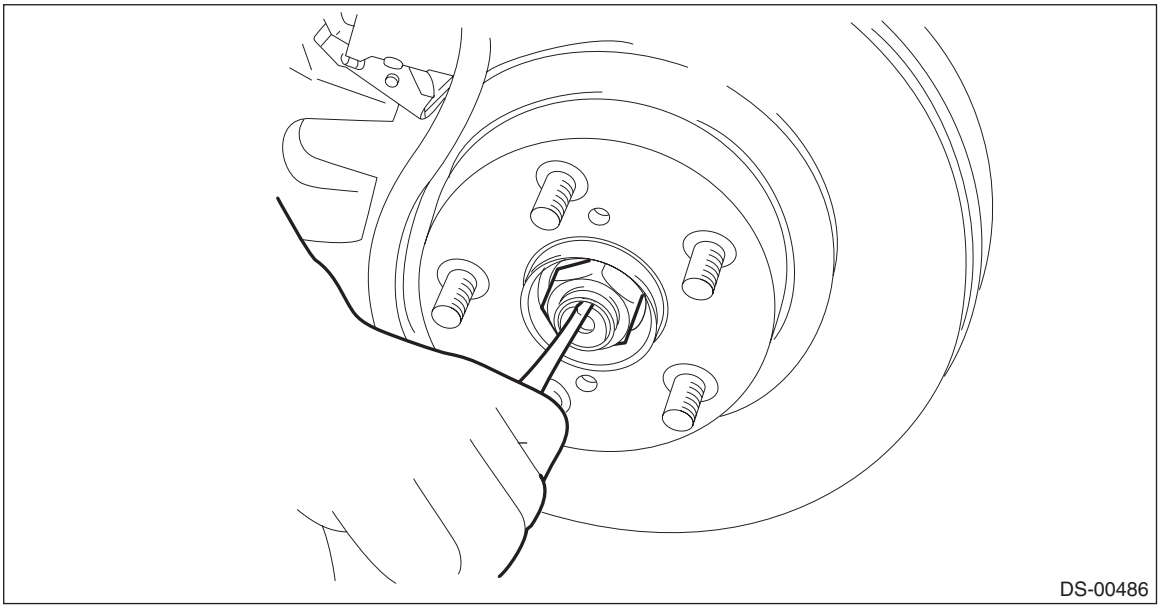
7. Front Drive Shaft

A: REMOVAL

1) Lift up the vehicle, and then remove the front wheels.
2) Remove the nut - axle.

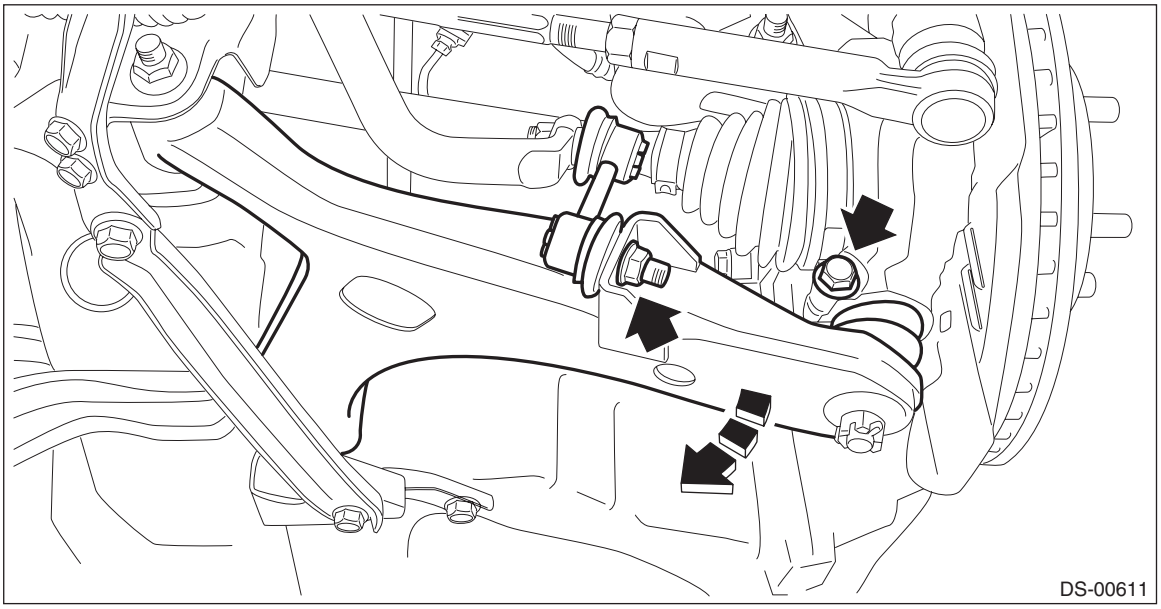
CAUTION:
Do not loosen the nut - axle while the front axle is loaded. Doing so may damage the hub unit COMPL.

