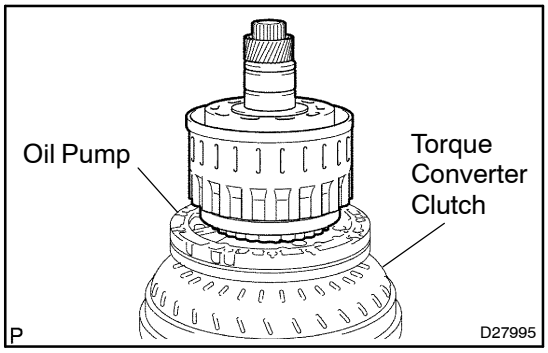
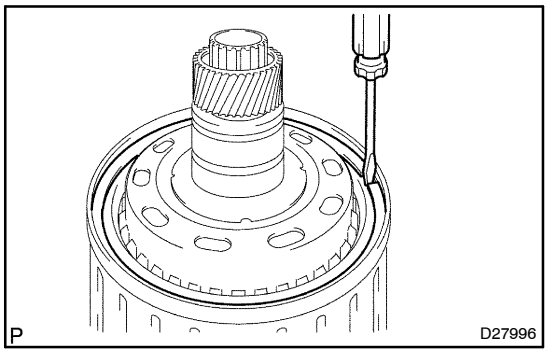
OVERHAUL



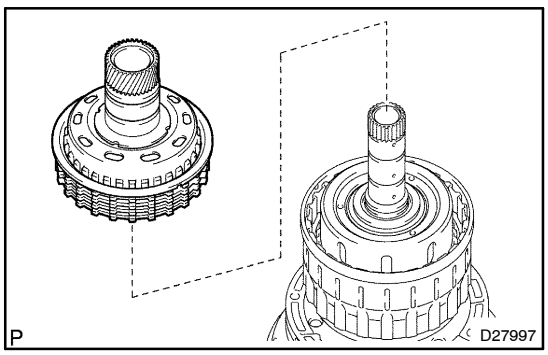
1. FIX CLUTCH DRUM & INPUT SHAFT ASSY

(a) Place the oil pump onto the torque converter clutch, and then place the clutch drum & input shaft assy onto the oil pump.

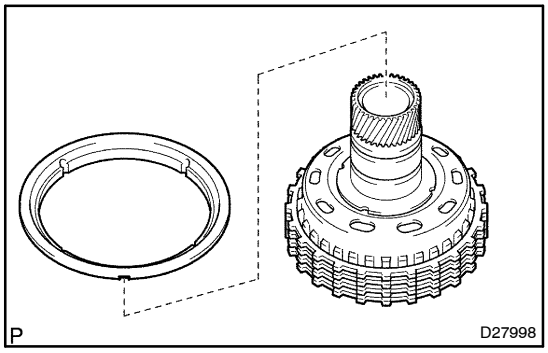


2. REMOVE REVERSE CLUTCH HUB SUB –ASSY

(a) Using a screwdriver, remove the snap ring from the clutch drum and the input shaft assy.

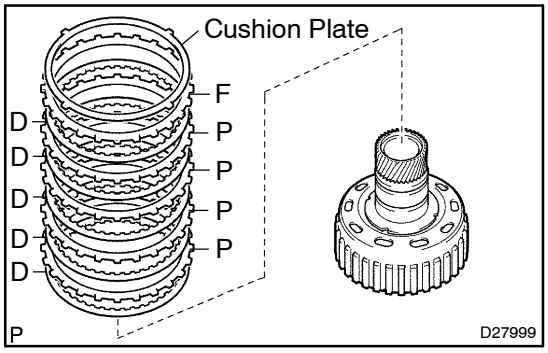


(b) Remove the reverse clutch hub sub assy, the reverse clutch reaction sleeve, the clutch cushion, the plate reverse clutch flange, the 5 reverse clutch discs, and the 4 clutch plates from the clutch drum assy.



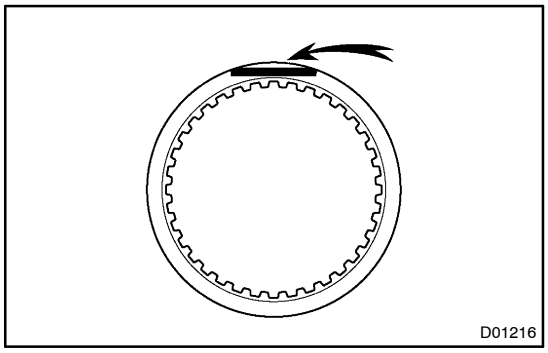
3. REMOVE REVERSE CLUTCH REACTION SLEEVE

(a) Remove the reverse clutch reaction sleeve from the reverse clutch hub sub assy.



4. REMOVE REAR CLUTCH DISC

(a) Remove the clutch cushion plate, the reverse clutch flange, the 4 plates and the 5 discs from the reverse clutch hub.

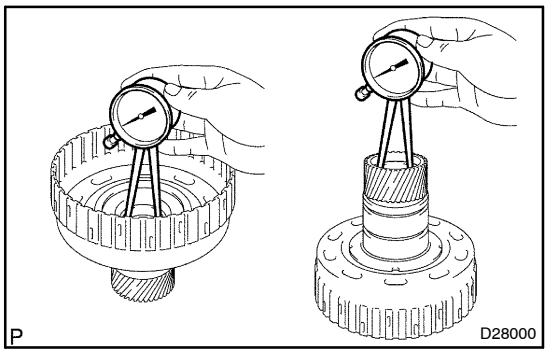


5. INSPECT REAR CLUTCH DISC

(a) Check whether the sliding surface of the disc, the plate and the flange are worn or burnt. If necessary, replace them.

HINT:

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

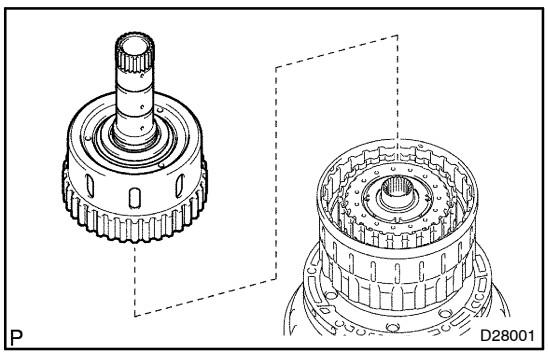


6. INSPECT REVERSE CLUTCH HUB SUB –ASSY

(a) Using a dial indicator, measure the inside diameter of the reverse clutch hub bushing.

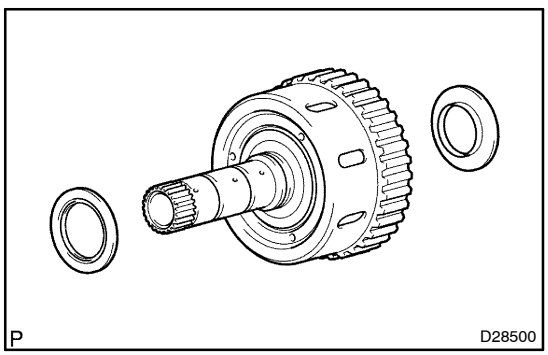
Standard drum bushing:
35.812 – 35.837 mm (1.4099 – 1.4109 in.)
Maximum drum bushing: 35.887 mm (1.4129 in.)

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

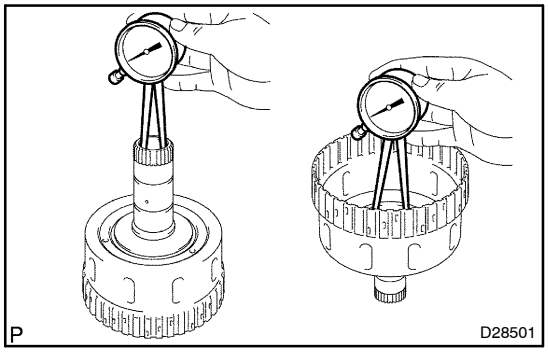


7. REMOVE FORWARD CLUTCH HUB SUB –ASSY

(a) Remove the forward clutch hub sub assy from the clutch drum assy.



(b) Remove the 2 thrust needle roller bearings from the forward clutch hub sub assy.

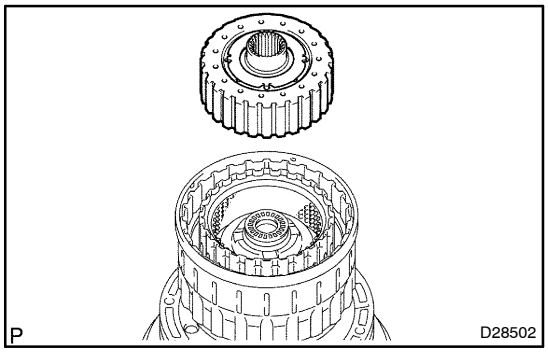


8. INSPECT FORWARD CLUTCH HUB SUB –ASSY

(a) Using a dial indicator, measure the inside diameter of the forward clutch hub bushing.

