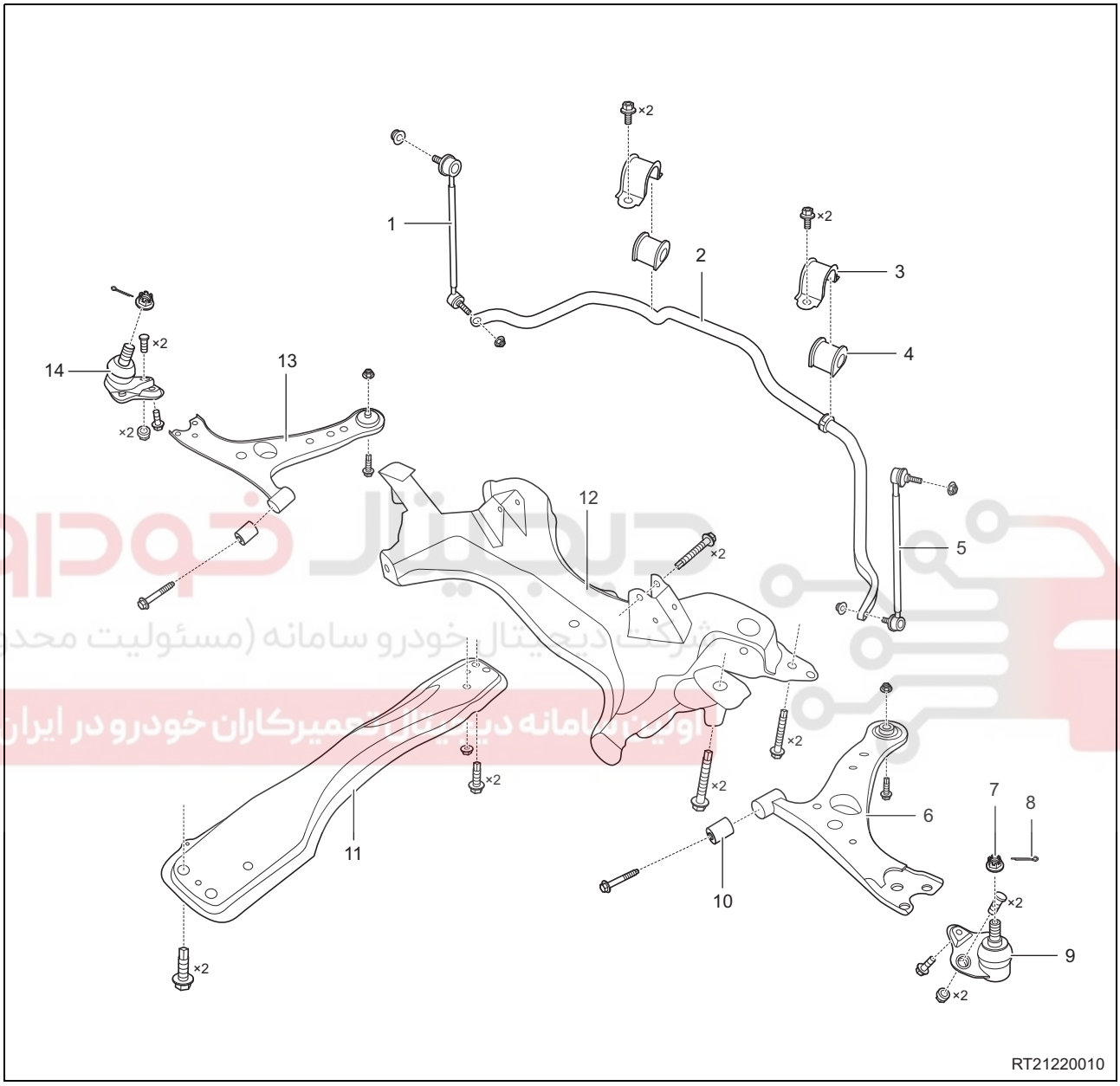
AXLE

33

GENERAL INFORMATION

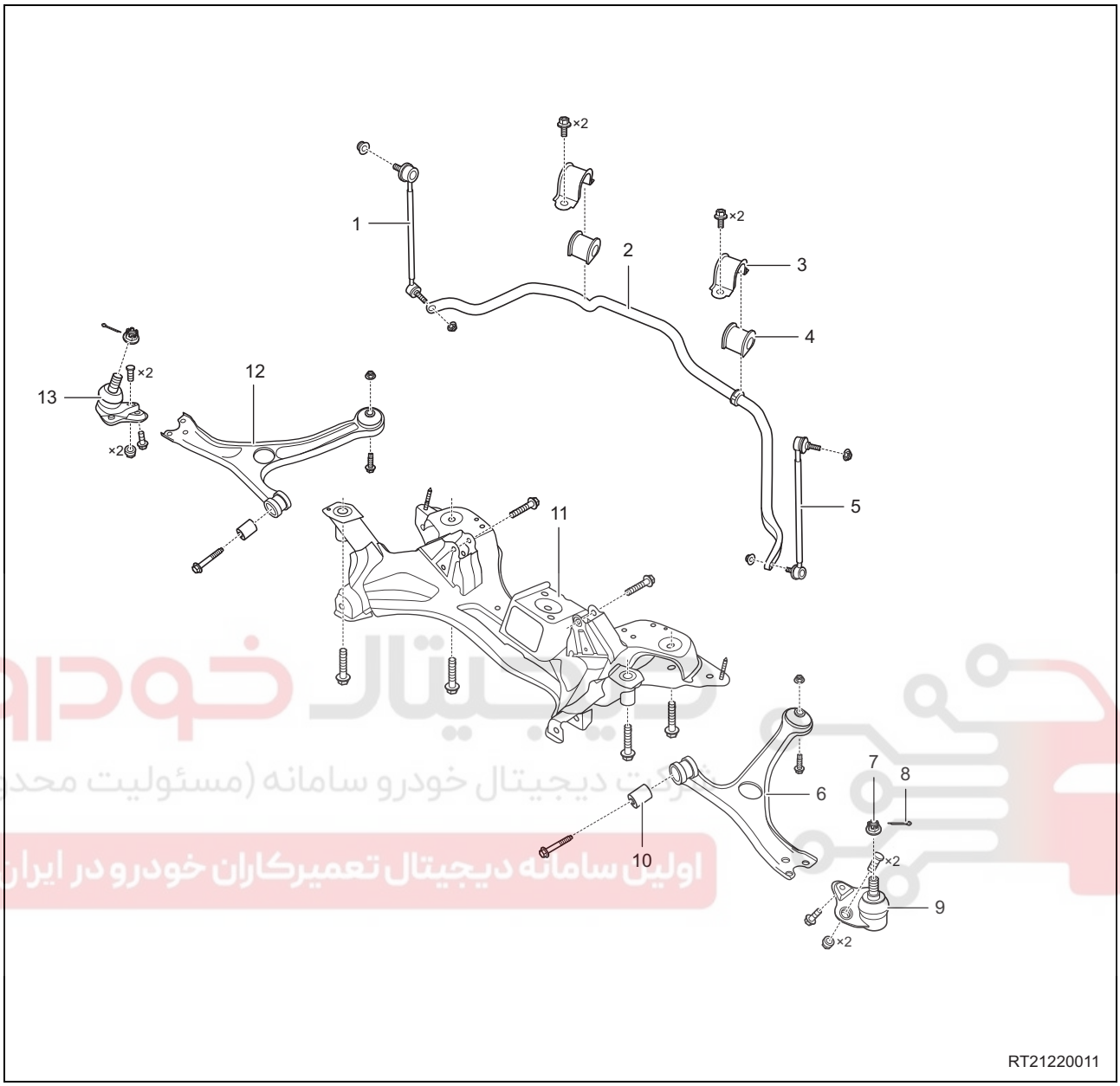
Description

Front Axle (for 2.0L Model)



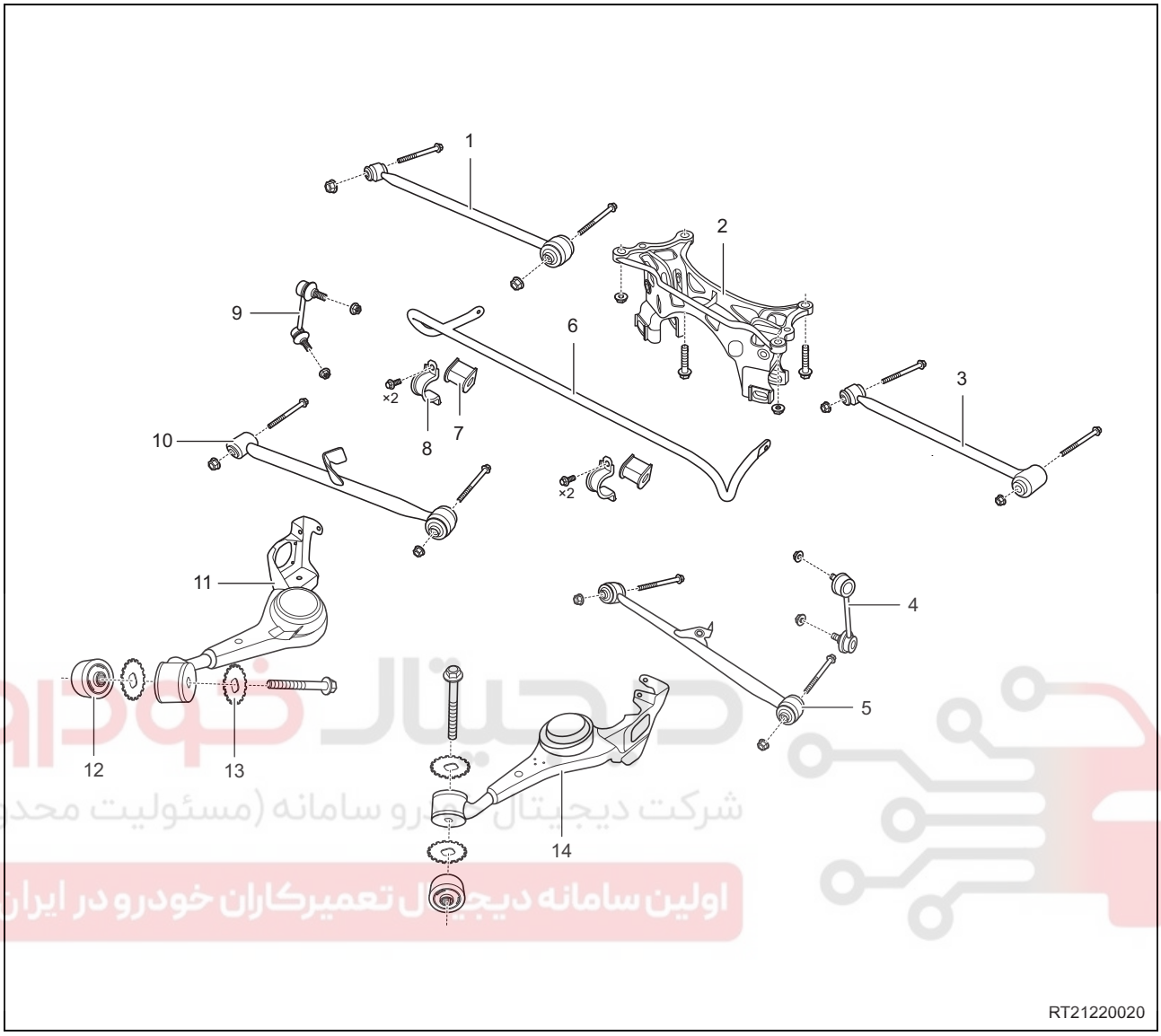
1 - Front Right Connecting Rod Assembly	2 - Front Stabilizer Bar
3 - Front Stabilizer Bar Retainer	4 - Front Stabilizer Bar Rubber Bushing
5 - Front Left Connecting Rod Assembly	6 - Front Left Control Arm Assembly
7 - Front Control Arm Ball Pin Assembly Locking Nut	8 - Front control Arm Ball Pin Lock Pin
9 - Front Left Control Arm Ball Pin Assembly	10 - Front Rubber Bushing Assembly
11 - Side Rail Welding Assembly	12 - Front Sub Frame Welding Assembly
13 - Front Right Control Arm Assembly	14 - Front Right Control Arm Ball Pin Assembly

Front Axle (for 1.5L Model)



1 - Front Right Connecting Rod Assembly	2 - Front Stabilizer Bar
3 - Front Stabilizer Bar Retainer	4 - Front Stabilizer Bar Rubber Bushing
5 - Front Left Connecting Rod Assembly	6 - Front Left Control Arm Assembly
7 - Front Control Arm Ball Pin Assembly Locking Nut	8 - Front control Arm Ball Pin Lock Pin
9 - Front Left Control Arm Ball Pin Assembly	10 - Front Rubber Bushing Assembly
11 - Front Sub Frame Welding Assembly	12 - Front Right Control Arm Assembly
13 - Front Right Control Arm Ball Pin Assembly	