(1) Lift the crimped section of the nut - axle.
(2) Remove the nut - axle using a socket wrench while depressing the brake pedal.


DS-00486

3) Drain the transmission gear oil. (MT model)
4) Drain differential gear oil. (CVT model)
5) Disconnect the ball joint assembly.

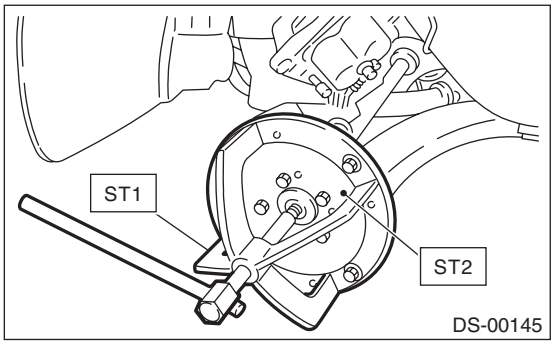
(1) Remove the nut and disconnect the front stabilizer link.
(2) Remove the bolts, disconnect the front arm ball joint, and lower the front arm assembly.


DS-00611

6) Remove the front axle shaft assembly from the housing assembly - front axle.

NOTE:
If it is hard to remove, use the ST.

PREPARATION TOOL:
ST1: AXLE SHAFT PULLER (926470000)
ST2: AXLE SHAFT PULLER PLATE (28099PA110)



7) Using a crowbar, remove the front axle shaft assembly from the transmission.

CAUTION:
Be careful not to allow the bar to damage holder area.

B: INSTALLATION

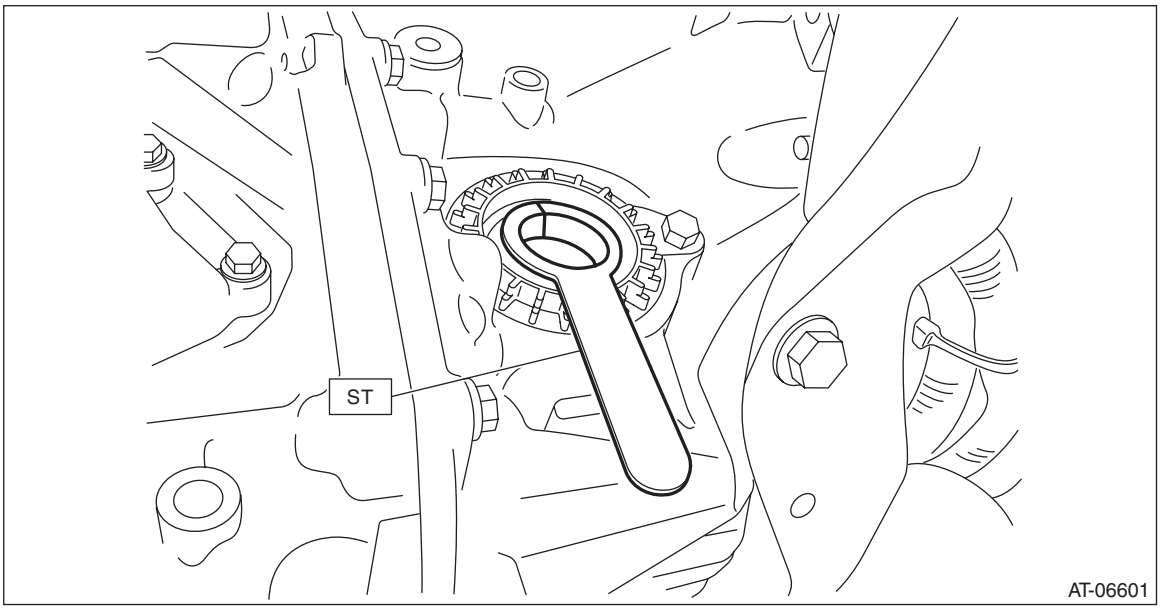
1) Before installation, check the axle shaft assembly. <Ref. to DS-60, INSPECTION, Front Drive Shaft.>
2) Replace the differential side retainer oil seal with a new part.
- 5MT model: <Ref. to 5MT-34, REPLACEMENT, Differential Side Retainer Oil Seal.>
- CVT model: <Ref. to CVT-87, REPLACEMENT, Differential Side Retainer Oil Seal.>

NOTE:
After pulling out the axle shaft assembly, be sure to replace with a new oil seal.
3) Insert the axle shaft assembly into the hub spline, and pull in the axle shaft assembly into specified position.

