FRONT SUSPENSION

FS

SPECIFICATION

1. FRONT ALIGNMENT (INSPECTION VALUE)

- WRX model

Tire size		235/45R17	245/40R18
Wheel arch height (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$)) mm (in)		375 (14.76)	370 (14.57)
Camber (tolerance: ±0°45′ Differences between RH and LH: 45′ or less)		−0°45′	
Caster (referential value)		6°30′	6°33′
Steering angle (tolerance: ±1.5°)	Inner wheel	37.5°	36.4°
	Outer wheel	32.9°	32.0°
Toe-in mm (in)		0±3 (0±0.12) Toe angle (sum of both wheels): 0°±0°16′	
Kingpin angle (referential value)		15°14′	15°22′

- STI model

Tire size		245/40R18	245/35R19
Wheel arch height (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$)) mm (in)		370 (14.57)	
Camber (tolerance: ±0°45′ Differences between RH and LH: 45′ or less)		−0°45′	
Caster (referential value)		6°33′	
Steering angle (tolerance: ±1.5°)	Inner wheel	36.3°	
	Outer wheel	32.0°	
Toe-in mm (in)		0±3 (0±0.12) Toe angle (sum of both wheels): 0°±0°16′	
Kingpin angle (referential value)		15°22′	

2. REAR ALIGNMENT (INSPECTION VALUE)

- WRX model

Tire size	235/45R17	245/40R18
Wheel arch height (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$)) mm (in)	367 (14.45)	361 (14.21)
Camber (tolerance: ±0°45′ Differences between RH and LH: 45′ or less)	−1°30′	−1°40′

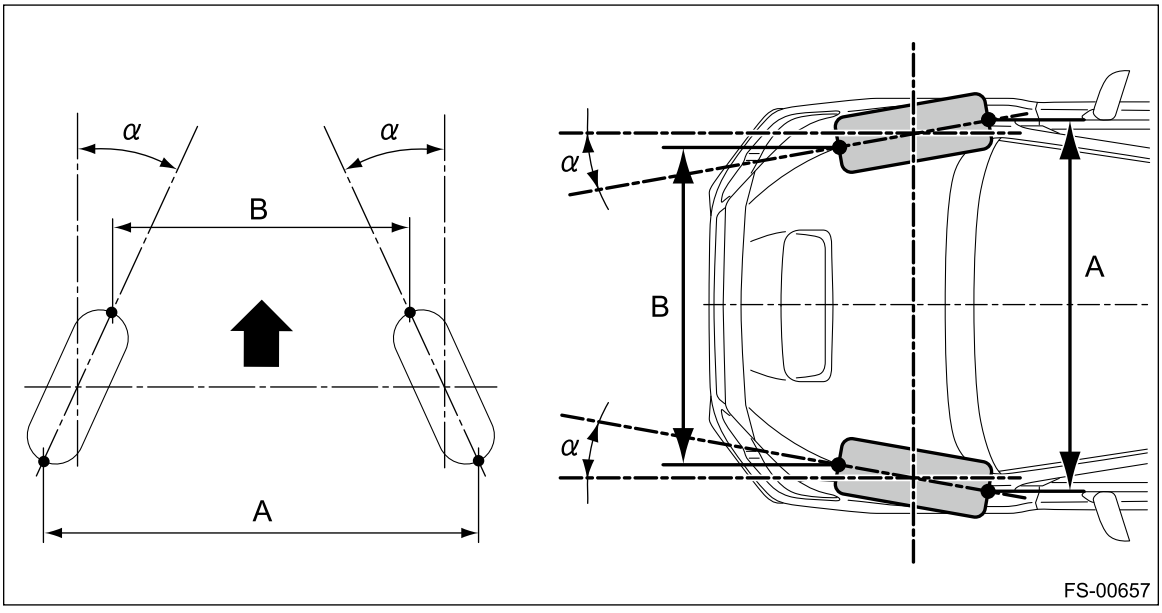
Toe-in	mm (in)	IN3±3 (IN0.12±0.12) Toe angle (sum of both wheels): IN0°16′ ±16′
Thrust angle (tolerance: 0°00′±30′)		0°00′

- STI model

Tire size		245/40R18	245/35R19
Wheel arch height (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$))	mm (in)	362 (14.25)	
Camber (tolerance: ±0°45′ Differences between RH and LH: 45′ or less)		−1°40′	
Toe-in	mm (in)	IN3±3 (IN0.12±0.12) Toe angle (sum of both wheels): IN0°16′ ±16′	
Thrust angle (tolerance: 0°00′±30′)		0°00′	

Note:

- **Adjust with the value less than the inspection value, taking aging variation into consideration.**
- **Front toe-in, rear toe-in and front camber can be adjusted. Adjust if the value of toe-in or camber exceeds the tolerance range of the specification chart.**
- **Other items except for front toe-in, rear toe-in and front camber that are described in the specification chart cannot be adjusted.**
- **If other items exceed the tolerance range of the specification chart, check the suspension parts and connections for deformation. If defective, replace with new parts.**

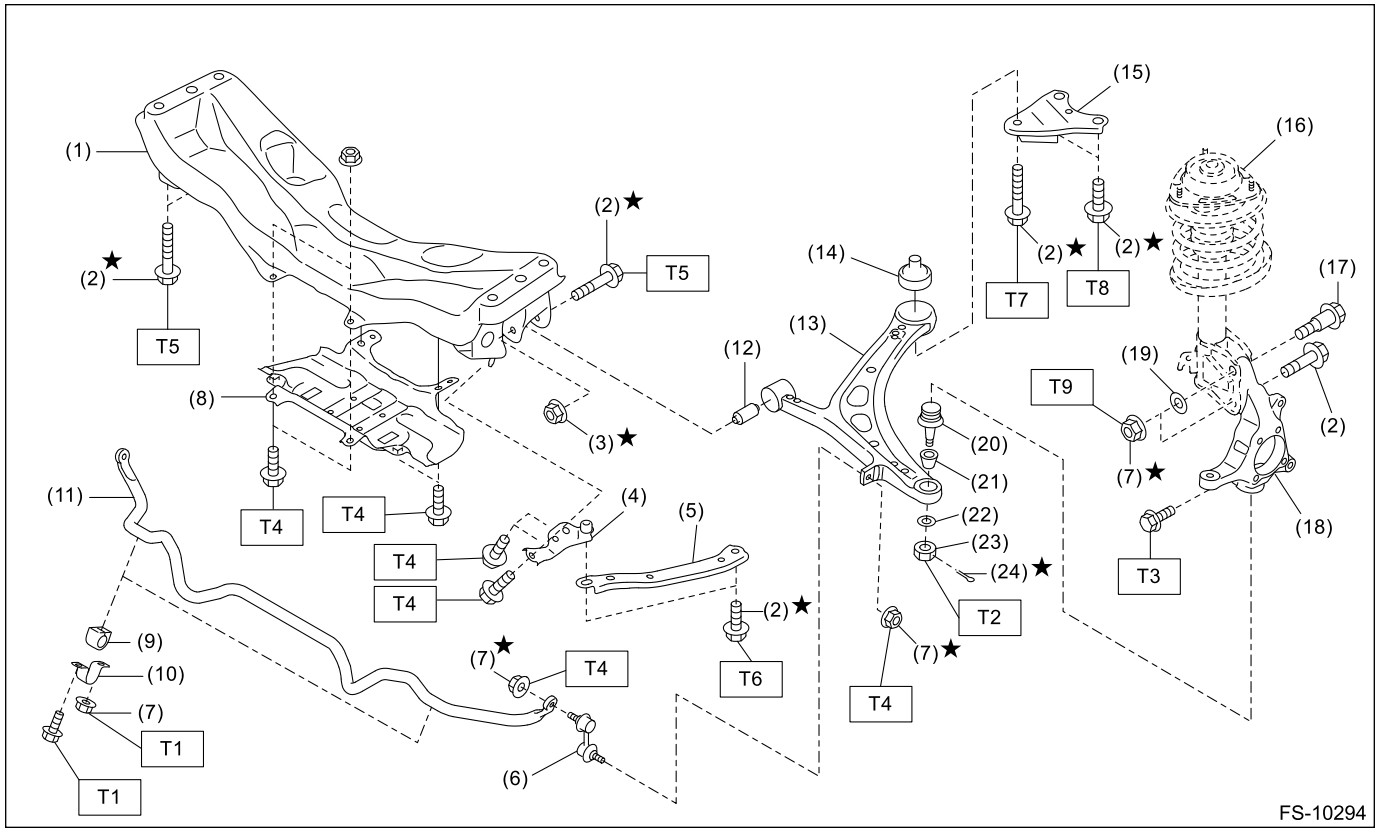


A − B = Positive: Toe-in, Negative: Toe-out
α = Individual toe angles

COMPONENT

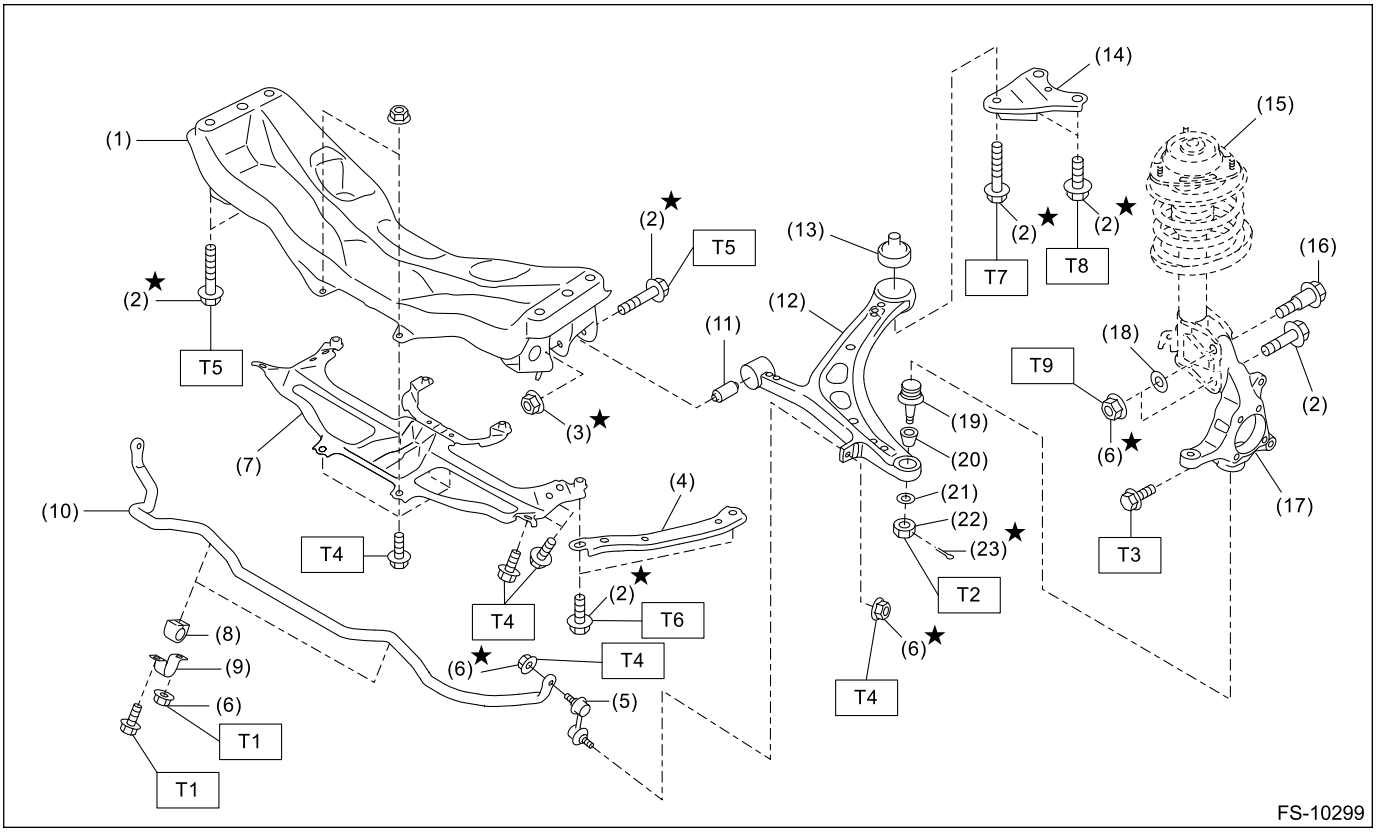
1. FRONT SUSPENSION

- Electric power steering model



(1) Front crossmember COMPL	(13) Front arm ASSY	***Tightening torque: N·m (kgf-m, ft-lb)***
(2) Flange bolt	(14) Pillow ball bushing	***T1: 25 (2.5, 18.4)***
(3) Self-locking nut	(15) Front arm rear plate	***T2: 39 (4, 28.8)***
(4) Support plate - front crossmember	(16) Front strut ASSY	***T3: 50 (5.1, 36.9)***
(5) Front support	(17) Adjusting bolt	***T4: 60 (6.1, 44.3)***
(6) Stabilizer link	(18) Front axle housing	***T5: 95 (9.7, 70.1)***
(7) Flange nut	(19) Adjusting washer	***T6: 100 (10.2, 73.8)***
(8) Front crossmember support	(20) Ball joint	***T7: 140 (14.3, 103.3)***
(9) Bushing - stabilizer	(21) Boss - transverse link	***T8: 150 (15.3, 110.6)***
(10) Clamp - stabilizer bushing	(22) Washer	***T9: 155 (15.8, 114.3)***
(11) Front stabilizer	(23) Castle nut	
(12) Bushing front - front arm	(24) Cotter pin	

- Hydraulic power steering model

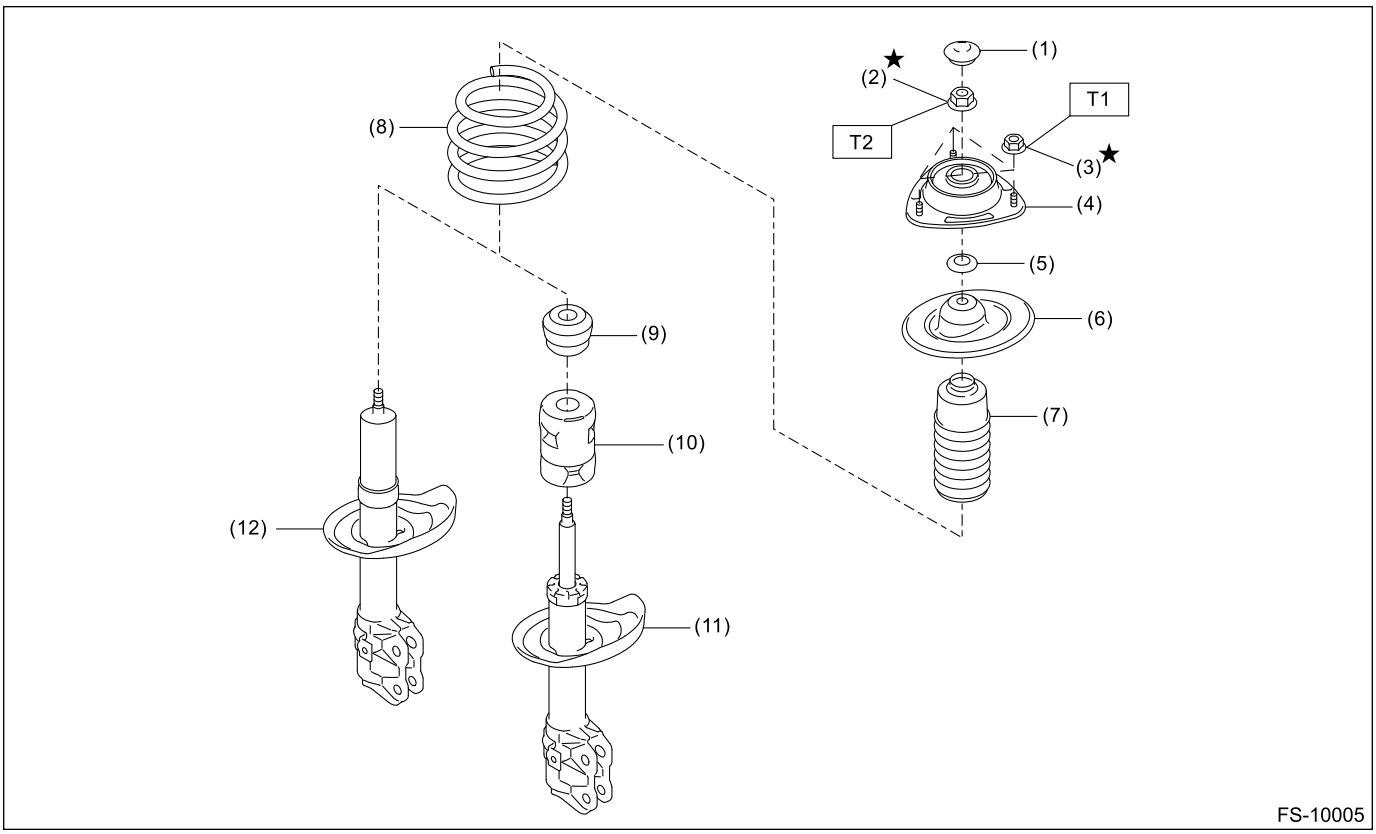


(1) Front crossmember COMPL
(2) Flange bolt
(3) Self-locking nut
(4) Front support
(5) Stabilizer link
(6) Flange nut
(7) Front crossmember support
(8) Bushing - stabilizer
(9) Clamp - stabilizer bushing
(10) Front stabilizer
(11) Bushing front - front arm
(12) Front arm ASSY
(13) Pillow ball bushing
(14) Front arm rear plate
(15) Front strut ASSY
(16) Adjusting bolt
(17) Front axle housing
(18) Adjusting washer
(19) Ball joint
(20) Boss - transverse link
(21) Washer
(22) Castle nut
(23) Cotter pin

Tightening torque: N·m (kgf-m, ft-lb)

T1: 25 (2.5, 18.4)
T2: 39 (4, 28.8)
T3: 50 (5.1, 36.9)
T4: 60 (6.1, 44.3)
T5: 95 (9.7, 70.1)
T6: 100 (10.2, 73.8)
T7: 140 (14.3, 103.3)
T8: 150 (15.3, 110.6)
T9: 155 (15.8, 114.3)

2. FRONT STRUT



(1)	Dust seal - front strut	(7)	Dust cover - front strut	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Self-locking nut	(8)	Coil spring - front	***T1: 20 (2, 14.8)***
(3)	Flange nut	(9)	Helper - front strut (standard damper)	***T2: 55 (5.6, 40.6)***
(4)	Strut mount - front	(10)	Dust cover inner (standard damper)	
(5)	Spacer - front strut	(11)	Strut COMPL - front (standard damper)	
(6)	Spring seat UPR - front strut	(12)	Strut COMPL - front (inverted damper)	

FRONT SUSPENSION > General Description

CAUTION

- When performing any work, always wear work clothes, a work cap and protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
- When disposing of strut COMPL - front, be sure to bleed the oil or gas out completely. Also, do not expose to flames or fire.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Use SUBARU genuine grease, the recommended or equivalent. Do not mix grease etc. of different grades or manufacturers.

- Do not secure a part in a vise directly. Place cushioning materials such as wood pieces, blocks, aluminum plates, or waste cloth between the part and the vise.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- When the suspension-related components have been removed, installed or replaced, perform the following adjustment.
  - Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
  - VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.
- For parts which are not reusable, always use new parts. Other parts should be replaced with new parts as required.
- When handling oil or fuel, adhere to the following to prevent unexpected accident.
  - Be careful with fire.
  - Prepare a container to catch grease or oil, etc. If any grease or oil spills, wipe it off and clean immediately to prevent from penetrating into floor or flowing outside.
  - Follow all government and local regulations concerning disposal of refuse when disposing.
- Be sure that the surface of brake disc or brake pad is free from grease or oil.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Some vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.

FRONT SUSPENSION > General Description

PREPARATION TOOL

1. SPECIAL TOOL

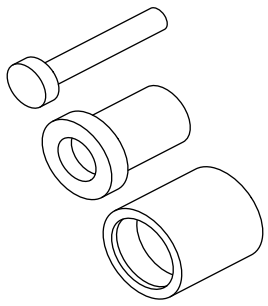
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-927680000	927680000	INSTALLER & REMOVER SET	Used for replacing the bushing front - front arm of front arm assembly.

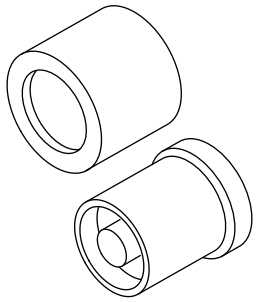
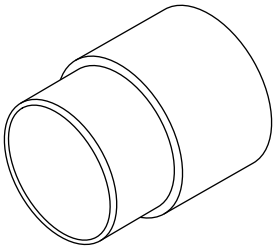
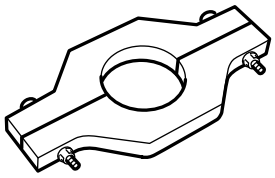
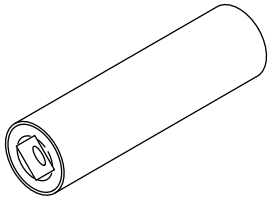
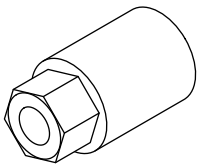
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST20099AE020	20099AE020	INSTALLER & REMOVER	Used for replacing pillow ball bushing of aluminum front arm.
 ST28099PA010	28099PA010	HOUSING STAND	• Used for removing pillow ball bushing of aluminum front arm. • Used together with INSTALLER & REMOVER (20099AE020).
 ST18723AA000	18723AA000	REMOVER	• Used for assembling pillow ball bushing of aluminum front arm. • Used together with INSTALLER & REMOVER (20099AE020).
 ST20299AG020	20299AG020	STUD BOLT SOCKET	Used for removing and installing the stud bolt for front arm assembly installing portion.

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST20399AG000	20399AG000	STRUT MOUNT SOCKET	• Used for disassembling and assembling strut assembly and shock absorber assembly. • Used for checking center nut torque of strut assembly and shock absorber assembly.
SSM 4 STSSM4	—	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
DST-i	Used together with Subaru Select Monitor 4.
Alignment gauge	Used for measuring wheel alignment.
Alignment gauge adapter	Used for measuring wheel alignment.
Turning radius gauge	Used for measuring wheel alignment.
Toe-in gauge	Used for toe-in measurement.
Tie-rod ball joint puller	Used for disconnecting tie-rod end.
Dial gauge	Used for damper strut measurement.
Coil spring compressor	Used for disassembling and assembling strut assembly and shock absorber assembly.
Shackle	• Two units used for hanging power unit. • Attached to both end of chain sling and connected to engine hook. • Load capacity: 250 kg (551 lb) or more
Sling belt	• Used for removing and installing crossmembers. • Width: 35 — 40 mm (1.38 — 1.57 in) • Length: 2 m (6.6 ft) • Load capacity: 1 t (2205 lb) or more
Wire rope	• Used for connecting the shackle to hang power unit. • Load capacity: 250 kg (551 lb) or more

INSPECTION

Check the following items before performing the wheel alignment measurement.

- Tire inflation pressure
- Uneven wear of RH and LH tires, or difference of sizes
- Tire runout
- Excessive play and wear of ball joint
- Excessive play and wear of tie-rod end
- Excessive play of wheel bearing
- Right and left wheel base imbalance
- Deformation and excessive play of steering link
- Deformation and excessive play of suspension parts

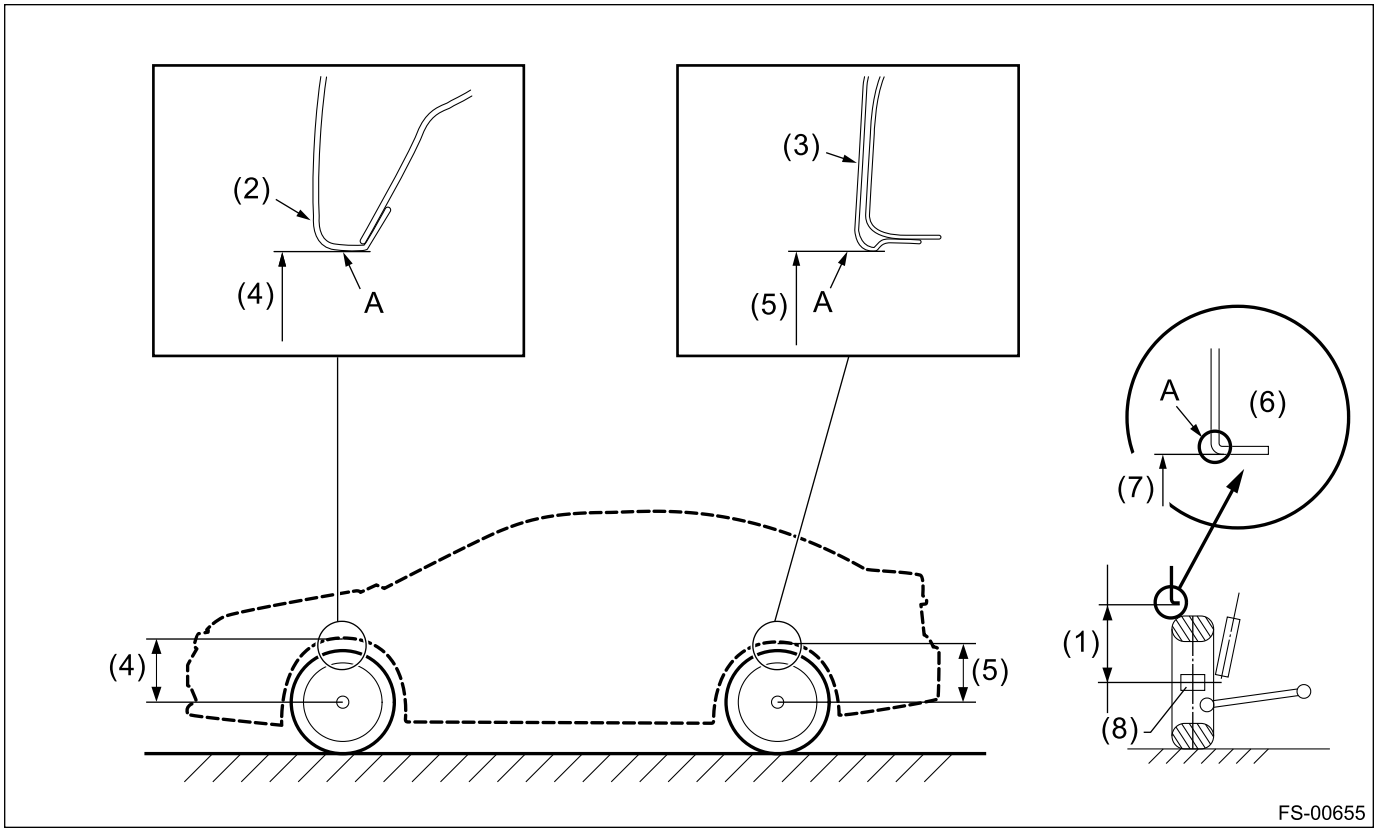
Check, adjust and measure the wheel alignment in accordance with the following procedures.