Rear Axle



1 - Rear Suspension Upper Right Swing Arm Assembly	2 - Rear Sub Frame Welding Assembly
3 - Rear Suspension Upper Left Swing Arm Assembly	4 - Rear Left Connecting Rod Assembly
5 - Rear Suspension Lower Left Swing Arm Assembly	6 - Rear Stabilizer Bar
7 - Rear Stabilizer Bar Rubber Bushing	8 - Rear Stabilizer Bar Retainer
9 - Rear Right Connecting Rod Assembly	10 - Rear Suspension Lower Right Swing Arm Assembly
11 - Rear Right Trailing Arm Assembly	12 - Rubber Bushing Assembly
13 - Rubber Cushion	14 - Rear Left Trailing Arm Assembly

Axles are connected to the integral body through suspension, and wheels are installed on both ends. The function is to transmit the force in all directions between integral body and wheels.

Specifications

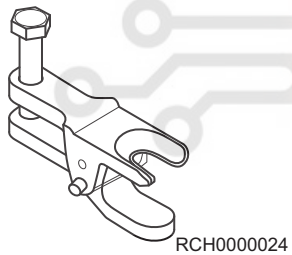
Torque Specifications

Description	Torque (N·m)
Wheel Mounting Bolt	110 ± 10
Front Drive Shaft Assembly Locking Nut	300 ± 20
Coupling Bolt Between Front Hub Assembly and Front Steering Knuckle Assembly	70 - 75
Coupling Bolt Between Front Wheel Speed Sensor and Front Steering Knuckle Assembly	10 ± 1
Locking Nut Between Steering Tie Rod Assembly Ball Pin and Front Steering Knuckle Assembly	47 ± 3
Coupling Nut Between Front Control Arm Assembly Ball Pin and Front Steering Knuckle Assembly	120 ± 12
Coupling Bolt Between Front Shock Absorber Assembly and Front Steering Knuckle Assembly	180 ± 10
Coupling Nut Between Front Shock Absorber Assembly and Front Steering Knuckle Assembly	180 ± 10
Coupling Bolt Between Engine Lower Protector Assembly and Side Rail Welding Assembly	10 ± 1
Coupling Bolt Between Rear Mounting Cushion Assembly and Rear Mounting Bracket	70 ± 5
Coupling Nut Between Rear Mounting Cushion Assembly and Rear Mounting Bracket	70 ± 5
Coupling Bolt Between Front Mounting Cushion Assembly and Front Mounting Bracket	70 ± 5
Coupling Nut Between Front Mounting Cushion Assembly and Front Mounting Bracket	70 ± 5
Coupling Bolt Between Side Rail Welding Assembly and Body	80 ± 6
Coupling Bolt Between Side Rail Welding Assembly and Front Mounting Cushion Assembly	70 ± 5
Coupling Bolt Between Side Rail Welding Assembly and Rear Mounting Cushion Assembly	70 ± 5
Coupling Nut Between Side Rail Welding Assembly and Rear Mounting Cushion Assembly	70 ± 5
Coupling Bolt Between Front Stabilizer Bar and Front Sub Frame Welding Assembly	20 ± 3
Coupling Bolt Between Front Sub Frame Welding Assembly and Steering Gear Assembly	120 ± 10
Coupling Bolt Between Upper Part of Front Sub Frame Welding Assembly and Body	180 ± 10
Coupling Bolt Between Rear Part of Front Sub Frame Welding Assembly and Body	180 ± 10

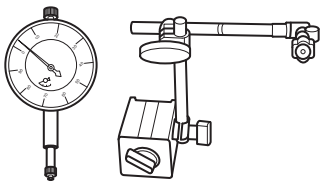
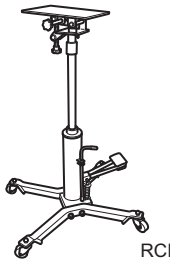
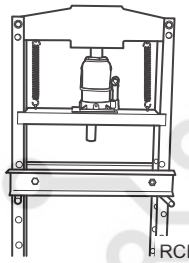
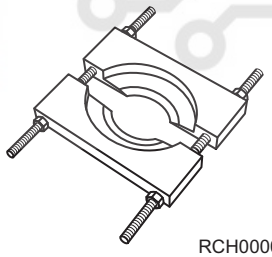
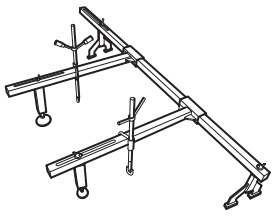
Description	Torque (N·m)
Coupling Nut Between Rear Hub Bearing Unit and Rear Brake Bottom Board Assembly	68 ± 5
Coupling Bolt Between Rear Suspension Upper Swing Arm Assembly and Rear Sub Frame Assembly	120 ± 10
Coupling Nut Between Rear Suspension Upper Swing Arm Assembly and Rear Sub Frame Assembly	120 ± 10
Coupling Bolt Between Rear Suspension Lower Swing Arm Assembly and Rear Sub Frame Assembly	120 ± 10
Coupling Nut Between Rear Suspension Lower Swing Arm Assembly and Rear Sub Frame Assembly	120 ± 10
Coupling Bolt Between Rear Sub Frame Assembly and Body	120 ± 10
Coupling Nut Between Rear Sub Frame Assembly and Body	120 ± 10

Tools

Special Tool

Ball Pin Separator	 RCH0000024

General Tools

Dial Indicator and Magnetic Holder	 RCH0000023
Transmission Carrier	 RCH0000005
Hydraulic Press	 RCH0000012
Bearing Remover	 RCH0000011
Engine Equalizer	 RCH0000026

DIAGNOSIS & TESTING

Problem Symptoms Table

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

Symptom	Suspected Area	See page
Pulls	Tire (worn or improperly inflated)	35-7
	Front wheel alignment (wrong)	34-52
	Rear wheel alignment (wrong)	34-52
	Front hub bearing (loose or worn)	33-10
	Rear hub bearing (loose or worn)	33-22
	Steering gear (misaligned or damaged)	40-23
	Suspension component (worn)	34-29
Front wheel shimmy	Tire (worn or improperly inflated)	35-7
	Wheel (imbalanced)	35-9
	Front shock absorber assembly (stuck or damaged)	34-14
	Front wheel alignment (wrong)	34-52
	Control arm assembly ball pin (stuck or damaged)	34-22
	Front hub bearing (loose or worn)	33-10
	Steering gear (misaligned or damaged)	40-23
Rear wheel shimmy	Tire (worn or improperly inflated)	35-7
	Wheel (imbalanced)	35-9
	Rear shock absorber assembly (stuck or damaged)	34-34
	Rear hub bearing (loose or worn)	33-22
	Rear wheel alignment (wrong)	34-52

