SUSPENSION

FRONT SUSPENSION

Warnings and Precautions

Warning

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair:

1. Be sure to wear necessary safety equipment to prevent accidents.
2. Check if safety lock of lift is locked when repairing chassis parts.
3. It is not allowed to weld or modify suspension loading parts and guide parts.
4. When removing chassis parts, be sure to replace self-locking nuts and rusted nuts for safety.
5. Operate carefully when removing and installing coil spring, to prevent spring from jumping out and causing personal injury.

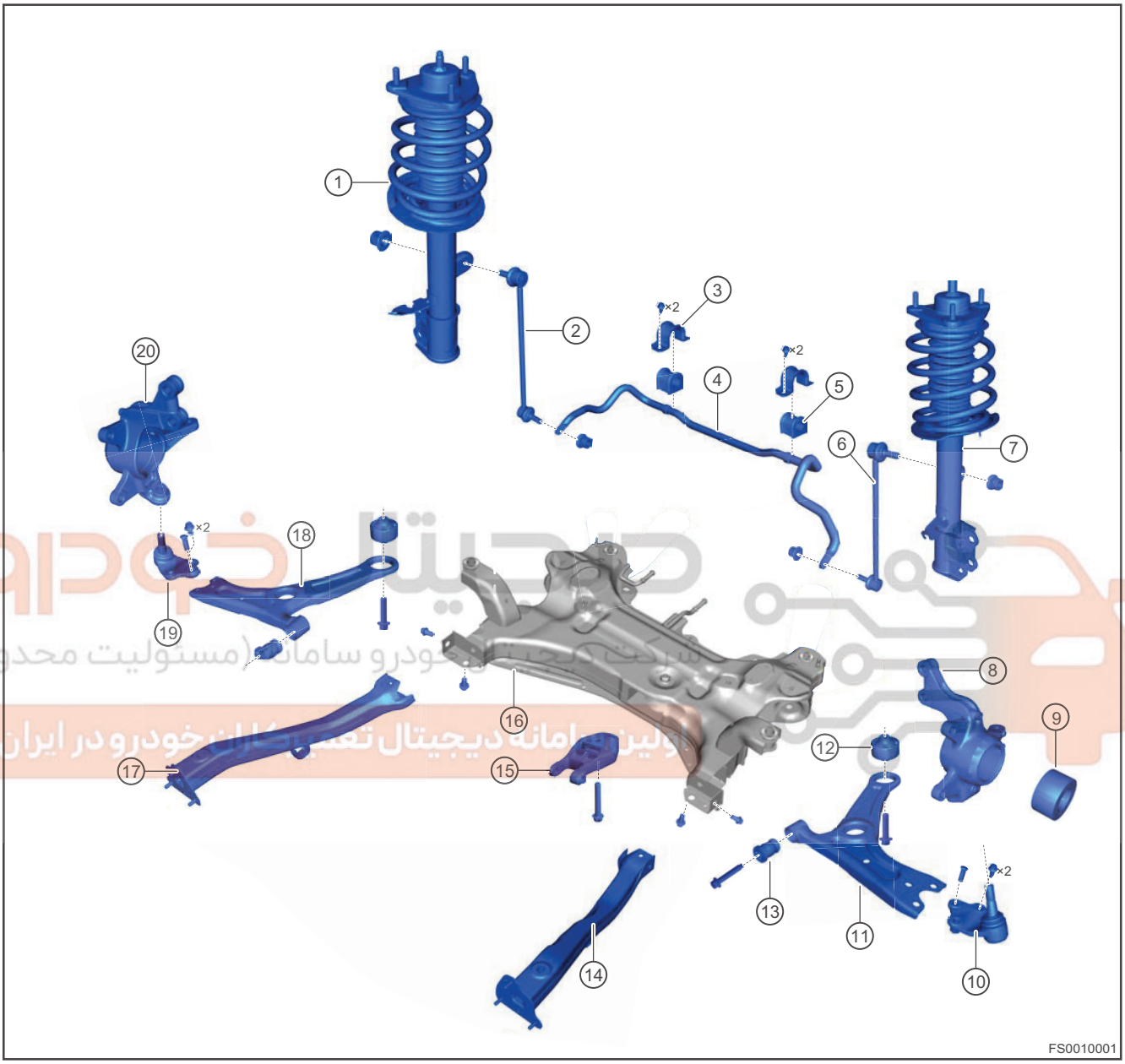
Precautions

In order to avoid dangerous operation and damage to the vehicle, always follow the instructions below before repair:

1. Be sure to tighten coupling bolts and nuts to specified torques.
2. Make sure that ball pin assembly rotates smoothly without any sticking after installation.
3. Check wheel alignment after installation. Adjust wheel alignment to standard range as necessary.
4. 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.
5. Align dowel pin of top end connecting plate with body positioning hole when installing front left shock absorber assembly.
6. Please note that opening of retainer must face opening of front wheel speed sensor, when installing front hub bearing retainer.
7. When removing front sub frame welding assembly, an engine equalizer needs to be used to support engine and transmission assembly securely to prevent them from being damaged.
8. When removing and installing steering system, suspension system, brake, tire, etc., it is necessary to turn off power supply of EPS (vehicle power supply is turned off), so as to avoid reverse impact, resulting in EPS internal protection circuit breakdown.

System Overview

System Component Diagram



1	Front Right Strut Assembly	11	Front Left Control Arm Welding Assembly
2	Front Right Connecting Rod Assembly	12	Control Arm Rear Bushing Assembly
3	Front Stabilizer Bar Clamp	13	Front Rubber Bushing Assembly
4	Front Stabilizer Bar	14	Left Welding Side Rail Assembly
5	Front Stabilizer Bar Bushing	15	Rear Mounting Lower Cushion
6	Front Left Connecting Rod Assembly	16	Front Sub Frame Assembly

7	Front Left Strut Assembly	17	Right Welding Side Rail Assembly
8	Front Left Steering Knuckle	18	Front Right Control Arm Welding Assembly
9	Front Hub Bearing	19	Front Right Control Arm Ball Pin Assembly
10	Front Left Control Arm Ball Pin Assembly	20	Front Right Steering Knuckle

Front suspension of this model uses Macpherson independent suspension (toe-in is adjustable and height is non-adjustable), which is equipped with lateral stabilizer, cylindrical coil spring, double action telescopic shock absorber.

Component Operation Description

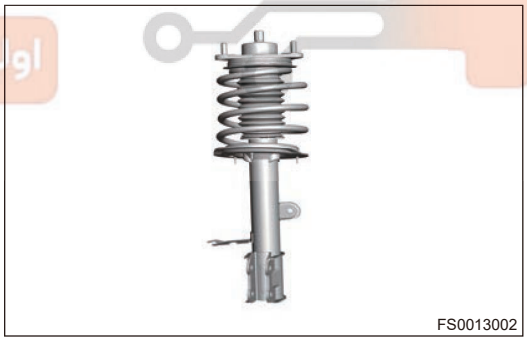
Front Control Arm Welding Assembly

As a guide and power transmission element for suspension system of vehicle, control arm transmits various power acting on wheels to vehicle body and keeps wheels moving in a certain trail. Control arm elastically connects wheels and vehicle body together with ball joint or bushing.


FS0012002

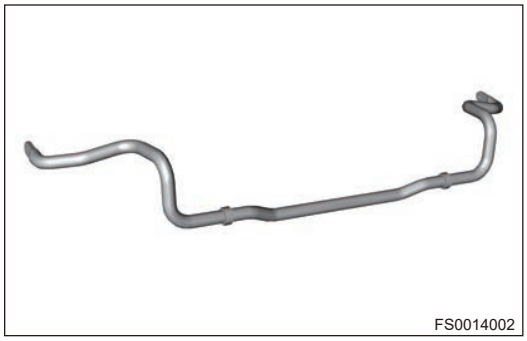
Front Strut Assembly

It filters and eliminates vibration from roads to improve driving stability and bring people a sense of comfort and stability.


FS0013002

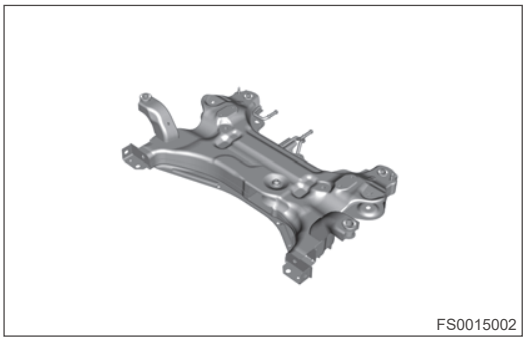
Front Stabilizer Bar

Lateral stabilizer bar functions to prevent excessive lateral incline while vehicle is turning and keeps vehicle body in balance as much as possible. It aims to reduce lateral incline level of vehicle and improve smoothness. When vehicle is turning, vehicle body inclines and suspension on both sides have inconsistent bounce. The outer suspension will press against stabilizer bar to twist it, then elastic force from bar body will prevent wheel from lifting, so that vehicle body can be kept in balance as much as possible, thus realizing the lateral stability function.


FS0014002

Front Sub Frame Assembly

Sub frame can reduce impact on vehicle body due to road shock and enhance connection rigid of suspension system and improve driving comfort and stability, making a strong and compact chassis during driving. It bears the deformation conditions such as loaded bend, longitudinal torsion, lateral bend and horizontal lozenging, etc. in place of vehicle body, which improves torsion resistance ability of vehicle body. Also, the force will be directly applied on it in a collision to improve vehicle safety performance.


FS0015002

On-vehicle Service

Problem Symptoms Table

Hint:

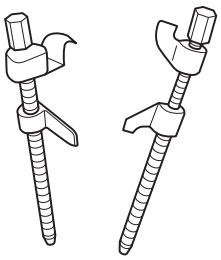
Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair, replace or adjust faulty components as necessary.

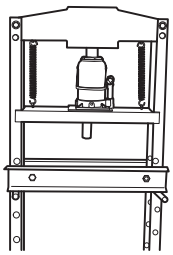
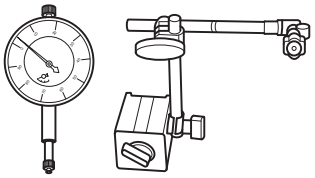
Symptom	Suspected Area
Vehicle pulls	Front tire (worn or improperly inflated)
	Front wheel alignment (incorrect)
	Control arm ball pin assembly (loose)
	Steering tie rod (loose or worn)
	Front hub bearing (excessively worn)
	Steering gear (misaligned or damaged)
	Suspension components (worn)
Droop	Vehicle (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)
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)

Symptom	Suspected Area
	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)

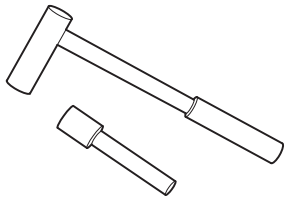
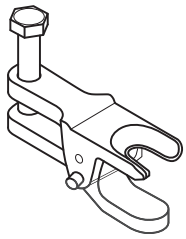
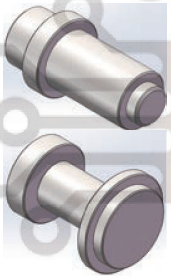
Tools

General Tools

Tool Name	Tool Drawing
Transmission Carrier	 S00004
Spring Compressor	 S00016

Tool Name	Tool Drawing
Hydraulic Press	 S00010
Dial Indicator and Magnetic Holder	 RCH0023006

Special Tools

Tool Name	Part No.	Tool Drawing
Front Shock Absorber Nut Remover	ECH-0001	 RCH0022006
Tie Rod Ball Remover	ECH-0002	 S00019
Bearing Remover Special Tool	ECH-0004	 RCH0011006

Specifications

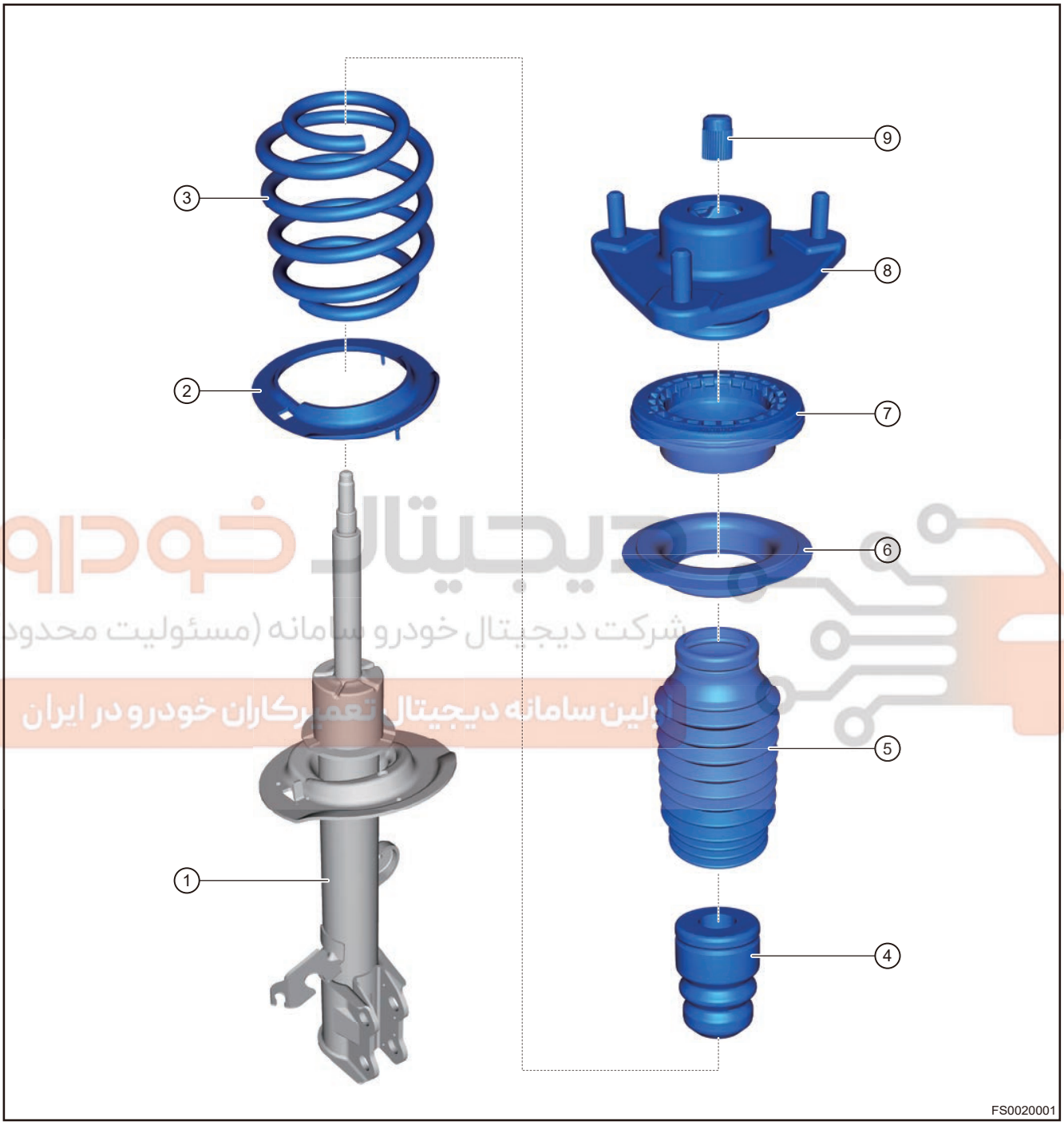
Torque Specifications

Item	Tightening Torque
Coupling Nut Between Front Connecting Rod Assembly and Front Shock Absorber Assembly	60 ± 6 N·m
Coupling Nut Between Front Shock Absorber Assembly and Front Steering Knuckle Assembly	240 ± 24 N·m
Coupling Nut Between Front Shock Absorber Assembly and Body	60 ± 6 N·m
Front Shock Absorber Assembly Locking Nut	70 ± 3 N·m
Coupling Bolt Between Front Control Arm Assembly and Front Sub Frame Assembly	150 ± 10 N·m + (90 ± 2°)
Coupling Nut Between Front Control Arm Assembly and Front Sub Frame Assembly	160 ± 11 N·m + (60 ± 1.5°)

Item	Tightening Torque
Coupling Nut Between Front Control Arm Ball Pin and Front Steering Knuckle	95 ± 10 N·m
Coupling Nut Between Front Stabilizer Bar Assembly and Front Connecting Rod Assembly	60 ± 5 N·m
Fixing Bolt Between Front Stabilizer Bar and Sub Frame	25 ± 3 N·m
Fixing Bolt Between Front Dust Guard and Front Steering Knuckle Assembly	8 ~ 13 N·m
Front Brake Disc Fixing Bolt	7 - 9 N·m
Fixing Bolt Between Front Wheel Speed Sensor and Front Steering Knuckle Assembly	9 ± 1.5 N·m
Coupling Nut Between Steering Tie Rod Outer Ball Assembly and Front Steering Knuckle Assembly	45 ± 5 N·m
Drive Shaft Fixing Nut	270 ± 20 N·m
Fixing Bolt Between Steering Gear Assembly and Front Sub Frame Assembly	110 ± 8 N·m + (240 ± 5°)
Fixing Bolt Between Front Sub Frame Assembly and Body	180 ± 18

Front Strut Assembly

Description



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

4	Front Buffer Block	9	Front Shock Absorber Cover Cap
5	Front Dust Boot		

On-vehicle Inspection

1. Check the front shock absorber assembly.
   a. 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
   a. 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.
   b. If following conditions occur:
      - Oil traces in circumferential direction are uneven;
      - Oil traces reach lower connecting positions.

      Above conditions indicate that there may be leakage in shock absorber assembly, and it is necessary to replace the shock absorber assembly.
   c. If it is difficult to accurately judge shock absorber assembly for 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 at the shock absorber assembly surface, it indicates that oil leakage exists, and it is necessary to replace the shock absorber assembly.

Removal

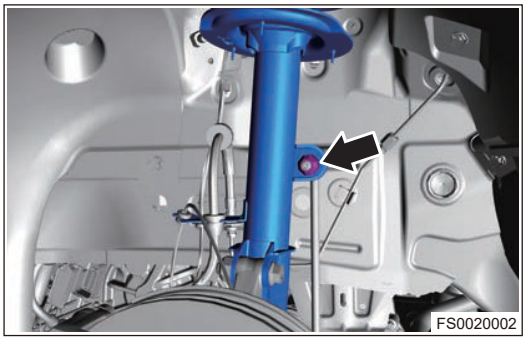
Hint:

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

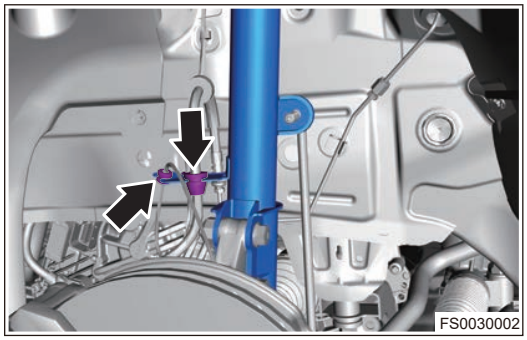
⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents.
- Make sure that safety lock of lift has been locked, when removing and installing chassis parts.
- It is not allowed to weld or modify suspension loading 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.

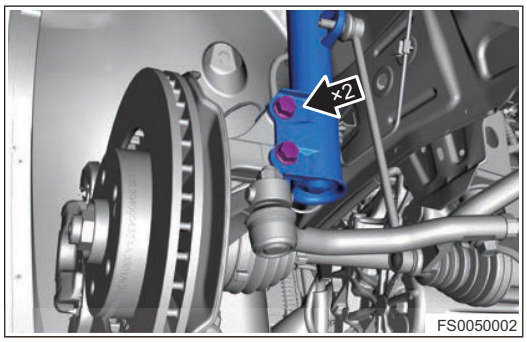
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left wheel.
4. Remove coupling nut (arrow) between front left connecting rod assembly and front left shock absorber assembly.



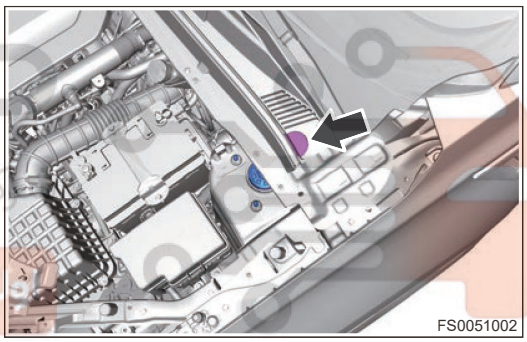
5. Disengage the front left wheel speed sensor wire harness and front left brake hose assembly from front left shock absorber assembly.



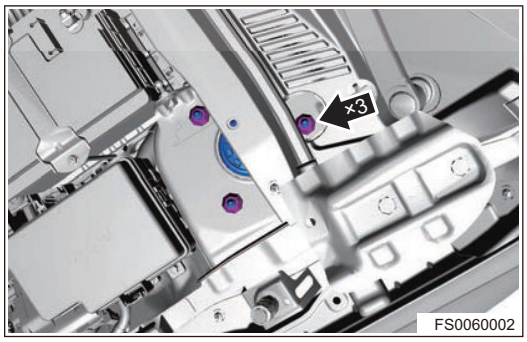
6. Remove 2 coupling bolts and nuts between front left shock absorber assembly and front left steering knuckle assembly.



7. Remove the shock absorber blockage cover from front windshield trim cover plate.



8. Remove 3 coupling nuts between front left shock absorber assembly and vehicle body.



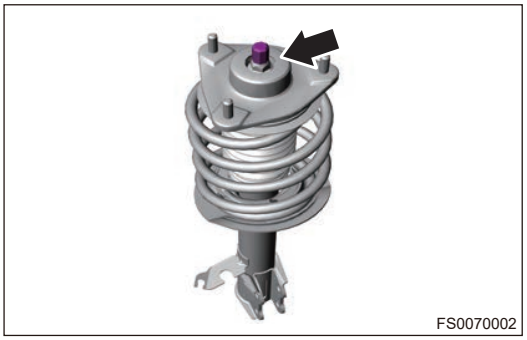
9. Remove the front left shock absorber assembly with front coil spring.