1	Wheel arch height (front and rear wheels)	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > WHEEL ARCH HEIGHT.
↓		
2	Camber (front wheel)	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > CAMBER. Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT > FRONT CAMBER.
	Camber (rear wheel)	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > CAMBER. **Note:** **Rear camber cannot be adjusted. If the value exceeds the lateral tolerance range, check the suspension parts and connections for deformation. If defective, replace with new parts.**
↓		
3	Caster (front wheel)	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > CASTER.
↓		
4	Adjustment of difference between right and left steering angles	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > STEERING ANGLE. Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT > ADJUSTMENT OF DIFFERENCE BETWEEN RIGHT AND LEFT STEERING ANGLES.

	↓	
5	Front wheel toe-in	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > FRONT WHEEL TOE-IN. Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT > FRONT WHEEL TOE-IN.
	↓	
6	Rear wheel toe-in	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > REAR WHEEL TOE-IN. Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT > REAR WHEEL TOE-IN.
	↓	
7	Thrust angle	Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > THRUST ANGLE. Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT > THRUST ANGLE.

1. WHEEL ARCH HEIGHT

1. Park the vehicle on a level surface.
2. Empty the vehicle so that it is at “curb weight”.
   Note:
   Empty the trunk or luggage room, load the spare tire, jack and service tools, and fill up the fuel tank.
3. Set the steering wheel in a straight-ahead position, and stabilize the suspension by moving the vehicle in a straight line for 5 m (16 ft) or more.
4. Suspend a thread from the wheel arch (point “A” in the figure below) and affix at a position directly above the center of wheel.
5. Measure the distance between the point “A” and the center of wheel.

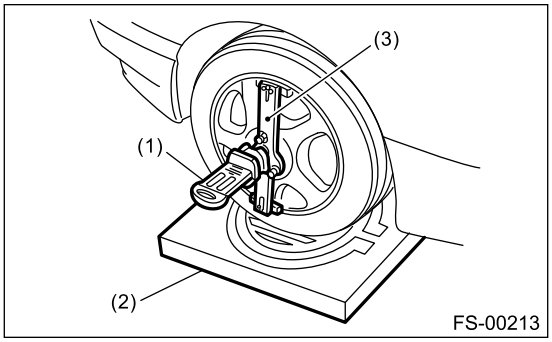


(1) Wheel arch height
(2) Front fender
(3) Rear quarter
(4) Front wheel arch height
(5) Rear wheel arch height
(6) Flange bend line
(7) Point of measurement
(8) End of spindle

Model	Tire size	Wheel arch height specification mm (in) (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$))	
		Front	Rear
WRX model	235/45R17	375 (14.76)	367 (14.45)
	245/40R18	370 (14.57)	361 (14.21)
STI model	245/40R18 245/35R19	370 (14.57)	362 (14.25)

2. CAMBER

1. Place the front tire on the turning radius gauge.
   Note:
   Make sure the ground contact surfaces of the front and rear tires are at the same height.
2. Set the adapter into the center of wheel, and then set the wheel alignment gauge.



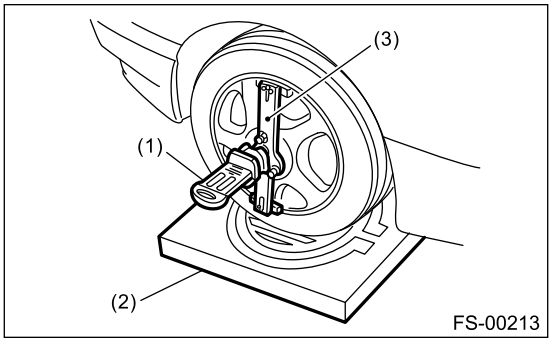
(1) Alignment gauge
(2) Turning radius gauge
(3) Adapter

3. Measure the camber angle in accordance with the operation manual for wheel alignment gauge.

Model/tire size		Front camber (difference between RH and LH 45′ or less)	Rear camber (difference between RH and LH 45′ or less)
WRX model	235/45R17	−0°45′±0°45′	−1°30′±0°45′
	245/40R18		−1°40′±0°45′
STI model	245/40R18		
	245/35R19		

3. CASTER

1. Place the front tire on the turning radius gauge. Make sure the ground contact surfaces of the front and rear tires are at the same height.
2. Set the adapter into the center of wheel, and then set the wheel alignment gauge.



(1) Alignment gauge
(2) Turning radius gauge
(3) Adapter

3. Measure the caster angle in accordance with the operation manual for wheel alignment gauge.

Model	Tire size	Caster
WRX model	235/45R17	6°30′

Model	Tire size	Caster
	245/40R18	6°33′
STI model	245/40R18 245/35R19	6°33′

4. STEERING ANGLE

1. Place the vehicle on turning radius gauge.
2. While depressing the brake pedal, turn the steering wheel fully to the left and right.
3. With the steering wheel held at each fully turned position, measure both the inner and outer wheel steering angles.

Model	Tire size	Inner wheel	Outer wheel
WRX model	235/45R17	37.5°±1.5°	32.9°±1.5°
	245/40R18	36.4°±1.5°	32.0°±1.5°
STI model	245/40R18 245/35R19	36.3°±1.5°	32.0°±1.5°

5. FRONT WHEEL TOE-IN

Toe-in: Inspection value

0±3 mm (0±0.12 in)

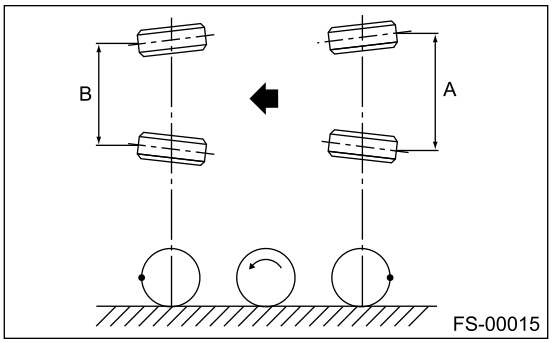
1. Set the toe-in gauge in the position at wheel axis center height behind the right and left front tires.
2. Place a mark at the center of both left and right tires, and measure distance "A" between the marks.
3. Move the vehicle forward to rotate the tires 180°.

   Note:

   Be sure to rotate the tires in the forward direction.
4. Measure the distance "B" between the left and right marks.

   Find toe-in using the following calculation:

   A − B = Toe-in



6. REAR WHEEL TOE-IN

Refer to the FRONT WHEEL TOE-IN for rear toe-in inspection procedures. Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION > FRONT WHEEL TOE-IN.

Toe-in: Inspection value

3±3 mm (0.12±0.12 in)

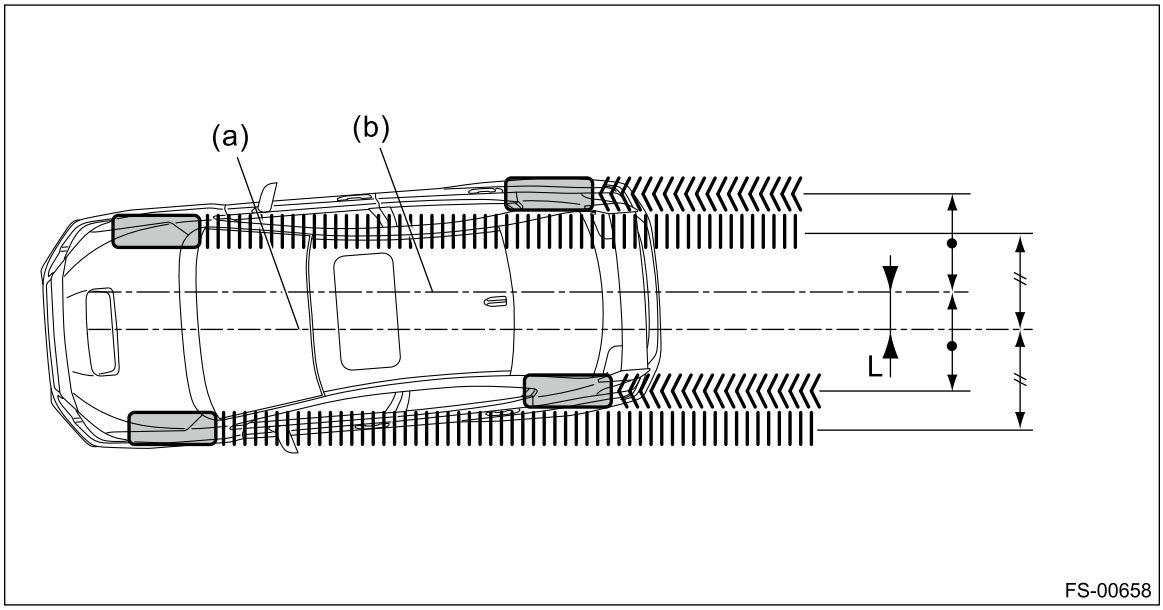
7. THRUST ANGLE

1. Park the vehicle on a level surface.
2. Move the vehicle 3 — 4 meters (10 — 13 feet) straight forward.
3. Draw the center of loci for both the front and rear axles.
4. Measure distance "L" between the center lines of the axle loci.

Thrust angle: Inspection value

0°±30′

Less than 30′ when "L" is 23 mm (0.9 in) or less



(a) Center line of loci (front axle) (b) Center line of loci (rear axle)

FRONT SUSPENSION > Wheel Alignment

ADJUSTMENT

Caution:
When the wheel alignment has been adjusted, perform the following adjustment.
– Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
– VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.

1. FRONT CAMBER

1. Adjust the camber angle to the following value.

Model	Tire size	Camber (difference between RH and LH 35′ or less)
WRX model	235/45R17	−0°45′±0°30′
	245/40R18	
STI model	245/40R18	

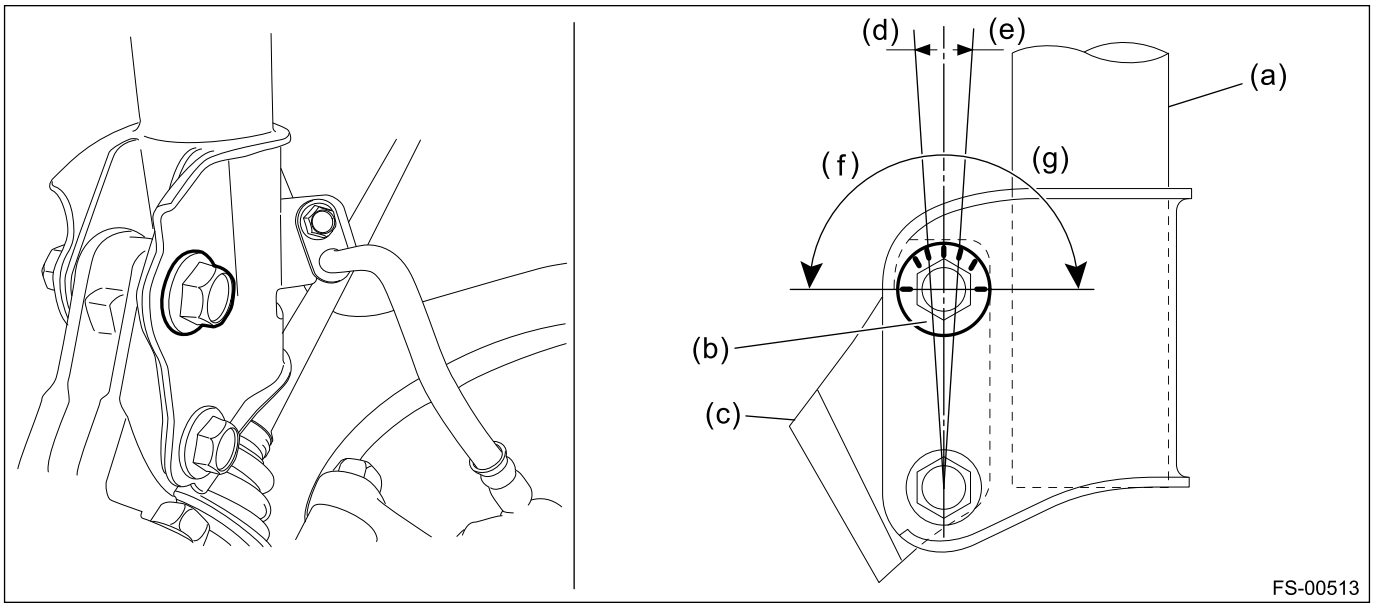
Model	Tire size	Camber (difference between RH and LH 35′ or less)
	245/35R19	

2. Loosen the two flange nuts while holding the strut bolts.

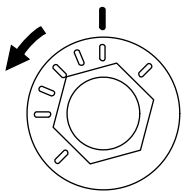
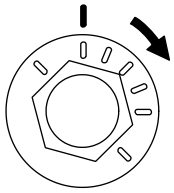
3. Turn the camber adjusting bolt so that the camber is set at specification.

Note:

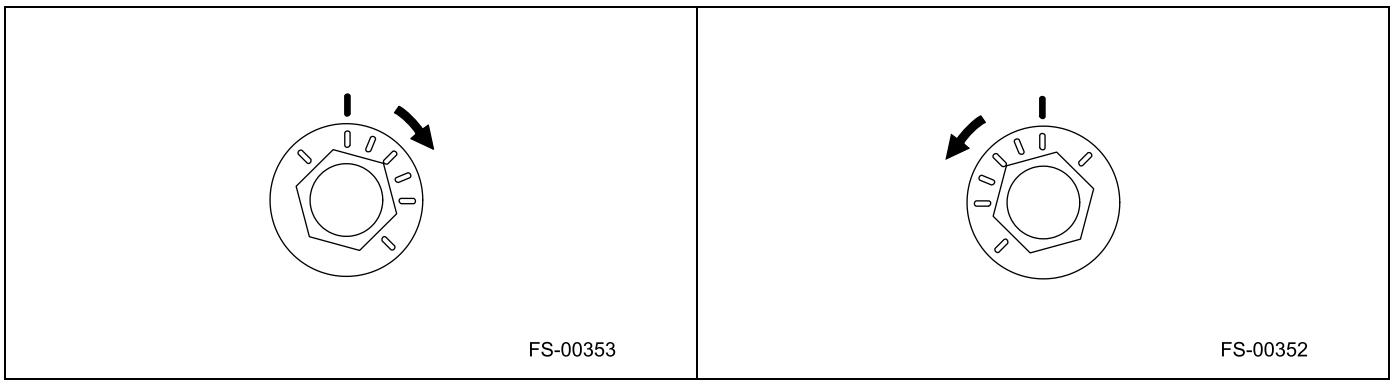
Moving the adjusting bolt by one scale changes the camber by approximately 0°15′.



(a) Strut ASSY
(b) Adjusting bolt
(c) Front axle housing
(d) Outer direction
(e) Inner direction
(f) Camber is increased.
(g) Camber is decreased.

To increase camber.	
Rotate the left side counterclockwise.	Rotate the right side clockwise.
 FS-00352	 FS-00353

To decrease camber.	
Rotate the left side clockwise.	Rotate the right side counterclockwise.



4. Tighten two new flange nuts.
   Tightening torque:
   155 N·m (15.8 kgf-m, 114.3 ft-lb)
   Note:
   While holding the adjusting bolt side, tighten the nut side.

2. ADJUSTMENT OF DIFFERENCE BETWEEN RIGHT AND LEFT STEERING ANGLES

1. Operate the steering system from lock to lock and stop operating it at the center position from lock to lock, and then install the steering wheel in the straight-ahead position.
   Note:
   Using of the steering wheel angle sensor output values shown on Subaru Select Monitor will facilitate your work.
2. Before adjusting toe-in, be sure to adjust the steering wheel in the straight-ahead position (steering angle sensor output: 0 deg).

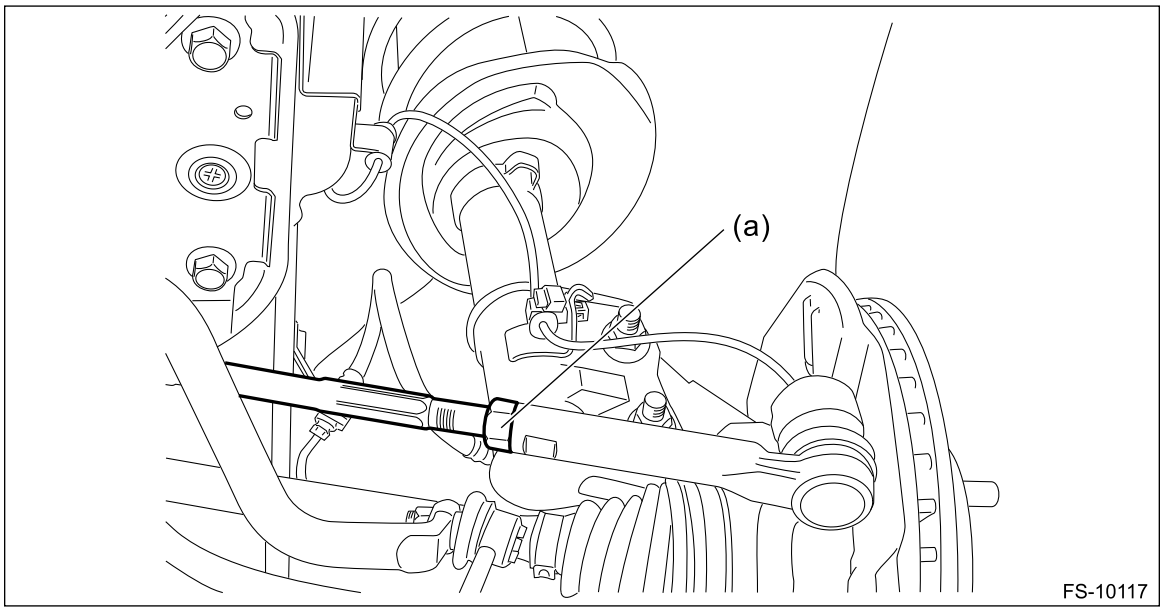
3. FRONT WHEEL TOE-IN

When adjusting the toe-in, adjust it to the following value.

Toe-in: Adjustment value

0±2 mm (0±0.08 in)

1. Check that the left and right wheel steering angles are within specification.
2. Loosen the left and right side steering tie-rod lock nuts (a).
3. Turn the left and right tie-rods by equal amounts until the toe-in is at the specification.
   Note:
   Both the left and right tie-rods are right-hand threaded. To increase toe-in, turn both tie-rods clockwise by equal amount (viewing from the inside of vehicle).
4. Tighten the tie-rod lock nut (a).



Tightening torque:

85 N·m (8.7 kgf-m, 62.7 ft-lb)

5. Check and correct the tie-rod boot if twisted.

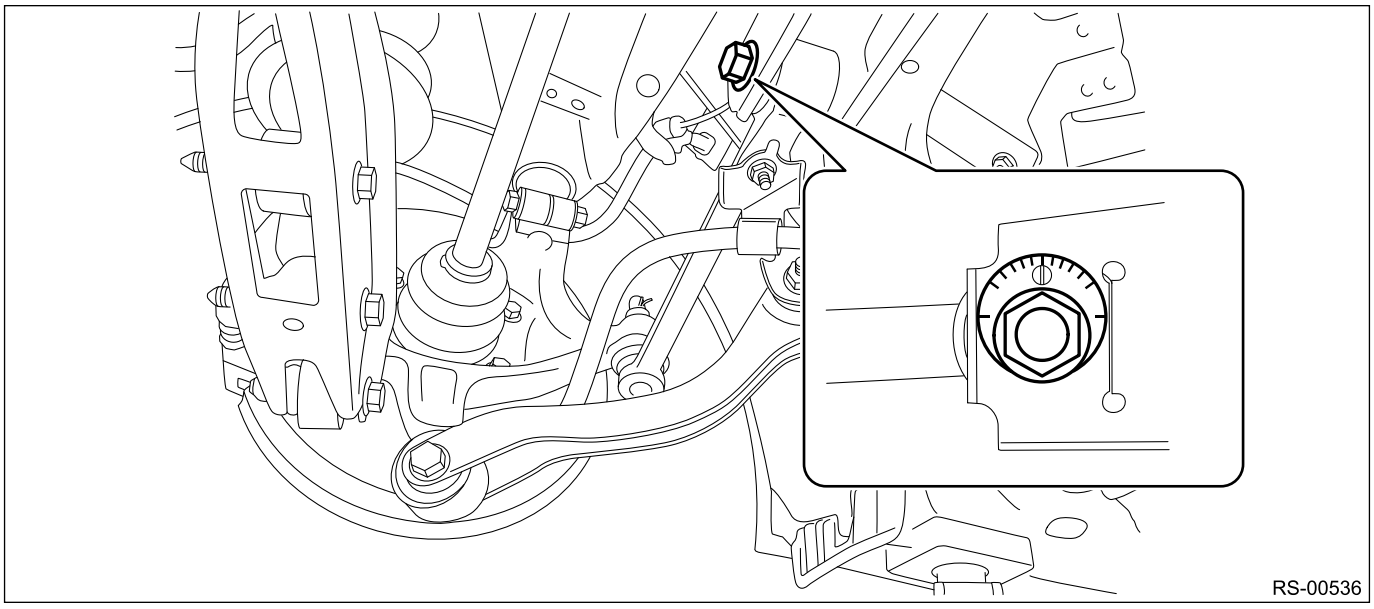
4. REAR WHEEL TOE-IN

When adjusting, adjust it to the following value.

Toe-in: Adjustment value

3±2 mm (0.12±0.08 in)

1. Loosen the self-locking nut after holding the bolt head section of lateral link assembly - front.

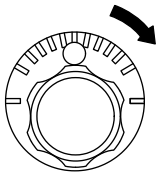
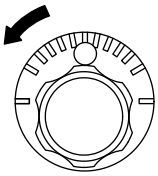


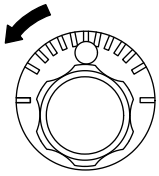
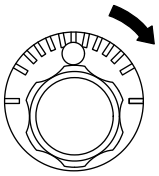
2. Turn the adjusting bolt until toe-in is within the specification.

Note:

When the left and right wheels are adjusted for toe-in at the same time, the movement of one scale graduation changes toe-in by approx. 6.0 mm (0.24 in).

To increase toe-in.

Rotate the left side clockwise.	Rotate the right side counterclockwise.
 FS-00018	 FS-00019

To decrease toe-in.	
Rotate the left side counterclockwise.	Rotate the right side clockwise.
 FS-00019	 FS-00018

3. Attach and tighten a new self-locking nut.

Tightening torque:

100 N·m (10.2 kgf-m, 73.8 ft-lb)

Note:

While holding the adjusting bolt side, tighten the nut side.

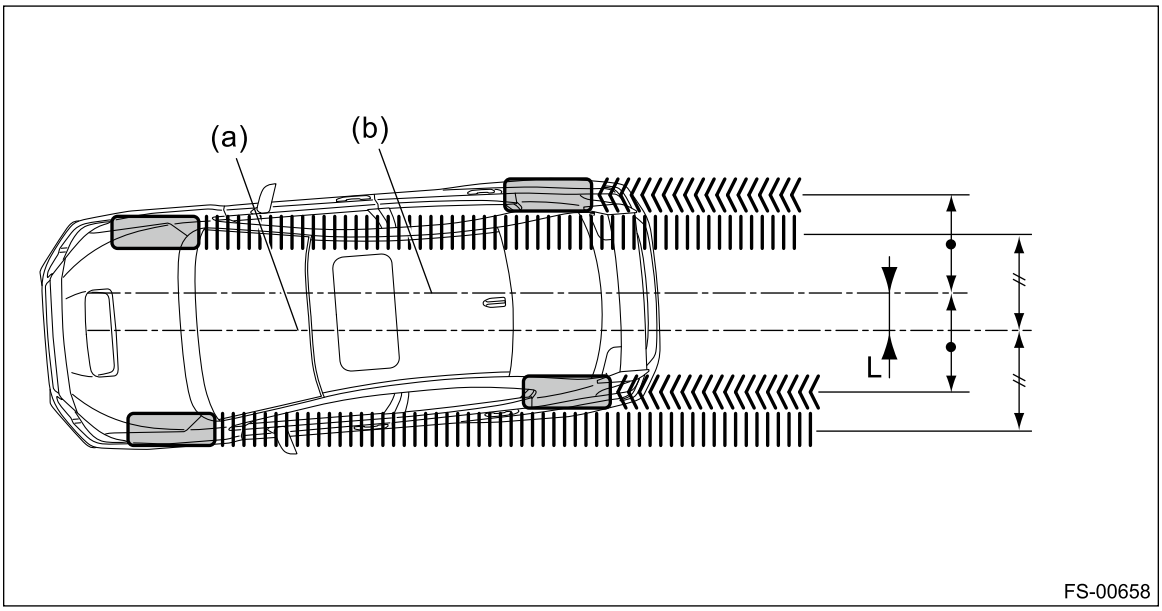
5. THRUST ANGLE

When adjusting, adjust it to the following value.

Thrust angle: Adjustment value

0°±20′

Less than 20′ when "L" is 15 mm (0.6 in) or less



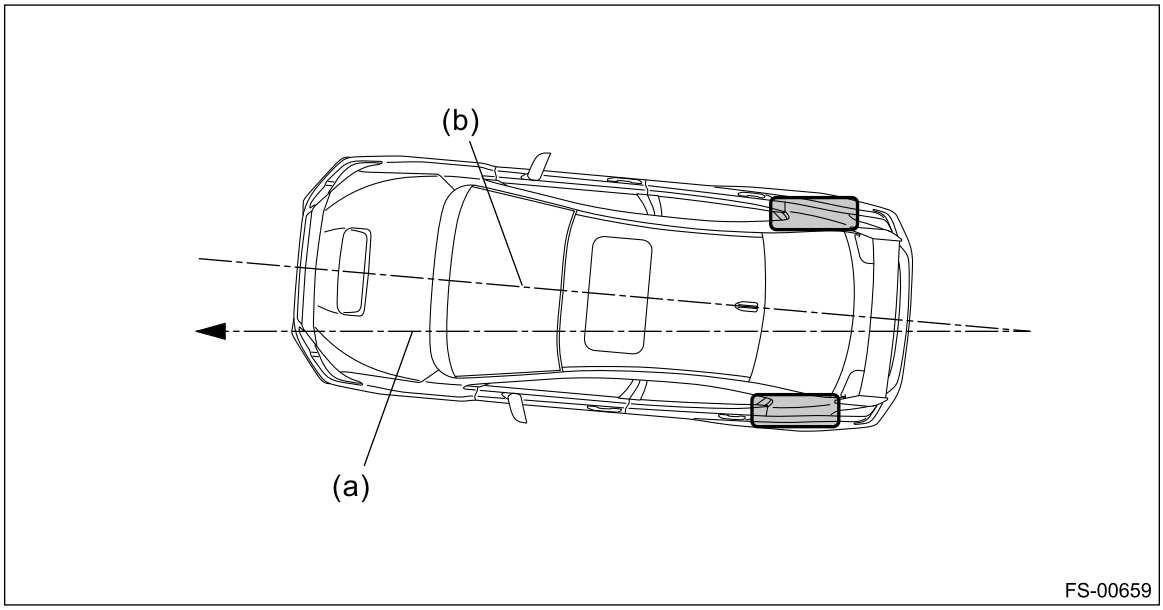
(a) Center line of loci (front axle) (b) Center line of loci (rear axle)

1. Make thrust angle adjustments by turning the toe-in adjusting bolts of the rear suspension equally in the same direction.
2. When one rear wheel is adjusted in a toe-in direction, adjust the other rear wheel equally in toe-out direction, in order to make the thrust angle adjustment.
3. When the left and right adjusting bolts are turned by one graduation, the thrust angle will change approx. 15'. ("L" is approx. 11 mm (0.43 in).)

