SUSPENSION

SUSPENSION

Warnings and Precautions

Warnings

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

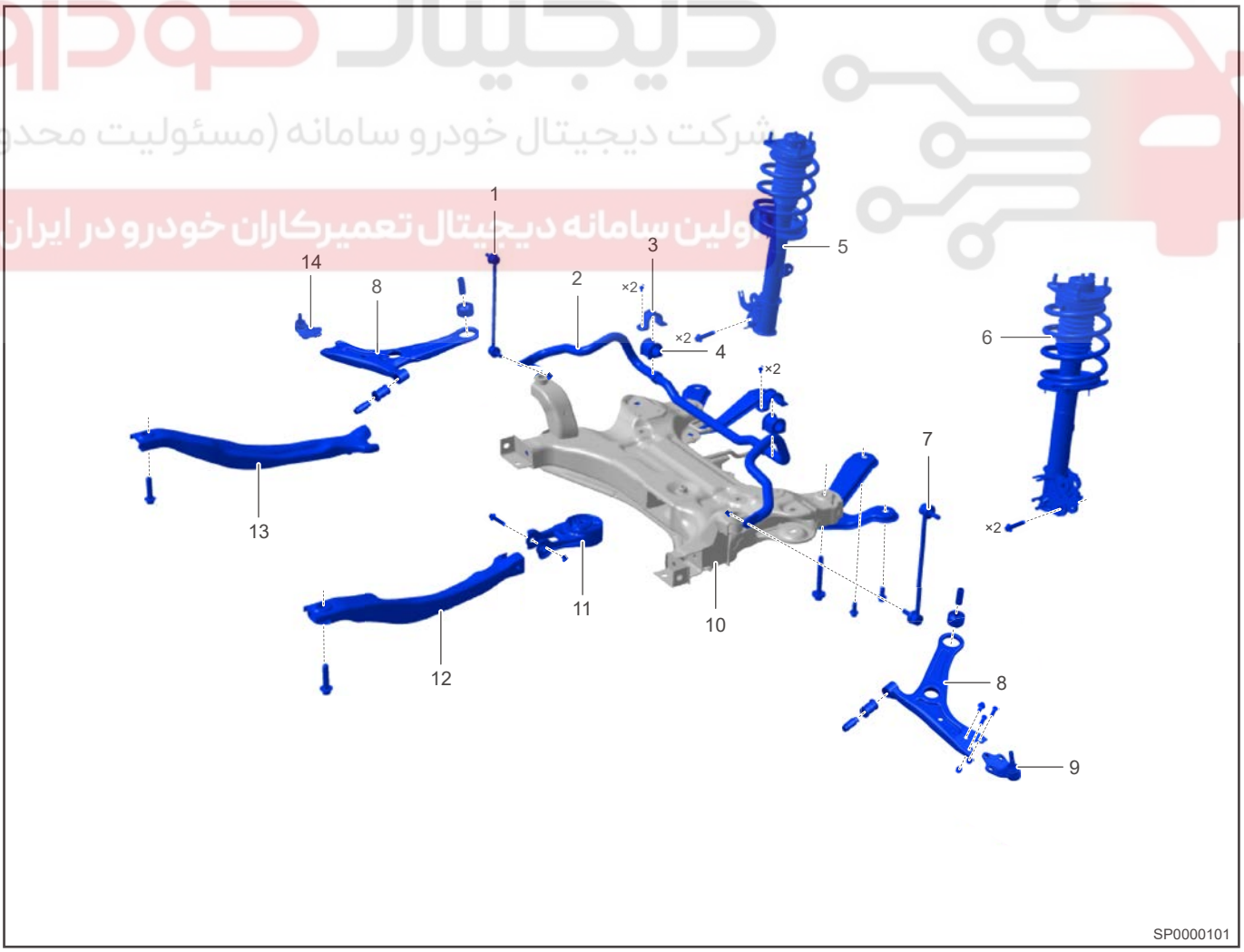
Precautions

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

System Overview

System Components Diagram

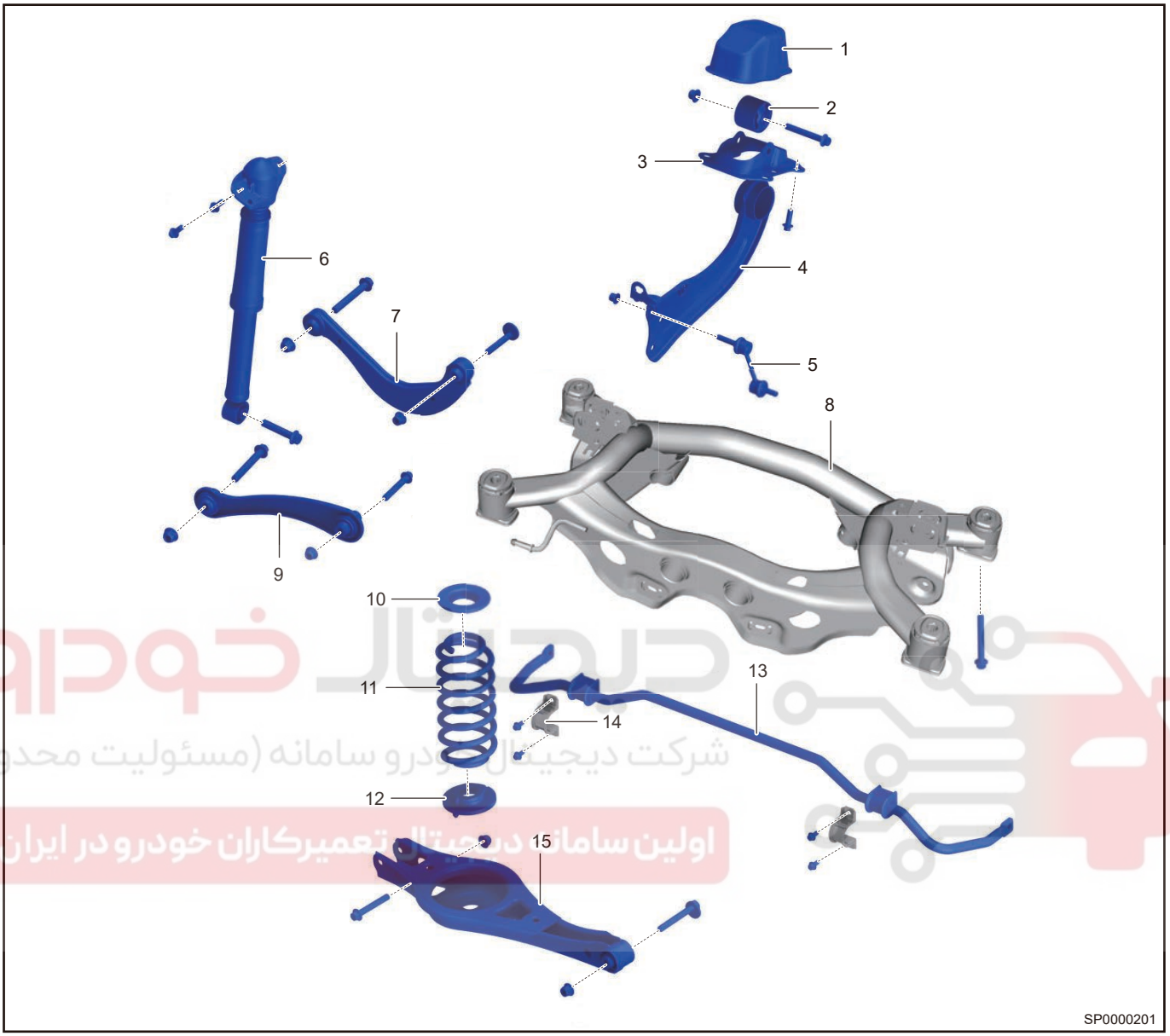
Front Suspension



1	Front Stabilizer Bar Right Connecting Rod	8	Front Left/Right Control Arm Assembly
2	Front Stabilizer Bar Assembly	9	Front Left Control Arm Ball Pin Assembly
3	Front Stabilizer Bar Clamp	10	Front Sub Frame Assembly
4	Front Stabilizer Bar Rubber Boot	11	Rear Mounting Lower Body
5	Front Right Shock Absorber Assembly	12	Left Side Rail Welding Assembly
6	Front Left Shock Absorber Assembly	13	Right Side Rail Welding Assembly
7	Front Stabilizer Bar Left Connecting Rod	14	Front Right Control Arm Ball Pin Assembly

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

Rear Suspension



1	Dust Boot	9	Left Pull Rod Assembly
2	Rear Trailing Arm Bushing Assembly	10	Rear Coil Spring Upper Gasket
3	Rear Trailing Arm Bracket Assembly	11	Rear Coil Spring
4	Trailing Arm	12	Rear Coil Spring Lower Gasket
5	Rear Connecting Rod Assembly	13	Rear Stabilizer Bar Assembly
6	Rear Shock Absorber Assembly	14	Rear Stabilizer Bar Clamp
7	Rear Upper Control Arm Assembly	15	Rear Lower Control Arm Assembly
8	Rear Sub Frame Welding Assembly		

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

suspension features easy-removal and quick-installation, and driving stability and ride comfort have greatly improved.

