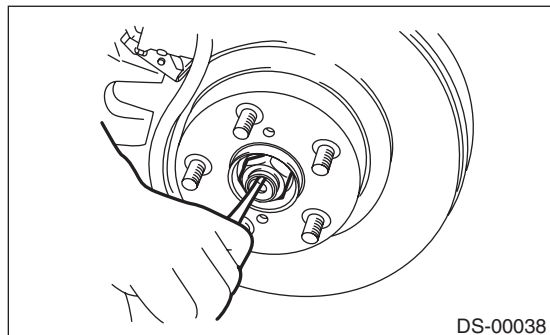


## 7. Front Drive Shaft

### A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Lift up the vehicle, and then remove the front wheels.
- 3) Lift the crimped section of axle nut.

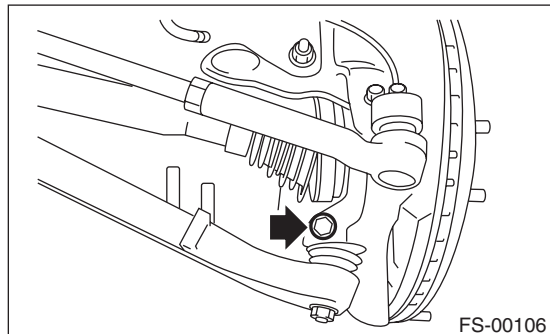


- 4) Remove the axle nut using a socket wrench while depressing the brake pedal.

#### CAUTION:

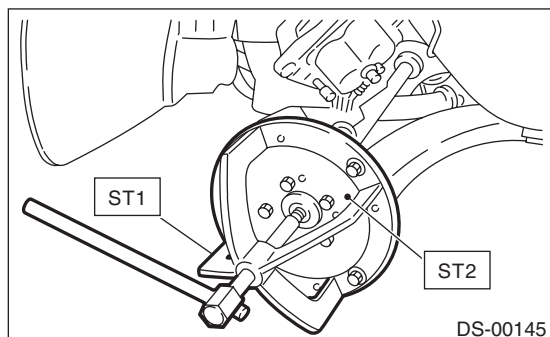
**Do not loosen the axle nut while the front axle is loaded. Doing so may damage the hub bearing.**

- 5) Drain the transmission gear oil.
- 6) Remove the stabilizer link from front arm.
- 7) Disconnect the front arm ball joint from the housing.



- 8) Remove the front drive shaft assembly. If it is hard to remove, use ST1 and ST2.

ST1 926470000 AXLE SHAFT PULLER  
ST2 28099PA110 AXLE SHAFT PULLER PLATE



- 9) Using a bar, remove the front drive shaft from transmission.

#### CAUTION:

**Be careful not to allow the bar to damage holder area.**

### B: INSTALLATION

- 1) Replace the differential side retainer oil seal with a new part.

#### NOTE:

After pulling out the drive shaft, be sure to replace with a new oil seal.

**6MT model: <Ref. to 6MT-28, REPLACEMENT, Differential Side Retainer Oil Seal.>**

**5MT model: <Ref. to 5MT-32, REPLACEMENT, Differential Side Retainer Oil Seal.>**

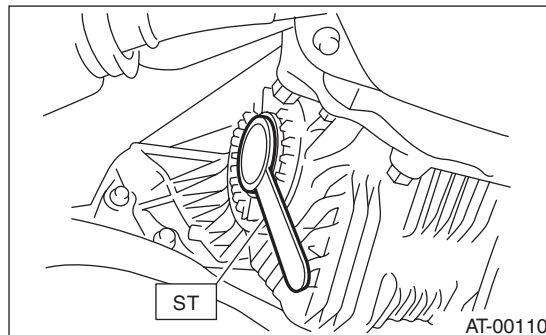
- 2) Insert the AC into hub splines.
- 3) Draw the drive shaft into specified position.

