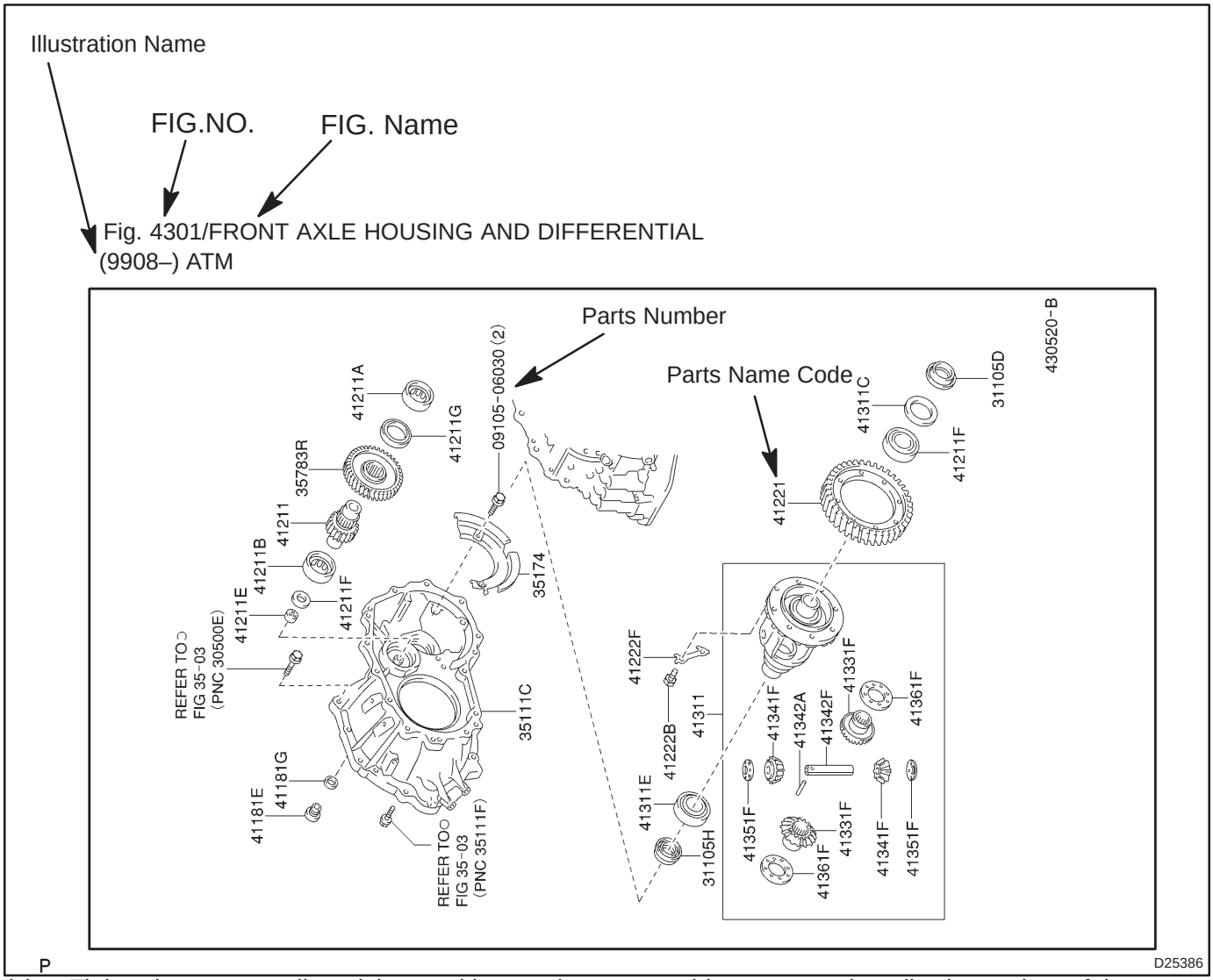
Example:



(c) Tightening torque, oil applying position, and non–reusable parts are described as points of the procedure.

NOTICE:

In case that the above items can be indicated only by an illustration, component drawing which describes the points is placed. In that case, all the information such as torque, oil, etc. are described in the illustration.

(d) Installing procedure of the operation items is performed in the reverse procedure of the removing and only the case with points is described.

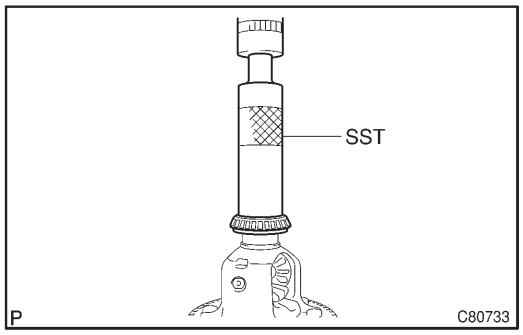
(e) Only items with points are described in the procedure, and the operational portion and content are placed using an illustration. In the explanations, details of the operational method, standard value and notice are placed.

(f) There may be a case where the illustrations are used in common with similar models. Therefore there is a case where the details are different from one of the actual vehicle.

(g) The procedures are presented in a step–by–step format:
  (1) The illustration shows what to do and where to do it.
  (2) The task heading tells what to do.
  (3) The detailed text tells how to perform the task and gives other information such as specifications and warnings.

Example:

Illustration: what to do and where



Task heading: what to do

87. INSTALL FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

[41311 / 4301] ← *Part name code / FIG. NO.*

(a) Using SST and a press, install the front differential case tapered roller bearing front inner race to the differential case.

SST 09316–60011 (09316–00011)

Detailed text: how to do task

Set part No. *Component part No.*

P D25387

HINT:

This format provides an experienced technician with a FAST TRACK to the information needed. The upper case task heading can be read at a glance when necessary, and the text below it provides detailed information. Important specifications and warnings always stand out in bold type.

5. SERVICE SPECIFICATIONS

(a) Specifications are presented in bold type throughout the text where needed. You never have to leave the procedure to look up your specifications. They are also found in the Service Specifications section for a quick reference.

6. TERMS DEFINITION

CAUTION	Indicate the possibility of injury to you or other people.
NOTICE	Indicate the possibility of damage to the components being repaired.
HINT	Provide additional information to help you perform the repair efficiently.

7. SI UNIT

(a) The UNITS given in this manual are primarily expressed according to the SI UNIT (International System of Unit), and alternately expressed in the metric system and in the English System.

