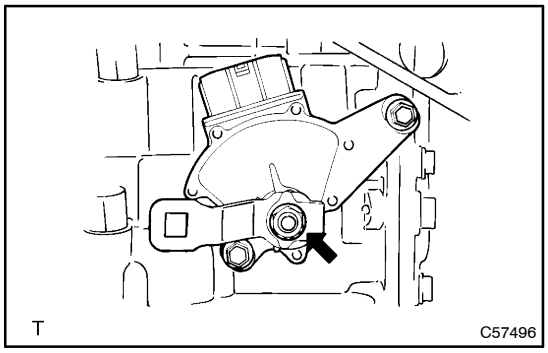
AUTOMATIC TRANSAXLE ASSY (U441E)

4002O–01

OVERHAUL

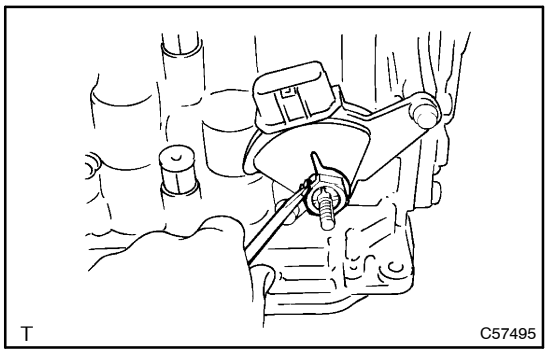
1. REMOVE SPEEDOMETER (ATM) SENSOR

2. REMOVE SPEEDOMETER DRIVEN (ATM) GEAR SUB–ASSY



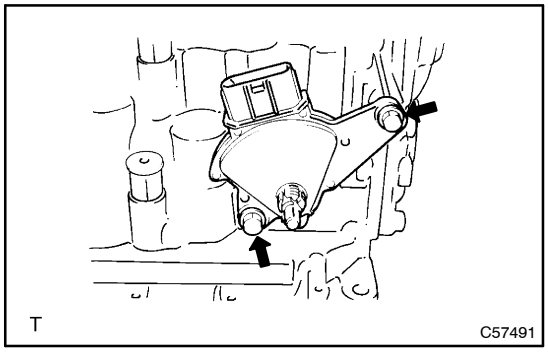
3. REMOVE TRANSMISSION CONTROL SHAFT LEVER

(a) Remove the nut, washer and control lever.

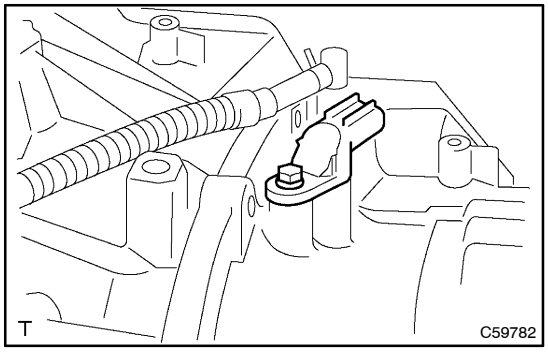


4. REMOVE NEUTRAL START SWITCH ASSY

(a) Using a screwdriver, unstake the lock washer.

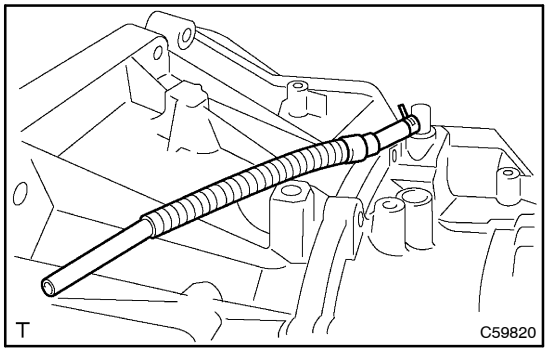


(b) Remove the 2 bolts, and pull out the neutral start switch.



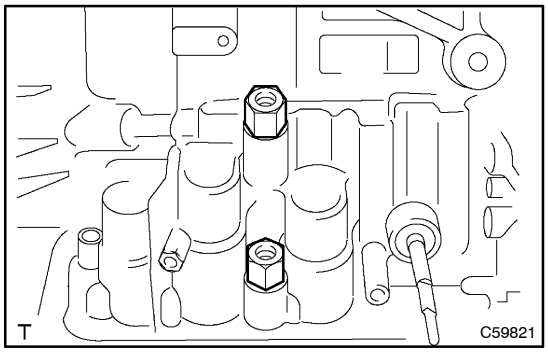
5. REMOVE TRANSMISSION REVOLUTION SENSOR

(a) Remove the bolt and transaxle revolution sensor.



6. REMOVE BREATHER PLUG HOSE

(a) Remove the clip and breather plug hose.

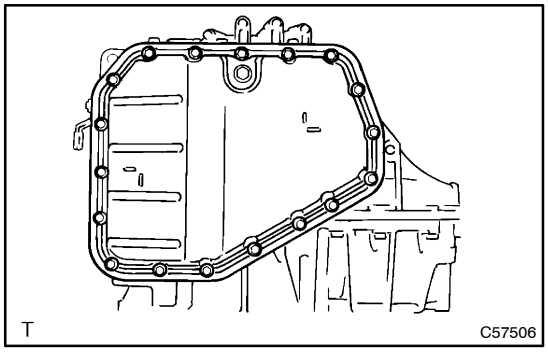


7. REMOVE OIL COOLER TUBE UNION

(a) Remove the 2 unions.
(b) Remove the 2 O–rings from the unions.

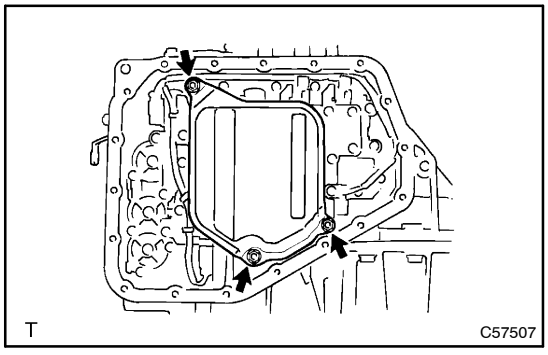
8. FIX AUTOMATIC TRANSAXLE ASSY

(a) Place transaxle on wooden blocks.



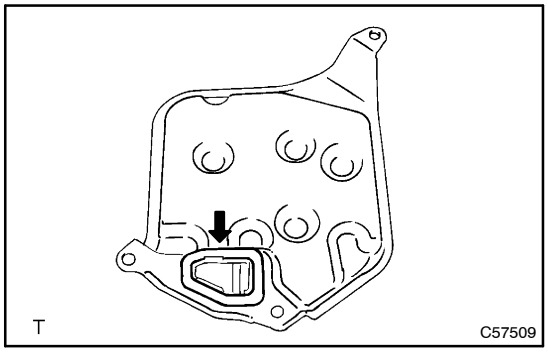
9. REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB–ASSY

(a) Remove the 18 bolts.
(b) Remove the oil pan and gasket.
(c) Remove the gasket and drain plug from the oil pan.

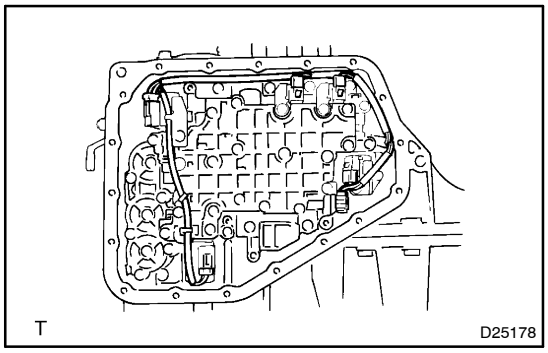


10. REMOVE VALVE BODY OIL STRAINER ASSY

(a) Remove the 3 bolts and oil strainer.

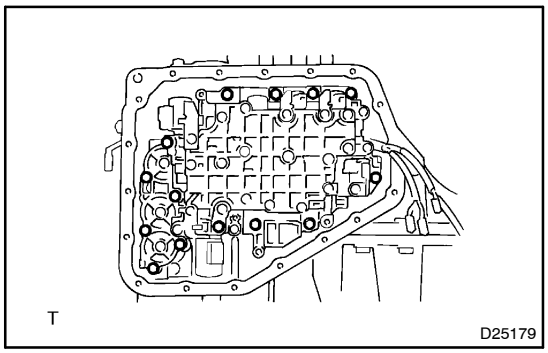


(b) Remove the gasket from the oil strainer.

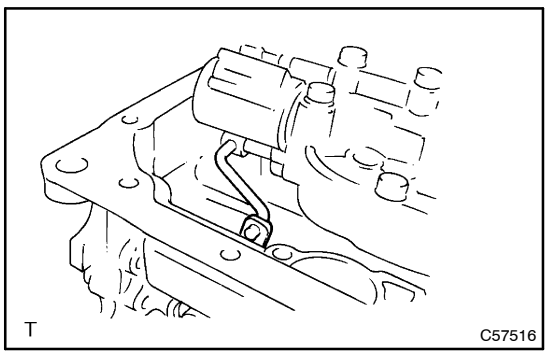


11. REMOVE TRANSMISSION VALVE BODY ASSY

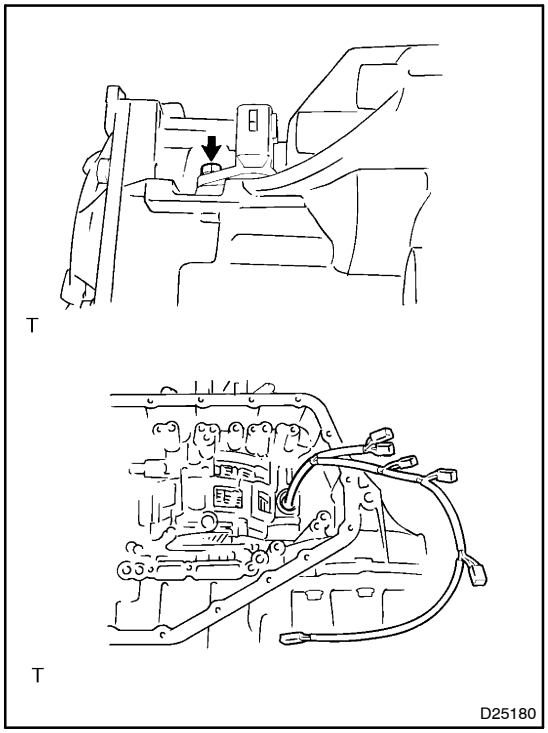
(a) Remove the bolt and ATF temperature sensor with clamp.
(b) Disconnect the 5 connectors.



(c) Support the valve body assembly and remove the 14 bolts.

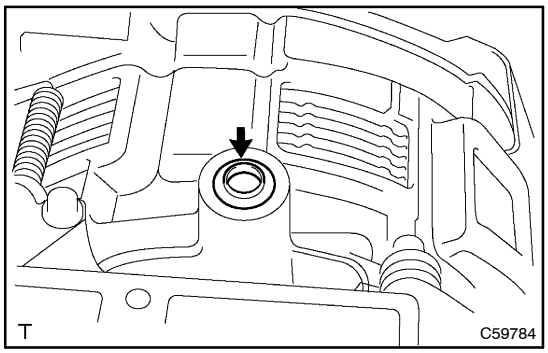


(d) Disconnect the manual valve control rod from the manual valve lever, then remove the valve body assembly.



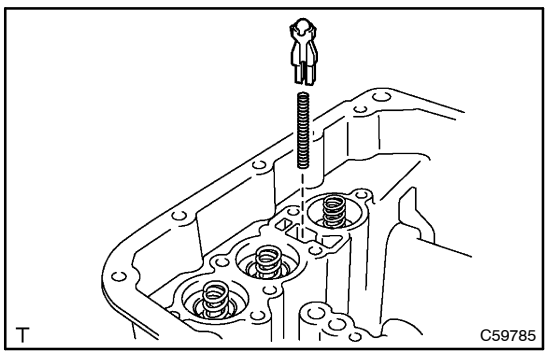
12. REMOVE TRANSMISSION WIRE

(a) Remove the bolt.
(b) Remove the transaxle wire from the transaxle case.
(c) Remove the O–ring from the transaxle wire.



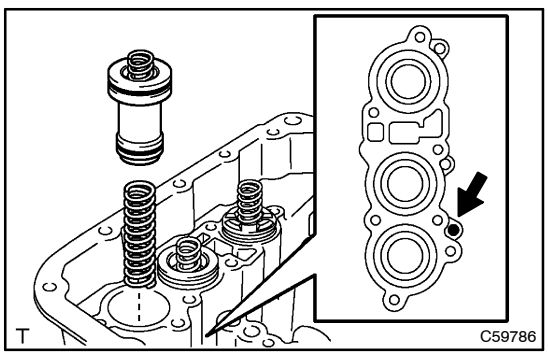
13. REMOVE GOVERNOR APPLY GASKET NO.1

(a) Using a screwdriver, remove the governor apply gasket No. 1 from the transaxle case.



14. REMOVE CHECK BALL BODY

(a) Remove the check valve and spring.

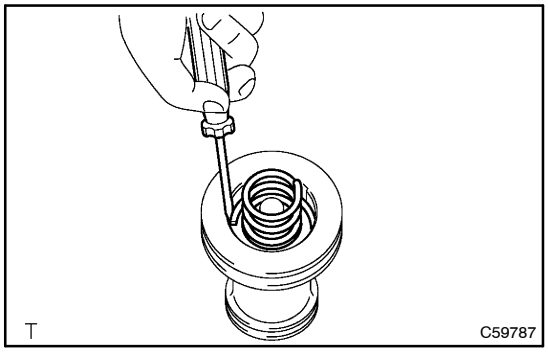


15. REMOVE C–2 ACCUMULATOR PISTON

(a) Apply compressed air (392 kPa, 4.0 kgf/cm^{2}, 57 psi) to the oil hole and remove the C_2 accumulator piston and spring.

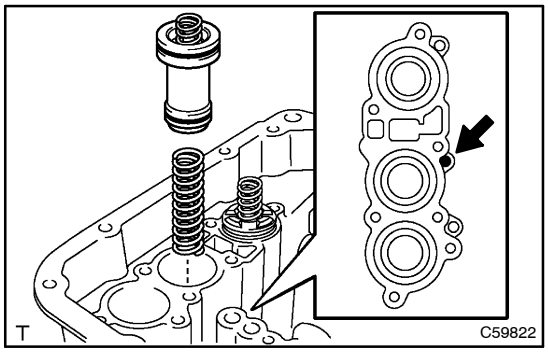
NOTICE:

- **Blowing off the air may cause the piston's jump–out. When removing the piston, hold it with your hand using a waste cloth.**
- **Take care not to splash ATF when air–blowing.**



16. REMOVE C–2 ACCUMULATOR SPRING SUB–ASSY

(a) Using a screwdriver, remove the snap ring and remove the C_2 accumulator spring.

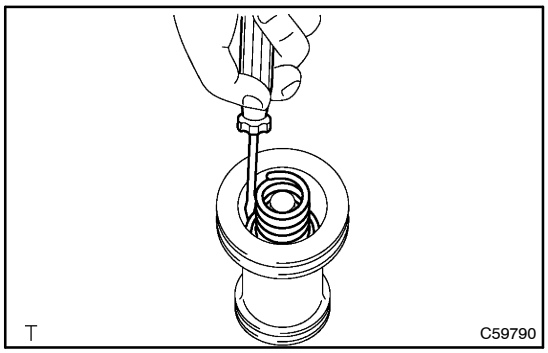


17. REMOVE C–1 ACCUMULATOR PISTON

(a) Apply compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi) to the oil hole and remove the C_1 accumulator piston and spring.

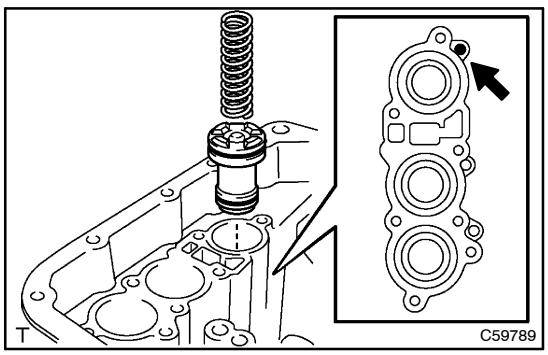
NOTICE:

- **Blowing off the air may cause the piston's jump–out. When removing the piston, hold it with your hand using a waste cloth.**
- **Take care not to splash ATF when air–blowing.**



18. REMOVE C–1 ACCUMULATOR SPRING SUB–ASSY

(a) Using a screwdriver, remove the snap ring and remove the C_1 accumulator spring.

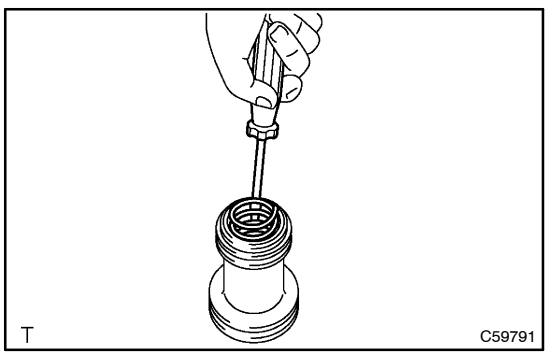


19. REMOVE PISTON B–1 ACCUMULATOR

(a) Apply compressed air (392 kPa, 4.0 kgf/cm2, 57 psi) to the oil hole and remove the B_1 accumulator piston and spring.

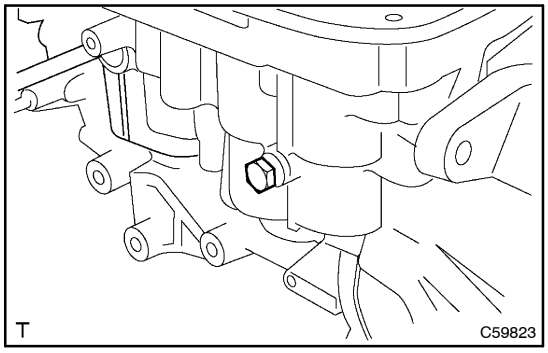
NOTICE:

- **Blowing off the air may cause the piston's jump–up. When removing the piston, hold it with your hand using a waste cloth.**
- **Take care not to splash ATF when air–blowing.**



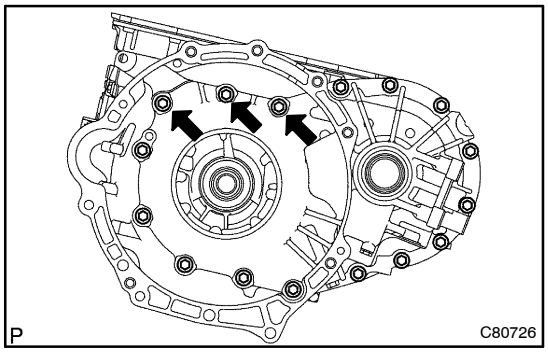
20. REMOVE B–1 ACCUMULATOR PISTON COMPRESSION SPRING

(a) Using a screwdriver, remove the B_1 accumulator piston compression spring.



21. REMOVE TRANSAXLE HOUSING NO.2 PLUG

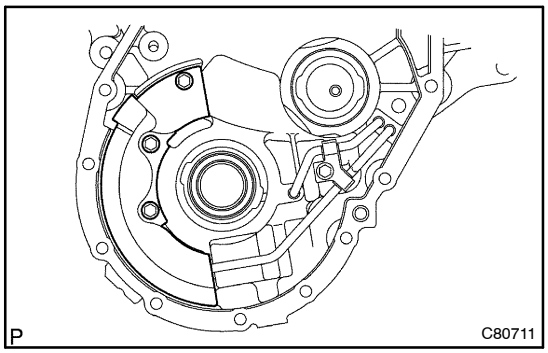
(a) Remove the transaxle housing No. 2 plug from the transaxle case.
(b) Using a screwdriver, remove the O–ring from the transaxle housing No. 2 plug.