#### CAUTION:

**Do not hammer drive shaft when installing it.**

- 4) Tighten the axle nut temporarily.
- 5) Using the ST, install the front drive shaft to transmission.

ST 28399SA010 OIL SEAL PROTECTOR



- 6) Connect the front arm ball joint to the housing.

#### Tightening torque:

**50 N·m (5.10 kgf-m, 36.9 ft-lb)**

- 7) Install the stabilizer link.

#### CAUTION:

**Use a new flange nut.**

#### Tightening torque:

**38 N·m (3.87 kgf-m, 28 ft-lb)**

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

#### CAUTION:

**Do not apply weight to the front axle before tightening the axle nut. Doing so may damage the hub bearing.**

#### Tightening torque:

**220 N·m (22.43 kgf-m, 162.3 ft-lb)**

- 9) After tightening axle nut, lock it securely.

# Front Drive Shaft

## DRIVE SHAFT SYSTEM

- 10) Fill transmission gear oil.
- 11) Install the front wheels.

### **Tightening torque:**

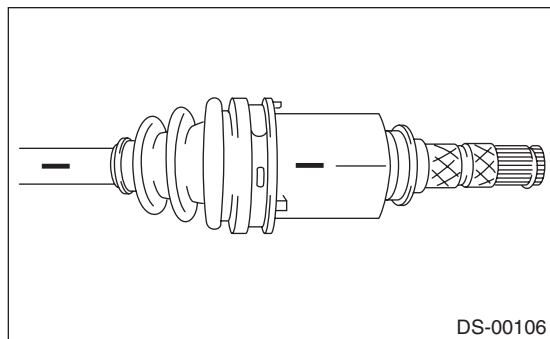
**100 N·m (10.20 kgf-m, 73.8 ft-lb)**

- 12) Connect the battery ground terminal.
- 13) Inspect the wheel alignment and adjust if necessary.

## **C: DISASSEMBLY**

### **1. EXCEPT FOR STI MODEL**

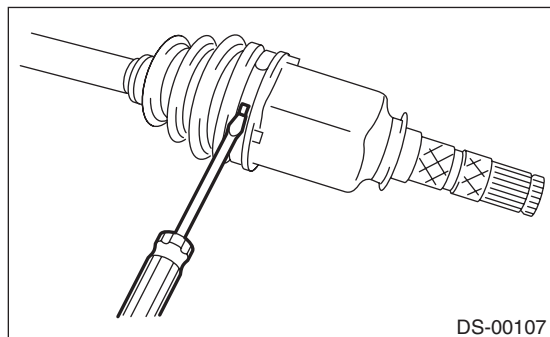
- 1) Place alignment marks on the shaft and outer race.



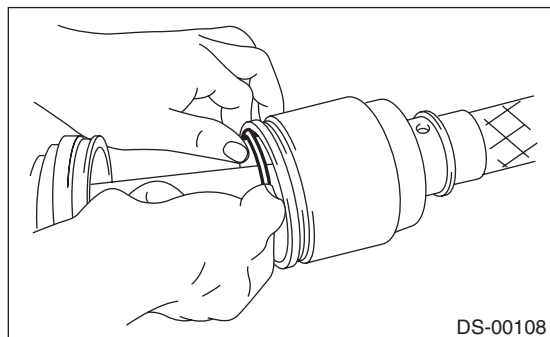
- 2) Remove the PTJ boot band and boot.

### **CAUTION:**

**Be careful not to damage the boot.**



- 3) Remove the snap ring from PTJ outer race.