Example:

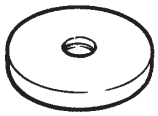
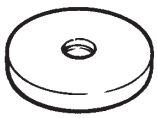
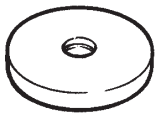
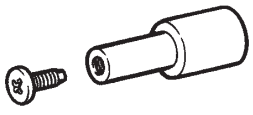
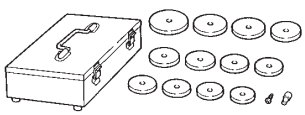
Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)

0100W–01

GLOSSARY OF SAE AND TOYOTA(LEXUS) TERMS

This glossary lists all SAE–J1930 terms and abbreviations used in this manual in compliance with SAE recommendations, as well as their Toyota equivalents.

SAE ABBREVIATIONS	SAE TERMS	TOYOTA TERMS ( )—ABBREVIATIONS
A/C	Air Conditioning	Air Conditioner
ACL	Air Cleaner	Air Cleaner
AIR	Secondary Air Injection	Air Injection (AI)
AP	Accelerator Pedal	–
B+	Battery Positive Voltage	+B, Battery Voltage
BARO	Barometric Pressure	–
CAC	Charge Air Cooler	Inter cooler
CARB	Carburetor	Carburetor
CFI	Continuous Fuel Injection	–
CKP	Crankshaft Position	Crank Angle
CL	Closed Loop	Closed Loop
CMP	Camshaft position	Cam Angle
CPP	Clutch Pedal Position	–
CTOX	Continuous Trap Oxidizer	–
CTP	Closed Throttle Potion	–
DFI	Direct Fuel Injection (Diesel)	Direct Injection (DI)
DI	Distributor Ignition	–
DLC1 DLC2 DLC3	Data Link Connector 1 Data Link Connector 2 Data Link Connector 3	1: Check Connector 2: Total Diagnosis Communication Link (TDCL) 3: OBD II Diagnostic Connector
DTC	Diagnostic Trouble Code	Diagnostic Code
DTM	Diagnostic Test Mode	–
ECL	Engine Control Level	–
ECM	Engine Control Module	Engine ECU (Electronic Control Unit)
ECT	Engine Control Temperature	Coolant Temperature, Water Temperature (THW)
EEPROM	Electrically Erasable Programmable Read Only memory	Electrically Erasable Programmable Read Only memory (EEPROM), Erasable Programmable Read Only memory (EPROM)
EFE	Early Fuel Evaporation	Cold Mixture Heater (CMH), Heat Control Valve (HCV)
EGR	Exhaust Gas Recirculation	Exhaust Gas Recirculation (EGR)
EI	Electronic Ignition	Distributorless Ignition (DI)
EM	Engine Modification	Engine Modification (EM)
EPROM	Erasable Programmable Read Only Memory	Programmable Read Only Memory (PROM)
EVAP	Evaporative Emission	Evaporative Emission Control (EVAP)
FC	Fan Control	–
FEEPROM	Flash Electrically Erasable Programmable Read Only Memory	–
FEPROM	Flash Erasable Programmable Read Only Memory	–
FF	Flexible Fuel	–
FP	Fuel Pump	Fuel Pump
GEN	Generator	Alternator
GND	Ground	Ground (GND)
HO2S	Heated Oxygen Sensor	Heated Oxygen Sensor (HO2S)
IAC	Idol Air Control	Idol Speed Control (ISC)
IAT	Intake Air Temperature	Intake or Inlet Air Temperature
ICM	Ignition Control Module	–
IFI	Indirect Fuel Injection	Indirect Injection
IFS	Inertia Fuel–Shutoff	–

	(09951–00320) Replacer 32	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00350) Replacer 35	FRONNT DIFFERENTIAL ASSY(U34#E Series)
	(09951–00390) Replacer 39	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00400) Replacer 40	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00430) Replacer 43	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00460) Replacer 46	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00480) Replacer 48	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00530) Replacer 53	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00550) Replacer 55	AUTOMATIC TRANSAXLE ASSY(U34#E Series) OIL PUMP ASSY(U34#E Series)
	(09951–00610) Replacer 61	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09951–00650) Replacer 65	AUTOMATIC TRANSAXLE ASSY(U34#E Series)
	(09952–06010) Adapter	AUTOMATIC TRANSAXLE ASSY(U34#E Series) TRANSAXLE REAR COVER ASSY(U34#E Series)
	09950–60020 Replacer Set No.2	AUTOMATIC TRANSAXLE ASSY(U34#E Series)

Piston return spring free length		13.96 mm (0.5496 in.)
Flange thickness	Mark	
	–	3.4 mm (0.134 in.)
	1	3.6 mm (0.142 in.)
	2	3.8 mm (0.150 in.)
	3	4.0 mm (0.157 in.)

2ND COAST AND O/D BRAKE		
Pack clearance (O/D brake)		2.091 – 2.491 mm (0.0823 – 0.0981 in.)
Piston return spring free length (O/D brake)		17.88 mm (0.7039 in.)
Flange thickness	Mark	
	4	4.0 mm (0.1575 in.)
	5	4.2 mm (0.1654 in.)
	6	4.4 mm (0.1732 in.)
	7	4.6 mm (0.1811 in.)

2ND BRAKE		
Pack clearance		0.847 – 1.247 mm (0.0333 – 0.0491 in.)
Piston return spring free length		14.65 mm (0.5768 in.)
Flange thickness	Mark	
	–	3.0 mm (0.118 in.)
	1	3.2 mm (0.126 in.)
	2	3.4 mm (0.134 in.)
	3	3.6 mm (0.142 in.)

MANUAL VALVE LEVER SHAFT	
Manual valve lever shaft oil seal in depth	0 ± 0.5 mm (0 ± 0.020 in.)

INTERMEDIATE SHAFT	
Intermediate shaft clearance	0.204 – 0.966 mm (0.008 – 0.038 in.)

INPUT SHAFT	
End play	0.37 – 1.29 mm (0.0146 – 0.0508 in.)

ACCUMULATOR

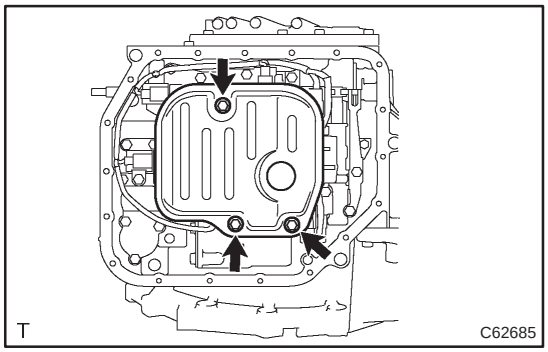
Spring	Free length/Outer diameter	Color
B_2	66.90 mm (2.6339 in.) / 15.50 mm (0.6102 in.)	Green
C_2	66.90 mm (2.6339 in.) / 17.20 mm (0.6772 in.)	–
C_3	80.20 mm (3.1575 in.) / 18.70 mm (0.7362 in.)	–

TRANSAXLE REAR COVER ASSY	
Needle roller bearing clearance	25.2 mm (0.992 in.)

