STEERING
11

CONTENTS

STEERING SYSTEM

GENERAL INFORMATION

Description

The power steering pump is a constant flow rate and displacement vane type pump. The pump reservoir supplies fluid to the pump body. The pump is connected to the steering by the pressure and return hoses. The steering gear used is a rack and pinion type gear.

The power steering system consists of these major components:

- Power steering pump
- Power steering gear assembly
- Power steering fluid reservoir
- Power steering fluid pressure hose
- Power steering fluid return hose

Operation

Turning of the steering wheel is converted into linear travel through the meshing of the helical pinion teeth with the rack teeth within the steering gear. The lateral travel pushes and pulls the tie rods to change the direction of the vehicle's front wheels.

Power assist steering is provided by a belt driven rotary pump. It directs fluid through power steering fluid hoses to the power steering gear where it is used to assist the driver's turning effort.

Manual steering control of the vehicle can be maintained if power steering assist is lost. However, under this condition, steering effort is significantly increased.

WARNING!
Power steering fluid, engine parts and exhaust system may be extremely hot if engine has been running. Do not start engine with any loose or disconnected hoses. Do not allow hoses to touch hot exhaust manifold or catalyst. Fluid level should be checked with the engine off to prevent personal injury from moving parts.

Specifications

Fluid Specifications

DESCRIPTION	CAPACITY (L)
Power Steering Fluid (ATF III)	1.0

DIAGNOSIS & TESTING

Power Steering Troubleshooting Chart

Review this troubleshooting chart any time a power steering system problem is present. This chart will help determine if the power steering pump or power steering gear is functioning properly.

CONDITION	POSSIBLE CAUSES	CORRECTION
Steering Wheel Is Loose	· Steering wheel retaining bolt loose.	· Check steering wheel retaining bolt torque and tighten to specifications as necessary.
	· Loose steering column to instrument panel fasteners.	· Check steering column to instrument panel fastener torque and tighten to specifications as necessary.
Steering Catches, Surges Or Sticks In Certain Positions Or Is Difficult To Turn	· Low power steering fluid level.	· Check fluid level and fill to proper level as necessary. Check for leaks. Make sure all air is bled from system.
	· Tire(s) not properly inflated.	· Check and inflate tires to the specified pressure.
	· Loose or slipping power steering/ accessory drive belt.	· Verify belt tension. Replace belt auto-tensioner and belt as necessary.
	· Lack of lubrication in steering gear outer tie rod end(s).	· Check the outlet tie rod ends.
Steering Wheel Does Not Return To Center Position	· Tire(s) not properly inflated.	· Check and inflate tires to the specified pressure.
	· Improper front wheel alignment.	· Check and adjust wheel alignment as necessary.
Excessive Steering Wheel Kickback From Road Inputs	· Air in power steering fluid.	· Inspect for excessive air bubbles in fluid (fluid will appear foamy and lighter in color). Inspect hoses for leaks and replace as necessary. Bleed air from fluid.
	· Power steering gear loose on cradle/sub-frame.	· Inspect gear mounting bolts. Replace if necessary and tighten to specifications.
	· Steering column, coupling or intermediate shaft worn or loose.	· Rotate steering wheel back-and-forth while inspecting intermediate shaft going into steering gear. Look for excessive free-play. Retighten if loose bolt is found. Replace steering column, coupling or intermediate shaft if necessary.
	· Power steering pump flow is too low.	· Perform power steering flow and pressure test. Look for low or erratic flow or pressure. Replace power steering pump as necessary.

Fluid Troubleshooting Chart

NOTE :
Extremely cold temperatures may cause power steering fluid aeration. The air should work its way out of the system as the fluid warms.

CONDITION	POSSIBLE CAUSES	CORRECTION
Low Fluid Level With Visible Leak	· Loose power steering hose fittings or connections.	· Check torque on all tube nuts (at gear and pump). Inspect clamps at all rubber hose connections for correct position, damage and tension. Tighten tube nuts to specifications as required. Reposition or replace clamps at hose connections. Clean joints and reinspect for leaks.
	· Damaged or missing O-ring at power steering hose tube nuts.	· Remove tube nut and inspect O-ring. If damaged or missing, replace O-ring. Clean joints and reinspect for leaks.
	· Power steering line or hose failure.	· Clean fluid from around suspect areas. Run vehicle and inspect for leaks. Look inside reservoir to see if air is being ingested. Replace hoses as necessary.
	· Power steering component leaking (reservoir, pump, gear).	· Clean fluid from around suspect areas. Run vehicle and inspect for leaks. Look inside reservoir to see if air is being ingested. Replace power steering component as necessary.
Aerated Fluid	· Low power steering fluid level.	· Check fluid level and fill to proper level as necessary. Check for leaks. Make sure all air is bled from system.
	· Air leak at power steering supply hose, reservoir or pump.	· Inspect components. Place a hand vacuum pump with reservoir and verify that system can sustain vacuum. System should not lose more than 1 psi in 2 minutes (make sure vacuum pump is sealed well to the reservoir). Replace steering component as necessary.

ON-VEHICLE SERVICE

Power Steering Filling and Flushing

Inspection

If the power steering fluid level is low, inspect the entire power steering system for potential leaks.

CAUTION:
DO NOT run a vehicle with foamy fluid for an extended period. This may cause pump damage.

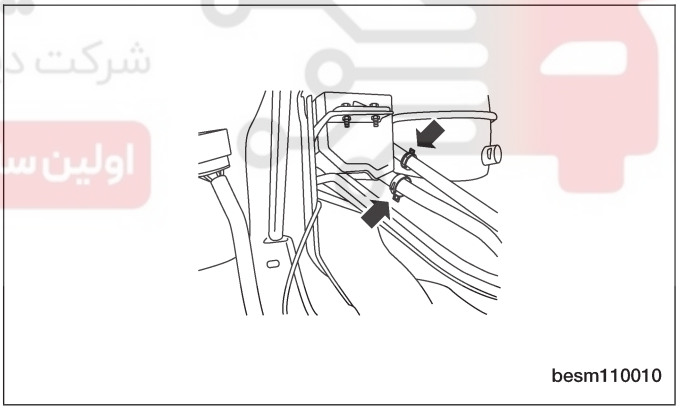
Filling

1. Fill the power steering fluid reservoir to the proper level and let the fluid settle for at least two minutes.
2. Start the engine and let run for a few seconds, then turn the engine off.
3. Add fluid if necessary.
4. Repeat the above procedure until the fluid level remains constant after running the engine.
5. When the oil temperature is relatively high, the oil level will approach to the “MAX” position.
6. When the oil cools down, the oil level may approach to the “MIN” position.

NOTE :
If the fluid is extremely foamy or milky looking, allow the vehicle to stand a few minutes and repeat the procedure.

Flushing

1. Raise and support the vehicle.
2. Siphon out the contaminated power steering fluid from the power steering liquid reservoir.
3. Remove the power steering oil return hose from the power steering liquid reservoir.



