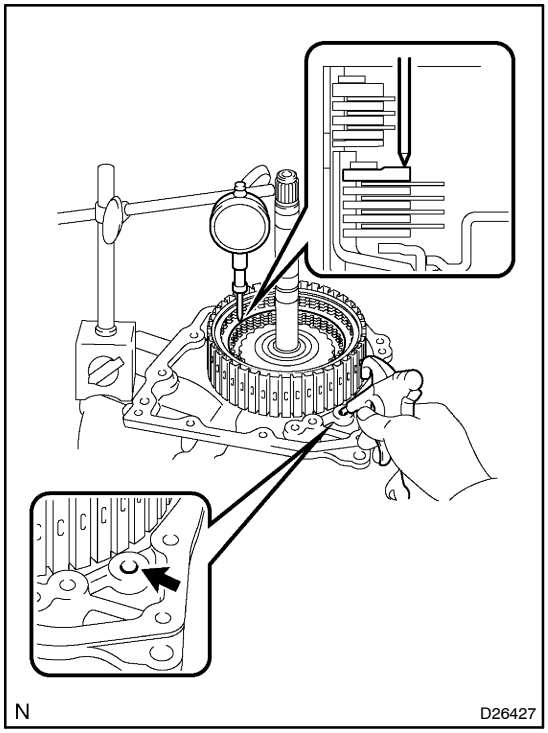
1. INSPECT PACK CLEARANCE OF REVERSE CLUTCH

(a) Install the intermediate shaft and needle roller bearing on the transaxle rear cover .

(b) Using a dial indicator, measure the reverse clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi).

Pack clearance:0.60 – 0.82 mm (0.02362 – 0.03228 in.)

If the pack clearance is not within standard, inspect the discs, plates and flange.

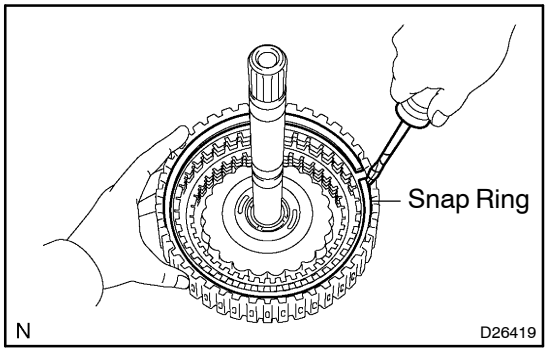


2. INSPECT PACK CLEARANCE OF DIRECT CLUTCH & OVERDRIVE CLUTCH

(a) Using a dial indicator, measure the direct clutch & overdrive clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi).

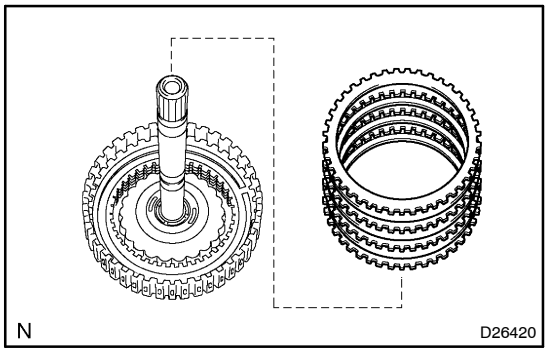
Pack clearance:0.61 – 0.83 mm (0.02401 – 0.03268 in.)

If the pack clearance is not within standard, inspect the discs, plates and flange.

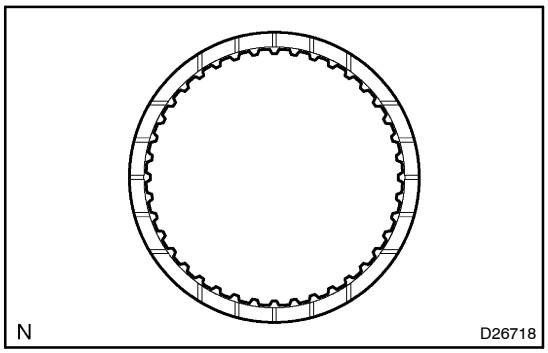


3. REMOVE DIRECT MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Using a screwdriver, remove the snap ring from the intermediate shaft.