Specifications

Torque Specifications

Description	Torque (N·m)
Coupling Nut Between Front Connecting Rod Assembly and Front Shock Absorber Assembly	60 ± 6.0
Coupling Bolt and Nut Between Front Shock Absorber Assembly and Front Steering Knuckle Assembly	240 ± 24
Coupling Nut Between Front Shock Absorber Assembly and Body	60 ± 6
Front Shock Absorber Assembly Locking Nut	60 ± 6
Coupling Bolt Between Front Side Rail and Tank Lower Crossmember	180 ± 18
Coupling Bolt Between Front Side Rail and Front Sub Frame	120 ± 12
Coupling Nut Between Front Control Arm Assembly Ball Pin and Front Left Steering Knuckle Assembly	95 ± 9
Coupling Bolt Between Front Part of Front Control Arm Assembly and Front Sub Frame Welding Assembly	150 ± 10 + (90°± 2°)
Coupling Bolt and Nut Between Rear Part of Front Control Arm Assembly and Front Sub Frame Welding Assembly	160 ± 11 + (60°± 1.5 °)
Fixing Nut Between Stabilizer Bar and Connecting Rod Small End	60 ± 6
Through Bolt Between Steering Gear with Tie Rod Assembly and Sub Frame	110N•m + 240°
Transmission Rear Mounting Fixing Bolt	105 ± 10
Fixing Bolt Between Rear Sub Frame Bracket and Body	120 ± 12
Fixing Bolt Between Sub Frame and Body	140 N•m + (45 ± 2) Deg (Rear Left, Rear Right, Front Right); 140 N•m + (39 ± 2) Deg (Front Left)
Stabilizer Bar Fixing Bolt	25 ± 3
Front Connecting Rod Fixing Nut	60 ± 6.0
Coupling Bolt Between Upper Part of Rear Shock Absorber Assembly and Body	60 ± 6.0

Description	Torque (N·m)
Coupling Bolt Between Lower of Rear Shock Absorber Assembly and Rear Left Steering Knuckle Assembly	160 ± 16
Rear Shock Absorber Assembly Fixing Nut	60 ± 6.0
Coupling Bolt and Nut Between Rear Upper Control Arm Assembly and Rear Steering Knuckle Assembly	160 ± 16
Coupling Bolt and Nut Between Rear Upper Control Arm Assembly and Rear Sub Frame Welding Assembly	115 ± 23
Coupling Bolt and Nut Between Rear Lower Control Arm Assembly and Rear Steering Knuckle Assembly	110 ± 11
Coupling Bolt and Nut Between Rear Lower Control Arm Assembly and Rear Sub Frame Welding Assembly	115 ± 23
Coupling Bolt Between Rear Steering Knuckle Assembly and Rear Trailing Arm Assembly	110 ± 11
Coupling Bolt Between Rear Trailing Arm Assembly Mounting Bracket and Body	60 ± 6.0
Coupling Bolt and Nut Between Rear Trailing Arm Assembly and Mounting Bracket	120 ± 12
Coupling Bolt and Nut Between Rear Pull Rod Assembly and Rear Steering Knuckle Assembly	160 ± 16
Coupling Bolt and Nut Between Rear Pull Rod Assembly and Rear Sub Frame Welding Assembly	110 ± 11

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.

Front Suspension

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

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

Rear Suspension

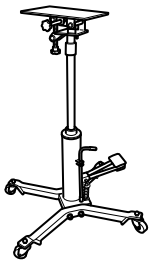
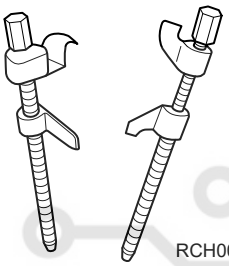
Symptom	Suspected Area
Vehicle pulls	Rear tire (worn or improperly inflated)
	Rear wheel alignment (incorrect)
	Rear hub bearing (excessively worn)
	Rear suspension components (worn or deformed)
Droop	Vehicle (overloaded)

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

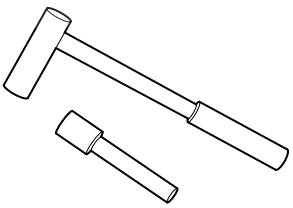
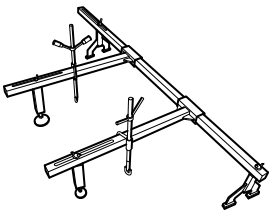
On-Vehicle Service

Tools

General Tools

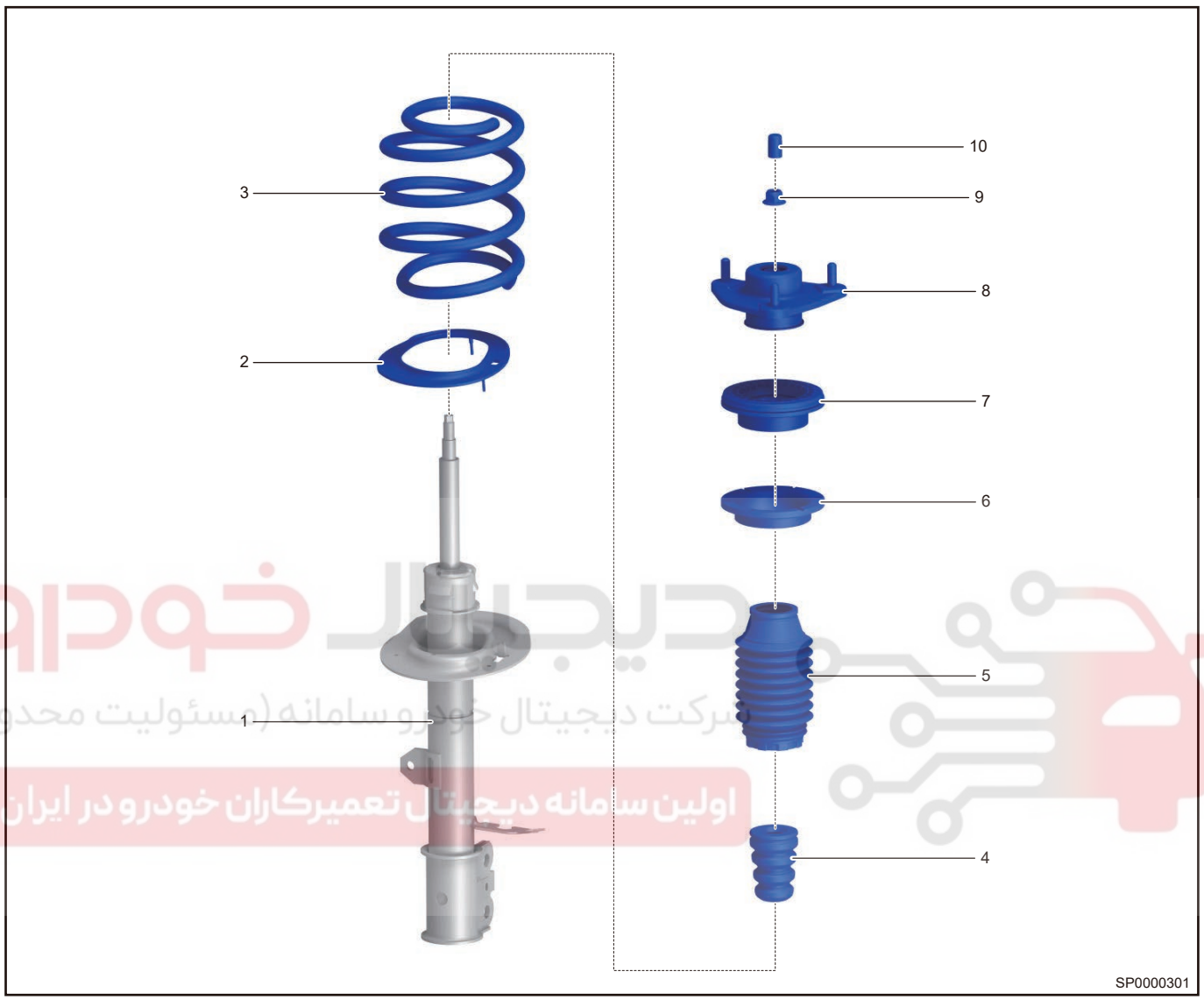
Name	Tool Drawing
Transmission Carrier	 RCH0005006
Spring Compressor	 RCH0021006

Special Tools

Tool Name	Part No.	Tool Drawing
Shock Absorber Nut Remover	CH-10005TY	 RCH0000022
Engine Equalizer	CH-20056	 RCH0026006

Front Shock Absorber Assembly

Description



1	Shock Absorber	6	Front Spring Upper Cushion
2	Front Spring Lower Cushion	7	Bearing Assembly
3	Coil Spring	8	Front Strut Upper Connecting Plate Assembly (w/ Insulator)
4	Buffer Block	9	Shock Absorber Locking Nut
5	Dust Boot	10	Front Shock Absorber Cover Cap

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. Shock absorber is designed with a thin layer of oil film on the surface of piston rod. While the shock absorber is being compressed, the oil film will be scraped off by dust plate on shock absorber oil seal and a small amount of oil will deposit on the upper part of oil seal. Due to high oil permeability, the oil deposited on the upper part of oil seal spreads slowly from upper part of shock absorber to lower part of shock absorber, thus forming a thin coat of oil film. When any of the following conditions occurs:
   - Oil film is between dust boot and spring seat.
   - Oil traces in circumferential direction are even.

   For above conditions, oil traces are formed through volatilization, so we can judge it as minor leakage. This is a normal phenomenon, and it is not necessary to replace the shock absorber assembly.
c. If following conditions occur:
   - Oil traces in circumferential direction are uneven.
   - Oil traces reach lower connecting positions.

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

Removal

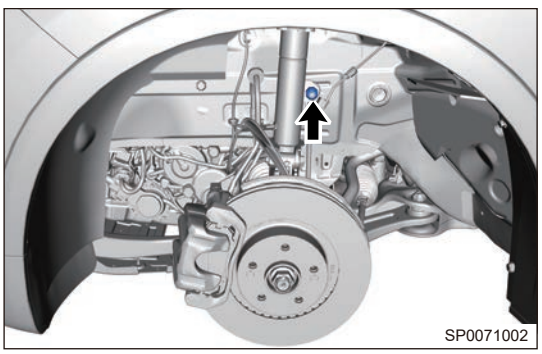
Warning
• Be sure to wear necessary safety equipment to prevent accidents. • Make sure that safety lock of lifter has been locked, when removing and installing chassis parts. • It is not allowed to weld or modify suspension loading parts and guide parts. • When removing and installing chassis parts,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

Hint:

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

1. Remove the front left wheel.
2. Remove the front left shock absorber assembly.
   a. Remove coupling nut (arrow) between front left connecting rod assembly and front left shock absorber assembly.

      Tightening torque: 60 ± 6 N m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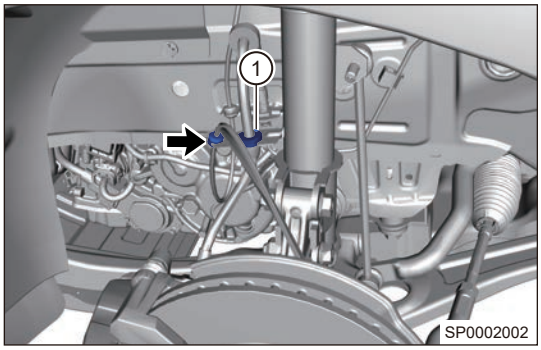
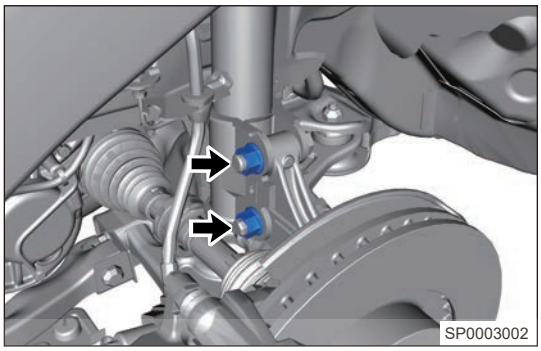
b. Disengage the front left wheel speed sensor wire harness (arrow) and front left brake hose assembly (1) from front left shock absorber assembly.

