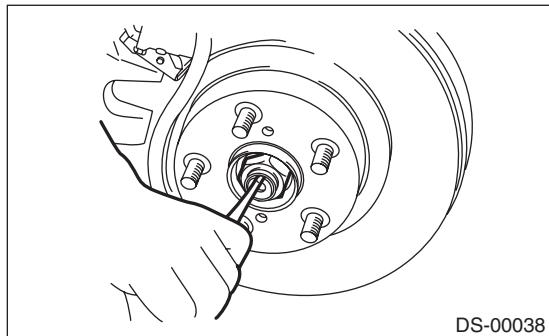


## 7. Front Drive Shaft

### 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.



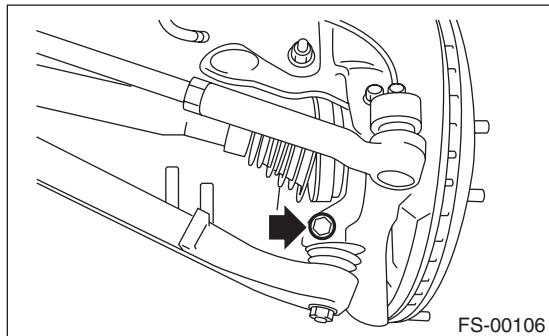
DS-00038

- 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.**

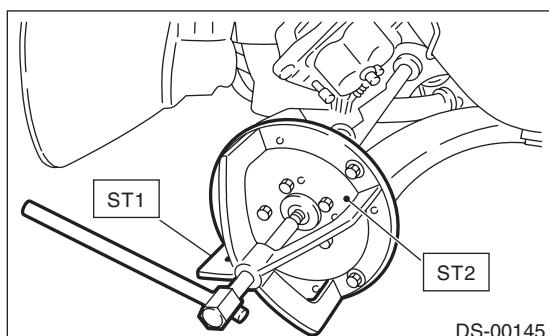
- 5) Drain the transmission gear oil.
- 6) Remove the stabilizer link from front arm.
- 7) Disconnect the front arm ball joint from the housing.



FS-00106

- 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



DS-00145

- 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.>**

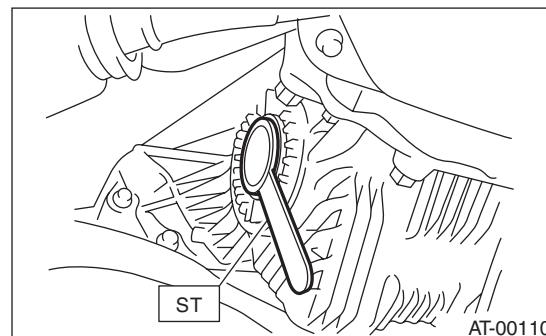
- 2) Insert the AC into hub splines.
- 3) Draw the drive shaft into specified position.

#### 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



AT-00110

- 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:

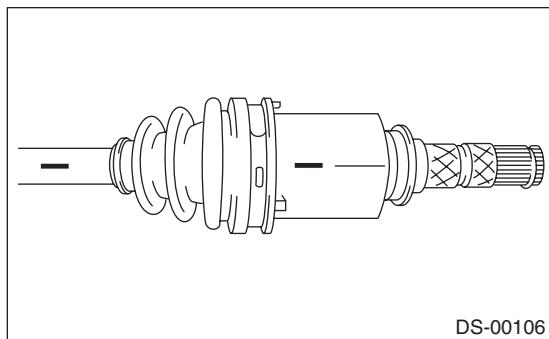
**100 N·m (10.20 kgf·m, 73.8 ft-lb)**

- 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.

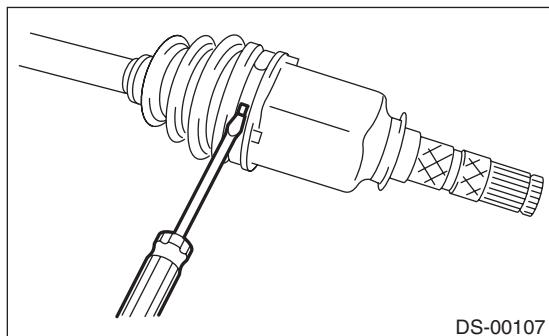


DS-00106

- 2) Remove the PTJ boot band and boot.