TRANSMISSION VALVE BODY ASSY		
Valve body assy installation bolt length	A	32 mm (1.26 in.)
	B	22 mm (0.87 in.)
	C	55 mm (2.17 in.)
	D	45 mm (1.77 in.)
Detente spring installation bolt length	A	14 m m (0.55 in.)
	B	45 mm (1.77 in.)

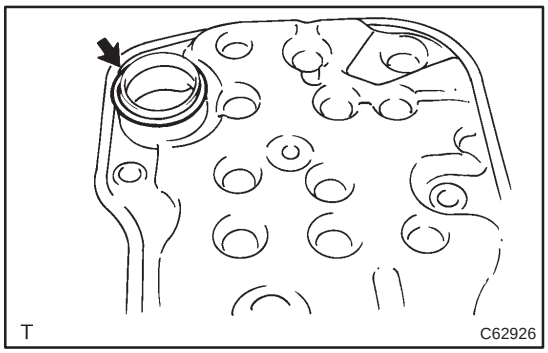
COUNTER DRIVE GEAR	
Rotating torque	0.20 – 0.49 N·m (2 – 5 kgf·cm, 2 – 4 in.·lbf)

DIFFERENTIAL	
Differential drive pinion plug clearance	2.5 – 2.6 mm (0.0984 – 0.1023 in.)

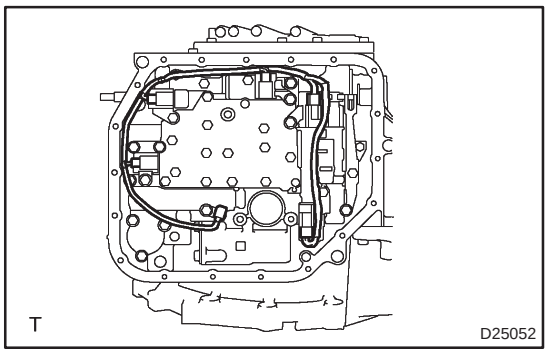


11. REMOVE VALVE BODY OIL STRAINER ASSY [35330 / 3512]

(a) Remove the 3 bolts and oil strainer assy.



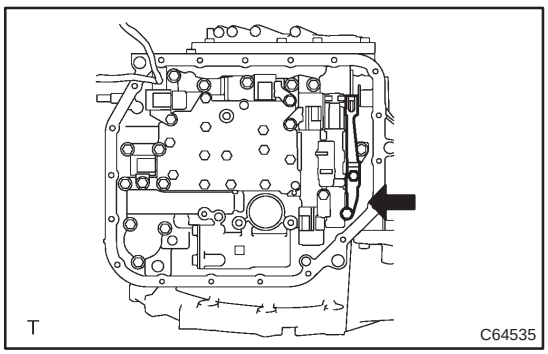
(b) Remove the O–ring from the oil stainer.



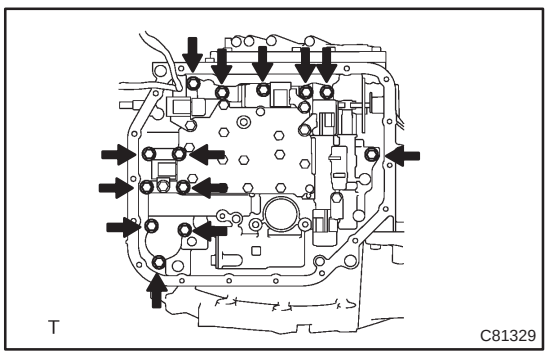
12. REMOVE TRANSMISSION VALVE BODY ASSY [35410 / 3512]

(a) Disconnect the 5 solenoid connectors.

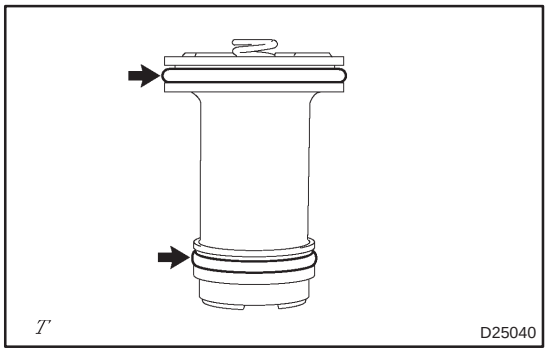
(b) Remove the bolt, lock plate and ATF temperature sensor.



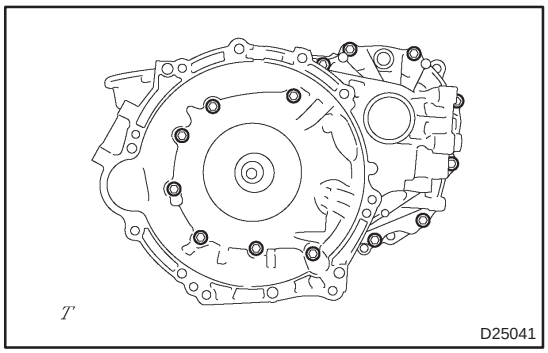
(c) Remove the 2 bolts, detente spring cover and detente spring.



(d) Remove 13 bolts and valve body assy.



(b) Remove the 2 O–rings from the C_2 accumulator piston.



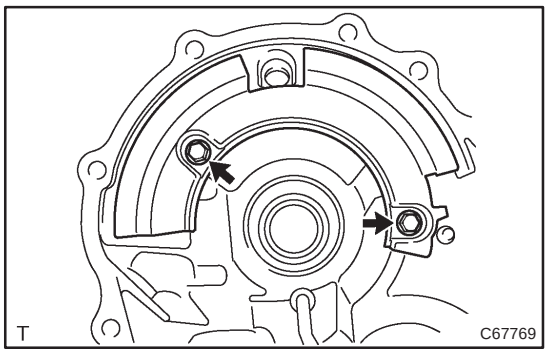
21. REMOVE TRANSAXLE HOUSING [35111C / 4301]

(a) Remove the 14 bolts.