Disassembly

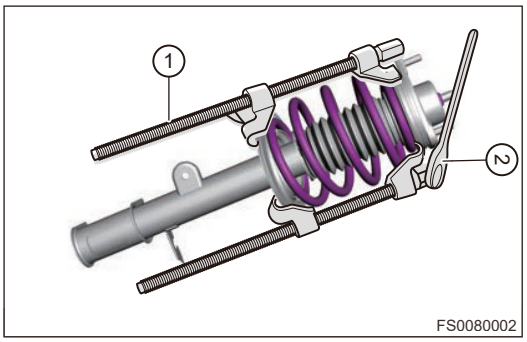
Hint:

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

1. Remove the front shock absorber cover cap from front left shock absorber assembly.


FS0070002

2. Using spring compressor (1) and wrench (2), tighten the end lever of spring compressor to compress the front coil spring.

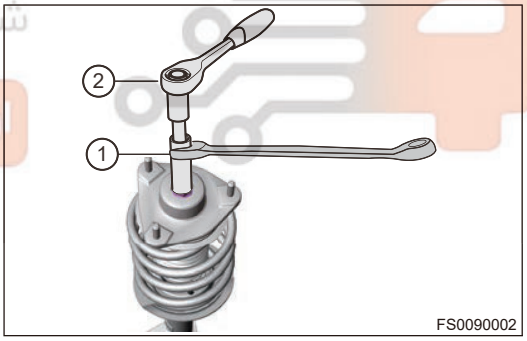


FS0080002

Warning

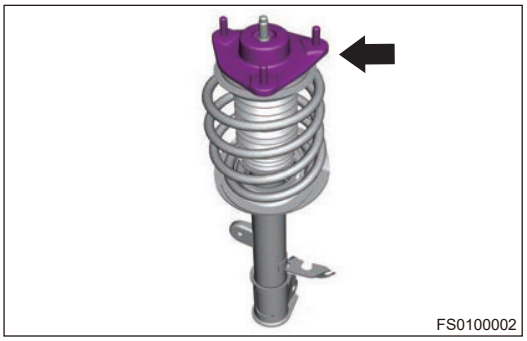
- When removing front coil spring, compress spring until locking nut can be rotated. DO NOT compress spring more than necessary, avoid damaging spring and personal injury.

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

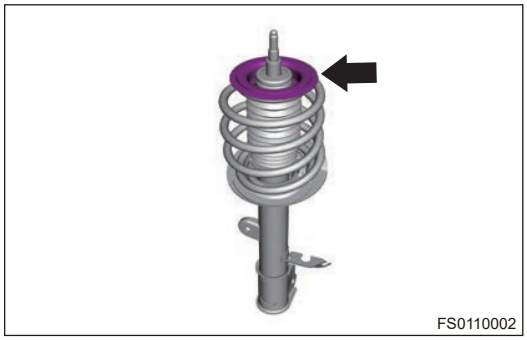


FS0090002

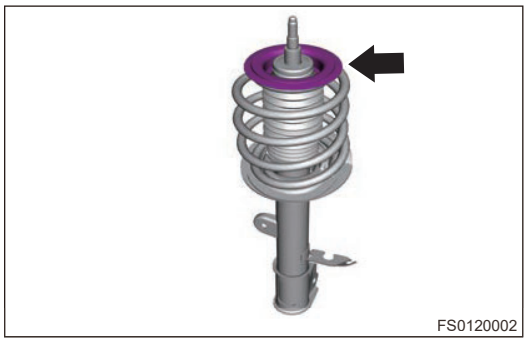
4. Remove front strut upper connecting plate assembly (w/ insulator) from upper part of front left shock absorber assembly.


FS0100002

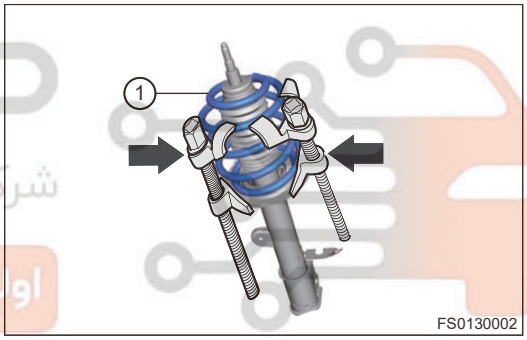
5. Remove bearing assembly from upper part of front left shock absorber assembly.


FS0110002

6. Remove front spring upper cushion from upper part of front left shock absorber assembly.


FS0120002

7. Remove front coil spring (1) with spring compressor from front left shock absorber assembly. Slowly loosen spring compressor, and carefully remove front coil spring.



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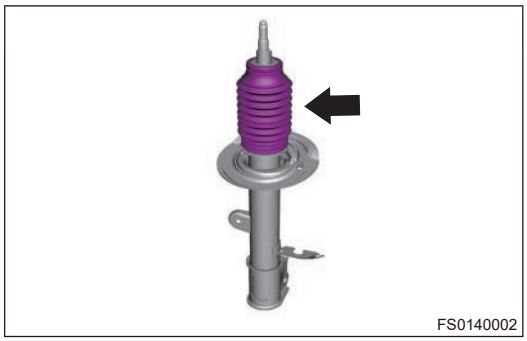
8. Remove front dust boot from upper part of front left shock absorber assembly.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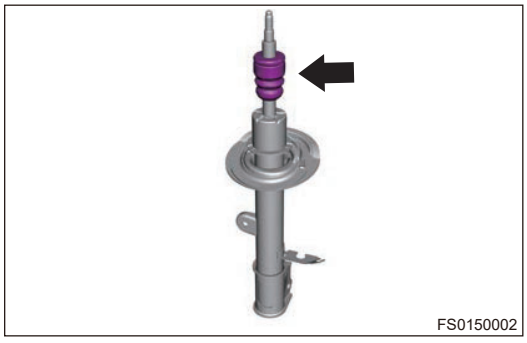
9. Detach front buffer block from front left shock absorber assembly, and remove it.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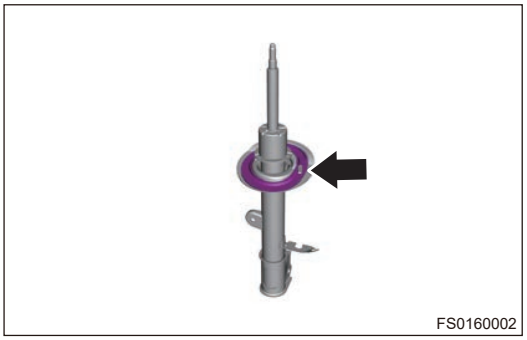
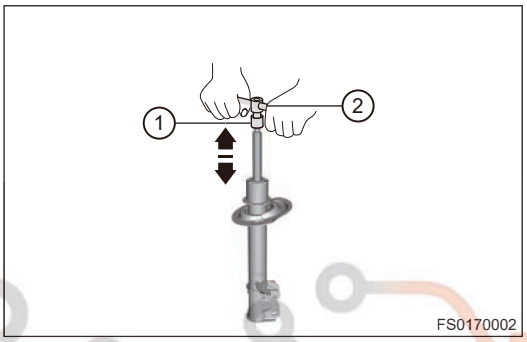
10. Remove front spring lower cushion from lower end of front left shock absorber assembly strut.


FS0160002

Inspection

1. Check the front shock absorber.
   Manual inspection:
   a. Install the locking nut (1) to the upper end of front shock absorber strut and then install T-wrench (2) or equivalent.



FS0170002

   b. Compress and extend front shock absorber 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.
   a. 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.
   b. Check front strut upper connecting plate assembly (w/ insulator) and bearing assembly for damage. Replace it as necessary.
   c. Check front coil spring for wear, cracks or deformation. Replace it as necessary.
3. Check the front shock absorber spring.
   a. Check rear coil spring for wear, cracks or permanent deformation due to excessive use. Replace it as necessary.

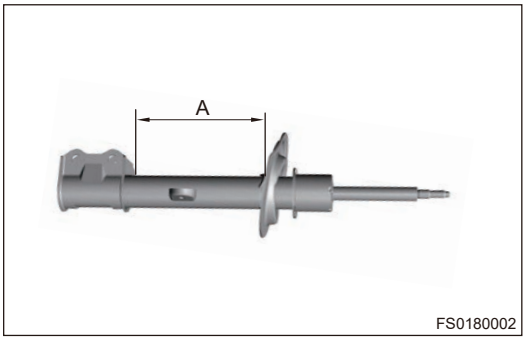
Disposal

⚠ 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 mental 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.



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.

Assembly

⚠ Caution

- Be sure to tighten bolt to specified torque.
- Check wheel alignment after installation. Adjust wheel alignment to standard range as necessary.
- Please note that opening of retainer must face opening of front wheel speed sensor, when installing front hub bearing retainer.

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. Install the front spring upper cushion.
6. Install the bearing assembly.
7. Install the front strut upper connecting plate assembly (w/ insulator).
8. Install the front shock absorber cover cap.
9. Using spring compressor (1) and wrench (2), tighten the end lever of spring compressor to compress the front coil spring.
10. 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 ± 3 N·m

11. Install the front shock absorber cover cap.

Installation

⚠ 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. Adjust wheel alignment to standard range as necessary.

1. Installation is in the reverse order of removal.

Front Control Arm Ball Pin Assembly

Removal

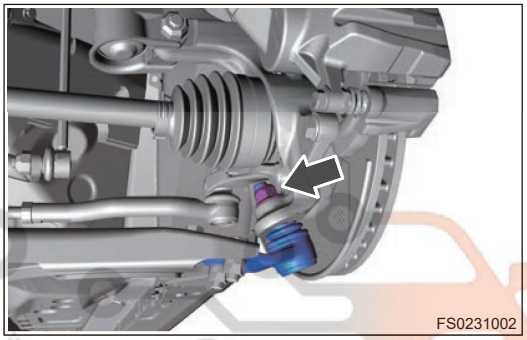
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lift is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension loading parts and guide parts.
- When removing chassis parts, be sure to 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.

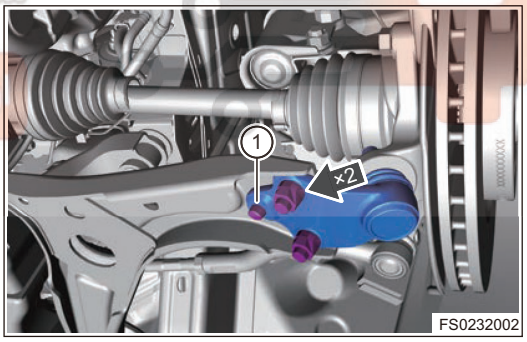
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left wheel.
4. Remove the coupling nut between front left control arm assembly ball pin and front left steering knuckle assembly.

   Torque: 95 ± 10 N·m


FS0231002

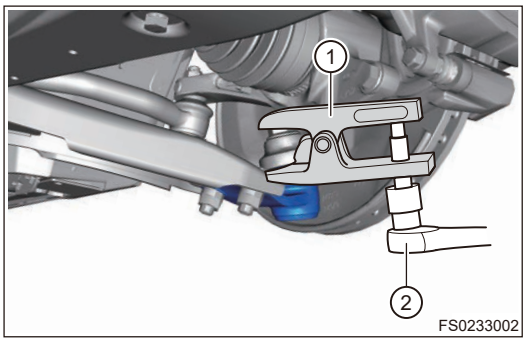
5. Remove 2 fixing nuts and 1 fixing bolt (1) between front left control arm and front left control arm ball pin.

   Torque: 150 ± 10 N·m



FS0232002

6. Use the ball remover (1), turn the wrench (2) to detach the front control arm ball pin and steering knuckle.



FS0233002

7. Remove the front left control arm ball pin assembly.

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. Adjust wheel alignment to standard range as necessary.

1. Installation is in the reverse order of removal.

Front Control Arm Assembly

Removal

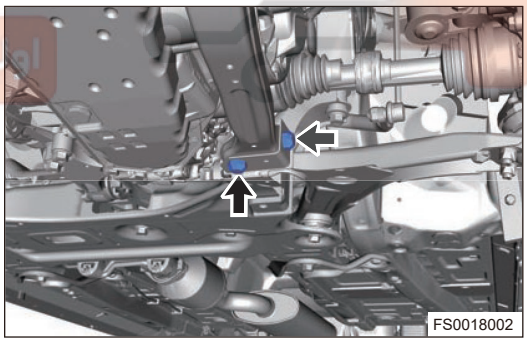
Hint:

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

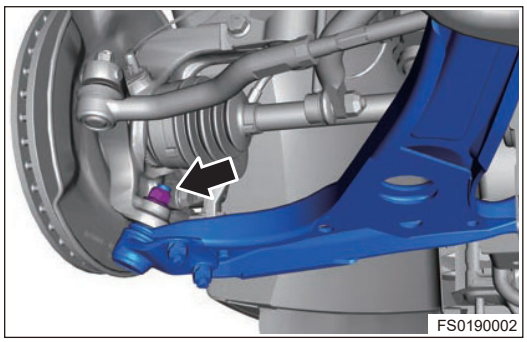
⚠ Warning

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

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left wheel.
4. Remove the engine compartment lower protector assembly.
5. Remove 2 coupling bolts (arrow) between front left side rail and front sub frame, and remove front left side rail.

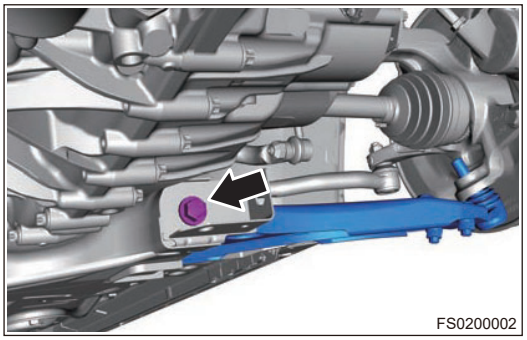

FS0018002

6. Remove nut between front left control arm ball pin and front left steering knuckle.

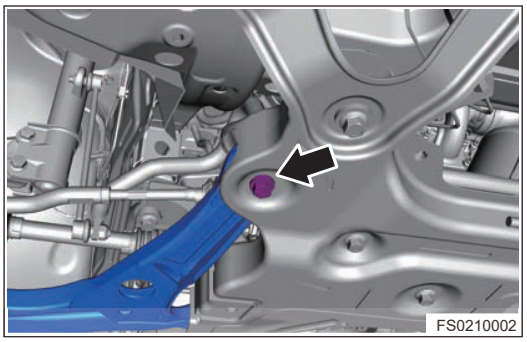

FS0190002

Hint:
If it is difficult to remove control arm ball pin end from steering knuckle, detach ball pin in combination with a ball pin remover.

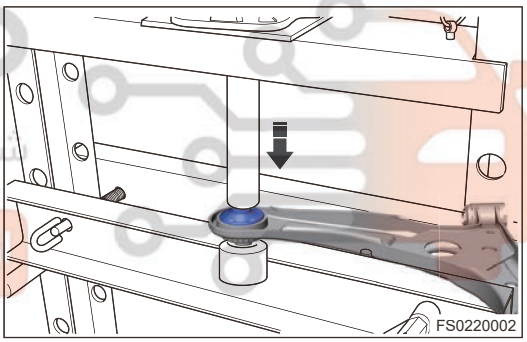
7. Remove coupling bolt between front part of front left control arm assembly and front sub frame welding assembly.



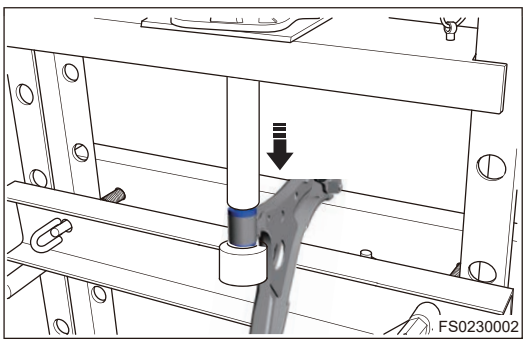
8. Remove coupling bolt between rear part of front left control arm assembly and front sub frame welding assembly.



9. Remove the front left control arm assembly.
10. Remove the front control arm front rubber bushing assembly.
    a. 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.



11. Remove the front control arm rear rubber bushing assembly.
    a. 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.



Installation

⚠ Caution

- Be sure to tighten coupling bolts and nuts to specified torques.
- Make sure that ball pin assembly rotates smoothly without any sticking after installation.
- Check wheel alignment after installation. Adjust wheel alignment to standard range as necessary.

1. Place the front control arm assembly on a hydraulic press, install front control arm remover and adapter, 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 front left control arm to a proper position.
3. Install coupling bolt between rear part of front left control arm assembly and front sub frame welding assembly.

   Torque: 180 ± 18 N·m

4. Install coupling bolt between front part of front left control arm assembly and front sub frame welding assembly.

   Torque: 180 ± 18 N·m

5. Install nut between front left control arm ball pin and front left steering knuckle.

   Torque: 95 ± 10 N·m

6. Install the front left side rail.
7. Install 2 coupling bolts (arrow) between front left side rail and front sub frame.

   Torque: 120 ± 12 N·m

8. Install coupling bolt (arrow) between front left side rail and tank lower crossmember.

   Torque: 180 ± 18 N·m

9. Install the engine lower protector assembly.
10. Install the front left wheel.
11. Connect the negative battery cable.

Front Connecting Rod Assembly

Removal

Hint:

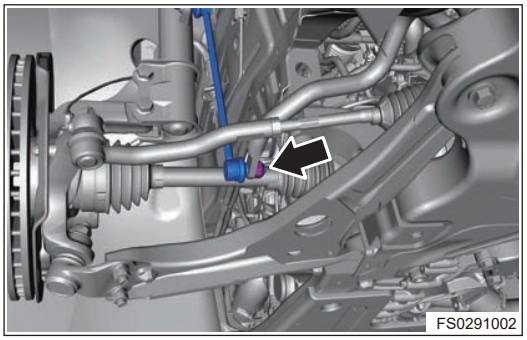
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

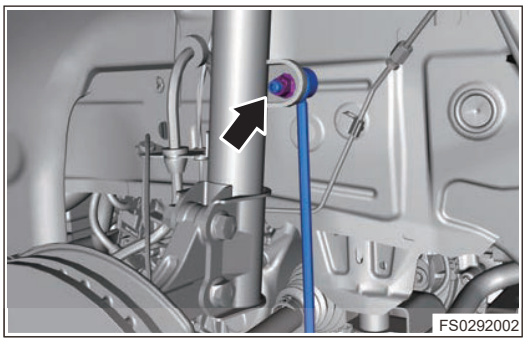
- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lift is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension loading parts and guide parts.
- When removing chassis parts, be sure to replace self-locking nuts and rusted nuts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

1. Turn off all electrical equipment and 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: 60 ± 6 N·m

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

   Torque: 60 ± 6 N·m

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

Front Steering Knuckle

Removal

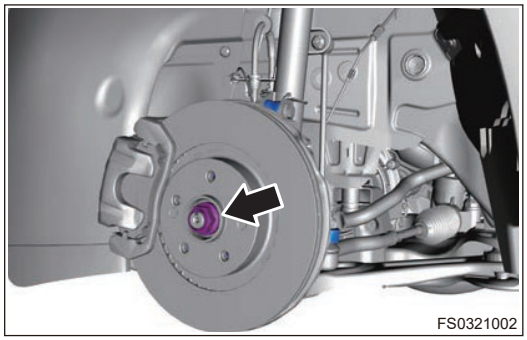
Hint:

- 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 lift is locked when repairing chassis parts.
- It is not allowed to weld or modify bearing parts of wheel suspension and guide parts of wheel.
- When removing chassis parts, be sure to replace self-locking nuts and rusted nuts for safety.

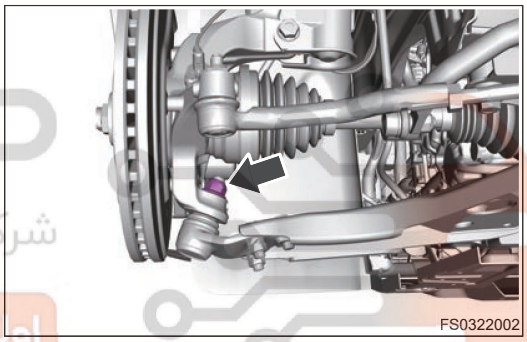
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left wheel.
4. Remove fixing nut from front left drive shaft.


FS0321002

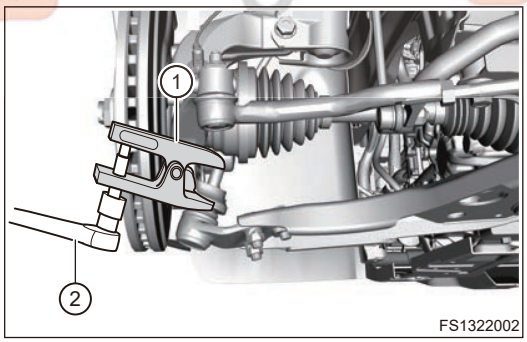
⚠ Caution

- It is necessary to 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 nut between front left control arm assembly ball pin and front left steering knuckle assembly.

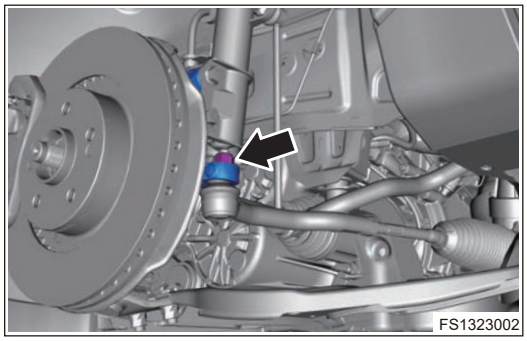

FS0322002

7. Install ball pin separator (1), and tighten ball pin separator bolt with a wrench (2) to separate lower control arm ball pin from steering knuckle assembly.

