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DRIVE SHAFT SYSTEM

General Description

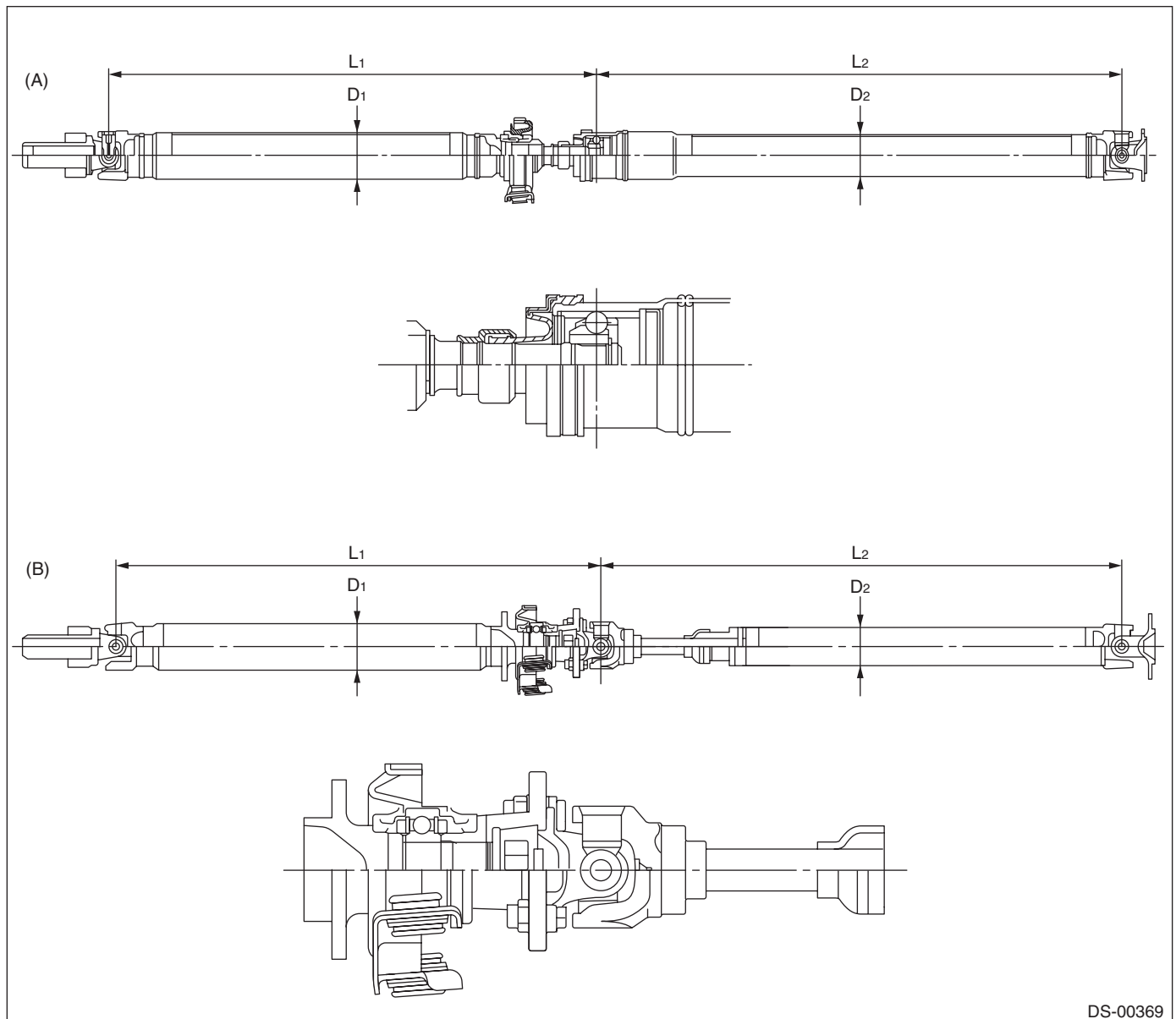
DRIVE SHAFT SYSTEM

1. General Description

A: SPECIFICATION

1. PROPELLER SHAFT

Model		Except for STI model	STI model
Propeller shaft type		EDJ	3UJ
Front propeller shaft Joint-to-joint length: L_1	mm (in)		
	AT	608 (23.94)	—
	MT	668 (26.30)	574 (22.60)
Rear propeller shaft Joint-to-Joint length: L_2		684 (26.93)	706 (27.80)
Outer diameter of tube:	mm (in)		
	D_1	63.5 (2.500)	70 (2.756)
	D_2	57.5 (2.264)	57 (2.244)

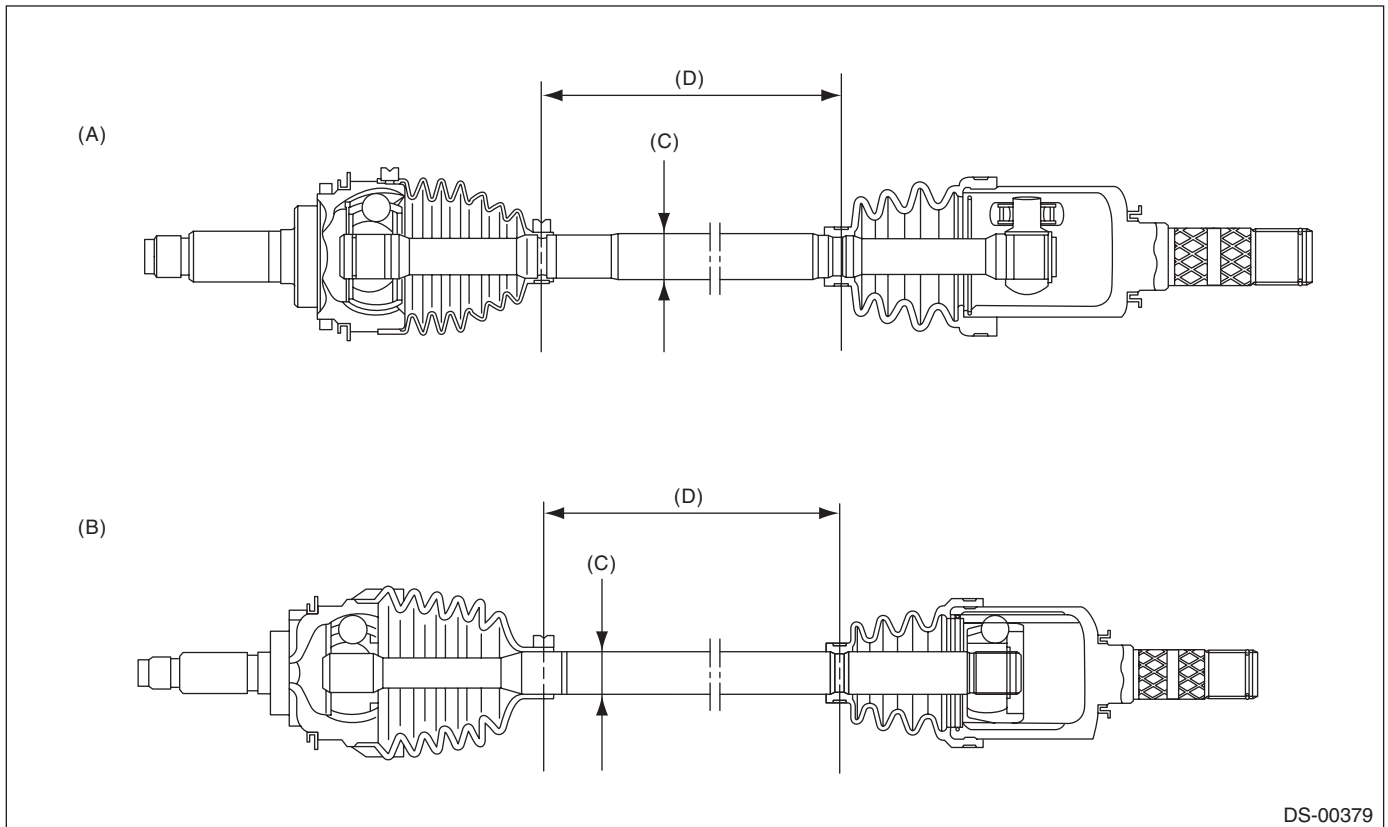


DS-00369

(A) EDJ-type (Except for STI model) (B) 3UJ-type (STI model)

2. FRONT DRIVE SHAFT ASSEMBLY

Model		Drive shaft type	Axle diameter ϕ D mm (in)	Axle length L mm (in)
Sedan	Non-turbo, Turbo AT	BJ+PTJ	26 (1.02)	324.4 (12.77)
	Turbo MT (Except for STI model)	BJ+PTJ		
	Turbo MT (STI model)	BJ+DOJ	28 (1.10)	295.6 (11.64)
Wagon	All models	BJ+PTJ	26 (1.02)	314.5 (12.38)
		BJ+PTJ		



DS-00379

- (A) BJ+PTJ
- (B) BJ+DOJ

(C) Axle diameter D

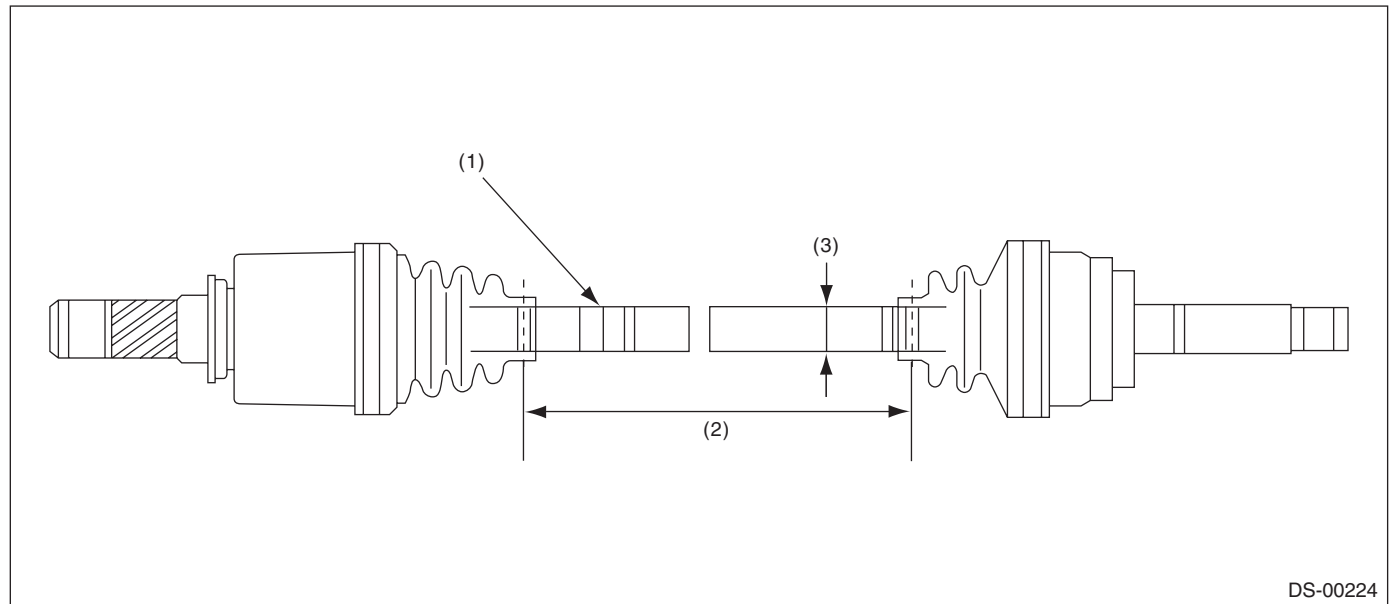
(D) Axle length L

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3. REAR DRIVE SHAFT ASSEMBLY

Model	Drive shaft assembly type	No. of identification protrusion on shaft	Axle diameter ϕ D mm (in)	Axle length L mm (in)
Sedan	EBJ+DOJ RH	1	24 (0.94)	367.4 (14.46)
	EBJ+DOJ LH	0	24 (0.94)	357.4 (14.07)
Wagon	EBJ+DOJ RH	2	24 (0.94)	357.5 (14.07)
	EBJ+DOJ LH	1	24 (0.94)	347.5 (13.68)
STI model	EBJ+EDJ	—	25 (0.98)	316 (12.44)



DS-00224

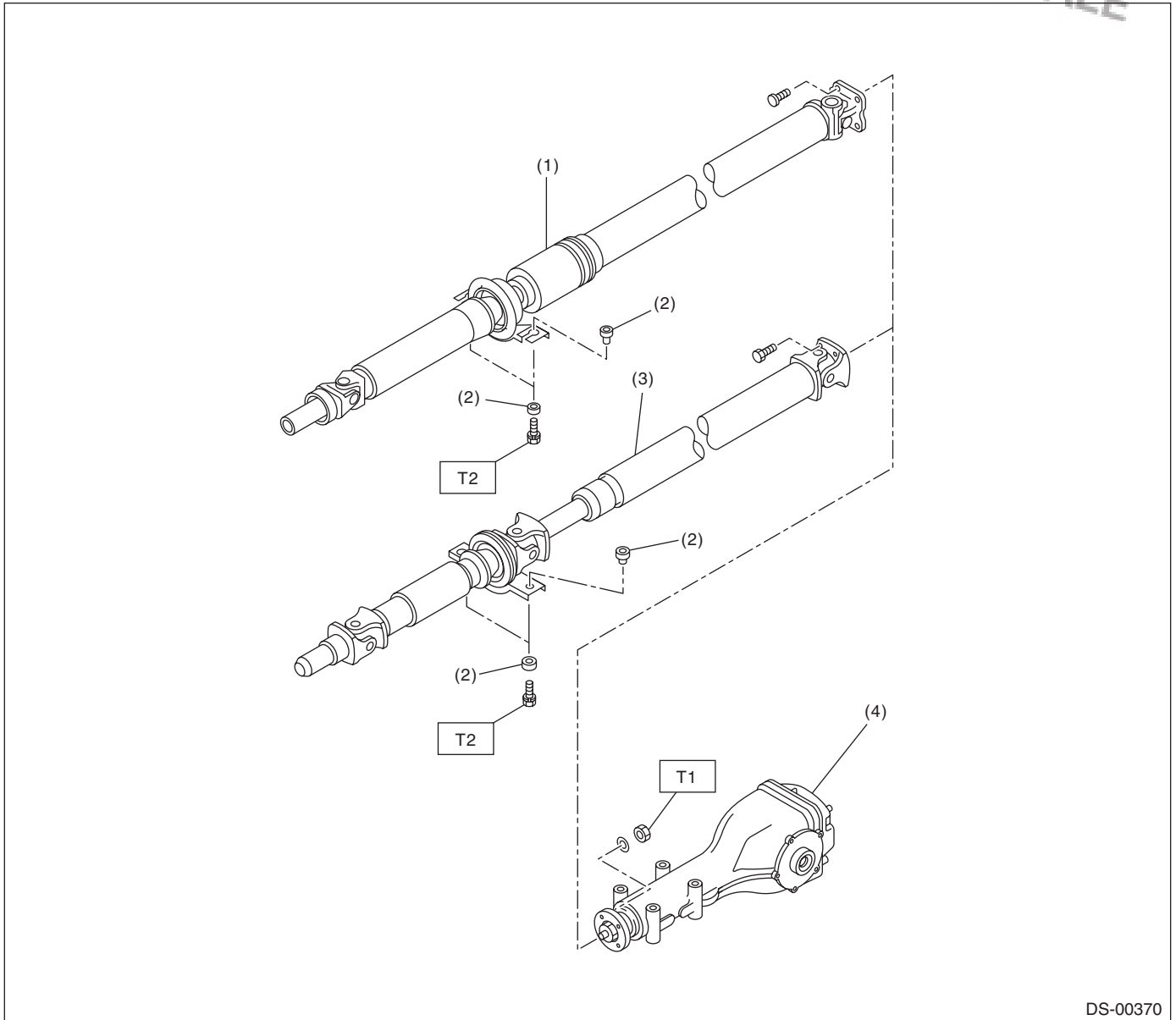
(1) Identification protrusion

(2) Axle length L

(3) Axle diameter D

B: COMPONENT

1. PROPELLER SHAFT



DS-00370

(1) Propeller shaft (EDJ-type)
(Except for STI model)

(3) Propeller shaft (3UJ-type)
(STI model)

(2) Bushing

(4) Rear differential

Tightening torque: N·m (kgf·m, ft·lb)

T1: 31 (3.2, 22.9)

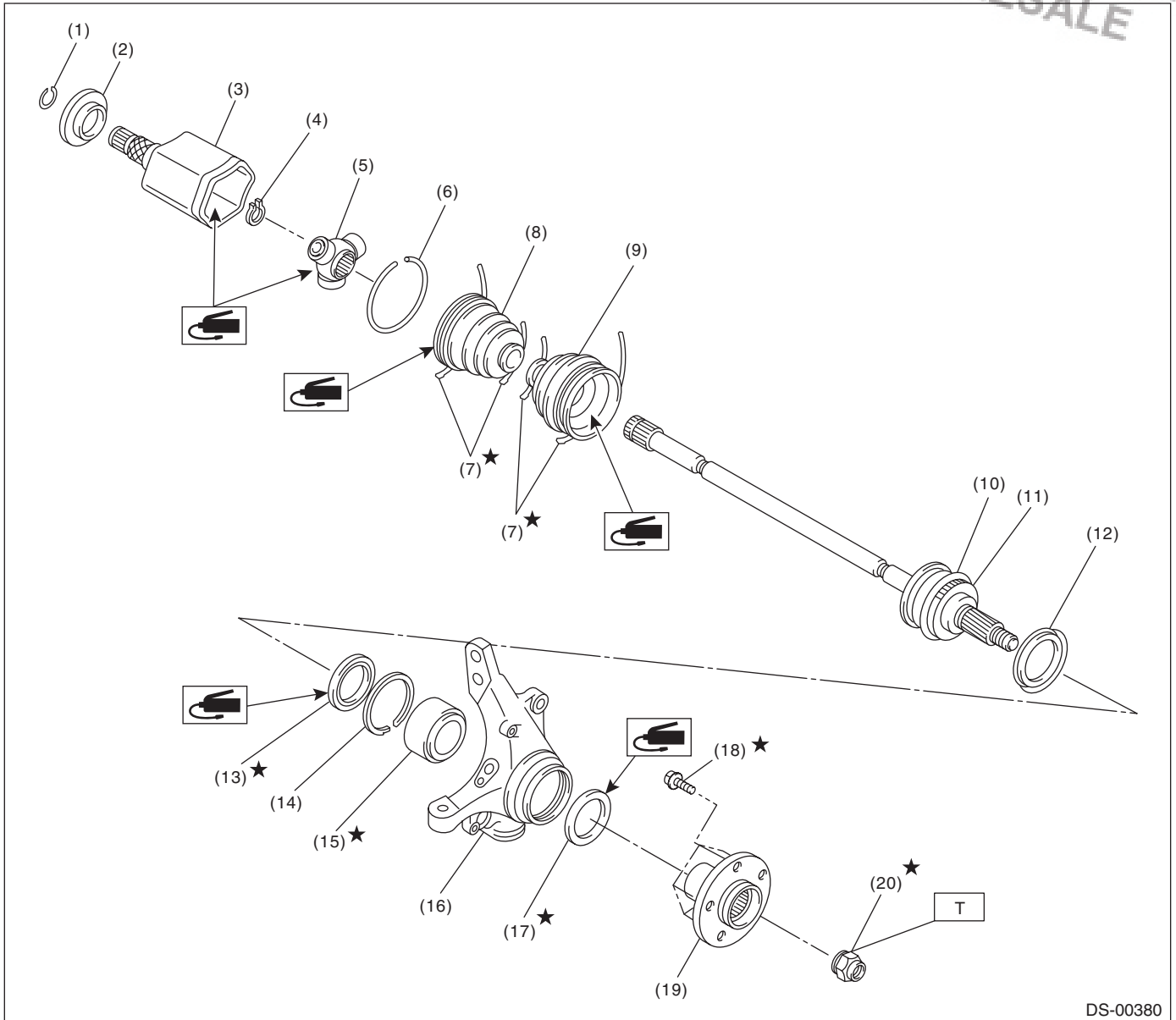
T2: 52 (5.3, 38.3)