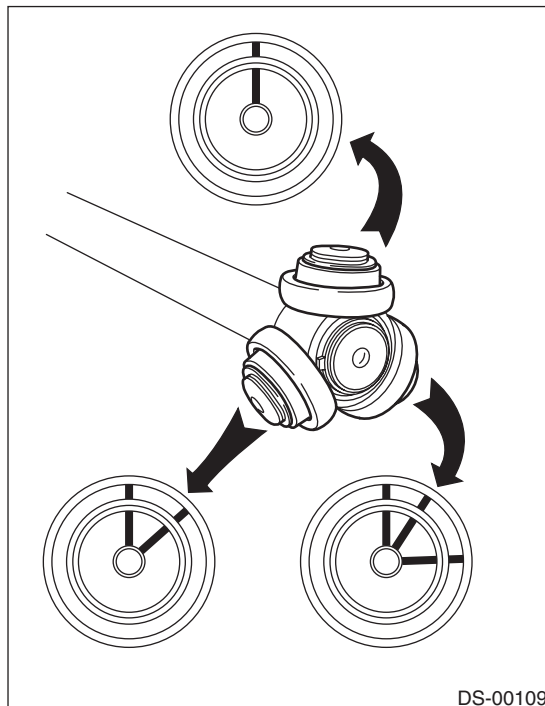


- 4) Remove the PTJ outer race from shaft assembly.
- 5) Wipe off grease.

### **CAUTION:**

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

- 6) Place alignment marks on the roller kit and trunnion.

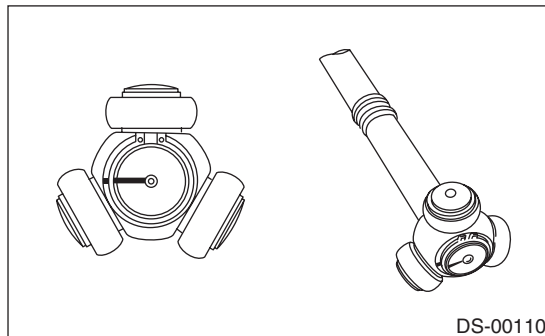


- 7) Remove the roller kit from trunnion.

### **CAUTION:**

**Be careful with the roller kit position.**

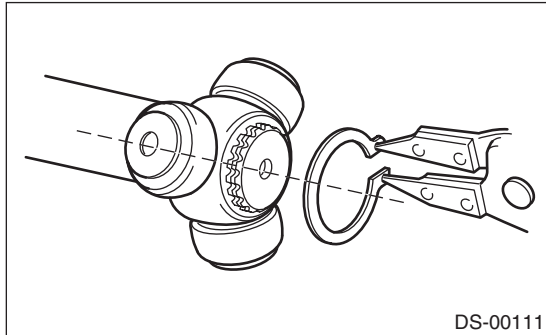
- 8) Place alignment marks on the trunnion and shaft.



9) Remove the snap ring and trunnion.

**CAUTION:**

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



10) Remove the PTJ boot.

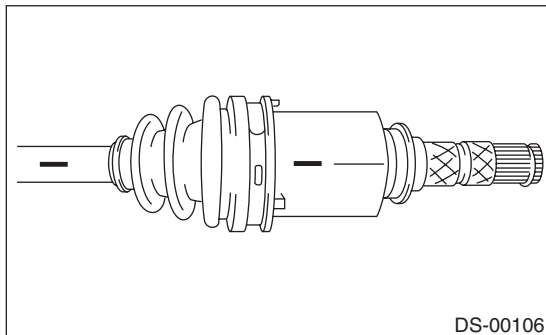
11) Remove the O-ring from the groove of the shaft.

**NOTE:**

The EBJ is a non-disassembly part, so the axle disassembly stops here.

## 2. STI MODEL

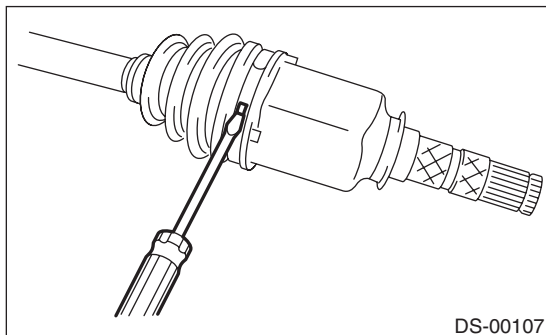
1) Place alignment marks on the shaft and outer race.