22. REMOVE TRANSAXLE HOUSING

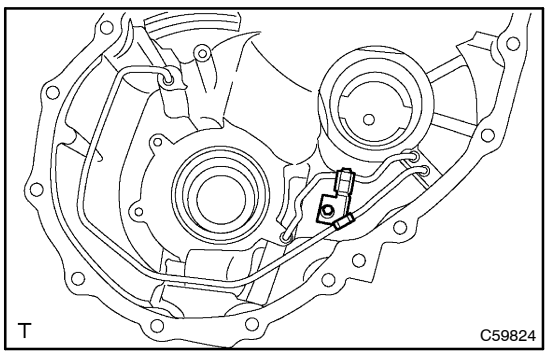
(a) Remove the 16 bolts.
(b) Tap on the circumference of the transaxle housing with a plastic hammer to remove the transaxle housing from the transaxle case.

NOTICE:
Differential gear assembly may be accidentally removed when the transaxle housing is removed.



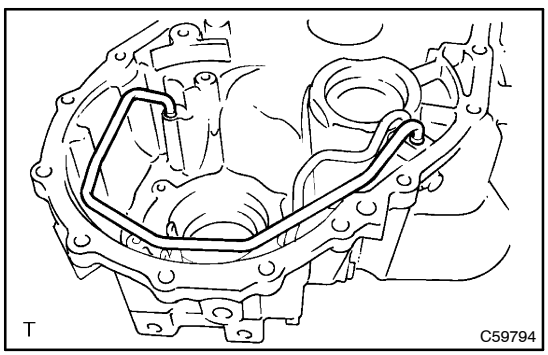
23. REMOVE TRANSAXLE HOUSING OIL SEPARATOR

(a) Remove the 3 bolts and oil separator from the transaxle housing.



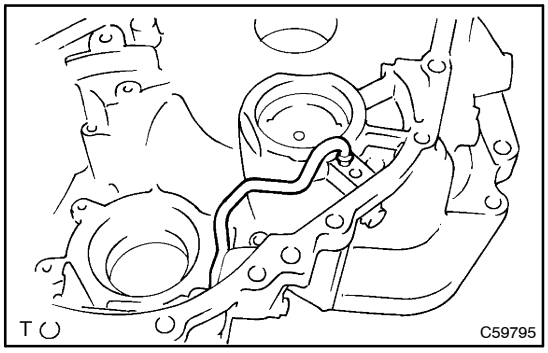
24. REMOVE TRANSAXLE APPLY TUBE CLAMP NO.1

(a) Remove the bolt and transaxle apply tube clamp No. 1 from the transaxle housing.

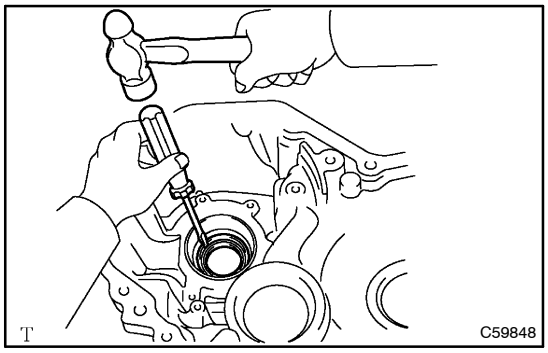


25. REMOVE TRANSMISSION LUBE APPLY TUBE

(a) Remove the transmission lube apply tube from the transaxle housing.

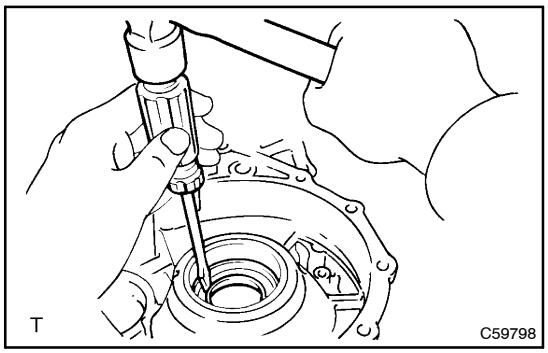


26. REMOVE DIFFERENTIAL GEAR LUBE APPLY TUBE



27. REMOVE TRANSAXLE HOUSING OIL SEAL

(a) Using a screwdriver and a hammer, remove the transaxle housing oil seal.

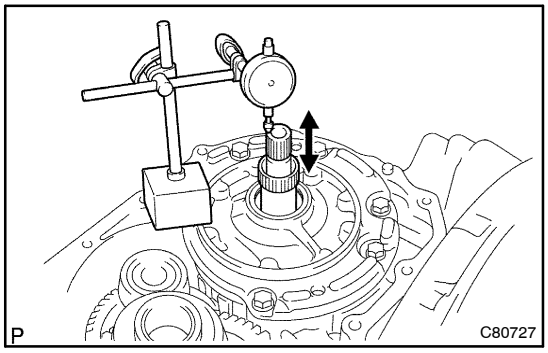


28. REMOVE TRANSAXLE CASE OIL SEAL

(a) Using a screwdriver and hammer, remove the oil seal.

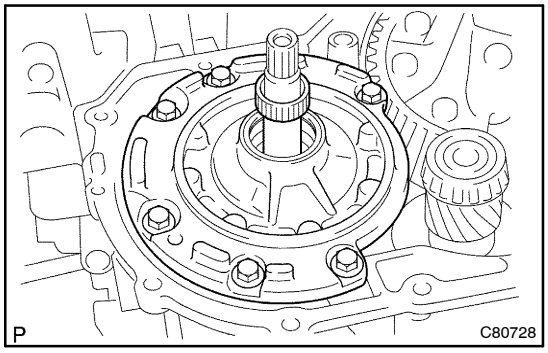
29. REMOVE BREATHER PLUG NO.1 (ATM)

(a) Remove the breather plug No. 1 from the transaxle case.
(b) Using a screwdriver, remove the O–ring from the breather plug No. 1.



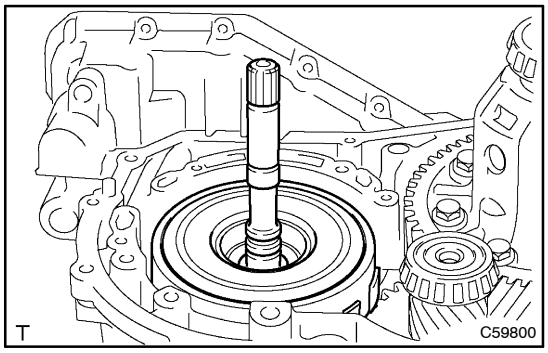
30. INSPECT INPUT SHAFT ENDPLAY

(a) Using a dial indicator, measure the input shaft end play.
End play: 0.3 – 0.9 mm (0.012 – 0.035 in.)



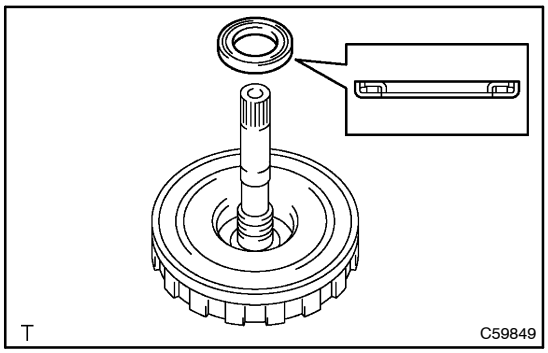
31. REMOVE OIL PUMP ASSEMBLY

(a) Remove the 6 bolts and oil pump assy.



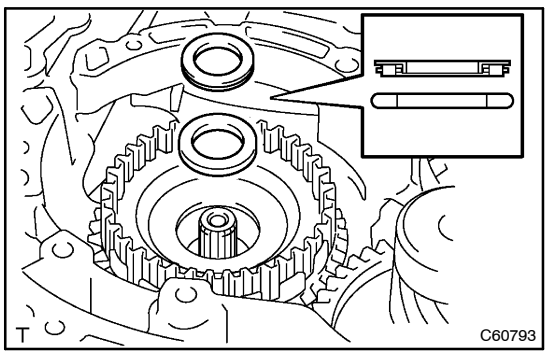
32. REMOVE INPUT SHAFT ASSY

(a) Remove the input shaft assy from the transaxle case.



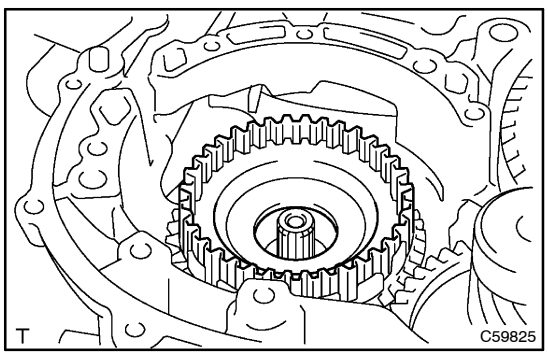
33. REMOVE STATOR SHAFT THRUST NEEDLE ROLLER BEARING

(a) Remove the thrust needle roller bearing from the input shaft assy.



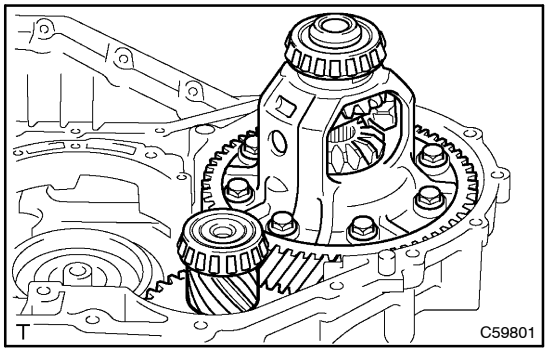
34. REMOVE PLANETARY GEAR FRONT THRUST NEEDLE ROLLER BEARING

(a) Remove the thrust needle roller bearing and thrust bearing race from the direct clutch hub.

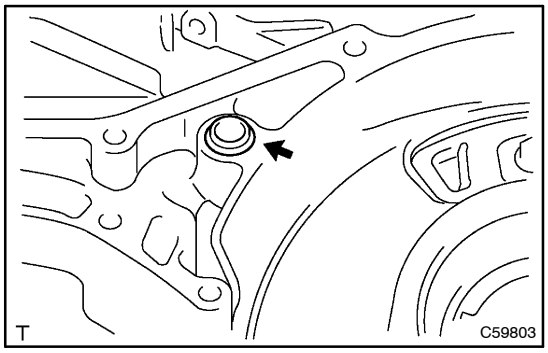


35. REMOVE DIRECT CLUTCH HUB

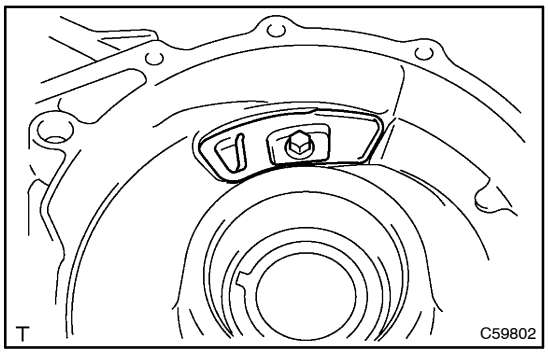
(a) Remove the direct clutch hub from the transaxle case.



36. REMOVE DIFFERENTIAL GEAR ASSEMBLY

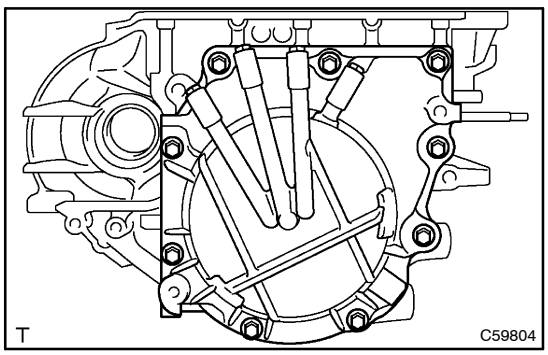


37. REMOVE GOVERNOR APPLY GASKET NO.2



38. REMOVE TRANSMISSION CASE PLATE NO.1

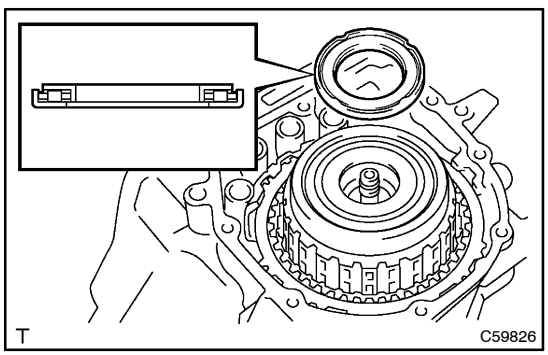
(a) Remove the bolt and No. 1 transaxle case plate from the transaxle case.



39. REMOVE TRANSAXLE REAR COVER ASSY

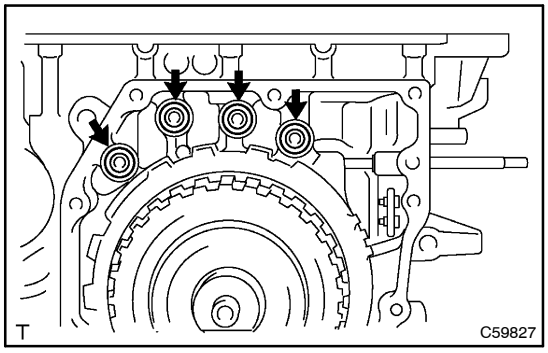
(a) Remove the 9 bolts.

(b) Tap on the circumference of the transaxle rear cover with a plastic hammer to remove the transaxle rear cover from the transaxle case.



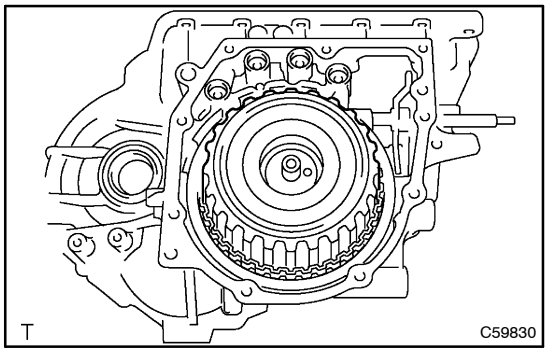
40. REMOVE FRONT CLUTCH DRUM THRUST NEEDLE ROLLER BEARING

(a) Using a magnetic finger, remove the thrust needle roller bearing.



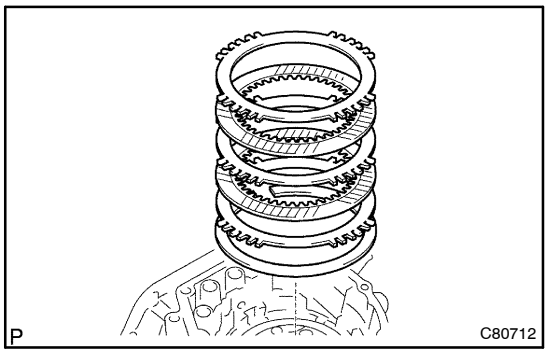
41. REMOVE TRANSAXLE CASE 2ND BRAKE GASKET

(a) Using a screwdriver, remove the 4 gaskets.



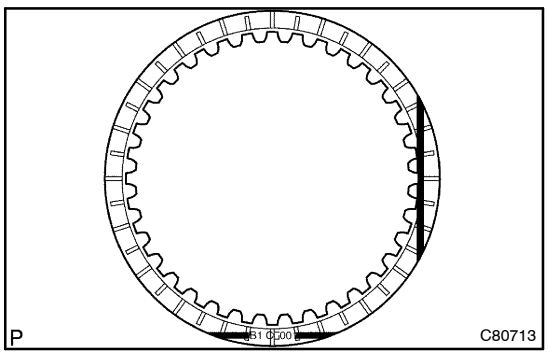
42. REMOVE INTERMEDIATE SHAFT ASSY

(a) Remove the intermediate shaft assy from the transaxle case.



43. REMOVE 2ND COAST & OVERDRIVE BRAKE DISC

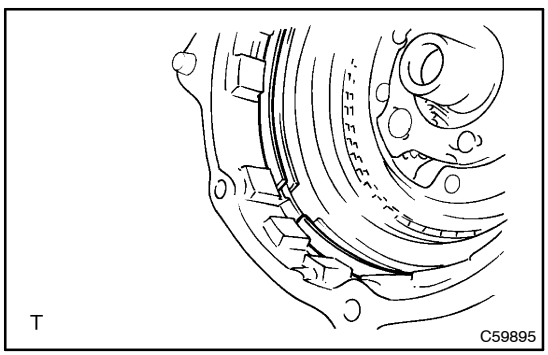
(a) Remove the flange, 2 discs and 2 plates from the transaxle case.



44. INSPECT 2ND COAST & OVERDRIVE BRAKE DISC

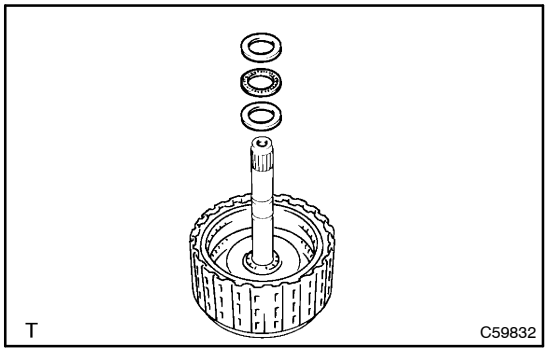
(a) Check to see if the sliding surface of the disc, plate and flange are worn or burnt.
If necessary, replace them.

NOTICE:
If the lining of the disc is peeling off or discolored, or even if a part of the printed mark is defaced, replace all discs.



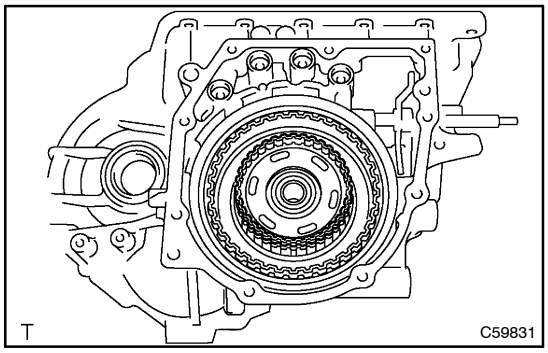
45. REMOVE 2ND COAST & OVERDRIVE BRAKE FLANGE HOLE SNAP RING

(a) Using a screwdriver, remove the 2nd coast and O/D hole snap ring from the transaxle case.



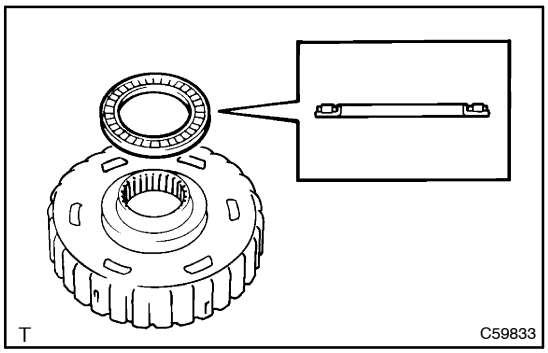
46. REMOVE SUN GEAR REAR THRUST BEARING

(a) Remove the thrust needle roller bearing and thrust bearing race from the intermediate shaft.



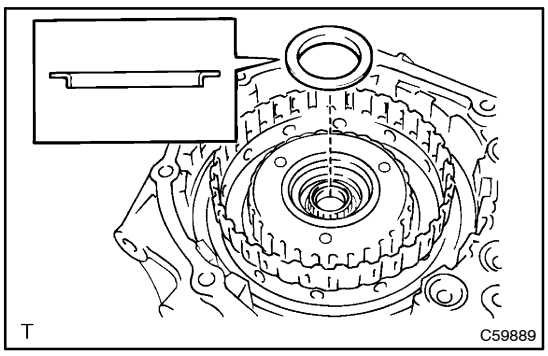
47. REMOVE FORWARD CLUTCH HUB SUB–ASSY

(a) Remove the forward clutch hub from the transaxle case.



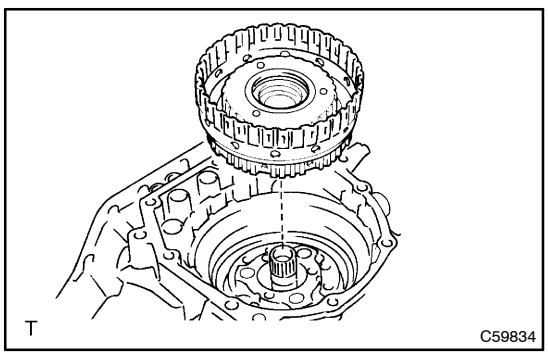
48. REMOVE FORWARD CLUTCH HUB THRUST NEEDLE ROLLER BEARING

(a) Remove the thrust needle roller bearing from the forward clutch hub.