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2. FRONT AXLE

- BJ+PTJ-type



DS-00380

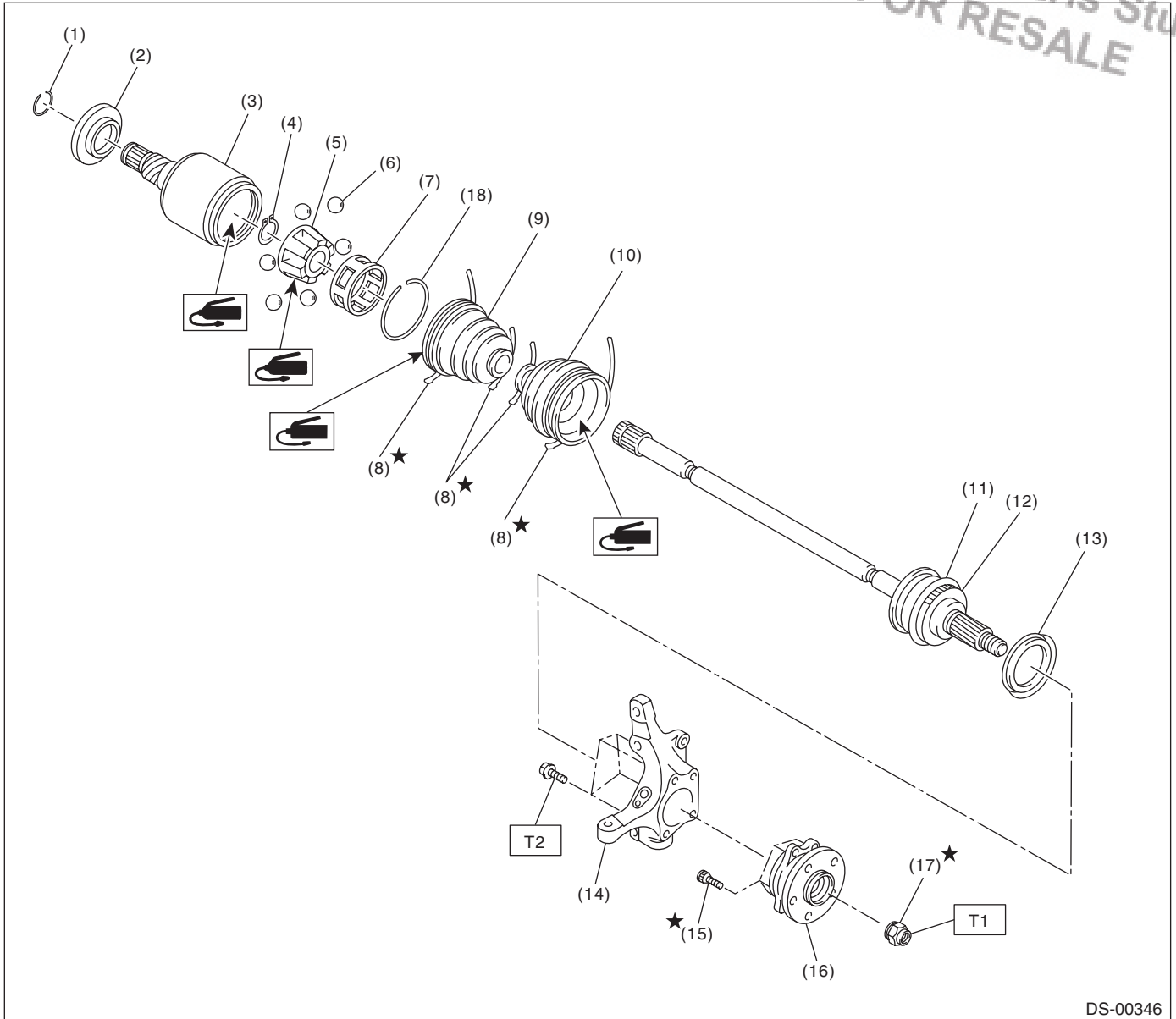
- | | | |
|------------------------|------------------------|-------------------------|
| (1) Circlip | (9) Boot (BJ) | (17) Oil seal (outside) |
| (2) Baffle plate (PTJ) | (10) BJ ASSY | (18) Hub bolt |
| (3) Outer race (PTJ) | (11) Tone wheel | (19) Hub |
| (4) Snap ring | (12) Baffle plate | (20) Axle nut |
| (5) Trunnion | (13) Oil seal (inside) | |
| (6) Snap ring | (14) Snap ring | |
| (7) Boot band | (15) Bearing | |
| (8) Boot (PTJ) | (16) Housing | |

Tightening torque: N·m (kgf·m, ft·lb)
T: 220 (22.4, 162)

General Description

DRIVE SHAFT SYSTEM

- BJ+DOJ-Type



DS-00346

- | | | |
|----------------------|-------------------|-----------------------------|
| (1) Circlip | (9) Boot (DOJ) | (16) Front hub unit bearing |
| (2) Baffle plate | (10) Boot (BJ) | (17) Axle nut |
| (3) Outer race (DOJ) | (11) BJ ASSY | (18) Snap ring |
| (4) Snap ring | (12) Tone wheel | |
| (5) Inner race | (13) Baffle plate | |
| (6) Ball | (14) Housing | |
| (7) Cage | (15) Hub bolt | |
| (8) Boot band | | |

Tightening torque: N·m (kgf-m, ft-lb)

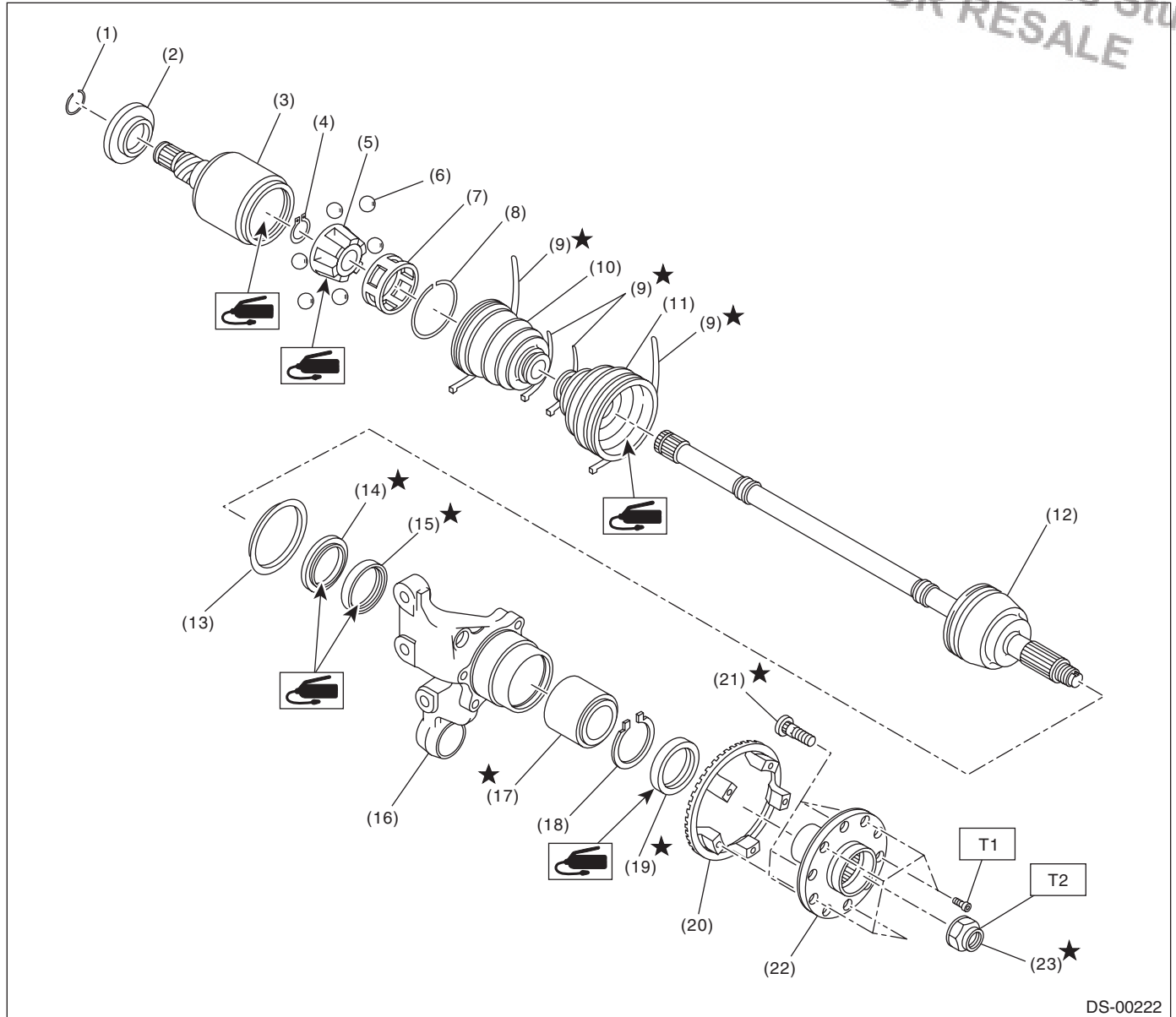
T1: 220 (22.4, 162)

T2: 65 (6.6, 47.9)

General Description

DRIVE SHAFT SYSTEM

3. REAR AXLE



DS-00222

- (1) Circlip
- (2) Baffle plate (DOJ)
- (3) Outer race DOJ: Except for STI model
Outer race EDJ: STI model
- (4) Snap ring
- (5) Inner race
- (6) Ball
- (7) Cage
- (8) Snap ring

- (9) Boot band
- (10) DOJ boot
- (11) Boot
- (12) EBJ ASSY
- (13) Baffle plate
- (14) Inner oil seal 2
- (15) Inner oil seal
- (16) Housing
- (17) Bearing
- (18) Snap ring

- (19) Outer oil seal
- (20) Tone wheel
- (21) Hub bolt
- (22) Hub
- (23) Axle nut

Tightening torque: N·m (kgf·m, ft·lb)
T1: 13 (1.3, 9.4)
T2: 190 (19.4, 140)

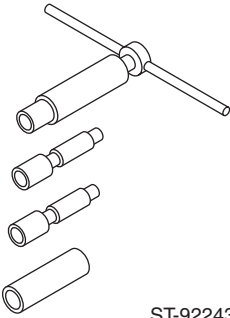
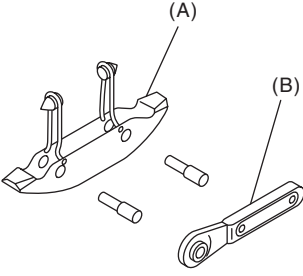
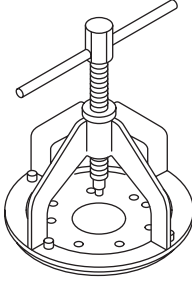
C: CAUTION

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.

- Use SUBARU genuine grease etc. or equivalent. Do not mix grease etc. of different grades or manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Apply grease onto sliding or revolving surfaces before installation.
- Before installing snap rings, apply sufficient amount of grease to avoid damage and deformation.
- Before securing a part on a vise, place cushioning materials such as wood blocks, aluminum plates, or waste cloth between the part and the vise.

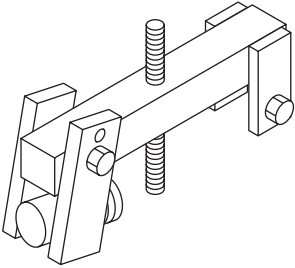
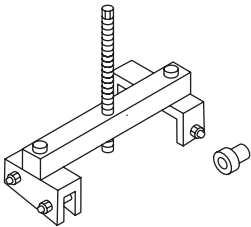
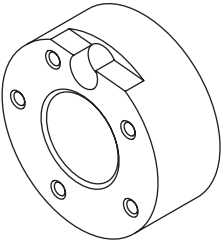
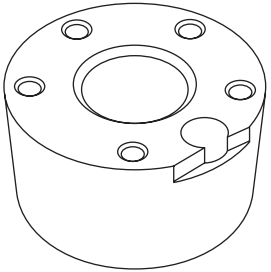
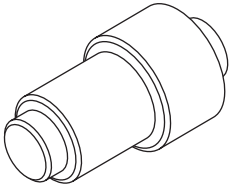
D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST-922431000</p>	922431000	AXLE SHAFT INSTALLER	<ul style="list-style-type: none"> • Used for installing the axle shaft into housing. • Used together with the ADAPTER (927390000).
 <p>ST-925091000</p>	925091000	BAND TIGHTENING TOOL	Used for tightening the boot band. (A) Jig for the band (B) Ratchet wrench
 <p>ST-926470000</p>	926470000	AXLE SHAFT PULLER	<ul style="list-style-type: none"> • Used for removing the axle shaft. • Used together with AXLE SHAFT PULLER PLATE (28099PA110).

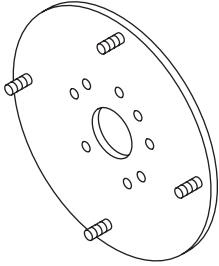
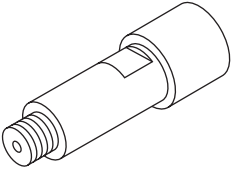
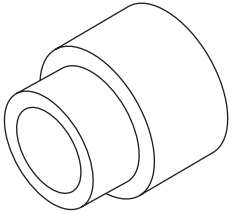
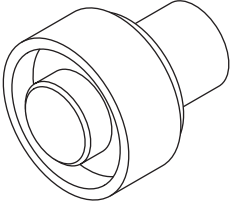
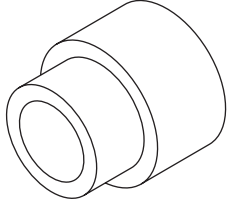
General Description

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST-927060000</p>	927060000	HUB REMOVER	<ul style="list-style-type: none"> • Used for removing front hub. • Used together with the HUB STAND (927080000).
 <p style="text-align: center;">ST-927420000</p>	927420000	HUB REMOVER	<ul style="list-style-type: none"> • Used for removing rear hub. • Used together with the HUB STAND (927080000).
 <p style="text-align: center;">ST-927080000</p>	927080000	HUB STAND	Used for disassembling and assembling hub bolt. (Except for STI model)
 <p style="text-align: center;">ST28099PA080</p>	28099PA080	HUB STAND	Used for disassembling and assembling hub bolt. (STI model)
 <p style="text-align: center;">ST-927100000</p>	927100000	BEARING PULLER	<ul style="list-style-type: none"> • Used for disassembling and assembling the front housing bearing. • Used together with the HOUSING STAND (927400000). (Except for STI model) • Used together with the HOUSING STAND (28099PA060). (STI model)

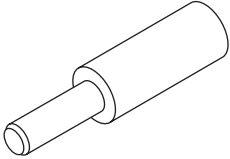
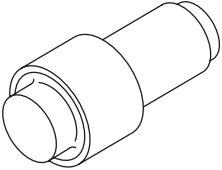
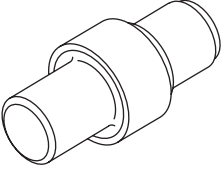
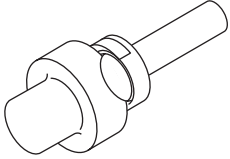
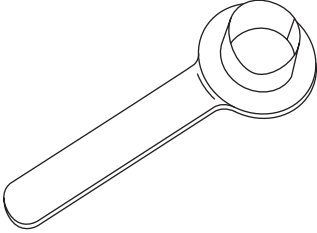
General Description

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST28099PA110</p>	28099PA110	AXLE SHAFT PULLER PLATE	Exchange with the plate of the AXLE SHAFT PULLER (926470000) to use.
 <p style="text-align: center;">ST-927390000</p>	927390000	ADAPTER	Used as an adapter for AXLE SHAFT INSTALLER (922431000).
 <p style="text-align: center;">ST-927400000</p>	927400000	HOUSING STAND	<ul style="list-style-type: none"> • Used for disassembling and assembling the front housing bearing. • Used together with the BEARING PULLER (927100000).
 <p style="text-align: center;">ST-927410000</p>	927410000	OIL SEAL INSTALLER	<ul style="list-style-type: none"> • Used for installing oil seal into front housing. • Used together with the HOUSING STAND (927400000).
 <p style="text-align: center;">ST-927430000</p>	927430000	HOUSING STAND	<ul style="list-style-type: none"> • Used for disassembling and assembling rear housing bearing. (Except for STI model) • Used together with the BEARING PULLER (927440000).

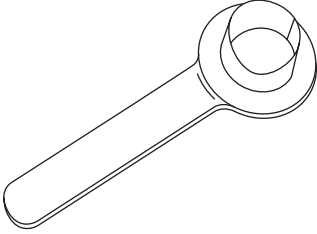
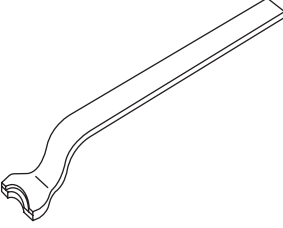
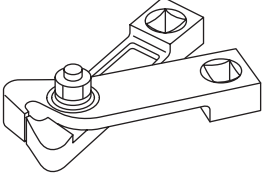
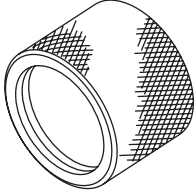
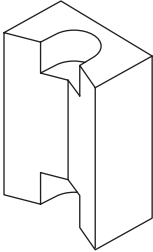
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST-927120000</p>	927120000	HUB INSTALLER	<ul style="list-style-type: none"> • Used for installing the front hub. (Except for STI model) • Used for installing rear hub. (STI model) • Used together with the HUB STAND (927080000).
 <p style="text-align: center;">ST-927440000</p>	927440000	BEARING PULLER	<ul style="list-style-type: none"> • Used for disassembling and assembling the rear wheel bearing. (Except for STI model) • Used together with the HOUSING STAND (927430000).
 <p style="text-align: center;">ST-927460000</p>	927460000	OIL SEAL INSTALLER	<ul style="list-style-type: none"> • Used for installing the outer oil seal. (Except for STI model) • Used together with the HOUSING STAND (927430000).
 <p style="text-align: center;">ST-927450000</p>	927450000	HUB INSTALLER	<ul style="list-style-type: none"> • Used for pressing in the hub bearing into the hub. (Except for STI model) • Used together with the HUB STAND (927080000).
 <p style="text-align: center;">ST28099PA090</p>	28099PA090	OIL SEAL PROTECTOR	<ul style="list-style-type: none"> • Used for installing the rear drive shaft to the rear differential. • For protecting the oil seal.

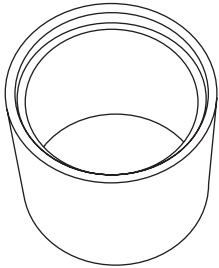
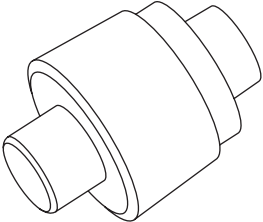
General Description

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p data-bbox="326 520 467 541">ST28399SA010</p>	28399SA010	OIL SEAL PROTECTOR	<ul style="list-style-type: none"> • Used for installing front drive shaft to transmission. • For protecting the oil seal.
 <p data-bbox="326 871 467 892">ST28099PA100</p>	28099PA100	DRIVE SHAFT REMOVER	Used for removing the rear drive shaft from the rear differential.
 <p data-bbox="326 1222 467 1243">ST28099AC000</p>	28099AC000	BOOT BAND PLIER	Used for tightening front BJ boot band.
 <p data-bbox="326 1572 467 1593">ST18675AA000</p>	18675AA000	DIFFERENTIAL SIDE OIL SEAL INSTALLER	Used for installing the differential side retainer oil seal.
 <p data-bbox="326 1927 467 1948">ST28399AG000</p>	28399AG000	HUB STAND	Used for extracting hub bolt. (STI model)

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-28099PA060	28099PA060	HOUSING STAND	<ul style="list-style-type: none"> • Used for disassembling and assembling rear housing bearing. (STI model) • Used together with the BEARING PULLER (927100000).
 ST-28099PA070	28099PA070	OIL SEAL INSTALLER	<ul style="list-style-type: none"> • Used for press-fitting rear housing oil seal. (STI model) • Used together with the HOUSING STAND (28099PA060).

2. GENERAL TOOL

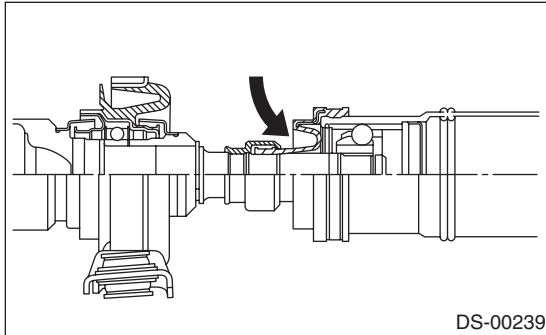
DESCRIPTION	REMARKS
Puller	Used for removing the ball joint from knuckle arm.
Dial gauge	Used for inspecting the propeller shaft run-out.
Snap ring pliers	Used for installing and removing the snap ring.
Bar	Used for extracting drive shaft.

2. Propeller Shaft

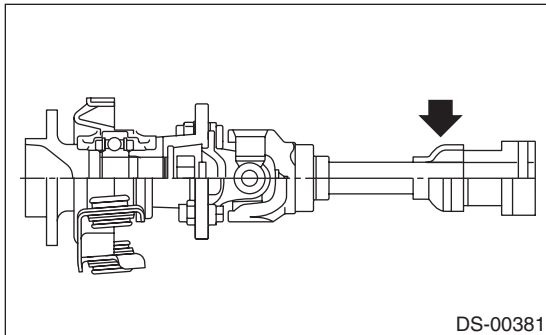
A: REMOVAL

NOTE:

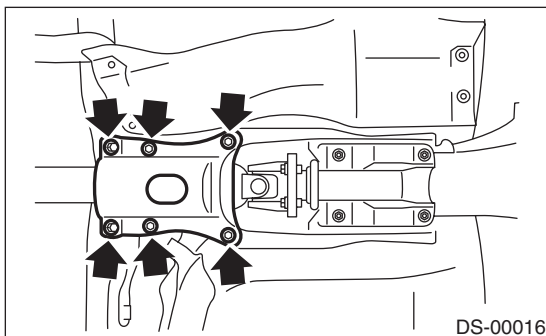
- Before removing propeller shaft, wrap metal parts with a cloth or rubber material.
- In case of a EDJ type, wrap the metal parts attached to the rubber boot at the center EDJ with a cloth or rubber material before removing propeller shaft, as shown in the figure. The rubber boot may be damaged by interference with adjacent metal parts while bending the EDJ during removal.
- Except for STI model



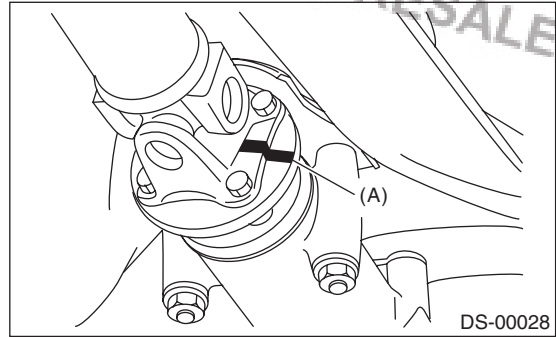
- STI model



- 1) Disconnect the ground cable from the battery.
- 2) Move the select lever or the gear shift lever to "N".
- 3) Release the parking brake.
- 4) Jack-up the vehicle and support it with rigid racks.
- 5) Remove the center exhaust pipe.
- 6) Remove the rear exhaust pipe and muffler.
- 7) Remove the differential mount front cover.

