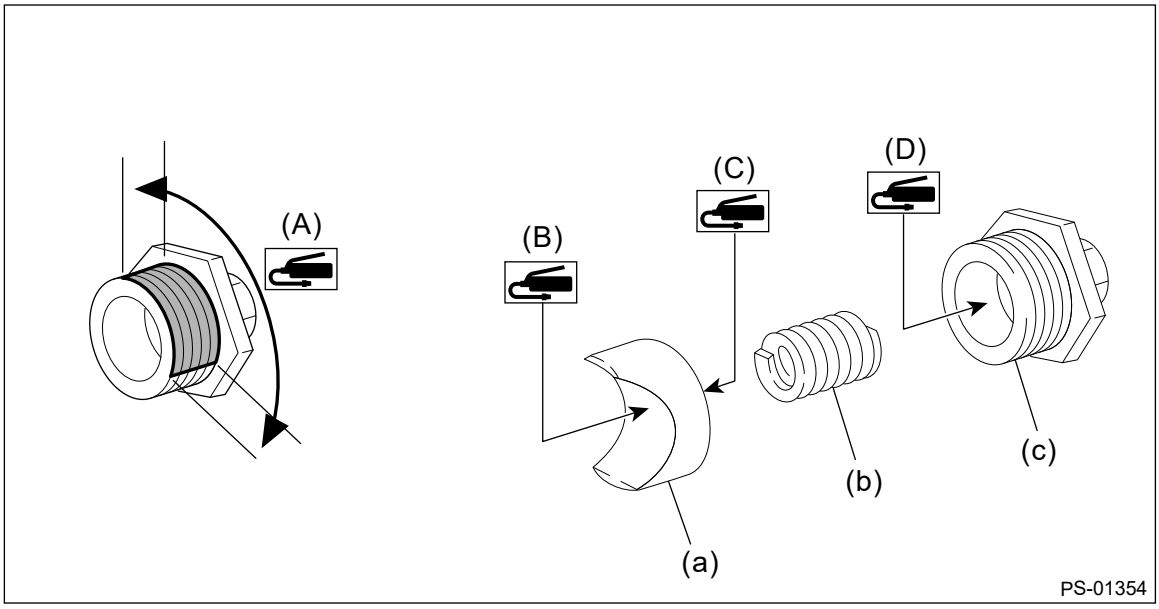
ADJUSTMENT

1. GEARBOX BACKLASH ADJUSTMENT

1. Remove the steering gearbox assembly. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox>REMOVAL.
2. Loosen the lock nut and adjusting screw.
3. Apply a coat of grease to the sliding surface (B) of the pad - pressure (a) and seating surface (C) of spring - gearbox (b), and then insert the pad - pressure (a) into steering body.
4. Charge the adjusting screw (c) with grease (D), and then insert the spring - gearbox (b) into adjusting screw. Then install on the steering body.
   Grease:
   Multemp AC-P
5. Apply liquid gasket to 1/3 or more (A) of entire perimeter of adjusting screw thread (c).
   Liquid gasket:
   THREE BOND TB-1111B



6. Tighten the adjusting screw to 9.8 N·m (1.0 kgf-m, 7.2 ft-lb), then loosen it.
7. Tighten the adjusting screw to 6 N·m (0.6 kgf-m, 4.4 ft-lb).
8. Loosen the adjusting screw by 20°.
9. While fixing the adjusting screw, tighten the lock nuts.
   Tightening torque:
   49 N·m (5 kgf-m, 36.1 ft-lb)

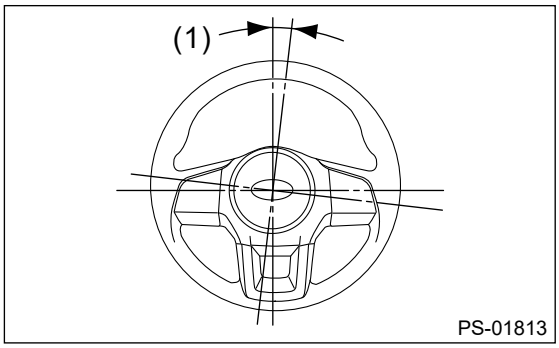
2. FRONT WHEEL ALIGNMENT ADJUSTMENT

1. Adjust the front toe. Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT > FRONT WHEEL TOE-IN.
2. Check the steering angle of the wheels.
   Standard of steering angle:

Inner wheel	***38.4°±1.5°***
Outer wheel	***33.8°±1.5°***

3. When the steering wheel is in the following condition, perform the steering wheel installation over again.

- When wheels are set in the straight ahead position, the steering wheel spokes are not horizontal.
- Error is more than 5° on the periphery of the steering wheel.

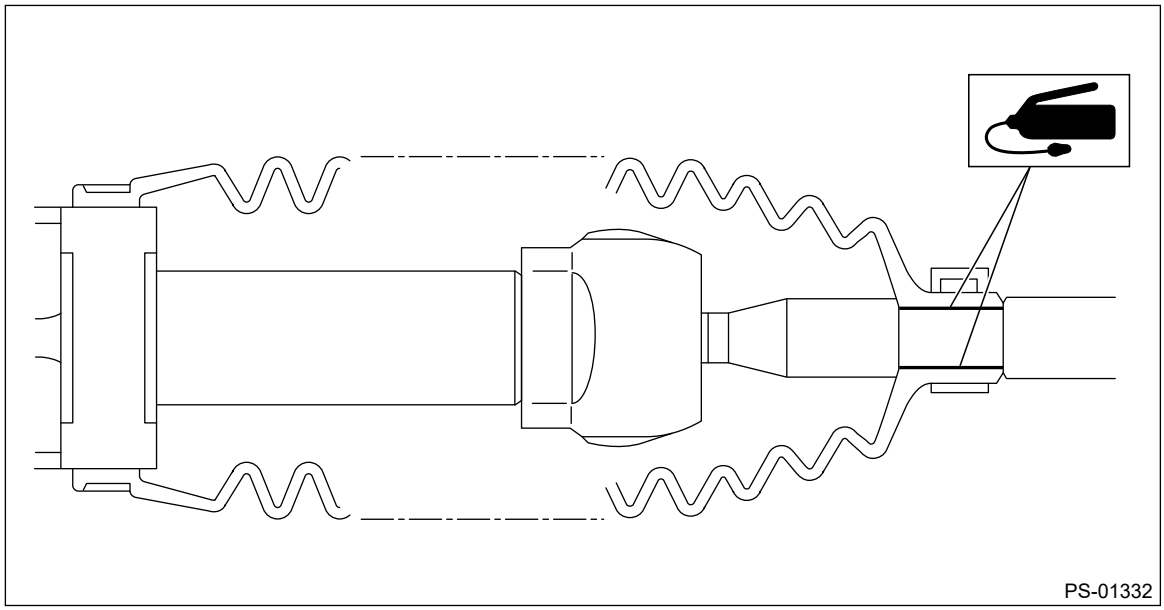


(1) Within 5°

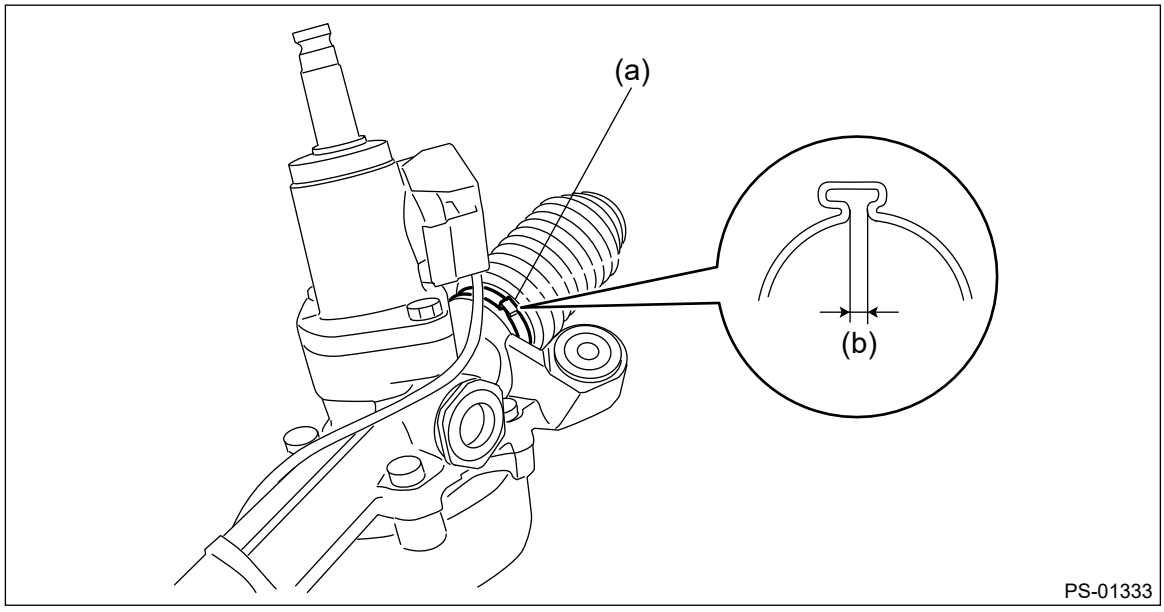
4. If the steering wheel spokes are not horizontal with vehicle set in the straight ahead position after this adjustment, correct it by turning the right and left tie-rods in the opposite direction from each other by the same angle. Also check that there are no abnormal steering effort, failure of the steering wheel to return or other faults.

ASSEMBLY

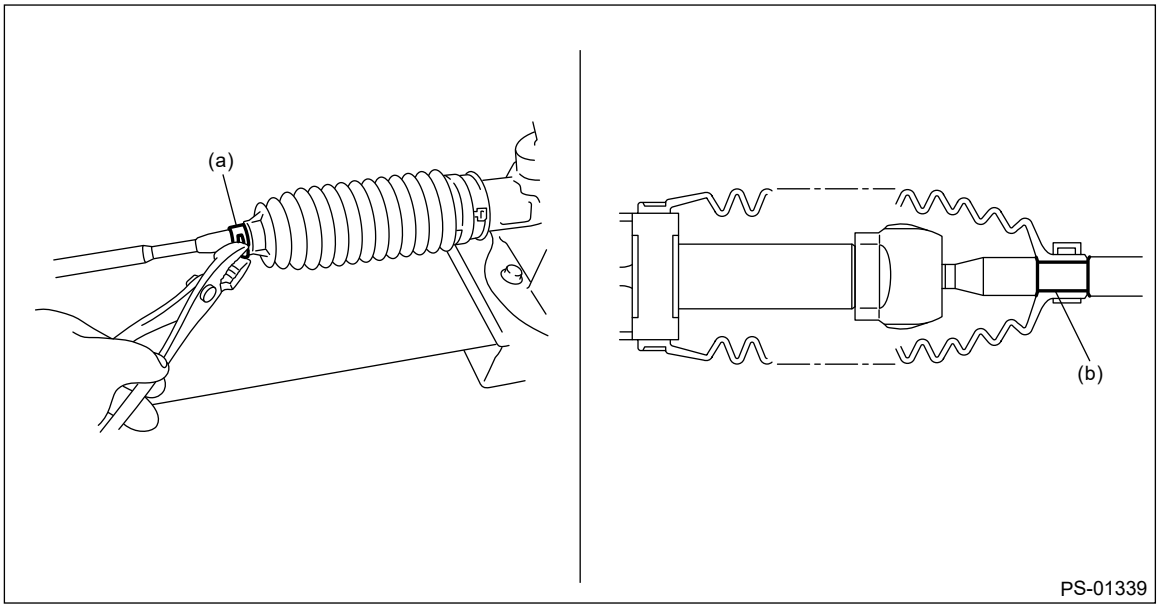
1. Install the tie-rod into rack.
   Tightening torque:
   90 N•m (9.18 kgf-m, 66.4 ft-lb)
   Note:
   Check the mating face of rack and tie-rod for foreign matter such as dust etc.
2. Apply a coat of grease to the tie-rod groove, and then install the boot - steering gearbox to the housing.
   Caution:
   Assemble the small end of the boot - steering gearbox in the tie-rod groove first, and then assemble the large end of the boot - steering gearbox in the housing.
   Note:
   Make sure that the boot - steering gearbox is installed without unusual inflation or deflation.



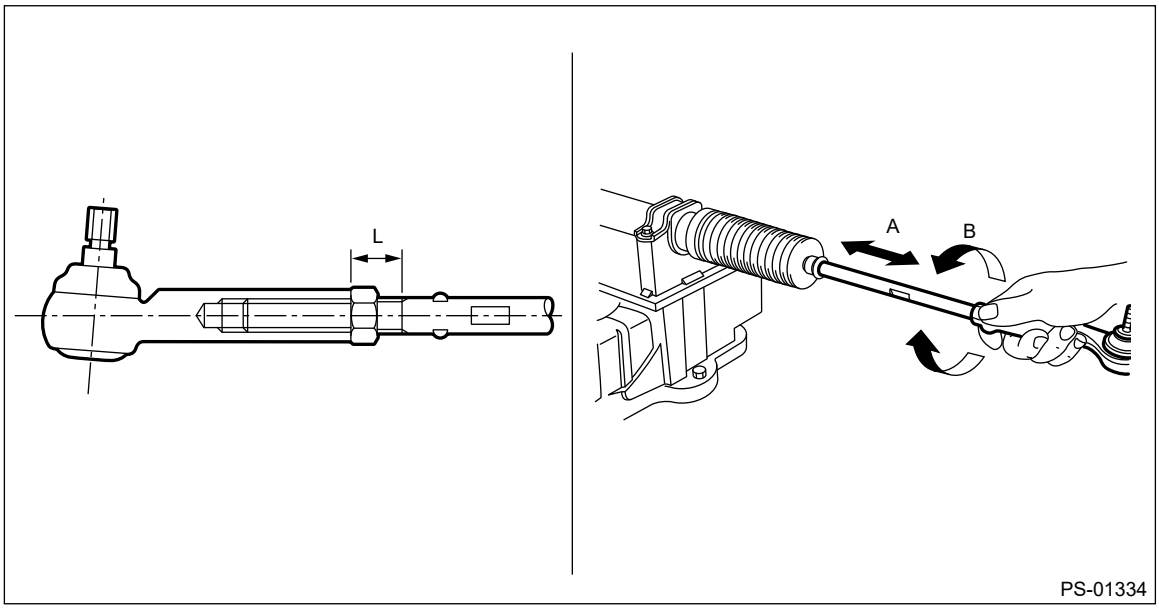
3. Using the boot clamp pliers, crimp the boot so that the clearance (b) of the band - boot (a) crimp portion becomes 2 mm (0.08 in) or less.
   Note:
   Use a new band - boot.



4. Fix the end of the boot - steering gearbox with clip - boot tie-rod (a).
5. After installation, check that the end of the boot - steering gearbox is installed to the groove (b) of the tie-rod.



6. If the tie-rod end has been removed, screw in lock nut and tie-rod end to the threaded portion of tie-rod, and tighten the lock nut temporarily in a position as shown in the figure.
   Installed tie-rod length L:
   35 mm (1.38 in)
7. Inspect the steering gearbox assembly as follows:
   1. "A" Holding the tie-rod end, repeat lock to lock several times as quickly as possible.
   2. "B" Holding the tie-rod end, turn it slowly at a radius several times as large as possible.
   3. Finally, make sure that the boot - steering gearbox is installed in the specified position without inflating.



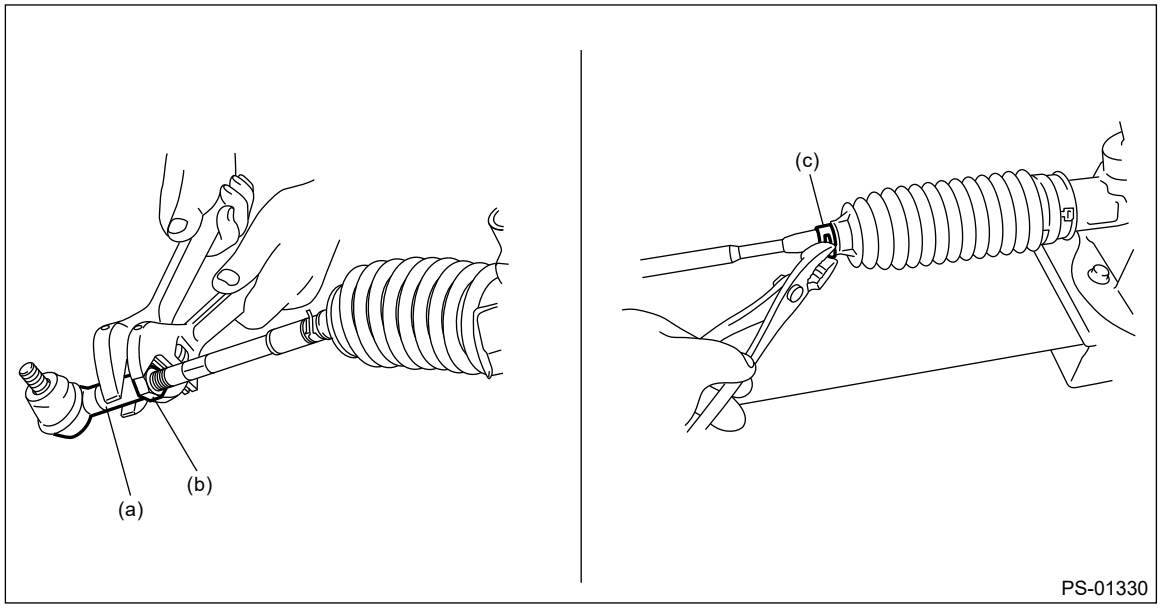
8. Remove the steering gearbox assembly from ST.

DISASSEMBLY

Caution:

- **Nut for fixing the rack is on the driver's side only. When removing the tie-rod on the passenger's side, turn over the boot - steering gearbox on the driver's side, and fix the rack during operation.**
- **When fixing the steering gearbox assembly in a vise, apply a wooden piece on the flange portion.**

1. Remove the tie-rod end (a) and lock nut (b) from the steering gearbox assembly.
2. Remove the clip - boot tie-rod (c) located outside the boot - steering gearbox using the pliers, and then slide the boot - steering gearbox to the tie-rod end side.

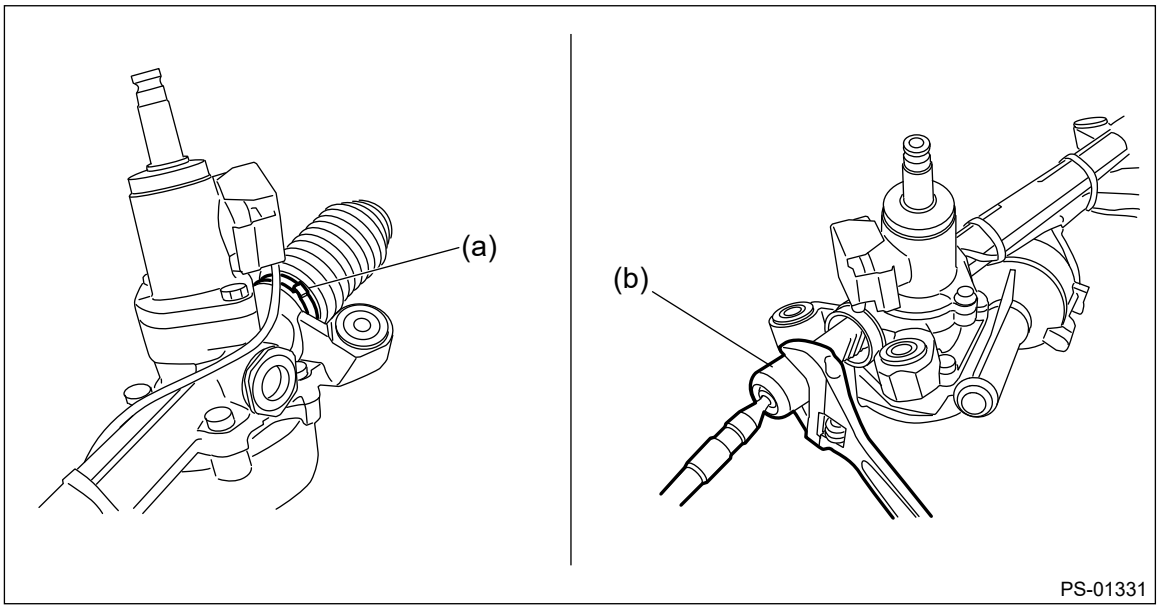


3. Remove the tie-rod (b) from the gearbox assembly.
   (1) Using a flat tip screwdriver, remove the band - boot (a) from the boot - steering gearbox.

