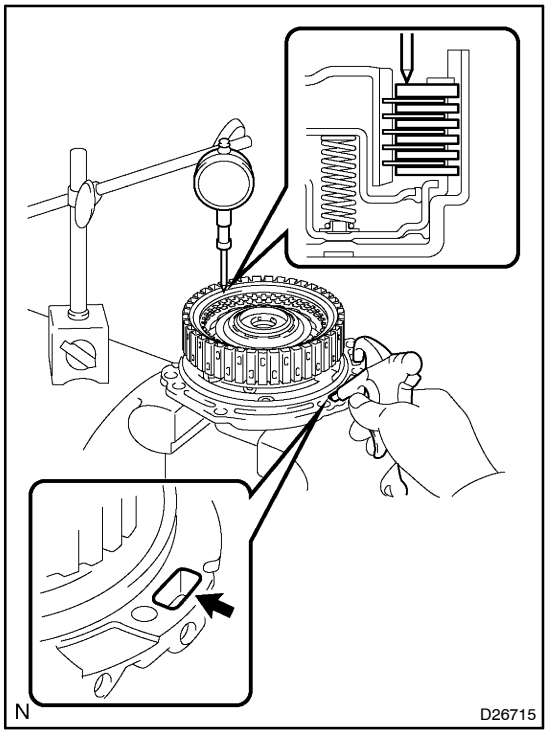
FORWARD CLUTCH ASSY (U151E/U151F)

400H1-02

OVERHAUL



1. INSPECT PACK CLEARANCE OF FORWARD CLUTCH

(a) Install the forward clutch on the oil pump.

NOTICE:

Be careful not to damage the oil seal ring of oil pump.

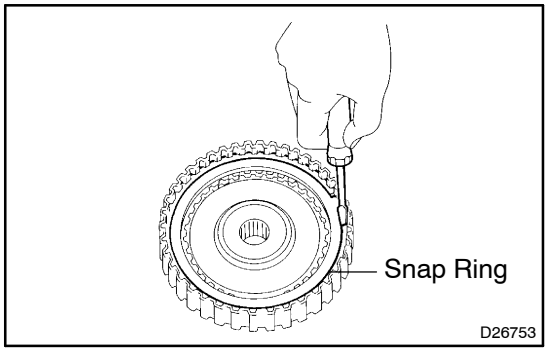
(b) Using a dial indicator, measure the forward clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi).

Pack clearance: 1.00 – 1.25 mm (0.0394 – 0.4921 in.)

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

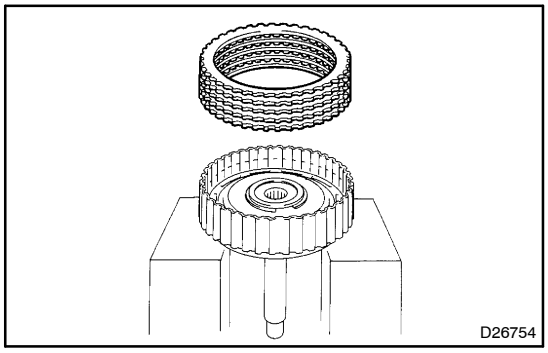
HINT:

As the opening is large, cover it with a shop rug to prevent the compressed air from being released.

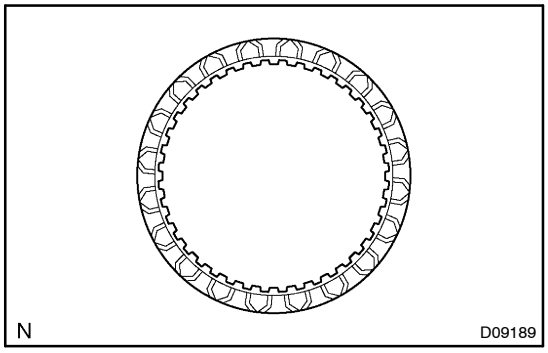


2. REMOVE FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

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



(b) Remove the flange, 5 discs and 5 plates from the input shaft assy.



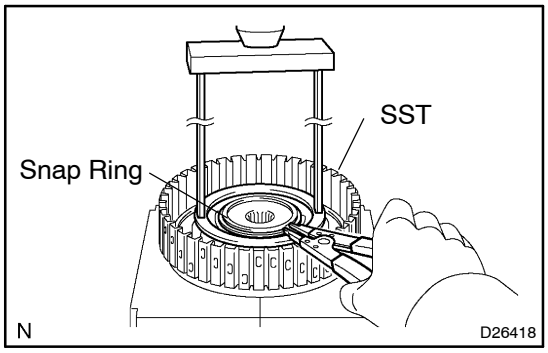
3. INSPECT FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

(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 replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.