CAUTION:
Do not tap the axle shaft using a hammer when installing axle shaft assembly.
4) Temporarily tighten the nut - axle.

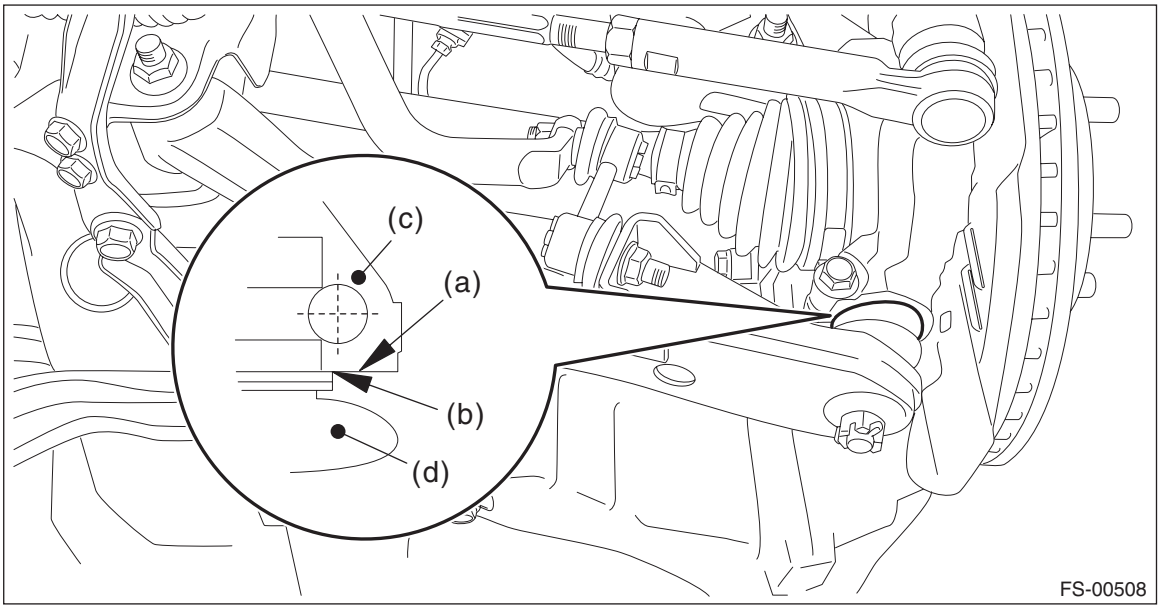
5) Using the ST, install the front axle shaft assembly to the transmission.

PREPARATION TOOL:
ST: OIL SEAL PROTECTOR (28399SA010)



6) Install the ball joint assembly to the housing assembly - front axle.

CAUTION:
Before tightening, make sure the bottom surface of the housing assembly - front axle and the stepped section of ball joint are in contact.



(a) Bottom surface of housing ASSY - front axle
(b) Raised section of ball joint
(c) Housing ASSY - front axle
(d) Ball joint

Tightening torque:
50 N·m (5.10 kgf-m, 36.9 ft-lb)

7) Install the stabilizer link.

Tightening torque:
38 N·m (3.87 kgf-m, 28.0 ft-lb)

8) While depressing the brake pedal, tighten new nuts - axle to the specified torque.

CAUTION:
Do not load the front axle before tightening the nut - axle. Doing so may damage the hub unit COMPL.

Tightening torque:
220 N·m (22.43 kgf-m, 162.3 ft-lb)
9) After tightening the nut - axle, lock it securely.
10) Fill transmission gear oil. (MT model)
11) Fill differential gear oil. (CVT model)
12) Install the front wheels.

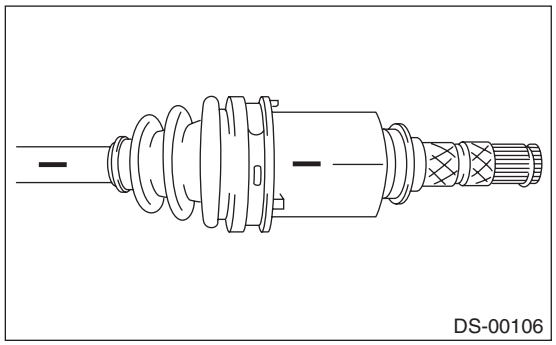
Tightening torque:
120 N·m (12.24 kgf-m, 88.5 ft-lb)
13) Inspect the wheel alignment and adjust if necessary.
- Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.>
- Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>

CAUTION:
When the wheel alignment has been adjusted, perform "VDC sensor midpoint setting mode" of the VDC.
14) Perform reinitialization of the auto headlight beam leveler system. (model with auto headlight beam leveler) <Ref. to LI-19, PROCEDURE, Auto Headlight Beam Leveler System.>