   Note:

   Replace the boot - steering gearbox or the band - boot (a) if there is damage, cracks or deterioration.

   (2) Remove the tie-rod (b).


(a)
(b)
PS-01331

INSPECTION

1. UNIT INSPECTION

Check components for wear, damage or other faults. Adjust or replace if necessary.

2. LIMIT

Make a measurements as follows. If it exceeds the specified service limits, adjust or replace.

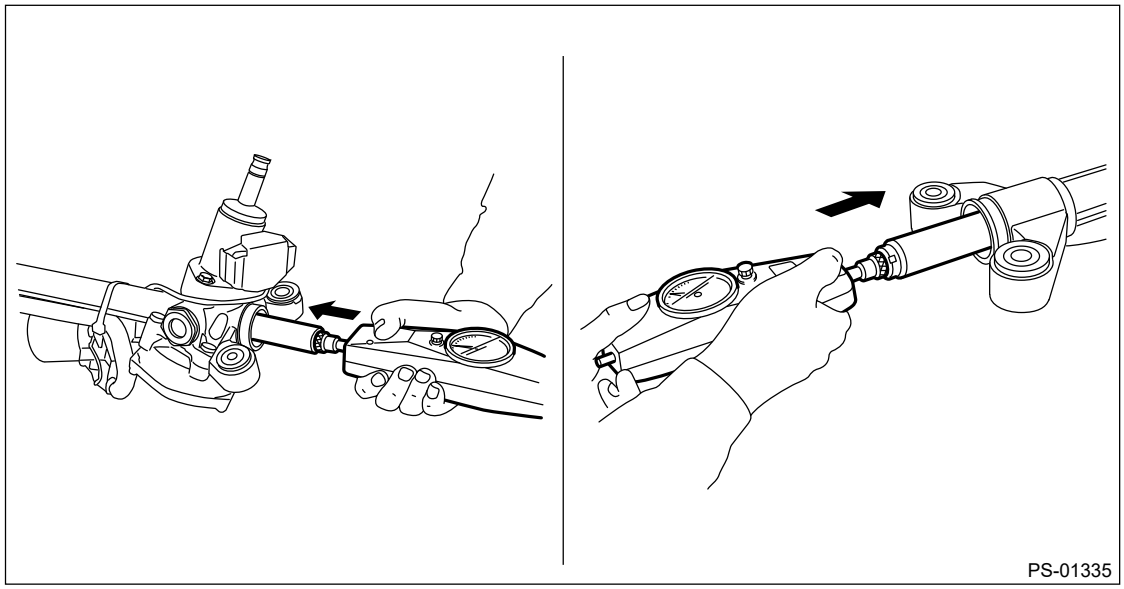
Note:

When fixing the steering gearbox assembly in a vise, apply a wooden piece on the flange portion.

Rack shaft sliding resistance:

Limit: 350 N (36 kgf, 79 lbf) or less

Difference between right and left sliding resistance: 20% or less



3. RACK SHAFT PLAY IN THE RADIAL DIRECTION

Note:

- **When fixing the steering gearbox assembly in a vise, apply a wooden piece on the flange portion.**
- **When fixing the magnet stand in the steering gearbox assembly, perform the following procedure.**
  - **Fix the iron plate on the flange portion using a c-clamp, and place the magnet stand on the iron plate.**
  - **Use bolts and nuts to fix directly on the flange portion of the steering gearbox assembly. (Secure the gauge firmly on the gearbox body. (Avoid the input shaft and the rack shaft.))**

Right-turn steering:

Service limit:

Both amplitudes: 0.6 mm (0.024 in) or less

Left-turn steering:

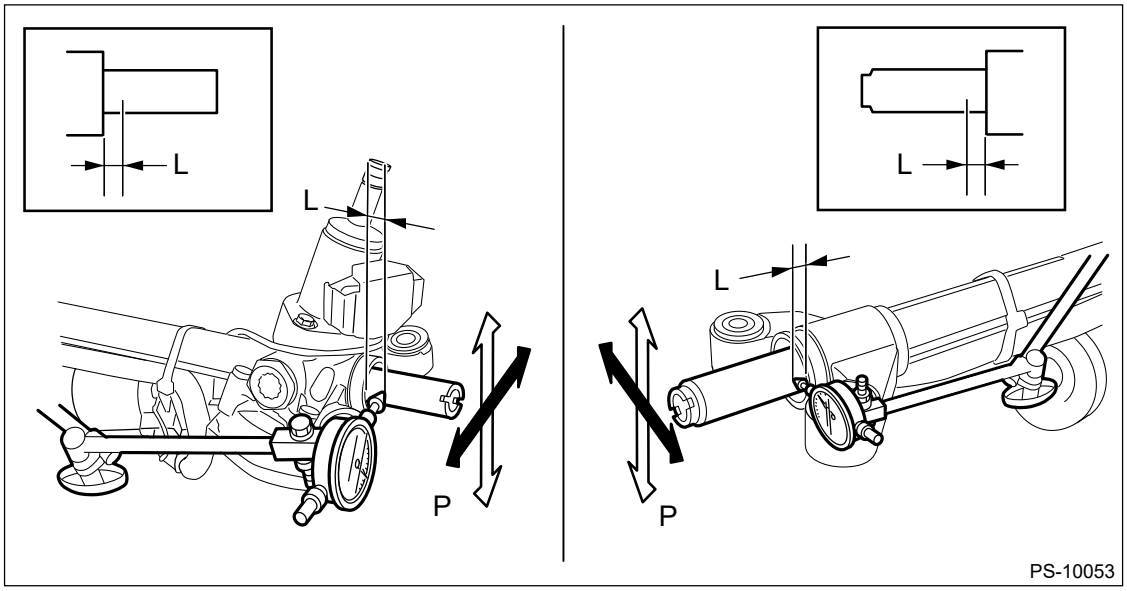
Service limit:

Both amplitudes: 0.6 mm (0.024 in) or less

Condition:

L: 5 mm (0.20 in) from dust cover

Rack shaft end P: 98 N (10 kgf, 22 lbf)



4. INPUT SHAFT PLAY

Note:

- **When fixing the steering gearbox assembly in a vise, apply a wooden piece on the flange portion.**
- **When fixing the magnet stand in the steering gearbox assembly, perform the following procedure.**
  - **Fix the iron plate on the flange portion using a c-clamp, and place the magnet stand on the iron plate.**
  - **Use bolts and nuts to fix directly on the flange portion of the steering gearbox assembly. (Secure the gauge firmly on the gearbox body. (Avoid the input shaft and the rack shaft.))**

In radial direction:

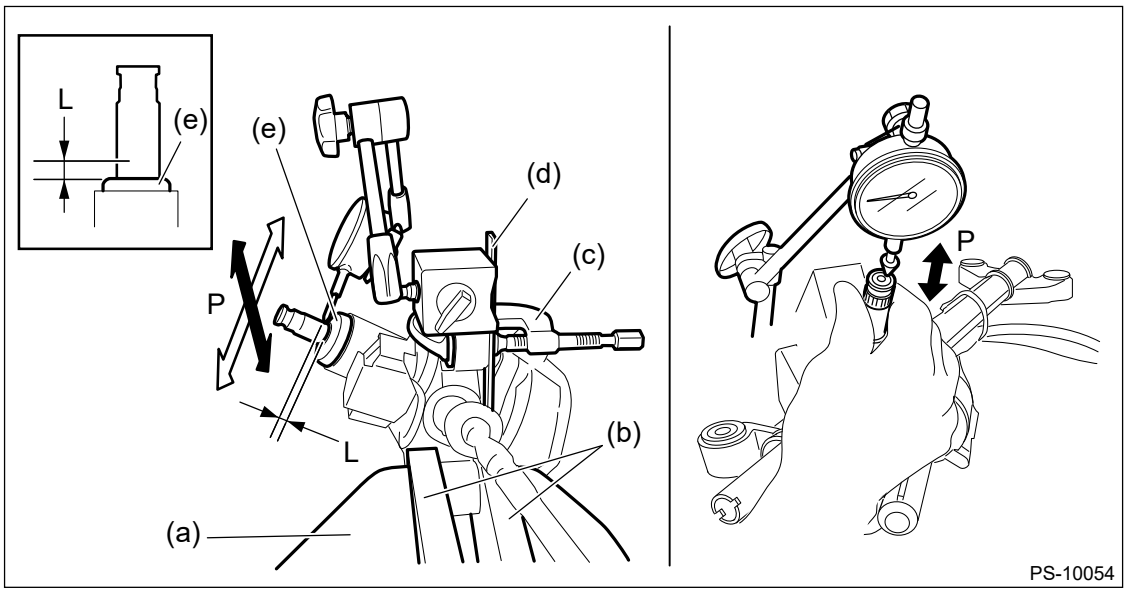
Limit of both amplitudes: 0.6 mm (0.024 in) or less

Condition: Input shaft tip P = 98 N (10 kgf, 22 lbf)

In axial direction:

Service limit: 0.27 mm (0.0106 in) or less

Condition: Input shaft tip P = 20 — 49 N (2 — 5 kgf, 4 — 11 lbf)



(a) Vise
(b) Wooden block
(c) C-clamp
(d) Iron plate
(e) Dust cover

5. ROTATIONAL RESISTANCE OF GEARBOX

1. Using the ST, measure the rotational resistance of the steering gearbox assembly.

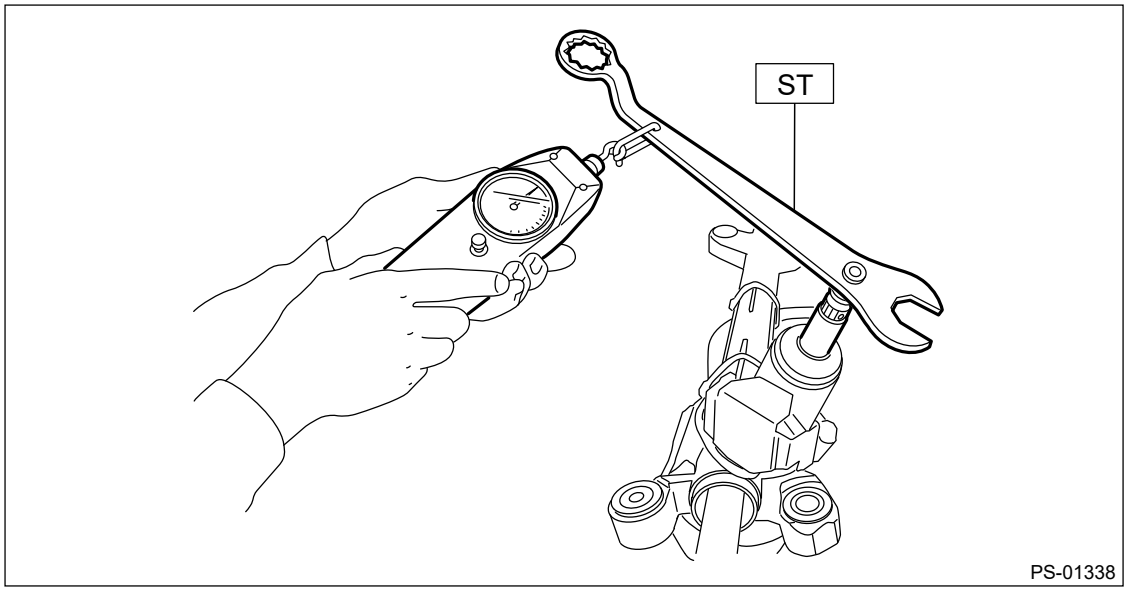
Preparation tool:

ST: SPANNER (34099PA100)

Service limit:

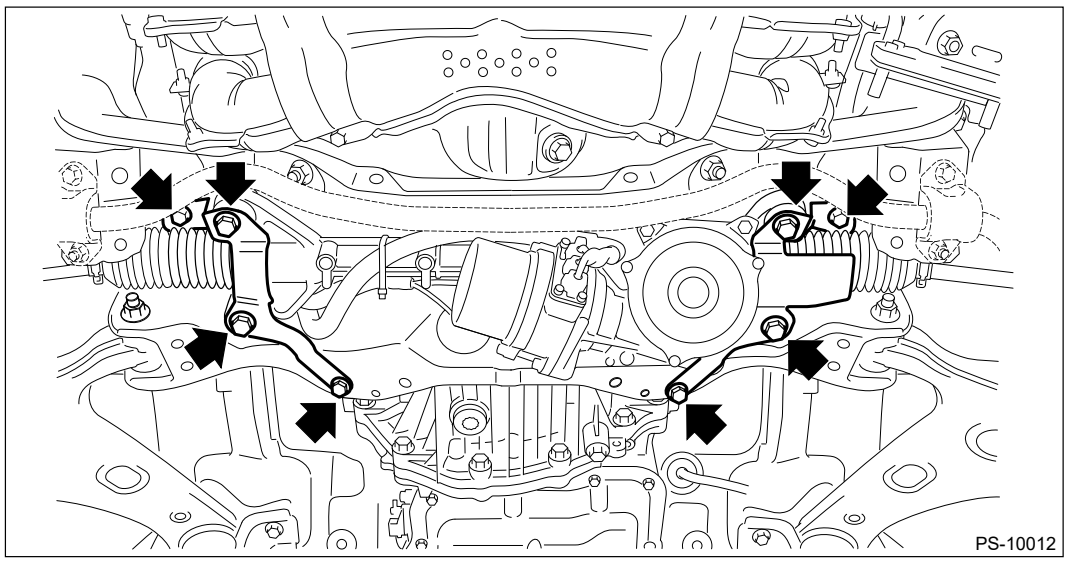
Maximum allowable resistance: 18.3 N (1.9 kgf, 4.1 lbf) or less

Difference between right and left rotational resistance: 20% or less

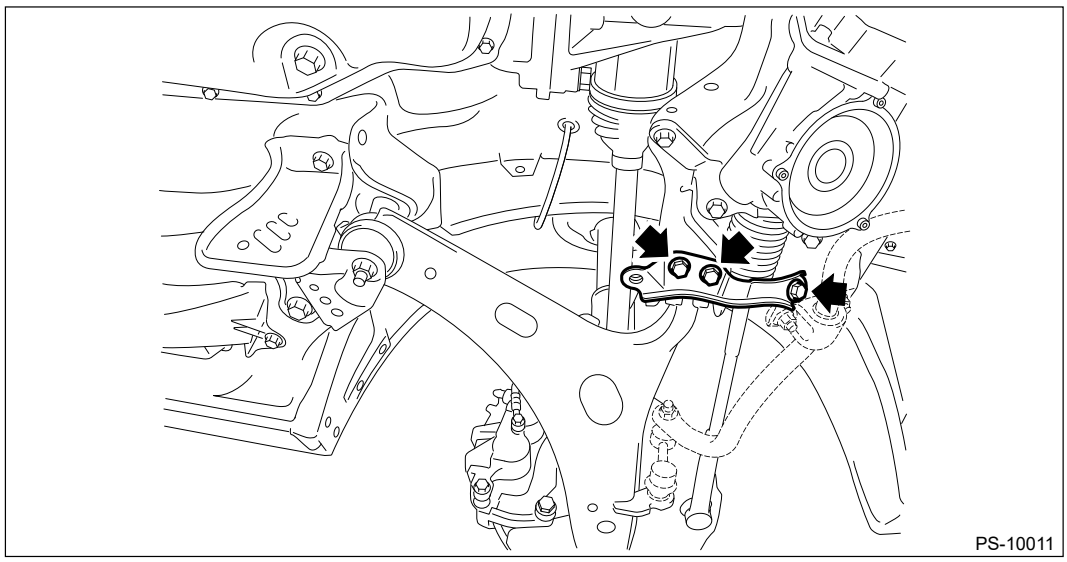


INSTALLATION

1. Insert the steering gearbox assembly into crossmember, being careful not to damage the boot of the steering gearbox assembly.
2. Install the steering gearbox assembly to the crossmember by tightening the bolts through the stiffener to the specified torque.
   Tightening torque:
   60 N·m (6.12 kgf-m, 44.3 ft-lb)



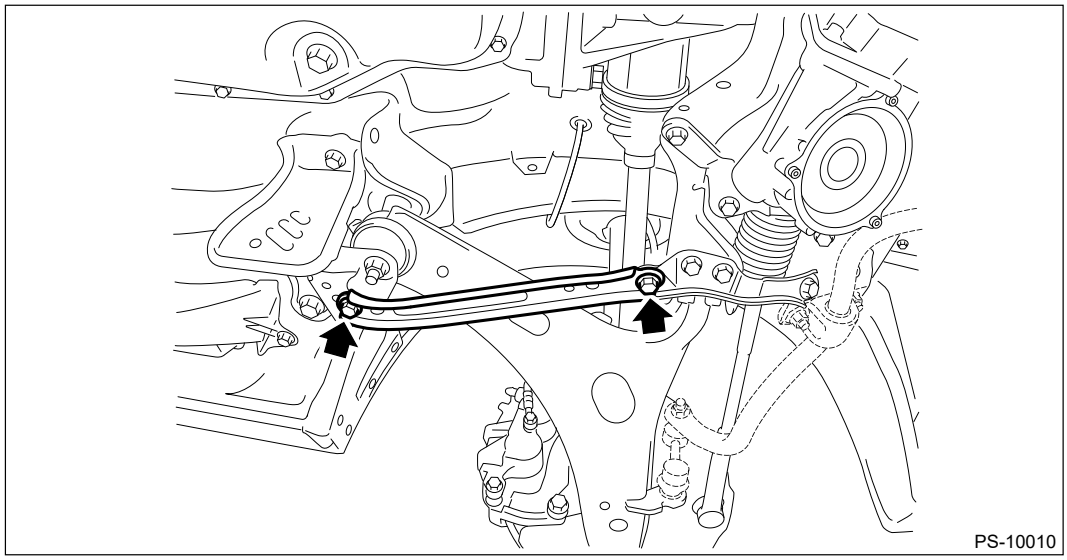
3. Install the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>INSTALLATION.
   Caution:
   Tighten the bolts of the universal joint assembly - steering in the order of steering gearbox side and column shaft side.
4. Install the support plate - front crossmember.
   Tightening torque:
   60 N·m (6.12 kgf-m, 44.3 ft-lb)



5. Install the front support.

Tightening torque:

100 N·m (10.2 kgf-m, 73.8 ft-lb)



6. Connect the tie-rod ends and knuckle arm.

(1) Connect the tie-rod end (a) to the housing assembly - front axle.

(2) Tighten the castle nuts (b) to the specified torque.