4. REMOVE FORWARD CLUTCH RETURN SPRING SUB–ASSY

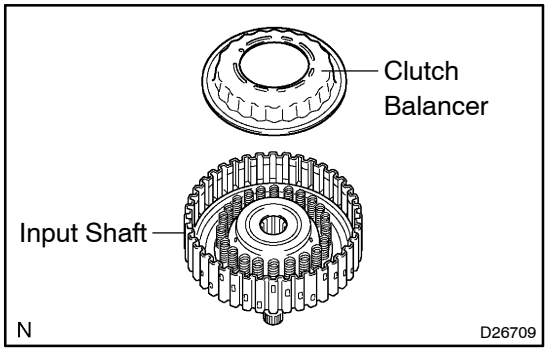
(a) Place SST on the spring retainer and compress the return spring with a press.

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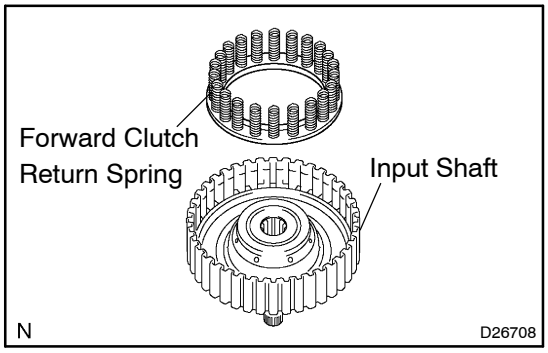
(b) Using a snap ring expander, remove the snap ring.

NOTICE:

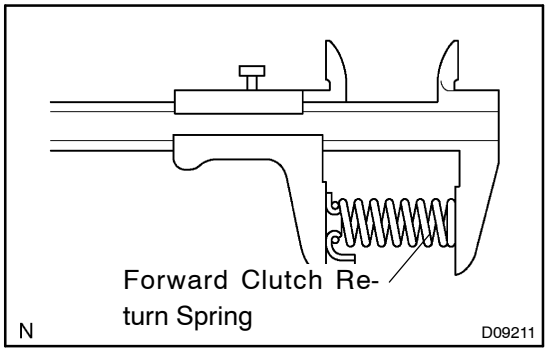
- **Stop the press when the spring sheet is lowered 1 – 2 mm (0.039 – 0.078 in.) from the snap ring groove, preventing the spring sheet from deforming.**
- **Do not expand the snap ring excessively.**



(c) Remove the clutch balancer from the input shaft.

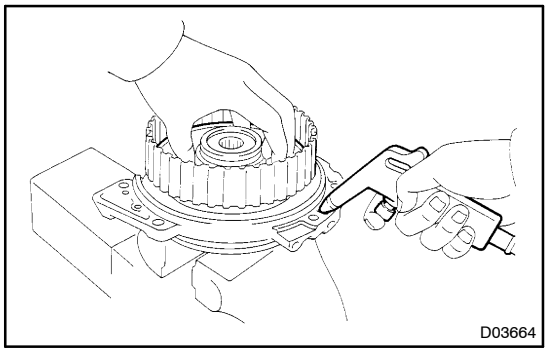


(d) Remove the forward clutch return spring from the input shaft.



5. INSPECT FORWARD CLUTCH RETURN SPRING SUB–ASSY

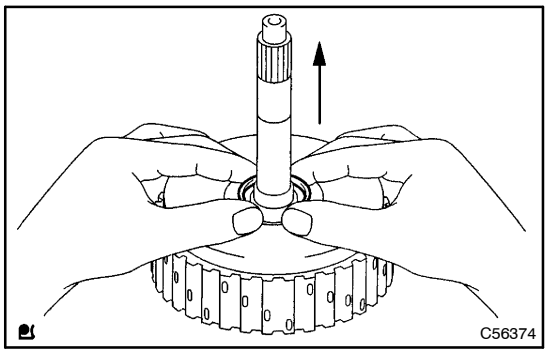
(a) Using vernier calipers, measure the free length of the spring together with the spring seat.
Standard free length: 26.74 mm (1.0528 in.)



6. REMOVE FORWARD CLUTCH PISTON SUB–ASSY

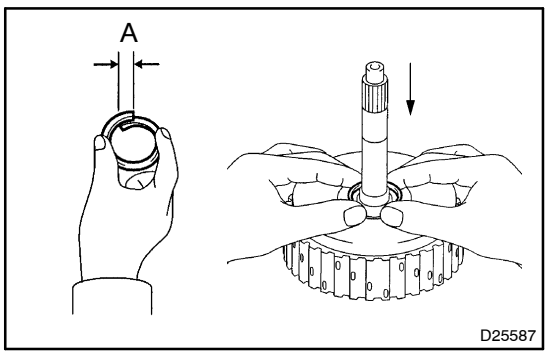
(a) Place the forward clutch drum onto the oil pump.
(b) Holding the forward clutch piston by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi) to the oil pump to remove the forward clutch piston.