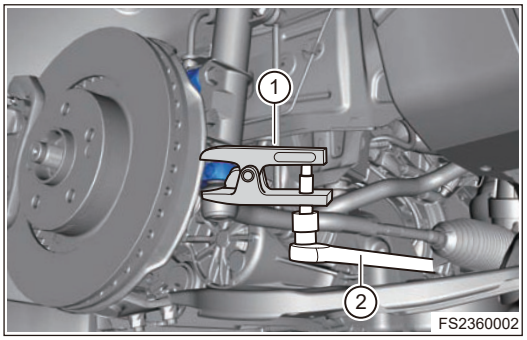


FS1322002

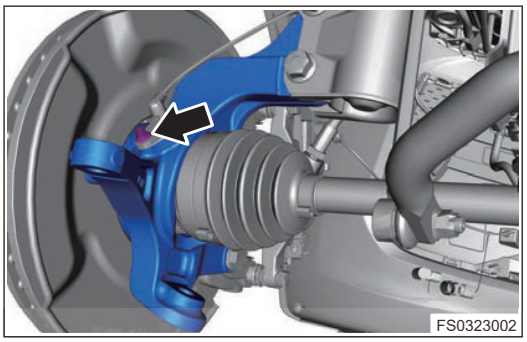
8. Remove fixing nut between left steering tie rod outer ball pin assembly and front left steering knuckle assembly.


FS1323002

9. 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.



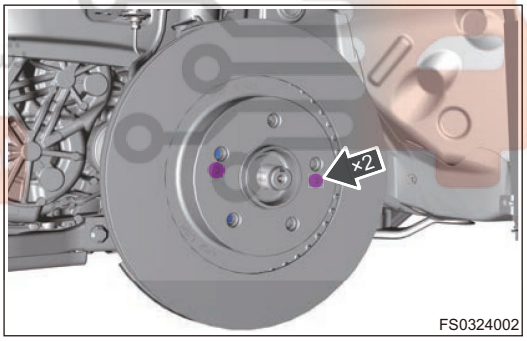
10. Remove fixing bolt between front left wheel speed sensor and front left steering knuckle assembly, and disengage the front left wheel speed sensor carefully.



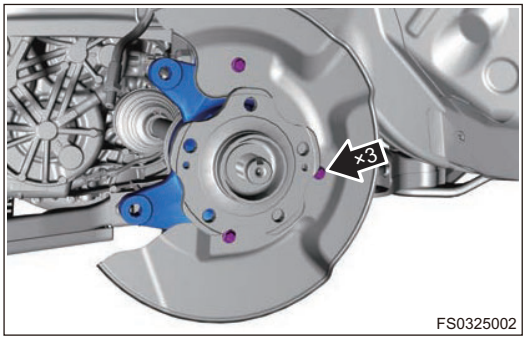
⚠ Caution

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

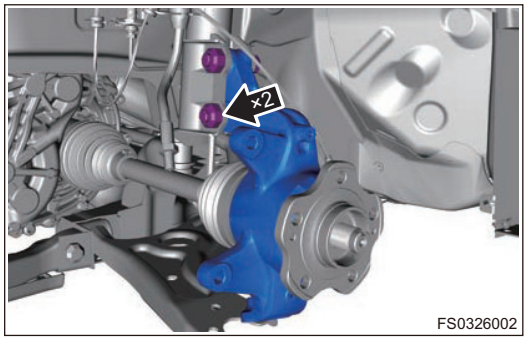
11. Remove 2 fixing bolts and front left brake disc.



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



13. Remove 2 coupling bolts and nuts between front left shock absorber assembly and front left steering knuckle assembly.



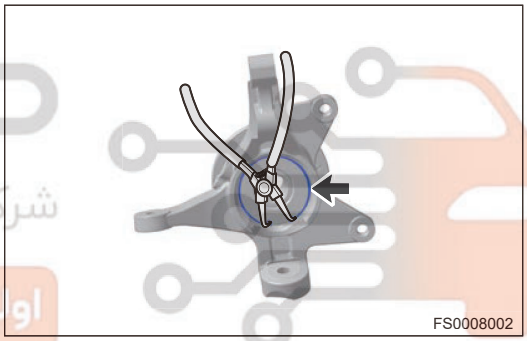
14. Disengage the left drive shaft and remove the front left steering knuckle assembly.

Disassembly

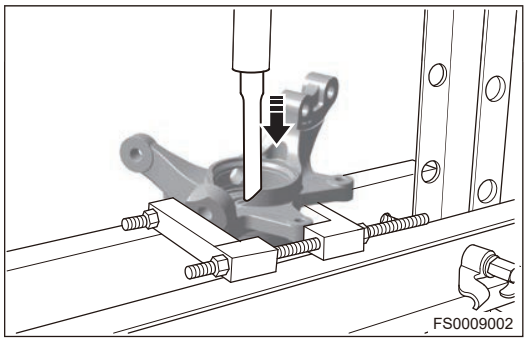
⚠ Warning

- 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.

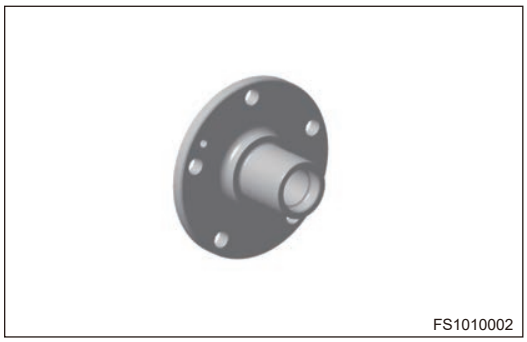
1. Remove the front hub bearing retainer.



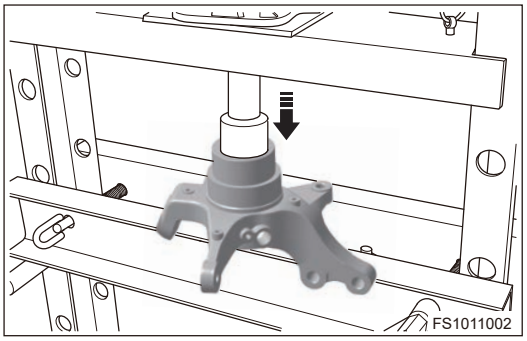
2. Place front steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and press out front hub with hydraulic press.



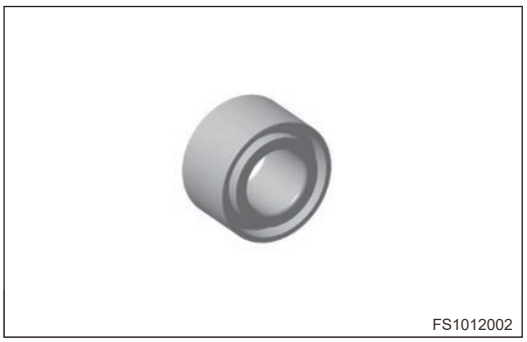
3. Remove the front hub carefully.



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

After installing front steering knuckle assembly, front hub and front hub bearing, check front steering knuckle and dust guard.

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.

Reassembly

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 without any sticking after installation. • Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.

1. Align drive shaft accurately into front hub bearing of steering knuckle.
2. Install 2 coupling bolts and nuts between front left shock absorber assembly and front left steering knuckle assembly.

   Torque: 240 ± 24 N·m

3. Install 3 fixing bolts between front left dust guard and front left steering knuckle assembly.
   Torque: 8 - 13 N·m

4. Install 2 fixing bolts on the front left brake disc.
   Torque: 7 - 9 N·m

Hint:
Apply anaerobic seal gum to threads when installing fixing bolt of front brake disc.

5. Install fixing bolt between front left wheel speed sensor and front left steering knuckle assembly.
   Torque: 9 ± 1.5 N·m

6. Install fixing nut between front left control arm assembly ball pin and front left steering knuckle assembly.
   Torque: 95 ± 10 N·m

7. Install fixing nut between left steering tie rod outer ball pin assembly and front left steering knuckle assembly.
   Torque: 45 ± 5 N·m

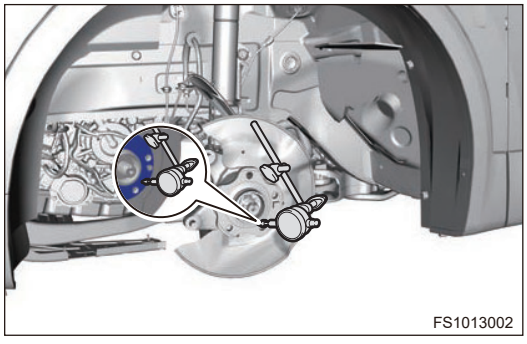
8. Install the front left brake caliper assembly.
9. Install fixing nut to front left drive shaft.
   Torque: 270 ± 20 N·m
10. Install the front left wheel.
11. Connect the negative battery cable.

Front Hub Bearing

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

On-vehicle Inspection

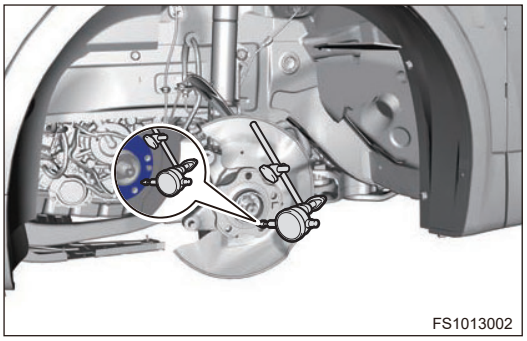
1. Remove the front left wheel.
2. Remove the front left brake caliper assembly.
3. Remove the front left brake disc.
4. Check looseness near center of the front hub assembly with a dial indicator.


FS1013002

⚠ Caution

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

5. Check runout of the front hub assembly surface with a dial indicator.


FS1013002

⚠ Caution

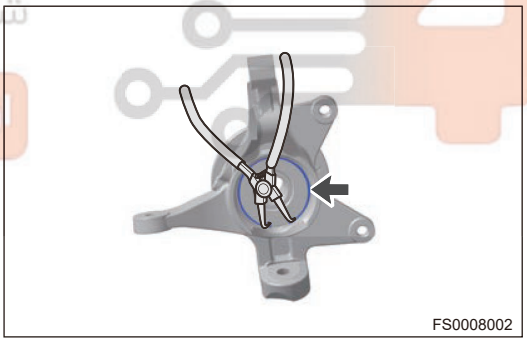
- Ensure that dial indicator is perpendicular to measurement surface.
- If runout exceeds maximum value, replace front hub bearing.

Removal

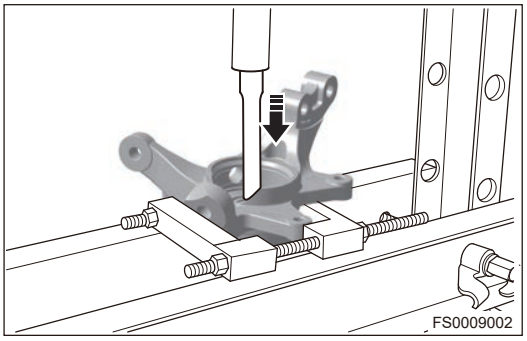
⚠ Caution

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

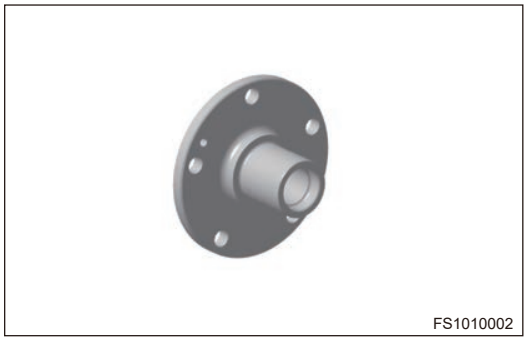
1. Remove the front left steering knuckle assembly.
2. Remove the front hub bearing retainer.


FS0008002

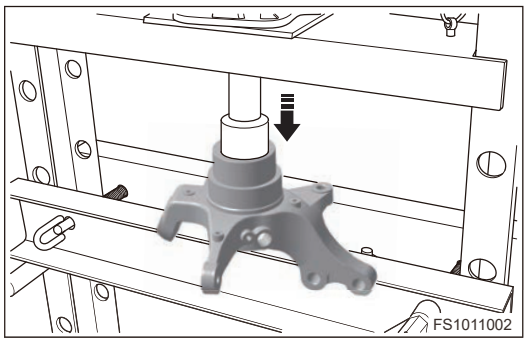
3. Place front steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and press out front hub with hydraulic press.


FS0009002

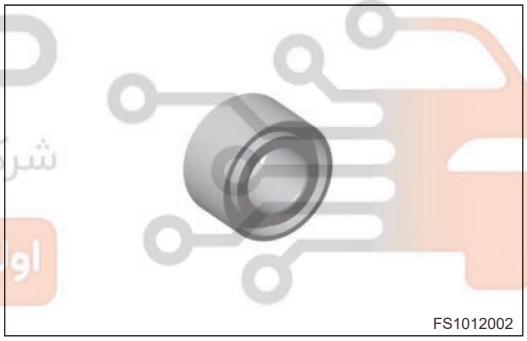
4. Remove the front hub carefully.


FS1010002

5. Place steering knuckle assembly on a hydraulic press, install bearing remover and adapter, and press out front hub bearing with hydraulic press.


FS1011002

6. Remove the front hub bearing carefully.


FS1012002

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Please note that opening of retainer must face opening of front wheel speed sensor, when installing front hub bearing retainer.
- Be sure to tighten coupling bolts and nuts to specified torques.
- Check that hub assembly rotates smoothly without any sticking after installation.
- Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.

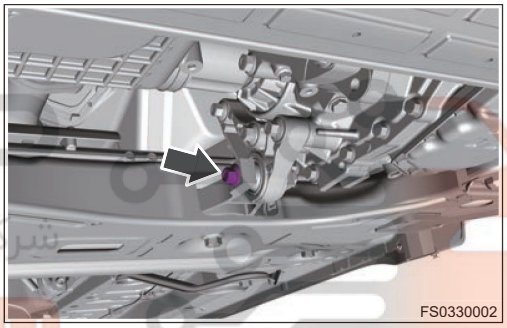
Front Sub Frame Welding Assembly

Removal

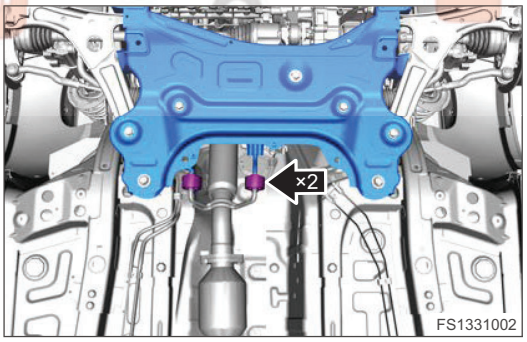
Warning

- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lift is locked when repairing chassis parts.
- It is not allowed to weld or modify bearing parts of wheel suspension and guide parts of wheel.
- When removing chassis parts, be sure to replace self-locking nuts and rusted nuts for safety.
- When removing front sub frame welding assembly, an engine equalizer needs to be used to support engine and transmission assembly securely to prevent them from being damaged.

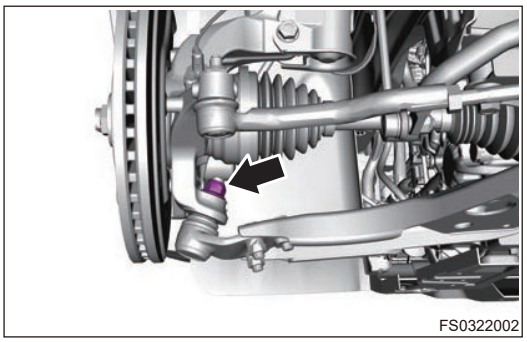
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front wheel.
4. Remove the engine compartment lower protector assembly.
5. Remove left and right side rail assemblies.
6. Using an engine equalizer, support engine and transmission assembly securely.
7. Remove 1 fixing bolt between rear mounting upper body and lower body.



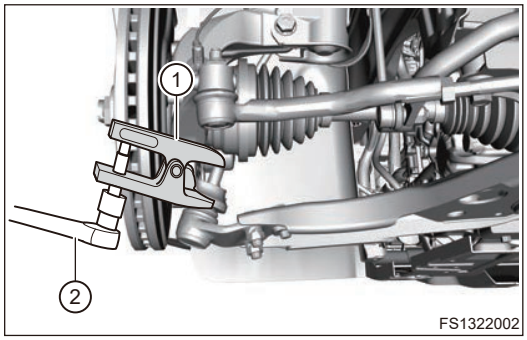
8. Detach 2 exhaust pipe fixing rubber lugs from front sub frame welding assembly.



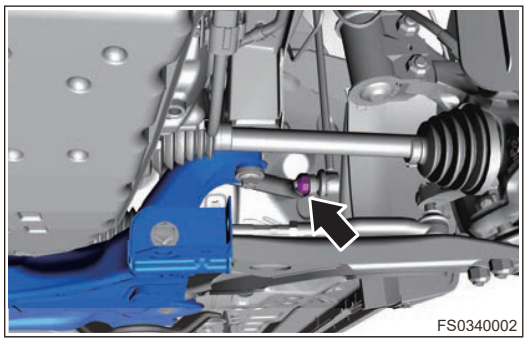
9. Remove nut between front left control arm assembly ball pin and front left steering knuckle assembly.



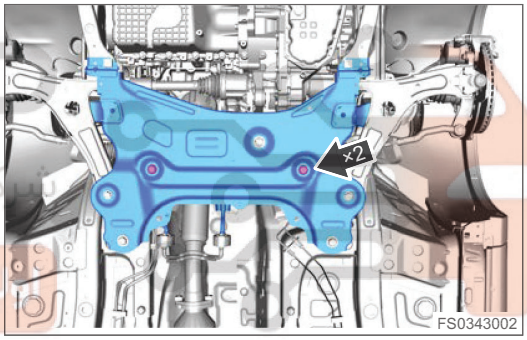
10. Install ball pin separator (1), and tighten ball pin separator bolt with a wrench (2) to separate lower control arm ball pin from steering knuckle assembly (use same removal procedures for right side).



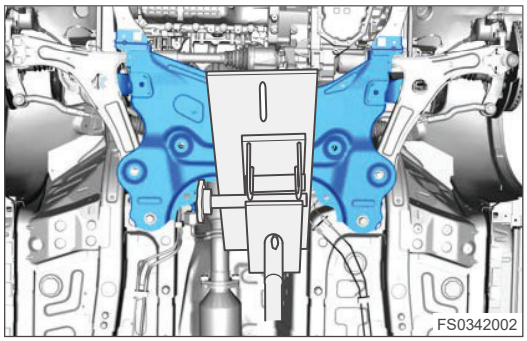
11. Remove coupling nut between front left connecting rod and front stabilizer bar. Separate front left connecting rod and front stabilizer bar (use same removal procedures for right side).



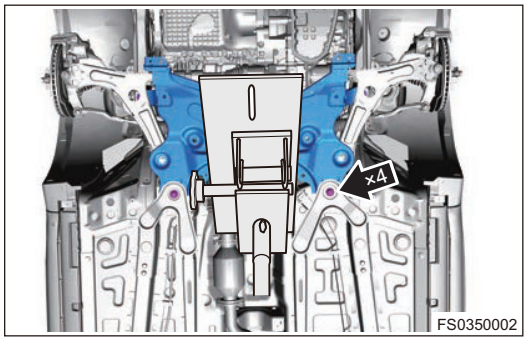
12. Remove 2 fixing bolts (arrow) between steering gear and front sub frame.



13. Using a transmission carrier, support the sub frame welding assembly.



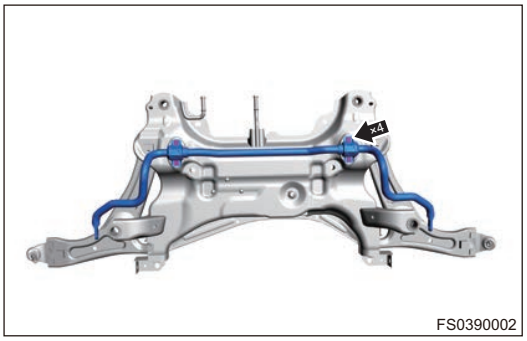
14. Remove 4 fixing bolts between front sub frame and vehicle body.



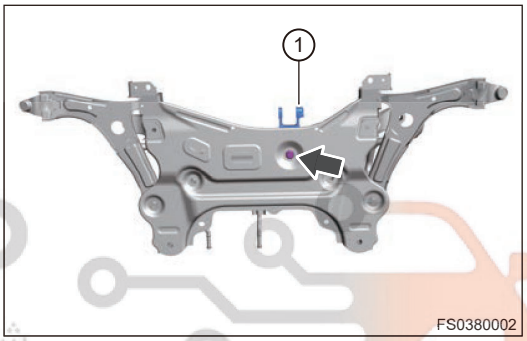
15. Slowly lower the sub frame welding assembly with stabilizer bar.

Disassembly

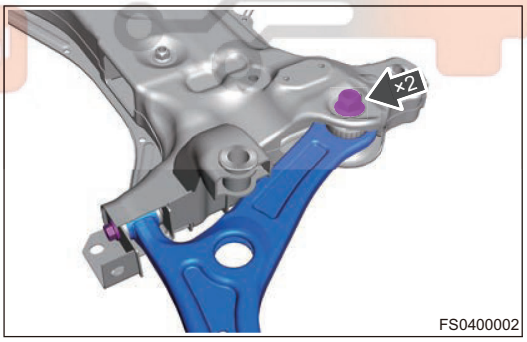
1. Remove the front stabilizer bar assembly.
   a. Remove 4 fixing bolts from front stabilizer bar assembly.