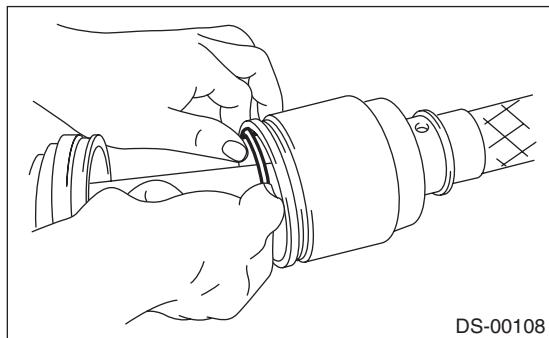
#### CAUTION:

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



DS-00107

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



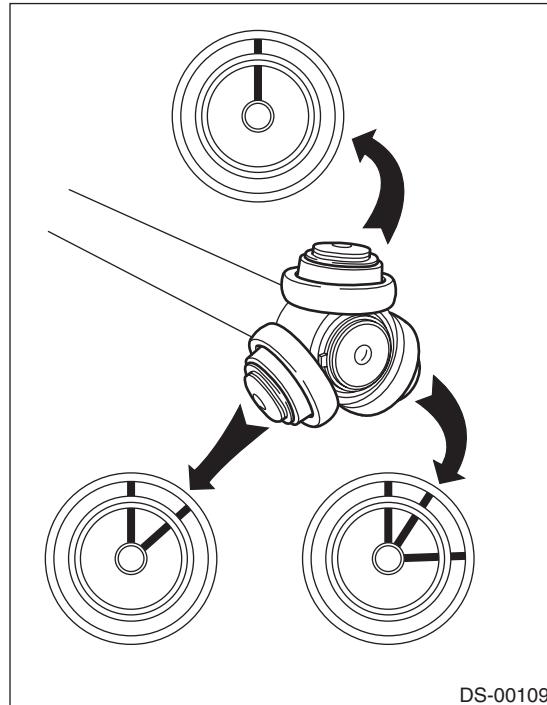
DS-00108

- 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.



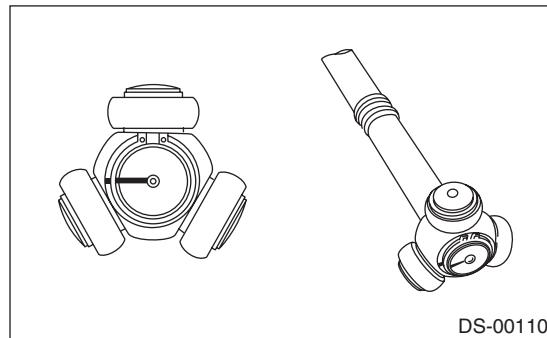
DS-00109

- 7) Remove the roller kit from trunnion.

#### CAUTION:

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

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

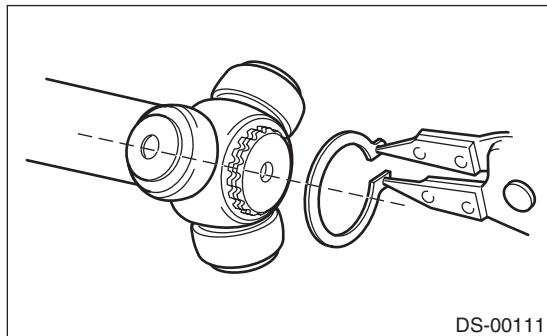


DS-00110

9) Remove the snap ring and trunnion.

**CAUTION:**

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



DS-00111

10) Remove the PTJ boot.

