
CHASSIS

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19.1 SUSPENSION SYSTEM

1 Warning and Precaution

1.1 Warning

- (1) Be sure to wear necessary safety equipment to prevent accidents.
- (2) Make sure that safety lock of lifter has been locked, when removing and installing chassis parts.
- (3) It is not allowed to weld or modify suspension bearing parts and guide parts.

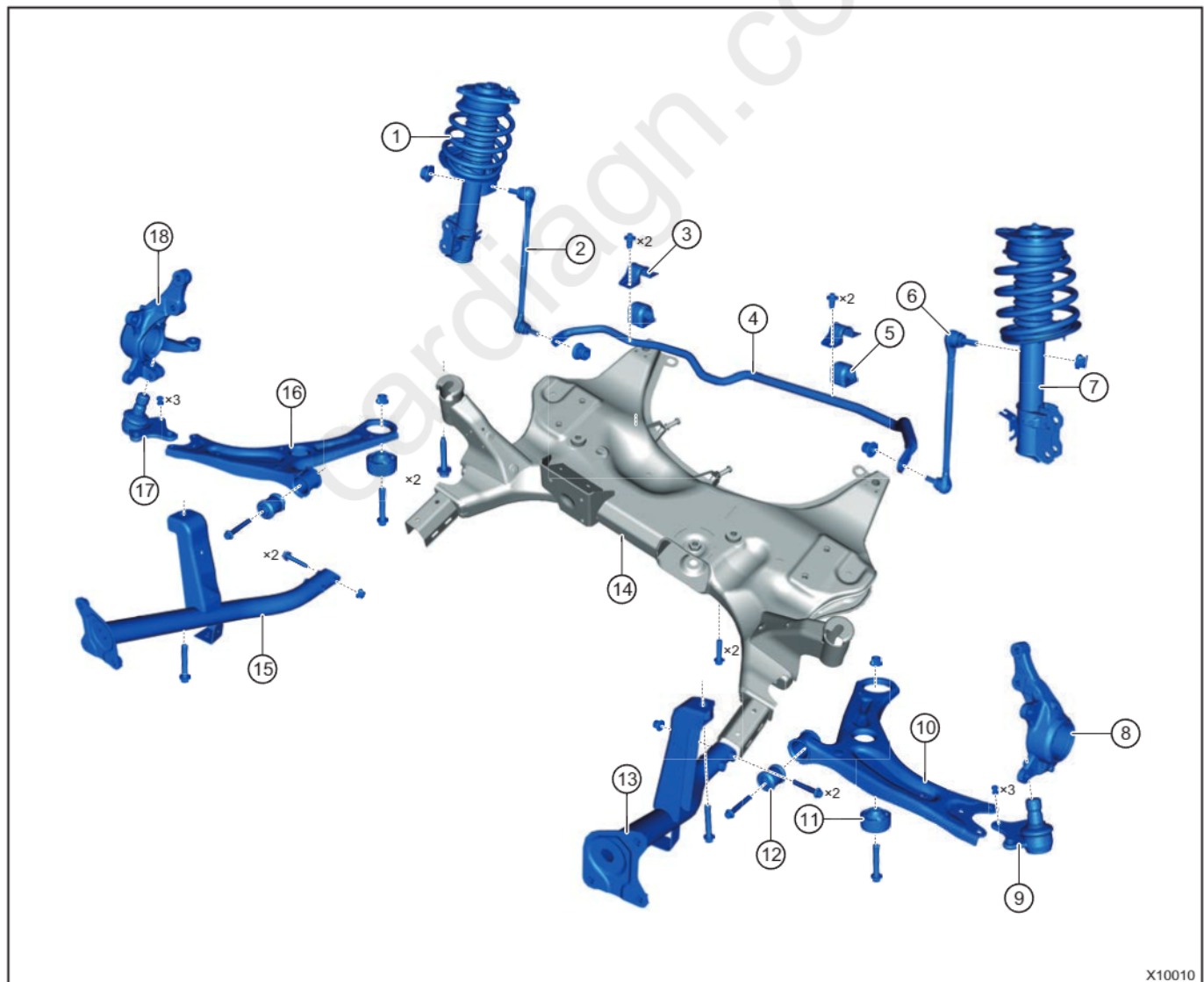
1.2 Precautions

- (1) When removing and installing chassis parts, replace self-locking nuts and rusted nuts for safety.
- (2) Operate carefully when removing and installing coil spring, to prevent spring from jumping out and causing personal injury.

2 General Information

2.1 Description

■ Front Suspension

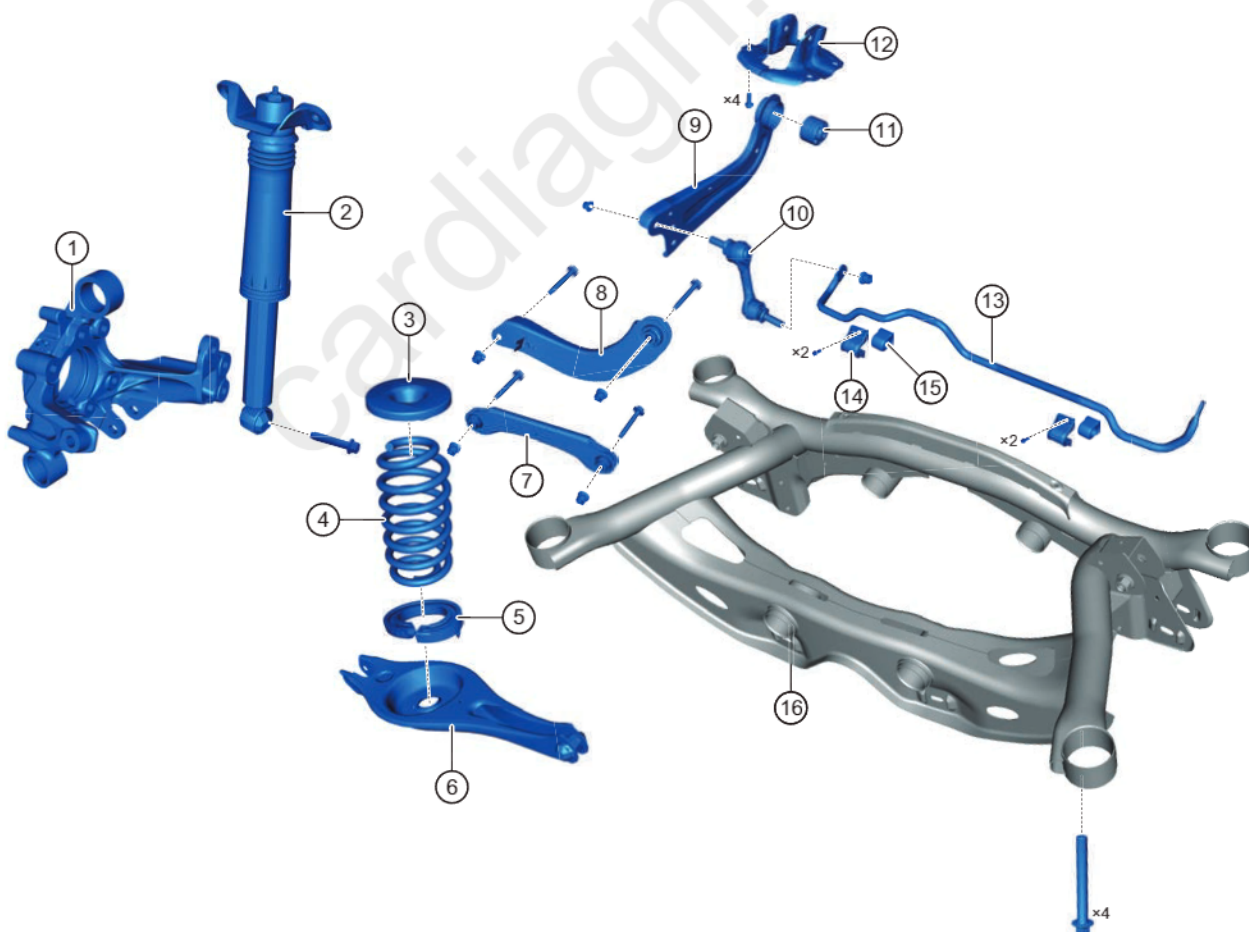


X10010

1	Front Right Strut Assembly	10	Front Left Control Arm Assembly
2	Front Right Connecting Rod Assembly	11	Front Control Arm Rear Rubber Bushing Assembly
3	Front Right Stabilizer Bar Clamp	12	Front Control Arm Front Rubber Bushing Assembly
4	Front Stabilizer Bar	13	Left Side Rail Assembly
5	Front Stabilizer Bar Bushing	14	Front Sub Frame Assembly
6	Front Left Connecting Rod Assembly	15	Right Side Rail Assembly
7	Front Left Strut Assembly	16	Front Right Control Arm Assembly
8	Front Left Steering Knuckle	17	Front Right Control Arm Assembly Ball Pin
9	Front Left Control Arm Assembly Ball Pin	18	Front Right Steering Knuckle

Front suspension of this model uses Macpherson independent suspension (height is non-adjustable), which is equipped with cylindrical coil spring, double action telescopic shock absorber and lateral stabilizer. Front suspension has driving and steering functions. Upper end of suspension connects with body, and lower end with front steering knuckle. Sub frame is connected with body by bolts, thus improving driving stability and safety.

■ Rear Suspension



Y10010

1	Rear Left Steering Knuckle	9	Rear Right Trailing Arm Welding Assembly
2	Rear Shock Absorber Device	10	Rear Connecting Rod Assembly
3	Upper Coil Spring Cushion Assembly	11	Trailing Arm Bushing Assembly
4	Rear Coil Spring Assembly	12	Trailing Arm Mounting Bracket Assembly
5	Lower Coil Spring Cushion Assembly	13	Rear Stabilizer Bar
6	Rear Lower Control Arm Welding Assembly	14	Rear Stabilizer Bar Clamp
7	Pull Rod Welding Assembly	15	Stabilizer Bar Bushing
8	Rear Upper Control Arm Welding Assembly	16	Rear Sub Frame Assembly

Rear suspension of this model uses torsion beam semi-independent suspension (height is non-adjustable), which is equipped with cylindrical coil spring and double action telescopic shock absorber, and lateral stabilizer is not equipped. Upper end of suspension is connected with body, and lower end is connected with rear shaft assembly, thus improving driving stability and safety.

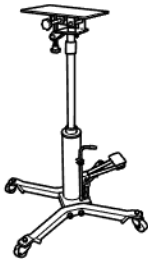
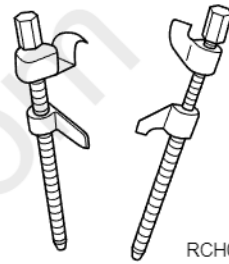
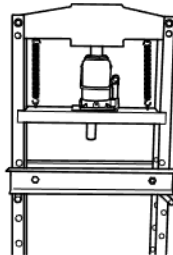
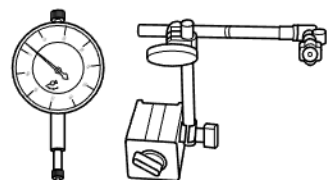
3 Specifications

3.1 Torque Specification

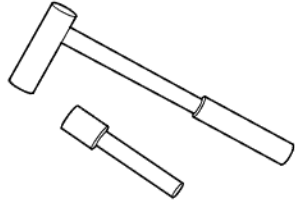
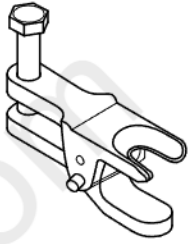
Description	Torque (N·m)
Coupling Nut Between Front Connecting Rod Assembly and Front Shock Absorber Assembly	46 ± 2.5
Fixing Bolt Between Front Shock Absorber Assembly and Body	85 ± 6
Coupling Bolt Between Front Control Arm Assembly Ball Pin and Front Steering Knuckle Assembly	95 ± 7.3
Fixing Bolt Between Front Collision Lever Front Point and Body	30 ± 4.5
Fixing Bolt Between Front Collision Lever Rear Point and Body	110 ± 8
Fixing Bolt Between Front Collision Lever and Front Sub Frame	55 ± 8.3
Fixing Bolt Between Front Stabilizer Bar Bracket and Front Sub Frame	80 ± 6
Fixing Bolt Between Front Control Arm Bushing and Front Sub Frame	180 ± 12.6
Fixing Bolt Between Front Control Arm Bushing and Front Sub Frame	90 ± 3 $90^\circ \pm 10^\circ$
Fixing Nut Between Front Stabilizer Bar and Connecting Rod	58 ± 4
Coupling Bolt Between Upper Part of Rear Shock Absorber Assembly and Body	95 ± 6.7
Coupling Bolt Between Lower Part of Rear Shock Absorber Assembly and Rear Steering Knuckle	160 ± 12
Coupling Bolt Between Rear Lower Control Arm and Rear Steering Knuckle	165 ± 12.4

4 Tool

4.1 General Tool

Name	Tool Drawing
Transmission Carrier	 RCH0005006
Spring Compressor	 RCH0021006
Hydraulic Press	 S00010
Dial Indicator and Magnetic Holder	 S00018

4.2 Special Tool

Name	Tool Drawing
Shock Absorber Nut Remover	 RCH0000022
Tie Rod Ball Remover	 S00019

5 Diagnosis & Testing

5.1 Problem Symptoms Table

Hint:

Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair, replace or adjust faulty components as necessary.

