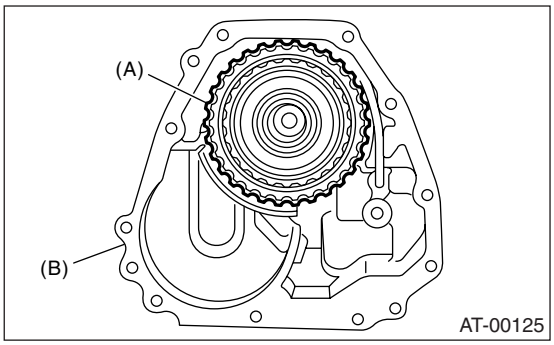
29.Transfer Clutch

A: REMOVAL

1) Remove the transmission assembly from vehicle. <Ref. to 4AT-39, REMOVAL, Automatic Transmission Assembly.>
2) Remove the extension case and remove the transfer clutch assembly. <Ref. to 4AT-85, REMOVAL, Extension Case.> <Ref. to 4AT-86, DISASSEMBLY, Extension Case.>

B: INSTALLATION

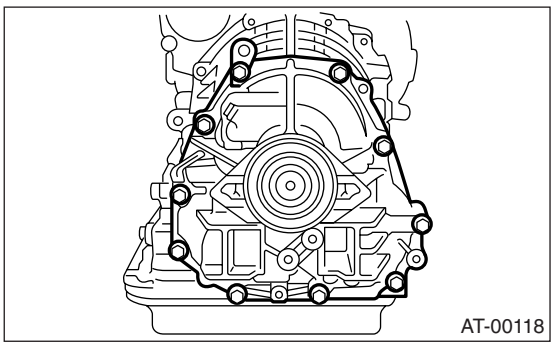
1) Select the thrust needle bearing. <Ref. to 4AT-90, ADJUSTMENT, Transfer Clutch.>
2) Install the transfer clutch assembly to the case.



(A) Transfer clutch ASSY
(B) Extension case

3) Tighten bolts to secure the case.

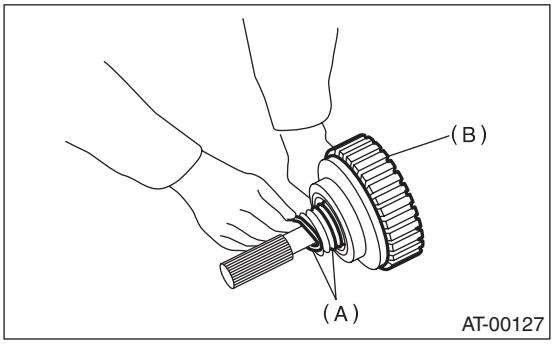
Tightening torque:
25 N·m (2.5 kgf-m, 18.1 ft-lb)



4) Install the transmission assembly to vehicle. <Ref. to 4AT-42, INSTALLATION, Automatic Transmission Assembly.>

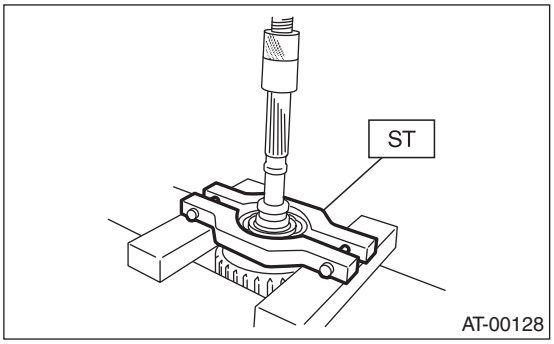
C: DISASSEMBLY

1) Remove the seal ring.