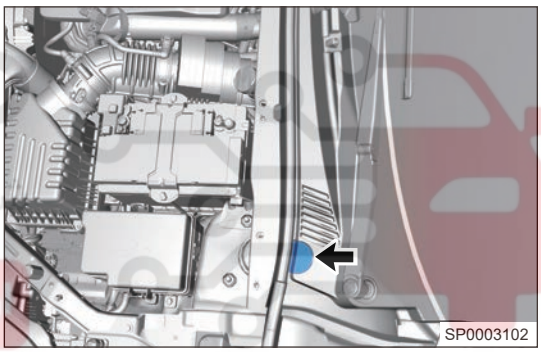


c. Remove 2 coupling bolts and nuts (arrow) between front left shock absorber assembly and front left steering knuckle assembly.

Tightening torque: 240 ± 24 N m

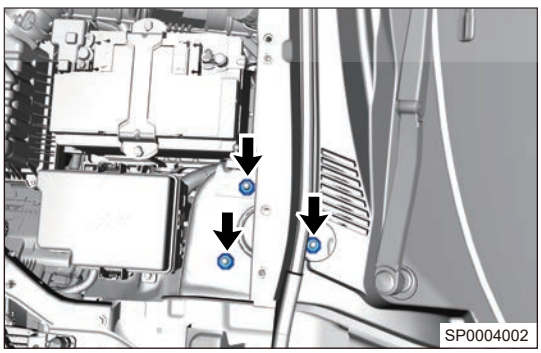


d. Remove the shock absorber blockage cover (arrow) from front windshield trim cover plate.



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

Tightening torque: 60 ± 6 N m



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

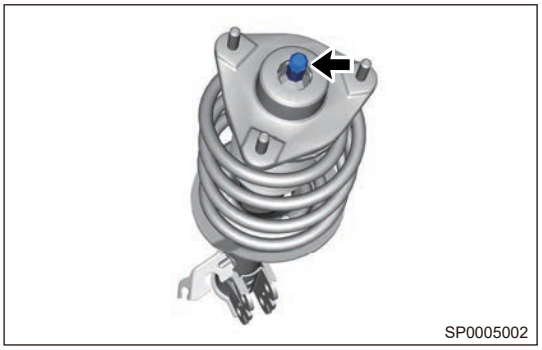
Disassembly

Hint:

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

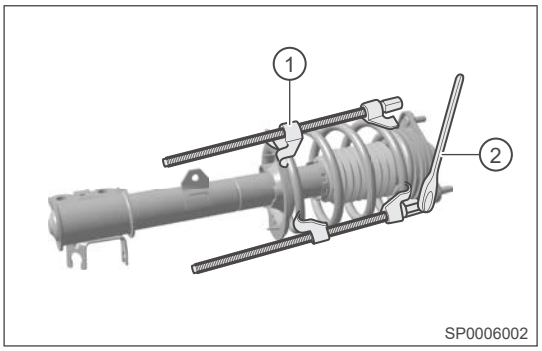
1. Disassemble the front shock absorber assembly.

a. Remove the front shock absorber cover cap (arrow) from front left shock absorber assembly.



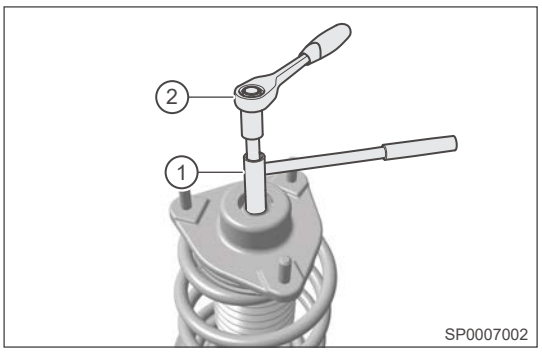
b. Using spring compressor (1) and wrench (2), tighten the end lever of spring compressor to compress the front coil spring.

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

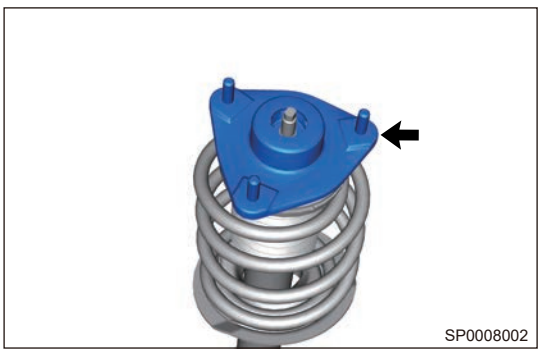


c. Hold the end of front left shock absorber assembly lever with shock absorber nut remover (1), and then remove locking nut from front left shock absorber assembly with wrench (2).

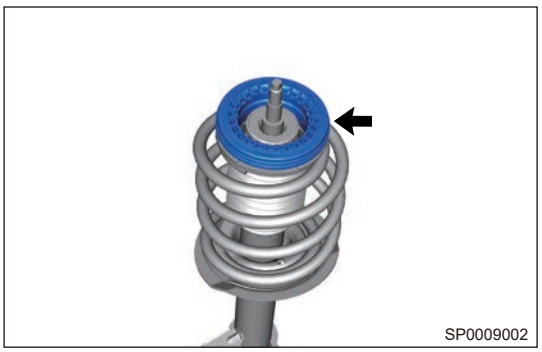
Tightening torque: 60 ± 6 N·m



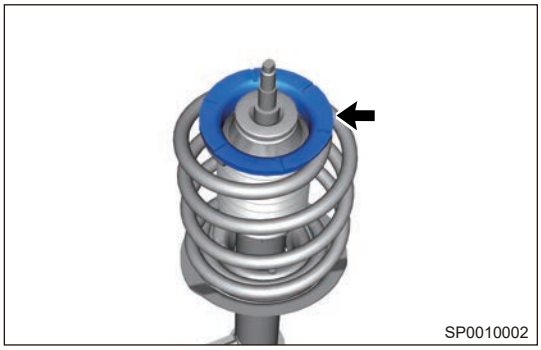
d. Remove front strut upper connecting plate assembly (w/ insulator) (arrow) from upper part of front left shock absorber assembly.



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



f. Remove the front spring upper tray (arrow) from the upper part of front left shock absorber assembly.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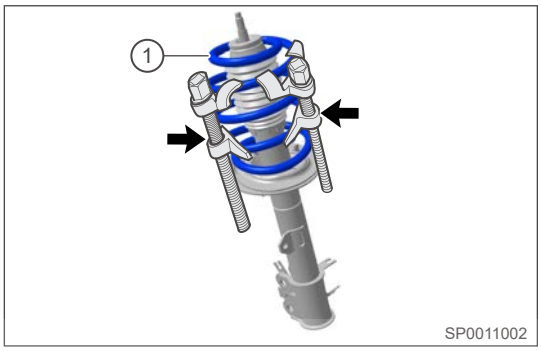
g. Remove front coil spring (1) with spring compressor (-arrow) from front left shock absorber assembly.



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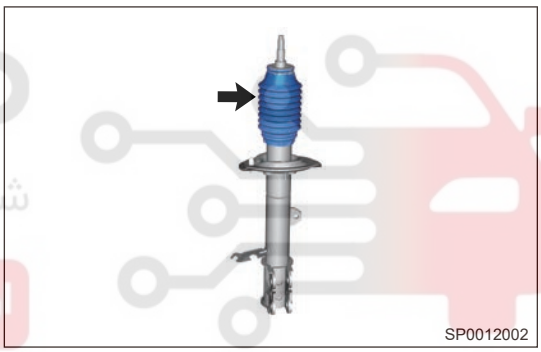
h. Remove front dust boot (arrow) from upper part of front left shock absorber assembly.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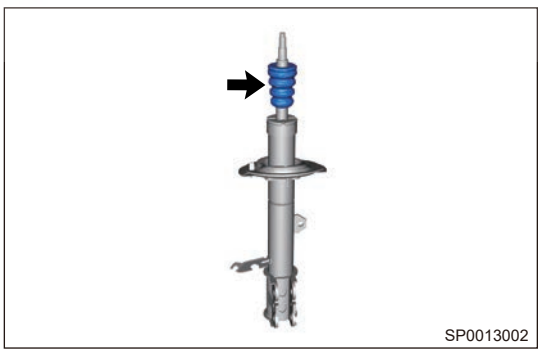
i. Detach front buffer block (arrow) from front left shock absorber assembly, and remove it.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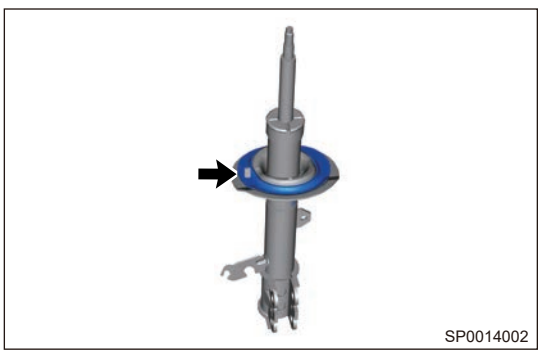
j. Remove front spring lower cushion (arrow) from lower end of front left shock absorber assembly strut.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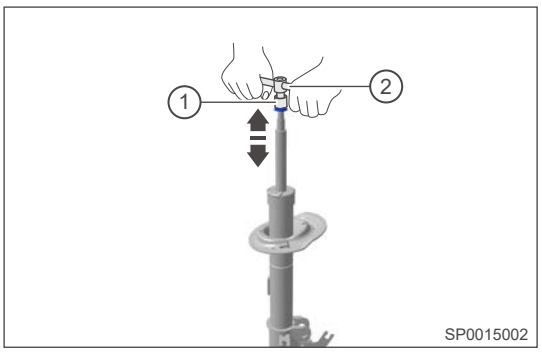
Inspection

1. Check the front shock absorber assembly.

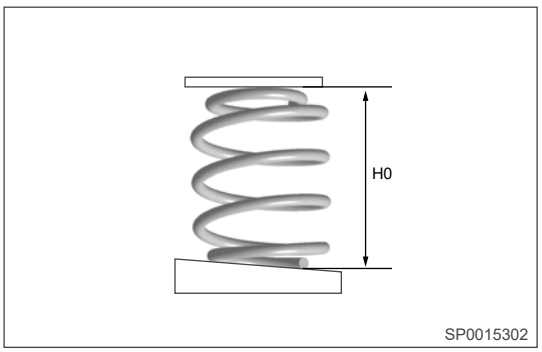
Manual inspection

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



b. Compress and extend the front shock absorber assembly strut several times by hands in direction of arrow as shown in illustration. Check that there is no abnormal resistance or unusual sound during operation. If there is any abnormality, replace the front shock absorber assembly with a new one.