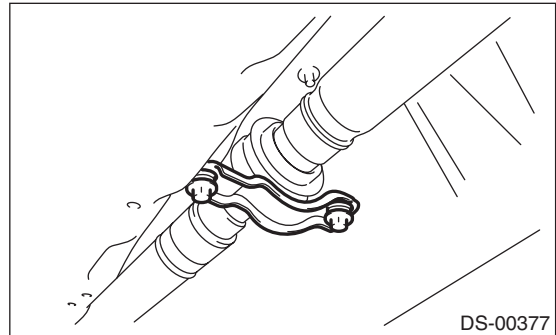


- 8) Apply alignment marks on appropriate parts before removal.



(A) Alignment mark

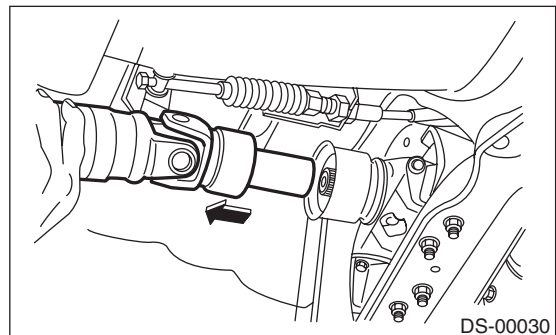
- 9) Remove the three bolts holding the propeller shaft to the rear differential.
- 10) Remove the remaining bolt.
- 11) Remove the two bolts which hold center bearing to vehicle body.



- 12) Remove the propeller shaft from transmission.

CAUTION:

- Be careful not to damage oil seals and contact surface of the sleeve yoke.
- Cover the center exhaust pipe with a cloth to keep off any ATF or oil spilled from transmission when removing propeller shaft.

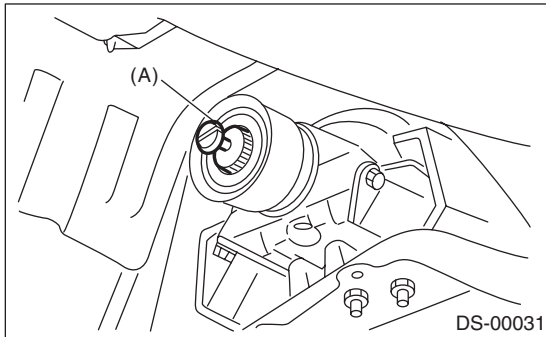


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13) Install an extension cap to the transmission.

NOTE:

If an extension cap is not available, place a vinyl bag over the opening and tie with string to prevent gear oil or ATF from leaking.



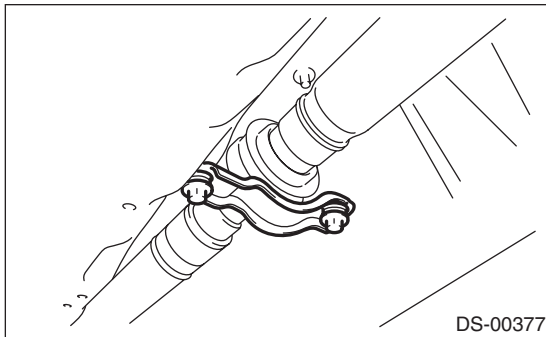
(A) Extension cap

B: INSTALLATION

1) Insert the sleeve yoke into the transmission and attach the center bearing to the body.

Tightening torque:

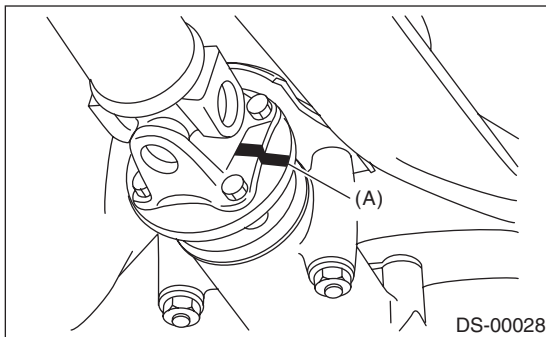
52 N·m (5.3 kgf-m, 38.3 ft-lb)



2) Align the alignment marks and connect the flange yoke and rear differential.

Tightening torque:

31 N·m (3.2 kgf-m, 22.9 ft-lb)



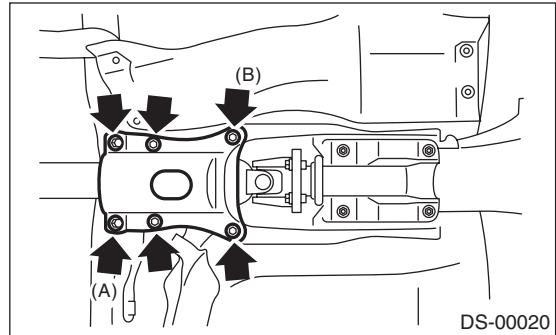
(A) Alignment mark

3) Using new bolts, install the differential mount front cover.

- (1) Temporarily tighten bolt (A) while pushing the cover towards the front of the vehicle.
- (2) Tighten bolt (B) to the specified torque.
- (3) Tighten bolt (A) to the specified torque.
- (4) Tighten the remaining bolts to the specified torque.

Tightening torque:

90 N·m (9.2 kgf-m, 66 ft-lb)



4) Install the center exhaust pipe.

5) Install the rear exhaust pipe and muffler.

C: INSPECTION

NOTE:

Do not disassemble propeller shaft. Check the following and replace if necessary.

- 1) Tube surface for dents or cracks
- 2) Splines for deformation or abnormal wear
- 3) Unsmooth joint operation or abnormal noise
- 4) Center bearing free play, noise or unsmooth operation.
- 5) Oil seals for abnormal wear or damage
- 6) Damaged center bearing

Check the following points with propeller shaft installed in vehicle.

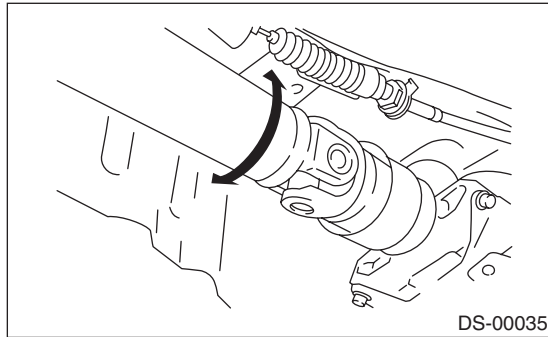
1. JOINTS AND CONNECTIONS

- 1) Remove the center exhaust pipe.
- 2) Check for any looseness of the yoke flange mounting bolts which connect to the rear differential and center bearing bracket mounting bolts.

2. SPLINES AND BEARING LOCATIONS

- 1) Remove the center exhaust pipe.
- 2) Remove the rear exhaust pipe and muffler.

3) Turn the propeller shaft by hand to see if abnormal free play exists at splines. Also move yokes to see if abnormal free play exists at spiders and bearings.

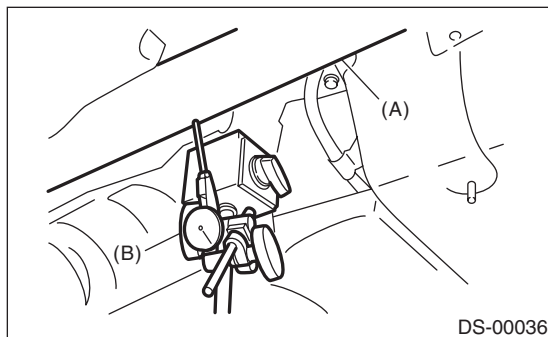


3. RUNOUT OF PROPELLER SHAFT

- 1) Remove the center exhaust pipe.
- 2) Remove the rear exhaust pipe and muffler.
- 3) Set the dial gauge with its indicator stem at the center of the propeller shaft tube.
- 4) Turn the propeller shaft slowly by hands to check for runout of the propeller shaft.

Runout:

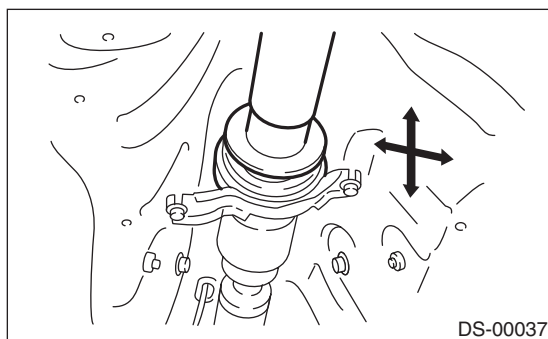
Limit: 0.6 mm (0.024 in)



- (A) Propeller shaft
- (B) Dial gauge

4. CENTER BEARING FREE PLAY

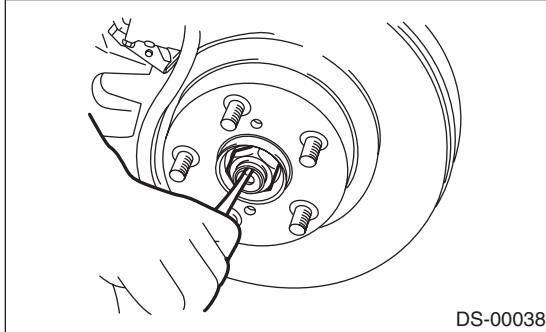
- 1) Remove the front and center exhaust pipes.
- 2) Remove the rear exhaust pipe and muffler.
- 3) Move the propeller shaft near the center bearing up, down, left, right by hand, to check for any abnormal free play of the bearings.



3. Front Axle

A: REMOVAL

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



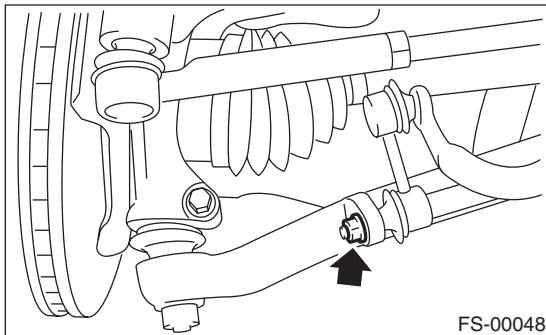
- 4) Remove the axle nut using a socket wrench while depressing the brake pedal.

CAUTION:

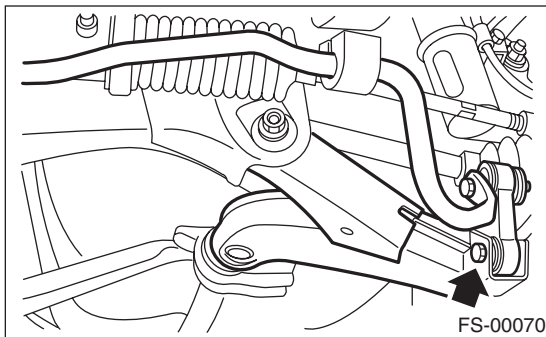
Remove the axle nut while there is no load being applied to the axle. Failure to do so may damage the wheel bearings.

- 5) Remove the stabilizer link.

- Sedan model



- Wagon model

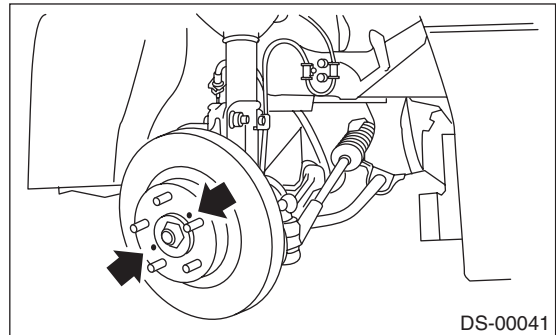


- 6) Remove the disc brake caliper from the housing, and suspend it from strut using a wire.

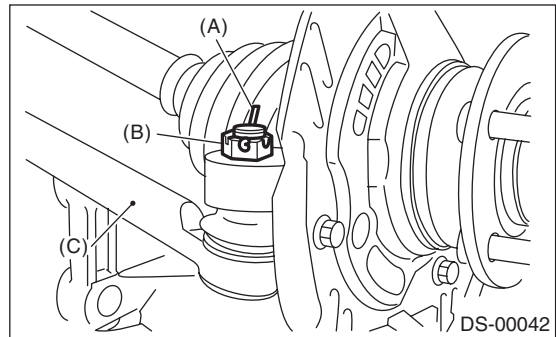
- 7) Remove the disc rotor from the hub.

NOTE:

If it is difficult to remove the disc rotor from the hub, drive the 8 mm bolt into the threaded end of rotor, and then remove the rotor.

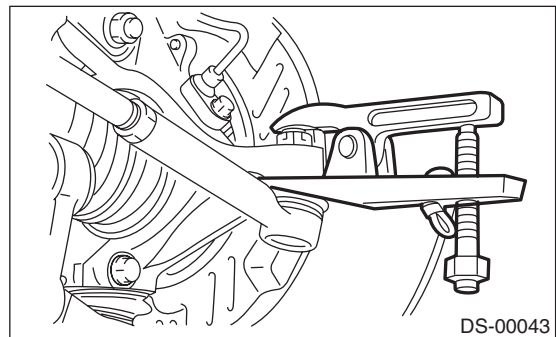


- 8) Remove the cotter pin and castle nut securing the tie-rod end to the housing knuckle arm.

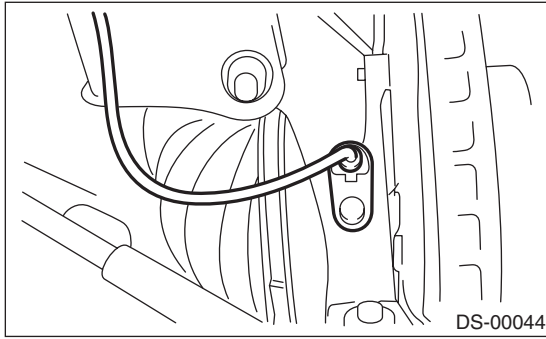


- (A) Cotter pin
- (B) Castle nut
- (C) Tie-rod

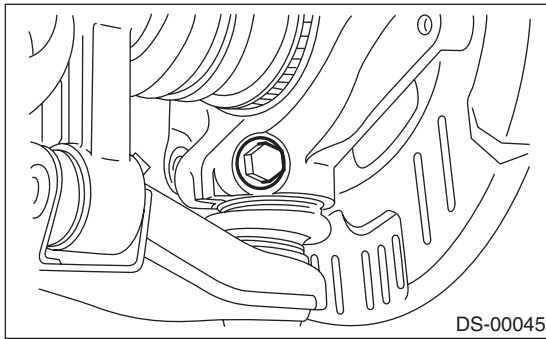
- 9) Using a puller, remove the tie-rod ball joint from knuckle arm.



10) Remove the ABS wheel speed sensor assembly and harness.



11) Remove the transverse link ball joint from the housing.

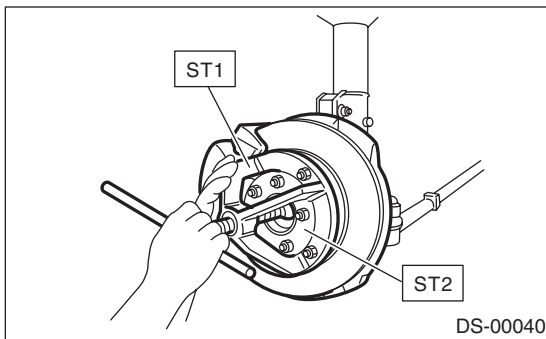


12) Remove the front drive shaft assembly from the hub. If it is hard to remove, use the ST.

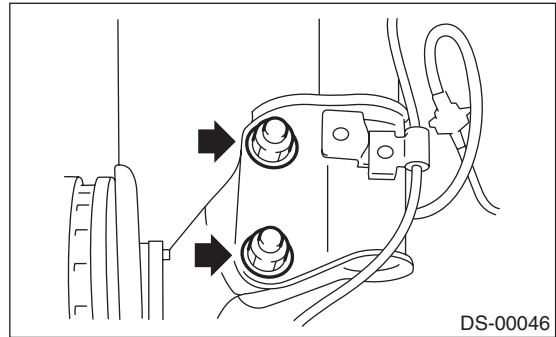
- ST1 926470000 AXLE SHAFT PULLER
- ST2 28099PA110 AXLE SHAFT PULLER PLATE

CAUTION:

- Whenever the front drive shaft has been pulled out, always replace the differential side retainer oil seal on the transmission side with a new seal.
- Hang the front drive shaft on the vehicle body using a wire.



13) After scribing an alignment mark on camber adjusting bolt head, remove the bolts which connect the housing and strut, and disconnect the housing from strut.



B: INSTALLATION

- 1) Temporarily tighten the front axle to the front strut.
- 2) Insert the front drive shaft into the front axle.
- 3) Tighten the axle nut temporarily.
- 4) Install the transverse link ball joint to the housing.

Tightening torque:

50 N·m (5.1 kgf-m, 37 ft-lb)

- 5) Align the alignment mark on the camber adjusting bolt head, and tighten the housing and strut using a new self-locking nut.

Tightening torque:

175 N·m (17.8 kgf-m, 129 ft-lb)

- 6) Connect the tie-rod end ball joint to the knuckle arm with a castle nut.

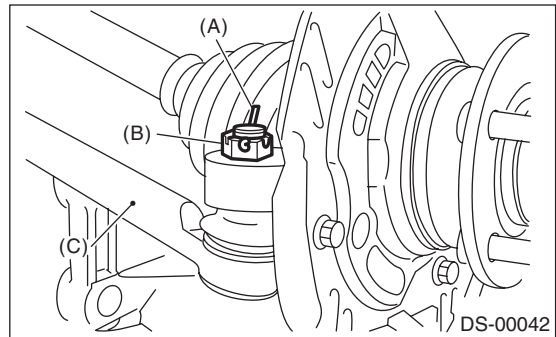
Tightening torque:

27.0 N·m (2.75 kgf-m, 19.9 ft-lb)

CAUTION:

When connecting the tie-rod, do not hit the cap at bottom of tie-rod end with a hammer.

- 7) Tighten the castle nut to specified torque and tighten further within 60° until the pin hole is aligned with the slot in the nut. Bend the cotter pin to lock.



- (A) Cotter pin
- (B) Castle nut
- (C) Tie-rod

DRIVE SHAFT SYSTEM

- 8) Install the disc rotor to hub.
- 9) Install the disc brake caliper on the housing.

Tightening torque:

Except for STI model

80 N·m (8.2 kgf·m, 59 ft·lb)

STI model

155 N·m (15.8 kgf·m, 114.3 ft·lb)

- 10) Connect the stabilizer link.

Tightening torque:

Except for STI model

30 N·m (3.1 kgf·m, 22 ft·lb)

STI model

45 N·m (4.6 kgf·m, 33 ft·lb)

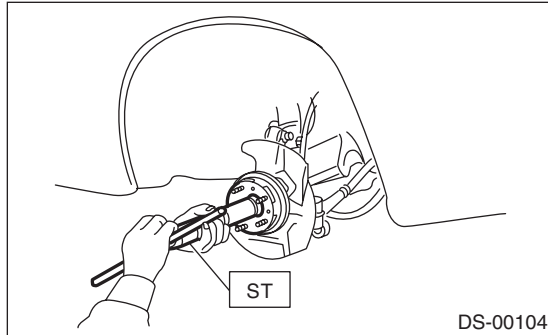
CAUTION:

Be sure to use a new self-locking nut.

- 11) Using ST1 and ST2, pull the front drive shaft into the required position.

ST1 922431000 AXLE SHAFT INSTALLER

ST2 927390000 ADAPTER



- 12) While depressing the brake pedal, tighten a new axle nut to the specified torque and lock it securely.

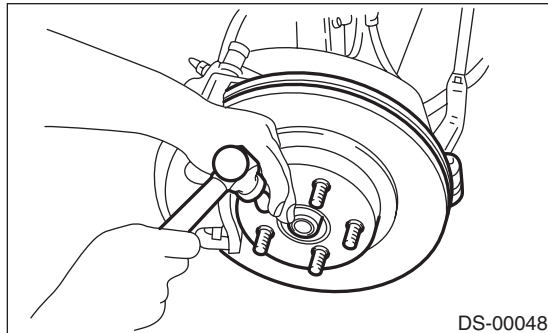
Tightening torque:

220 N·m (22.4 kgf·m, 162 ft·lb)

CAUTION:

Do not overtighten it as this may damage the wheel bearing.

- 13) After tightening the axle nut, lock it securely.