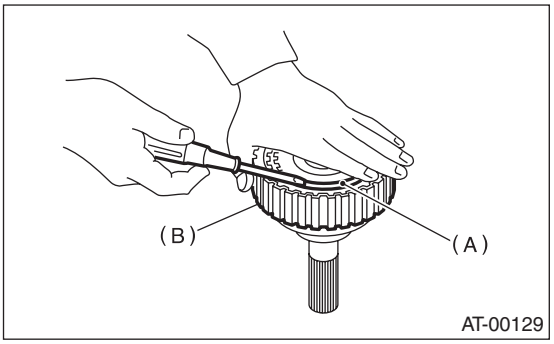


(A) Seal ring
(B) Rear drive shaft

2) Using a press and ST, remove the ball bearing.
ST 498077600 REMOVER

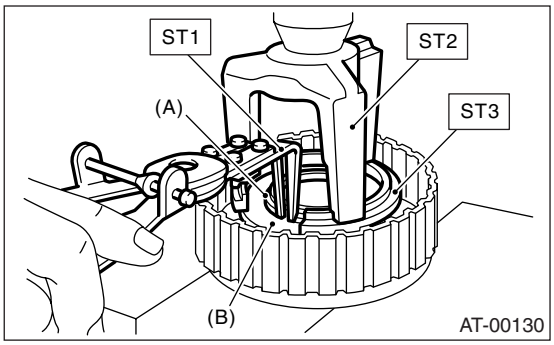


3) Using a flat tip screwdriver, remove the snap ring, and take out the pressure plate, retaining plate, drive plates and driven plates.



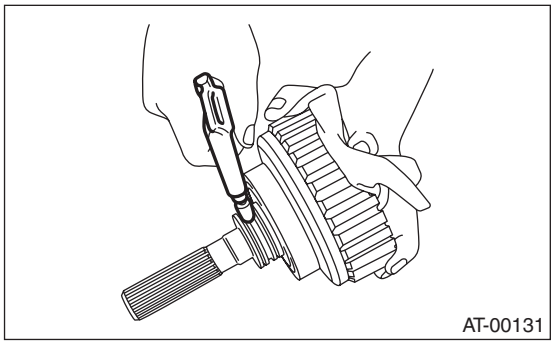
(A) Snap ring
(B) Rear drive shaft

4) Remove the snap ring with ST1, ST2 and ST3, and take out the return spring and transfer clutch piston seal.
ST1 399893600 PLIERS
ST2 398673600 COMPRESSOR
ST3 398623600 SEAT



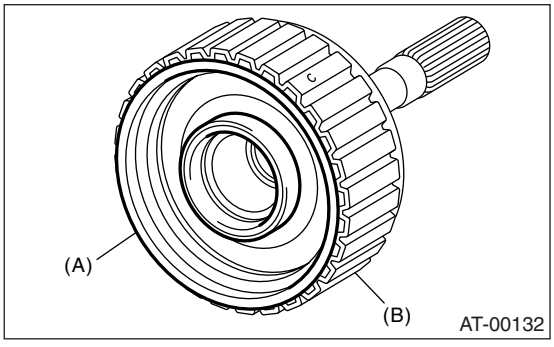
(A) Snap ring
(B) Transfer clutch piston seal

5) Apply compressed air to the rear drive shaft to remove the transfer clutch piston from rear drive shaft.



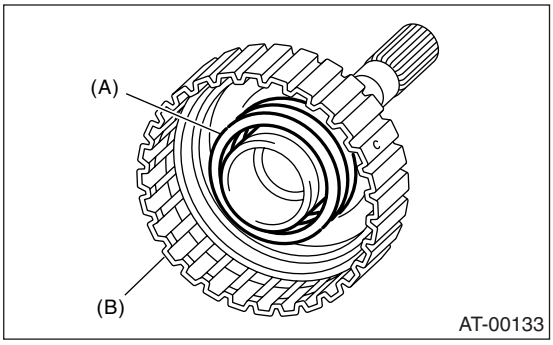
D: ASSEMBLY

1) Install the transfer clutch piston.



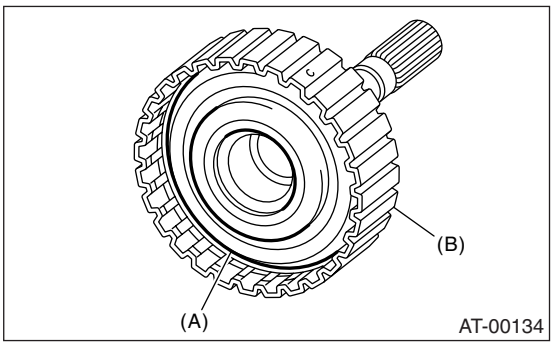
(A) Transfer clutch piston
(B) Rear drive shaft

2) Install return spring to transfer clutch piston.