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

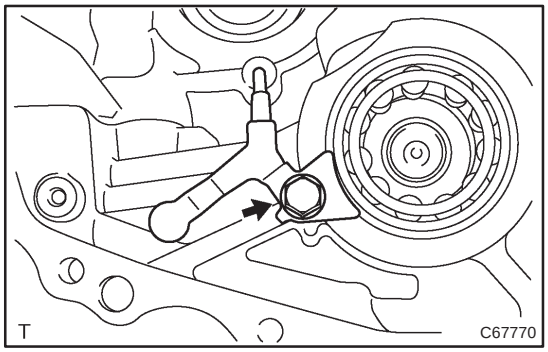
NOTICE:

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



22. REMOVE TRANSAXLE HOUSING OIL SEPARATOR [35174 / 4301]

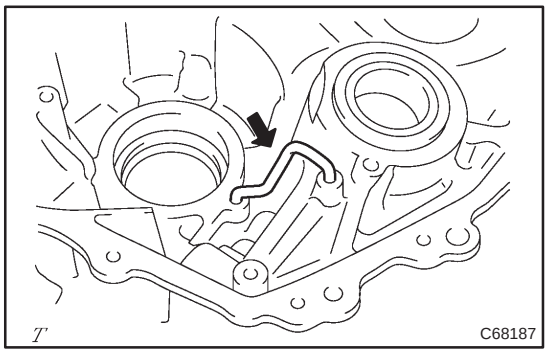
(a) Remove the 2 bolts and transaxle housing oil separator from the transaxle housing.



23. REMOVE BEARING LOCK PLATE [33326E / 3510]

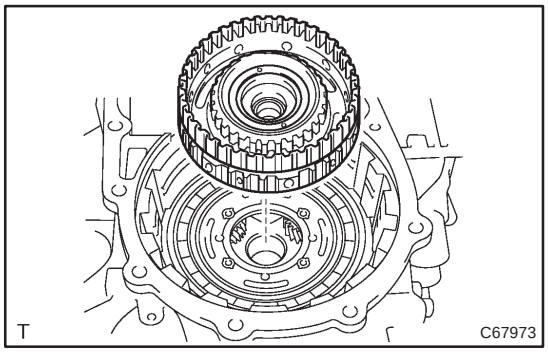
(a) Remove the bolt.

(b) Remove the bearing lock plate.



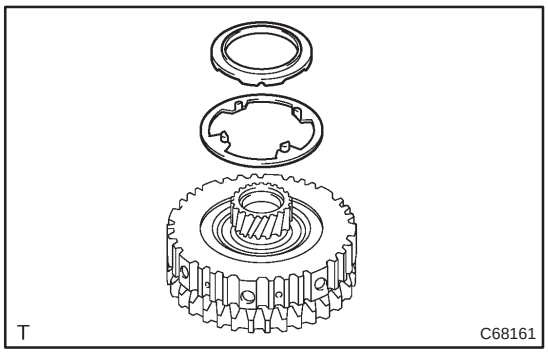
24. REMOVE DIFFERENTIAL GEAR LUBE APPLY TUBE [35882D / 3510]

(a) Remove the bolt and differential gear lube apply tube from the transaxle housing.



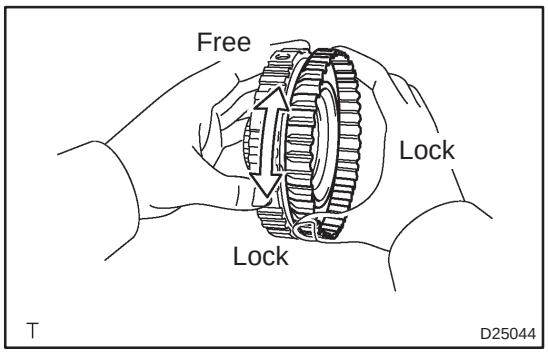
44. REMOVE REAR PLANETARY SUN GEAR ASSY
[35730 / 3510]

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



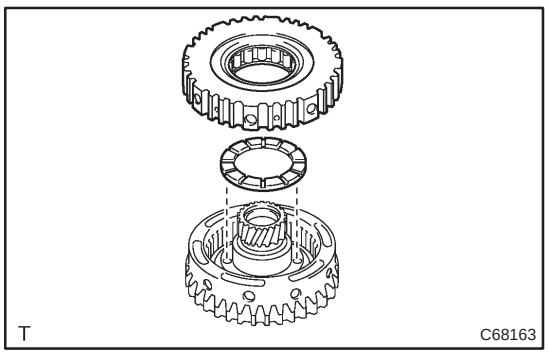
45. REMOVE REAR PLANERARY SUN GEAR THRUST NEEDLE ROLLER BEARING
[35730B / 3510]

(a) Remove rear planetary sun gear thrust needle roller bearing and thrust washer No.1 from the rear planetary sun gear.



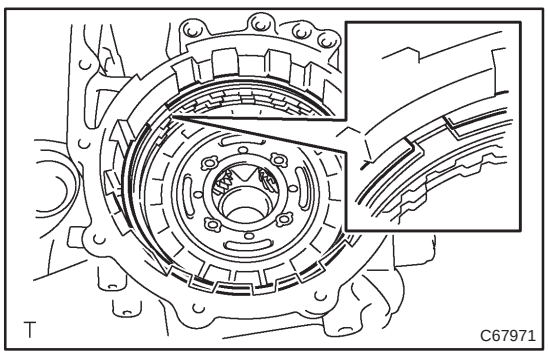
46. INSPECT 1 WAY CLUTCH ASSY
[35790A / 3510]

(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.



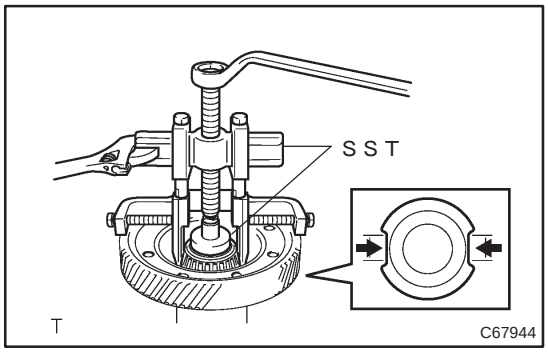
47. REMOVE 1 WAY CLUTCH ASSY
[35790A / 3510]

(a) Remove the 1 way clutch assy and planetary carrier thrust washer No.2 from the rear planetary sun gear.