- 14) Install the ABS wheel speed sensor on the housing.

Tightening torque:

33 N·m (3.4 kgf·m, 24 ft·lb)

- 15) Install the wheel and tighten the wheel nuts to specified torque.

Tightening torque:

100 N·m (10.2 kgf·m, 73.8 ft·lb)

C: DISASSEMBLY

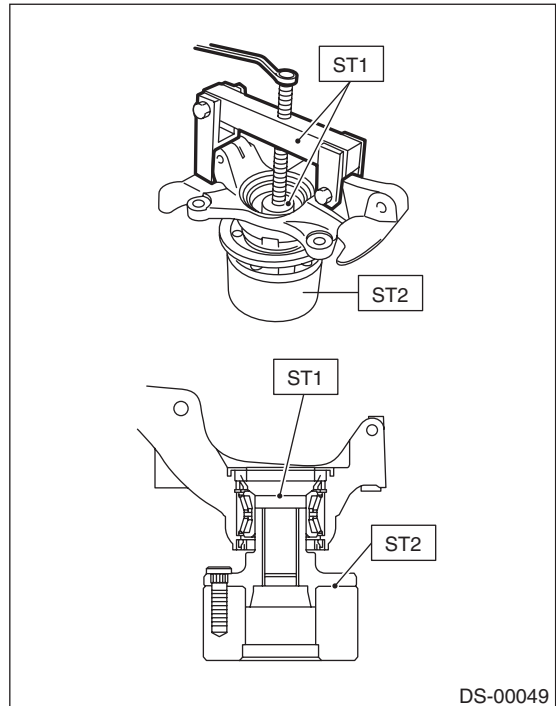
1. EXCEPT FOR STI MODEL

- 1) Using ST1, securely support the housing and hub.

- 2) Attach ST2 to housing and drive hub out.

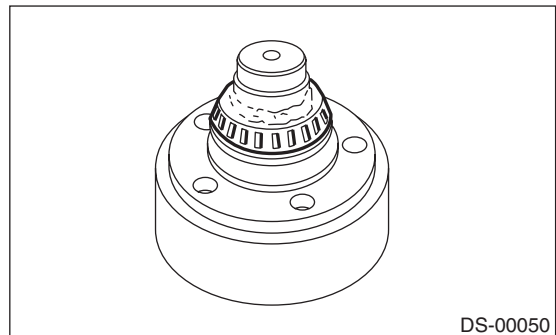
ST1 927060000 HUB REMOVER

ST2 927080000 HUB STAND



NOTE:

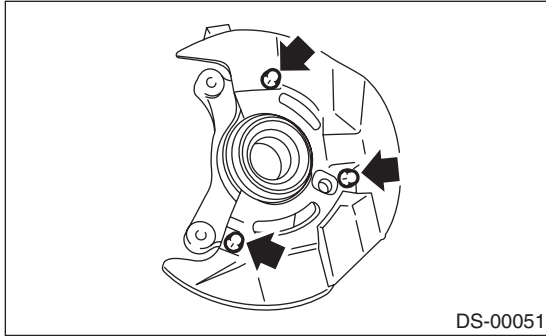
- If inner bearing race remains in the hub, remove it with a suitable tool (commercially available tools).
- Be careful not to scratch the polished area of the hub.



CAUTION:

If the hub is removed, the bearing cannot be re-used.

3) Remove disc cover from housing.

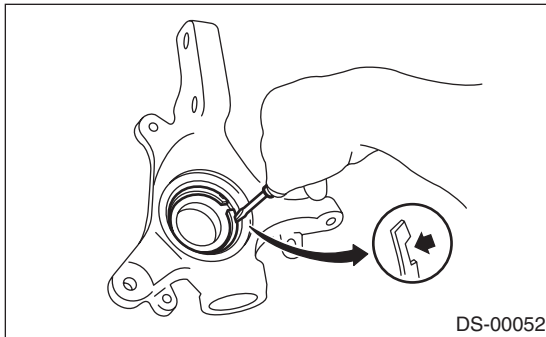


4) Remove the outer and inner oil seals using a flat tip screwdriver.

5) Remove the snap ring using a flat tip screwdriver.

NOTE:

Be careful not to damage housing during removal.

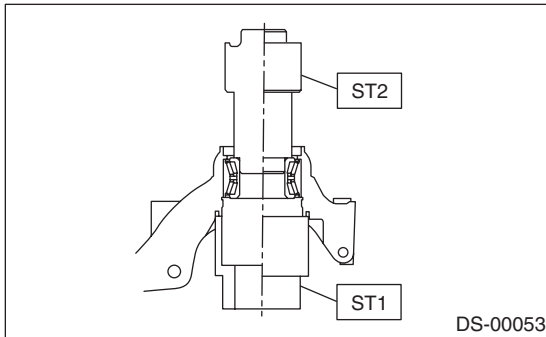


6) Using ST1, securely support the housing.

7) Using ST2, press the inner race, and push out the outer race of the bearing.

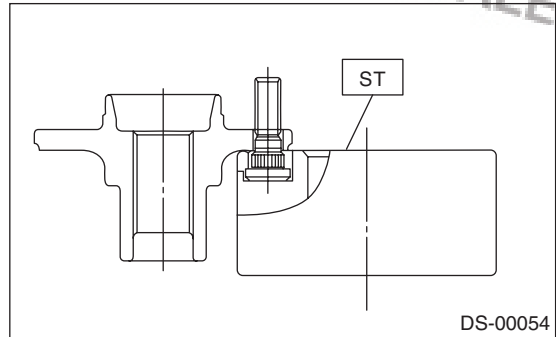
ST1 927400000 HOUSING STAND

ST2 927100000 BEARING PULLER



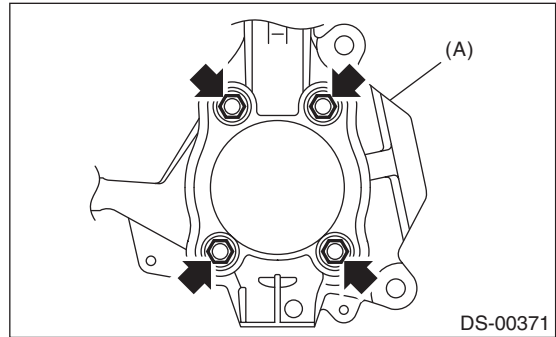
8) Using the ST and a hydraulic press, push out the hub bolts.

ST 927080000 HUB STAND



2. STI MODEL

1) Remove the four bolts from the housing, and remove the front hub unit bearing.



(A) Housing

2) Disassemble the front hub unit bearing. <Ref. to DS-20, DISASSEMBLY, Front Axle.>

D: ASSEMBLY

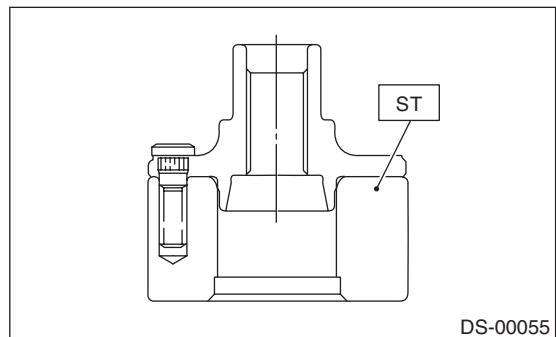
1. EXCEPT FOR STI MODEL

NOTE:

When the hub is removed from housing, replace the bearing set and oil seal with new parts.

1) Attach the hub to the ST securely.

ST 927080000 HUB STAND



Front Axle

DRIVE SHAFT SYSTEM

2) Using a press, press the new hub bolts until their seating surfaces contact the hub.

NOTE:

Use the 12 mm (0.47 in) dia. holes in the HUB STAND to prevent bolts from tilting.

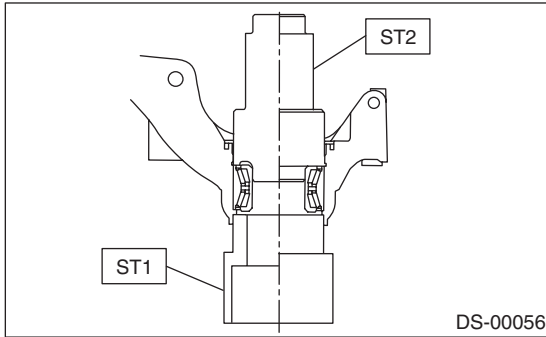
3) Clean the dust or foreign particles from inside the housing.

4) Using ST1 and ST2, press a new bearing into place.

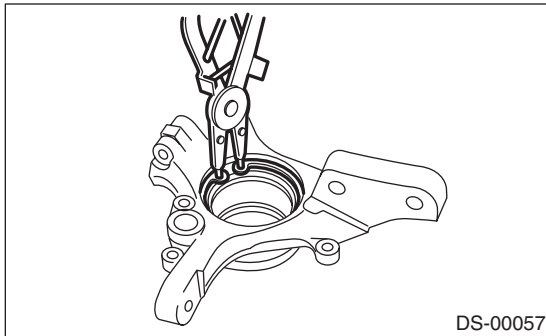
ST1 927400000 HOUSING STAND
ST2 927100000 BEARING PULLER

NOTE:

Be careful not to remove the plastic lock from the inner race when installing the bearings.

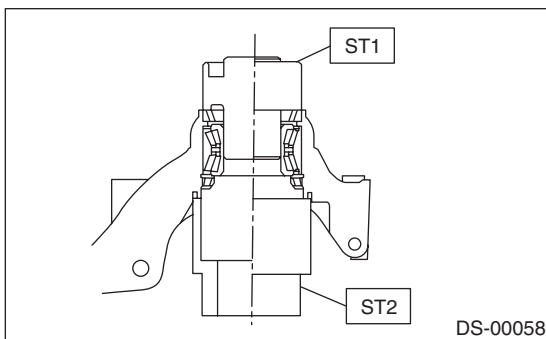


5) Using snap ring pliers, securely install the snap ring.



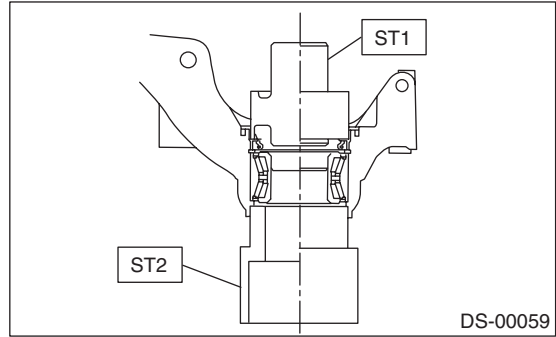
6) Using the ST1 and ST2, press the outer oil seal until it contacts the bottom of housing.

ST1 927410000 OIL SEAL INSTALLER
ST2 927400000 HOUSING STAND



7) Using the ST1 and ST2, press the inner oil seal until it contacts the snap ring.

ST1 927410000 OIL SEAL INSTALLER
ST2 927400000 HOUSING STAND



8) Invert the ST and housing (upside down).

ST 927400000 HOUSING STAND

9) Apply sufficient grease to the oil seal lip.

Specified grease:

SHELL 6459N

NOTE:

- If specified grease is not available, remove the bearing grease and apply Auto Rex A instead.
- Do not mix different types of grease.

10) Install the disc cover to housing with three bolts.

Tightening torque:

18 N·m (1.8 kgf·m, 13.0 ft·lb)

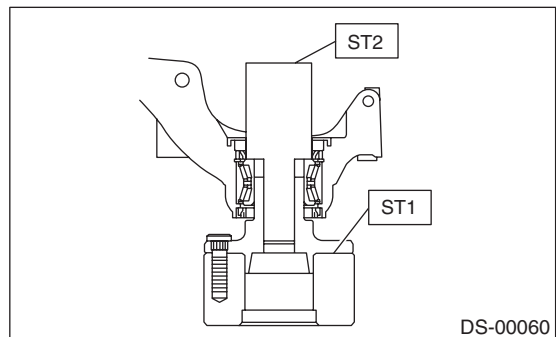
11) Attach the hub to ST1 securely.

12) Clean dust and foreign particles from the polished surface of hub.

13) Using ST2, press the inner race, and push the bearing into the hub.

ST1 927080000 HUB STAND

ST2 927120000 HUB INSTALLER

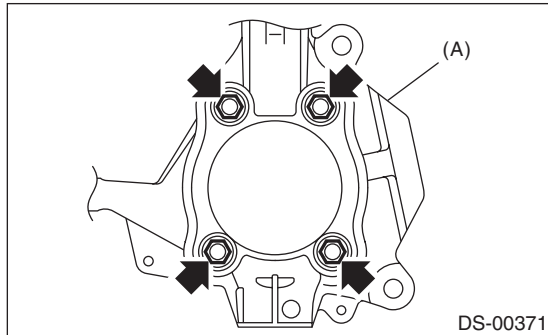


2. STI MODEL

- 1) Assemble the front hub unit bearing. <Ref. to DS-21, ASSEMBLY, Front Axle.>
- 2) Tighten the front hub unit bearing to housing with four bolts.

Tightening torque:

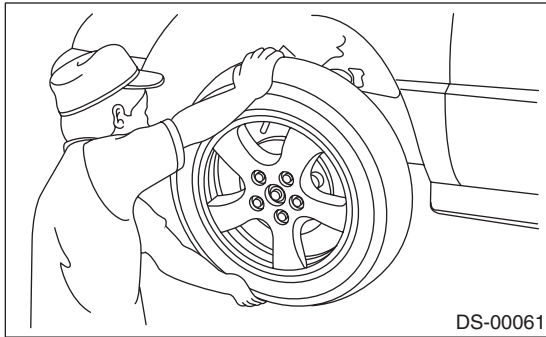
65 N·m (6.6 kgf·m, 47.9 ft·lb)



(A) Housing

E: INSPECTION

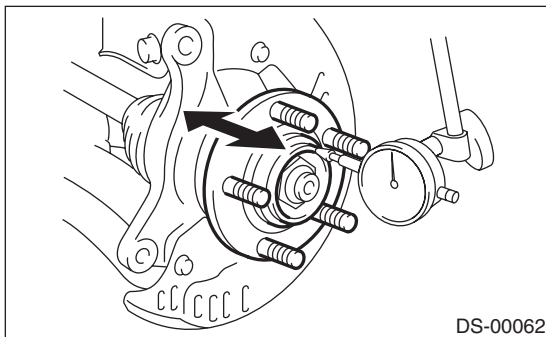
- 1) Moving the front tire up and down by hand, check there is no free play in bearing, and check the wheel rotates smoothly.



- 2) Inspect the lean of axis direction using a dial gauge. Replace the hub bearing if the play exceeds the limit value.

Service limit:

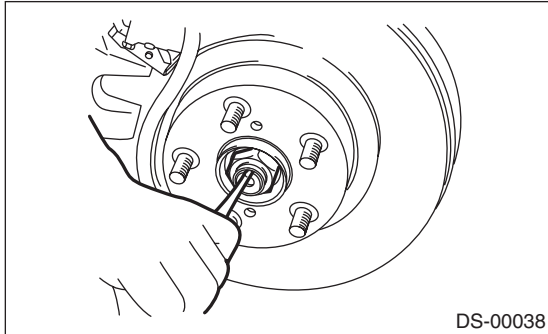
Maximum: 0.05 mm (0.0020 in)



4. Front Hub Unit Bearing

A: REMOVAL

- 1) Disconnect the ground cable from the battery.
- 2) Lift up the vehicle, and 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.

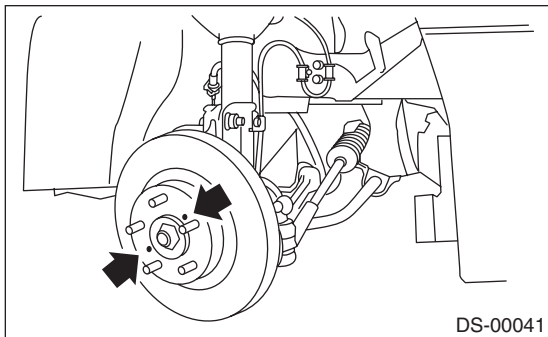
CAUTION:

Remove the wheel before loosening the axle nut. Failure to follow this rule may damage the wheel bearings.

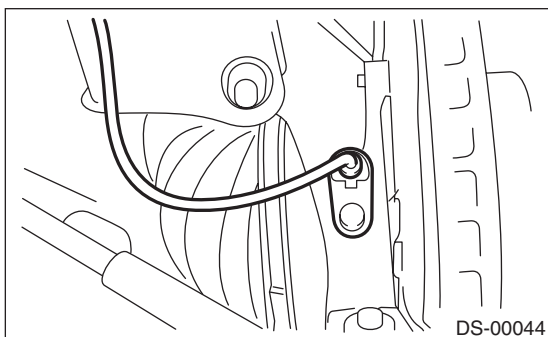
- 5) Remove the disc brake caliper from the housing, and suspend it from strut using a wire.
- 6) Remove the disc rotor from the hub.

NOTE:

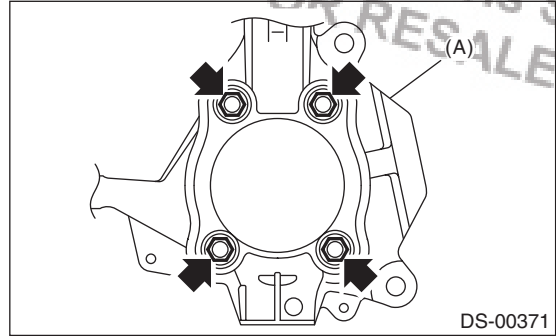
If it is difficult to remove the disc rotor from the hub, drive the 8 mm bolt into the threaded end of rotor, and then remove the rotor.



- 7) Remove the ABS wheel speed sensor assembly and harness.



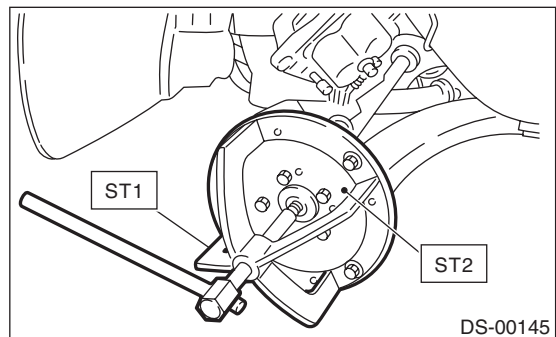
- 8) Remove the four bolts from the housing.



(A) Housing

- 9) Remove the front hub unit bearing. If it is hard to remove, use the ST.

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

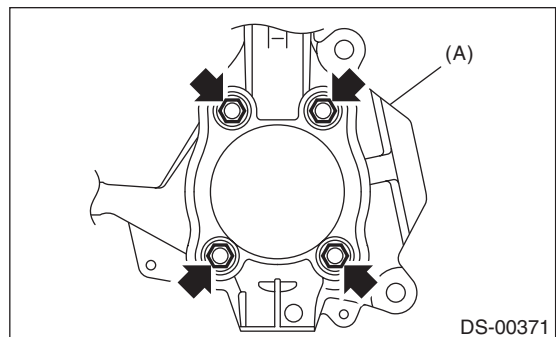


B: INSTALLATION

- 1) Tighten the front hub unit bearing to housing with four bolts.

Tightening torque:

65 N·m (6.6 kgf-m, 47.9 ft-lb)



(A) Housing

- 2) Install the front drive shaft. <Ref. to DS-31, INSTALLATION, Front Drive Shaft.>
- 3) Tighten the axle nut temporarily.
- 4) Install the disc rotor to hub.
- 5) Install the disc brake caliper on the housing.

Tightening torque:

155 N·m (15.8 kgf-m, 114.3 ft-lb)

6) While depressing the brake pedal, tighten a new axle nut (olive color) to the specified torque and lock it securely.

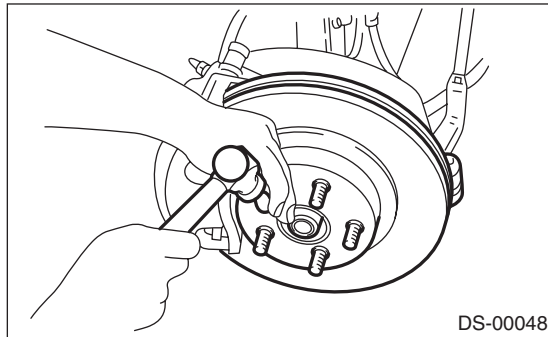
Tightening torque:

220 N·m (22.4 kgf·m, 162 ft·lb)

CAUTION:

- Install the wheel after installation of axle nut. Failure to follow this rule may damage the wheel bearing.
- Do not overtighten it as this may damage the wheel bearing.

7) After tightening the axle nut, lock it securely.



8) Install the ABS wheel speed sensor on the housing.

Tightening torque:

33 N·m (3.4 kgf·m, 24 ft·lb)

9) Install the wheel and tighten the wheel nuts to specified torque.

Tightening torque:

100 N·m (10.2 kgf·m, 73.8 ft·lb)

C: DISASSEMBLY

Using the ST and a hydraulic press, push out the hub bolts.