2) Remove the AAR boot band and boot.

**CAUTION:**

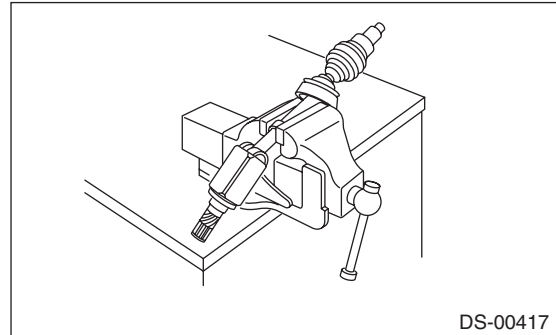
Be careful not to damage the boot.



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

**CAUTION:**

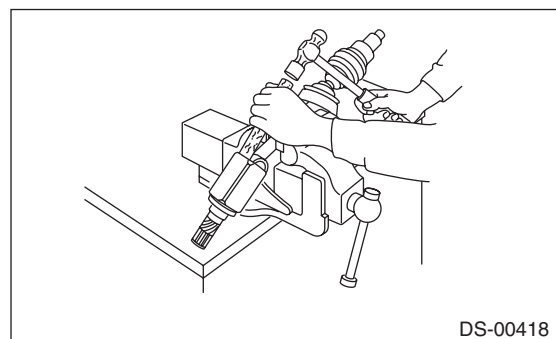
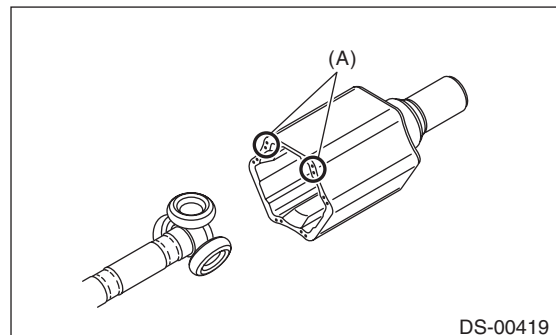
Do not set the only drive shaft on a vise.



4) Tap the staking area 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.

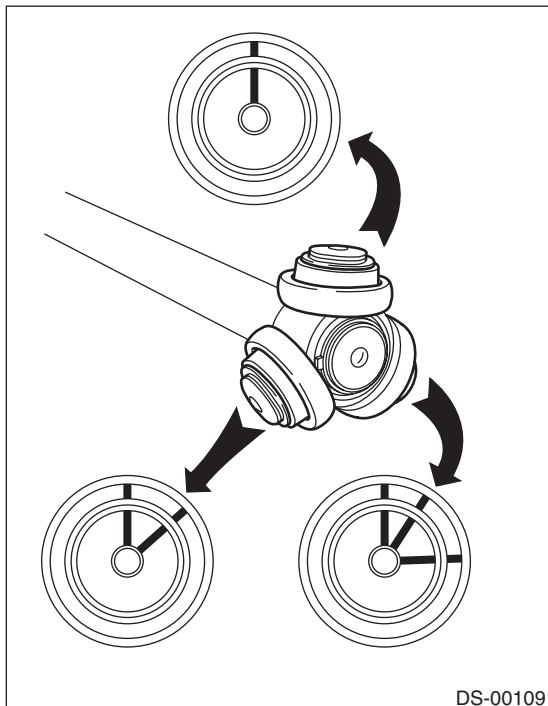
**CAUTION:**

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

# Front Drive Shaft

## DRIVE SHAFT SYSTEM

7) Place alignment marks on the roller kit and trunnion.