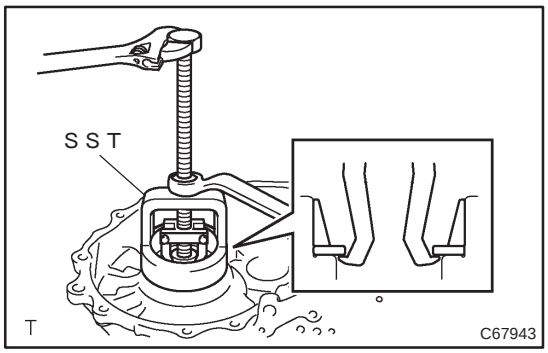
48. REMOVE 2ND COAST & OVERDRIVE BRAKE FLANGE HOLE SNAP RING
[34625E / 3509]

(a) Using a screwdriver, remove the snap ring from the transaxle case.

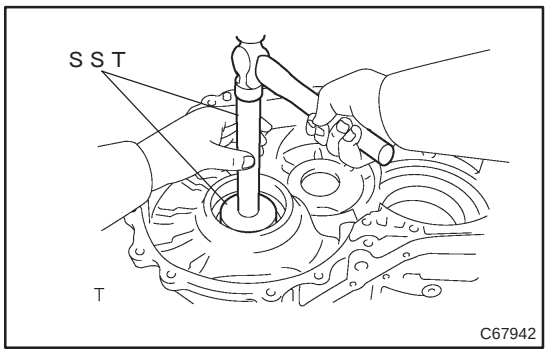


80. REMOVE FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING
[41311F / 4301]

(a) Using SST, remove the front differential case tapered roller bearing from the differential case.
SST 09950–40011 (09951–04010, 09952–04010, 09953–04020, 09954–04010, 09955–04061, 09957–04010, 09958–04011), 09950–60010 (09951–00430)

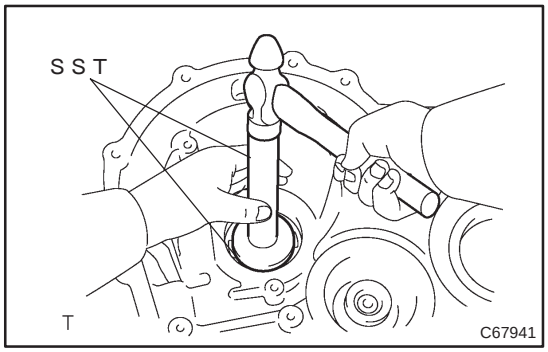


(b) Using SST, remove front differences.
SST 09612–65014 (09612–01010)



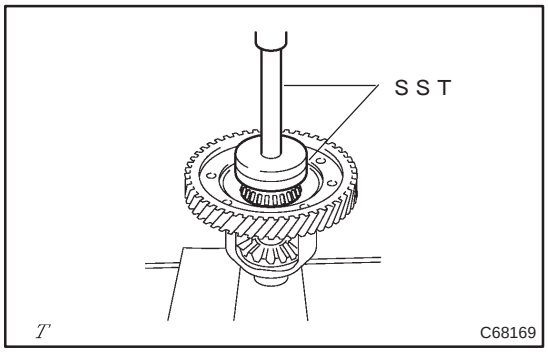
81. REMOVE FRONT TRANSAXLE CASE OIL SEAL
[31105D / 4301]

(a) Using SST and a hammer, remove the oil seal from the transaxle case.
SST 09950–60010 (09951–00550), 09950–70010 (09951–07100)



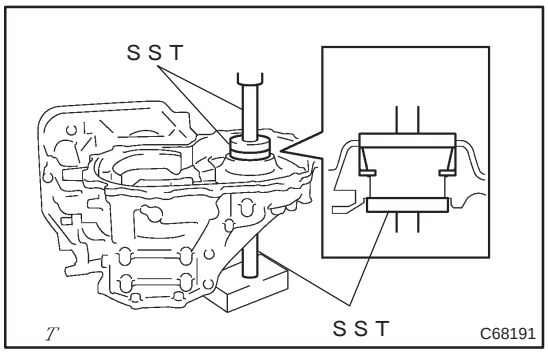
82. REMOVE TRANSAXLE CASE OIL SEAL
[31105H / 4301]

(a) Using SST and a hammer, remove the transaxle case oil seal from the transaxle housing.
SST 09950–60010 (09951–00530), 09950–70010 (09951–07100)

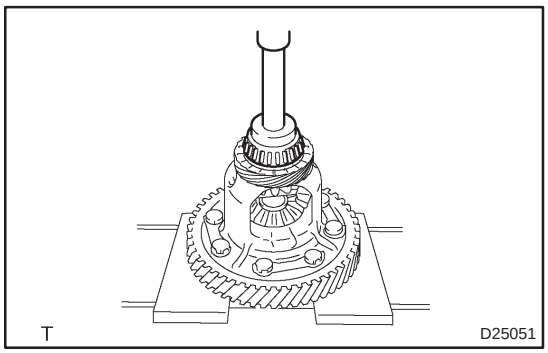


84. INSTALL FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING
[41311F / 4301]

(a) Using SST and a press, install the front differential case LH tapered roller bearing inner race to the differential case.
SST 09726–40010, 09950–60020 (09951–00790)

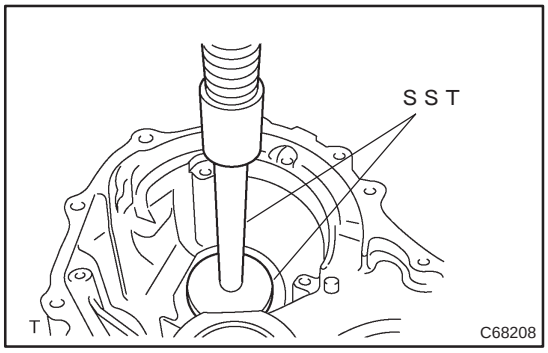


(b) Using SST and a press, install the shim and bearing outer race to the transaxle case.
SST 09950–60010 (09951–00650), 09950–60020 (09951–00720), 09950–70010 (09951–07100, 09951–07200)

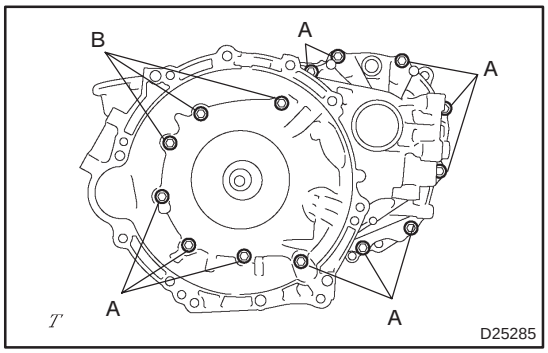


85. INSTALL FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING
[41311E / 4301]

(a) Using SST and a press, install the bearing inner race to the differential case.
SST 09950–60010 (09951–00460), 09950–70010 (09951–07100)