   Note:

   Thrust angle is a mean value of left and right wheel toe angles in relation to the vehicle body center line.

   Vehicle is driven straight in the thrust angle direction while slanting in the oblique direction depending on the degree of the mean thrust angle.



(a) Thrust angle (b) Body center line

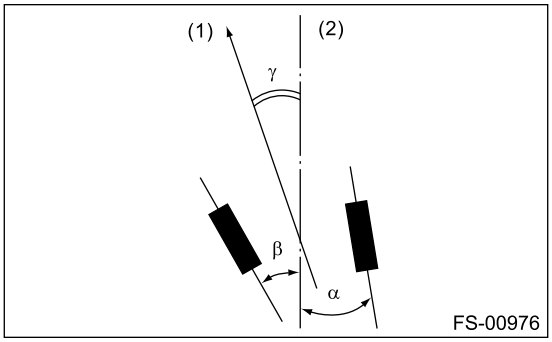
Thrust angle:

$\gamma = (\alpha - \beta)/2$

α: Rear RH wheel toe-in angle

β: Rear LH wheel toe-in angle

Substitute only the positive toe-in values from each wheel into α and β in the calculation.



(1) Front

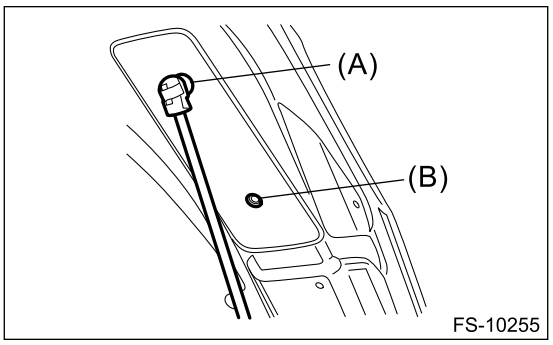
(2) Body center line

REMOVAL

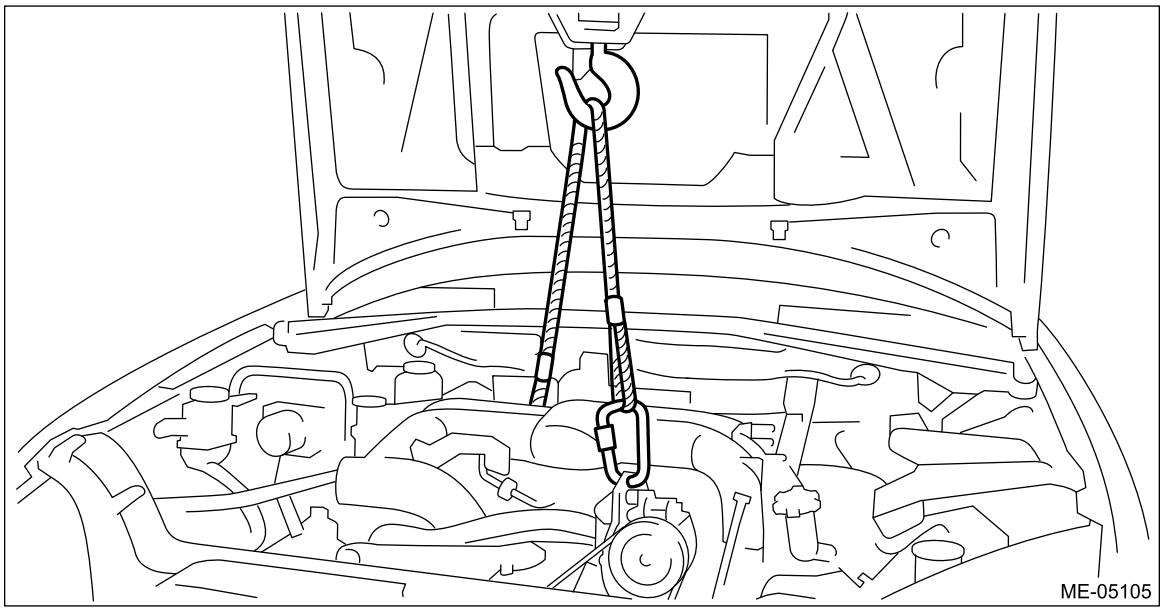
Caution:
For electric power steering model, be careful of the following items.

- **The power steering control module continues to operate after the engine stops and calculates 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.**
- **Be careful not to let any foreign matter (dust, water, oil, etc.) enter into the power steering control module connector when removing or installing. If a foreign matter enters, completely remove it.**

1. Disconnect the ground terminal from battery. Ref. to NOTE>NOTE > BATTERY.
   Note:
   For model with battery sensor, disconnect the ground terminal from battery sensor.
2. Lift up the vehicle, and then remove the front wheels.
3. Remove the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>REMOVAL.
4. Remove the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>REMOVAL.
5. Change the hood stay location from (A) to (B) to open the front hood completely.
   Tightening torque:
   20 N·m (2 kgf-m, 14.8 ft-lb)



6. Remove the V-belt covers. (STI model)
7. Remove the collector cover. (Except for STI model) Ref. to INTAKE (INDUCTION)(w/o STI)>Collector Cover>REMOVAL.
8. Disconnect the connector and harness clamp from the steering gearbox. (Electric power steering model)
9. Disconnect the power steering hose from the steering gearbox. (Hydraulic power steering model)
10. Remove the engine mounting and the crossmember assembly.
    (1) Support the engine with a lifting device and wire ropes.
    (2) While lifting up the vehicle, also raise up the lifting device simultaneously.
    Caution:
    Be careful not to damage the vehicle with a lifting device or wire ropes.

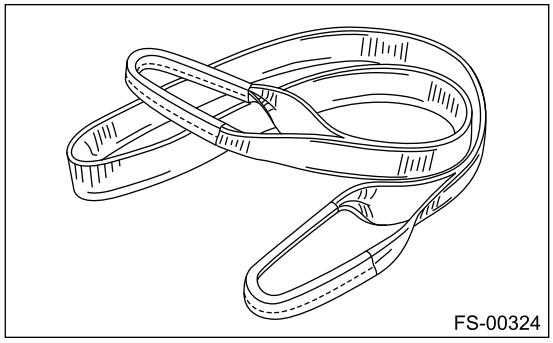


(3) Raise up the lifting device, and lift the engine body by approx. 10 mm (0.39 in).

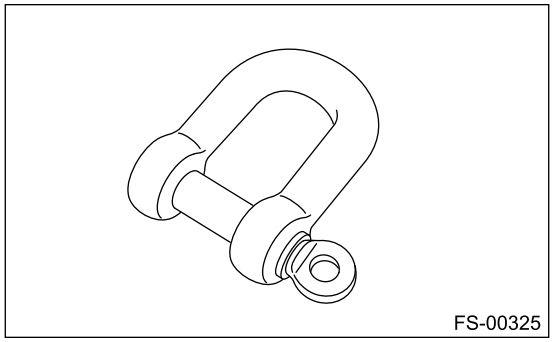
(4) Attach the sling belt so that it wraps around the both frames using the shackle.

Caution:

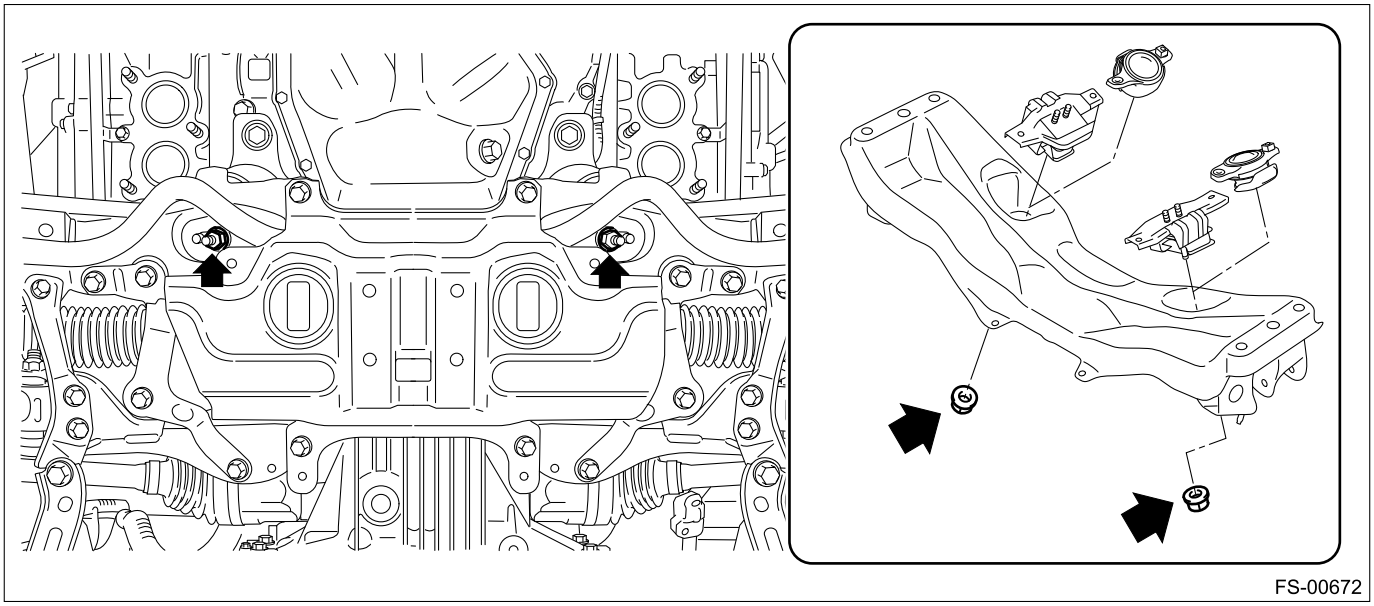
- **Be sure to attach the sling belt to ensure safety in operation.**
- **Use a sling belt with the length of 2 m (6.6 ft), the width of 35 — 40 mm (1.38 — 1.57 in) and the load capacity of 1 t (2205 lb) or more.**



- **Use a shackle with the load capacity of 0.5 t (1103 lb) or more.**



(5) Remove the nuts which secure the engine mounting to the front crossmember assembly.



11. Remove the front crossmember support and the support plate - front crossmember. Ref. to FRONT SUSPENSION>Front Crossmember Support Plate>REMOVAL.

12. Remove the center exhaust pipe. (Except for STI model) Ref. to EXHAUST(w/o STI)>Center Exhaust Pipe>REMOVAL.

13. Remove the front stabilizer. Ref. to FRONT SUSPENSION>Front Stabilizer>REMOVAL.

14. Disconnect the tie-rod end.

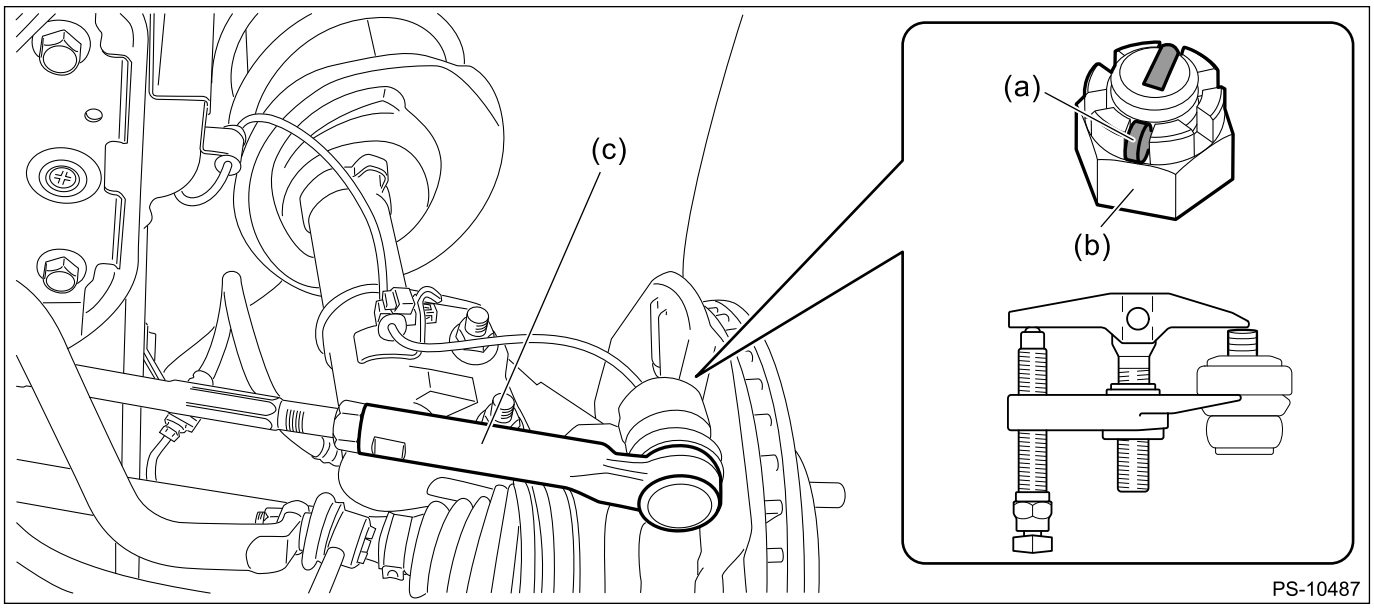
(1) Pull out the cotter pin (a).

(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



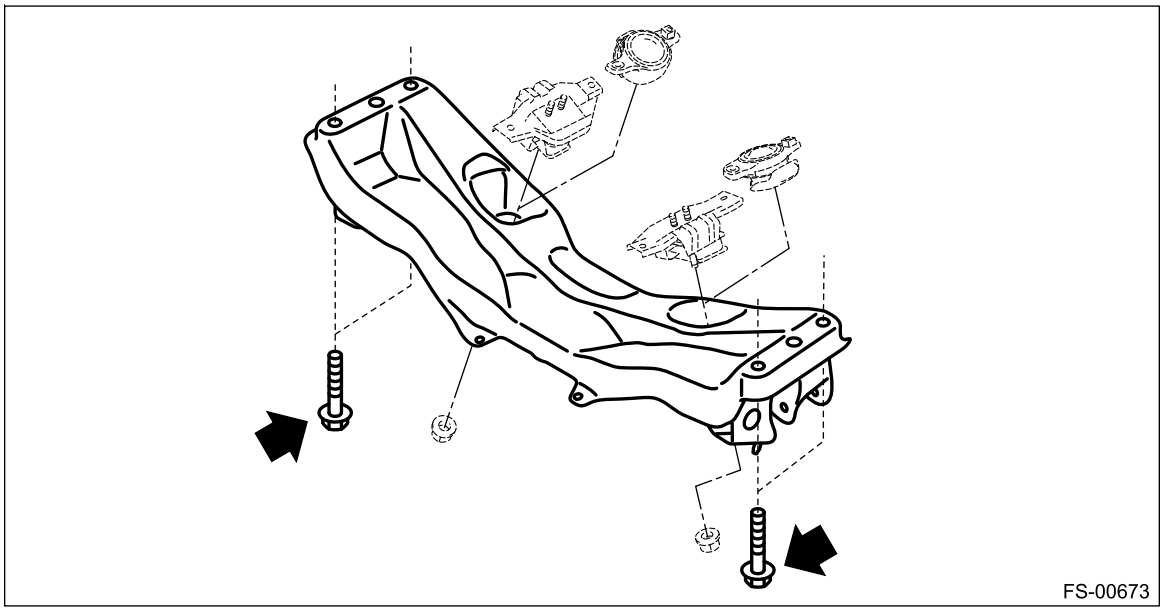
15. Remove the front arm assembly. Ref. to FRONT SUSPENSION>Front Arm>REMOVAL.

16. Remove the front crossmember assembly.

Caution:

- **When lowering the transmission jack, make sure that the tie-rod end and the drive shaft boot do not interfere. The drive shaft boot may be damaged.**
- **The front crossmember assembly is heavy. Make sure that it is firmly supported so that it is level.**

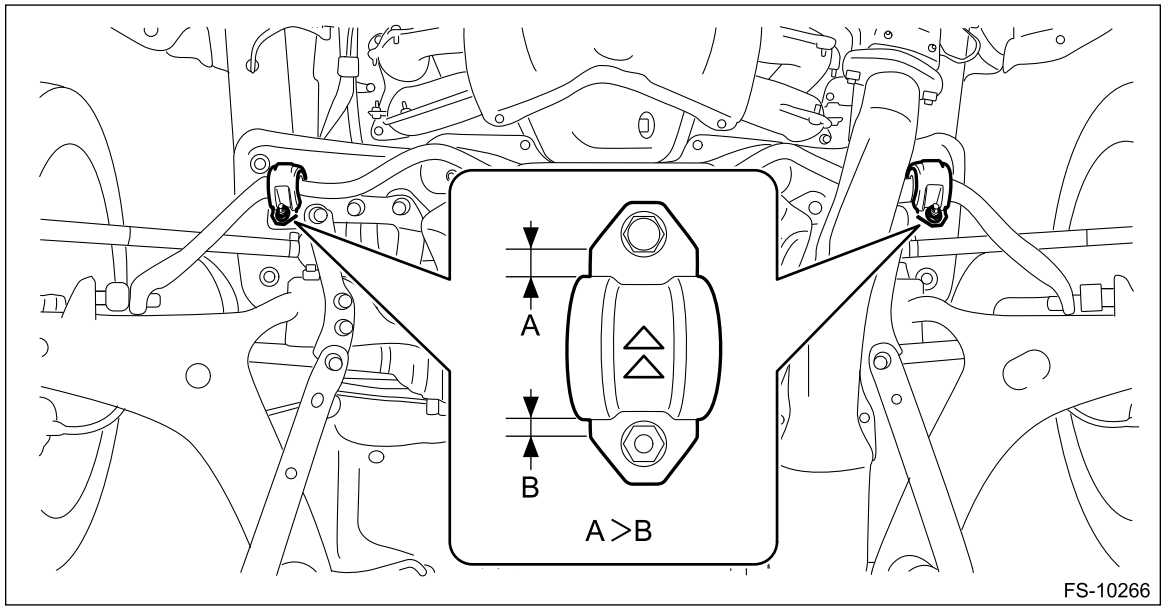
(1) Support the front crossmember assembly from the bottom side using a transmission jack.
(2) Remove the bolts which secure the front crossmember assembly to the body.
(3) Lower the transmission jack slowly, and then lower the front crossmember assembly together with the steering gearbox assembly.
(4) Remove the steering gearbox assembly from the front crossmember assembly.



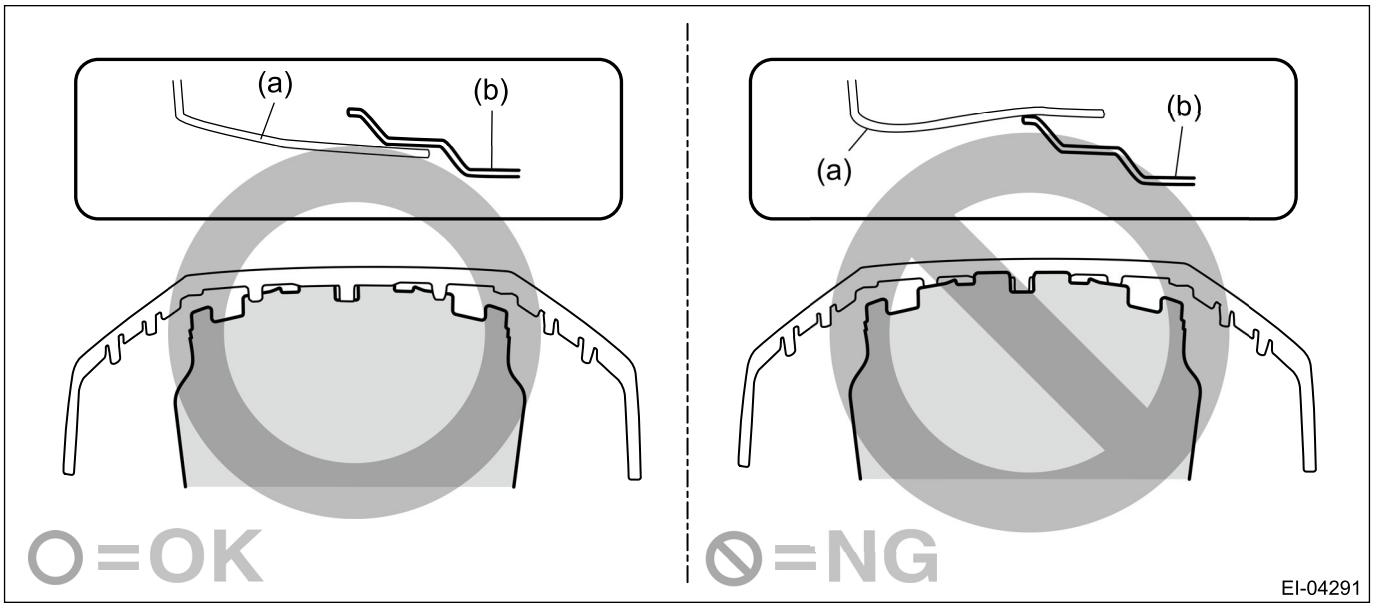
INSTALLATION

Caution:

- **When raising the transmission jack, make sure that the tie-rod end and the drive shaft boot do not interfere. The drive shaft boot may be damaged.**
- **The front crossmember assembly is heavy. Make sure that it is firmly supported so that it is level.**
- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**
- **Install the clamp - stabilizer bushing with the arrow mark facing the front of the vehicle.**



- **Install the under cover - front so that the front end of the under cover (b) comes inside the bumper face - front (a).**



1. Install the front crossmember assembly.

   Note:

   Check the crossmember for damage or cracks, and correct or replace if defective.

(1) Install the steering gearbox assembly to the front crossmember assembly.
(2) Install the bolts which secure the front crossmember assembly to the body.

Tightening torque:

Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to FRONT SUSPENSION>General Description>COMPONENT > FRONT SUSPENSION.

2. Install the front arm assembly.

Tightening torque:

Front suspension parts: Ref. to FRONT SUSPENSION>General Description>COMPONENT > FRONT SUSPENSION.

3. Install the tie-rod end.

Note:

When tightening the castle nut, tighten the castle nut to the specified torque first, then tighten it further but within 60° until the hole in the ball stud is aligned with a slot in castle nut.

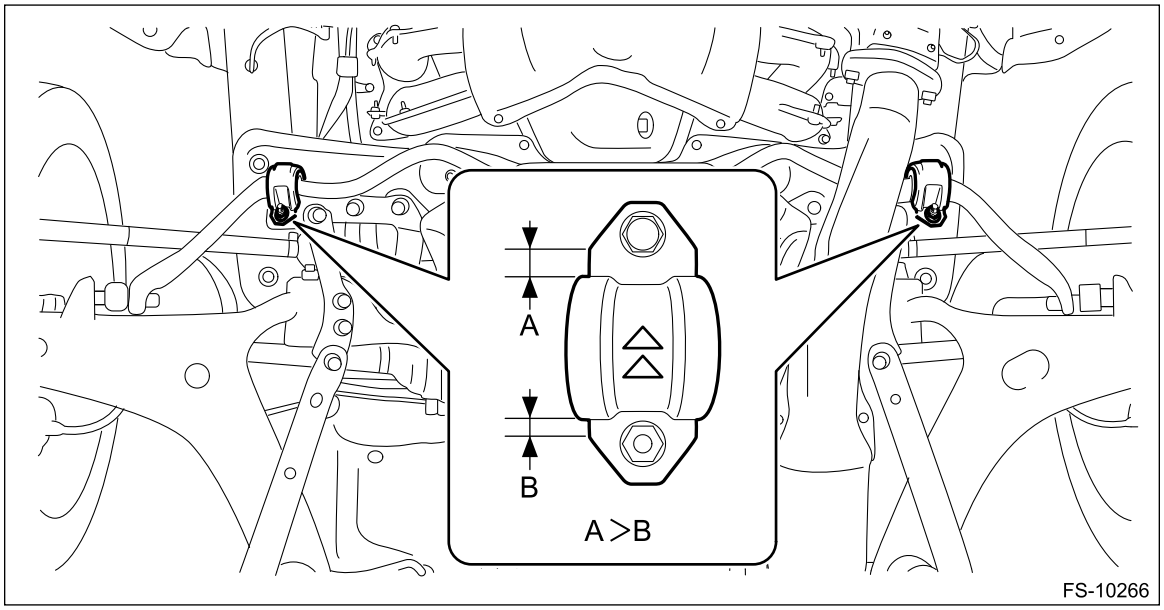
Tightening torque:

27 N·m (2.7 kgf-m, 19.9 ft-lb)

4. Insert a new cotter pin and secure the castle nut.
5. Install the front stabilizer.

Caution:

Install the clamp - stabilizer bushing with the arrow mark facing the front of the vehicle.



Tightening torque:

Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to FRONT SUSPENSION>General Description>COMPONENT > FRONT SUSPENSION.

6. Install the center exhaust pipe. (Except for STI model) Ref. to EXHAUST(w/o STI)>Center Exhaust Pipe>INSTALLATION.
7. Install the front crossmember support and the support plate - front crossmember.

Tightening torque:

Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to FRONT SUSPENSION>General Description>COMPONENT > FRONT SUSPENSION.

