

ST-2

Steering System

General Information

Specification

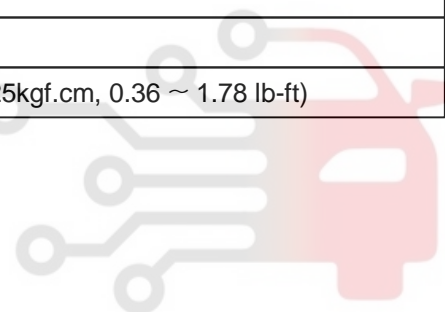
Items		Specification	
Steering gear	Type	Rack & Pinion	
	Rack stroke	144mm	
Power steering pump	Type	Vane	
	Relief pressure	Diesel	105kgf/cm ² (1493psi, 10.3MPa)
		Gasoline	100kgf/cm ² (1422psi, 9.8MPa)
	Displacement	Diesel	9.6cc/rev
Gasoline		10.5cc/rev	
Power steering oil		PSF-3	

Service Standard

Items		Specification
Steering wheel free play		30mm (1.18in.)
Steering angle	Inner	37.64°
	Outer	31.01°
Tie-rod end starting torque		0.49 ~ 2.45Nm (5 ~ 25kgf.cm, 0.36 ~ 1.78 lb-ft)

شرکت دیجیتال خودرو (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



General Information

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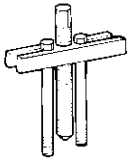
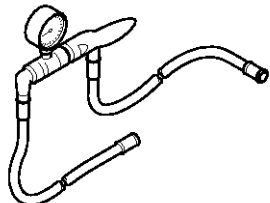
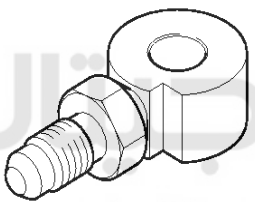
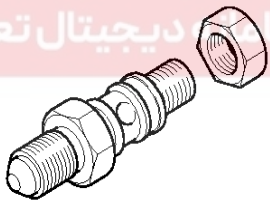
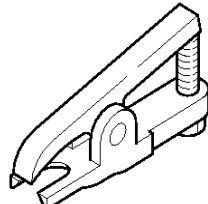
Tightening Torques

Items	Tightening torque		
	N.m	kgf.m	lb-ft
Hub nuts	90 ~ 110	9.0 ~ 11.0	65 ~ 80
Steering wheel lock nut	40 ~ 50	4.0 ~ 5.0	29 ~ 36
Steering column mounting bolts and nuts	13 ~ 18	1.3 ~ 1.8	9 ~ 13
Steering column & universal joint dust cover nuts	4 ~ 6	0.4 ~ 0.6	2.9 ~ 4.3
Bolt connecting universal joint to steering gear pinion	30 ~ 35	3.0 ~ 3.5	22 ~ 25
Bolt connecting universal joint to steering column	15 ~ 20	1.5 ~ 2.0	11 ~ 14
Tie-rod end castle nut	24 ~ 34	2.4 ~ 3.4	17 ~ 25
Lower arm to knuckle bolt and nut	100 ~ 120	10.0 ~ 12.0	72 ~ 87
Power steering gear box mounting bolts	90 ~ 110	9.0 ~ 11.0	65 ~ 80
Power steering pump mounting bolts	Diesel	20 ~ 27	2.0 ~ 2.7
	Gasoline	35 ~ 50	3.5 ~ 5.0
Pressure tube eye bolt	55 ~ 65	5.5 ~ 6.5	40 ~ 47
Pressure tube to steering gear valve body flare nut	12 ~ 18	1.2 ~ 1.8	9 ~ 13
Return tube to steering gear valve body flare nut	12 ~ 18	1.2 ~ 1.8	9 ~ 13
Stabilizer link to front strut assembly nut	100 ~ 120	10.0 ~ 12.0	72 ~ 87
Front & Rear roll stopper bolt & nut	50 ~ 65	5.0 ~ 6.5	36 ~ 47
Sub-frame stay mounting bolts and nuts	70 ~ 90	7.0 ~ 9.0	51 ~ 65
Sub-frame mounting bolts	140 ~ 160	14.0 ~ 16.0	101 ~ 116

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Steering System

Special Service Tools

Tool (Number and Name)	Illustration	Use
09561-11001 Steering wheel puller	 <p style="text-align: center;">KPRE103G</p>	Removal of steering wheel
09572-21000 Oil pressure gauge	 <p style="text-align: center;">EPRF001F</p>	Measurement of oil pressure (Use with 09572-22100, 09572-21200)
09572-22100 Oil pressure gauge adaptor	 <p style="text-align: center;">EPRF001H</p>	Measurement of oil pressure (Use with 09572-21000, 09572-21200)
09572-21200 Oil pressure gauge adaptor	 <p style="text-align: center;">EPRF001G</p>	Measurement of oil pressure (Use with 09572-22100, 09572-21200)
09568-34000 Ball joint puller	 <p style="text-align: center;">E6834000</p>	Separation of tie-rod end ball joint

General Information

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Troubleshooting

Symptom	Probable cause	Remedy
Excessive play in steering	Loose yoke plug	Retighten
	Loose steering gear mounting bolts	Retighten
	Loose or worn tie rod end	Retighten or replace as necessary
Steering wheel operation is not smooth (Insufficient power assist)	V-belt slippage	Readjust
	Damaged V-belt	Replace
	Low fluid level	Replenish
	Air in the fluid	Bleed air
	Twisted or damaged hoses	Correct the routing or replace
	Insufficient oil pump pressure	Repair or replace the oil pump
	Sticky flow control valve	Replace
	Excessive internal oil pump leakage	Replace the damaged parts
	Excessive oil leaks from rack and pinion in gear box	Replace the damaged parts
	Distorted or damaged gear box or valve body seals	Replace
	Steering wheel does not return properly	Excessive turning resistance of tierod end
Yoke plug excessively tight		Adjust
Tie rod and/or ball joint cannot turn smoothly		Replace
Loose mounting of gear box mounting bracket Worn steering shaft joint and/or		Retighten
Worn steering shaft joint and/or body grommet		Correct or replace
Distorted rack		Replace
Damaged pinion bearing		Replace
Twisted or damaged hoses		Reposition or replace
Damaged oil pressure control valve		Replace
Damaged oil pump input shaft bearing		Replace
Noise	<p>Hissing Noise in Steering Gear</p> <p>There is some noise with all power steering systems. One of the most common is a hissing sound when the steering wheel is turned and the car is not moving. This noise will be most evident when turning the wheel while the brakes are being applied. There is no relationship between this noise and steering performance. Do not replace the valve unless the "hissing" noise becomes extreme. A replaced valve will also make a slight noise, and is not always a solution for the condition.</p>	
Rattling or chucking noise in the rack and pinion	Interference with hoses from vehicle body	Reposition
	Loose gear box bracket	Retighten
	Loose tie rod end and/or ball joint	Retighten
	Worn tie rod and/or ball joint	Replace

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Steering System

Symptom	Probable cause	Remedy
Noise in the oil pump	Low fluid level	Replenish
	Air in the fluid	Bleed air
	Loose pump mounting bolts	Retighten

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



General Information

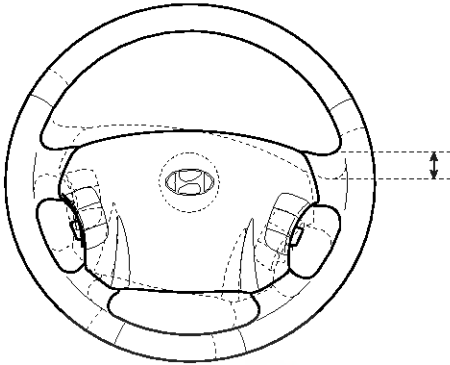
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Service Adjustment Procedure Steering Wheel Free Play Inspection

1. Start the engine and then turn the steering wheel so that the front wheels can face straight ahead.
2. Measure the play while turning the steering wheel to left and right.

Standard value

Free play: Approx. 30mm (1.2in)

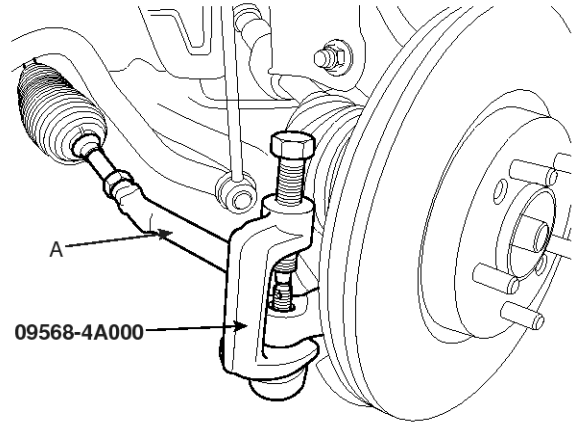


SENST7503D

3. If the play exceeds the standard value, inspect the steering column, shaft, and linkages.

Tie-rod End Ball Joint Starting Torque Inspection

1. Disconnect the tie-rod end with the knuckle using a SST (09568-34000).

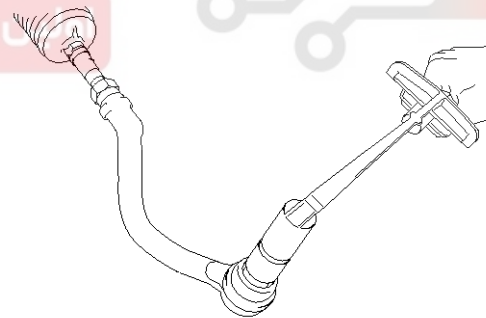


SCMST6008D

2. Shake the tie-rod end ball joint stud several times.
3. Mount two nuts on the ball joint and then measure the tie-rod end ball joint starting torque using a torque wrench.

Starting torque:

0.49 ~ 2.45N.m (5 ~ 25kgf.cm, 0.36 ~ 1.78 lb-ft)



KPRE105C

4. If the starting torque exceeds the upper limit of standard value, replace the tie-rod end.
5. If starting torque is below the lower limit of standard value, check the play of the ball joint and replace if necessary.

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Steering System

Air Bleeding

1. Jack up the front wheels.
2. Remove the fuel pump fuse from the fuse box.
3. Start the engine and wait for the engine to stall.
4. Fill the reservoir with the power steering fluid up to the upper position of the filter.

⚠CAUTION

While performing following steps, replenish the fluid so that the level never falls below the lower position of the filter.

5. Turn the steering wheel all the way to the left and then to the right 5 ~ 6 times while cranking (for 15 ~ 20 seconds).
6. Reinstall the fuel pump fuse and then start the engine.
7. With the engine idle, turn the steering wheel to the left and to the right until there is no air bubbles in the reservoir.

⚠CAUTION

Do not hold the steering wheel turned all the way to either side for more 10 seconds.

8. Confirm that the fluid is not milky, and the level is up to the COLD MAX position specified on the level gauge.
9. Confirm that there is little change in the surface of the fluid when the steering wheel is turned left and right.

⚠CAUTION

If the surface of the fluid changes considerably, air bleeding should be done again.

If the fluid level rises suddenly when the engine is stopped, it indicates that there is still air in the system.

If there is air in the system, a jingling noise may be heard from the pump and the control valve may also produce unusual noises, Air in the system will shorten the life of the pump and other parts.

Power Steering Fluid Replacemnet

1. Jack up the front wheels.
2. Remove the fuel pump fuse from the fuse box.
3. Start the engine and wait for the engine to stall.
4. Disconnect the return hose from the reservoir and drain the power steering fluid into a proper container.
5. Turn the steering wheel all the way to the left and then to the right several times while cranking.
6. If the drain is completed, connect the return hose to reservoir.
7. Fill the reservoir with the power steering fluid and then bleed the power steering system.

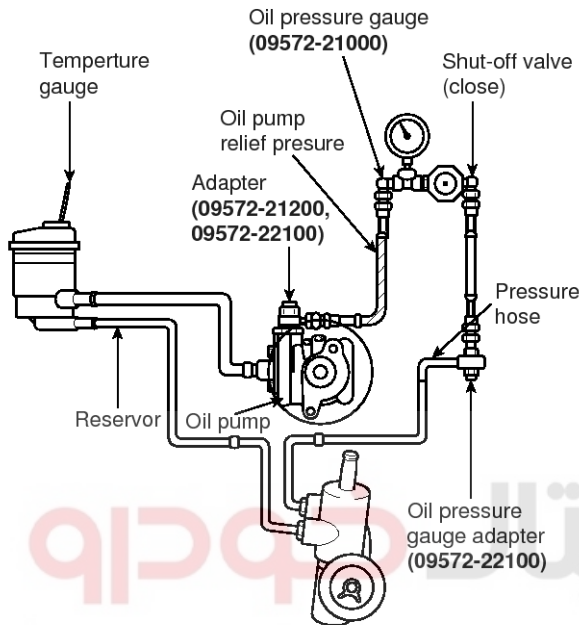


General Information

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Oil Pump Pressure Test (Oil Pump Relief Pressure)

1. Disconnect the pressure tube from the power steering pump and then install the special tools between the pump and the pressure tube as illustration below.



دیجیتال خودرو سامانه (مسئولیت محدود)

EPRF002B

2. Start the engine and turn the steering wheel several times so that the fluid temperature can rise to approx. 50 ~ 60°C (122°F).
3. Set the engine speed to approx. 1000RPM.
4. Close the shut-off valve of the special tools and measure the fluid pressure.

Relief pressure

Diesel : 105kgf/cm² (1493psi, 10.3Mpa)

Gasoline : 100kgf/cm² (1422psi, 9.8Mpa)

⚠ CAUTION

Do not keep the shut-off valve on the pressure gauge closed for longer than 10 seconds.

