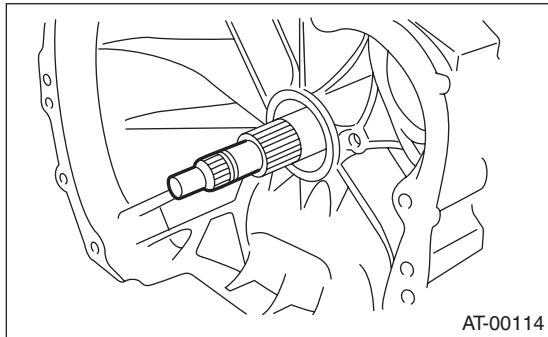


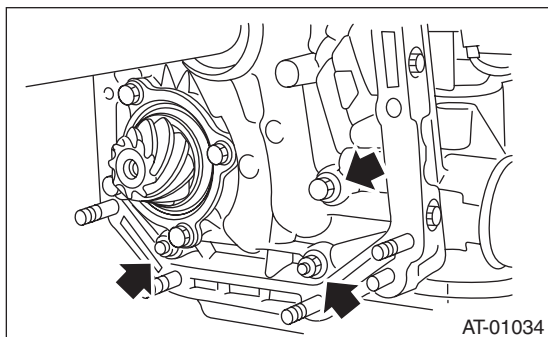
31.Oil Pump Housing

A: REMOVAL

- 1) Remove the transmission assembly from the vehicle. <Ref. to 4AT-34, REMOVAL, Automatic Transmission Assembly.>
- 2) Pull out the torque converter clutch assembly. <Ref. to 4AT-63, REMOVAL, Torque Converter Clutch Assembly.>
- 3) Remove the input shaft.



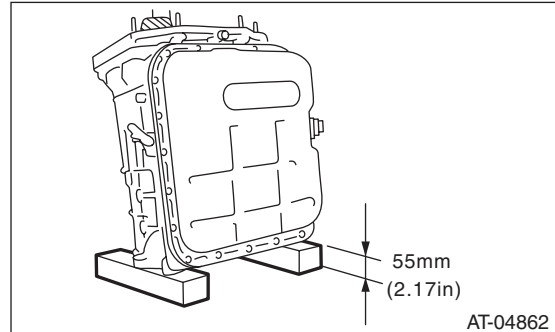
- 4) Lift up the lever on the rear side of transmission harness connector, and then remove it from the stay.
- 5) Remove the inhibitor switch connector from the stay.
- 6) Remove the oil charge pipe. <Ref. to 4AT-62, REMOVAL, Oil Charge Pipe.>
- 7) Remove the ATF inlet and outlet pipes. <Ref. to 4AT-59, REMOVAL, ATF Cooler Pipe and Hose.>
- 8) Separate the converter case and transmission case. <Ref. to 4AT-77, REMOVAL, Converter Case.>
- 9) Separate the transmission case and extension case section. <Ref. to 4AT-65, REMOVAL, Extension Case.>
- 10) Remove the reduction drive gear. <Ref. to 4AT-74, REMOVAL, Reduction Drive Gear.>
- 11) Remove the reduction driven gear. <Ref. to 4AT-72, REMOVAL, Reduction Driven Gear.>
- 12) Loosen the oil pump housing mounting bolts.



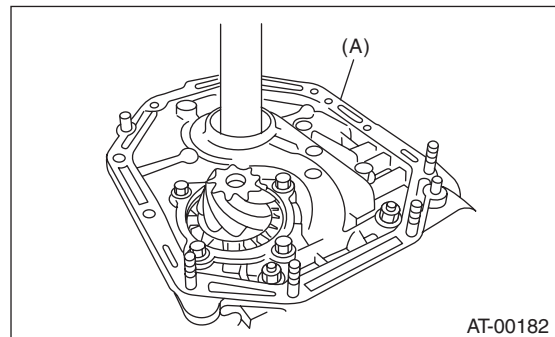
- 13) Place two wooden blocks on the workbench, and stand the transmission case with the rear end facing down.