8. Install the engine mounting and the crossmember assembly with new nuts.

Caution:
Be careful not to damage the vehicle with a lifting device or wire ropes.
Tightening torque:
Engine mount — front crossmember assembly: 60 N·m (6.1 kgf-m, 44.3 ft-lb)

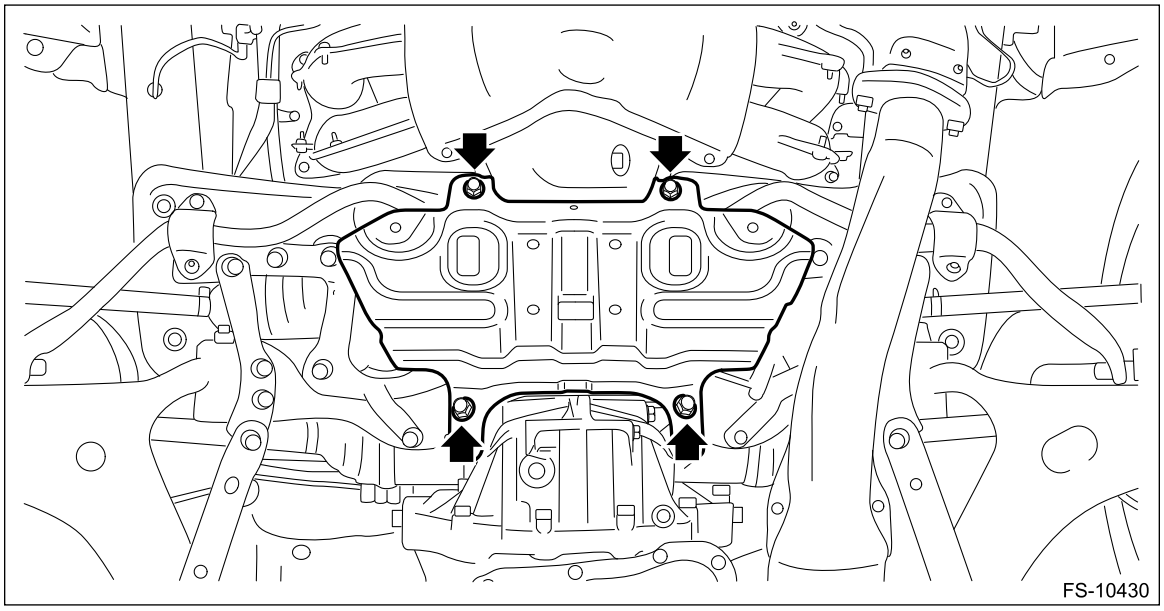
9. Install the power steering hose to the steering gearbox. (Hydraulic power steering model) Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Pipe Assembly>INSTALLATION.
10. Connect the steering gearbox connector and the harness clamp. (Electric power steering model)
11. Install the V-belt cover. (STI model)
Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
12. Install the collector cover. (Except for STI model) Ref. to INTAKE (INDUCTION)(w/o STI)>Collector Cover>INSTALLATION.
13. Change the hood stay location to support the front hood at ordinary position.
Tightening torque:
20 N·m (2 kgf-m, 14.8 ft-lb)
14. Install the universal joint assembly - steering. Ref. to POWER ASSISTED SYSTEM (POWER STEERING)>Universal Joint>INSTALLATION.
15. Install the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>INSTALLATION.
16. Install the front wheels and lower the vehicle.
Tightening torque:
120 N·m (12.2 kgf-m, 88.5 ft-lb)
17. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.
18. Inspect the wheel alignment and adjust if necessary.
- Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
- Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

Caution:
When the wheel alignment has been adjusted, perform the following adjustment.
– Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
– VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.

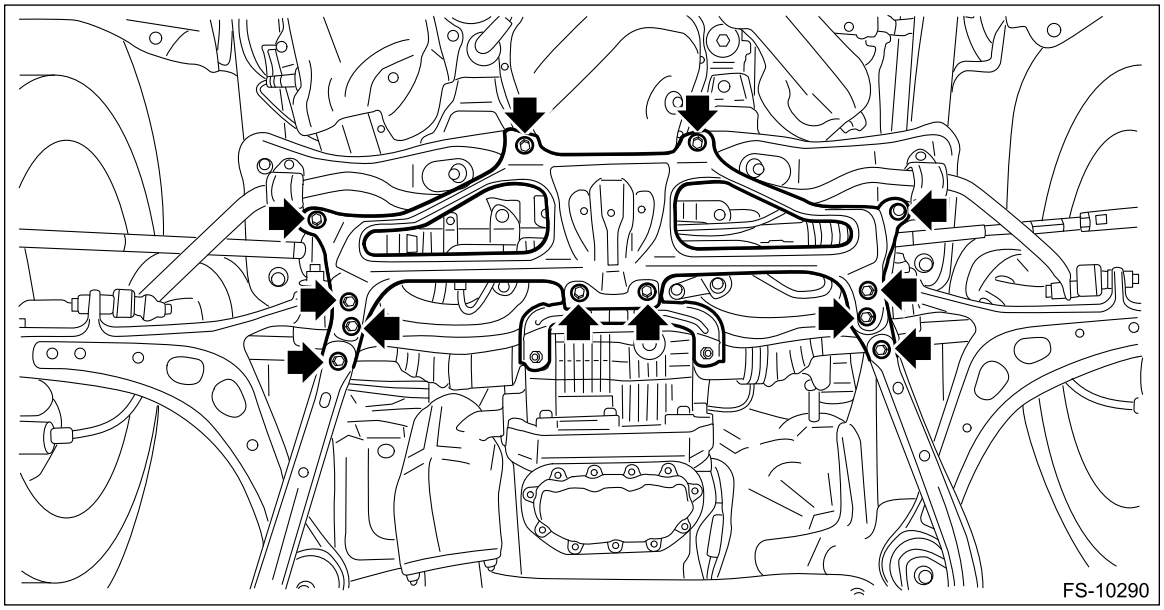
19. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE.

REMOVAL

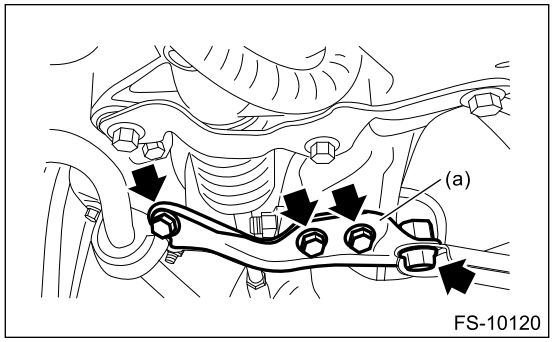
1. Lift up the vehicle.
2. Remove the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>REMOVAL.
3. Remove the bolt, and remove the front crossmember support.
   - Electric power steering model



   - Hydraulic power steering model



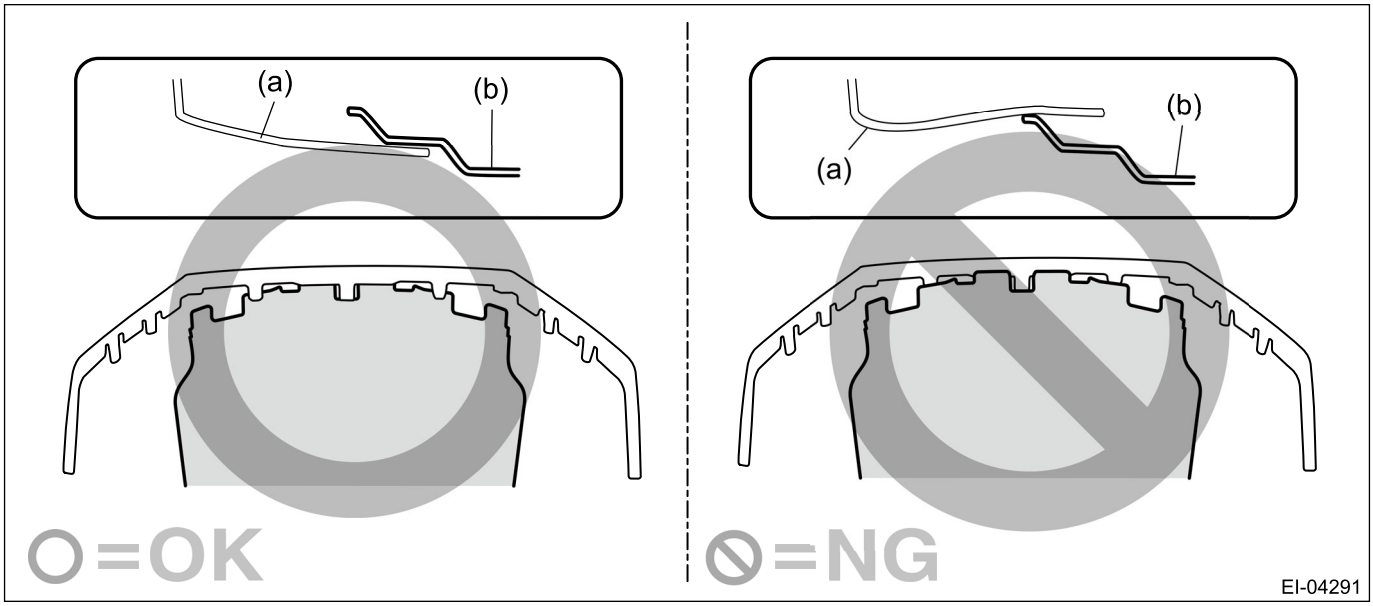
4. Remove the bolt, and remove the support plate - front crossmember (a). (Electric power steering model)



FRONT SUSPENSION > Front Crossmember Support Plate

INSTALLATION

Caution:
Install the under cover - front so that the front end of the under cover (b) comes inside the bumper face - front (a).

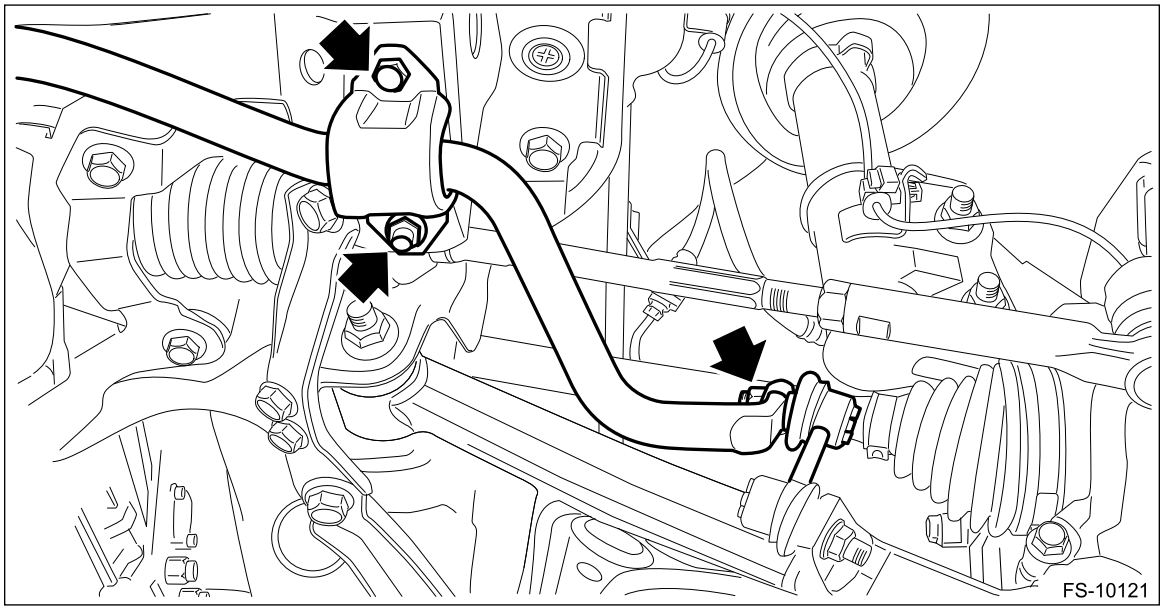


1. Install the front crossmember support and the support plate - front crossmember.
   Tightening torque:
   Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to FRONT SUSPENSION>General Description>COMPONENT.
2. Install the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>INSTALLATION.
3. Lower the vehicle.

FRONT SUSPENSION > Front Stabilizer

REMOVAL

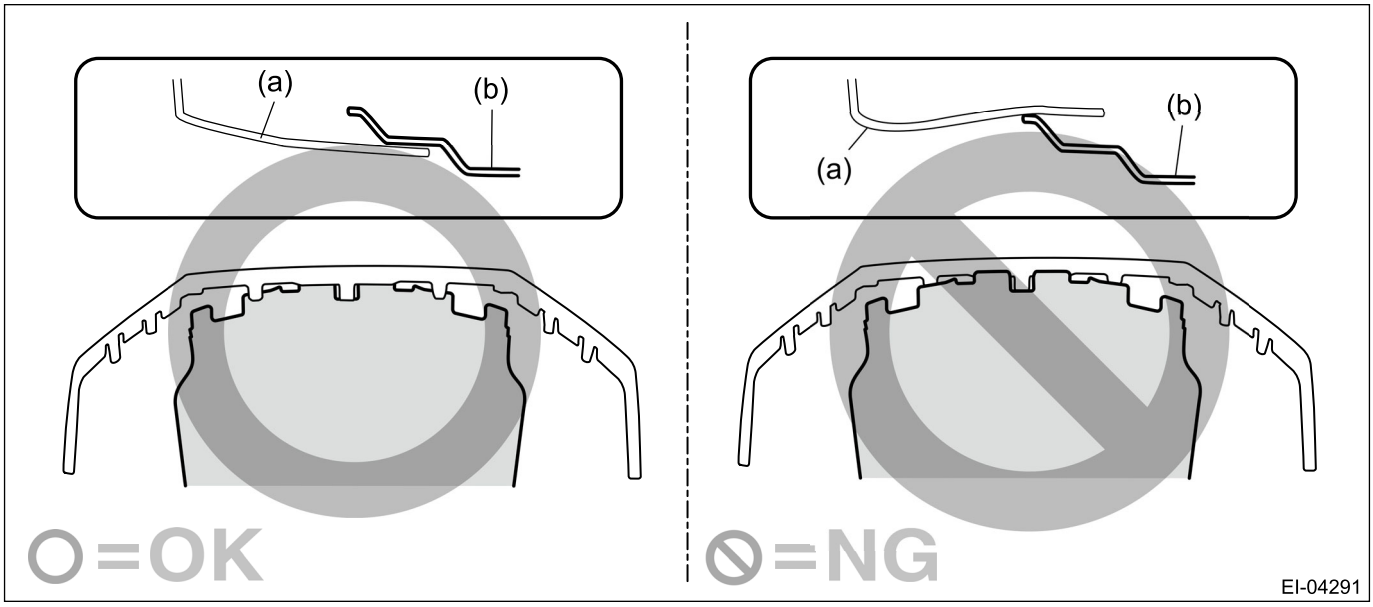
1. Lift up the vehicle, and then remove the left and right front wheels.
2. Remove the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>REMOVAL.
3. Remove the front crossmember support. Ref. to FRONT SUSPENSION>Front Crossmember Support Plate>REMOVAL.
4. Remove the front stabilizer.
   (1) Remove the left and right stabilizer links.
   (2) Remove the clamp - stabilizer bushing on the left and right sides.



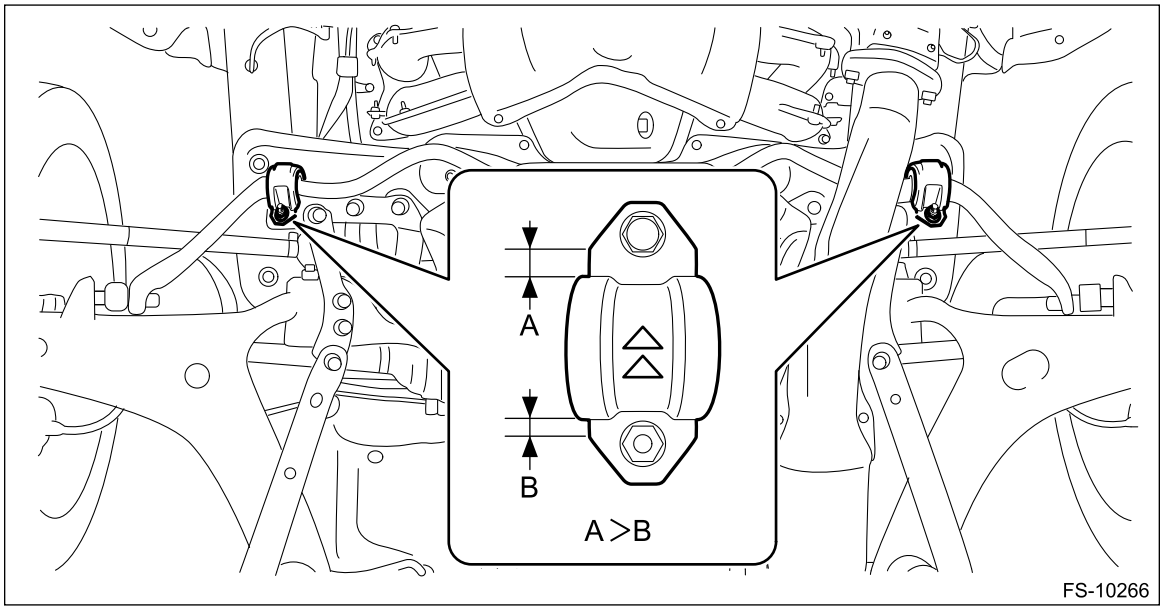
FRONT SUSPENSION > Front Stabilizer

INSTALLATION

Caution:
Install the under cover - front so that the front end of the under cover (b) comes inside the bumper face - front (a).



1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Check the bushing - stabilizer for abnormal cracks, fatigue or damage.
   - Check the stabilizer link for damage.
2. Install the front stabilizer.
   Caution:
   Install the clamp - stabilizer bushing with the arrow mark facing the front of the vehicle.



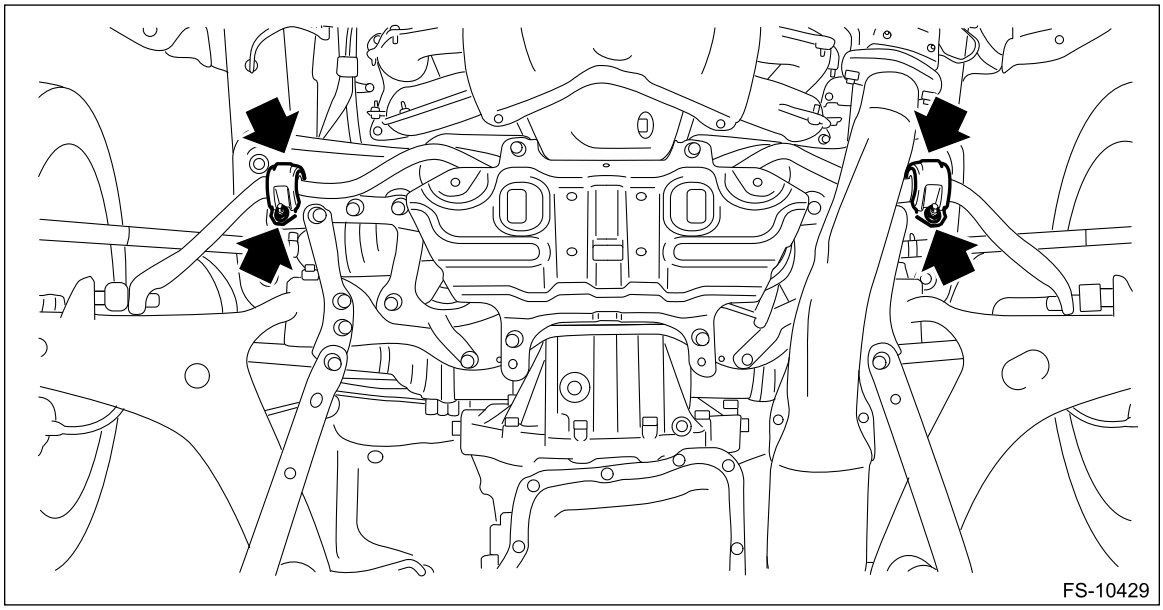
   Tightening torque:
   Stabilizer link: 60 N·m (6.1 kgf-m, 44.3 ft-lb)
   Clamp - stabilizer: 25 N·m (2.5 kgf-m, 18.4 ft-lb)
3. Install the front crossmember support.
   Tightening torque:

Refer to “COMPONENT” of “General Description” for the tightening torque. Ref. to FRONT SUSPENSION>General Description>COMPONENT > FRONT SUSPENSION.

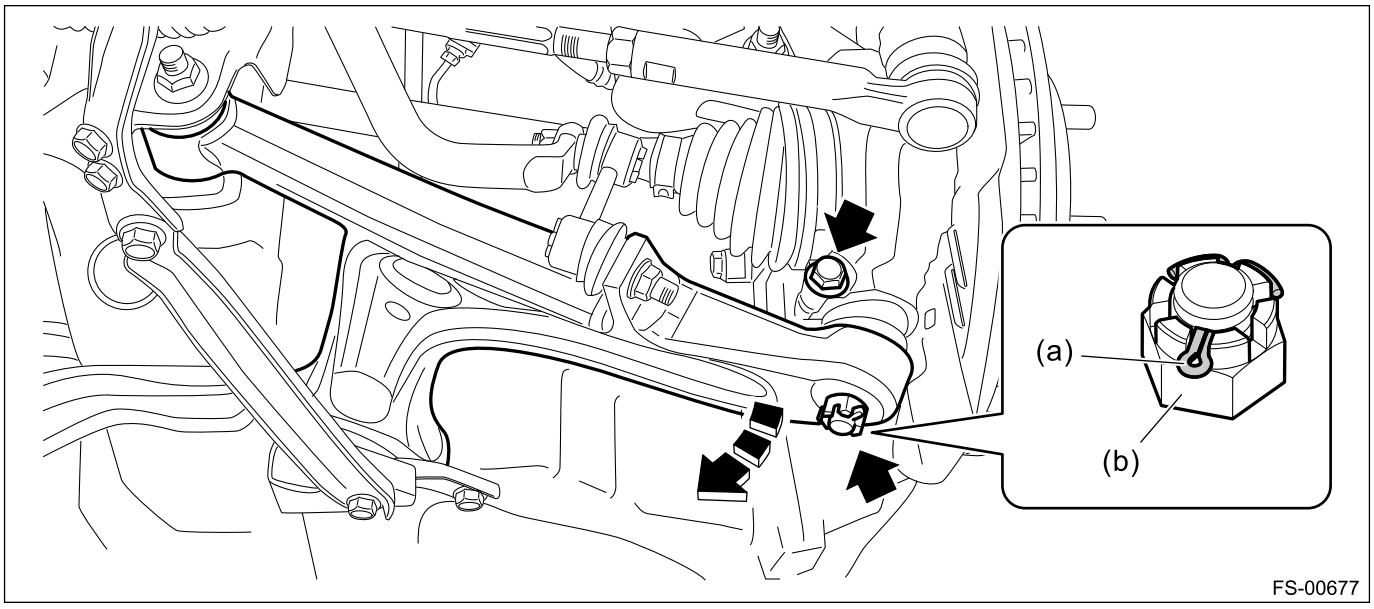
4. Install the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>INSTALLATION.
5. Lower the vehicle, and install the front wheels.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)

REMOVAL

1. Lift up the vehicle, and then remove the front wheels.
2. Remove the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>REMOVAL.
3. Remove the clamp - stabilizer bushing on the left and right sides.



4. Remove the ball joint.
   (1) Pull out the cotter pin (a), and remove the castle nut (b).
   (2) Pull down the front arm assembly, and remove the ball stud.
   (3) Remove the bolt of the front axle housing.

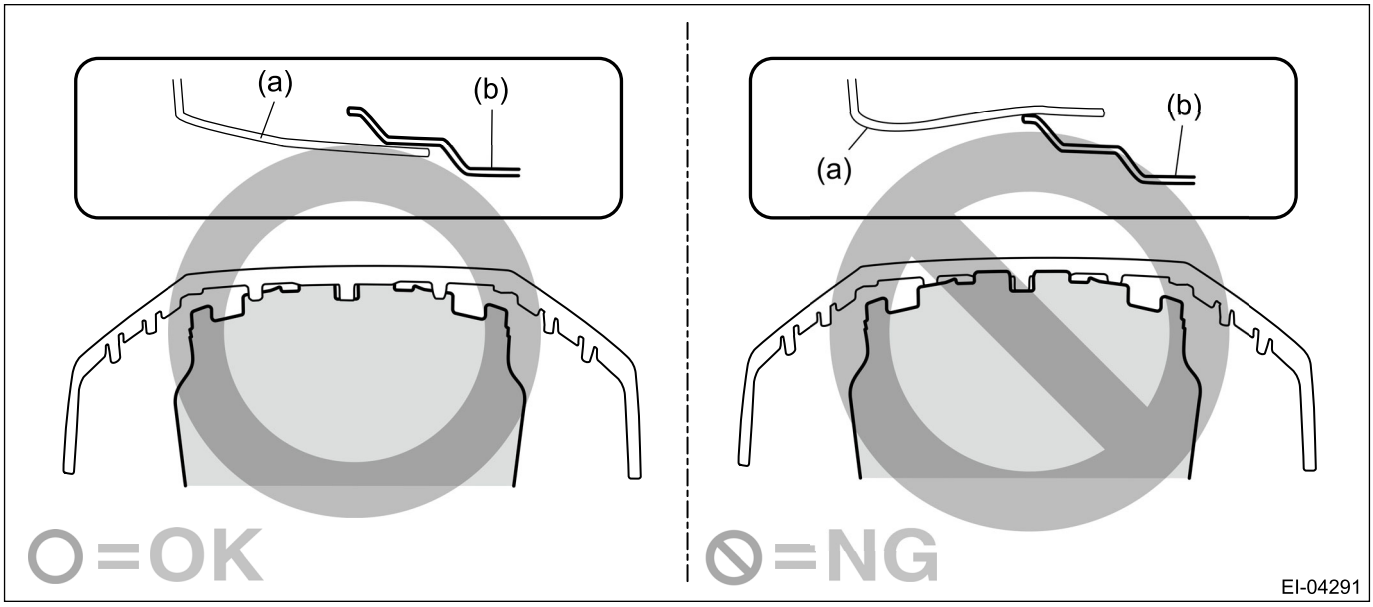


   (4) Pull out the ball joint.