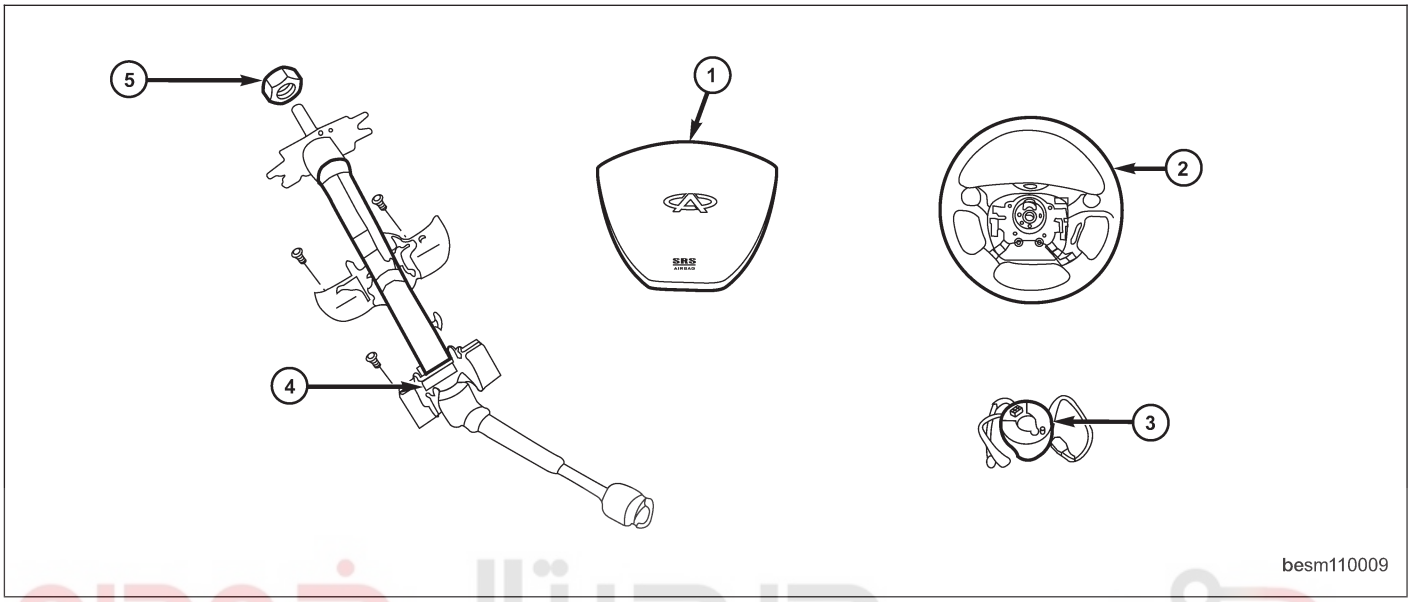
4. Insert the power steering oil return hose into a container for the discharged power steering fluid.
5. Start the engine and idle.
6. Fill the power steering fluid reservoir.
7. When the return hose discharges the clean oil. Stop engine and install the return hose.
8. Slowly turn the steering wheel right and left, lightly contacting the wheel stops at least 20 times.
9. Approximately 1.0L of power steering fluid should be needed until the liquid reservoir is rinsed clean.

STEERING COLUMN

GENERAL INFORMATION

Description

The steering column has been designed so that the wiring, switches, shrouds and steering wheel can be serviced without removing the steering column from the vehicle.



The steering column assembly consists of the following:

- Driver Airbag (1)
- Steering Wheel (2)
- Spiral Cable (3)
- Steering Column (4)
- Steering Wheel Lock Nut (5)

Operation

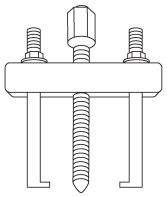
The steering column is the mechanical linkage between the steering wheel and the steering gear. The steering column shaft then connects the steering column to the steering gear. The tilt function of the steering column is controlled by a mechanical lever on the underside of the steering column, which uses a cam to lock and unlock the steering column.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Steering Wheel Lock Nut	40

Special Tools

Steering Wheel Puller	 besm110015

DIAGNOSIS & TESTING

Vehicle Inspection

There is some noise in all power steering systems. One of the most common is a hissing sound. Hiss is a high frequency noise similar to that of a water tap being closed slowly. The noise is present in all valves that have a high velocity fluid passing through an orifice. There is no relationship between this noise and steering performance. The hissing sound is commonly heard during the following operations:

- Evident at a standstill
- At park with the engine running
- When the steering wheel is at the end of its travel

Loose Steering / Vehicle Leads / Drifts Troubleshooting Chart

CONDITION	POSSIBLE CAUSES	CORRECTION
Excessive Play In Steering Wheel	· Worn or loose suspension or steering components. · Worn or loose wheel bearings. · Steering gear mounting. · Gear out of adjustment. · Worn or loose steering coupler.	· Repair as necessary. · Repair as necessary. · Tighten gear mounting bolts to specification. · Adjust gear to specification. · Repair as necessary.
Vehicle Pulls To One Side During Braking	· Tire pressure. · Air in brake hydraulics system. · Worn brake components.	· Adjust tire pressure. · Bleed brake system. · Repair as necessary.
Vehicle Leads Or Drifts From Straight Ahead Direction On Uncrowned Road.	· Tire pressure. · Radial tire lead. · Brakes dragging. · Wheel alignment. · Weak or broken spring. · Loose or worn steering/suspension components.	· Adjust tire pressure. · Cross front tires. · Repair as necessary. · Align vehicle. · Replace spring. · Repair as necessary.

ON-VEHICLE SERVICE

Steering Wheel

Removal & Installation

WARNING!

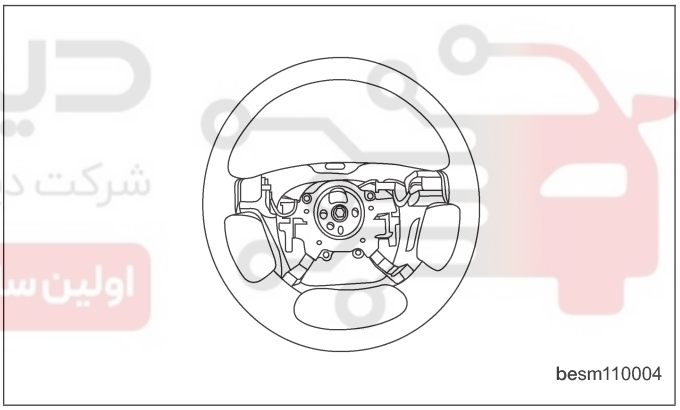
Before servicing the steering column, the airbag system must be disarmed. Failure to do so may result in accidental deployment of the airbag and possible personal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

NOTE :
To help maintain alignment of the spiral cable connector during reassembly, apply a small piece of tape to the spiral cable and the steering column to keep them in alignment.

