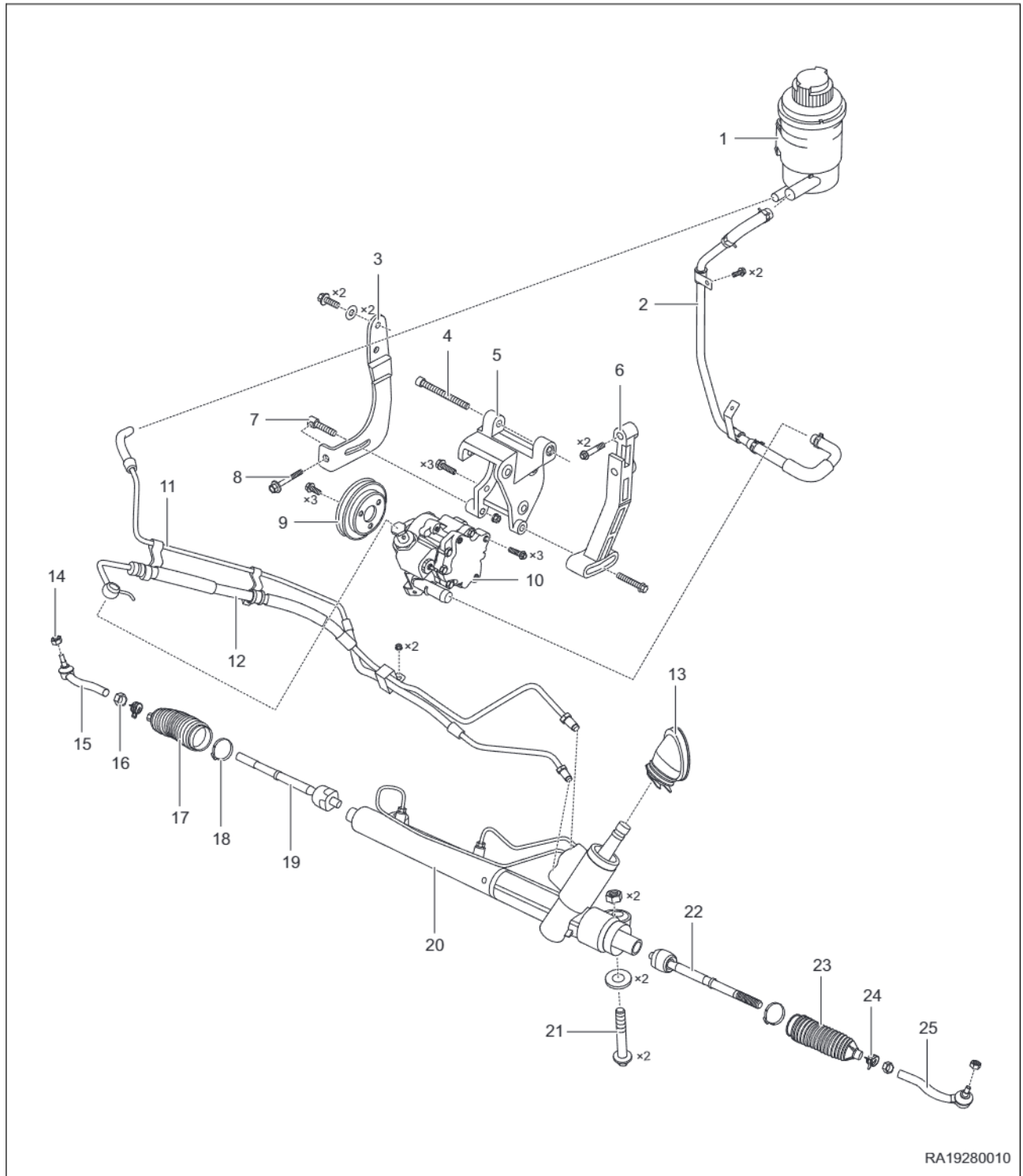


HYDRAULIC ASSIST STEERING

GENERAL INFORMATION	28-3	Installation	28-16
Description	28-3	Power Steering Pump Assembly	28-17
Operation	28-4	Removal	28-17
Specifications	28-5	Disassembly	28-18
Tools	28-6	Inspection	28-18
DIAGNOSIS & TESTING	28-7	Assembly	28-18
Problem Symptoms Table	28-7	Installation	28-19
Steering Fluid Replacement	28-9	Ball Pin Assembly	28-20
Steering Fluid Draining	28-9	Removal	28-20
Steering Fluid Adding	28-10	Inspection	28-21
Bleeding Procedures	28-11	Installation	28-21
ON-VEHICLE SERVICE	28-12	Steering Tie Rod Assembly	28-22
Steering Fluid Reservoir Assembly	28-13	Removal	28-22
Removal	28-13	Inspection	28-23
Inspection	28-13	Installation	28-23
Installation	28-13	Steering Gear Assembly	28-24
Steering Fluid Pipe	28-14	Removal	28-24
Removal	28-14	Inspection	28-27
Inspection	28-16	Installation	28-27
		Steering Gear Clearance Adjustment	28-27

GENERAL INFORMATION

Description



1 - Steering Fluid Reservoir Assembly	2 - Fluid Suction Pipe
3 - Tensioning Bracket	4 - Power Steering Pump Fixing Bolt
5 - Power Steering Pump Bracket	6 - Power Steering Pump Fixing Bracket
7 - Tensioning Bolt	8 - Adjustment Bolt
9 - Power Steering Pump Pulley	10 - Power Steering Pump Assembly
11 - Fluid Return Pipe	12 - High Pressure Fluid Pipe
13 - Steering Gear Boot	14 - Ball Pin Locking Nut
15 - Right Ball Pin Assembly	16 - Steering Tie Rod Adjustment Nut
17 - Right Steering Tie Rod Boot	18 - Clamping Ring
19 - Right Steering Tie Rod Assembly	20 - Steering Gear Assembly
21 - Steering Gear Assembly Fixing Bolt	22 - Left Steering Tie Rod Assembly
23 - Left Steering Tie Rod Boot	24 - Elastic Clamp
25 - Left Ball Pin Assembly	

The hydraulic assist steering system consists of the power steering pump assembly, steering gear assembly, steering fluid pipe and steering fluid reservoir assembly and so on. This system can reduce the steering force when the driver operates the steering wheel, thus improving the operation convenience and driving safety.