■ **Front Suspension**

Symptom	Suspected Area
Vehicle pulls	Front tire (worn or improperly inflated)
	Front wheel alignment (incorrect)
	Control arm ball pin assembly (loose)
	Steering tie rod (loose or worn)
	Front hub bearing (excessively worn)
	Front suspension components (excessively worn or deformed)
Droop	Vehicle (overloaded)
	Front coil spring (too soft)
	Front shock absorber assembly (worn or damaged)
	Front suspension components (excessively worn or deformed)
	Front tire (improperly inflated)
	Front wheel alignment (incorrect)

Symptom	Suspected Area
Sways/pitches	Front tire (worn or improperly inflated)
	Front stabilizer bar assembly (bent or broken)
	Front shock absorber assembly (worn or damaged)
Wheel shimmy	Front tire (worn or improperly inflated)
	Front wheel (out of balance)
	Front shock absorber assembly (worn or damaged)
	Front wheel alignment (incorrect)
	Control arm ball pin assembly (loose)
	Front hub bearing (excessively worn)
	Steering gear (misaligned or damaged)
Abnormal tire wear	Front tire (improperly inflated)
	Front wheel alignment (incorrect)
	Front shock absorber assembly (worn or deformed)
	Front suspension components (worn or deformed)

■ Rear Suspension

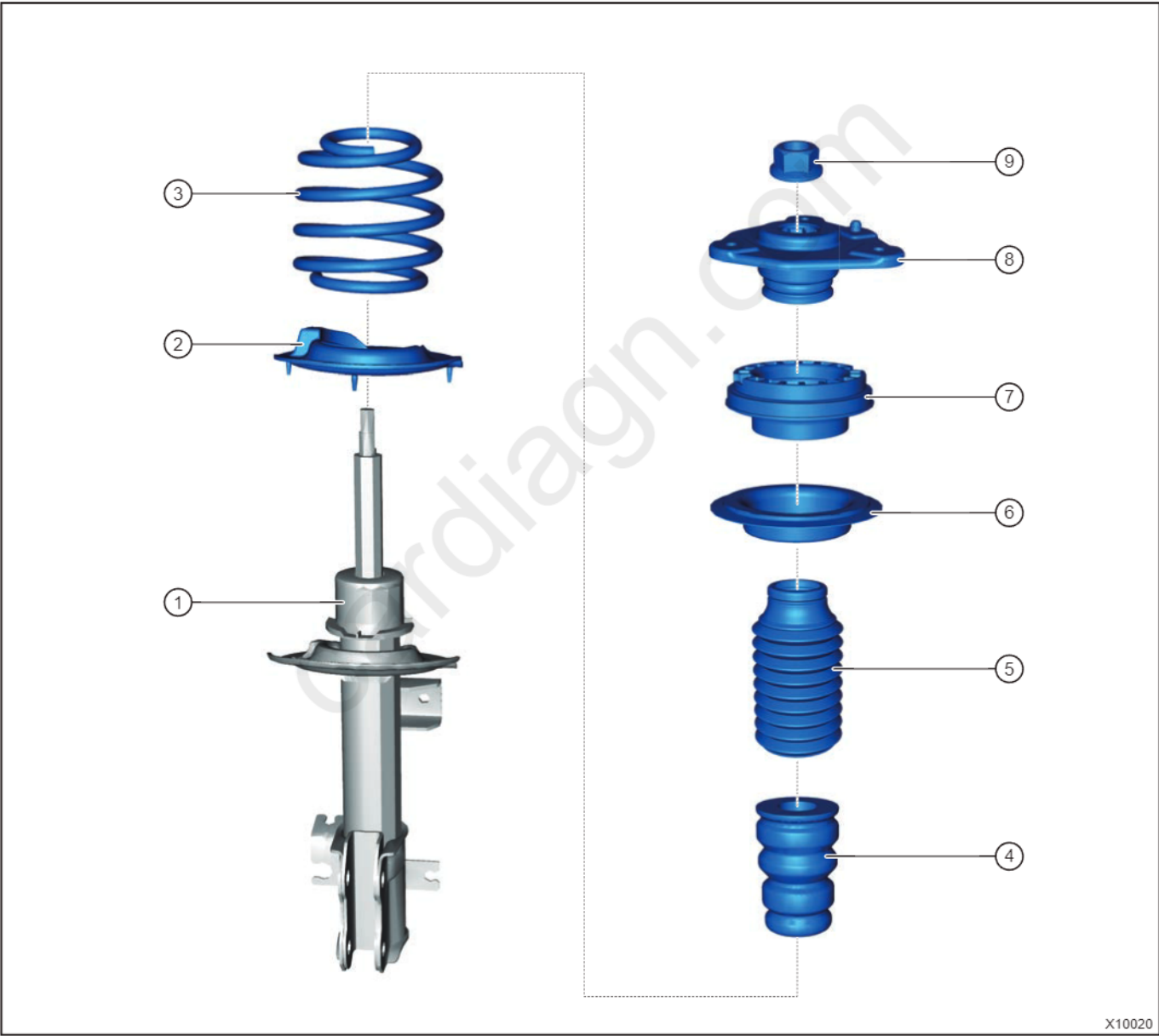
Symptom	Suspected Area
Vehicle pulls	Rear tire (worn or improperly inflated)
	Rear wheel alignment (incorrect)
	Rear hub bearing (excessively worn)
	Rear suspension components (worn or deformed)
Droop	Vehicle (overloaded)
	Rear coil spring (too soft)
	Rear shock absorber assembly (worn or damaged)
	Rear suspension components (excessively worn or deformed)
Sways/pitches	Rear tire (worn or improperly inflated)
	Rear stabilizer bar assembly (bent or broken)
	Rear shock absorber assembly (worn or deformed)
Wheel shimmy	Rear tire (worn or improperly inflated)
	Rear wheel (out of balance)
	Rear shock absorber assembly (worn or damaged)
	Rear wheel alignment (incorrect)
	Rear hub bearing (worn)

Symptom	Suspected Area
Abnormal tire wear	Rear tire (improperly inflated)
	Rear wheel alignment (incorrect)
	Rear shock absorber assembly (worn or deformed)
	Rear suspension components (worn or deformed)

6 On-vehicle Service

6.1 Front Shock Absorber Assembly

■ Description



1	Front Shock Absorber Assembly	6	Upper Spring Cushion
2	Lower Spring Cushion	7	Bearing Assembly
3	Front Coil Spring	8	Upper Connecting Plate Assembly

4	Front Buffer Block	9	Hexagon Flange Nut
5	Front Dust Boot		

■ Inspection

- (1) Check the front shock absorber assembly.
 - 1) Park vehicle on level ground, and bounce vehicle up and down, then check if vehicle shakes up and down when body bounds. If vehicle shakes up and down consecutively, shock absorber assembly may be damaged and should be replaced.
- (2) Check front shock absorber assembly for leakage.
 - 1) As shock absorber assembly operates frequently during vehicle driving, oil gas is formed due to temperature rise of shock absorber, which then adheres to dust boot. This is a normal phenomenon, and it is not necessary to replace the shock absorber assembly.
 - 2) If following conditions occur:
 - Oil traces in circumferential direction are uneven.
 - Oil traces reach lower connecting positions.

Above conditions indicate that there may be a leakage in shock absorber assembly, and it is necessary to replace the shock absorber assembly.
 - 3) If it is difficult to accurately judge if shock absorber assembly has leakage from appearance. Perform road test after wiping off oil on the surface of malfunctioning shock absorber. Under normal road conditions, drive vehicle for 5 to 10 minutes and perform inspection. If there are oil traces on the surface of shock absorber assembly, it indicates that oil leakage exists, and it is necessary to replace the shock absorber assembly.

■ Removal

Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Make sure that safety lock of lifter has been locked, when removing and installing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing and installing chassis parts, replace self-locking nuts and rusted nuts for safety.**
- **Operate carefully when removing and installing coil spring, to prevent spring from jumping out and causing personal injury.**

Hint:

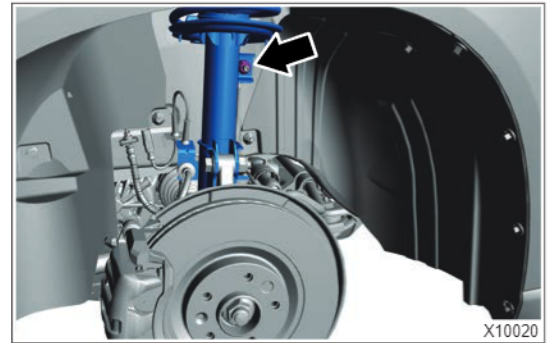
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

Warning

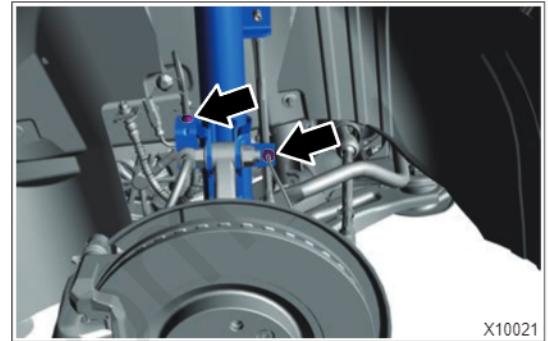
- **Be sure to wear necessary safety equipment to prevent accidents.**
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- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing and installing chassis parts, replace self-locking nuts and rusted nuts for safety.**
- **Operate carefully when removing and installing coil spring, to prevent spring from jumping out and causing personal injury.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front left wheel.
- (4) Remove the front left shock absorber assembly.

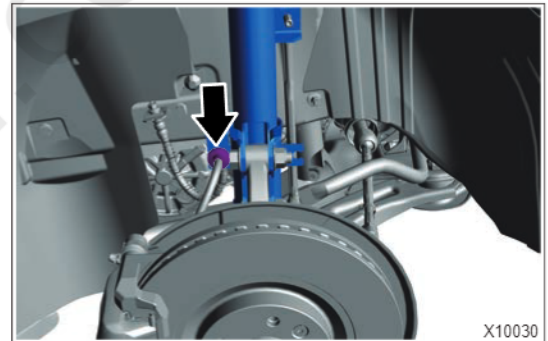
- 1) Remove coupling nut (arrow) between front left connecting rod assembly and front left shock absorber assembly.



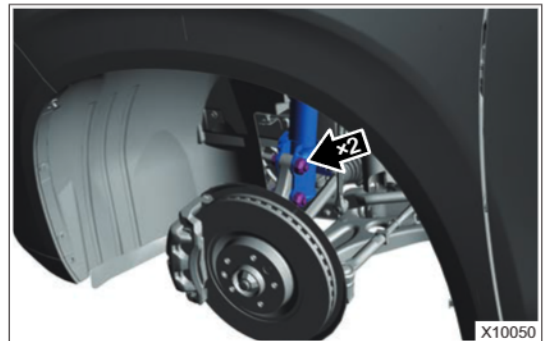
- 2) Disengage front left wheel speed sensor wire harness (arrow) from front left shock absorber assembly.



- 3) Disengage front left brake hose assembly (arrow) from front left shock absorber assembly.

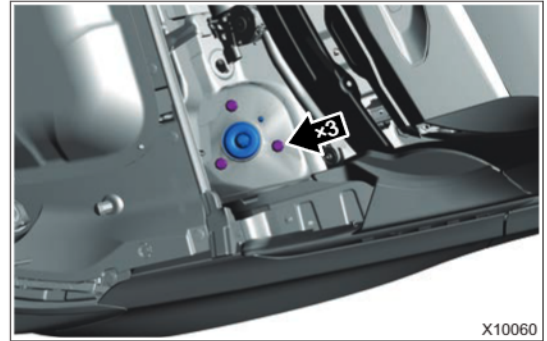


- 4) Remove 2 coupling bolts and nuts (arrow) between front left shock absorber assembly and front left steering knuckle assembly.



- 5) Remove the front windshield lower support assembly.

- 6) Remove 3 coupling nuts (arrow) between front left shock absorber assembly and vehicle body.

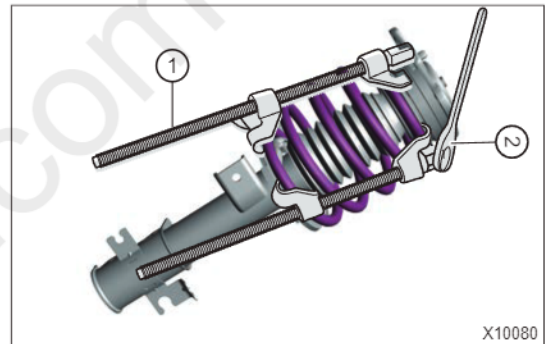


- 7) Remove the front left shock absorber assembly with front coil spring.

■ Disassembly

Hint:

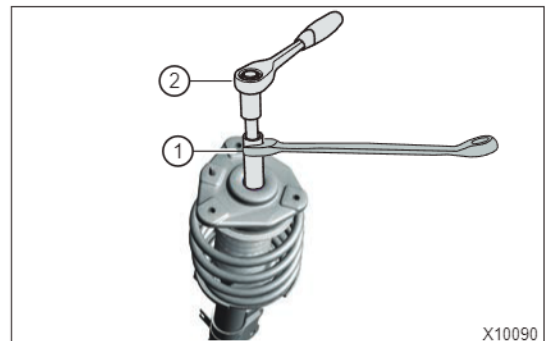
- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
- (1) Remove locking nut from front shock absorber assembly.
- 1) Using spring compressor (1) and wrench (2), tighten the end lever of spring compressor to compress the front coil spring.



⚠ Warning

- When removing front coil spring, compress spring until locking nut can be rotated. DO NOT compress spring more than necessary, avoid damaging spring and personal injury.

- 2) Hold the end of front left shock absorber assembly lever with shock absorber nut remover (1), and then remove locking nut from front left shock absorber assembly with wrench (2).