INSTALLATION

Caution:

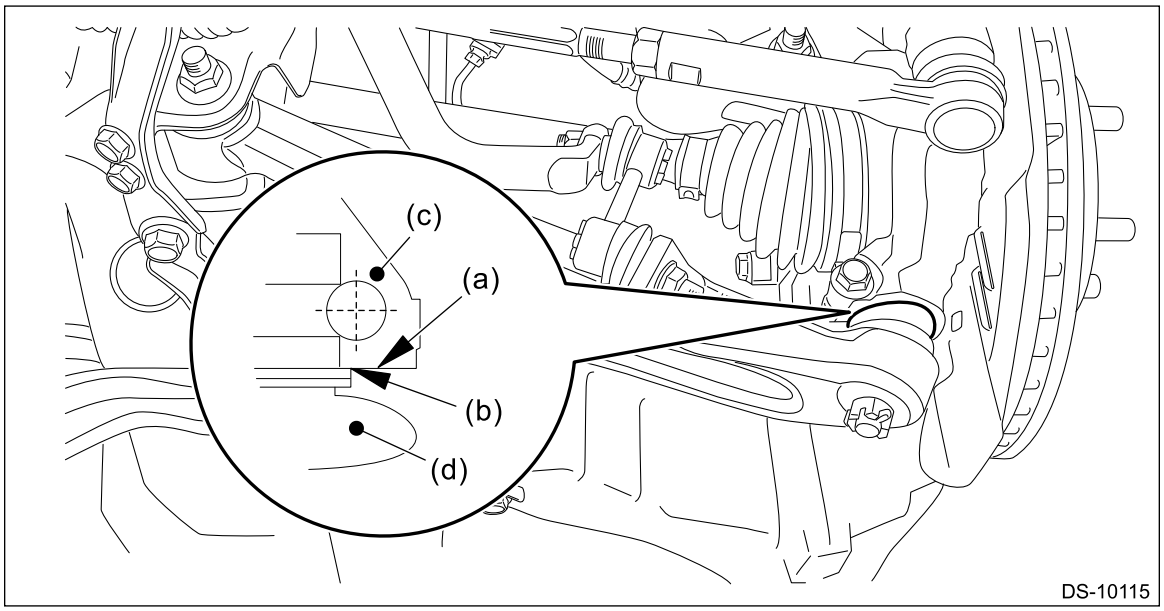
- **For parts which are not reusable, always use new parts.**
- **Install the under cover - front so that the front end of the under cover (b) comes inside the bumper face - front (a).**



1. Install the ball joint.

Caution:

- **Do not apply grease to the tapered portion of ball stud.**
- **Before tightening, make sure the lower side of front axle housing and stepped section of ball joint are in contact.**
- **Be careful not to damage the boot of the joint.**



(a) Lower side of front axle housing
(c) Front axle housing
(d) Ball joint
(b) Raised section of ball joint

Tightening torque:
50 N·m (5.1 kgf-m, 36.9 ft-lb)

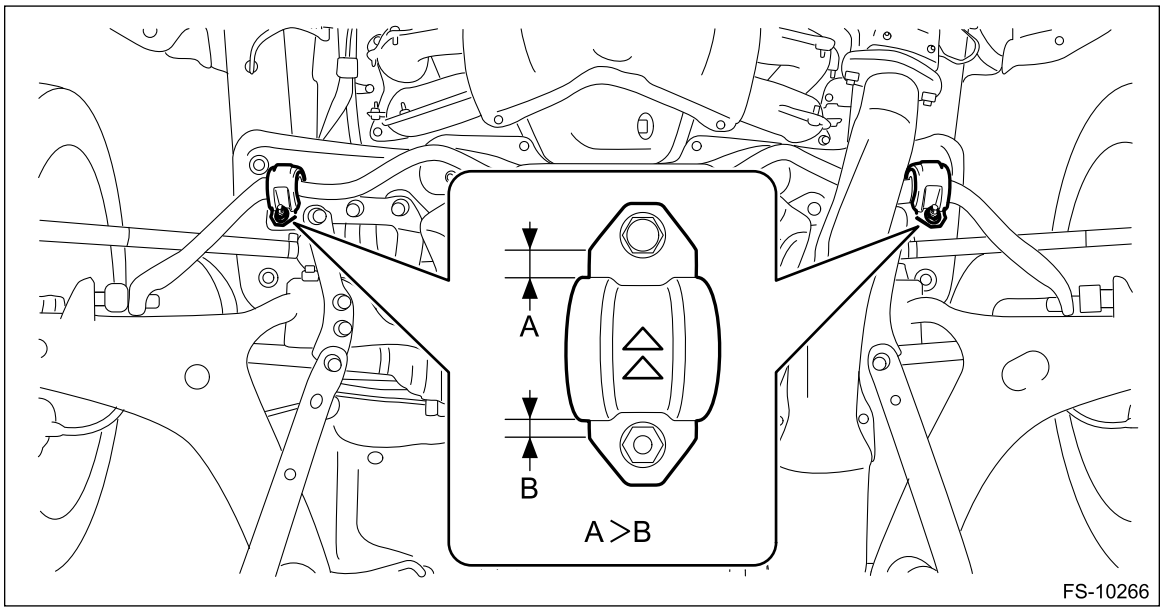
2. Connect the ball joint and front arm assembly.

Note:
When tightening the castle nut, tighten the castle nut to the specified torque first, then tighten it further but within 60° until the hole in the ball stud is aligned with a slot in castle nut.

Tightening torque:
39 N·m (4 kgf-m, 28.8 ft-lb)

3. Insert a new cotter pin and bend it around the castle nut.
4. Install the clamp - stabilizer bushing.

Caution:
Install the clamp - stabilizer bushing with the arrow mark facing the front of the vehicle.



Tightening torque:
25 N·m (2.5 kgf-m, 18.4 ft-lb)

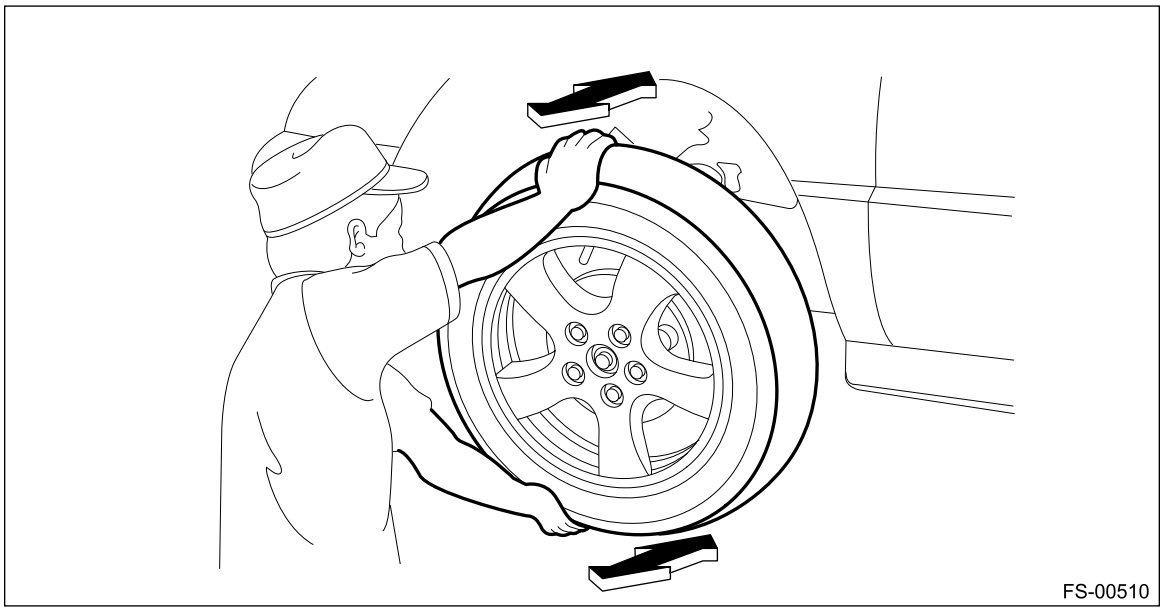
5. Install the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>INSTALLATION.
6. Install the front wheels.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)
7. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

   Caution:
   When the wheel alignment has been adjusted, perform the following adjustment.
   – Lane keep assist learning value clear (model with EyeSight lane keep assist function): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
   – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT.

FRONT SUSPENSION > Front Ball Joint

INSPECTION

1. Check that there is no looseness by moving the upper and lower portions of front tire in an axial direction with the brake pedal depressed.



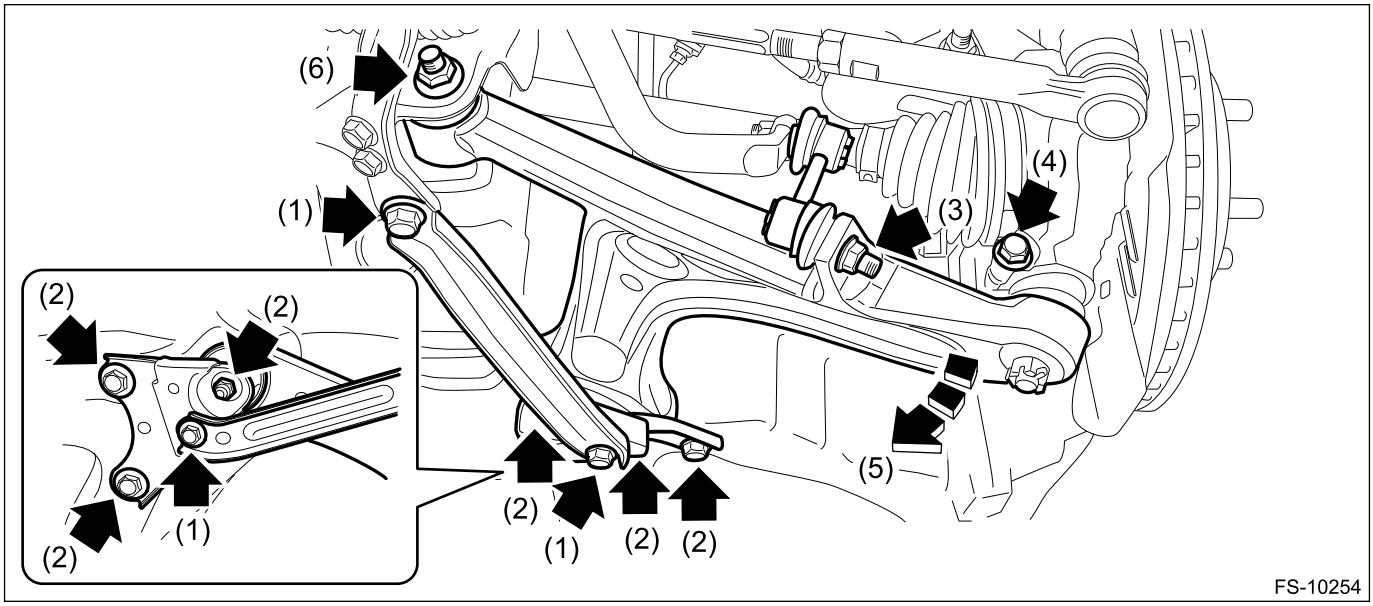
- **looseness exists** → replace the ball joint. Ref. to FRONT SUSPENSION>Front Ball Joint>REMOVAL.

2. Check that there is no looseness by moving the upper and lower portions of front tire in an axial direction with the brake pedal released.
   - **looseness exists** → check the front hub unit bearing. Ref. to DRIVE SHAFT SYSTEM>Front Hub Unit Bearing>INSPECTION.
3. Replace the ball joint if the boot is damaged when visually inspecting the ball joint.

FRONT SUSPENSION > Front Arm

REMOVAL

1. Lift up the vehicle, and then remove the front wheels.
2. Remove the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>REMOVAL.
3. Remove the front arm assembly.
   (1) Remove the bolt, and then detach the front support.
   (2) Remove the bolts and nuts, and then remove the front arm rear plate.
   (3) Remove the nut and disconnect the stabilizer link.
   (4) Remove the bolt from the front axle housing.
   (5) Lower the arm assembly front, and remove the ball stud from the front axle housing.
   (6) Remove the nuts, pull out the flange bolt, and remove the front arm assembly.

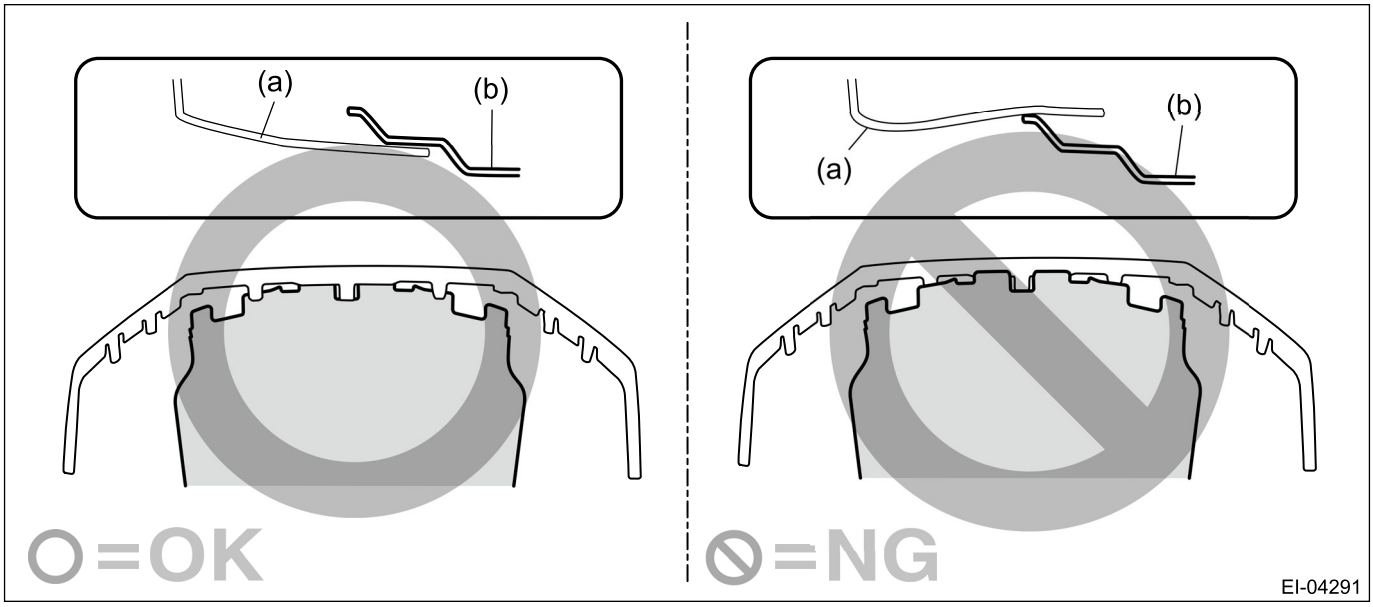


FRONT SUSPENSION > Front Arm

INSTALLATION

Caution:

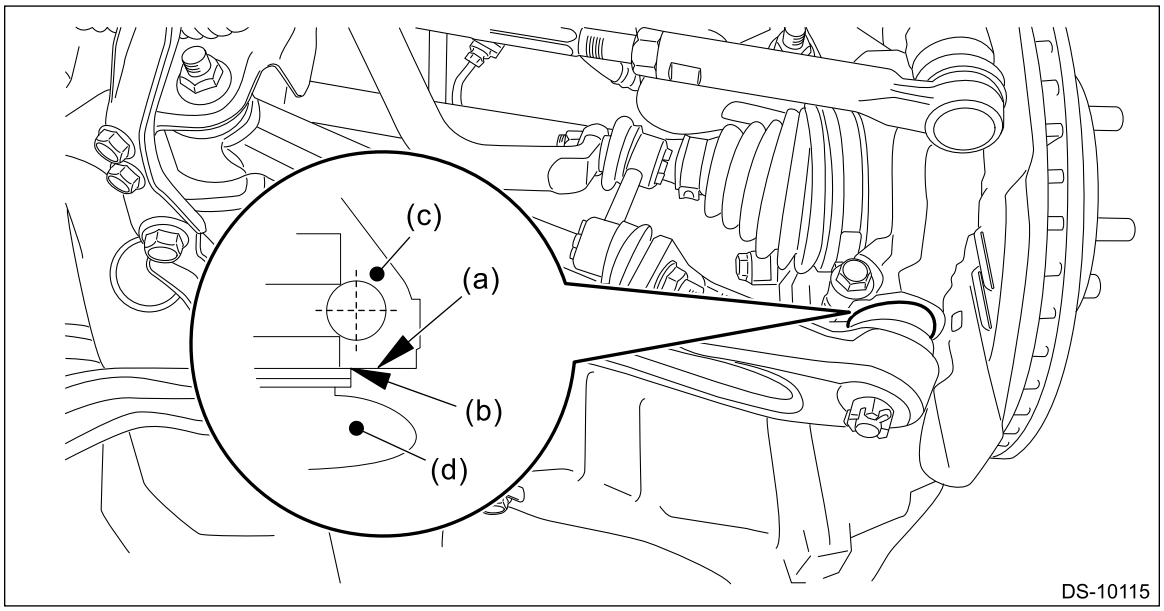
- **For parts which are not reusable, always use new parts.**
- **Install the under cover - front so that the front end of the under cover (b) comes inside the bumper face - front (a).**



1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Check the front arm assembly for damage or cracks, and replace if defective.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
   - Visually check the boot on the ball joint for damage.
2. Using new self-locking nuts and flange bolts, temporarily tighten the front arm assembly to the front crossmember assembly.
3. Connect the ball joint and the front axle housing.

Caution:

- **Before tightening, make sure the lower side of front axle housing and stepped section of ball joint are in contact.**
- **Be careful not to damage the boot of the joint.**



(a) Lower side of front axle housing
(b) Raised section of ball joint
(c) Front axle housing
(d) Ball joint

Tightening torque:
50 N·m (5.1 kgf-m, 36.9 ft-lb)

4. Install the stabilizer link.
   Tightening torque:
   60 N·m (6.1 kgf-m, 44.3 ft-lb)
5. Install the under cover - front. Ref. to EXTERIOR/INTERIOR TRIM>Front Under Cover>INSTALLATION.
6. Install the front wheels.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)
7. Unload the vehicle from the lift, and tighten the bolt which secures the front arm assembly to the front crossmember assembly while the wheels are in full contact with the ground and the vehicle is at curb weight.
   Tightening torque:
   Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to FRONT SUSPENSION>General Description>COMPONENT > FRONT SUSPENSION.
8. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

Caution:
When the wheel alignment has been adjusted, perform the following adjustment.
– Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
– VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.

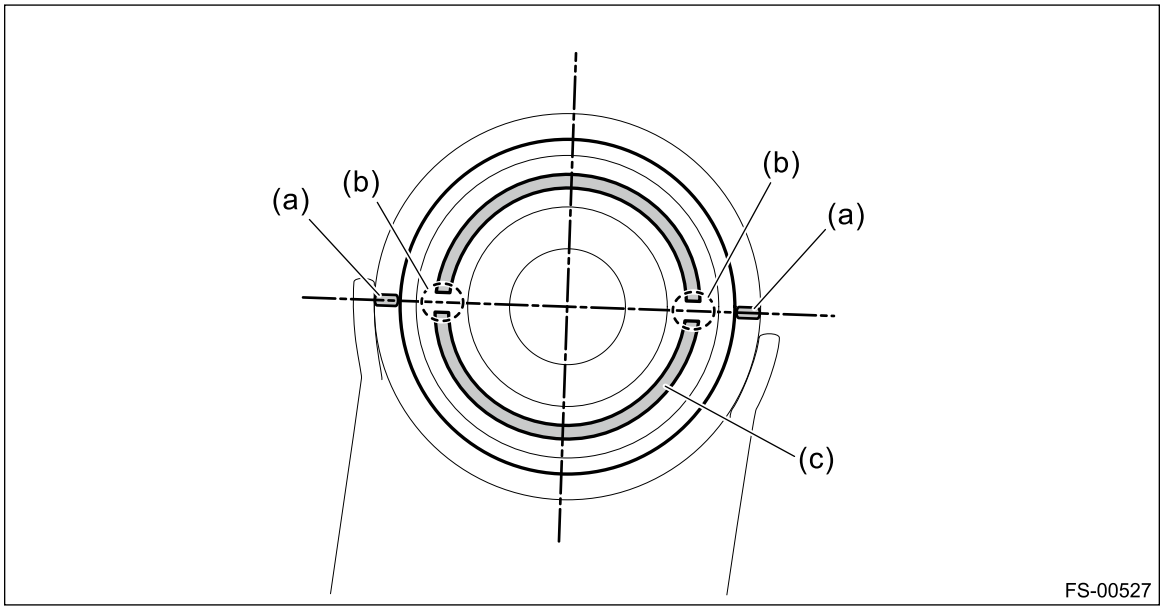
9. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE.

FRONT SUSPENSION > Front Arm

DISASSEMBLY

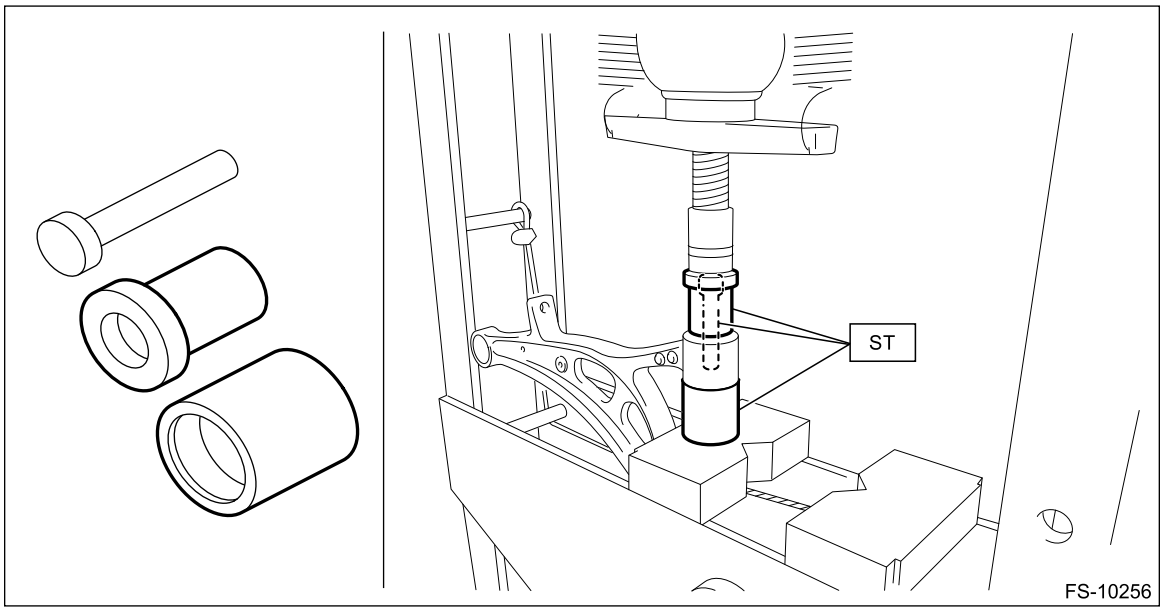
1. BUSHING FRONT - FRONT ARM

1. Put an alignment mark on the front arm assembly based on the split portion of the bushing intermediate plate of the busing front - front arm.
Caution:
Always put an alignment mark for aligning the position on bushing installation.



(a) Put an alignment mark.
(b) Gap of bushing intermediate plate
(c) Bushing intermediate plate

2. Using the ST and a press, remove the busing front - front arm.
Preparation tool:
ST: INSTALLER & REMOVER SET (927680000)



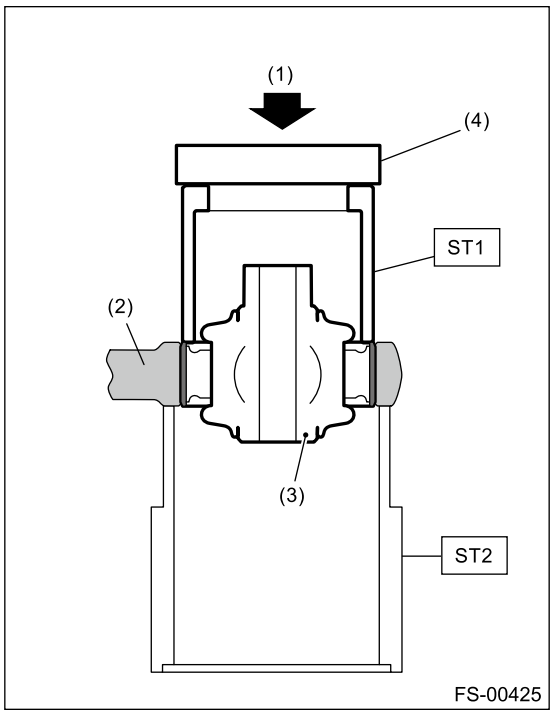
2. REAR BUSHING

1. Using the ST and a press, remove the pillow ball bushing.

Preparation tool:

ST1: INSTALLER & REMOVER (20099AE020)

ST2: HOUSING STAND (28099PA010)



(1) Press

(2) Front arm ASSY

(3) Pillow ball bushing

(4) Plate

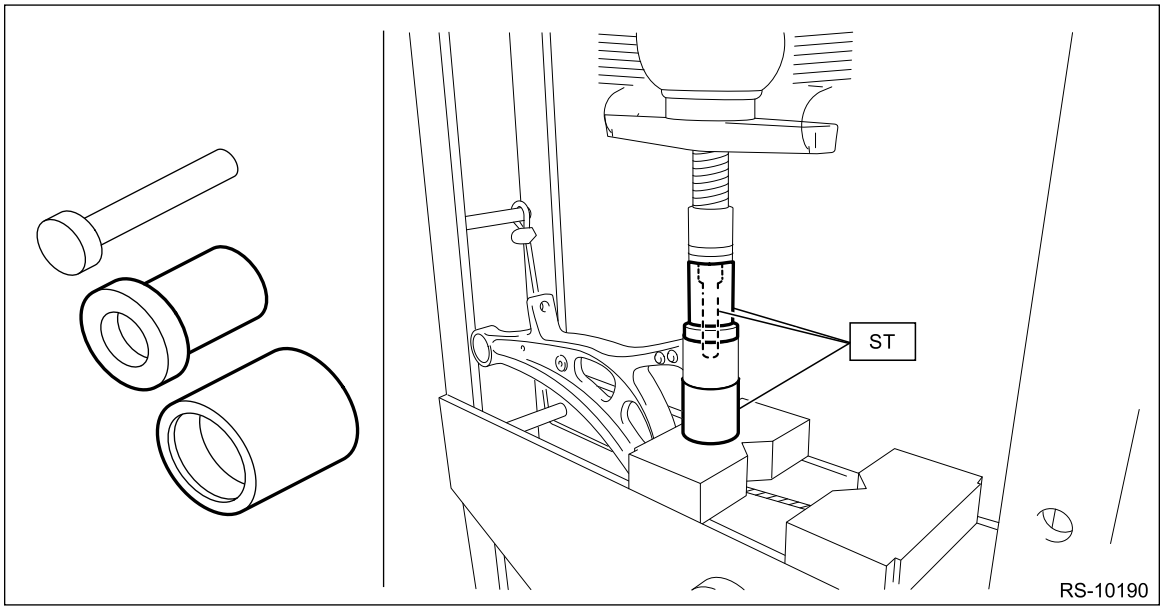
Note:
Place a metal plate on the ST1 to use the press.