Steering Gear Assembly

The steering gear assembly is rack & pinion type which is characterized by simple and compact construction and high steering sensitivity. The piston rod is integrated with the rack, and there is a boot at the connection between steering tie rod assembly and rack. The length of steering tie rod can be adjusted properly to match with the toe-in. The tie rod ball pin assembly and steering knuckle are connected and tightened by the locking nut.

Power Steering Pump Assembly

The power steering pump assembly is connected with steering gear assembly by the high pressure fluid pipe, and connected with steering fluid reservoir assembly by the fluid suction pipe. Never operate the power steering pump assembly without fluid. Try to avoid turning the steering wheel to the limit position for more than 5 seconds during operation.

Steering Fluid Pipe

The steering fluid pipe is used to deliver power steering fluid. Steering fluid pipes are divided into steel pipe, hose and hybrid type according to the length and operating features of each component. Ferrule connection is adopted between the steel pipe and hose of high pressure fluid pipe assembly. The joint bolt and O-ring are used between steel pipe and component, and hose and clamp are used between hose and component. And all these provide reliable sealing.

Steering Fluid Reservoir Assembly

The main functions of steering fluid reservoir assembly are to store the fluid and supply it to the steering fluid pump and system.

Operation

The steering gear assembly converts the circular motion of steering wheel into linear motion of rack by engaging the rack and pinion inside. The power steering pump assembly delivers the fluid into the steering gear assembly to drive the pistons move toward the direction made by the driver. The piston transmits the force to the steering knuckle by the steering tie rod assembly, thus reducing the steering effort when the driver turns the steering wheel. If the steering assist is ineffective, more steering effort is needed.

Specifications

Torque Specifications

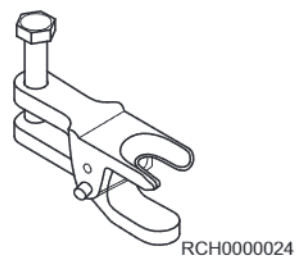
Description	Torque (N·m)
Fluid Suction Pipe Upper Bracket Fixing Bolt	7 ± 1.5
Fluid Suction Pipe Lower Bracket Fixing Bolt	7 ± 1.5
High Pressure Fluid Pipe Joint Hollow Bolt	45 ± 5
Coupling Bolt Between Upper Bracket of Fluid Return Pipe and High Pressure Pipe and Front Sub Frame Welding Assembly	9 ± 1
Joint Bolt Between High Pressure Pipe and Steering Gear Assembly	30 ± 3
Joint Bolt Between Fluid Return Pipe and Steering Gear Assembly	30 ± 3
Lower Bracket Fixing Nut Between Fluid Return Pipe and High Pressure Pipe	9 ± 1
Fluid Return Pipe Bracket Nut	7 ± 1.5
Power Steering Pump Tensioning Bracket Fixing Bolt	20 ± 3
Power Steering Pump Assembly Inner Torx Bolt	25 ± 3
Coupling Bolt Between Power Steering Pump Assembly and Right Side of Steering Pump Bracket	20 ± 3
Coupling Bolt Between Power Steering Pump Assembly and Left Side of Steering Pump Bracket	20 ± 3
Power Steering Pump Assembly Pulley Inner Torx Round Bolt	20 ± 3
Locking Nut of Through Bolt Between Ball Pin Assembly and Steering Knuckle Assembly	35 ± 3
Steering Tie Rod Adjustment Nut	47 ± 3
Coupling Bolt Between Intermediate Shaft and Input Shaft of Steering Gear Assembly	25 ± 3
Locking Nut of Rear Mounting Bracket and Rear Mounting Cushion Assembly Through Bolt	85 ± 8.5
Coupling Bolt Between Body and Rear Part of Front Sub Frame Welding Assembly	120 ± 10
Coupling Bolt Between Rear Part of Front Control Arm Assembly and Front Sub Frame Welding Assembly	180 ± 15
Coupling Bolt Between Steering Gear Assembly and Front Sub Frame Welding Assembly	100 ± 10

Tools

Special Tool

28

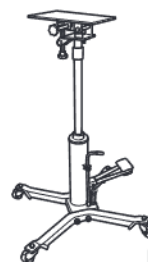
Ball Pin Separator



RCH0000024

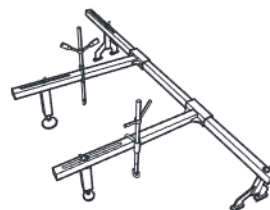
General Tools

Transmission Carrier



RCH0000005

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 them as necessary.

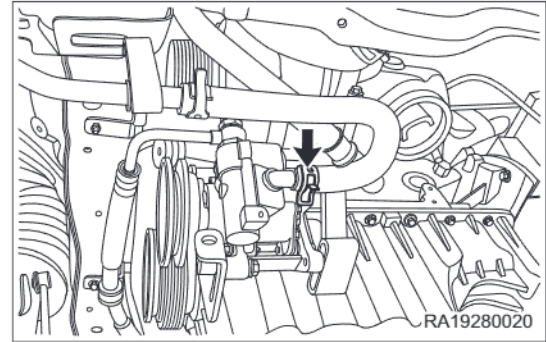
Symptom	Suspected Area	See page
Stuck or sticking in some position occurs when turning	Steering fluid (insufficient or dirty)	28-9
	Steering tie rod boot (damaged or worn)	28-22
	Steering tie rod assembly (rust)	28-22
	Steering gear assembly	28-24
	Power steering pump drive belt (loose)	07-21
Steering wheel is not centered or centered improperly	Tire (unevenly worn, deformed) or wheel (out of balance)	23-8
	Front wheel alignment (wrong)	22-40
	Ball pin assembly (worn or loose)	28-20
	Steering tie rod assembly (worn or loose)	28-22
	Intermediate shaft (twisted and deformed) or universal joint (worn, loose or insufficiently lubricated)	27-19
	Front sub frame welding assembly	21-16
	Front steering knuckle assembly	21-10
	Steering gear assembly (incorrect clearance)	28-24
Steering shudders	Tire (unevenly worn, deformed) or wheel (out of balance)	23-8
	Front wheel alignment (wrong)	22-40
	Ball pin assembly (worn or loose)	28-20
	Brake disc and lining (deformed)	25-26
	Intermediate shaft (twisted and deformed) or universal joint (worn, loose or insufficiently lubricated)	27-19
	Front sub frame welding assembly	21-16
	Front steering knuckle assembly	21-10
	Steering gear assembly (incorrect clearance)	28-24