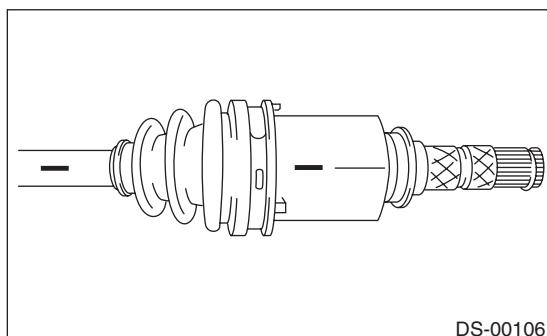
11) Remove the O-ring from the groove of the shaft.

**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.

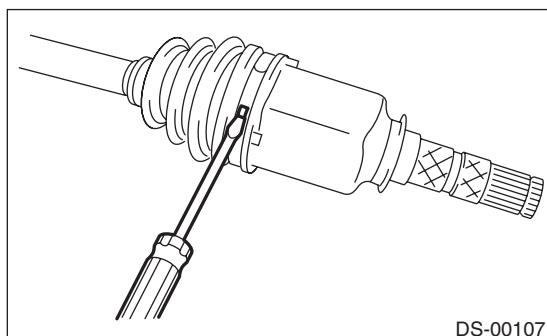


DS-00106

2) Remove the AAR boot band and boot.

**CAUTION:**

Be careful not to damage the boot.

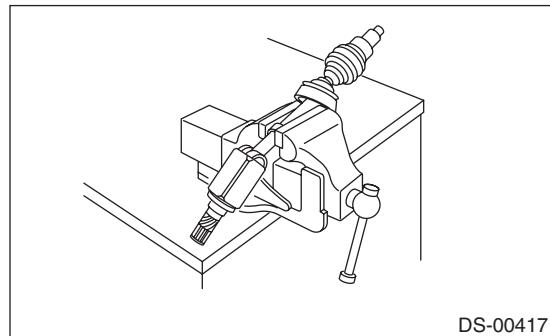


DS-00107

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.

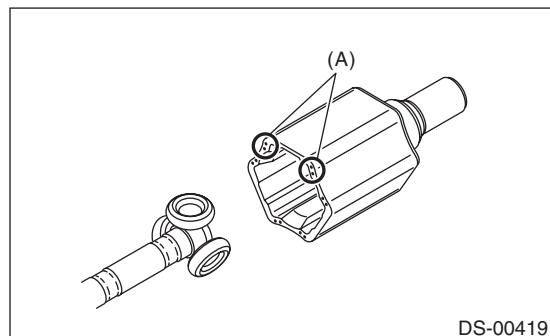


DS-00417

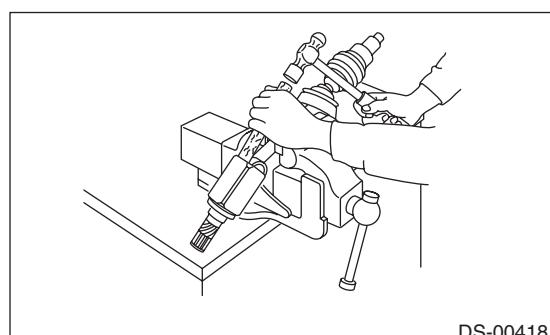
4) Tap the staking area of the outer race alternately with a plastic or wooden bar, and remove one roller at a time.

**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.



DS-00419



DS-00418

5) Remove the outer race from shaft assembly.

**CAUTION:**

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

6) Wipe off grease.

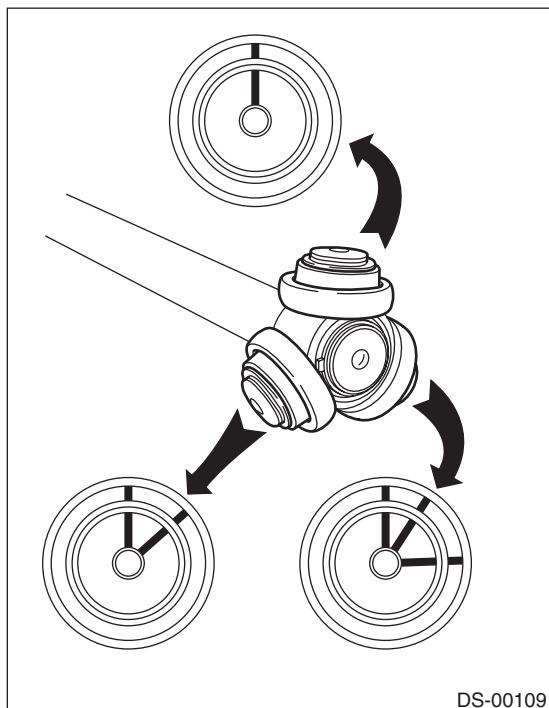
**CAUTION:**

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.