(b) Remove the flange, 3 discs,, 3 plates and cushion plate from the intermediate shaft.



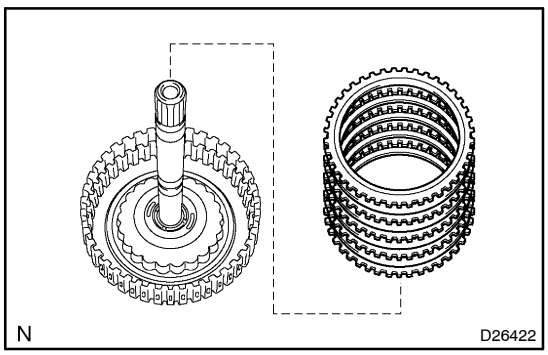
4. INSPECT DIRECT MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Check to see if the sliding surface of the disc, plate and flange are worn or burnt.

If necessary, replace them.

HINT:

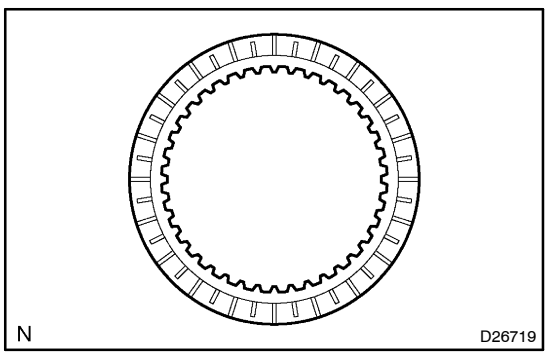
- If the lining of the disc comes off or discolors, or even if a part of the groove is defaced, replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.



5. REMOVE OVERDRIVE DIRECT CLUTCH DISC

(a) Using a screwdriver, remove the snap ring from the intermediate shaft.

(b) Remove the flange, 4 discs and 4 plates from the intermediate shaft.



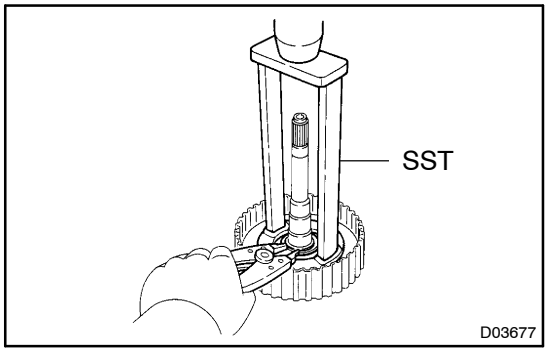
6. INSPECT OVERDRIVE DIRECT CLUTCH DISC

(a) 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 comes off or discolors, or even if a part of the groove is defaced, replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.



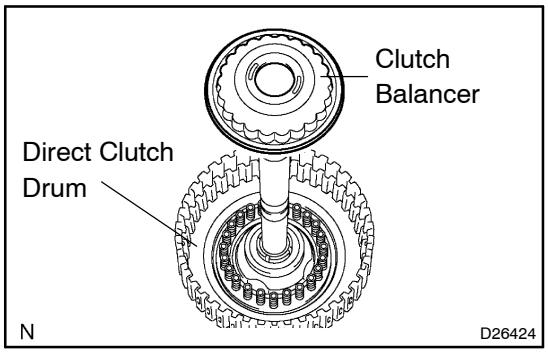
7. REMOVE OVERDRIVE CLUTCH RETURN SPRING SUB–ASSY

(a) Place SST on the clutch balancer and compress the spring with a press.
SST 09387–00020