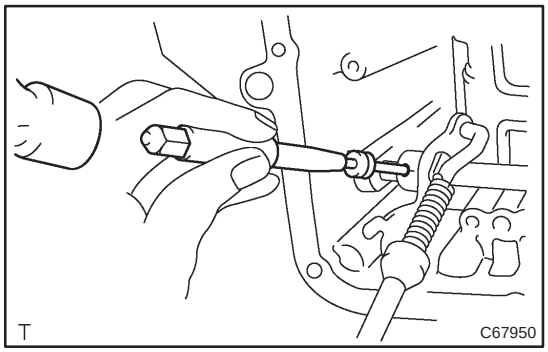
(b) Using SST and a press, install the tapered roller bearing to the transaxle housing.
SST 09950–60020 (09951–00680), 09950–70010 (09951–07150)



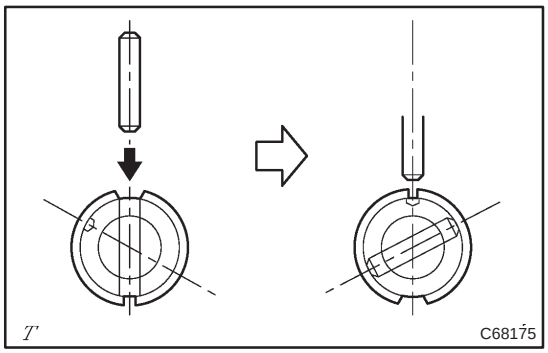
86. TAPERED POLLER BEARING PRELOAD

(a) Coat the front differential case and bearing with ATF and install them to the transaxle case.

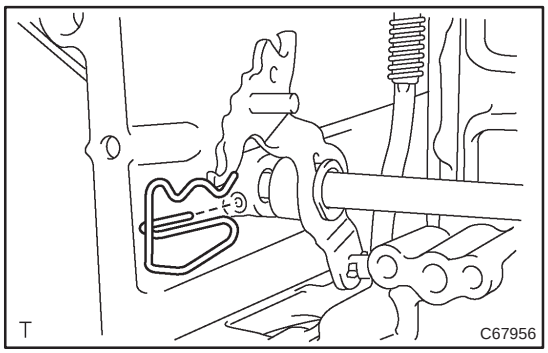
(b) Install the 14 bolts and transaxle housing.
Torque:
Bolt A: 29 N·m (300 kgf·cm, 21 ft·lbf)
Bolt B: 22 N·m (220 kgf·cm, 16 ft·lbf)



(c) Using a pin punch and hammer, drive in the pin.

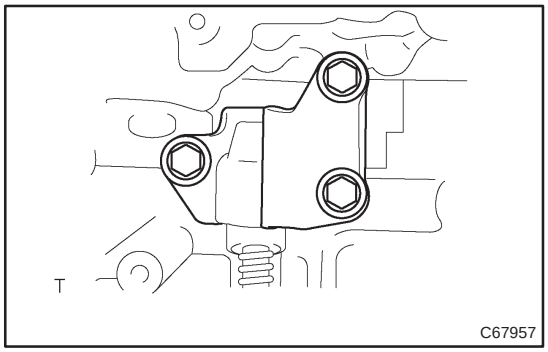


(d) Turn the spacer and lever shaft to align the small hole for locating the staking position in the spacer with the staking position mark on the lever shaft.
(e) Using a pin punch, stake the spacer through the small hole.
(f) Check that the space does not turn.



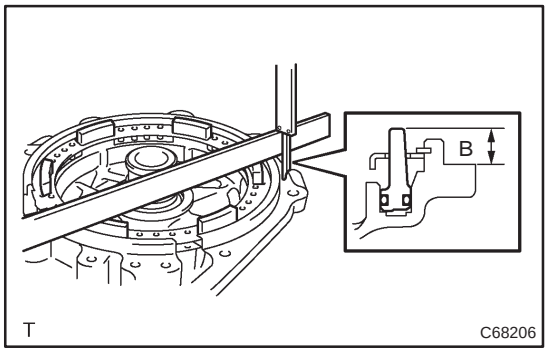
99. INSTALL MANUAL VALVE LEVER SHAFT RETAINER SPRING
[35506J / 3513]

(a) Install the retainer spring.



100. INSTALL PARKING LOCK PAWL BRACKET
[35595 / 3513]

(a) Install the cam guide, bracket and 3 bolts.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

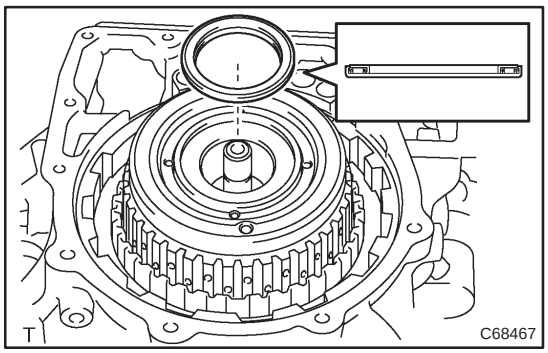


(b) As shown in the illustration, place a straight edge on the O/D brake piston and measure the distance between the transaxle rear cove and straight edge using vernier calipers. (Dimension B)
Calculate the piston stroke value using the following formula. Select a flange which satisfies the piston stroke value and install it.
Pack clearance: 2.091 – 2.491 mm (0.0823 – 0.0981 in)

HINT:
Pack clearance = Dimension ”A” – Dimension ”B” – Selected flange thickness.

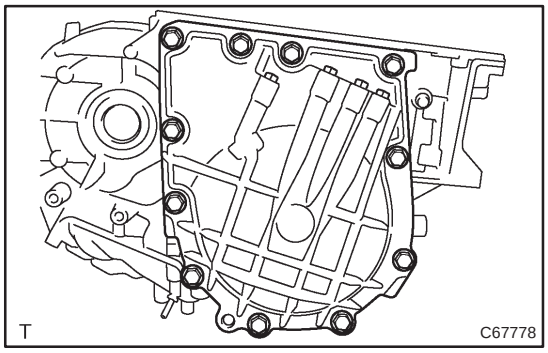
Selected flange thickness: mm (in.)