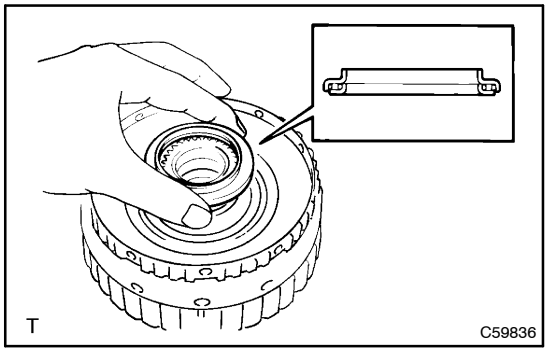
49. REMOVE FORWARD CLUTCH HOB THRUST BEARING RACE

(a) Remove the thrust bearing race from the planetary sun gear.



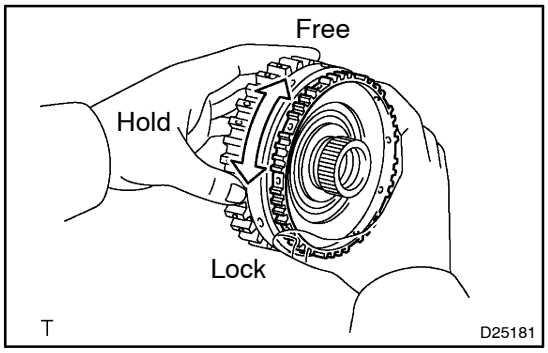
50. REMOVE REAR PLANETARY SUN GEAR ASSY

(a) Remove the rear planetary sun gear assy from the transaxle case.



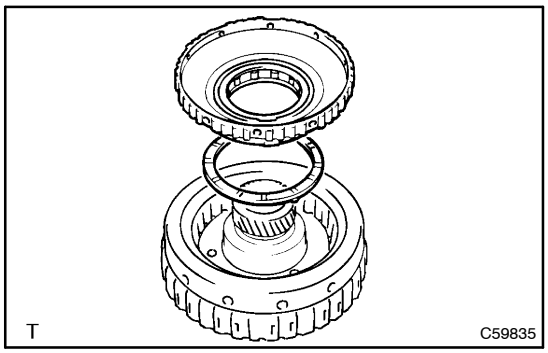
51. REMOVE PLANETARY GEAR REAR THRUST NEEDLE ROLLER BEARING

(a) Remove the thrust needle roller bearing from the rear planetary sun gear.



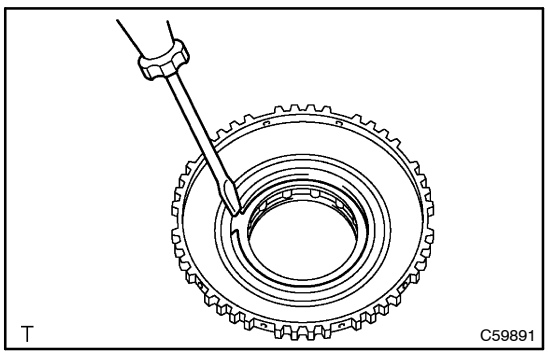
52. INSPECT 1 WAY CLUTCH NO.1

(a) Hold the rear planetary sun gear and turn the 1 way clutch. The 1 way clutch should turn freely clockwise and should lock counterclockwise.

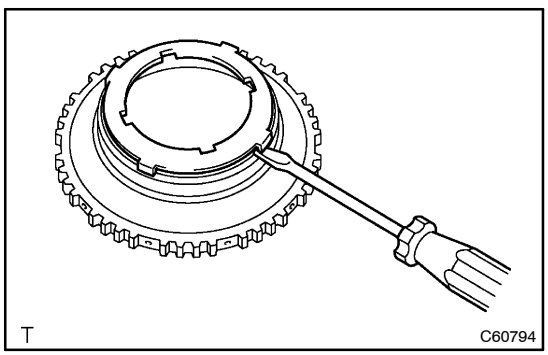


53. REMOVE 1 WAY CLUTCH NO.1

(a) Remove the 2nd brake hub, 1 way clutch No. 1 and planetary gear thrust washer from the rear planetary sun gear.

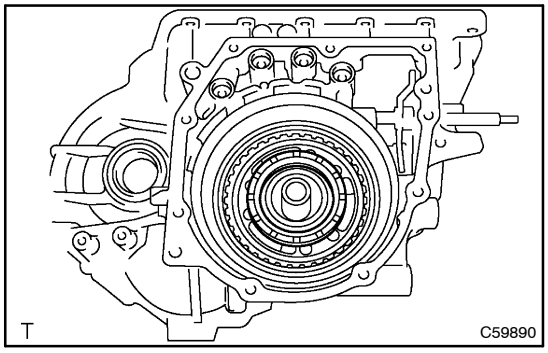


(b) Using a screwdriver, remove the one way clutch hole snap ring and remove the 1 way clutch No. 1 from the 2nd brake hub.

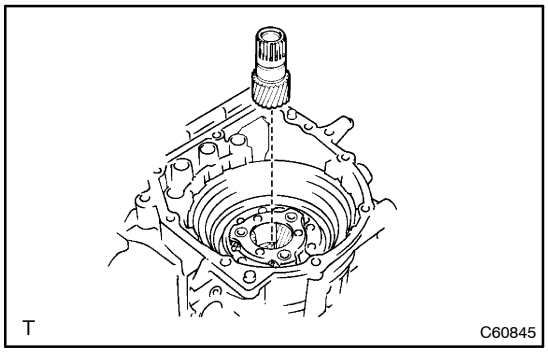


54. REMOVE 1 WAY CLUTCH RETAINER

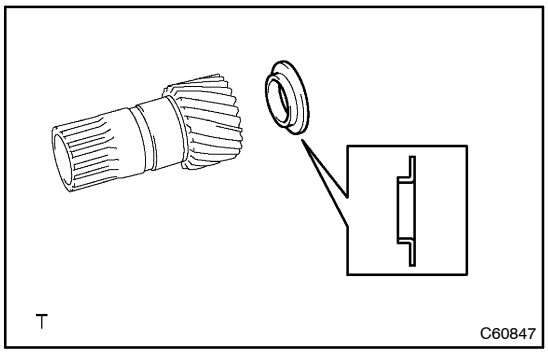
(a) Using a screwdriver, remove the 1 way clutch retainer from the 2nd brake hub.



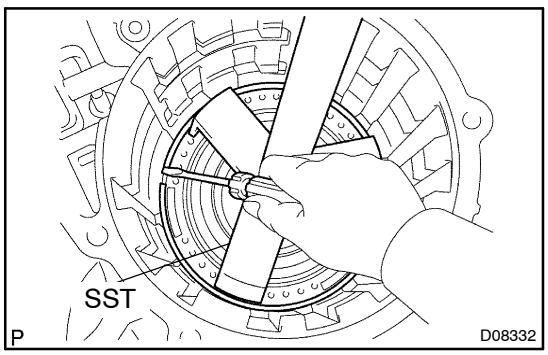
55. REMOVE PLANETARY CARRIER THRUST WASHER



56. REMOVE PLANETARY SUN GEAR SUB–ASSY

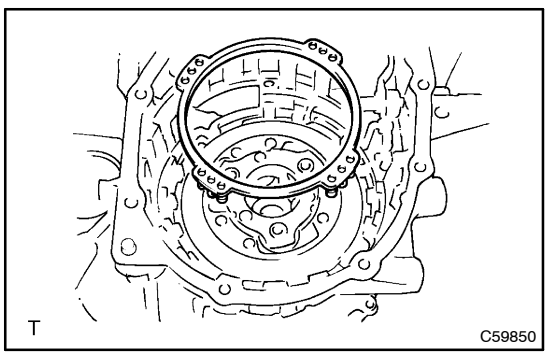


57. REMOVE FRONT PLANETARY FLANGE FRONT THRUST BEARING RACE



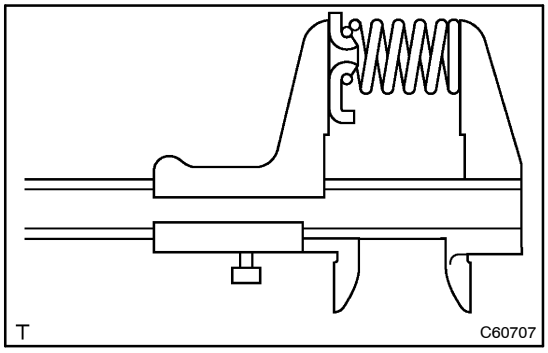
58. REMOVE SECOND BRAKE PISTON ASSY

(a) Using SST, a press and a screwdriver, remove the snap ring and brake piston assy.
SST 09387–00070, 09950–70010 (09951–07100)



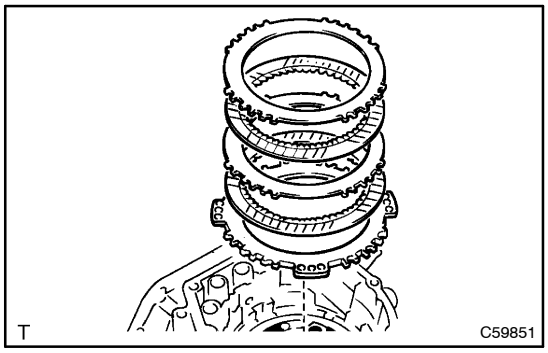
59. REMOVE 2ND BRAKE PISTON RETURN SPRING SUB–ASSY

(a) Remove 2nd brake piston return spring from the transaxle.



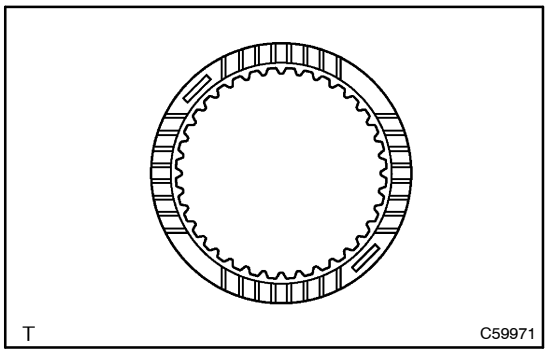
60. INSPECT 2ND BRAKE PISTON RETURN SPRING SUB–ASSY

(a) Using vernier calipers, measure the free length of the spring together with spring seat.
Standard free length: 15.85 mm (0.6240 in.)



61. REMOVE 2ND BRAKE BRAKE DISC

(a) Remove the 2 plates, 2 discs and flange.

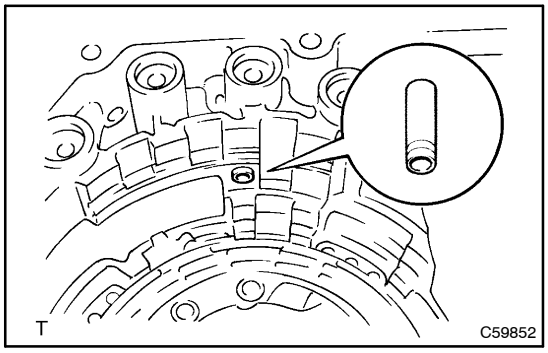


62. INSPECT 2ND BRAKE BRAKE DISC

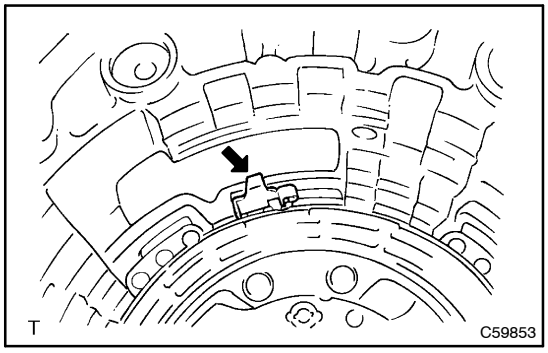
(a) Check to see if the sliding surface of the disc, plate and flange are worn or burnt.
If necessary, replace them.

NOTICE:

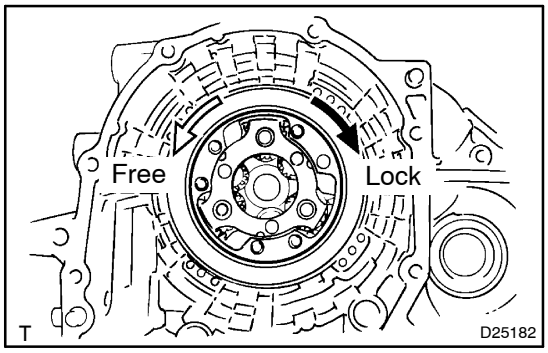
- **If the lining of the disc is peeling off or discolored, or even if a part of the groove is defaced, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**



63. REMOVE BRAKE DRUM GASKET

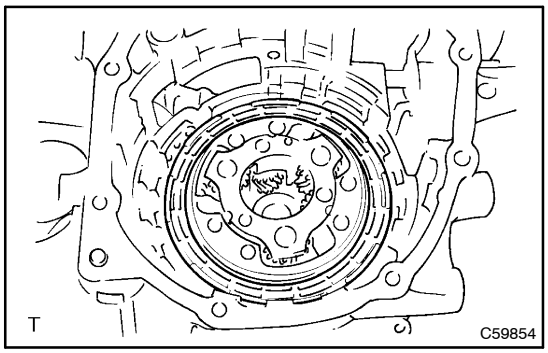


64. REMOVE OUTER RACE RETAINER



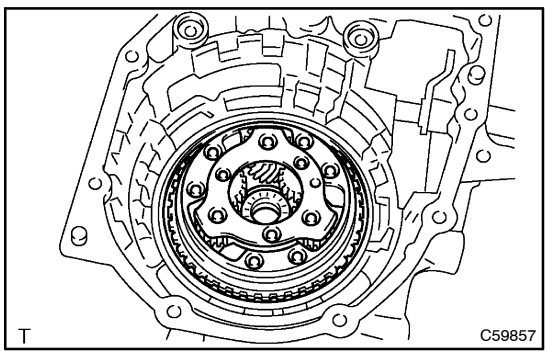
65. INSPECT 1 WAY CLUTCH NO.2

(a) Check that the planetary gear turns freely counterclockwise and locks clockwise.

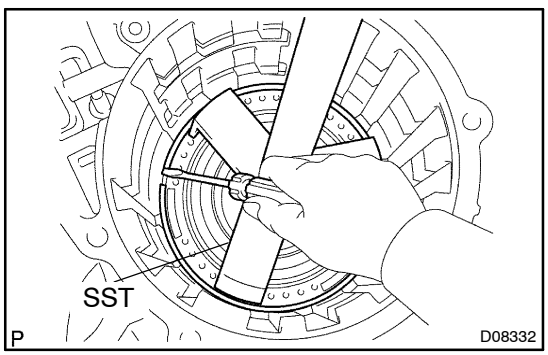


66. REMOVE 1 WAY CLUTCH NO.2

(a) Remove the No. 2 one–way clutch from the transaxle case.

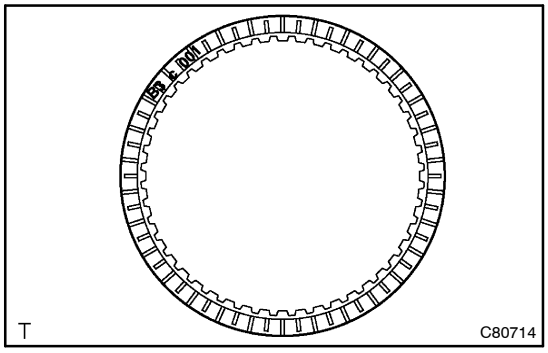


67. REMOVE PLANETARY GEAR ASSY



68. REMOVE 1ST & REVERSE BRAKE DISC

(a) Using SST, a press and a screwdriver, remove the snap ring, flange, 4 discs and 4 plates.
SST 09387–00070, 09950–70010 (09951–07100)

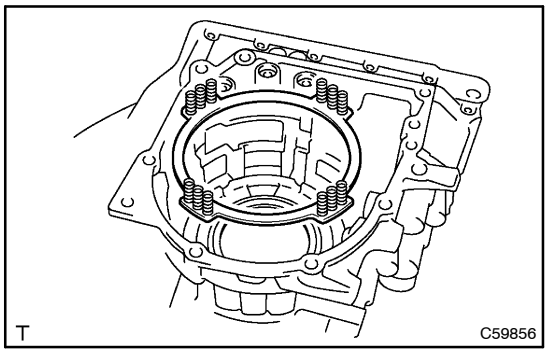


69. INSPECT 1ST & REVERSE BRAKE DISC

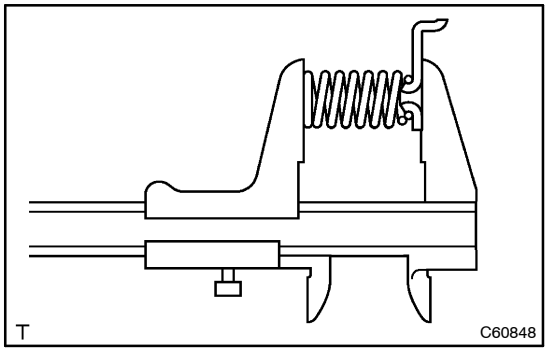
(a) Check to see if the sliding surface of the disc, plate and flange are worn or burnt.
If necessary, replace them.

NOTICE:

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

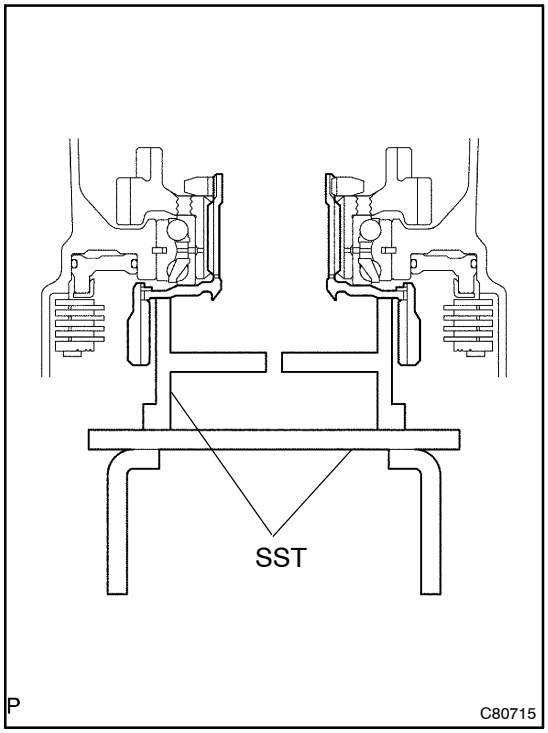


70. REMOVE 1ST & REVERSE BRAKE RETURN SPRING SUB–ASSY



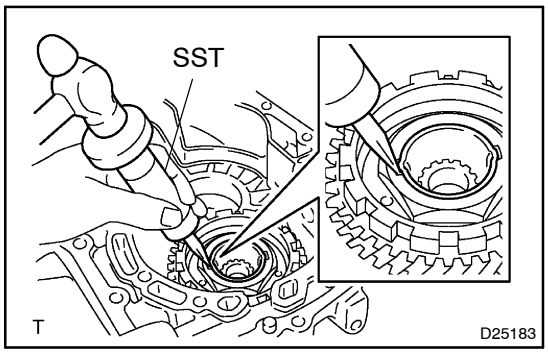
71. INSPECT 1ST & REVERSE BRAKE RETURN SPRING SUB–ASSY

(a) Using vernier calipers, measure the free length of the spring together with spring seat.
Standard free length: 21.71 mm (0.85472 in.)