2. Check the other components of front shock absorber assembly.
   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.
3. Check the front coil spring.
   a. Check coil spring for wear, cracks or permanent deformation due to excessive use. Replace it as necessary.
   b. Check the free length of front coil spring.



Assembly

1. Assembly is in the reverse order of disassembly.

Installation

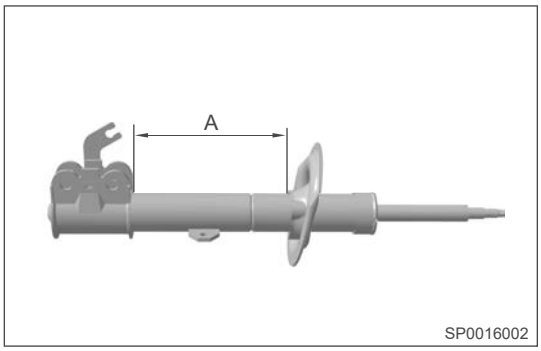
1. Installation is in the reverse order of removal.

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

Disposal

Warning
• Do not drill at high temperature and heat, and be sure to pay attention to safety! • Shock absorber assembly contains nitrogen and oil, which are under high pressure. As hydraulic oil is explosive easily when exposed to heat, the surface is wet with water first before drilling or cutting. • Be careful when drilling or cutting, because 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. Disposal of the front shock absorber assembly.
   a. Extend the front shock absorber assembly strut fully, and clamp it in a vise at an angle.
   b. Using a drill or equivalent, make a hole slowly at area A shown in the illustration, to discharge gas in the front shock absorber assembly.



   c. Handle front shock absorber assembly properly after discharging gas.

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

Front control arm assembly

Removal

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

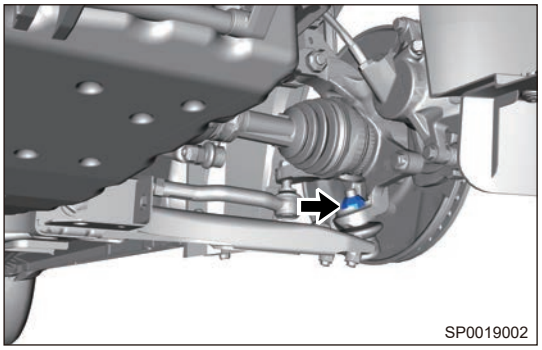
Hint:

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

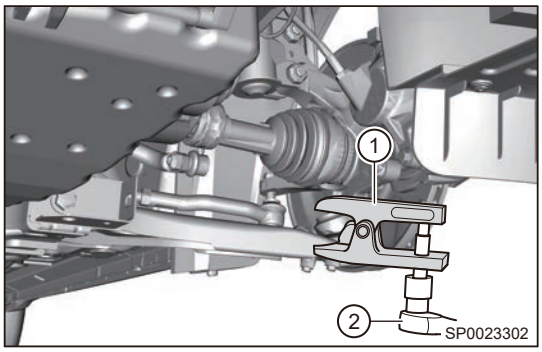
1. Remove the front left wheel.
2. Remove the engine lower protector assembly
3. Remove the left side rail welding assembly.
4. Remove the front left control arm assembly.

a. Remove the coupling nut (arrow) between front left control arm assembly ball pin and front left steering knuckle assembly.

Tightening torque: 95 ± 9 N m

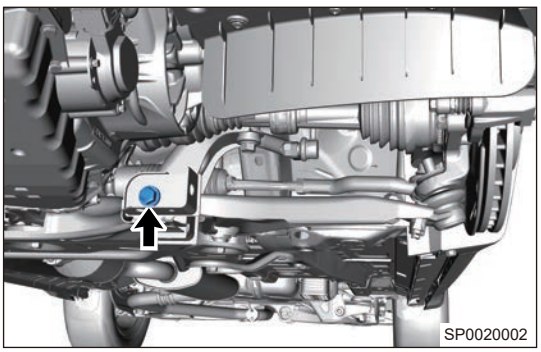


b. Use the ball remover (1), turn the wrench (2) to detach the front control arm ball pin and steering knuckle.



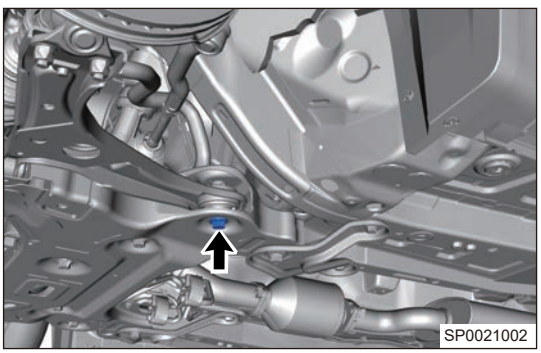
c. Remove coupling bolt (arrow) between front part of front left control arm assembly and front sub frame welding assembly.

Tightening torque (Torque angle method): 150 ± 10 N·m + (90 ± 2)°



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

Tightening torque (Torque angle method): 160 ± 11 N·m + (60 ± 1.5)°



e. Remove the front left control arm assembly with ball pin.

Installation

1. Installation is in the reverse order of removal.

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 is completed. Adjust wheel alignment to standard range as necessary.

Front control arm ball pin assembly

Removal

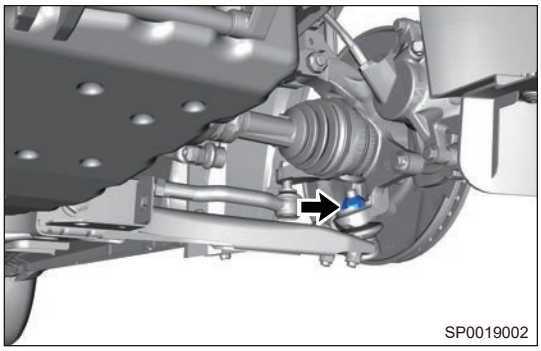
Warning
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter is locked when repairing chassis parts. • It is not allowed to weld or modify suspension loading parts and guide parts. • When removing chassis parts, be sure to replace self-locking nuts and rusted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

Hint:

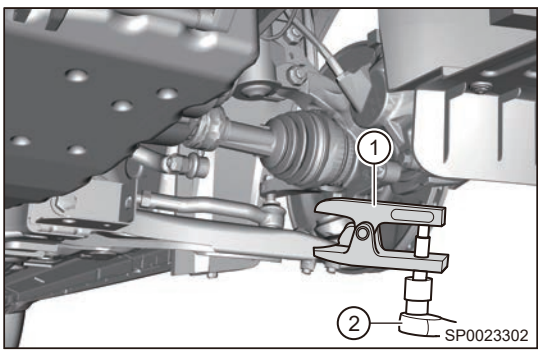
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

1. Remove the front left wheel.
2. Remove the engine lower protector assembly.
3. Remove the front left control arm ball pin assembly.
   a. Remove the coupling nut (arrow) between front left control arm assembly ball pin and front left steering knuckle assembly.

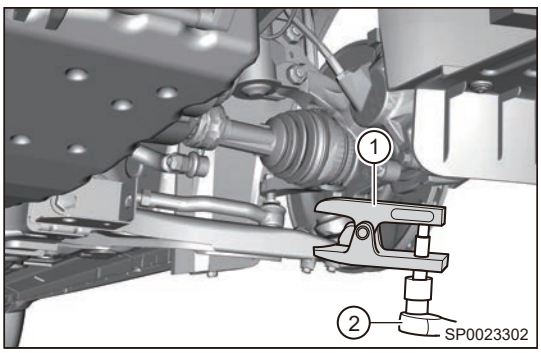
      Tightening torque: 95 ± 9 N m



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

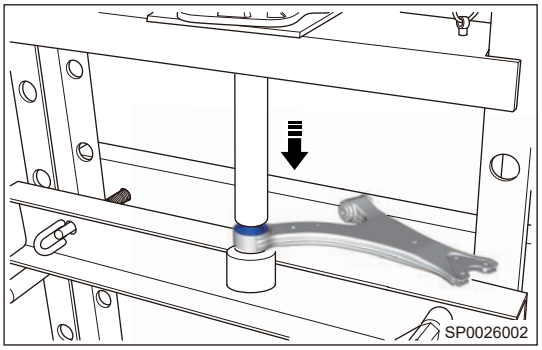


   c. Use the ball remover (1), turn the wrench (2) to detach the front control arm ball pin and steering knuckle.



   d. Remove the front left control arm ball pin assembly.
4. Remove front control arm front rubber bushing assembly.

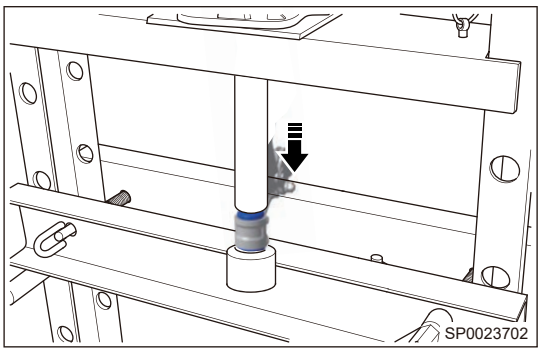
a. Place the front control arm assembly on a hydraulic press, install front control arm remover and adapter, and press out front control arm front rubber bushing assembly.



b. Remove the front control arm front rubber bushing assembly.

5. 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 front control arm rear rubber bushing assembly.



b. Remove the front control arm rear rubber bushing assembly.