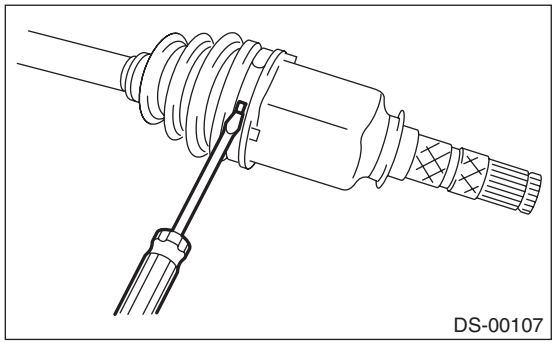
C: DISASSEMBLY

1) Remove the AAR outer race from shaft assembly.

CAUTION:
Be careful not to damage the boot.
(1) Place alignment marks on the shaft and outer race.

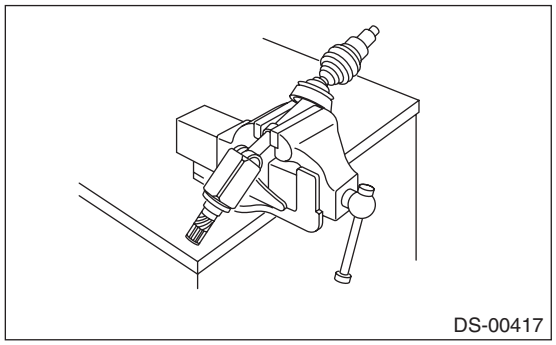

DS-00106

(2) Remove the AAR boot band and boot.


DS-00107

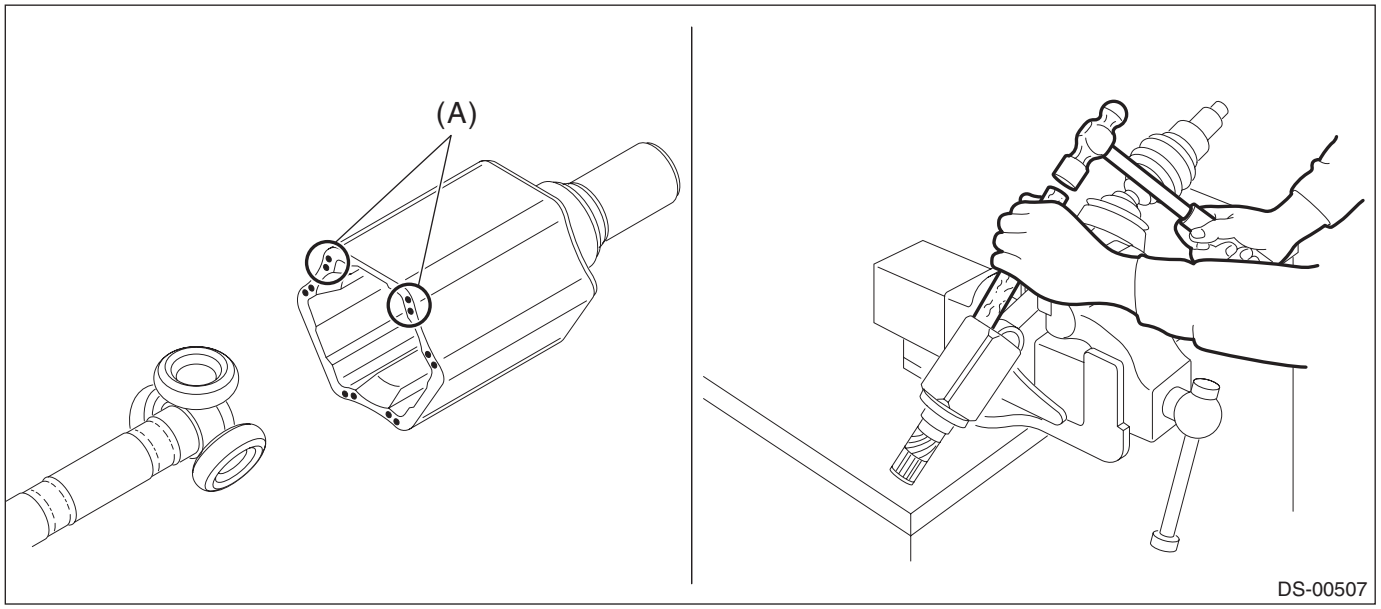
(3) Place the axle shaft between wooden blocks and fix it on a vise.

CAUTION:
Do not set the axle shaft directly on a vise.



(4) Tap the staking are of the outer race alternately with a plastic or wooden bar, and remove one roller at a time.

CAUTION:
- **Tap the staking area (A) of the outer race.**
- **Do not use a metal bar as the outer race may deform.**
- **Be careful not to damage the roller parts.**



(5) Remove the outer race from shaft assembly.