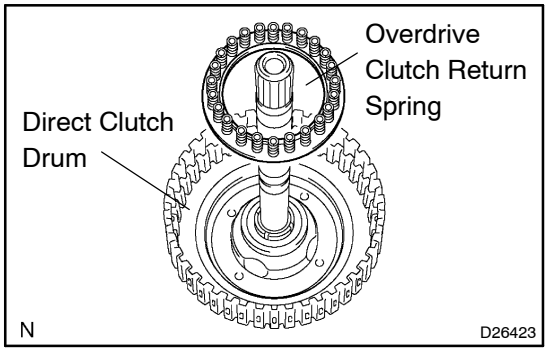
(b) Using a snap ring expander, remove the snap ring from the direct clutch drum.

NOTICE:

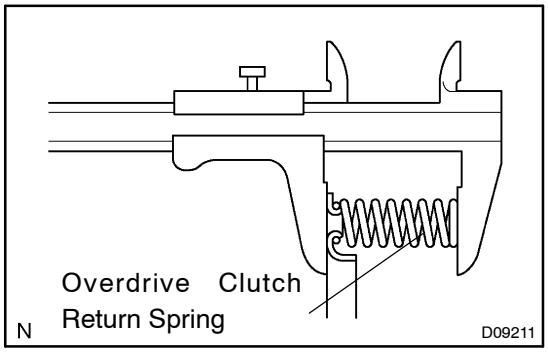
- **Stop the press when the spring sheet is lowered to the place 1 – 2 mm (0.039 – 0.078 in.) from the snap ring groove.**
- **This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**



(c) Remove the clutch balancer from the direct clutch drum.

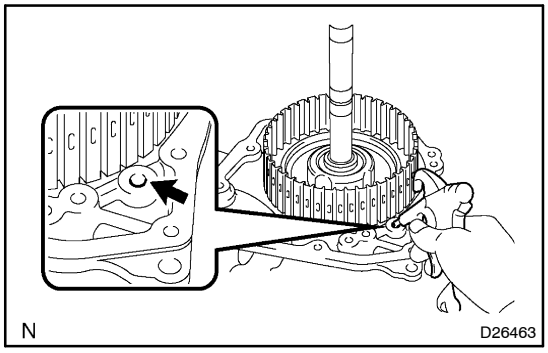


(d) Remove the overdrive clutch return spring from the direct clutch drum.



8. INSPECT OVERDRIVE CLUTCH RETURN SPRING SUB–ASSY

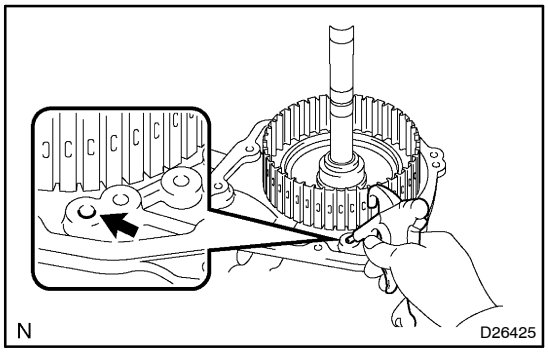
(a) Using vernier calipers, measure the free length of the spring together with the spring seat.
Standard free length: 25.91 mm (1.0201 in.)



9. REMOVE OVERDRIVE DIRECT CLUTCH PISTON

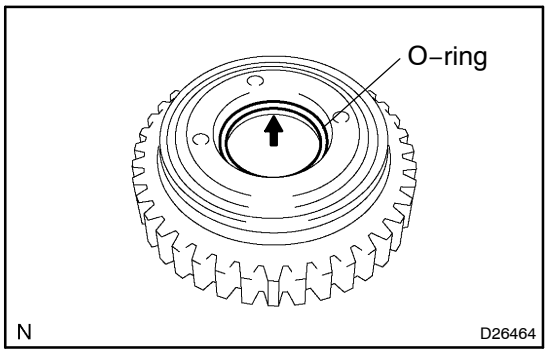
(a) Install intermediate shaft on the transaxle rear cover.