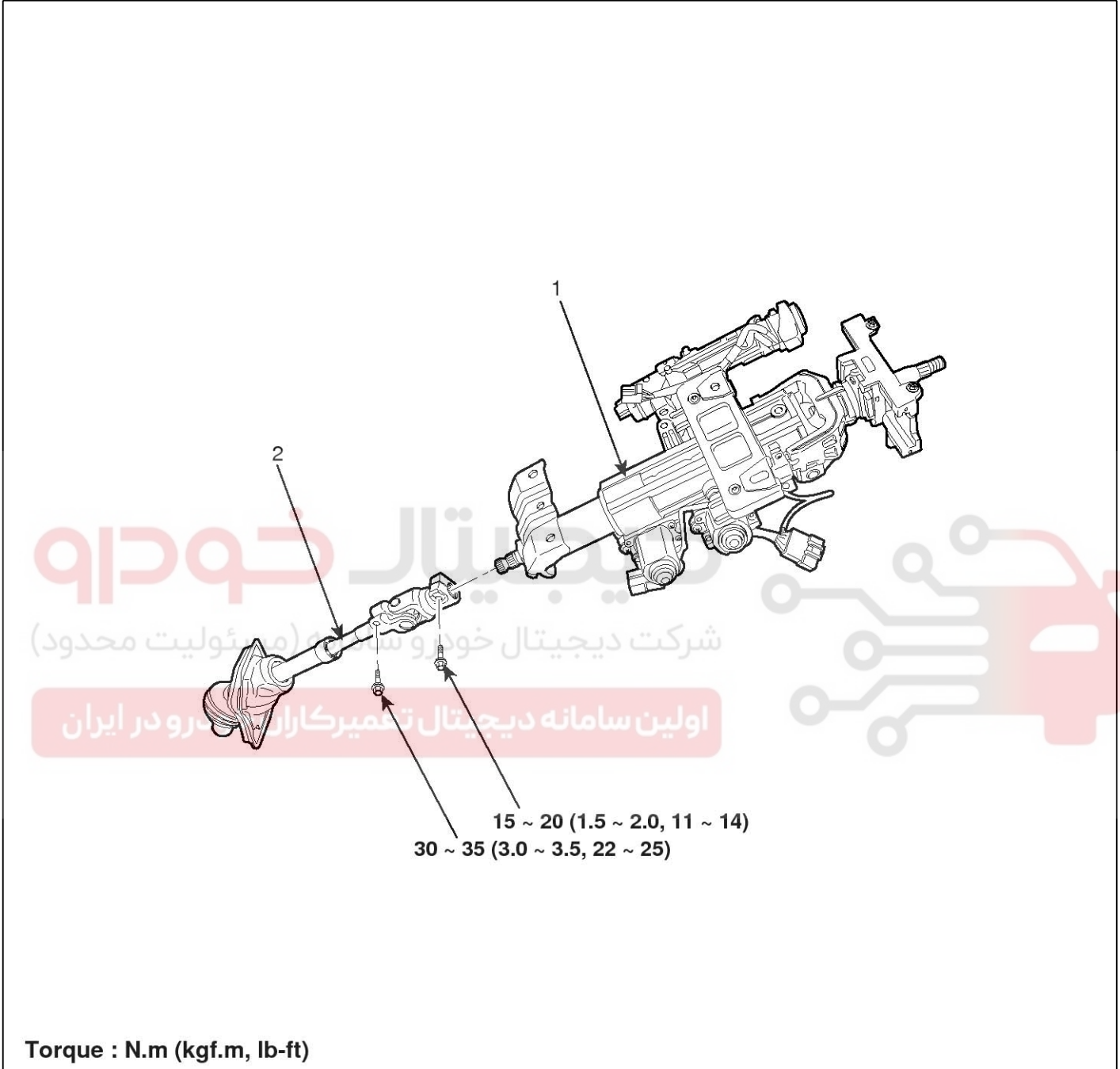
5. Remove the special tools, and then connect the pressure tube to the pump by tightening the eye bolt.
6. Bleed the power steering system.

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Steering System

Steering Column & Shaft

Component



SENST9300L

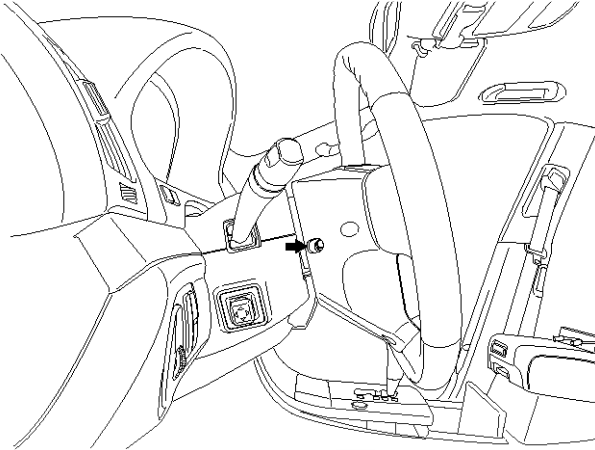
- 1. Steering column
- 2. Universal joint assembly

Steering Column & Shaft

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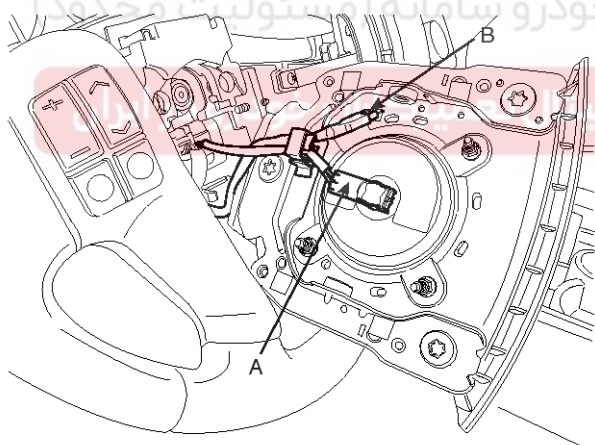
Removal

1. Disconnect the negative cable from the battery and then wait for at least 30 seconds.
2. Turn the steering wheel so that the front wheels can face straight ahead.
3. Loosen the torx bolts which are located on the both side of the steering wheel.



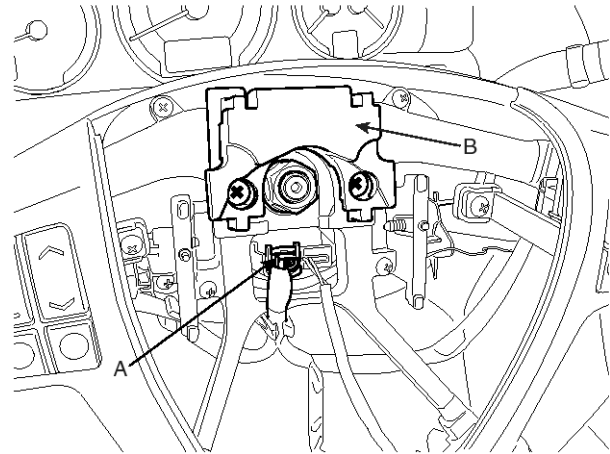
SENST7002D

4. Disconnect the air bag and horn connector (A, B) from the air bag module and then remove the air bag module from the steering wheel.



SENST7003D

5. Disconnect the remote switch connector (A) and remove the dynamic damper (B) by loosening the bolts.

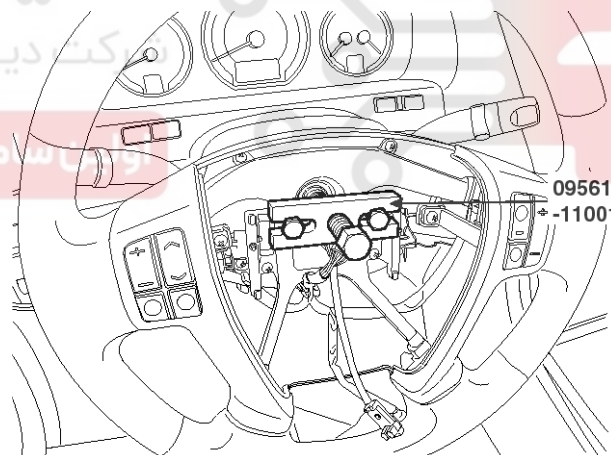


SENST7004D

6. Loosen the lock nut and then remove the steering wheel from the steering column shaft using a SST (09561-11001).

CAUTION

Do not hammer on the steering wheel to remove it; it may damage the steering column.

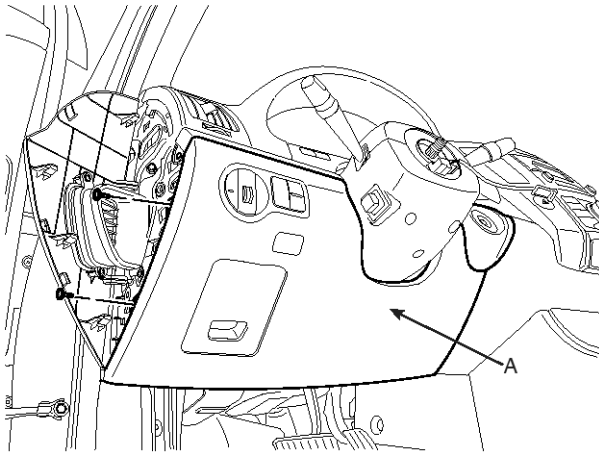


SENST7005D

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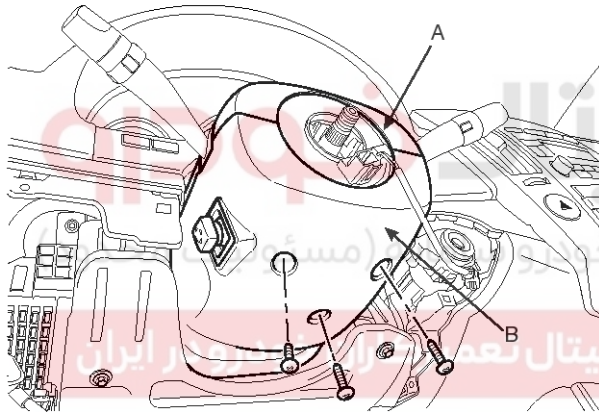
Steering System

7. Remove the lower crash pad (A).



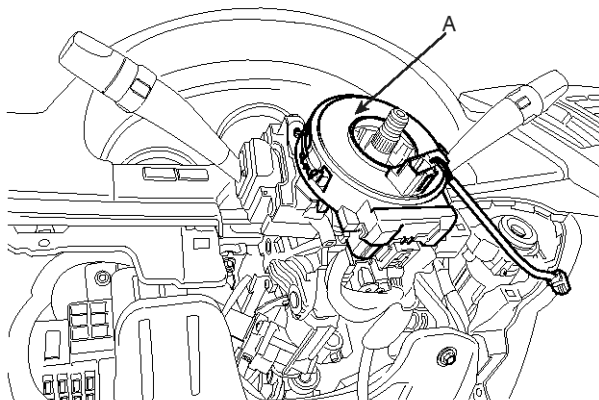
SENST7518L

8. Remove the steering column upper and lower shroud (A, B).



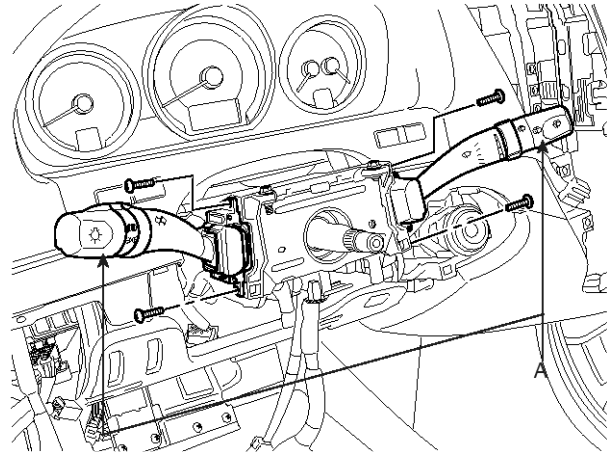
SENST7007D

9. Disconnect the connectors from the lower portion of the clock spring and then remove the clock spring (A) from the steering column.



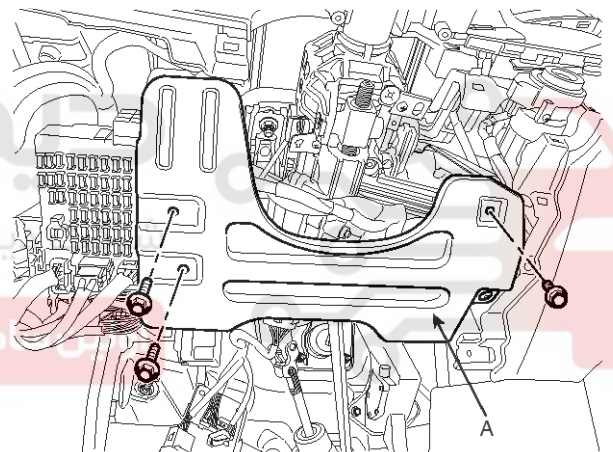
SENST7008D

10. Remove the multifunction switches (A) from the steering column.



SENST7009D

11. Remove the reinforce panel (A) by loosening the mounting bolts.

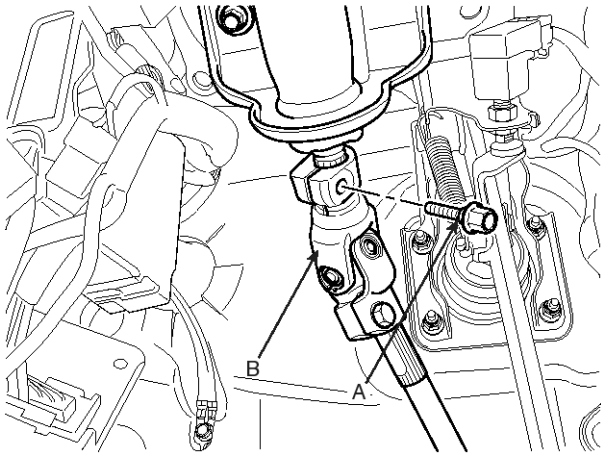


SENST7011D

Steering Column & Shaft

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12. Loosen the bolt (A) and then disconnect the universal joint assembly (B) with the steering column assembly.



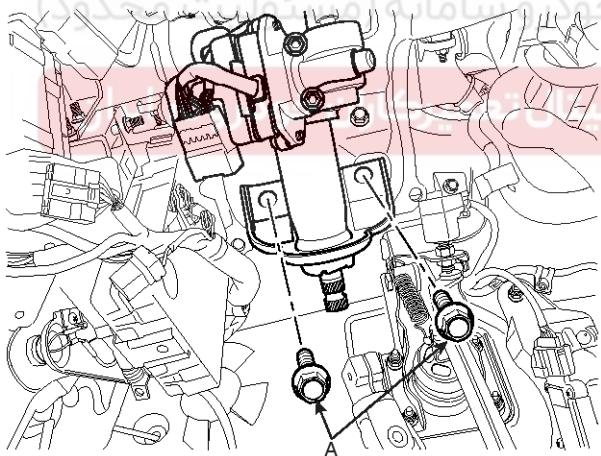
SENST7010D

⚠ CAUTION

Keep the neutral-range to prevent the damage of the clock spring inner cable when you handle the steering wheel.

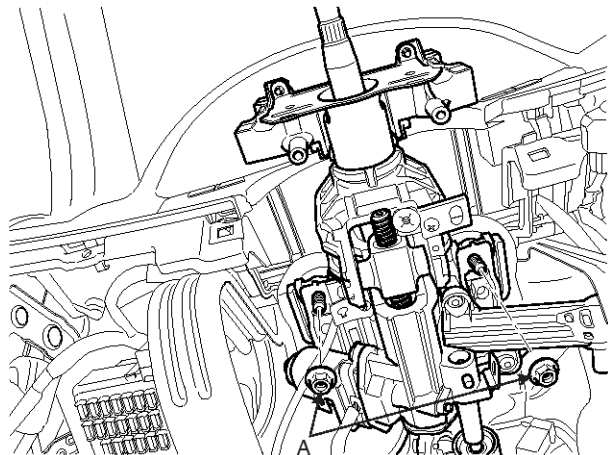
13. Disconnect all connectors connected to the steering column assembly.