ON-VEHICLE SERVICE

Front Hub Assembly

Removal

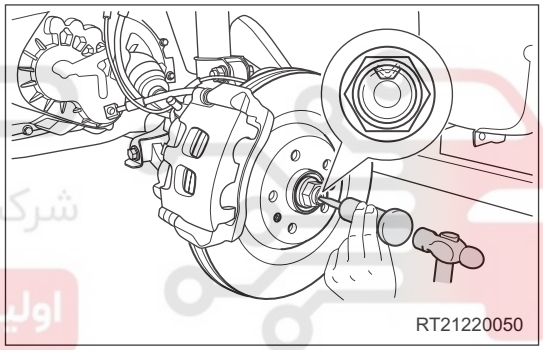
⚠ WARNING

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

HINT:

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

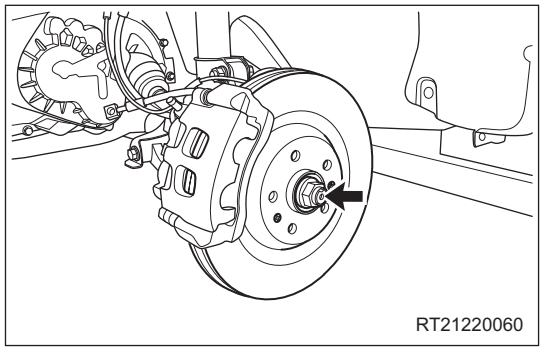
1. Remove the front left wheel (See page 35-9).
2. Remove the front drive shaft assembly locking nut.
   a. Using a nut chisel and a hammer, loosen the staked part of nut.


RT21220050

CAUTION

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

   b. Remove the front drive shaft assembly locking nut (arrow) while applying the brakes securely.
   (Tightening torque: 300 ± 20 N·m)

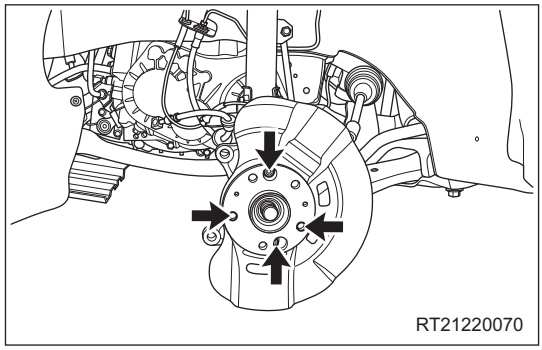

RT21220060

3. Remove the front left brake caliper assembly (See page 37-31).

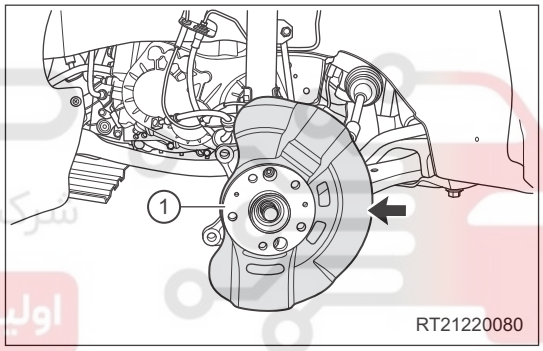
CAUTION

- Place front brake caliper assembly to a proper position after removal. Be careful not to extend front brake hose excessively.

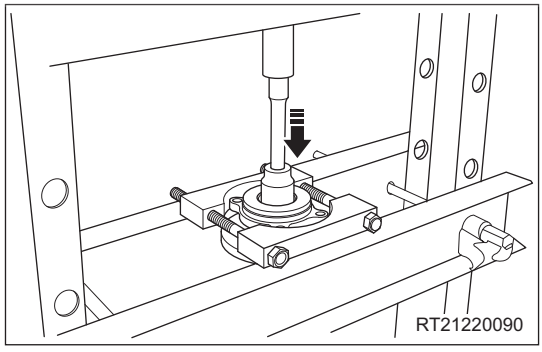
4. Remove the front left brake disc (See page 37-31).
5. Remove the front left hub assembly.
   a. Remove 4 coupling bolts (arrow) between front left hub assembly and front left steering knuckle assembly. (Tightening torque: 70 - 75 N·m)



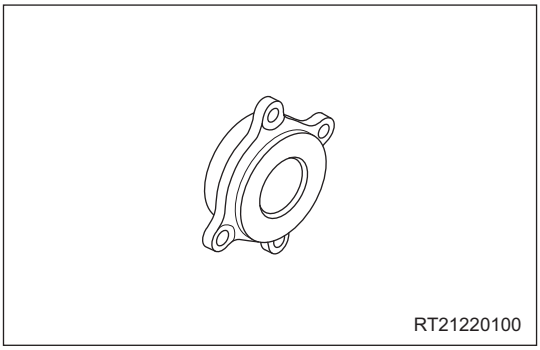
   b. Remove the front left mudguard (arrow) and front left hub assembly (1).



6. Remove the front left hub bearing.
   a. Place front left hub assembly on a hydraulic press, install bearing remover and adapter, and press out the front left hub with hydraulic press.



b. Remove the front left hub bearing.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten coupling bolts and nut to the specified torque.
- Check that hub assembly turns freely without sticking after installation.

Front Steering Knuckle

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 permitted to weld or modify bearing parts of wheel suspension and guide parts of wheel.
- When removing chassis parts, replace the self-locking nuts and rusted nuts for safety.

HINT:

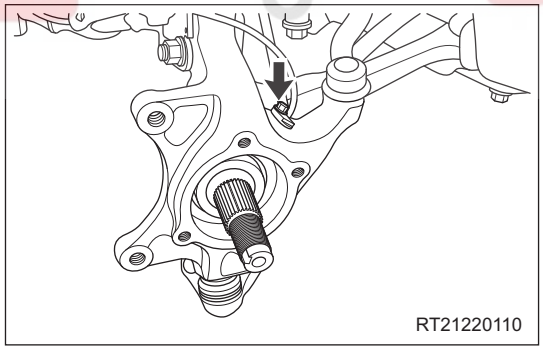
- Use the same procedures for the right side and left side.
- Procedures listed below are for the left side.