(b) Holding the direct clutch piston with your hand, apply compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi) to the transaxle rear cover to remove the direct clutch piston.



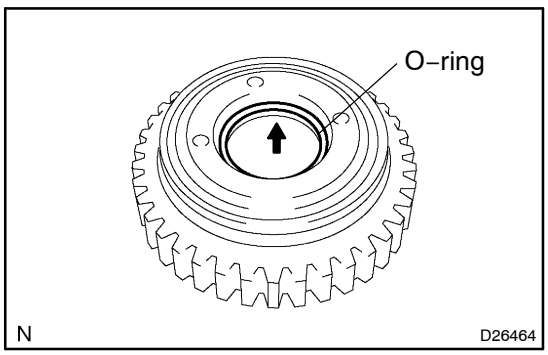
10. REMOVE OVERDRIVE DIRECT CLUTCH DRUM SUB–ASSY

(a) Holding the direct clutch drum by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi) to the transaxle rear cover to remove the direct clutch drum.



11. REMOVE OVERDRIVE DIRECT CLUCH O–RING

(a) Using a screwdriver, remove the O–ring from the direct clutch drum.

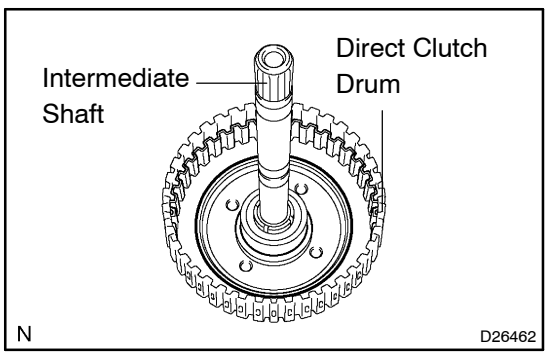


12. INSTALL OVERDRIVE DIRECT CLUCH O–RING

(a) Coat a O–ring with ATF, and install it to the direct clutch drum.

NOTICE:

Assemble the O–ring carefully not to have a twist and a pinching.

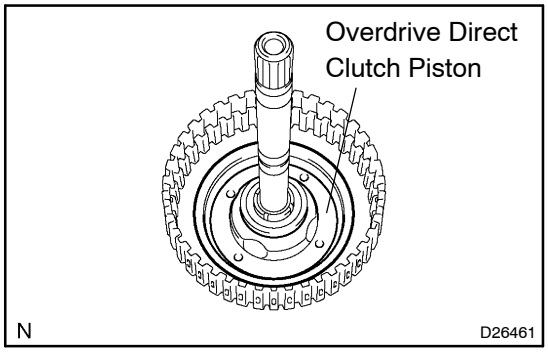


13. INSTALL OVERDRIVE DIRECT CLUTCH DRUM SUB–ASSY

(a) Coat the direct clutch drum with ATF, and install it to the intermediate shaft.

NOTICE:

- **Be careful not to damage the O–ring.**
- **Be careful not to damage the lip seal of the direct clutch drum.**

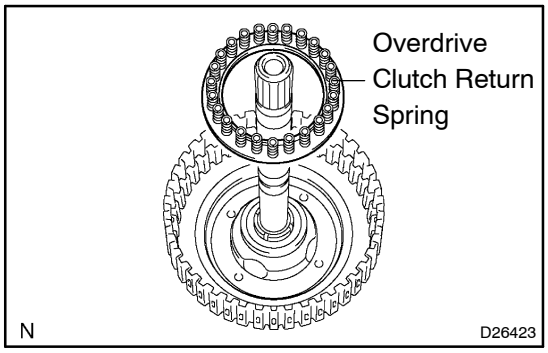


14. INSTALL OVERDRIVE DIRECT CLUTCH PISTON

(a) Apply the overdrive direct clutch piston with ATF, and install it to the direct clutch drum.