1. Set the front wheels to straight-ahead position.
2. Disconnect the negative battery cable.
3. Remove the driver side airbag (See Driver Airbag Removal & Installation in Section 14 Restraints).
4. Disconnect the spiral cable electrical connector.
5. Remove the steering wheel lock nut.
   (Tighten: Steering wheel lock nut to 40 N·m)
6. Using the steering wheel puller, remove the steering wheel.
7. Installation is in the reverse order of removal.

Installation Notes:

- The spiral cable could be damaged if installed in an improper position.
- Do not rotate the spiral cable quickly or beyond the limit of turns (this can cause the cable to snap).
- Verify the airbag system is operating properly after the repair is complete.



Shroud

Removal & Installation

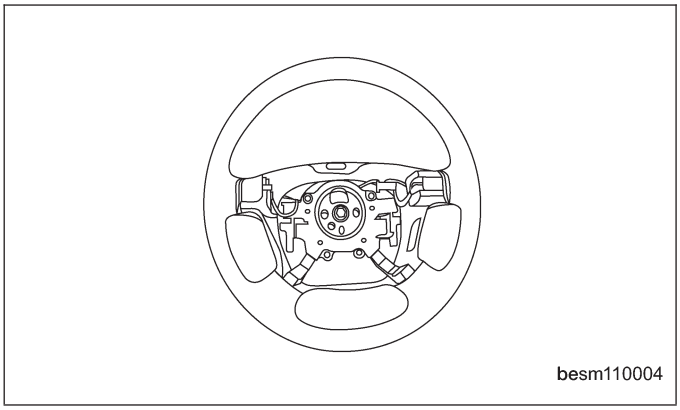
WARNING!

Before servicing the steering column, the airbag system must be disarmed. Failure to do so may result in accidental deployment of the airbag and possible personal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

NOTE :
To help maintain alignment of the spiral cable connector during reassembly, apply a small piece of tape to the spiral cable and the steering column to keep them in alignment.

1. Disconnect the negative battery cable.
2. Remove the driver side airbag (See Driver Airbag Removal & Installation in Section 14 Restraints).
3. Remove the steering wheel lock nut.
   (Tighten: Steering wheel lock nut to 40 N·m)

4. Using the steering wheel puller, remove the steering wheel.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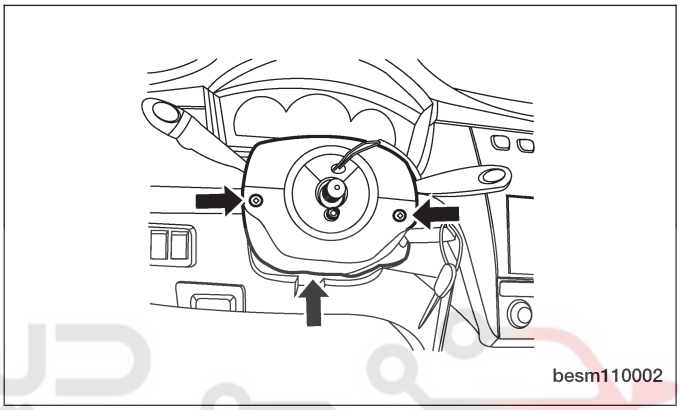
5. Remove three retaining screws.
6. Remove the shroud.
7. Installation is in the reverse order of removal.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Installation Notes:

- The spiral cable could be damaged if installed in an improper position.
- Do not rotate the spiral cable quickly or beyond the limit of turns (this can cause the cable to snap).
- Verify the airbag system is operating properly after the repair is complete.

STEERING GEAR

GENERAL INFORMATION

Description

The steering gear used is the rack-and-pinion type with power assist. It is mounted on the front suspension sub-frame. The outer ends of the outer tie rods attach to the front knuckles.

NOTE :
The power steering gear should not be serviced or adjusted. If a malfunction or oil leak occurs with the steering gear, the complete steering gear needs to be replaced.

Operation

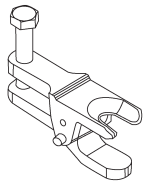
The steering wheel turns the pinion. The rack is a long flat bar with teeth on one side. The rack teeth mesh with the teeth on the pinion. Rotation of the pinion moves the rack from left to right and right to left. The tie rod then causes the wheels to turn to the left or right.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Sub-Frame Mounting Bolts	115
Front Sub-Frame And Vehicle Body Connections	180
Heat Shield Bolts	10
Intermediate Shaft Coupling Bolt	25
Lower Control Arm Pinch Bolts	110
Lower Control Arm Front Mounting Bolt	180
Lower Control Arm Rear Mounting Bolt	180
Power Steering Hose Routing Clamp Screws	10
Power Steering Pressure Line To Steering Gear	45
Power Steering Return Line To Steering Gear	45
Pressure/Return Hose Routing Clamp Screws To Sub-Frame	10
Rear Sub-Frame And Vehicle Body Connections	90
Rear Transaxle Mount Bolts	40
Steering Gear Mounting Bolts	75
Tie Rod End Nut	35
Tie Rod Jam Nut	15
Wheel Mounting Nuts	110

Special Tools

Ball Joint Separator CH-10002	 besm020086

DIAGNOSIS & TESTING

Binding and Sticking Troubleshooting Chart

CONDITION	POSSIBLE CAUSES	CORRECTION
Difficult To Turn Wheel Sticks Or Binds	· Low fluid level. · Tire pressure. · Steering component. · Loose belt. · Low pump pressure. · Column shaft coupler binding. · Steering gear worn or out of adjustment. · Ball joints binding. · Belt routing.	· Fill to proper level. · Adjust tire pressure. · Inspect and lube. · Adjust or replace. · Pressure test and replace if necessary. · Replace coupler. · Repair or replace gear. · Inspect and repair as necessary. · Verify belt routing is correct.

Insufficient Assist / Poor Return To Center Troubleshooting Chart

CONDITION	POSSIBLE CAUSES	CORRECTION
Hard Turning Or Momentary Increase In Turning Effort	· Tire pressure. · Low fluid level. · Loose belt. · Lack of lubrication. · Low pump pressure or flow. · Internal gear leak. · Belt routing.	· Adjust tire pressure. · Fill to proper level. · Adjust or replace. · Inspect and lubricate steering and suspension components. · Pressure and flow test and repair as necessary. · Pressure and flow test, and repair as necessary. · Verify belt routing is correct.
Steering Wheel Does Not Want To Return To Center Position	· Tire pressure. · Wheel alignment. · Lack of lubrication. · High friction in steering gear. · Ball joints binding.	· Adjust tire pressure. · Align front end. · Inspect and lubricate steering and suspension components. · Test and adjust as necessary. · Inspect and repair as necessary.