14. Loosen the steering column mounting bolts (A).

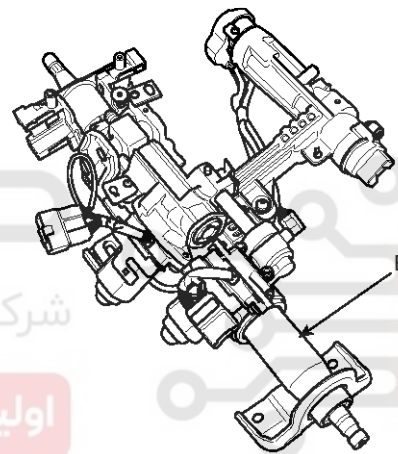


SENST7012D

15. Remove the steering column assembly (B) by loosening the mounting nuts (A).



SENST7013D



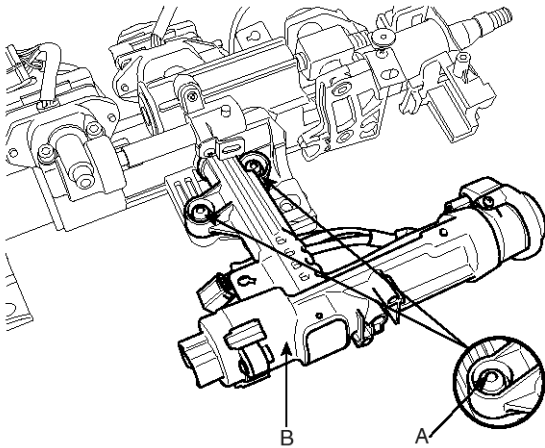
SENST7014D

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Steering System

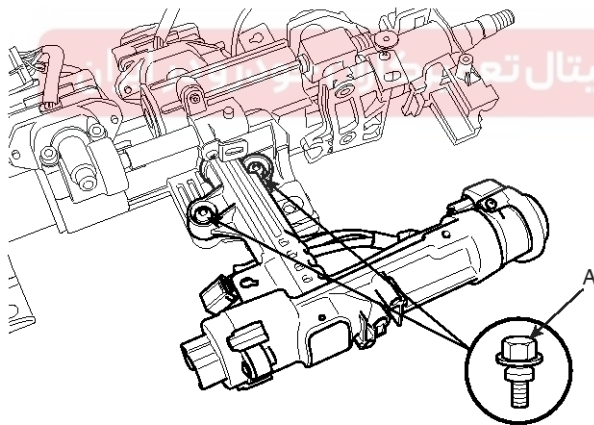
Disassembly And Reassembly

1. Make a groove on the head of special bolts (A) by a punch.
2. Loosen the special bolt using a screw driver and then remove the key lock assembly (B) from the steering column assembly.



SENST7015D

3. Reassembly is the reverse of the disassembly. When reassembling the key lock assembly, install the key lock assembly to the steering column and then tighten the new special bolts until its head (A) is cut off.



SENST7516L

Inspection

1. Check the steering column for damage and deformation.
2. Check the connection for play, damage and smooth operation.
3. Check the join bearing for damage and wear.
4. Check the tilt bracket for damage and cracks.
5. Check the key lock assembly for proper operation and replace it if necessary.



Steering Column & Shaft

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Installation

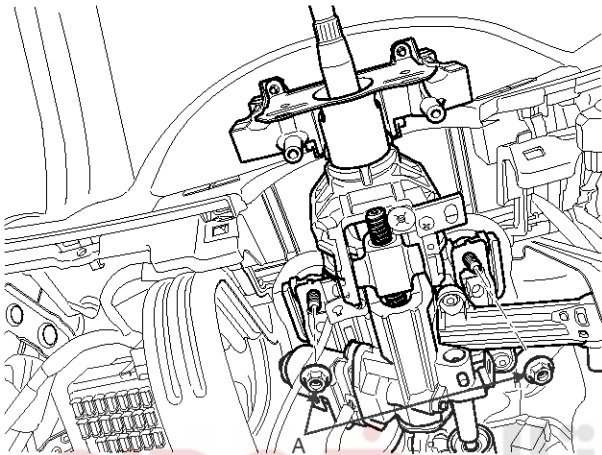
⚠CAUTION

Apply the multipurpose grease to sliding of the each part before the installation.

1. Install the steering column assembly to cowl member by tightening the mounting nuts (A).

Tightening torque :

13 ~ 18N.m (1.3 ~ 1.8kgf.m, 9 ~ 13lb-ft)

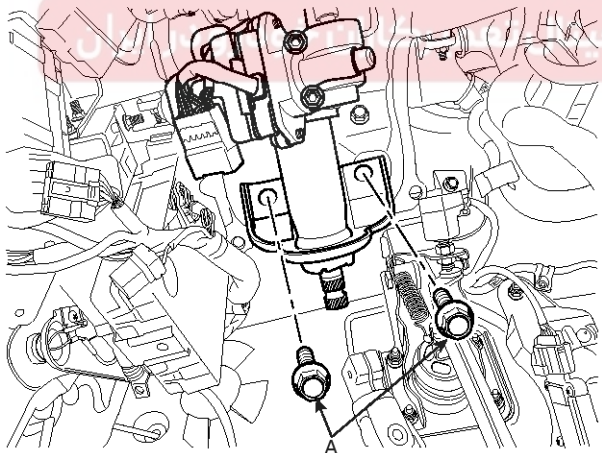


SENST7013D

2. Tighten the steering column mounting bolts (A).

Tightening torque :

13 ~ 18N.m (1.3 ~ 1.8kgf.m, 9 ~ 13lb-ft)



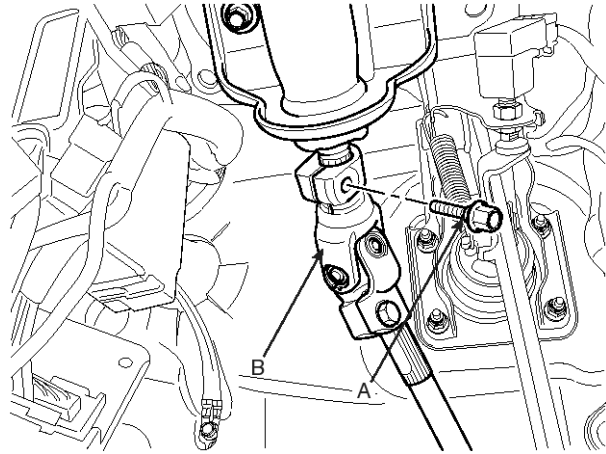
SENST7012D

3. Connect all connectors connected to the steering column assembly.

4. Connect the universal joint assembly (B) with the steering column assembly and then tightening the bolt (A).

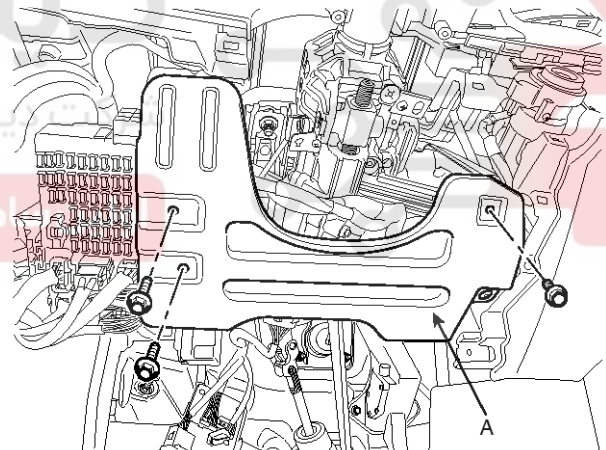
Tightening torque :

15 ~ 20N.m (1.5 ~ 2.0kgf.m, 11 ~ 14lb-ft)



SENST7010D

5. Install the reinforce panel (A) by tightening mounting bolts.

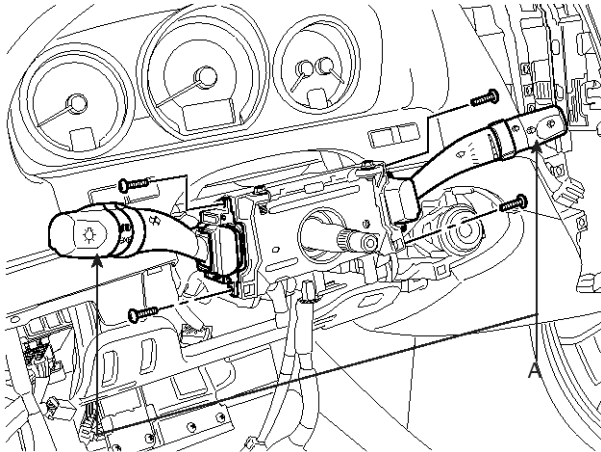


SENST7011D

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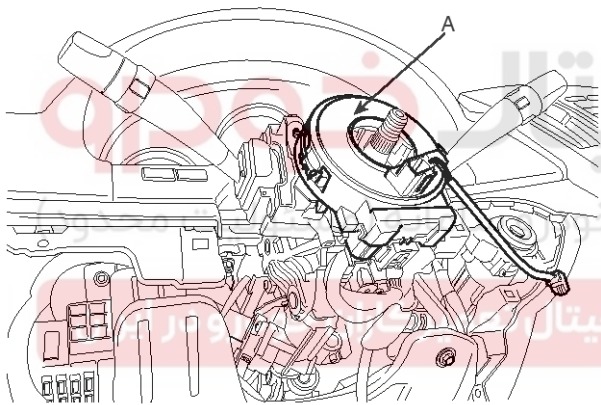
Steering System

6. Install the multifunction switch (A) to the steering column assembly.



SENST7009D

7. Install the clock spring (A) to steering column assembly and then connect the connectors.

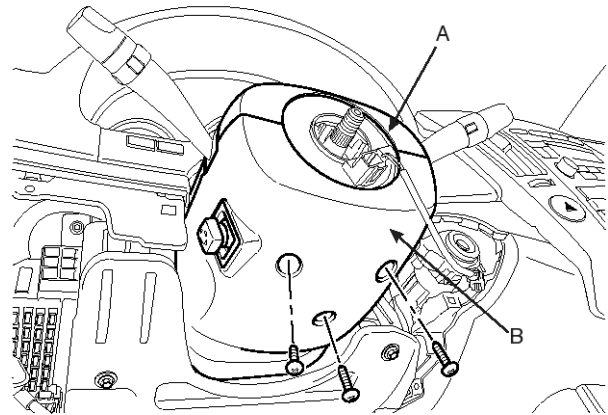


SENST7008D

CAUTION

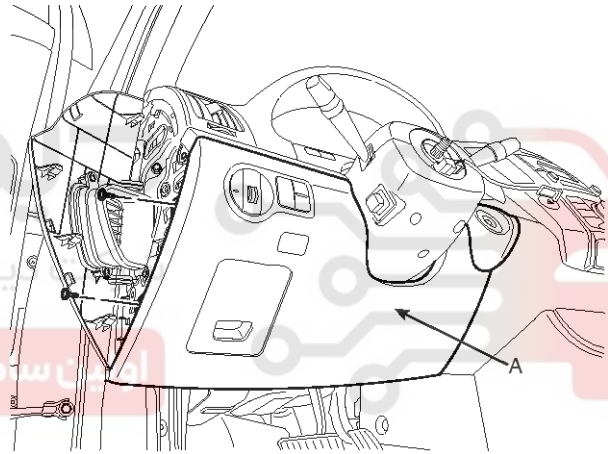
When installing the clock spring, refer the RT group to prevent the damage of clock spring inner cable.

8. Install the steering column upper and lower shroud (A, B).



SENST7007D

9. Install the lower crash pad (A).



SENST7518L

10. Install the steering wheel to the steering column shaft and then tighten the lock nut and washer together.

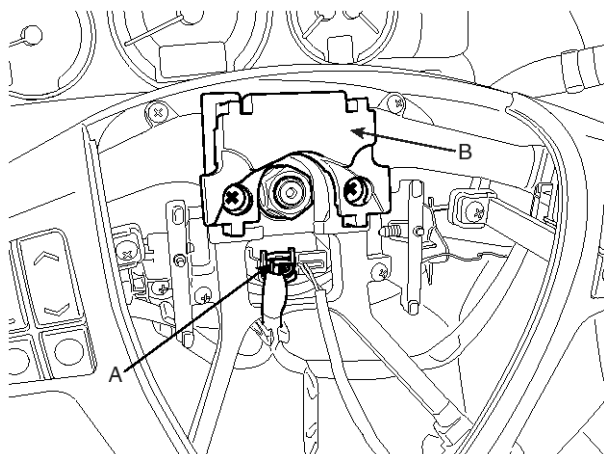
Tightening torque :

40 ~ 50N.m (4.0 ~ 5.0kgf.m, 29 ~ 36lb-ft)

Steering Column & Shaft

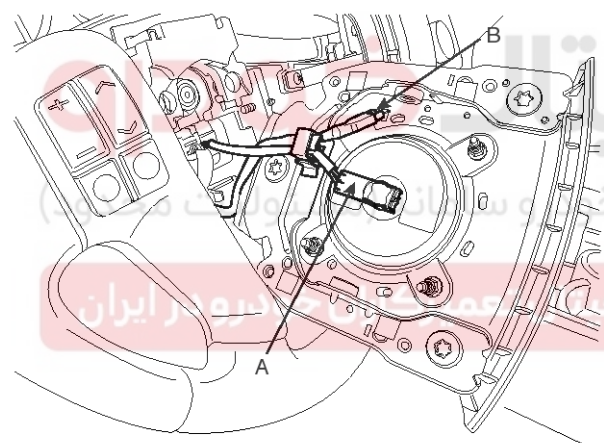
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11. Connect the remote switch connector (A) and install the dynamic damper (B).



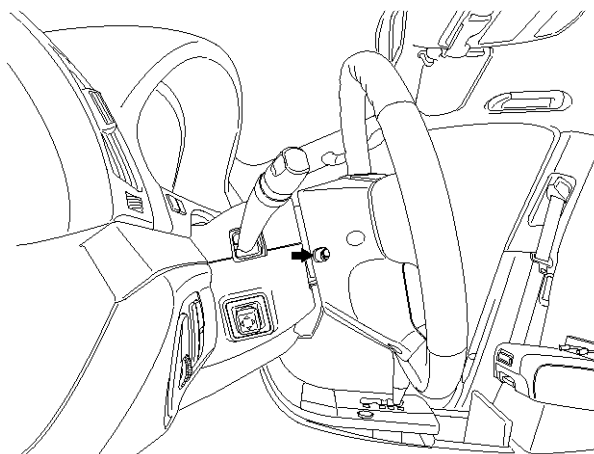
SENST7004D

12. Connect the air bag module and horn connector (A, B) to the air bag module and then install the air bag module to the steering wheel.