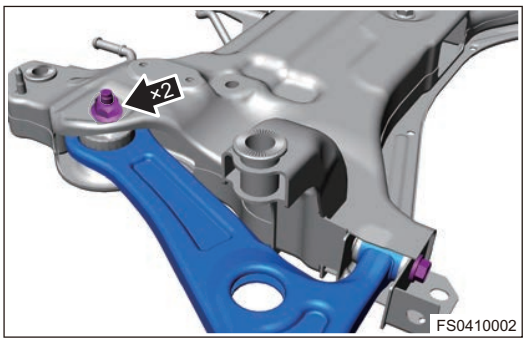
   b. Remove the front stabilizer bar assembly.
2. Remove the rear mounting lower body.
   a. Remove 1 fixing bolt and rear mounting lower body.



3. Remove the front left control arm assembly.
   a. Remove 2 fixing bolts between front left control arm assembly and sub frame, and remove front left control arm assembly.



4. Remove the front right control arm assembly.
   a. Remove 2 fixing bolts between front right control arm assembly and sub frame, and remove front right control arm assembly.



Assembly

1. Install 2 fixing bolts between front right control arm assembly and sub frame.
   Torque: 180 ± 18 N·m
2. Install 2 fixing bolts between front left control arm assembly and sub frame.
   Torque: 180 ± 18 N·m
3. Install 4 fixing bolts to stabilizer bar assembly.
   Torque: 25 ± 3 N·m

Installation

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

1. Using a transmission carrier, support the sub frame welding assembly to a proper position.
2. Install 4 fixing bolts between front sub frame assembly and vehicle body.
   Torque: 180 ± 18 N·m
3. Install 2 fixing bolts between steering gear assembly and front sub frame assembly.
   Torque: 110 ± 8 N·m + 240 ± 5°
4. Install the nut between front left control arm assembly ball pin and front left steering knuckle assembly (use same procedures for right side).
   Torque: 95 ± 10 N·m
5. Install coupling nut between front connecting rods (left and right) and front stabilizer bar.
6. Install the rear mounting upper body.
7. Install left and right side rail assemblies.
8. Install the engine compartment lower protector assembly.
9. Install the front wheel.
10. Connect the negative battery cable.

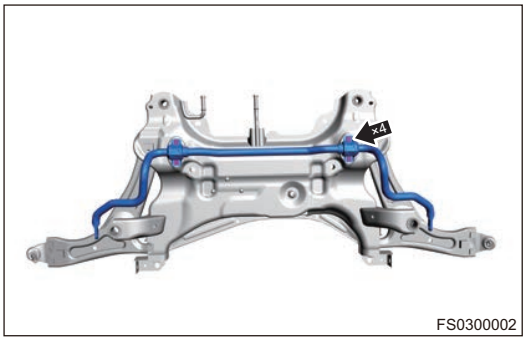
Front Stabilizer Bar Assembly

Removal

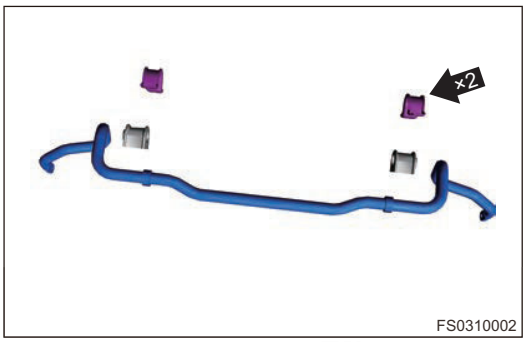
> ⚠ **Warning**
>
> - Be sure to wear necessary safety equipment to prevent accidents.
> - Check if safety lock of lift is locked when repairing chassis parts.
> - It is not allowed to weld or modify suspension loading parts and guide parts.
> - When removing chassis parts, be sure to replace self-locking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

1. Turn off all electrical equipment and 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 compartment lower protector assembly.

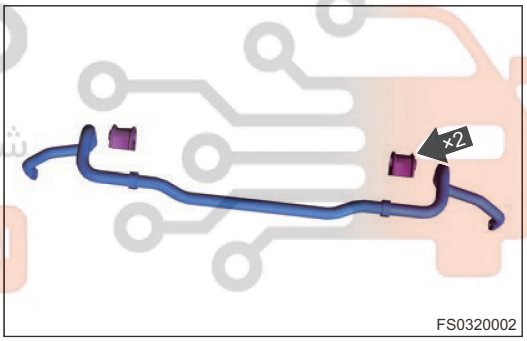
7. Remove the front sub frame welding assembly.
8. Remove 4 fixing bolts between front stabilizer bar and sub frame.



9. Detach left and right fixing clamps from front stabilizer bar assembly.



10. Detach left and right rubber supports from front stabilizer bar assembly.



Inspection

1. Check front stabilizer bar assembly fixing clamps for wear, cracks, deformation or damage. Replace it as necessary.
2. Check front 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 standard range as necessary.

1. Install left and right rubber supports to front stabilizer bar assembly.
2. Install two 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: 25 ± 3 N·m

4. Install the front sub frame welding assembly.

5. Install the engine compartment lower protector assembly.
6. Install the front wheel.
7. Install the front bumper assembly.
8. Connect the negative battery cable.

REAR SUSPENSION（Non-independent suspension）

Warnings and Precautions

Warning

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair:

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

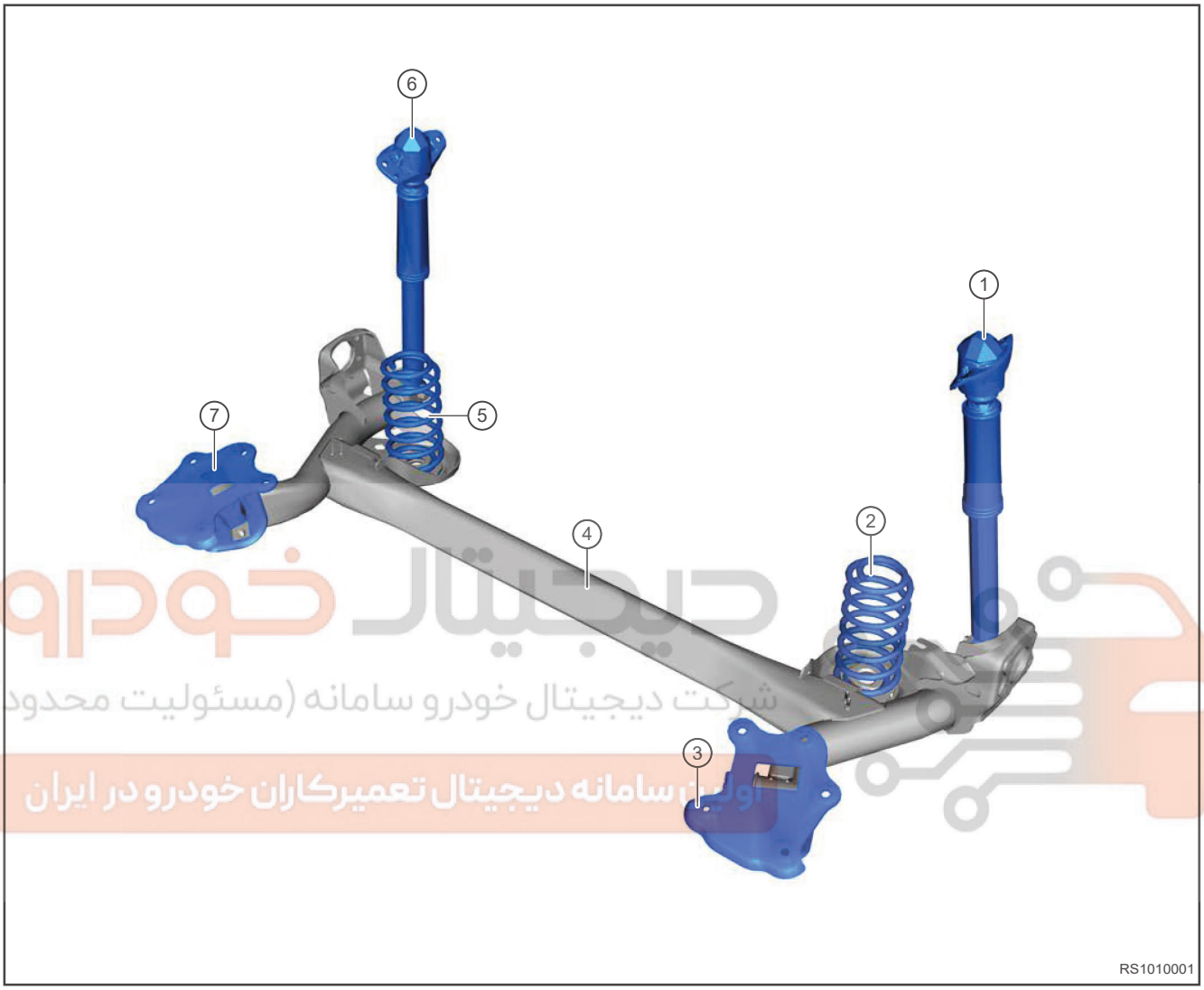
Precautions

In order to avoid dangerous operation and damage to the vehicle, always follow the instructions below before repair:

1. Be sure to tighten coupling bolts and nuts to specified torques.
2. Align the protrusion of rear coil spring lower cushion with the positioning hole of rear lower control arm during installation.
3. Before assembling control arm assembly, apply grease on the outside of control arm assembly rubber bushing to prevent control arm assembly rubber bushing from being damaged.
4. Due to rubber bushing deformation, tightened bolt will exit false torque, so it is necessary to retighten the tightened bolt.
5. After installation, lower vehicle and bounce vehicle up and down several times to stabilize rear suspension.
6. Check wheel alignment after installation. Adjust wheel alignment to standard range as necessary.
7. When removing and installing steering system, suspension system, brake, tire, etc., it is necessary to turn off power supply of EPS (vehicle power supply is turned off), so as to avoid reverse impact, resulting in EPS internal protection circuit breakdown.

System Overview

System Component Diagram



1	Rear Left Shock Absorber Assembly	5	Rear Right Coil Spring Assembly
2	Rear Left Coil Spring Assembly	6	Rear Right Shock Absorber Assembly
3	Rear Left Shaft Bracket Assembly	7	Rear Right Shaft Bracket Assembly
4	Rear Shaft Assembly		

Axles are connected to the integral body through suspensions, and wheels are installed at both ends. Its function is to transmit force in all directions between integral body and wheels.

On-vehicle Service

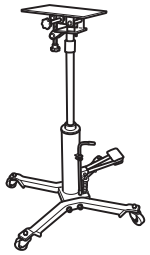
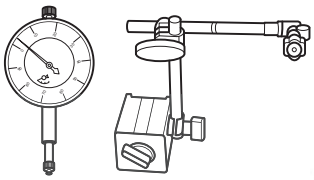
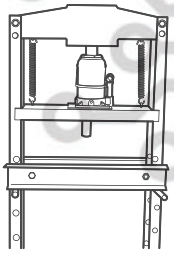
Problem Symptoms Table

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.

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)
	Steering gear (misaligned or damaged)
	Suspension component (worn)
Rear 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)
Droop	Vehicle (overloaded)
	Rear coil spring (too soft)
	Rear shock absorber assembly (worn or damaged)
	Rear suspension components (excessively worn or deformed)
	Rear wheel alignment (incorrect)
	Rear tire (improperly inflated)
Sways/pitches	Rear tire (worn or improperly inflated)
	Rear shock absorber assembly (worn or deformed)

Tools

General Tools

Tool Name	Tool Drawing
Transmission Carrier	 S00004
Dial Indicator and Magnetic Holder	 S00018
Hydraulic Press	 S00010

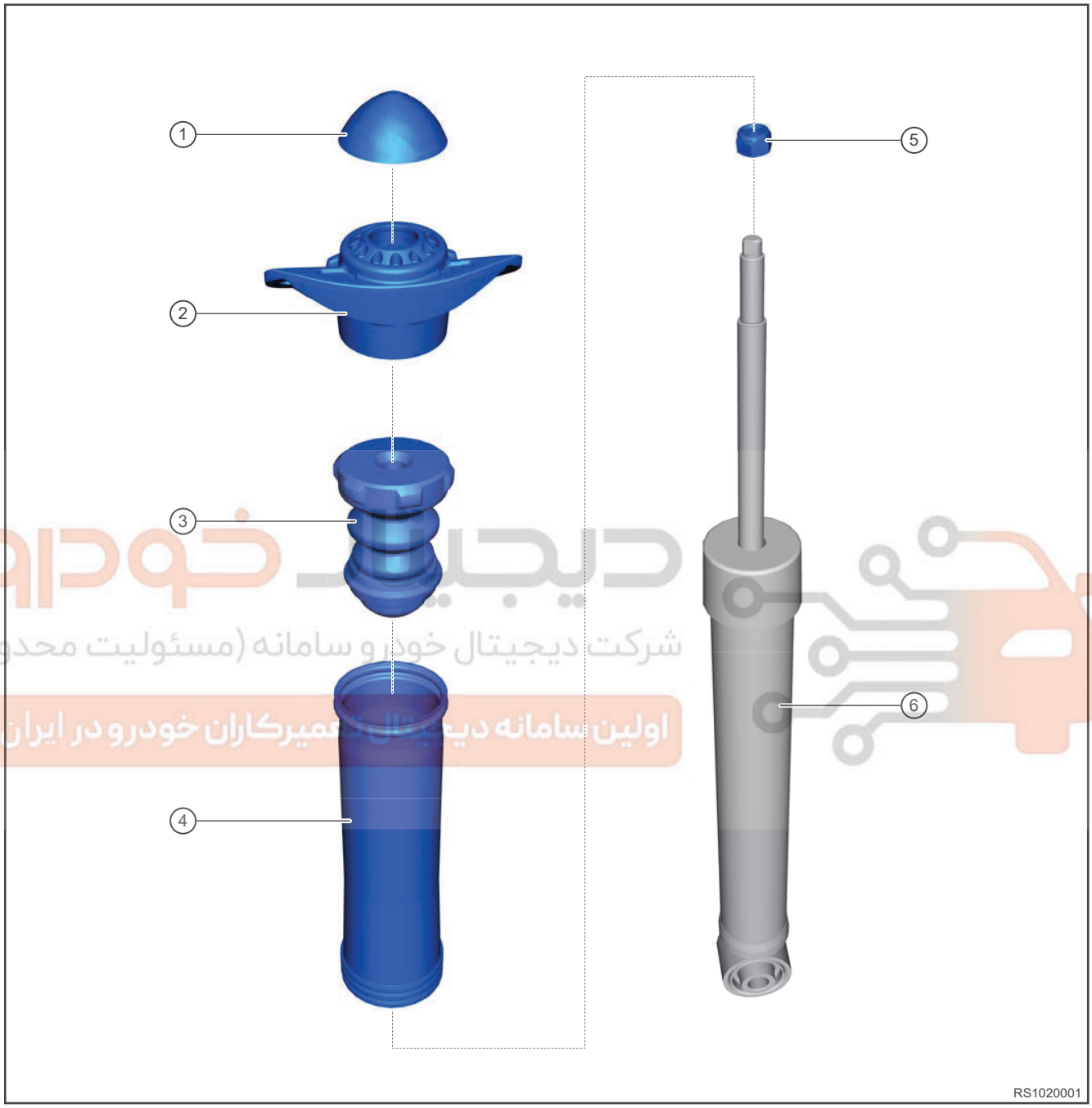
Torque

Torque Specifications

Item	Tightening Torque (N · m)
Coupling Bolt Between Rear Shaft Bushing and Mounting Bracket	180 ± 18
Coupling Bolt Between Rear Shaft Bracket and Body	60 ± 6
Coupling Bolt Between Rear Shock Absorber and Rear Shaft Assembly	160 ± 16
Coupling Nut Between Rear Shock Absorber and Rear Shaft Assembly	160 ± 16
Coupling Bolt Between Rear Shock Absorber and Body	60 ± 6

Rear Shock Absorber Assembly

Description



1	Rear Shock Absorber Cover Cap	4	Rear Dust Boot
2	Rear Shock Absorber Upper Connecting Plate Assembly (w/ Insulator)	5	Shock Absorber Locking Nut
3	Rear Buffer Block	6	Rear Shock Absorber Assembly

On-vehicle Inspection

1. Check the rear shock absorber assembly.
   a. 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 rear shock absorber assembly for leakage
   a. As shock absorber assembly operates frequently while driving vehicle, shock absorber fluid temperature rises and oil gas is formed and adheres to dust boot. This is a normal phenomenon, and it is not necessary to replace the shock absorber assembly.
   b. If following conditions occur:
      - Oil traces in circumferential direction are uneven;
      - Oil traces reach lower connecting positions.

      Above conditions indicate that there may be leakage in shock absorber assembly, and it is necessary to replace the shock absorber assembly.
   c. If it is difficult to accurately judge shock absorber assembly for 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 at the shock absorber assembly surface, it indicates that oil leakage exists, and it is necessary to replace the shock absorber assembly.

Removal

Hint:

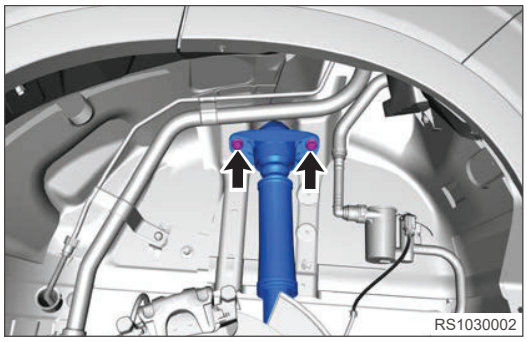
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

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

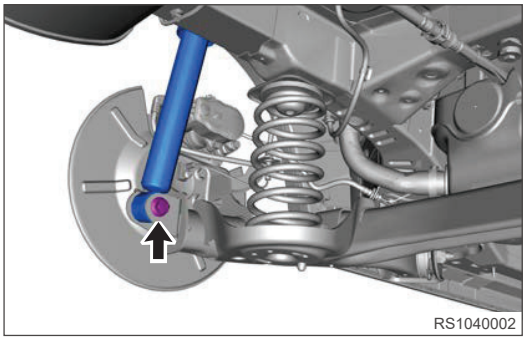
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left wheel.
4. Remove the rear left wheel house protector.
5. Remove 2 coupling bolts between upper part of rear left shock absorber assembly and body.

   Torque: 60 ± 6 N·m



6. Remove coupling bolt between lower part of rear left shock absorber assembly and rear shaft assembly.

   Torque: 160 ± 16 N·m


RS1040002

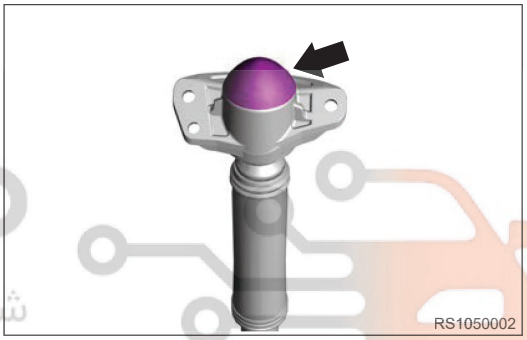
7. Remove the rear left shock absorber assembly.

Disassembly

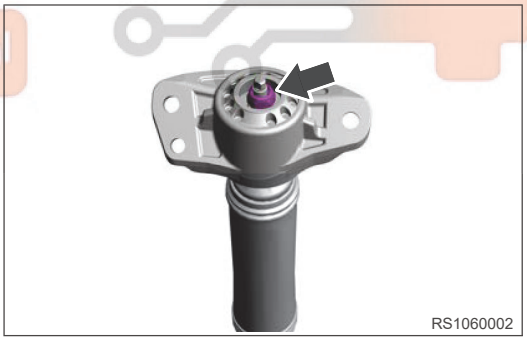
Hint:

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

1. Remove the rear left shock absorber cover cap.


RS1050002

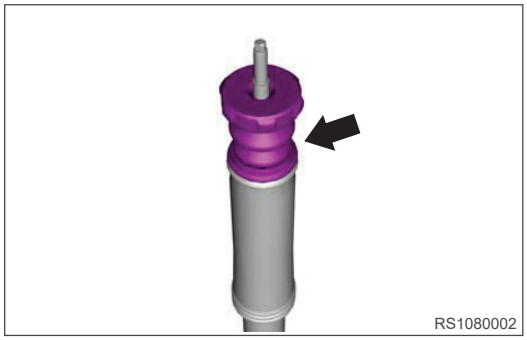
2. Remove fixing nut from rear left shock absorber assembly.


RS1060002

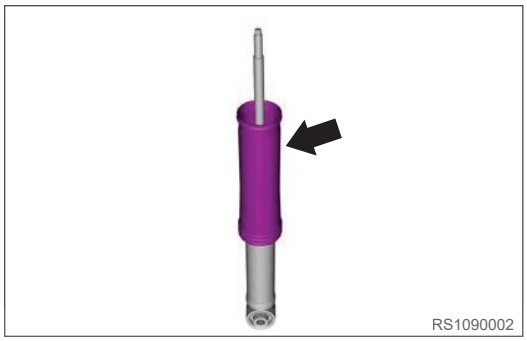
3. Remove the rear left shock absorber upper connecting plate assembly (w/ insulator).