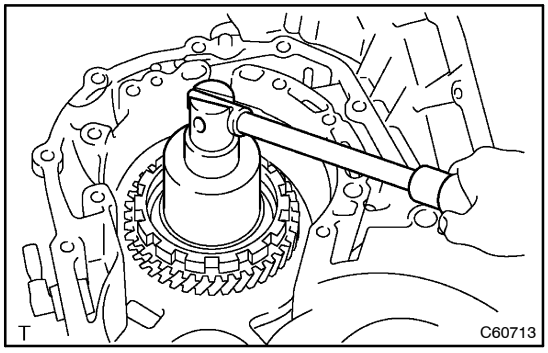


72. REMOVE COUNTER DRIVE GEAR NUT

(a) Using SST, lift the transaxle case.
SST 09223–15020, 09387–00060

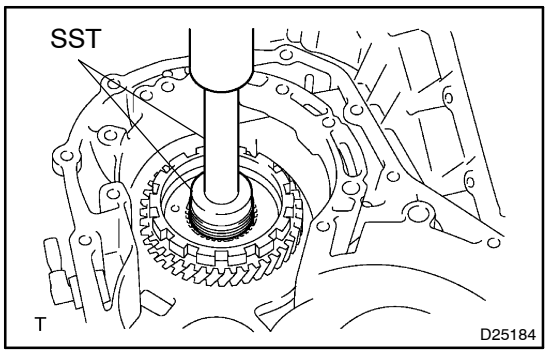


(b) Using SST and a hammer, unstake the counter drive gear nut.
SST 09930–00010



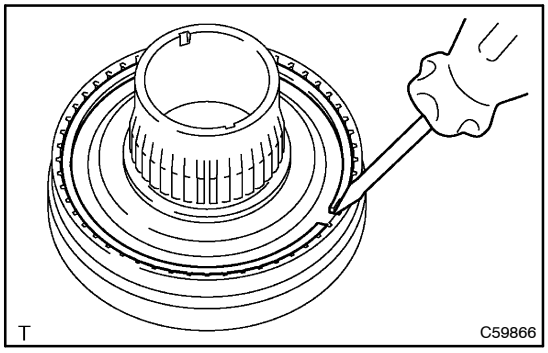
(c) Remove the nut.

NOTICE:
Remove the nut without unstaking the planetary ring gear. If chisel or other tool is used to unstake the planetary ring gear, such impact may damage the bearing.



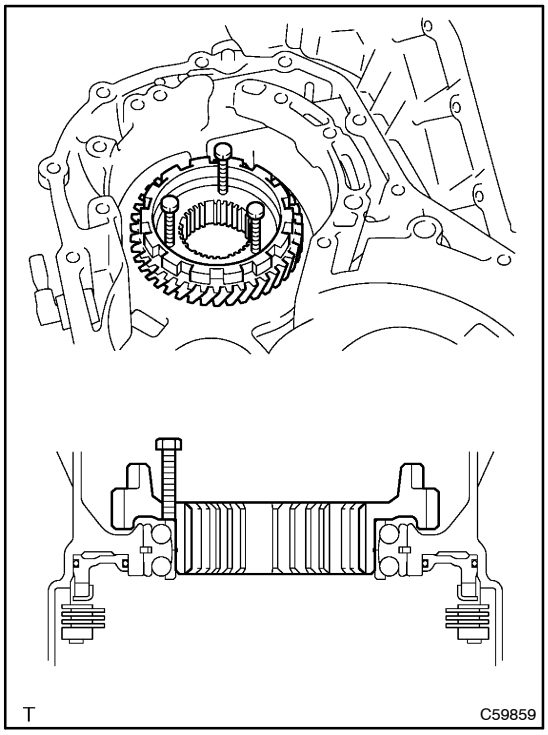
73. REMOVE PLANETARY RING GEAR FLANGE

(a) Using SST and a press, remove the planetary ring gear.
SST 09950–60010 (09951–00420), 09950–70010 (09951–07100)



74. REMOVE PLANETARY RING GEAR

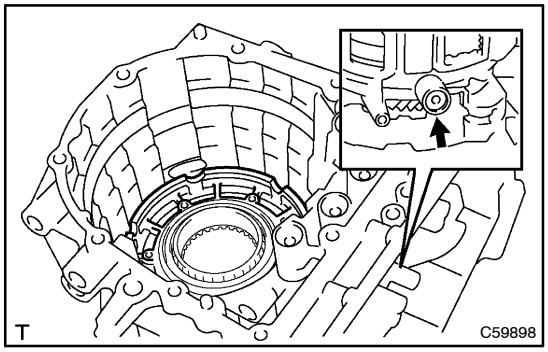
(a) Using a screwdriver, remove the snap ring and remove the planetary ring gear from the planetary ring gear flange.



75. REMOVE COUNTER DRIVE GEAR

(a) Install the 3 bolts to the counter drive gear.
Bolt (M6):
L = 40 – 80 mm
Pitch = 1.0 mm

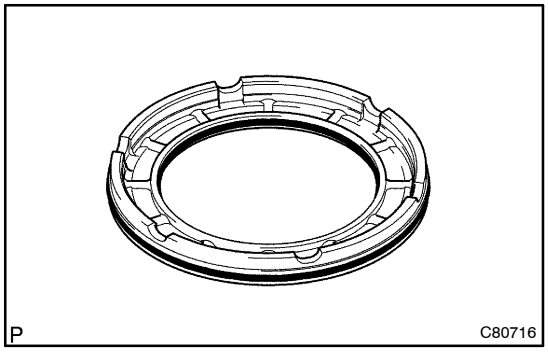
(b) Rotate 3 bolts in order and remove the counter drive gear and planetary ring gear.



76. REMOVE 1ST & REVERSE BRAKE PISTON

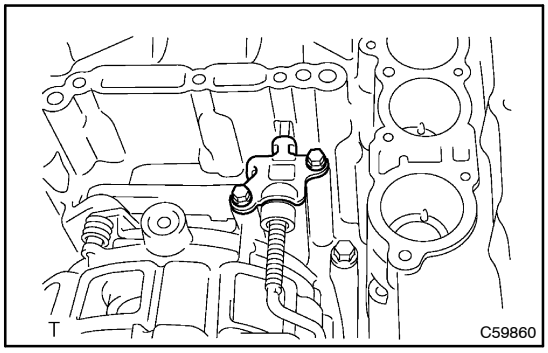
(a) Apply compressed air (392 kPa, 4.0 kgf/cm^2, 57 psi) to the transaxle case to remove the 1st & reverse brake piston.

NOTICE:
- **Blowing off the air may cause the piston's jump–out. When removing the piston, hold it with your hand using a waste cloth.**
- **Take care not to splash ATF when air–blowing.**



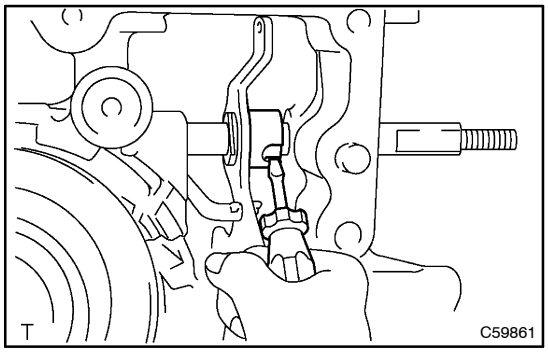
77. REMOVE 1ST & REVERSE BRAKE O–RING

(a) Remove the 2 O–rings from the 1st & reverse brake piston.



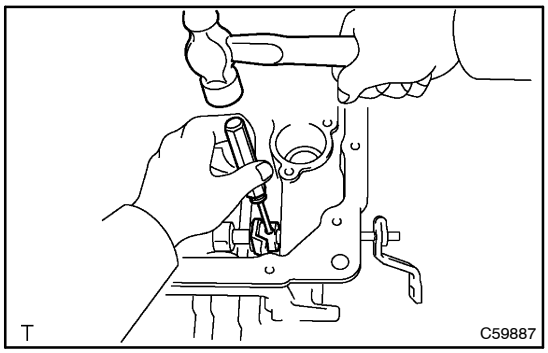
78. REMOVE PARKING LOCK PAWL BRACKET

(a) Remove the 2 bolts and parking lock pawl bracket.

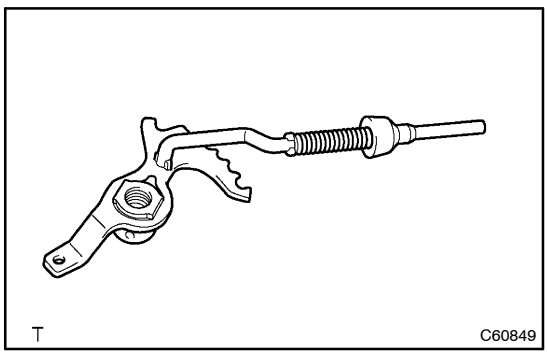


79. REMOVE MANUAL VALVE LEVER SHAFT

(a) Using screwdriver, cut off the manual valve lever shaft spacer to remove.

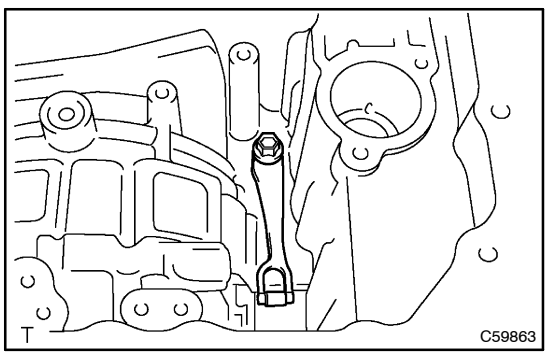


(b) Using a pin punch and hammer, drive out the pin.
(c) Remove the manual valve lever shaft and manual valve lever.



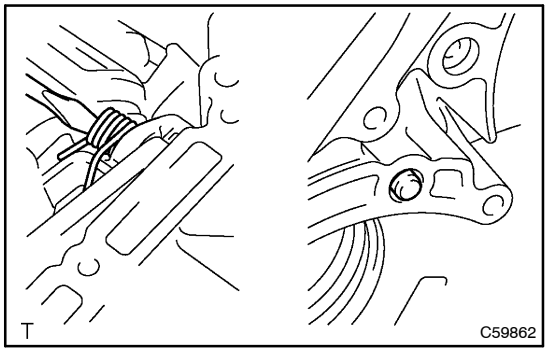
80. REMOVE PARKING LOCK ROD SUB–ASSY

(a) Remove the parking lock rod sub–assy from the manual valve lever.



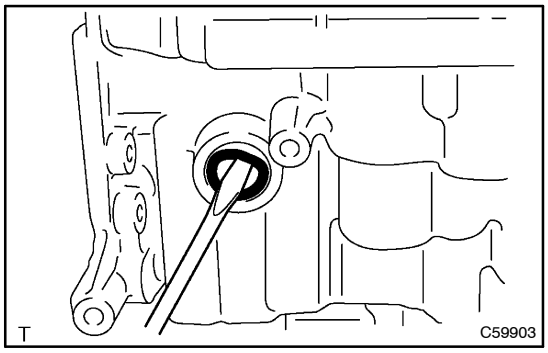
81. REMOVE MANUAL DETENT SPRING SUB–ASSY

(a) Remove the bolt and manual detente spring sub assy.



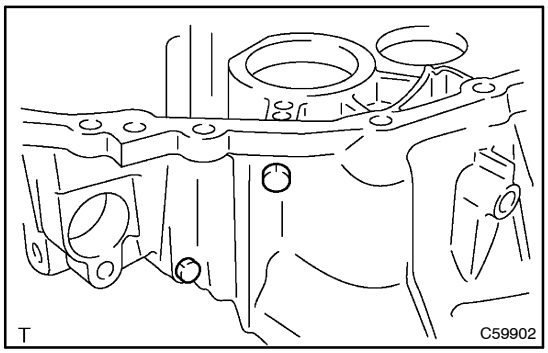
82. REMOVE PARKING LOCK PAWL

(a) Remove the parking lock pawl shaft, torsion spring and parking lock pawl.



83. REMOVE MANUAL VALVE LEVER SHAFT OIL SEAL

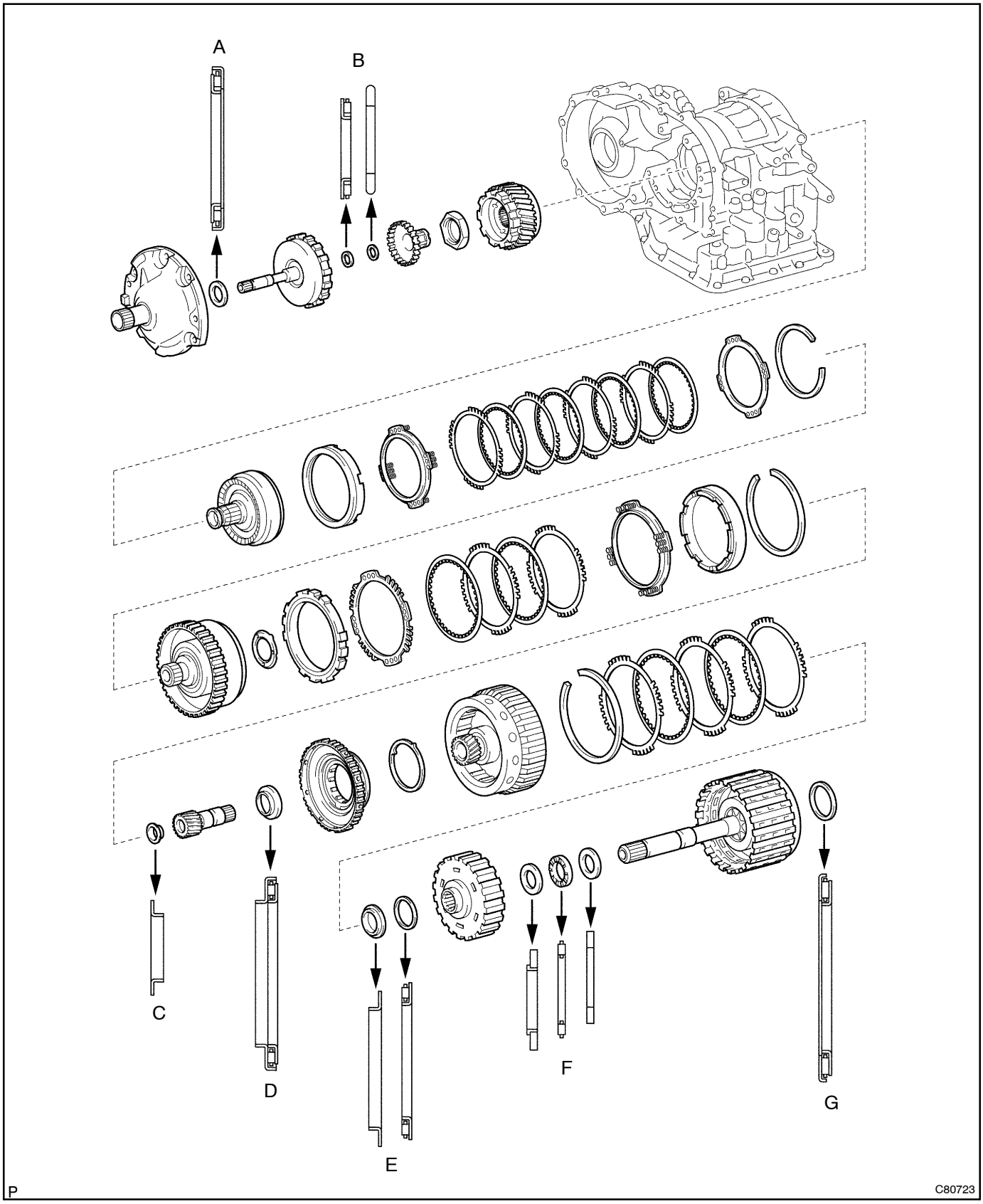
(a) Using a screwdriver the oil seal.



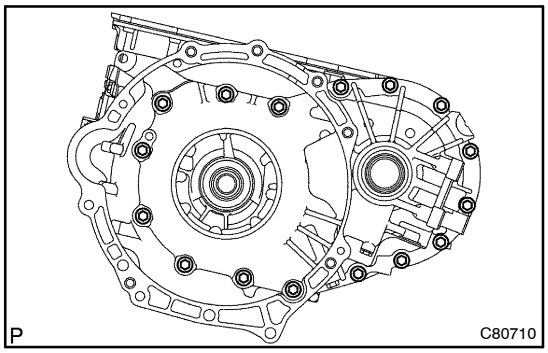
84. REMOVE TRANSAXLE CASE NO.1 PLUG

(a) Remove 2 transaxle case No. 1 plugs.
(b) Using a screwdriver, remove O–ring from the transaxle case No. 1 plug.

85. BEARING POSITION

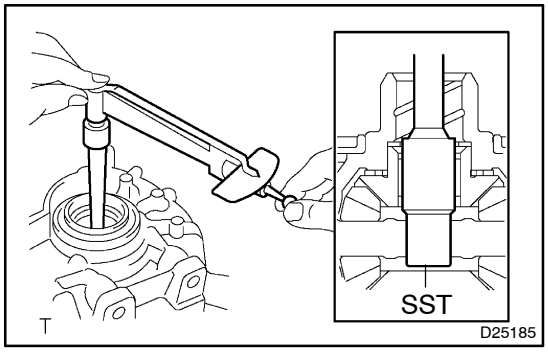


Mark	Front Race Diameter Inside / Outside mm (in.)	Thrust Bearing Diameter Inside / Outside mm (in.)	Rear Race Diameter Inside / Outside mm (in.)
A	–	32.5 (1.280) / 48.5 (1.909) or 32.9 (1.295) / 48.5 (1.909)	–
B	–	17.8 (0.701) / 30.2 (1.189)	20.5 (0.807) / 32.6 (1.283)
C	19.3 (0.760) / 29.0 (1.142)	–	–
D	–	42.5 (1.673) / 57.5 (2.264)	–
E	34.95 (1.3670) / 45.50 (1.7913)	33.3 (1.311) / 46.5 (1.831)	–
F	19.3 (0.760) / 30.6 (1.205)	18.1 (0.713) / 29.6 (1.165)	18.1 (0.713) / 28.2 (1.110)
G	–	43.2 (1.701) / 62.0 (2.441)	–



86. ADJUST TAPERED POLLER BEARING PRELOAD

(a) Install the transaxle housing and 16 bolts of the transaxle housing temporarily.
Tighten 8 or 9 bolts out of 16 bolts of the transaxle housing completely.
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

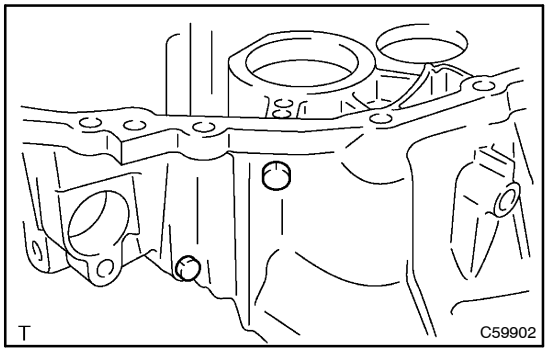


(b) Using SST and small torque wrench, measure the preload of the differential gear.
SST 09564–32011
Preload:
New bearing:
0.78 – 1.37 N·m (8.0 – 14.0 kgf·cm, 6.9 – 12.2 in.·lbf)
Used bearing:
0.39 – 0.69 N·m (4.0 – 7.0 kgf·cm, 3.5 – 6.1 in.·lbf)

If the preload is not within the specification, remove the differential from the transaxle case. Re–select the transaxle case side adjusting shim according to the following table.

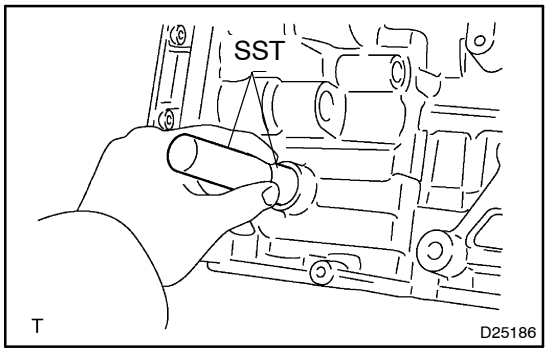
Adjusting shim thickness: mm (in.)