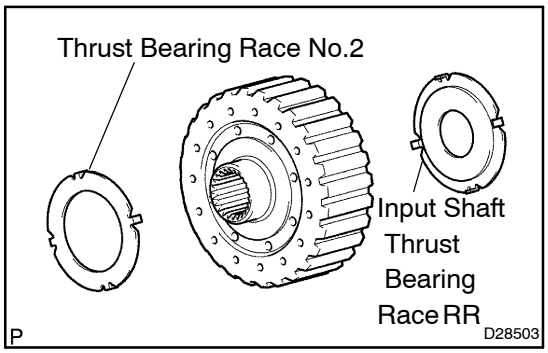
Standard drum bushing:
26.037 – 26.062 mm (1.0251 – 1.0261 in.)
Maximum drum bushing: 26. 112 m m (1.028 in.)

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

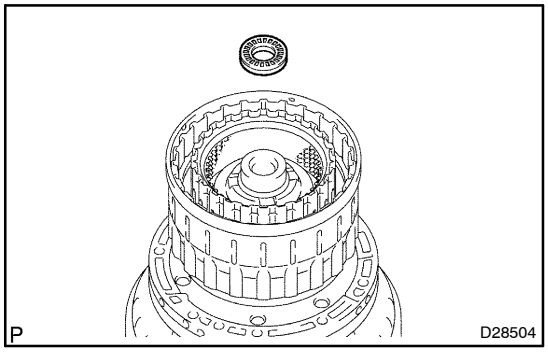


9. REMOVE MULTIPLE DISC CLUTCH CLUTCH HUB

(a) Remove the multiple disc clutch clutch hub from the clutch drum assy.

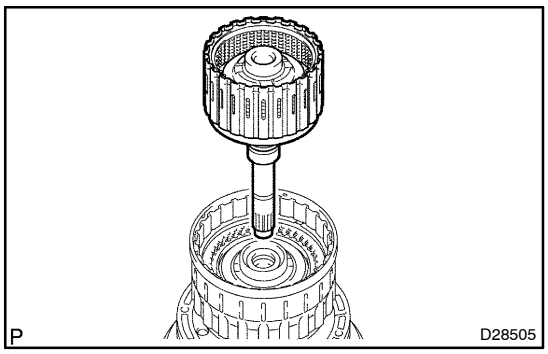


(b) Remove the thrust bearing race No.2 and the input shaft thrust bearing race RR from the multiple disc clutch clutch hub.

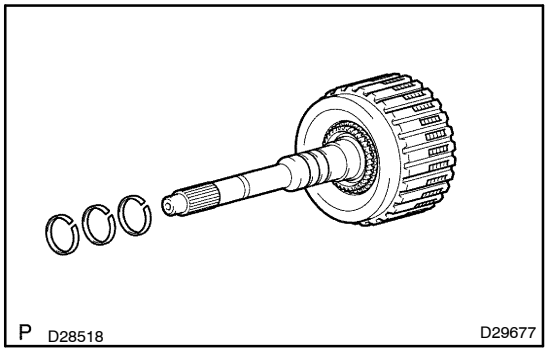


10. REMOVE INPUT SHAFT ASSY

(a) Remove the thrust needle roller bearing from the clutch drum assy.

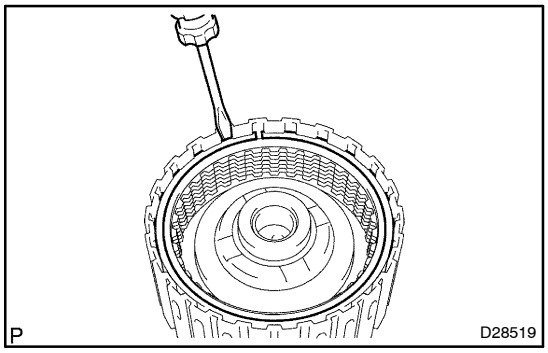


(b) Remove the input shaft assy from the clutch drum assy.



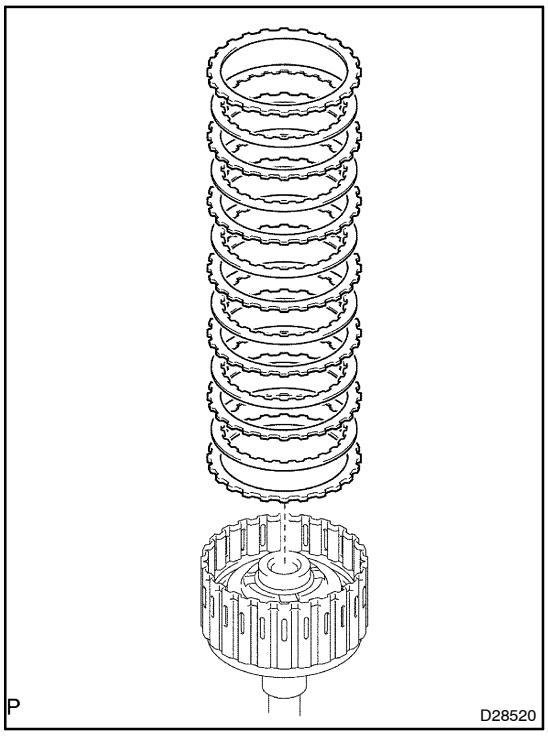
11. REMOVE INPUT SHAFT OIL SEAL RING

(a) Remove the 3 oil seal rings from the input shaft assy.

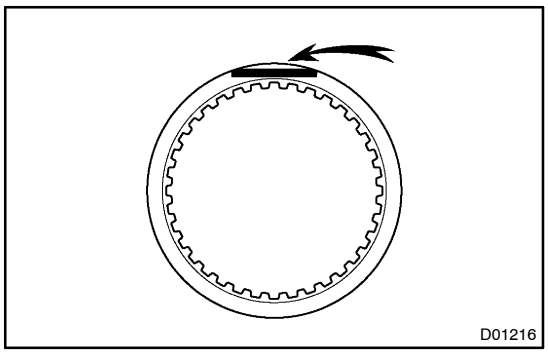


12. REMOVE FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

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



(b) Remove the 2 flanges, the 6 discs and the 5 plates from the input shaft assy.



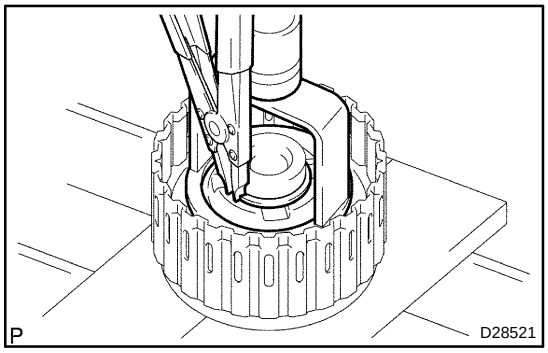
13. INSPECT FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Check whether the sliding surface of the disc, the plate and the flange are worn or burnt. If necessary, replace them.

HINT:

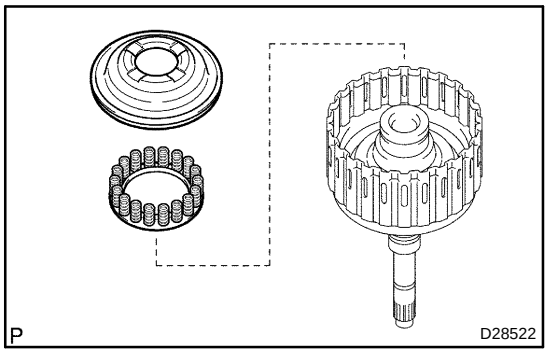
- If the lining of the disc is peeled off or discolored, or even if only a part of the printed numbers is damaged, replace all discs.

S Before assembling new discs, soak them in ATF for at least 15 minutes.

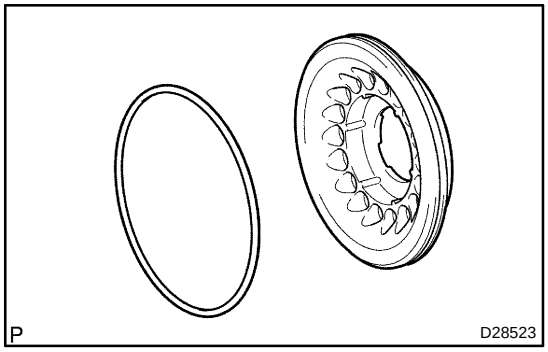


14. REMOVE CLUTCH BALANCER NO.1

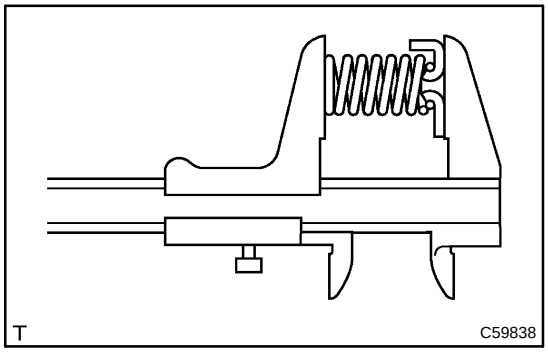
(a) Place SST on the clutch balancer No.1, and compress the return spring with a press.
SST 09350−30020 (09350−07040, 09350−07070)



(b) Remove the clutch balancer No.1 and the forwerd clutch return spring from the inputshaft assy.