RS1070002

4. Remove the rear buffer block.

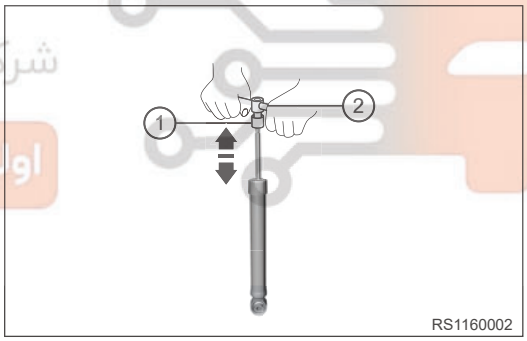


5. Remove the rear dust boot.



Inspection

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



   b. 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 the rear shock absorber assembly with a new one.
2. Check the other components of rear shock absorber assembly.
   a. Check rear dust boot, rear buffer block and rear shock absorber cover cap for cracks, wear or deformation. Replace it as necessary.
   b. Check rear coil spring for wear, cracks or deformation. Replace it as necessary.

Reassembly

1. Install the rear dust cover.
2. Install the rear buffer block.
3. Install the rear left shock absorber upper connecting plate assembly (w/ insulator).
4. Install fixing nut to rear left shock absorber assembly.
   Torque: 33 ± 3 N·m
5. Install the rear left shock absorber cover cap.

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.
- When rear shock absorber device is connected with rear left steering knuckle, ensure that angle is 5.7° ± 1°, and bar code is outward near the brake side.

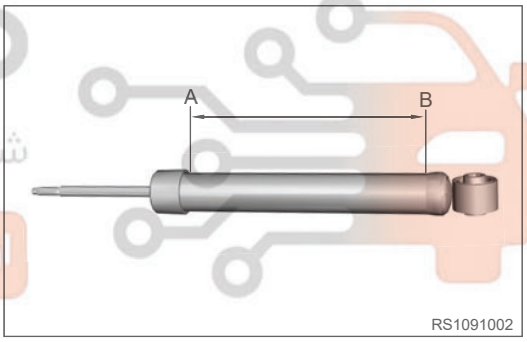
1. Installation is in the reverse order of removal.

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 mental 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.

Rear Coil Spring

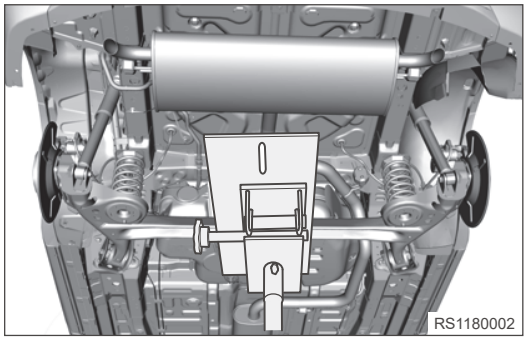
Removal

⚠ Warning

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

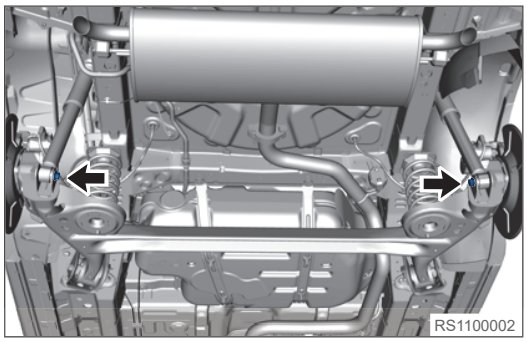
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear wheel.

4. Support the rear shaft assembly with a transmission carrier securely.

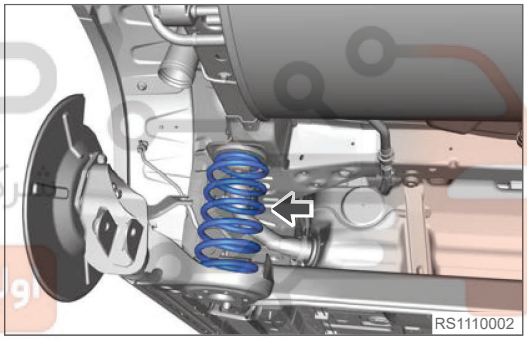


5. Remove coupling bolts and nuts between rear shock absorber assembly and rear shaft assembly.

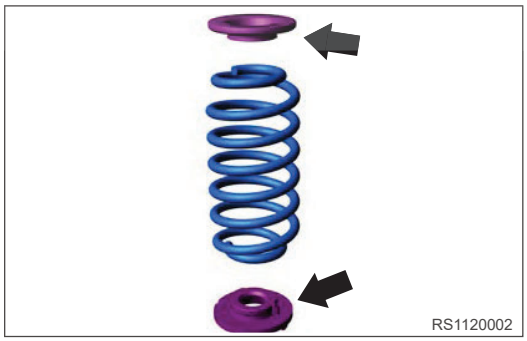
   Torque: 160 ± 16 N·m



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. Adjust wheel alignment to standard range as necessary.

1. Installation is in the reverse order of removal.

Rear Shaft Bracket

Removal

Hint:

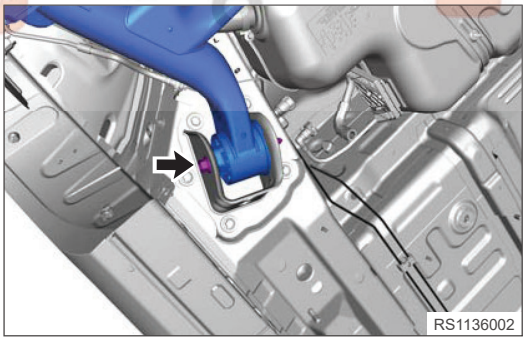
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

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

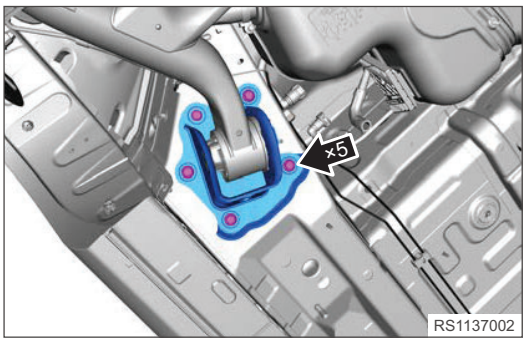
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Support the rear shaft assembly with a transmission carrier securely.
4. Remove mandrel bolt (arrow) between left side of rear shaft assembly and rear shaft bracket.

   Tightening torque: 180 ± 18 N · m



5. Remove 5 fixing bolts (arrow) between rear left shaft bracket and body.

   Tightening torque: 60 ± 6 N · m



6. Remove the rear left shaft bracket.

Installation

⚠ Caution

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

1. Installation is in the reverse order of removal.

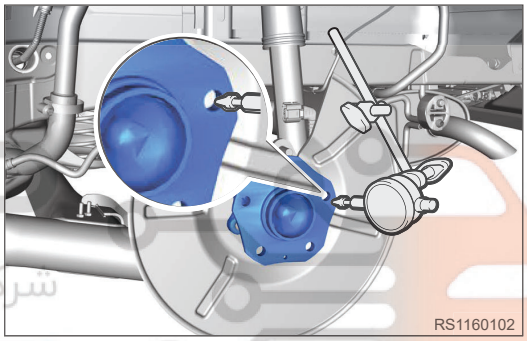
Rear Hub Bearing Assembly

On-vehicle Inspection

Hint:

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

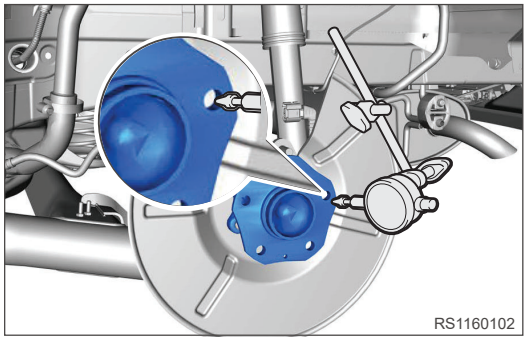
1. Remove the rear left wheel.
2. Remove the rear left brake caliper assembly.
3. Remove the rear left brake disc.
4. Check looseness of rear hub bearing.
   a. Check looseness near center of the rear hub bearing with a dial indicator.



⚠ 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.
   a. Check runout of the rear hub bearing assembly surface with a dial indicator.



⚠ Caution

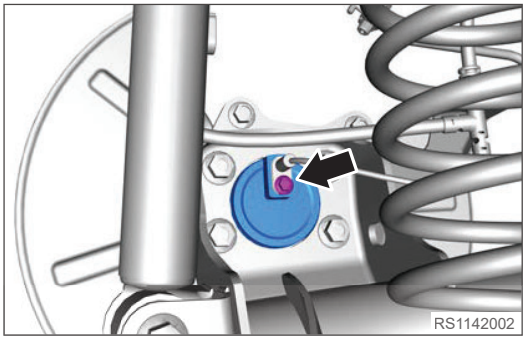
- Ensure that dial indicator is perpendicular to measurement surface.
- If runout exceeds maximum value, replace the rear hub bearing assembly.

Removal

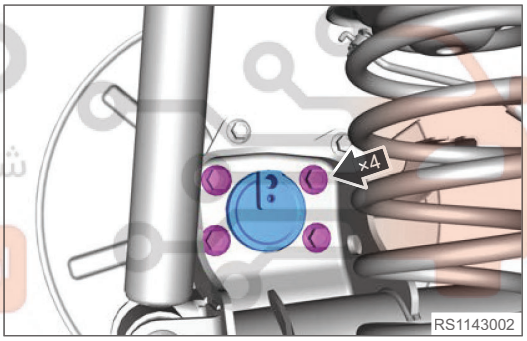
Hint:

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

1. Turn off all electrical equipment and 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 fixing bolt between rear left wheel speed sensor and rear hub bearing unit, and remove rear left wheel speed sensor carefully.



7. Remove 4 fixing bolts between rear hub bearing and rear left steering knuckle.



8. Remove the rear hub bearing.

Installation

⚠ Caution
• Be sure to tighten bolt to specified torque. • Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.

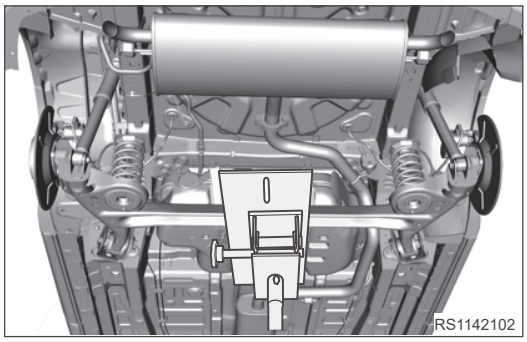
1. Installation is in the reverse order of removal.

Rear Shaft Assembly

Removal

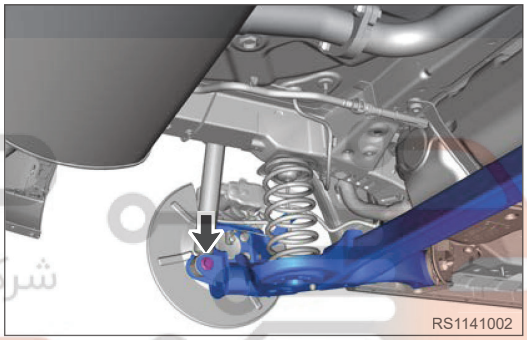
⚠ Warning
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lift is locked when repairing chassis parts. • It is not allowed to weld or modify bearing parts of wheel suspension and guide parts of wheel. • When removing chassis parts, be sure to replace self-locking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

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove rear left and rear right wheels.
4. Remove left and right wheel speed sensors.
5. Remove rear left and rear right brake caliper assemblies.
6. Remove rear left and rear right brake discs.
7. Remove rear left and rear right hub shaft assemblies.
8. Install transmission carrier to support rear shaft assembly.



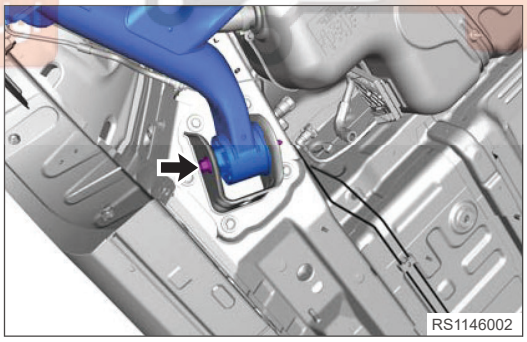
9. Remove coupling bolt and nut (arrow) between rear left shock absorber assembly and rear shaft assembly. Use same removal procedure for right side.

   Tightening torque: 160 ± 16 N·m



10. Remove the mandrel bolt (arrow) between left side of rear shaft assembly and rear shaft bracket. Use same removal procedure for right side.

    Tightening torque: 180 ± 18 N·m



11. Slowly lower the transmission carrier, and remove the rear shaft 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. Installation is in the reverse order of removal.

REAR SUSPENSION（independent suspension）

Warnings and Precautions

Warning

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair:

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

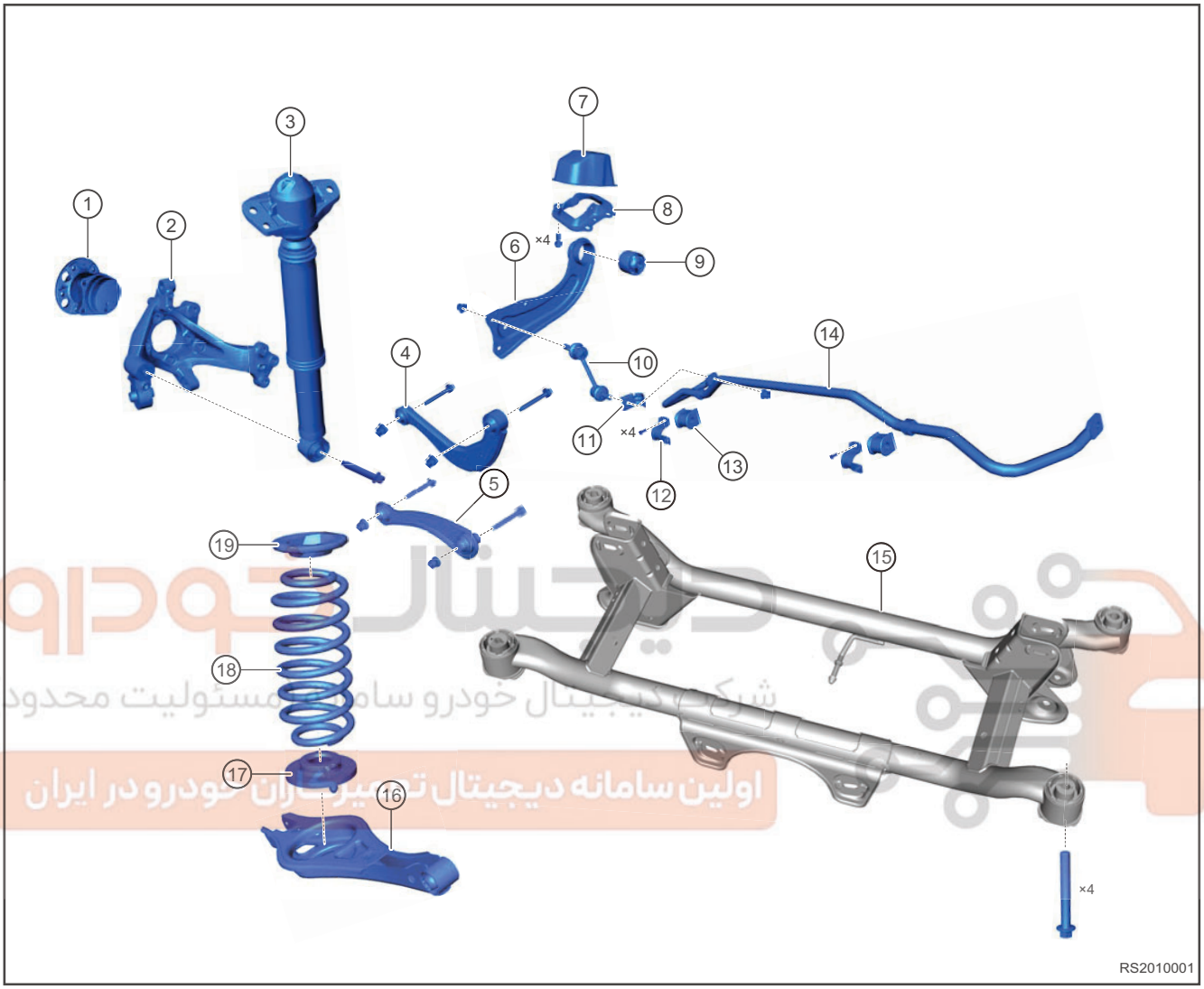
Precautions

In order to avoid dangerous operation and damage to the vehicle, always follow the instructions below before repair:

1. Be sure to tighten coupling bolts and nuts to specified torques.
2. Align the protrusion of rear coil spring lower cushion with the positioning hole of rear lower control arm during installation.
3. Before assembling control arm assembly, apply grease on the outside of control arm assembly rubber bushing to prevent control arm assembly rubber bushing from being damaged.
4. Due to rubber bushing deformation, tightened bolt will exit false torque, so it is necessary to retighten the tightened bolt.
5. After installation, lower vehicle and bounce vehicle up and down several times to stabilize rear suspension.
6. Check wheel alignment after installation. Adjust wheel alignment to standard range as necessary.
7. When removing and installing steering system, suspension system, brake, tire, etc., it is necessary to turn off power supply of EPS (vehicle power supply is turned off), so as to avoid reverse impact, resulting in EPS internal protection circuit breakdown.

System Overview

System Component Diagram



1	Rear Hub Bearing	11	Rear Connecting Rod Shield
2	Rear Left Steering Knuckle	12	Rear Stabilizer Bar Clamp
3	Rear Shock Absorber Assembly	13	Rear Stabilizer Bar Bushing
4	Rear Upper Control Arm Welding Assembly	14	Rear Stabilizer Bar
5	Left Pull Rod Body	15	Rear Sub Frame Welding Assembly
6	Rear Left Trailing Arm Welding Assembly	16	Rear Lower Control Arm Welding Assembly
7	Left Trailing Arm Mounting Bracket Dust Boot	17	Rear Coil Spring Lower Cushion
8	Trailing Arm Bracket Assembly	18	Rear Coil Spring Assembly

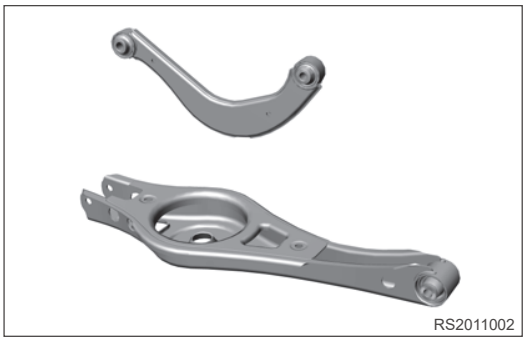
9	Trailing Arm Bushing Assembly	19	Rear Coil Spring Upper Cushion
10	Rear Connecting Rod Assembly		

Rear suspension of this model uses multi-link independent suspension (height is non-adjustable), which is equipped with lateral stabilizer, cylindrical coil spring and double action telescopic shock absorber.

Component Operation Description

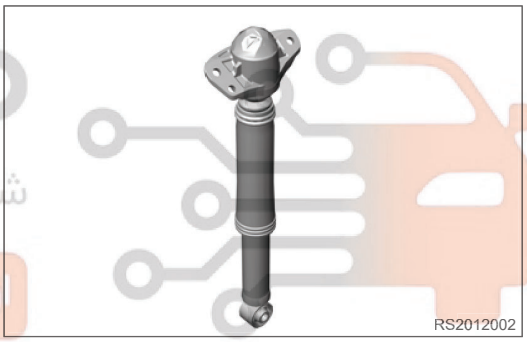
Rear Control Arm Welding Assembly

As a guide and power transmission element for suspension system of vehicle, control arm transmits various power acting on wheels to vehicle body and keeps wheels moving in a certain trail. Control arm elastically connects wheels and vehicle body together with ball joint or bushing.


RS2011002

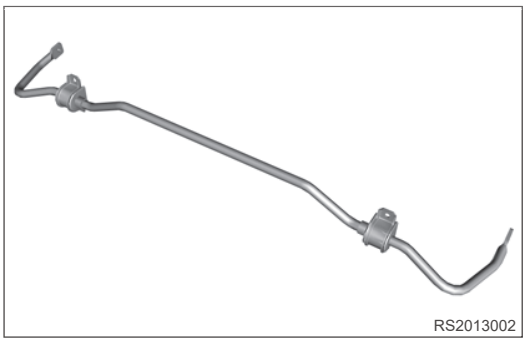
Rear Shock Absorber Assembly

It filters and eliminates vibration from roads to improve driving stability and bring people a sense of comfort and stability.

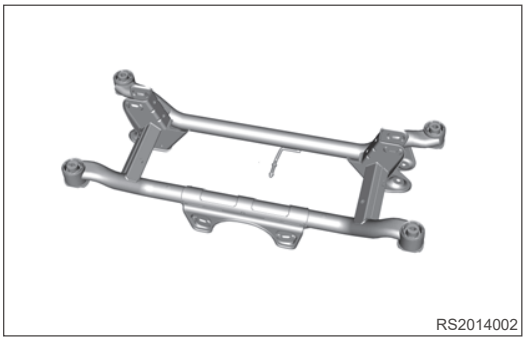

RS2012002

Rear Stabilizer Bar

Lateral stabilizer bar functions to prevent excessive lateral incline while vehicle is turning and keeps vehicle body in balance as much as possible. It aims to reduce lateral incline level of vehicle and improve smoothness. When vehicle is turning, vehicle body inclines and suspension on both sides have inconsistent bounce. The outer suspension will press against stabilizer bar to twist it, then elastic force from bar body will prevent wheel from lifting, so that vehicle body can be kept in balance as much as possible, thus realizing the lateral stability function.