Inspection

1. Check the control arm ball pin assembly.

a. Check control arm assembly ball pin bushes for wear, cracks, deformation, damage or grease leakage, replace it as necessary.

b. Check if control arm assembly ball pin rotates smoothly, replace it as necessary.

Installation

1. Installation is in the reverse order of removal.

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

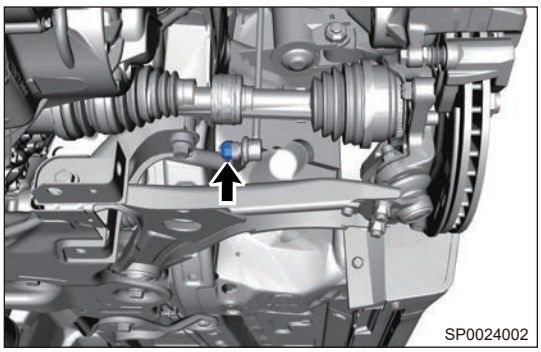
Front Stabilizer Bar Assembly

Removal

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

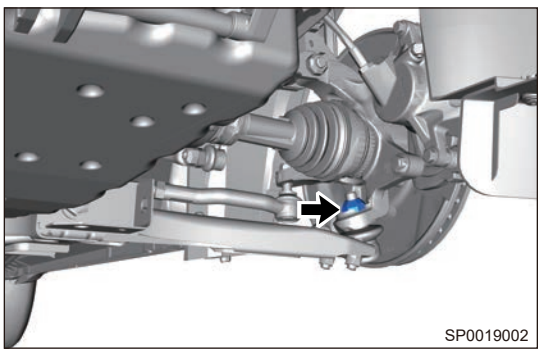
1. Remove the front wheel.
2. Remove the engine lower protector assembly.
3. Remove the front stabilizer bar assembly.
   a. Using an engine equalizer, support engine and transmission assembly securely.
   b. Remove the fixing nut (arrow) between stabilizer bar and connecting rod small end. Use same removal procedure for right side.

      Tightening torque: 60 ± 6 N m

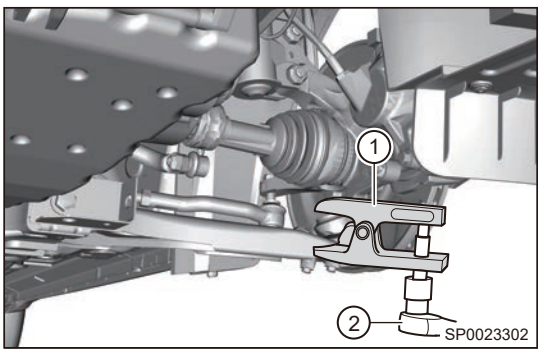

SP0024002

   c. Remove the coupling nut (arrow) between front left control arm assembly ball pin and front left steering knuckle assembly. Use same removal procedure for right side.

      Tightening torque: 60 ± 6 N m

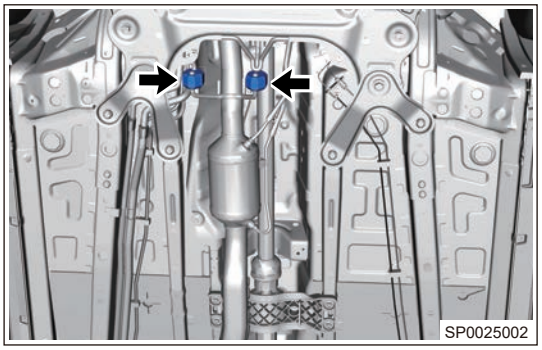

SP0019002

   d. Use the ball remover (1), turn the wrench (2) to detach the front control arm ball pin and steering knuckle. Use same removal procedure for right side.

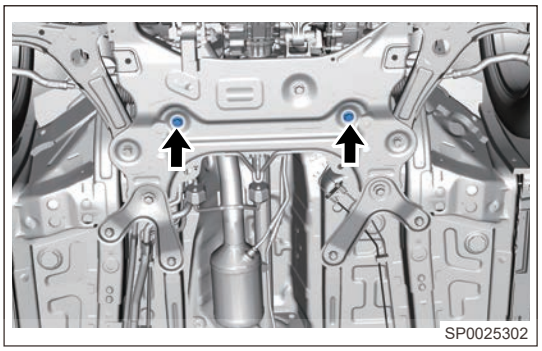


SP0023302

e. Detach exhaust pipe fixing rubber lugs (arrow) from front sub frame welding assembly.

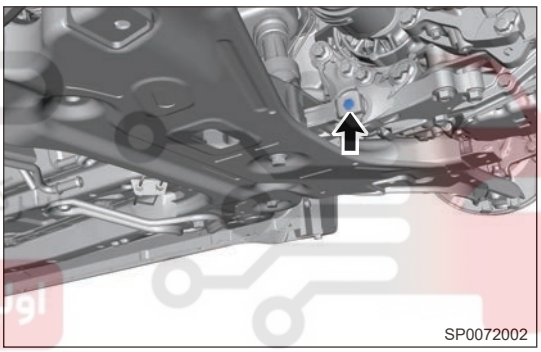


f. Remove 2 through bolts (arrow) between steering gear with tie rod assembly and sub frame.



g. Remove the transmission rear mounting fixing bolt (arrow).

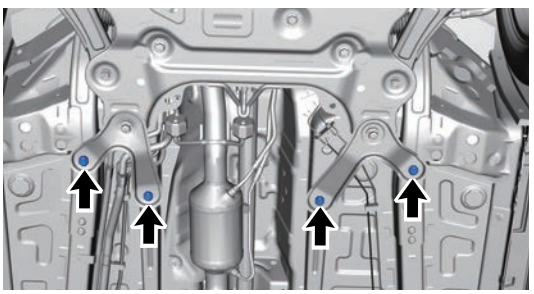
Tightening torque: 105 ± 10 N·m



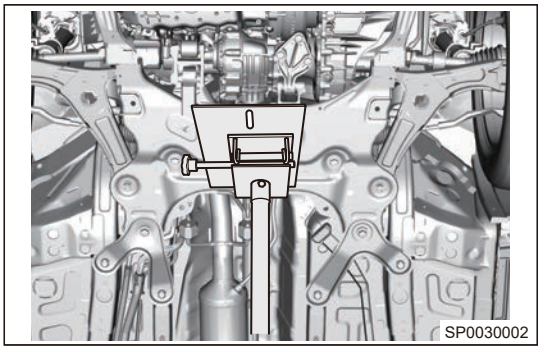
h. Remove the front left/right side rail assembly.

i. Remove 4 fixing bolts (arrow) between rear sub frame bracket and body.

Tightening torque: 120 ± 12 N·m

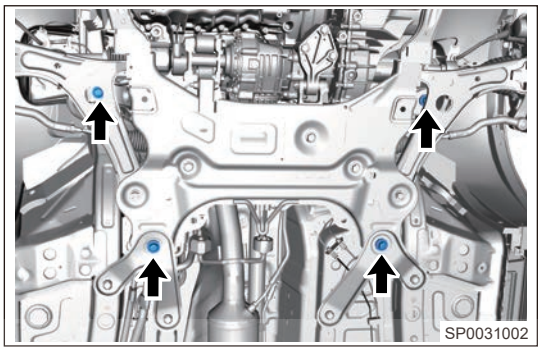


j. Using a transmission carrier, support front sub frame welding assembly.


SP0030002

k. Remove 4 fixing bolts (arrow) between sub frame and body.

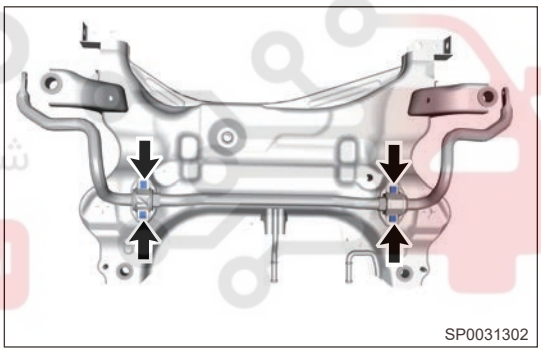
Tightening torque: 140 N•m + (45 ± 2) Deg (Rear Left, Rear Right, Front Right); 140 N•m + (39 ± 2) Deg (Front Left)


SP0031002

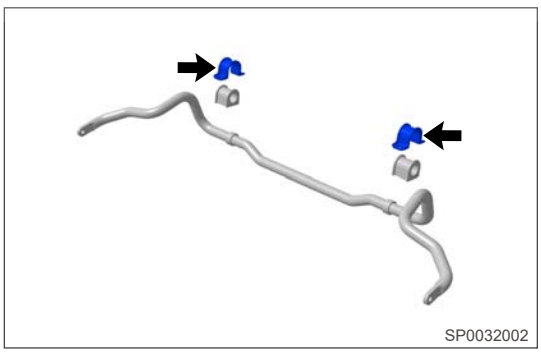
l. Slowly lower the front sub frame welding assembly.

m. Remove 4 fixing bolts (arrow) of stabilizer bar on sub frame, and remove front stabilizer bar assembly.

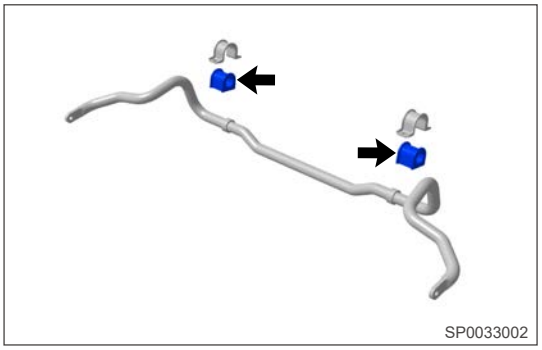
Tightening torque: 25 ± 3 N·m


SP0031302

n. Detach left and right fixing clamps (arrow) from front stabilizer bar assembly.


SP0032002

o. Detach left and right rubber supports (arrow) from front stabilizer bar assembly.



Inspection

1. Check the front stabilizer bar assembly.
   a. Check front stabilizer bar assembly fixing clamps for wear, cracks, deformation or damage. Replace it as necessary.
   b. Check front stabilizer bar assembly rubber supports for dirt, wear, cracks, deformation or damage. Replace it as necessary.

Installation

1. Installation is in the reverse order of removal.

Caution
• Be sure to tighten coupling bolts and nuts to specified torques. • Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary. • The stabilizer bar rubber support is a right and left symmetrical piece, and it is necessary to ensure that liner lips on both sides are opposite and the opening faces the rear of vehicle during installation.