ON-VEHICLE SERVICE

Steering Gear- LHD

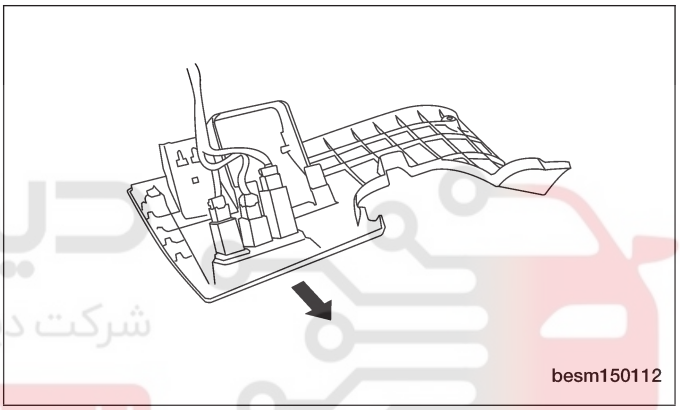
Removal & Installation

WARNING!

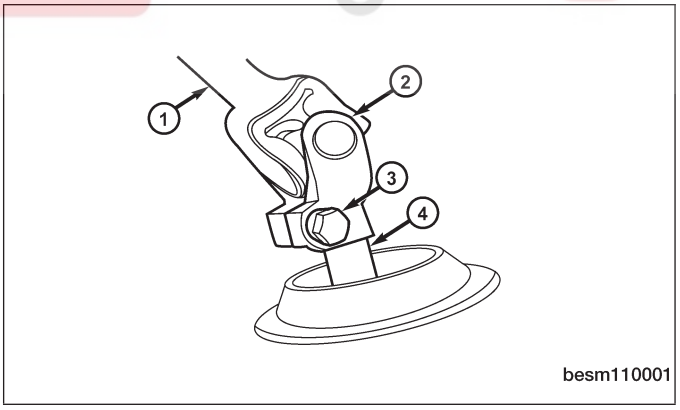
Before servicing the steering column, the airbag system must be disarmed. Failure to do so may result in accidental deployment of the airbag and possible personal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

NOTE :
The following special tools are required to perform the repair procedure:
- CH-10002 - Ball Joint Separator

1. Siphon out as much power steering fluid as possible from the reservoir.
2. Reposition the floor carpeting to access the intermediate shaft coupling at the base of the steering column.
3. Remove the instrument panel lower shroud.
4. Disconnect the electrical connectors.

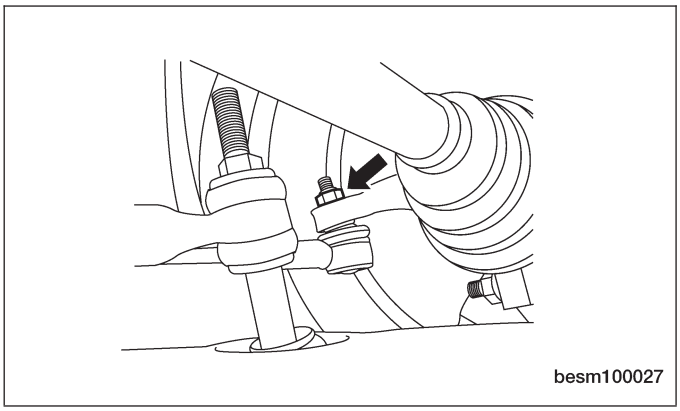


5. Position the front wheels of vehicle in the straight-ahead position, then turn the steering wheel to the right until the intermediate shaft coupling bolt (3) at the base of the steering column (2) can be accessed.
6. Remove the intermediate shaft coupling bolt (3). Do not separate the intermediate shaft (1) from the steering gear pinion shaft (4) at this time.
   (Tighten: Intermediate shaft coupling bolt to 25 N·m)



7. Return the front wheels of vehicle and steering wheel to the straight-ahead position.
8. Raise and support the vehicle.
9. Remove the wheel mounting nuts and the tire and wheel assemblies from both sides.
   (Tighten: Wheel mounting nuts to 110 N·m)

10. On each side of the steering gear, remove the nut attaching the outer tie rod end to the steering knuckle.
    (Tighten: Outer tie rod end nut to 35 N·m)
11. Using special tool CH-10002, separate the outer tie rod ends from both steering knuckles.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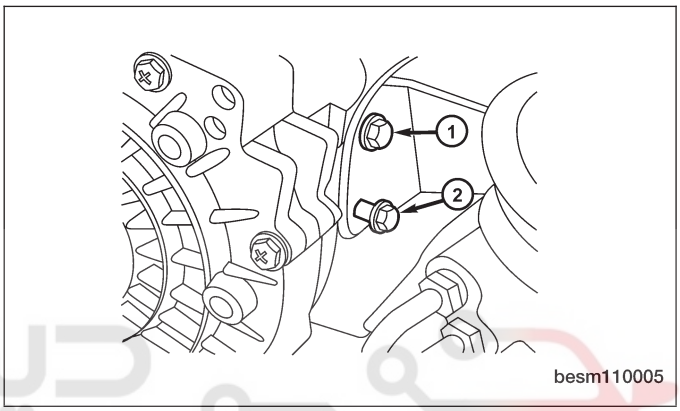
12. Remove the rear transaxle mount bolts (1) and (2).
    (Tighten: Rear transaxle mount bolts to 40 N·m)