- (2) Remove front strut upper connecting plate assembly (w/ insulator) (arrow) from upper part of front left shock absorber assembly.



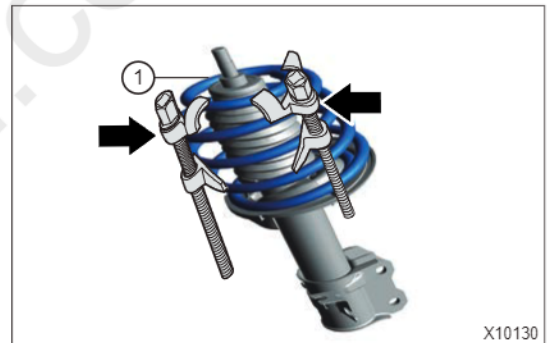
- (3) Remove bearing assembly (arrow) from upper part of front left shock absorber assembly.



- (4) Remove front spring upper cushion (arrow) from upper part of front left shock absorber assembly.



- (5) Remove front coil spring (1) with spring compressor (-arrow) from front left shock absorber assembly.



- (6) Remove front dust boot (arrow) from upper part of front left shock absorber assembly.



- (7) Detach front buffer block (arrow) from front left shock absorber assembly, and remove it.



- (8) Remove front spring lower cushion (arrow) from lower end of front left shock absorber assembly strut.

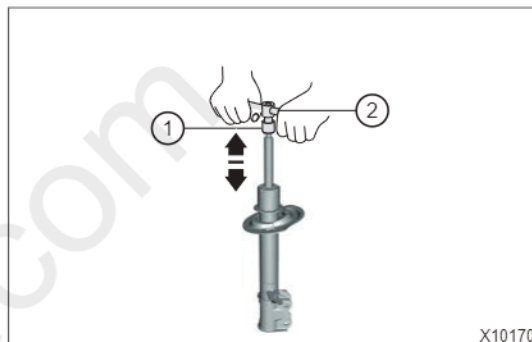


■ Inspection

- (1) Check the front shock absorber assembly.

Manual inspection

- 1) Install the locking nut (1) to the upper end of front shock absorber assembly strut, and then install the T-wrench (2) or equivalent.



- 2) Compress and extend the front shock absorber assembly strut several times by hands in direction of arrow as shown in illustration. Check that there is no abnormal resistance or unusual sound during operation. If there is any abnormality, replace the front shock absorber assembly with a new one.
- (2) Check the other components of front shock absorber assembly.
- 1) Check front shock absorber cover cap, front spring upper cushion, front dust boot, front buffer block and front spring lower cushion for cracks, wear or deformation. Replace it as necessary.
 - 2) Check front strut upper connecting plate assembly (w/ insulator) and bearing assembly for damage. Replace as necessary.
 - 3) Check front coil spring for wear, cracks or deformation. Replace it as necessary.

■ Assembly

- (1) Install the front spring lower cushion.
- (2) Install the front buffer block.
- (3) Install the front dust boot.
- (4) Install the front coil spring.
- (5) Using spring compressor (1) and wrench (2), tighten the end lever of spring compressor to compress the front coil spring.
- (6) Install the front spring upper cushion.
- (7) Install the bearing assembly.
- (8) Install the front strut upper connecting plate assembly (w/ insulator).
- (9) Hold the end of front left shock absorber assembly lever with shock absorber nut remover (1), and then tighten locking nut to front left shock absorber assembly with wrench (2).

Torque: $70 \pm 3 \text{ N m}$

- (10) Remove the spring compressor.

■ Installation

- (1) Install front left shock absorber assembly to a proper position on vehicle body.
- (2) Install 3 coupling bolts between front left shock absorber assembly and vehicle body.

Torque: $85 \pm 6 \text{ N m}$

- (3) Install 2 coupling bolts and nuts between front left shock absorber assembly and front left steering knuckle assembly.

Torque: $200 \pm 16 \text{ N m}$

- (4) Install front left brake hose assembly to clip of front left shock absorber assembly.
- (5) Install front left wheel speed sensor wire harness to clip of front left shock absorber assembly.
- (6) Install coupling nut between front left connecting rod assembly and front left shock absorber assembly

Torque: $46 \pm 2.5 \text{ N·m}$

- (7) Install the front windshield lower support assembly.
- (8) Install the front left wheel.
- (9) Connect the negative battery cable.

Caution

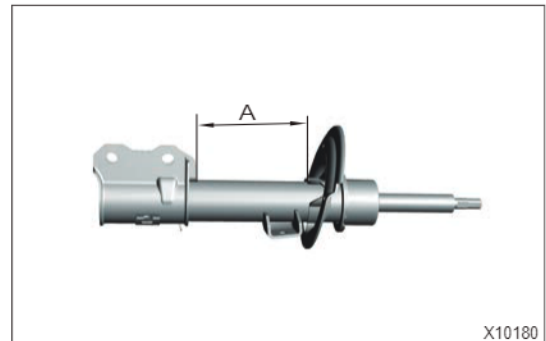
- **Be sure to tighten coupling bolts and nuts to specified torque.**
- **Align dowel pin of top end connecting plate with body positioning hole when installing front left shock absorber assembly.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

Disposal

Warning

- **Do not drill at high temperature and heat, and be sure to pay attention to safety!**
- **Shock absorber assembly contains nitrogen and oil, which are under high pressure. As hydraulic oil is explosive easily when exposed to heat, the surface is wet with water first before drilling or cutting.**
- **Be careful when drilling or cutting, because metal chips may fly about. Always perform operations with proper safety equipment to avoid personal injury.**
- **Before handling, be sure to wear goggles and release pressure inside shock absorber assembly to avoid personal injury.**

- (1) Extend the front shock absorber assembly strut fully, and clamp it in a vise at an angle.
- (2) Using a drill or equivalent, make a hole slowly at area A shown in the illustration, to discharge gas and hydraulic oil in the front shock absorber assembly.



X10180

- (3) Handle front shock absorber assembly properly after discharging gas and hydraulic oil.

Hint:

Recycle disposed front shock absorber assembly according to local environmental regulations.

6.2 Front Control Arm Assembly

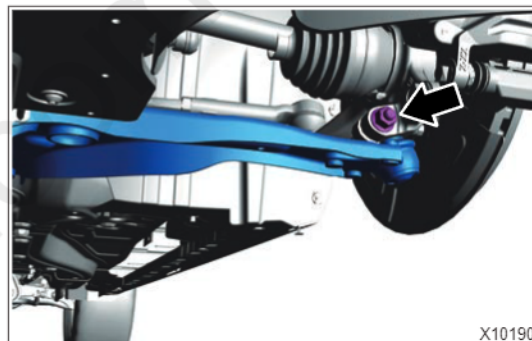
■ Removal

⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lifter is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension bearing parts and guide parts.
- When removing chassis parts, replace self-locking nuts and rusted nuts for safety.

Hint:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
- (1) Remove the front left wheel.
 - (2) Remove the engine lower protector assembly .
 - (3) Remove the left side rail welding assembly.
 - (4) Remove the front left control arm assembly.
 - 1) Remove opening pin (1) and coupling nut (arrow) between front left control arm ball pin assembly and front left steering knuckle assembly.



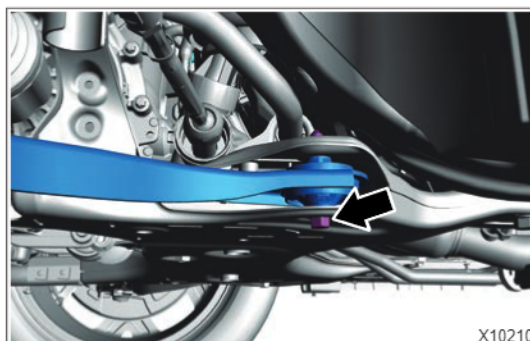
Hint:

If it is difficult to remove control arm ball pin end from steering knuckle, detach ball pin by striking the end of steering knuckle uniformly and slightly with a hammer or equivalent.

- 2) Remove coupling bolt (arrow) between front part of front left control arm assembly and front sub frame welding assembly.

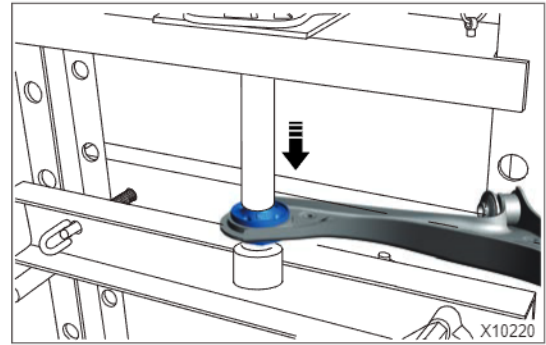


- 3) Remove coupling bolt (arrow) between rear part of front left control arm assembly and front sub frame welding assembly.



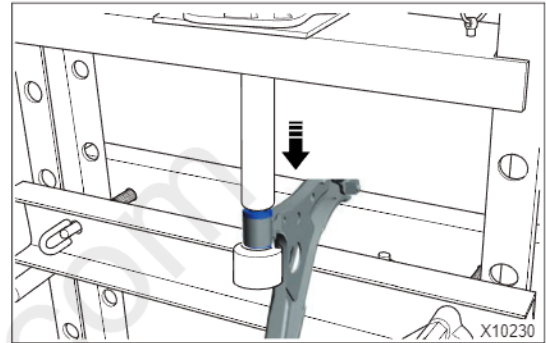
- (5) Remove the front control arm front rubber bushing assembly.

- 1) Place the front control arm assembly on a hydraulic press, install front control arm remover and adapter, and press out and remove front control arm rear rubber bushing assembly with hydraulic press.



- (6) Remove the front control arm rear rubber bushing assembly.

- 1) Place the front control arm assembly on a hydraulic press, install front control arm remover and adapter, and press out and remove front control arm front rubber bushing assembly with hydraulic press.



■ Installation

⚠ Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Make sure that ball pin assembly rotates smoothly and there is no sticking after installation.
- Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.

- (1) Place the front control arm assembly on a hydraulic press, and install front control arm rear rubber bushing assembly with hydraulic press.

⚠ Caution

Before pressing in, apply grease on the outside of front control arm assembly rubber bushing to prevent control arm assembly rubber bushing from being damaged.

- (2) Install coupling bolt between rear part of front left control arm assembly and front sub frame welding assembly.

Tightening torque: 90 ± 90 N·m

- (3) Install coupling bolt between front part of front left control arm assembly and front sub frame welding assembly.

Tightening torque: 180 ± 12.6 N m

- (4) Install coupling bolt and nut between front left control arm ball pin and front left steering knuckle.

Tightening torque: 95 ± 7.3 N m

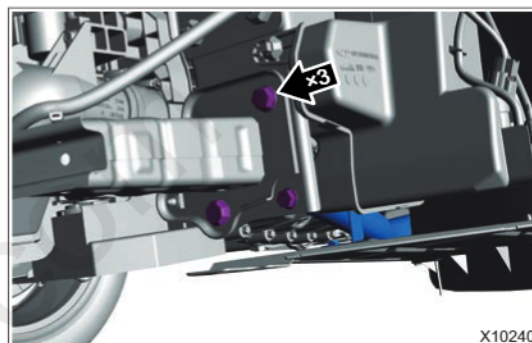
6.3 Replacement of Left Side Rail Assembly

■ Removal

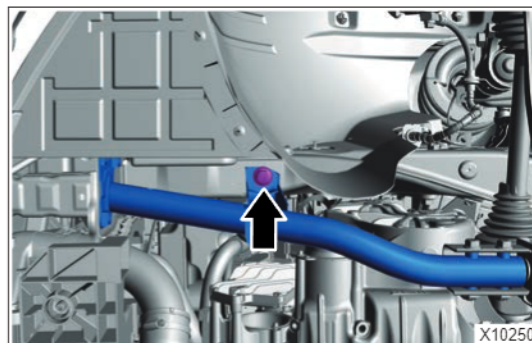
⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lifter is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension bearing parts and guide parts.
- When removing chassis parts, replace self-locking nuts and rusted nuts for safety.

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the engine lower protector assembly.
- (4) Remove the front bumper assembly.
- (5) Remove 3 fixing bolts from front end of left side rail assembly.



- (6) Remove 1 fixing bolt from upper end of left side rail assembly and body.



- (7) Remove 2 fixing bolts between left side rail assembly and front sub frame assembly.



- (8) Remove the left welding side rail assembly.

■ Installation

- (1) Install 2 fixing bolts between left side rail assembly and front sub frame assembly.

Torque: 55 ± 8.25 N m

- (2) Install 1 fixing bolt between upper end of left side rail assembly and body.

Torque: 110 ± 8 N m

- (3) Install 3 fixing bolts to front end of left side rail assembly.

Torque: 30 ± 4.5 N m

- (4) Install the front bumper assembly.
 (5) Install the engine lower protector assembly.
 (6) Connect the negative battery cable.

6.4 Replacement of Right Side Rail Assembly

■ Removal

Warning

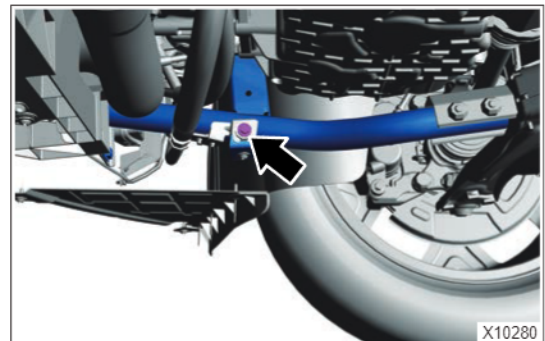
- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
 (2) Disconnect the negative battery cable.
 (3) Remove the engine lower protector assembly.
 (4) Remove the front bumper assembly.
 (5) Remove 3 fixing bolts from front end of right side rail assembly.