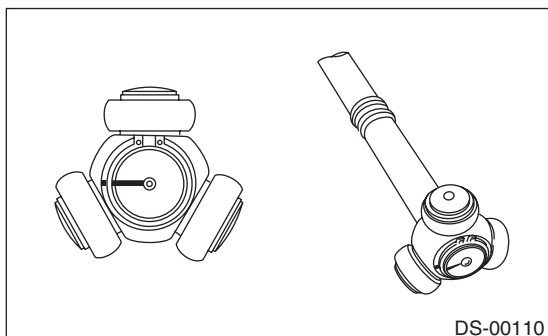


8) Remove the roller kit from trunnion.

### CAUTION:

**Be careful with the roller kit position.**

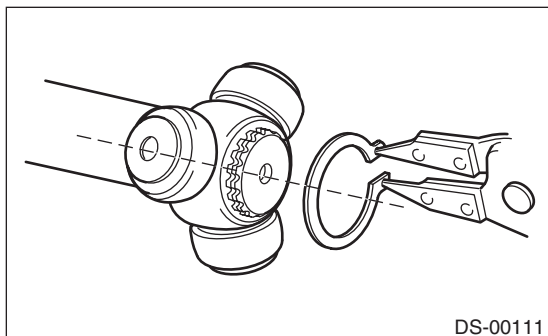
9) Place alignment marks on the trunnion and shaft.



10) Remove the snap ring and trunnion.

### CAUTION:

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



11) Remove the AAR boot.

### NOTE:

The AC is a non-disassembly part, so the drive shaft disassembly stops here.

## D: ASSEMBLY

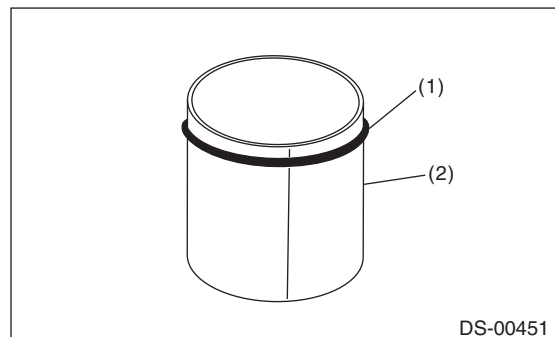
### 1. EXCEPT FOR STI MODEL

1) Roll up a thick piece of paper to a size where the shaft can pass through, and affix with tape to form a cylinder.

2) Attach a new O-ring on this cylinder.

### CAUTION:

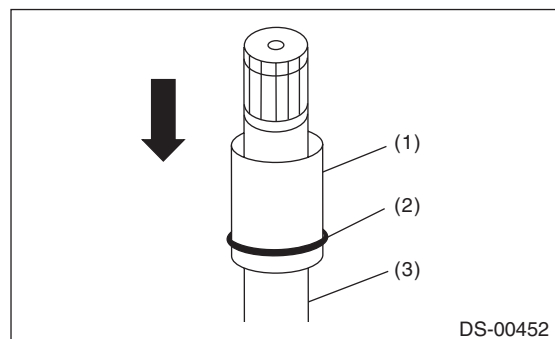
- Always use a new O-ring.
- Be careful that the O-ring does not become scratched and that there are no foreign objects attached to it.
- Make sure to install the O-ring so that it does not twist as much as possible.
- Do not stretch the O-ring to 30 mm (1.18 in) inner diameter or more.



(1) O-ring

(2) Cylinder made with thick paper, etc.

3) Pass the cylinder material onto the shaft, and slide in the direction of the shaft axis.



(1) Cylinder material

(2) O-ring

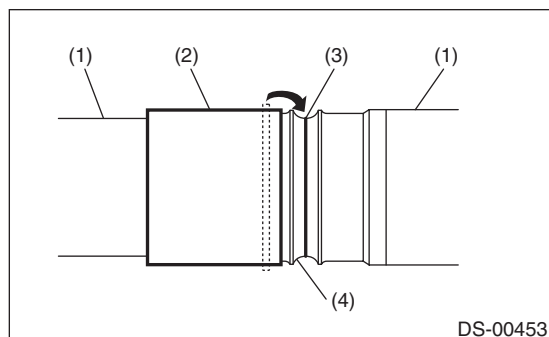
(3) Shaft

4) Clean the shaft boot groove, and wipe off the grease.