Symptom	Suspected Area	See page
Steering wheel turns heavily or steering effort is uneven	Tire (improperly inflated)	23-8
	Front wheel alignment (wrong)	22-40
	Steering fluid (insufficient)	28-10
	Fluid pipe (leaked or blocked)	28-14
	Ball pin assembly (worn or loose)	28-20
	Steering tie rod assembly (worn or loose)	28-22
	Front suspension	22-11
	Power steering pump drive belt (loose or damaged)	07-21
	Power steering pump assembly	28-17
	Steering gear assembly (incorrect clearance)	28-24
Abnormal noises from steering system	Steering fluid (insufficient, air existing or dirty)	28-9
	Steering system fluid pressure fluctuates abnormally	-
	Ball pin assembly (worn or loose)	28-20
	Steering tie rod assembly (worn or loose)	28-22
	Steering gear assembly (incorrect clearance)	28-24
	Power steering pump assembly	28-17

Steering Fluid Replacement

Steering Fluid Draining

1. Set the steering wheel to the straight-ahead position.
2. Turn off all the electrical equipment and ignition switch.
3. Disconnect the negative battery cable.
4. Turn the ignition switch to ACC.
5. Open the steering fluid reservoir cap.
6. Remove the lower right deflector ([See page 46-20](#)).
7. Remove the fluid suction pipe clamp (arrow) on the power steering pump assembly side.



8. Place a fluid container under the fluid suction pipe, and disconnect the fluid suction pipe joint to collect the steering fluid flowing out of the fluid suction pipe.
9. Turn the steering wheel left and right to the limit positions, and repeat the operation several times to drain the steering fluid in the steering system.

WARNING

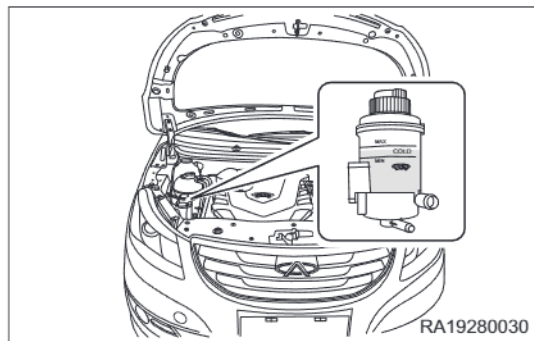
- If the steering fluid sprays on your skin, immediately wash it off with water.
- It is harmful to your skin contacting with power steering fluid for a long time.

ENVIRONMENTAL PROTECTION

- The wasted power steering fluid should be handled according to local environmental regulations.

Steering Fluid Adding

The proper steering fluid level is between "MAX" mark and "MIN" mark. It affects the performance of power steering system directly whether the fluid level in the fluid reservoir is proper. If the fluid level drops below the "MIN" mark, it is necessary to add steering fluid.



CAUTION

- DO NOT use the foaming or expired steering fluid which may damage the power steering pump assembly.

1. Open the steering fluid reservoir cap, and add steering fluid to the reservoir until it reaches the "MAX" mark.
2. Start the engine and run it at idle to drive the power steering pump assembly, thus filling the whole steering system with steering fluid.
3. Observe the fluid level while the engine is running. If the fluid level drops below the "MIN" mark, add steering fluid to the proper level in time to avoid air entering the power steering pump assembly due to the excessively low fluid level.
4. If bubbles occur in the steering fluid reservoir, perform the bleeding procedures. Check that the level is between "MAX" mark and "MIN" mark when there are no bubbles in the fluid reservoir and the fluid level does not change any longer.

WARNING

- If the steering fluid sprays on your skin, immediately wash it off with water.
- It is harmful to your skin contacting with power steering fluid for a long time.

Bleeding Procedures

It is necessary to perform bleeding procedures when bubbles occur in the steering fluid reservoir assembly and the fluid is emulsifying or there is excessive noise in the power steering pump assembly.

Bleeding procedures are as follows:

1. Open the steering fluid reservoir cap.
2. Raise the vehicle with a lifter (with the front wheels off ground).
3. Start the engine (idling) and turn the steering wheel left and right to the limit positions (do not stay at the limit positions more than 2 seconds). Repeat several times to completely bleed the air in the system from the reservoir. Observe the fluid level in reservoir when bleeding. If the fluid level drops below the "MIN" mark, add steering fluid to the proper level in time.
4. After repeatedly turning the steering wheel to the limit positions several times, center the steering wheel, run the engine at idle for 3 to 5 minutes and observe whether there are still bubbles in the fluid reservoir. If there are still bubbles, perform the above procedures again until no bubbles are bled. If there are still problems, perform the steering system inspection.

ON-VEHICLE SERVICE

28

WARNING

- Be sure to wear the necessary safety equipment to prevent accidents when servicing.
- When removing and installing the high temperature components and surrounding components, wait and operate them until they cool down to normal temperature to avoid being burned.
- Prevent skin and eyes from contacting with steering fluid.

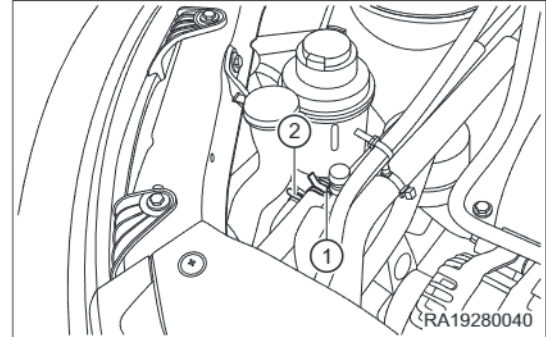
CAUTION

- After disconnecting the steering line, seal it immediately to prevent foreign matter from entering.
- Never run the power steering pump assembly when the steering fluid is insufficient.
- The steering wheel should not be in the limit position for more than 5 seconds.
- Never start the engine with the hose loosened or disconnected.
- Never allow the hose to contact with the high temperature exhaust pipe.

Steering Fluid Reservoir Assembly

Removal

1. Drain the steering fluid (See page 28-9).
2. Remove the steering fluid reservoir assembly.
 - a. Remove the fluid suction pipe clamp (1) on the steering fluid reservoir and disconnect the connection between fluid suction pipe assembly and steering fluid reservoir assembly.
 - b. Remove the fluid return pipe clamp (2) on the steering fluid reservoir and disconnect the connection between fluid return pipe assembly and steering fluid reservoir assembly.



CAUTION

- Using a plug, clog the disconnected pipe to prevent foreign matter from entering.