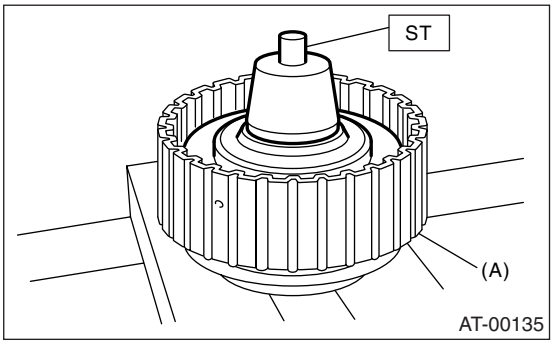
(A) Return spring
(B) Rear drive shaft

3) Install transfer clutch piston seal.



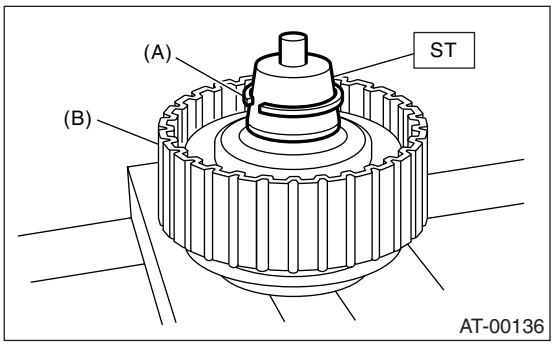
(A) Transfer clutch piston seal
(B) Rear drive shaft

4) Install ST to rear drive shaft.
ST 499257300 SNAP RING OUTER GUIDE



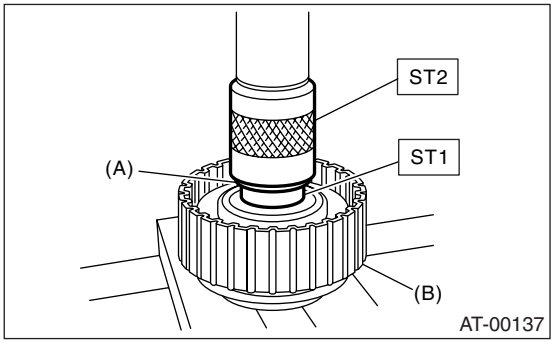
(A) Rear drive shaft

5) Install snap ring to ST.
ST 499257300 SNAP RING OUTER GUIDE



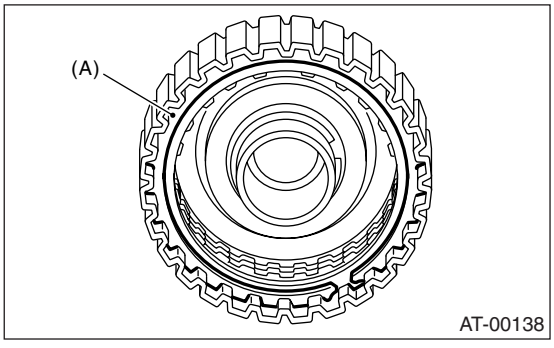
(A) Snap ring
(B) Transfer clutch

6) Using ST1 and ST2, install snap ring to rear drive shaft.
ST1 499257300 SNAP RING OUTER GUIDE
ST2 499247400 INSTALLER



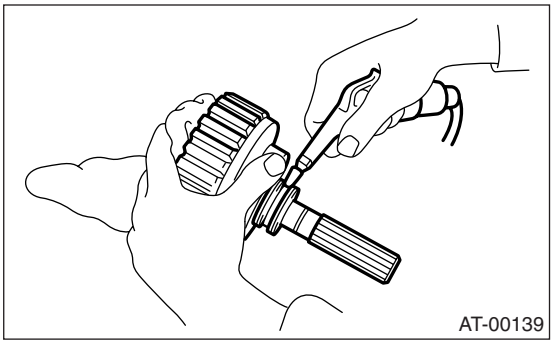
(A) Snap ring
(B) Transfer clutch

7) Install the driven plates, drive plates, pressure plate, retaining plate and snap ring.