1. Remove the front left wheel (See page 35-9).
2. Remove the front drive shaft assembly locking nut (See page 33-10).
3. Remove the front left brake caliper assembly (See page 37-31).

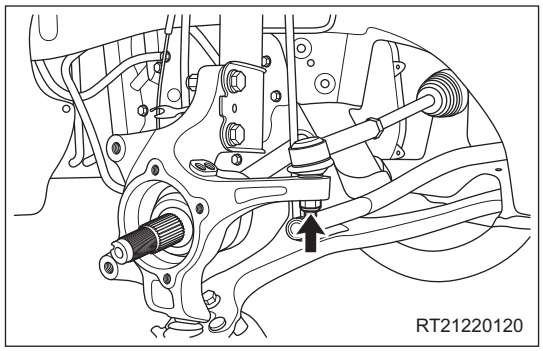
CAUTION

- Place front brake caliper assembly to a proper position after removal. Be careful not to extend front brake hose excessively.

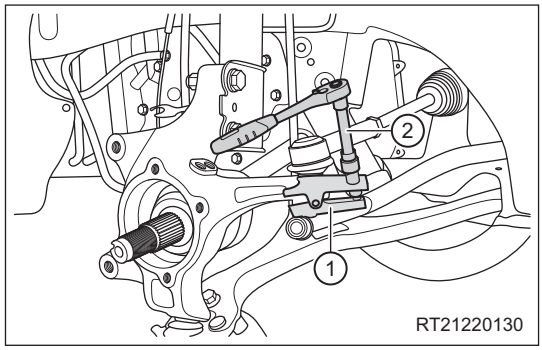
4. Remove the front left brake disc (See page 37-31).
5. Remove the front left hub assembly (See page 33-10).
6. Remove the front left mudguard (See page 33-10).
7. Remove the front left steering knuckle assembly.
   a. Remove the coupling bolt (arrow) between front left wheel speed sensor and front left steering knuckle assembly, and disengage the front left wheel speed sensor carefully.
   (Tightening torque: 10 ± 1 N·m)



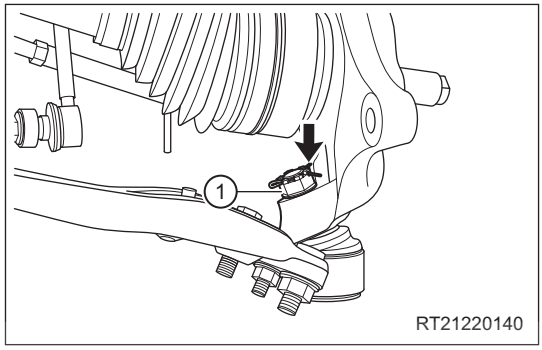
   b. Remove the locking nut (arrow) between left steering tie rod assembly ball pin and front left steering knuckle assembly.
   (Tightening torque: 47 ± 3 N·m)



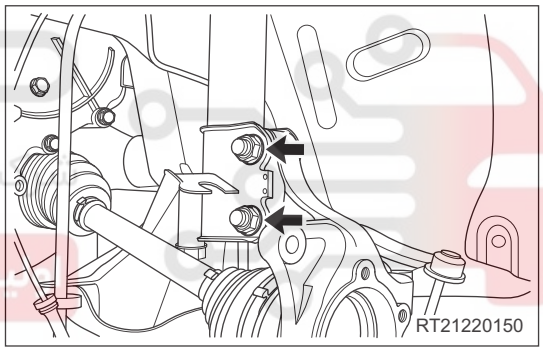
c. Install the ball pin separator (1), and tighten the ball pin separator bolt with a wrench (2) to separate the steering tie rod ball pin from the steering knuckle assembly.



d. Remove the lock pin (arrow) and coupling nut (1) between front left control arm assembly ball pin and front left steering knuckle assembly.
(Tightening torque: 120 ± 12 N·m)



e. Remove 2 coupling bolts and nuts (arrow) between front left shock absorber assembly and front left steering knuckle assembly.
(Tightening torque: 180 ± 10 N·m)



f. Detach the left drive shaft and remove the front left steering knuckle assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten coupling bolts and nuts to the specified torque.
- Check and adjust front wheel alignment after installation.

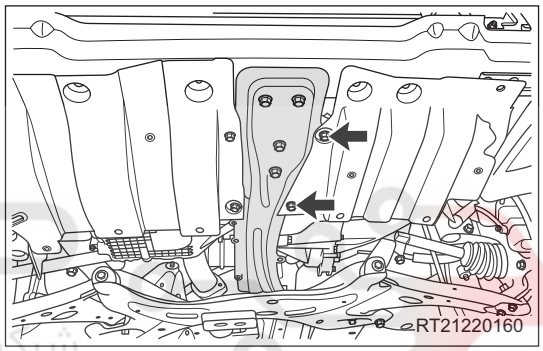
Side Rail Welding Assembly (for 2.0L Model)

Removal

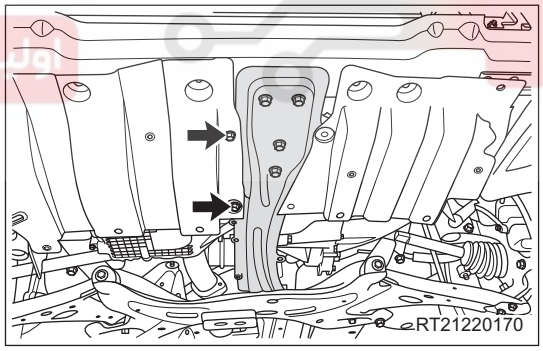
⚠ WARNING

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

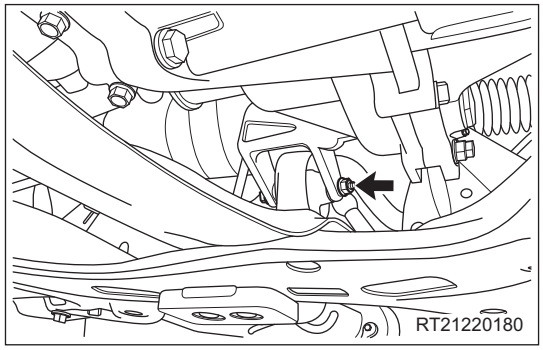
1. Remove the side rail welding assembly.
   a. Using an engine equalizer, support the engine and transmission assembly securely.
   b. Remove 2 coupling bolts (arrow) between engine lower left protector assembly and side rail welding assembly.
   (Tightening torque: 10 ± 1 N·m)