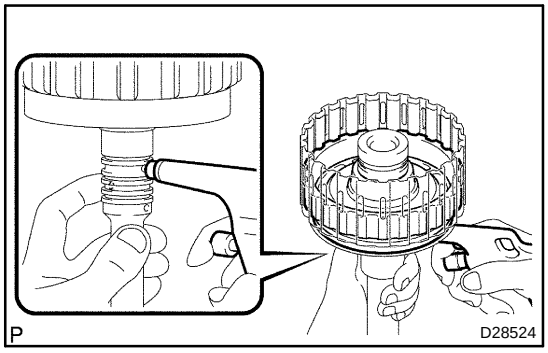


(c) Remove the O−ring from the clutch balancer No.1.



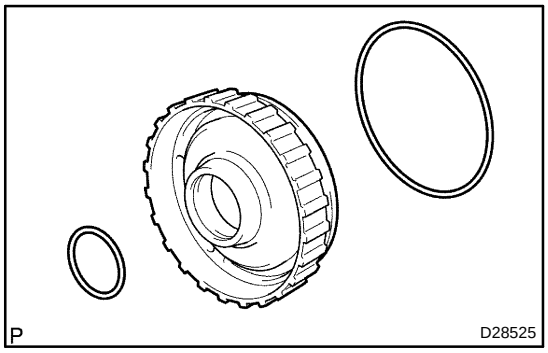
15. INSPECT FORWARD CLUTCH RETURN SPRING SUB−ASSY

(a) Using a vernier calipers, measure the free length of the spring together with the spring seat.
Standard free length: 26.74 mm (1.053 in.)

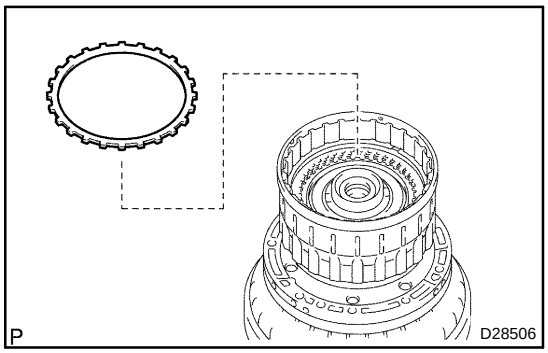


16. REMOVE FORWARD CLUTCH PISTON

(a) Holding the forward clutch piston by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi) to the inputshaft to remove the forward clutch piston.

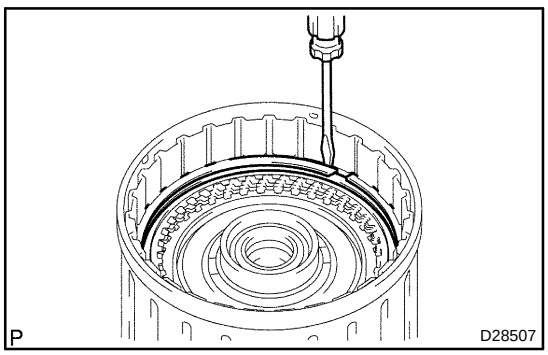


(b) Remove the 2 O−rings from the forward clutch piston.



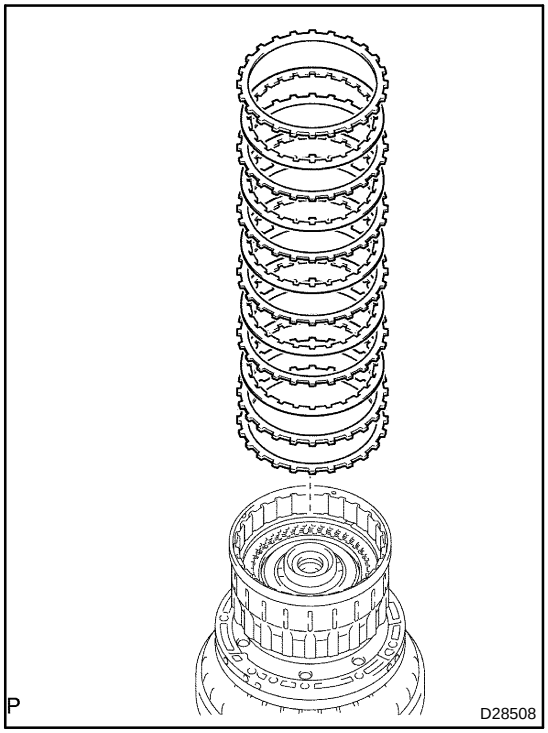
17. REMOVE REVERSE CLUTCH FLANGE

(a) Remove the reverse clutch flange from the clutch drum assy.

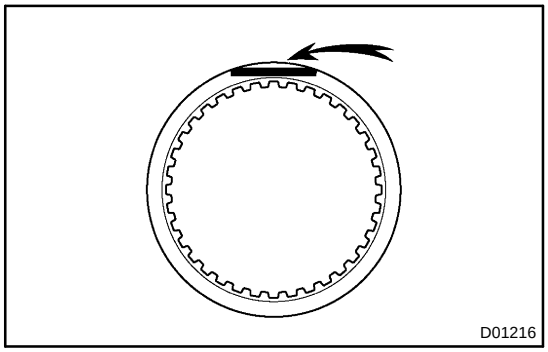


18. REMOVE DIRECT CLUTCH DISK

(a) Using a screwdriver, remove the 2 hole snap rings from the clutch drum assy.



(b) Remove the reverse clutch flange, the 6 plates and the 5 discs from the clutch drum assy.

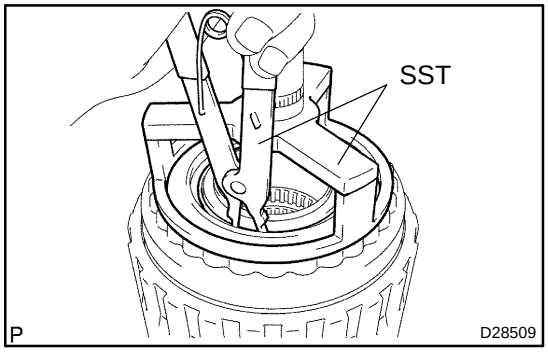


19. INSPECT DIRECT CLUTCH DISK

(a) Check whether the sliding surface of the disc, the plate and the flange are worn or burnt. If necessary, replace them.

HINT:

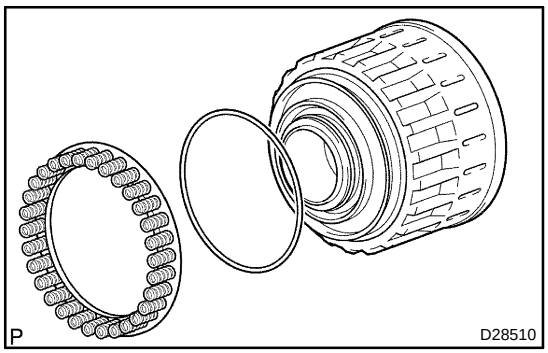
- If the lining of the disc is peeled off or discolored, or even if only a part of the printed numbers is damaged, replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.



20. REMOVE CLUTCH BALANCER NO.3

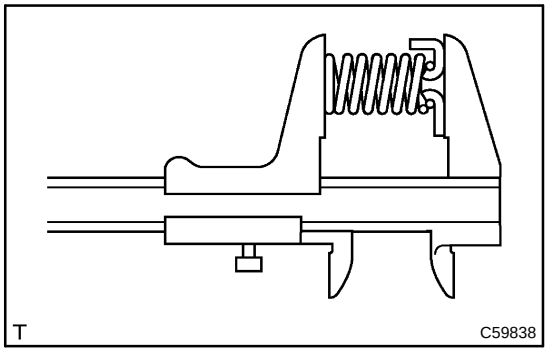
(a) Place SST on the clutch balancer No.3, and compress the return spring with a press.

SST 09387−00070, 09350−30020 (09350−07070)



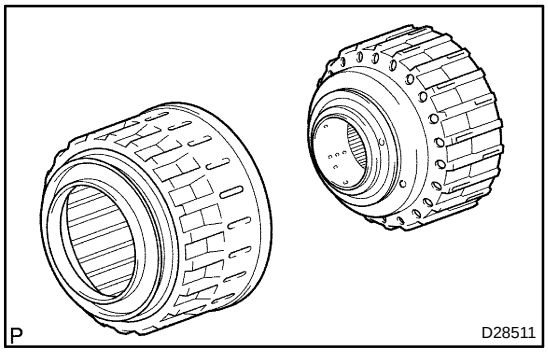
21. REMOVE REVERSE CLUTCH RETURN SPRING SUB−ASSY

(a) Remove the reverse clutch return spring and the O−ring from the reverse clutch piston.



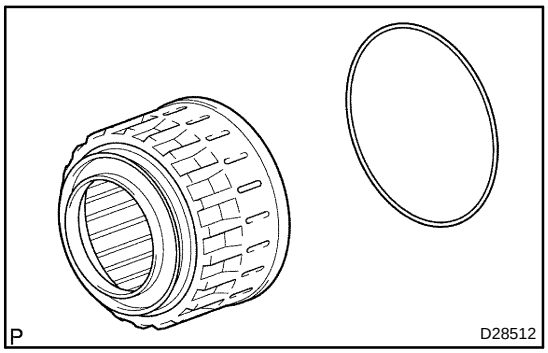
22. INSPECT REVERSE CLUTCH RETURN SPRING SUB−ASSY

(a) Using a vernier calipers, measure the free length of the spring together with the spring seat.
Standard free length: 21.04 mm (0.828 in.)