CAUTION:
Make sure to have your associate held the outer race when removing the third roller to prevent the outer race from falling.

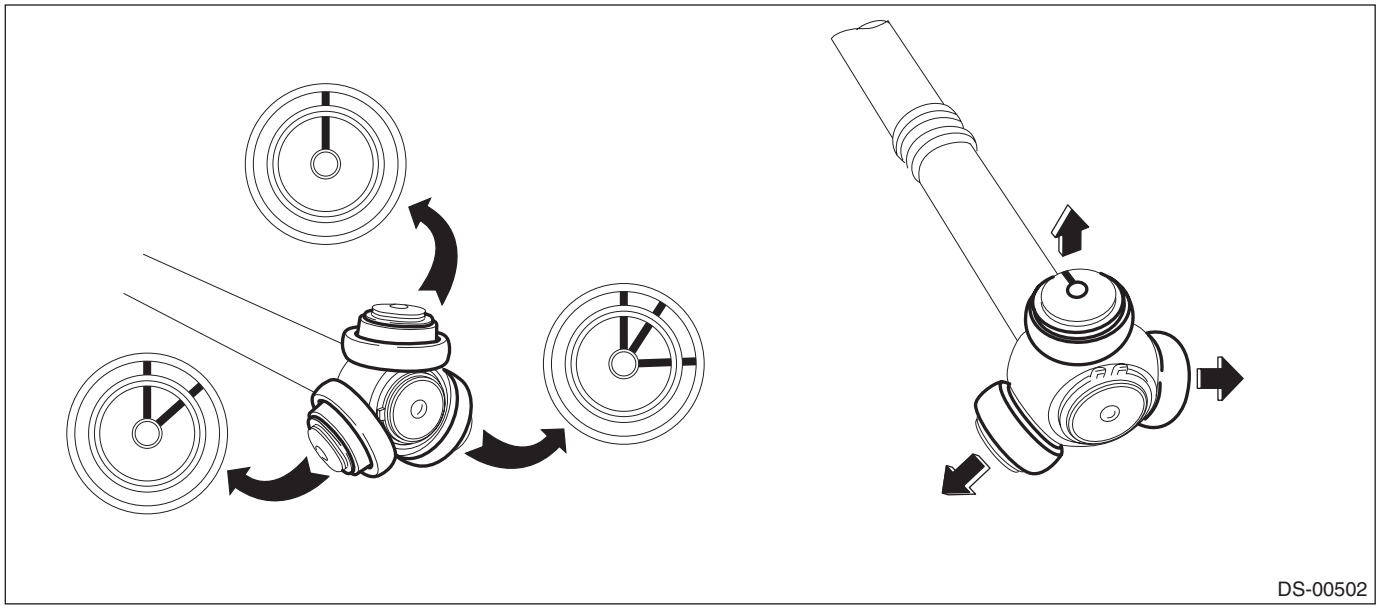
(6) Wipe off grease.

CAUTION:
The grease is a special type of grease. Do not mix with other grease.

2) Remove the roller kit from trunnion.

CAUTION:
Be careful with the roller kit position.

(1) Place alignment marks on the roller kit and trunnion.



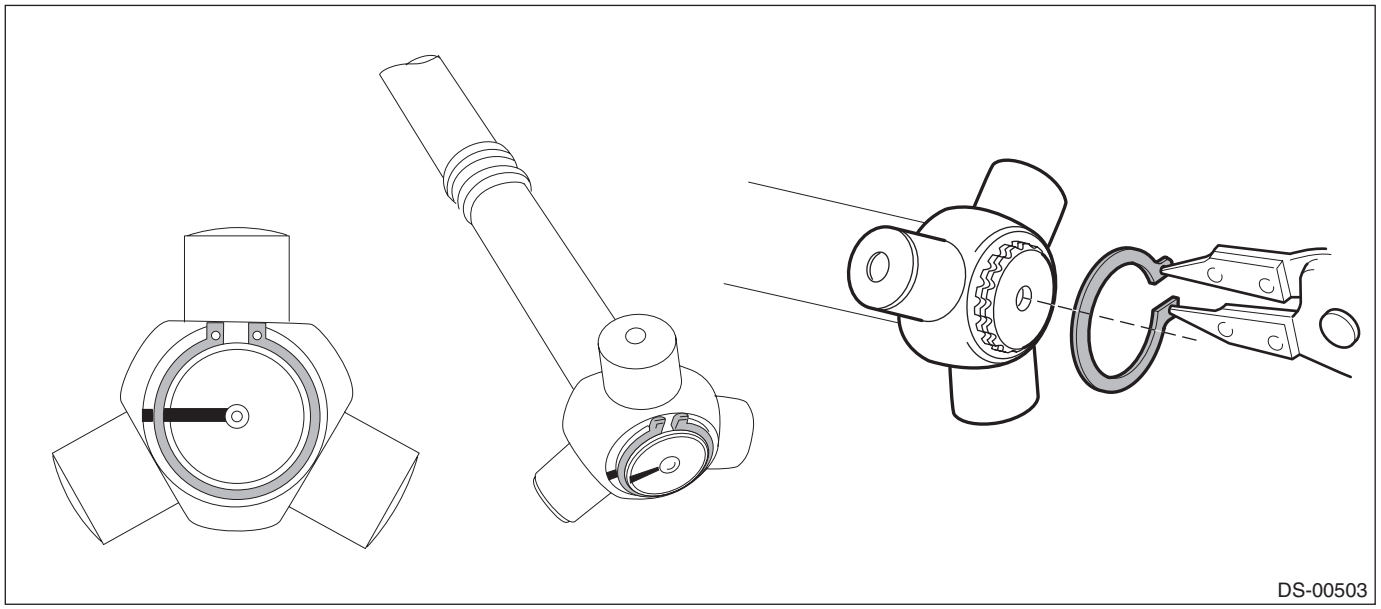
(2) Remove the roller kit from trunnion.