SENST7003D

13. Tighten the torx bolts which are located on the both side of steering wheel.



SENST7002D

14. Connect the battery negative cable to the battery.



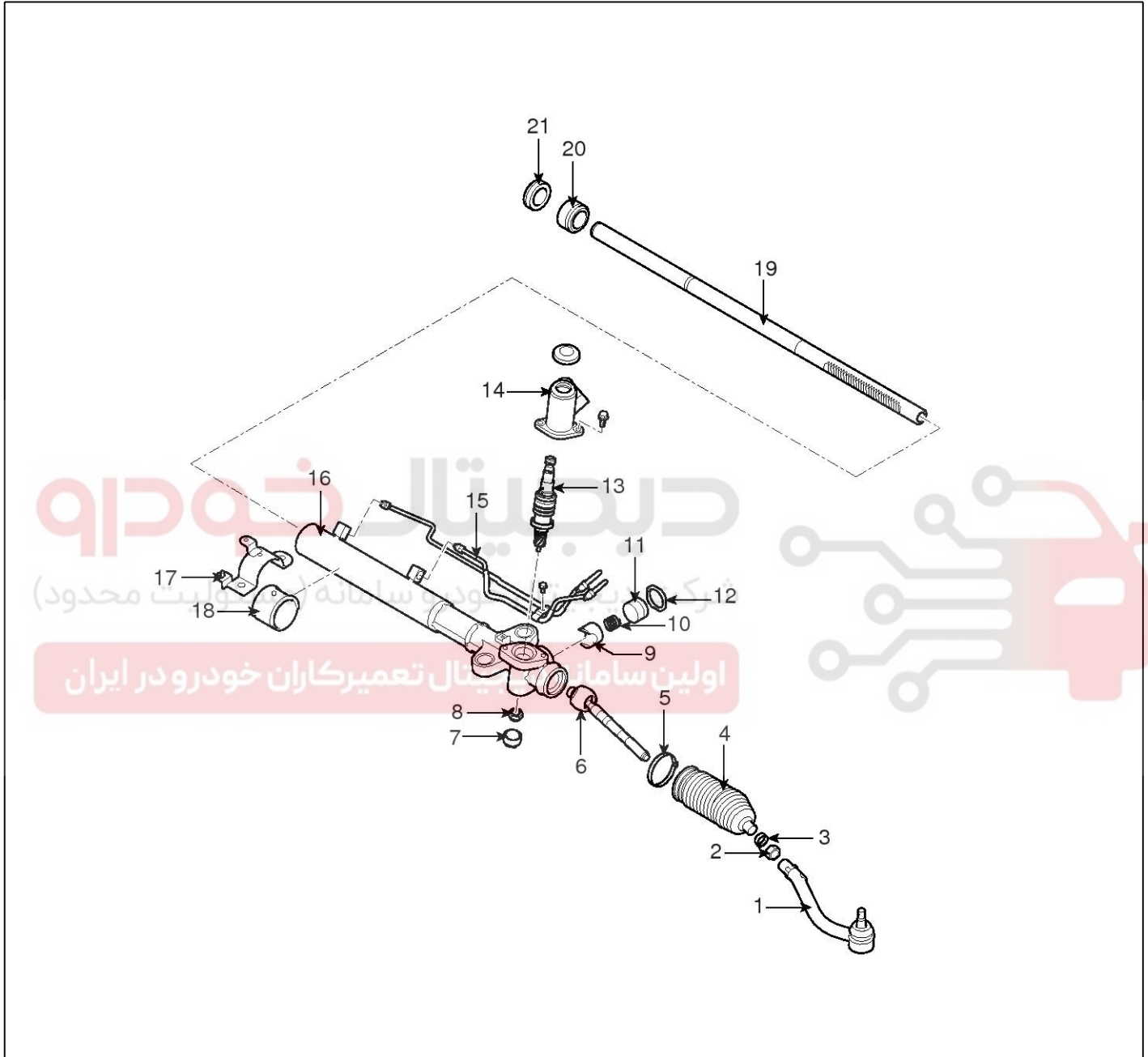
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Steering System

Hydraulic Power Steering System

Power Steering Gear Box

Components



SENST9301L

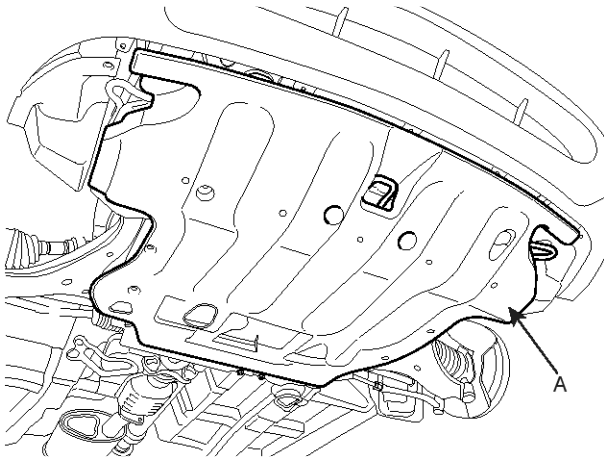
- | | | |
|-----------------|---------------------------|---------------------|
| 1. Tie-rod end | 8. Pinion lock nut | 15. Feed tube |
| 2. Lock nut | 9. Support yoke | 16. Rack housing |
| 3. Clip | 10. Yoke spring | 17. Mounting clamp |
| 4. Bellows | 11. Yoke plug | 18. Mounting rubber |
| 5. Bellows band | 12. Yoke plug lock nut | 19. Rack bar |
| 6. Tie-rod | 13. Pinion valve assembly | 20. Rack bush |
| 7. Pinion plug | 14. Pinion valve housing | 21. Rack stopper |

Hydraulic Power Steering System

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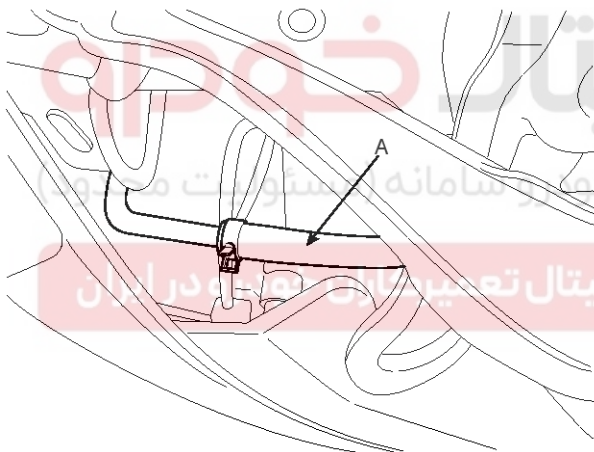
Removal

1. Remove the both front wheels.
2. Remove the under cover (A).



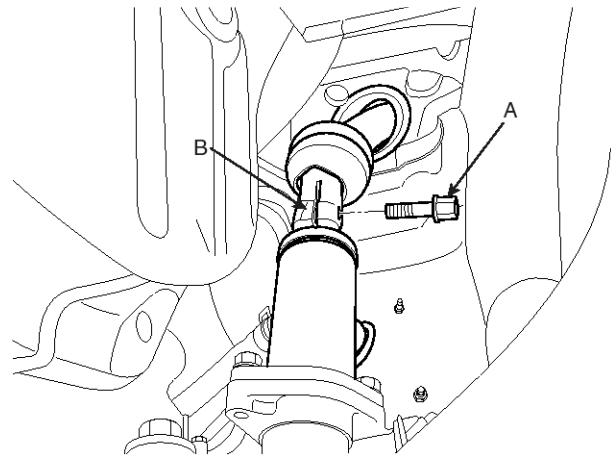
SENST7519D

3. Drain the power steering fluid by disconnecting the return hose (A).



SENSS7505D

4. Loosen the bolt (A) and then disconnect the universal joint assembly (B) with the pinion of the steering gear.

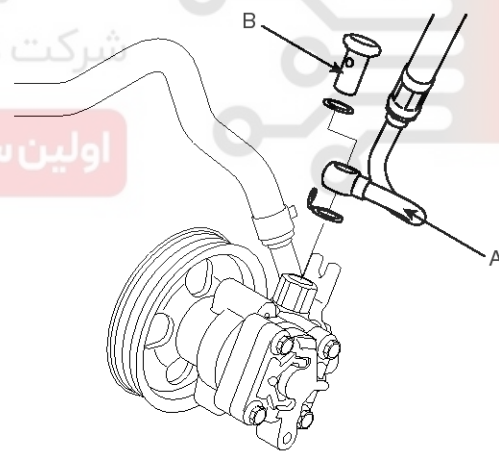


SENSS7504D

⚠ CAUTION

Keep the neutral-range to prevent the damage of the clock spring inner cable when you handle the steering wheel.

5. Disconnect the pressure tube (A) from the power steering pump by loosening the eye-bolt (B).

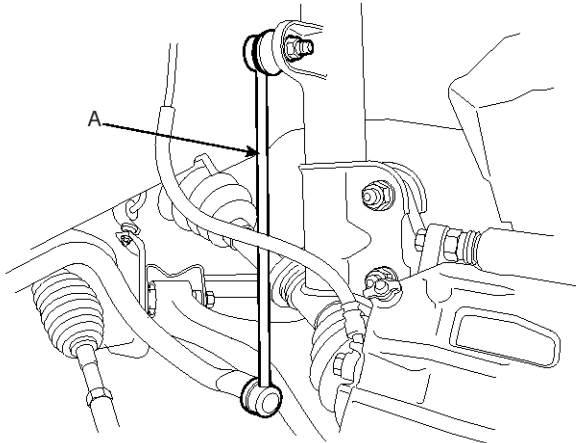


SENST7520L

ST-20

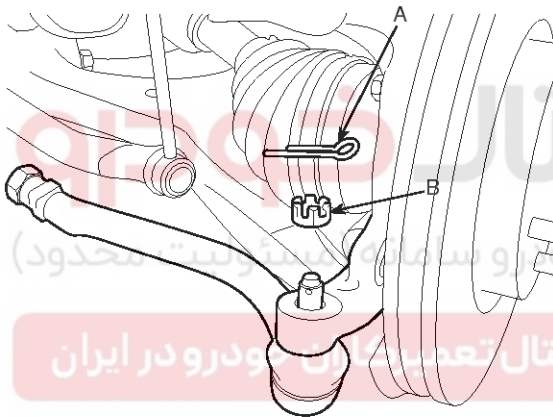
Steering System

6. Disconnect the stabilizer link (A) with the strut assembly by loosening the nut.



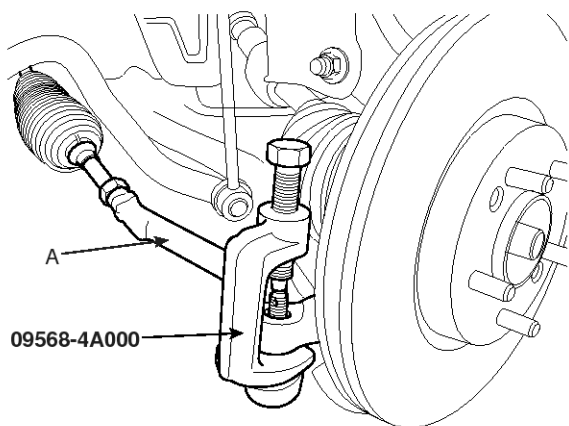
SCMSS6503D

7. Remove the split pin and (A) castle nut (B).



SCMST6007D

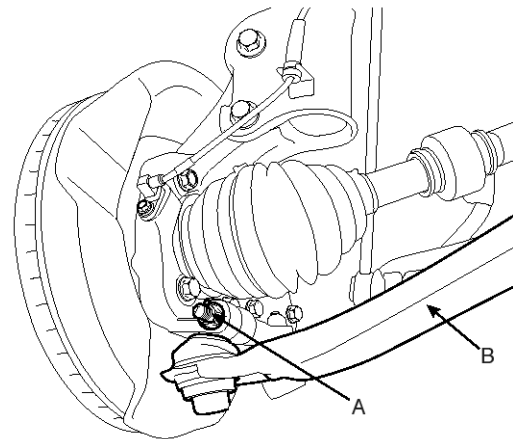
8. Disconnect the tie-rod end (A) with the knuckle using a SST (09568-34000).



09568-4A000

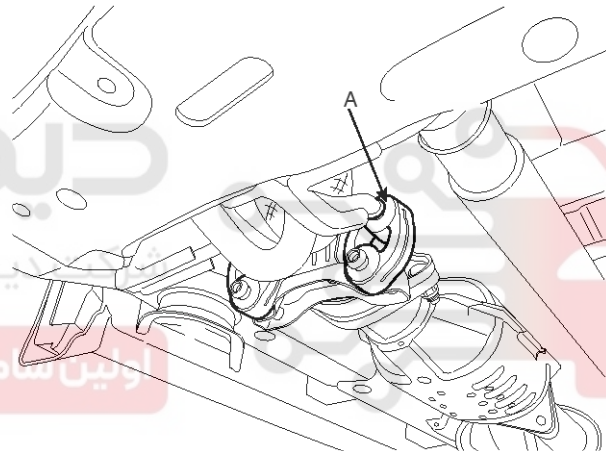
SCMST6008D

9. Separate the knuckle with the lower arm (B) by loosening the bolt and nut (A).



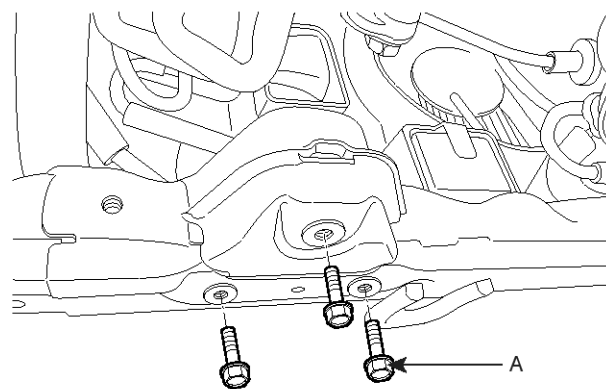
SENSS7105D

10. Remove the muffler rubber hanger (A).



SENSS7509D

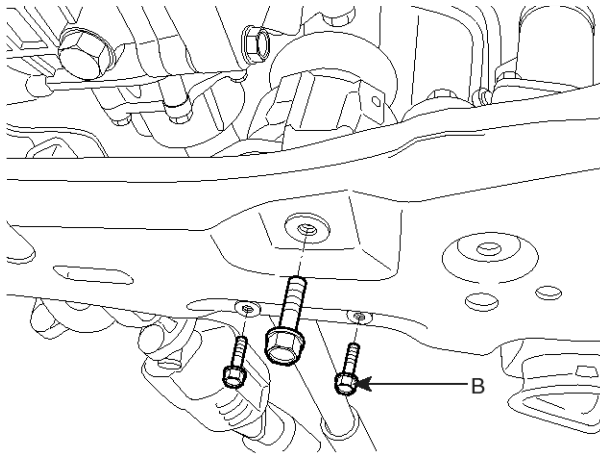
11. Remove the front and rear roll stopper mounting bolts (A, B).