- c. Pull upward to remove the steering fluid reservoir assembly.

Inspection

1. Check the steering fluid reservoir assembly for breakage or deformation. Replace the fluid reservoir if necessary.
2. Check if there is contamination in the steering fluid reservoir assembly. Clean or replace it if necessary.

Installation

Installation is in the reverse order of removal.

CAUTION

- Install the fluid suction pipe clamp and fluid return pipe clamp in place.
- Never tap or hit the fluid reservoir.

Steering Fluid Pipe

Removal

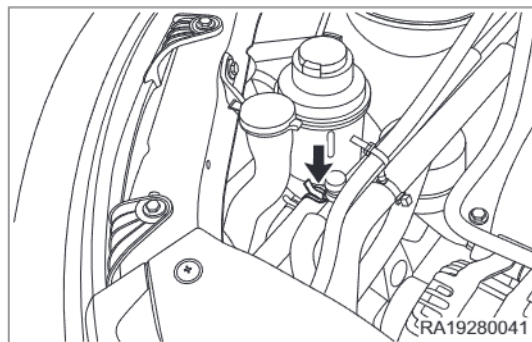


ENVIRONMENTAL PROTECTION

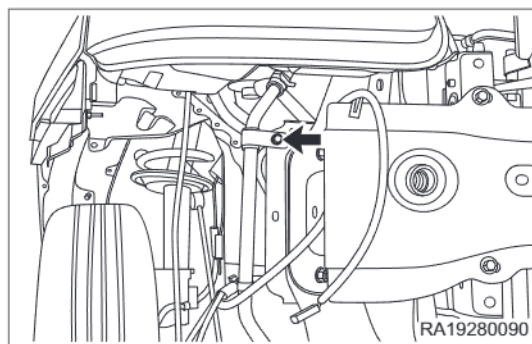
28

- Collect the steering fluid flowing out of the line with a container when disconnecting the line.

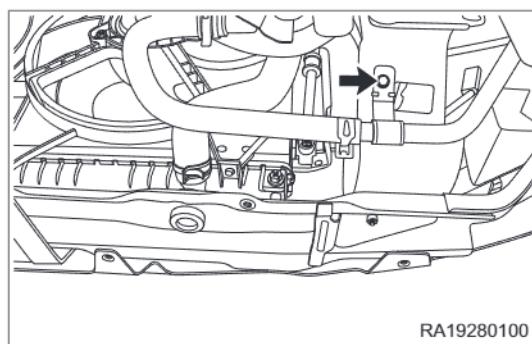
1. Drain the steering fluid (See page 28-9).
2. Remove the fluid suction pipe.
 - a. Remove the fluid suction pipe clamp (arrow) on the steering fluid reservoir and disconnect the connection between fluid suction pipe and steering fluid reservoir assembly.



- b. Remove the fluid suction pipe upper bracket fixing bolt (arrow).
(Tightening torque: $7 \pm 1.5 \text{ N}\cdot\text{m}$)

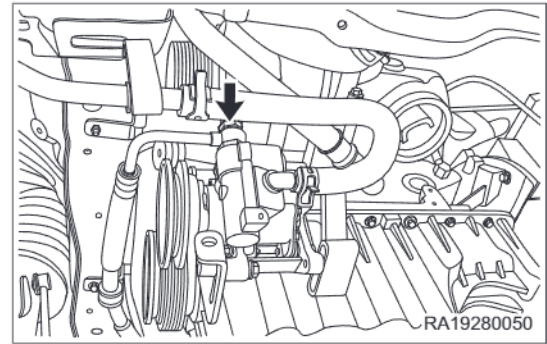


- c. Remove the fluid suction pipe lower bracket fixing bolt (arrow).
(Tightening torque: $7 \pm 1.5 \text{ N}\cdot\text{m}$)

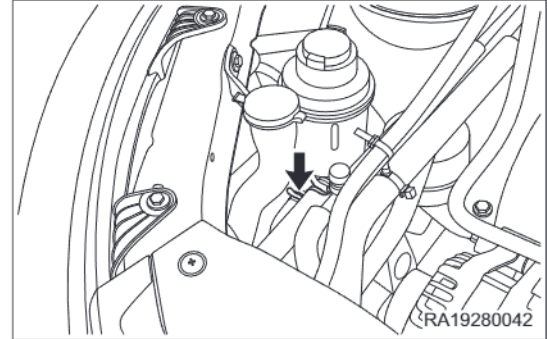


- d. Remove the fluid suction pipe.

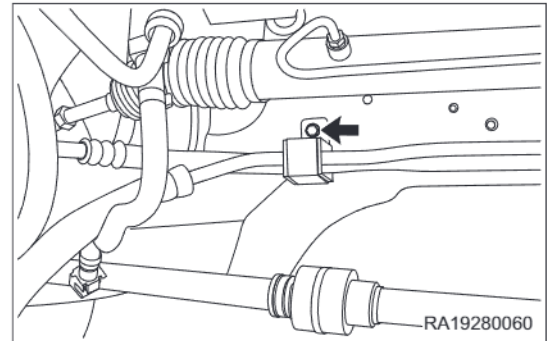
3. Remove the fluid return pipe and high pressure fluid fluid.
 - a. Remove the hollow bolt (arrow) from the high pressure fluid pipe joint on the power steering pump assembly.
(Tightening torque: $45 \pm 5 \text{ N}\cdot\text{m}$)



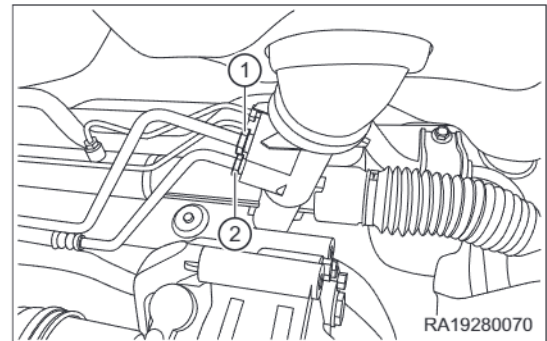
- b. Remove the fluid return pipe clamp (arrow) on the steering fluid reservoir and disconnect the connection between fluid return pipe and steering fluid reservoir assembly.