NOTICE:

Be careful not to damage the lip seal of the direct clutch piston.



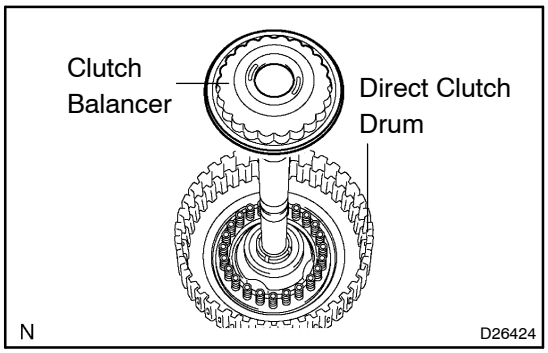
15. INSTALL OVERDRIVE CLUTCH RETURN SPRING SUB–ASSY

(a) Install the piston return spring to the direct clutch drum.

NOTICE:

Installing the spring sub–assembly, check all of the springs are fit in the piston correctly.

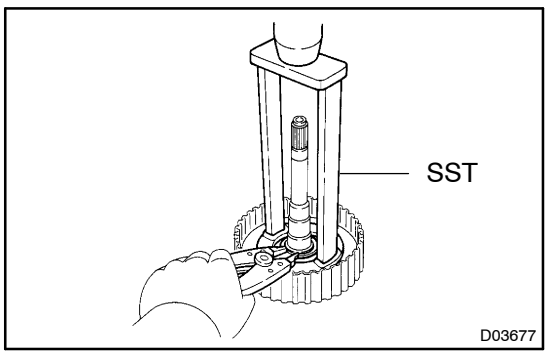
(b) Coat the clutch balancer with ATF.



(c) Install the clutch balancer to the direct clutch drum.

NOTICE:

- **Be careful not to damage the lip seal of the direct clutch balancer.**
- **Install the clutch balancer carefully not to have a pinching and any other defects at the sealing lip.**
- **Apply enough ATF to the sealing lip prior to assembling.**



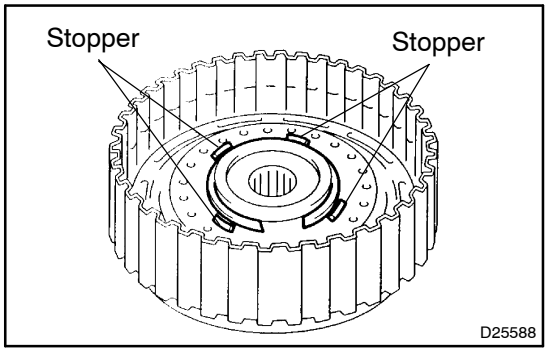
(d) Place SST on the clutch balancer and compress the piston return spring with a press.
SST 09387–00020

(e) Using a snap ring expander, install the snap ring to the direct clutch drum.

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

NOTICE:

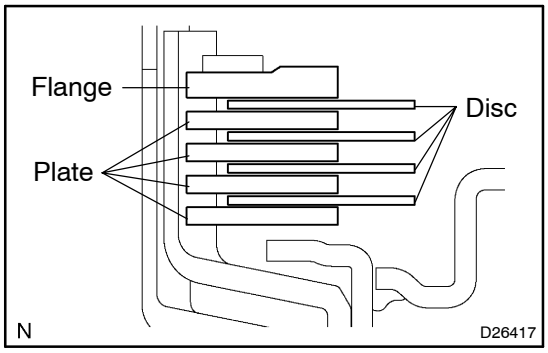
- **Stop the press when the spring sheet is lowered to the place 1 – 2 mm (0.039 – 0.078 in.) from the snap ring grove.**
- **This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**



(g) Set the end gap of the snap ring in the piston shown in the illustration.

NOTICE:

The end gap of the snap ring should not coincide with any of the stoppers.