3) Remove the trunnion from the shaft.

(1) Place alignment marks on the trunnion and shaft.

(2) Remove the snap ring and trunnion.

CAUTION:
Be sure to wrap shaft splines with vinyl tape to protect the boot from scratches.



4) Remove the AAR boot.

NOTE:
The AC is a non-disassembly part, so the axle shaft disassembly stops here.

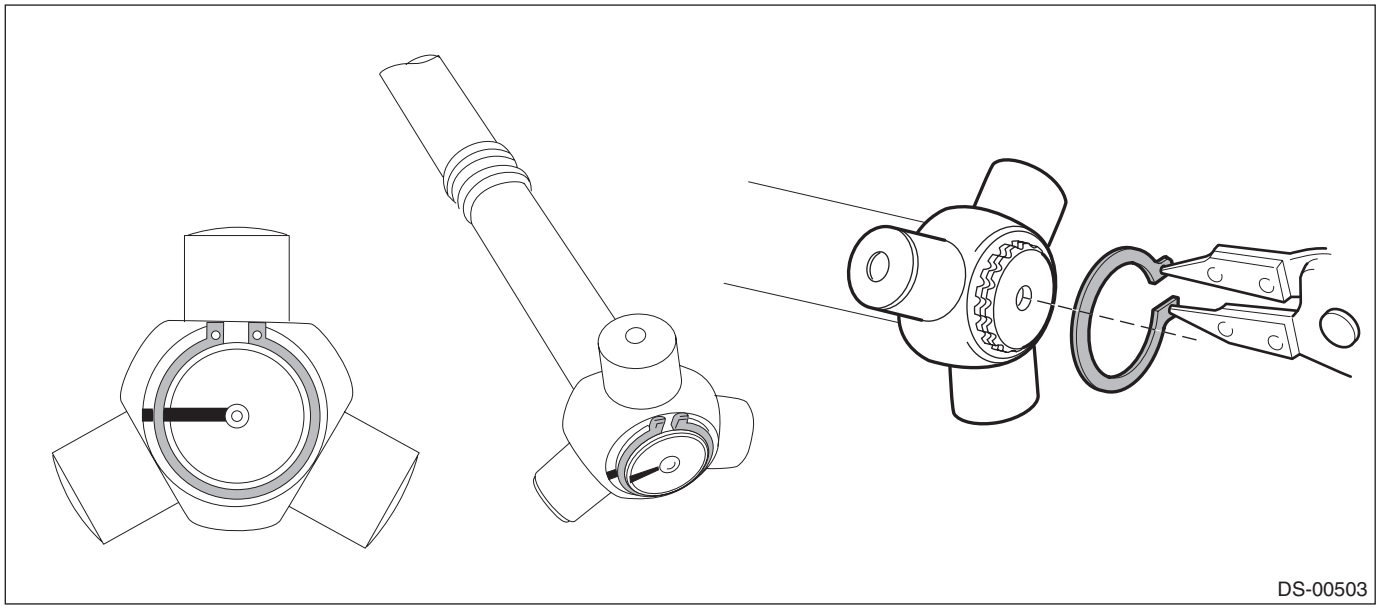
D: ASSEMBLY

NOTE:
Use specified grease.

AAR side:
ONE LUBER C

1) Pass the AAR boot through the shaft.
2) Install the trunnion to the shaft.
   (1) Match the alignment marks, and attach the trunnion onto the shaft.
   (2) Attach the snap ring to the shaft.