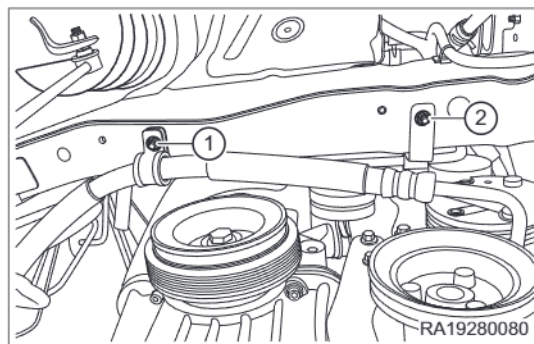
- c. Remove the coupling bolt (arrow) between upper bracket of fluid return pipe and high pressure fluid pipe and front sub frame welding assembly.
(Tightening torque: $9 \pm 1 \text{ N}\cdot\text{m}$)



- d. Remove the high pressure fluid pipe joint bolt (1) and fluid return pipe joint bolt (2) from the steering gear assembly.
(Tightening torque for fluid return pipe joint bolt: $30 \pm 3 \text{ N}\cdot\text{m}$)
(Tightening torque for high pressure fluid pipe joint bolt: $30 \pm 3 \text{ N}\cdot\text{m}$)



- e. Remove the lower bracket fixing nut of fluid return pipe and high pressure fluid pipe (1) and fluid return pipe bracket fixing nut (2).
 (Tightening torque for lower bracket fixing nut of fluid return pipe and high pressure fluid pipe: $9 \pm 1 \text{ N}\cdot\text{m}$)
 (Tightening torque for fluid return pipe bracket fixing nut: $7 \pm 1.5 \text{ N}\cdot\text{m}$)



- f. Remove the fluid return pipe and high pressure fluid pipe.

Inspection

1. Check the steering fluid pipe for cracks, wear or blockage. Replace the steering fluid pipe assembly if necessary.
2. Check the steering fluid pipe joint and O-ring for deformation or damage. Replace the steering fluid pipe assembly if necessary.
3. Check if the steering fluid pipe bracket is normal. Replace it if necessary.

Installation

Installation is in the reverse order of removal.

CAUTION

- Never tap or squeeze the steering fluid pipe.
- Tighten the fixing nut to the specified torque.

Power Steering Pump Assembly

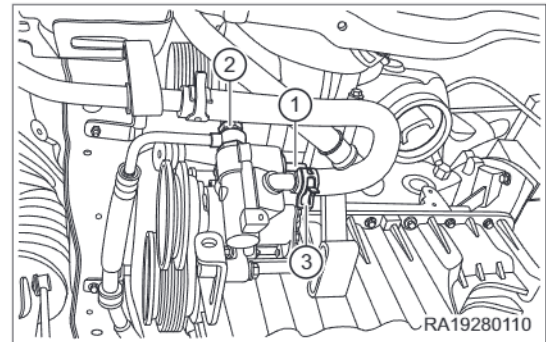
Removal



ENVIRONMENTAL PROTECTION

- Collect the steering fluid flowing out of the line with a container when disconnecting the line.

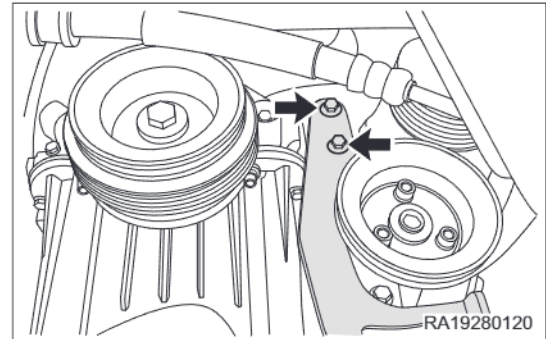
1. Drain the steering fluid (See page 28-9).
2. Remove the power steering pump drive belt (See page 07-21).
3. Remove the power steering pump with bracket assembly.
 - a. Disconnect the power steering pump assembly pressure switch connector (1).
 - b. Remove the high pressure fluid pipe joint hollow bolt (2).
(Tightening torque for high pressure fluid pipe joint hollow bolt: $45 \pm 5 \text{ N}\cdot\text{m}$)
 - c. Loosen the elastic clamp (3) and disconnect the connection between fluid suction pipe and power steering pump assembly.



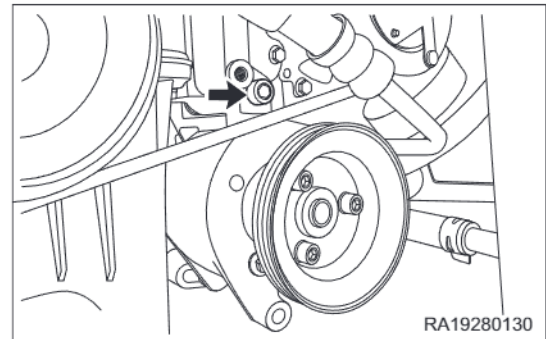
CAUTION

- Using a plug, clog the disconnected steering system line to prevent foreign matter from entering.

- d. Remove 2 fixing bolts (arrow) from the power steering pump tensioning bracket.
(Tightening torque: $20 \pm 3 \text{ N}\cdot\text{m}$)

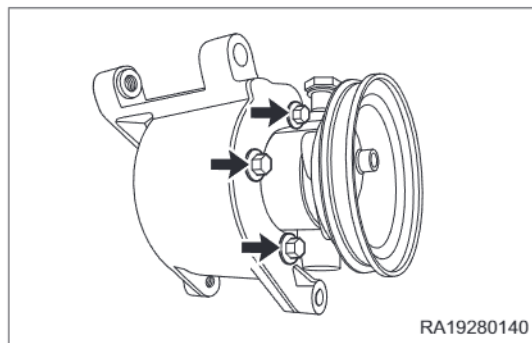


- e. Remove the power steering pump assembly inner Torx bolt (arrow) and remove the power steering pump with bracket assembly.
(Tightening torque: $25 \pm 3 \text{ N}\cdot\text{m}$)