FRONT SUSPENSION > Front Arm

ASSEMBLY

1. BUSHING FRONT - FRONT ARM

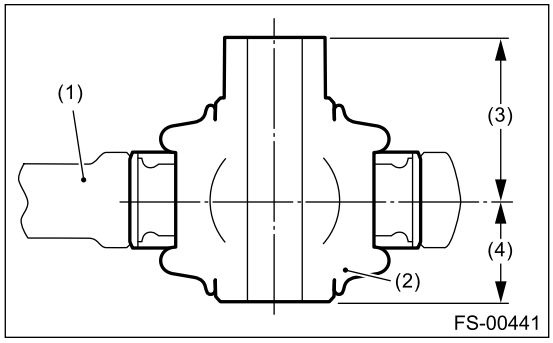
1. Before assembly, inspect the following items and replace any faulty part with a new one.
   - Check the front arm assembly for damage or cracks, and replace if defective.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
   - Visually check the boot on the ball joint for damage.
2. Align the alignment mark on the front arm assembly to the split portion of the bushing intermediate plate of the busing front - front arm.
3. Using the ST and a press, assemble the busing front - front arm.
   Preparation tool:
   ST: INSTALLER & REMOVER SET (927680000)



2. REAR BUSHING

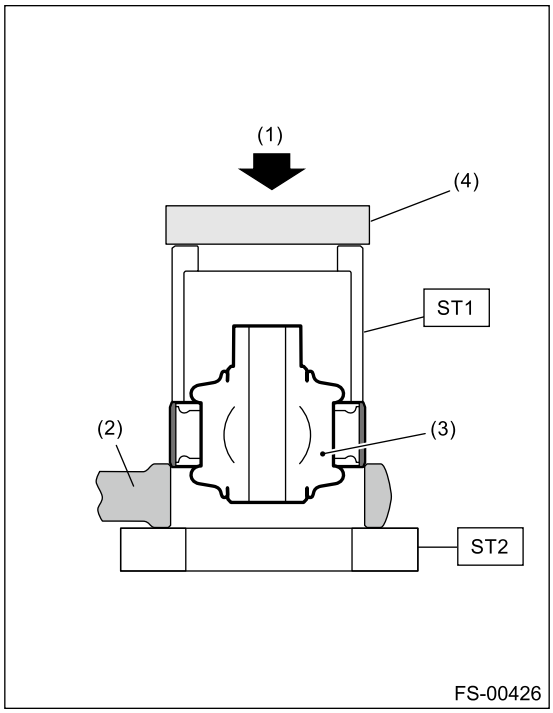
1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Check the front arm assembly for damage or cracks, and replace if defective.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
   - Visually check the boot on the ball joint for damage.
2. Using the ST and a press, install the pillow ball bushing.

Caution:
Install with the longer inner cylinder of the pillow ball bushing facing upward and the shorter facing downward.



(1) Front arm
(2) Bushing inner cylinder
(3) Longer
(4) Shorter

Preparation tool:
ST1: INSTALLER & REMOVER (20099AE020)
ST2: REMOVER (18723AA000)



(1) Press
(2) Front arm ASSY
(3) Pillow ball bushing
(4) Plate

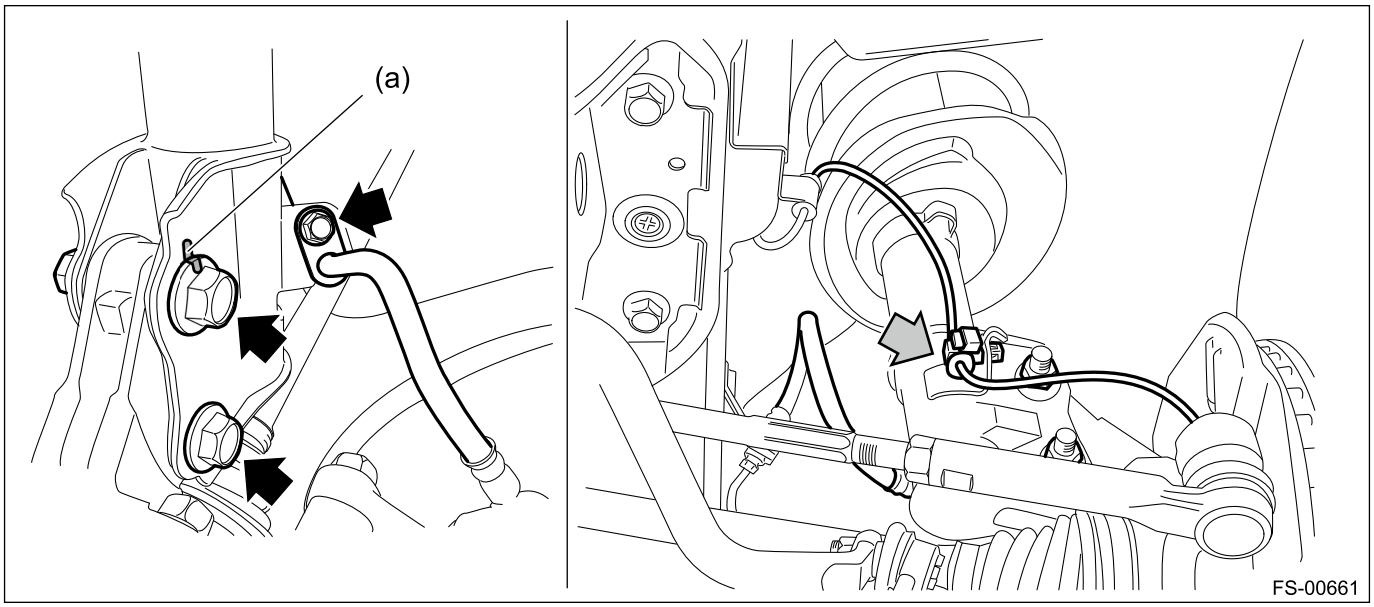
Note:
Place a metal plate on the ST1 to use the press.

FRONT SUSPENSION > Front Strut

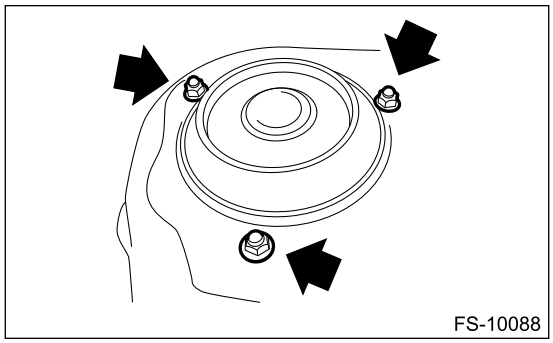
REMOVAL

1. Lift up the vehicle, and then remove the front wheels.
2. Remove the strut assembly.
   (1) Place an alignment mark (a) on the adjusting bolt and the strut.
   (2) Remove the brake hose bracket.
   (3) Remove the clamp of ABS wheel speed sensor harness.
   (4) Remove the adjusting bolts and flange bolts for the strut assembly.

Caution:
While holding the adjusting bolt side, tighten the nut side.



(5) Remove the three nuts securing strut mount to body.



FRONT SUSPENSION > Front Strut

INSTALLATION

Caution:
For parts which are not reusable, always use new parts.

1. Install the strut mount - front at the upper side of the strut to the vehicle body.
   Tightening torque:

20 N·m (2 kgf-m, 14.8 ft-lb)

2. Align alignment marks on the camber adjusting bolt and the strut, and install the strut to the front axle housing.
   Note:
   While holding the bolt head of adjusting bolt, tighten the nut.
   Tightening torque:
   155 N·m (15.8 kgf-m, 114.3 ft-lb)
3. Secure the ABS wheel speed sensor harness clamp to the strut.
   Caution:
   During the installation, make sure that the marking of ABS wheel speed sensor harness does not twist.
4. Install the brake hose bracket.
   Tightening torque:
   33 N·m (3.4 kgf-m, 24.3 ft-lb)
5. Install the front wheels.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)
6. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

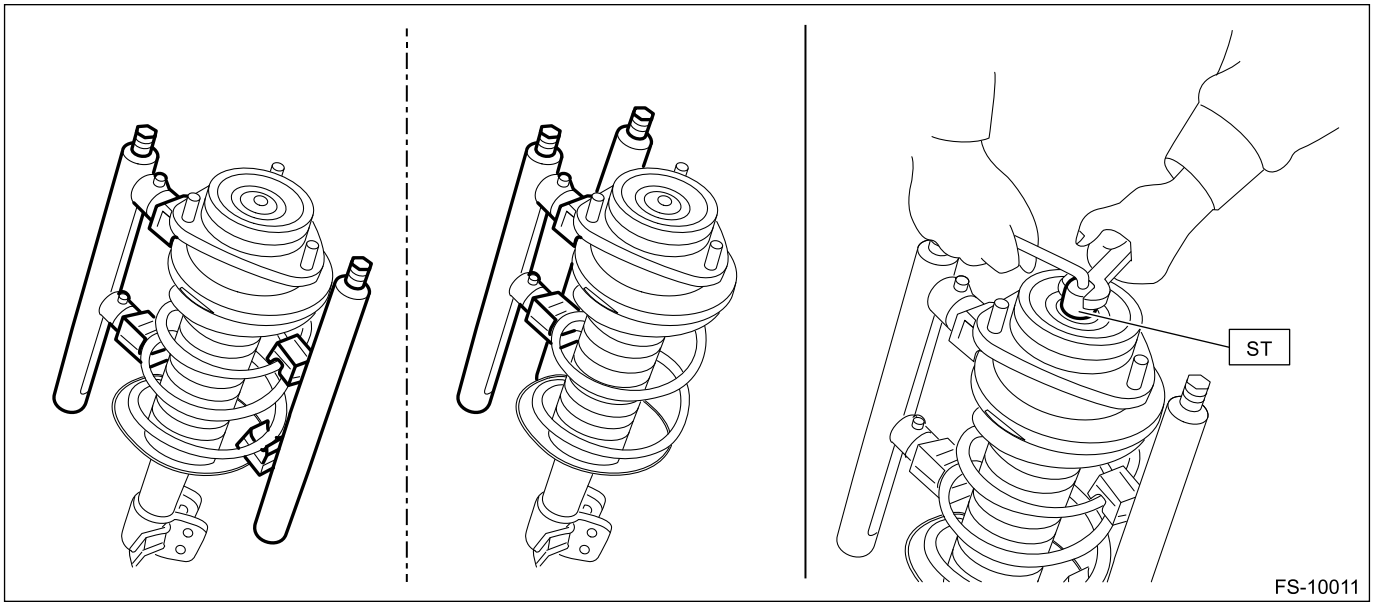
   Caution:
   When the wheel alignment has been adjusted, perform the following adjustment.
   – Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
   – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.
7. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE.

FRONT SUSPENSION > Front Strut

DISASSEMBLY

Caution:
- **When installing the coil spring compressor to the coil spring, follow the operation manual accompanied with the coil spring compressor during operation.**
- **Do not use an impact wrench to compress the coil spring.**

1. Using a coil spring compressor, compress the coil spring.
2. Using a hexagon wrench to prevent strut rod from turning, remove the self-locking nut with ST.
   Preparation tool:
   ST: STRUT MOUNT SOCKET (20399AG000)
   Note:
   <Example of coil spring compressor installation>
   The installing position of coil spring compressor varies depending on the coil spring shape and winding number.



3. Remove the strut mount - front, spacer - front strut, dust cover - front strut and the spring seat UPR - front strut from the strut COMPL.
4. Gradually decrease the compression force of compressor, and remove the coil spring.
5. Remove the dust cover - inner and the helper - front strut.

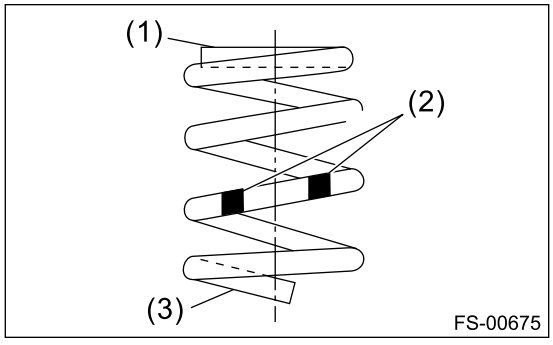
FRONT SUSPENSION > Front Strut

ASSEMBLY

Caution:

- **When installing the coil spring compressor to the coil spring, follow the operation manual accompanied with the coil spring compressor during operation.**
- **Do not use an impact wrench to compress the coil spring.**

1. Before assembly, check each part. Ref. to FRONT SUSPENSION>Front Strut>INSPECTION.
2. Using a coil spring compressor, compress the coil spring.
   Note:
   Make sure that the vertical install direction of the coil spring is as shown in the figure.

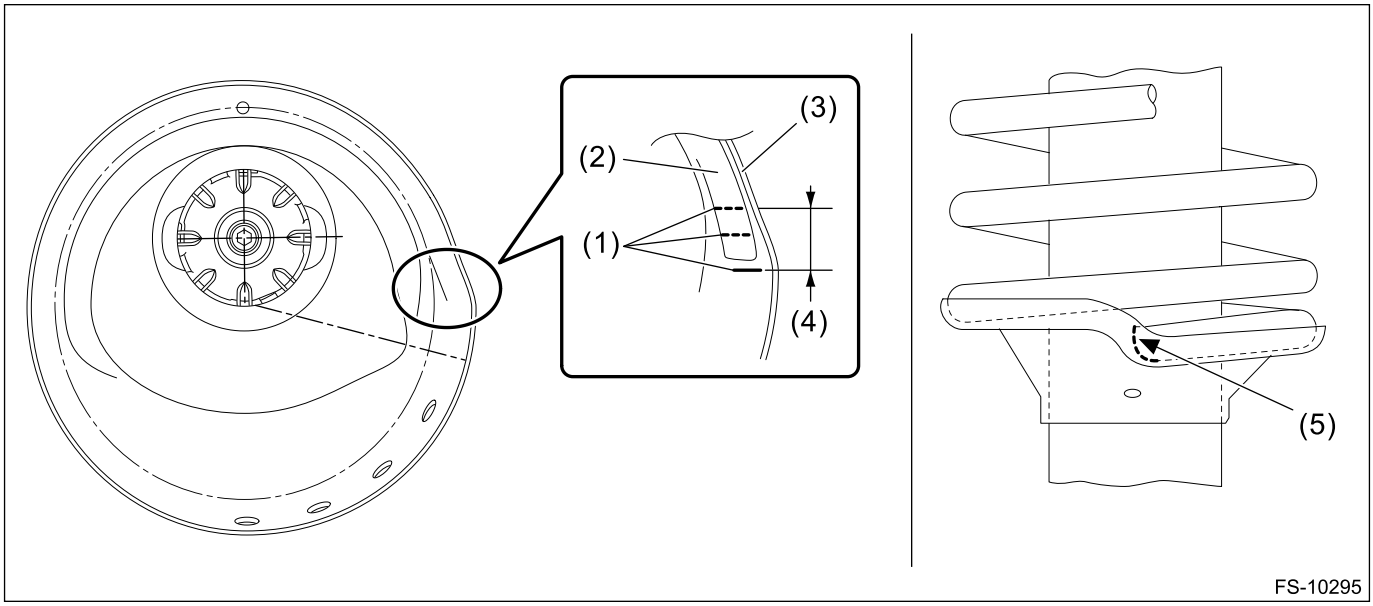


(1) Diameter is small (upper part)
(2) Identification paint
(3) Diameter is large (bottom part)

3. Set the coil spring correctly so that its end face seats well in the spring seat as shown in the figure.

Caution:

Install the coil spring so that the end of spring is between the marks on the spring seat.

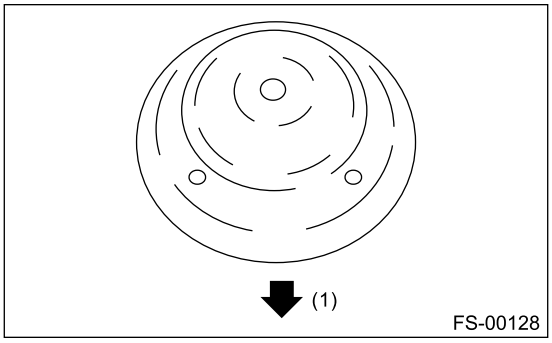


(1) Mark
(2) Spring
(3) Spring seat
(4) Install the spring within this area
(5) Coil spring end face

4. Install the dust cover - inner and the helper - front strut to the piston rod.
5. Pull the piston rod fully upward, and install the spring seat and the dust cover - front strut.

Note:

Position the spring seat UPR - front strut as shown in the figure.



(1) Outside of body

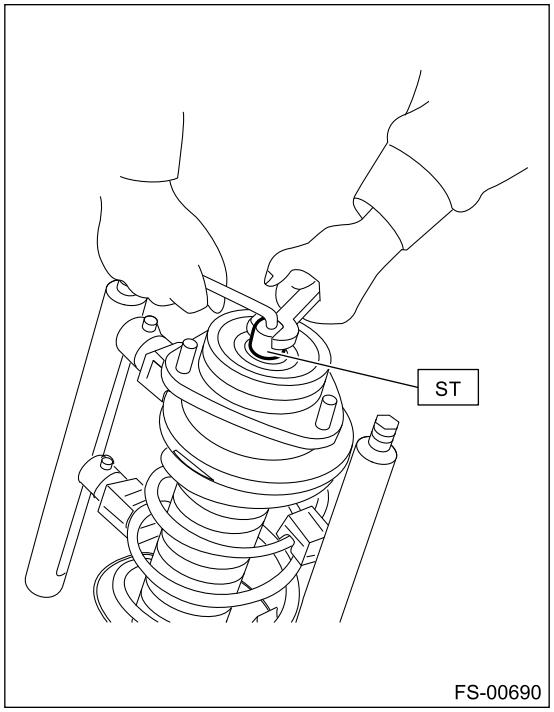
6. Install the spacer - front strut and the strut mount - front to the piston rod, and temporarily tighten a new self-locking nut.
7. Using a hexagon wrench to prevent strut rod from turning, tighten the new self-locking nut with ST.

Caution:

Make sure that the strut mount - front turns smoothly after tightening.

Preparation tool:

ST: STRUT MOUNT SOCKET (20399AG000)



Tightening torque:
55 N·m (5.6 kgf-m, 40.6 ft-lb)

8. Loosen the coil spring compressor carefully.

FRONT SUSPENSION > Front Strut

INSPECTION

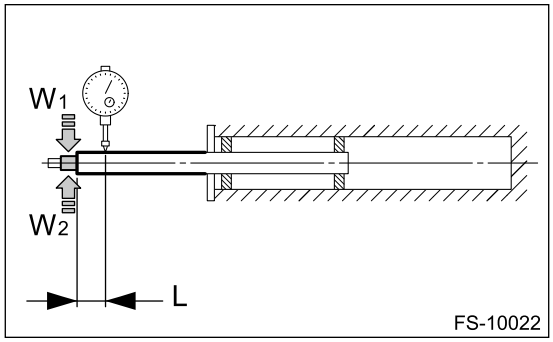
Check the removed part for wear, damage and cracks, and then repair or replace it if defective.

1. STRUT

1. Check for oil leaks.
2. Move the piston rod up and down to check that it operates smoothly without any hitch.
3. Check the piston rod runout.

Preparation tool:
Dial gauge

(1) Fix the outer shell.
(2) Extend the piston rod until it stops retracting, and set the dial gauge at the L position from the end of the piston rod.
Measuring point:
L = 10 mm (0.39 in)
(3) While applying a force of W [20 N (2 kgf, 4 lbf)] to the arrowed section, read the dial gauge indication P_1.
(4) While applying a force of W_2 20 N (2 kgf, 4 lbf) from the opposite side of W_1, read the dial gauge indication P_2.



Play limit (P_1 + P_2): 0.8 mm (0.031 in)

4. Replace the strut if faulty is found in the inspection or limit value is exceeded.

2. STRUT MOUNT - FRONT

Check the rubber part for deformation, cracks or deterioration, and then replace it with a new part if defective.

3. DUST COVER - INNER

If cracks or damage are found, replace it with a new part.

4. COIL SPRING - FRONT

If cracks, damage or deformation are found, replace it with a new part.

5. HELPER - FRONT STRUT

If major cracks or damage are found, replace it with a new part.

6. DUST COVER - FRONT STRUT

If major cracks or damage are found, replace it with a new part.

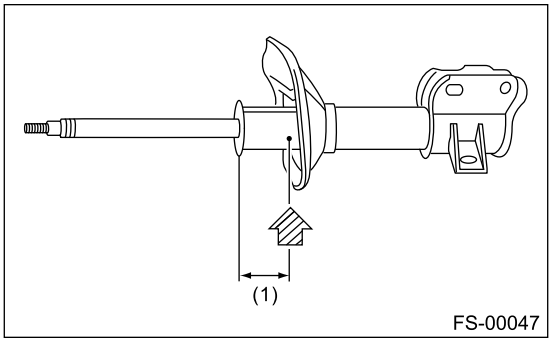
FRONT SUSPENSION > Front Strut

DISPOSAL

Caution:

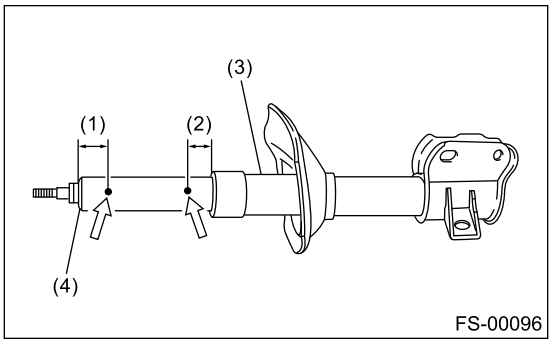
- **Before handling the strut damper and shock absorber, be sure to wear goggles to protect eyes from gas, oil and cutting powder.**
- **Do not disassemble the strut damper and shock absorber or place them into a fire.**
- **When discarding gas filled strut dampers and shock absorbers, drill holes in them to purge the gas.**

1. Place the strut damper and shock absorber on a level surface with the piston rod fully expanded.
2. Make a hole into the specified position 30 mm (1.18 in) deep using a drill with 2 — 3 mm (0.08 — 0.12 in) diameter. (standard damper model)



(1) 40 mm (1.57 in)

3. Using a 2 — 3 mm (0.08 — 0.12 in) dia. drill, make a hole into the position (1) first, and then (2). (inverted damper model)



(1) 20 mm (0.78 in)

(2) 10 mm (0.39 in)

(3) Strut

(4) Damping tube

INSPECTION

1. IMPROPER VEHICLE POSTURE OR IMPROPER WHEEL ARCH HEIGHT

Possible cause	Corrective action
(1) Deformation or damage of suspension parts	Replace.
(2) Defective strut	Replace.
(3) Installation of the wrong strut assembly	Replace with appropriate parts.
(4) Installation of the wrong coil spring	Replace with appropriate parts.

2. POOR RIDE COMFORT

1. Large rebound shock.
2. Rocking of the vehicle continues too long after running over bump and hump.
3. Excessive shock in bumping.

Possible cause	Corrective action
(1) Damaged coil spring	Replace.
(2) Overinflation of tires	Adjust to the specified air pressure.
(3) Improper wheel arch height	Replace the coil springs with new parts.
(4) Fault in operation of strut	Replace.
(5) Damage or deformation of strut mount	Replace.
(6) Unsuitable length (maximum or minimum) of strut	Replace with appropriate parts.
(7) Abnormal deformation or loss of bushing	Replace.
(8) Deformation or damage of helper in strut	Replace.
(9) Oil leakage from strut	Replace.

3. NOISE

Possible cause	Corrective action
(1) Wear or damage of strut component parts	Replace.
(2) Loosening of the suspension link installing bolt	Tighten to the specified torque.
(3) Abnormal deformation or loss of bushing	Replace.
(4) Unsuitable length (maximum or minimum) of strut	Replace with appropriate parts.
(5) Damaged coil spring	Replace.
(6) Wear or damage of the ball joint	Replace.
(7) Deformation of the clamp - stabilizer bushing	Replace.