5) Slide the cylinder material near the shaft boot groove, and move the O-ring from the cylinder material onto the shaft boot groove.

**CAUTION:**

- Attach the O-ring to the shaft boot groove center.
- Be careful that the O-ring does not become scratched and that there are no foreign objects attached to it.
- Make sure to install the O-ring so that it does not twist as much as possible.
- With the O-ring attached, do not wash with kerosene, gasoline, etc.



- (1) Shaft
- (2) Cylinder material
- (3) O-ring
- (4) Boot groove

6) Pass the PTJ small diameter boot band through the shaft.

7) Wrap vinyl tape around the splines of the shaft.

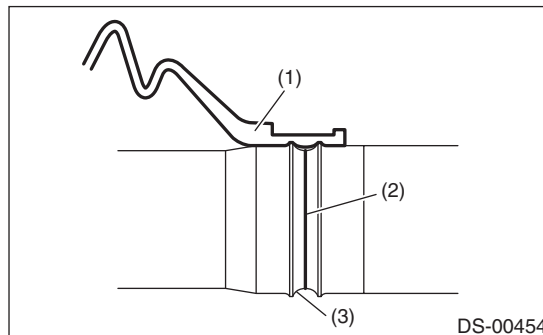
**CAUTION:**

To prevent damage to the boots, make sure to always wrap with vinyl tape for protection.

8) Install a new PTJ boot.

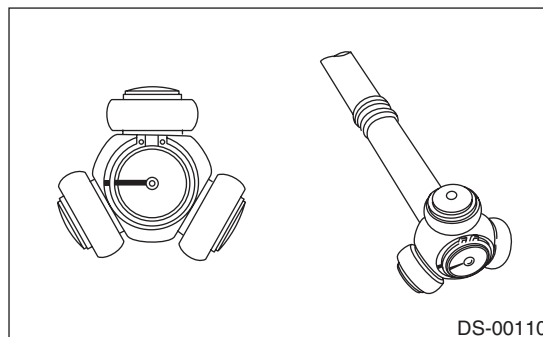
**CAUTION:**

Make sure to fit securely on the boot groove of the shaft.



- (1) PTJ boot
- (2) O-ring
- (3) Boot groove

9) Match the alignment marks, and attach the trunion onto the shaft.



10) Attach the snap ring to the shaft.

**CAUTION:**

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

11) Fill 100 to 110 g (3.53 to 3.88 oz) of specified grease into the interior of the PTJ outer race.

**Grease:**

**NKG302**

## Front Drive Shaft

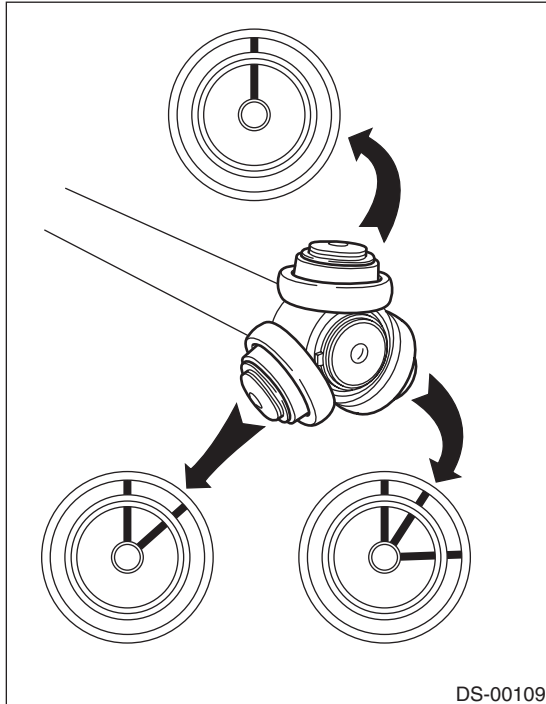
### DRIVE SHAFT SYSTEM

12) Apply a thin coat of specified grease to the roller kit and trunnion.