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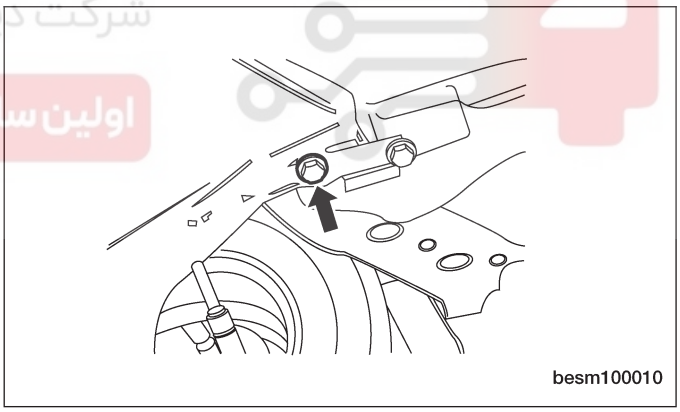
13. Remove the front and rear lower control arm bolts.
    (Tighten: Lower control arm bolts to 180 N·m)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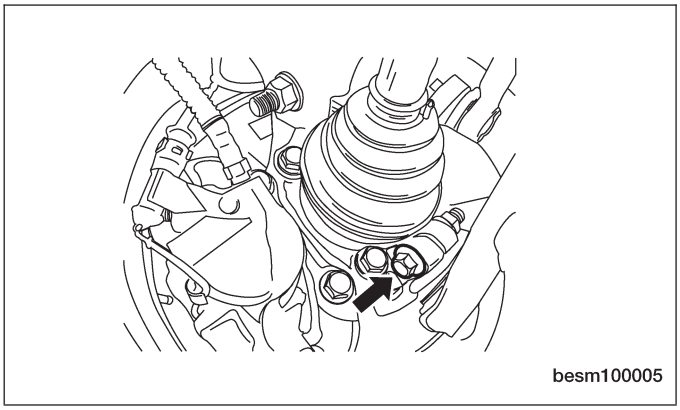
14. Remove the pinch bolt on the lower control arm.
    (Tighten: Lower control arm pinch bolts to 110 N·m)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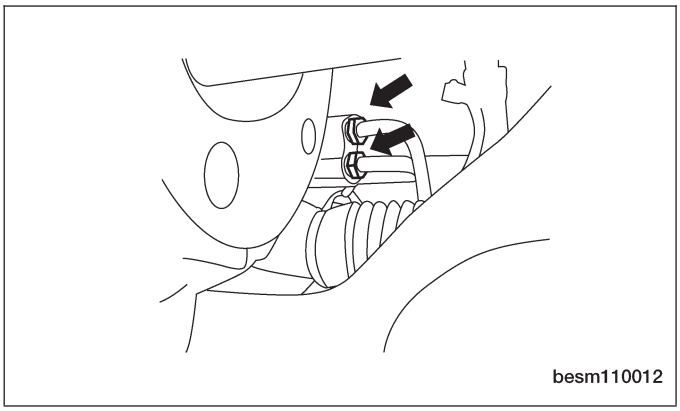
15. Remove the high pressure and low pressure lines from the steering gear.
    (Tighten: High pressure line to steering gear 45 N·m)
    (Tighten: Low pressure line to steering gear 45 N·m)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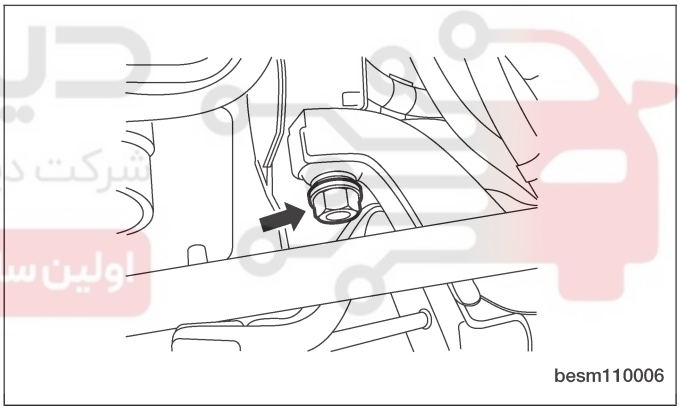
16. Remove the power steering lines from the sub-frame.

NOTE :
Before removing the front suspension sub-frame from the vehicle, the location of the sub-frame must be marked on the body of the vehicle. Do this so the sub-frame can be relocated, upon reinstallation, against the body of vehicle in the same location as before removal. If the front suspension sub-frame is not reinstalled in exactly the same location as before removal, the preset front wheel alignment settings (caster and camber) may be lost.

17. Mark the location of the front sub-frame on the body near each mounting bolt.
18. Support the engine using a suitable tool.
19. Remove the mounting bolts, securing the sub-frame to the body.
    (Tighten: Sub-Frame mounting bolts to 115 N·m)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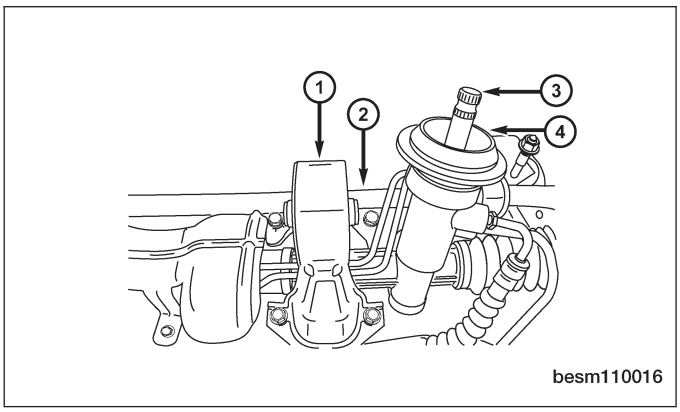
20. Using a jack, slowly lower the sub-frame enough to access the intermediate shaft coupling at the steering gear pinion shaft.
21. Slide the coupling (3) off the pinion shaft.
22. Remove the dash seals (4) as necessary.
23. Remove the stabilizer bar (2) as necessary.
24. Remove the rear engine mount bracket (1).



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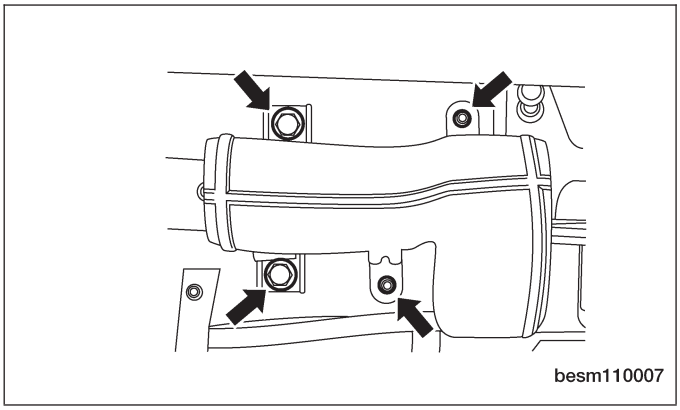
25. Remove the heat shield mounting bolts on the steering gear.
(Tighten: Heat shield mounting bolts to 10 N·m)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26. Remove the bolts securing the steering gear to the sub-frame, then remove the steering gear.
(Tighten: Steering gear mounting bolts to 75 N·m)
27. Installation is in the reverse order of removal.

Installation Notes:

- After installing the new steering gear, perform a front end alignment procedure to reset the toe-in (See Front Wheel Alignment in Section 10 Suspension).

Steering Gear- RHD

Removal & Installation

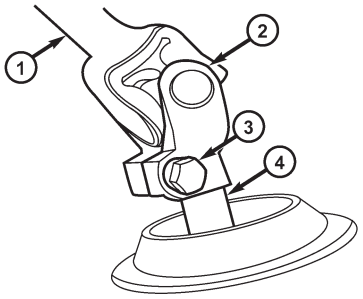
WARNING!