REAR SUSPENSION

RS

SPECIFICATION

1. WRX MODEL

Tire size		235/45R17	245/40R18
Wheel arch height (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$))	mm (in)	367 (14.45)	361 (14.21)
Camber (tolerance: ±0°45′ Differences between RH and LH: 45′ or less)		−1°30′	−1°40′
Toe-in	mm (in)	IN3±3 (IN0.12±0.12)	
		Toe angle (sum of both wheels): IN0°16′±16′	
Thrust angle (tolerance: 0°00′±30′)		0°00′	

2. STI MODEL

Tire size		245/40R18	245/35R19
Wheel arch height (Tolerance: $^{+12\ mm}_{-24\ mm}$ ($^{+0.47\ in}_{-0.94\ in}$))	mm (in)	362 (14.25)	
Camber (tolerance: ±0°45′ Differences between RH and LH: 45′ or less)		−1°40′	
Toe-in	mm (in)	IN3±3 (IN0.12±0.12)	
		Toe angle (sum of both wheels): IN0°16′±16′	
Thrust angle (tolerance: 0°00′±30′)		0°00′	

Note:

- **Adjust with the value less than the inspection value, taking aging variation into consideration.**
- **Front toe-in, rear toe-in and front camber can be adjusted. Adjust if the value of toe-in or camber exceeds the tolerance range of the specification chart.**
- **Other items except for front toe-in, rear toe-in and front camber that are described in the specification chart cannot be adjusted.**
- **If other items exceed the tolerance range of the specification chart, check the suspension parts and connections for deformation. If defective, replace with new parts.**

A − B = Positive: Toe-in, Negative: Toe-out
α = Individual toe angles

COMPONENT

1. REAR SUSPENSION

(1) Rear sub frame ASSY
(2) Stopper UPR
(3) Support - sub frame
(4) Flange bolt A
(5) Bushing A - trailing link
(6) Trailing link
(7) Flange bolt B
(8) Self-locking nut
(9) Bushing C - lateral link rear
(10) Rear support sub frame
(11) Flange nut
(12) Rear stabilizer
(13) Bushing - stabilizer
(14) Clamp - stabilizer bushing
(15) Stabilizer link
(16) Rear shock absorber ASSY
(17) Rear lateral link ASSY
(18) Rear axle housing
(19) Bushing D - rear axle housing

Tightening torque: N·m (kgf-m, ft-lb)

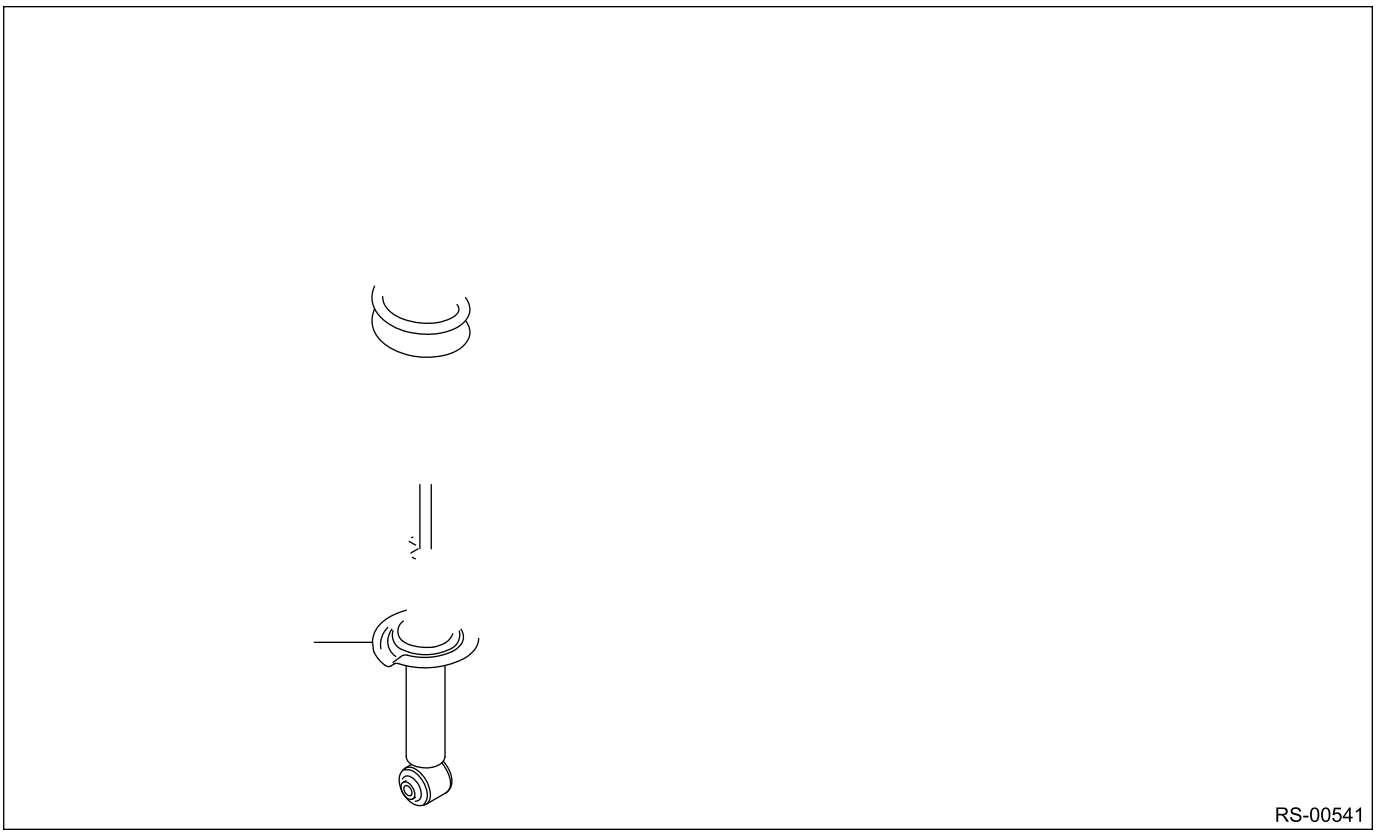
T1: 30 (3.1, 22.1)
T2: 38 (3.9, 28)
T3: 70 (7.1, 51.6)
T4: 80 (8.2, 59)
T5: 85 (8.7, 62.7)
T6: 110 (11.2, 81.1)
T7: 145 (14.8, 106.9)

(1) Rear sub frame ASSY
(2) Self-locking nut
(3) Rear upper arm ASSY
(4) Snap pin
(5) Lateral link ASSY - front
(6) Bushing B - lateral link
(7) Adjusting washer
(8) Adjusting bolt
(9) Sensor ASSY - headlight beam leveler (models with auto headlight beam leveler only)
(10) Lateral link ASSY - rear
(11) Rear axle housing
(12) Bushing D - rear axle housing
(13) Flange nut
(14) Trailing link
(15) Flange bolt

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.5 (0.8, 5.5)
T2: 60 (6.1, 44.3)
T3: 80 (8.2, 59)
T4: 90 (9.2, 66.4)
T5: 100 (10.2, 73.8)
T6: 110 (11.2, 81.1)

2. REAR SHOCK ABSORBER



(1)	Flange nut	(5)	Dust cover - rear shock	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Self-locking nut	(6)	Helper - rear	***T1: 25 (2.5, 18.4)***
(3)	Shock mount - rear	(7)	Coil spring - rear	***T2: 30 (3.1, 22.1)***
(4)	Rubber seat - shock UPR	(8)	Shock absorber COMPL - rear	

REAR SUSPENSION > General Description

CAUTION

- When performing any work, always wear work clothes, a work cap and protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
- When disposing of shock absorbers, be sure to bleed the oil or gas out completely. Also, do not expose to flames or fire.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Use SUBARU genuine grease, the recommended or equivalent. Do not mix grease etc. of different grades or manufacturers.
- Do not secure a part in a vise directly. Place cushioning materials such as wood blocks, aluminum plates, or waste cloth between the part and the vise.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- When the suspension-related components have been removed or replaced, 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.

- For parts which are not reusable, always use new parts. Other parts should be replaced with new parts as required.
- When handling oil or fuel, adhere to the following to prevent unexpected accident.
  - Be careful with fire.
  - Prepare a container to catch grease or oil, etc. If any grease or oil spills, wipe it off and clean immediately to prevent from penetrating into floor or flowing outside.
  - Follow all government and local regulations concerning disposal of refuse when disposing.
- Be sure that the surface of brake disc or brake pad is free from grease or oil.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Some vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.

REAR SUSPENSION > General Description

PREPARATION TOOL

1. SPECIAL TOOL

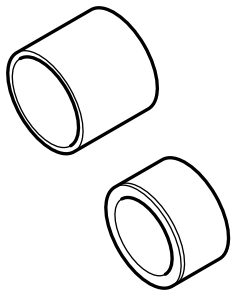
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST20099PA010	20099PA010	INSTALLER & REMOVER	• Used for replacing the bushing A - trailing link of the rear axle housing. • Used together with BUSHING REMOVER (20099FG000).
	20099FG000	BUSHING REMOVER	• Used for replacing the bushing A - trailing link of the rear axle housing. • Used together with base part of INSTALLER & REMOVER (20099PA010).

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	20099AE000	INSTALLER & REMOVER	Used for replacing the bushing B - lateral link.
	20099AE010	INSTALLER & REMOVER	Used for replacing the bushing C - lateral link.
	20399FG000	STRUT MOUNT SOCKET	• Used for disassembling and assembling strut assembly and shock absorber assembly. • Used for checking center nut torque of strut assembly and shock absorber assembly.

2. GENERAL TOOL

TOOL NAME	REMARKS
Alignment tester	Used for measuring wheel alignment.
Toe-in gauge	Used for toe-in measurement.
Jack	Used for removing and installing suspension.
Bearing puller	Used for removing bushings.
Tie-rod ball joint puller	Used for disconnecting the lateral link assembly - front.
Coil spring compressor	Used for disassembling and assembling strut assembly and shock absorber assembly.

INSPECTION

Note:
For wheel alignment, measure or adjust the front and rear wheels at a time. Refer to "Wheel Alignment" in "FRONT SUSPENSION" section for measurement and adjustment procedures of wheel alignment.

- **Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.**
- **Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.**

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. Lift up the vehicle, and then remove the rear wheels.
3. Remove the rear exhaust pipe.
   - STI model: Ref. to EXHAUST(STI)>Rear Exhaust Pipe>REMOVAL.
   - Except for STI model: Ref. to EXHAUST(w/o STI)>Rear Exhaust Pipe>REMOVAL.
4. Remove the propeller shaft assembly. Ref. to DRIVE SHAFT SYSTEM>Propeller Shaft>REMOVAL.
5. Remove the clip and bolt on the harness clamp, and remove the rear ABS wheel speed sensor.
   Caution:
   - **Be careful not to damage the sensor.**
   - **Do not apply excessive force to the sensor harness.**
6. Remove the disc brake assembly - rear. Ref. to BRAKE>Rear Disc Brake Assembly>REMOVAL.
7. Remove the cable assembly - parking brake and the parking brake shoe. (Models without EyeSight) Ref. to PARKING BRAKE>Parking Brake Assembly (Rear Disc Brake)>REMOVAL.
8. Disconnect the electronic parking brake harness. (Models with EyeSight) Ref. to PARKING BRAKE>Parking Brake Cable>REMOVAL.

9. Remove the clamp of the sub rear harness.

10. Remove the sensor assembly - headlight beam leveler. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Rear Height Sensor>REMOVAL.
11. Remove the fuel tank protector.
    - STI model: Ref. to FUEL INJECTION (FUEL SYSTEMS)(STI)>Fuel Tank Protector>REMOVAL.
    - Except for STI model: Ref. to FUEL INJECTION (FUEL SYSTEMS)(w/o STI)>Fuel Tank Protector>REMOVAL.
12. Remove the rear sub frame assembly.
    (1) Remove the bolts and nuts from the lower side of rear shock absorber assembly.

(2) Support the rear sub frame assembly using a transmission jack.

Caution:

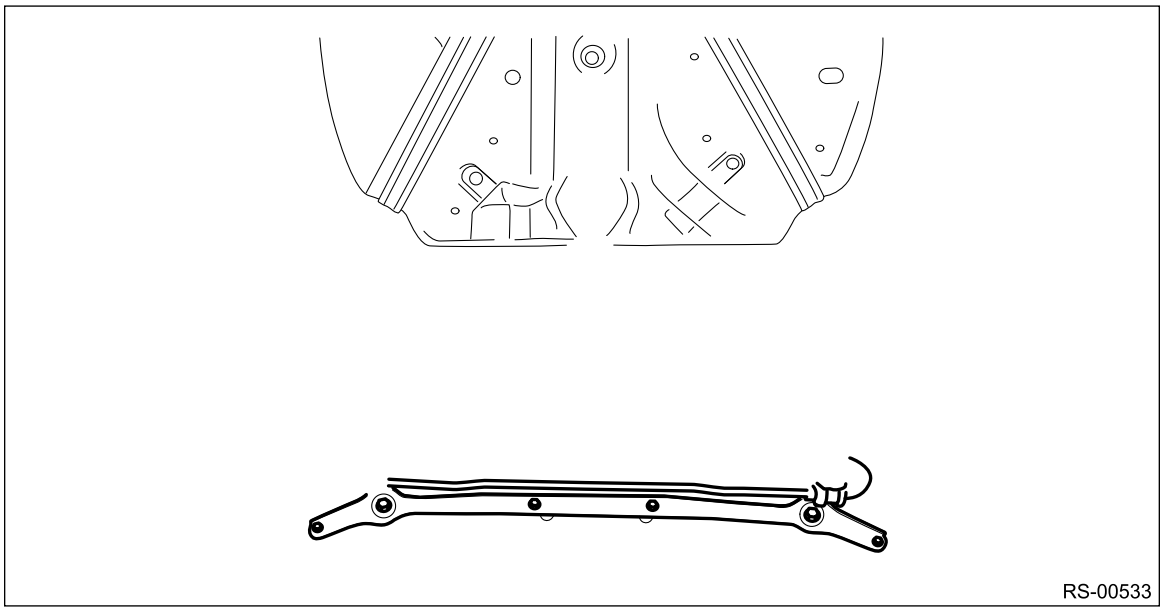
The rear sub frame assembly is heavy. Make sure that it is horizontally-supported.

(3) Remove the bolt, and remove the left and right sub frame supports and the rear sub frame support.

(4) Remove the rear sub frame assembly.

Caution:

While checking there is no dragging of harness and wire, lower it slowly with a transmission jack.



13. As necessary, remove each part from the rear sub frame assembly.

REAR SUSPENSION > Rear Sub Frame

INSTALLATION

Caution:

- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**
- **During the installation, make sure that the marking of ABS wheel speed sensor harness does not twist.**

1. Check the removed parts for wear, damage and crack, and repair or replace them if faulty.
2. Install each part to the rear sub frame assembly.
   Tightening torque:
   Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to REAR SUSPENSION>General Description>COMPONENT.
3. Install the rear sub frame assembly.
   (1) Lift the rear sub frame assembly using a transmission jack.
   (2) Install the right and left sub frame supports and the rear support sub frame, and install the rear sub frame assembly.
   Caution:
   - **The rear sub frame assembly is heavy. Make sure that it is horizontally-supported.**
   - **While checking there is no dragging of harness and wire, raise it slowly with a transmission jack.**

   Tightening torque:
   Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to REAR SUSPENSION>General Description>COMPONENT.
4. Install the bolts and nuts on the lower side of rear shock absorber assembly.
   Tightening torque:
   85 N·m (8.7 kgf-m, 62.7 ft-lb)
5. Install the fuel tank protector.
   - STI model: Ref. to FUEL INJECTION (FUEL SYSTEMS)(STI)>Fuel Tank Protector>INSTALLATION.

- Except for STI model: Ref. to FUEL INJECTION (FUEL SYSTEMS)(w/o STI)>Fuel Tank Protector>INSTALLATION.

6. Install the sensor assembly - headlight beam leveler. (Model with auto headlight beam leveler)
   Caution:
   Do not apply impact to the sensor assembly - headlight beam leveler or forcibly move the arm. Doing so may cause sensor damage and malfunction.
   Tightening torque:
   7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
7. Install the clamp of the sub rear harness.
8. Install the cable assembly - parking brake. (Models without EyeSight) Ref. to PARKING BRAKE>Parking Brake Assembly (Rear Disc Brake)>INSTALLATION.
9. Install the electronic parking brake harness. (Models with EyeSight)
   Tightening torque:
   18 N·m (1.8 kgf-m, 13.3 ft-lb)
10. Install the brake hose bracket and the disc brake assembly - rear.
    Tightening torque:
    Brake hose bracket: 33 N·m (3.4 kgf-m, 24.3 ft-lb)
    Disc brake assembly - rear: Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to BRAKE>General Description>COMPONENT > REAR DISC BRAKE (DRUM IN DISC TYPE).
11. Install the rear ABS wheel speed sensor.
    Tightening torque:
    7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
12. Install the propeller shaft assembly. Ref. to DRIVE SHAFT SYSTEM>Propeller Shaft>INSTALLATION.
13. Install the rear exhaust pipe.
    - STI model: Ref. to EXHAUST(STI)>Rear Exhaust Pipe>INSTALLATION.
    - Except for STI model: Ref. to EXHAUST(w/o STI)>Rear Exhaust Pipe>INSTALLATION.
14. Install the rear wheels and lower the vehicle.
    Tightening torque:
    120 N·m (12.2 kgf-m, 88.5 ft-lb)
15. Inspect the wheel alignment and adjust if necessary.
    - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
    - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

    Caution:
    When the wheel alignment has been adjusted, perform the following adjustment.
    – Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
    – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.
16. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.
17. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE.

REAR SUSPENSION > Rear Sub Frame

INSPECTION

Check the removed parts for wear, damage and crack, and repair or replace them if faulty.

REMOVAL

1. Lift up the vehicle, and then remove the rear wheels.
2. Remove the rear stabilizer.
   (1) Remove the nut and disconnect the right and left stabilizer links.
   (2) Detach the right and left clamps - stabilizer bushing and remove the rear stabilizer.

INSTALLATION

Caution:

- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**
- **Install the clamp - stabilizer bushing with the "G" character facing upward.**
- **When installing, align the edge of identification paint (a) to the end face of the bushing (b).**

1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Check the bushing - stabilizer for abnormal cracks, fatigue or damage.
   - Check the stabilizer link for damage.
2. Install the rear stabilizer.

   Tightening torque:

   Clamp - stabilizer bushing: 30 N·m (3.1 kgf-m, 22.1 ft-lb)

   Stabilizer link: 38 N·m (3.9 kgf-m, 28 ft-lb)
3. Install the rear wheels and lower the vehicle.

   Tightening torque:

   120 N·m (12.2 kgf-m, 88.5 ft-lb)

REAR SUSPENSION > Rear Trailing Link

REMOVAL

1. Lift up the vehicle, and then remove the rear wheels.
2. Remove the bolts and nuts, and then remove the trailing link.

REAR SUSPENSION > Rear Trailing Link

INSTALLATION

Caution:

- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**

1. Install the trailing link.
   Tightening torque:
   110 N·m (11.2 kgf-m, 81.1 ft-lb)
2. Install the rear wheels and lower the vehicle.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)

REAR SUSPENSION > Rear Trailing Link

DISASSEMBLY

1. BUSHING A - TRAILING LINK

Using the ST, push out the bushing A - trailing link.

Preparation tool:

ST-A: INSTALLER (20099FG000)
ST-B: INSTALLER & REMOVER (BASE) (20099PA010)

2. BUSHING D - REAR AXLE HOUSING

For the removal procedure of bushing D - rear axle housing, refer to “Rear Axle” in the “DRIVE SHAFT SYSTEM” section. Ref. to DRIVE SHAFT SYSTEM>Rear Axle>DISASSEMBLY > BUSHING D - REAR AXLE HOUSING.

ASSEMBLY

1. BUSHING A - TRAILING LINK

1. Before assembly, inspect the following items and replace any faulty part with a new one.
   - Perform visual check for damage or bend on the trailing link.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
2. Using the ST-A and ST-B, press-fit the bushing.
   Caution:
   Make sure to press the bushing straight in.
   Preparation tool:
   ST-A: INSTALLER (20099FG000)
   ST-B: INSTALLER & REMOVER (BASE) (20099PA010)

2. BUSHING D - REAR AXLE HOUSING

For the installation procedure of bushing D - rear axle housing, refer to “Rear Axle” in the “DRIVE SHAFT SYSTEM” section. Ref. to DRIVE SHAFT SYSTEM>Rear Axle>ASSEMBLY > BUSHING D - REAR AXLE HOUSING.

REAR SUSPENSION > Upper Arm

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. Lift up the vehicle, and then remove the rear wheels.
3. Remove the rear sub frame assembly. Ref. to REAR SUSPENSION>Rear Sub Frame>REMOVAL.
4. Remove the bolts and nuts to remove the upper arm assembly.

REAR SUSPENSION > Upper Arm

INSTALLATION

Caution:

- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing when the arm is positioned in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**

1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Visually check the upper arm assembly for damage and deformation.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
   - Visually check the boot on the ball joint for abnormal cracks, fatigue or damage.
2. Install the upper arm assembly.
   (1) Make the installation sections of the rear lateral link assembly (the bolt on the rear axle housing side and the bolt on the rear sub frame assembly side) horizontal.
   (2) Install the upper arm assembly to the rear sub frame assembly.

Tightening torque:

Upper arm assembly — rear sub frame assembly: 90 N·m (9.2 kgf-m, 66.4 ft-lb)

3. Connect the upper arm assembly and the rear axle housing.

   Tightening torque:

   Upper arm assembly — rear axle housing: 80 N·m (8.2 kgf-m, 59 ft-lb)

4. Install the rear sub frame assembly. Ref. to REAR SUSPENSION>Rear Sub Frame>INSTALLATION.
5. Install the rear wheels and lower the vehicle.

   Tightening torque:

   120 N·m (12.2 kgf-m, 88.5 ft-lb)

6. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

   Caution:

   When the wheel alignment has been adjusted, perform the following adjustment.

   – Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.

   – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.
7. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.
8. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE.

REMOVAL

1. Lift up the vehicle, and then remove the rear wheels.
2. Remove the trailing link. Ref. to REAR SUSPENSION>Rear Trailing Link>REMOVAL.
3. Remove the nuts, and remove the cable assembly - parking brake or the electronic parking brake harness.

4. Remove the lateral link assembly - front.
   (1) Remove the snap pin (a) and nut (b).
   (2) Disconnect the rear axle housing and the ball joint.
   Preparation tool:
   Tie-rod ball joint puller
   (3) Scribe alignment marks (c) on the adjusting bolt for lateral link assembly - front and on the rear sub frame assembly.
   (4) Remove the adjusting bolt (d), and remove the lateral link assembly - front.
   Caution:
   When removing the adjusting bolt (d), make sure to fix the bolt head in place when loosening the nut (e).

INSTALLATION

Caution:
- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**

1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Visually check the lateral link assembly - front for damage and deformation.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
   - Visually check the boot on the ball joint for abnormal cracks, fatigue or damage.
2. Install the lateral link assembly - front.
   Caution:
   - **When installing the adjusting bolt (d), make sure to fix the bolt head in place and tighten the nut side (e).**
   - **Align alignment marks (c) on the adjusting bolt for lateral link assembly - front and on the rear sub frame assembly.**

   Tightening torque:
   Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to REAR SUSPENSION>General Description>COMPONENT.
3. Install the nuts, and install the cable assembly - parking brake or the electronic parking brake harness.
   Tightening torque:
   18 N·m (1.8 kgf-m, 13.3 ft-lb)
4. Install the trailing link.
   Tightening torque:
   110 N·m (11.2 kgf-m, 81.1 ft-lb)
5. Install the rear wheels and lower the vehicle.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)
6. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

   Caution:
   When the wheel alignment has been adjusted, perform the following adjustment.
   – Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
   – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.

REAR SUSPENSION > Front Lateral Link

DISASSEMBLY

Using the ST, push out the bushing B - lateral link.
Preparation tool:
ST-A & ST-B: INSTALLER & REMOVER (20099AE000)

ASSEMBLY

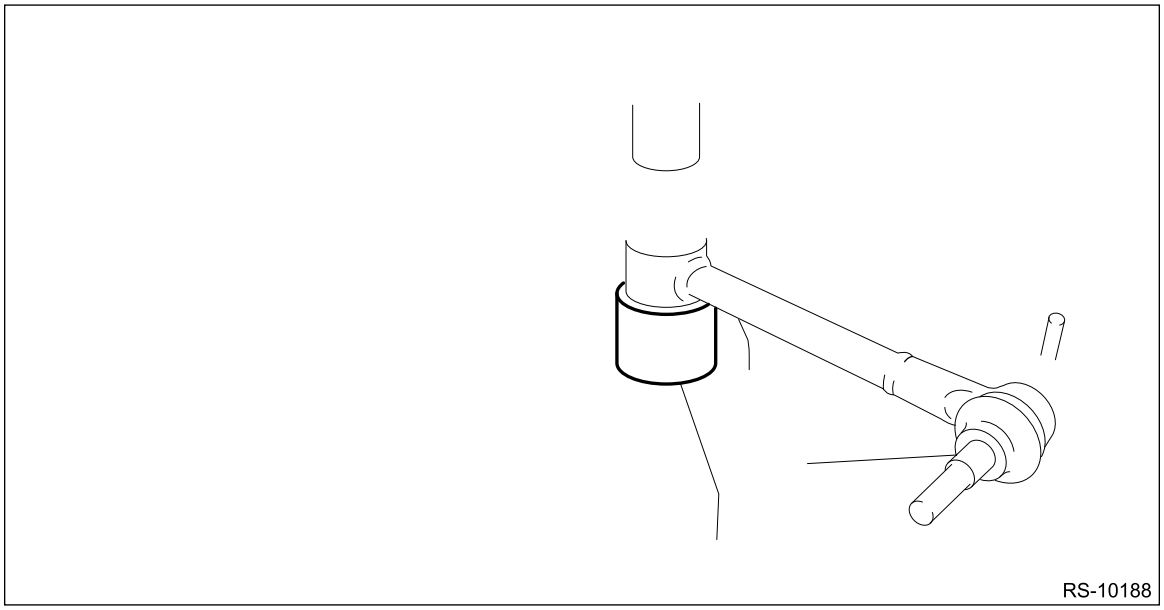
1. Before assembly, inspect the following items and replace any faulty part with a new one.
   - Visually check the lateral link assembly - front for damage and deformation.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
   - Visually check the boot on the ball joint for damage.
2. Using the ST, press-fit the bushing B - lateral link.

   Caution:

   Make sure to press the bushing straight in.

   Preparation tool:

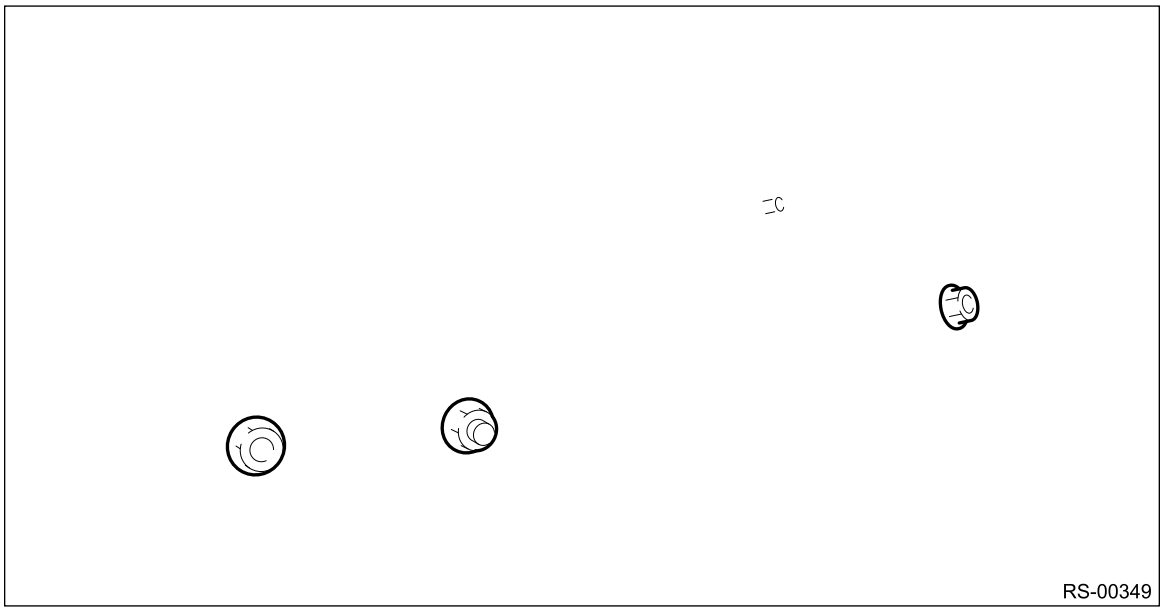
   ST-A & ST-B: INSTALLER & REMOVER (20099AE000)



REAR SUSPENSION > Rear Lateral Link

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. Lift up the vehicle, and then remove the rear wheels.
3. Remove the sensor assembly - headlight beam leveler. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Rear Height Sensor>REMOVAL.
4. Remove the lateral link assembly - rear.
   (1) Remove the nut and disconnect the rear stabilizer link.
   (2) Remove the bolts and nuts, and remove the lower side of rear shock absorber assembly.
   (3) Remove the bolts and nuts, and remove the lateral link assembly - rear.



REAR SUSPENSION > Rear Lateral Link

INSTALLATION

Caution:

- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**

1. Before installation, inspect the following items and replace any faulty part with a new one.
   - Visually check the lateral link assembly - rear for damage and deformation.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
2. Install the lateral link assembly - rear.
   Tightening torque:
   Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to REAR SUSPENSION>General Description>COMPONENT.
3. Install the sensor assembly - headlight beam leveler. (Model with auto headlight beam leveler)

Caution:
Do not apply impact to the sensor assembly - headlight beam leveler or forcibly move the arm. Doing so may cause sensor damage and malfunction.
Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)

4. Install the rear wheels and lower the vehicle.
Tightening torque:
120 N·m (12.2 kgf-m, 88.5 ft-lb)
5. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.
6. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.
   Caution:
   When the wheel alignment has been adjusted, perform the following adjustment.
   – Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.
   – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.
7. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE > REINITIALIZATION.