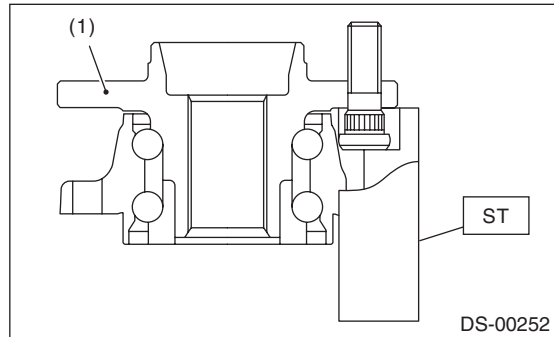
ST 28399AG000 HUB STAND

CAUTION:

- Be careful not to hammer the hub bolts. This may deform the hub.
- Do not reuse the hub bolt.

NOTE:

Since the hub unit bearing can not be disassembled, only hub bolts can be removed.

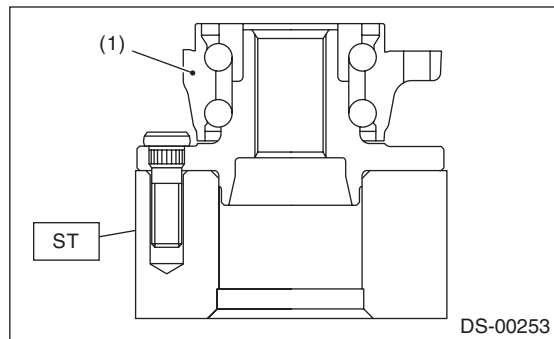


(1) Front hub unit bearing

D: ASSEMBLY

1) Attach the hub to the ST securely.

ST 28099PA080 HUB STAND



(1) Front hub unit bearing

2) Using a press, press the new hub bolts until their seating surfaces contact the hub.

NOTE:

Use the 12 mm (0.47 in) dia. holes in the HUB STAND to prevent bolts from tilting.

E: INSPECTION

Refer to "Front Axle" for inspection procedures. <Ref. to DS-23, INSPECTION, Front Axle.>

CAUTION:

If there is any fault in the bearing, replace hub unit bearing.

5. Rear Axle

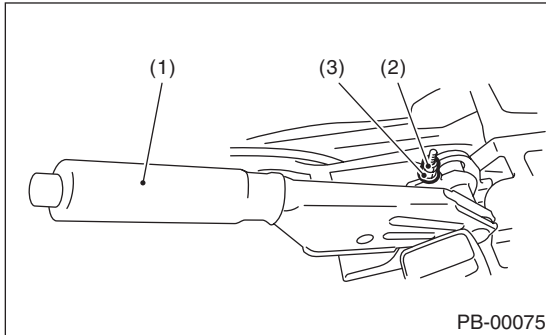
A: REMOVAL

- 1) Disconnect the ground cable from the battery.
- 2) Lift up the vehicle, then remove the rear wheels.
- 3) Lift the crimped section of axle nut.
- 4) While applying the parking brake, remove the axle nut using a socket wrench.

CAUTION:

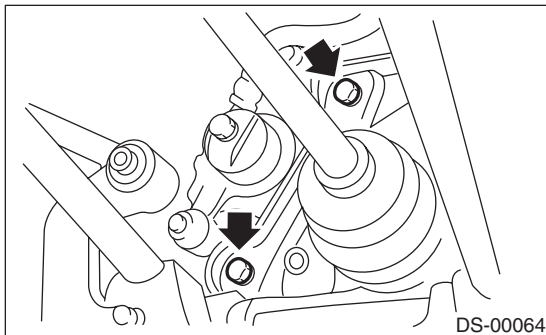
Remove the axle nut while there is no load being applied to the axle. Failure to do so may damage the wheel bearings.

- 5) Return the parking brake lever and loosen the adjusting nut.



- (1) Parking brake lever
- (2) Lock nut
- (3) Adjusting nut

- 6) Remove the disc brake caliper from the back plate, and suspend it from strut using a piece of wire.

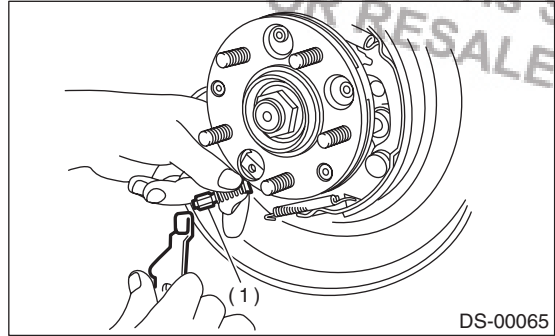


- 7) Remove the disc rotor from the hub.

NOTE:

If it is difficult to remove the disc rotor from the hub, drive the 8 mm bolt into the threaded end of rotor, and then remove the rotor.

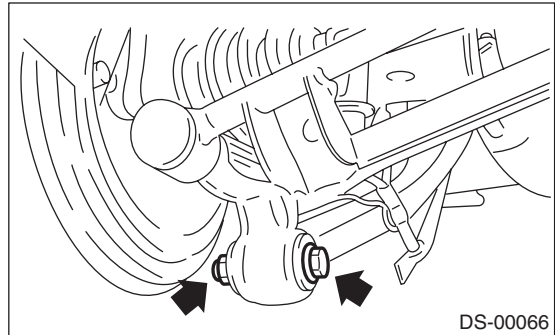
- 8) Disconnect the parking brake cable end.



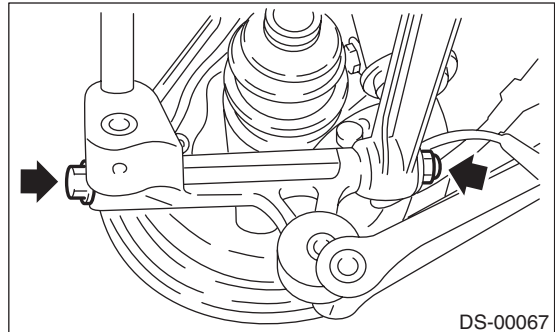
- (1) Cable end

- 9) Disconnect the rear stabilizer from the rear lateral link.

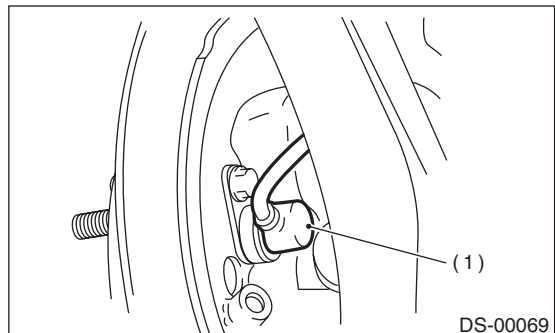
- 10) Remove the bolts which secure trailing link assembly to the rear housing.



- 11) Remove the bolts which secure the lateral assembly to the rear housing.



- 12) Remove the rear ABS wheel speed sensor from the back plate.



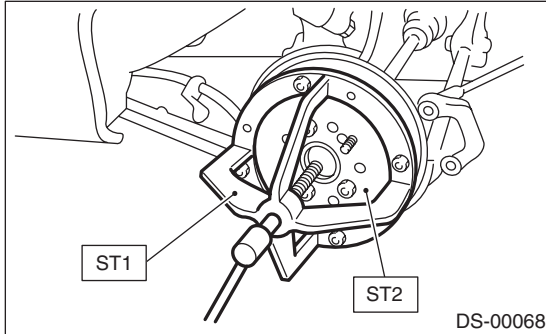
- (1) ABS wheel speed sensor

13) Disengage the BJ from the housing splines, and remove the rear drive shaft assembly. If it is hard to remove, use the ST.

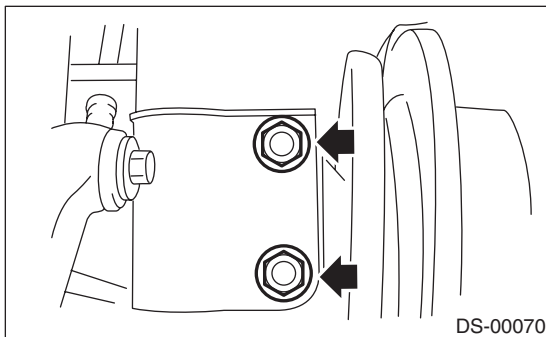
ST1 926470000 AXLE SHAFT PULLER
 ST2 28099PA110 AXLE SHAFT PULLER
 PLATE

NOTE:

- Be careful not to damage the oil seal lip when removing the rear drive shaft.
- When rear drive shaft is to be replaced, replace inner oil seal with a new seal.



14) Remove the bolts which secure the rear housing to strut, and separate the two.

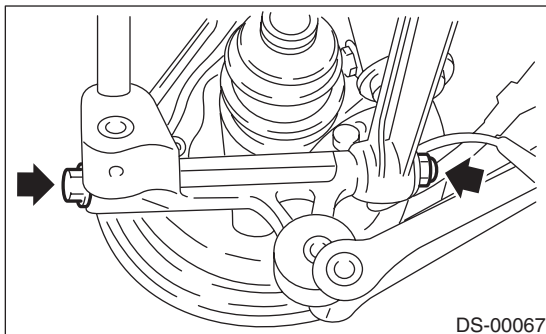


B: INSTALLATION

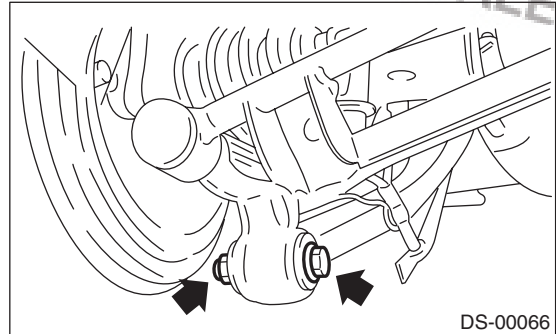
- 1) Temporarily tighten the rear axle to the strut.
- 2) Insert the rear drive shaft into the rear axle.

NOTE:

- Be careful not to damage the inner oil seal lip.
- 3) Tighten the axle nut temporarily.
 - 4) Using new self-locking nuts, temporary attach the rear housing assembly and the lateral link assembly.



5) Using new self-locking nuts, temporary attach the rear housing assembly and the trailing link assembly.



6) Using new self-locking nuts, secure the rear housing assembly and the strut assembly.

Tightening torque:

200 N·m (20.0 kgf·m, 145 ft·lb)

7) Using new self-locking nuts, install the rear stabilizer and rear lateral link.

Tightening torque:

45 N·m (4.5 kgf·m, 33.2 ft·lb)

8) Connect the parking brake cable to the parking brake.

9) Install the disc rotor on the rear housing assembly.

10) Install the disc brake caliper on the back plate.

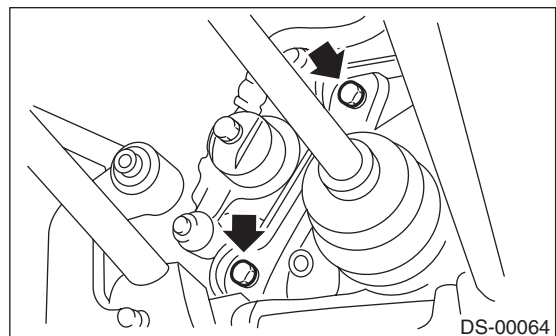
Tightening torque:

Except for STI model

53 N·m (5.4 kgf·m, 39.1 ft·lb)

STI model

65 N·m (6.6 kgf·m, 47.9 ft·lb)



11) Adjust the parking brake lever stroke by turning the adjuster.

12) While applying the parking brake, tighten the new axle nut using the socket wrench. After tightening, crimp the axle nut.

Tightening torque:

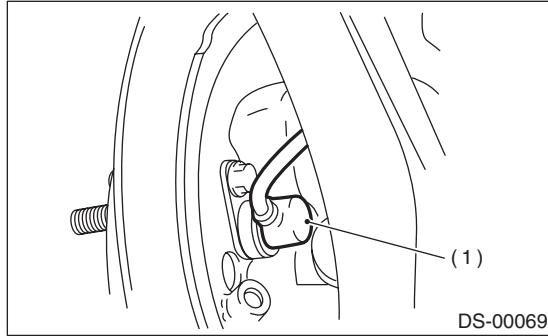
190 N·m (19.4 kgf·m, 140 ft·lb)

CAUTION:

Do not overtighten it as this may damage the wheel bearing.

DRIVE SHAFT SYSTEM

13) Install the rear ABS wheel speed sensor.



(1) ABS wheel speed sensor

14) Install the wheel and tighten the wheel nuts to specified torque.

Tightening torque:

100 N·m (10.2 kgf·m, 73.8 ft·lb)

15) Make the tires completely touch the ground.

CAUTION:

Always tighten the stabilizer bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.

16) Tighten the rear housing assembly and lateral link assembly installation bolts.

Tightening torque:

140 N·m (14.3 kgf·m, 103 ft·lb)

17) Tighten the rear housing assembly and trailing link assembly installation bolts.

Tightening torque:

90 N·m (9.2 kgf·m, 66 ft·lb)

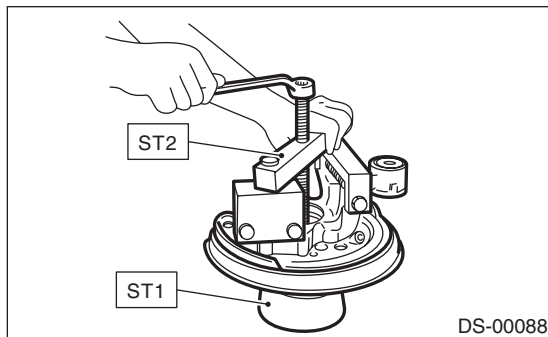
C: DISASSEMBLY

1) Using ST1 and ST2, remove the hub from the rear housing.

ST1 927080000 HUB STAND
(Except for STI model)

ST1 28099PA080 HUB STAND (STI model)

ST2 927420000 HUB REMOVER



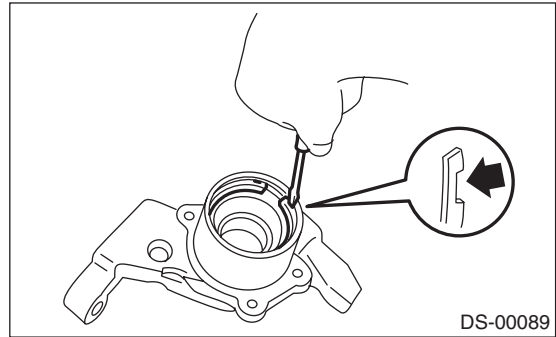
2) Remove the back plate from the rear housing

3) Remove the outer and inner oil seals using a flat tip screwdriver.

4) Remove the snap ring using a flat tip screwdriver.

NOTE:

Be careful not to damage housing during removal.



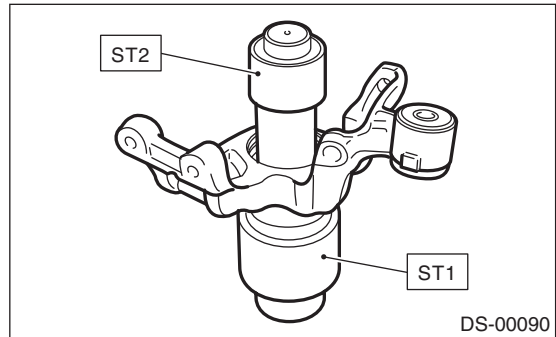
5) Using ST1 and ST2, remove the bearing by pressing the inner race.

ST1 927430000 HOUSING STAND
(Except for STI model)

ST1 28099PA060 HOUSING STAND
(STI model)

ST2 927440000 BEARING PULLER
(Except for STI model)

ST2 927100000 BEARING PULLER
(STI model)



6) Remove the tone wheel bolts and remove the tone wheel from the hub.

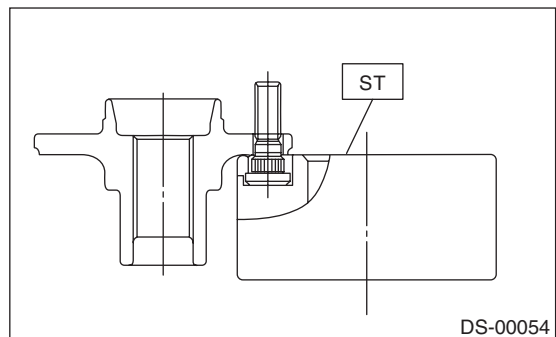
7) Using ST, press the hub bolt out.

ST 927080000 HUB STAND
(Except for STI model)

ST 28099PA080 HUB STAND (STI model)

CAUTION:

Be careful not to hammer the hub bolts. Doing so may deform the hub.



D: ASSEMBLY**NOTE:**

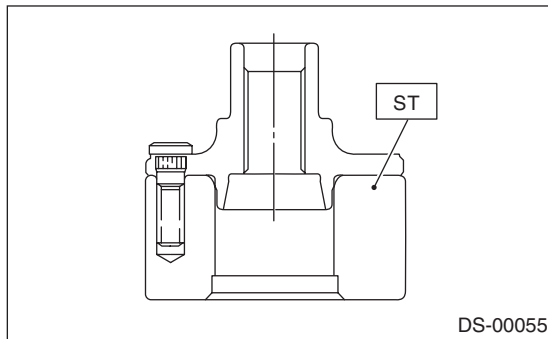
When the hub is removed from the housing, replace the bearing set and oil seal.

1) Using the ST, press the new hub bolt into place.

NOTE:

- Make sure the hub bolt contacts the hub.
- Use the 12 mm (0.47 in) hole in the ST to prevent the hub bolt from tilting during installation.

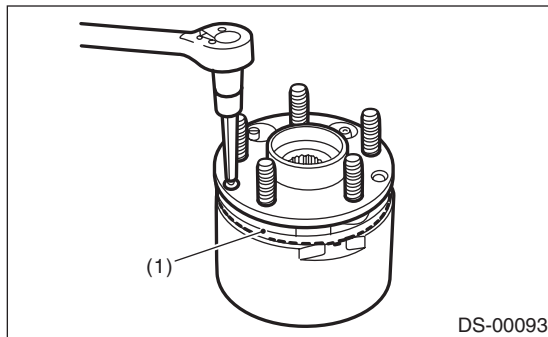
ST 927080000 HUB STAND
(Except for STI model)
ST 28099PA080 HUB STAND (STI model)



2) Remove the foreign particles (dust, rust, etc.) from the mating surfaces of hub tone wheel, and install the tone wheel to hub.

NOTE:

- Make sure the tone wheel contacts the hub.
- Be careful not to damage the tone wheel teeth.



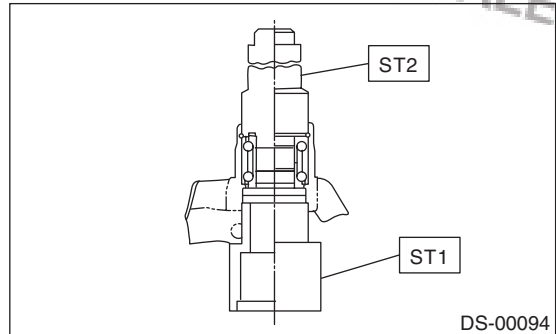
(1) Tone wheel

3) Clean the housing interior completely. Using ST1 and ST2, press the bearing into the housing.

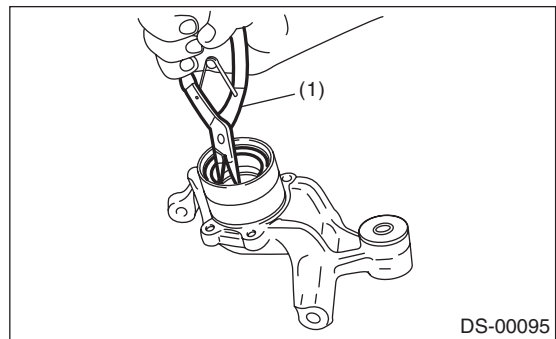
ST1 927430000 HOUSING STAND
(Except for STI model)
ST1 28099PA060 HOUSING STAND
(STI model)
ST2 927440000 BEARING PULLER
(Except for STI model)
ST2 927100000 BEARING PULLER
(STI model)

NOTE:

Be careful not to remove the plastic lock from the inner race when installing the bearings.



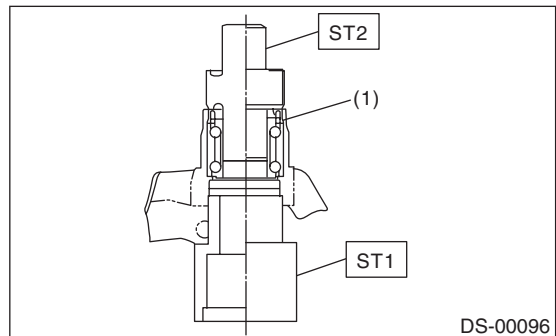
4) Using snap ring pliers, securely install the snap ring.



(1) Snap ring pliers

5) Using the ST1 and ST2, press the outer oil seal unit until it comes in contact with snap ring.

ST1 927430000 HOUSING STAND
(Except for STI model)
ST1 28099PA060 HOUSING STAND
(STI model)
ST2 927460000 OIL SEAL INSTALLER
(Except for STI model)
ST2 28099PA070 OIL SEAL INSTALLER
(STI model)



(1) Snap ring

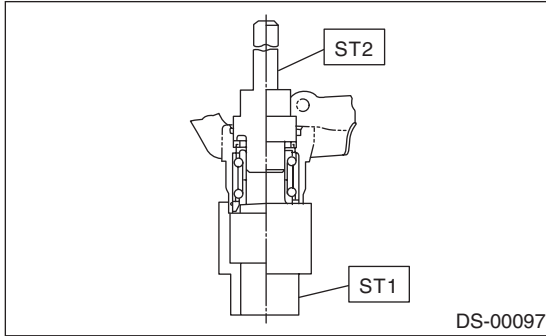
6) Invert both ST1 and housing (upside down).