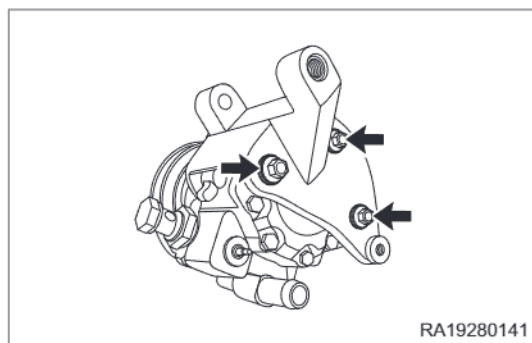


Disassembly

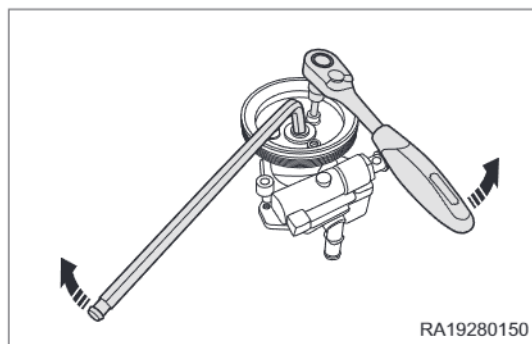
1. Separate the power steering pump assembly and steering pump bracket.
2. Remove 3 coupling bolts (arrow) between power steering pump assembly and right side of steering pump bracket.
(Tightening torque: $20 \pm 3 \text{ N}\cdot\text{m}$)



3. Remove 3 coupling bolts (arrow) between power steering pump assembly and left side of steering pump bracket.
(Tightening torque: $20 \pm 3 \text{ N}\cdot\text{m}$)



4. Remove the power steering pump assembly pulley.
5. Remove 3 inner Torx round bolts from the power steering pump assembly pulley as shown in the illustration.
(Tightening torque: $20 \pm 3 \text{ N}\cdot\text{m}$)



Inspection

1. Check the power steering pump assembly for blockage or damage, and power steering pump bearing for looseness and abnormal noise. Replace the power steering pump assembly if necessary.
2. Check if the power steering pump pulley is normal. Replace the power steering pump assembly if necessary.
3. Check if the power steering pump bracket is normal. Replace the power steering pump bracket if necessary.

Assembly

Assembly is in the reverse order of disassembly.

CAUTION

- Tighten the bolts to the specified torque.
- DO NOT tap or hit the power steering pump assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten the fixing bolts to the specified torque.
- DO NOT tap or hit the power steering pump assembly.

Ball Pin Assembly

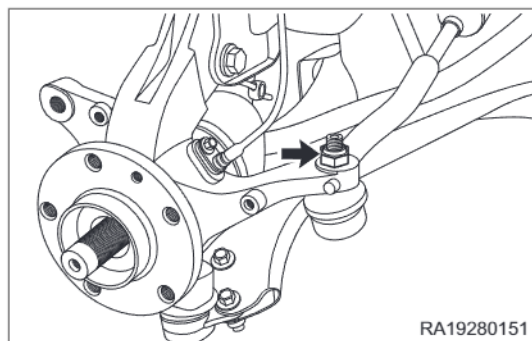
Removal

HINT:

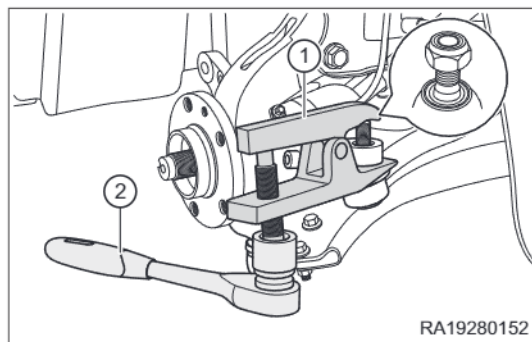
- Use the same procedures for the right side and left side.
- The procedures listed below are for the left side.

28

1. Remove the front wheel (See page 23-10).
2. Remove the ball pin assembly.
 - a. Remove the locking nut (arrow) between left ball pin assembly and front left steering knuckle assembly. (Tightening torque: 35 ± 3 N·m)



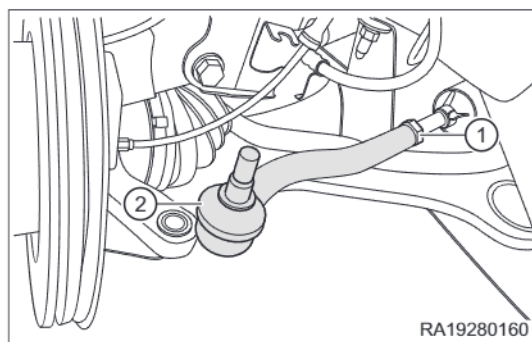
- b. Screw the locking nut until it is flush with the thread end surface, install the ball pin separator (1), and tighten the ball pin separator bolt with a wrench (2) to separate the ball pin assembly and the steering knuckle assembly.



- c. Loosen the steering tie rod adjustment nut (1), and turn the ball pin assembly (2) counterclockwise to remove it. (Tightening torque: 47 ± 3 N·m)

HINT:

When removing the ball pin assembly, record the revolutions during removal to make the front wheel toe-in closer to the setting value after installation.



Inspection

Check the ball pin assembly for looseness and insufficient lubrication and the bush rubber for damage. Replace the ball pin assembly if necessary.

Installation

Installation is in the reverse order of removal.

28

CAUTION

- After installation, it is necessary to perform the wheel alignment procedure ([See page 22-40](#)).

Steering Tie Rod Assembly

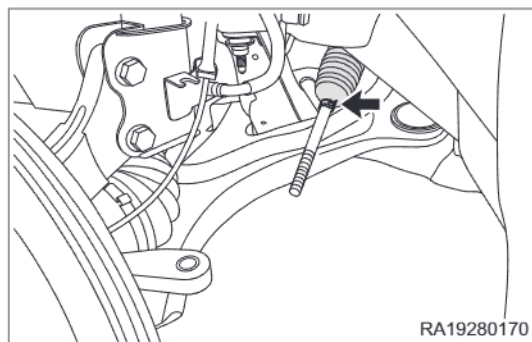
Removal

HINT:

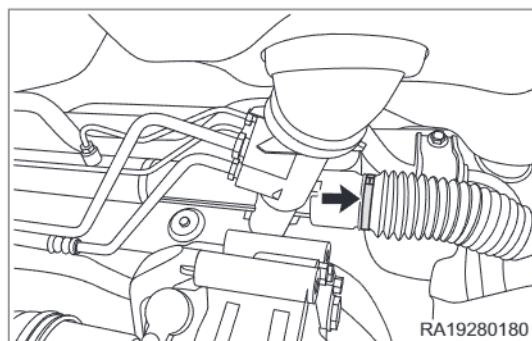
- Use the same procedures for the right side and left side.
- The procedures listed below are for the left side.

28

1. Remove the battery (See page 16-7).
2. Remove the battery tray (See page 16-8).
3. Remove the front wheel (See page 23-10).
4. Remove the ball pin assembly (See page 28-20).
5. Remove the steering tie rod assembly.
 - a. Remove the steering tie rod boot clamp (arrow).