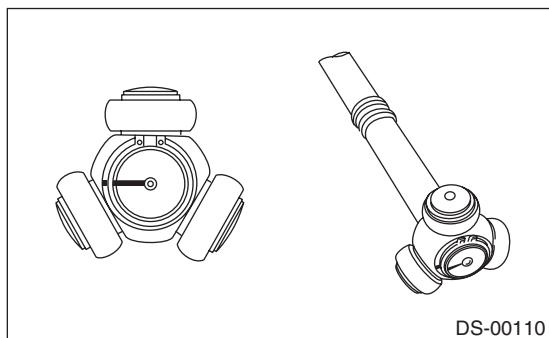


8) Remove the roller kit from trunnion.

**CAUTION:**

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

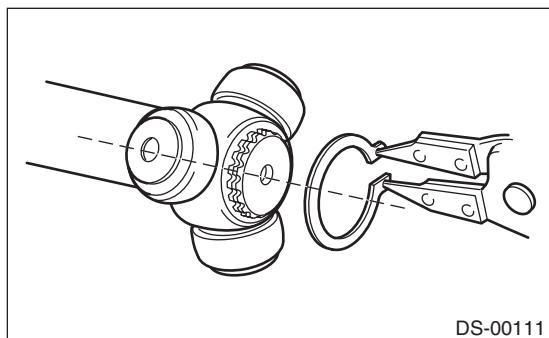
9) Place alignment marks on the trunnion and shaft.



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

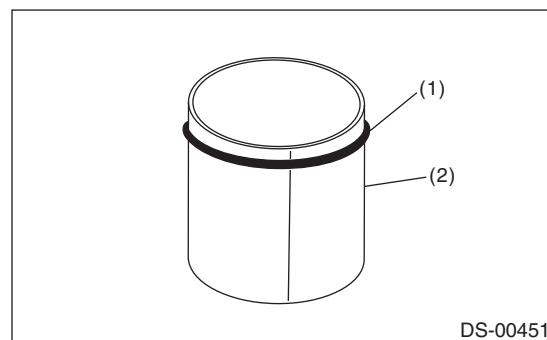
### 1. EXCEPT FOR STI MODEL

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:**

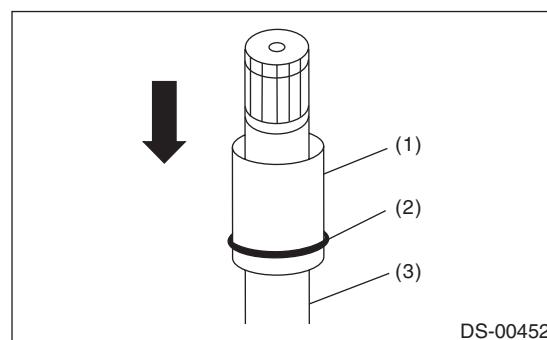
- Always use a new O-ring.
- Be careful that the O-ring does not become scratched and that there are no foreign objects attached to it.
- Make sure to install the O-ring so that it does not twist as much as possible.
- Do not stretch the O-ring to 30 mm (1.18 in) inner diameter or more.



(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

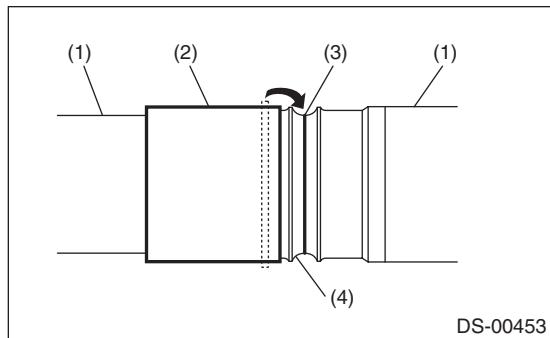
(3) Shaft

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.