Rear Axle

DRIVE SHAFT SYSTEM

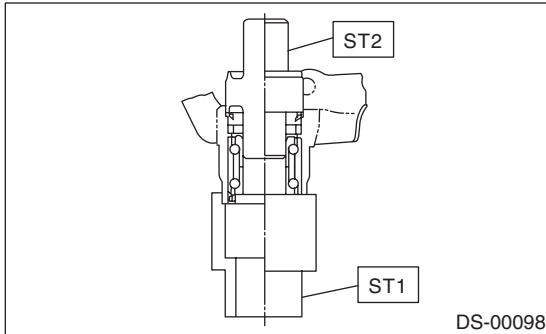
7) Using ST2, press the inner oil seal into the housing until it touches the bottom.

- ST1 927430000 HOUSING STAND
(Except for STI model)
- ST1 28099PA060 HOUSING STAND
(STI model)
- ST2 927460000 OIL SEAL INSTALLER
(Except for STI model)
- ST2 28099PA070 OIL SEAL INSTALLER
(STI model)



8) Using ST1 and ST2, press the sub seal into place.

- ST1 927430000 HOUSING STAND
(Except for STI model)
- ST1 28099PA060 HOUSING STAND
(STI model)
- ST2 927460000 OIL SEAL INSTALLER
(Except for STI model)
- ST2 28099PA070 OIL SEAL INSTALLER
(STI model)



9) Apply sufficient grease to the oil seal lip.

Specified grease:
SHELL 6459N

NOTE:

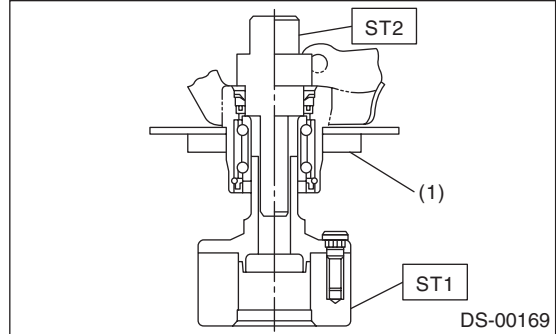
- If specified grease is not available, remove the bearing grease and apply Auto Rex A instead.
 - Do not mix different types of grease.
- 10) Install back plate to the rear housing.

Tightening torque:

52 N·m (5.3 kgf·m, 38.3 ft·lb)

11) Using ST1 and ST2, press the bearing into the hub.

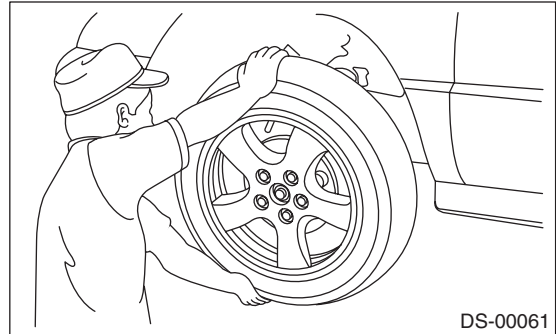
- ST1 927080000 HUB STAND
(Except for STI model)
- ST1 28099PA080 HUB STAND (STI model)
- ST2 927450000 HUB INSTALLER
(Except for STI model)
- ST2 927120000 HUB INSTALLER (STI model)



(1) Back plate

E: INSPECTION

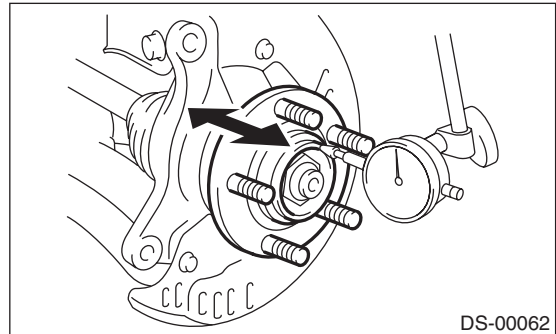
1) Moving the rear tire up and down by hand, check there is no play in bearing, and check the wheel rotates smoothly.



2) Inspect the lean of axis direction using a dial gauge. Replace the hub bearing if the play exceeds the limit value.

Service limit:

Maximum: 0.05 mm (0.0020 in)



6. Front Drive Shaft

A: REMOVAL

- 1) Disconnect the ground cable from the battery.
- 2) Jack-up the vehicle and support with rigid racks. Then remove the front hubcaps and wheels.
- 3) Flatten the tab of the axle nut.
- 4) Depress the brake pedal and remove the axle nut using a socket wrench.

CAUTION:

Remove the wheel from the vehicle before loosening the axle nut. Failure to follow this rule may damage the wheel bearings.

5) Remove the stabilizer link from the transverse link.

6) Disconnect the transverse link from the housing.

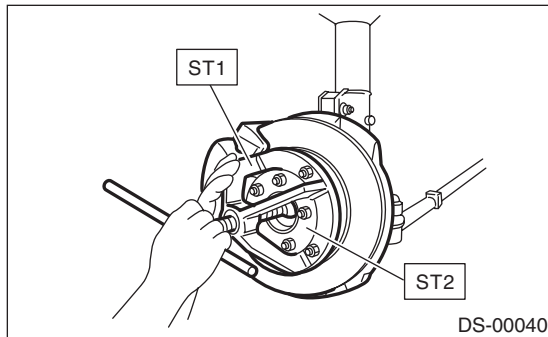
7) Remove the front drive shaft assembly. If it is hard to remove, use ST1 and ST2.

ST1 926470000 AXLE SHAFT PULLER

ST2 28099PA110 AXLE SHAFT PULLER PLATE

CAUTION:

- Be careful not to damage the oil seal lip and tone wheel when removing the front drive shaft.
- When replacing the front drive shaft, also replace the inner oil seal.



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

CAUTION:

Be careful not to damage the holder area.

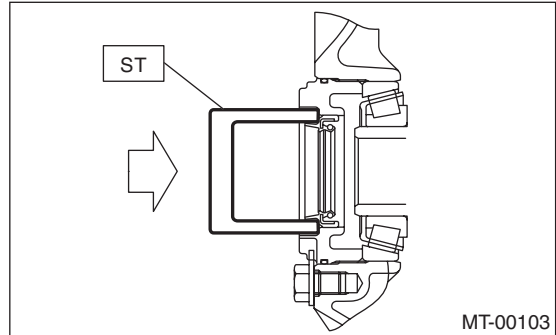
B: INSTALLATION

1) Using the ST, replace the differential side retain-er oil seal with a new seal.

ST 18675AA000 DIFFERENTIAL SIDE OIL SEAL INSTALLER

NOTE:

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



2) Insert the BJ into hub splines.

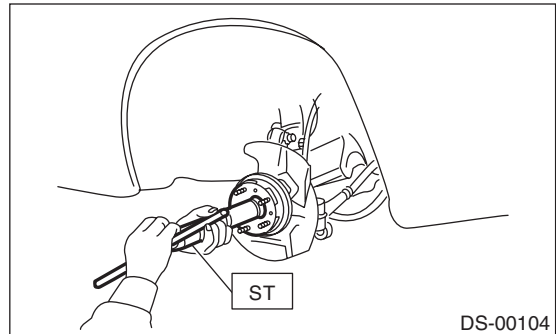
CAUTION:

Be careful not to damage the inner oil seal lip and tone wheel.

3) Using ST1 and ST2, pull the drive shaft to the specified location.

ST1 922431000 AXLE SHAFT INSTALLER

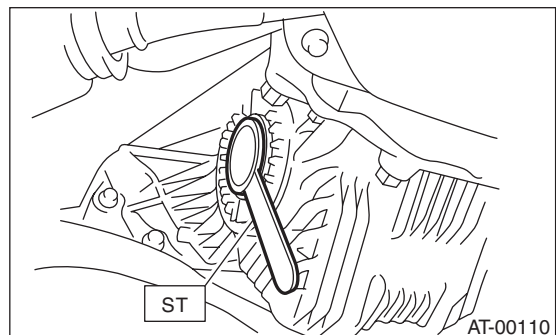
ST2 927390000 ADAPTER



4) Tighten the axle nut temporarily.

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

ST 28399SA010 OIL SEAL PROTECTOR



DRIVE SHAFT SYSTEM

6) Connect the transverse link to the housing.

Tightening torque:

50 N·m (5.1 kgf-m, 37 ft-lb)

7) Install the stabilizer bracket.

8) While pressing the brake pedal, tighten the axle nut to the specified torque.

Tightening torque:

220 N·m (22.4 kgf-m, 162 ft-lb)

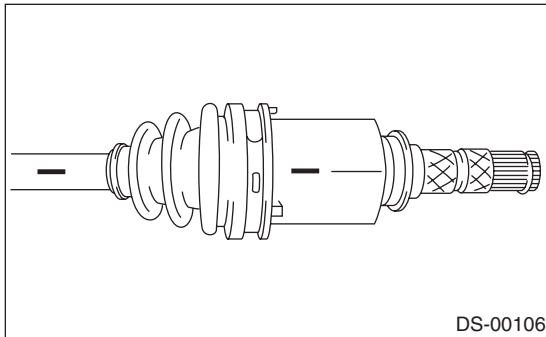
CAUTION:

- Be sure to tighten the axle nut before installing the wheel to the vehicle. If the wheel is installed while the axle nut is loose, the wheel bearings may be damaged when the tires contact the ground.
 - Do not overtighten it as this may damage the wheel bearing.
- 9) After tightening axle nut, lock it securely.

C: DISASSEMBLY

1. BJ+PTJ-TYPE

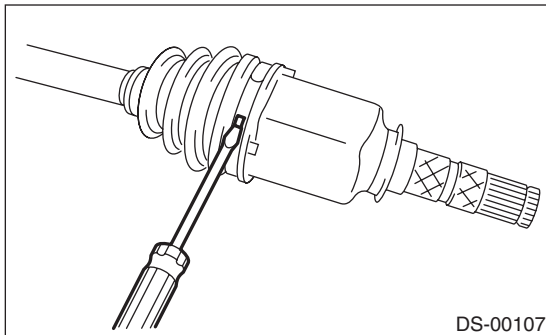
1) Place alignment marks on the shaft and outer race.



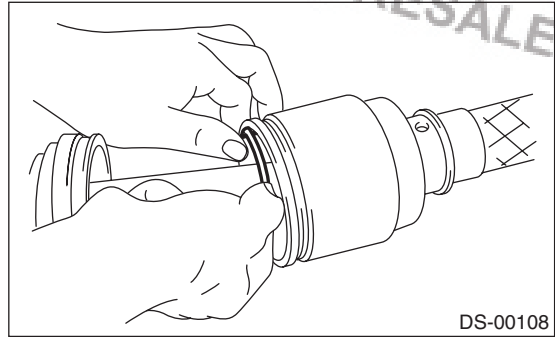
2) Remove the PTJ boot band and boot.

CAUTION:

Be careful not to damage the boot.



3) Remove the snap ring from the PTJ outer race using a screwdriver.



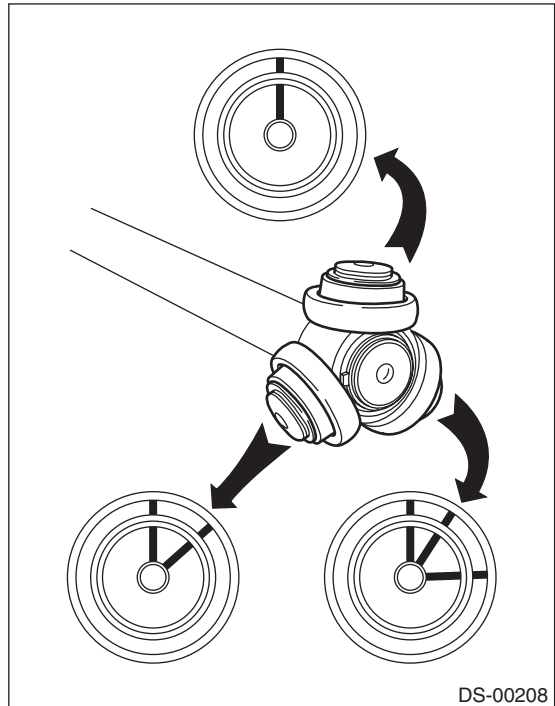
4) Remove the PTJ outer race from shaft assembly.

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.

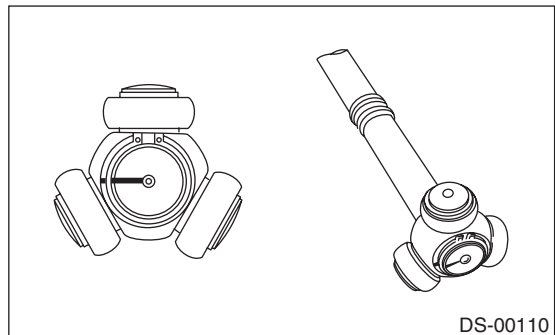


7) Remove the roller kit from trunnion.

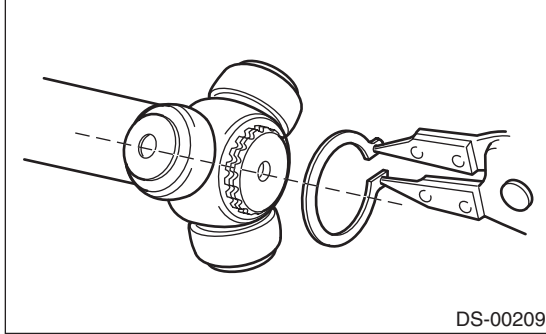
CAUTION:

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 prevent boot from scratches.

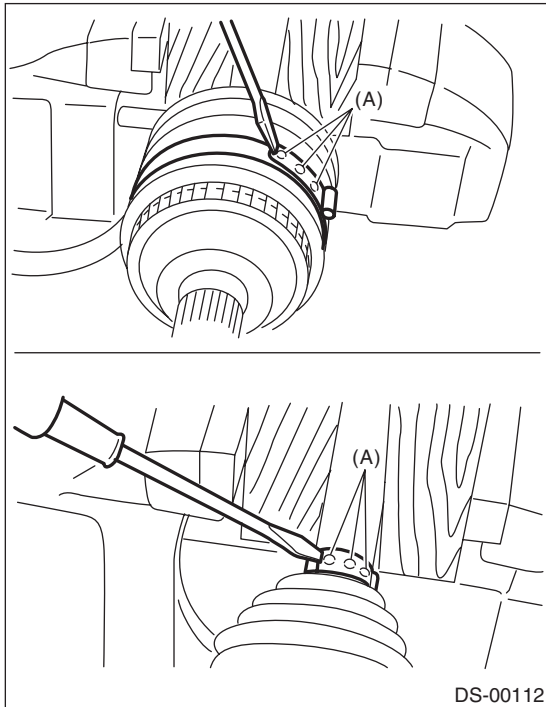
10) Remove the PTJ boot.

11) Place the drive shaft between wooden blocks and set it on a vise.

CAUTION:

Do not set the drive shaft on a vise directly. Be sure to use wooden blocks.

12) Lift the boot band tabs using a screwdriver and hammer.

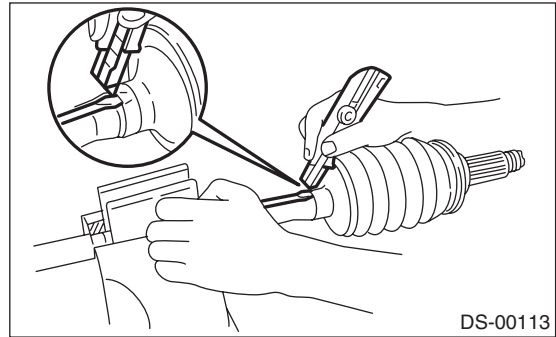


(A) Boot band tab

13) Disconnect the boot and remove it.

CAUTION:

Always replace the boot with a new part when removed.



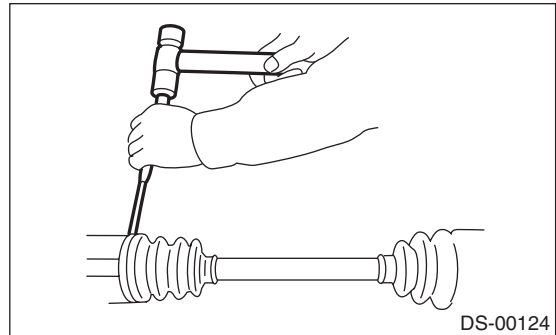
NOTE:

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

2. BJ+DOJ-TYPE

1) Straighten the bent claw at the larger end of the DOJ boot.

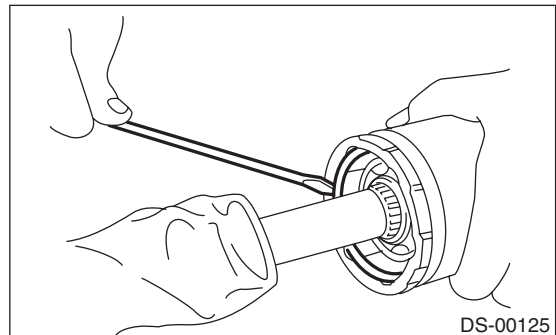
2) Loosen the band by means of a flat tip screwdriver or pliers, being careful not to damage the boot.



3) Remove the boot band on the small end of DOJ boot in the same manner.

4) Remove the larger end of DOJ boot from DOJ outer race.

5) Pry and remove the round circlip at the neck of DOJ outer race with a screwdriver.



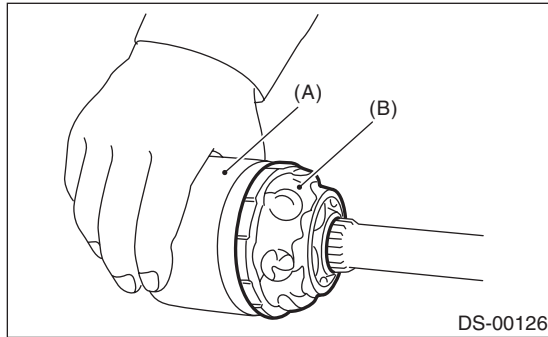
6) Take out the DOJ outer race from the shaft assembly.

DRIVE SHAFT SYSTEM

7) Wipe off the grease and take out the ball bearings.

NOTE:

- The grease is a special grease (grease for constant velocity joints). Do not mix with other greases.
- Disassemble exercising care not to lose balls (6 pcs).



(A) Outer race
(B) Grease

8) To remove the cage from inner race, turn the cage by a half pitch to the track groove of inner race and shift the cage.

9) Using pliers, remove the snap ring fixing the inner race to the shaft.

10) Take out the DOJ inner race.

11) Take off the DOJ cage from shaft and remove the DOJ boot.

12) Wrap vinyl tape around the spline part of shaft.

13) Remove the BJ boot using the same procedures as for the DOJ boot.

NOTE:

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

D: ASSEMBLY

1. BJ+PTJ-TYPE

NOTE:

Use specified grease.

BJ side:

NTG2218-M (Part No. 28395AG030)

PTJ side:

NKG302 (Part No. 28495AE010)

1) Set BJ boot and small boot band on the BJ side of shaft.

CAUTION:

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

2) Set the drive shaft on a vise.

CAUTION:

Do not set the drive shaft on a vise directly. Be sure to use wooden blocks.

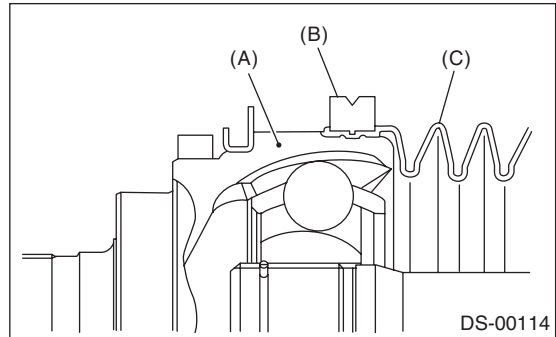
3) Apply a thin coat of specified grease [60 to 70 g (2.12 to 2.47 oz)] to the BJ.

4) Apply an even coat of the specified grease [20 to 30 g (0.71 to 1.06 oz)] to the entire inner surface of boot. Also apply grease to the shaft.

NOTE:

The BJ installing surface of BJ boot shall be cleaned completely so as to be free from grease and other substances.

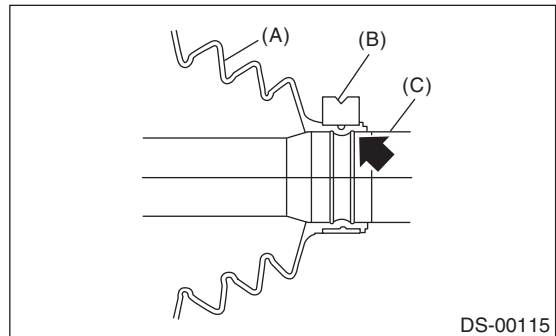
5) Attach the boot protrusion on the BJ groove.



(A) BJ
(B) Large boot band
(C) Boot

6) Set the large boot band in the specified position.

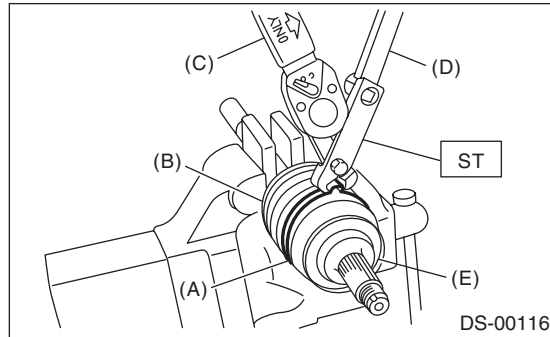
7) Attach the boot protrusion on the shaft groove.