NOTE:

- Be careful not to scratch the rear mating surface of the transmission case.
- Check the height of the wooden blocks to avoid damaging the parking rod and the drive pinion protruding from the mating surface.



- 14) Remove the oil pump housing and the adjusting thrust washer.



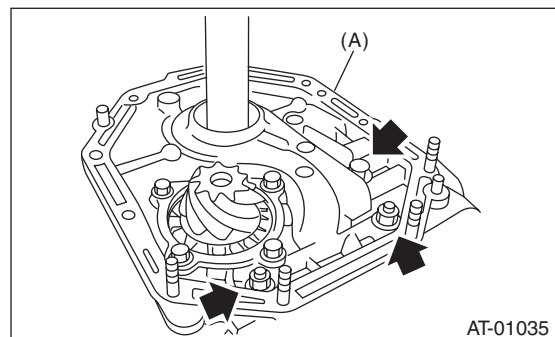
(A) Oil pump housing

B: INSTALLATION

- 1) Secure the oil pump housing with two nuts and a bolt.

Tightening torque:

42 N·m (4.3 kgf-m, 31.0 ft-lb)

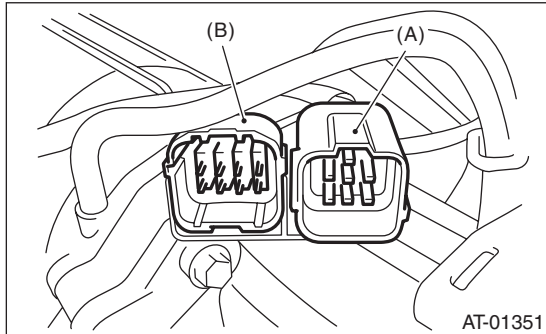


(A) Oil pump housing

Oil Pump Housing

AUTOMATIC TRANSMISSION

- 2) Install the converter case to the transmission case assembly. <Ref. to 4AT-77, INSTALLATION, Converter Case.>
- 3) Install the reduction driven gear. <Ref. to 4AT-72, INSTALLATION, Reduction Driven Gear.>
- 4) Install the reduction drive gear. <Ref. to 4AT-74, INSTALLATION, Reduction Drive Gear.>
- 5) Connect the transmission case with the extension case. <Ref. to 4AT-65, INSTALLATION, Extension Case.>
- 6) Insert the inhibitor switch connector and transmission harness connector onto the stay.

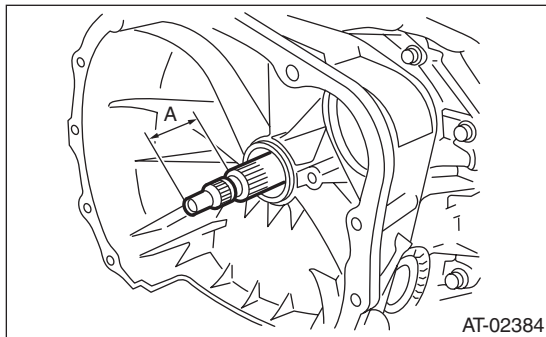


- (A) Transmission harness connectors
(B) Inhibitor switch connector

- 7) Install the ATF cooler pipe. <Ref. to 4AT-59, INSTALLATION, ATF Cooler Pipe and Hose.>
- 8) Install the oil charge pipe together with an O-ring. <Ref. to 4AT-62, INSTALLATION, Oil Charge Pipe.>
- 9) Insert the input shaft while rotating it lightly by hand, and then check the amount of protrusion.