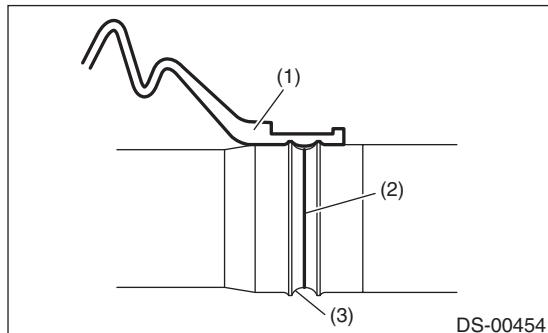
**CAUTION:**

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

8) Install a new PTJ boot.

**CAUTION:**

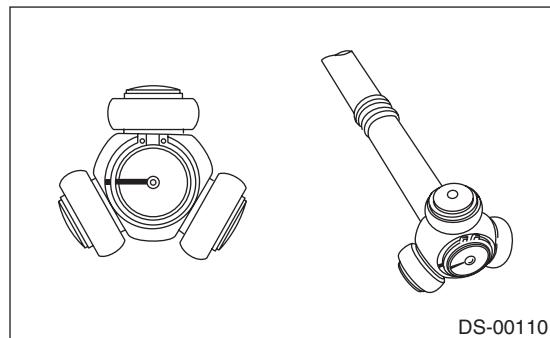
Make sure to fit securely on the boot groove of the shaft.



DS-00454

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

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



DS-00110

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**

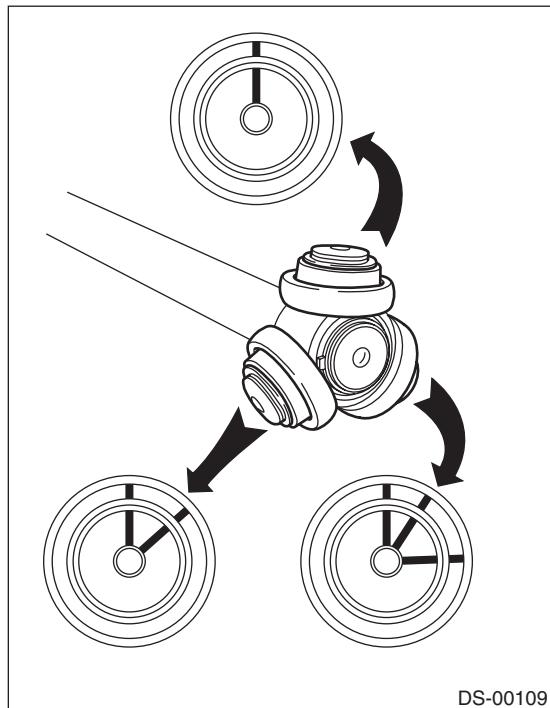
# Front Drive Shaft

## 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.

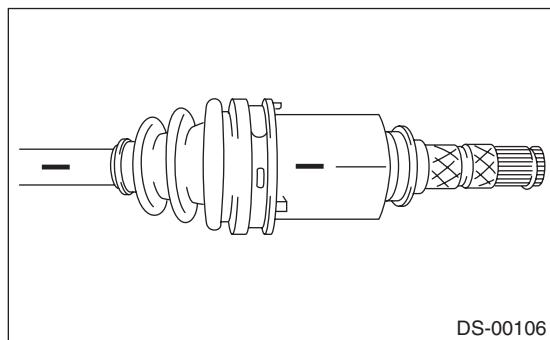
**CAUTION:**

Be careful with the roller kit position.



DS-00109

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



DS-00106

- 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.