Caution:

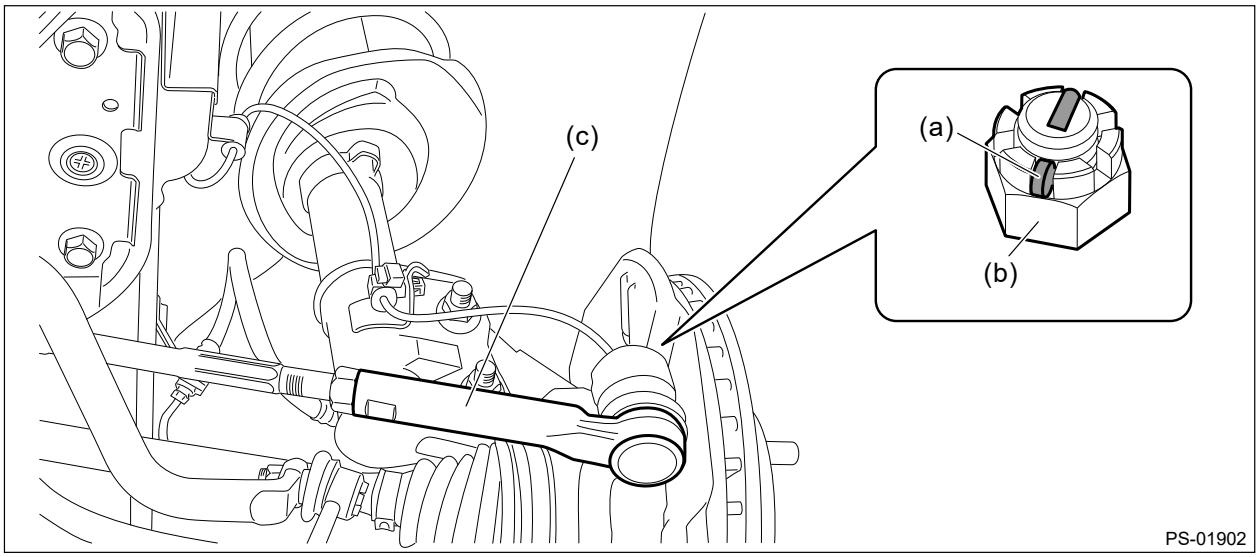
When connecting the tie-rod, do not hit the cap at bottom of tie-rod end with a hammer.

Castle nut tightening torque:

27 N·m (2.75 kgf-m, 19.9 ft-lb)

(3) Tighten within the range of 60° so that the cotter pin hole and cutout portion of the castle nut (b) are aligned.

(4) Insert the cotter pin (c), and bend the tip of the pin to fix it.



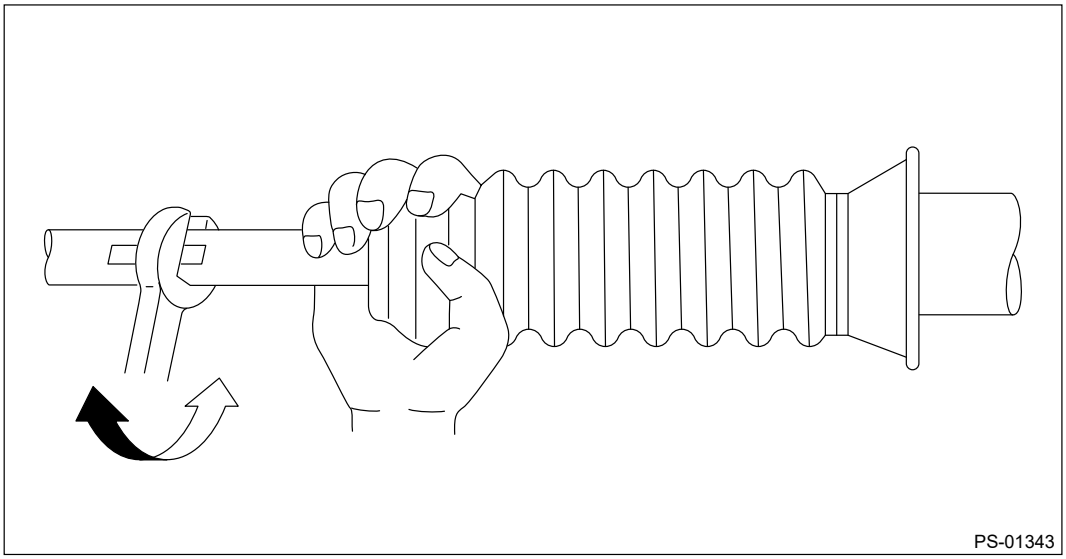
7. Install the stabilizer. Ref. to FRONT SUSPENSION>Front Stabilizer>INSTALLATION.

8. Install the front crossmember - support.

Tightening torque:

60 N·m (6.12 kgf-m, 44.3 ft-lb)

9. Install the center exhaust pipe assembly.
   - Non-turbo model: Ref. to EXHAUST(H4DO)>Center Exhaust Pipe>INSTALLATION.
   - Turbo model: Ref. to EXHAUST(H4DOTC)>Center Exhaust Pipe>INSTALLATION.
10. Install the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>INSTALLATION.
11. Install the front wheels.
12. Lower the vehicle.
13. Tighten the wheel nuts to the specified torque.
    Tightening torque:
    120 N·m (12.24 kgf-m, 88.5 ft-lb)
14. Connect the power steering control module harness connector.
15. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.
16. After adjusting toe-in and steering angle, tighten the lock nut on tie-rod end.
    Tightening torque:
    85 N·m (8.67 kgf-m, 62.7 ft-lb)
    Note:
    When adjusting toe-in, hold the boot - steering gearbox as shown to prevent it from being rotated or twisted. If it becomes twisted, straighten it.

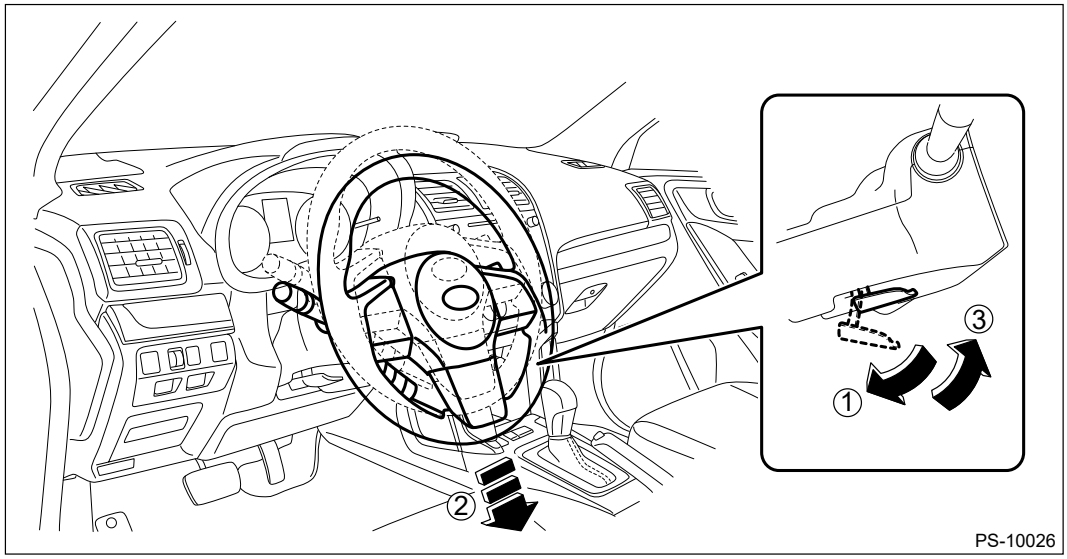


REMOVAL

Caution:

- **The power steering control module continues to operate after the engine stops and calculate the temperature in the control module. Therefore, before starting service of the power steering system which requires disconnection of the connector, stop the engine and allow approx. 30 minutes until the control module becomes cold.**
- **Before removal or installation, be sure to remove any foreign matter (dust, moisture, oil, etc.) from the power steering control module connector.**

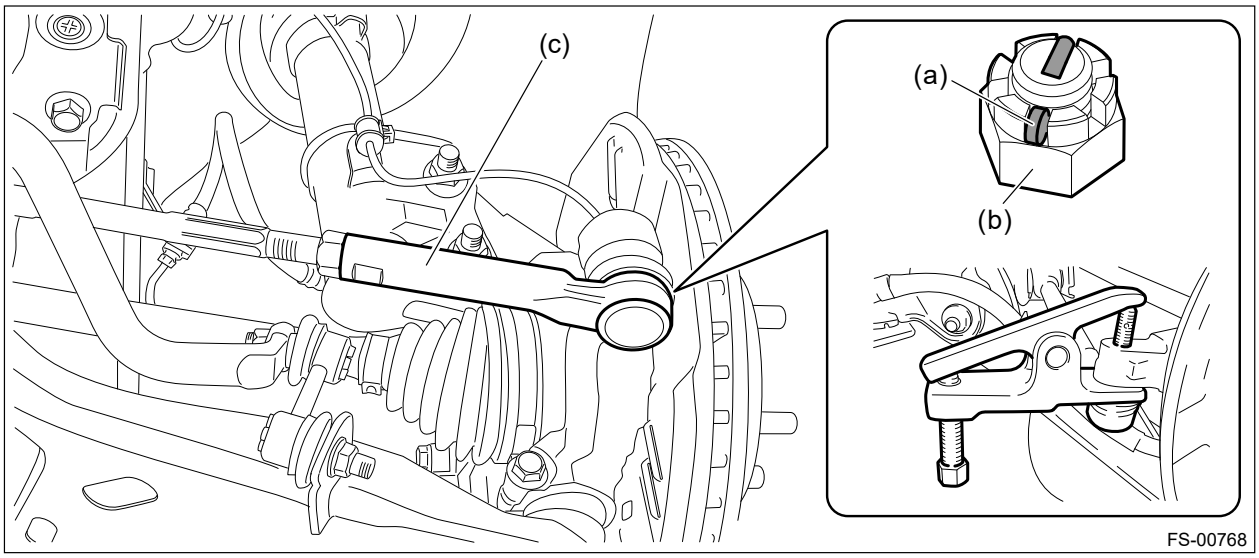
1. Disconnect the ground cable from battery.
2. Adjust the tilt position of the column assembly - steering to the lowest position and lock the tilt lever.



3. Remove the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>REMOVAL.
4. Disconnect the connector and harness clamp from power steering control module.
5. Lift up the vehicle.
6. Remove the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>REMOVAL.
7. Remove the front wheels.
8. Disconnect the tie-rod end.
   (1) Pull out the cotter pin (a).
   (2) Remove the castle nut (b).
   (3) Using a tie-rod ball joint puller, remove the tie-rod end (c).

   Preparation tool:

   Tie-rod ball joint puller



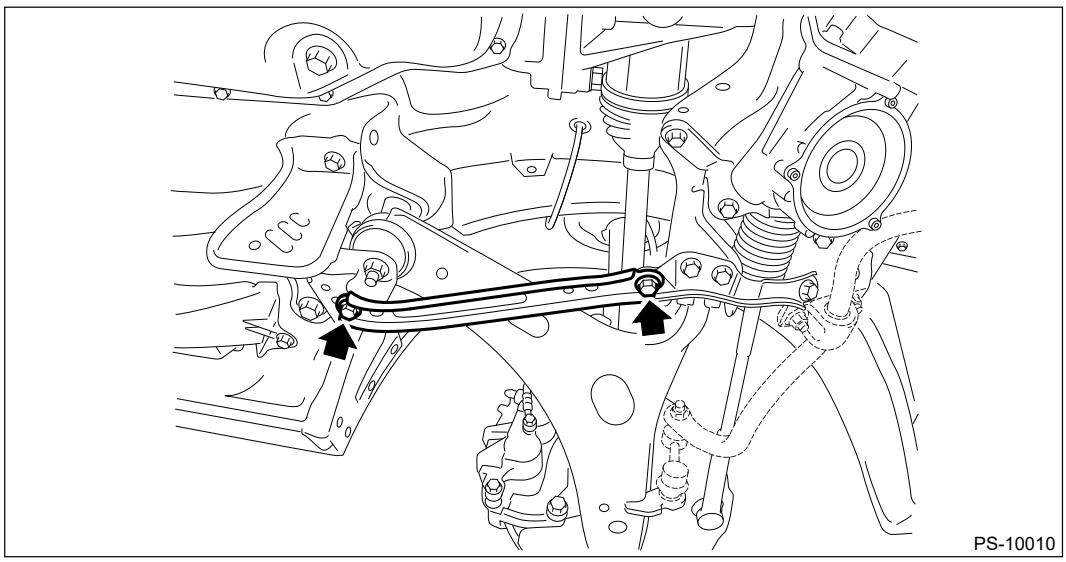
9. Remove the under cover front - transmission. (Non-turbo model)

10. Remove the stabilizers. Ref. to FRONT SUSPENSION>Front Stabilizer>REMOVAL.

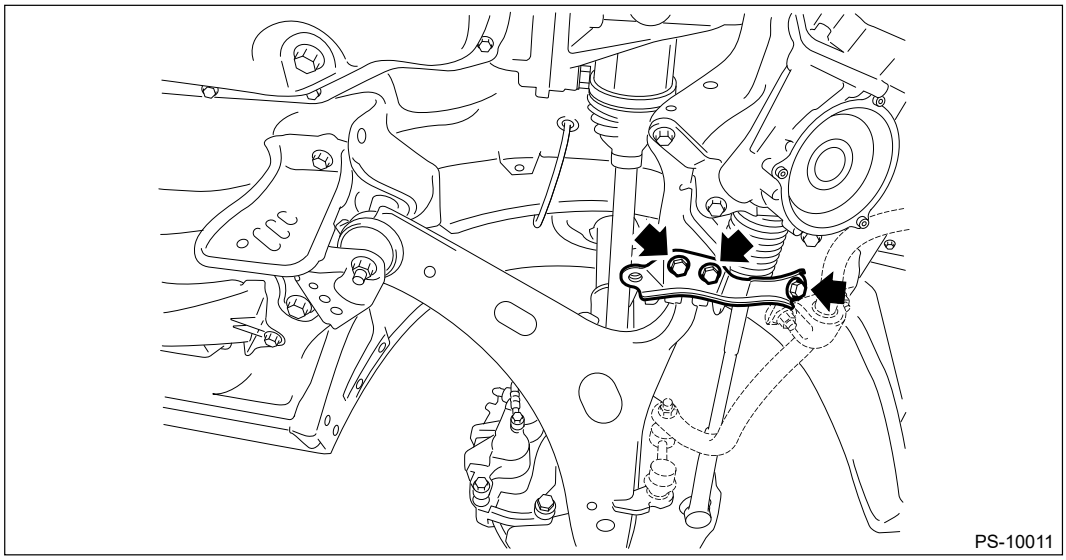
11. Remove the center exhaust pipe assembly.

- Non-turbo model: Ref. to EXHAUST(H4DO)>Center Exhaust Pipe>REMOVAL.
- Turbo model: Ref. to EXHAUST(H4DOTC)>Center Exhaust Pipe>REMOVAL.

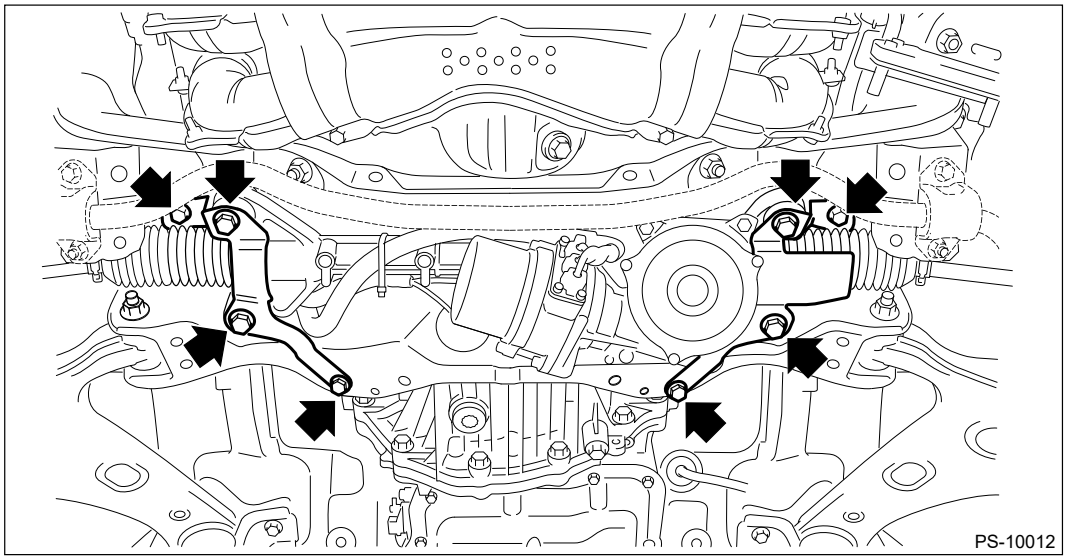
12. Remove the front support.



13. Remove the support plate - front crossmember.



14. Remove the bolts securing the steering gearbox assembly, and remove the stiffener and steering gearbox assembly.

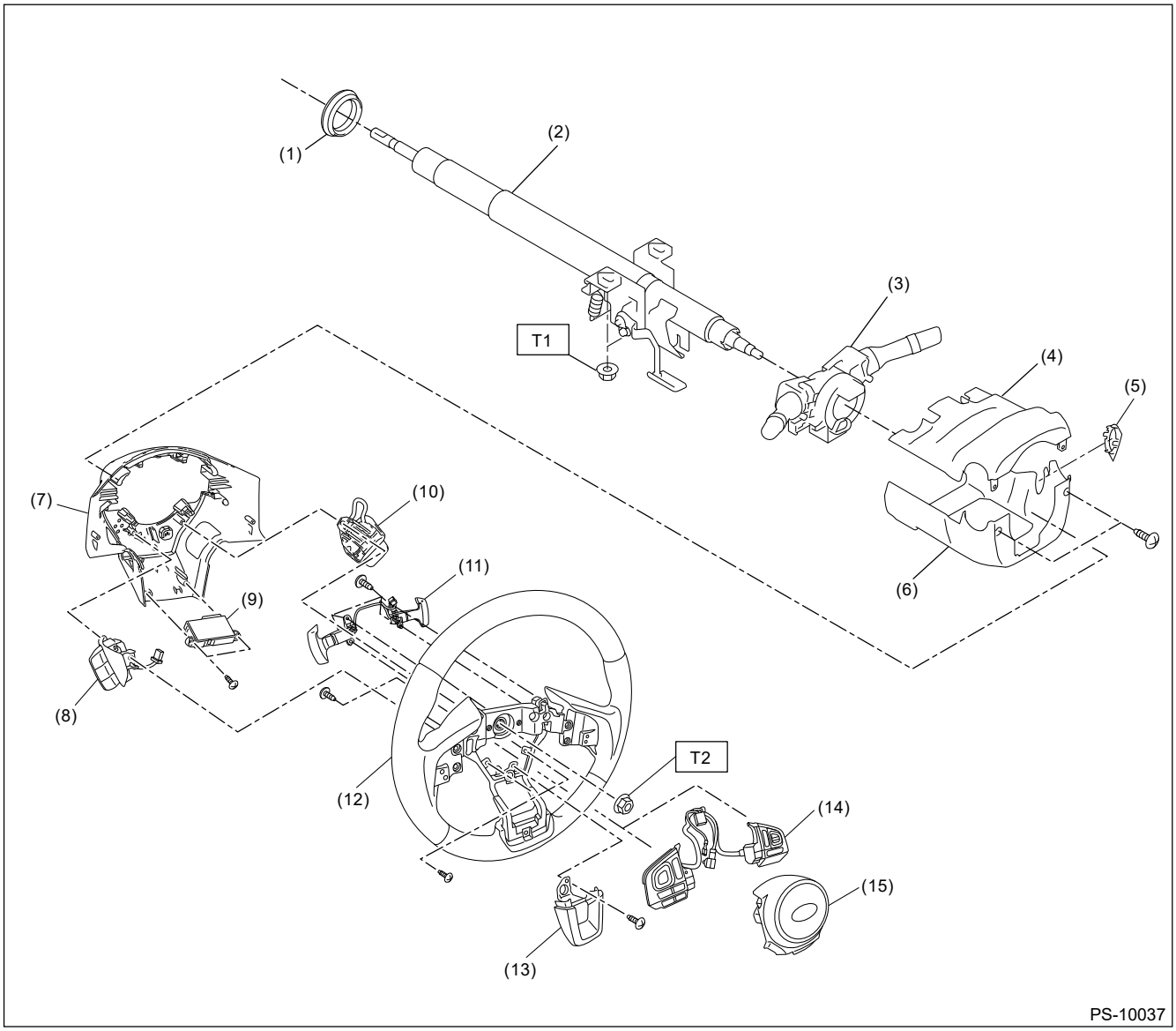


CAUTION

- Wear appropriate work clothing, including a helmet, protective goggles and protective shoes when performing any work.
- 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 grease and oil of SUBARU genuine or the equivalent products. Do not mix them 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.
- Before securing a part on a vise, place cushioning material such as wooden blocks, aluminum plate or cloth between the part and the vise.
- If the steering wheel and steering angle sensor are removed, perform "VDC sensor midpoint setting mode" of the VDC. Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT.