Mark	Thickness	Mark	Thickness
A	1.80 (0.0709)	N	2.26 (0.0890)
B	1.85 (0.0728)	P	2.29 (0.0902)
C	1.90 (0.0748)	Q	2.32 (0.0913)
D	1.95 (0.768)	R	2.35 (0.0925)
E	2.00 (0.0787)	S	2.40 (0.0945)
F	2.05 (0.0807)	T	2.45 (0.0965)
G	2.08 (0.0819)	U	2.50 (0.0984)
H	2.11 (0.0831)	V	2.55 (0.1004)
J	2.14 (0.0843)	W	2.60 (0.1024)
K	2.17 (0.0854)	X	2.65 (0.1043)
L	2.20 (0.0866)	Y	2.70 (0.1063)
M	2.23 (0.0878)		



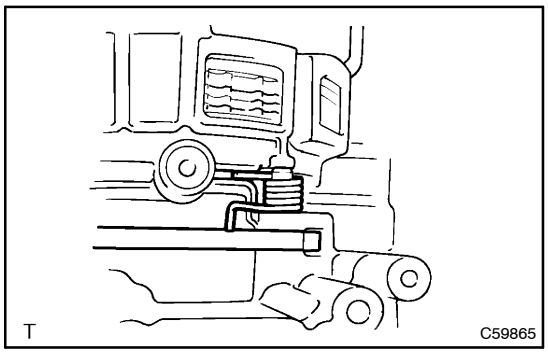
87. INSTALL TRANSAXLE CASE NO.1 PLUG

(a) Install the 2 O–rings to the transaxle case No. 1 plug.
(b) Install the 2 transaxle case No. 1 plugs to the transaxle case.
Torque: 7.4 N·m (75 kgf·cm, 65 in.·lbf)



88. INSTALL MANUAL VALVE LEVER SHAFT OIL SEAL

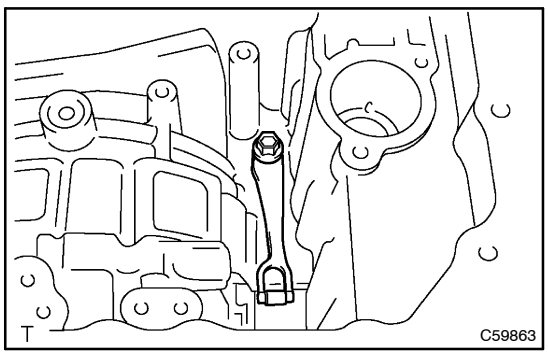
(a) Coat a new oil seal with ATF.
(b) Using SST and a hammer, install the oil seal to the transaxle case.
Oil seal in depth:
A: 1 ± 0.25 mm (0.39 ± 0.0098 in.)
SST 09950–60010 (09951–00230), 09950–70010 (09951–07100)



89. INSTALL PARKING LOCK PAWL

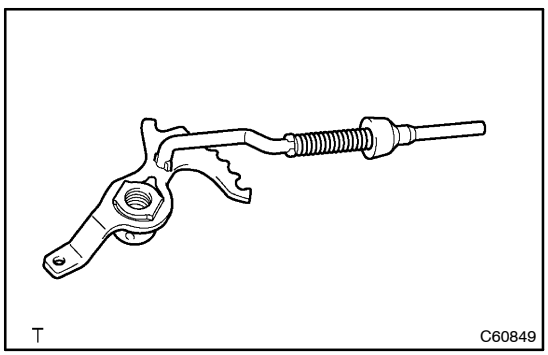
(a) Install the parking lock pawl shaft, torsion spring and parking lock pawl.

NOTICE:
Check that the edge of torsion spring fits into the groove securely.



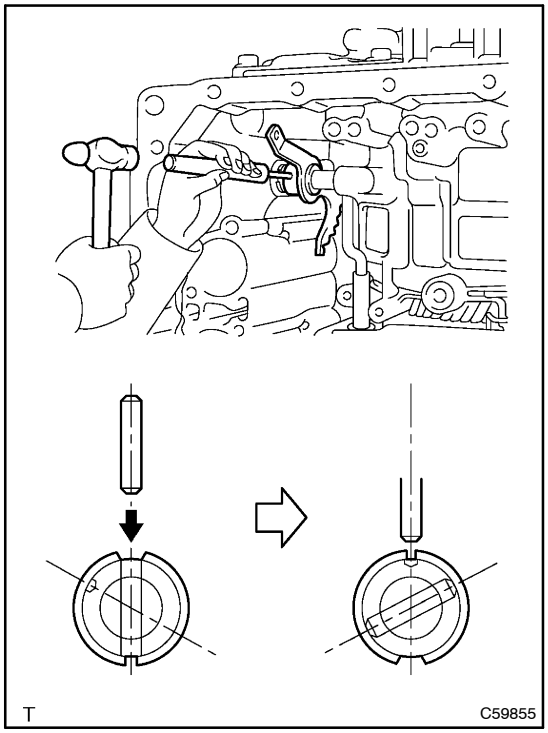
90. INSTALL MANUAL DETENT SPRING SUB–ASSY

(a) Install the manual detente spring with the bolt.
Torque: 9.8 N·m (100 kgf·cm, 7 ft·lbf)



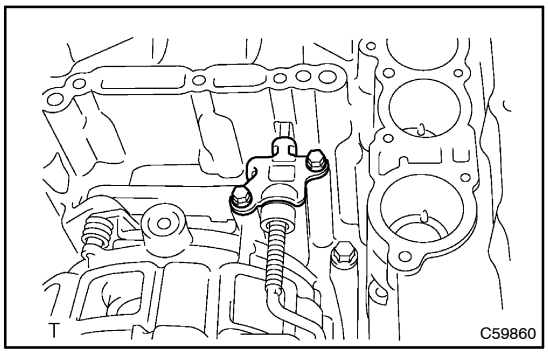
91. INSTALL PARKING LOCK ROD SUB–ASSY

(a) Install the parking lock rod sub–assy to the manual valve lever.



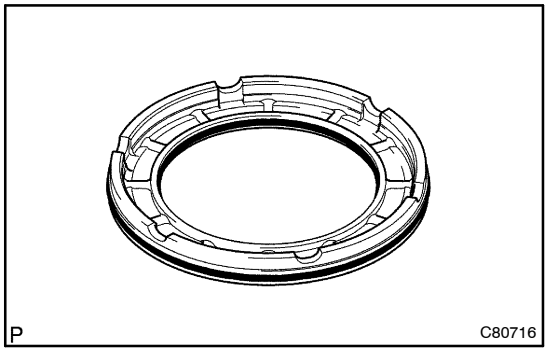
92. INSTALL MANUAL VALVE LEVER SHAFT

(a) Install a new spacer to the manual valve lever.
(b) Install the manual valve lever shaft and manual valve lever.
(c) Using a pin punch and hammer, drive in a new pin.
(d) Turn the spacer and lever shaft to align the small hole for locating the staking position in the spacer with the staking position mark on the lever shaft.
Using a pin punch, stake the spacer through the small hole.
Check that the spacer does not turn.



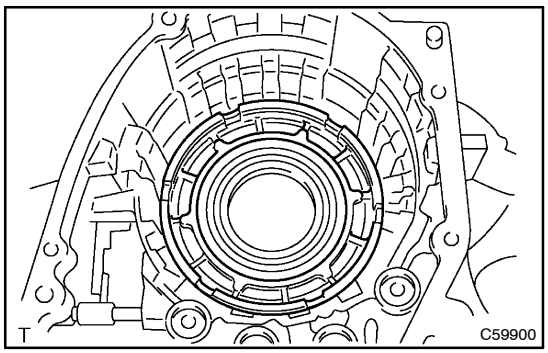
93. INSTALL PARKING LOCK PAWL BRACKET

(a) Install the parking lock pawl bracket with the 2 bolts.
Torque: 7.4 N·m (75 kgf·cm, 65 in.·lbf)



94. INSTALL 1ST & REVERSE BRAKE O–RING

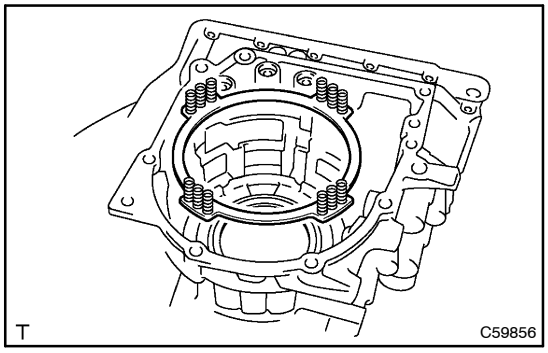
(a) Coat 2 new O–rings with ATF, install them to the 1st & reverse brake piston.



95. INSTALL 1ST & REVERSE BRAKE PISTON

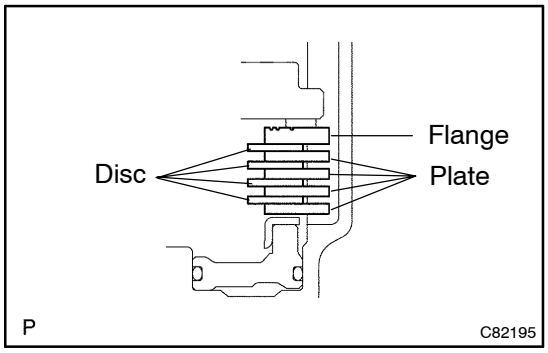
(a) Install the 1st & reverse brake piston to the transaxle case.

NOTICE:
Be careful not to damage the O–ring of the 1st & reverse brake piston.



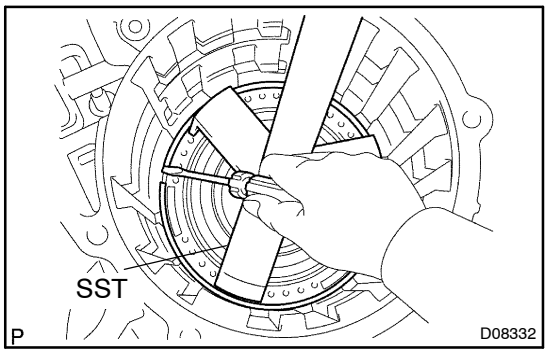
96. INSTALL 1ST & REVERSE BRAKE RETURN SPRING SUB–ASSY

(a) Install the return spring sub–assy to the transaxle case.



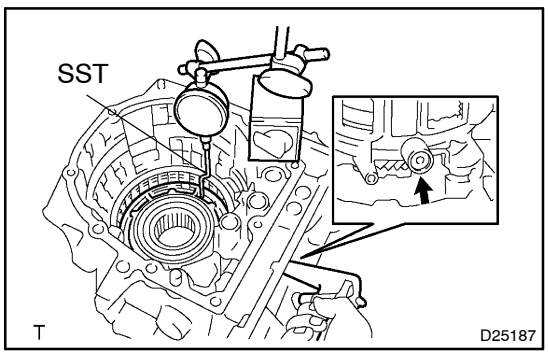
97. INSTALL 1ST & REVERSE BRAKE DISC

(a) Install the 4 plates, 4 discs and flange.



(b) Using SST, a press and a screwdriver, install the snap ring.
SST 09387–00070, 09950–70010 (09951–07100)

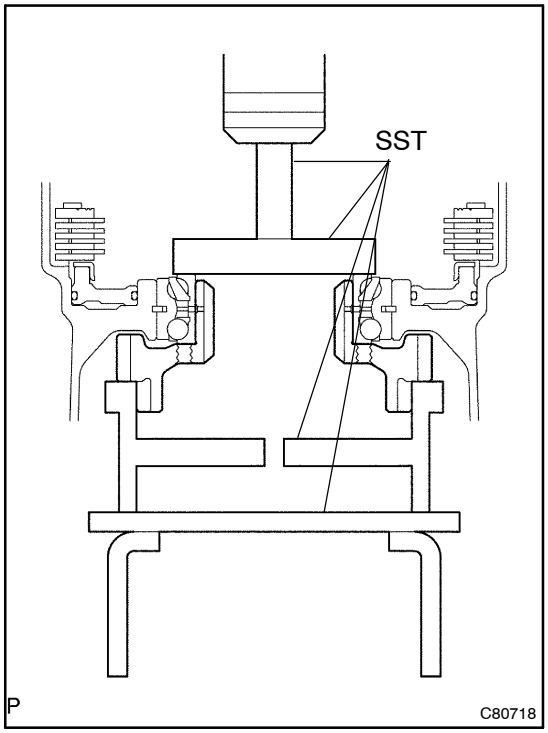
NOTICE:
Make sure that the snap ring is installed in the groove of the transaxle case correctly.



98. INSPECT PISTON STROKE OF 1ST & REVERSE BRAKE

(a) Using a dial indicator and measuring terminal (SST), measure the 1st & reverse brake piston stroke while applying and releasing compressed air (392 – 785 kPa, 4 – 8 kgf/cm^2, 57 – 114 psi).
SST 09350–36010 (09350–06110)
Piston stroke 0.791 – 1.489 mm (0.031 – 0.057 in.)

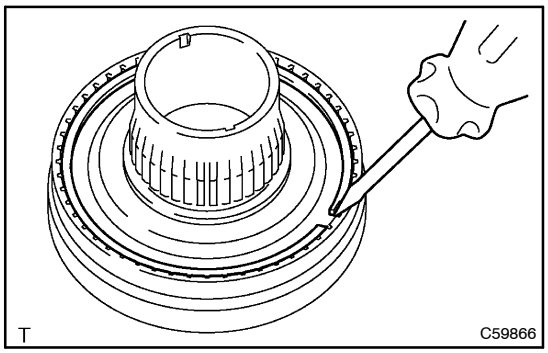
If the piston stroke is non–standard, inspect the discs, plates and flange.



99. INSTALL COUNTER DRIVE GEAR

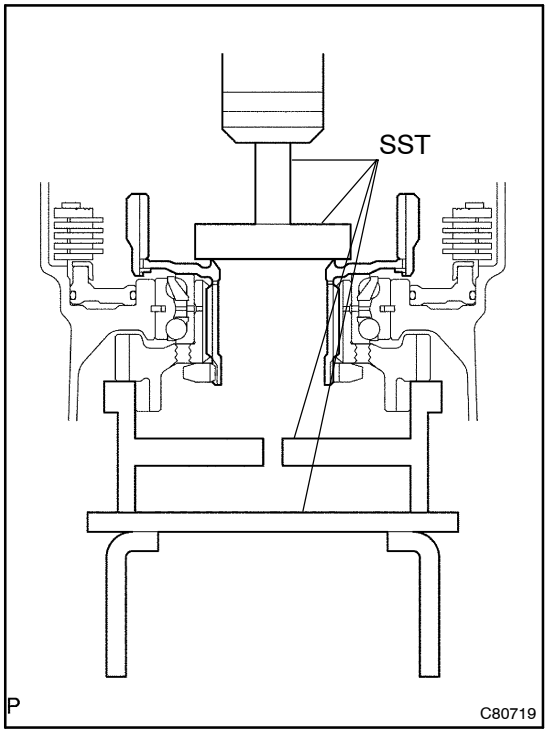
(a) Using SST and a press, install the counter drive gear.
SST 09223–15030, 09387–00060, 09950–60020 (09951–00710), 09950–70010 (09951–07100)

NOTICE:
Be careful not to apply excessive force to the transaxle case.



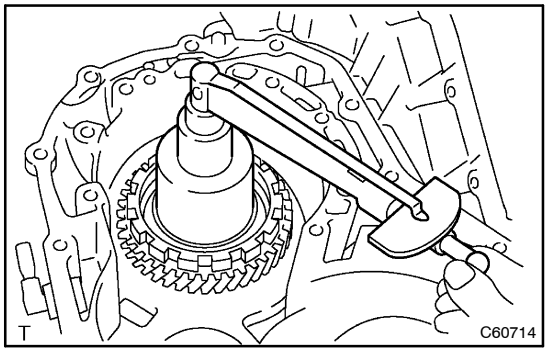
100. INSTALL PLANETARY RING GEAR

(a) Install the planetary ring gear to a new planetary ring gear flange and fix the snap ring using a screwdriver.



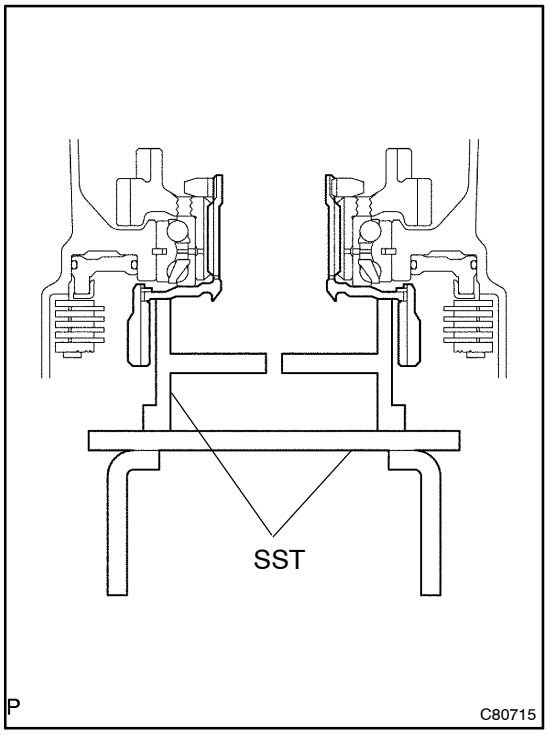
101. INSTALL PLANETARY RING GEAR FLANGE

(a) Using SST and a press, install the planetary ring gear.
SST 09223–15030, 09387–00060, 09950–60020 (09951–00790), 09950–70010 (09951–07100)

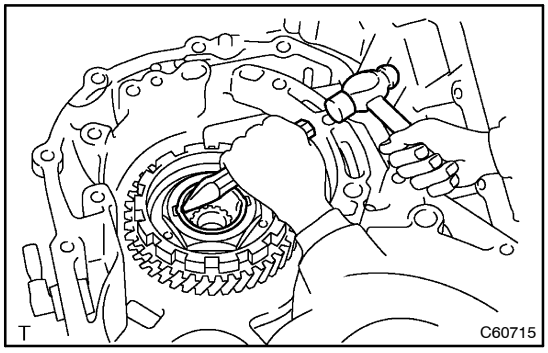


102. INSTALL COUNTER DRIVE GEAR NUT

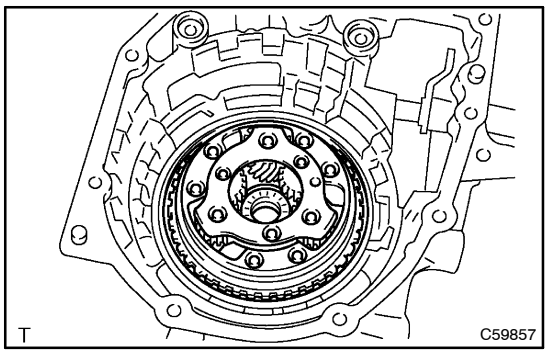
(a) Using a small torque wrench, while turning to counter driver gear 100 turn par minute and measure the preload.
Preload:
0.05 – 0.35 N·m (0.5 – 3.6 kgf·cm, 0.43 – 3.12 in.·lbf)



(b) Using SST, lift the transaxle case.
SST 09223–15020, 09387–00060

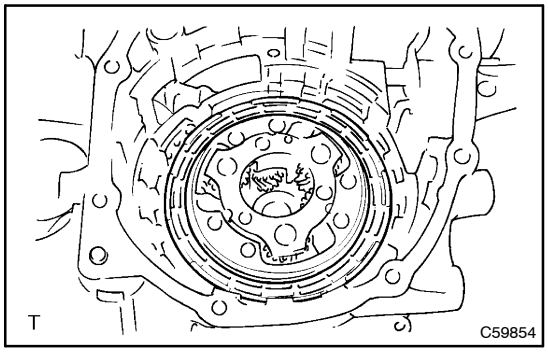


(c) Using a chisel and a hammer, stake the counter drive gear nut.



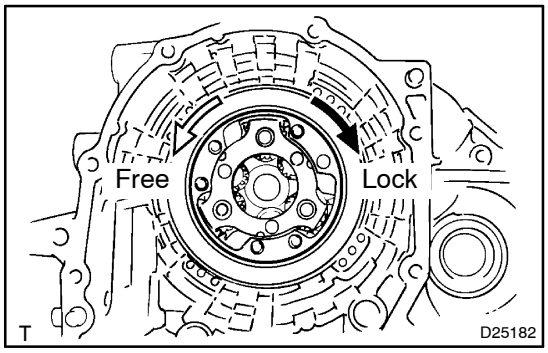
103. INSTALL PLANETARY GEAR ASSY

(a) Install the planetary gear assy to the transaxle housing.



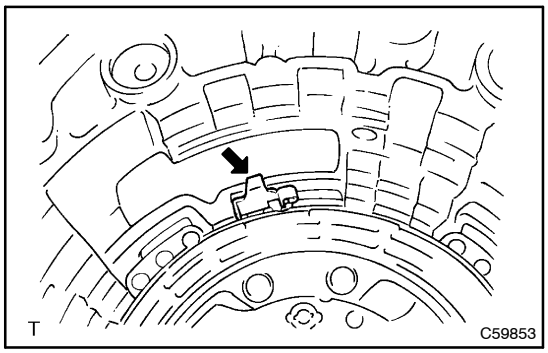
104. INSTALL 1 WAY CLUTCH NO.2

(a) Install the 1 way clutch No. 2 to the transaxle.