SENSS7506D

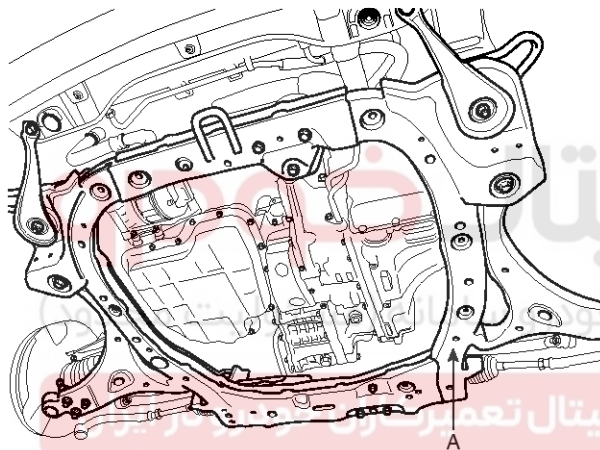
Hydraulic Power Steering System

ST-21



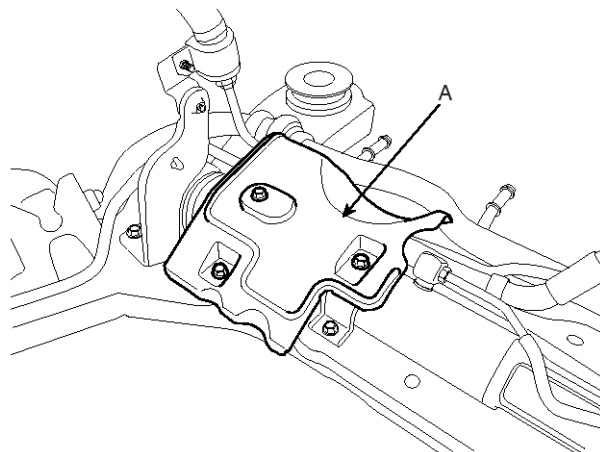
SENS7507D

12. Remove the sub-frame (A) and stay by loosening mounting bolts and nuts.



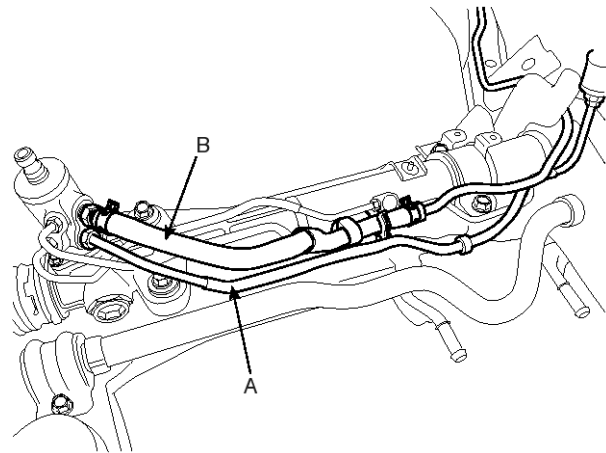
SENS7508D

13. Remove the heat protector (A).



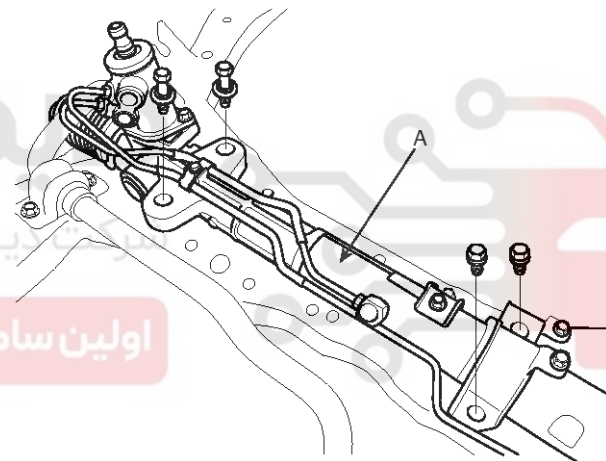
SENST7018D

14. Remove the pressure (A) and return tube (B) from the steering gear box.



SENST7019D

15. Remove the steering gear box (A) from the sub-frame by loosening the mounting bolts.



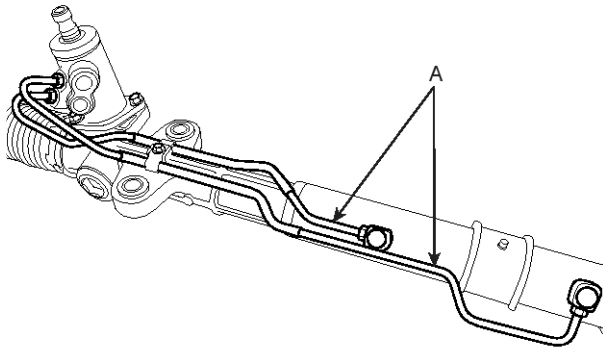
SENST7517L

ST-22

Steering System

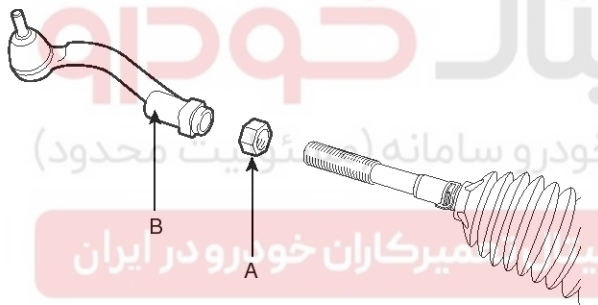
Disassembly

1. Remove the feed tubes (A) from the steering gear box.



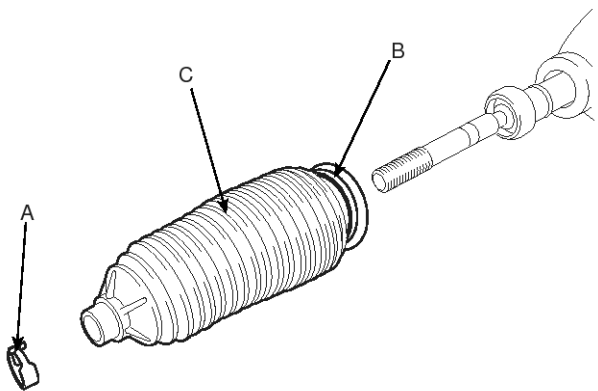
SENST7021D

2. Loosen the lock nut (A) and then unscrew the toe-rod end (B) and lock nut from the tie-rod.



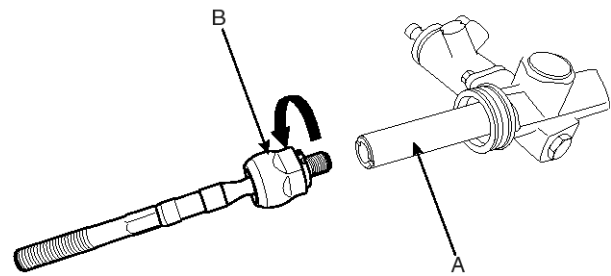
SUNST6032D

3. Remove the bellows clip (A) and band (B) and then pull the bellows (C) away from the end of the tie-rod.



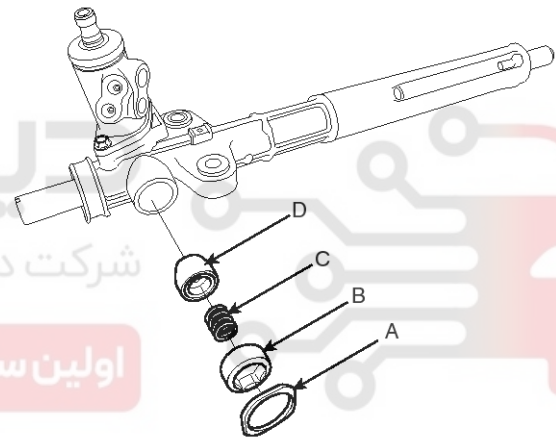
SUNST6033D

4. Unscrew the tie-rod (B) from the rack bar (A).



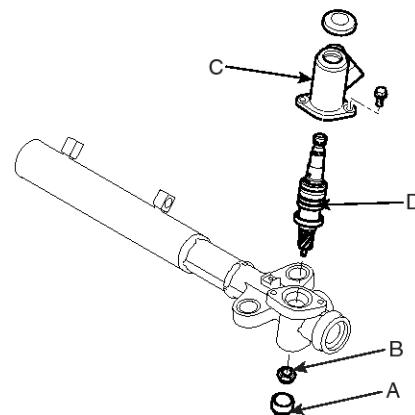
SENST7023D

5. Remove the lock nut (A) and yoke plug (B) and then pull out the yoke spring (C) and support yoke (D).



SENST7024D

6. Remove the pinion plug (A) and lock nut (B).
7. Remove pinion housing (C) and the valve assembly (D).

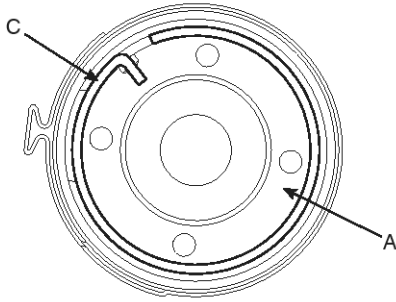


Hydraulic Power Steering System

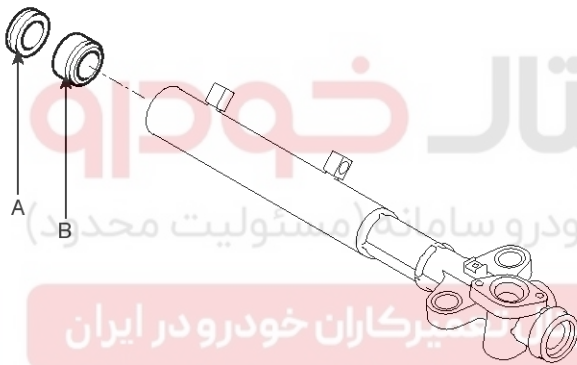
ST-23

SENST7516D

8. When the end of the clip (C) comes out of the notched hole of the housing rack cylinder, turn the rack stopper (A) counterclockwise and remove the clip.
9. Remove rack stopper (A) and rack bush (B) from the rack housing.

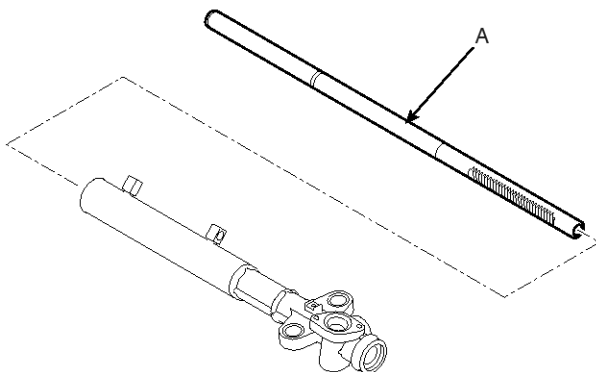


SENST7519L



SENST7517D

10. Pull the rack bar (A) out of the rack housing.



SENST7518D

Inspection

1. Rack bar
 - Check the rack gear for damage.
 - Check the rack bar for bend and deformation.
2. Pinion assembly
 - Check the pinion gear for damage.
 - Check the surface contacting the oil seal for damage.
 - Check the oil seal for damage.
3. Check the inside of rack housing for damage.
4. Check the bellows for being torn.

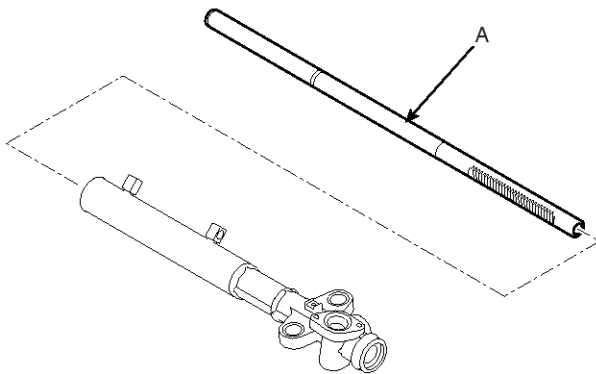


ST-24

Steering System

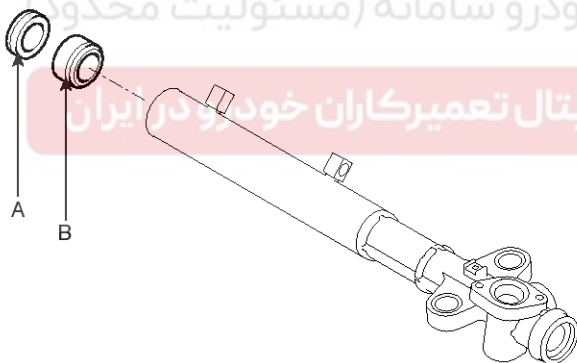
Reassembly

1. Apply the grease to rack gear teeth and then insert the rack bar (A) into the rack housing.

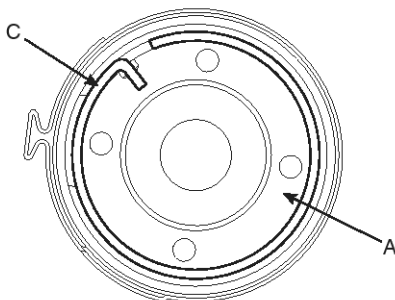


SENST7518D

2. Insert the rack bush (A) and the stopper (B) into the rack housing.
3. Push in the rack stopper (A) until the clip (C) groove of the rack stopper is aligned with the notched hole of the rack housing. Then, install the clip while turning the rack stopper (B).