COMPONENT

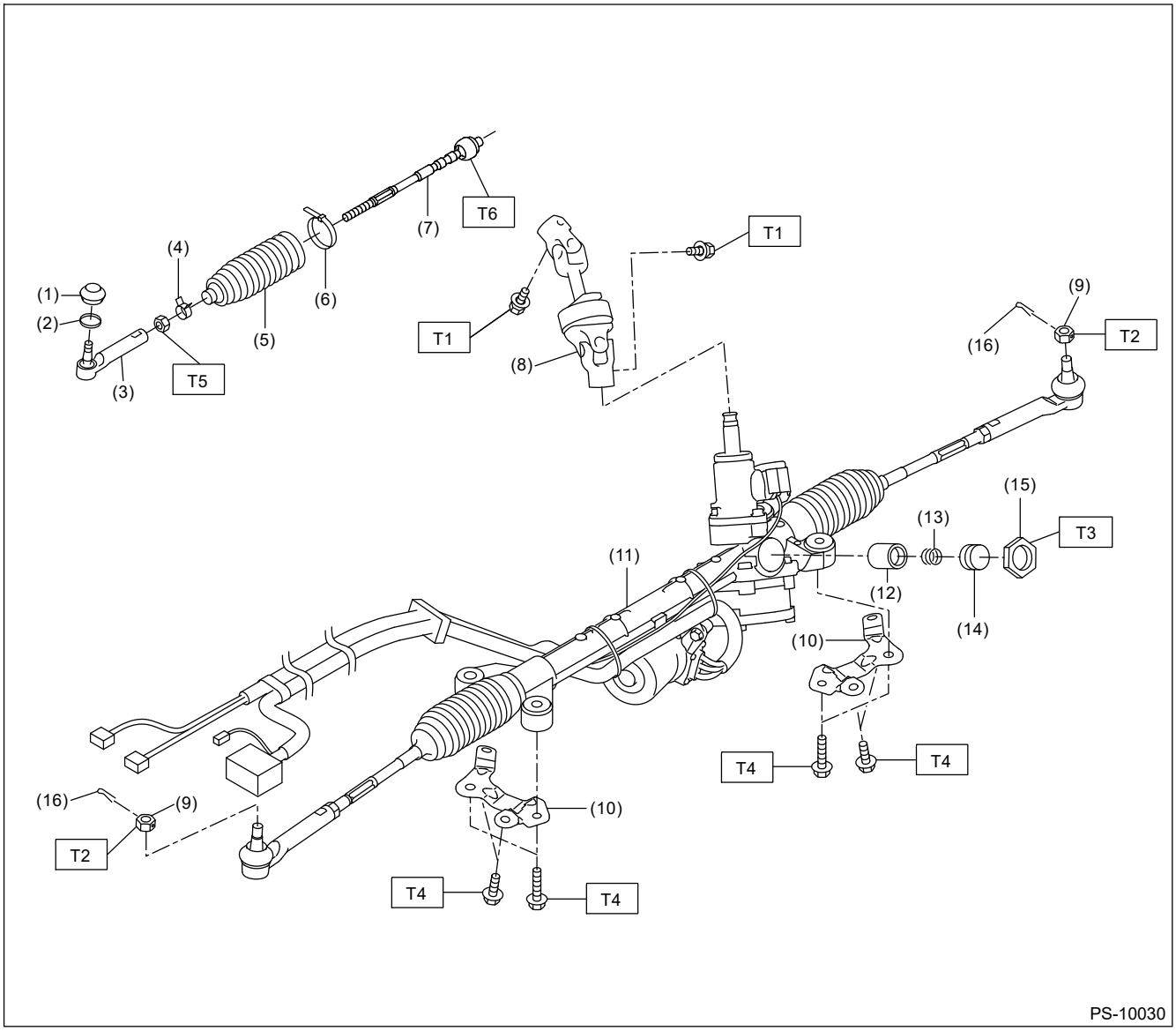
1. STEERING WHEEL AND COLUMN



(1) Bushing	(8) MID switch	(15) Airbag module
(2) Column ASSY - steering	(9) Steering heater unit (model with steering heater)	
(3) Switch ASSY - combination	(10) Steering heater switch (model with steering heater)	***Tightening torque: N·m (kgf-m, ft-lb)***
(4) Cover ASSY - column UPR	(11) Paddle shift	***T1: 20 (2.04, 14.8)***
(5) Cap - key cylinder (model with keyless access with push button start)	(12) Steering wheel	***T2: 39 (3.98, 28.8)***
(6) Cover ASSY - column LWR	(13) Cover - spoke	

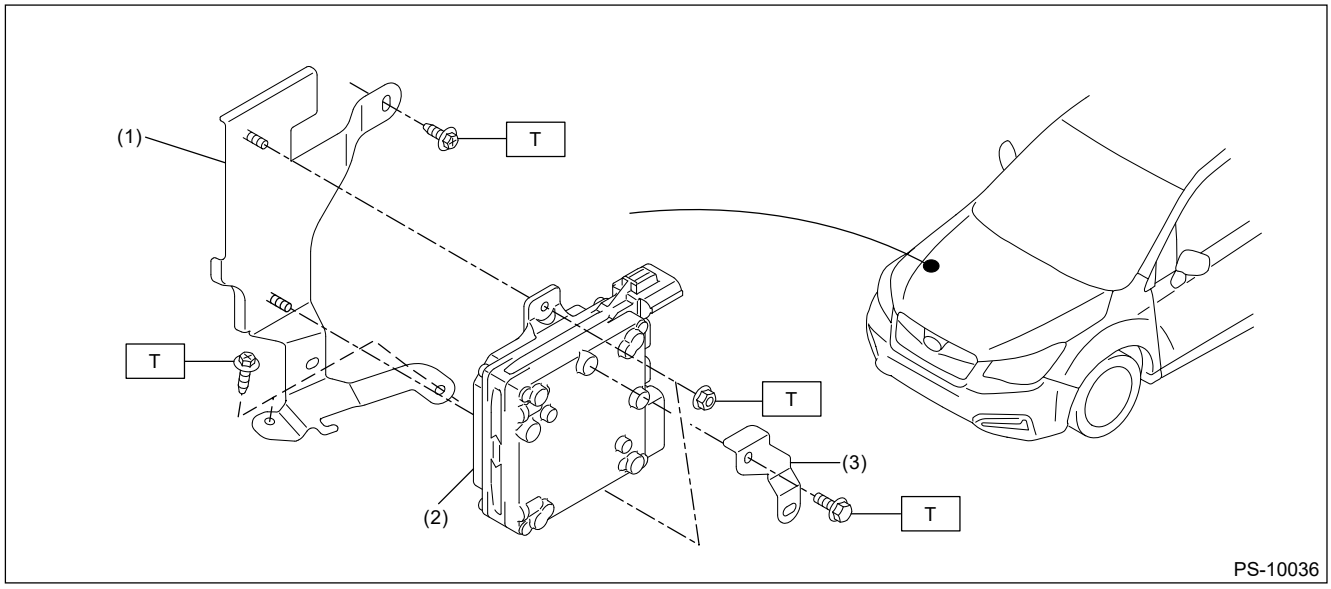
(7) Cover - steering wheel LWR (14) Satellite switch

2. STEERING GEARBOX



(1) Dust seal	(9) Castle nut	***Tightening torque: N·m (kgf-m, ft-lb)***
(2) Clip - boot tie-rod end B	(10) Stiffener	***T1: 24 (2.45, 17.7)***
(3) Tie-rod end	(11) Steering gearbox ASSY	***T2: 27 (2.75, 19.9)***
(4) Clip - boot tie-rod end A	(12) Pad - pressure	***T3: 49 (5, 36.1)***
(5) Boot - steering gearbox	(13) Spring - gearbox	***T4: 60 (6.12, 44.3)***
(6) Band - boot	(14) Adjusting screw	***T5: 85 (8.67, 62.7)***
(7) Tie-rod	(15) Lock nut	***T6: 90 (9.18, 66.4)***
(8) Universal joint ASSY - steering	(16) Cotter pin	

3. ELECTRIC POWER STEERING CONTROL MODULE



(1) Bracket - control module

(2) Power steering control module

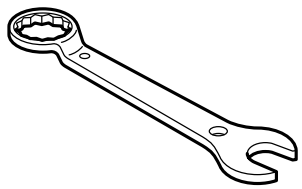
(3) Harness bracket

Tightening torque: N·m (kgf-m, ft-lb)

T: 7.5 (0.76, 5.5)

PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34099PA100	34099PA100	SPANNER	Used when measuring the rotational resistance of gearbox assembly.
 STSSM4	— (Newly adopted tool)	SUBARU SELECT MONITOR 4	Used for setting of each function and troubleshooting for electrical system. **Note:** **For detailed operation procedures of Subaru Select Monitor 4, refer to "Application help".**

2. GENERAL TOOL

TOOL NAME	REMARKS
Steering wheel puller	Used for removing the steering wheel.
Circuit tester	Used for measuring resistance, voltage and current.
DST-i	Used together with Subaru Select Monitor 4.

SPECIFICATION

Whole system	Minimum turning radius	m (ft)	5.3 (17.4)
	Steering angle	Inner wheel	38.4°±1.5°
		Outer wheel	33.8°±1.5°
	Steering wheel diameter	mm (in)	375 (14.76)
	Lock-to-lock revolution number		2.8
Gearbox	Type		Rack & pinion type
	Backlash		0 (automatic adjusting)
Motor (Temperature 20°C (68°F))	Rated voltage	V	12
	Rated torque	N·m (kgf-m, ft-lb)	4.5 (0.46, 3.31)
	Rated revolution speed	r/min	1,140
	Rated current	A	85
	Rated output	W	561

Steering wheel	Free play		mm (in)	17 (0.67) or less
Column assembly - steering	Clearance between the steering wheel and the cover assembly - column		mm (in)	4 — 6 (0.16 — 0.24)
Steering gearbox (Power steering system)	Sliding resistance		N (kgf, lbf)	350 (36, 79) or less Difference between right and left sliding resistance: 20% or less
	Rack shaft play in the radial direction	Right-turn steering	mm (in)	Both amplitudes: 0.6 (0.024) or less
		Left-turn steering	mm (in)	Both amplitudes: 0.6 (0.024) or less
	Input shaft play	In radial direction	mm (in)	Both amplitudes: 0.6 (0.024) or less
		In axial direction	mm (in)	0.27 (0.0106) or less

	Rotational resistance	N (kgf, lbf)	Maximum permissible value: 18.3 (1.9, 4.1) or less Difference between right and left sliding resistance: 20% or less
Steering wheel effort (Power steering system)	At standstill with engine idling on paved road	N (kgf, lbf)	29.4 (3, 6.6) or less
	At standstill with engine stalled on paved road	N (kgf, lbf)	294.2 (30, 66.2) or less

INSPECTION

Trouble	Possible cause	Corrective action
• Steering effort is heavy in all ranges. • Steering effort is heavy at stand still. • Steering wheel vibrates when turning.	1. Tire and wheel • Improper tire out of specifications • Improper wheel out of specification • Tires not properly inflated	Replace or reinflate.
	2. Measure the steering wheel effort. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox>INSPECTION > ROTATIONAL RESISTANCE OF GEARBOX.	Adjust or replace.
• Vehicle leads to one side or the other. • Returning force of steering wheel to center is poor. • Steering wheel vibrates when turning.	1. Tire and wheel • Flat tire • Mixed use of different tires • Mixed use of different wheels • Abnormal wear of tire • Unequal tread remaining • Unequal pressure of tire	Adjust, fix or replace.
	2. Front wheel alignment • Improper or unequal caster • Improper or unequal toe-in • Loose suspension connections	Adjust or retighten.
	3. Measure the steering wheel effort. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox>INSPECTION > ROTATIONAL RESISTANCE OF GEARBOX.	Adjust or replace.

Note:

When performing repeated steering operation with the vehicle at standstill, the steering effort may be temporarily heavy because the heat generated in the system activates the power steering protection control. This is not a malfunction caused by the steering system. After a while, it will return to normal steering effort. (In this case, the steering warning light will not come on and there will be no DTC.)

1. NOISE AND VIBRATION

Note:

- **When turning the steering wheel with the brake applied when the vehicle is parked, a screeching noise may be generated by the brake disc and pads. This is not a fault in the steering system.**
- **There may be a small vibration around the steering devices when turning the steering wheel at standstill, even though the component parts are operating properly.**

Trouble	Possible cause	Corrective action

Rattling noise (intermittent) While engine is running.	Interference with adjacent parts	Check the clearance. Correct if necessary.
	Looseness of linkage, play of steering, improper tightening (looseness) of suspension joint or column assembly - steering	Retighten or replace.
	Noise emitted from inside of the gearbox	Replace the gearbox assembly.
Knocking When turning steering wheel in both directions with small angle repeatedly at engine ON or OFF.	Excessive backlash Loosened lock nut for adjusting backlash	Adjust the backlash. When the noise remains after adjustment, replace the gearbox assembly.
	Insufficient tightening or play in the tie-rod or tie-rod end	Retighten or replace.
Grinding noise (intermittent) While engine is running. (While operating the steering.)	Fault inside of gearbox	Replace the gearbox assembly.
	Faulty bearing of the column assembly - steering	Apply grease or replace.
	Occurs when turning the steering wheel with brakes (service or parking) applied.	If the noise goes off when brake is released, it is normal.
Vibration While engine is running. (with/without steering turned)	Excessive play in steering, looseness of suspension parts	Retighten.

2. MEASUREMENT OF STEERING EFFORT

1. CHECK STEERING WARNING LIGHT.

Does the steering warning light illuminate?

Yes — Using Subaru Select Monitor, read the DTC and inspect according to it. For detailed operation procedures, refer to “Application help”.

No — Go to 2.

2. CHECK STEERING WARNING LIGHT.

1. Using Subaru Select Monitor, display the data of [EPS operating condition].
2. Connect the Subaru Select Monitor, and turn the steering wheel. (One lock to lock)

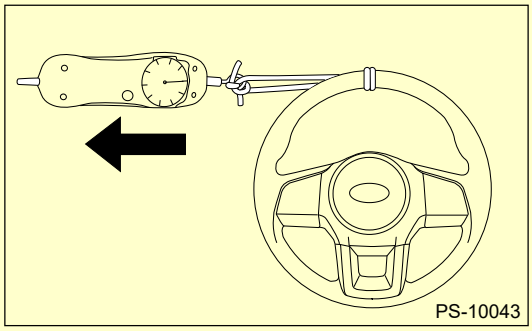
Is the [EPS operating condition] normal without displaying any DTC code?

Yes — Go to 3.

No — If the [EPS operating condition] is “Assist limitation”, stop the engine for approx. 10 minutes and perform the procedures from step 1 again.

3. CHECK STEERING EFFORT.

1. Stop the vehicle on paved road.
2. Set the tire air pressure to the specification.
3. Start the engine.
4. Run the engine at idle.
5. Install a spring scale on the steering wheel.
6. Pull the spring scale at a right angle to the steering wheel, and measure both right and left steering wheel efforts.



Is the steering effort less than 29.4 N (3.0 kgf, 6.6 lbf)?

Yes — Go to 4.

No — Go to 8.

4. CHECK STEERING EFFORT.

1. Stop the engine.
2. Pull the spring scale at a right angle to the steering wheel, and measure both right and left steering wheel efforts.

Is the steering effort less than 294.2 N (30 kgf, 66.2 lbf)?

Yes — Go to 5.

No — Perform the inspection or adjustment around the suspension part.

5. CHECK TORQUE SENSOR OUTPUT VALUE.

1. Display the data of [Torque sensor main output] and [Torque sensor sub output] using Subaru Select Monitor.
2. Read the voltage value of torque sensor.

Note:
When measuring, place the steering wheel at the center position.

Is the voltage 2.425 — 2.575 V?

Yes — Go to 6.

No — Replace the gearbox assembly. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.

6. CHECK TORQUE SENSOR OUTPUT VALUE.

1. Remove the universal joint assembly - steering.
2. Display the data of [Torque sensor main output] and [Torque sensor sub output] using Subaru Select Monitor.
3. Read the voltage value of torque sensor.

Is the voltage 2.425 — 2.575 V?

Yes — Go to 7.

No — Replace the gearbox assembly. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.

7. CHECK TORQUE SENSOR OUTPUT VALUE.

1. Remove the universal joint assembly - steering.

Note:
Check that the universal joint assembly - steering moves up and down smoothly without installing the bolt. Then tighten the bolts first on the gearbox side and then on the column shaft side.

2. Display the data of [Torque sensor main output] and [Torque sensor sub output] using Subaru Select Monitor.
3. Read the voltage value of torque sensor.

Is the voltage 2.425 — 2.575 V?

Yes — Go to 8.

No — Check the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.

8. CHECK STEERING WHEEL EFFORT.

1. Remove the universal joint assembly - steering.
2. Measure the steering wheel effort.

Is the steering effort less than 2.26 N (0.23 kgf, 0.51 lbf)?

Yes — Go to 9.

No — Replace the column assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.

9. CHECK STEERING WHEEL EFFORT.

Measure the steering wheel effort.

Is the difference of steering effort between right and left less than 20%?

Yes — Go to 10.

No — Replace the column assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Column.

10. CHECK UNIVERSAL JOINT ASSEMBLY - STEERING.

Measure the swing torque of joint. (Yoke of column assembly - steering side) Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>INSPECTION.

Is the swing torque of the universal joint assembly - steering less than 8.1 N (0.81 kgf, 1.84 lbf)?

Yes — Go to 11.

No — Replace the universal joint assembly - steering with a new part. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint.

11. CHECK UNIVERSAL JOINT ASSEMBLY - STEERING.

Measure the swing torque of joint. (Yoke of gearbox side) Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>INSPECTION.

Is the swing torque of the universal joint assembly - steering less than 6.8 N (0.68 kgf, 1.54 lbf)?

Yes — Go to 12.

No — Replace the universal joint assembly - steering with a new part. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint.

12. CHECK FRONT WHEEL.

Check the front wheels.

Does the front wheels have unsteady revolution or rattling, or does the brake drag?

Yes — Inspect, readjust and replace if necessary.

No — Go to 13.

13. CHECK TIE-ROD ENDS.

Remove the tie-rod ends.

Does the tie-rod ends of suspension have unsteady revolution or rattling?

Yes — Inspect and replace if necessary.

No — Go to 14.

14. CHECK BALL JOINT.

Remove the ball joint.

Does the ball joints of suspension have unsteady revolution or rattling?

Yes — Inspect and replace if necessary.

No — Go to 15.

15. CHECK GEARBOX.

Measure the rotating of gearbox.
Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox>INSPECTION > LIMIT.

Is the rotational resistance of the steering gearbox less than 18.3 N (1.9 kgf, 4.1 lbf)? Is the difference between the right and left rotational resistances less than 20%?

Yes — Go to 16.

No — Replace the gearbox assembly. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.

16. CHECK GEARBOX.

Measure the sliding of gearbox.

Is the sliding resistance of the steering gearbox less than 350 N (35 kgf, 79 lbf)? Is the difference between the right and left sliding resistances less than 20%?