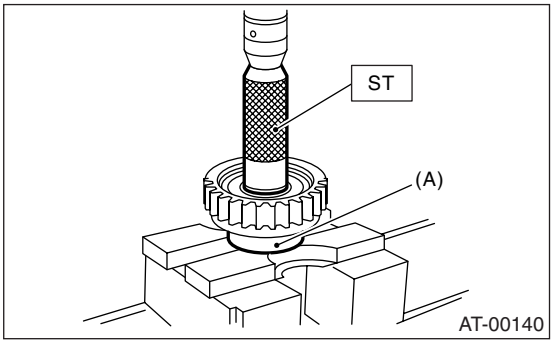


(A) Snap ring

8) Apply compressed air to see if the assembled parts move smoothly.



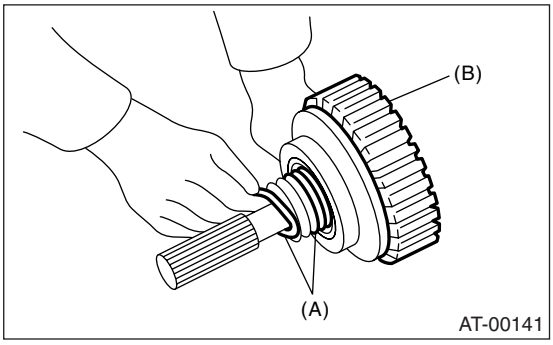
9) Check clearance between snap ring and pressure plate. <Ref. to 4AT-90, INSPECTION, Transfer Clutch.>
10) Press-fit a new ball bearing with ST.
ST 899580100 INSTALLER



(A) Ball bearing

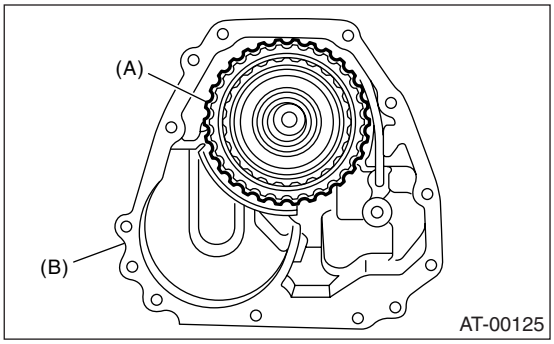
11) Coat a new seal ring with Vaseline, and install it in the seal ring groove of the rear drive shaft.

NOTE:
Do not expand the seal ring excessively when installing.



(A) Seal ring
(B) Rear drive shaft

12) Install the transfer clutch assembly without damaging seal ring.



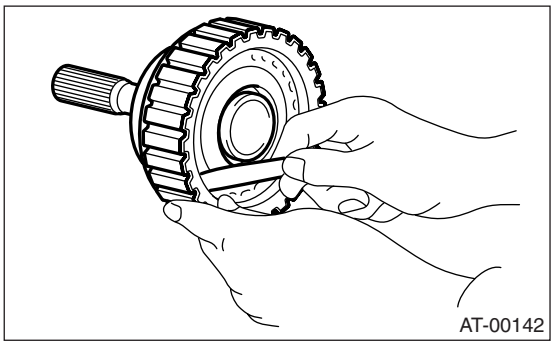
(A) Transfer clutch ASSY
(B) Extension case

E: INSPECTION

• Check the drive plate facing for wear and damage.
• Check the snap ring for wear, return spring for permanent set and breakage, and return spring for deformation.
• Check the D-ring for damage.
• Measure the extension end play and adjust it to within specifications.
<Ref. to 4AT-90, ADJUSTMENT, Transfer Clutch.>
1) Inspect clearance between snap ring and pressure plate.
2) Before measuring clearance, place the same thickness of shim on both sides to prevent pressure plate from tilting.
3) If the clearance is not within specification, adjust it by selecting a suitable retaining plate on the transfer clutch piston side.