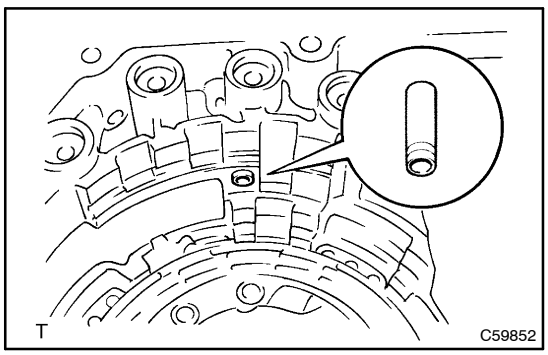
105. INSPECT 1 WAY CLUTCH NO.2

(a) Check that the planetary gear turns free counterclockwise and locks clockwise.

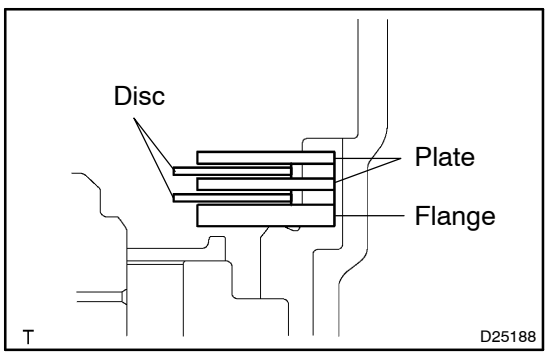


106. INSTALL OUTER RACE RETAINER

(a) Install the anti–rattle clip in the place shown in the illustration (the space between the No. 2 one–way clutch outer race and transaxle case), push the anti–rattle clip in until you hear the ”click”.

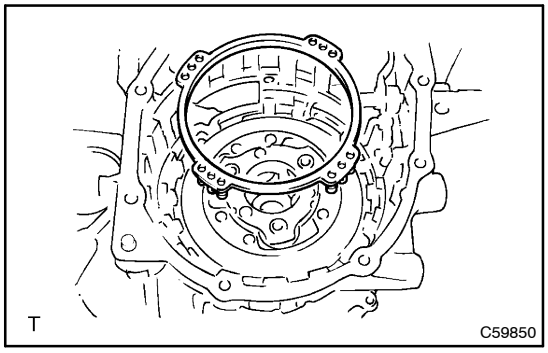


107. INSTALL BRAKE DRUM GASKET



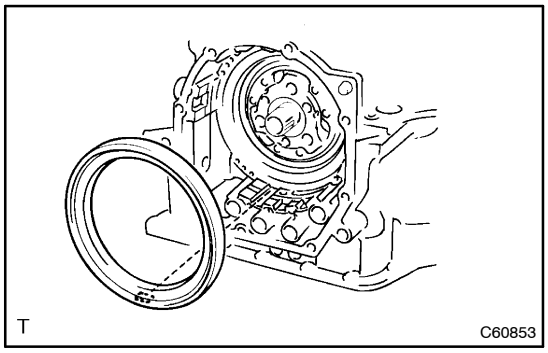
108. INSTALL 2ND BRAKE BRAKE DISC

(a) Coat a flange, 2 discs and 2 plates with ATF, install it to the transaxle case.



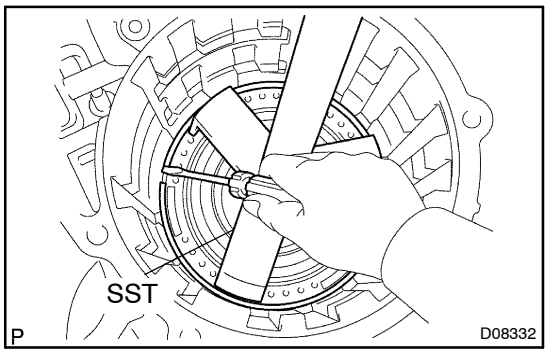
109. INSTALL 2ND BRAKE PISTON RETURN SPRING SUB–ASSY

(a) Coat the 2nd brake piston return spring with ATF, install it to the transaxle case.

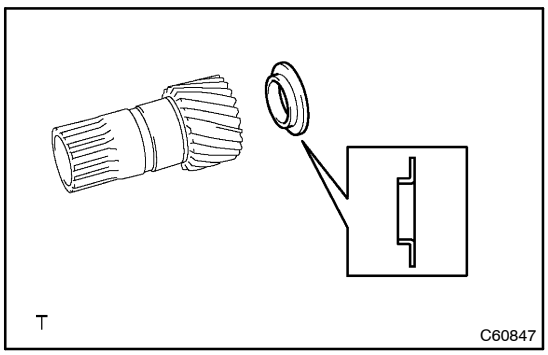


110. INSTALL SECOND BRAKE PISTON ASSY

(a) Coat the 2nd brake piston with ATF and install it as shown in the illustration on the left.

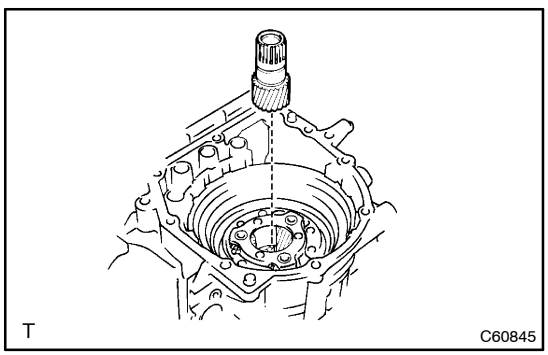


(b) Using SST, a press and a screwdriver, remove the snap ring.
SST 09387–00070, 09950–70010 (09951–07100)



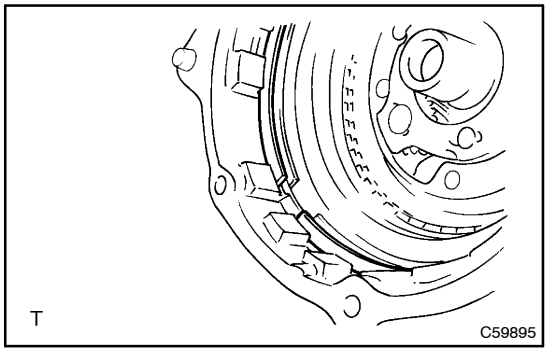
111. INSTALL FRONT PLANETARY FLANGE FRONT THRUST BEARING RACE

(a) Coat the thrust bearing race with petroleum jelly and install it onto the front planetary sun gear.



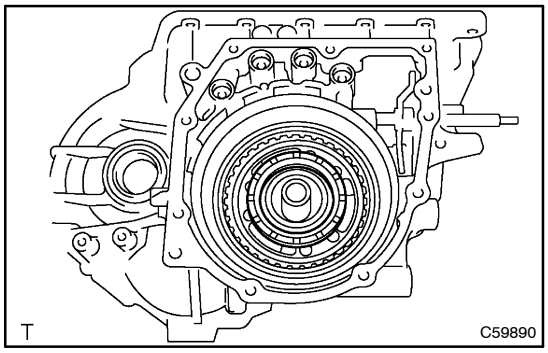
112. INSTALL PLANETARY SUN GEAR SUB–ASSY

(a) Install the planetary sun gear to the transaxle.



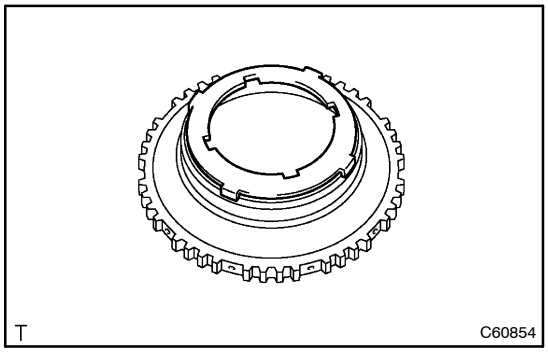
113. INSTALL 2ND COAST & OVERDRIVE BRAKE FLANGE HOLE SNAP RING

(a) Using a screwdriver, install snap ring to the transaxle case.



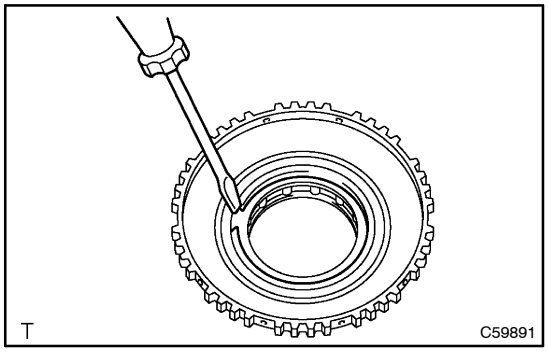
114. INSTALL PLANETARY CARRIER THRUST WASHER

(a) Install the washer to the planetary gear assy.



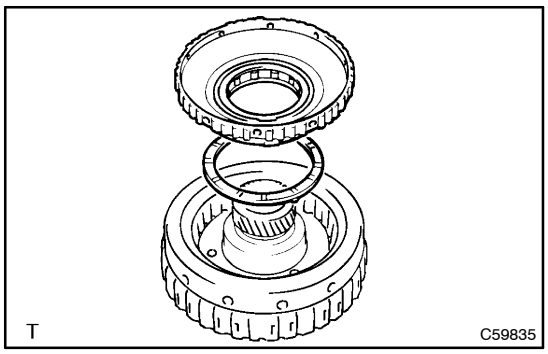
115. INSTALL 1 WAY CLUTCH RETAINER

(a) Install the retainer to the 2nd brake hub.

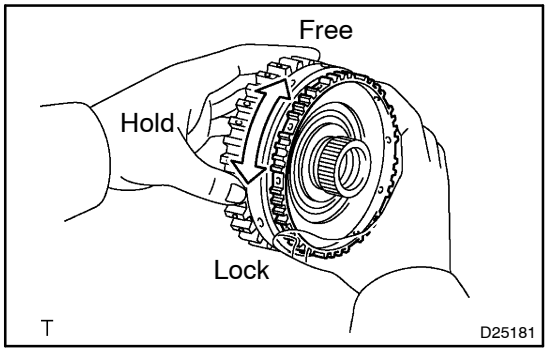


116. INSTALL 1 WAY CLUTCH NO.1

(a) Coat the 1 way clutch No. 1 with ATF, install it to the 2nd brake hub.
(b) Using a screwdriver, install the snap ring to the 2nd brake hub.

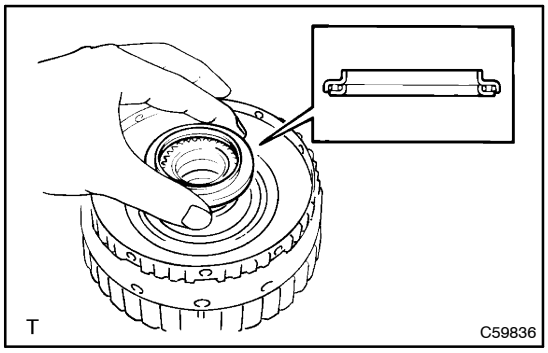


(c) Install the thrust washer to the 2nd brake hub.



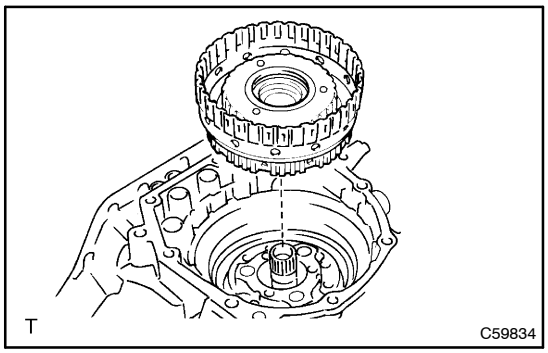
117. INSPECT 1 WAY CLUTCH NO.1

(a) Install the 1 way clutch and thrust washer to the rear planetary sun gear.
(b) Hold the rear planetary sun gear and turn the 1 way clutch. The 1 way clutch should turn freely clockwise and should lock counterclockwise.



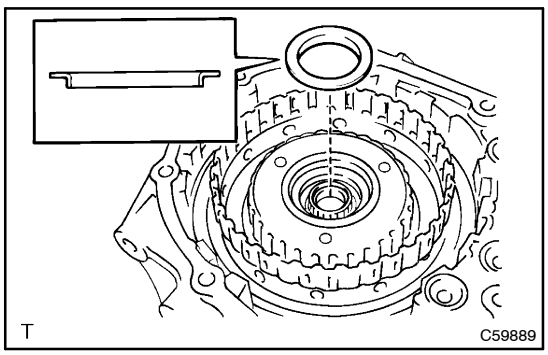
118. INSTALL PLANETARY GEAR REAR THRUST NEEDLE ROLLER BEARING

(a) Coat the needle roller bearing with ATF, install it to the rear planetary gear.



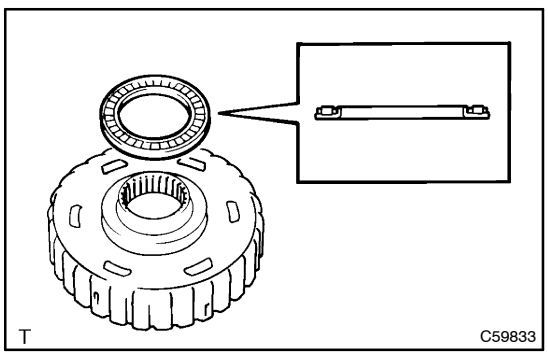
119. INSTALL REAR PLANETARY SUN GEAR ASSY

(a) Install the rear planetary sun gear assy to the transaxle case.



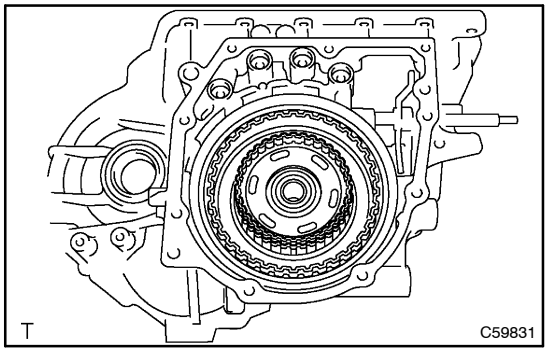
120. INSTALL FORWARD CLUTCH HOB THRUST BEARING RACE

(a) Coat the thrust bearing race with petroleum jelly and install it onto the transaxle case.



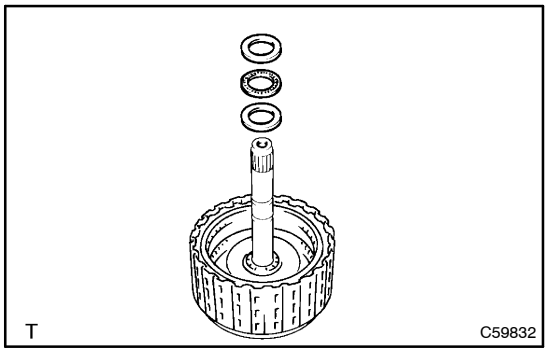
121. INSTALL FORWARD CLUTCH HUB THRUST NEEDLE ROLLER BEARING

(a) Coat the thrust needle roller bearing with petroleum jelly and install it onto the forward clutch hub.



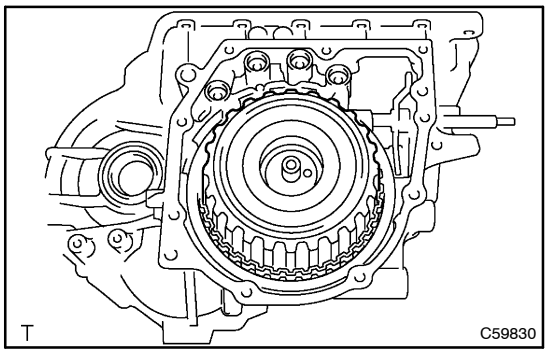
122. INSTALL FORWARD CLUTCH HUB SUB–ASSY

(a) Install the forward clutch hub to the transaxle case.



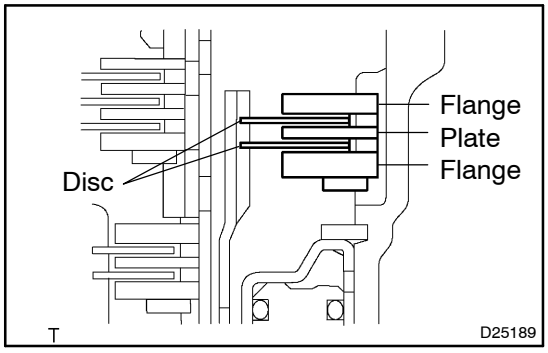
123. INSTALL SUN GEAR REAR THRUST BEARING

(a) Install the thrust bearing and 2 braces to the intermediate shaft assy.



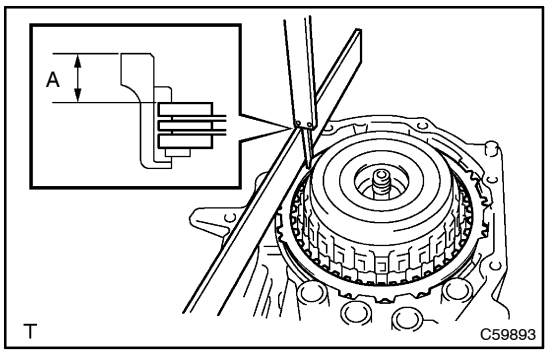
124. INSTALL INTERMEDIATE SHAFT ASSY

(a) Install the intermediate shaft assy to the transaxle case.



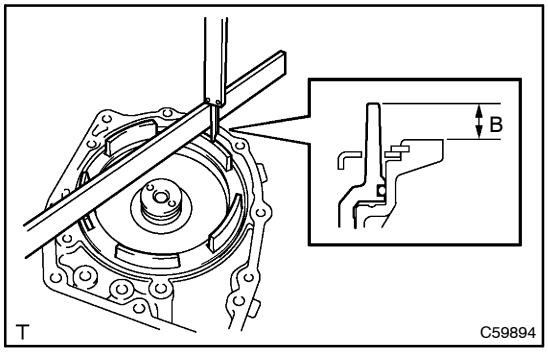
125. INSTALL 2ND COAST & OVERDRIVE BRAKE DISC

(a) Install the plate, 2 discs and 2 flanges to the transaxle case.



126. INSPECT 2ND COAST & O/D BRAKE FLANGE,DISK AND PLATE

(a) As shown in the illustration, place a straight edge on the transaxle case and measure the distance between the 2nd coast & O/D brake flange and straight edge using vernier calipers. (Dimension A)



(b) As shown in the illustration, place a straight edge on the O/D brake piston and measure the distance between the transaxle rear cover and straight edge using vernier calipers. (Dimension B)
Calculate the piston stroke value using the following formula. Select a flange which satisfies the piston stroke value and install it.

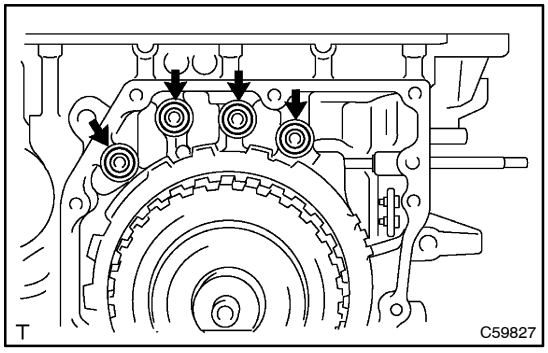
HINT:

Piston stroke = Dimension A – Dimension B

Piston stroke: 0.65 – 1.05 mm (0.0256 – 0.0413 in.)

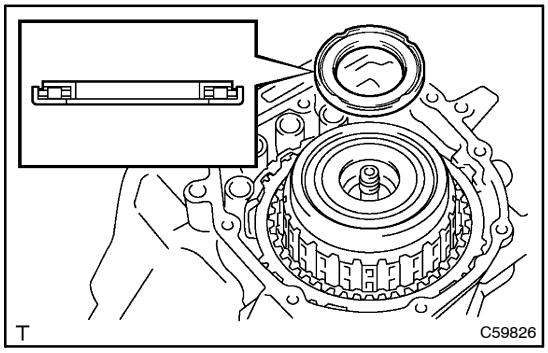
Flange thickness: mm (in.)