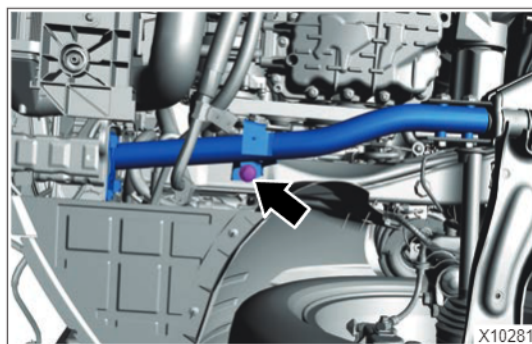
X10270

- (6) Remove 1 fixing bolt from evaporator to compressor line assembly.



X10280

- (7) Remove 1 fixing bolt between upper end of right side rail assembly and body.



- (8) Remove 2 fixing bolts and nuts between right side rail assembly and front sub frame assembly.



- (9) Remove the left welding side rail assembly.

■ Installation

- (1) Install 2 fixing bolts and nuts between right side rail assembly and front sub frame assembly.

Torque: 55 ± 8.25 N m

- (2) Install 1 fixing bolt between upper end of right side rail assembly and body.

Torque: 110 ± 8 N m

- (3) Install 1 fixing bolt to evaporator to compressor line assembly.

- (4) Install 3 fixing bolts to front end of right side rail assembly.

Torque: 30 ± 4.5 N m

- (5) Install the front bumper assembly.

- (6) Install the engine lower protector assembly.

- (7) Connect the negative battery cable.

6.5 Replacement of Front Connecting Rod Assembly

■ Removal

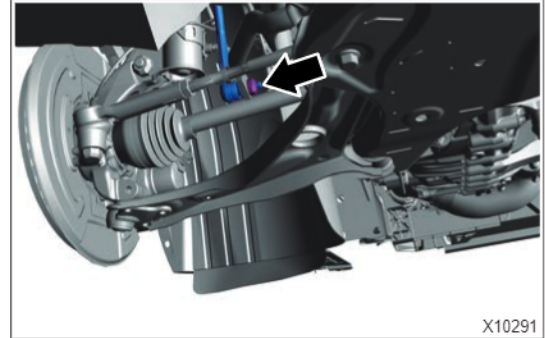
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

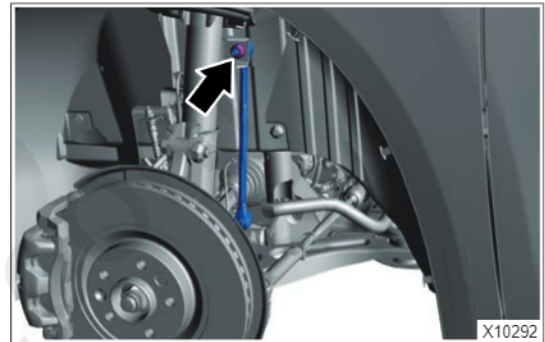
Warning

- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lifter is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension bearing parts and guide parts.
- When removing chassis parts, replace self-locking nuts and rusted nuts for safety.

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front left wheel.
- (4) Remove coupling nut between front left stabilizer bar assembly and lower part of front left connecting rod assembly.



- (5) Remove coupling nut between front left connecting rod assembly and upper part of front left shock absorber assembly, and remove front left connecting rod assembly.



■ Inspection

- (1) Check front connecting rod assembly bush for wear, cracks, deformation, damage or grease leakage. Replace it as necessary.
- (2) Check if end of front connecting rod assembly rotates smoothly. Replace it as necessary.

■ Installation

- (1) Install coupling nut between front left connecting rod assembly and lower part of front left shock absorber assembly.

Torque: 46 ± 4 N m

- (2) Install coupling nut between front left stabilizer bar assembly and upper part of front left connecting rod assembly.

Torque: 58 ± 2.5 N m

- (3) Install the front left wheel.
- (4) Connect the negative battery cable.

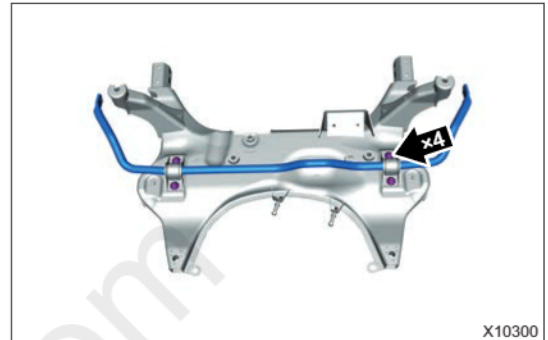
6.6 Replacement of Front Stabilizer Bar Assembly

■ Removal

⚠ Warning

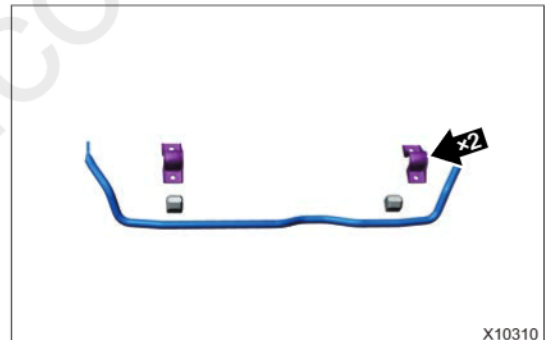
- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lifter is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension bearing parts and guide parts.
- When removing chassis parts, replace self-locking nuts and rusted nuts for safety.

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front bumper assembly.
- (4) Remove the front left wheel.
- (5) Remove the front right wheel.
- (6) Remove the engine lower protector assembly.
- (7) Remove the left side rail assembly.
- (8) Remove the right side rail assembly.
- (9) Remove the front sub frame welding assembly.
- (10) Remove 4 fixing bolts between front stabilizer bar and sub frame.



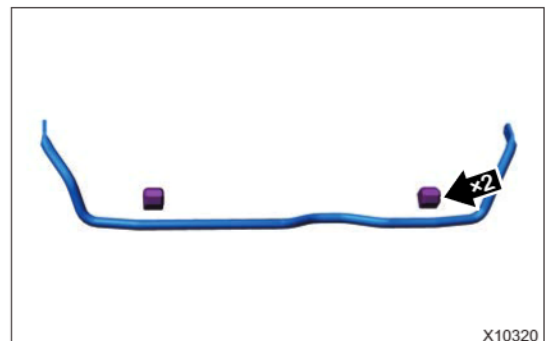
X10300

- (11) Detach left and right fixing clamps from front stabilizer bar assembly.



X10310

- (12) Detach left and right rubber supports from front stabilizer bar assembly.



X10320

■ Inspection

- (1) Check front stabilizer bar assembly fixing clamps for wear, cracks, deformation or damage. Replace as necessary.
- (2) Check front stabilizer bar assembly rubber supports for dirt, wear, cracks, deformation or damage. Replace as necessary.

■ Installation

⚠ Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.

- (1) Install left and right rubber supports to front stabilizer bar assembly.
- (2) Install 2 fixing clamps between front stabilizer bar assembly and front sub frame assembly.
- (3) Install 4 fixing bolts between front stabilizer bar and sub frame.

Torque: 80 ± 6 N m

- (4) Install the front sub frame welding assembly.
- (5) Install the right side rail assembly.
- (6) Install the left side rail assembly.
- (7) Install the engine lower protector assembly.
- (8) Install the front wheels.
- (9) Install the front bumper assembly.
- (10) Connect the negative battery cable.

6.7 Replacement of Front Steering Knuckle

■ Removal

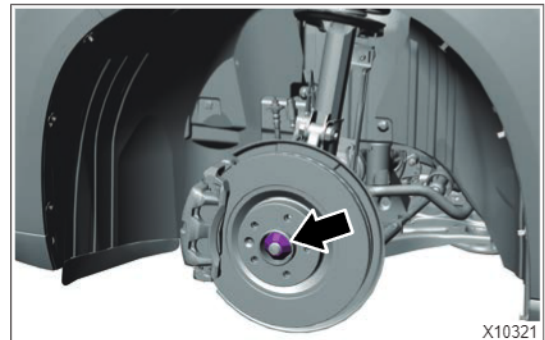
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front left wheel.
- (4) Remove fixing nut from front left drive shaft.

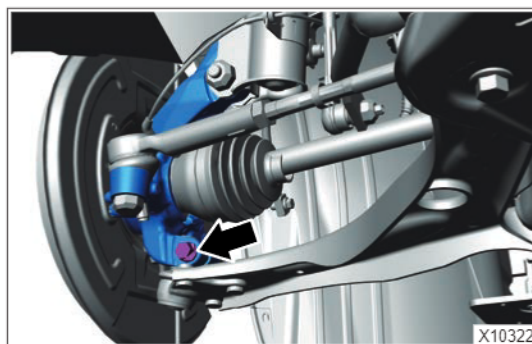


Caution

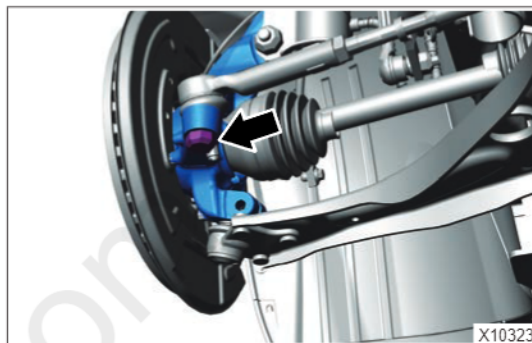
- **Loosen staked part of nut completely, otherwise it will damage threads of drive shaft assembly.**

- (5) Remove the front left brake caliper assembly.

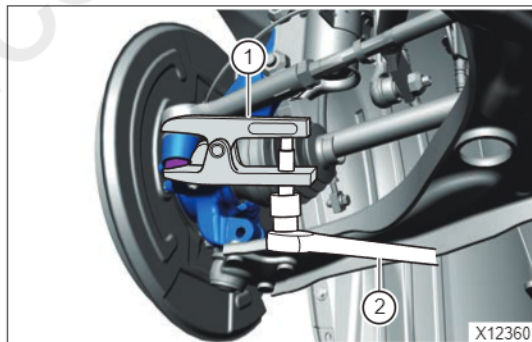
- (6) Remove fixing bolt and nut between front left control arm assembly ball pin and front left steering knuckle assembly.



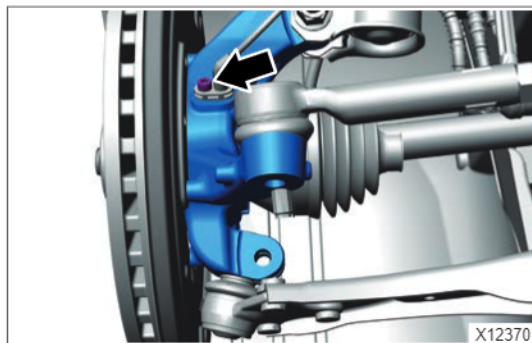
- (7) Remove fixing nut between left steering tie rod outer ball pin assembly and front left steering knuckle assembly.



- (8) Install ball pin separator (1), and tighten ball pin separator bolt with wrench (2) to separate steering tie rod ball pin from steering knuckle assembly.



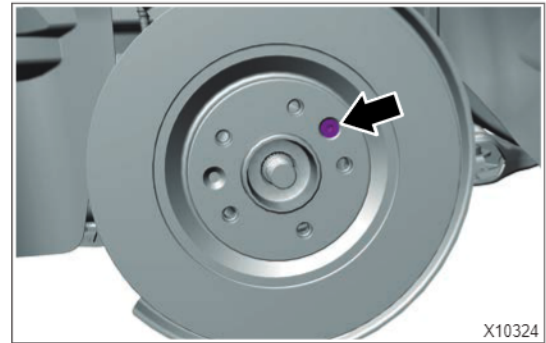
- (9) Remove fixing bolt between front left wheel speed sensor and front left steering knuckle assembly, and disengage the front left wheel speed sensor carefully.



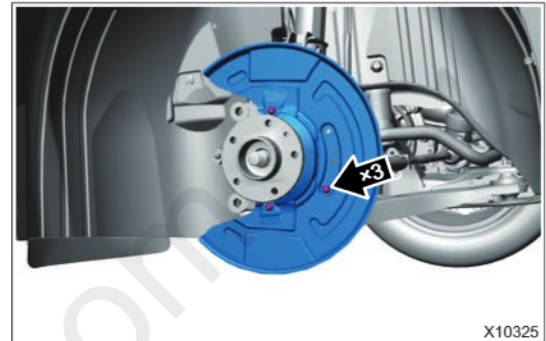
⚠ Caution

Keep head and installation hole of sensor free of foreign matter.

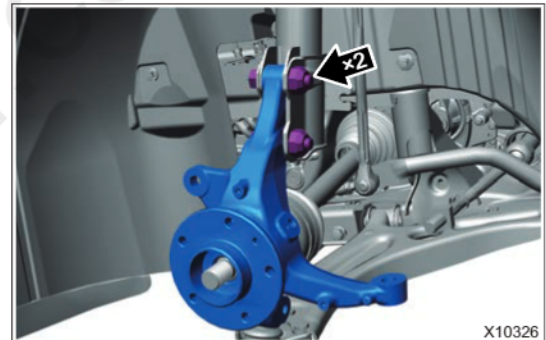
(10) Remove 1 fixing screw and front left brake disc.



(11) Remove 3 fixing bolts between front left dust guard and front left steering knuckle assembly, and remove the front left dust guard.



(12) Remove 2 coupling bolts and nuts between front left shock absorber assembly and front left steering knuckle assembly.