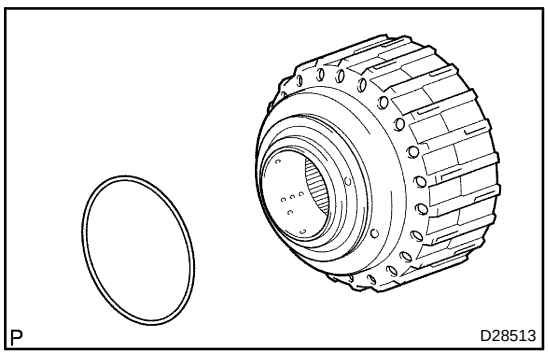


23. REMOVE REVERSE CLUTCH PISTON SUB−ASSY

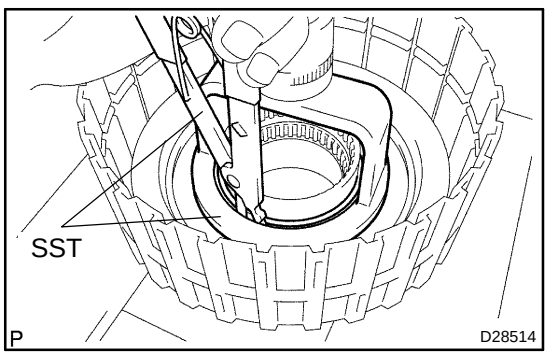
(a) Remove the reverse clutch piston, sub assy from the clutch drum sub assy.



(b) Remove the O−ring from the reverse clutch piston sub assy.

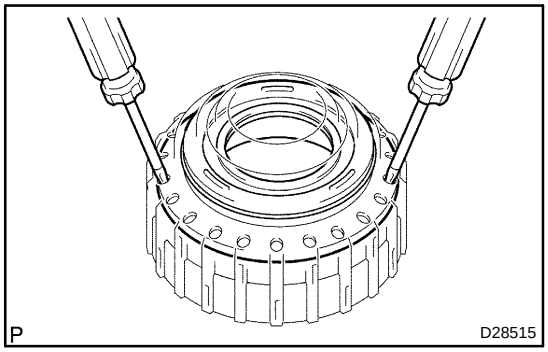


(c) Remove the O−ring from the clutch drum sub assy.

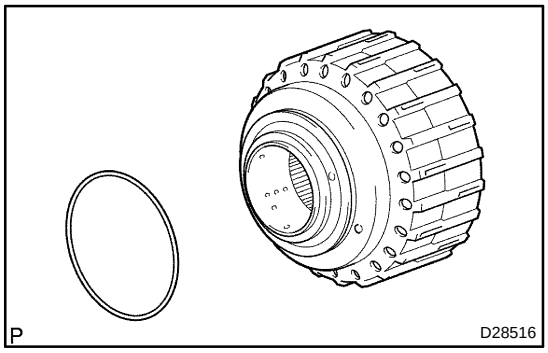


24. REMOVE DIRECT CLUTCH PISTON SUB−ASSY

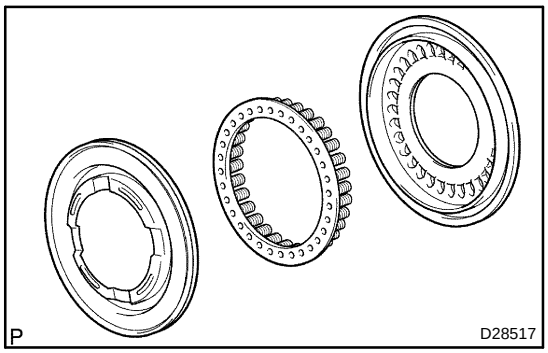
(a) Place SST on the direct clutch piston, and compress the return spring with a press.
SST 09320−89010, 09350−30020 (09350−07070)



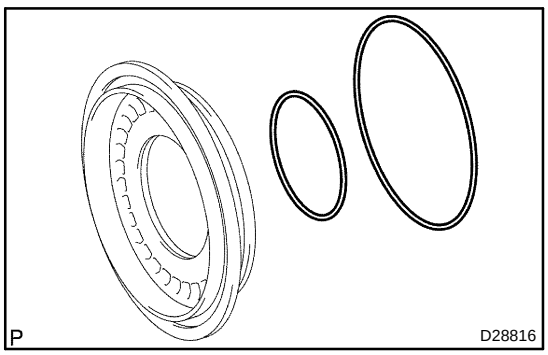
(b) Using 2 screw drivers, remove the direct clutch piston sub assy from the clutch drum.



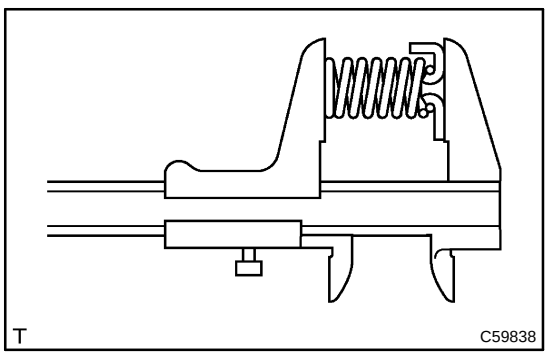
(c) Remove the O−ring from the clutch drum.



(d) Remove the clutch balancer No.2 and the direct clutch return spring sub assy from the direct clutch piston sub assy.

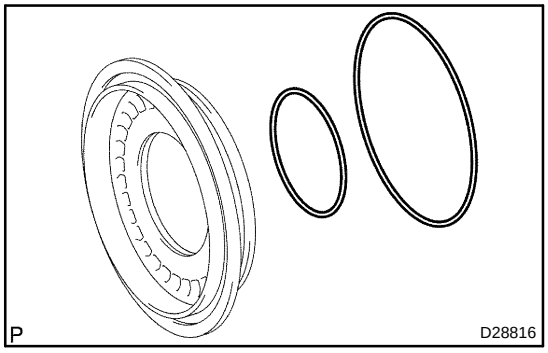


(e) Remove the 2 O−rings from the direct clutch piston Sub−Assy.



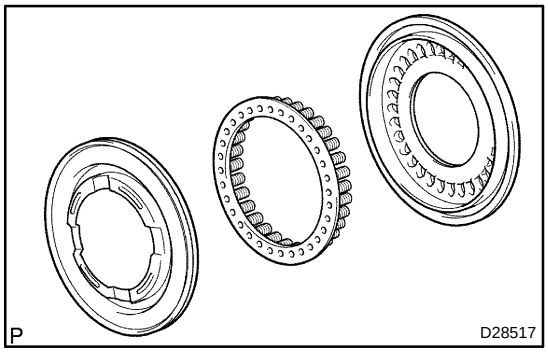
25. INSPECT DIRECT CLUTCH RETURN SPRING SUB−ASSY

(a) Using a vernier calipers, measure the free length of the spring together with the spring seat.
Standard free length: 19.51 mm (0.768 in.)

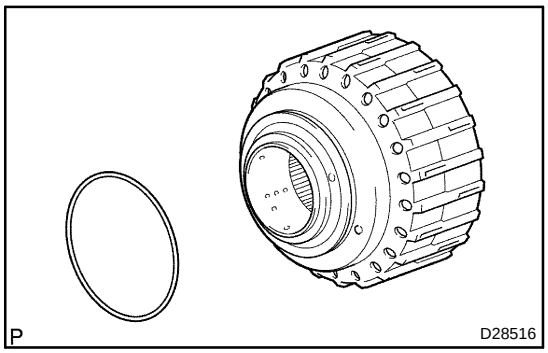


26. INSTALL DIRECT CLUTCH PISTON SUB−ASSY

(a) Coat 2 new O−rings with ATF, and install them in the direct clutch piston.

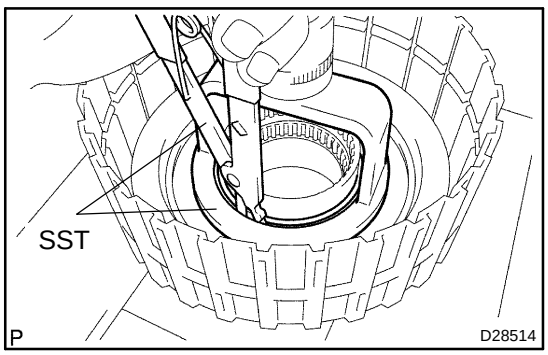


(b) Install the clutch balancer No.2 and the direct clutch return spring to the direct clutch piston sub assy.



(c) Coat a new O−ring with ATF, and install them on the clutch drum sub assy.

(d) Be careful not to damage the O−rings. Press in the direct clutch piston into the clutch drum with both hands.