(A) Boot
(B) Small boot band
(C) Shaft

8) 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) BJ

Tightening torque:

Large boot band

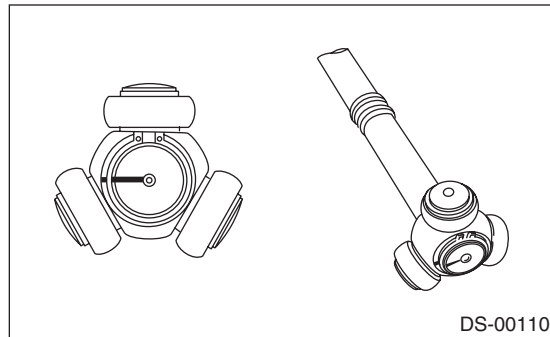
157 N·m (16.0 kgf·m, 116 ft·lb) or more

Small boot band

133 N·m (13.6 kgf·m, 98 ft·lb) or more

9) Place the PTJ boot at the center of shaft.

10) Align alignment marks and install the trunnion on the shaft.



11) Install the snap ring to shaft.

CAUTION:

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

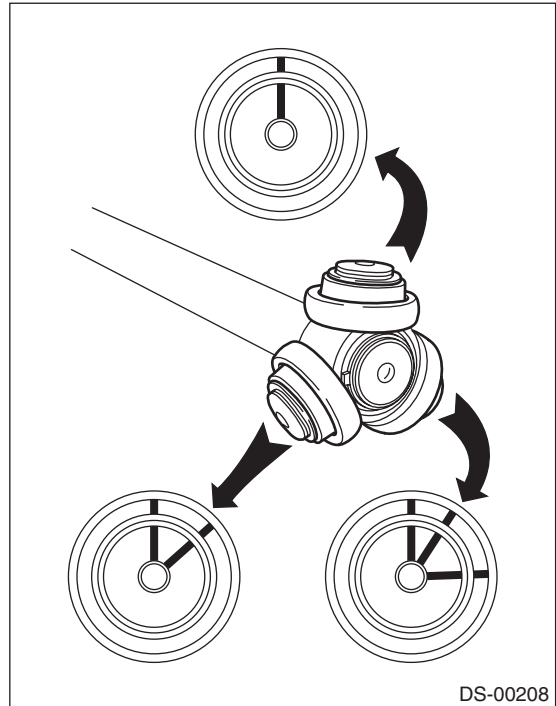
12) Fill 100 to 110 g (3.53 to 3.88 oz) of specified grease into the interior of PTJ outer race.

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

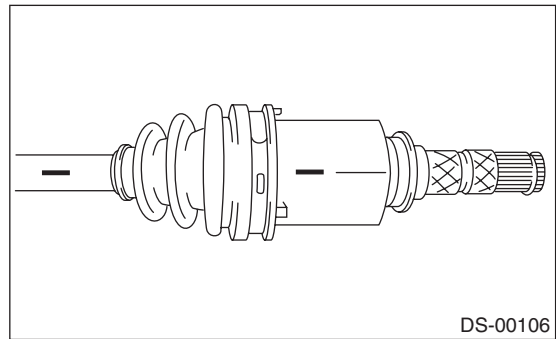
14) Align alignment marks on roller kit and trunnion and install the roller kit.

CAUTION:

Be careful with the roller kit position.



15) Align the alignment marks of the shaft and outer race, and install the outer race.



16) Install the snap ring in the groove on PTJ outer race.

CAUTION:

Pull the shaft lightly and assure that the snap ring is completely fitted in the groove.

17) 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.

18) Install the PTJ boot taking care not to twist it.

CAUTION:

- The PTJ installing surface of PTJ boot shall be cleaned completely so as to be free from grease and other substances.
- When installing PTJ boot, position outer race of PTJ at center of its travel.

DRIVE SHAFT SYSTEM

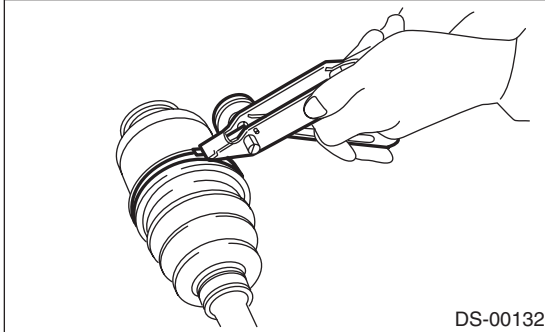
19) Put a new band through the clip and wind twice in the band groove of the boot.

20) Tighten the band using the ST.

ST 925091000 BAND TIGHTENING TOOL

NOTE:

Tighten the band until it cannot be moved by hand.



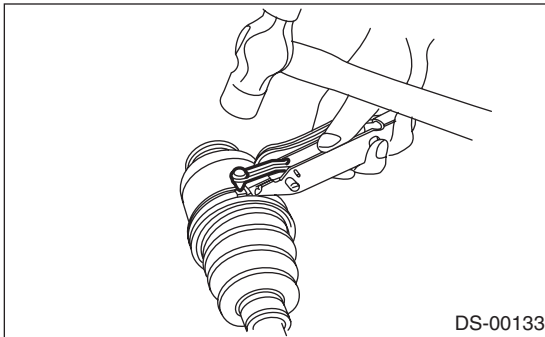
DS-00132

21) Tap the clip with the punch provided at the end of the ST.

ST 925091000 BAND TIGHTENING TOOL

CAUTION:

Tap to an extent that the boot underneath is not damaged.



DS-00133

22) Cut off the band with an allowance of about 10 mm (0.39 in) left from the clip and bend this allowance over the clip.

CAUTION:

Make sure that the end of the band is in close contact with clip.

23) Extend and retract the PTJ to provide equal grease coating.

2. BJ+DOJ-TYPE

NOTE:

Use specified grease.

BJ side:

NTG2218-M (Part No. 28395AG030)

DOJ side:

NKG205 (Part No. 28495AG010)

1) Set BJ boot and small boot band on the BJ side of shaft.

CAUTION:

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

2) Set the drive shaft on a vise.

CAUTION:

Do not set the drive shaft on a vise directly. Be sure to use wooden blocks.

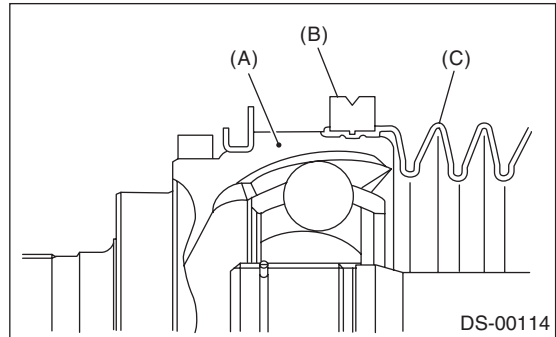
3) Apply a thin coat of specified grease [60 to 70 g (2.12 to 2.47 oz)] to the BJ.

4) Apply an even coat of the specified grease [20 to 30 g (0.71 to 1.06 oz)] to the entire inner surface of boot. Also apply grease to the shaft.

NOTE:

The BJ installing surface of BJ boot shall be cleaned completely so as to be free from grease and other substances.

5) Attach the boot protrusion on the BJ groove.



DS-00114

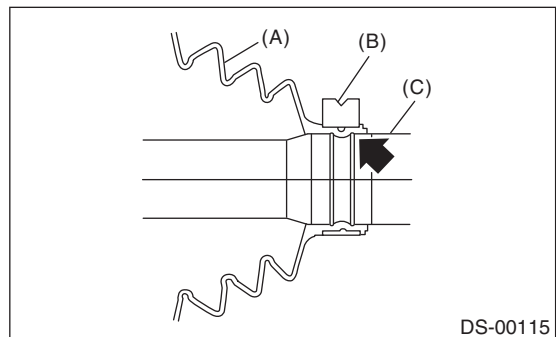
(A) BJ

(B) Large boot band

(C) Boot

6) Set the large boot band in the specified position.

7) Attach the boot protrusion on the shaft groove.



DS-00115

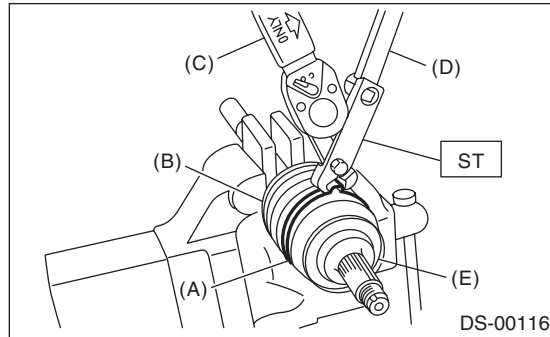
(A) Boot

(B) Small boot band

(C) Shaft

8) 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) BJ

Tightening torque:

Large boot band

157 N·m (16.0 kgf·m, 116 ft-lb) or more

Small boot band

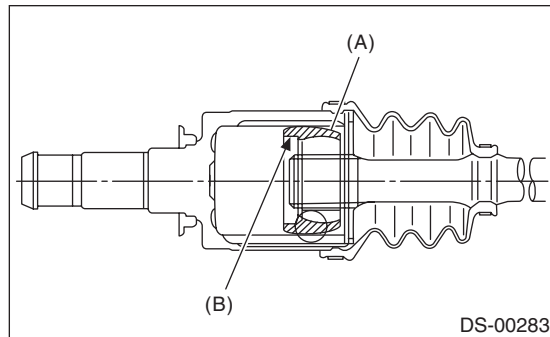
133 N·m (13.6 kgf·m, 98 ft-lb) or more

9) Place the DOJ boot at the center of shaft.

10) Insert the DOJ cage onto shaft.

NOTE:

Insert the cage with the cutout portion facing the shaft end, since the cage has an orientation.

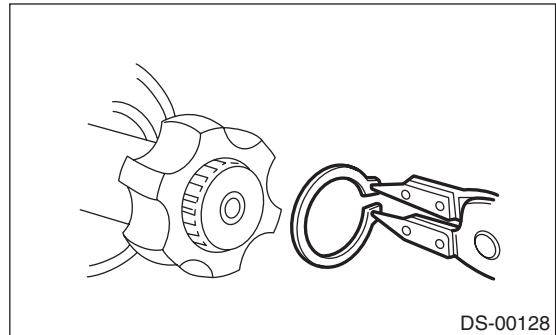


- (A) Cage
- (B) Cutout portion

11) Install the DOJ inner race on shaft and fix the snap ring in place with pliers.

NOTE:

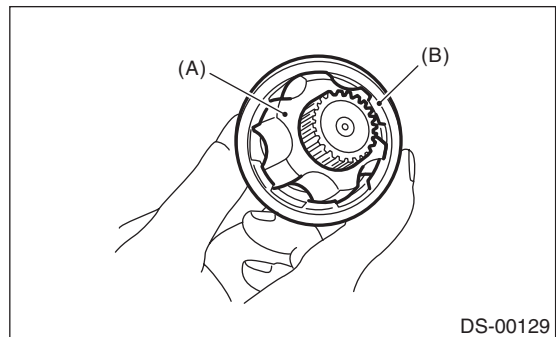
Confirm that the snap ring is completely fitted in the shaft groove.



12) Install the removed cage, to the inner race fixed onto the shaft.

NOTE:

Fit the cage with the protruding section aligned with the track on the inner race, and turn by a half pitch.



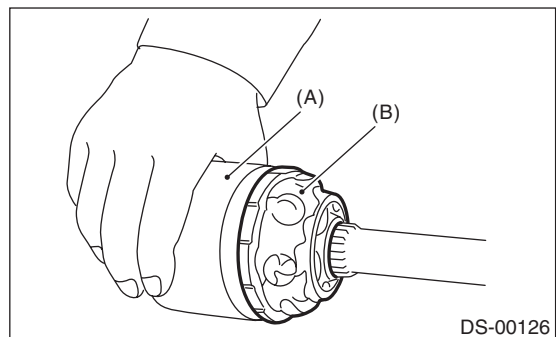
- (A) Inner race
- (B) Cage

13) Fill 80 to 90 g (2.82 to 3.17 oz) of specified grease into the inner side of the DOJ outer race.

14) Apply a thin coat of specified grease to the cage pocket and six ball bearings.

15) Insert the six ball bearings into the cage pocket.

16) Align the outer race track and ball positions, and place the shaft, inner race, cage and ball bearings in the original positions, and then fix outer race in place.



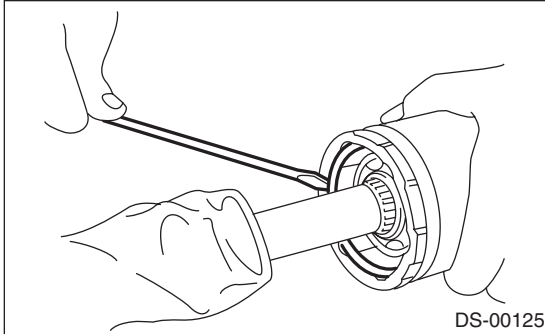
- (A) Outer race
- (B) Grease

DRIVE SHAFT SYSTEM

17) Install the snap ring in the groove on the DOJ outer race.

NOTE:

- Assure that the balls, cage and inner race are completely fitted in the outer race of DOJ.
- Use care not to place the matched position of snap ring in the ball groove of outer race.
- Pull the shaft lightly and assure that the circlip is completely fitted in the groove.



18) Apply an even coat of the specified grease [20 to 30 g (0.71 to 1.06 oz)] to the entire inner surface of boot. Also apply grease to the shaft.

19) Install the DOJ boot taking care not to twist it.

NOTE:

- The inside of the larger end of DOJ boot and the boot groove shall be cleaned so as to be free from grease and other substances.
- When installing the DOJ boot, position the outer race of DOJ at center of the stroke.

20) Extend and retract the DOJ to provide equal grease coating.

21) Put a new band through the clip and wind twice in the band groove of the boot.

NOTE:

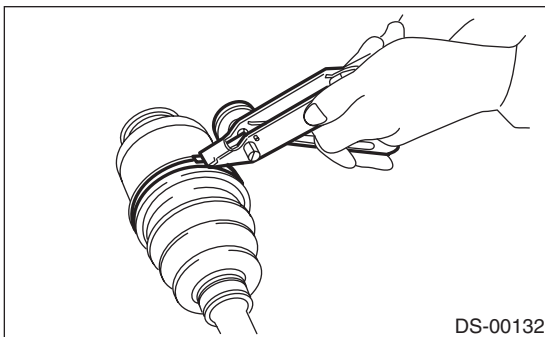
When tightening boot, use care so that the air within the boot is appropriate.

22) Tighten the band using the ST.

ST 925091000 BAND TIGHTENING TOOL

NOTE:

Tighten the band until it cannot be moved by hand.

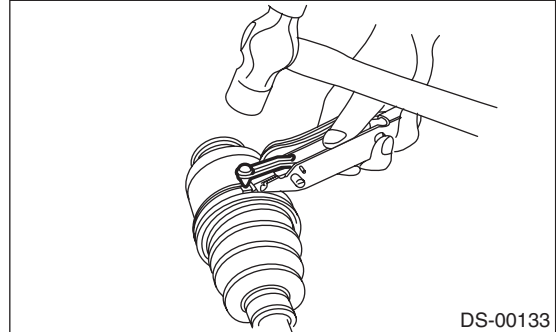


23) Tap the clip with the punch provided at the end of the ST.

ST 925091000 BAND TIGHTENING TOOL

NOTE:

Tap to an extent that the boot underneath is not damaged.



24) Cut off the band with an allowance of about 10 mm (0.39 in) left from the clip and bend this allowance over the clip.

NOTE:

Be careful so that the end of the band is in close contact with clip.

E: INSPECTION

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

1) DOJ (Double Offset Joint)

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

2) PTJ (Pillow Tripod Joint)

Check for seizure, corrosion, damage and excessive play.

3) Shaft

Check for excessive bending, twisting, damage and wear.

4) BJ (Ball Fixed Joint)

Check for seizure, corrosion, damage and excessive play.

5) Boot

Check for wear, warping, breakage and scratches.

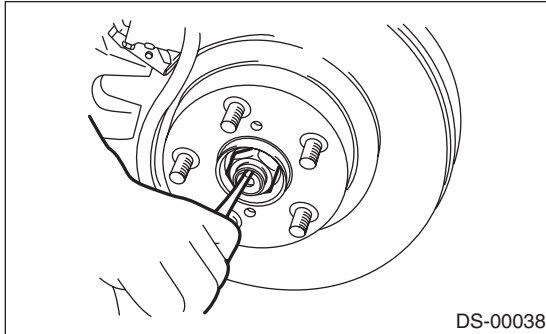
6) Grease

Check for discoloration and fluidity.

7. Rear Drive Shaft

A: REMOVAL

- 1) Disconnect the ground cable from the battery.
- 2) Lift up the vehicle, then remove the rear wheels.
- 3) Flatten the tab of the axle nut.



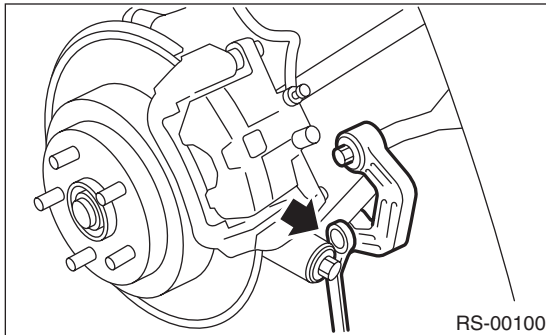
- 4) While applying the parking brake, remove the axle nut using a socket wrench.

CAUTION:

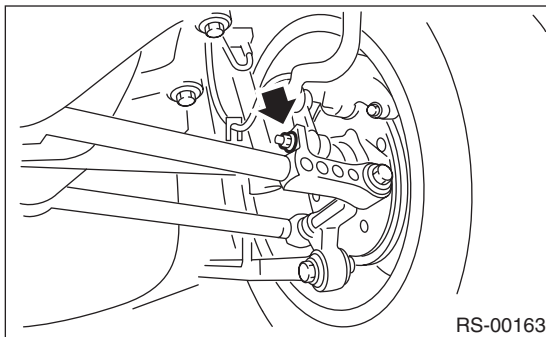
Remove the axle nut while there is no load being applied to the axle.

- 5) Remove the rear stabilizer link.

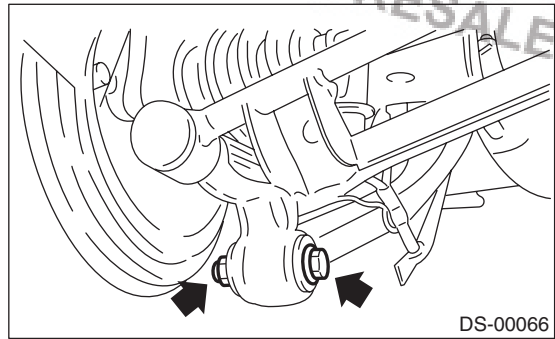
- Except for STI model



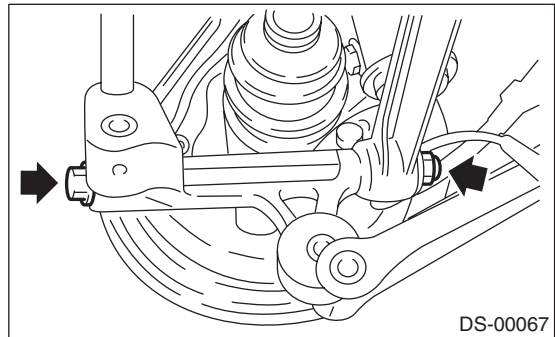
- STI model



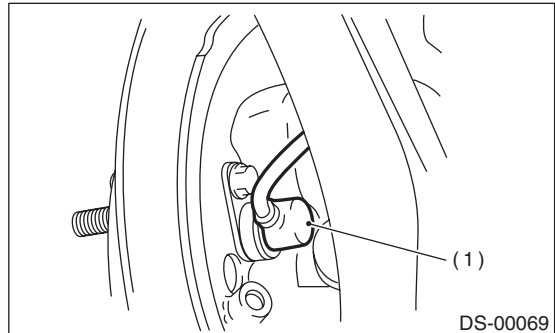
- 6) Remove the bolts which secure the trailing link to the housing.



- 7) Remove the bolts which secure the front and rear lateral link to the housing.



- 8) Remove the rear ABS wheel speed sensor from the back plate.



(1) ABS wheel speed sensor

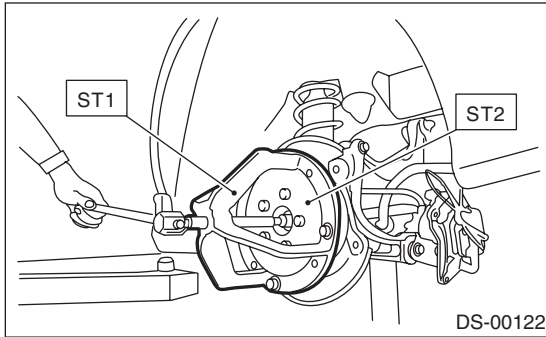
DRIVE SHAFT SYSTEM

9) Remove the rear drive shaft from the rear axle. If it is hard to remove, remove the brake disc rotor and use ST1 and ST2.