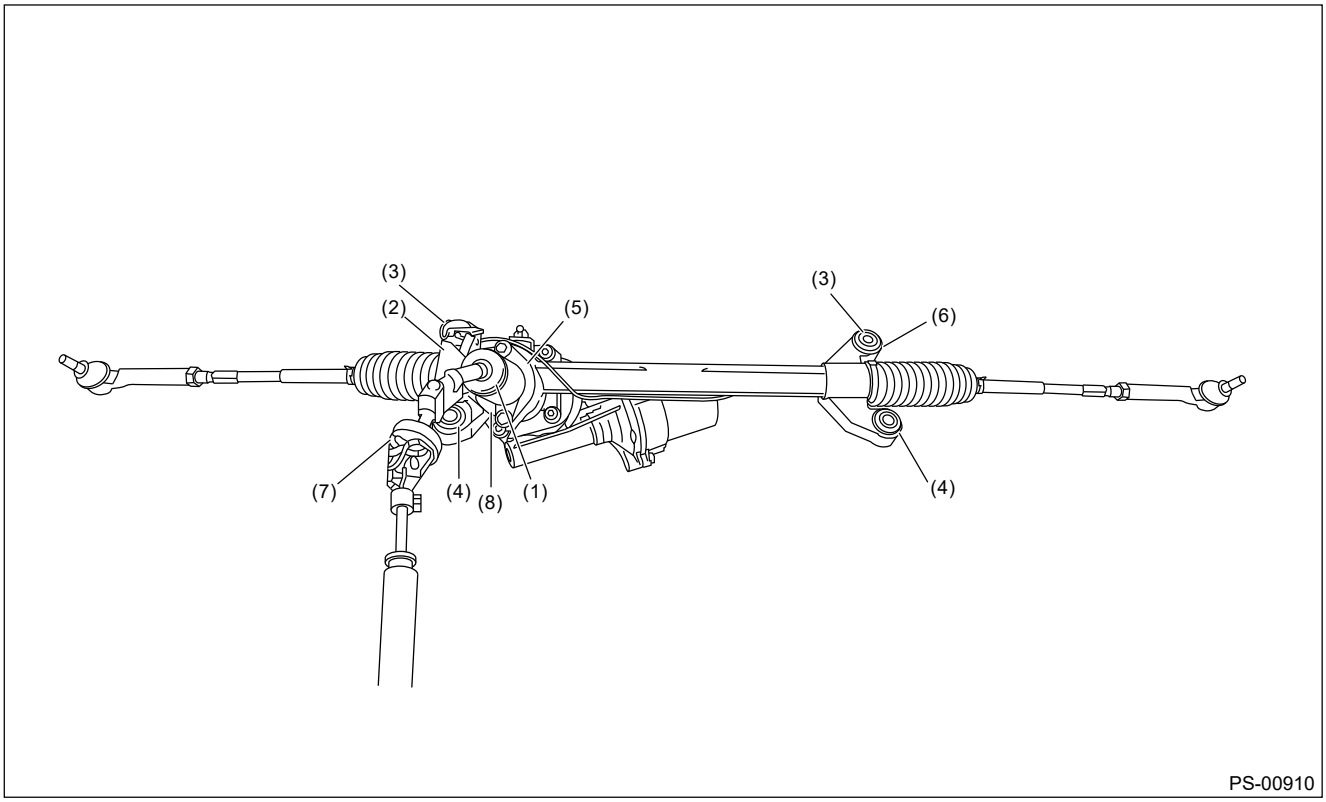
Yes — Steering effort is normal.

No — Replace the gearbox assembly. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.

3. CLEARANCE CHECK (ELECTRIC TYPE)

This table lists various clearances that must be correctly adjusted to ensure the normal vehicle driving without interfering noise, or any other faults.

Location	Minimum allowance mm (in)
(1) Stub housing to DOJ (MT model)	15 (0.59)
(2) Torque sensor to crossmember	5 (0.20)
(3) Cannon mount to crossmember	There must be no contact
(4) Cannon mount to crossmember	3 (0.12)
(5) Stub housing to engine mount	15 (0.59)
(6) Canon mount to exhaust pipe	15 (0.59)
(7) Universal joint column side yoke to master cylinder (closest point of approach when the universal joint turns by 360°)	5 (0.20)
(8) Wheel housing to Exhaust pipe (LHD model)	13 (0.51)


(3)
(2)
(5)
(3)
(6)
(7)
(4)
(8)
(1)
(4)
PS-00910

INSTALLATION

1. Install the power steering control module.
   Tightening torque:
   7.5 N•m (0.76 kgf-m, 5.5 ft-lb)
2. Connect the harness connector.
   Caution:
   Make sure that the connector is securely locked.
3. Attach the harness bracket.
   Tightening torque:
   7.5 N•m (0.76 kgf-m, 5.5 ft-lb)
4. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.

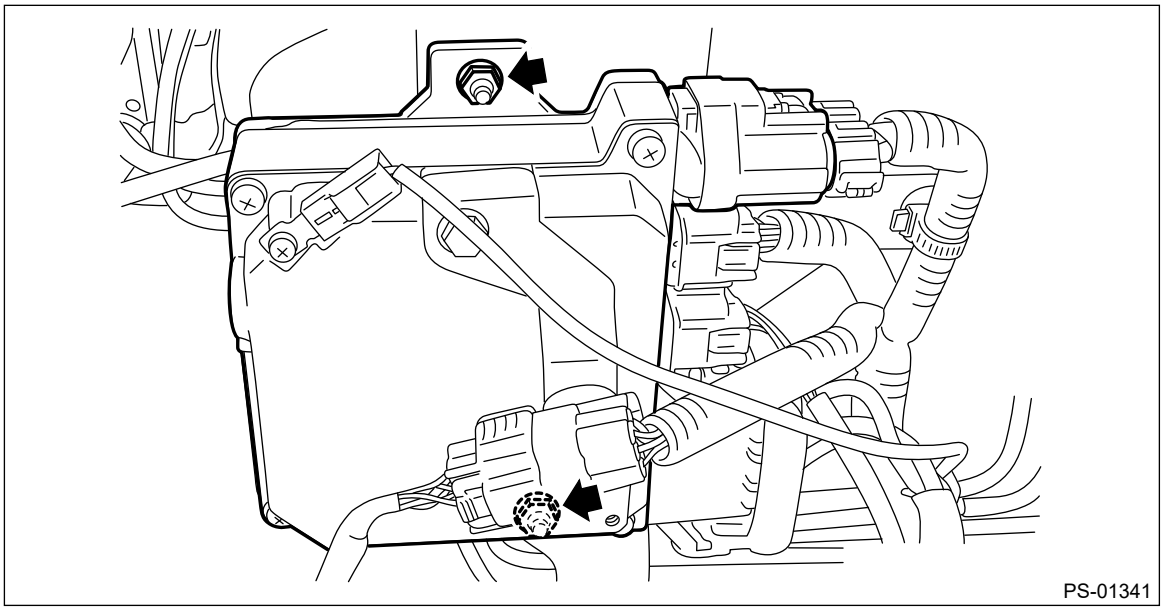
REMOVAL

1. Disconnect the ground cable from battery. Ref. to NOTE>NOTE > BATTERY.

   Note:

   For model with battery sensor, disconnect the ground terminal from battery sensor.

2. Remove the power steering control module.
   (1) Disconnect the connector of the power steering control module.
   (2) Remove the nuts, and remove the power steering control module.



ELECTRICAL SPECIFICATION

Refer to Control Module I/O Signal of "POWER ASSISTED SYSTEM (POWER STEERING) (DIAGNOSTICS)". Ref. to POWER STEERING (DIAGNOSTICS)>Control Module I/O Signal>ELECTRICAL SPECIFICATION.

INSPECTION

Refer to “POWER ASSISTED SYSTEM (POWER STEERING) (DIAGNOSTICS)”. Ref. to POWER STEERING (DIAGNOSTICS)>Basic Diagnostic Procedure.

NOTE

For procedure of each component in the power steering system, refer to the respective section.

- Steering wheel: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel.
- Universal joint assembly - steering: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint.
- Steering column: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Column.
- Electric power steering gearbox: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Electric Power Steering Gearbox.
- Power steering control module: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Power Steering Control Module.

WIRING DIAGRAM

Refer to “Electric Power Steering System” in the wiring diagram. Ref. to WIRING SYSTEM>Electric Power Steering System>WIRING DIAGRAM.

INSPECTION

1. CHECK FUSE

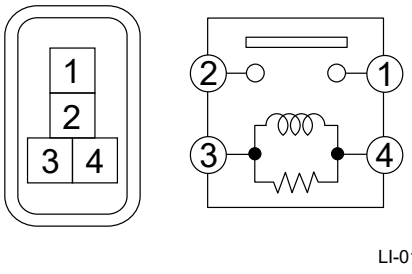
1. Remove the fuse and inspect visually.
2. If the fuse is blown out, replace the fuse.

Note:

If the fuse is blown again, check the system wiring harness.

2. CHECK RELAY

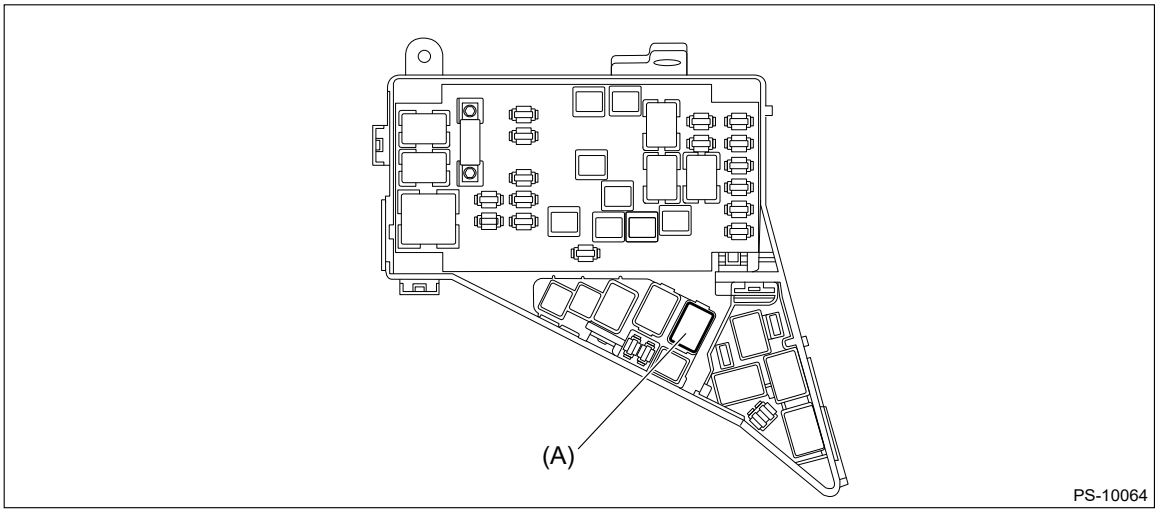
1. Check the resistance between relay terminals.

Terminal No.	Inspection conditions	Standard	Circuit
1 — 2	Always	1 MΩ or more	 LI-01273
1 — 2	Apply battery voltage between terminals 4 and 3.	Less than 1 Ω	

2. Replace the relay if the inspection result is not within the standard value.

POWER ASSISTED SYSTEM (POWER STEERING) > Relay and Fuse

LOCATION



Main Fuse Box	Steering heater relay	(A)

INSPECTION

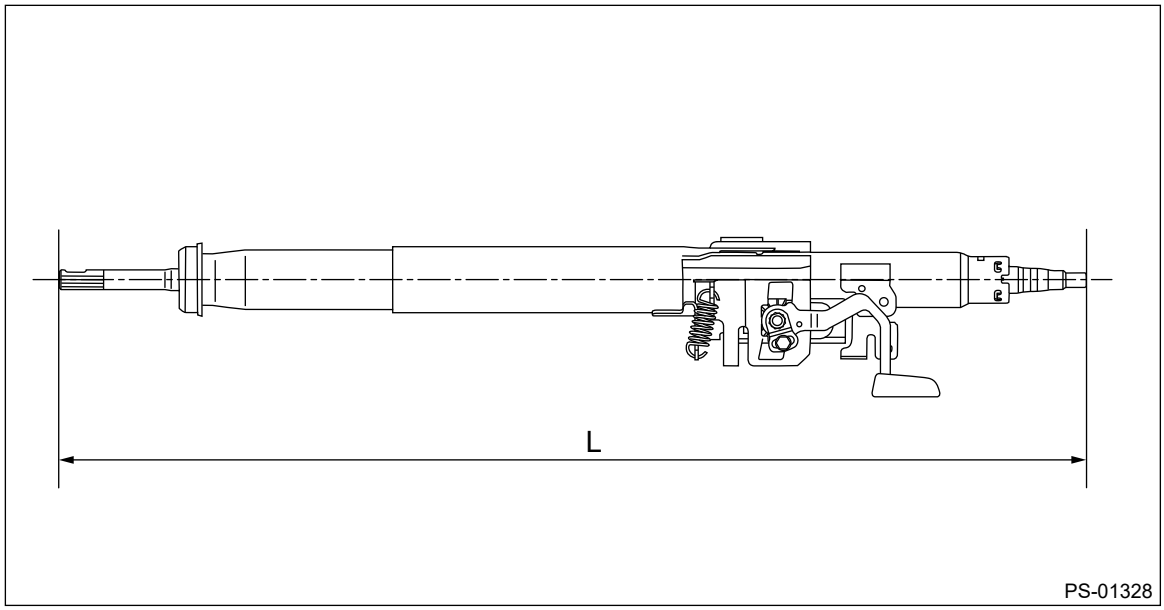
1. UNIT INSPECTION

Measure the overall length of the column assembly - steering. If not within specification, replace it.

Standard: Overall length L

Tilt and telescopic column (measure while minimized):

$819.7^{+1.5}_{-1.5}$ mm ($32.3^{+0.059}_{-0.059}$ in)



2. INSPECTION OF AIRBAG SYSTEM

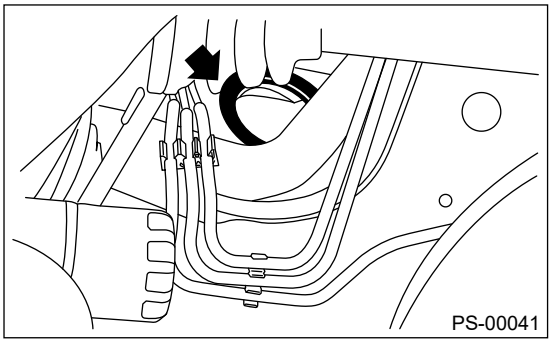
Refer to "Airbag System" for airbag inspection procedure. Ref. to AIRBAG SYSTEM>Driver's Airbag Module>INSTALLATION.

INSTALLATION

Caution:

- **Before handling the airbag system components, always refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". Ref. to AIRBAG SYSTEM>General Description>CAUTION.**
- **If the steering wheel and steering angle sensor are removed, perform "VSC(VDC) Centering Mode" of the VDC. Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.**

1. Install the grommet to the toe board.



2. Insert the end of the column assembly - steering into the toe board grommet.
3. Tighten the column assembly - steering installation nut located under the beam COMPL - steering with the tilt lever fixed.

   Tightening torque:

   20 N•m (2.04 kgf-m, 14.8 ft-lb)
4. Connect all the connectors under the instrument panel.
5. Install the switch assembly - combination.
6. Install the knee airbag module. (Model with knee airbag) Ref. to AIRBAG SYSTEM>Knee Airbag Module>REMOVAL.

   Tightening torque:

   7.5 N·m (0.76 kgf-m, 5.5 ft-lb)
7. Install the cover assembly - instrument panel LWR driver INN and OUT.
8. Install the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>INSTALLATION.

   Caution:

   - **Always install the universal joint assembly - steering after installing the steering column to avoid damage to the universal joint assembly - steering.**
   - **Be sure to follow the tightening order and tightening torque of the universal joint assembly - steering to avoid the steering effort from becoming heavy.**
9. Align the center position of the steering roll connector. Ref. to AIRBAG SYSTEM>Roll Connector>ADJUSTMENT.
10. Install the steering wheel. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>INSTALLATION.

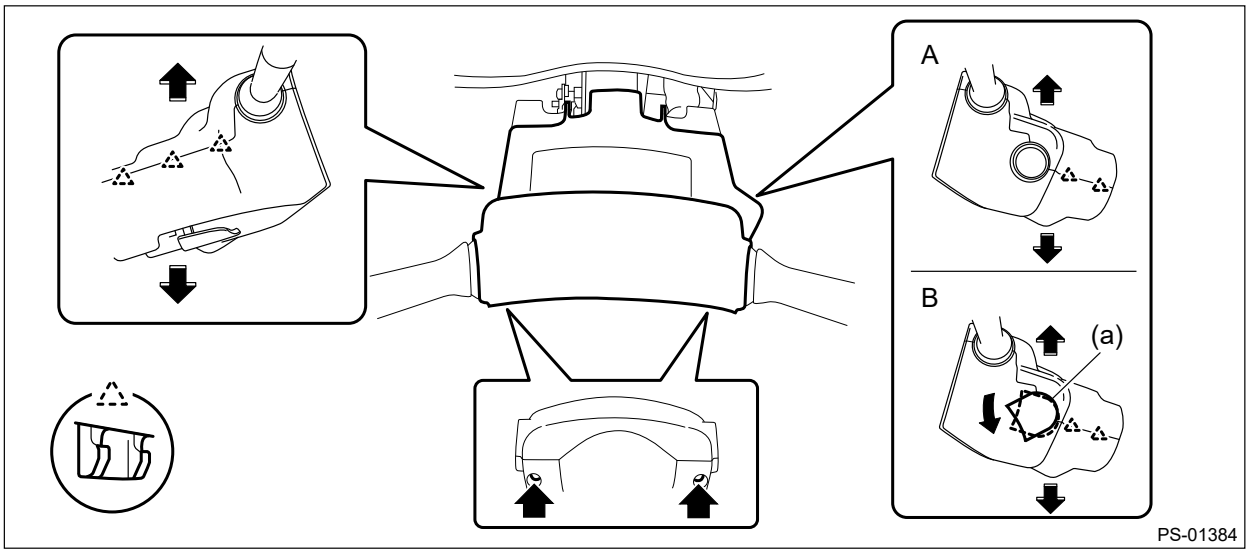
11. Install the driver’s airbag module. Ref. to AIRBAG SYSTEM>Driver’s Airbag Module>INSTALLATION.
12. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.

REMOVAL

Caution:

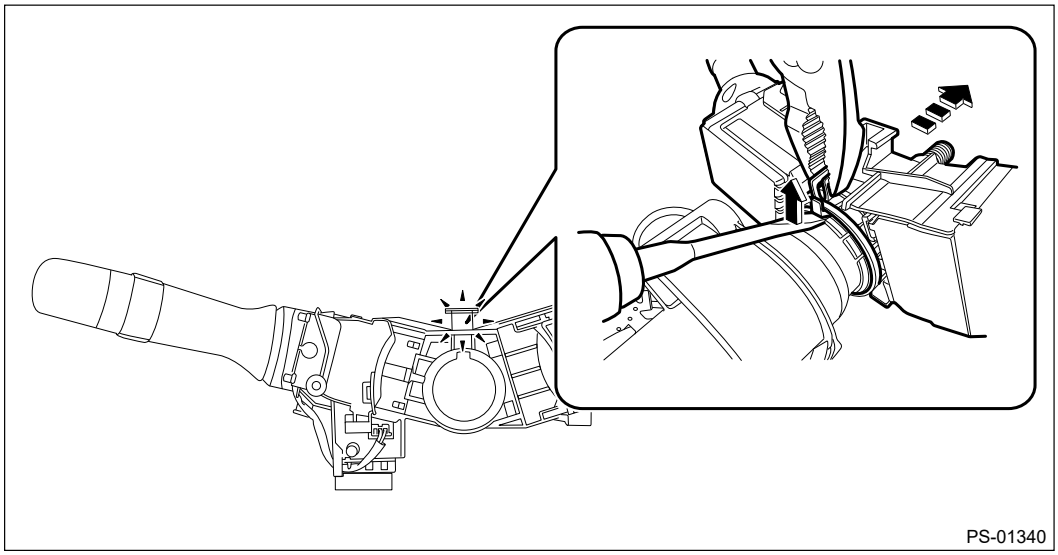
- **Before handling the airbag system components, always refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". Ref. to AIRBAG SYSTEM>General Description>CAUTION.**
- **If the steering wheel and steering angle sensor are removed, perform "VSC(VDC) Centering Mode" of the VDC. Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.**

1. Disconnect the ground cable from battery and wait for at least 60 seconds before starting work.
2. Remove the driver's airbag module. Ref. to AIRBAG SYSTEM>Driver's Airbag Module>REMOVAL.
3. Remove the steering wheel. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>REMOVAL.
4. Remove the cover assembly - instrument panel LWR driver. Ref. to EXTERIOR/INTERIOR TRIM>Instrument Panel Lower Cover>REMOVAL.
5. Remove the knee airbag module. Ref. to AIRBAG SYSTEM>Knee Airbag Module>REMOVAL.
6. Remove the cover assembly - column.
   (1) Release the screws and claws.
   (2) Remove the cap - key cylinder (a). (Model with keyless access with push button start)
   (3) Remove the cover assembly - column UPR and the cover assembly - column LWR.