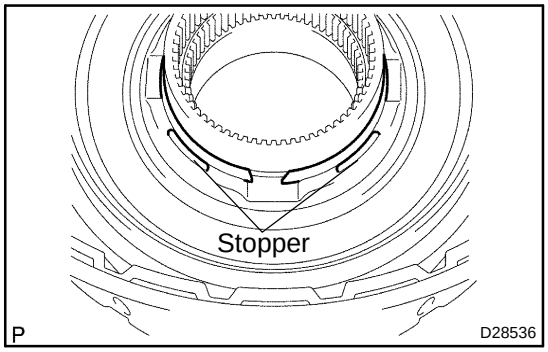


(e) Place SST on the direct clutch piston, and compress the return spring with a press.
SST 09320−89010, 09350−30020 (09350−07070)

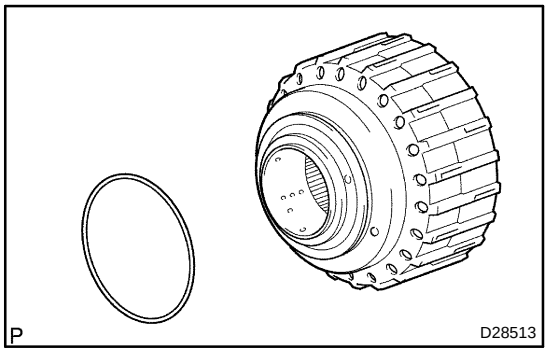
(f) Install the snap ring with a snap ring expander.

NOTICE:

- **Be sure the end gap of the snap ring is not aligned with the spring retainer claw.**
- **Stop Pressing when the spring sheet is lowered to the place 1 − 2 mm (0.039 − 0.078 in.) from the snap ring groove to prevent the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

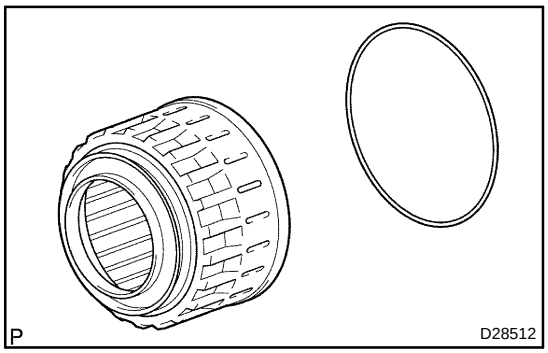


(g) Set the end gap of the snap ring in the piston as shown in the illustration.

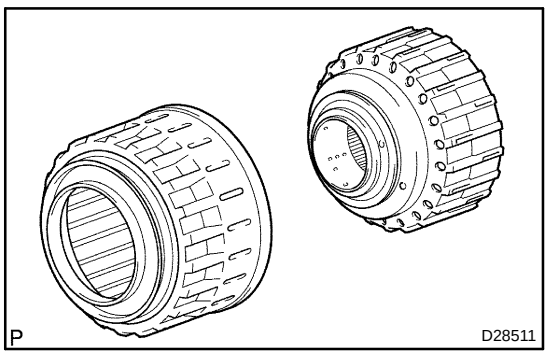


27. INSTALL REVERSE CLUTCH PISTON SUB−ASSY

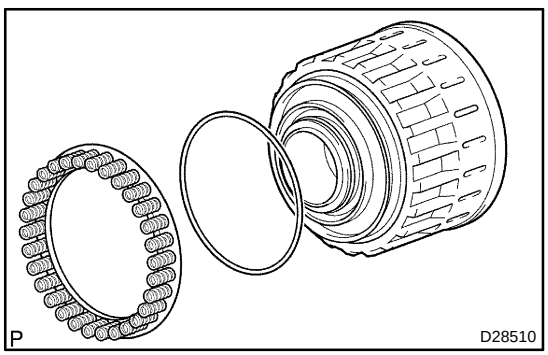
(a) Coat a new O−ring with ATF, and install it on the clutch drum sub assy.



(b) Coat a new O−ring with ATF, and install it on the reverse clutch piston sub assy.



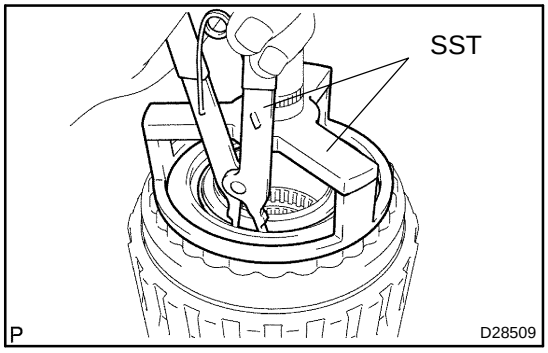
(c) Be careful not to damage the O−ring. Press in the clutch drum sub assy into the reverse clutch piston with both hands.



28. INSTALL REVERSE CLUTCH RETURN SPRING SUB−ASSY

(a) Coat a new O−ring with ATF, and install it on the reverse clutch piston sub assy.

(b) Install the reverse clutch return spring onto the reverse clutch piston sub assy.



29. INSTALL CLUTCH BALANCER NO.3

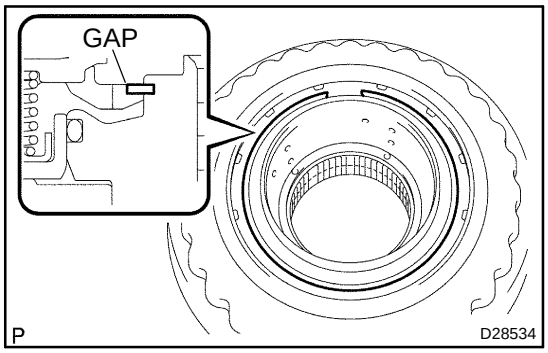
(a) Place SST on the clutch balancer No.3, and compress the clutch balancer with a press.
SST 09387−00070, 09350−30020 (09350−07070)

(b) Install the snap ring with a snap ring expander.

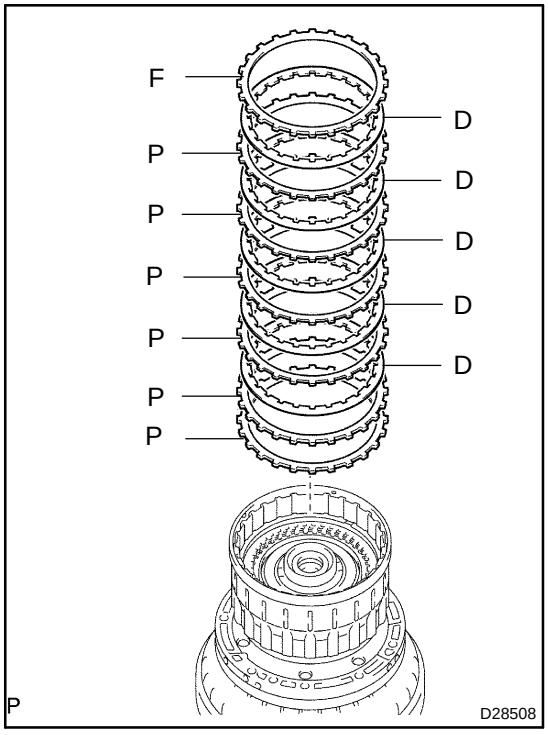
(c) Be sure the end gap of the snap ring is not aligned with the spring retainer claw.

NOTICE:

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

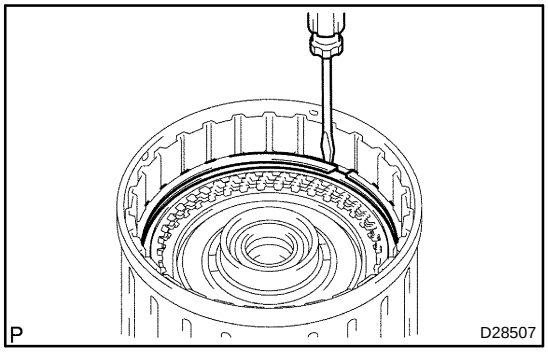


(d) Set the end gap of the snap ring in the piston as shown in the illustration.

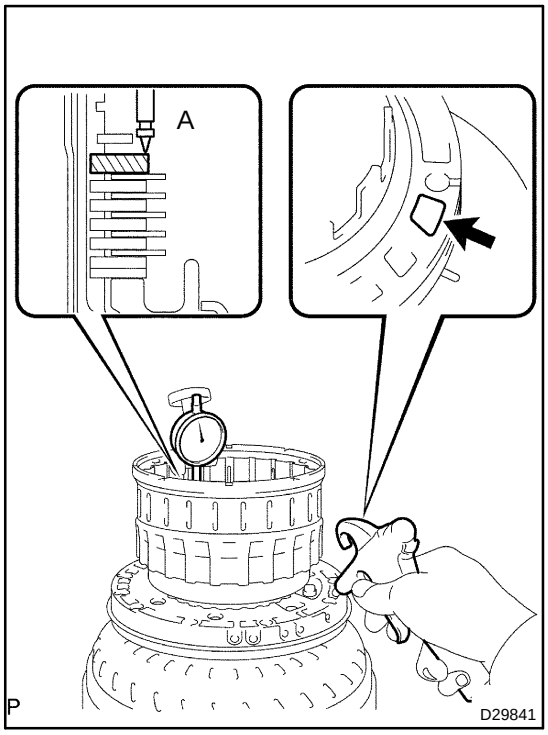


30. INSTALL DIRECT CLUTCH DISK

(a) Install the reverse clutch flange, the 6 plates and the 5 discs on the clutch drum sub assy.



(b) Using a screwdriver, install the 2 hole snap rings on the clutch drum sub assy.



31. INSPECT PACK CLEARANCE OF DIRECT CLUTCH

(a) Using a dial gauge, measure the moving distance (distance A) of the clutch flange at the both end across a diameter while blowing air from the oil hole as shown in the illustration, and calculate the average.