Normal protrusion A:

50 — 55 mm (1.97 — 2.17 in)



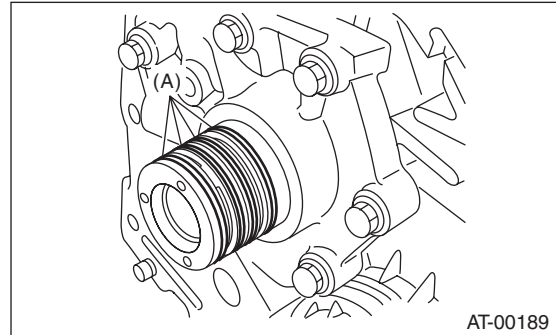
- A Measured value

- 10) Install the torque converter clutch assembly. <Ref. to 4AT-63, INSTALLATION, Torque Converter Clutch Assembly.>
- 11) Install the transmission assembly to the vehicle. <Ref. to 4AT-37, INSTALLATION, Automatic Transmission Assembly.>

C: DISASSEMBLY

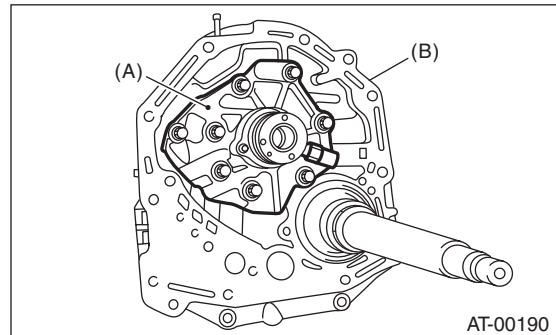
1. OIL PUMP COVER

- 1) Remove the four seal rings.



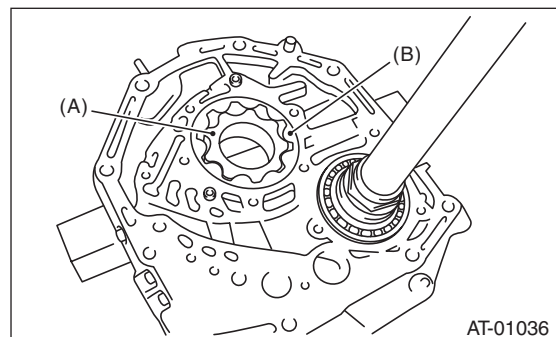
- (A) Seal ring

- 2) Remove attachment bolts, then remove the oil pump cover by lightly tapping the end of the stator shaft.



- (A) Oil pump cover
(B) Oil pump housing

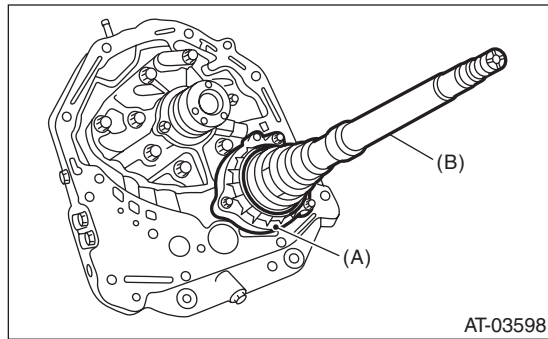
- 3) Remove the oil pump inner rotor and outer rotor.



- (A) Inner rotor
(B) Outer rotor

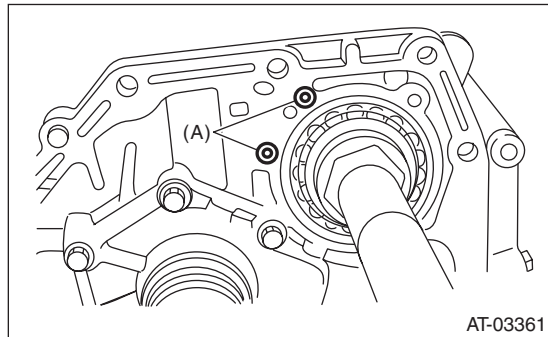
2. OIL SEAL RETAINER

1) Remove the oil seal retainer.



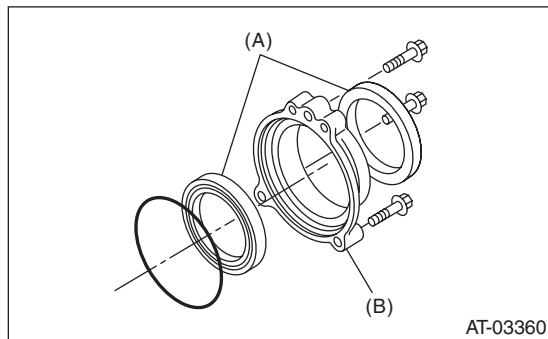
- (A) Oil seal retainer
- (B) Drive pinion shaft

2) Remove the O-ring.