RS2013002

Rear Sub Frame Assembly
Sub frame can reduce impact on vehicle body due to road shock and enhance connection rigid of suspension system and improve driving comfort and stability, making a strong and compact chassis during driving. It bears the deformation conditions such as loaded bend, longitudinal torsion, lateral bend and horizontal lozenging, etc. in place of vehicle body, which improves torsion resistance ability of vehicle body. Also, the force will be directly applied on it in a collision to improve vehicle safety performance.


RS2014002

On-vehicle Service

Problem Symptoms Table

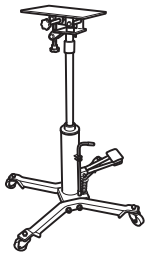
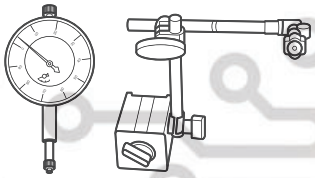
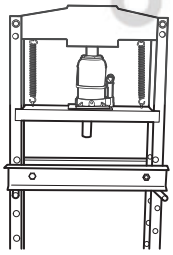
Hint:
Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair, replace or adjust faulty components as necessary.

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)
	Steering gear (misaligned or damaged)
	Suspension component (worn)
Rear 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)
Droop	Vehicle (overloaded)
	Rear coil spring (too soft)
	Rear shock absorber assembly (worn or damaged)
	Rear suspension components (excessively worn or deformed)
	Rear wheel alignment (incorrect)
	Rear tire (improperly inflated)
Sways/pitches	Rear tire (worn or improperly inflated)
	Rear stabilizer bar assembly (bent or broken)

Symptom	Suspected Area
	Rear shock absorber assembly (worn or deformed)

Tools

General Tools

Tool Name	Tool Drawing
Transmission Carrier	 S00014
Dial Indicator and Magnetic Holder	 S00028
Hydraulic Press	 S00020

Torque

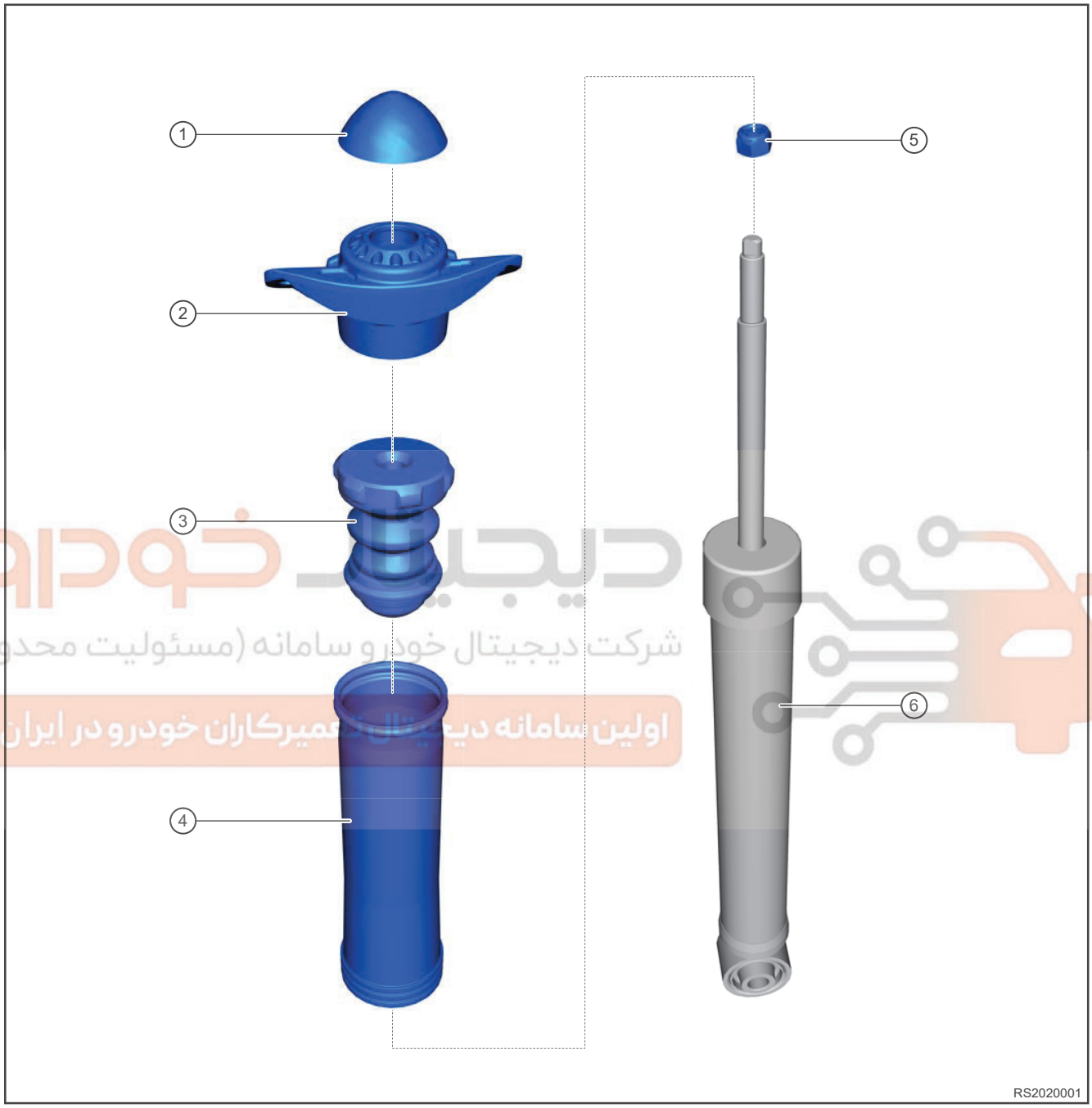
Torque Specifications

Item	Tightening Torque
Coupling Bolt Between Upper Part of Rear Shock Absorber Assembly and Body	60 ± 6 N·m
Coupling Bolt Between Lower Part of Rear Shock Absorber Assembly and Rear Steering Knuckle Assembly	160 ± 16 N·m
Rear Shock Absorber Assembly Fixing Nut	33 ± 3 N·m

Item	Tightening Torque
Coupling Bolt and Nut Between Rear Lower Control Arm Assembly and Rear Steering Knuckle Assembly	110 ± 11 N·m
Coupling Bolt and Nut Between Rear Upper Control Arm Assembly and Rear Steering Knuckle Assembly	160 ± 16 N·m
Coupling Bolt and Nut Between Rear Upper Control Arm Assembly and Rear Sub Frame Welding Assembly	115 ± 23 N·m
Coupling Bolt and Nut Between Rear Lower Control Arm Assembly and Rear Sub Frame Welding Assembly	110 ± 11 N·m
Coupling Bolt and Nut Between Rear Trailing Arm Assembly and Mounting Bracket	120 ± 12 N·m
Coupling Bolt Between Rear Trailing Arm Assembly Mounting Bracket and Body	60 ± 6 N·m
Coupling Bolt Between Rear Steering Knuckle Assembly and Rear Trailing Arm Assembly	110 ± 11 N·m
Coupling Nut Between Rear Connecting Rod Assembly and Rear Trailing Arm Assembly	60 ± 6 N·m
Coupling Bolt and Nut Between Rear Pull Rod Assembly and Rear Sub Frame Welding Assembly	110 ± 11 N·m
Coupling Bolt and Nut Between Rear Pull Rod Assembly and Rear Steering Knuckle Assembly	160 ± 16 N·m
Coupling Bolt Between Rear Stabilizer Bar Assembly and Rear Sub Frame Welding Assembly	25 ± 4 N·m
Coupling Nut Between Rear Connecting Rod Assembly and Rear Stabilizer Bar Assembly	60 ± 6 N·m
Fixing Bolt Between Rear Hub Bearing and Rear Left Steering Knuckle	80 - 91 N·m
Fixing Bolt Between Rear Wheel Speed Sensor and Rear Hub Bearing Unit	9 ± 1.5 N·m
Fixing Bolt Between Rear Dust Guard and Rear Left Steering Knuckle	8 ~ 13 N·m
Coupling Bolt Between Rear Sub Frame Assembly and Body	120 ± 12 N·m

Rear Shock Absorber Assembly

Description



1	Rear Shock Absorber Cover Cap	4	Rear Dust Boot
2	Rear Shock Absorber Upper Connecting Plate Assembly (w/ Insulator)	5	Shock Absorber Locking Nut
3	Rear Buffer Block	6	Rear Shock Absorber Assembly

On-vehicle Inspection

1. Check the rear shock absorber assembly.
   a. 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 rear shock absorber assembly for leakage
   a. As shock absorber assembly operates frequently while driving vehicle, shock absorber fluid temperature rises and oil gas is formed and adheres to dust boot. This is a normal phenomenon, and it is not necessary to replace the shock absorber assembly.
   b. If following conditions occur:
      - Oil traces in circumferential direction are uneven;
      - Oil traces reach lower connecting positions.

      Above conditions indicate that there may be leakage in shock absorber assembly, and it is necessary to replace the shock absorber assembly.
   c. If it is difficult to accurately judge shock absorber assembly for 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 at the shock absorber assembly surface, it indicates that oil leakage exists, and it is necessary to replace the shock absorber assembly.

Removal

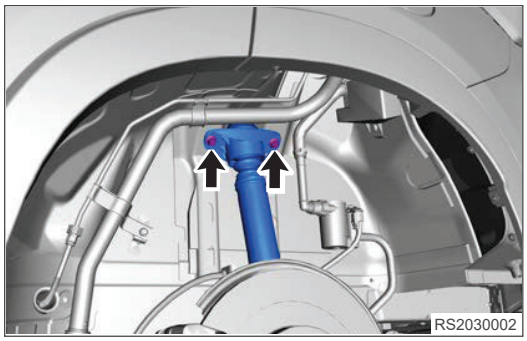
Hint:

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

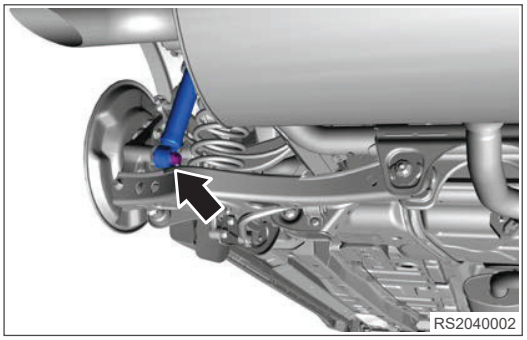
Warning

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

1. Turn off all electrical equipment and 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.



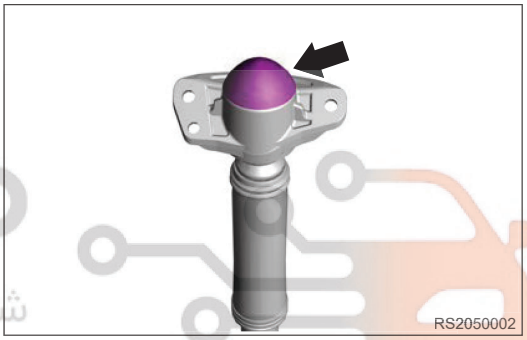
7. Remove the rear left shock absorber assembly.

Disassembly

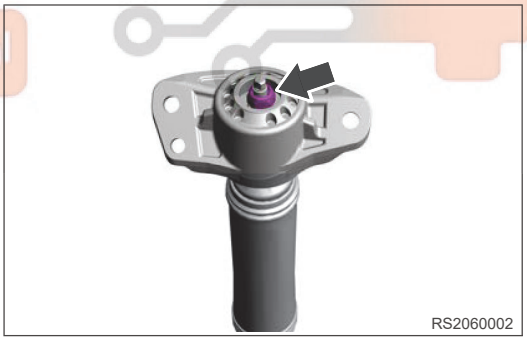
Hint:

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

1. Remove the rear left shock absorber cover cap.

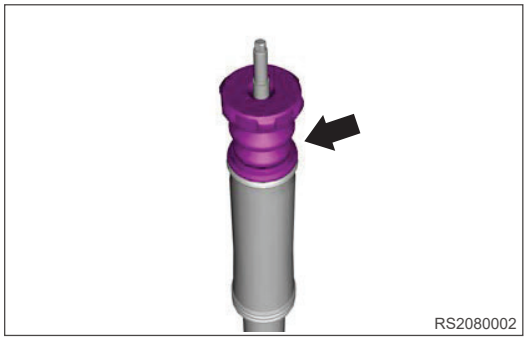


2. Remove fixing nut from rear left shock absorber assembly.

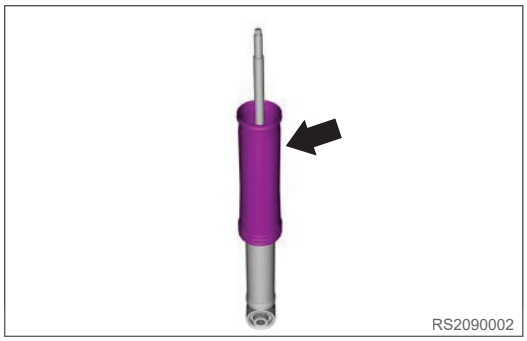


3. Remove the rear left shock absorber upper connecting plate assembly (w/ insulator).

4. Remove the rear buffer block.

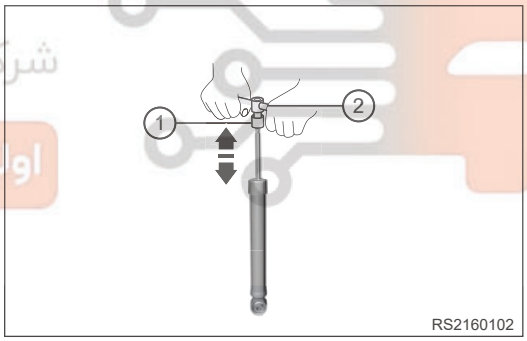


5. Remove the rear dust boot.



Inspection

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



   b. 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 the rear shock absorber assembly with a new one.
2. Check the other components of rear shock absorber assembly.
   a. Check rear dust boot, rear buffer block and rear shock absorber cover cap for cracks, wear or deformation. Replace it as necessary.
   b. Check rear coil spring for wear, cracks or deformation. Replace it as necessary.

Reassembly

1. Install the rear dust cover.
2. Install the rear buffer block.
3. Install the rear left shock absorber upper connecting plate assembly (w/ insulator).
4. Install fixing nut to rear left shock absorber assembly.
   Torque: 33 ± 3 N·m
5. Install the rear left shock absorber cover cap.

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.

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

   Torque: 160 ± 16 N·m

⚠ Caution

- When rear shock absorber device is connected with rear left steering knuckle, ensure that angle is 5.7° ± 1°, and bar code is outward near the brake side.

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

   Torque: 60 ± 6 N·m

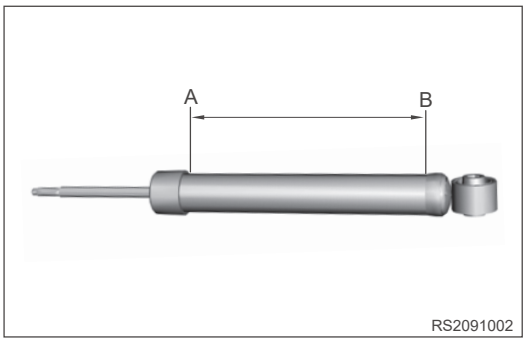
3. Install the rear left wheel house protector.
4. Install the rear left wheel.
5. Connect the negative battery cable.

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 mental 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.

Rear Coil Spring

Removal

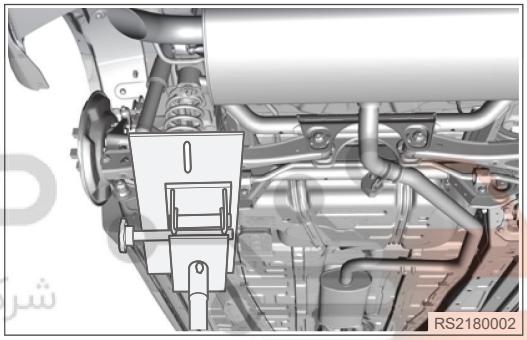
Hint:

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

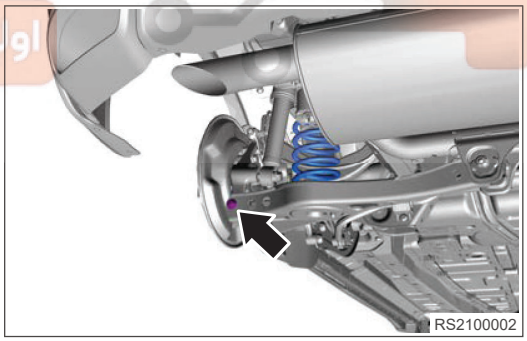
⚠ Warning

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

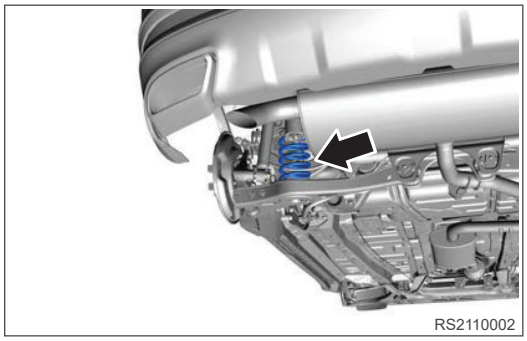
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left wheel.
4. Support the rear lower control arm assembly with a transmission carrier securely.


RS2180002

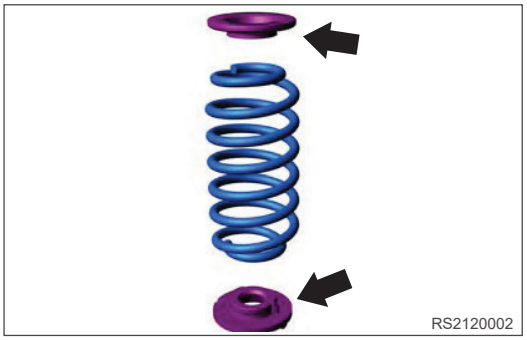
5. Remove coupling bolt and nut between rear lower control arm assembly and rear steering knuckle assembly.


RS2100002

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


RS2110002

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. Adjust wheel alignment to standard range as necessary.

1. Install the rear coil spring upper and lower cushions.
2. 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: 110 ± 11 N·m

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

Rear Upper Control Arm Assembly

Removal

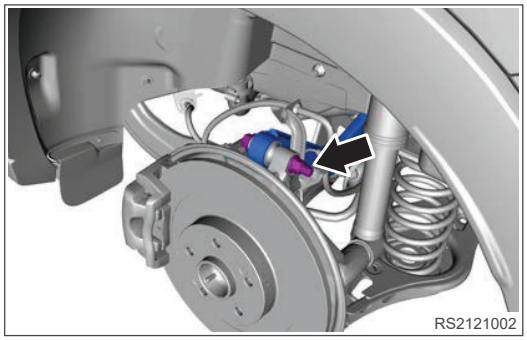
Hint:

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

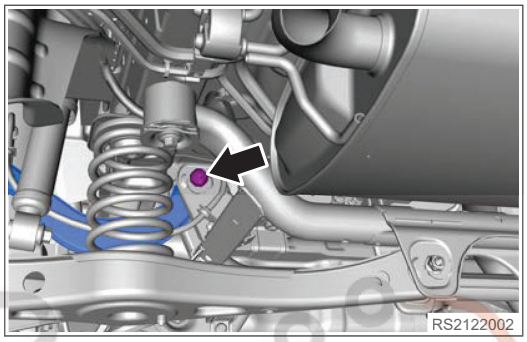
⚠ Warning

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

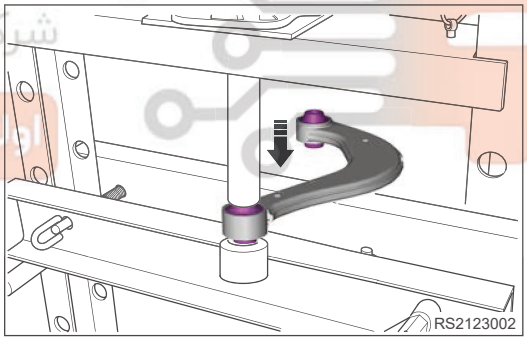
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left wheel.
4. Remove coupling bolt and nut between rear left upper control arm assembly and rear left steering knuckle assembly.



5. Remove coupling bolt between rear left upper control arm assembly and rear left sub frame welding assembly.



6. Remove the rear left 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. 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 left upper control arm assembly and rear sub frame welding assembly.

   Torque: 115 ± 23 N·m

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

   Torque: 160 ± 16 N·m

4. Install the rear left wheel.
5. Connect the negative battery cable.

Rear Lower Control Arm Assembly

Removal

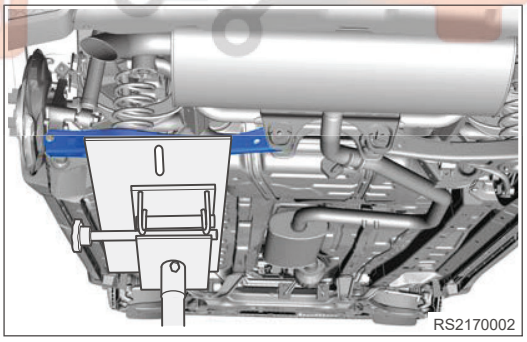
Hint:

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

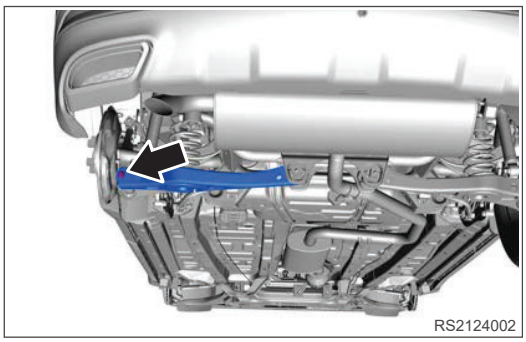
⚠ Warning

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

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

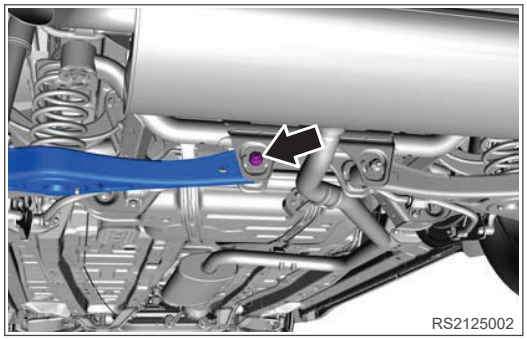

RS2170002

5. Remove coupling bolt and nut between rear left lower control arm assembly and rear left steering knuckle assembly.


RS2124002

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 left lower control arm assembly and rear sub frame welding assembly.