Before servicing the steering column, the airbag system must be disarmed. Failure to do so may result in accidental deployment of the airbag and possible personal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

NOTE :
The following special tools are required to perform the repair procedure:

- CH-10002 - Ball Joint Separator

1. Siphon out as much power steering fluid as possible from the reservoir.
2. Reposition the floor carpeting to access the intermediate shaft coupling at the base of the steering column.
3. Remove the instrument panel lower shroud.
4. Disconnect the electrical connectors.
5. Position the front wheels of vehicle in the straight-ahead position, then turn the steering wheel to the right until the intermediate shaft coupling bolt (3) at the base of the steering column can be accessed.
6. Remove the intermediate shaft coupling bolt (3). Do not separate the intermediate shaft (1) from the steering gear pinion shaft (4) at this time.
(Tighten: Intermediate shaft coupling bolt to 25 N·m)



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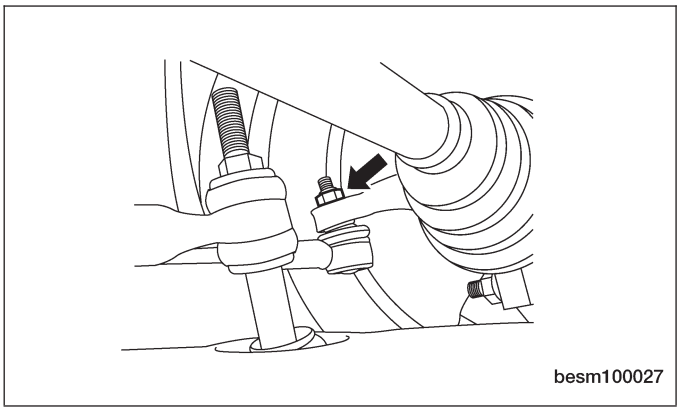
7. Return the front wheels of vehicle and steering wheel to the straight-ahead position.
8. Raise and support the vehicle.
9. Remove the wheel mounting nuts and the tire and wheel assemblies from both sides.
(Tighten: Wheel mounting nuts to 110 N·m)

10. On each side of the steering gear, remove the nut attaching the outer tie rod end to the steering knuckle.
    (Tighten: Outer tie rod end nut to 35 N·m)
11. Using special tool CH-10002, separate the outer tie rod ends from both steering knuckles.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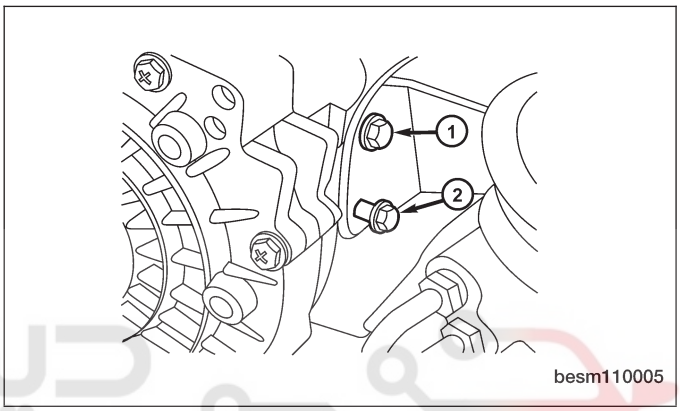
12. Remove the rear transaxle mount bolts (1) and (2).
    (Tighten: Rear transaxle mount bolts to 40 N·m)



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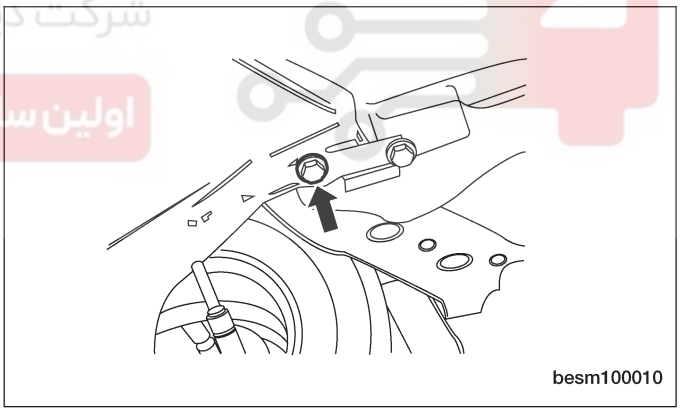
13. Remove the front and rear lower control arm bolts.
    (Tighten: Lower control arm bolts to 180 N·m)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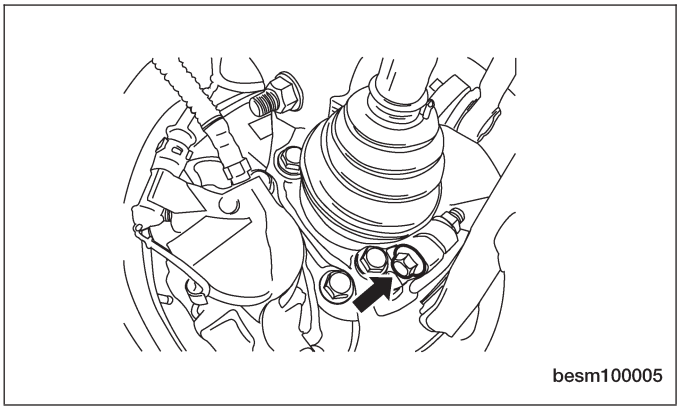
14. Remove the pinch bolt on the lower control arm.
    (Tighten: Lower control arm pinch bolts to 110 N·m)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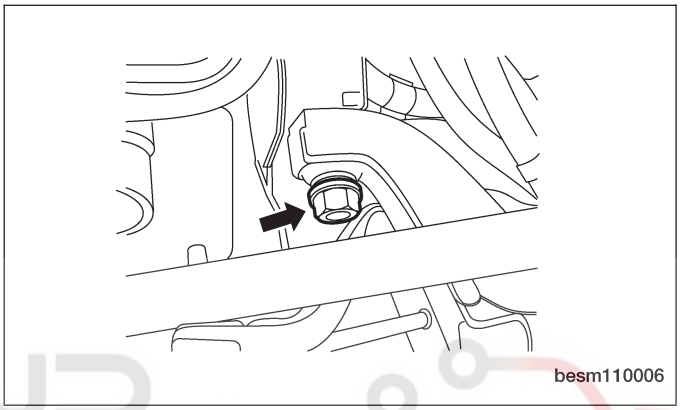
15. Remove the high pressure and low pressure lines from the steering gear.
    (Tighten: High pressure line to steering gear 45 N·m)
    (Tighten: Low pressure line to steering gear 45 N·m)
16. Remove the power steering lines from the sub-frame.

NOTE :
Before removing the front suspension sub-frame from the vehicle, the location of the sub-frame must be marked on the body of the vehicle. Do this so the sub-frame can be relocated, upon reinstallation, against the body of vehicle in the same location as before removal. If the front suspension sub-frame is not reinstalled in exactly the same location as before removal, the preset front wheel alignment settings (caster and camber) may be lost.