HINT:
When the piston cannot be removed as it is slanted, either blow the air again with the protruding side pushed, or remove the piston using the needle nose plier with vinyl tape on the tip.



7. REMOVE INPUT SHAFT OIL SEAL RING

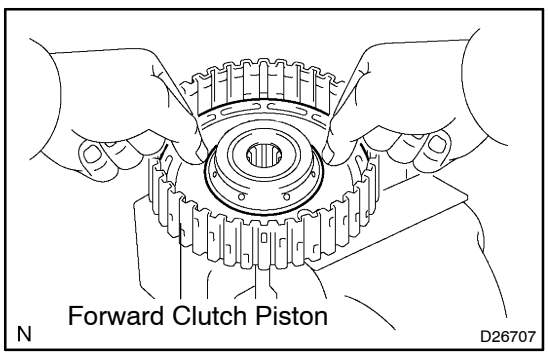
(a) Remove the input shaft oil seal ring to the input shaft.



8. INSTALL INPUT SHAFT OIL SEAL RING

(a) Compress the new input shaft oil seal ring from both sides to reduce dimension A.
Dimension A: 5 mm (0.197 in.)
(b) Coat the oil seal ring with ATF and install it to the input shaft.

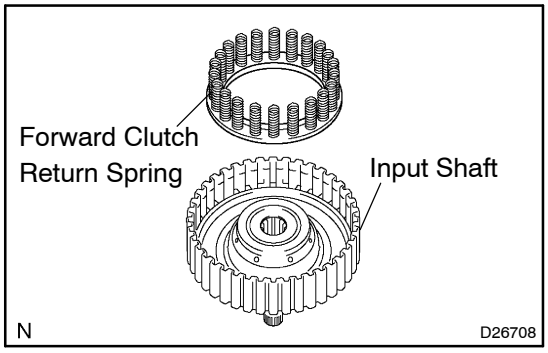
NOTICE:
Do not expand the gap of the oil seal ring too much. Fix the hooks certainly.



9. INSTALL FORWARD CLUTCH PISTON SUB–ASSY

(a) Coat the forward clutch piston with ATF, and install it to the input shaft.

NOTICE:
Be careful not to damage the lip seal of the forward clutch piston.



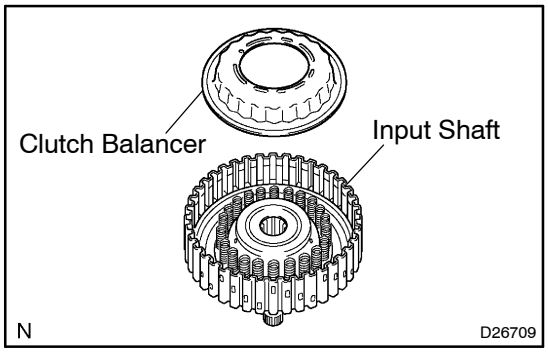
10. INSTALL FORWARD CLUTCH RETURN SPRING SUB–ASSY

(a) Install the return spring to the input shaft.

NOTICE:

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

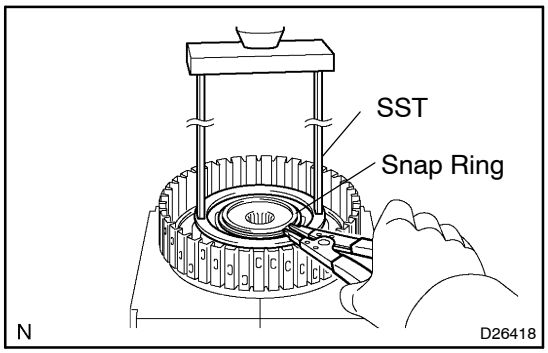
(b) Coat the clutch balancer with ATF.



(c) Install the clutch balancer to the input shaft.

NOTICE:

- **Be careful not to damage the lip seal of the forward 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.**



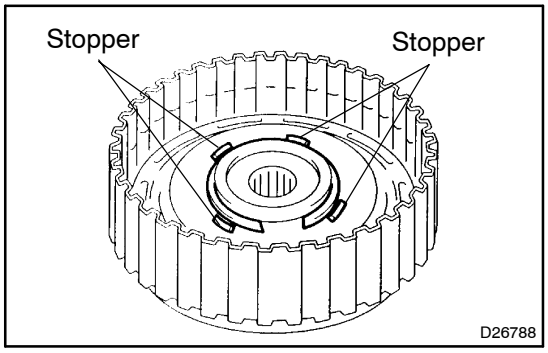
(d) Place SST on the clutch balancer, and compress the clutch balancer with a press.
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(e) Install the snap ring with a snap ring expander.