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

CAUTION:

- Do not hammer drive shaft when removing.
- Do not let the oil seal or tone wheel be damaged.

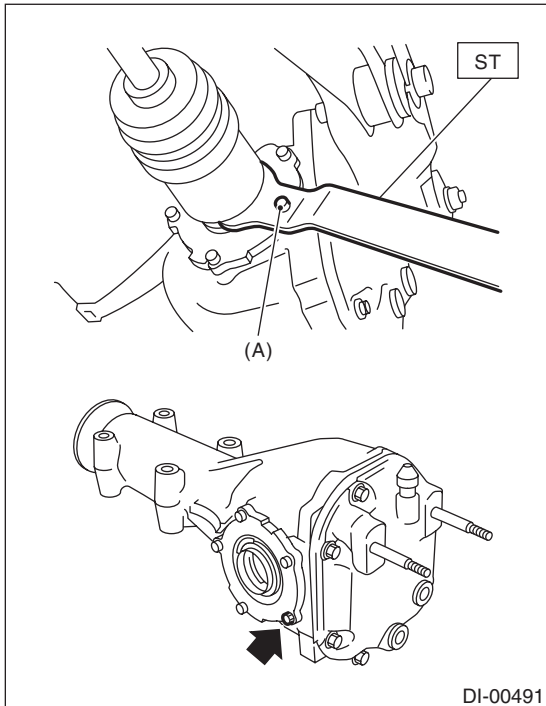


10) Remove the rear drive shaft from the rear differential by using the ST.

ST 28099PA100 DRIVE SHAFT REMOVER

NOTE:

As shown in the figure, set the ST to the bolt (A) without damaging the side bearing retainer.

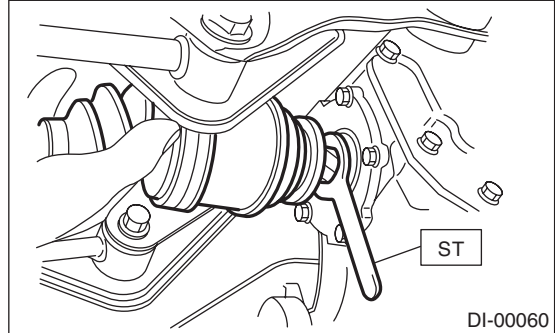


(A) Bolt

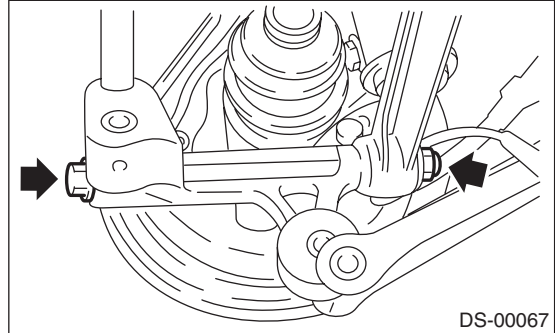
B: INSTALLATION

- 1) Insert the rear drive shaft into the rear axle.
- 2) Tighten the axle nut temporarily.
- 3) Using the ST, install the rear drive shaft to the rear differential.

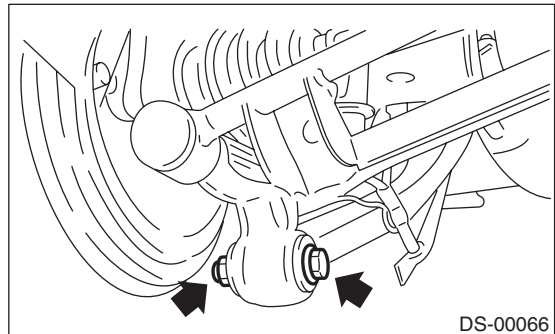
ST 28099PA090 OIL SEAL PROTECTOR



- 4) Using new self-locking nuts, temporary tighten the front and rear lateral links to the housing.



- 5) Using new self-locking nuts, temporary attach the trailing link to the housing.

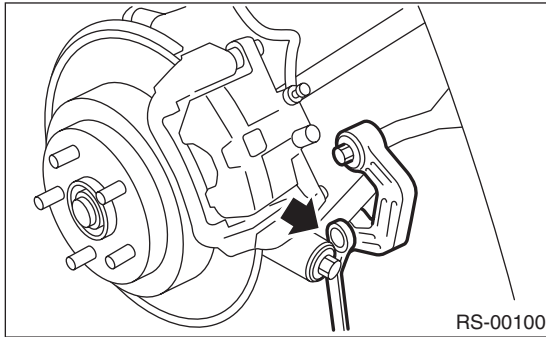


6) Install the stabilizer link.

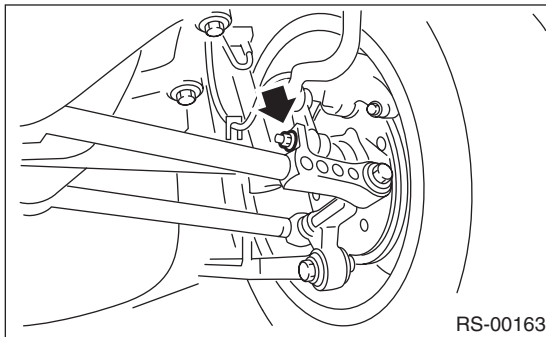
Tightening torque:

45 N·m (4.5 kgf-m, 33.2 ft-lb)

- Except for STI model



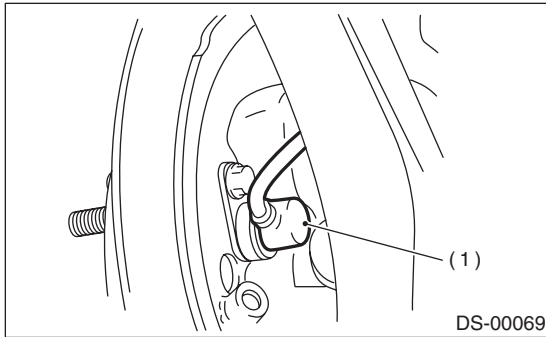
- STI model



7) Install the ABS wheel speed sensor.

Tightening torque:

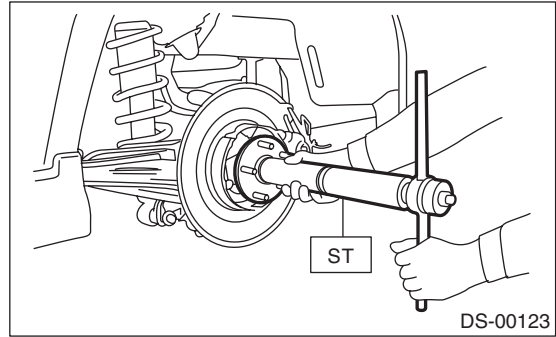
32 N·m (3.3 kgf-m, 24 ft-lb)



(1) ABS wheel speed sensor

8) Using ST1 and ST2, pull the rear drive shaft to the required location.

- ST1 922431000 AXLE SHAFT INSTALLER
- ST2 927390000 ADAPTER

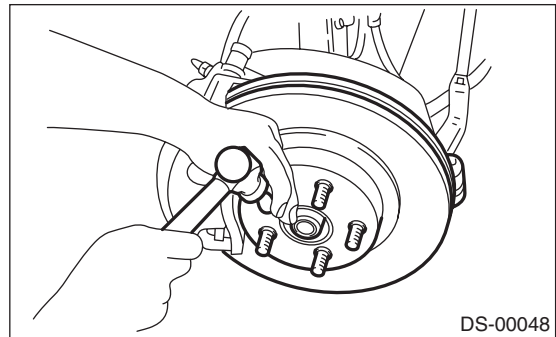


9) While applying the parking brake pedal, tighten the new axle nut to the specified torque.

Tightening torque:

190 N·m (19.4 kgf-m, 140 ft-lb)

10) Lock the axle nut securely.



11) Install the wheel.

Tightening torque:

100 N·m (10.2 kgf-m, 73.8 ft-lb)

12) Make the tires completely touch the ground.

CAUTION:

Always tighten the stabilizer bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.

13) Tighten the rear housing assembly and lateral link assembly installation bolts.

Tightening torque:

140 N·m (14.3 kgf-m, 103 ft-lb)

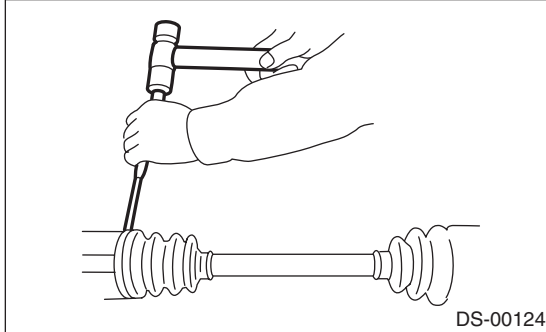
14) Tighten the rear housing assembly and trailing link assembly installation bolts.

Tightening torque:

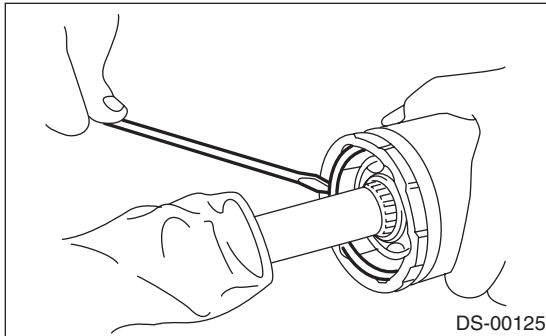
90 N·m (9.2 kgf-m, 66 ft-lb)

C: DISASSEMBLY

- 1) Straighten the bent claw at the larger end of the DOJ boot.
- 2) Loosen the band by means of a flat tip screwdriver or pliers, being careful not to damage the boot.



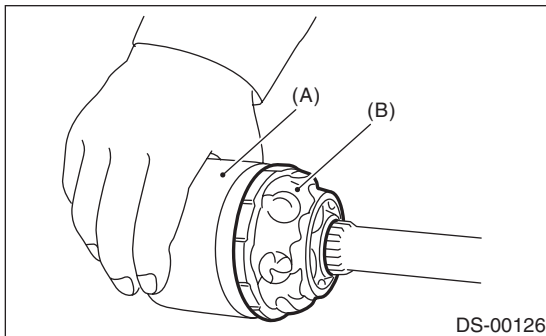
- 3) Remove the boot band on the small end of DOJ boot in the same manner.
- 4) Remove the larger end of DOJ boot from DOJ outer race.
- 5) Pry and remove the round circlip at the neck of DOJ outer race with a screwdriver.



- 6) Take out the DOJ outer race from the shaft assembly.
- 7) Wipe off the grease and take out the ball bearings.

NOTE:

- The grease is a special grease (grease for constant velocity joints). Do not mix with other greases.
- Disassemble exercising care not to lose balls (6 pcs).



- (A) Outer race
(B) Grease

- 8) To remove the cage from inner race, turn the cage by a half pitch to the track groove of inner race and shift the cage.
- 9) Using pliers, remove the snap ring fixing the inner race to the shaft.
- 10) Take out the DOJ inner race.
- 11) Take off the DOJ cage from shaft and remove the DOJ boot.
- 12) Wrap vinyl tape around the spline part of shaft.
- 13) Remove the EBJ boot using the same procedures as for the DOJ boot.

NOTE:

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

D: ASSEMBLY

NOTE:

Use specified grease.

EBJ side

NTG2218-M (Part No. 28395AG010)

DOJ side:

Except for STI model

NKG205 (Part No. 28495AG000)

EDJ side:

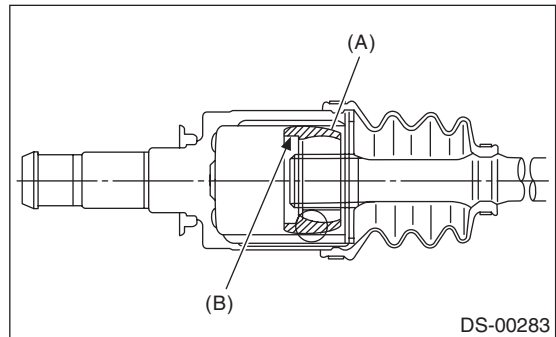
STI model

NKG205 (Part No. 28495AG010)

- 1) Install the EBJ boot to the specified position, and fill it with 60 to 70 g (2.12 to 2.47 oz) of specified grease.
- 2) Place the DOJ boot at the center of shaft.
- 3) Wrap vinyl tape around the spline part of shaft.
- 4) Insert the DOJ cage onto shaft.

NOTE:

Insert the cage with the cutout portion facing the shaft end, since the cage has an orientation.

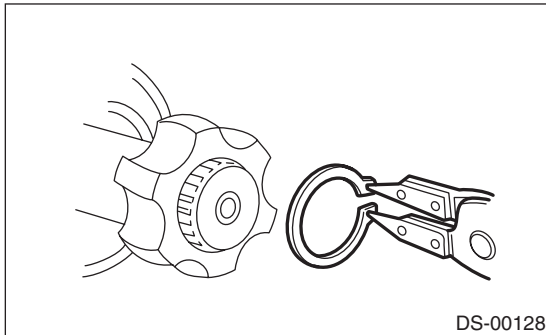


- (A) Cage
(B) Cutout portion

5) Install the DOJ inner race on shaft and fix the snap ring in place with pliers.

NOTE:

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

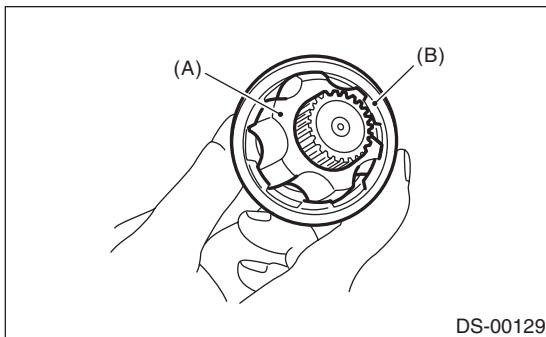


DS-00128

6) Install the removed cage, to the inner race fixed onto the shaft.

NOTE:

Fit the cage with the protruding section aligned with the track on the inner race, and turn by a half pitch.



DS-00129

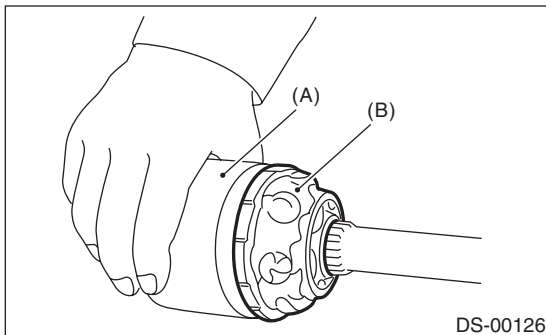
- (A) Inner race
- (B) Cage

7) Fill 80 to 90 g (2.82 to 3.17 oz) of specified grease into the inner side of the DOJ outer race.

8) Apply a thin coat of specified grease to the cage pocket and six ball bearings.

9) Insert the six ball bearings into the cage pocket.

10) Align the outer race track and ball positions, and place the shaft, inner race, cage and ball bearings in the original positions, and then fix outer race in place.



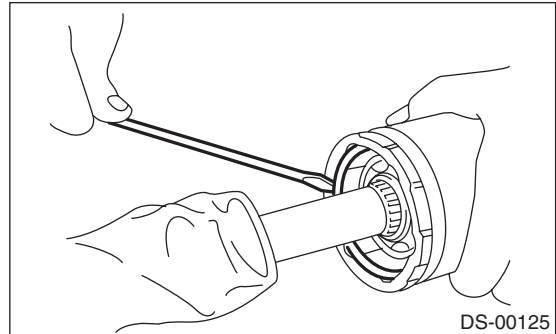
DS-00126

- (A) Outer race
- (B) Grease

11) Install the snap ring in the groove on the DOJ outer race.

NOTE:

- Assure that the balls, cage and inner race are completely fitted in the outer race of DOJ.
- Use care not to place the matched position of snap ring in the ball groove of outer race.
- Pull the shaft lightly and assure that the circlip is completely fitted in the groove.



DS-00125

12) Apply an even coat of the specified grease [20 to 30 g (0.71 to 1.06 oz)] to the entire inner surface of boot. Also apply grease to the shaft.

13) Install the DOJ boot taking care not to twist it.

NOTE:

- The inside of the larger end of DOJ boot and the boot groove shall be cleaned so as to be free from grease and other substances.
- When installing the DOJ boot, position the outer race of DOJ at center of the stroke.

14) Put a new band through the clip and wind twice in the band groove of the boot.

NOTE:

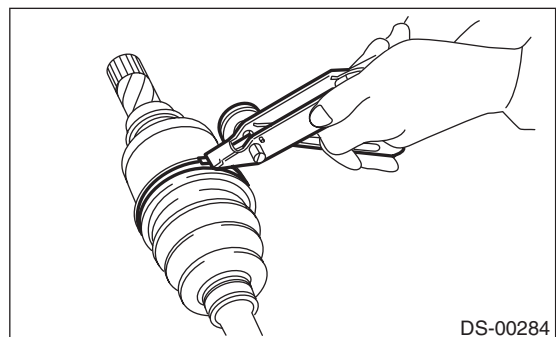
When tightening boot, use care so that the air within the boot is appropriate.

15) Tighten the band using the ST.

ST 925091000 BAND TIGHTENING TOOL

NOTE:

Tighten the band until it cannot be moved by hand.



DS-00284

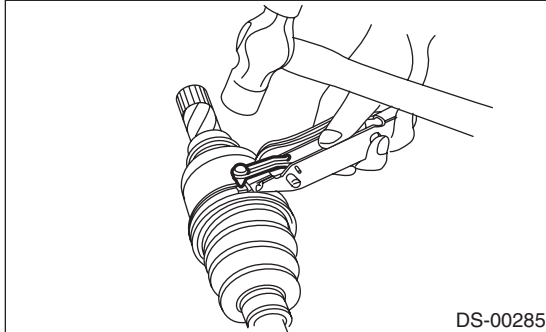
DRIVE SHAFT SYSTEM

16) Tap the clip with the punch provided at the end of the ST.

ST 925091000 BAND TIGHTENING TOOL

NOTE:

Tap to an extent that the boot underneath is not damaged.



17) Cut off the band with an allowance of about 10 mm (0.39 in) left from the clip and bend this allowance over the clip.

NOTE:

Be careful so that the end of the band is in close contact with clip.

18) Install EBJ boot in the same manner.

19) Extend and retract the DOJ repeatedly to provide an equal coating of grease.

E: INSPECTION

Check the removed parts for damage, wear, corrosion etc. Repair or replace if defective.

1) DOJ (Double Offset Joint)

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

2) EDJ (High-efficiency compact double offset joint)

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

3) Shaft

Check for excessive bending, twisting, damage and wear.

4) EBJ (High-efficiency compact ball fixed joint)

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

5) Boot

Check for wear, warping, breakage and scratches.

6) Grease

Check for discoloration and fluidity.

8. General Diagnostic Table

A: INSPECTION

NOTE:

Vibration while cruising may be caused by an unbalanced tire, improper tire inflation pressure, improper wheel alignment, etc.

Symptoms	Possible cause	Corrective action
Noise or vibration from propeller shaft	Center bearing	Check the center bearing. <Ref. to DS-17, CENTER BEARING FREE PLAY, INSPECTION, Propeller Shaft.>
	Runout of propeller shaft	Check for deflection of the propeller shaft. <Ref. to DS-17, RUNOUT OF PROPELLER SHAFT, INSPECTION, Propeller Shaft.>
	Loose or gap at connections	Check the joints and connectors. <Ref. to DS-16, JOINTS AND CONNECTIONS, INSPECTION, Propeller Shaft.> Check the spline and bearing. <Ref. to DS-16, SPLINES AND BEARING LOCATIONS, INSPECTION, Propeller Shaft.>
Abnormal wheel vibration	Wheel is out of balance	Check the wheel balance. <Ref. to WT-7, INSPECTION, Wheel Balancing.>
	Wheel alignment	Check the wheel alignment. <Ref. to FS-6, INSPECTION, Wheel Alignment.>
	Front strut	Check the front strut. <Ref. to FS-19, INSPECTION, Front Strut.>
	Rear strut	Check the rear strut. <Ref. to RS-13, INSPECTION, Rear Strut.>
	Front drive shaft	Check the front drive shaft. <Ref. to DS-38, INSPECTION, Front Drive Shaft.>
	Rear drive shaft	Check the rear drive shaft. <Ref. to DS-44, INSPECTION, Rear Drive Shaft.>
	Front axle	Check the front axle. <Ref. to DS-23, INSPECTION, Front Axle.>
	Front hub unit bearing	Check the front hub unit bearing. <Ref. to DS-25, INSPECTION, Front Hub Unit Bearing.>
	Rear axle	Check the rear axle. <Ref. to DS-30, INSPECTION, Rear Axle.>
Noise from the underbody	Wheel is out of balance	Check the wheel balance. <Ref. to WT-7, INSPECTION, Wheel Balancing.>
	Wheel alignment	Check the wheel alignment. <Ref. to FS-6, INSPECTION, Wheel Alignment.>
	Front strut	Check the front strut. <Ref. to FS-19, INSPECTION, Front Strut.>
	Rear strut	Check the rear strut. <Ref. to RS-13, INSPECTION, Rear Strut.>

General Diagnostic Table

DRIVE SHAFT SYSTEM

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