Pack Clearance: 0.5 − 0.8 mm

NOTICE:

Install a selective flange (t 3.4 mm) when measuring the moving distance. (shaded area in the illustration.)

HINT:

Flange moving distance A = 0.26 − 1.14 mm

Pack Clearance = Flange moving distance A − 0.05 mm

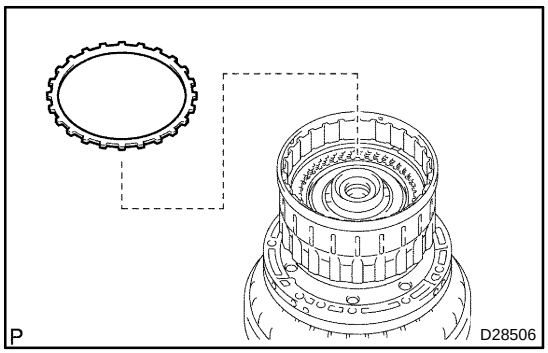
(b) If the pack clearance is outside the standard, select & install a clutch flange that makes the pack clearance to be within the standard.

HINT:

Select the flange from 9 kinds (in thickness) of the selective flanges to adjust the pack clearance.

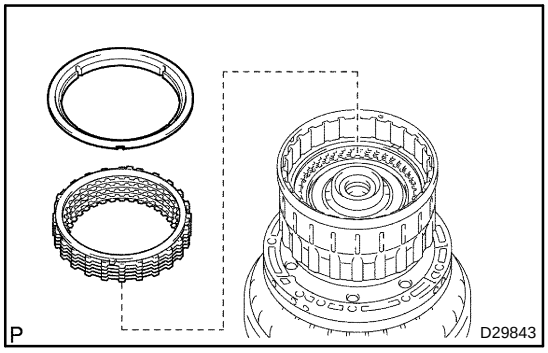
Flange thickness

No.	Thickness	No.	Thickness
0	3.0 (0.118)	5	3.5 (0.138)
1	3.1 (0.122)	6	3.6 (0.142)
2	3.2 (0.126)	7	3.7 (0.146)
3	3.3 (0.130)	8	3.8 (0.150)
4	3.4 (0.134)	−	−



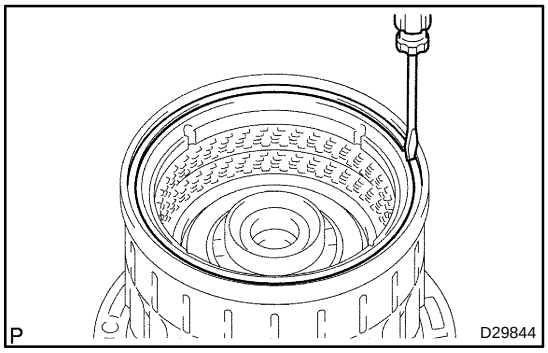
32. INSTALL REVERSE CLUTCH FLANGE

(a) Install the reverse clutch flange to the clutch drum sub assy.



33. INSTALL REVERSE CLUTCH REACTION SLEEVE

(a) Install the reverse clutch reaction sleeve, the clutch cushion plate, the reverse clutch flange, the 5 reverse clutch discs, and the 4 clutch plates to the reverse clutch hub.



(b) Using a screwdriver, install the hole snap ring.

34. INSPECT PACK CLEARANCE OF REVERSE CLUTCH

(a) Using a dial gauge, measure the reverse clutch piston stroke (distance A) and the moving distance (distance B) of the reverse clutch flange at the both end across a diameter while blowing air (392 kPa, 4 kgf/cm^2, 57 psi) from the oil hole as shown in the illustration, and calculate the average.

Pack Clearance: 0.5 − 0.8 mm

NOTICE:

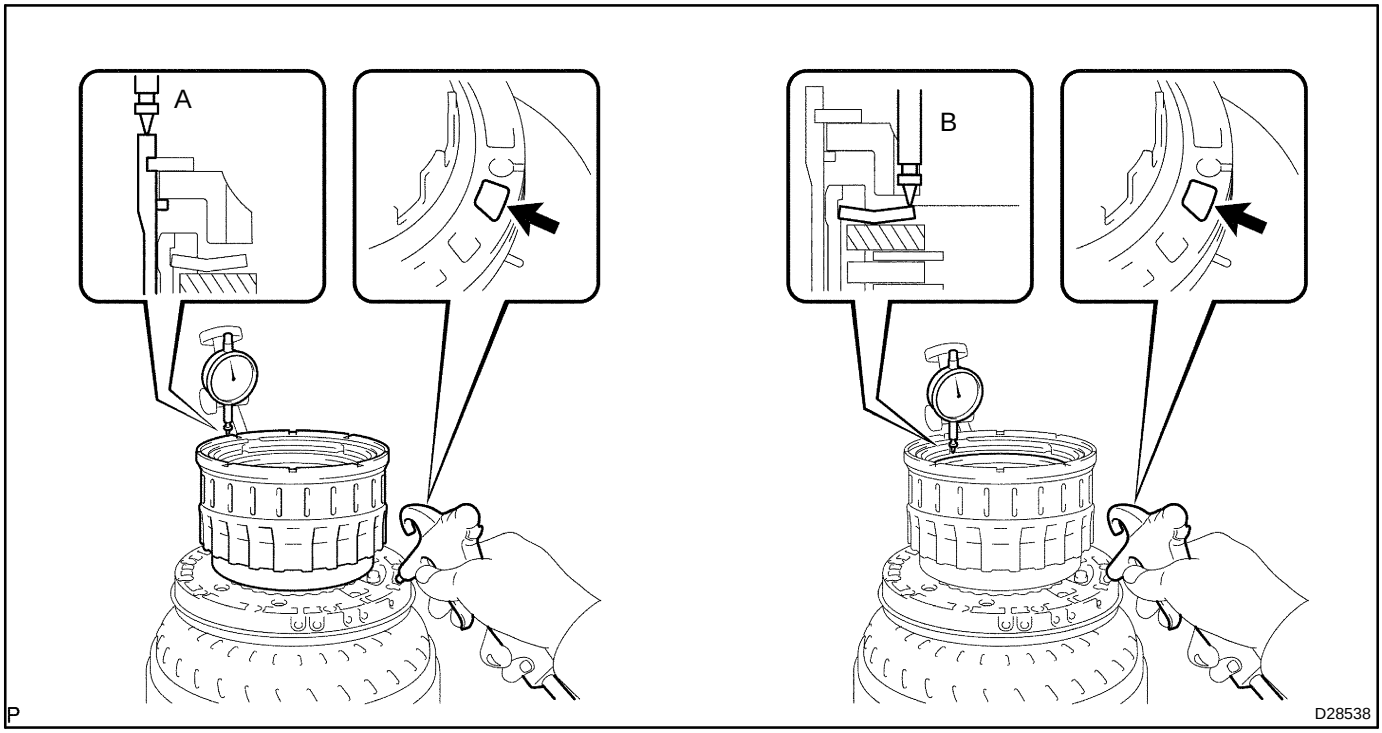
Install a selective flange (t 3.3 mm) when measuring the moving distance. (shaded area in the illustration.)

HINT:

Piston stroke A = 1.05 − 2.15 mm

Flange moving distance B = 0.72 − 1.08 mm

Pack Clearance = Piston stroke A − Flange moving distance B − 0.06



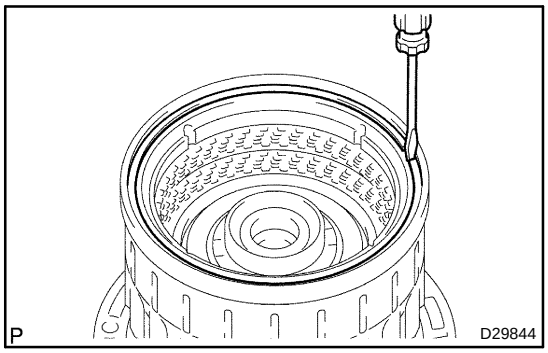
(b) If the pack clearance is outside the standard, select & install a clutch flange that makes the pack clearance to be within the standard.

HINT:

Select the flange from 11 kinds (in thickness) of the selective flanges to adjust the pack clearance.

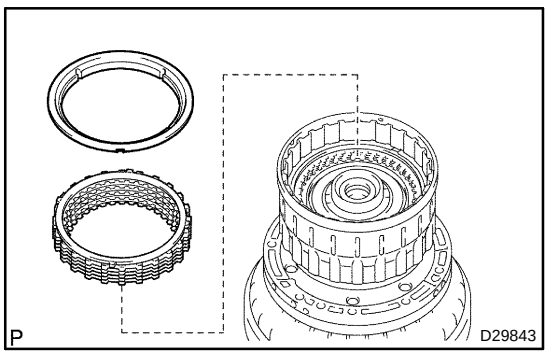
Flange Thickness: mm (in.)