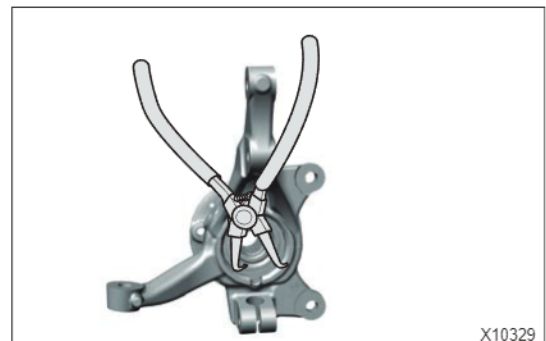
(13) Disengage the left drive shaft and remove the front left steering knuckle assembly.

■ Disassembly

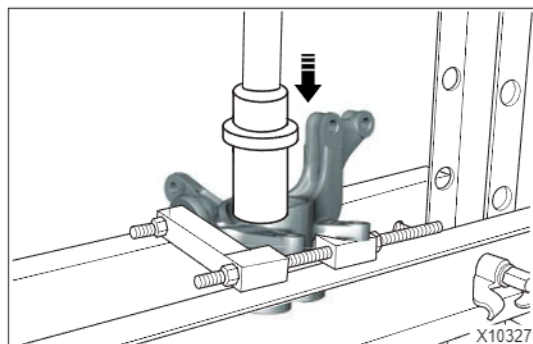
⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents, when disassembling the front steering knuckle assembly, front hub, front hub bearing.
- Appropriate force should be applied, when disassembling front steering knuckle assembly, front hub, front hub bearing. Be careful not to operate roughly.

(1) Remove the front hub bearing retainer.



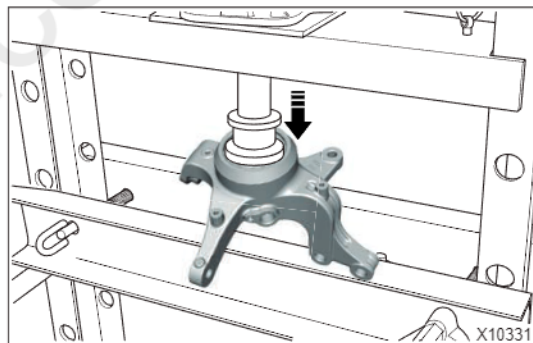
- (2) Place front steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and press out front hub with hydraulic press.



- (3) Remove the front hub carefully.



- (4) Place steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and press out front hub bearing with hydraulic press.



- (5) Remove the front hub bearing carefully.



■ Inspection

- (1) Check front steering knuckle for wear, cracks, deformation or damage. Replace as necessary.
- (2) Check dust guard for dirt, wear, cracks, deformation or damage. Replace as necessary.

■ Assembly

- (1) Place steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and carefully press front hub bearing into steering knuckle with hydraulic press.
- (2) Install the front hub bearing retainer.
- (3) Place steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and carefully press front hub into steering knuckle with hydraulic press.

■ Installation

Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Check that hub assembly rotates smoothly and there is no sticking after installation.
- Check wheel alignment after installation is completed. Adjust wheel alignment to the standard range as necessary.

- (1) Align drive shaft accurately into front hub bearing of steering knuckle.
- (2) Install coupling nut between front left connecting rod assembly and lower part of front left shock absorber assembly.

Torque: $46 \pm 2.5 \text{ N}\cdot\text{m}$

- (3) Install 3 fixing bolts between front left dust guard and front left steering knuckle assembly.

Torque: $7.5 \pm 1 \text{ N m}$

- (4) Install front left brake disc, and install 1 fixing screw.

Torque: $7.5 \pm 1 \text{ N m}$

- (5) Install fixing bolt between front left wheel speed sensor and front left steering knuckle assembly.

Torque: $8 \pm 1.2 \text{ N m}$

- (6) Install fixing bolt and nut between front left control arm assembly ball pin and front left steering knuckle assembly.

Torque: $95 \pm 7.3 \text{ N}\cdot\text{m}$

- (7) Install fixing nut between left steering tie rod outer ball pin assembly and front left steering knuckle assembly.

Torque: $60 \pm 5 \text{ N}\cdot\text{m}$

- (8) Install the front left brake caliper assembly.

- (9) Install fixing nut to front left drive shaft.

Torque: $286 \pm 23 \text{ N}\cdot\text{m}$

- (10) Install the front left wheel.

- (11) Connect the negative battery cable.

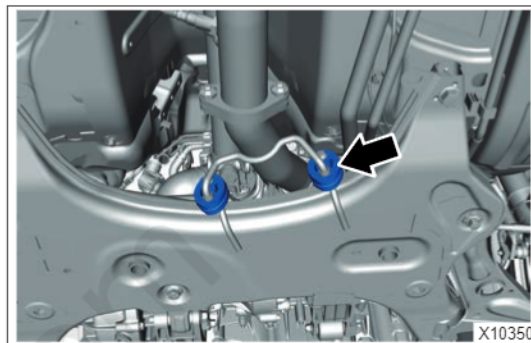
6.8 Replacement of Front Sub Frame Welding Assembly

■ Removal

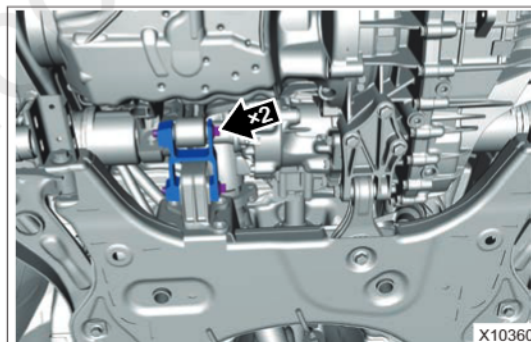
Warning

- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lifter is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension bearing parts and guide parts.
- When removing chassis parts, replace self-locking nuts and rusted nuts for safety.
- When removing front sub frame welding assembly, it is necessary to securely support engine and transmission assembly with engine equalizer to avoid damage.

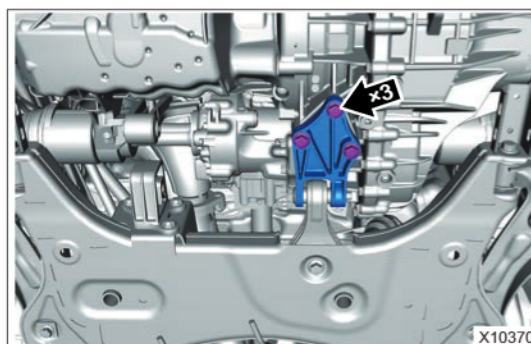
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front wheel.
- (4) Remove the engine lower protector assembly.
- (5) Remove the left side rail assembly.
- (6) Remove the right side rail assembly.
- (7) Remove the front left control arm assembly.
- (8) Remove the front right control arm assembly.
- (9) Using an engine equalizer, support engine and transmission assembly securely.
- (10) Detach the precatalytic converter hanger block.



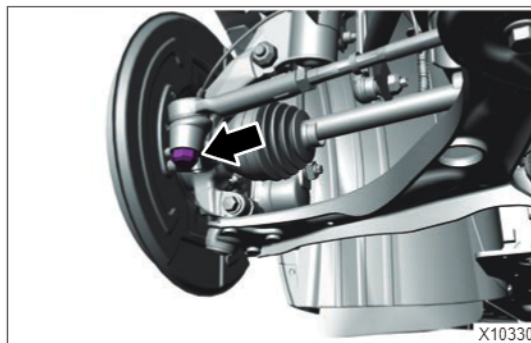
- (11) Remove 2 coupling bolts from rear right mounting.



- (12) Remove 3 fixing bolts from rear mounting.



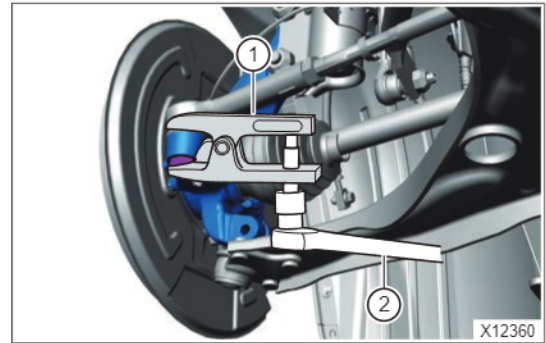
- (13) Remove fixing nut between left steering tie rod outer ball pin assembly and front left steering knuckle assembly.



- (14) Install ball pin separator (1), and tighten ball pin separator bolt with wrench (2) to separate steering tie rod outer ball pin from steering knuckle assembly. The removal method of right tie rod outer ball pin is the same as that of left side.

Hint:

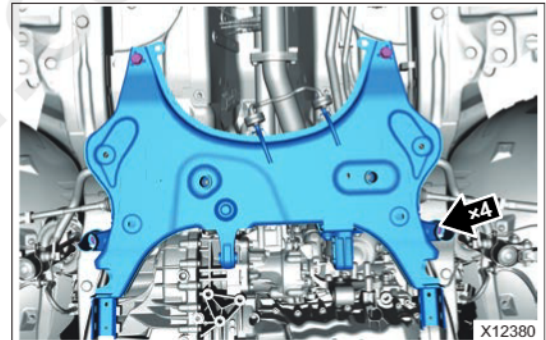
If it is difficult to remove tie rod outer ball pin end from steering knuckle, detach ball pin by striking the end of steering knuckle uniformly and slightly with a hammer or equivalent.



- (15) Remove coupling bolt between steering column assembly and steering gear, separate steering column from steering gear.



- (16) Remove 4 fixing bolts between front sub frame and vehicle body.



- (17) Slowly lower the sub frame welding assembly with stabilizer bar.
 (18) Remove the steering gear assembly.
 (19) Remove the stabilizer bar assembly.
 (20) Remove the front sub frame assembly.

■ **Installation**

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

- (1) Install stabilizer bar assembly to front sub frame.
 (2) Install steering gear assembly to front sub frame.
 (3) Install sub frame welding assembly with stabilizer bar to transmission carrier, and raise it to a proper position.
 (4) Install 2 fixing bolts between right side of front sub frame and vehicle body.

Front mounting bolt torque between sub frame and body: $110 \pm 8 \text{ N}\cdot\text{m}$

Rear mounting bolt torque between sub frame and body: $200 \pm 18 \text{ N}\cdot\text{m}$

- (5) Install 2 fixing bolts between left side of front sub frame and vehicle body.

Front mounting bolt torque between sub frame and body: $110 \pm 8 \text{ N}\cdot\text{m}$

Rear mounting bolt torque between sub frame and body: $200 \pm 18 \text{ N}\cdot\text{m}$

- (6) Install coupling bolt between steering column assembly and steering gear.

Torque: $40 \pm 3 \text{ N}\cdot\text{m}$

- (7) Install fixing nut between left steering tie rod outer ball pin assembly and front left steering knuckle assembly.

Torque: $60 \pm 5 \text{ N}\cdot\text{m}$

- (8) Install the rear mounting assembly.

- (9) Install the rear right mounting assembly.

- (10) Install the precatalytic converter hanger block.

- (11) Install the front right control arm assembly.

- (12) Install the front left control arm assembly.

- (13) Install the left side rail assembly.

- (14) Install the right side rail assembly.

- (15) Install the engine lower protector assembly.

- (16) Install the front wheel.

- (17) Connect the negative battery cable.

6.9 Rear Shock Absorber Assembly

■ Description



Y10020

1	Rear Shock Absorber Upper Connecting Plate Assembly	4	Hexagon Flange Nut
2	Rear Buffer Block Assembly	5	Rear Shock Absorber Assembly
3	Rear Shock Absorber Dust Boot		

■ On-vehicle Inspection

Rear Shock Absorber Assembly Inspection

- (1) Park vehicle on level ground, and bounce vehicle up and down, then check if vehicle shakes up and down when body bounds. If vehicle shakes up and down consecutively, shock absorber assembly may be damaged and should be replaced.
- (1) As shock absorber assembly operates frequently during vehicle driving, oil gas is formed due to temperature rise of shock absorber, which then adheres to dust boot. This is a normal phenomenon, and it is not necessary to replace the shock absorber assembly.
- (2) If following conditions occur:
 - Oil traces in circumferential direction are uneven;

- Oil traces reach lower connecting positions.

Above conditions indicate that there may be a leakage in shock absorber assembly, and it is necessary to replace the shock absorber assembly.

- (3) If it is difficult to accurately judge if shock absorber assembly has leakage from appearance. Perform road test after wiping off oil on the surface of malfunctioning shock absorber. Under normal road conditions, drive vehicle for 5 to 10 minutes and perform inspection. If there are oil traces on the surface of shock absorber assembly, it indicates that oil leakage exists, and it is necessary to replace the shock absorber assembly.

■ Removal

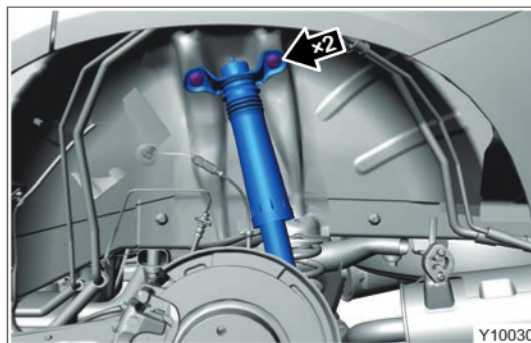
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

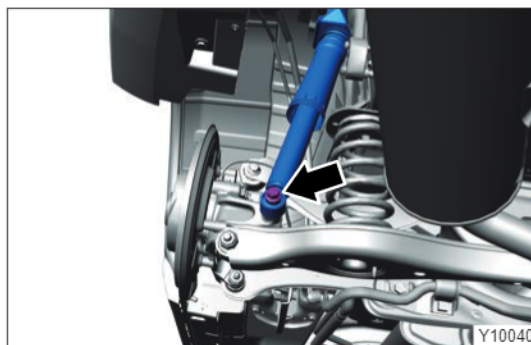
⚠ Caution

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Make sure that safety lock of lifter has been locked, when removing and installing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing and installing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear left wheel.
- (4) Remove the rear left wheel house protector.
- (5) Remove 2 coupling bolts between upper part of rear left shock absorber assembly and body.