SENST7517D



SENST7519L

4. Install the valve assembly (D) and valve assembly housing (C).
5. Tighten the pinion lock nut (B).

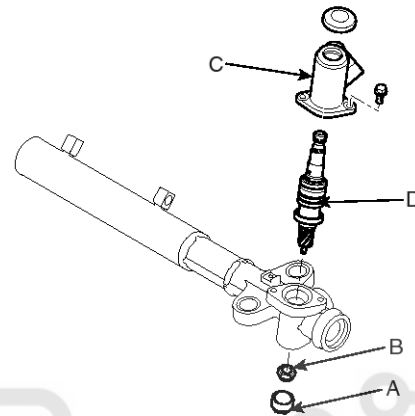
Tightening torque :

20 ~ 30N.m (2.0 ~ 3.0kgf.m, 14 ~ 22lb-ft)

6. Apply liquid gasket to the thread of pinion plug (A) and then install it.

Tightening torque :

50 ~ 70N.m (5.0 ~ 7.0kgf.m, 36 ~ 51lb-ft)

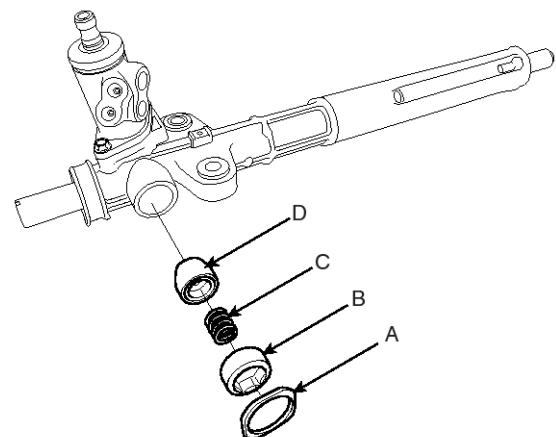


SENST7516D

7. Insert the support yoke (D) and yoke spring (C) into the rack housing.
8. Apply liquid gasket to the thread of yoke plug (B) and then install it to the rack housing.
9. Tighten the lock nut (A) while holding the yoke plug.

Tightening torque :

50 ~ 70N.m (5.0 ~ 7.0kgf.m, 36 ~ 51lb-ft)



SENST7024D

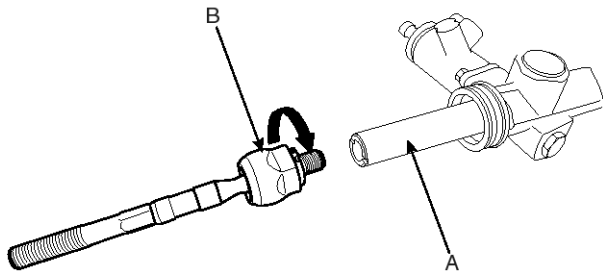
Hydraulic Power Steering System

ST-25

10. Apply the liquid gasket to the thread of tie-rod ball joint (B) and then install it to the rack bar (A).

Tightening torque :

80 ~ 100N.m (8.0 ~ 10.0kgf.m, 58 ~ 72lb-ft)

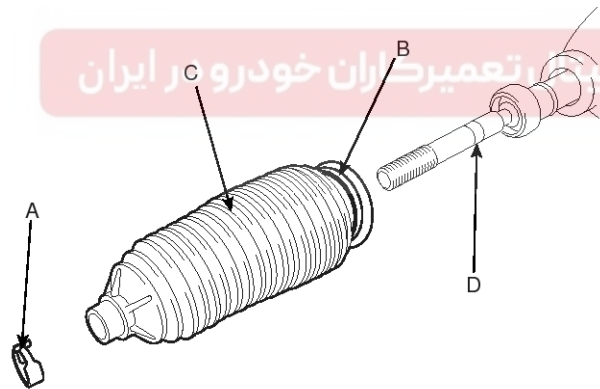


SENST7520D

11. Apply the silicon grease to the portion (D) of the tie-rod.

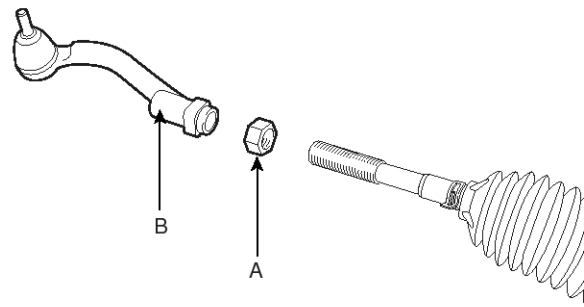
12. Apply the liquid gasket to the bellows mating surface of the rack housing.

13. Assemble the bellows (C) to rack housing and then tighten the bellows clip (A) and band (B).



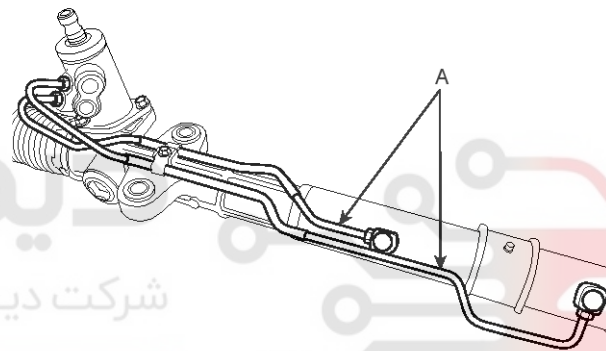
SHDST6504D

14. Assemble the lock nut (A) and tie rod end (B) to tie-rod.



SUNST6032D

15. Install the feed tubes (A) to steering gear box.



SENST7021D

ST-26

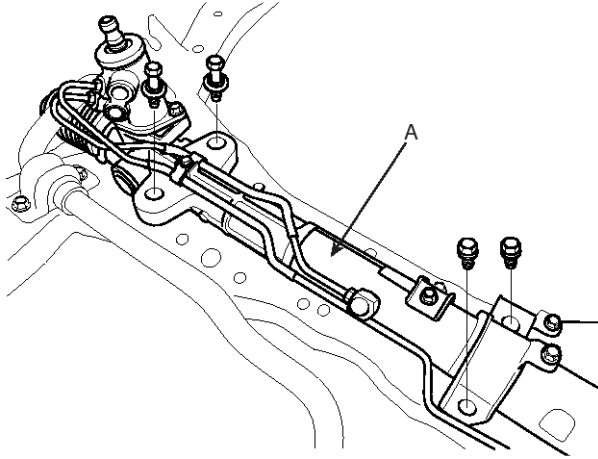
Steering System

Installation

1. Install the steering gear box (A) to the sub-frame by tightening the mounting bolts.

Tightening torque :

90 ~ 110N.m (9.0 ~ 11.0kgf.m, 65 ~ 80lb-ft)

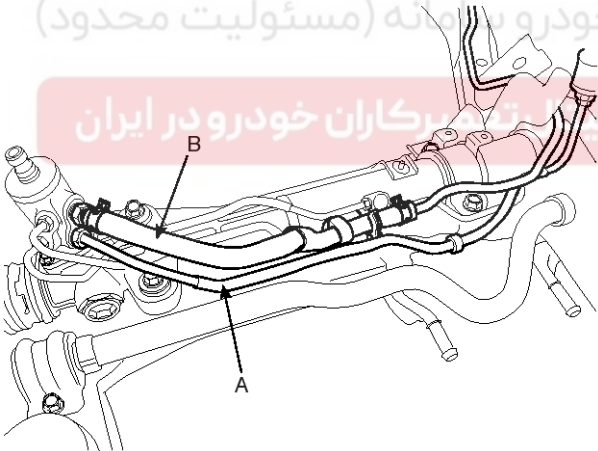


SENST7517L

2. Install the pressure tube (A) and return tube (B) to the steering gear box and then tighten the flare nut.

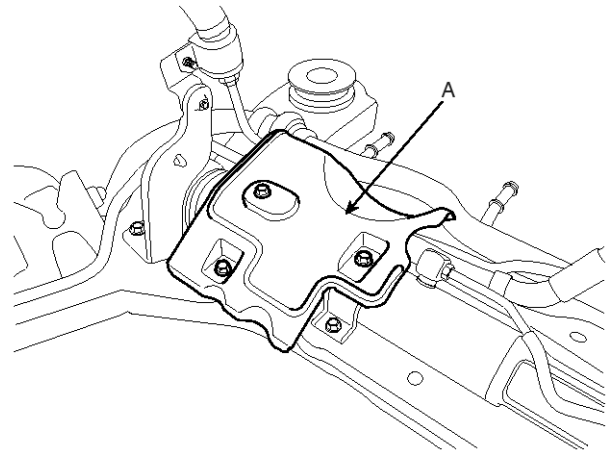
Tightening torque :

12 ~ 18N.m (1.2 ~ 1.8kgf.m, 9 ~ 13lb-ft)



SENST7019D

3. Install the heat protector (A).



SENST7018D

4. Install the sub-frame (A) and stay by tightening the mounting bolts and nuts.

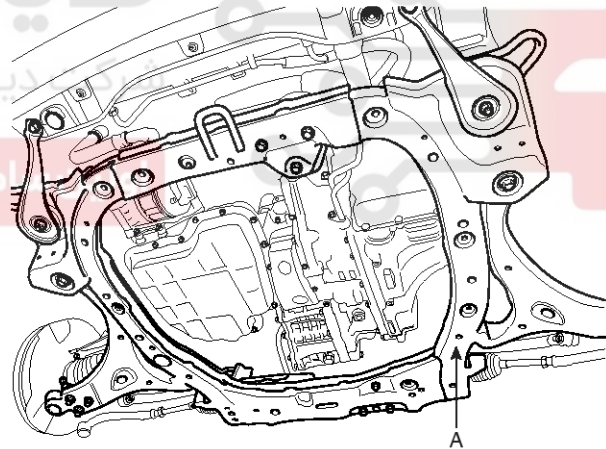
Tightening torque

Sub-frame mounting bolt:

140 ~ 160N.m (14.0 ~ 16.0kgf.m, 101 ~ 116lb-ft)

Sub-frame stay mounting bolt and nuts:

70 ~ 90N.m (7.0 ~ 9.0kgf.m, 51 ~ 65lb-ft)



SENSS7508D

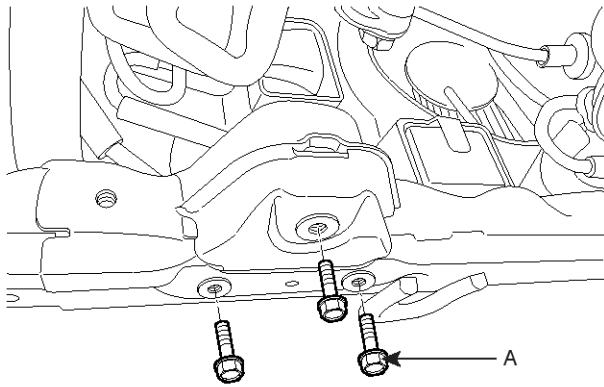
Hydraulic Power Steering System

ST-27

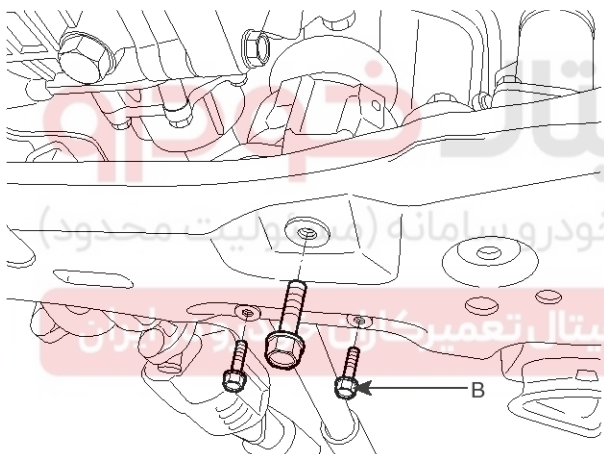
5. Install the front and rear roll stopper mounting bolts (A, B).

Tightening torque :

50 ~ 65N.m (5.0 ~ 6.5kgf.m, 36 ~ 47lb-ft)

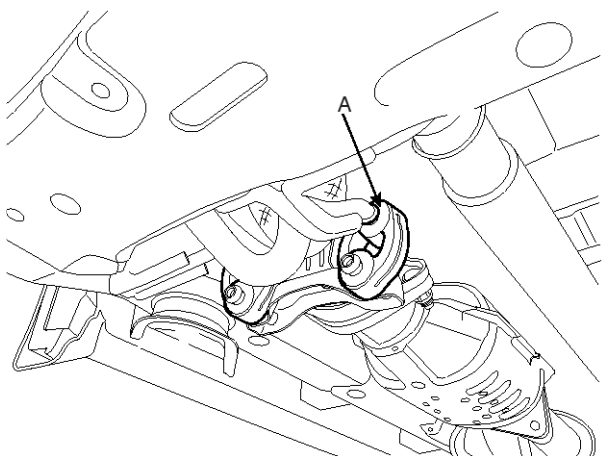


SENSS7506D



SENSS7507D

6. Install the muffer rubber hanger (A).

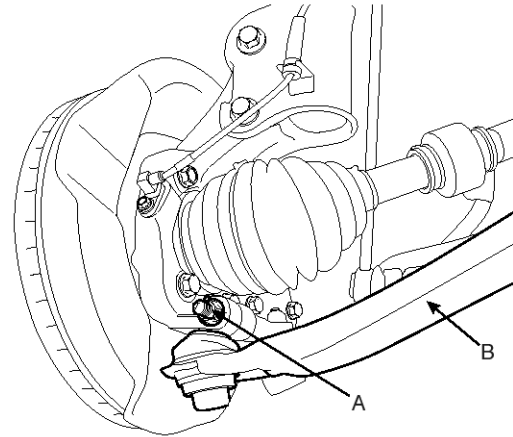


SENSS7509D

7. Connect the lower arm (B) with the knuckle by tightening the bolt and nut (A).

Tightening torque :

100 ~ 120N.m (10.0 ~ 12.0kgf.m, 72 ~ 87lb-ft)

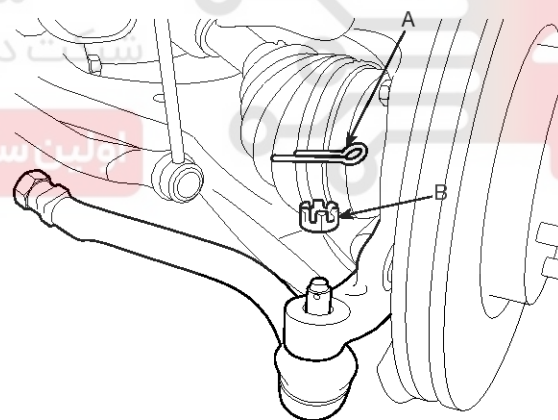


SENSS7105D

8. Connect the tie-rod end with the knuckle and then install the castle nut (B) and split pin (A).

Tightening torque :

24 ~ 34N.m (2.4 ~ 3.4kgf.m, 17 ~ 25lb-ft)



SCMST6007D

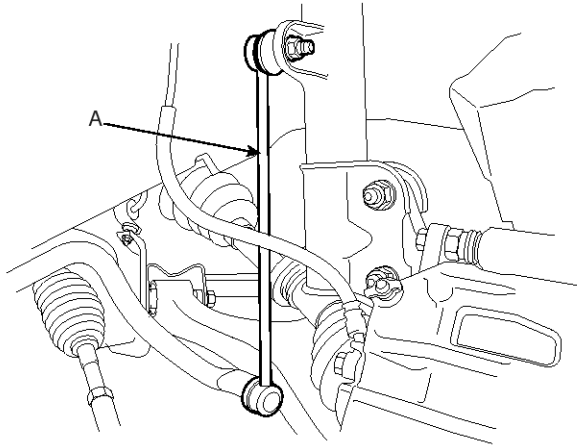
ST-28

Steering System

9. Connect the stabilizer link (A) with the front strut assembly and than tighten the nut.

Tightening torque :