Front Connecting Rod Assembly

Removal

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

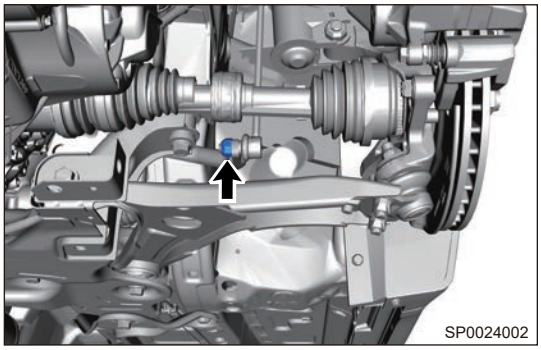
Hint:

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

1. Remove the front left wheel.
2. Remove the front left connecting rod assembly.

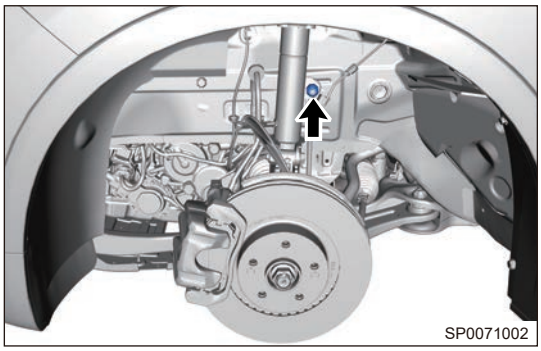
a. Hold the lower end of front left connecting rod assembly with an inner hexagon wrench, and remove the coupling nut (arrow) between front left stabilizer bar assembly and front left connecting rod assembly with a fixing wrench.

Tightening torque: 60 ± 6.0 N m



b. Hold the upper end of front left connecting rod assembly with an inner hexagon wrench, and remove the coupling nut (arrow) between front left stabilizer bar assembly and front left shock absorber assembly with a fixing wrench.

Tightening torque: 60 ± 6.0 N m



c. Remove the front left connecting rod assembly.

Inspection

1. Check the front connecting rod assembly.
   a. Check front connecting rod assembly bushing for wear, cracks, deformation, damage or grease leakage. Replace it as necessary.
   b. Check if end of front connecting rod assembly rotates smoothly. Replace it as necessary.

Installation

1. Installation is in the reverse order of removal.

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

Rear Shock Absorber Assembly

Description

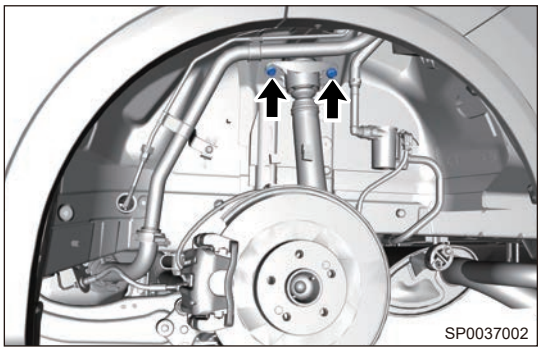
1	Rear Shock Absorber Cover Cap	4	Rear Dust Boot
2	Rear Shock Absorber Upper Connecting Plate Assembly (w/ Insulator)	5	Shock Absorber Locking Nut
3	Rear Buffer Block	6	Rear Shock Absorber Assembly

Removal

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

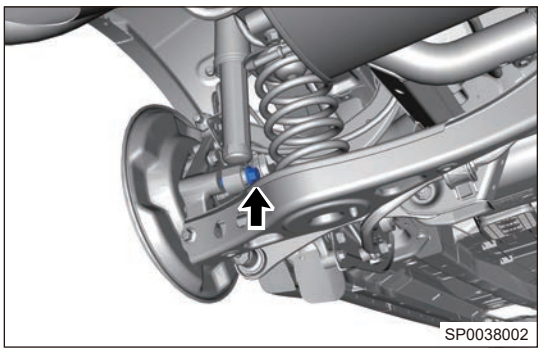
1. Remove the rear left wheel.
2. Remove the rear left wheel house assembly.
3. Remove the rear left shock absorber assembly.
   a. Remove 2 coupling bolts (arrow) between upper part of rear left shock absorber assembly and body.

      Tightening torque: 60 ± 6 N·m


SP0037002

   b. Remove the coupling bolt (arrow) between lower part of rear left shock absorber assembly and rear left steering knuckle assembly.

      Tightening torque: 160 ± 16 N·m


SP0038002

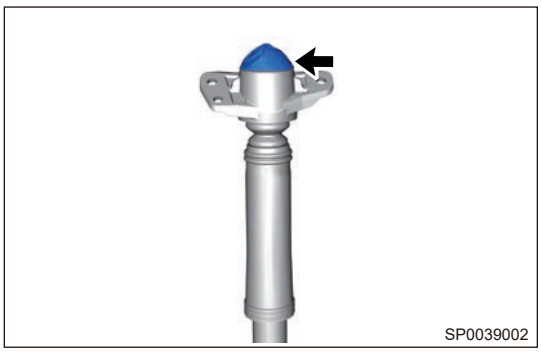
   c. Remove the rear left shock absorber assembly.

Disassembly

Hint:

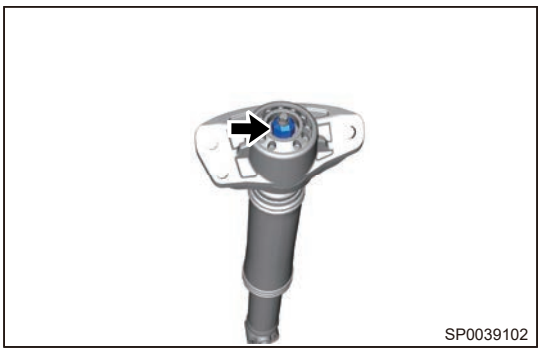
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

1. Disassemble the rear left shock absorber assembly.
   a. Remove the rear shock absorber cover cap (arrow).

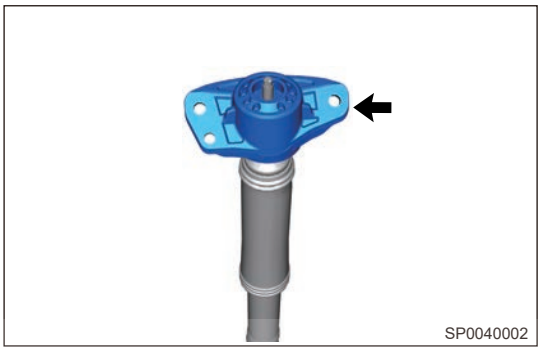

SP0039002

b. Remove the fixing nut (arrow) from rear shock absorber assembly.

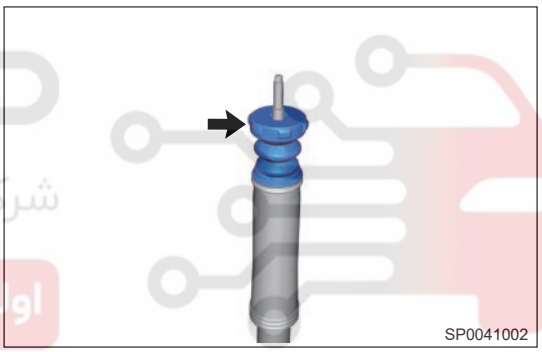
Tightening torque: 60 ± 6 N·m



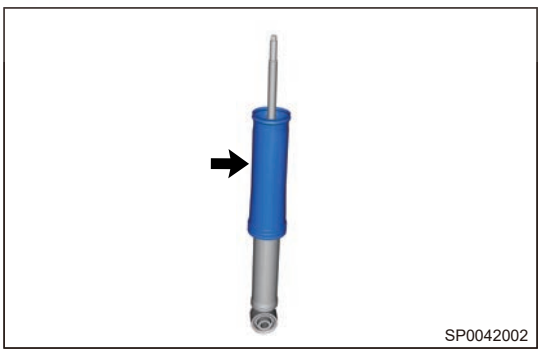
c. Remove the rear left shock absorber upper connecting plate assembly (w/ insulator) (arrow).



d. Remove the rear buffer block (arrow).



e. Remove the rear dust boot (arrow).

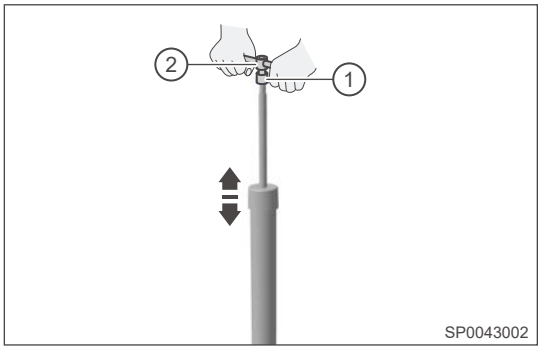


Inspection

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 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 front coil spring for wear, cracks or deformation. Replace it as necessary.

Assembly

1. Assembly is in the reverse order of disassembly.

Installation

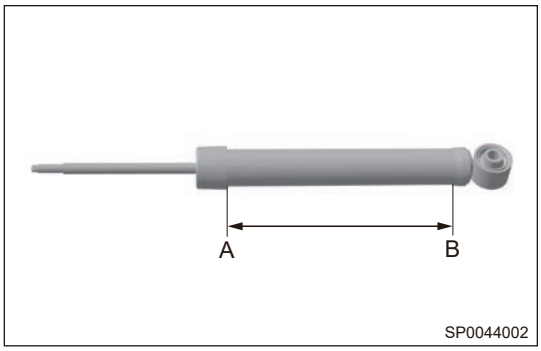
1. Installation is in the reverse order of removal.

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.