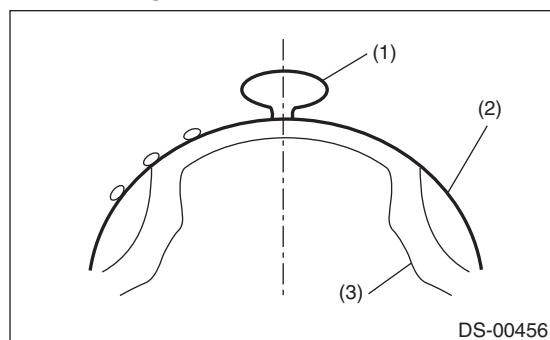
- When installing the PTJ boot, position the outer race of the PTJ at center of the stroke.

- 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.

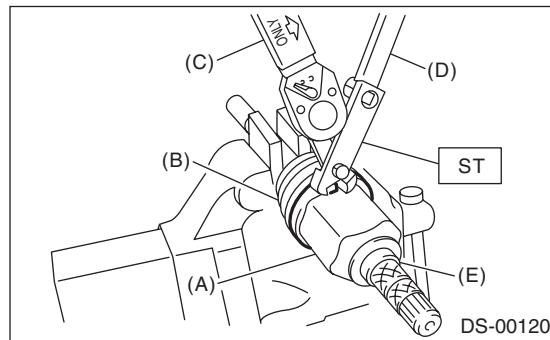


DS-00456

(1) Omega shaped part

(2) Boot band

(3) Outer race



DS-00120

(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

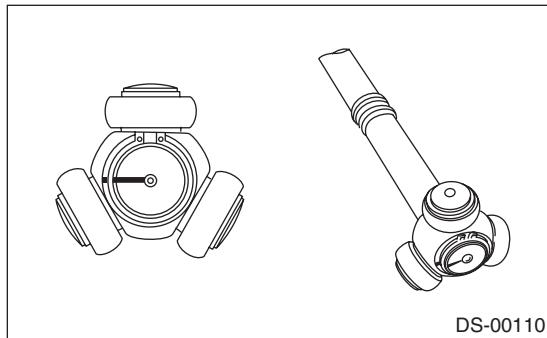
#### NOTE:

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.

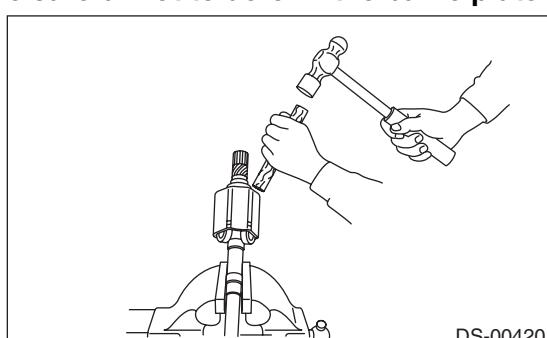
#### CAUTION:

**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.**

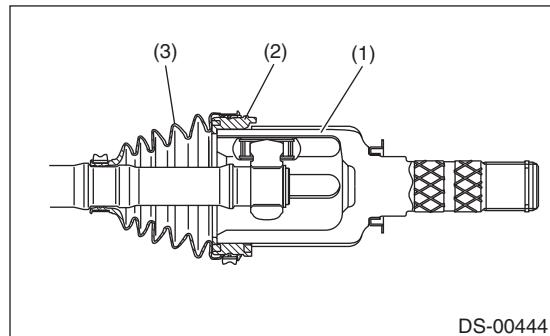


- 8) Apply an even coat of the specified grease 30 to 40 g (1.06 to 1.41 oz) to the entire inner surface of boot.

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

#### CAUTION:

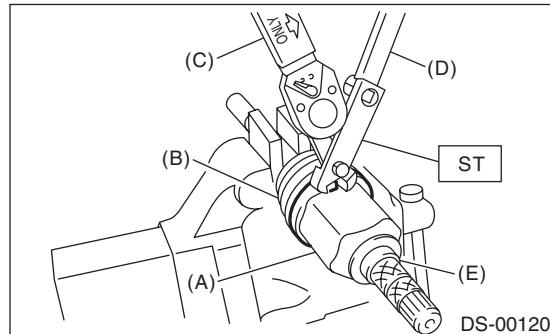
- **Replace the boot and grommet as a set.**
- **Do not let grease get on groove of the outer race side.**



- (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.