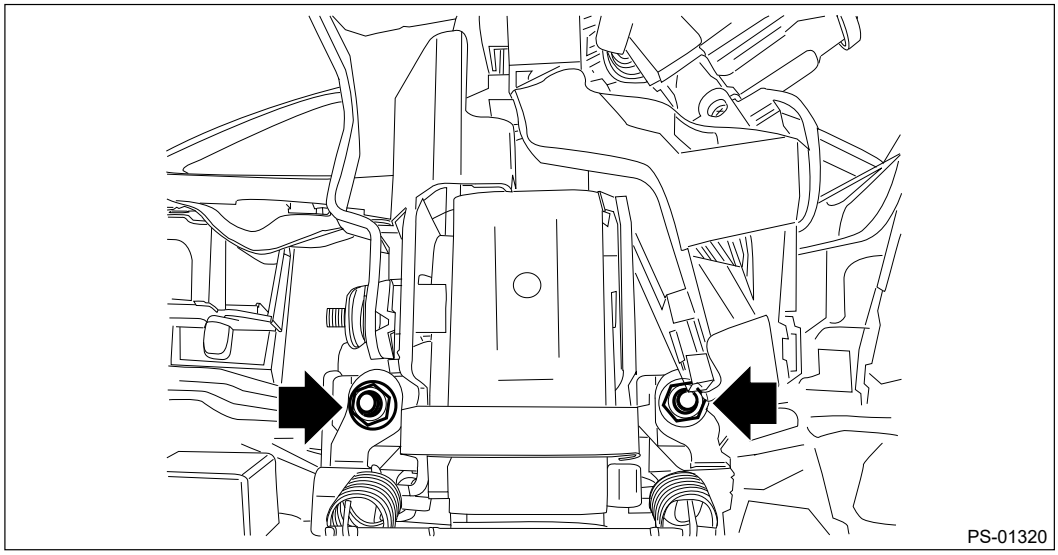


A	Model without keyless access with push button start	B	Model with keyless access with push button start

7. Remove the switch assembly - combination.
   (1) Disconnect the connector, and loosen the clamp to release the claws.
   (2) Pull out the switch assembly - combination from the column assembly - steering.



8. Remove all connectors from the column assembly - steering.
9. Remove the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>REMOVAL.
10. Remove the two nuts under the beam COMPL - steering securing the column assembly - steering.



11. Pull out the column assembly - steering from the hole on toe board.

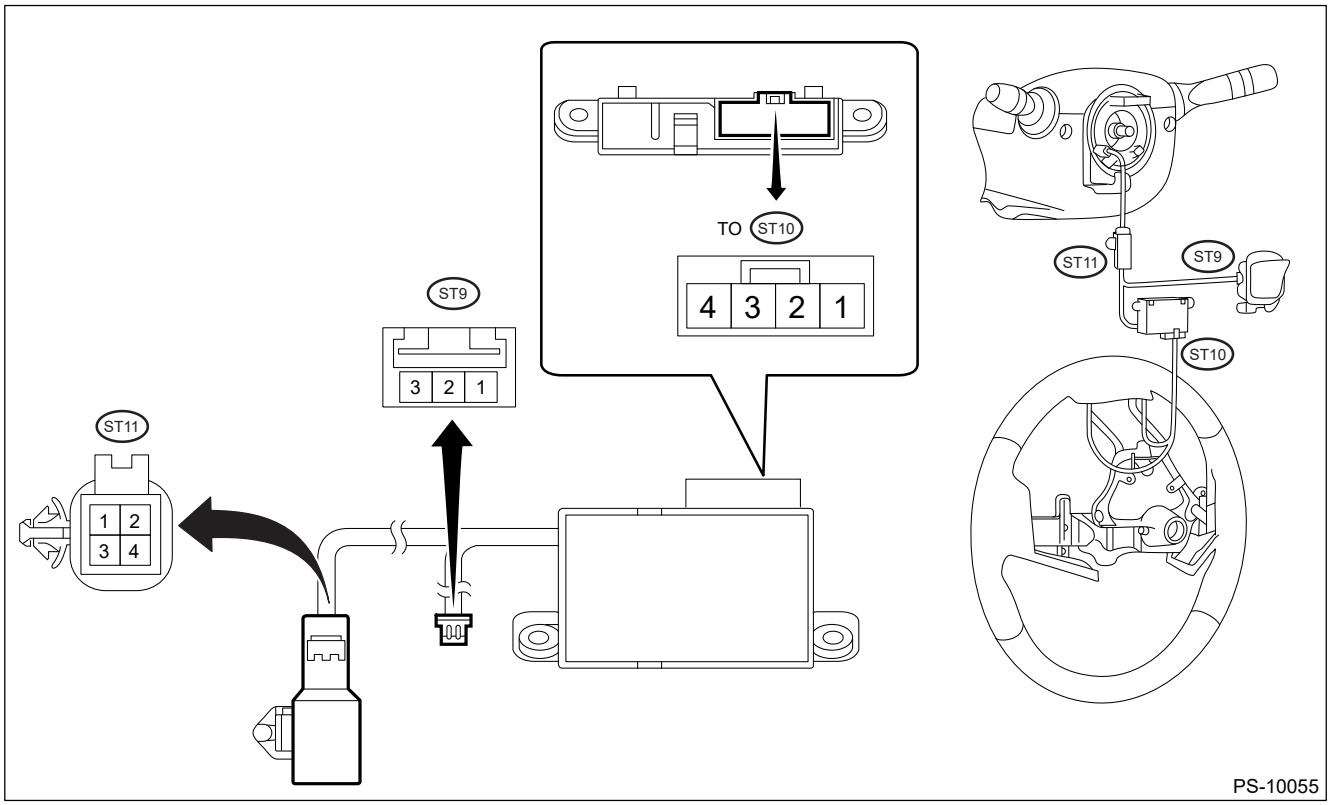
    Caution:

    Do not loosen the tilt lever when the column assembly - steering is not secured to the vehicle.

12. Remove the ignition key lock from the column assembly - steering. Ref. to SECURITY AND LOCKS>Ignition Key Lock>REPLACEMENT.

ELECTRICAL SPECIFICATION

1. STEERING HEATER UNIT



Terminal No.	Content	Measuring condition	Standard
ST11 No. 1	Not used	—	—
ST11 No. 2 ←→ Chassis ground	Heater switch power supply input	Ignition switch ON	10 — 14 V
ST11 No. 3 ←→ Chassis ground	Heater unit GND	Always	Less than 1 Ω
ST11 No. 4 ←→ Chassis ground	Heater unit power supply input	Ignition switch ON	10 — 14 V
ST9 No. 1 ←→ Chassis ground	Heater switch power supply input	Ignition switch ON	10 — 14 V
ST9 No. 2 ←→ Chassis ground	Heater switch input	Turn the ignition switch to ON, and press and hold the heater switch.	9 — 14 V
ST9 No. 3	Indicator light output	—	*
ST10 No. 1 ←→ Chassis ground	Thermistor input	Ignition switch ON, heater switch ON	1.5 — 4.5 V
ST10 No. 2 ←→ Chassis ground	Thermistor GND	Ignition switch ON, heater switch ON	Less than 1 V
ST10 No. 3 ←→ Chassis ground	Heater output	Ignition switch ON, heater switch ON	9 — 14 V

ST10 No. 4 ←→ Chassis ground	Heater GND	Ignition switch ON, heater switch ON	Less than 1 V

∗: Illuminates when the ignition switch and heater switch are turned to ON.

Note:

Connect the each connector of the unit before checking.

INSPECTION

1. CHECK STEERING HEATER SYSTEM

Symptoms	Reference
The steering heater does not operate.	Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Heater System>INSPECTION > THE STEERING HEATER DOES NOT OPERATE.
The temperature of steering heater increases excessively.	Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>INSPECTION > STEERING WHEEL HEATER.
The steering heater does not stop.	Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>INSPECTION > STEERING HEATER SWITCH.

2. THE STEERING HEATER DOES NOT OPERATE

1. CHECK POWER SUPPLY INPUT.

1. Disconnect the negative terminal from the battery, and wait for 60 seconds or more.
2. Disconnect the connector between steering roll connector and steering heater unit.
3. Connect the battery ground terminal and turn the ignition switch to ON.
4. Measure the steering roll connector voltage.
   Connector & terminal
   Heater switch power supply input
   (ST12) No. 2 (+) —No. 3 (−):
   Heater unit power supply input
   (ST12) No. 4 (+) — No. 3 (−):

Is the voltage 10 — 14 V?

Yes — Go to 2.

No — Go to 5.

2. CHECK STEERING HEATER SWITCH.

Check the steering heater switch. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>INSPECTION > STEERING HEATER SWITCH.

Is the steering heater switch OK?

Yes — Go to 3.

No — Replace the steering heater switch. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>DISASSEMBLY.

3. CHECK STEERING HEATER UNIT.

Check the steering heater unit. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Heater System>ELECTRICAL SPECIFICATION > STEERING HEATER UNIT.

Is the steering heater unit OK?

Yes — Go to 4.

No — Replace the steering heater unit. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>DISASSEMBLY.

4. CHECK STEERING WHEEL.

Check the steering wheel. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>INSPECTION > STEERING WHEEL HEATER.

Is the steering wheel OK?

Yes — It is possible that temporary poor contact occurs. Restore the parts and check it again.

No — Replace the steering wheel. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel.

5. CHECK FUSE.

1. Turn the ignition switch to OFF.
2. Check the fuse No. 33 in the fuse & relay box.

Is the fuse OK?

Yes — Go to 6.

No — Replace the fuse.

6. CHECK RELAY.

Check the steering heater relay. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Relay and Fuse.

Is the steering heater relay OK?

Yes	Go to 7.
No	Replace the steering heater relay.

7. CHECK BATTERY VOLTAGE.

Measure the battery voltage.

Is the battery OK?

Yes	Go to 8.
No	Check the battery. Ref. to STARTING/CHARGING SYSTEMS(H4DO)>Battery>INSPECTION.

8. CHECK ROLL CONNECTOR (HEATER).

Measure the resistance between steering roll connectors (heater part). Ref. to COMMUNICATION SYSTEM>Horn Switch>INSPECTION > CHECK ROLL CONNECTOR.

Is the steering roll connector OK?

Yes	It is possible that temporary poor contact occurs. Restore the parts and check it again.
No	Replace the steering roll connector. Ref. to AIRBAG SYSTEM>Roll Connector.

NOTE

For procedure of each component in the steering heater system, refer to the respective section.

- Steering wheel
  - Removal: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>REMOVAL.
  - Installation: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>INSTALLATION.
- Steering heater switch
  - Disassembly: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>DISASSEMBLY.
  - Assembly: Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Steering Wheel>ASSEMBLY.

WIRING DIAGRAM

Refer to “STEERING HEATER SYSTEM” in the wiring diagram. Ref. to WIRING SYSTEM>Steering Heater System>WIRING DIAGRAM.

ASSEMBLY

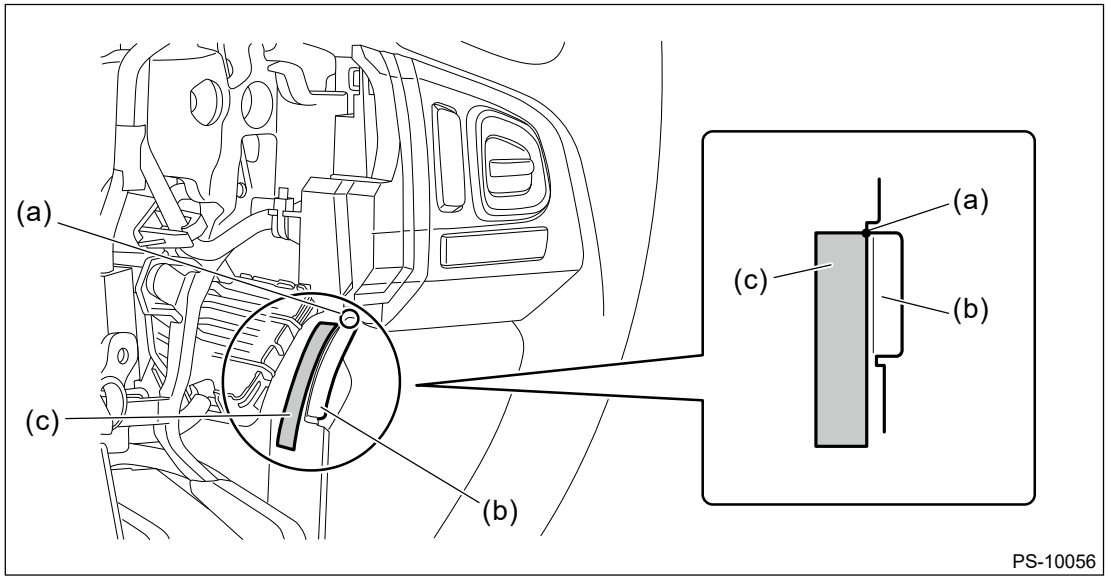
Caution:

- **Securely install the switch and the cover - steering wheel LWR. Improper insertion of the pins or claws of the switch and the cover - steering wheel LWR may cause improper installation.**
- **When installing the heater steering wheel and the cover - steering wheel LWR for models with steering heater, be careful of the following:**
  - **Attach the heater element to the cover - steering wheel LWR so that it is not twisted or does not interfere with switches.**
  - **Be careful not to allow the heater element to be caught in steering frame, unit and cover - steering wheel LWR.**

1. Install the MID switch.
2. Install the steering heater switch and steering heater unit to the cover - steering wheel LWR. (Model with steering heater)
3. Install the satellite switch.
4. Install the cover - steering wheel LWR.

Note:

Secure the heater element on the cover - steering wheel LWR using double-sided tape. Refer to the figure below to attach the heater element and double-sided tape symmetrically.

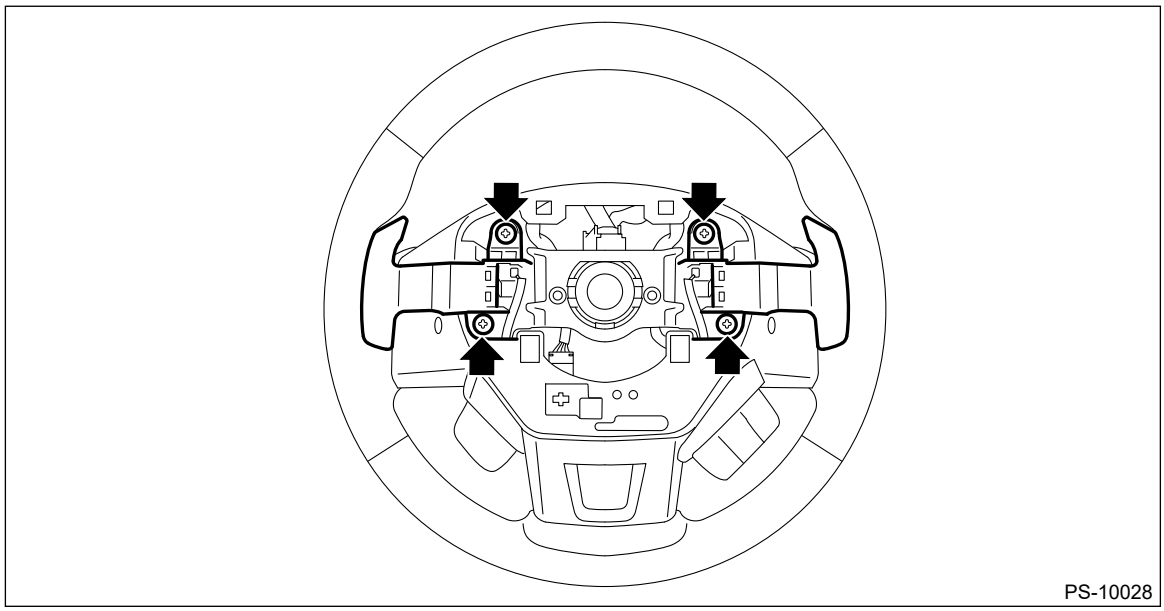


(a) Attachment reference point (b) Cover - steering wheel LWR (c) Heater element and double-sided tape

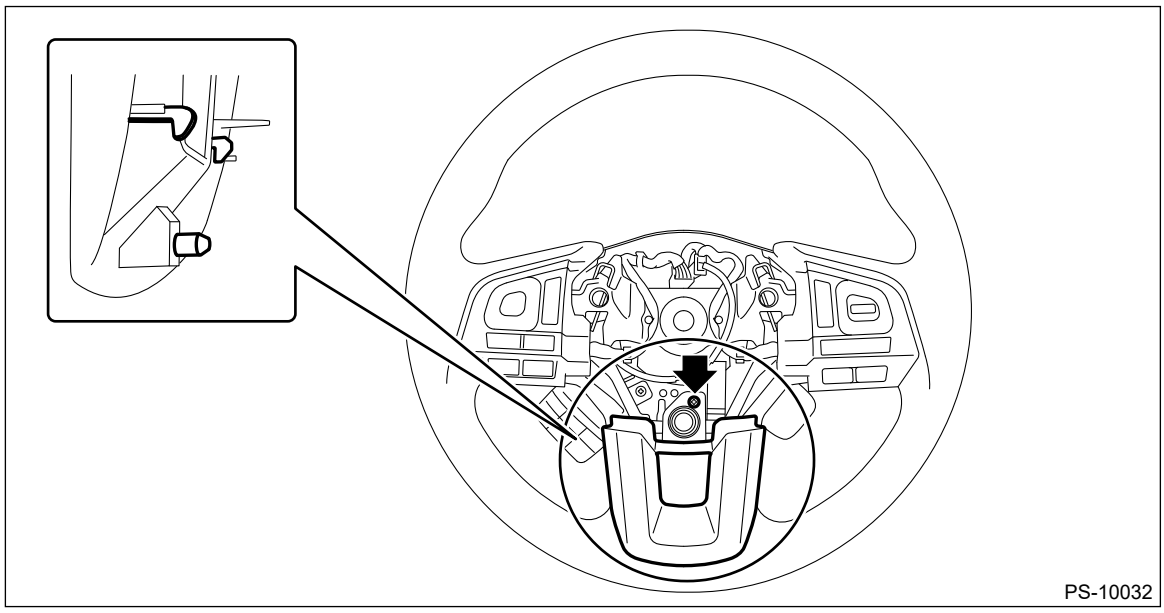
5. Install the cover - spoke.
6. Install the paddle shift switch. (Model with paddle shift)

DISASSEMBLY

1. Remove the screw, disconnect the connector and remove the paddle shift switch. (Model with paddle shift)



2. Release the claws and remove the screws, then detach the cover - spoke.



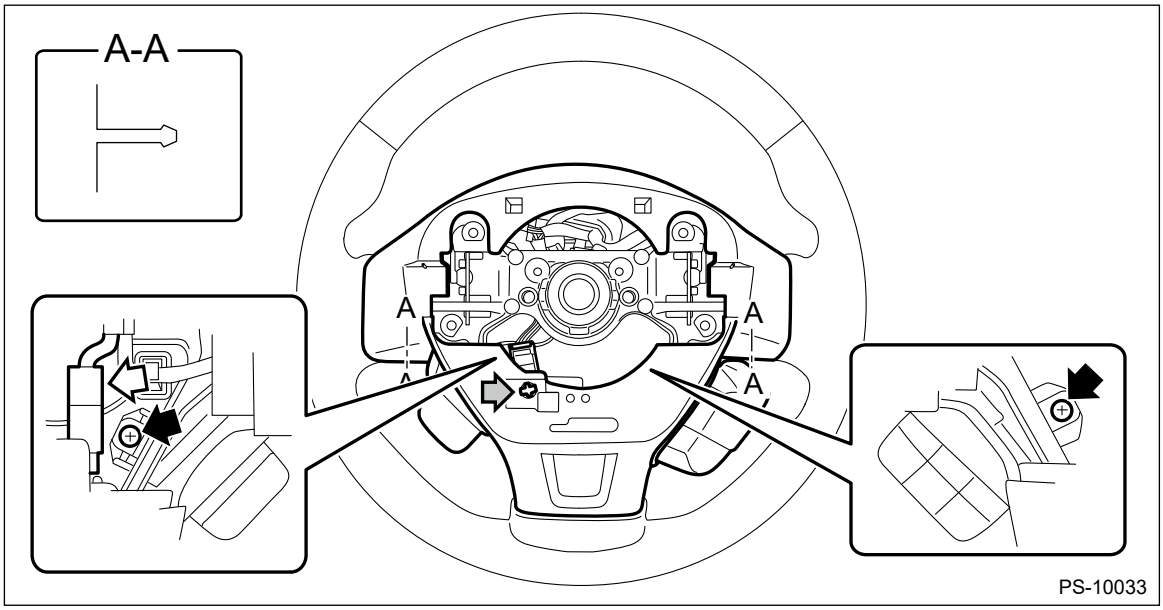
3. Remove the cover - steering wheel LWR.