- (6) Remove coupling bolt between lower part of rear left shock absorber assembly and rear left steering knuckle assembly.



- (7) Remove the rear left shock absorber assembly.

■ Disassembly

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

- (1) Remove fixing nut from rear left shock absorber assembly.



- (2) Remove the rear left shock absorber upper connecting plate assembly.



- (3) Remove the rear dust boot.



- (4) Remove the rear buffer block.



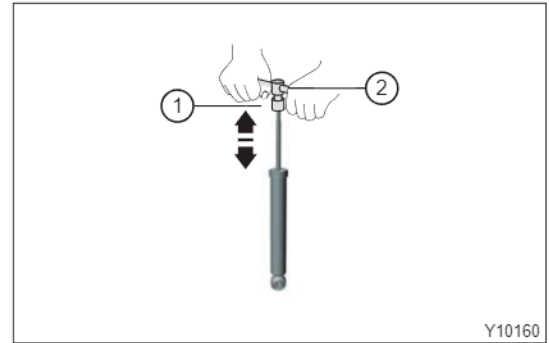
■ Assembly

- (1) Install the rear buffer block.
- (2) Install the rear dust cover.
- (3) Install the rear left shock absorber upper connecting plate assembly.
- (4) Install fixing nut to rear left shock absorber assembly.

■ Inspection

- (1) Check the rear shock absorber assembly.
Manual inspection

- 1) Install locking nut (1) to upper end of rear shock absorber assembly strut, and then install the T-wrench (2) or equivalent.



- 2) Compress and extend the rear shock absorber assembly strut several times by hands in direction of arrow as shown in illustration. Check that there is no abnormal resistance or unusual sound during operation. If there is any abnormality, replace rear shock absorber assembly with a new one.
- (2) Check the other components of rear shock absorber assembly
 - 1) Check rear shock absorber cover cap, front spring upper cushion, front dust boot, front buffer block and front spring lower cushion for cracks, wear or deformation. Replace it as necessary.
 - 2) Check rear coil spring for wear, cracks or deformation. Replace it as necessary.

■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torque.**
- **Bounce vehicle up and down several times to stabilize rear suspension after installation.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

- (1) Install coupling bolt between lower part of rear left shock absorber assembly and rear left steering knuckle assembly.

Torque: 160 ± 12 N m

- (2) Install 2 coupling bolts between upper part of rear left shock absorber assembly and body.

Torque: 95 ± 6.7 N m

- (3) Install the rear left wheel house protector.
- (4) Install the rear left wheel.
- (5) Connect the negative battery cable.

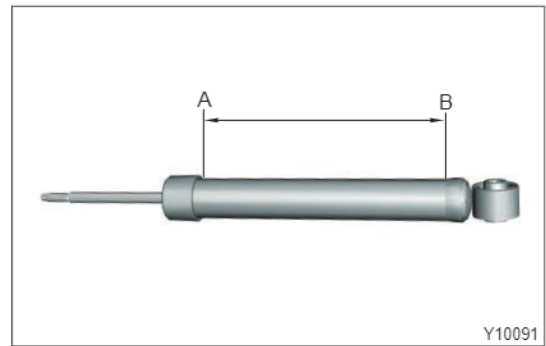
■ Disposal

⚠ Warning

- **Do not drill at high temperature and heat, and be sure to pay attention to safety!**
- **Shock absorber assembly contains nitrogen and oil, which are under high pressure. As hydraulic oil is explosive easily when exposed to heat, the surface is wet with water first before drilling or cutting.**
- **Be careful when drilling or cutting, because metal chips may fly about. Always perform operations with proper safety equipment to avoid personal injury.**
- **Before handling, be sure to wear goggles and release pressure inside shock absorber assembly to avoid personal injury.**

- (1) Extend the rear shock absorber assembly strut fully.

- (2) Using a drill, make a hole between A and B in the strut as shown in the illustration, to discharge gas from rear shock absorber assembly and hydraulic oil.



- (3) After discharging gas and hydraulic oil from rear shock absorber assembly, handle the rear shock absorber assembly properly.

Hint:

Recycle disposed rear shock absorber assembly according to local environmental regulations.

6.10 Replacement of Rear Coil Spring

■ Removal

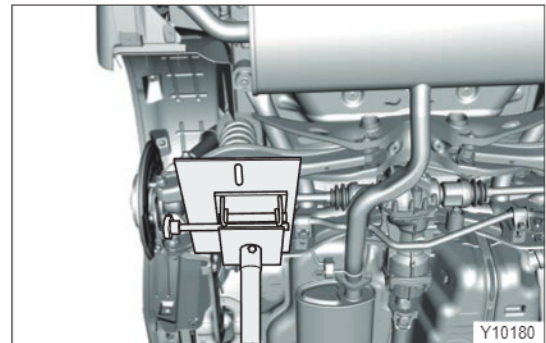
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

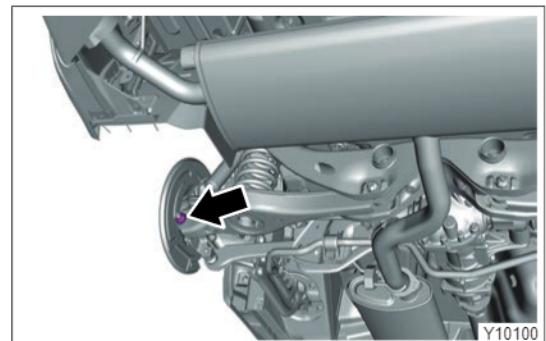
⚠ Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

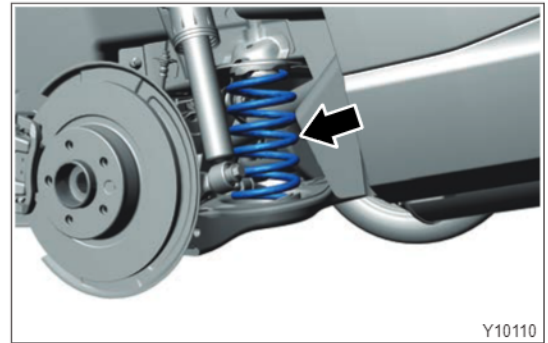
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear wheel.
- (4) Support the rear lower control arm assembly with a transmission carrier securely.



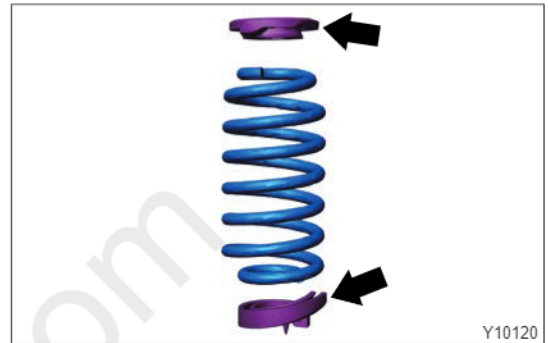
- (5) Remove coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.



- (6) Lower the transmission carrier slowly to an appropriate height and remove the rear coil spring carefully.



- (7) Remove the rear coil spring upper and lower cushions.



■ Inspection

- (1) Check rear coil spring for wear, cracks or permanent deformation due to excessive use. Replace it as necessary.
- (2) Check rear coil spring upper cushion and lower cushion for dirty, wear, cracks, deformation or damage. Replace it as necessary.
- (3) Check the free length of rear coil spring.

■ Installation

⚠ Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Align the protrusion of rear coil spring lower cushion with the positioning hole of rear lower control arm during installation.
- After installation, lower vehicle and bounce vehicle up and down several times to stabilize rear suspension.
- Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.

- (1) Install the rear coil spring upper and lower cushions.
- (2) Install coil spring and use transmission carrier to lift rear lower control arm to a proper height.
- (3) Install coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.

Torque: 165 ± 12.4 N m

- (4) Slowly lower the transmission carrier and remove it.
- (5) Install the rear wheel.
- (6) Connect the negative battery cable.

6.11 Replacement of Rear Upper Control Arm Assembly

■ Removal

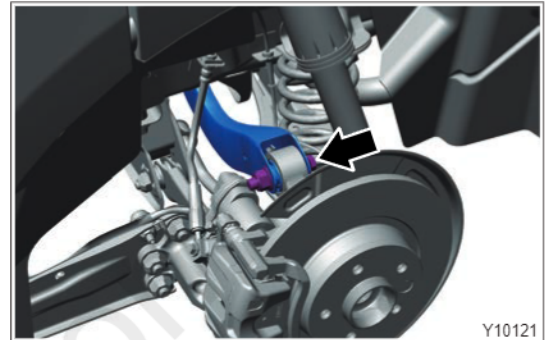
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

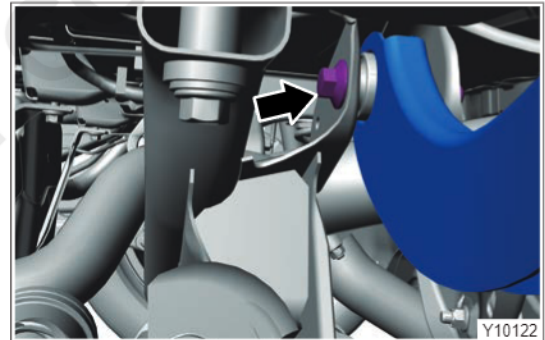
⚠ Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

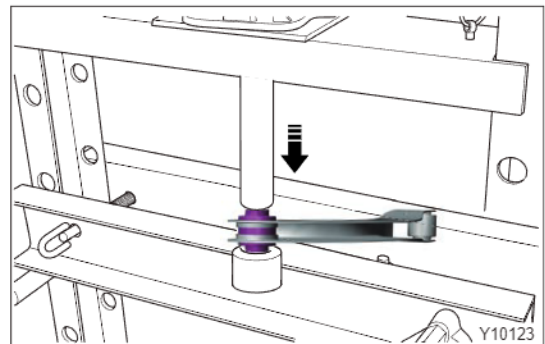
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear wheel.
- (4) Remove coupling bolt and nut between rear upper control arm assembly and rear steering knuckle assembly.



- (5) Remove coupling bolt between rear upper control arm assembly and rear sub frame welding assembly.



- (6) Remove the rear upper control arm assembly.
- (7) Place the rear upper control arm assembly on a hydraulic press, cooperate with tools, and press out rear upper control arm assembly rubber bushing with hydraulic press.



■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

- (1) Place the rear upper control arm assembly on a hydraulic press, cooperate with tools, and press control arm assembly rubber bushing into rear upper control arm with hydraulic press.

⚠ Caution

Before pressing in, apply grease on the outside of control arm assembly rubber bushing to prevent control arm assembly rubber bushing from being damaged.

- (2) Install coupling bolt between rear upper control arm assembly and rear sub frame welding assembly.

Torque: 160 ± 12 N m

- (3) Install coupling bolt and nut between rear upper control arm assembly and rear steering knuckle assembly.

Torque: 160 ± 12 N m

- (4) Install the rear wheel.

- (5) Connect the negative battery cable.

6.12 Replacement of Rear Lower Control Arm Assembly

■ Removal

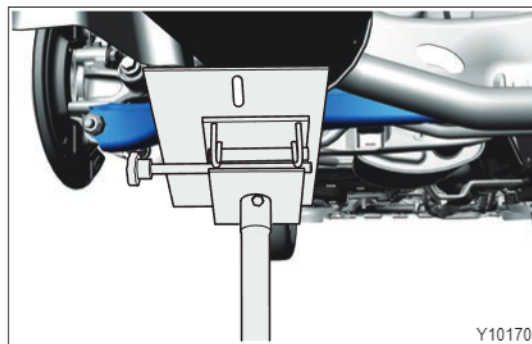
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

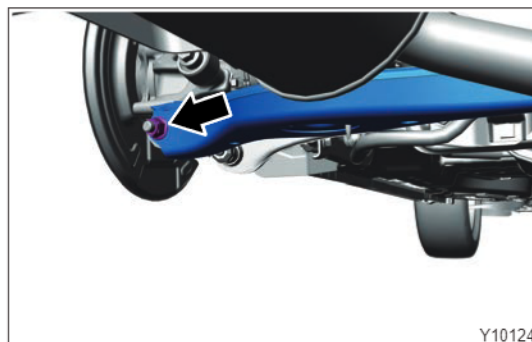
- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear wheel.
- (4) Support the rear lower control arm assembly with a transmission carrier securely.



Y10170

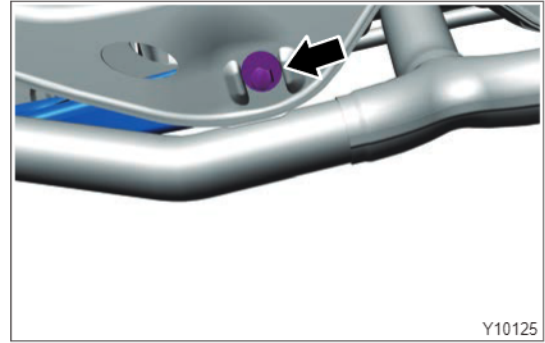
- (5) Remove coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.