No.	Thickness	No.	Thickness
0	2.8 (0.110)	6	3.4 (0.134)
1	2.9 (0.114)	7	3.5 (0.138)
2	3.0 (0.118)	8	3.6 (0.142)
3	3.1 (0.122)	9	3.7 (0.146)
4	3.2 (0.126)	A	3.8 (0.150)
5	3.3 (0.130)		−

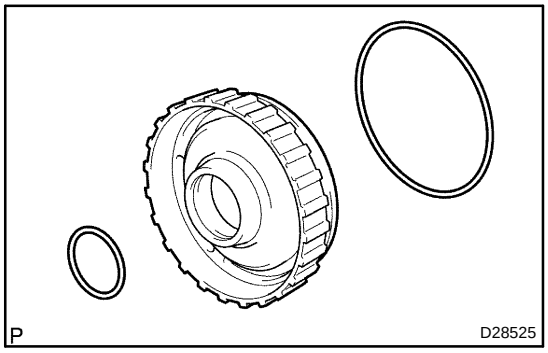


35. REMOVE REVERSE CLUTCH REACTION SLEEVE

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

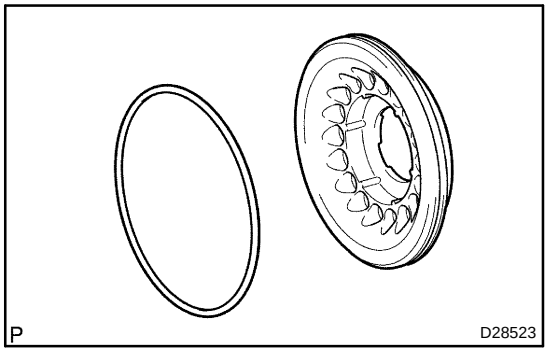


(b) Remove the reverse clutch reaction sleeve, the clutch cushion plate, the reverse clutch flange, the 5 reverse clutch discs, and the 4 clutch plates from the reverse clutch hub sub assy.



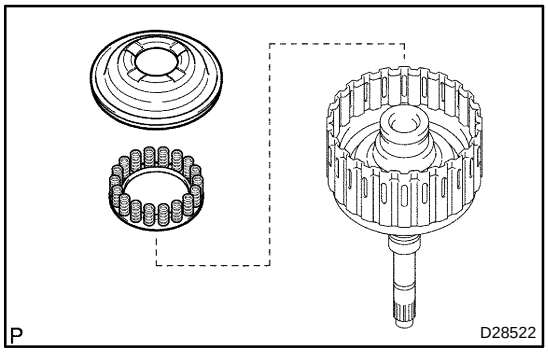
36. INSTALL FORWARD CLUTCH PISTON

(a) Coat 2 new O−rings with ATF, and install them on the forward clutch piston.



37. INSTALL CLUTCH BALANCER NO.1

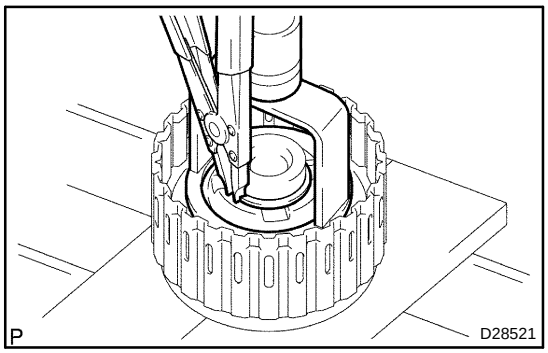
(a) Coat a new O−ring with ATF and install it on the clutch balancer No.1.



(b) Install the clutch balancer No.1 and the forward clutch return spring sub assy.

NOTICE:

Be careful not to damage the O−ring.



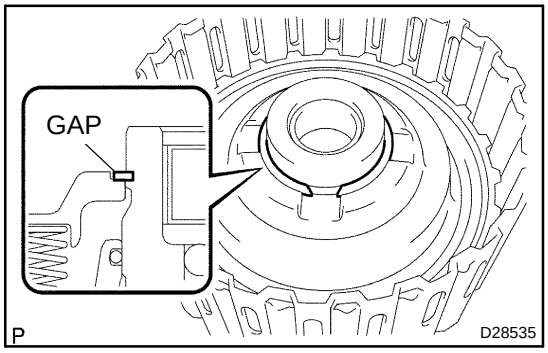
(c) Place SST on the clutch balancer No.1, and compress the return spring with a press.
SST 09350−30020 (09350−07040, 09350−07070)

(d) Install the snap ring with a snap ring expander.

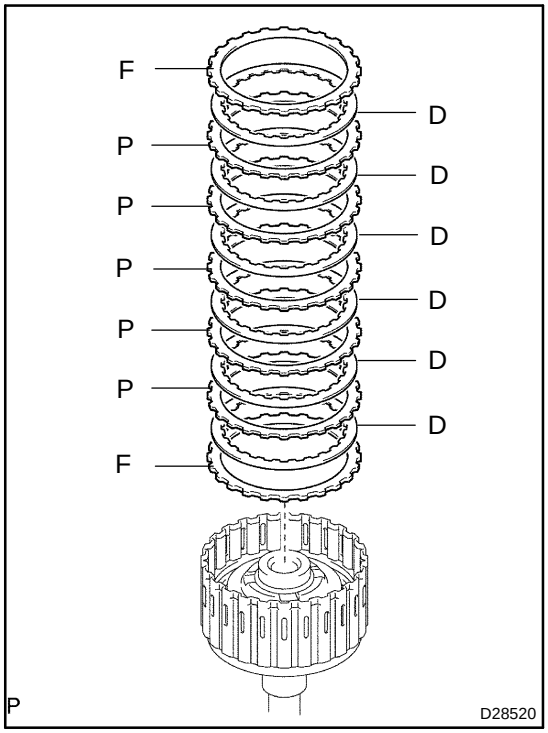
(e) Be sure the end gap of the snap ring is not aligned with the spring retainer claw.

NOTICE:

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

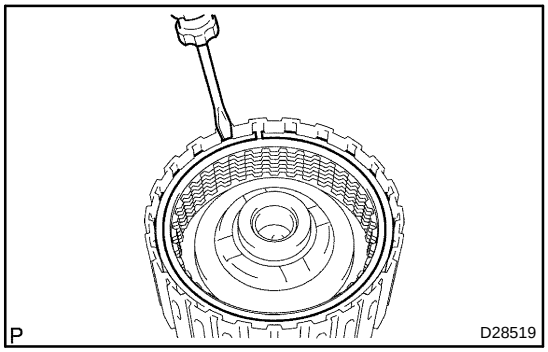


(f) Set the end gap of the snap ring in the piston as shown in the illustration.

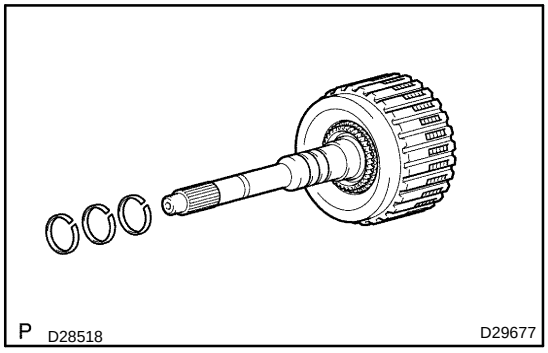


38. INSTALL FORWARD MULTIPLE DISC CLUTCH CLUTCH DISC

(a) Install the 2 flanges, the 6 discs and the 5 plates to the input shaft assy.



(b) Using a screwdriver, install the hole snap ring.



39. INSTALL INPUT SHAFT OIL SEAL RING

(a) Coat the 3 oil seal rings with ATF.

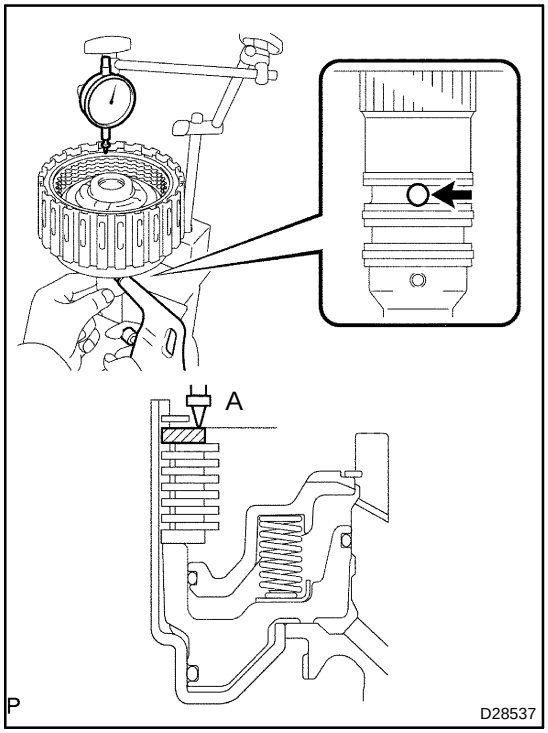
(b) Squeeze the ends of the 3 oil seal rings together, and then install them to the starter shaft groove.

NOTICE:

Do not over−spread the ring ends.

HINT:

After installing the oil seal rings, check that they rotate smoothely.



40. INSPECT PACK CLEARANCE OF FORWARD CLUTCH

(a) Using a dial gauge, measure the moving distance (distance A) of the clutch flange at the both end across a diameter while blowing air from the oil hole as shown in the illustration, and calculate the average.