CAUTION:
Confirm that the snap ring is completely fitted in the shaft groove.

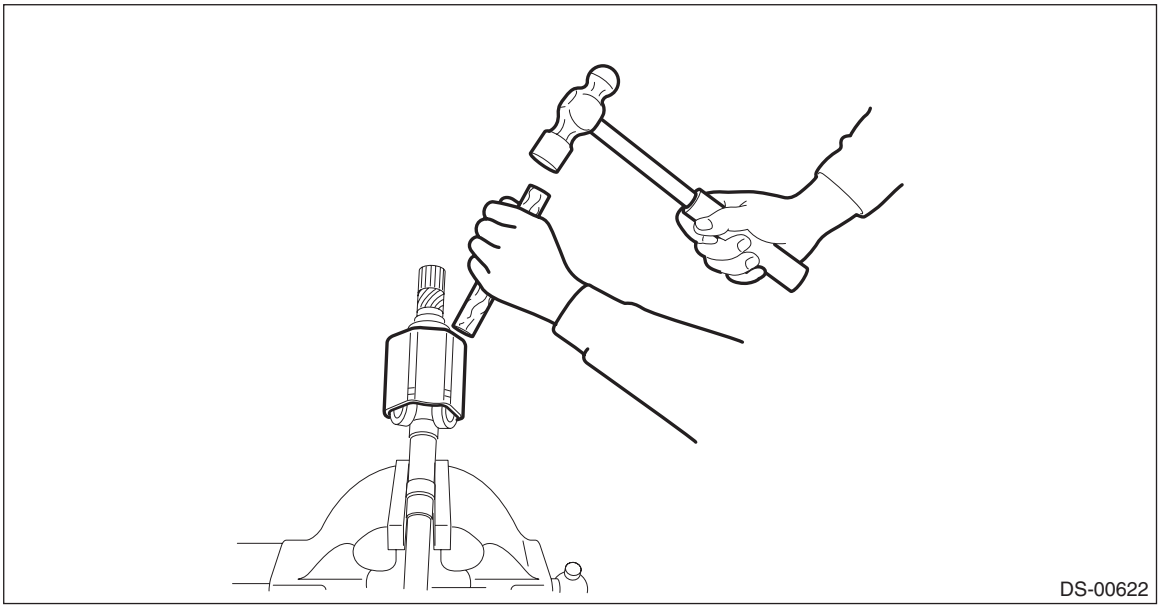


3) Fill 50 to 60 g (1.76 to 2.12 oz) of specified grease into the interior of AAR outer race.
4) Install the trunnion to the roller kit.
   (1) Apply a thin coat of specified grease to the roller kit and trunnion.
   (2) Place the axle shaft between wooden blocks and fix it on a vise.

CAUTION:
Do not set the axle shaft directly on a vise.
5) Align the alignment marks on the shaft and outer race.

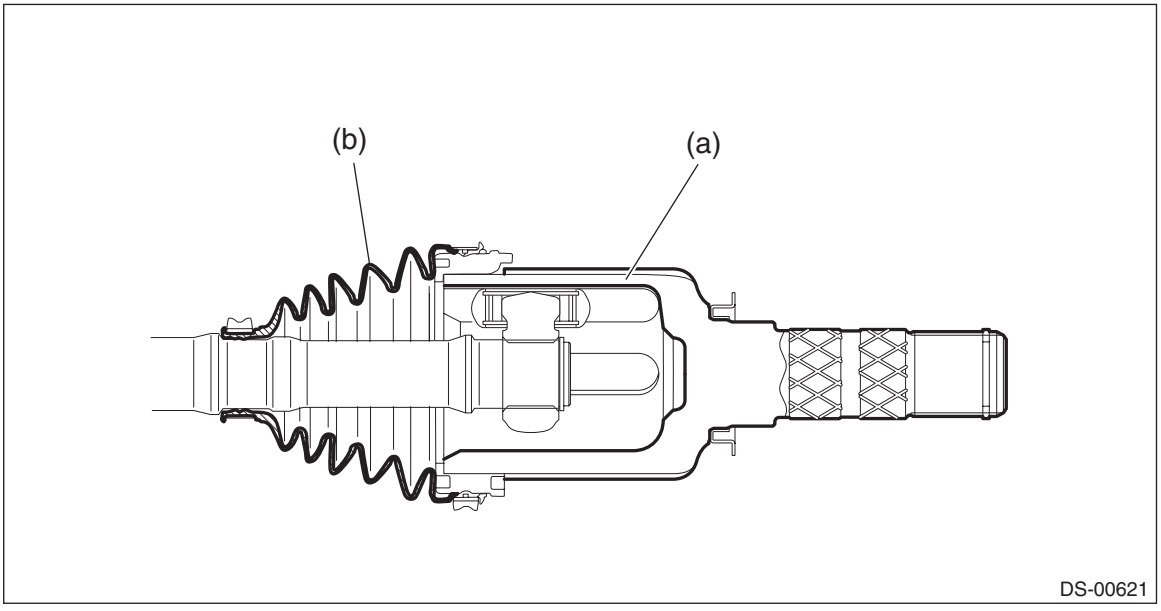
6) Tap the insertion upper part of the outer race alternately using a plastic or wood bar shown in the figure, and then insert the roller one by one.