8. Remove the rear left lower control arm assembly.

Installation

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

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

   Torque: 110 ± 11 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 left lower control arm assembly and rear left steering knuckle assembly.

   Torque: 110 ± 11 N·m

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

Rear Trailing Arm Assembly

Removal

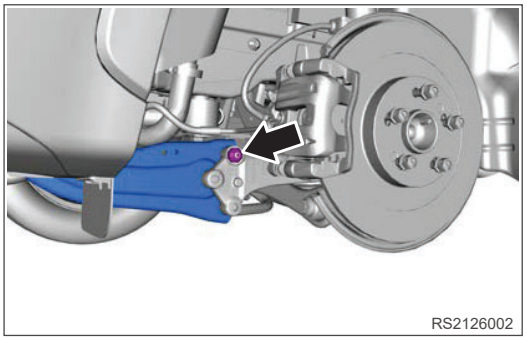
Hint:

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

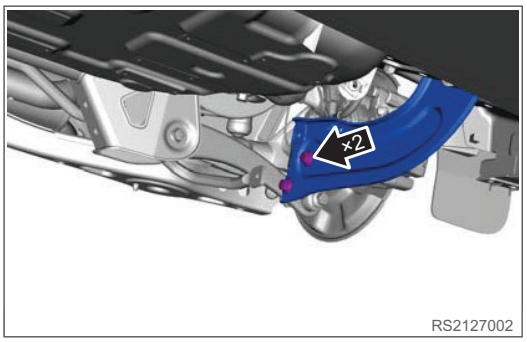
⚠ Warning
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lift is locked when repairing chassis parts. • It is not allowed to weld or modify suspension loading parts and guide parts. • When removing chassis parts, be sure to replace self-locking nuts and rusted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

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

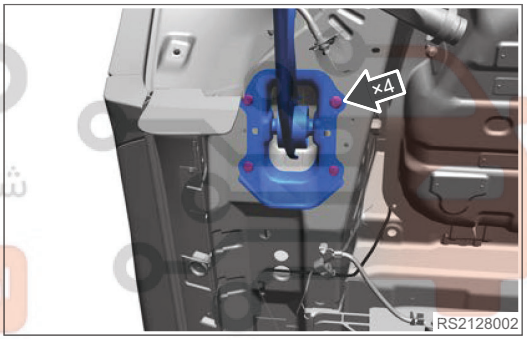
4. Remove coupling nut between rear left connecting rod assembly and rear left trailing arm assembly, and disengage rear left connecting rod assembly.



5. Remove 2 coupling bolts between rear left steering knuckle assembly and rear left trailing arm assembly.



6. Remove 4 coupling bolts between rear left trailing arm assembly mounting bracket and body.



7. Remove the rear left trailing arm assembly (w/ mounting bracket).

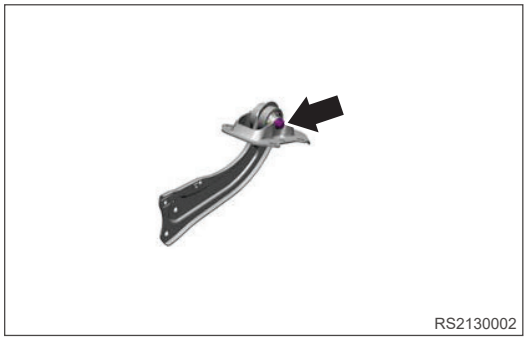
Disassembly

Hint:

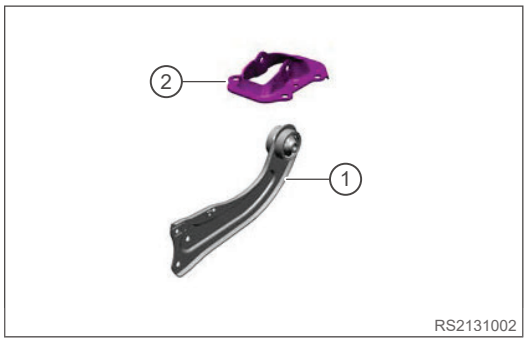
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

1. Remove the rear trailing arm mounting bracket dust boot.

2. Remove coupling bolt and nut between rear trailing arm assembly and mounting bracket.

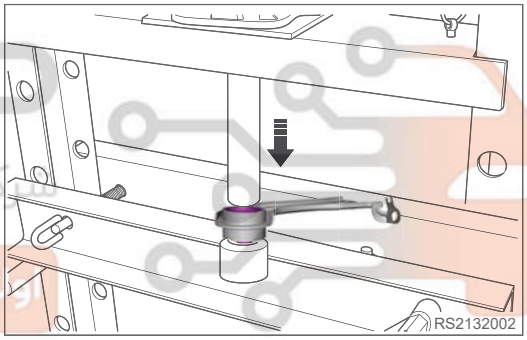

RS2130002

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



RS2131002

4. Place the rear trailing arm assembly on a hydraulic press, and press out rear trailing arm assembly rubber boot with hydraulic press.


RS2132002

Reassembly

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.

   Torque: 120 ± 12 N·m

3. Install the rear trailing arm mounting bracket dust boot.

Installation

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

1. Install 4 coupling bolts between rear left trailing arm assembly mounting bracket and body.
   Torque: 60 ± 6 N·m
2. Install 2 coupling bolts between rear left steering knuckle assembly and rear left trailing arm assembly.
   Torque: 110 ± 11 N·m
3. Install coupling nut between rear left connecting rod assembly and rear left trailing arm assembly.
   Torque: 60 ± 6 N·m
4. Install the rear left wheel.
5. Connect the negative battery cable.

Rear Pull Rod Assembly

Removal

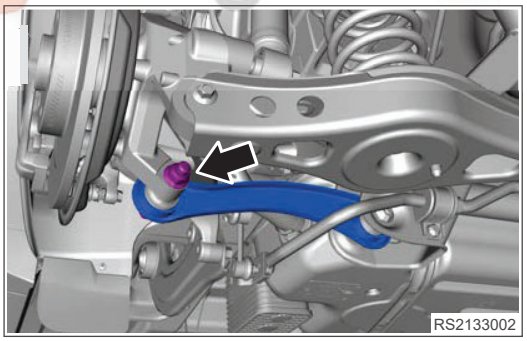
Hint:

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

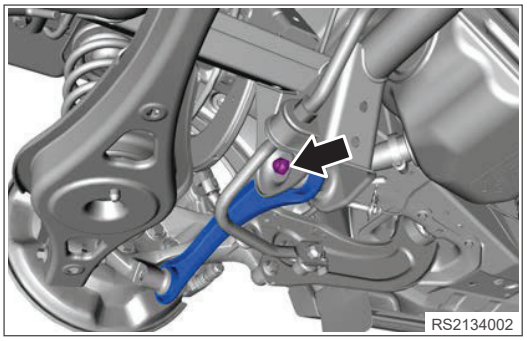
⚠ Warning

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

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

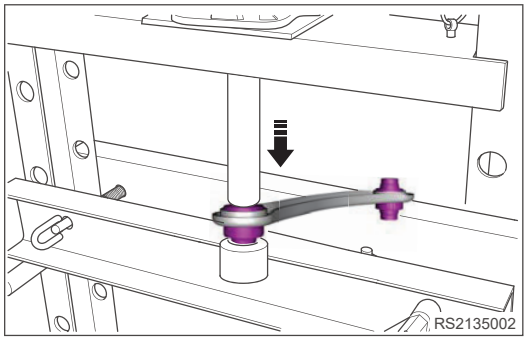


5. Remove coupling bolt and nut between rear left pull rod assembly and rear sub frame welding assembly.



6. Remove the rear left 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 left pull rod assembly and rear sub frame welding assembly.

   Torque: 110 ± 11 N·m

3. Install coupling bolt and nut between rear left pull rod assembly and rear left steering knuckle assembly.

   Torque: 160 ± 16 N·m

4. Install the rear left wheel.
5. Connect the negative battery cable.

Rear Stabilizer Bar Assembly

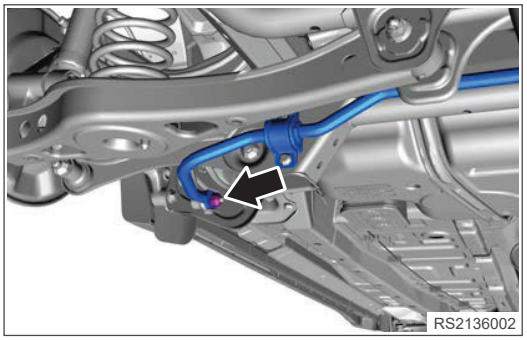
Removal

⚠ Warning

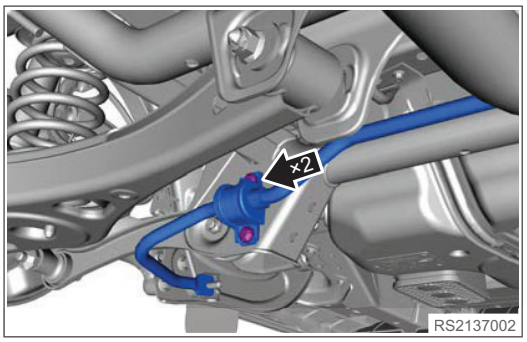
- Be sure to wear necessary safety equipment to prevent accidents.
- Check if safety lock of lift is locked when repairing chassis parts.
- It is not allowed to weld or modify suspension loading parts and guide parts.
- When removing and installing chassis parts, replace self-locking nuts and rusted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

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.

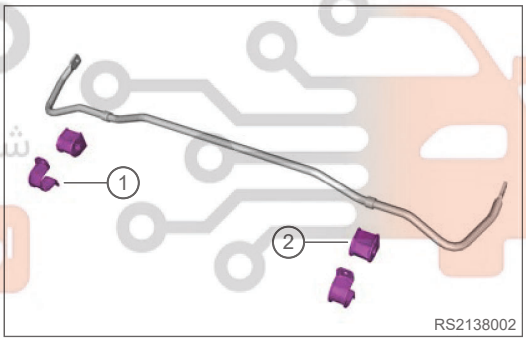
3. Remove coupling nut between rear left connecting rod assembly and rear stabilizer bar assembly, and remove rear connecting rod shield. Use same removal procedure for right side.



4. Remove 2 coupling bolts between rear stabilizer bar assembly and rear sub frame welding assembly (take left side as an example). 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.

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 (-Take left side as an example). Use same installation procedure for right side.

   Torque: 25 ± 4 N·m

⚠ Caution

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

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: 60 ± 6 N·m

4. Connect the negative battery cable.

Rear Connecting Rod Assembly

Removal

Hint:

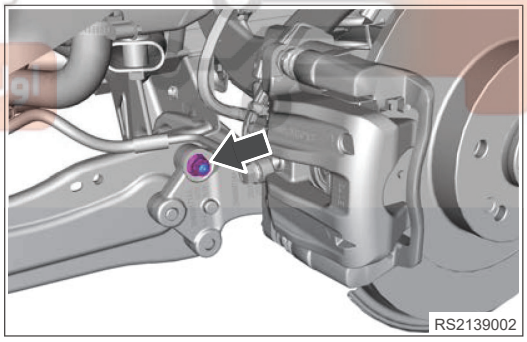
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Warning

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

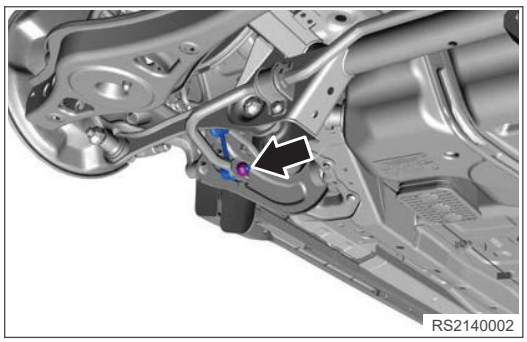
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove coupling nut between rear left connecting rod assembly and rear left trailing arm assembly, and disengage rear connecting rod assembly.

   Torque: 60 ± 6.0 N·m



4. Remove coupling nut between rear left connecting rod assembly and rear stabilizer bar assembly, and remove rear connecting rod assembly.

   Torque: 60 ± 6.0 N·m



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 without any sticking after installation.

1. Installation is in the reverse order of removal.

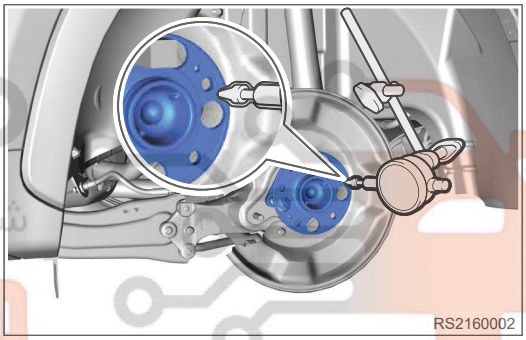
Rear Hub Bearing Assembly

On-vehicle inspection

Hint:

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

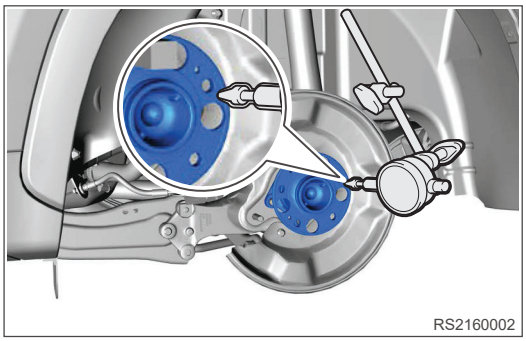
1. Remove the rear left wheel.
2. Remove the rear left brake caliper assembly.
3. Remove the rear left brake disc.
4. Check looseness of rear hub bearing.
   a. Check looseness near center of the rear hub bearing with a dial indicator.



⚠ 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.
   a. Check runout of the rear hub bearing assembly surface with a dial indicator.



⚠ Caution

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

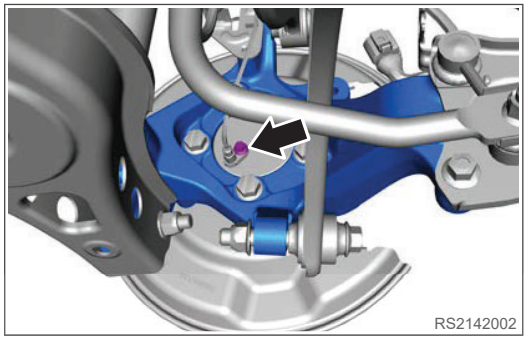
Removal

Hint:

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

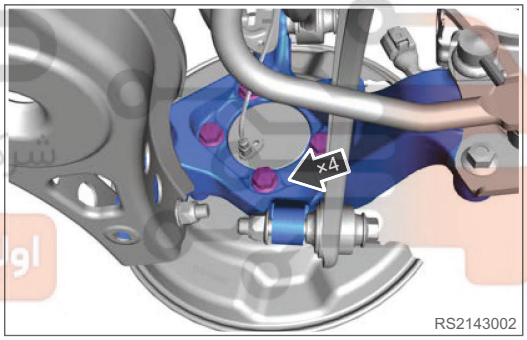
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left wheel.
4. Remove the rear left brake caliper assembly.
5. Remove the rear left brake disc.
6. Remove fixing bolt between rear left wheel speed sensor and rear hub bearing unit, and remove rear left wheel speed sensor carefully.

   Torque: 9 ± 1.5 N·m



7. Remove 4 fixing bolts between rear hub bearing and rear left steering knuckle.

   Torque: 80 ~ 91 N·m



8. Remove the rear hub bearing.

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. Installation is in the reverse order of removal.

Rear Steering Knuckle Assembly

Removal

Hint:

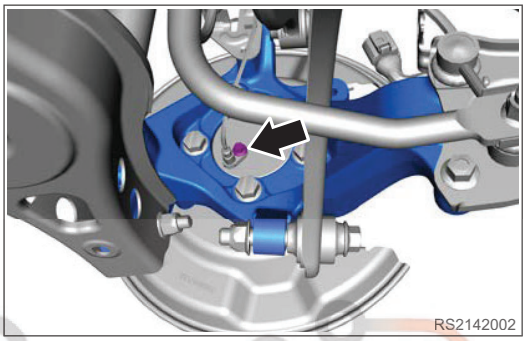
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

Warning

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

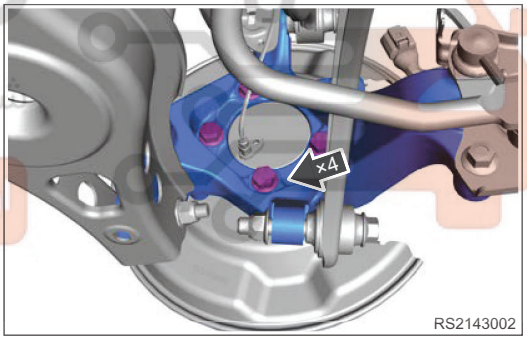
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left wheel.
4. Remove the rear left brake caliper assembly.
5. Remove the rear left brake disc.
6. Remove fixing bolt between rear left wheel speed sensor and left rear hub bearing unit, and remove rear left wheel speed sensor carefully.

   Torque: 9 ± 1.5 N·m



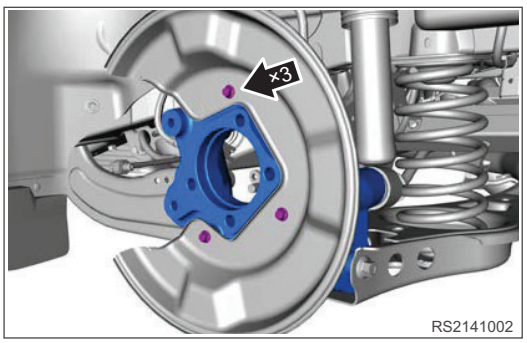
7. Remove 4 fixing bolts between rear left hub bearing and rear left steering knuckle.

   Torque: 80 ~ 91 N·m



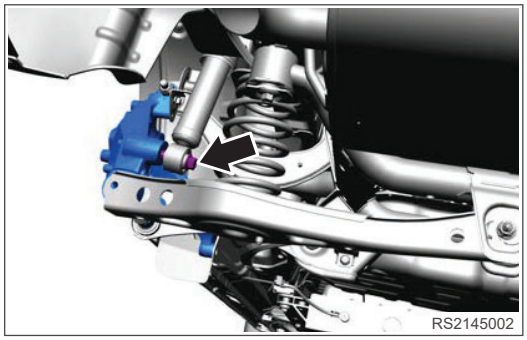
8. Remove the rear left hub bearing.
9. Remove 3 fixing bolts between rear dust guard and rear left steering knuckle and remove the rear dust guard.

   Torque: 8 ~ 13 N·m



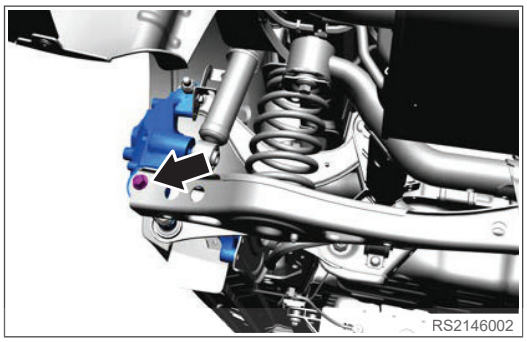
10. Remove coupling bolt between rear left shock absorber assembly and rear left steering knuckle assembly.

    Torque: 160 ± 16 N·m



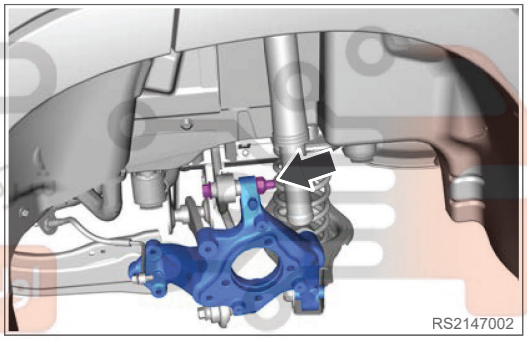
11. Remove coupling bolt and nut between rear left lower control arm assembly and rear left steering knuckle assembly.

    Torque: 110 ± 11 N·m



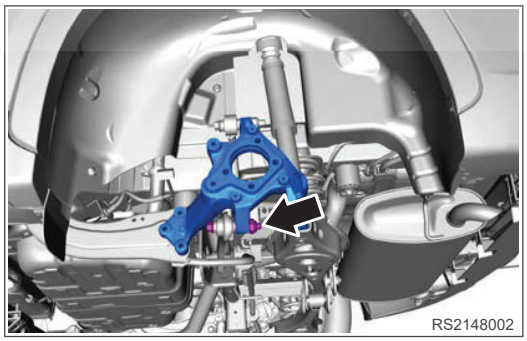
12. Remove coupling bolt and nut between rear left upper control arm assembly and rear left steering knuckle assembly.