Pack Clearance: 0.6 −0.9 mm

NOTICE:

Install a selective flange (t 3.4 mm) when measuring the moving distance. (shaded area in the illustration.)

HINT:

Flange moving distance A = 0.26 − 1.36 mm

Pack Clearance = Flange moving distance A − 0.01 mm

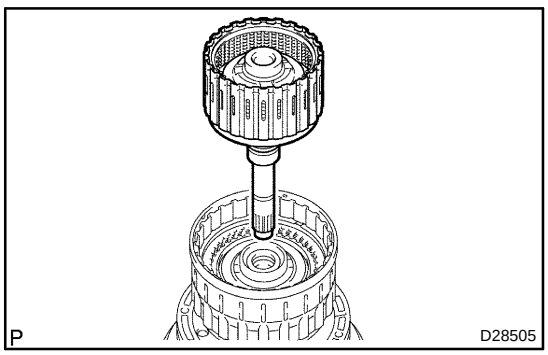
(b) If the pack clearance is outside the standard, select & install a clutch flange that makes the pack clearance to be within the standard.

HINT:

Select the flange from 11 kinds (in thickness) of the selective flanges to adjust the pack clearance.

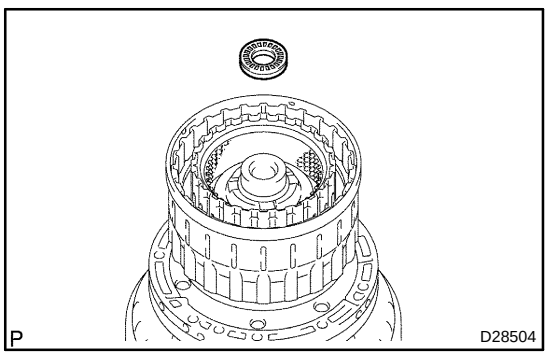
Flange thickness

No.	Thickness	No.	Thickness
0	3.0 (0.118)	6	3.6 (0.142)
1	3.1 (0.122)	7	3.7 (0.146)
2	3.2 (0.126)	8	3.8 (0.150)
3	3.3 (0.130)	9	3.9 (0.154)
4	3.4 (0.134)	A	4.0 (0.158)
5	3.5 (0.138)		−



41. INSTALL INPUT SHAFT ASSY

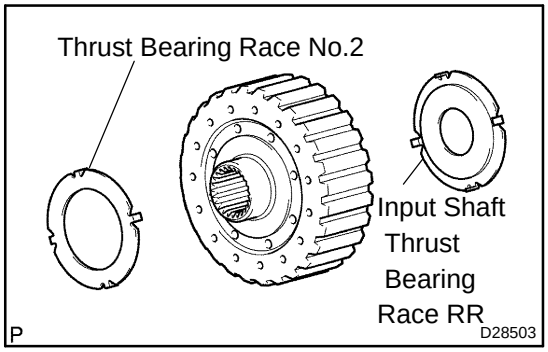
(a) Install the input shaft assy to the clutch drum.



(b) Install the thrust needle roller bearing to the clutch drum assy.

Thrust needle roller bearing diameter: mm (in.)

	Inside	Outside
Thrust needle roller bearing	21.3 (0.839)	41.1 (1.618)

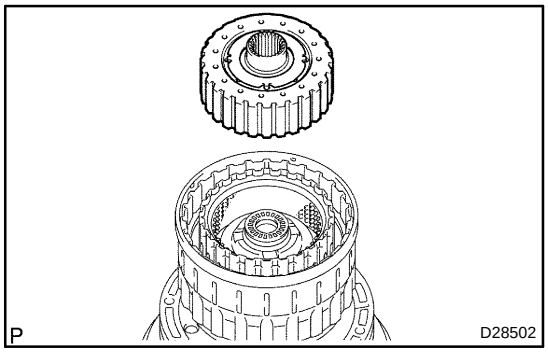


42. INSTALL MULTIPLE DISC CLUTCH CLUTCH HUB

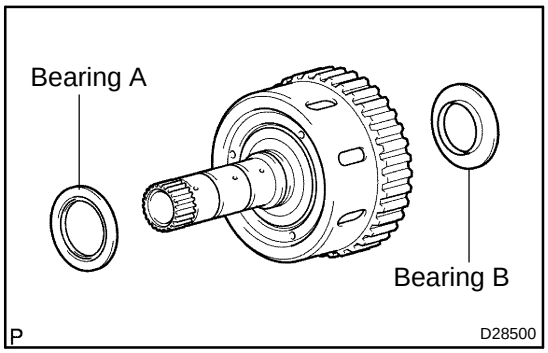
(a) Install the thrust bearing race No.2 and the input shaft thrust bearing race RR to the multiple disc clutch clutch hub.

Bearing and race diameter: mm (in.)

	Inside	Outside
Thrust bearing race No.2	38.4 (1.512)	63.0 (2.480)
Input shaft bearing race RR	22.6 (0.890)	60.0 (2.362)



(b) Install the multiple disc clutch clutch hub to the clutch drum assy.

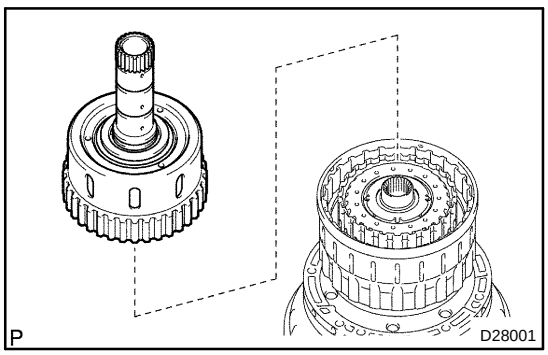


43. INSTALL FORWARD CLUTCH HUB SUB−ASSY

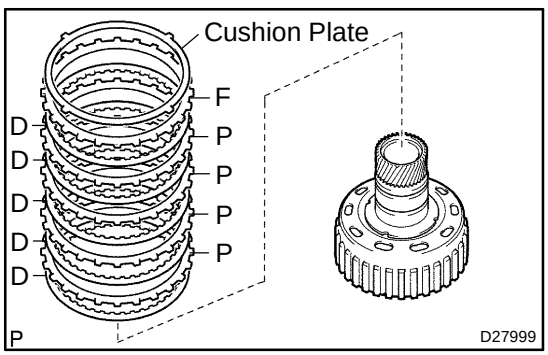
(a) Install the 2 thrust needle roller bearings to the forward clutch hub sub assy.

Bearing and race diameter: mm (in.)

	Inside	Outside
Bearing A	42.5 (1.673)	61.2 (2.409)
Bearing B	33.3 (1.311)	56.6 (2.228)

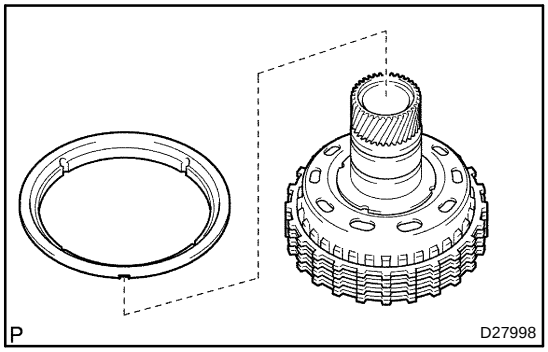


(b) Install the forward clutch hub sub assy to the clutch drum assy.



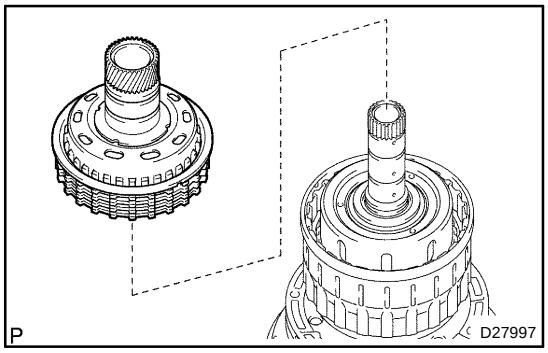
44. INSTALL REAR CLUTCH DISC

(a) Install the clutch cushion plate, the reverse clutch flange, the 4 plates and the 5 discs to the reverse clutch hub.



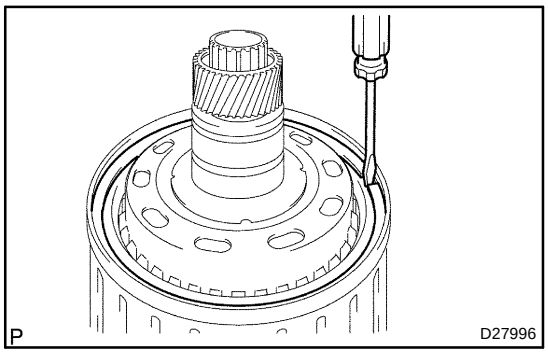
45. INSTALL REVERSE CLUTCH REACTION SLEEVE

(a) Install the reverse clutch reaction sleeve to the reverse clutch hub.



46. INSTALL REVERSE CLUTCH HUB SUB−ASSY

(a) Install the reverse clutch hub sub assy, the reverse clutch reaction sleeve, the clutch cushion plate, the reverse clutch flange, the 5 reverse clutch discs, and the 4 clutch plates to the clutch drum assy.



(b) Using a screwdriver, install the snap ring on the clutch drum and the input shaft assy.