17. Mark the location of the front sub-frame on the body near each mounting bolt.
18. Support the engine using a suitable tool.
19. Remove the mounting bolts, securing the sub-frame to the body.
    (Tighten: sub-frame mounting bolts to 115 N·m)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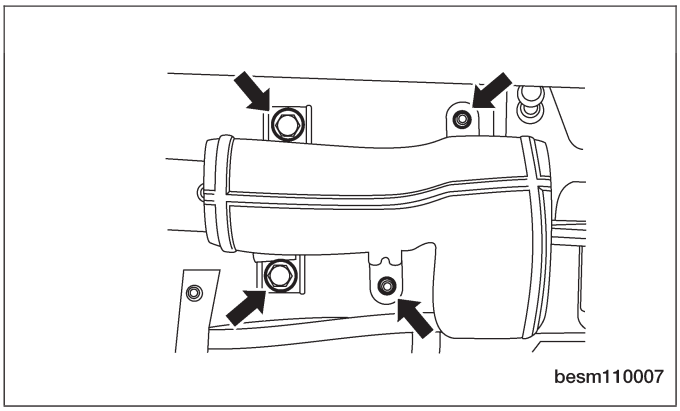
20. Using a jack, slowly lower the sub-frame enough to access the intermediate shaft coupling at the steering gear pinion shaft.
21. Slide the coupling off the pinion shaft.
22. Remove the dash seals as necessary.
23. Remove the stabilizer bar as necessary.
24. Remove the rear engine mount bracket.
25. Remove the heat shield mounting bolts on the steering gear.
    (Tighten: Heat shield mounting bolts to 10 N·m)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26. Remove the bolts securing the steering gear to the sub-frame, then remove the steering gear.
    (Tighten: Steering gear mounting bolts to 75 N·m)
27. Installation is in the reverse order of removal.

Installation Notes:

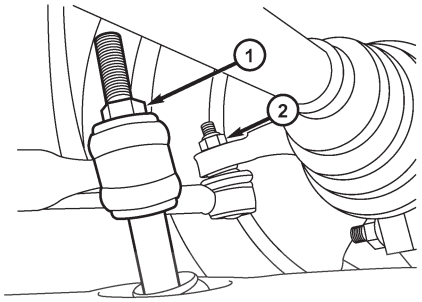
- After installing the new steering gear, perform a front end alignment procedure to reset the toe-in (See Front Wheel Alignment in Section 10 Suspension).

Tie Rod

Removal & Installation

NOTE :
The following special tools are required to perform the repair procedure:
- CH-10002 - Ball Joint Separator

1. Raise and support the vehicle.
2. Remove the wheel mounting nuts and the tire and wheel assembly. (Tighten: Wheel mounting nuts to 110 N·m)
3. Loosen the tie rod jam nut (1). (Tighten: Tie rod jam nut to 15 N·m)
4. Remove the nut (2) attaching the outer tie rod end to the steering knuckle. (Tighten: Outer tie rod end nut to 35 N·m)
5. Using special tool CH-10002, separate the outer tie rod end from the steering knuckle.



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6. Remove the outer tie rod end from the steering rack.

NOTE :
When removing the outer tie rod end, count the number of revolutions when removing. This will aid in installation, getting the toe setting close to where it needs to be when setting the final toe-in wheel alignment.

7. Installation is in the reverse order of removal.

Installation Notes:

- After installing the new tie rod end, perform a front end alignment procedure to reset the toe-in (See Front Wheel Alignment in Section 10 Suspension).

POWER STEERING PUMP

GENERAL INFORMATION

Description

Hydraulic pressure for operation of the power steering gear is provided by a droop-flow type power steering pump. The power steering pump is belt driven.

Operation

The power steering pump is mounted to the engine and driven by the engine accessory drive belt. Power steering fluid enters the pump from the reservoir. The power steering fluid is then trapped between the pump vanes and moved to the high-pressure side of the pump creating a flow of fluid. The restriction of this flow by the steering gear creates the pressure that provides the steering assist.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Power Steering Hose Routing Clamp Bolts	10
Power Steering Pressure Line To Steering Gear	45
Power Steering Return Line To Steering Gear	45
Power Steering Pressure Line To Power Steering Pump	45
Power Steering Return Line To Power Steering Pump	45
Power Steering Pump Mounting Bolts	25
Pressure/Return Hose Routing Clamp Screws To Cross Member	10
Power Steering Pump Reservoir Mounting Bolts	25
Power Steering Pump Reservoir Line To Power Steering Pump	10

Fluid Specifications

DESCRIPTION	CAPACITY (L)
Power Steering Fluid (ATF III)	1.0

DIAGNOSIS & TESTING

Steering System Noise Troubleshooting Chart

CONDITION	POSSIBLE CAUSES	CORRECTION
Hiss Or Whistle Sound When Turning Steering Wheel	· Steering intermediate shaft to dash panel seal. · Noisy valve in power steering gear.	· Check and repair seal at dash panel. · Replace steering gear.
Rattle Or Clunk	· Gear mounting bolts loose. · Loose or damaged suspension components. · Loose or damaged steering linkage. · Internal gear noise. · Pressure hose in contact with other components.	· Tighten bolts to specification. · Inspect and repair suspension. · Inspect and repair steering linkage. · Replace gear. · Reposition hose.
Chirp Or Squeal	· Loose belt. · Belt routing.	· Adjust or replace. · Verify belt routing is correct.
Whine Or Growl	· Low fluid level. · Pressure hose in contact with other components. · Internal pump noise. · Air in the system.	· Fill to proper level. · Reposition hose. · Replace pump. · Perform pump initial operation.
Sucking Air Sound	· Loose return line clamp. · O-ring missing or damaged on hose fitting. · Low fluid level. · Air leak between pump and reservoir.	· Replace clamp. · Replace O-ring. · Fill to proper level. · Repair as necessary.
Scrubbing Or Knocking	· Wrong tire size. · Wrong gear.	· Verify tire size. · Verify gear.

Insufficient Assist / Poor Return To Center Troubleshooting Chart

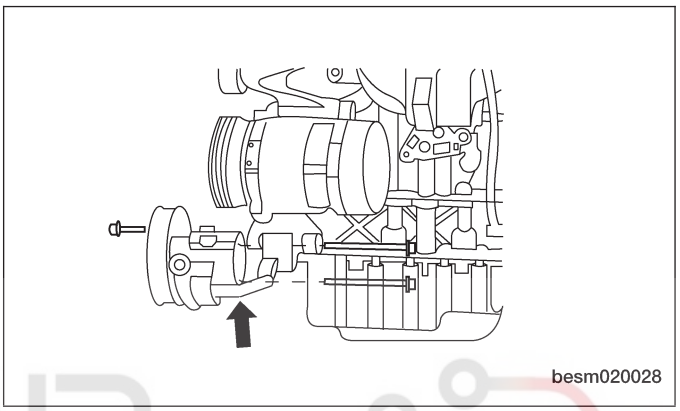
CONDITION	POSSIBLE CAUSES	CORRECTION
Hard Turning Or Momentary Increase In Turning Effort	· Tire pressure. · Low fluid level. · Loose belt. · Lack of lubrication. · Low pump pressure or flow. · Internal gear leak. · Belt routing.	· Adjust tire pressure. · Fill to proper level. · Adjust or replace. · Inspect and lubricate steering and suspension components. · Pressure and flow test and repair as necessary. · Pressure and flow test, and repair as necessary. · Verify belt routing is correct.
Steering Wheel Does Not Want To Return To Center Position	· Tire pressure. · Wheel alignment. · Lack of lubrication. · High friction in steering gear. · Ball joints binding.	· Adjust tire pressure. · Align front end. · Inspect and lubricate steering and suspension components. · Test and adjust as necessary. · Inspect and repair as necessary.