Mark	Thickness	Piston stroke value
0	3.0 (0.118)	0.738 – 0.949 (0.02905 – 0.03736)
1	3.2 (0.126)	0.950 – 1.149 (0.03740 – 0.04524)
2	3.4 (0.134)	1.150 – 1.349 (0.04528 – 0.05311)
3	3.6 (0.142)	1.350 – 1.549 (0.05315 – 0.06098)
0	3.8 (0.150)	1.550 – 1.702 (0.06102 – 0.06701)



127. INSTALL TRANSAXLE CASE 2ND BRAKE GASKET

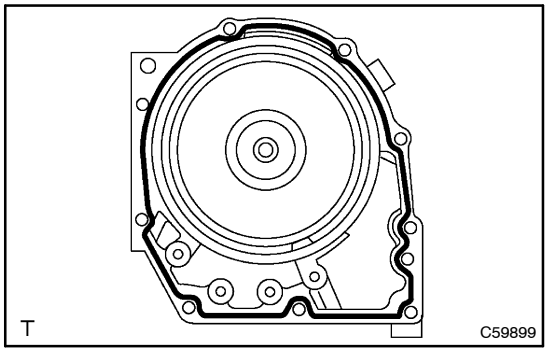
(a) Install new 4 apply gaskets to the transaxle rear cover.



128. INSTALL FRONT CLUTCH DRUM THRUST NEEDLE ROLLER BEARING

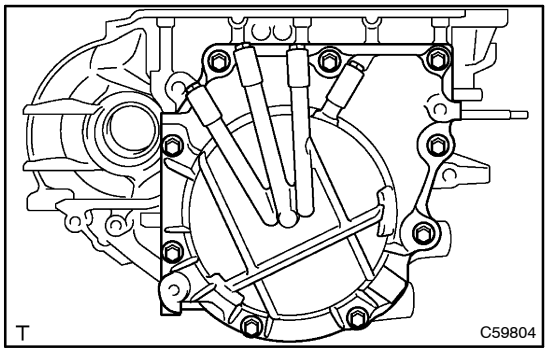
(a) Coat the thrust needle roller bearing with petroleum jelly and install it onto the forward & reverse clutch assembly.

(b) Remove any packing material and be careful not to get oil on the contacting surfaces of the transaxle rear cover or transaxle case.

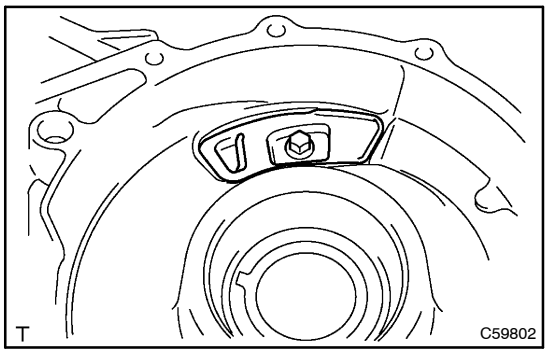


129. INSTALL TRANSAXLE REAR COVER ASSY

(a) Apply FIPG to the transaxle rear cover.
FIPG:
Part No. 08826–00090, THREE BOND 1281 or equivalent

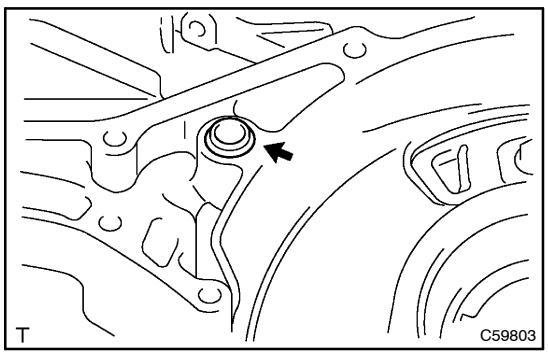


(b) Install the transaxle rear cover to the transaxle case with the 9 bolts.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

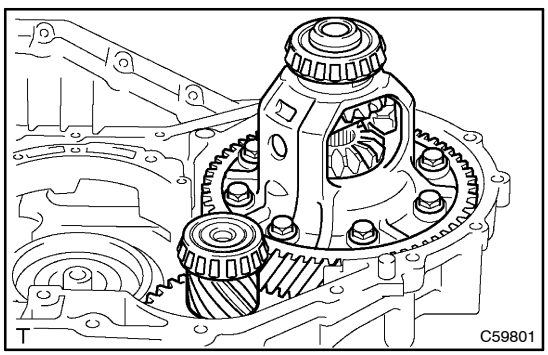


130. INSTALL TRANSMISSION CASE PLATE NO.1

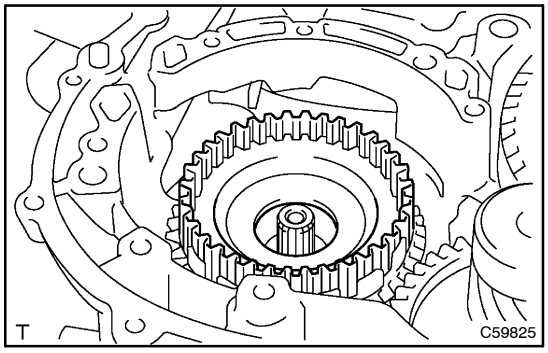
(a) Install the transmission case plate No. 1 to the transaxle case with the bolt.
Torque: 9.8 N·m (100 kgf·cm, 7 ft·lbf)



131. INSTALL GOVERNOR APPLY GASKET NO.2

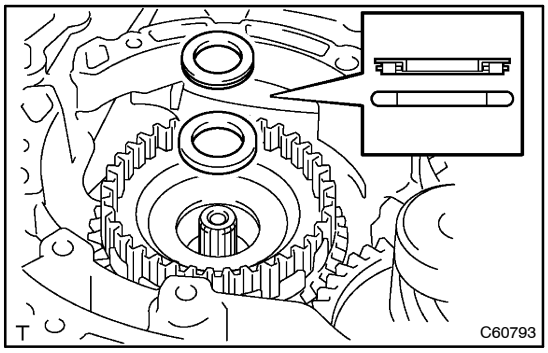


132. INSTALL DIFFERENTIAL GEAR ASSEMBLY



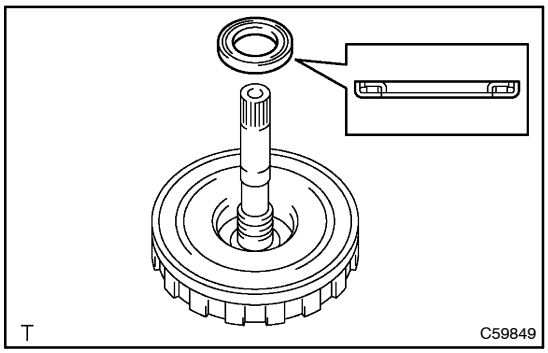
133. INSTALL DIRECT CLUTCH HUB

(a) Install the direct clutch hub to the transaxle case.



134. INSTALL PLANETARY GEAR FRONT THRUST NEEDLE ROLLER BEARING

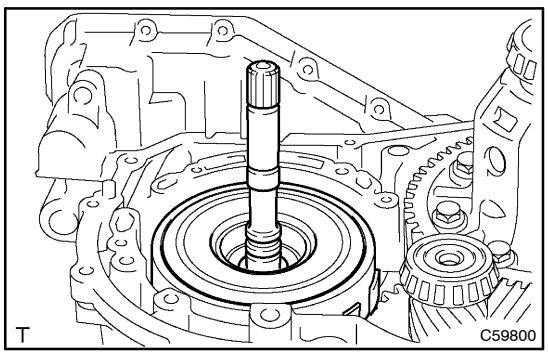
(a) Install the thrust bearing race and thrust needle roller bearing to the transaxle case.



135. INSTALL STATOR SHAFT THRUST NEEDLE ROLLER BEARING

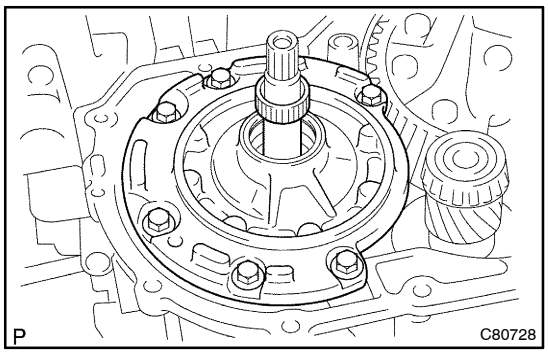
(a) Install the thrust needle roller bearing to the transaxle case.

NOTICE:
Check the direction of the bearing.



136. INSTALL INPUT SHAFT ASSY

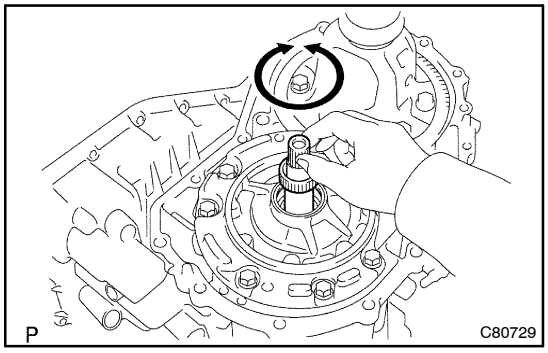
(a) Install the input shaft assy to the transaxle case.



137. INSTALL OIL PUMP ASSEMBLY

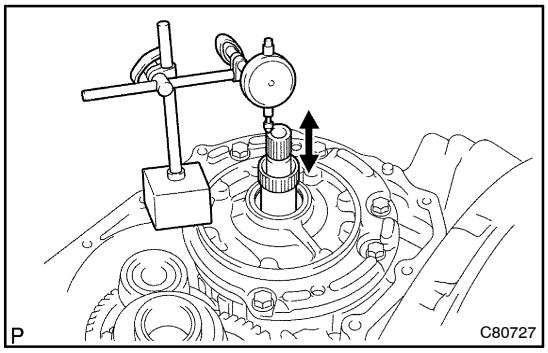
(a) Place the oil pump through the input shaft, and align the bolt holes of the oil pump with the transaxle case.

(b) Install the 6 bolts.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



138. INSPECT INPUT SHAFT ASSY

(a) Make sure that the input shaft turns smoothly.



139. INSPECT INPUT SHAFT ENDPLAY

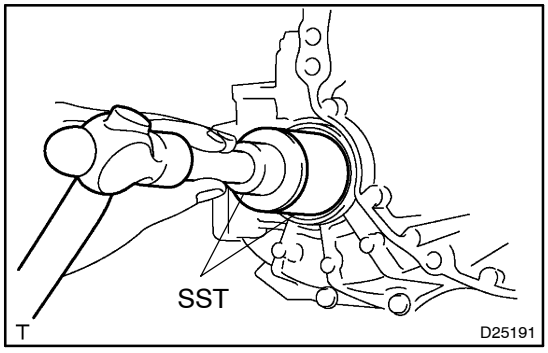
(a) Measure the end play in axial direction.
End play: 0.3 – 0.9 mm (0.012 – 0.035 in.)

If the end play is not as specified, select and replace the thrust needle roller bearing.

HINT:

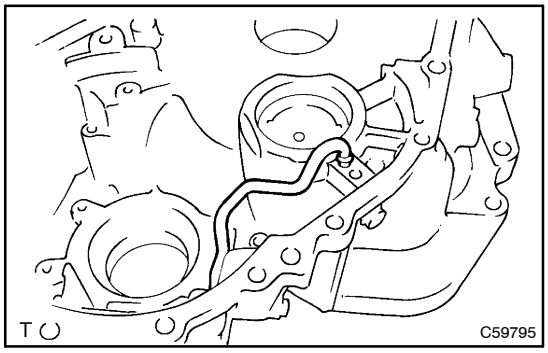
There are 2 bearing in difference thickness, if necessary, select one of them.

140. INSTALL BREATHER PLUG NO.1 (ATM)

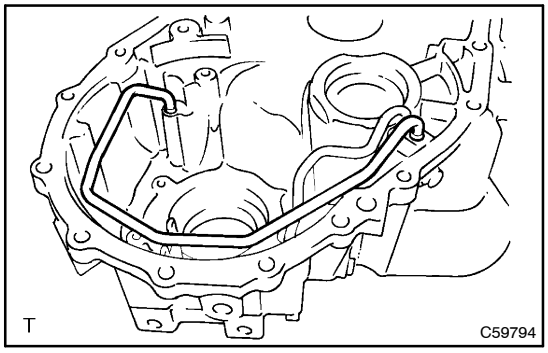


141. INSTALL TRANSAXLE HOUSING OIL SEAL

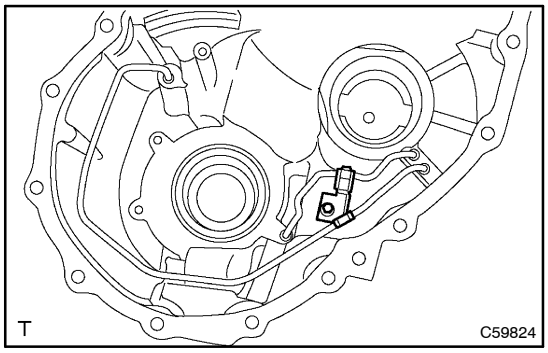
(a) Using SST and a hammer, drive in a new oil seal.
Oil seal in depth: 3.1 mm (0.122 in.)
SST 09517–12010, 09630–24014 (09620–24051)



142. INSTALL DIFFERENTIAL GEAR LUBE APPLY TUBE

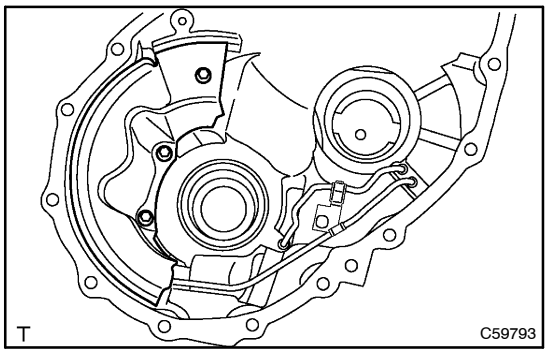


143. INSTALL TRANSMISSION LUBE APPLY TUBE



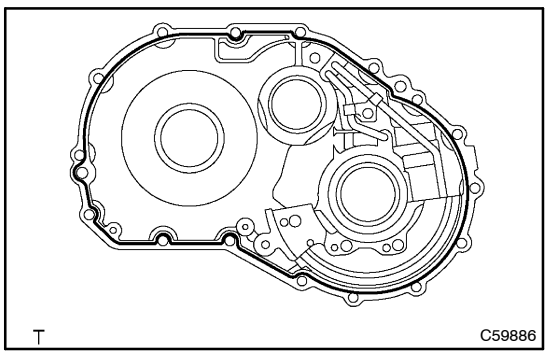
144. INSTALL TRANSAXLE APPLY TUBE CLAMP NO.1

(a) Install the transaxle apply tube clamp No. 1 to the transaxle housing with the bolt.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)



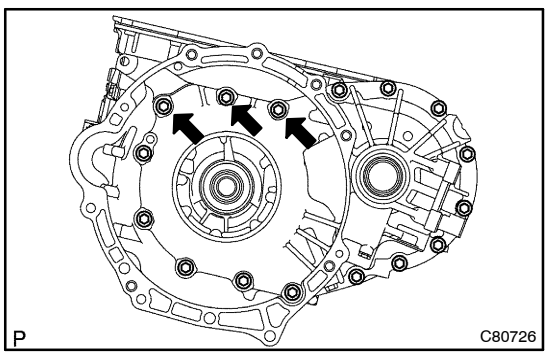
145. INSTALL TRANSAXLE HOUSING OIL SEPARATOR

(a) Install the oil separator to the transaxle housing with the 3 bolts.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)



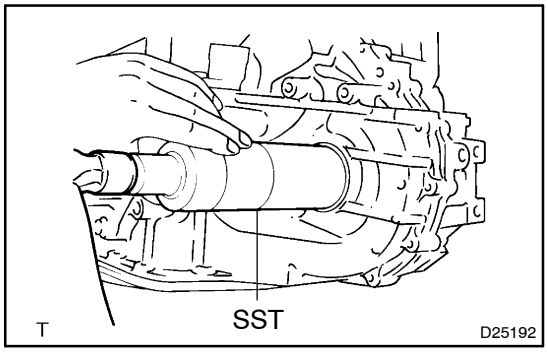
146. INSTALL TRANSAXLE HOUSING

(a) Remove any packing material and be careful not to get oil on the contacting surfaces of the transaxle housing or transaxle case.
(b) Apply FIPG to the transaxle housing.
FIPG:
Part No. 08826–00090, THREE BOND 1281 or equivalent



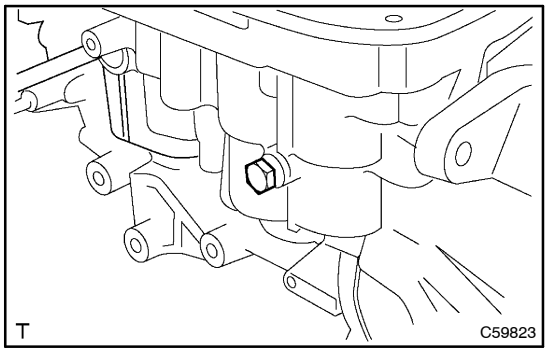
(c) Install the transaxle housing to the transaxle case with the 16 bolts.
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

HINT:
Apply seal packing or equivalent to the 3 bolts indicated by arrows.
Seal packing:
Part No. 08833–00070, THREE BOND 1324 or equivalent



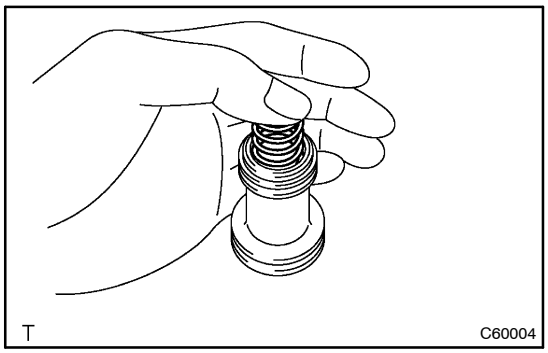
147. INSTALL TRANSAXLE CASE OIL SEAL

(a) Using SST and a hammer, drive in a new oil seal.
SST 09316–60011 (09316–00011)
Oil seal in depth: 3.1 mm (0.122 in.)

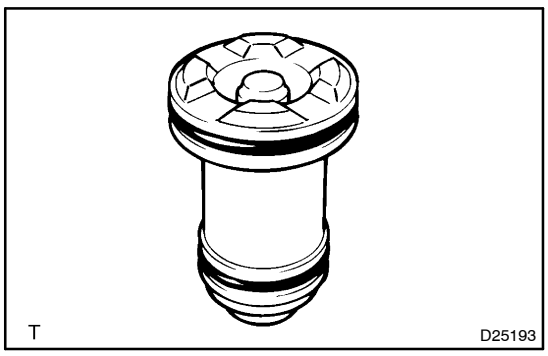


148. INSTALL TRANSAXLE HOUSING NO.2 PLUG

(a) Coat a new O–ring with ATF, install it to the screw plug.
(b) Install the transaxle housing No. 2 plug to the transaxle case.
Torque: 7.4 N·m (75 kgf·cm, 65 in.·lbf)

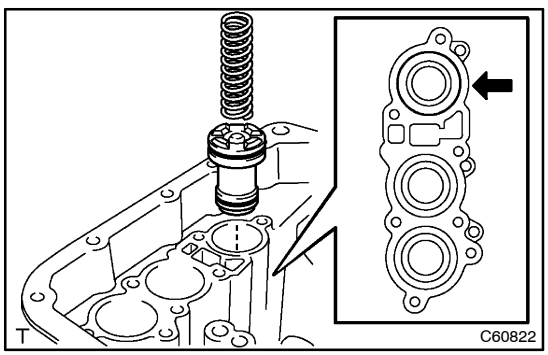


149. INSTALL B–1 ACCUMULATOR PISTON COMPRESSION SPRING

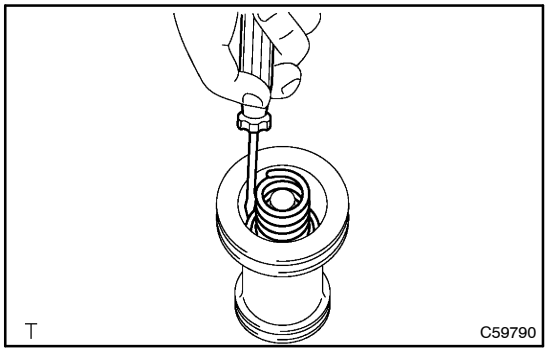


150. INSTALL PISTON B–1 ACCUMULATOR

(a) Install 2 O–rings to the B_1 accumulator piston.