100 ~ 120N.m (10.0 ~ 12.0kgf.m, 72 ~ 87lb-ft)

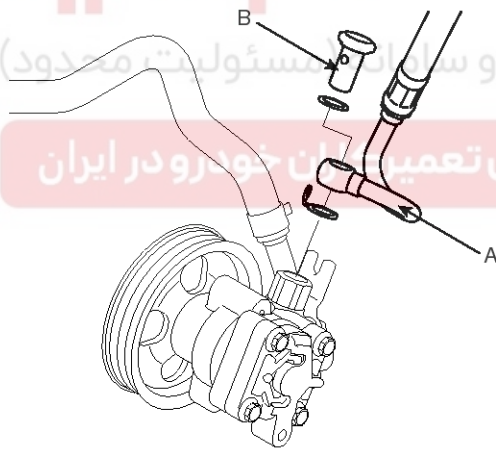


SCMSS6503D

10. Connect the pressure tube (A) to power steering pump by tightening the eye bolt.

Tightening torque :

55 ~ 65N.m (5.5 ~ 6.5kgf.m, 40 ~ 47lb-ft)

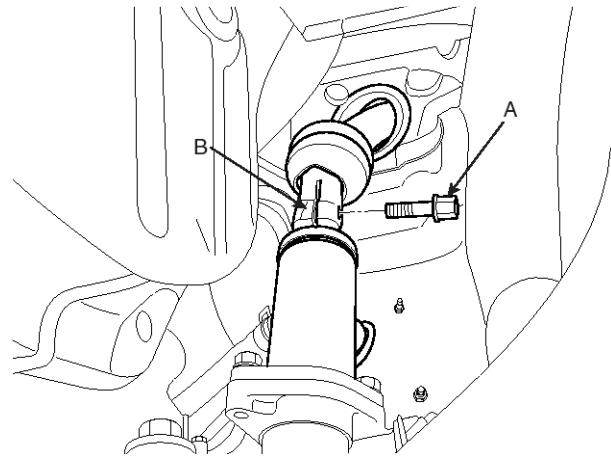


SENST7520L

11. Connect the universal joint assembly (B) with the steering column assembly and then tighten the bolt (A).

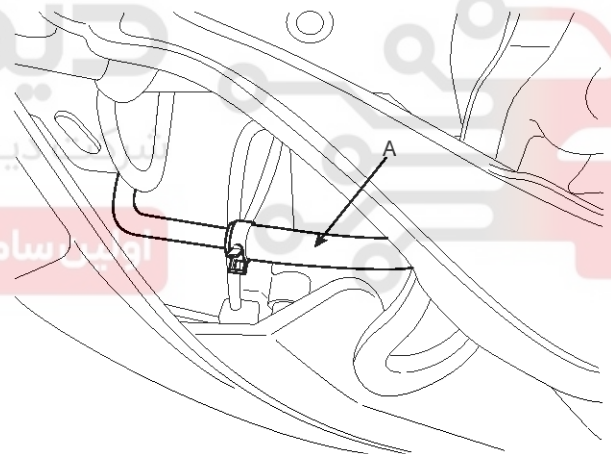
Tightening torque :

30 ~ 35N.m (3.0 ~ 3.5kgf.m, 22 ~ 25lb-ft)



SENSS7504D

12. Connect the power steering return hose (A).

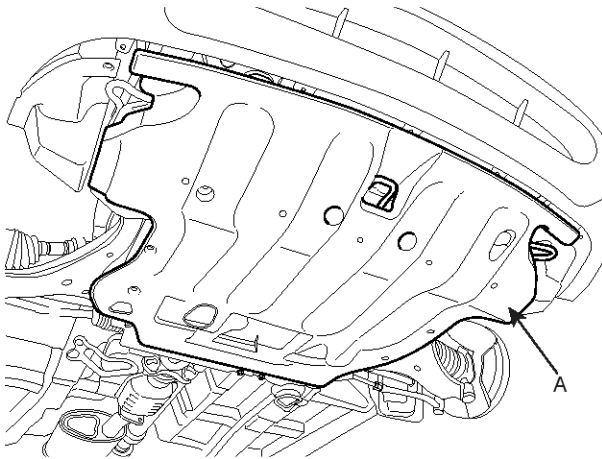


SENSS7505D

Hydraulic Power Steering System

ST-29

13. Install the under cover (A).



SENST7519D

14. Install the front wheel & tire.

Tightening torque :

90 ~ 110N.m (9.0 ~ 11.0kgf.m, 65 ~ 80lb-ft)

15. Add power steering fluid to reservoir.

16. Bleed the power steering system. (Refer to Air bleeding)

17. Check and adjust the front wheel alignment. (Refer to Front wheel alignment in SS group)

شرکت دیجیتال خودرو (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



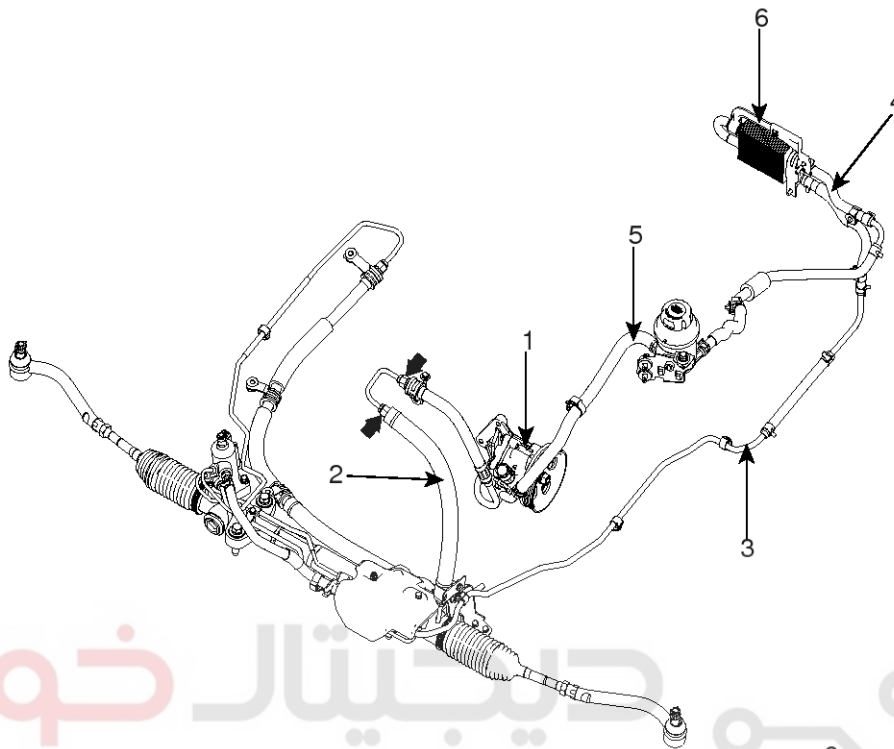
ST-30

Steering System

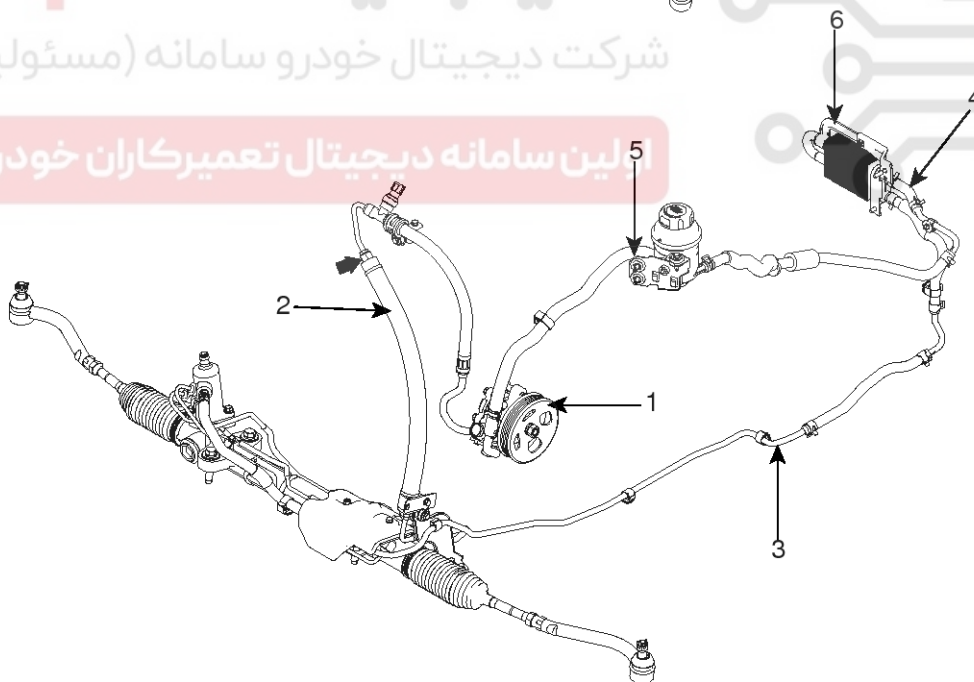
Power Steering Hoses

Components

[CRDI]



[MPI]



CAUTION)
Never loosen the pressure tube flare nuts indicated by arrows.

SENST9302L

- 1. Power steering pump
- 2. Pressure tube
- 3. Return tube

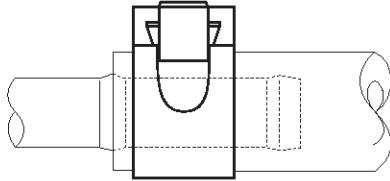
- 4. Cooler tube
- 5. Suction hose
- 6. Pin cooler

Hydraulic Power Steering System

ST-31

Replacement

- Refer to the components illustration during removal or installation.
- When installing, be sure to connect between hose to tube using a clamp as shown in the illustration.



SUNST6512D

- Check all clamps for deterioration or deformation; replace with the clamps new one if necessary.
- Add the recommended power steering fluid and bleed the power steering system.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

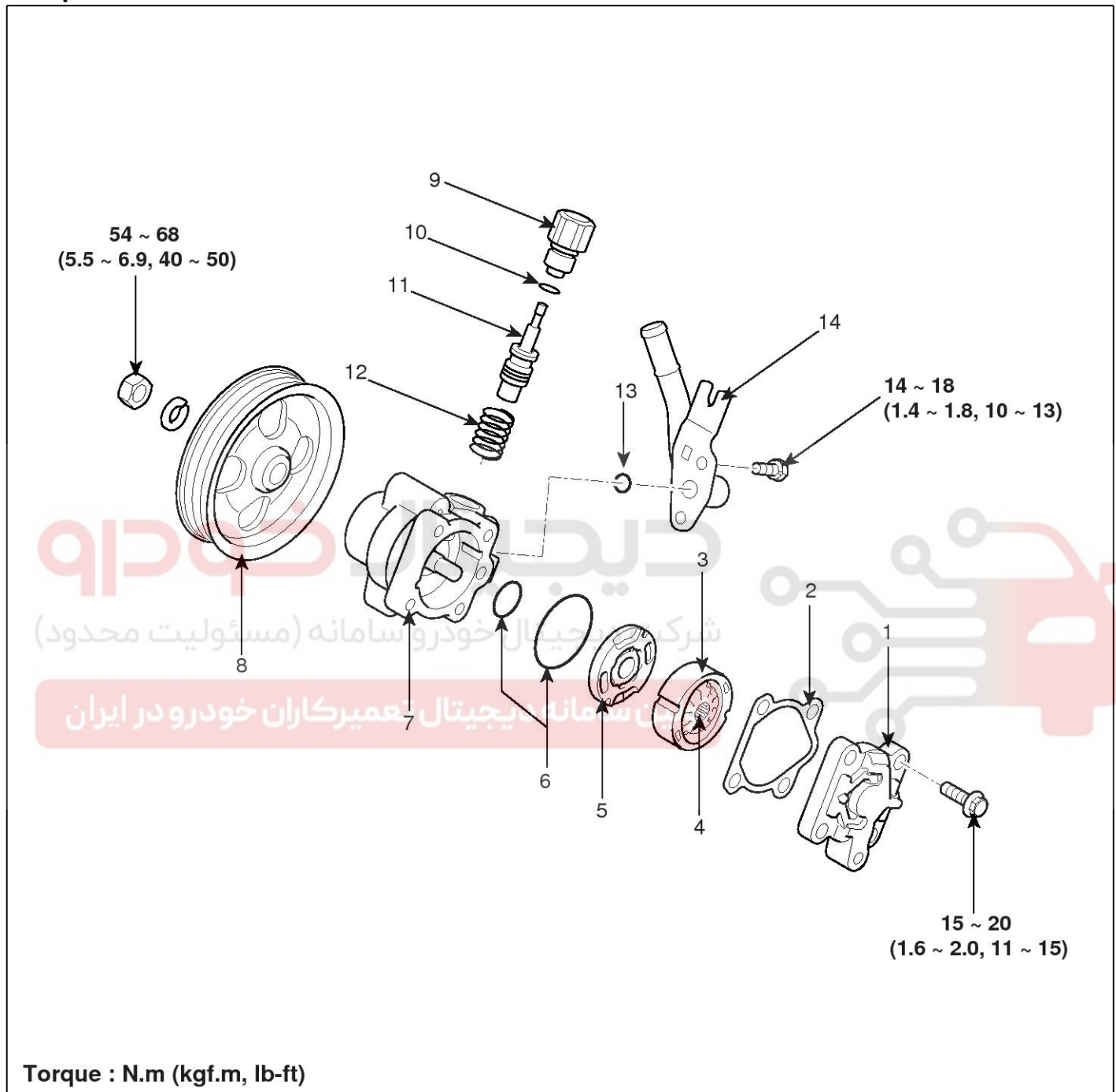


ST-32

Steering System

Power Steering Oil Pump

Components



SENST9303L

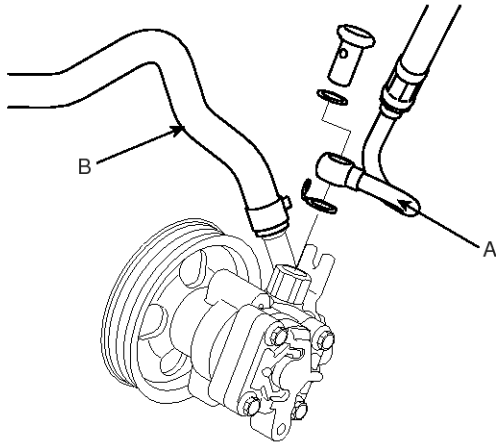
- | | | |
|-----------------|-----------------------|------------------------|
| 1. Pump cover | 6. O-ring | 11. Flow control valve |
| 2. Gasket | 7. Pump body | 12. Spring |
| 3. Cam ring | 8. Pump pulley | 13. O-ring |
| 4. Rotor & vane | 9. Connector assembly | 14. Suction pipe |
| 5. Side plate | 10. O-ring | |

Hydraulic Power Steering System

ST-33

Removal

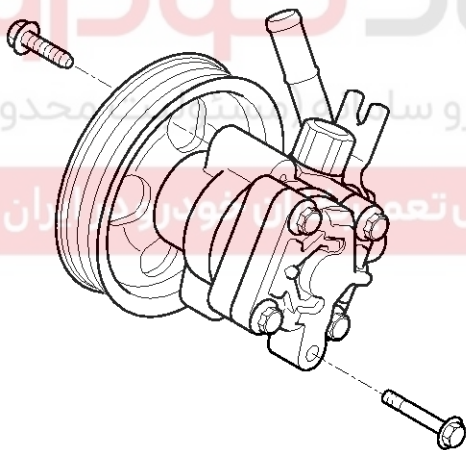
1. Remove the drive belt.
2. Disconnect the pressure tube (A) and return hose (B) from the power steering pump.