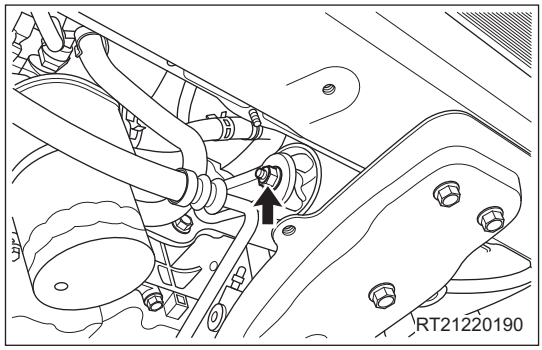
   c. Remove 2 coupling bolts (arrow) between engine lower right protector assembly and side rail welding assembly.
   (Tightening torque: 10 ± 1 N·m)



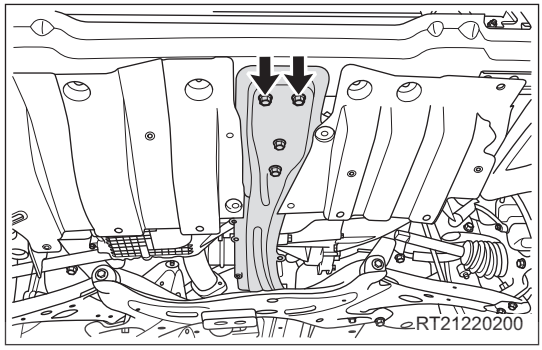
   d. Remove the coupling bolt and nut (arrow) between rear mounting cushion assembly and rear mounting bracket.
   (Tightening torque: 70 ± 5 N·m)



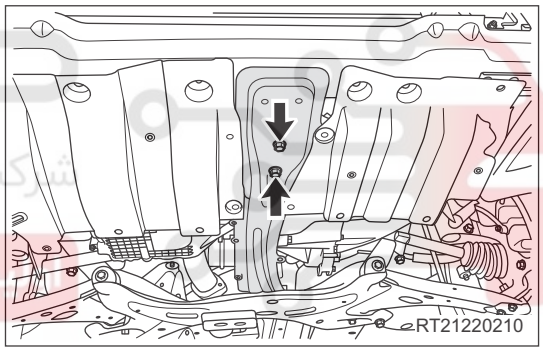
e. Remove the coupling bolt and nut (arrow) between front mounting cushion assembly and front mounting bracket.
(Tightening torque: 70 ± 5 N·m)



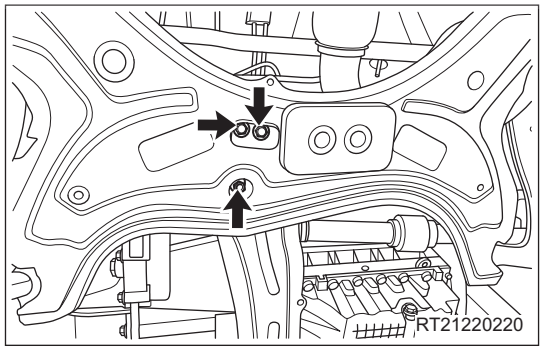
f. Remove 2 coupling bolts (arrow) between side rail welding assembly and body.
(Tightening torque: 80 ± 6 N·m)



g. Remove 2 coupling bolts (arrow) between side rail welding assembly and front mounting cushion assembly.
(Tightening torque: 70 ± 5 N·m)



h. Remove 2 coupling bolts and a nut (arrow) between side rail welding assembly and rear mounting cushion assembly.
(Tightening torque: 70 ± 5 N·m)



i. Remove the side rail welding assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten coupling bolts and nuts to the specified torque.

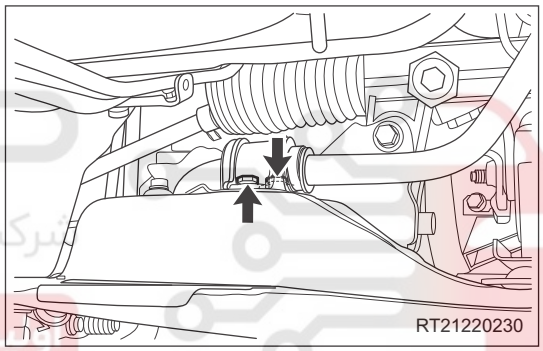
Front Sub Frame Welding Assembly (for 2.0L Model)

Removal

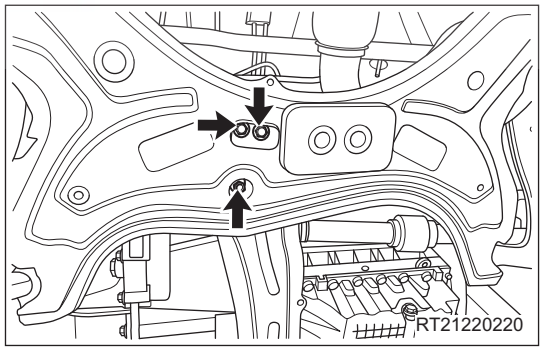
⚠ WARNING

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

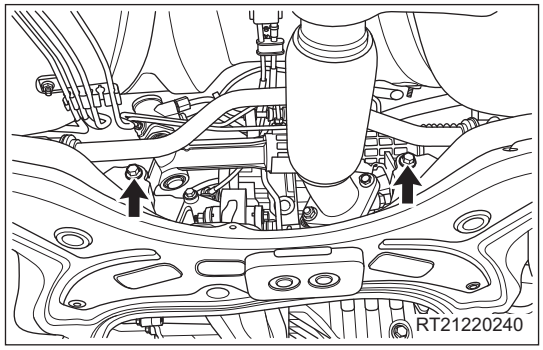
1. Remove the front wheel (See page 35-9).
2. Remove the front control arm assembly (See page 34-26).
3. Remove the front sub frame welding assembly.
   a. Using an engine equalizer, support the engine and transmission assembly securely. Use the same procedure to remove the right side.
   b. Remove 2 coupling bolts (arrow) between front left stabilizer bar and front sub frame welding assembly.
   (Tightening torque: 20 ± 3 N·m)