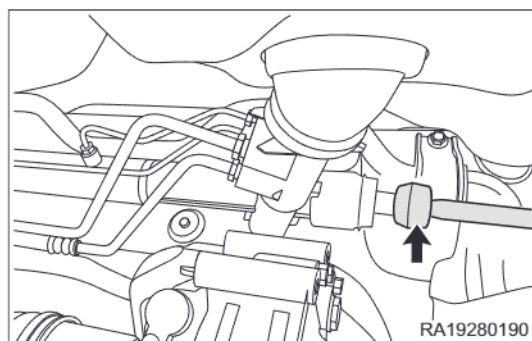
- b. Remove the steering tie rod boot clamping ring (arrow) and remove the steering tie rod boot.



CAUTION

- Operate carefully to prevent damage to the boot.
- It is necessary to replace with new clamping ring when reinstall the steering tie rod boot.

- c. Using a wrench, remove the steering tie rod ball pin (arrow).



Inspection

1. Check the steering tie rod boot for damage, and if the clamp is normal. Replace the steering tie rod boot and clamp if necessary to prevent water and micro dust from entering and causing parts failure prematurely.
2. Check the steering tie rod assembly for deformation or wear and the ball for insufficient lubrication. Replace the steering tie rod assembly or add grease if necessary.

Installation

Installation is in the reverse order of removal.

CAUTION

- It is necessary to apply thread seal gum to the ball pin.
- It is necessary to fit the steering tie rod ball pin face and the rack face closely.

Steering Gear Assembly

Removal

⚠ WARNING

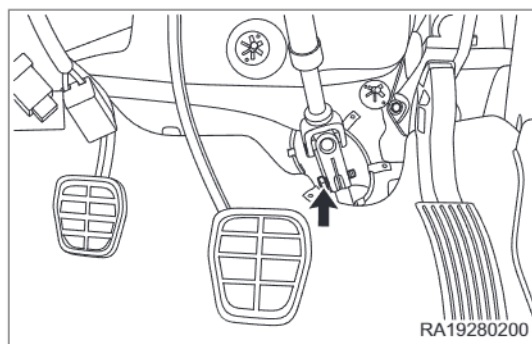
28

- Be sure to wear the necessary safety equipment to prevent accidents when servicing.
- When removing and installing the high temperature components and surrounding components, wait and operate them until they cool down to normal temperature to avoid being burned.
- Prevent skin and eyes from contacting with steering fluid when removing the steering system components.

👁 CAUTION

- After disconnecting the steering system line, seal it immediately to prevent foreign matter from entering.
- Never run the power steering pump assembly when the steering fluid is insufficient.
- The steering wheel should not be in the limit position for more than 5 seconds.
- Never start the engine with the hose loosened or disconnected.
- Never allow the hose to contact with the high temperature exhaust manifold or catalyst.

1. Set the steering wheel to the straight-ahead position.
2. Turn off all the electrical equipment and ignition switch.
3. Disconnect the negative battery cable.
4. Drain the steering fluid ([See page 28-9](#)).
5. Remove the main catalytic converter assembly ([See page 11-11](#)).
6. Remove the front wheel ([See page 23-10](#)).
7. Use an engine equalizer to hang the engine.
8. Remove the coupling bolt (arrow) between intermediate shaft lower universal joint and input shaft of steering gear assembly and disconnect the connection between intermediate shaft lower universal joint and input shaft of steering gear assembly.
(Tightening torque: $25 \pm 3 \text{ N} \cdot \text{m}$)

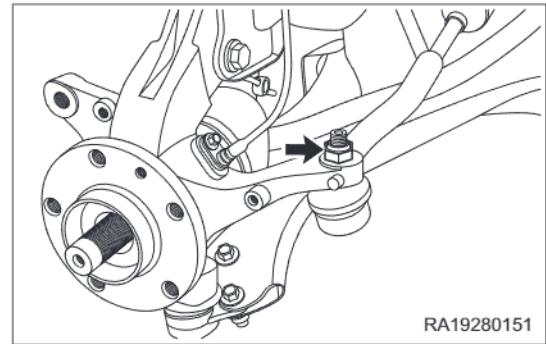


9. Separate the ball pin assembly and the steering knuckle.

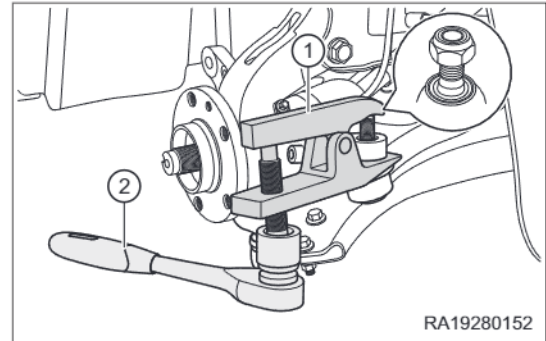
HINT:

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

- a. Loosen the locking nut (arrow) between left ball pin assembly and front left steering knuckle assembly.
(Tightening torque: $35 \pm 3 \text{ N}\cdot\text{m}$)

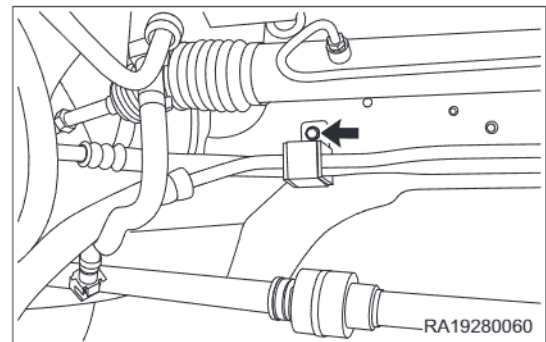


- b. Screw the locking nut until it is flush with the thread end surface, install the ball pin separator (1), and tighten the ball pin separator bolt with a wrench (2) to separate the ball pin assembly and the steering knuckle assembly.