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. Disposal of the rear shock absorber assembly.
   a. Extend the rear shock absorber assembly strut fully.
   b. 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.



c. After discharging gas 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

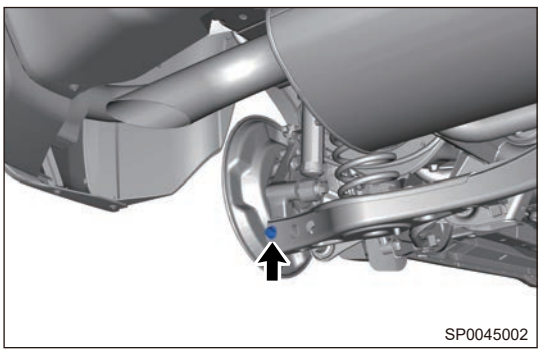
Removal

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

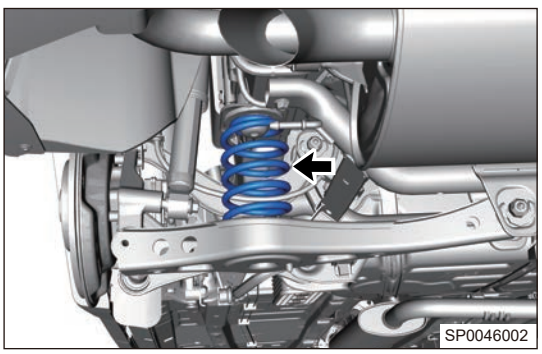
Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter is locked when repairing chassis parts. • It is not allowed to weld or modify suspension loading parts and guide parts. • When removing chassis parts, be sure to replace self-locking nuts and rusted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

1. Remove the rear wheel.
2. Remove the coil spring.
   a. Support the rear lower control arm assembly with a transmission carrier securely.
   b. Remove the coupling bolt and nut (arrow) between rear lower control arm assembly and rear steering knuckle assembly.

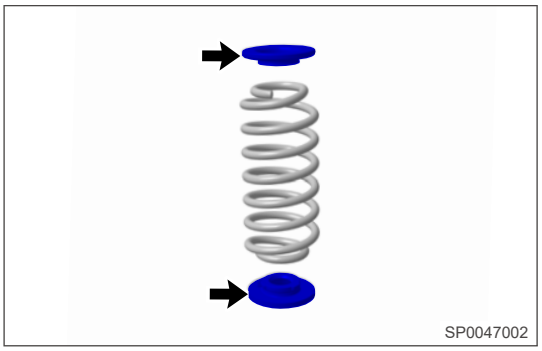
      Tightening torque: 110 ± 11 N·m


SP0045002

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

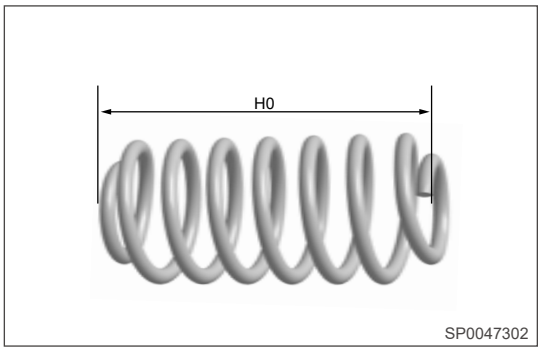

SP0046002

   d. Remove the rear coil spring upper and lower cushions (arrow).


SP0047002

Inspection

1. Check the rear coil spring assembly.
   a. Check rear coil spring for wear, cracks or permanent deformation due to excessive use. Replace it as necessary.
   b. Check rear coil spring upper cushion and lower cushion for dirty, wear, cracks, deformation or damage. Replace it as necessary.
   c. Check the free length of rear coil spring, replace it as necessary.



Installation

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

Rear Upper Control Arm Assembly

Removal

Hint:

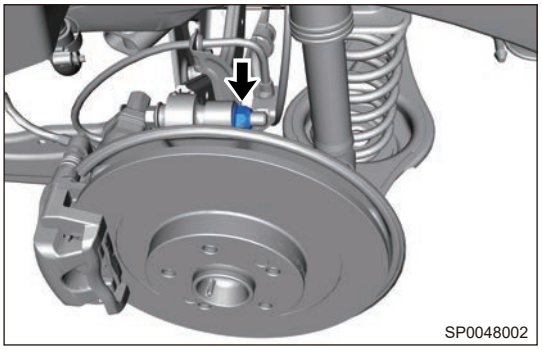
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter 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. Remove the rear wheel.
2. Remove the rear upper control arm assembly.

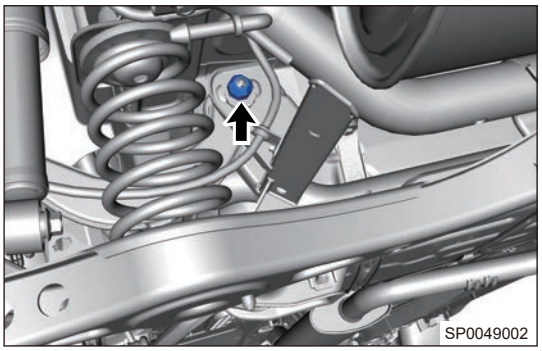
a. Remove the coupling bolt and nut (arrow) between rear upper control arm assembly and rear steering knuckle assembly.

Tightening torque: 160 ± 16 N·m



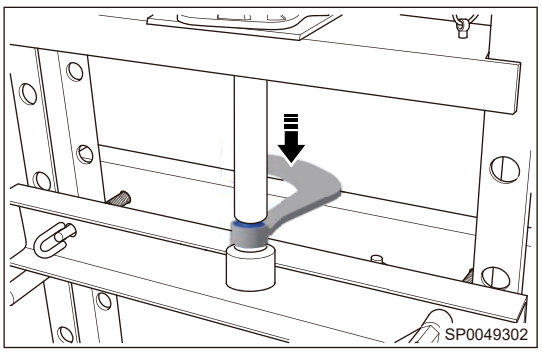
b. Remove the coupling bolt (arrow) between front left part of rear sub frame welding assembly and body.

Tightening torque: 115 ± 23 N·m



c. Remove the rear upper control arm assembly.

d. 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

1. Installation is in the reverse order of removal.
   - Be sure to tighten coupling bolts and nuts to specified torques.
   - Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.

Rear Lower Control Arm Assembly

Removal

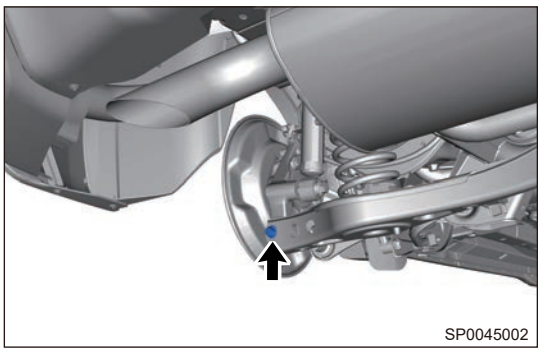
Hint:

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

Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter 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.

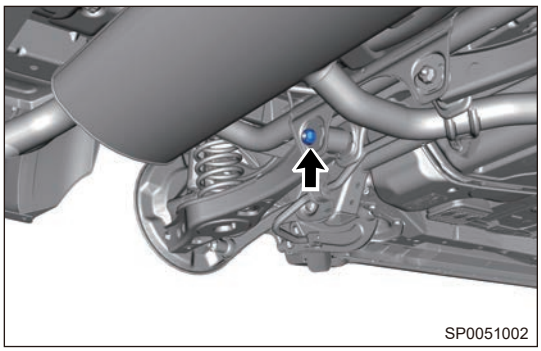
1. Remove the rear wheel.
2. Remove the rear lower control arm assembly.
   a. Support the rear lower control arm assembly with a transmission carrier securely.
   b. Remove the coupling bolt and nut (arrow) between rear lower control arm assembly and rear steering knuckle assembly.

      Tightening torque: 110 ± 11 N·m


SP0045002

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

      Tightening torque: 115 ± 23 N·m


SP0051002

   e. Remove the rear lower control arm assembly.

Installation

1. Installation is in the reverse order of removal.
   - Be sure to tighten coupling bolts and nuts to specified torques.
   - Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.

Rear Trailing Arm Assembly

Removal

Hint:

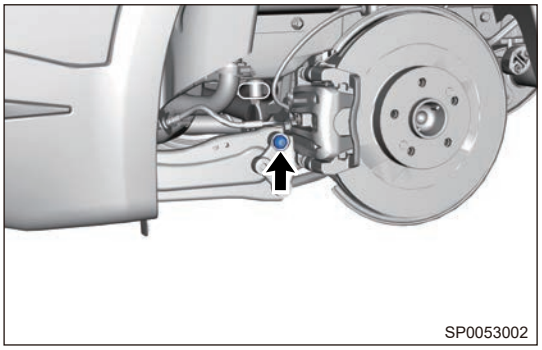
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter 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. Remove the rear wheel.
2. Remove the rear trailing arm assembly.

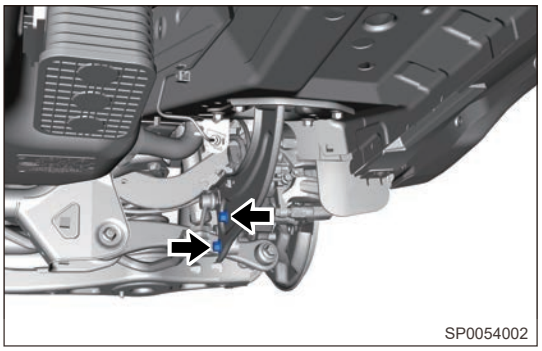
a. Remove the coupling nut (arrow) between rear connecting rod assembly and rear trailing arm assembly, and disengage rear connecting rod assembly.

Tightening torque: 60 ± 6.0 N·m


SP0053002

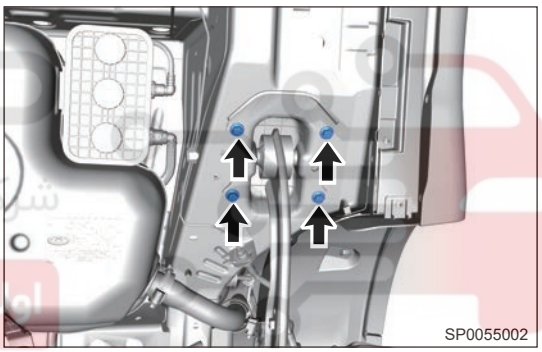
b. Remove 2 coupling bolts (arrow) between rear steering knuckle assembly and rear trailing arm assembly.