SENST7521L

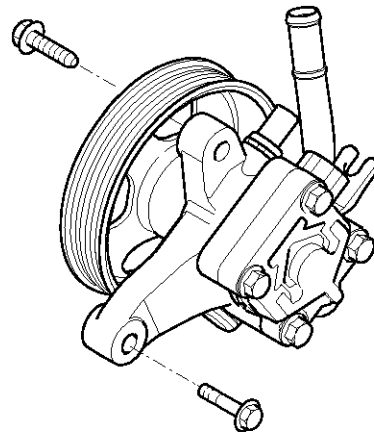
3. Loosen the mounting bolts and then remove the power steering pump.

[CRDI]



SENST7103L

[MPI]



SENST7104L

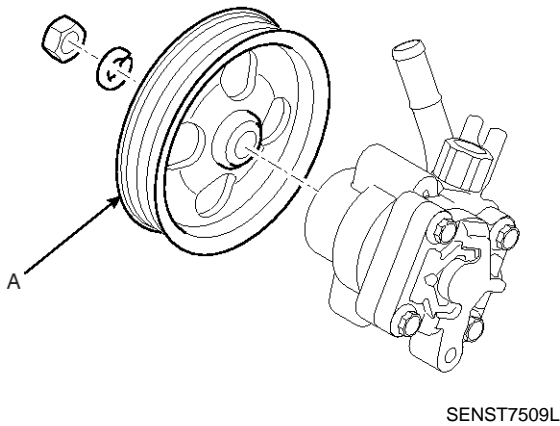


ST-34

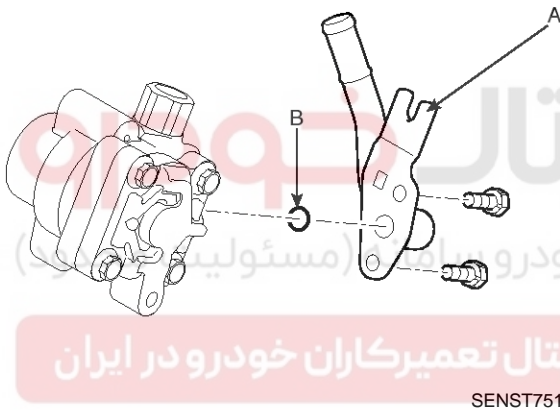
Steering System

Disassembly

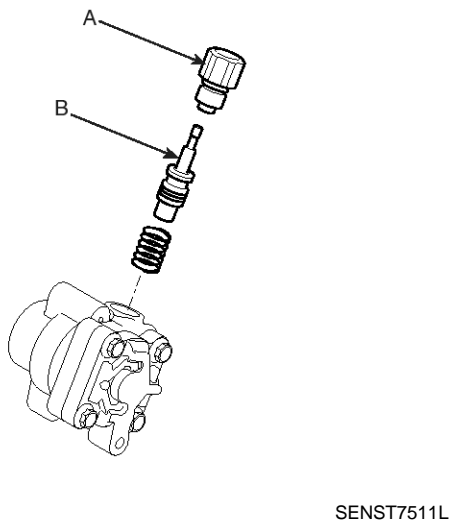
1. Remove the pump pulley (A) by loosening the lock nut.



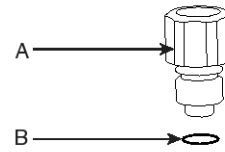
2. Remove the suction tube (A) and O-ring (B).



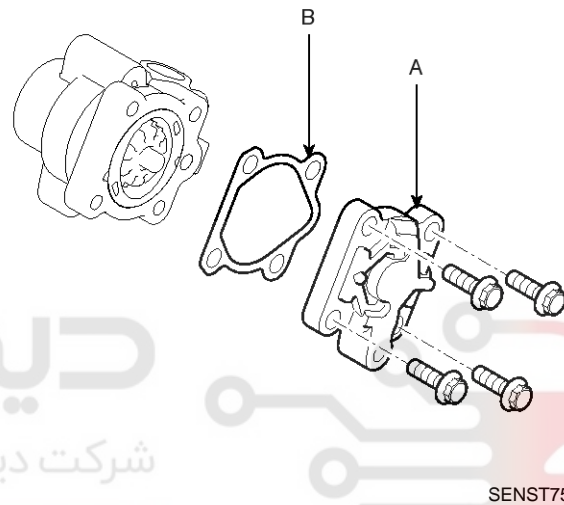
3. Unscrew the connector assembly (A) and then pull the flow control valve (B) and spring out of the pump body.



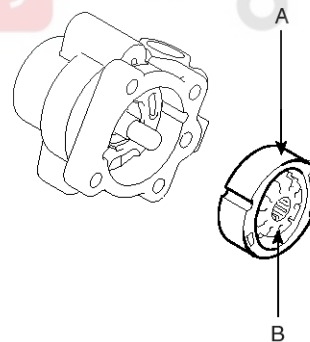
4. Remove the O-ring (B) from the connector assembly (A).



5. Remove the pump cover (A) and gasket (B).



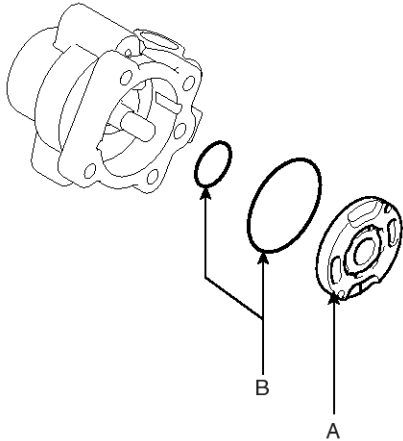
6. Remove the cam ring (A) and rotor & vanes (B).



Hydraulic Power Steering System

ST-35

7. Remove the side plate (A) and O-rings (B).



SENST7515L

Inspection

1. Check that the flow control valve is not bent.
2. Check the shaft for wear and damage.
3. Check the V belt for wear and deterioration.
4. Check the grooves of the rotor and vanes for stratified abrasion.
5. Check the contact surface of the cam ring and vanes for stratified abrasion.
6. Check vanes for damage.
7. Check that there is no striped wear in the side plate or contacting part between the shaft and the pump cover surface.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

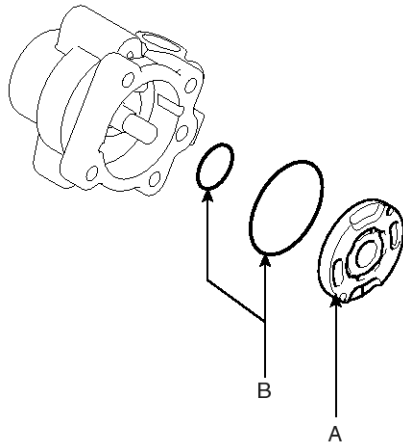


ST-36

Steering System

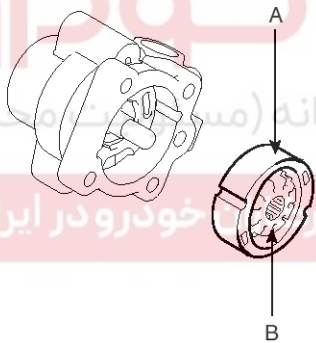
Reassembly

1. Assemble new O-rings (A) to the pump body.
2. Insert the side plate (A) into the pump body.



SENST7515L

3. Insert the cam ring (A) into the pump body.
4. Assemble the rotor (B) to pump.
5. Assemble the vanes to the rotor (B) grooves.

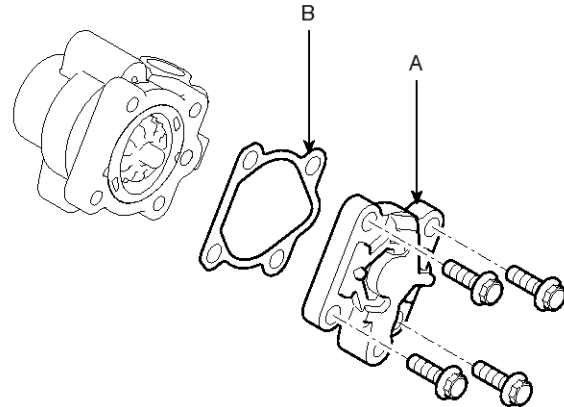


SENST7514L

6. Assemble a new gasket (B) and pump cover (A) to the pump body and then tighten the mounting bolts.

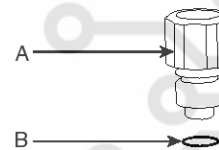
Tightening torque :

15 ~ 20N.m (1.6 ~ 2.0kgf.m, 11 ~ 15lb-ft)



SENST7513L

7. Assemble a new O-ring (B) to the connector assembly (A).

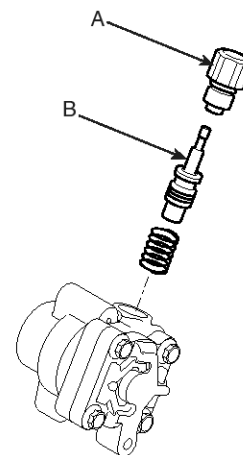


SENST7512L

8. Insert the spring and flow control valve (B) into the pump body and then tighten the connector assembly (A).

Tightening torque :

70 ~ 80N.m (7.0 ~ 8.0kgf.m, 51 ~ 58lb-ft)



SENST7511L

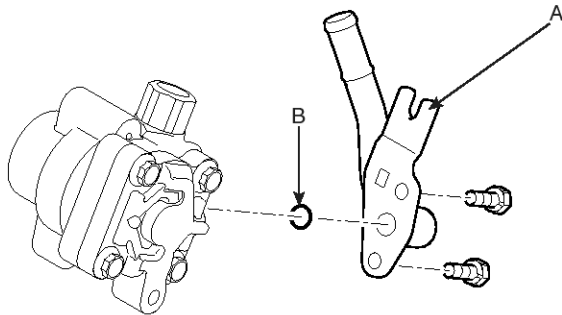
Hydraulic Power Steering System

ST-37

9. Assemble a new O-ring (B) and suction pipe (A) and then tighten the mounting bolts.

Tightening torque :

14 ~ 18N.m (1.4 ~ 1.8kgf.m, 10 ~ 13lb-ft)

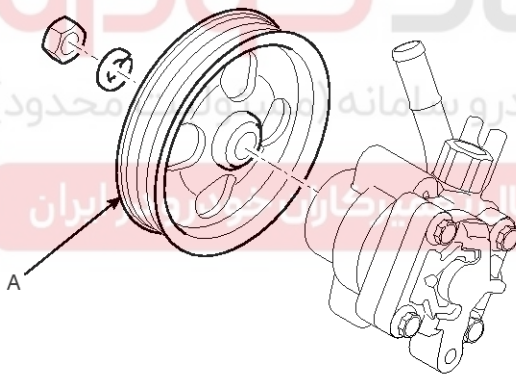


SENST7510L

10. Assemble the pump pulley (A) to pump shaft and then tighten the nut and spring washer together.

Tightening torque :

54 ~ 68N.m (5.5 ~ 6.9kgf.m, 40 ~ 50lb-ft)



SENST7509L

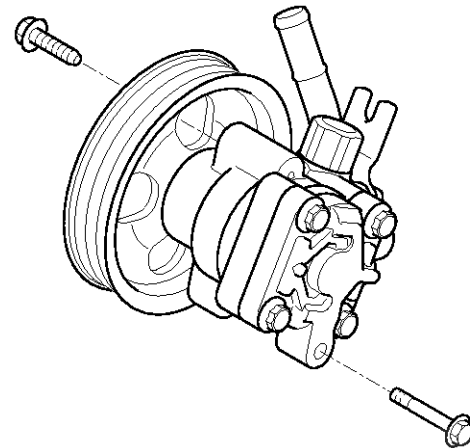
Installation

1. Install the power steering pump and tighten the mounting bolts.

Tightening torque :

20 ~ 27N.m (2.0 ~ 2.7kgf.m, 14 ~ 20lb-ft)

[CRDI]

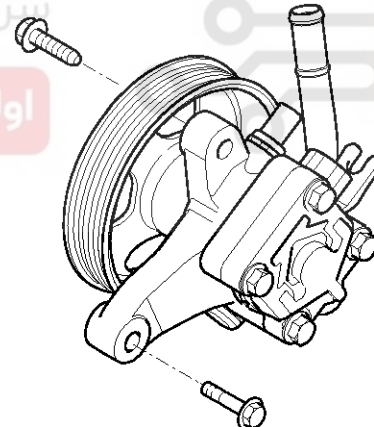


SENST7103L

Tightening torque :

35 ~ 50N.m (3.5 ~ 5.0kgf.m, 14 ~ 20lb-ft)

[MPI]



SENST7104L

2. Connect the suction hose (B) with suction pipe.

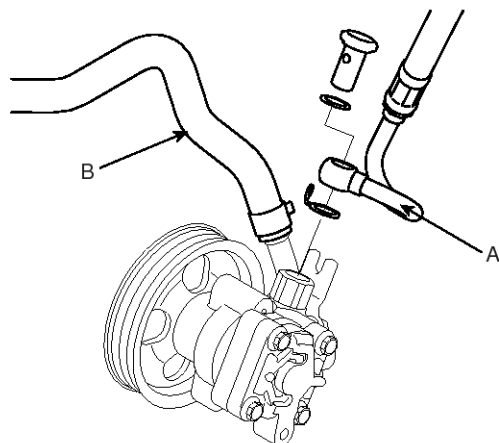
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Steering System

3. Connect the pressure tube (A) to power steering pump by tightening the eye bolt.

Tightening torque :

55 ~ 65N.m (5.5 ~ 6.5kgf.m, 36 ~ 47lb-ft)



SENST7521L

4. Install the drive belt.
5. Add power steering fluid to the reservoir.
6. Bleed the power steering system. (Refer to Air bleeding)
7. Check power steering pump relief pressure. (Refer to Pump pressure test)



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