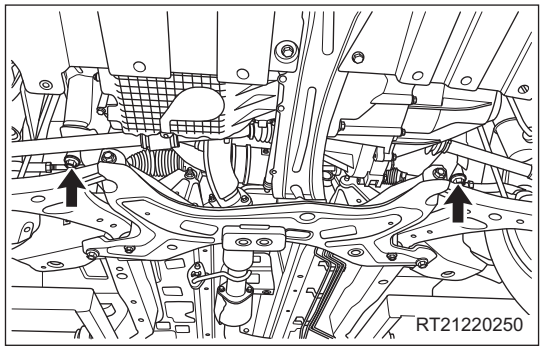
   c. Remove 2 coupling bolts and a nut (arrow) between side rail welding assembly and rear mounting cushion assembly.
   (Tightening torque: 70 ± 5 N·m)



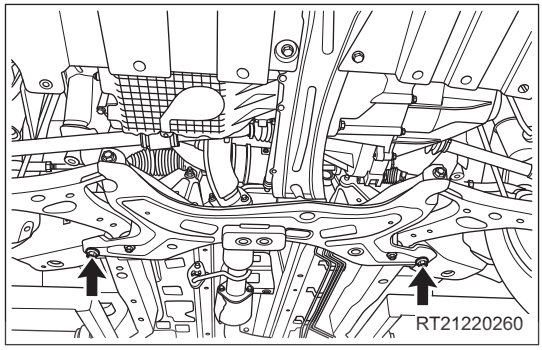
   d. Remove 2 coupling bolts (arrow) between front sub frame welding assembly and steering gear assembly.
   (Tightening torque: 120 ± 10 N·m)



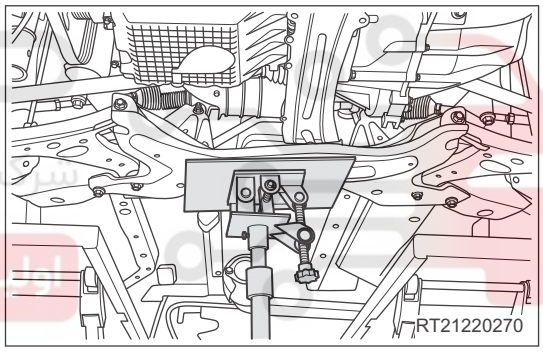
e. Remove 2 coupling bolts (arrow) between upper part of front sub frame welding assembly and body. (Tightening torque: 180 ± 10 N·m)



f. Remove 2 coupling bolts (arrow) between rear part of front sub frame welding assembly and body. (Tightening torque: 180 ± 10 N·m)



g. Support the front sub frame welding assembly with a transmission carrier and carefully remove it.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten coupling bolts and nut to the specified torque.
- Check and adjust front wheel alignment after installation.

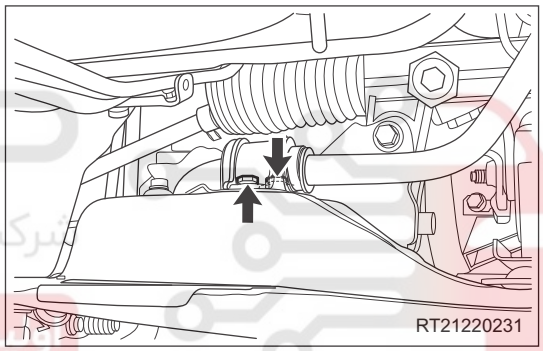
Front Sub Frame Welding Assembly (for 1.5L Model)

Removal

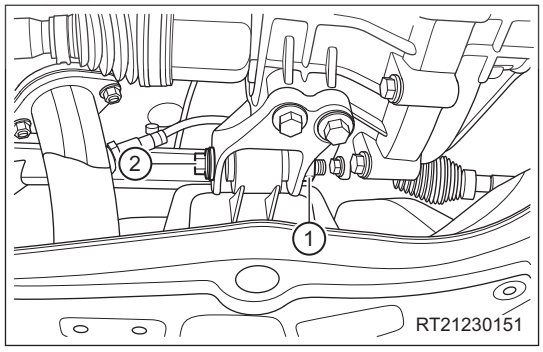
⚠ WARNING

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

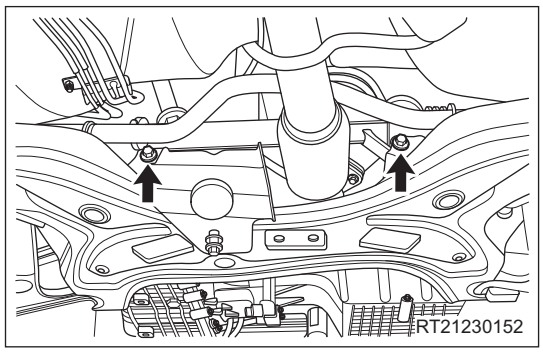
1. Remove the front wheel (See page 35-9).
2. Remove the front control arm assembly (See page 34-26).
3. Remove the front sub frame welding assembly.
   a. Using an engine equalizer, support the engine and transmission assembly securely. Use the same procedure to remove the right side.
   b. Remove 2 coupling bolts (arrow) between front left stabilizer bar and front sub frame welding assembly. (Tightening torque: 25 ± 3 N·m)



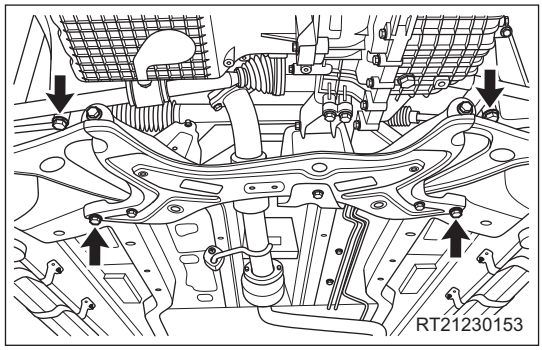
   c. Remove coupling nut (1) and bolt (2) between engine rear mounting bracket and sub frame. (Tightening torque: 70 ± 5 N·m)



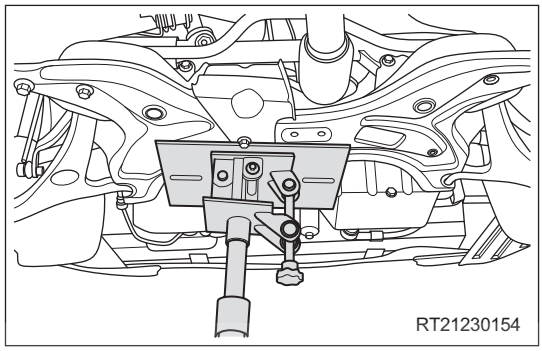
   d. Remove 2 coupling bolts (arrow) between front sub frame welding assembly and steering gear assembly. (Tightening torque: 120 ± 10 N·m)



e. Remove 4 fixing bolts (arrow) between sub frame and body.
(Tightening torque: 180 ± 10 N·m)



f. Support the front sub frame welding assembly with front stabilizer bar assembly with a transmission carrier, and lower it carefully.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten coupling bolts and nut to the specified torque.
- Check and adjust front wheel alignment after installation.