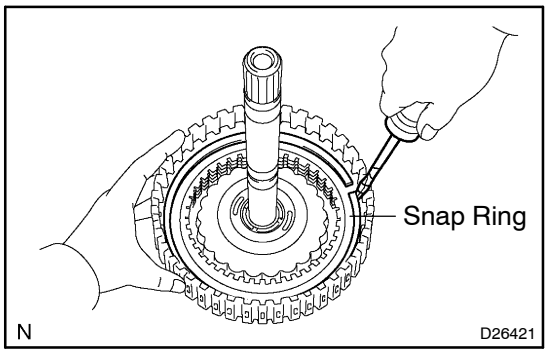
16. INSTALL OVERDRIVE DIRECT CLUTCH DISC

(a) Coat the 4 discs with ATF.

(b) Install the 4 plates, 4 discs and flange to the intermediate shaft.

NOTICE:

Be careful about the order of discs, plates and flange assembly.

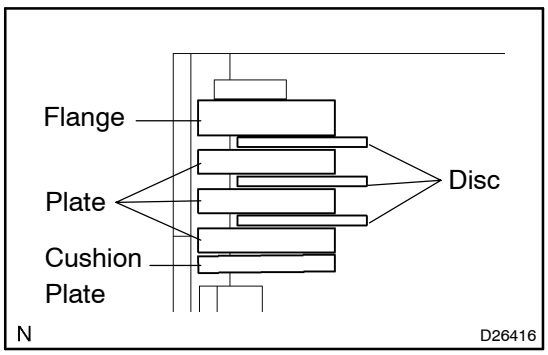


(c) Using a screwdriver, install the snap ring.

(d) Check that the end gap of the snap ring is not aligned with one of the cutouts.

NOTICE:

The snap ring should be fixed certainly in the groove of the drum.



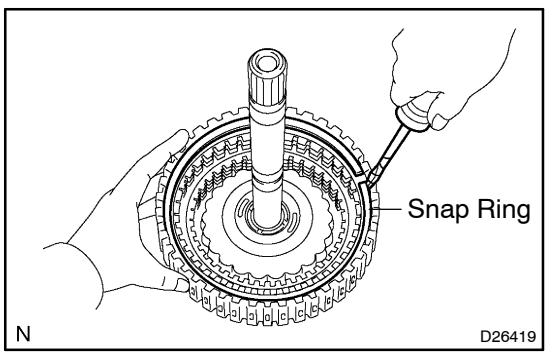
17. INSTALL DIRECT MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Apply the 3 discs with ATF.

(b) Install the cushion plate, 3 plates, 3 discs and flange to the intermediate shaft.

NOTICE:

- **Install the cushion plate with the mark on the white surface facing to plate.**
- **Be careful about the order of discs, plates and flange assembly.**

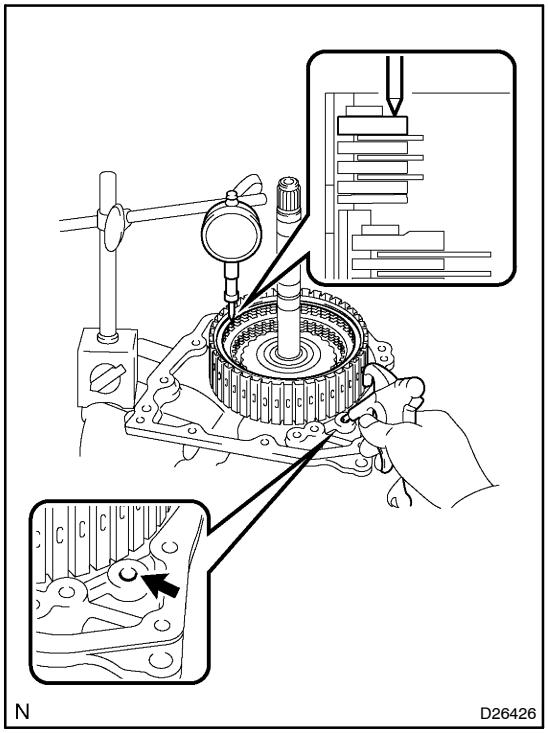


(c) Using a screwdriver, install the snap ring.