    Torque: 160 ± 16 N·m



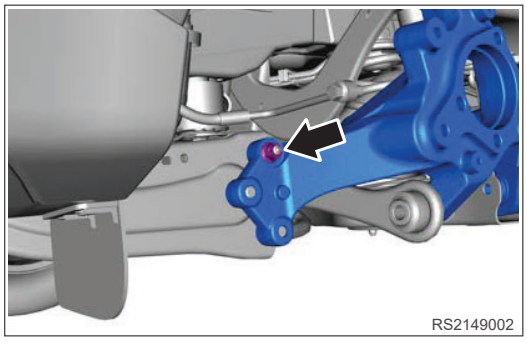
13. Remove coupling bolt and nut between rear left pull rod assembly and rear left steering knuckle assembly.

    Torque: 160 ± 16 N·m



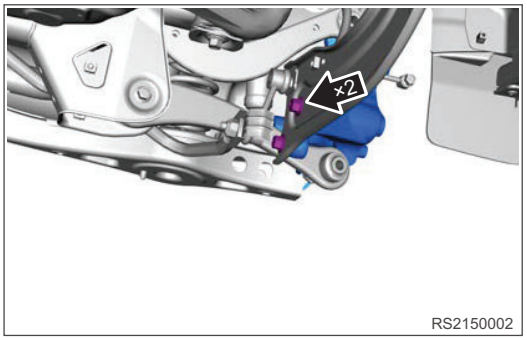
14. Remove fixing nut between rear left connecting rod and rear left steering knuckle assembly.

    Torque: 60 ± 6.0 N·m



15. Remove 2 coupling bolts between rear steering knuckle assembly and rear trailing arm assembly.

    Torque: 110 ± 11 N·m



16. Remove the rear left 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.

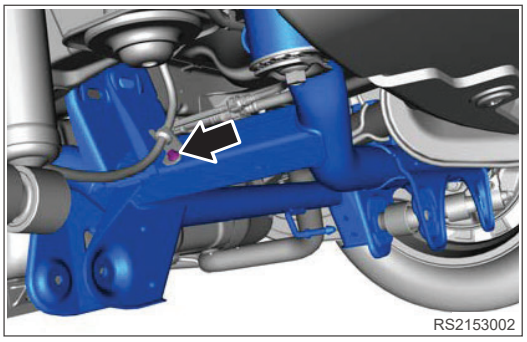
1. Installation is in the reverse order of removal.

Rear Sub Frame Assembly

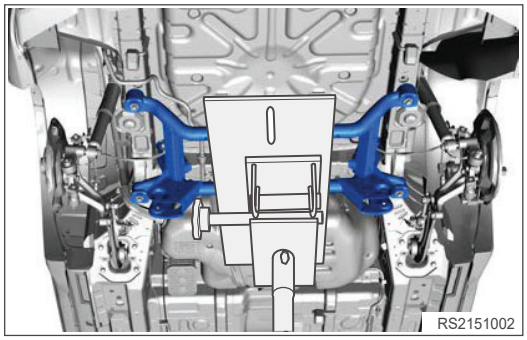
Removal

> **⚠ Warning**
>
> - Be sure to wear necessary safety equipment to prevent accidents.
> - Check if safety lock of lift is locked when repairing chassis.
> - It is not allowed 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 ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove 2 rear wheels.
4. Remove the rear muffler assembly.
5. Remove 2 rear lower control arm assemblies.
6. Remove 2 rear pull rod assemblies.
7. Remove 2 rear upper control arm assemblies.
8. Remove the rear stabilizer bar assembly.
9. Remove rear left wheel ABS sensor fixing bracket (use same procedures to remove rear right wheel ABS sensor fixing bracket).

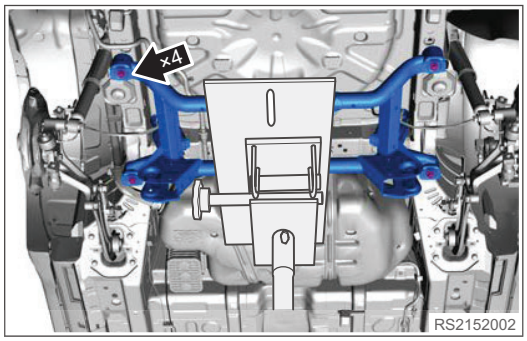


10. Install transmission carrier to support rear sub frame assembly.



11. Remove 4 coupling bolts between rear sub frame assembly and body.

    Torque: 120 ± 12 N·m



12. Remove the rear sub frame assembly.

Installation

⚠ Caution

- Be sure to tighten bolt to specified torque.
- Bounce vehicle up and down several times to stabilize rear suspension after installation.
- Check wheel alignment after installation. Adjust wheel alignment to the standard range as necessary.

1. Installation is in the reverse order of removal.

TIRE AND WHEEL

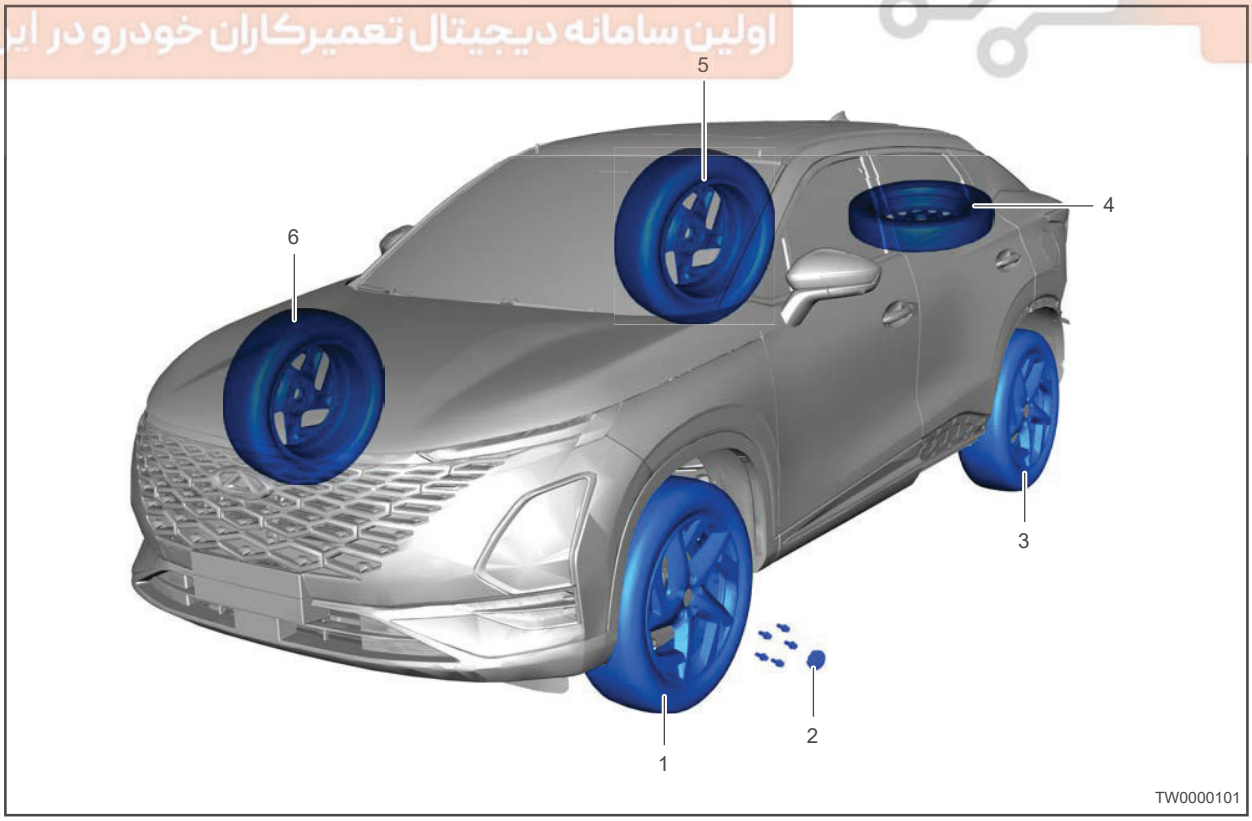
Warnings and Precautions

Precautions

1. Use tires only with the standard specification and type, because they have excellent reliability and skid resistance. Using a non-standard tire may lead to vehicle malfunction, which may cause an accident, resulting in serious injury or even death.
2. Contact surface between rim and tire should be cleaned before installing a new tire.
3. When installing wheel bolts, firstly, pre-tighten the bolts by hand, and then tighten them to the specified torque with a torque wrench.
4. Do not apply grease to the wheel bolts.
5. Some bad driving habits may shorten the tire life:
   a. Rapid acceleration;
   b. Depressing brake pedal suddenly and firmly;
   c. High-speed driving;
   d. Turning at excessive speed;
   e. Striking curbs or other obstacles;
   f. Tire pressure is too high or too low when driving vehicle;

System Overview

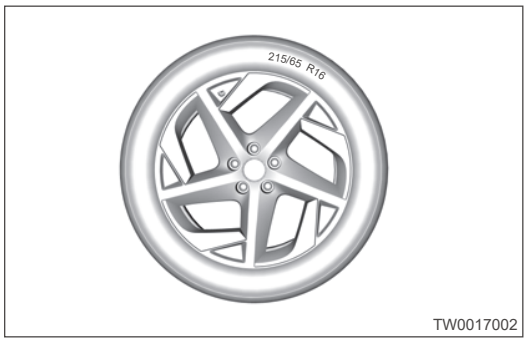
Description



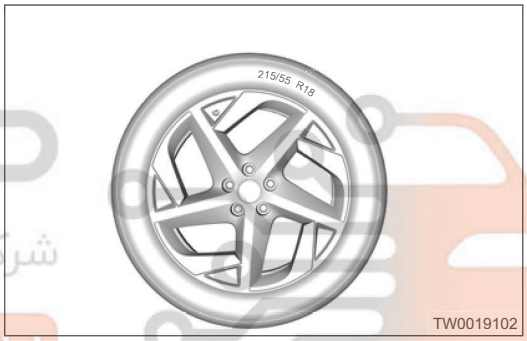
1	Front Left Wheel	4	Spare Tire Assembly
2	Aluminum Rim Trim Cover	5	Rear Right Wheel
3	Rear Left Wheel	6	Front Right Wheel

Tire Identification

2. Letter and number code of tire type, size, load index and speed level are stamped on the side wall of tire as shown in the illustration.
   a. 16-inch full-coated aluminum rim: 215/65 R16.



   b. 17-inch glossy aluminum rim: 215/60 R17.



   c. 18-inch full-coated aluminum rim: 215/55 R18.

Specifications

Torque Specifications

Description	Torque (N·m)
Wheel Mounting Bolt	130 ± 10 N m

Basic Parameters

Tire Type

Description	Type
Tire Type	215/65 R16 215/60 R17 215/55 R18

Hub Type

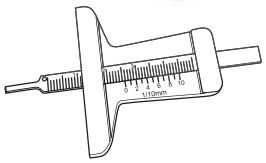
Description	Type
Rim Type	16×6 1/2J, 17×6 1/2J, 18×7J

Cold Tire Pressure (kPa) (Unloaded)

Description	Tire Pressure (kPa)
Front Tire	220
Rear Tire	220
T-type Tire (Rated Inflation Pressure)	420

Tool

General Tool

Tool Name	Tool Drawing
Tire Depth Gauge	 RCH0094006

Diagnosis & Testing

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.

Symptom	Suspected Area
Wear on one side of tire	Wheel alignment (incorrect)
Wear on both sides of tire	Tire pressure (insufficient)
Tire center wear	Tire pressure (excessive)

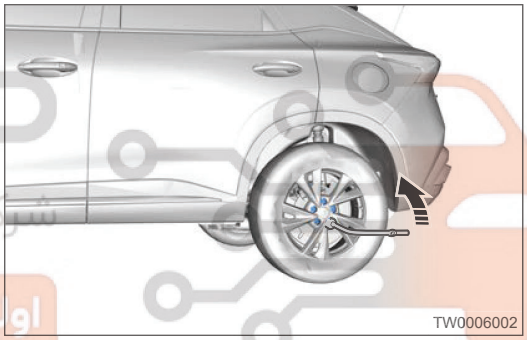
Symptom	Suspected Area
Serrated wear	Wheel alignment (incorrect)
Severe wear on partial area of tire	Braking (too hard)
Scratches on side wall of tire	Sharp objects on road (scratched)
Excessive tire noise	Tire pressure (incorrect)
	Tire (worn)

On-vehicle Service

Wheel

Removal

1. Remove the wheel.
   a. Stop vehicle at a level surface and apply parking brake.
   b. Using a tire wrench, loosen the wheel mounting bolts.
   c. Firmly support and raise the vehicle to a proper height.
   d. Using a tire wrench, remove 5 wheel mounting bolts.



   e. Remove the wheel.

⚠ Warning

- When removing and installing the wheel with tire pressure sensor, the tire pressure monitoring section must be strictly referred to.

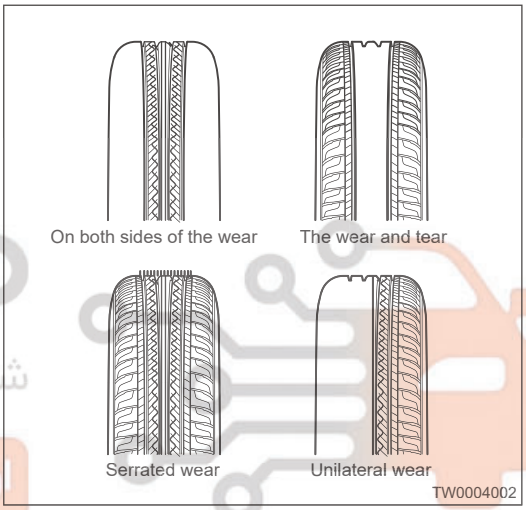
Inspection

⚠ Caution

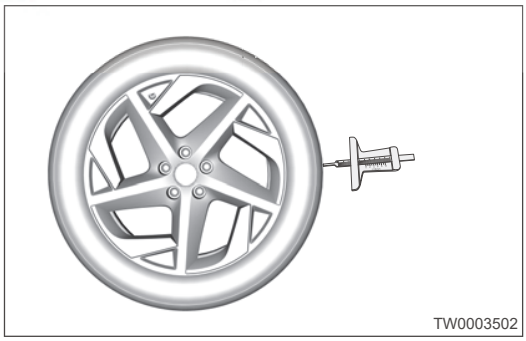
- Be sure to refer to the instruction when installing non-standard tires and rims.
- Use tires with standard specification and type.

1. Check if tires are scratched or damaged as shown in the illustration.
2. Check if rims are scratched or damaged as shown in the illustration.

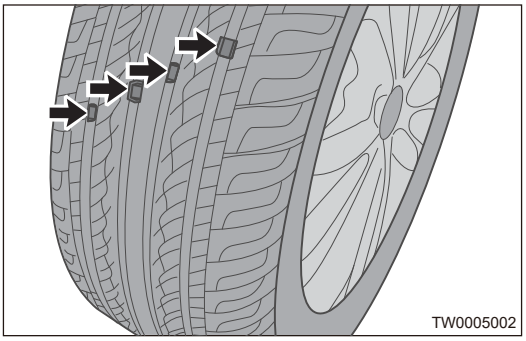
3. Check if tires are worn abnormally as shown in the illustration.



4. Measure the tread pattern depth with a tire depth gauge. When the depth is less than 1.6mm, the tire should be replaced.



5. Check the tread wear indicators (arrow). When tires are worn to the indicating mark, replace them.

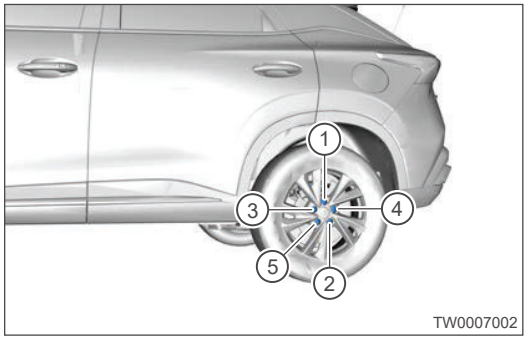


6. Use tire pressure gauge to check if pressures of all tires (including spare tire) are normal. Inflate tires to specified tire pressure as necessary.
7. Check air valve for leakage.

Installation

1. Install the wheel.
   a. Anti-corrosion and anti-rust treatment is conducted on the contact surface between wheel and brake disc.
   b. Install the wheel and pre-tighten the wheel mounting bolts by hand.
   c. Using a torque wrench, tighten the wheel mounting bolts evenly to the specified torque in the order shown in the illustration.

      Tightening torque: 130 ± 10 N · m



Tire Replacement

Removal

> **Warning**
>
> Speed level of new replaced tire must meet the specified values for safe operation; otherwise the tire may blow out.

1. Remove the wheel.
2. Use a tire remover to remove tires according to the instructions.

⚠ Caution

- When removing and installing tire with tire pressure sensor, be sure to strictly refer to the Tire Pressure Monitoring section.
- Before installing air valve, check if air valve hole of wheel is smooth without any burrs, and apply glycerin to air valve rubber surface or soak air valve into glycerin fluid, and then pull or press the locating ring of air valve by force to pass it through the air valve hole and install it into place (it is possible to use soapy water instead of glycerin).
- The four driving tires mounted on the same vehicle must be from the same manufacturer and are not allowed to be mixed.
- Before assembling the tire, apply glycerin or soapy water to the rim area of tire.
- When installing wheel assembly with TPMS, align dynamic balance testing mark (light point) on tire with valve core (TPMS) position on rim.
- When there is "dark point" mark on rim, align the dynamic balance testing mark on tire with "dark point" mark on rim.
- When there is no "dark point" mark on rim, align the dynamic balance testing mark on tire with the air valve.

Installation

1. Adjust tire pressure to specified value.

⚠ Caution

- Before performing four-wheel alignment work, check the four tires pressure and adjust the pressure: Front wheel: (220 ± 10) kPa, rear wheel: (220 ± 10) kPa.
- The rated inflation pressure of T-type spare tire assembly: (420 ± 20) kPa, isolated from the four wheels on the vehicle
- Please replace the tires only with standard specification and type.

2. Check contact surface among air valve, tire and rim for leakage.
3. Using a dynamic balancer, adjust the wheel balance.
4. Install the wheel.

   Tightening torque: 130 ± 10 N · m

⚠ Caution

- Avoid scratching tires and rims when removing tires.
- Contact surface between tire and rim should be cleaned when installing tires.

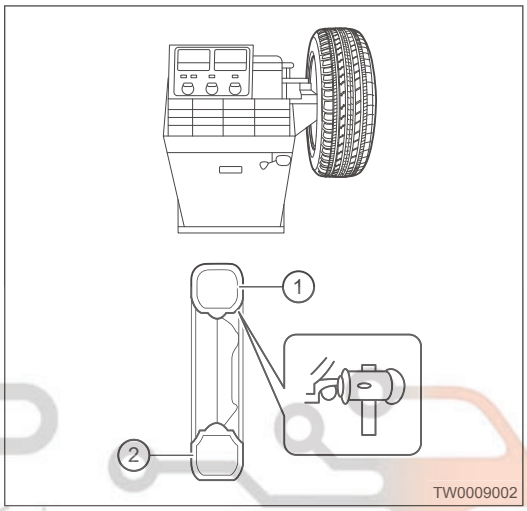
Wheel Balance

Operation Step

⚠ Caution

- Dynamic balancer must be calibrated before adjusting wheel balance.
- Remove impurities inside tread pattern and original balance blocks to ensure wheel balance.

1. Remove the wheel.
2. Adjust tire pressure to specified value.
3. Install wheel with balance block removed to balancer. Install the balance shaft with mounting surface of wheel facing inward, choose a suitable taper body, and firmly lock the wheels using a locking device (- align the taper body with center hole, otherwise data may be incorrect).
4. Turn on the power source of balancer, and input parameters such as the measured distance from rim to balancer, rim width and rim diameter.
5. Put down the wheel protector, and proceed to balance test procedure automatically (start button should be pushed for some balancers). When measurement is completed, the unbalanced weight for both sides of tire will be displayed on the balancer automatically, and the wheel brakes automatically until it stops. Do not open the protector before stopping. Failure to do this may lead to an accident.
6. According to the measurement result, corresponding balance blocks should be installed on the outside (1) and inside (2) of rim edge as shown in the illustration.



7. Perform test again after assembly is completed, until the balancer displays 0.
8. After dynamic balance is completed, remove the wheel.

⚠ Caution

- When installing balance blocks, wheel dynamic balance requirements for vehicles with a maximum design speed greater than 100 Km/h, allowing residual dynamic unbalanced mass: clamp type balance block side is 8 g or less, and paste type balance block side is 10 g or less.
- Clamp type balance block installation: Either side of each wheel is permitted to use only one clamp type balance block at most. DO NOT tap balance blocks forcibly during installation. If so, the balance block needs to be replaced in time. The replaced balance block is not allowed to be used again.
- Paste type balance block installation: Before pasting, wipe the adhesive part of aluminum rim with alcohol cotton to ensure that there is no oil, dust, etc. Tear off the plastic tape behind the adhesive balance block, and align it with step reference surface of pasting position, and apply force evenly with both hands. When the room temperature is lower than 25° C, the paste type balance block should be heated with oven temperature at 25 - 38° C.
- The T-type spare tire does not require dynamic balance test and the installation of balance block.

Tire Rotation

Operation Step
Description

1. Front and rear tires operate at different loads and perform different steering, driving and braking functions. For these reasons, different wear rate is formed, causing irregular wear patterns. These effects can be reduced by rotating tires at regular time.
2. Advantages of tire rotation:

- Improving tread life;
- Maintaining traction levels;
- Maintaining a smooth and quiet driveability;

⚠ Caution

- Chery recommends that you should rotate tires every 10000 km. However, the best suitable time for tire rotation differs depending on driver’ s driving habits and road conditions.

Rotation Method

1. Perform tire rotation as shown in the illustration.