REAR SUSPENSION > Rear Lateral Link

DISASSEMBLY

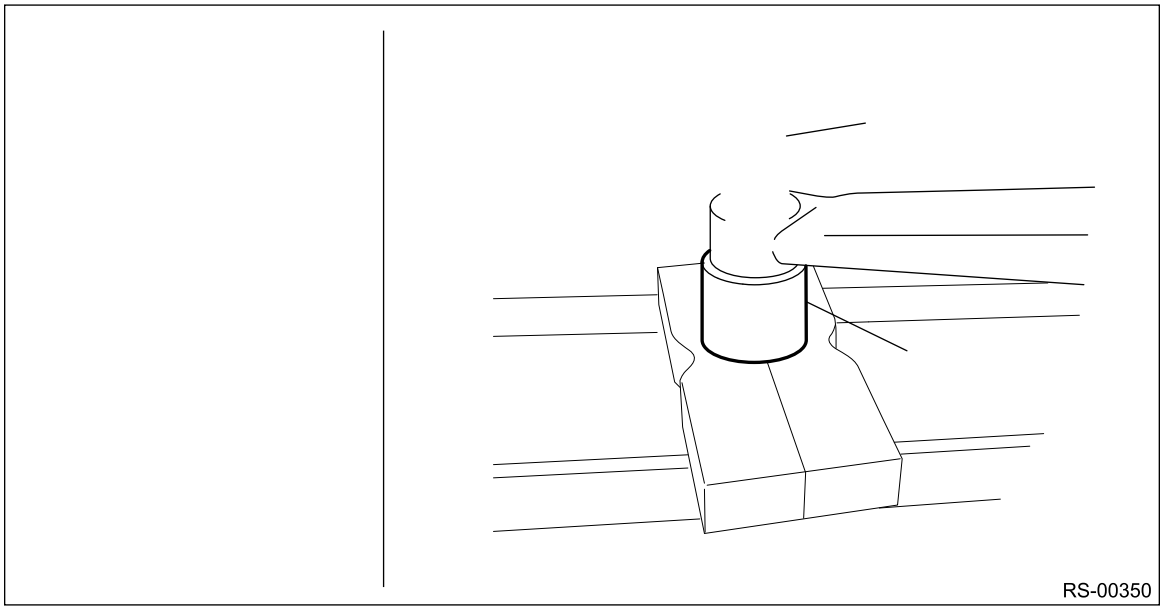
Using the ST, push out the bushing.
Preparation tool:
ST-A & ST-B: INSTALLER & REMOVER (20099AE010)

ASSEMBLY

1. Before assembly, inspect the following items and replace any faulty part with a new one.
   - Visually check the lateral link assembly - rear for damage and deformation.
   - Visually check the bushing for abnormal cracks, fatigue or damage.
2. Using the ST, press the bushing into place.

   Preparation tool:

   ST-A & ST-B: INSTALLER & REMOVER (20099AE010)



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. Lift up the vehicle, and then remove the rear wheels.
3. Remove the sensor assembly - headlight beam leveler. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Rear Height Sensor>REMOVAL.
4. Remove the bolts and nuts, and lower the lateral link assembly - rear.
   (1) Remove the nut and disconnect the rear stabilizer link.
   (2) Remove the bolts from the lower side of rear shock absorber assembly.
   (3) Disconnect the rear axle housing from the lateral link assembly - rear.

5. Take out the trunk mat.
6. Tilt the rear seat backrest forward.
7. Remove the clips, and turn over the trim panel - trunk side.

8. Remove the nuts on the upper side of rear shock absorber assembly.

9. Lower the lateral link assembly - rear, and remove the rear shock absorber assembly.

REAR SUSPENSION > Rear Shock Absorber

INSTALLATION

Caution:

- **For parts which are not reusable, always use new parts.**
- **Always tighten the bushing in the state where the vehicle is at curb weight and the wheels are in full contact with the ground.**

1. Install the rear shock absorber assembly.
   (1) Lower the lateral link assembly - rear, and place the rear shock absorber assembly inside.
   (2) Install the upper side of the rear shock absorber assembly.
   Tightening torque:

30 N·m (3.1 kgf-m, 22.1 ft-lb)

(3) Install the bolts on the lower side of rear shock absorber assembly.

Tightening torque:

85 N·m (8.7 kgf-m, 62.7 ft-lb)

(4) Install the lateral link assembly - rear and the stabilizer link.

Tightening torque:

Refer to "COMPONENT" of "General Description" for the tightening torque. Ref. to REAR SUSPENSION>General Description>COMPONENT.

(5) Install the sensor assembly - headlight beam leveler. (Model with auto headlight beam leveler)

Caution:

Do not apply impact to the sensor assembly - headlight beam leveler or forcibly move the arm. Doing so may cause sensor damage and malfunction.

Tightening torque:

7.5 N·m (0.8 kgf-m, 5.5 ft-lb)

2. Install the clips, and install the trim panel - trunk side.

3. Install the trunk mat, and return the rear seat backrest to the lock position.
4. Install the rear wheels and lower the vehicle.

Tightening torque:

120 N·m (12.2 kgf-m, 88.5 ft-lb)

5. Inspect the wheel alignment and adjust if necessary.
   - Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.
   - Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.

   Caution:

   When the wheel alignment has been adjusted, perform the following adjustment.

   – Lane keep assist learning value clear (model with EyeSight): Ref. to EyeSight (DIAGNOSTICS)>Clear Active Lane Keep System Learning Value>OPERATION.

   – VDC sensor midpoint setting mode: Ref. to VEHICLE DYNAMICS CONTROL (VDC)>VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)>ADJUSTMENT > VDC SENSOR MIDPOINT SETTING MODE.
6. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.

7. Perform reinitialization of the auto headlight beam leveler system. (Model with auto headlight beam leveler) Ref. to LIGHTING SYSTEM>Auto Headlight Beam Leveler System>PROCEDURE > REINITIALIZATION.

REAR SUSPENSION > Rear Shock Absorber

DISASSEMBLY

Caution:

- **When installing the coil spring compressor to the coil spring, follow the operation manual accompanied with the coil spring compressor during operation.**
- **Do not use an impact wrench to compress the coil spring.**

1. Using a coil spring compressor, compress the coil spring.
2. Using a hexagon wrench to prevent the shock absorber piston rod from turning, remove the self-locking nut with ST.

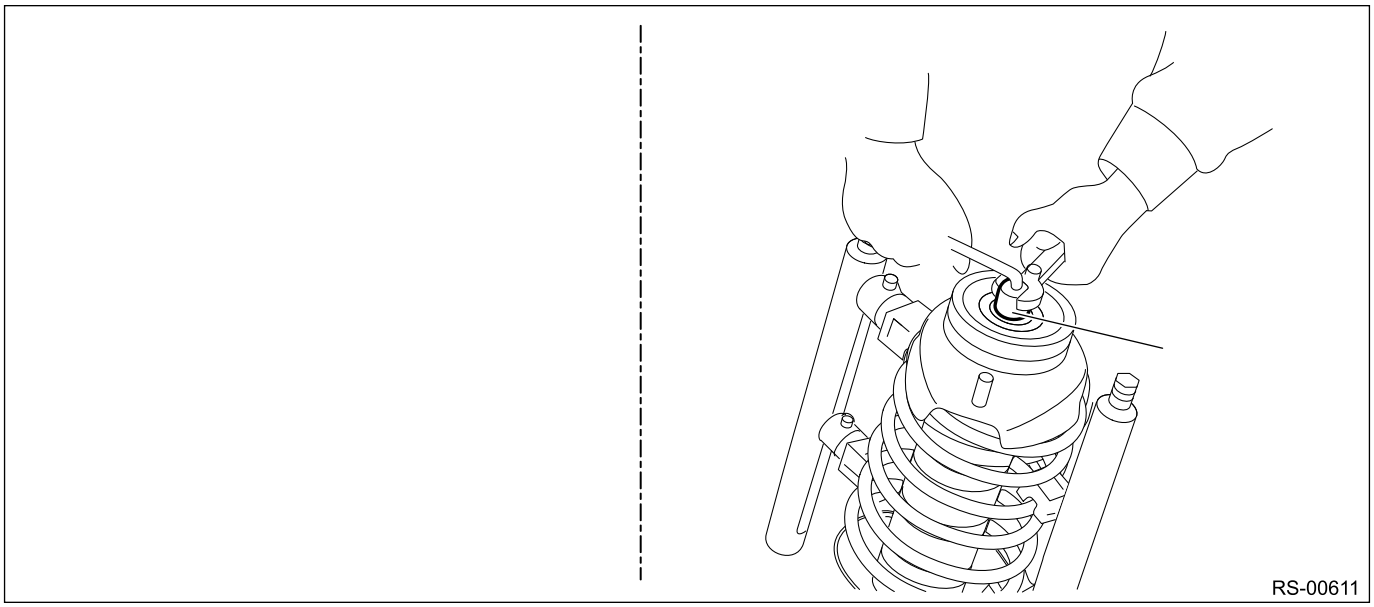
   Preparation tool:

   ST: STRUT MOUNT SOCKET (20399FG000)

   Note:

   <Example of coil spring compressor installation>

   The installing position of coil spring compressor varies depending on the coil spring shape and winding number.



3. Remove the rubber seat - shock UPR and shock mount - rear from the shock absorber COMPL - rear.
4. Gradually decrease the compression pressure of compressor, and remove the coil spring - rear.
5. Remove the helper - rear and the dust cover - rear shock.

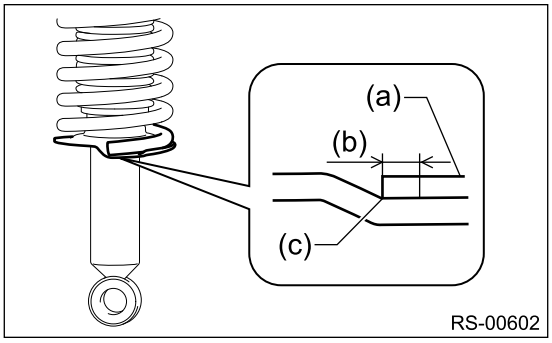
REAR SUSPENSION > Rear Shock Absorber

ASSEMBLY

Caution:

- **When installing the coil spring compressor to the coil spring, follow the operation manual accompanied with the coil spring compressor during operation.**
- **Do not use an impact wrench to compress the coil spring.**

1. Before assembly, check each part. Ref. to REAR SUSPENSION>Rear Shock Absorber>INSPECTION.
2. Using a coil spring compressor, compress the coil spring - rear.
3. Install by aligning with the edge surface of the coil spring - rear and the stopper portion of the lower side spring seat.



(a) Coil spring - rear
(b) 0+10 mm (0+0.4 in)
(c) Spring seat stopper portion

4. Install the helper - rear and the dust cover - rear shock to the piston rod.
5. Fully pull up the piston rod in the upward direction.
6. Temporarily tighten the rubber seat - shock UPR and the shock mount - rear with new self-locking nuts.

   Note:

   Position the shock mount - rear as shown in the figure.

A LH side

B RH side

(a) Front side of vehicle

(b) Vehicle outside

(c) 10°±5°

(d) End portion of coil spring - rear

(e) Identification paint (install with the paint facing the vehicle inside)

7. Using a hexagon wrench to prevent the shock absorber piston rod from turning, tighten the new self-locking nut with ST.

Preparation tool:

ST: STRUT MOUNT SOCKET (20399FG000)

Tightening torque:

25 N·m (2.5 kgf-m, 18.4 ft-lb)

8. Loosen the coil spring compressor carefully.

REAR SUSPENSION > Rear Shock Absorber

INSPECTION

Refer to "Front Strut" in "FRONT SUSPENSION" section for inspection procedures. Ref. to FRONT SUSPENSION>Front Strut>INSPECTION.

REAR SUSPENSION > Rear Shock Absorber

DISPOSAL

Caution:

- **Before discarding the strut COMPL and the shock absorber COMPL, be sure to wear goggles to protect eyes from gas, oil and cutting powder.**
- **Do not disassemble the strut COMPL and the shock absorber COMPL or throw them into flames.**
- **When discarding the strut COMPL and the shock absorber COMPL filled with gas, drill a hole on them to purge the gas.**

1. Place the shock absorber on a level surface with the piston rod fully expanded.
2. Make a hole into the specified position 30 mm (1.18 in) deep using a drill with 2 — 3 mm (0.08 — 0.12 in) diameter.

(1) 40 mm (1.57 in)

INSPECTION

1. IMPROPER VEHICLE POSTURE OR IMPROPER WHEEL ARCH HEIGHT

Possible cause	Corrective action
(1) Permanent distortion or damaged coil spring	Replace.
(2) Rough operation of shock absorber	Replace.
(3) Installation of the wrong shock absorber	Replace with proper parts.
(4) Installation of the wrong coil spring	Replace with proper parts.

2. POOR RIDE COMFORT

1. Large rebound shock
2. Rocking of the vehicle continues too long after running over bump and hump.
3. Excessive shock in bumping

Possible cause	Corrective action
(1) Damaged coil spring	Replace.
(2) Overinflation of tires	Adjust to the specified air pressure.
(3) Improper wheel arch height	Replace the coil springs with new parts.
(4) Defective operation of shock absorber	Replace.
(5) Damage or deformation of shock absorber mount	Replace.
(6) Unsuitable length (maximum or minimum) of shock absorber	Replace with appropriate parts.
(7) Deformation or loss of bushing	Replace.
(8) Deformation or damage of helper in shock absorber	Replace.
(9) Oil leakage from the shock absorber	Replace.

3. NOISE

Possible cause	Corrective action
(1) Wear or damage of shock absorber component parts	Replace.
(2) Loosening of the suspension link or arm installing bolt	Tighten to the specified torque.
(3) Deformation or loss of bushing	Replace.
(4) Unsuitable length (maximum or minimum) of shock absorber	Replace with appropriate parts.
(5) Damaged coil spring	Replace.
(6) Wear or damage of the ball joint	Replace.
(7) Deformation of the clamp - stabilizer bushing	Replace.

WHEEL AND TIRE SYSTEM

WT

SPECIFICATION

1. NOTE

(1) Inset
(2) P.C.D.

Note:
Size and inflation pressure of the standard equipment tire, temporary tire and appropriate tire for equipment are described on the "Tire inflation pressure" label attached to the body side of the driver's door.

2. STANDARD EQUIPMENT TIRE & WHEEL

- STI model

Model for US and Canada

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm^2, psi)	
				Front wheel	Rear wheel
245/40R18 97W	18 × 8$^1/_2$J	55 (2.17)	114.3 (4.5)	230 (2.3, 33)	220 (2.2, 32)
245/35R19 89W	19 × 8$^1/_2$J				

Model for Mexico

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm^2, psi)	
				Front wheel	Rear wheel
245/35R19 89W	19 × 8$^1/_2$J	55 (2.17)	114.3 (4.5)	230 (2.3, 33)	220 (2.2, 32)

- Except for STI model

Model for US and Canada

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm^2, psi)	
				Front wheel	Rear wheel
245/40R18 97W	18 × 8$^1/_2$J	55 (2.17)	114.3 (4.5)	230 (2.3, 33)	220 (2.2, 32)
235/45R17 94W	17 × 8J				

Model for Mexico

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm^2, psi)	
				Front wheel	Rear wheel
245/40R18 97W	18 × 8$^1/_2$J	55 (2.17)	114.3 (4.5)	230 (2.3, 33)	220 (2.2, 32)

3. TEMPORARY TIRE & WHEEL

Model for US and Canada

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm^2, psi)	
				Front wheel	Rear wheel
T145/70D17 106M	17 × 4T	30 (1.18)	114.3 (4.5)	Not used	420 (4.2, 60)
T135/70D18 103M	18 × 4T	25 (0.98)			

Model for Mexico

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm^2, psi)	
				Front wheel	Rear wheel
205/50R17 89V	17 × 7J	55 (2.17)	114.3 (4.5)	Not used	230 (2.3, 33)
205/45R18 86S	18 × 7J				260 (2.6, 38)

4. SERVICE DATA

Part	Axial runout	Radial runout
Alloy wheel	1 mm (0.039 in)	

Wheel balancing	Standard	Service limit
Dynamic unbalance	5 g (0.18 oz) or less	

(1) TPMS & keyless entry control module (model without keyless access with push button start)
(2) TPMS CM (model with keyless access with push button start)
(3) Screw
(4) Transmitter (snap in type)
(5) Valve

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1.4 (0.1, 1)

T2: 7.5 (0.8, 5.5)

T3: 13 (1.3, 9.6)

(1) TPMS & keyless entry control module (model without keyless access with push button start)
(2) TPMS CM ASSY (model with keyless access with push button start)

PREPARATION TOOL

1. GENERAL TOOL

TOOL NAME	REMARKS
Air pressure gauge	Used for measuring tire air pressure.
Magnet stand	Used for measuring wheel runout.
Dial gauge	Used for measuring wheel runout.
Wheel balancer	Used for adjusting wheel balance.

REMOVAL

1. Lift up the vehicle.
2. Remove the wheel nut.
3. Remove the wheels.
   Caution:
   When removing the wheels, be careful not to damage the hub bolts.

INSTALLATION

1. Install the wheels to vehicle.
2. Tighten the wheel nuts to the specified torque.
   Tightening torque:
   120 N·m (12.2 kgf-m, 88.5 ft-lb)

INSPECTION

1. TIRE

Caution:
When replacing a tire, make sure to use tires of the same size, construction and load range as originally installed.

1. Tire size and tire inflation pressure check Ref. to WHEEL AND TIRE SYSTEM>General Description>SPECIFICATION.
2. Cracks, damage and wear check
3. Tire runout check
   (1) Lift up the vehicle.
   (2) Slowly rotate the wheel to check rim “runout” using a dial gauge.

Preparation tool:
Dial gauge
Magnet stand

- Alloy wheel
  Service limit:

Axial and longitudinal runout: 1 mm (0.04 in)

(3) After inspection, if the runout of the rim exceeds the limit, check the hub unit bearing.

4. If the rim runout exceeds the limit, check the following.
   (1) Mark the locations where the limit is exceeded, move the installation position of the tire, and perform the inspection above again. Check if the locations where the limit is exceeded change.
   (2) If the locations did not change, replace the wheel.
   (3) If the locations are different, check the hub unit bearing.
   - Front: Ref. to DRIVE SHAFT SYSTEM>Front Hub Unit Bearing>INSPECTION.
   - Rear: Ref. to DRIVE SHAFT SYSTEM>Rear Hub Unit Bearing>INSPECTION.

2. TIRE ROTATION

Note:
Rotate tires periodically (10,000 km/6,000 miles) in order to prolong life and to prevent uneven wear.

Rotate tires as shown in the figure depending on whether or not the direction of the tire rotation is specified.

- When the direction of tire rotation is not specified

(1) Front side of vehicle

- When the direction of tire rotation is specified

(1) Front side of vehicle

3. WHEEL BALANCING

1. Using the wheel balancer, measure wheel balance.
2. Adjust the wheel balancing.

Note:

- **Unbalance after adjusting the wheel balancing should be 5 g (0.18 oz) or less.**
- **When using the adhesive type weight, degrease the surface where the adhesive type weight will be applied securely.**
- **After applying the adhesive type weight, apply a force to the weight and attain full adhesion.**
- **Using the knock-on type weight, check the size of the knock-on part.**

(1) Knock-on type weight for alloy wheel

Service limit A:

Knock-on type weight for alloy wheel: 5 mm (0.2 in)

WHEEL AND TIRE SYSTEM > Temporary Tire

NOTE

"T-type" or "Temporary" tire for temporary use is equipped as a temporary tire.

Caution:

- **The "T-type" or "Temporary" tire is only for temporary use. Replace with a standard equipment sized tire as soon as possible.**
- **Do not use standard sized tire chains for "T-type" or "Temporary" tires. Because tire size is small, tire chains can not be installed properly and will damage the vehicle and tires if they are detached while driving.**
- **Do not drive at a speed greater than 80 km/h (50 MPH).**
- **Drive the vehicle as slowly as possible and avoid bumps on the road.**

WHEEL AND TIRE SYSTEM > Temporary Tire

REPLACEMENT

Refer to "Tire and Wheel" for removal and installation of the "T-type" or "Temporary" tire. Ref. to WHEEL AND TIRE SYSTEM>Tire and Wheel.

WHEEL AND TIRE SYSTEM > Temporary Tire

INSPECTION

For inspection of the "T-type" or "Temporary" tire, refer to "Inspection" for standard equipment tire. Ref. to WHEEL AND TIRE SYSTEM>Tire and Wheel>INSPECTION > TIRE.

REMOVAL

1. TRANSMITTER (TIRE INFLATION PRESSURE SENSOR)

1. Remove the wheels from the vehicle. Ref. to WHEEL AND TIRE SYSTEM>Tire and Wheel>REMOVAL.
2. Remove the tires from wheels.
   Caution:
   Use a tire changer when removing the tire from the wheel.
3. Loosen the screw to remove the transmitter from the valve stem.
   Caution:
   Do not reuse the valve and screw.
   Replace the valve and screw with a new part even when reusing transmitter.

(1) Wheel
(2) Transmitter
(3) Screw
(4) Valve

4. Remove the valve from the wheel.

2. TPMS & KEYLESS CONTROL MODULE

Note:

- **TPMS CM for keyless entry model is integrated with the keyless entry control module.**
- **For removal procedures, refer to "SECURITY AND LOCKS" section. Ref. to SECURITY AND LOCKS>Keyless Entry Control Module>REMOVAL.**

3. TPMS CM

Note:
TPMS CM for model with keyless access with push button start is separated from the keyless access control module.

1. Disconnect the ground cable from battery. Ref. to NOTE>NOTE > BATTERY.
   Note:
   For model with battery sensor, remove the ground terminal from battery sensor.
2. Remove the trunk room mat.
3. Remove the trim panel - trunk rear.
   (1) Remove the clip.

(2) Release the claws, and remove the trim panel - trunk rear.

4. Remove the trim panel - trunk side LH. Ref. to EXTERIOR/INTERIOR TRIM>Trunk Room Trim>REMOVAL.
5. Remove the TPMS CM.
   (1) Disconnect the connector.
   (2) Remove the nuts to remove the TPMS CM.

WHEEL AND TIRE SYSTEM > Tire Pressure Monitoring System

INSTALLATION

1. TRANSMITTER (TIRE INFLATION PRESSURE SENSOR)

Caution:
Use the new transmitter assembly or replace the new valve and screw, when installing.

1. Replace the valve and screw with a new part when reusing transmitter.

(1) Screw
(2) Transmitter
(3) Valve

Tightening torque:
1.4 N·m (0.1 kgf-m, 1 ft-lb)

2. Install the transmitter to the wheel by aligning it with valve hole.
Note:
When using the jig that pulls the valve cap by hooking its neck part, use another short-type cap.
3. Install the tires to wheels.
Caution:
- **Use a tire changer when installing tire to wheel.**
- **To prevent damaging the transmitter, set the tire changer boom in the position as shown in the figure.**

(1) Transmitter
(2) Direction of turn table rotation
(3) 135°
(4) Tire changer boom
(5) 90°
(6) Starting point for fitting the bead to the rim

4. Install the wheels to vehicle. Ref. to WHEEL AND TIRE SYSTEM>Tire and Wheel>INSTALLATION.
5. Register the transmitter ID when the transmitter has been replaced. Ref. to TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)>Register Transmitter (ID).

2. TPMS & KEYLESS CONTROL MODULE

Note:

- **TPMS CM for keyless entry model is integrated with the keyless entry control module.**
- **For installation procedures, refer to "SECURITY AND LOCKS" section. Ref. to SECURITY AND LOCKS>Keyless Entry Control Module>INSTALLATION.**

3. TPMS CM

Note:

TPMS CM for model with keyless access with push button start is separated from the keyless access control module.

1. Install the TPMS CM.
   Tightening torque:
   7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
2. Install the trim panel - trunk side LH.
3. Install the trim panel - trunk rear.
4. Connect the battery ground terminal. Ref. to NOTE>NOTE > BATTERY.

INSPECTION

Symptoms	Possible cause	Corrective action
Wheel is out of balance.	Improperly inflated tire	Adjust the tire pressure.
	Uneven wear	Check the tire referring to “Abnormal tire wear” in this table, carry out the procedure and replace the tire.
	Front wheel alignment	Check or adjust the front wheel alignment. • Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION. • Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.
	Rear wheel alignment	Check or adjust the rear wheel alignment. • Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION. • Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.
	Front strut	Check the front strut. Ref. to FRONT SUSPENSION>Front Strut>INSPECTION.
	Rear shock absorber	Check the rear shock absorber. Ref. to REAR SUSPENSION>Rear Shock Absorber>INSPECTION.
	Housing assembly - front axle	Check the housing assembly - front axle. Ref. to DRIVE SHAFT SYSTEM>Front Hub Unit Bearing>INSPECTION.
	Front hub unit bearing	Check the front hub unit bearing. Ref. to DRIVE SHAFT SYSTEM>Front Hub Unit Bearing>INSPECTION.
	Rear hub unit bearing	Check the rear hub unit bearing. Ref. to DRIVE SHAFT SYSTEM>Rear Hub Unit Bearing>INSPECTION.
Vehicle is abnormally out of balance.	Improperly inflated tire	Adjust the tire pressure.
	Uneven wear	Check the tire referring to “Abnormal tire wear” in this table, carry out the procedure and replace the tire.
	Front stabilizer	Inspect the front stabilizer.

Symptoms	Possible cause	Corrective action
	Front wheel alignment	Check or adjust the front wheel alignment. • Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION. • Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.
	Rear wheel alignment	Check or adjust the rear wheel alignment. • Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION. • Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.
Abnormal wheel vibration	Improperly inflated tire	Adjust the tire pressure.
	Uneven wear	Check the tire referring to “Abnormal tire wear” in this table, carry out the procedure and replace the tire.
	Improper wheel balancing	Check the wheel balance. Ref. to WHEEL AND TIRE SYSTEM>Tire and Wheel>INSPECTION > WHEEL BALANCING.
	Housing assembly - front axle	Check the housing assembly - front axle. Ref. to DRIVE SHAFT SYSTEM>Front Hub Unit Bearing>INSPECTION.
	Front hub unit bearing	Check the front hub unit bearing. Ref. to DRIVE SHAFT SYSTEM>Front Hub Unit Bearing>INSPECTION.
	Rear hub unit bearing	Check the rear hub unit bearing. Ref. to DRIVE SHAFT SYSTEM>Rear Hub Unit Bearing>INSPECTION.
Abnormal tire wear	Improperly inflated tire	Adjust the tire pressure.
	Improper wheel balancing	Check the wheel balance. Ref. to WHEEL AND TIRE SYSTEM>Tire and Wheel>INSPECTION > WHEEL BALANCING.
	Front wheel alignment	Check or adjust the front wheel alignment. • Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION.

Symptoms	Possible cause	Corrective action
		• Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.
	Rear wheel alignment	Check or adjust the rear wheel alignment. • Inspection: Ref. to FRONT SUSPENSION>Wheel Alignment>INSPECTION. • Adjustment: Ref. to FRONT SUSPENSION>Wheel Alignment>ADJUSTMENT.