(d) Check that the end gap of the snap ring is not aligned with one of the cutouts.

NOTICE:

The snap ring should be fixed certainly in the groove of the drum.



18. INSPECT PACK CLEARANCE OF REVERSE CLUTCH

(a) Install the intermediate shaft on the transaxle rear cover.

(b) Using a dial indicator, measure the direct clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi).

Pack clearance:0.60 – 0.82 mm (0.02362 – 0.03228 in.)

If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so check and reassemble again.

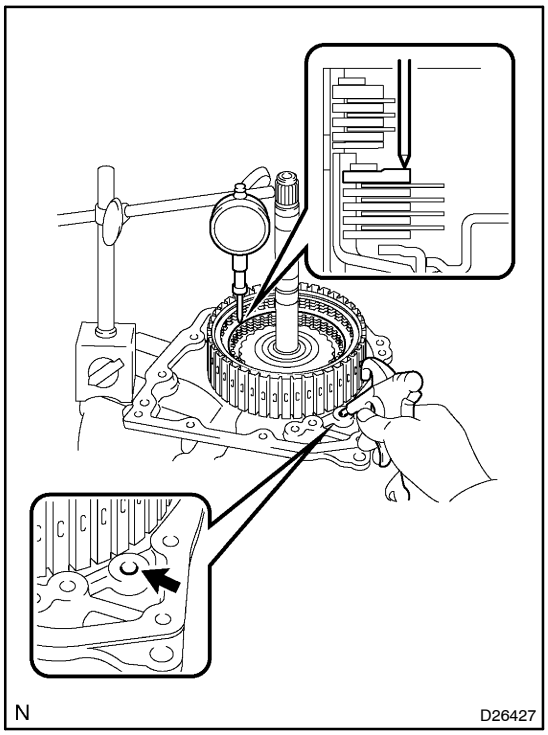
If the stroke is not within standard, select another flange.

HINT:

There are 6 flanges of different thickness.

Flange thickness: mm (in.)

No.	Thickness	No.	Thickness
1	3.0 (0.118)	5	3.4 (0.134)
2	3.1 (0.122)	6	3.5 (0.138)
3	3.2 (0.126)	7	3.6 (0.142)
4	3.3 (0.130)	–	–



19. INSPECT PACK CLEARANCE OF DIRECT CLUTCH & OVERDRIVE CLUTCH

(a) Using a dial indicator, measure the direct clutch & overdrive clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi).

Pack clearance:0.61 – 0.83 mm (0.02401 – 0.03268 in.)

If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so check and reassemble again.

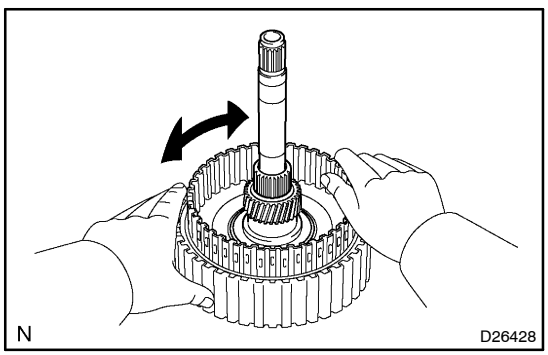
If the stroke is not within standard, select another flange.

HINT:

There are 7 flanges in different thickness.

Flange thickness: mm (in.)

No.	Thickness	No.	Thickness
0	2.5 (0.098)	4	2.9 (0.114)
1	2.6 (0.102)	5	3.0 (0.118)
2	2.7 (0.106)	6	3.1 (0.122)
3	2.8 (0.110)	–	–



(b) Check that the disc rotates when rotating the disc after inserting the rear planetary sun gear.

NOTICE:

Do not place the rear planetary sun gear in a vise.