- (A) O-ring

3) Remove the oil seal from the oil seal retainer.

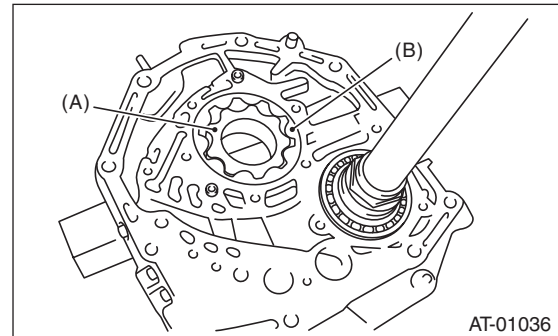


- (A) Oil seal
- (B) Oil seal retainer

D: ASSEMBLY

1. OIL PUMP COVER

1) Install the oil pump rotor assembly to oil pump housing.

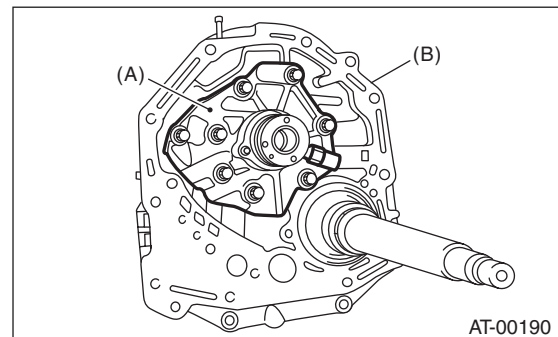


- (A) Inner rotor
- (B) Outer rotor

2) Align both pivots with the pivot holes of the cover, and then install the oil pump cover while being careful not to apply excessive force to the pivots.

Tightening torque:

25 N·m (2.5 kgf-m, 18.4 ft-lb)



- (A) Oil pump cover
- (B) Oil pump housing

3) After assembling, turn the oil pump shaft to check for smooth rotation of rotor.

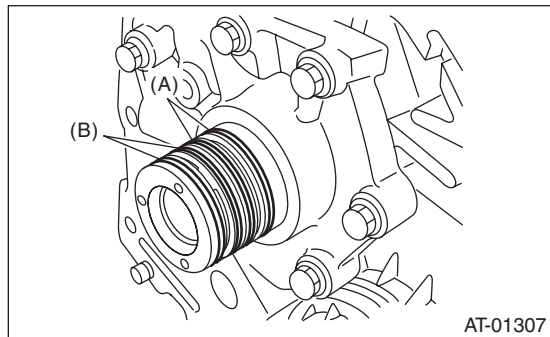
4) Apply vaseline to the oil seal retainer and new seal rings, and install them. After installing, adjust the tooth contact with the drive pinion backlash. <Ref. to 4AT-83, ADJUSTMENT, Oil Pump Housing.>

Oil Pump Housing

AUTOMATIC TRANSMISSION

NOTE:

There are two types of seals. They are identified by color. Install at the proper positions by referring to the figure.

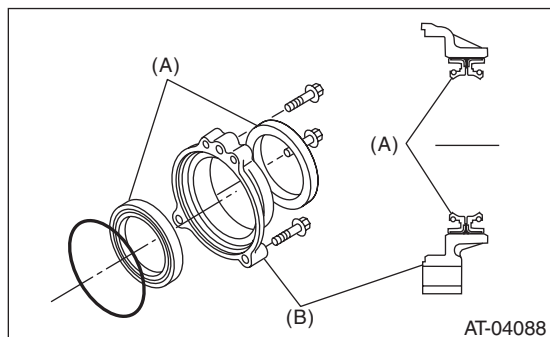


- (A) Seal ring (Black)
- (B) Seal ring (Brown)