ON-VEHICLE SERVICE

Power Steering Pump

Removal & Installation

1. Siphon as much fluid as possible from the power steering fluid reservoir.
2. Remove the engine cover.
3. Remove the drive belt (See Drive Belt Removal & Installation in Section 02 Engine).
4. Remove the high pressure and low pressure lines from the power steering pump (drain fluid from lines).
   (Tighten: High pressure line to power steering pump 45 N·m)
   (Tighten: Low pressure line to power steering pump 45 N·m)
5. Remove the three power steering pump mounting bolts.
   (Tighten: Power steering pump bolts to 25 N·m)
6. Remove the power steering pump.
7. Installation is in the reverse order of removal.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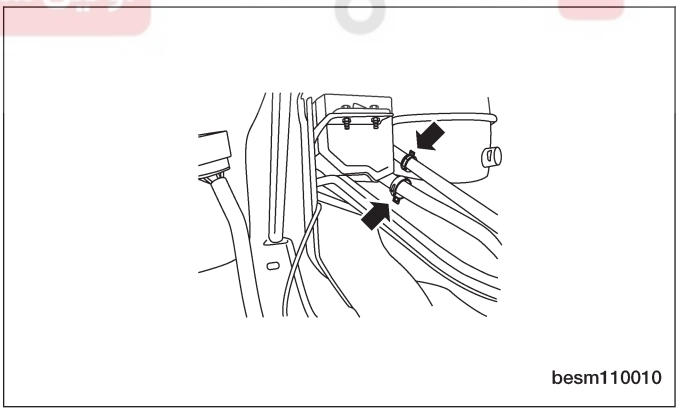
Power Steering Fluid Reservoir

Removal & Installation

1. Siphon as much fluid as possible from the power steering fluid reservoir.
2. Remove the hose clamps securing the return hose and the supply hose to the fluid reservoir fitting.
3. Slide the hose off the end of the reservoir fitting.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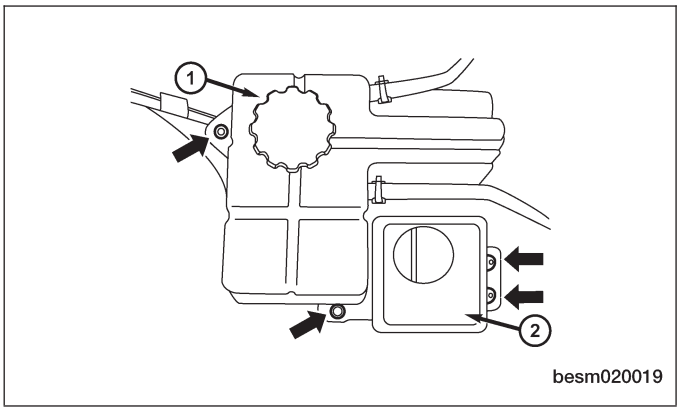
4. Remove the coolant reservoir (1) mounting bolts and place it aside (leave the coolant hoses connected).
5. Remove the power steering fluid reservoir mounting bolts then remove power steering fluid reservoir (2).
   (Tighten: Power steering fluid reservoir bolts to 25 N·m)
6. Installation is in the reverse order of removal.



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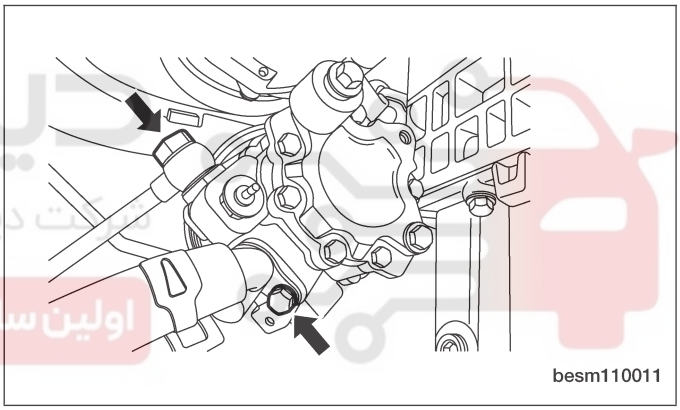
Power Steering Pressure and Return Hoses

Removal & Installation

1. Siphon as much fluid as possible from the power steering fluid reservoir.
2. Remove the engine cover.
3. Remove the hose clamps securing the return hose and the supply hose to the fluid reservoir fitting.
4. Remove the high pressure and low pressure lines from the power steering pump (drain fluid from lines).
   (Tighten: High pressure line to power steering pump 45 N·m)
   (Tighten: Low pressure line to power steering pump 45 N·m)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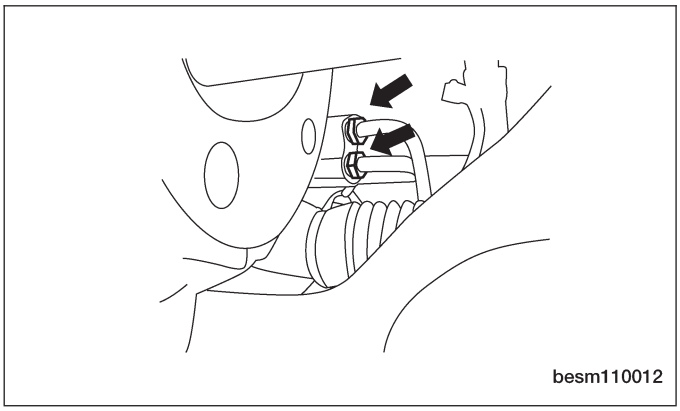
5. Remove the high pressure and low pressure lines from the steering gear (drain fluid from lines).
   (Tighten: High pressure line to power steering pump 45 N·m)
   (Tighten: Low pressure line to power steering pump 45 N·m)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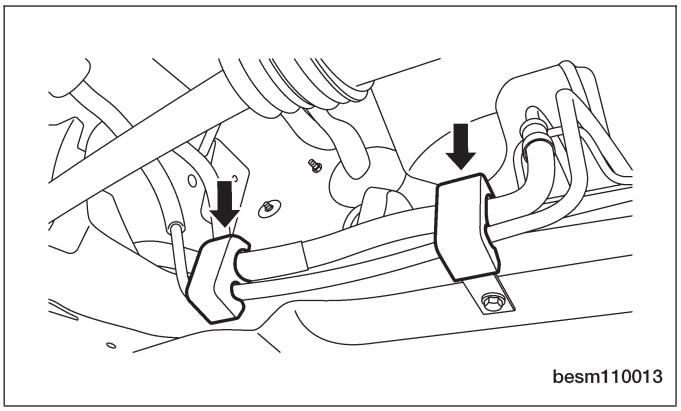
6. Remove the pressure and return hoses mounting bracket bolts.
   (Tighten: Power steering lines routing clamp bolts to 10 N·m)



7. Remove the pressure and return hoses.
8. Installation is in the reverse order of the removal.