Y10124

- (6) Lower the transmission carrier slowly to a proper height and remove rear coil spring, rear coil spring upper cushion and rear coil spring lower cushion carefully.

- (7) Remove coupling bolt, nut and adjusting shim between rear lower control arm assembly and rear sub frame welding assembly.



- (8) Remove the rear lower control arm assembly.

■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

- (1) Install coupling bolt, nut and adjusting shim between rear lower control arm assembly and rear sub frame welding assembly.

Torque: 130 ± 13.5 N m

- (2) Install rear coil spring, rear coil spring upper and lower cushions and use transmission carrier to lift rear lower control arm to a proper height.
- (3) Install coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.

Torque: 165 ± 12.4 N m

- (4) Slowly lower the transmission carrier.
- (5) Install the rear wheel.
- (6) Connect the negative battery cable.

6.13 Replacement of Rear Trailing Arm Assembly

■ Removal

Hint:

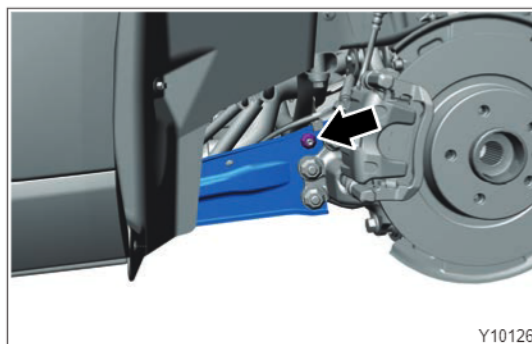
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

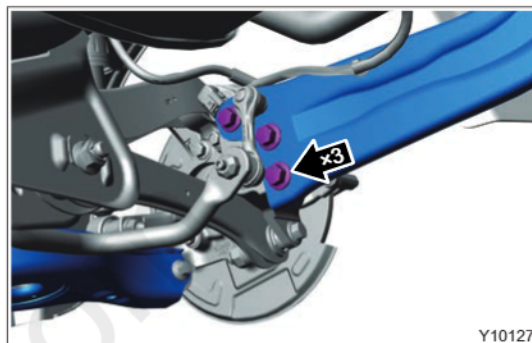
- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear wheel.

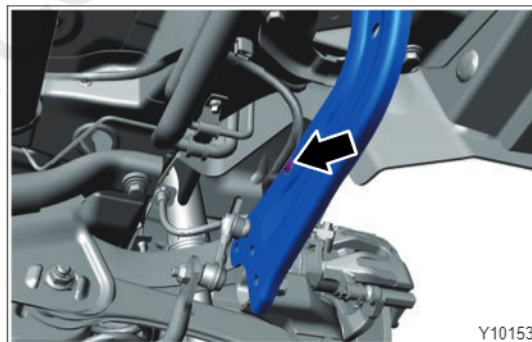
- (4) Remove coupling nut between rear connecting rod assembly and rear trailing arm assembly, and disengage rear connecting rod assembly.



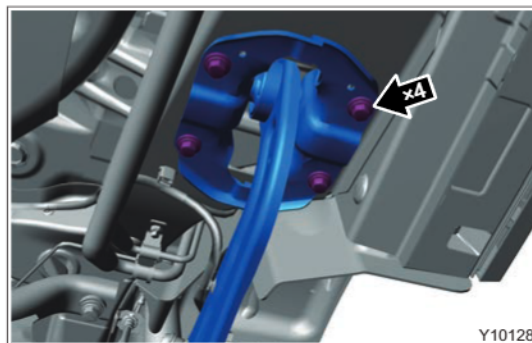
- (5) Remove 3 coupling bolts between rear steering knuckle assembly and rear trailing arm assembly.



- (6) Remove the wire harness clip.



- (7) Remove 4 coupling bolts between rear trailing arm assembly mounting bracket and body.



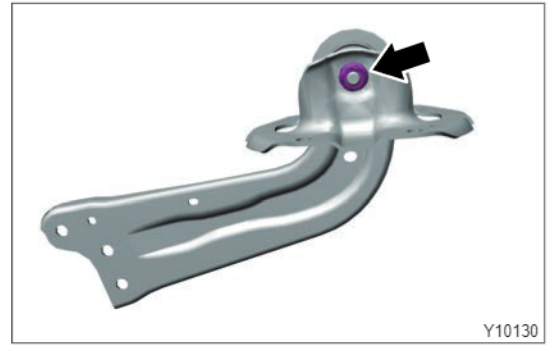
- (8) Remove the rear trailing arm assembly (w/ mounting bracket).

■ Disassembly

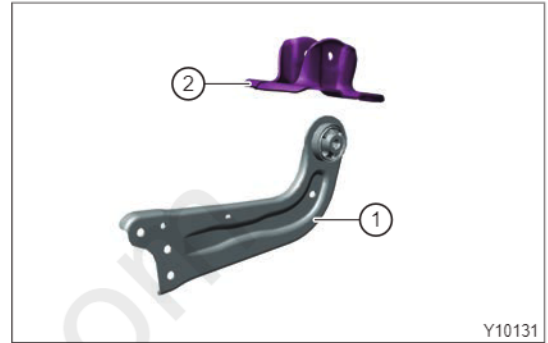
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

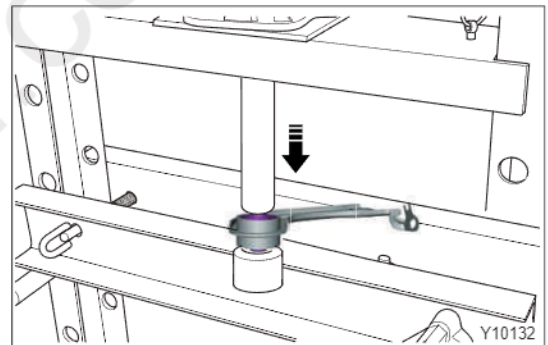
- (1) Remove coupling bolt and nut between rear trailing arm assembly and mounting bracket.



- (2) Separate rear trailing arm assembly (1) from mounting bracket (2).



- (3) Place the rear trailing arm assembly on a hydraulic press, and press out rear trailing arm assembly rubber boot with hydraulic press.



■ Assembly

- (1) Place the rear trailing arm assembly on a hydraulic press, cooperate with tools, and press rear trailing arm assembly rubber sleeve into rear trailing arm assembly with hydraulic press.

⚠ Caution

Before pressing in, apply grease on the outside of trailing arm assembly rubber boot to prevent it from damage.

- (2) Install coupling bolt and nut between rear trailing arm assembly and mounting bracket.

■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

- (1) Install 4 coupling bolts between rear trailing arm assembly mounting bracket and body.

Torque: $65 \pm 5.5 \text{ N m}$

- (2) Install the wire harness clip.
- (3) Install 3 coupling bolts between rear steering knuckle assembly and rear trailing arm assembly.

Torque: 200 ± 15 N m

- (4) Install coupling nut between rear connecting rod assembly and rear trailing arm assembly.

Torque: 55 ± 4.1 N m

- (5) Install the rear wheel.
(6) Connect the negative battery cable.

6.14 Replacement of Rear Pull Rod Assembly

■ Removal

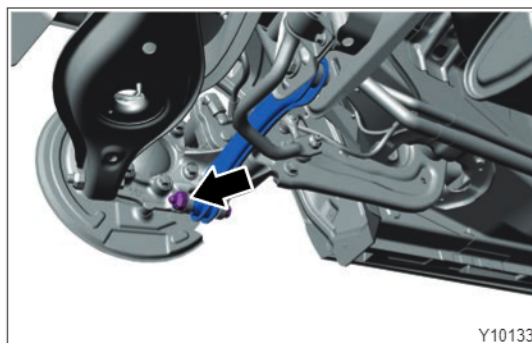
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

Warning

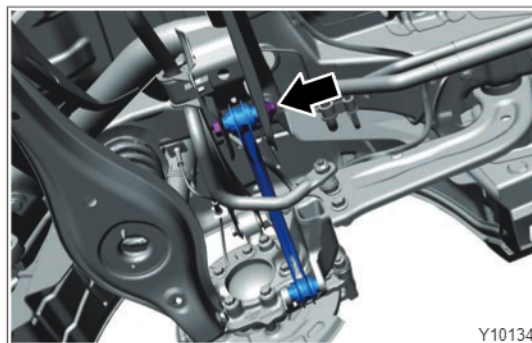
- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
(2) Disconnect the negative battery cable.
(3) Remove the rear wheel.
(4) Remove coupling bolt and nut between rear pull rod assembly and rear steering knuckle assembly.



Y10133

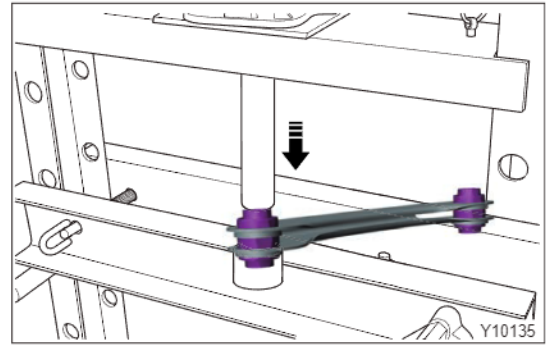
- (5) Remove coupling bolt and nut between rear pull rod assembly and rear sub frame welding assembly.



Y10134

- (6) Remove the rear pull rod assembly.

- (7) Place the rear pull rod assembly on a hydraulic press, and press out rear pull rod assembly rubber boot with hydraulic press.



■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**

- (1) Place the rear pull rod assembly on a hydraulic press, cooperate with tools, and press rear pull rod assembly rubber boot into rear pull rod assembly with hydraulic press.

⚠ Caution

Before pressing in, apply grease on the outside of rear pull rod assembly rubber boot to prevent it from damage.

- (2) Install coupling bolt and nut between rear pull rod assembly and rear sub frame welding assembly.
 (3) Install coupling bolt and nut between rear pull rod assembly and rear steering knuckle assembly.
 (4) Install the rear wheel.
 (5) Connect the negative battery cable.

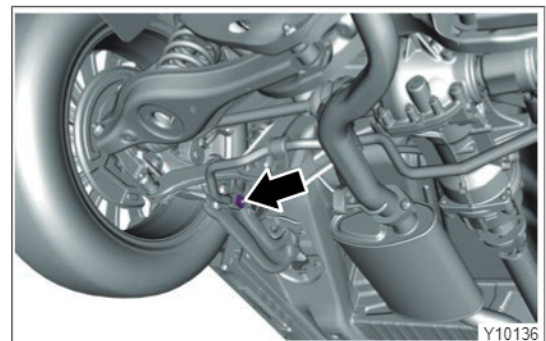
6.15 Replacement of Rear Stabilizer Bar Assembly

■ Removal

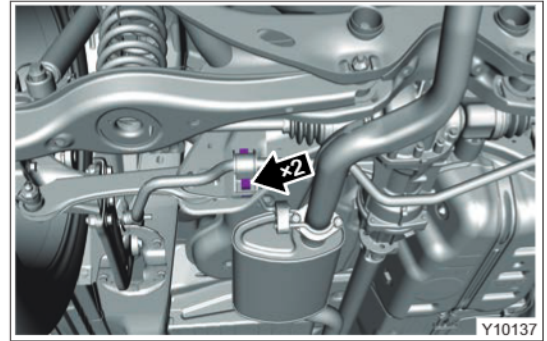
⚠ Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

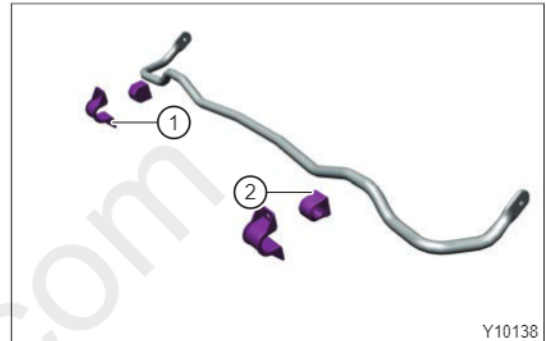
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
 (2) Disconnect the negative battery cable.
 (3) Remove coupling nut between rear left connecting rod assembly and rear stabilizer bar assembly. Use same removal procedure for right side.



- (4) Remove 2 coupling bolts between rear stabilizer bar assembly and rear sub frame welding assembly. Use same removal procedure for right side.



- (5) Remove the rear stabilizer bar assembly.
 (6) Remove rear stabilizer bar fixing clamp (1) and rear stabilizer bar rubber support (2) from rear stabilizer bar assembly.



■ Inspection

- (1) Check rear stabilizer bar assembly fixing clamps for wear, cracks, deformation or damage. Replace it as necessary.
 (2) Check rear stabilizer bar assembly rubber supports for dirt, wear, cracks, deformation or damage. Replace it as necessary.

■ Installation

⚠ Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.

- (1) Install rear stabilizer bar fixing clamp (1) and rear stabilizer bar rubber support (2).
 (2) Install 2 coupling bolts between rear stabilizer bar assembly and rear sub frame welding assembly. Use same installation procedure for right side.

⚠ Caution

Due to rubber bushing deformation, tightened bolt will exit false torque, so it is necessary to retighten the tightened bolt.

Torque: 45 ± 4 N m

- (3) Place rear connecting rod shield on rear connecting rod, install coupling nut between rear left connecting rod assembly and rear stabilizer bar assembly. Use same installation procedure for right side.

Torque: 55 ± 4.1 N m

- (4) Connect the negative battery cable.