2. OIL SEAL RETAINER

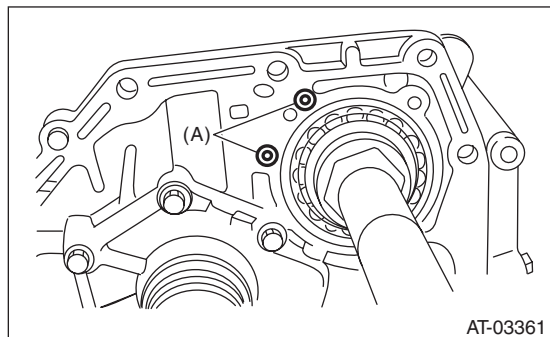
1) Apply ATF to two new oil seals and install them to the oil seal retainer in the proper direction using the ST.

ST 499247300 INSTALLER



- (A) Oil seal
- (B) Oil seal retainer

2) Apply ATF to a new O-ring and attach to the oil seal retainer. Install the seal to the oil pump housing bore.

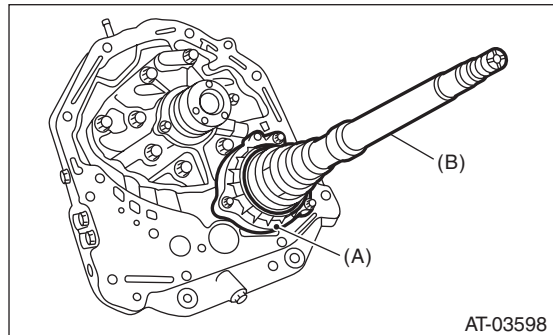


- (A) O-ring

3) Install the oil seal being careful not to damage oil seal lip, and secure it using three bolts.

Tightening torque:

7 N·m (0.7 kgf-m, 5.2 ft-lb)



- (A) Oil seal retainer
- (B) Drive pinion shaft

E: INSPECTION

1) Check the seal ring and oil seal for breaks and damage.

2) Check other parts for dents or faults.

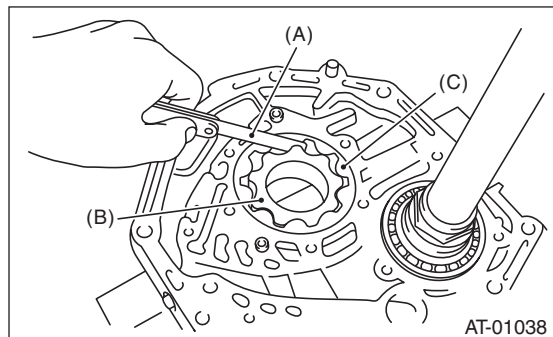
3) Oil pump rotor assembly selection

(1) Tip clearance

Install the inner rotor and outer rotor to the oil pump. With rotor gears facing each other, measure the crest-to-crest clearance.

Tip clearance:

0.02 — 0.15 mm (0.0008 — 0.0059 in)



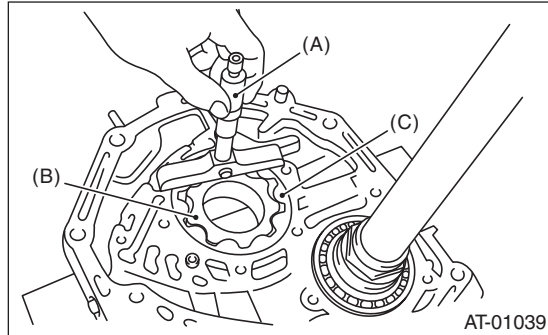
- (A) Thickness gauge
- (B) Inner rotor
- (C) Outer rotor

(2) Side clearance

Set a depth gauge to oil pump housing, then measure the oil pump housing-to-rotor clearance.

Side clearance:

0.02 — 0.04 mm (0.0008 — 0.0016 in)



- (A) Depth gauge
- (B) Inner rotor
- (C) Outer rotor

(3) If the depth and side clearance are out of specification, replace the oil pump rotor assembly.