Caution:

Carefully remove the cover - steering wheel LWR and the steering wheel. Do not pull with excessive force. Otherwise, heat wire between cover - steering wheel LWR and steering wheel may be damaged. (Model with steering heater)

(1) Remove the connectors and screws. (Model with MID switch and model with steering heater switch)

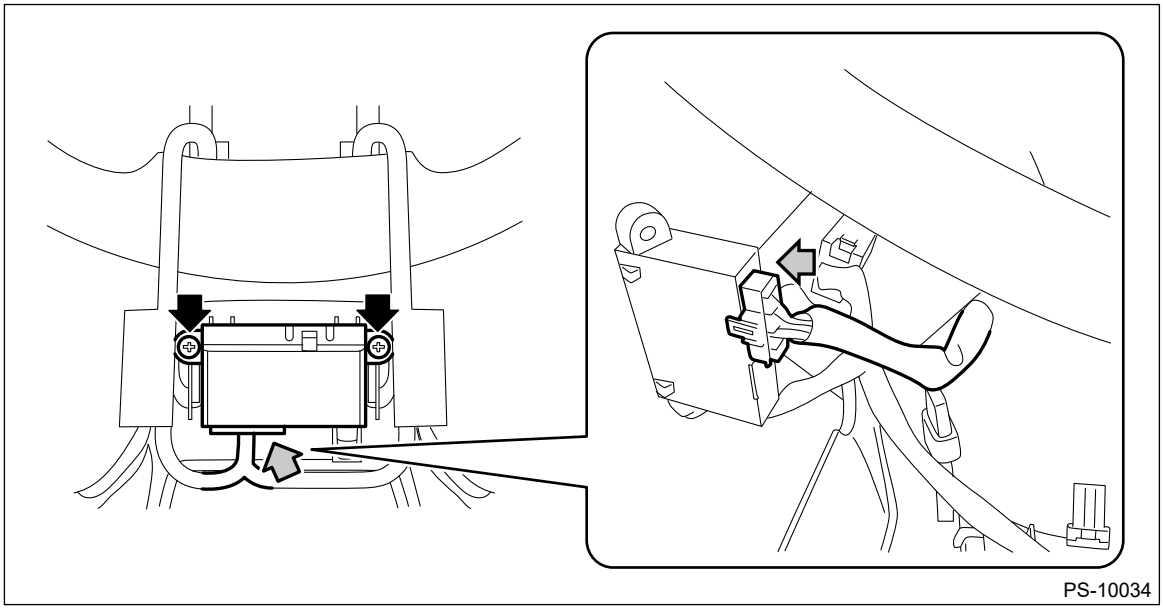
(2) Release the claws and harness clips, detach the cover - steering wheel LWR.



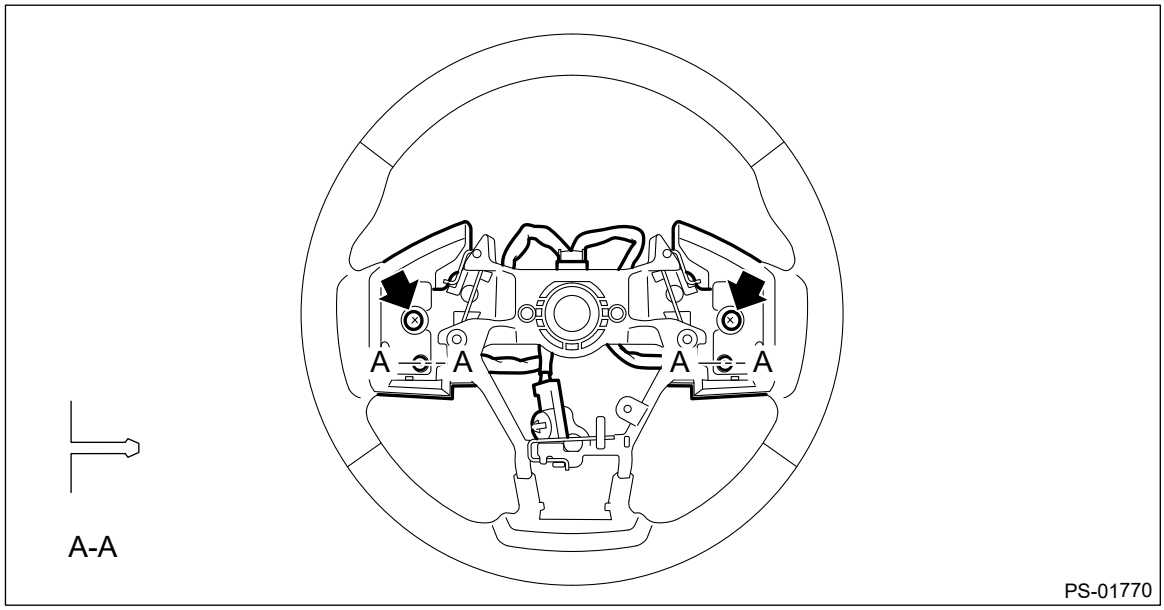
Note:

For model with steering heater, disconnect the screw and connector with the cover - steering wheel LWR removed from steering wheel, and remove the steering heater unit.

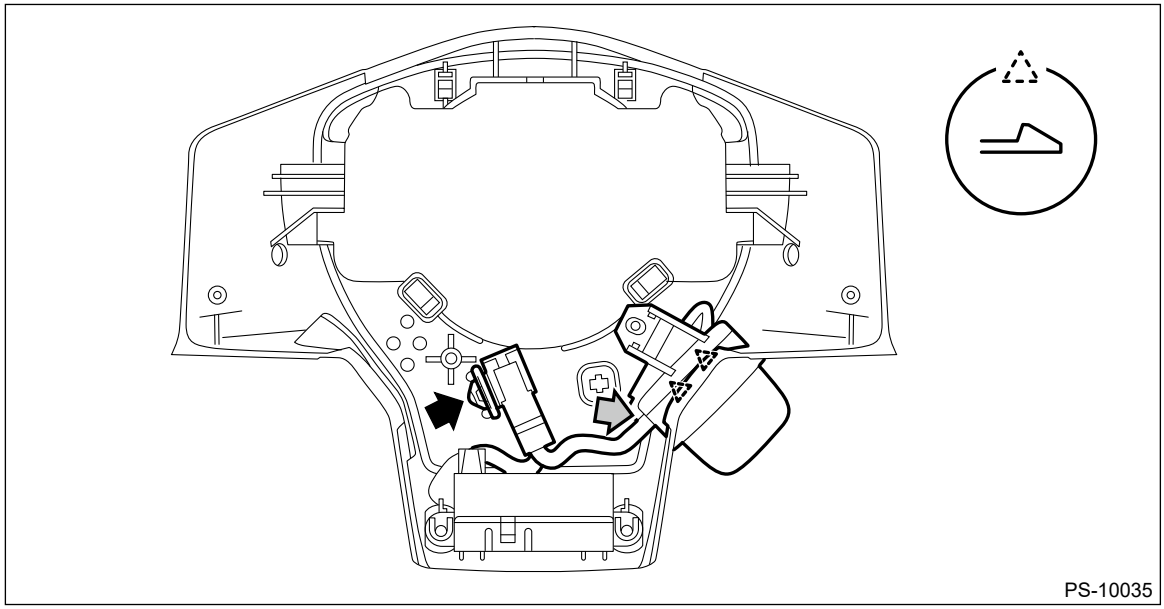
Also, remove the heater elements RH and LH secured with double-sided tape from the cover - steering wheel LWR.



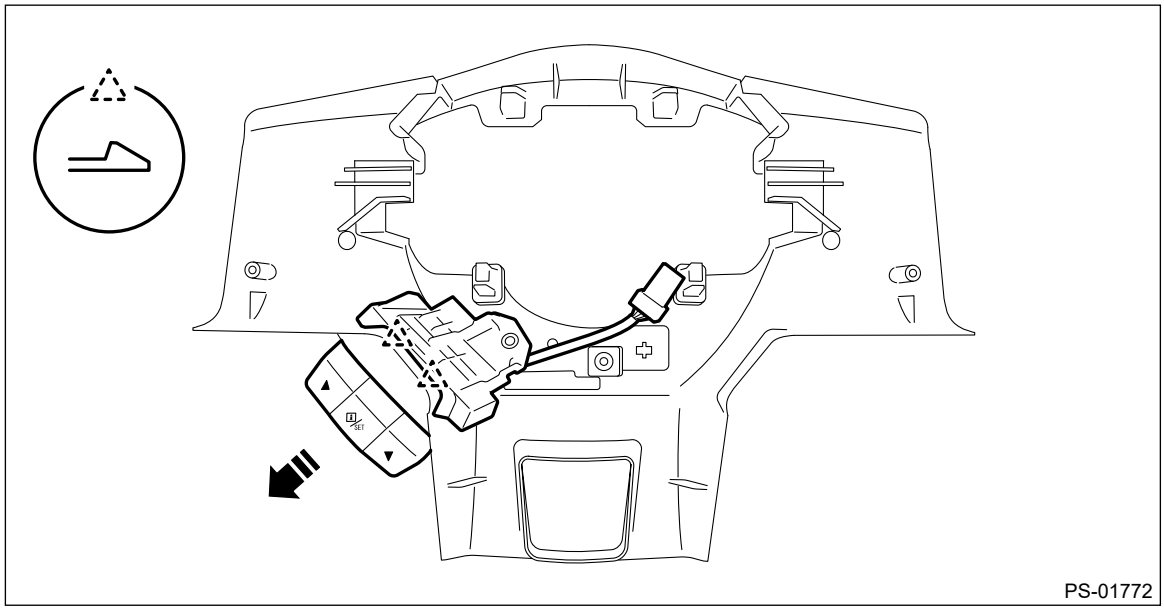
4. Release the claws and remove the screws, then detach the satellite switch.



5. Release the connector and claws, and remove the steering heater switch and steering heater unit. (Model with steering heater)



6. Release the claws, and then remove the MID switch. (Model with MID switch)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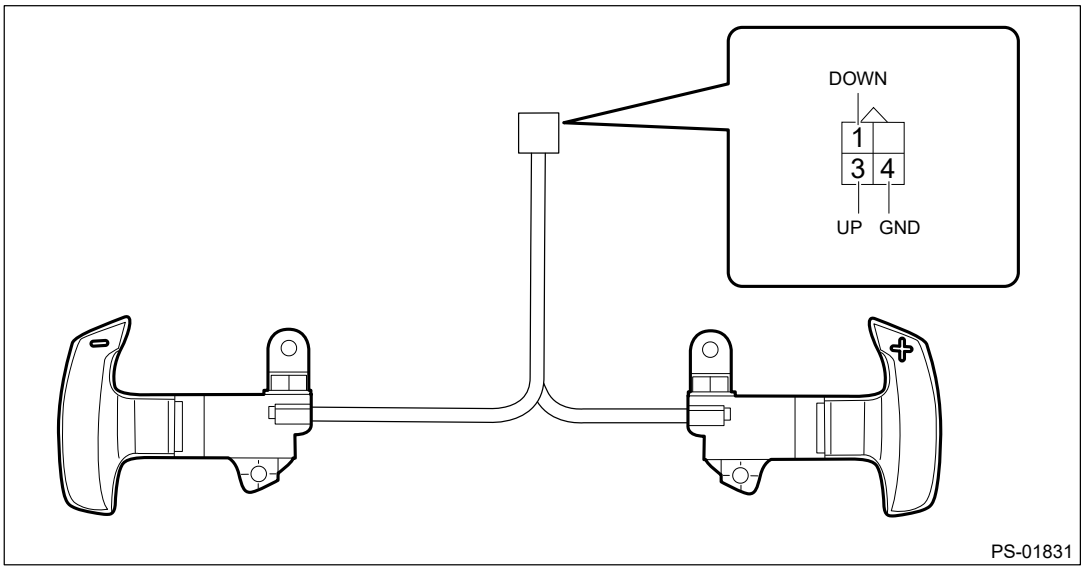
INSPECTION

1. PADDLE SHIFT SWITCH

1. Measure the resistance between connector terminals.
   Preparation tool:
   Circuit tester



Terminal No.	Inspection conditions	Standard
3 — 4	Operate the + side of paddle shift assembly and hold it.	Less than 10 Ω
1 — 4	Operate the − side of paddle shift assembly and hold it.	Less than 10 Ω
1 — 4 3 — 4	Do not operate the paddle shift assembly.	Is the resistance 1 MΩ or more?

2. Replace the paddle shift switch if the inspection result is not within the standard value.

2. SATELLITE SWITCH ASSEMBLY

Refer to switch inspection in each section.

- Audio (navigation) switch: Ref. to ENTERTAINMENT>Switches and Harness>INSPECTION.
- Cruise control command switch: Ref. to CRUISE CONTROL SYSTEM>Cruise Control Command Switch>INSPECTION.
- EyeSight steering switch: Ref. to EyeSight>Switches and Harness>INSPECTION > EyeSight STEERING SWITCH.

3. MID SWITCH

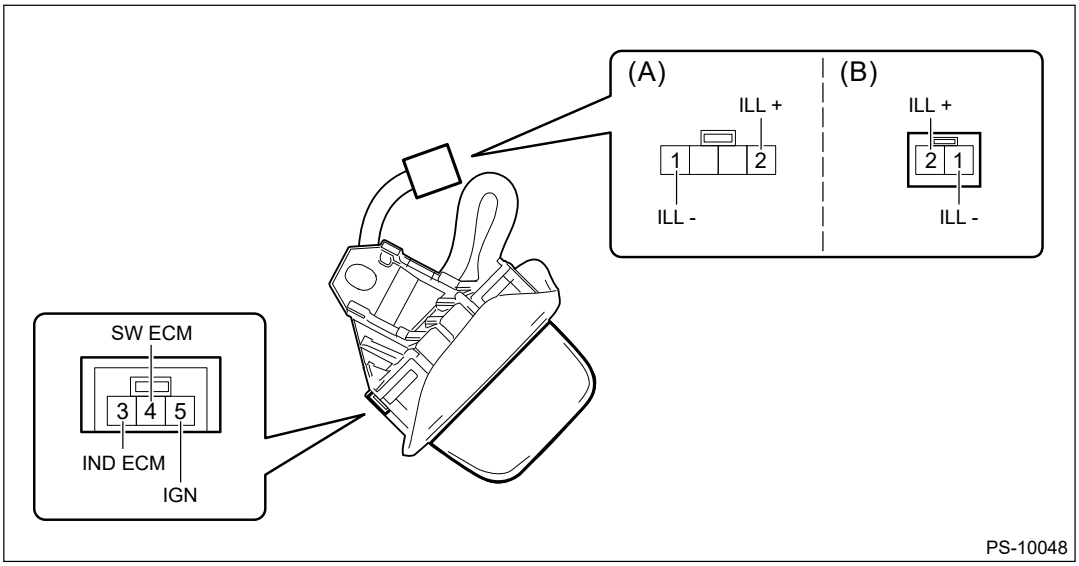
Refer to “Steering Switch” of “INSTRUMENTATION/DRIVER INFO” section. Ref. to INSTRUMENTATION/DRIVER INFO>Steering Switch>INSPECTION.

4. STEERING HEATER SWITCH

1. Measure the resistance between connector terminals.

Preparation tool:

Circuit tester



(A) Model without MID switch (B) Model with MID switch

Terminal No.	Inspection conditions	Standard
4 — 5	Operate the switch and hold it.	Less than 1 Ω
	Do not operate the switch.	1 MΩ or more

2. Apply battery voltage between the connector terminals to check lighting condition of illumination and indicator inside the switch.

Terminal No.	Inspection conditions	Specification
2 (+) — 1 (−)	Apply battery voltage.	Illumination (mark) turns on.
5 (+) — 3 (−)		Indicator turns on.
2 (+) — 1 (−) 5 (+) — 3 (−)	Apply battery voltage simultaneously.	Illumination (mark) and indicator turn on in dimmed condition at one level.

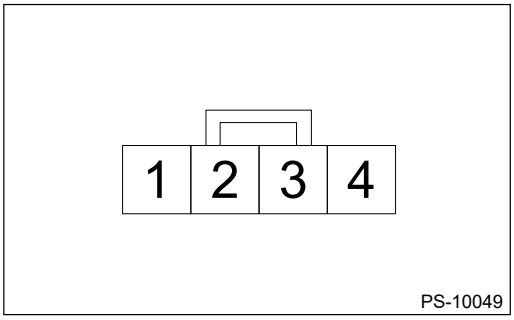
3. Replace the steering heater switch if the inspection result is not within the standard value.

5. STEERING WHEEL HEATER

1. Measure the resistance between connector terminals.

Preparation tool:

Circuit tester



Terminal No.	Inspection conditions	Standard

Thermistor: 1 — 2	Outside temperature: 10 — 30°C	8.13 — 18.43 kΩ
Thermostat: 3 — 4		1.8 — 2.4 Ω

2. Replace the steering wheel if the inspection result is not within the standard value.

INSTALLATION

Caution:

- **Before handling the airbag system components, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". Ref. to AIRBAG SYSTEM>General Description>CAUTION.**
- **Be careful not to damage the curtain airbag module during removal.**
- **If the steering wheel and steering angle sensor are removed, perform "VSC(VDC) Centering Mode" of the VDC. Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT.**

1. Align the center position of the roll connector. Ref. to AIRBAG SYSTEM>Roll Connector>ADJUSTMENT.
2. Install the steering wheel.
   Tightening torque:
   Steering wheel: 39 N•m (3.98 kgf-m, 28.8 ft-lb)
   Clearance:
   Between cover assembly - column and steering wheel: 4 — 6 mm (0.16 — 0.24 in)
3. Install the driver's airbag module. Ref. to AIRBAG SYSTEM>Driver's Airbag Module>INSTALLATION.
4. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.

REMOVAL

Caution:

Before handling the airbag system components, always refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". Ref. to AIRBAG SYSTEM>General Description>CAUTION.

1. Set the tire to the straight-ahead position.
2. Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. Ref. to NOTE>NOTE > BATTERY.

   Note:

   For model with battery sensor, disconnect the ground terminal from battery sensor.
3. Remove the driver's airbag module. Ref. to AIRBAG SYSTEM>Driver's Airbag Module>REMOVAL.
4. Remove the steering wheel.