Mark	Thickness	Mark	Thickness
4	4.0 (0.1575)	6	4.4 (0.1732)
5	4.2 (0.1654)	7	4.6 (0.1811)



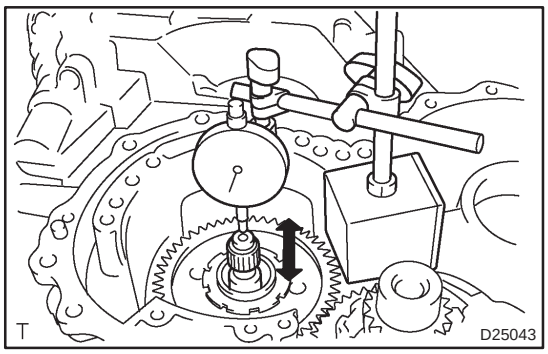
129. INSTALL REAR CLUTCH DRUM THRUST NEEDLE ROLLER BEARING
[35651B / 3507]

(a) Install the bearing to the intermediate shaft.



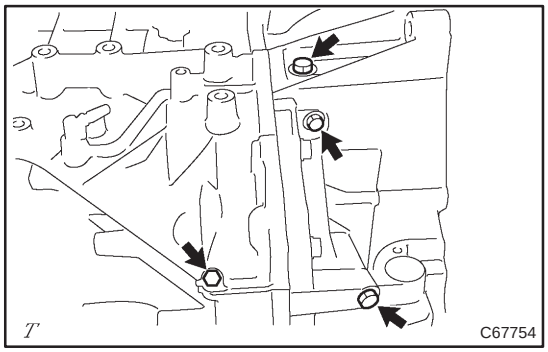
130. INSPECT INTERMEDIATE SHAFT ASSY

(a) Install the transaxle rear cover and 11 bolts.
Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)



(b) Using a dial indicator, measure the rickety of intermediate shaft.
Standard clearance:
0.204 – 0.966 mm (0.008 – 0.038 in.)

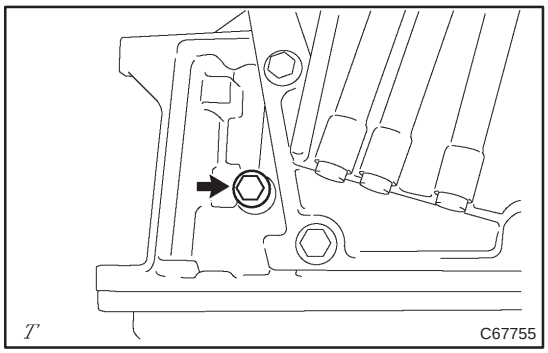
(c) Remove 11 bolts and transaxle rear cover.



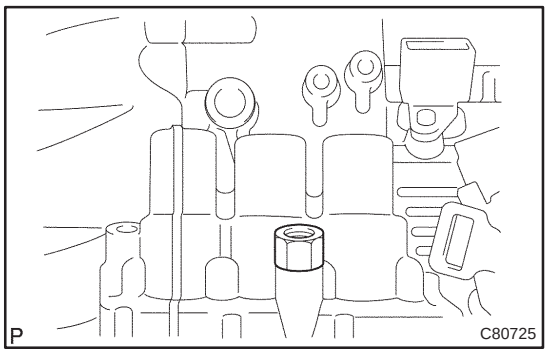
159. INSTALL TRANSAXLE CASE NO.1 PLUG
[35104Q / 3503]

(a) Coat 5 new O–rings with ATF, install them to the screw plugs.

(b) Install the 4 screw plugs.
Torque: 7.4 N·m (75 kgf·cm, 65 in.·lbf)



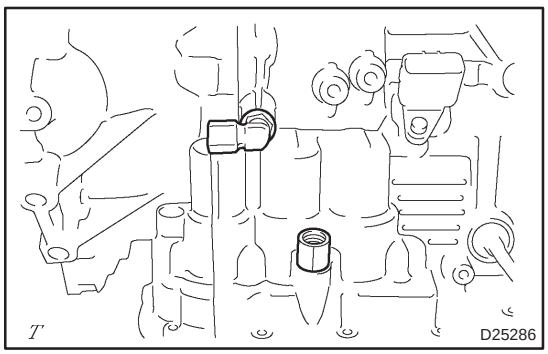
(c) Install the screw plug.
Torque: 7.4 N·m (75 kgf·cm, 65 in.·lbf)



160. INSTALL OIL COOLER TUBE UNION(INLET OIL COOLER UNION)
[32921C / 3514]

(a) coat 2 new O–rings with ATF, install them to the union.

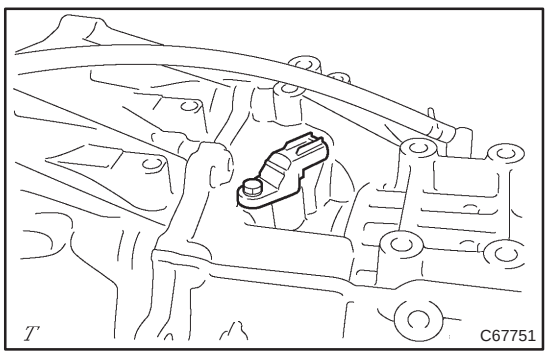
(b) Install the union.
Torque: 27 N·m (275 kgf·cm, 20 ft·lbf)



161. INSTALL OIL COOLER TUBE UNION(OUTLET OIL COOLER UNION)
[32921C / 3514]

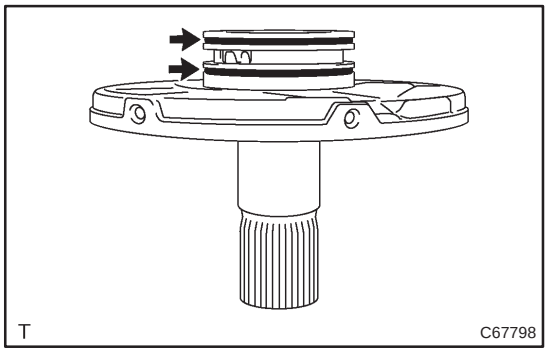
(a) coat 2 new O–rings with ATF, install them to the elbow.