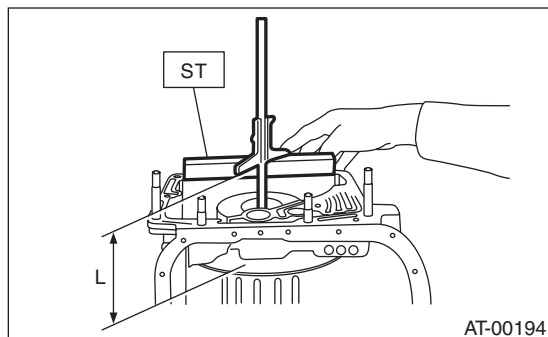
Oil pump rotor assembly	
Part No.	Length mm (in)
15008AA060	11.37 — 11.38 (0.4476 — 0.4480)
15008AA070	11.38 — 11.39 (0.4480 — 0.4484)
15008AA080	11.39 — 11.40 (0.4484 — 0.4488)

Check the total end play and adjust it to be within specifications. <Ref. to 4AT-83, ADJUSTMENT, Oil Pump Housing.>

F: ADJUSTMENT

1) Using the ST, measure the length “L”, from the mating surface of the transmission to the recessed portion of the high clutch drum.

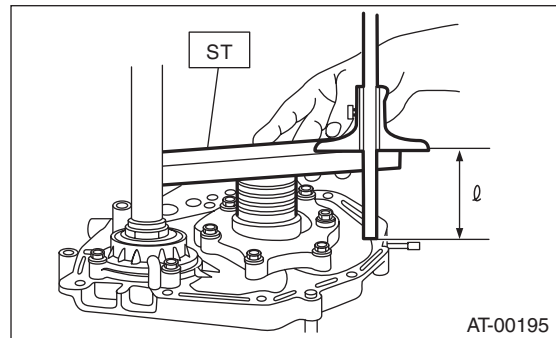
ST 398643600 GAUGE



L Measured value

2) Using the ST, measure the length “ ℓ ” from the oil pump housing mating surface to the top surface of the oil pump cover with the thrust needle bearing.

ST 398643600 GAUGE



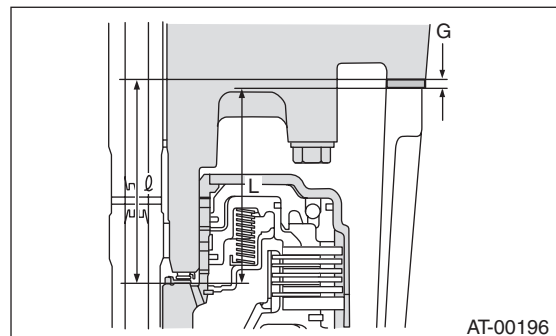
ℓ Measured value

3) Calculation of total end play

Select a suitable bearing race from the table below so that clearance C will be within 0.25 to 0.55 mm (0.0098 to 0.0217 in).

$$C = (L + G) - \ell$$

C	Clearance between concave section of high clutch and end of clutch drum support
L	Length from case mating surface to the concave portion of the high clutch
G	Gasket thickness [0.28 mm (0.0110 in)]
ℓ	Height from the oil pump housing mating surface to the upper surface of the oil pump cover with the thrust needle bearing.



Thrust needle bearing	
Part No.	Length mm (in)
806528050	4.1 (0.161)
806528060	4.3 (0.169)
806528070	4.5 (0.177)
806528080	4.7 (0.185)
806528090	4.9 (0.193)
806528100	5.1 (0.201)

Oil Pump Housing

AUTOMATIC TRANSMISSION

- 4) After completing the total end play adjustment, insert the bearing race into the high clutch race. Apply vaseline, and install the thrust needle bearing to the oil pump cover.
- 5) After correctly installing the new gasket to the case mating surface, carefully install the oil pump housing assembly. Be careful to avoid hitting the drive pinion against the inside of case.
- 6) Install both parts with dowel pins aligned. Make sure there is no clearance at the mating surface.