Tightening torque: 110 ± 11 N·m


SP0054002

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

Tightening torque: 60 ± 6.0 N·m


SP0055002

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

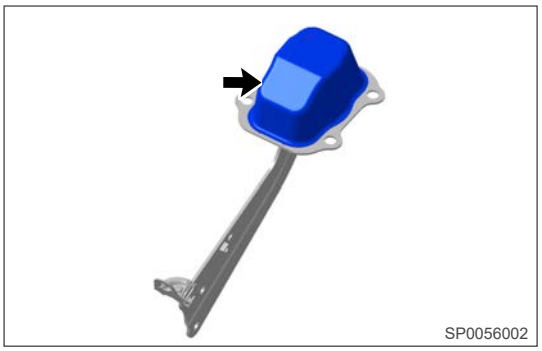
Disassembly

Hint:

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

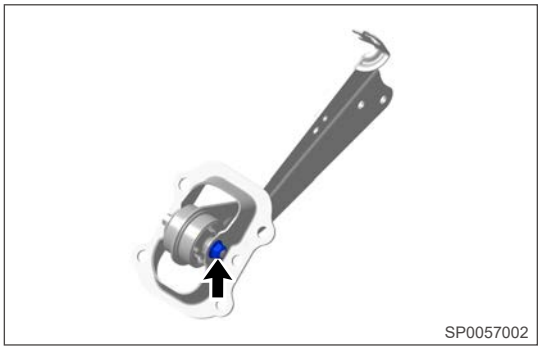
1. Disassemble the rear trailing arm assembly.

a. Remove the rear trailing arm mounting bracket dust boot (arrow).

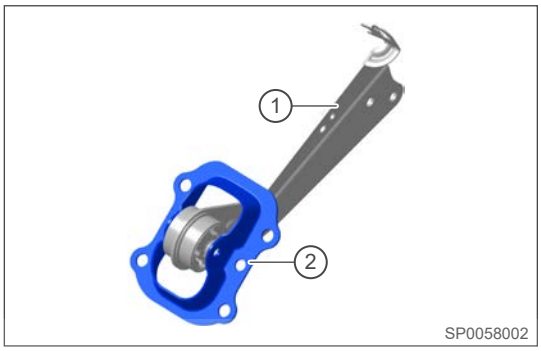

SP0056002

b. Remove the coupling bolt and nut (arrow) between rear trailing arm assembly and mounting bracket.

Tightening torque: 120 ± 12 N·m

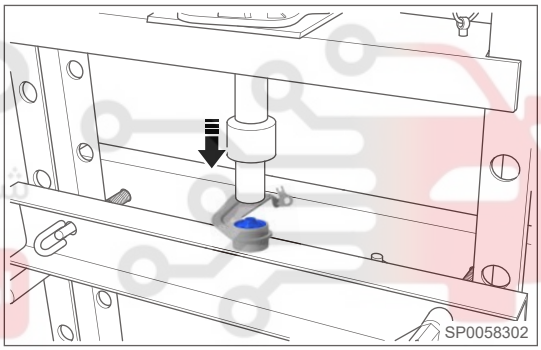

SP0057002

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



SP0058002

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


SP0058302

Assembly

1. Assembly is in the reverse order of disassembly.

Installation

1. Installation is in the reverse order of removal.
   - Be sure to tighten coupling bolts and nuts to specified torques.
   - Check wheel alignment after installation is completed. Adjust wheel alignment to standard range as necessary.

Rear Pull Rod Assembly

Removal

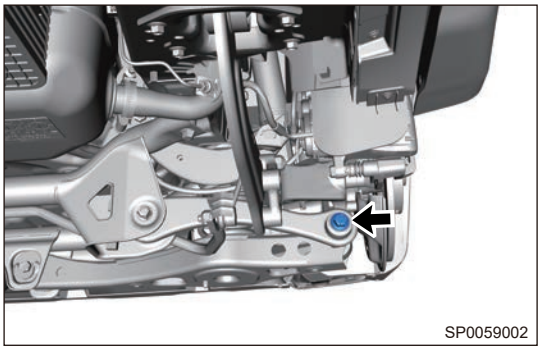
Hint:

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

Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter 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.

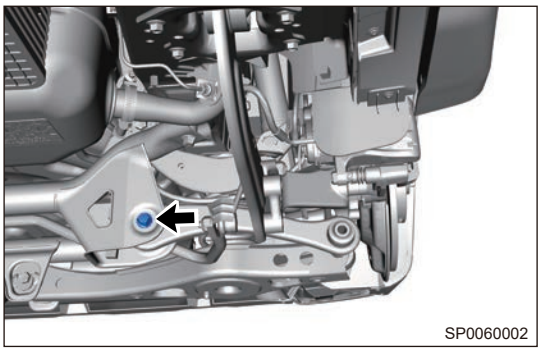
1. Remove the rear wheel.
2. Remove the rear pull rod assembly.
   a. Remove the coupling bolt and nut (arrow) between rear pull rod assembly and rear steering knuckle assembly.

      Tightening torque: 160 ± 16 N·m

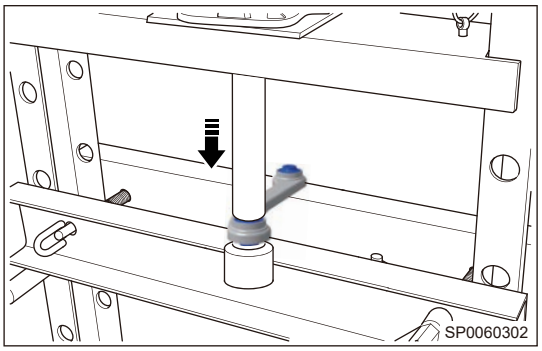

SP0059002

   b. Remove the coupling bolt and nut (arrow) between rear pull rod assembly and rear sub frame welding assembly.

      Tightening torque: 110 ± 11 N·m


SP0060002

   c. Remove the rear pull rod assembly.
   d. Place the rear pull rod assembly on a hydraulic press, and press out rear pull rod assembly rubber bushing with hydraulic press.


SP0060302

Installation

1. Installation is in the reverse order of removal.
   • Be sure to tighten coupling bolts and nuts to specified torques.

Rear Stabilizer Bar Assembly

Removal

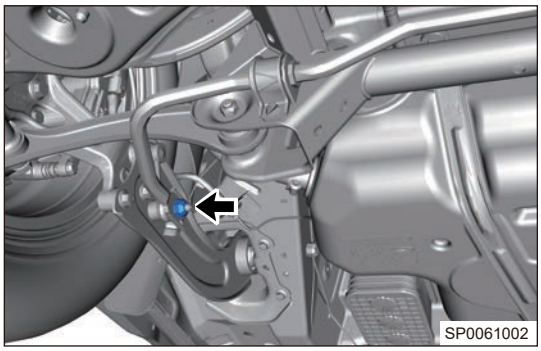
Hint:

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

Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter 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.

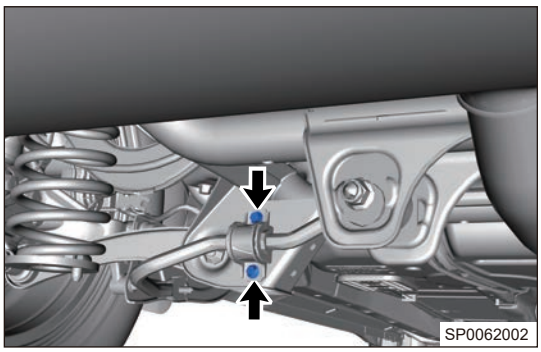
1. Remove the rear stabilizer bar assembly.
   a. Remove the coupling nut (arrow) between rear left connecting rod assembly and rear stabilizer bar assembly. Use same removal procedure for right side.

      Tightening torque: 60 ± 6.0 N·m

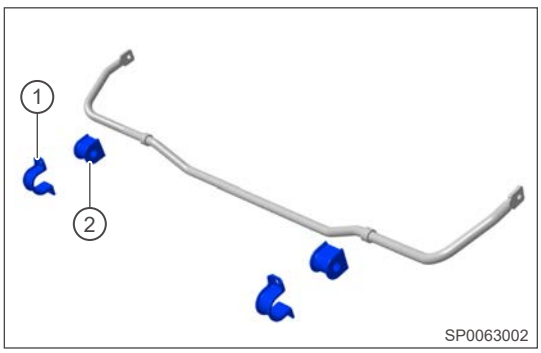


   b. Remove 2 coupling bolts (arrow) between rear stabilizer bar assembly and rear sub frame welding assembly. Use same removal procedure for right side.

      Tightening torque: 60 ± 6 N·m



   c. Remove the rear stabilizer bar assembly.
   d. 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

1. Installation is in the reverse order of removal.
   - Be sure to tighten coupling bolts and nuts to specified torques.

Rear Connecting Rod Assembly

Removal

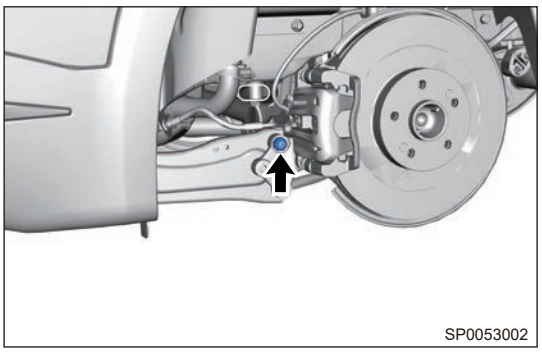
Hint:

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

Caution
• Be sure to wear necessary safety equipment to prevent accidents. • Check if safety lock of lifter 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.

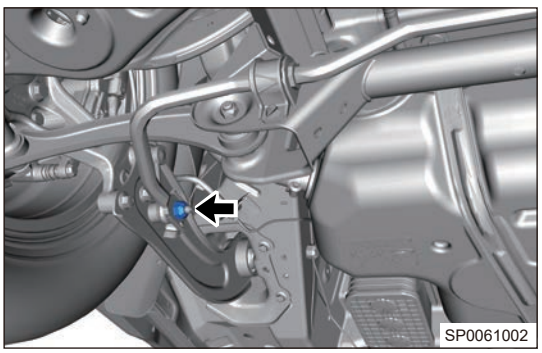
1. Remove the rear connecting rod assembly.
   a. Remove the coupling nut (arrow) between rear connecting rod assembly and rear trailing arm assembly, and disengage rear connecting rod assembly.

      Tightening torque: 60 ± 6.0 N·m


SP0053002

   b. Remove the coupling nut (arrow) between rear connecting rod assembly and rear stabilizer bar assembly.

      Tightening torque: 60 ± 6.0 N·m


SP0061002

   c. Remove the rear connecting rod assembly.

Inspection

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

Installation

1. Installation is in the reverse order of removal.
   - 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.