(b) Install the elbow.
Torque: 27 N·m (275 kgf·cm, 20 ft·lbf)



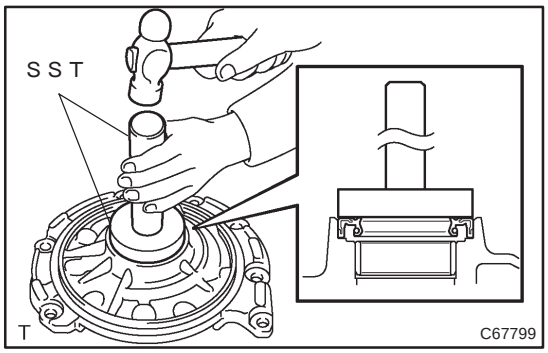
162. INSTALL TRANSMISSION REVOLUTION SENSOR
[89413E / 3512]

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



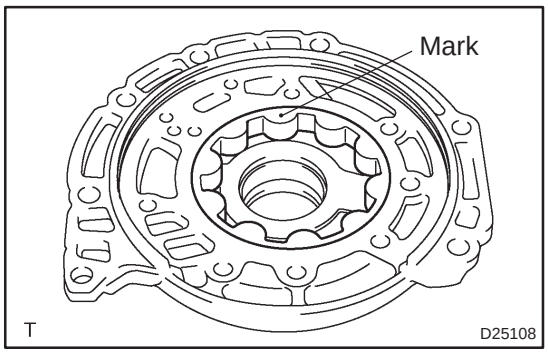
10. INSTALL CLUTCH DRUM OIL SEAL RING
[35617 / 3502]

(a) Install the 2 seal rings to the stator shaft assy.



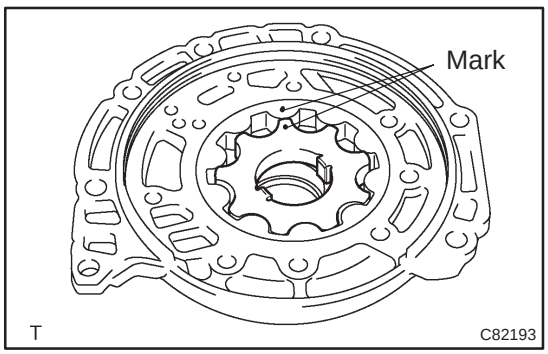
11. INSTALL FRONT OIL PUMP OIL SEAL
[35301A / 3502]

(a) Using SST, install the oil seal to the oil pump body.
SST 09950–60010 (09951–00550), 09950–70010 (09951–07100)
Oil seal in depth:
0 ± 0.5 mm (0 ± 0.020 in.)



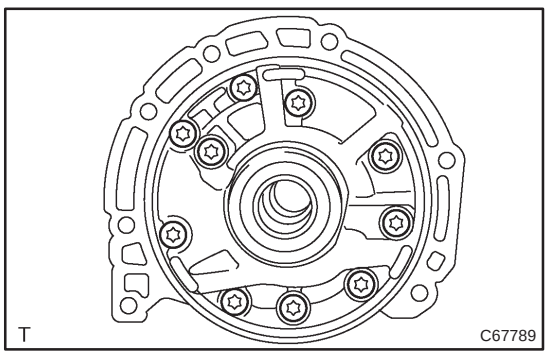
12. INSTALL FRONT OIL PUMP DRIVEN GEAR
[35322 / 3502]

(a) Apply ATF to the front oil pump driven gear and install it to the oil pump body with the marked side up.



13. INSTALL FRONT OIL PUMP DRIVE GEAR
[35321 / 3502]

(a) Apply ATF to the front oil pump drive gear and install it to the oil pump body with the marked side up.



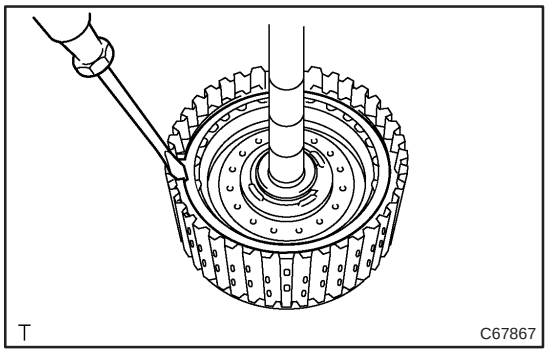
14. INSTALL STATOR SHAFT ASSY
[35370 / 3502]

(a) Using a torx socket wrench (T30), install the 10 torx screws.
Torque: 9.8 N·m (100 kgf·cm, 87 in.·lbf)

INTERMEDIATE SHAFT ASSY (U34#E Series)

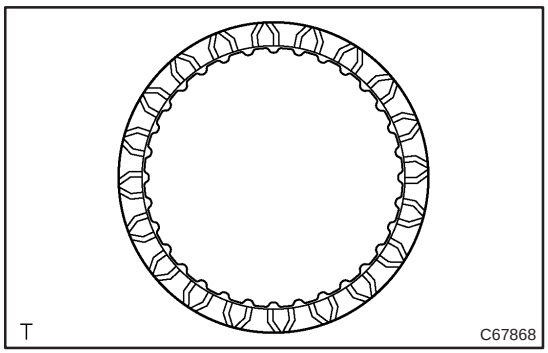
4002K–01

OVERHAUL



1. REMOVE FORWARD CLUTCH DISC [35677H / 3507]

(a) Using a screwdriver, remove the snap ring.
(b) Remove the flange, 2 discs and 2 plates.



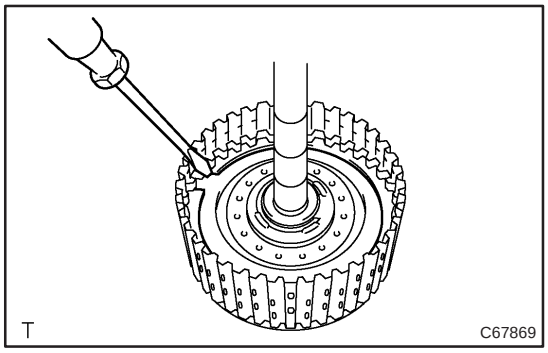
2. INSPECT FORWARD CLUTCH DISC [35677H / 3507]

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

If necessary, replace them.

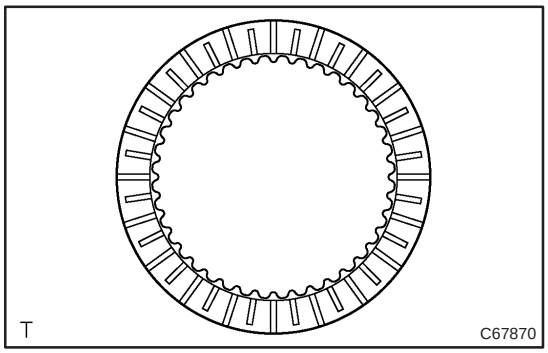
HINT:

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



3. REMOVE DIRECT CLUTCH DISK [35667A / 3507]

(a) Using a screwdriver, remove the snap ring.
(b) Remove the 3 plates, flange and 3 discs.



4. INSPECT DIRECT CLUTCH DISK [35667A / 3507]

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

If necessary, replace them.