   Caution:

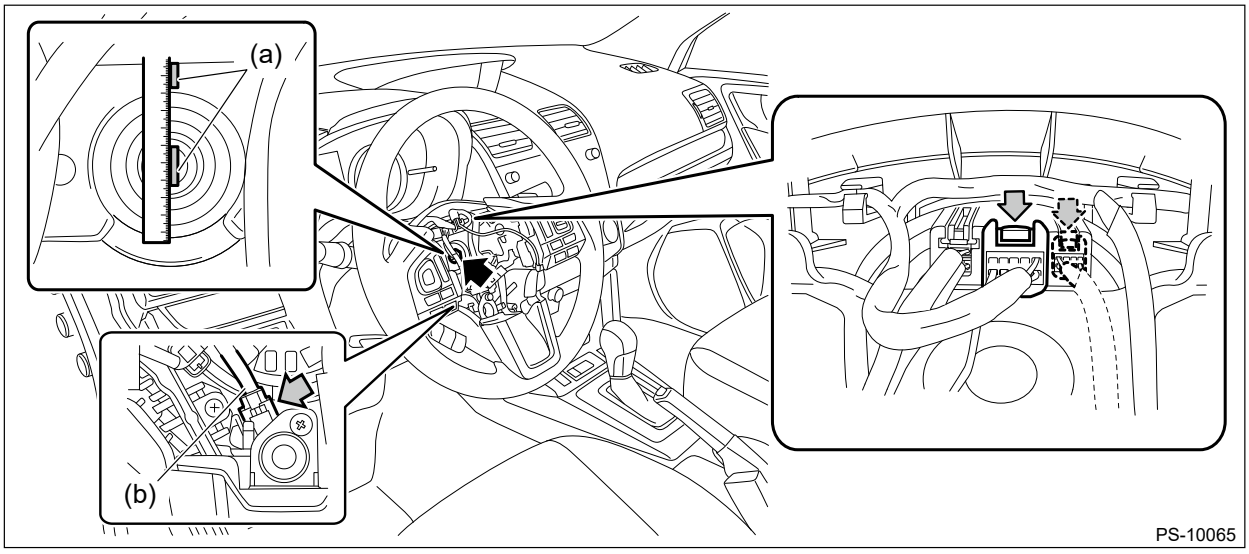
   - **Always use the steering wheel puller for removal to avoid deforming the steering wheel.**
   - **If the steering wheel has been removed, make sure that the steering roll connector is not turned from the original position.**

   (1) Disconnect the connector and remove the nut.

   (2) Put an alignment mark (a) using a ruler as shown in the figure, and remove the steering wheel.

   Preparation tool:

   Steering wheel puller



(b) Model with steering heater

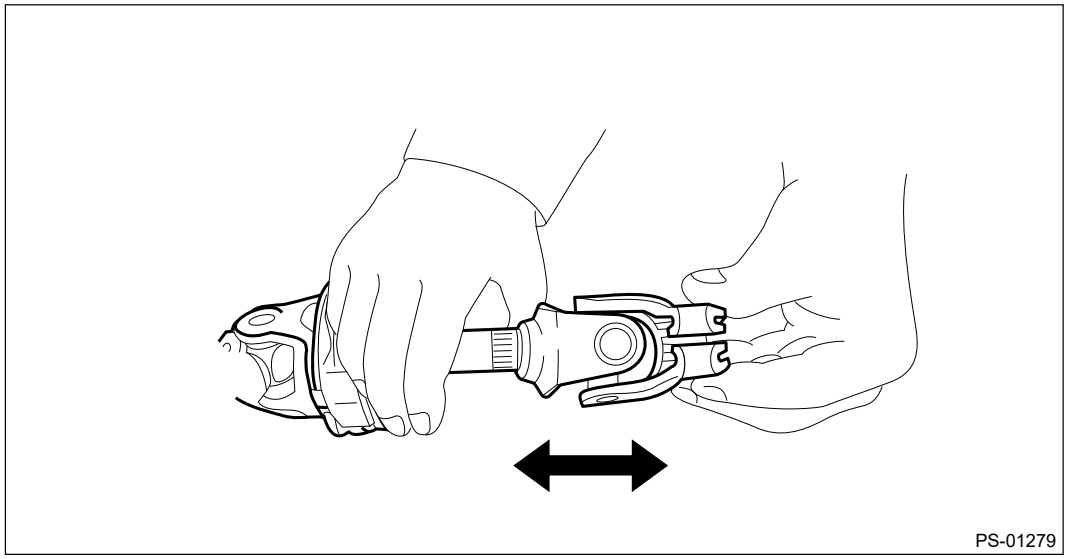
INSPECTION

Check for wear, damage or any other faults.

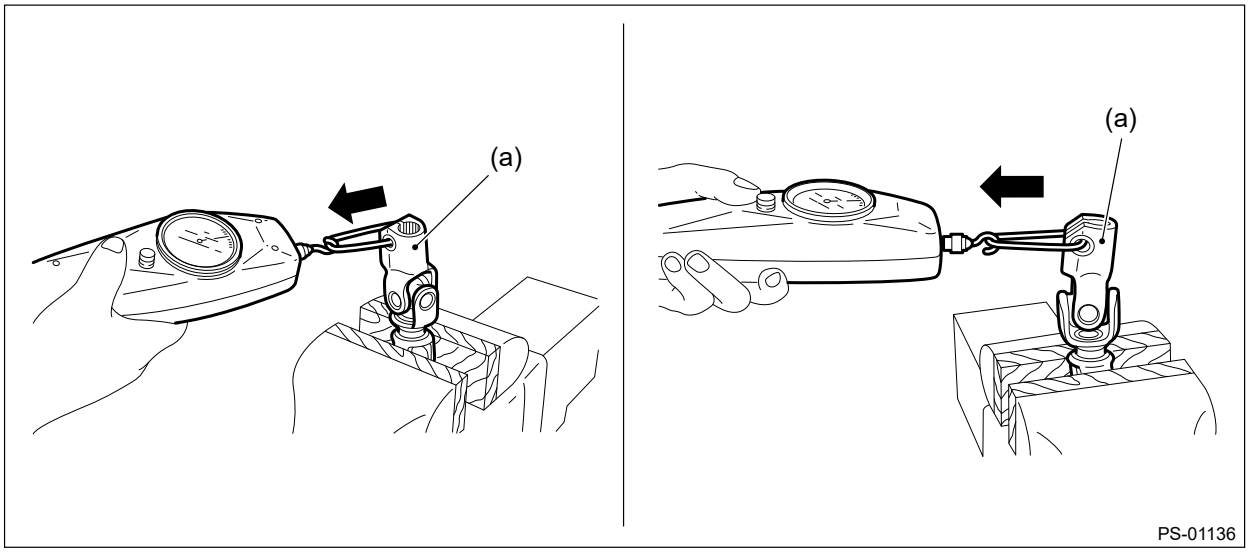
1. Check the universal joint assembly - steering for excessive looseness.

   Service limit:

   Play of the universal joint assembly - steering: 0 mm (0 in)



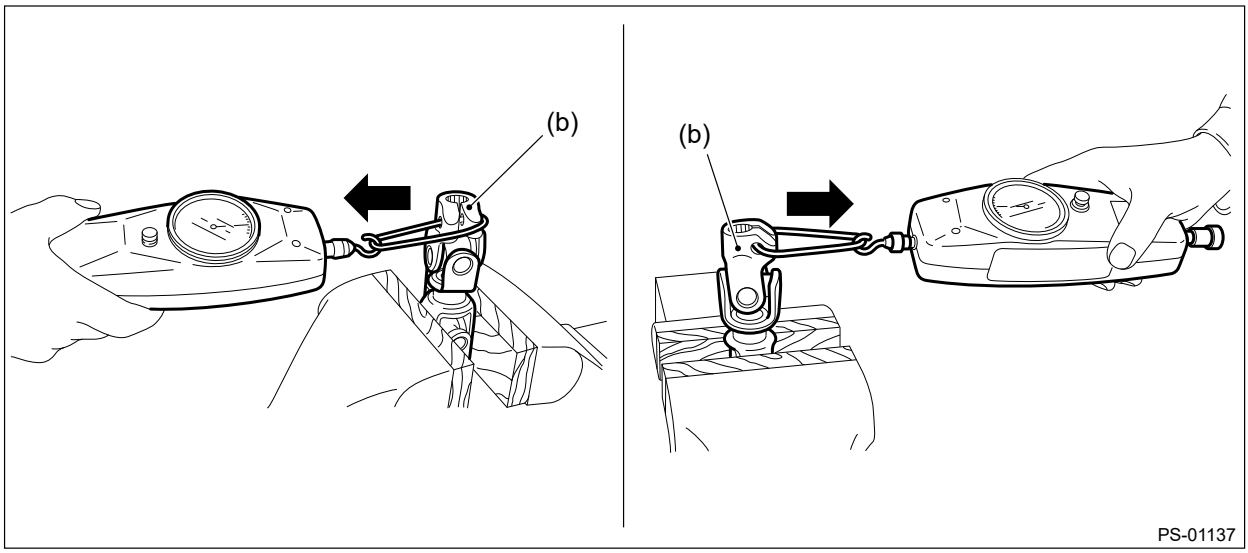
2. Measure the swing torque of the universal joint assembly - steering.
   (1) Place the universal joint assembly - steering between wooden blocks and fix it on a vise.
   (2) With the yoke (a) of gearbox side facing up, measure the swing torque in two directions.



   Service limit:

   Maximum load: 6.8 N (0.68 kgf, 1.54 lbf) or less

   (3) With the yoke (b) of the column assembly - steering side facing up, measure the swing torque in two directions.



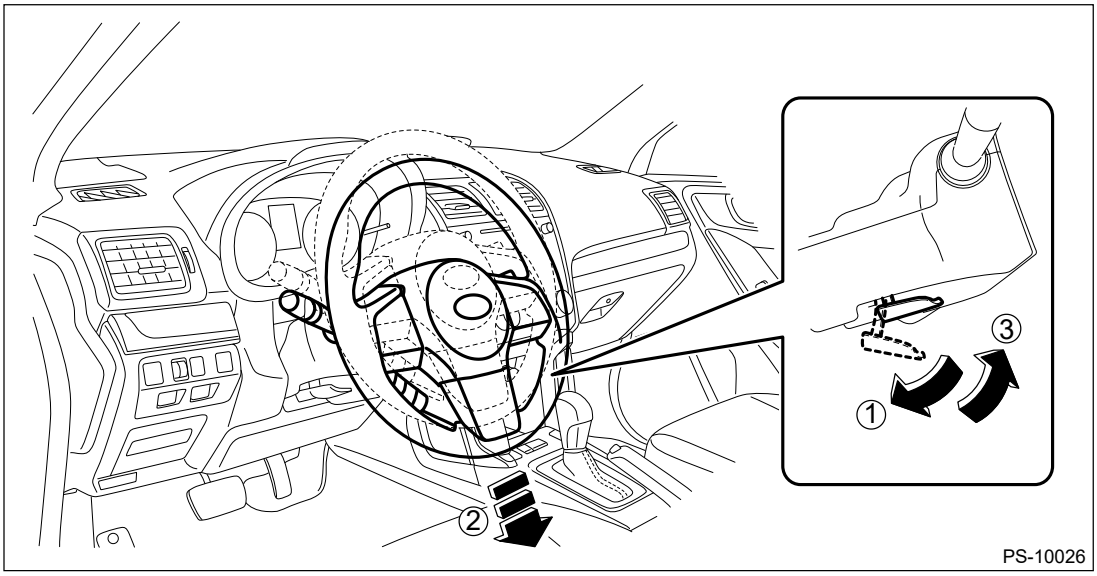
Service limit:

Maximum load: 8.1 N (0.81 kgf, 1.84 lbf) or less

(4) Replace as necessary, if it is found defective.

INSTALLATION

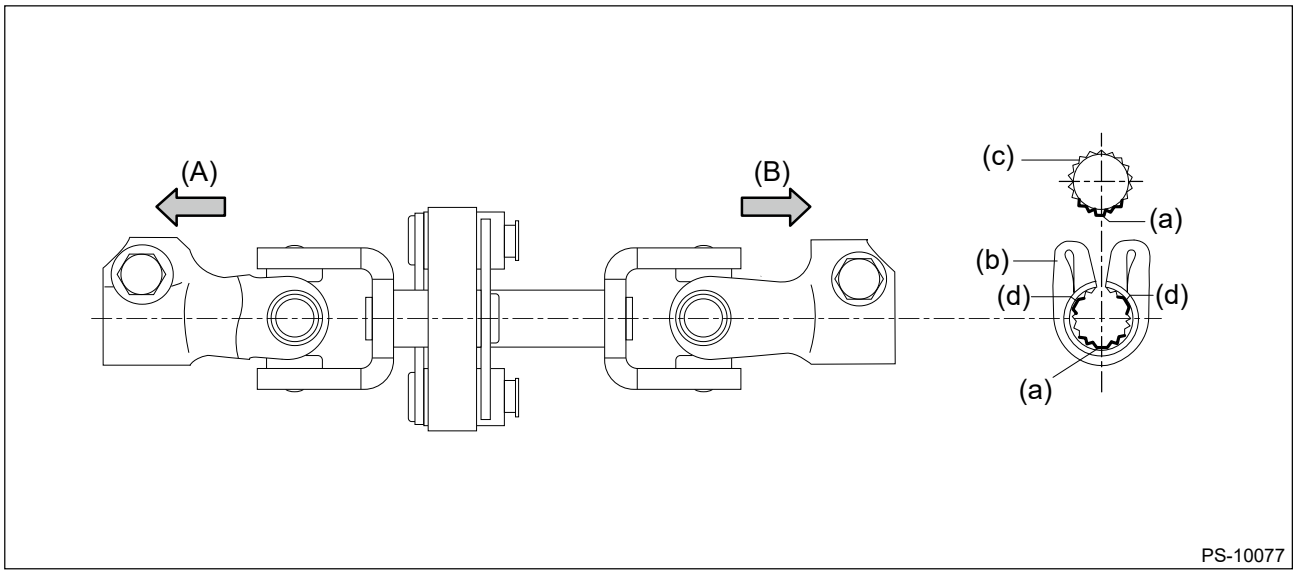
1. Before installation, check the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>INSPECTION.
2. Adjust the tilt position of the column assembly - steering to the neutral position and lock the tilt lever.



3. Align the cutout portion (a) at serrated section of the column shaft (c) and yoke (b), then install the universal joint assembly - steering into column shaft.

Caution:

Be sure to align the protrusion section (a) of the column shaft side with the cutout (a) of the serration. If another cutout portions (d) are used for alignment, the bolt of the universal joint assembly - steering cannot be assembled.



(A) Gearbox side (B) Column shaft side

4. Install the universal joint assembly - steering to the serrations of the gearbox assembly by matching

the alignment marks.

5. Tighten the bolts on the gearbox side first, and then the column shaft side.

Caution:

Be sure to follow the tightening order and tightening torque of the universal joint assembly - steering to avoid the steering effort from becoming heavy.

Tightening torque:

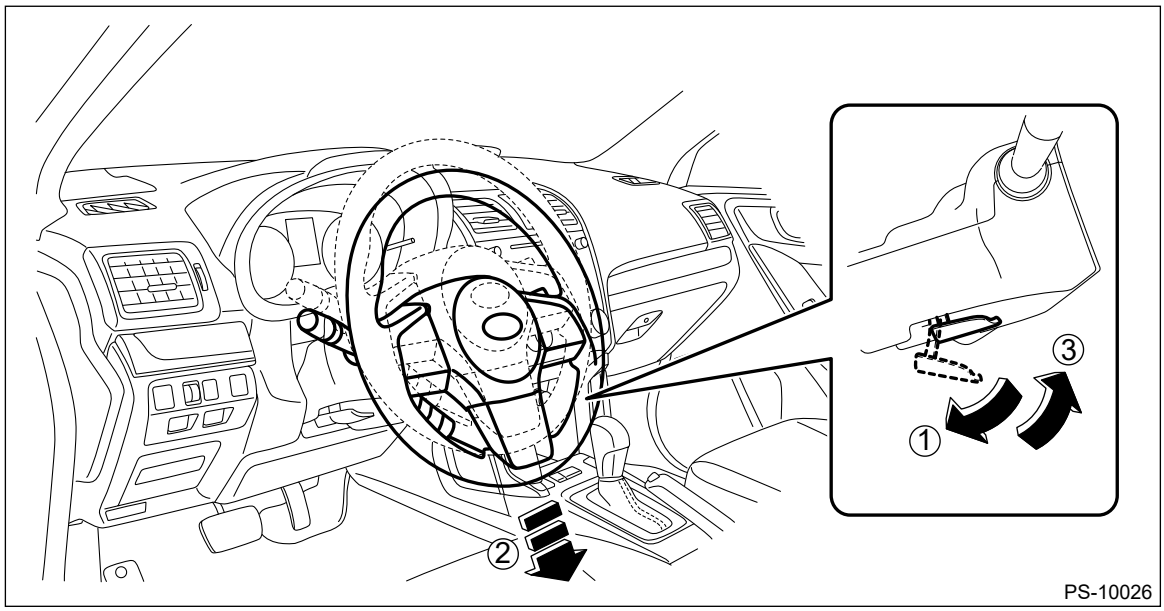
24 N·m (2.45 kgf-m, 17.7 ft-lb)

Clearance:

Universal joint assembly - steering coupling to adjacent parts: 15 mm (0.59 in) or more

REMOVAL

1. Adjust the tilt position of the column assembly - steering to the lowest position and lock the tilt lever.



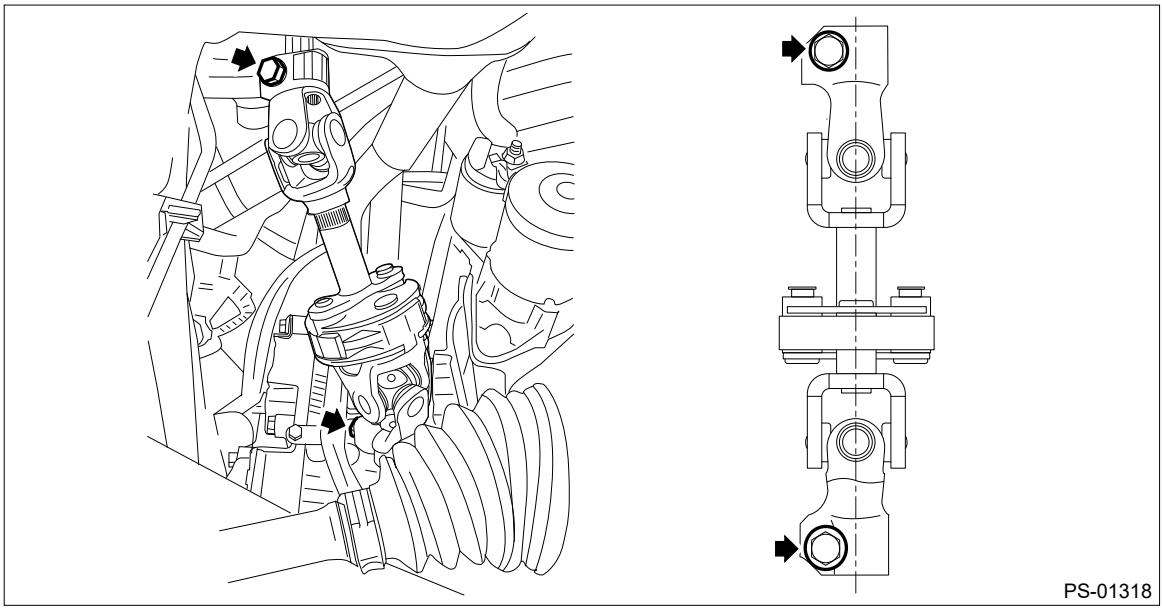
2. Remove the universal joint assembly - steering.
   (1) Place alignment marks on the universal joint assembly - steering.

Note:

Place alignment marks on the following positions.

- **Between the column assembly - steering and the universal joint assembly - steering**
- **Between the steering gearbox assembly and the universal joint assembly - steering**

   (2) Remove the bolt, and remove the universal joint assembly - steering.



3. Prevent the steering wheel from turning using the seat belt.