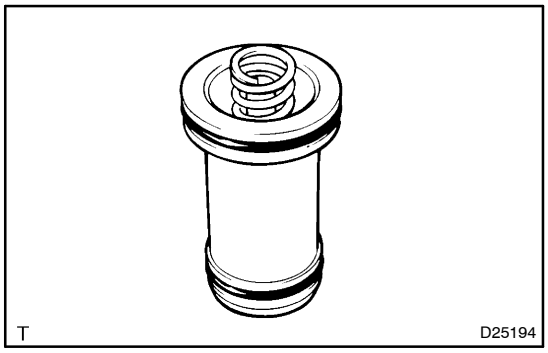


(b) Install the B_1 accumulator piston to the transaxle case.



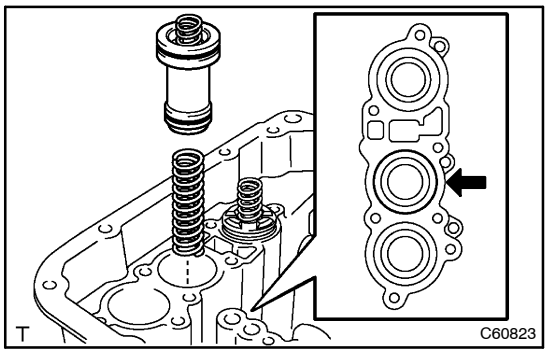
151. INSTALL C–1 ACCUMULATOR SPRING SUB–ASSY

(a) Install the C_1 accumulator spring to the C_1 accumulator piston with snap ring.

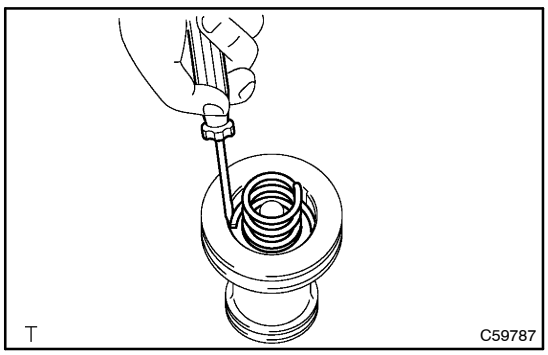


152. INSTALL C–1 ACCUMULATOR PISTON

(a) Coat 2 new O–rings with ATF and install them to the C_1 accumulator piston.

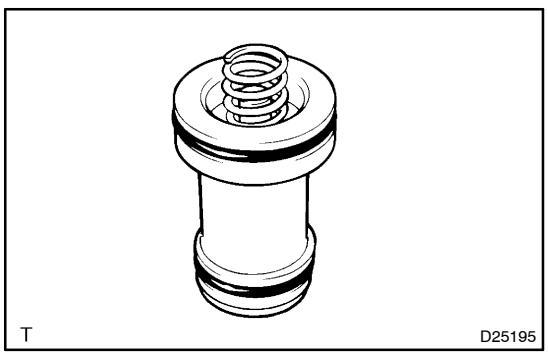


(b) Coat the piston with ATF and install it to the transaxle case.



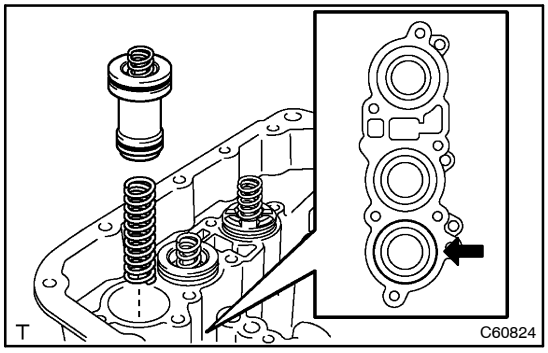
153. INSTALL C–2 ACCUMULATOR SPRING SUB–ASSY

(a) Install the C_2 accumulator spring to the C_2 accumulator piston with snap ring.

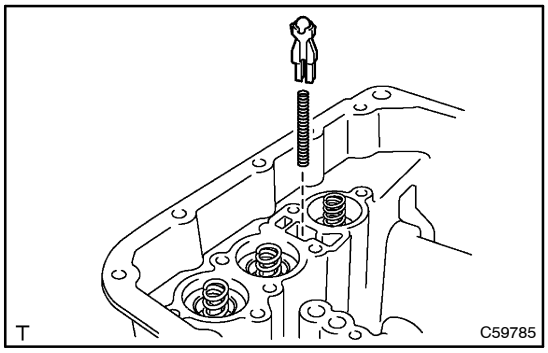


154. INSTALL C–2 ACCUMULATOR PISTON

(a) Coat 2 new O–rings with ATF and install them to the C_2 accumulator piston.

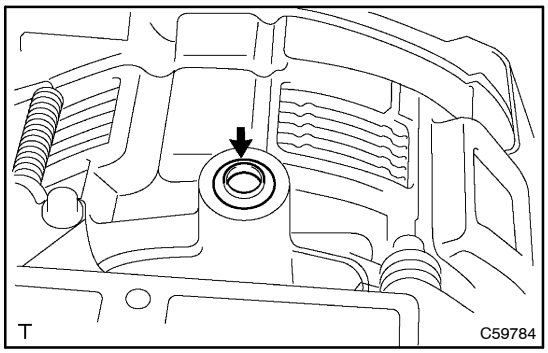


(b) Coat the piston with ATF and install it to the transaxle case.



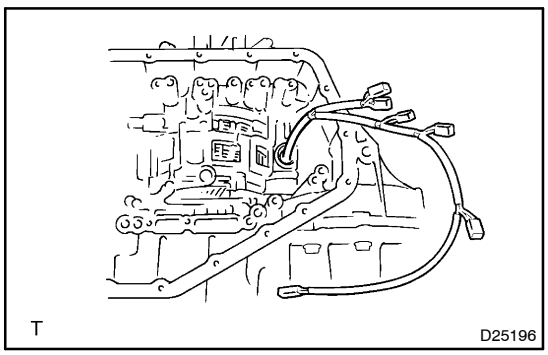
155. INSTALL CHECK BALL BODY

(a) Coat the spring and the check ball body with ATF and install them to the transaxle case.



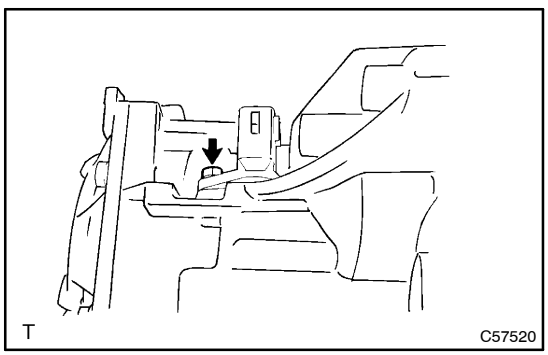
156. INSTALL GOVERNOR APPLY GASKET NO.1

(a) Coat the governor apply gasket No. 1 with ATF and install it to the transaxle case.

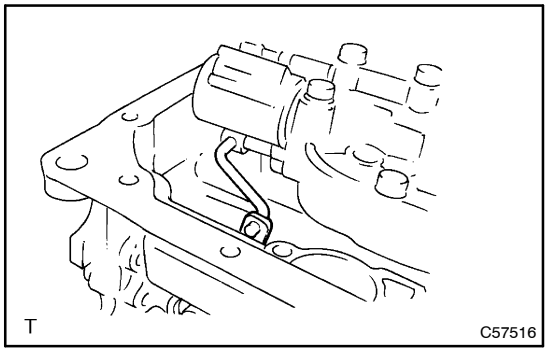


157. INSTALL TRANSMISSION WIRE

(a) Coat a new O–ring with ATF and install it to the transmission wire.
(b) Pierce the transmission wire to the transaxle.

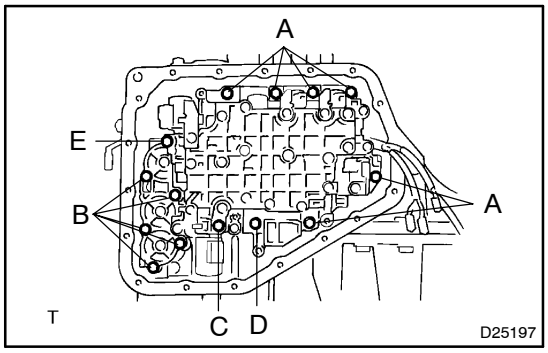


(c) Install the transmission wire and bolt.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)



158. INSTALL TRANSMISSION VALVE BODY ASSY

(a) Connect the connecting rod to the manual valve lever, install the transmission valve body.



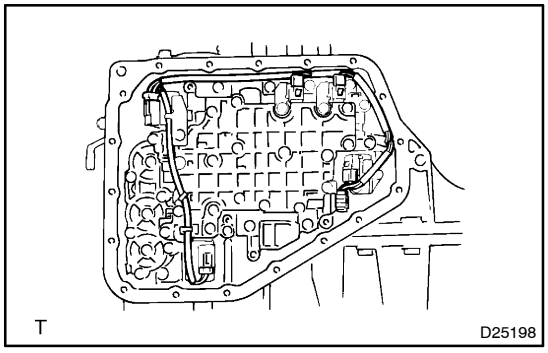
(b) Torque the 14 bolts at the same torque each.

Torque: 11 N·m (110 kgf·cm, 8 ft·lbf)

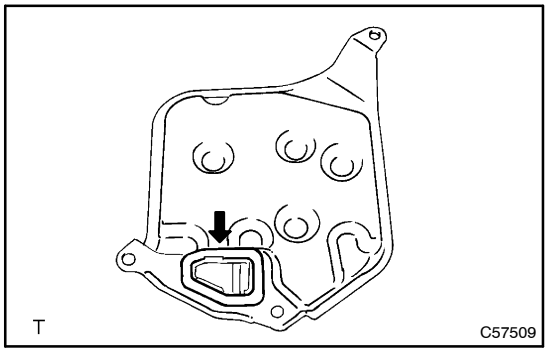
NOTICE:

When installing the valve body to the transaxle case. do not hold the solenoids.

Bolt length:
Bolt A: 20 mm (0.79 in.)
Bolt B: 28 mm (1.10 in.)
Bolt C: 49 mm (1.93 in.)
Bolt D: 36 mm (1.42 in.)
Bolt E: 40 mm (1.57 in.)

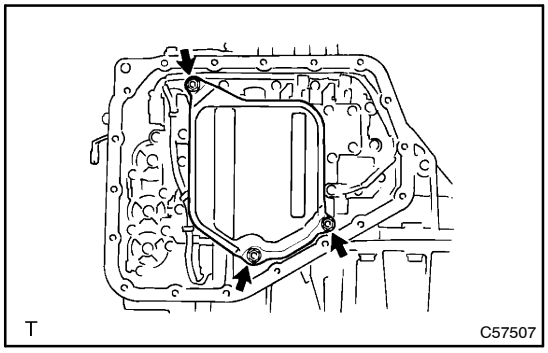


(c) Install the oil temperature sensor and solenoid connectors.

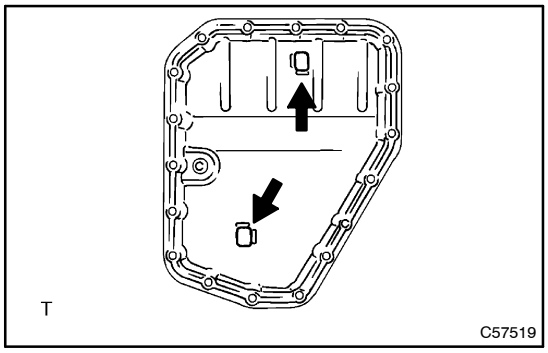


159. INSTALL VALVE BODY OIL STRAINER ASSY

(a) Install a new gasket to the oil strainer.

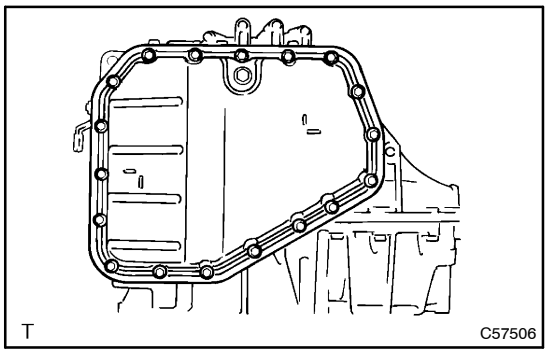


(b) Install the oil strainer to the transaxle assy with 3 bolts.
Torque: 9.8 N·m (100 kgf·cm, 7 ft·lbf)

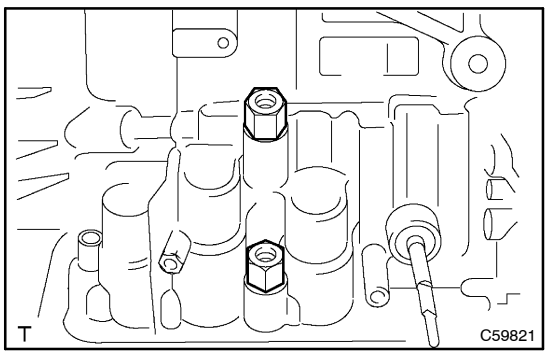


160. INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB–ASSY

(a) Install 2 oil cleaner magnets to the 2 positions shown in the illustration on the left.

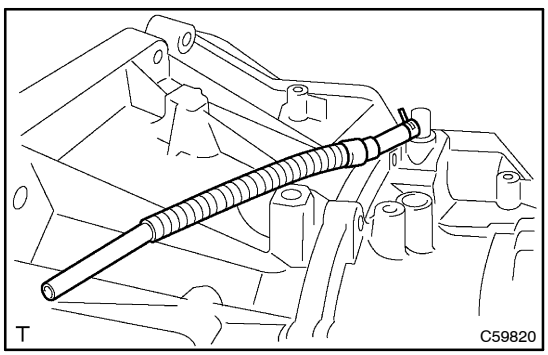


(b) Install a new gasket and oil pan with 18 bolts.
Torque: 7.0 N·m (70 kgf·cm, 61 in.·lbf)



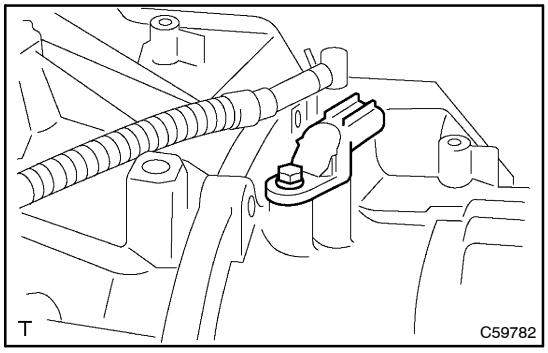
161. INSTALL OIL COOLER TUBE UNION

(a) Coat a new O–ring with ATF and install it to the oil cooler tube union.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



162. INSTALL BREATHER PLUG HOSE

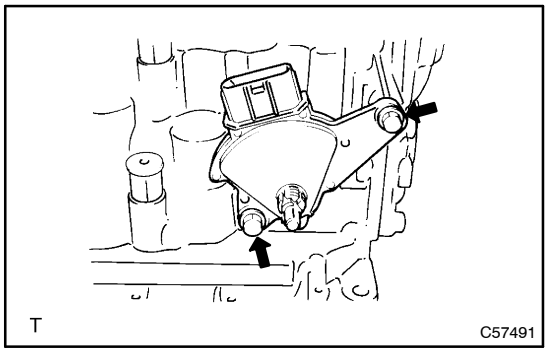
(a) Install the breather plug hose to the breather plug with clamp.



163. INSTALL TRANSMISSION REVOLUTION SENSOR

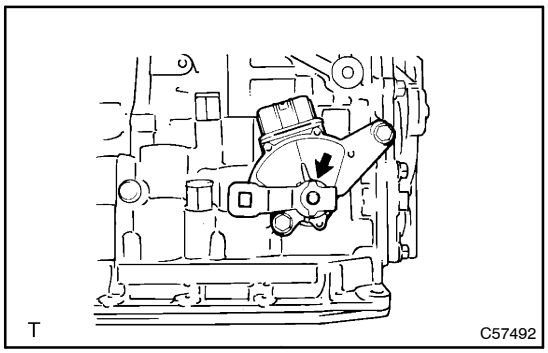
(a) Coat a new O−ring with ATF and install it to the transmission revolution sensor.

(b) Install the transmission revolution sensor to the transaxle with bolt.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)



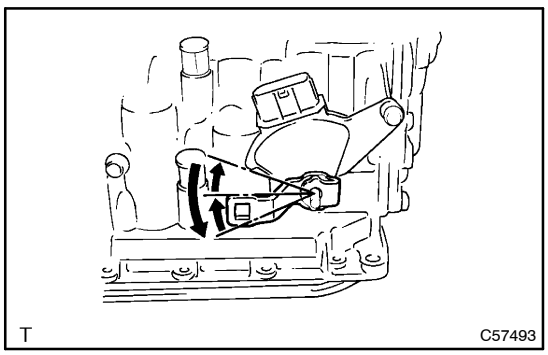
164. INSTALL NEUTRAL START SWITCH ASSY

(a) Temporarily fasten the neutral start switch with 2 bolts.

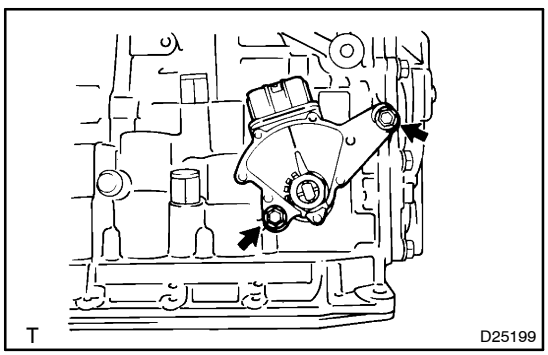


(b) Install the nut stopper and nut.
Torque: 6.9 N·m (70 kgf·cm, 61 in.·lbf)

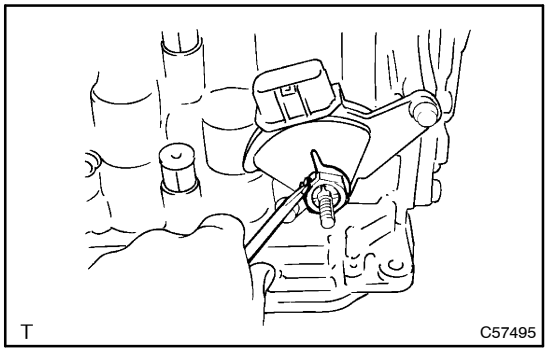
(c) Temporarily install the control shaft lever.



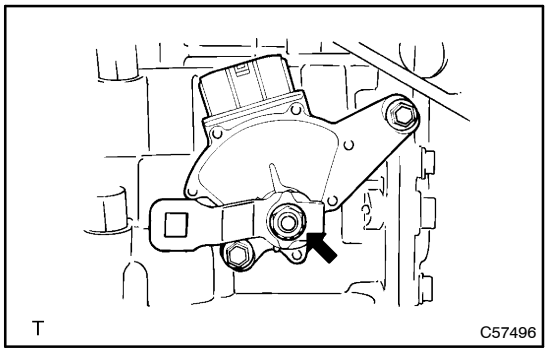
(d) Turn the control shaft lever counterclockwise until it stops, then turn it clockwise 2 notches.



(e) Align the groove with neutral basic line, tighten the 2 bolts.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)



(f) Using a screwdriver, stake the nut with the lock washer.



165. INSTALL TRANSMISSION CONTROL SHAFT LEVER

(a) Install the control lever, washer and nut.
Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)

166. INSTALL SPEEDOMETER DRIVEN (ATM) GEAR SUB–ASSY

167. INSTALL SPEEDOMETER (ATM) SENSOR