6.16 Replacement of Rear Connecting Rod Assembly

■ Removal

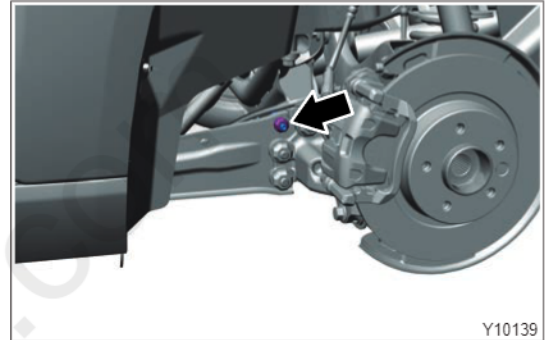
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

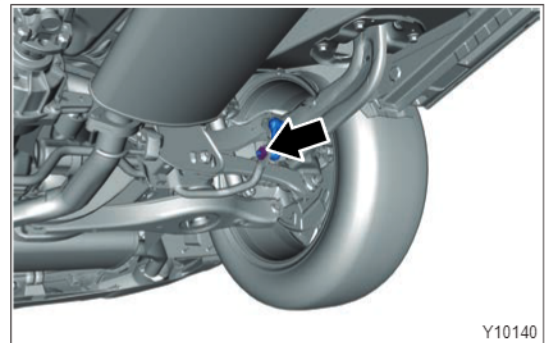
⚠ Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not allowed to weld or modify suspension bearing parts and guide parts.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove coupling nut between rear connecting rod assembly and rear trailing arm assembly, and disengage rear connecting rod assembly.



- (4) Remove coupling nut between rear connecting rod assembly and rear stabilizer bar assembly, and remove rear connecting rod assembly.



■ Inspection

- (1) Check rear connecting rod assembly bush for wear, cracks, deformation, damage or grease leakage. Replace it as necessary.
- (2) Check if end of rear connecting rod assembly rotates smoothly. Replace it as necessary.

■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**
- **Make sure that end of rear connecting rod assembly rotates smoothly and there is no sticking after installation.**

- (1) Install coupling nut between rear connecting rod assembly and rear stabilizer bar assembly.

Torque: 55 ± 4.1 N m

- (2) Install coupling nut between rear connecting rod assembly and rear trailing arm assembly.

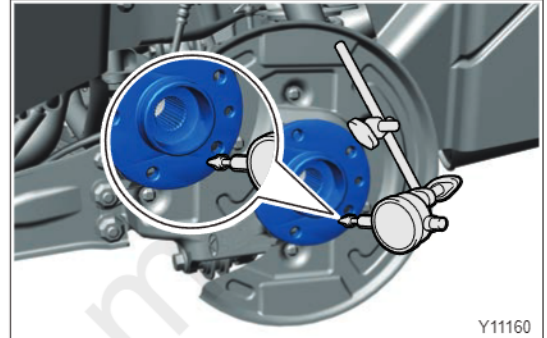
Torque: 55 ± 4.1 N m

- (3) Connect the negative battery cable.

6.17 Replacement of Rear Hub Bearing Assembly

■ On-vehicle Inspection

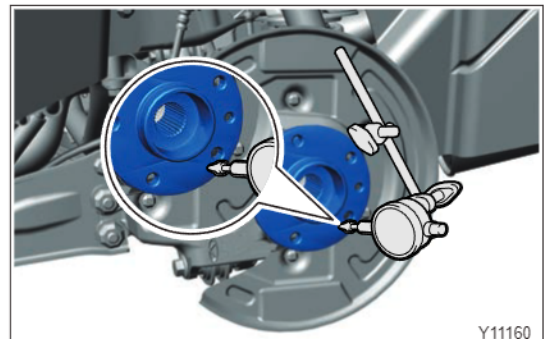
- (1) Remove the rear wheel.
- (2) Remove the rear brake caliper assembly.
- (3) Remove the rear brake disc.
- (4) Check the rear hub bearing looseness.
 - 1) Check looseness near center of the rear hub bearing with a dial indicator.



⚠ Caution

- Ensure that dial indicator is perpendicular to measurement surface.
- If looseness exceeds maximum value, replace the rear hub bearing assembly.

- (5) Check the rear hub bearing runout.
 - 1) Check runout of the rear hub bearing assembly surface with a dial indicator.



⚠ Caution

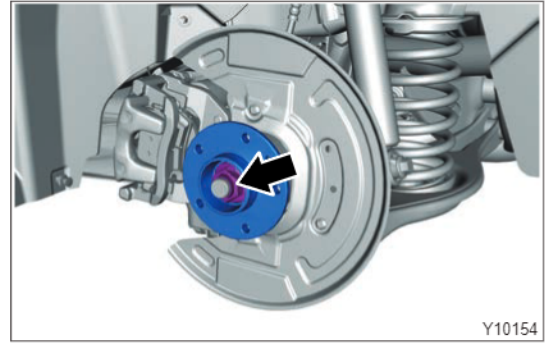
- Ensure that dial indicator is perpendicular to measurement surface.
- If looseness exceeds maximum value, replace the rear hub bearing assembly.

■ Removal

Hint:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
 - (2) Disconnect the negative battery cable.
 - (3) Remove the rear left wheel.
 - (4) Remove the rear left brake caliper assembly.
 - (5) Remove the rear left brake disc.

- (6) Remove locking nut from rear left drive shaft.



- (7) Remove the rear hub bearing.

■ Installation

⚠ Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.

- (1) Install locking nut to rear left drive shaft.

Torque: 286 ± 23 N m

- (2) Install the rear left brake disc.
 (3) Install the rear brake caliper assembly.
 (4) Install the rear left wheel.
 (5) Connect the negative battery cable.

6.18 Replacement of Rear Steering Knuckle

■ Removal

Hint:

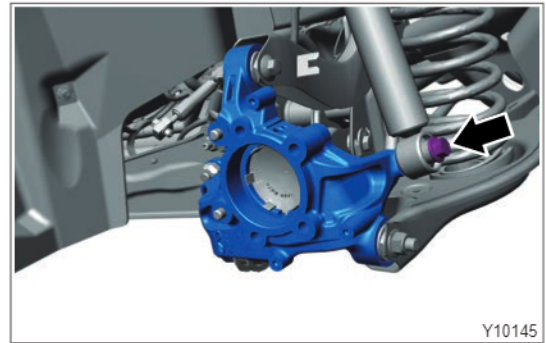
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

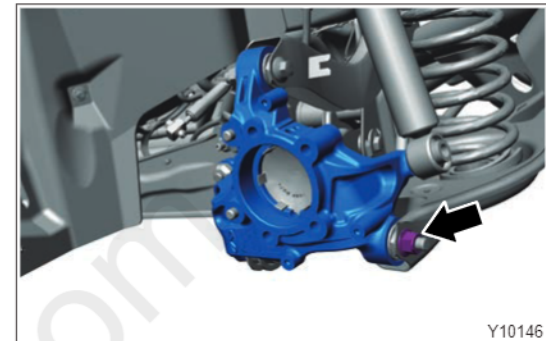
- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lifter is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension bearing parts and guide parts.
- When removing chassis parts, replace self-locking nuts and rusted nuts for safety.

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
 (2) Disconnect the negative battery cable.
 (3) Remove the rear wheel.
 (4) Remove the rear brake caliper assembly.
 (5) Remove the rear brake disc.
 (6) Remove the rear dust guard.
 (7) Remove the rear wheel speed sensor.
 (8) Remove the rear hub bearing.

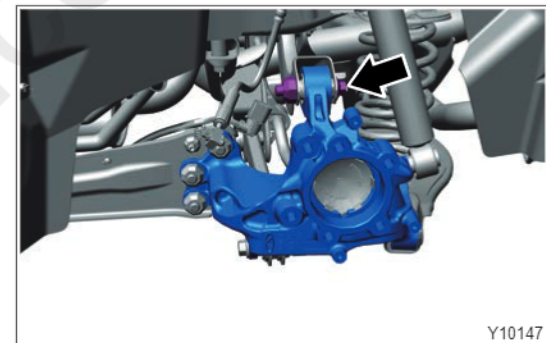
- (9) Remove coupling bolt between rear shock absorber assembly and rear steering knuckle assembly.



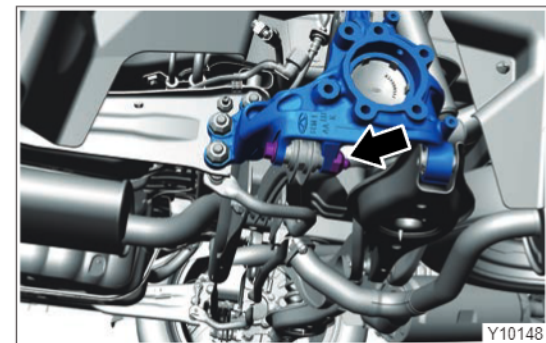
- (10) Remove coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.



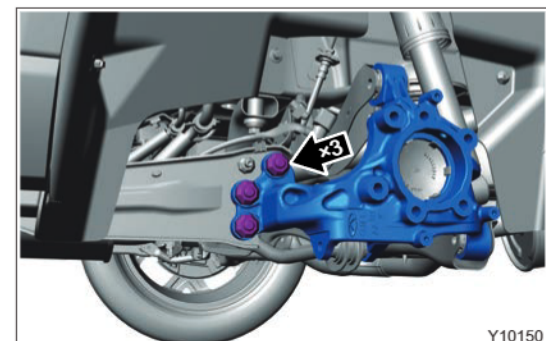
- (11) Remove coupling bolt and nut between rear upper control arm assembly and rear steering knuckle assembly.



- (12) Remove coupling bolt and nut between pull rod assembly and rear steering knuckle assembly.



- (13) Remove 3 coupling bolts between rear steering knuckle assembly and rear trailing arm assembly.



(14) Remove the rear steering knuckle assembly.

■ Installation

Caution

- **Be sure to tighten bolt to specified torque.**
- **Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.**

(1) Install 3 coupling bolts between rear steering knuckle assembly and rear trailing arm assembly.

Torque: 200 ± 15 N m

(2) Install coupling bolt and nut between pull rod assembly and rear steering knuckle assembly.

(3) Install coupling bolt and nut between rear upper control arm assembly and rear steering knuckle assembly.

Torque: 160 ± 12 N m

(4) Install coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.

Torque: 165 ± 12.4 N m

(5) Install coupling bolt between rear shock absorber assembly and rear steering knuckle assembly.

Torque: 95 ± 7.3 N·m

(6) Install the rear hub bearing.

(7) Install the rear wheel speed sensor.

(8) Install the rear dust guard.

(9) Install the rear brake disc.

(10) Install the rear brake caliper assembly.

(11) Install the rear wheel.

(12) Connect the negative battery cable.

6.19 Replacement of Rear Sub Frame Welding Assembly

■ Removal

Warning

- **Be sure to wear necessary safety equipment to prevent accidents.**
- **Check if safety lock of lifter is locked when repairing chassis parts.**
- **It is not permitted to weld or modify bearing parts of wheel suspension and guide parts of wheel.**
- **When removing chassis parts, replace self-locking nuts and rusted nuts for safety.**

(1) Turn off all electrical equipment and the ENGINE START STOP switch.

(2) Disconnect the negative battery cable.

(3) Remove the rear wheel.

(4) Remove the rear brake caliper assembly.

(5) Remove the rear brake disc.

(6) Remove the rear hub shaft assembly.

(7) Remove the rear steering knuckle assembly.

(8) Remove the rear lower control arm assembly.

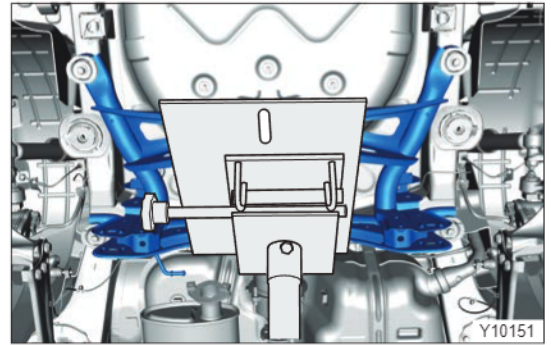
(9) Remove the rear pull rod assembly.

(10) Remove the rear stabilizer bar assembly.

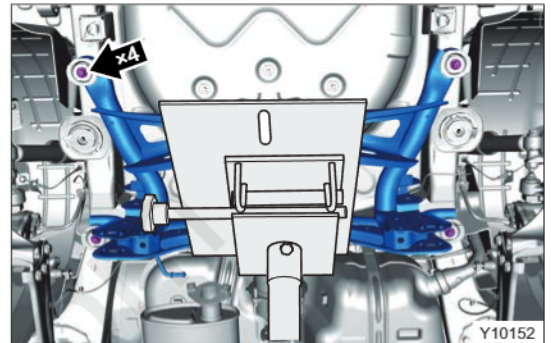
(11) Remove the rear drive shaft assembly.

(12) Remove the rear final drive assembly.

- (13) Install transmission carrier to support rear sub frame assembly.



- (14) Remove 4 coupling bolts between rear sub frame assembly and body.



- (15) Remove the rear sub frame assembly.

■ Installation

⚠ Caution

- **Be sure to tighten coupling bolts and nuts to specified torques.**
- **Bounce vehicle up and down several times to stabilize rear suspension after installation.**
- **Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.**

- (1) Install transmission carrier to lift rear sub frame to a proper height.
- (2) Install 4 coupling bolts between rear sub frame assembly and body.

Torque: 95 ± 7.1 N m

- (3) Install the rear stabilizer bar assembly.
- (4) Install the rear pull rod assembly.
- (5) Install the rear lower control arm assembly.
- (6) Install the rear steering knuckle assembly.
- (7) Install the rear hub shaft assembly.
- (8) Install the rear brake disc.
- (9) Install the rear brake caliper assembly.
- (10) Install the rear wheel.
- (11) Connect the negative battery cable.