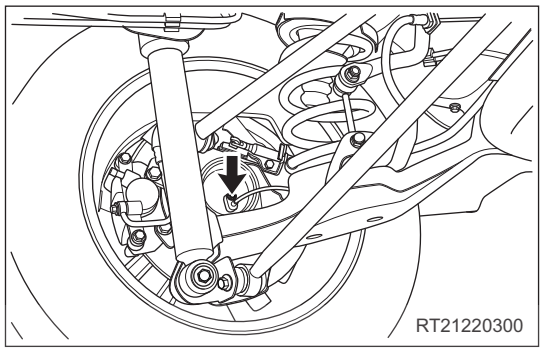
Rear Hub Bearing Unit

Removal

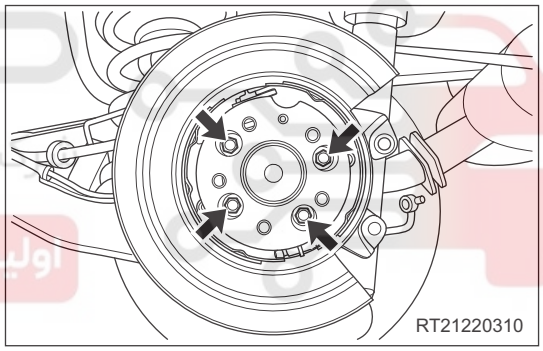
HINT:

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

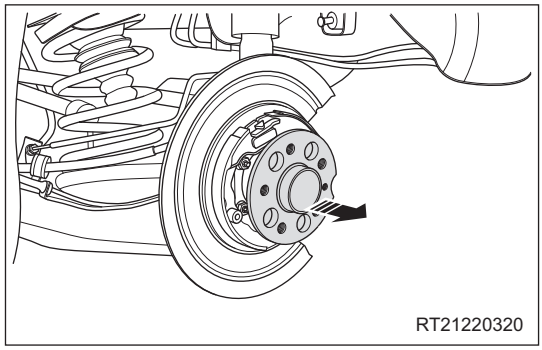
1. Remove the rear left wheel (See page 35-9).
2. Remove the rear left brake caliper assembly (See page 37-31).
3. Remove the rear left brake disc (See page 37-31).
4. Remove the rear left hub bearing unit.
   a. Remove the coupling bolt (arrow) between rear left wheel speed sensor and rear left hub bearing unit, and disengage the rear left wheel speed sensor.
   (Tightening torque: 10 ± 1 N·m)



   b. Remove 4 coupling nuts (arrow) between rear left hub bearing unit and rear left brake bottom board assembly.
   (Tightening torque: 68 ± 5 N·m)



   c. Slightly wiggle the rear left hub bearing unit and pull it out.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten coupling nuts to the specified torque.
- Make sure rear axle hub rotates smoothly and freely after installation.

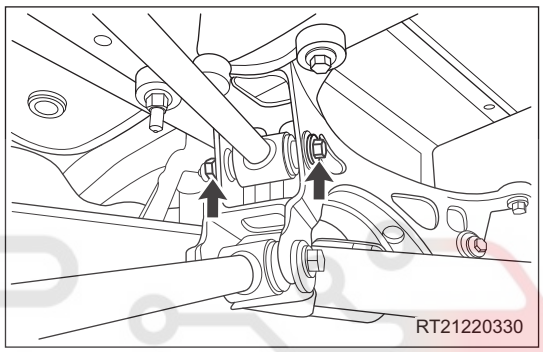
Rear Sub Frame Assembly

Removal

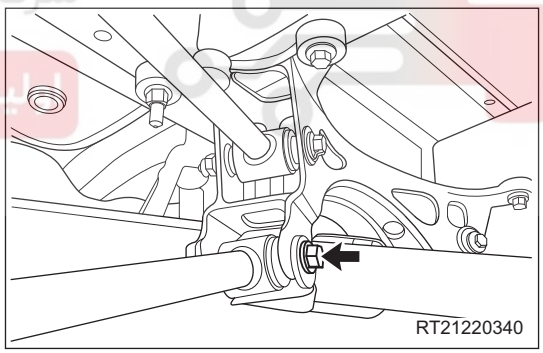
⚠ WARNING

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

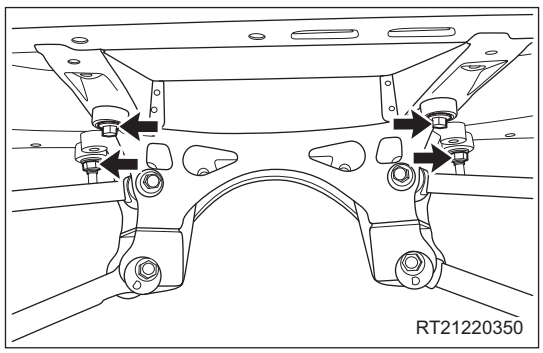
1. Remove the rear wheel (See page 35-9).
2. Remove the center exhaust pipe assembly (See page 16-15).
3. Remove the rear sub frame assembly.
   a. Remove the coupling bolts and nuts (arrow) between rear suspension upper left swing arm assembly and rear sub frame assembly. Use the same procedure to remove the right side.
   (Tightening torque: 120 ± 10 N·m)



   b. Remove the coupling bolt and nut (arrow) between rear suspension lower left swing arm assembly and rear sub frame assembly. Use the same procedure to remove the right side.
   (Tightening torque: 120 ± 10 N·m)



   c. Remove 2 coupling bolts and 2 coupling nuts (arrow) between rear sub frame assembly and body.
   (Tightening torque: 120 ± 10 N·m)



   d. Remove the rear sub frame assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Always tighten the coupling bolts and nuts to the specified torque.
- Check and adjust the rear wheel alignment after installation.