Standard value:
0.7 — 1.1 mm (0.028 — 0.043 in)

Allowable limit:
1.6 mm (0.063 in)

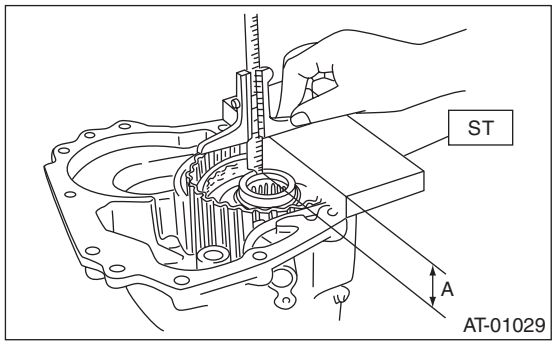


Retaining plates	
Part No.	Thickness mm (in)
31593AA151	3.3 (0.130)
31593AA161	3.7 (0.146)
31593AA171	4.1 (0.161)
31593AA181	4.5 (0.177)

4) Check if the tight corner braking does not occur when the vehicle is started with steering wheel held at fully turned position. If tight corner braking occurs, perform the following procedures.
(1) With the steering wheel held at fully turned position, drive the vehicle in “D” range and with vehicle speed at approx. 5 km/h (3 MPH) in both clockwise and counterclockwise directions for approx. ten times each, while repeating acceleration and braking intermittently.
(2) If the tight corner braking still persists, drive the vehicle again in a circle for several laps.

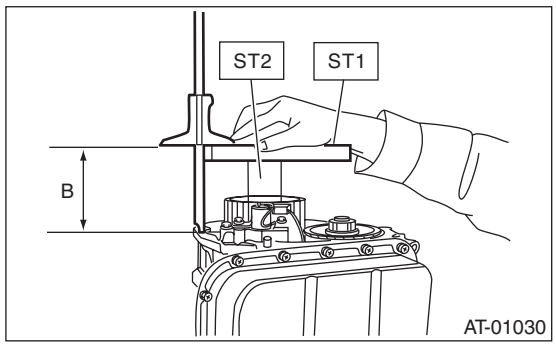
F: ADJUSTMENT

1) Measure distance “A” from end of extension case and rear drive shaft with ST.
ST 398643600 GAUGE



A: Measured value

2) Measure the distance “B” from the transmission case mating surface to the reduction drive gear end surface with ST1 and ST2.
ST1 398643600 GAUGE
ST2 499577000 GAUGE



B: Measured value

3) Calculation formula:

NOTE:
Calculate “T”:
T = A − B + 35.4 mm
[T = A − B + 1.3937 in]
T: Thrust needle bearing thickness
A: Distance from end of extension case to end of rear drive shaft
B: Distance from end of transmission case to end of reduction drive gear
Example:
When, A = 33.6 mm (1.3228 in), B = 65.05 mm (2.5610 in)
T = 33.6 − 65.05 + 35.4 = 3.95
[T = 1.3228 − 2.5610 + 1.3937 = 0.1555]
After calculation, the valve of “T” becomes 3.95, therefore select bearing thickness of 3.8.

NOTE:
Calculation formula for “T” is applied when measuring using ST (398643600 GUAGE, 499577000 GUAGE). When not using ST, apply
T = (A − α + 0.45 mm) − (B − β) − H
[T = (A − α + 0.0177 in) − (B − β) − H].
T: Thrust needle bearing thickness
A: Distance from end of extension case to end of reduction drive shaft
B: Distance from end of transmission case to end of rear drive shaft
α: Collar thickness used when measuring “A”
β: Collar thickness used when measuring “B”
0.45: Gasket thickness (mm)
H: Shim clearance

Thrust needle bearing	
Part No.	Thickness mm (in)
806536020	3.8 (0.150)
806535030	4.0 (0.157)
806535040	4.2 (0.165)
806535050	4.4 (0.173)
806535060	4.6 (0.181)
806535070	4.8 (0.189)
806535090	5.0 (0.197)