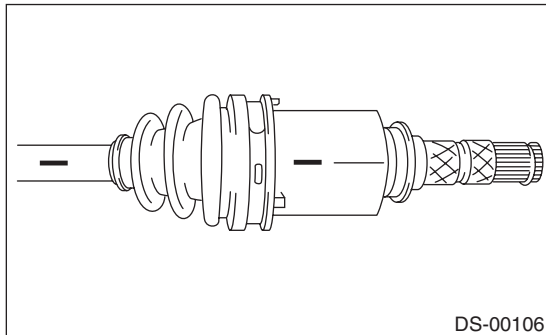
13) Match the alignment marks of the roller kit and trunnion, and attach the roller kit.

#### CAUTION:

**Be careful with the roller kit position.**



14) Match the alignment marks of the shaft and outer race, and attach the outer race.



15) Install the snap ring in the groove of the PTJ outer race.

#### CAUTION:

**Pull the shaft lightly and make sure that the snap ring is completely fitted in the groove.**

16) 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.

17) Attach the PTJ boot taking care not to twist it.

#### CAUTION:

- Clean the large end of PTJ boot and the boot groove well, and remove the grease and other substances.

- When installing the PTJ boot, position the outer race of the PTJ at center of the stroke.

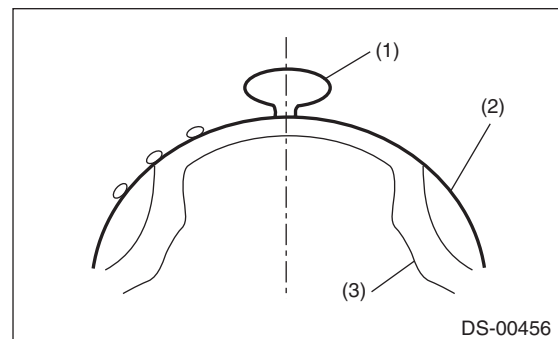
18) Set the new boot band at the specified position.

19) Tighten the boot bands using ST, torque wrench and socket flex handle.

ST 28099AC000 BOOT BAND PLIER

#### CAUTION:

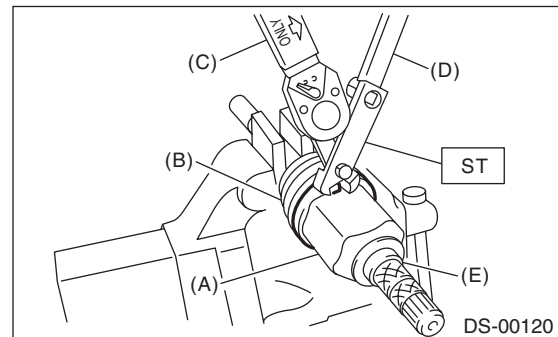
**The large boot band is to be tightened so that the omega shaped part is at the position indicated in the figure below.**



(1) Omega shaped part

(2) Boot band

(3) Outer race



(A) Large boot band

(B) Boot

(C) Torque wrench

(D) Socket flex handle

(E) Outer race

#### Tightening torque:

##### Large boot band

**178 N·m (18.2 kgf-m, 131.3 ft-lb)**

##### Small boot band

**145 N·m (14.8 kgf-m, 106.9 ft-lb)**

20) Extend and retract the PTJ repeatedly so that grease is spread evenly.