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

NOTICE:

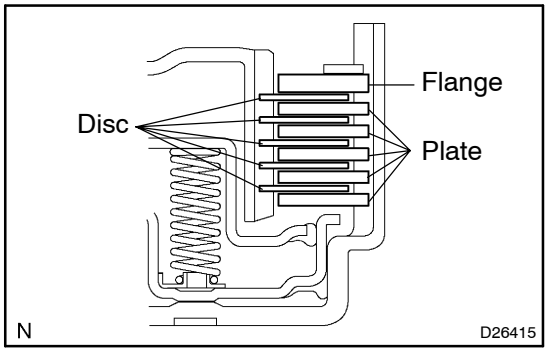
- **Stop the press when the spring sheet is lowered to the place 1 – 2 mm (0.039 – 0.078 in.) from the snap ring groove.**
- **This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**



(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.



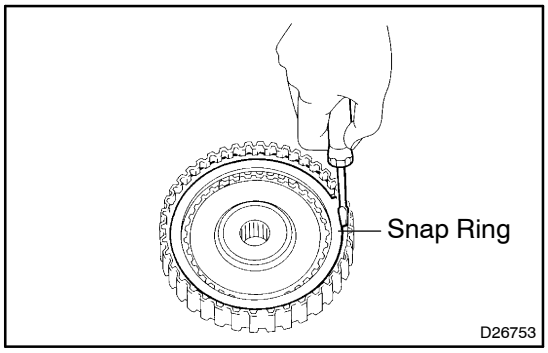
11. INSTALL FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Coat the 5 discs with ATF.

(b) Install the 5 plates, 5 discs and flange input shaft.

NOTICE:

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

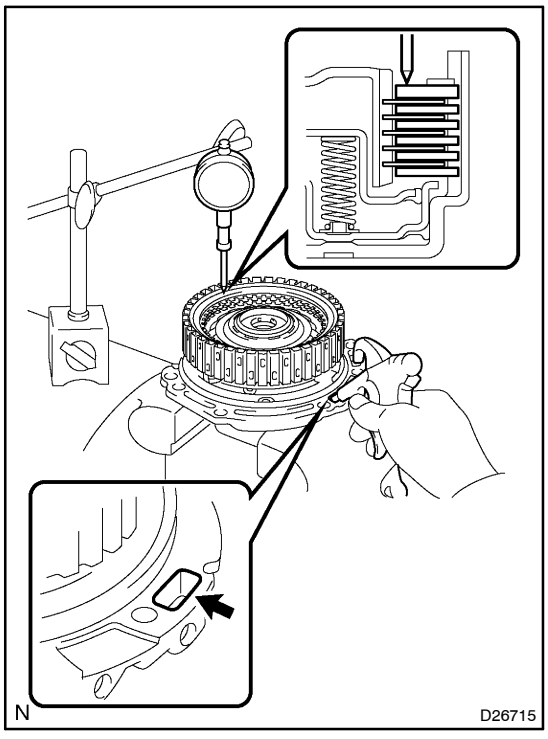


(c) Using a screwdriver, install the snap ring.

(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.



12. INSPECT PACK CLEARANCE OF FORWARD CLUTCH

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

Pack clearance: 1.00 – 1.25 mm (0.0394 – 0.4921 in.)

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

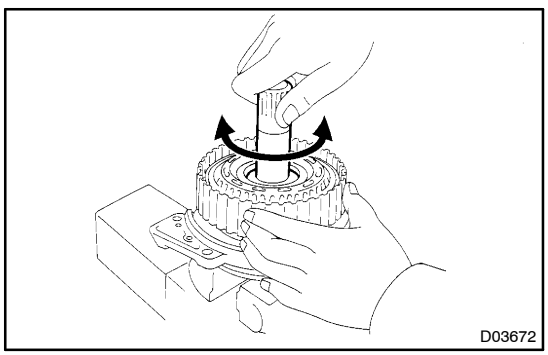
If the clearance is not standard, select another flange.

HINT:

There are 5 different flanges in thickness.

Flange thickness: mm (in.)

No.	Thickness	No.	Thickness
1	3.00 (0.1181)	4	3.45 (0.1358)
2	3.15 (0.1240)	5	3.60 (0.1417)
3	3.30 (0.1299)	–	–



13. INSPECT FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Check if the disc lightly rotates when rotating the forward clutch assy after inserting the multiple disc clutch into it.

NOTICE:

Do not place the forward clutch assy in a vise.