CAUTION:
- **Do not use a metal bar as the outer race may deform.**
- **Do not tap on the end of outer race (shaft part).**
- **Be careful not to deform the baffle plate.**



7) Apply an even coat of the specified grease 30 to 40 g (1.06 to 1.41 oz) to the entire inner surface of boot.
8) Install the AAR boot taking care not to twist it.

CAUTION:
Do not let grease get on groove of the outer race side.



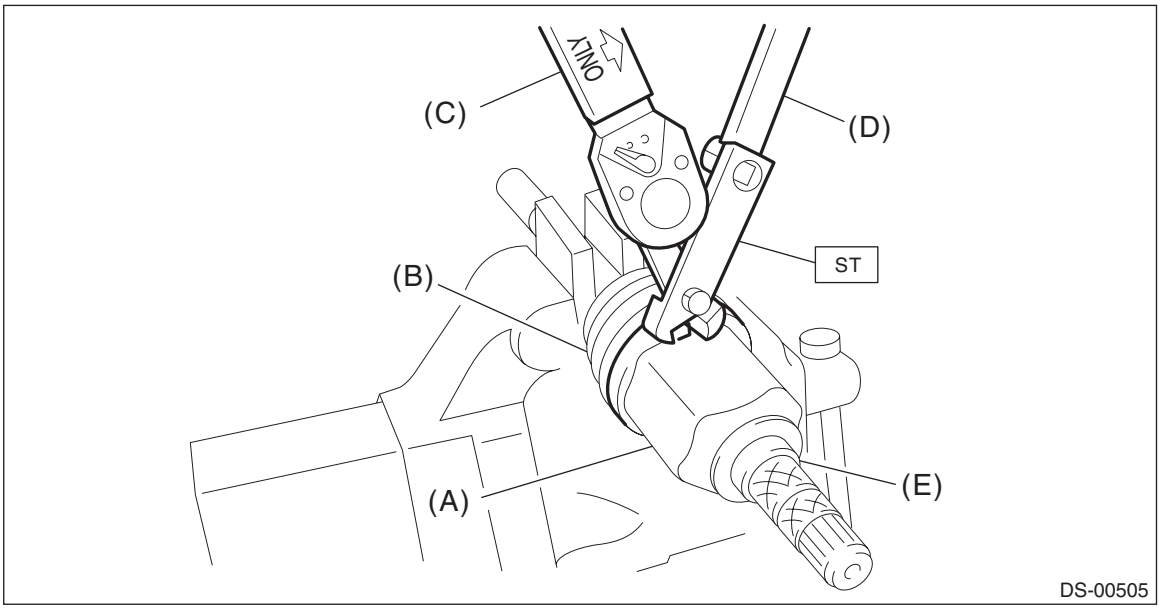
(a) Outer race (b) Boot

9) Insert a flat tip screwdriver, etc. between outer race and boot to make pressure inside of boot as high as barometric pressure.

10) Tighten the boot band.
(1) Install the new large boot band and small boot band at the required positions.
(2) Connect the torque wrench and socket flex handle to the ST.

PREPARATION TOOL:
ST: BOOT BAND PLIER (28099AC000)
Torque wrench
Socket flex handle

(3) Use a prepared tool, tighten the boot band.



(A) Large boot band
(B) Boot
(C) Torque wrench
(D) Socket flex handle
(E) Outer race

Clearance at the crimped section of the boot band:
Large boot band: 1 mm (0.04 in) or less
Small boot band: 1 mm (0.04 in) or less

Tightening torque:
Large boot band: 178 N·m (18.15 kgf-m, 131.3 ft-lb)
Small boot band: 145 N·m (14.79 kgf-m, 106.9 ft-lb)

11) Extend and retract the AAR repeatedly to provide an equal coating of grease.

E: INSPECTION

Check the removed parts for damage, wear, corrosion etc. If faulty, repair or replace.

- **AAR and AC:**

Check for seizure, corrosion, damage, wear and excessive play.

- **Shaft:**

Check for excessive bending, twisting, damage and wear.

- **Boot:**

Check for wear, warping, breakage and scratches.

- **Grease:**

Check for discoloration and fluidity.