### 2. STI MODEL

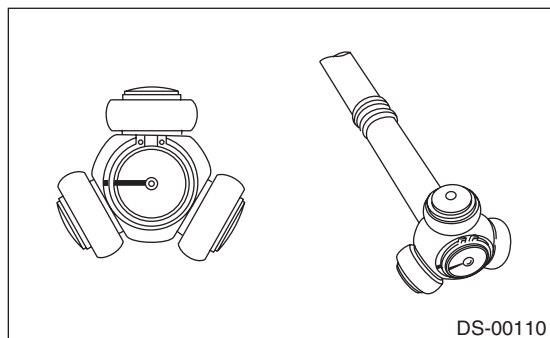
NOTE:

Use specified grease.

**AAR side:**

**ONE LUBER C**

- 1) Pass the AAR boot through the shaft.
- 2) Align alignment marks and install the trunnion on the shaft. Install the snap ring into the shaft groove securely.



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

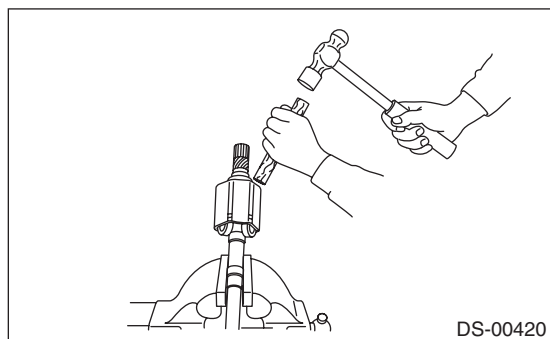
**CAUTION:**

**Do not set the only drive shaft on a vise.**

- 6) Align the alignment marks on the shaft and outer race.
- 7) 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.

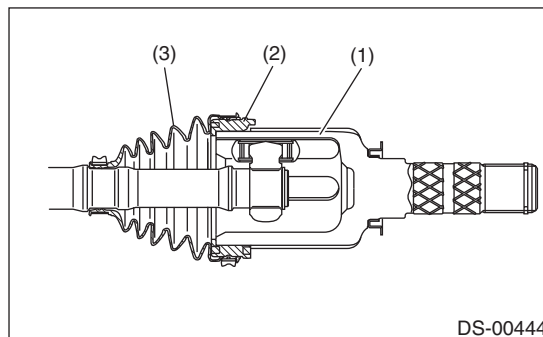


- 8) Apply an even coat of the specified grease 30 to 40 g (1.06 to 1.41 oz) to the entire inner surface of boot.

- 9) Install the AAR boot and grommet taking care not to twist it.

**CAUTION:**

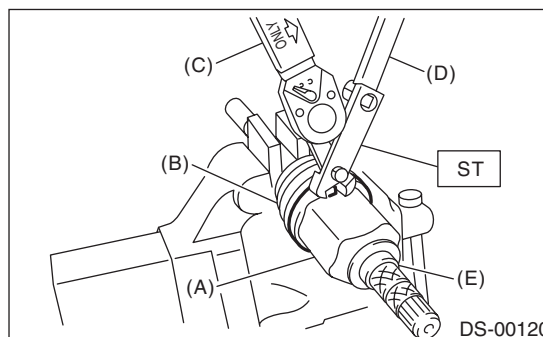
- Replace the boot and grommet as a set.
- Do not let grease get on groove of the outer race side.



- (1) Outer race
- (2) Grommet
- (3) Boot

- 10) Insert a flat tip screwdriver, etc. between outer race and grommet to make pressure inside of boot as high as barometric pressure.
- 11) Install the new large boot band and small boot band at the required positions.
- 12) Tighten the boot bands using ST, torque wrench and socket flex handle.

ST 28099AC000 BOOT BAND PLIER



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

**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**

- 13) 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.

- PTJ (pillow tripod joint)

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

- EBJ (high-efficiency compact ball fixed joint)

Check for seizure, corrosion, damage and excessive play.

- 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.