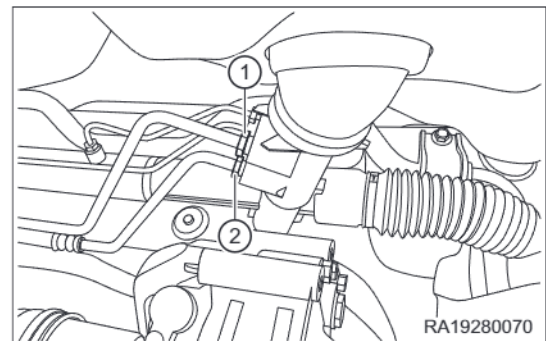


10. Remove the steering gear with tie rod assembly.

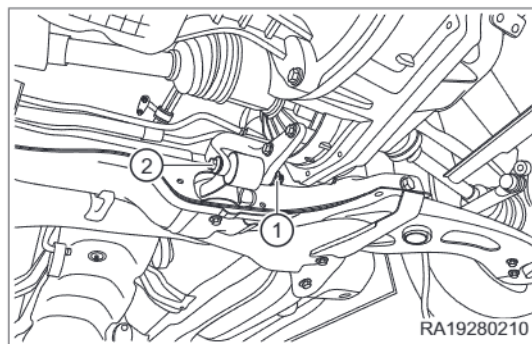
- a. Remove the coupling bolt (arrow) between the upper bracket of fluid return pipe and high pressure fluid pipe and the front sub frame welding assembly.
(Tightening torque: $9 \pm 1 \text{ N}\cdot\text{m}$)



- b. Remove the high pressure fluid pipe joint bolt (1) and fluid return pipe joint bolt (2) on the steering gear assembly. Disconnect the connection between fluid return pipe/high pressure pipe and steering gear assembly separately.
(Tightening torque for fluid return pipe joint bolt: $30 \pm 3 \text{ N}\cdot\text{m}$)
(Tightening torque for high pressure fluid pipe joint bolt: $30 \pm 3 \text{ N}\cdot\text{m}$)

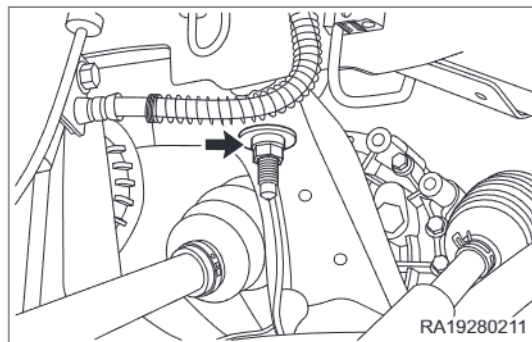


- c. Remove the locking nut (1) of through bolt between rear mounting bracket and rear mounting cushion assembly and remove the through bolt (2).
(Tightening torque: $85 \pm 8.5 \text{ N}\cdot\text{m}$)

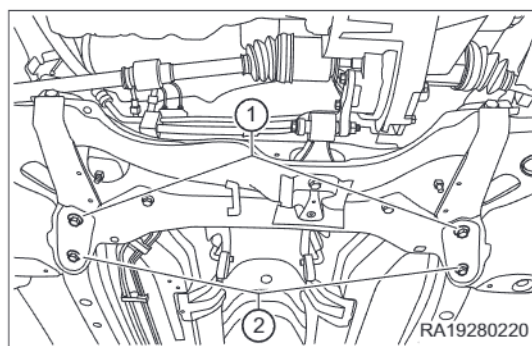


- d. Support the front sub frame welding assembly with the transmission carrier.

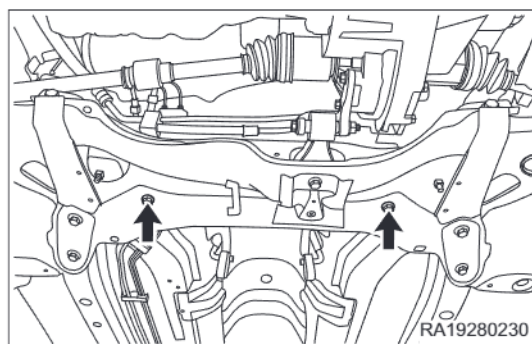
- e. Loosen the coupling nut (arrow) between the front left part of front sub frame welding assembly and the body. Use the same procedure to loosen the right side nut.
(Tightening torque: $120 \pm 10 \text{ N}\cdot\text{m}$)



- f. Remove 2 coupling bolts (1) between rear part of front control arm assembly and front sub frame welding assembly.
(Tightening torque: $180 \pm 15 \text{ N}\cdot\text{m}$)
- g. Remove 2 coupling bolts (2) between the rear part of front sub frame welding assembly and the body.
(Tightening torque: $120 \pm 10 \text{ N}\cdot\text{m}$)



- h. Remove 2 coupling bolts between steering gear assembly and front sub frame welding assembly.
(Tightening torque: $100 \pm 10 \text{ N}\cdot\text{m}$)



- i. Lower the front sub frame welding assembly to the proper position slowly and remove the steering gear boot and steering gear with tie rod assembly.

Inspection

1. Check the steering gear assembly housing for damage or deformation, and the rack and pinion for sticking. Replace the steering gear assembly if necessary.
2. Check if the steering tie rod boot, clamp and clamping ring are normal. Replace them if necessary to prevent water and micro dust from entering and causing parts failure prematurely.
3. Check the steering tie rod assembly and ball pin assembly for serious wear. Replace the steering tie rod assembly and ball pin assembly if necessary.

Installation

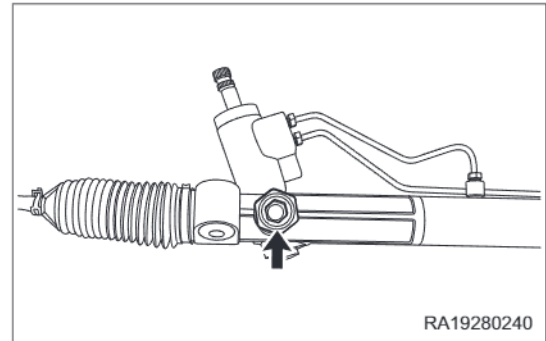
Installation is in the reverse order of removal.

CAUTION

- After installing the steering gear assembly, perform the front wheel alignment procedure ([See page 22-40](#)).

Steering Gear Clearance Adjustment

1. Set the wheels to the straight-ahead position.
2. Loosen the adjustment bolt locking nut (arrow).



3. Rotate the steering wheel clockwise and counterclockwise. If sound is heard from the steering gear assembly, regulate the adjustment bolt until no clattering noise is heard when turning the steering wheel.
4. Tighten the adjustment bolt 1/8 rotation (approximately 45°).
5. Perform the road test.
6. If the steering mechanism cannot return to the central position, unscrew the bolt by 15°.
7. Perform the road test.

