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SECTION 6A

POWER STEERING SYSTEM

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SPECIFICATIONS

GENERAL SPECIFICATIONS

Application		Description
Steering Wheel	Number of Spoke	4
	Outer Diameter	396 mm
Steering Gear Box	Type	Rack and Pinion
	Gear Ratio	¥
	Inner Steering Angle	33°37'
	Outer Steering Angle	31°50'
Oil Pump	Type	Vane
	Maximum Pressure	75-82 kg/cm^2
Steering Column	Upper Tilting Angle	4.646°
	Lower Tilting Angle	6.969°
Minmum Turning Radius		5.25m
Oil	Type	ATF DEXRON II
	Capacity	1 L
	Change Interval	Every 24,000 km

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m
Steering Shaft Bolt	30 - 40
Pressure Hose Bolt	12 - 18
Return Pipe Nut	12 - 18
Slotted Nut	35 - 45
Steering Gearbox Bolt	35 - 45

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DIAGNOSIS

HARD STEERING

Checks	Action
Lack of Lubrication	Lubricate
Abnormal Wear or Binding of Steering Ball Joint	Replace
Damaged or Faulty Steering Gear	Replace gear assembly
Improper Preload of Steering Pinion	Adjust
Faulty Steering Shaft Joint	Replace
Steering Fluid Leaks	Repair or replace
Lack of Fluid or Air-in System	Replenish or bleed
Faulty Steering Oil Pump	Replace
Damaged or Loosened Pump Drive Belt	Adjust or replace
Clogging Oil Line	Repair or replace
Damaged Wheel or Tire	Repair or replace
Faulty Suspension System	Repair or replace

STEERING PULLS TO ONE SIDE

Checks	Action
Damaged Steering Linkage	Repair
Damaged Wheel and Tire	Repair or replace
Faulty Brake System	Repair or replace
Faulty Suspension System	Repair or replace

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EXCESSIVE WHEEL PLAY

Checks	Action
Worn Steering Gear	Replace gear assembly
Worn or Damaged Steering Ball Joint	Replace
Loosened Steering Gearbox Bolts	Retighten

POOR RETURN OF STEERING WHEEL

Checks	Action
Damaged or Binding Steering Ball Joint	Replace
Improper Preload of Steering Pinion	Replace gear assembly
Damaged Wheel or Tire	Repair or replace
Faulty Suspension System	Repair or replace

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STEERING WHEEL SHIMMY

Checks	Action
Damaged Steering Linkage	Replace
Loosened Steering Gearbox Mounting Bolt	Retighten
Damaged or Binding Steering Ball Joint	Replace
Worn or Damaged Front Wheel Bearing	Replace
Damaged Wheel or Tire	Repair or replace
Faulty Suspension System	Repair or replace

ABNORMAL NOISE FROM STEERING SYSTEM

Checks	Action
Loosened Steering Gearbox Mounting Bolt	Retighten
Faulty Steering Gear	Replace gear assembly
Steering Column Linterference	Replace
Loosened Steering Linkage	Retighten
Damaged or Loosened Oil Pump Drive Belt	Adjust or replace
Loosened Oil Pump Bracket	Retighten
Loosened Oil Pump Mounting Bolt	Retighten
Air-in System	Bleed
Faulty Oil Pump	Replace

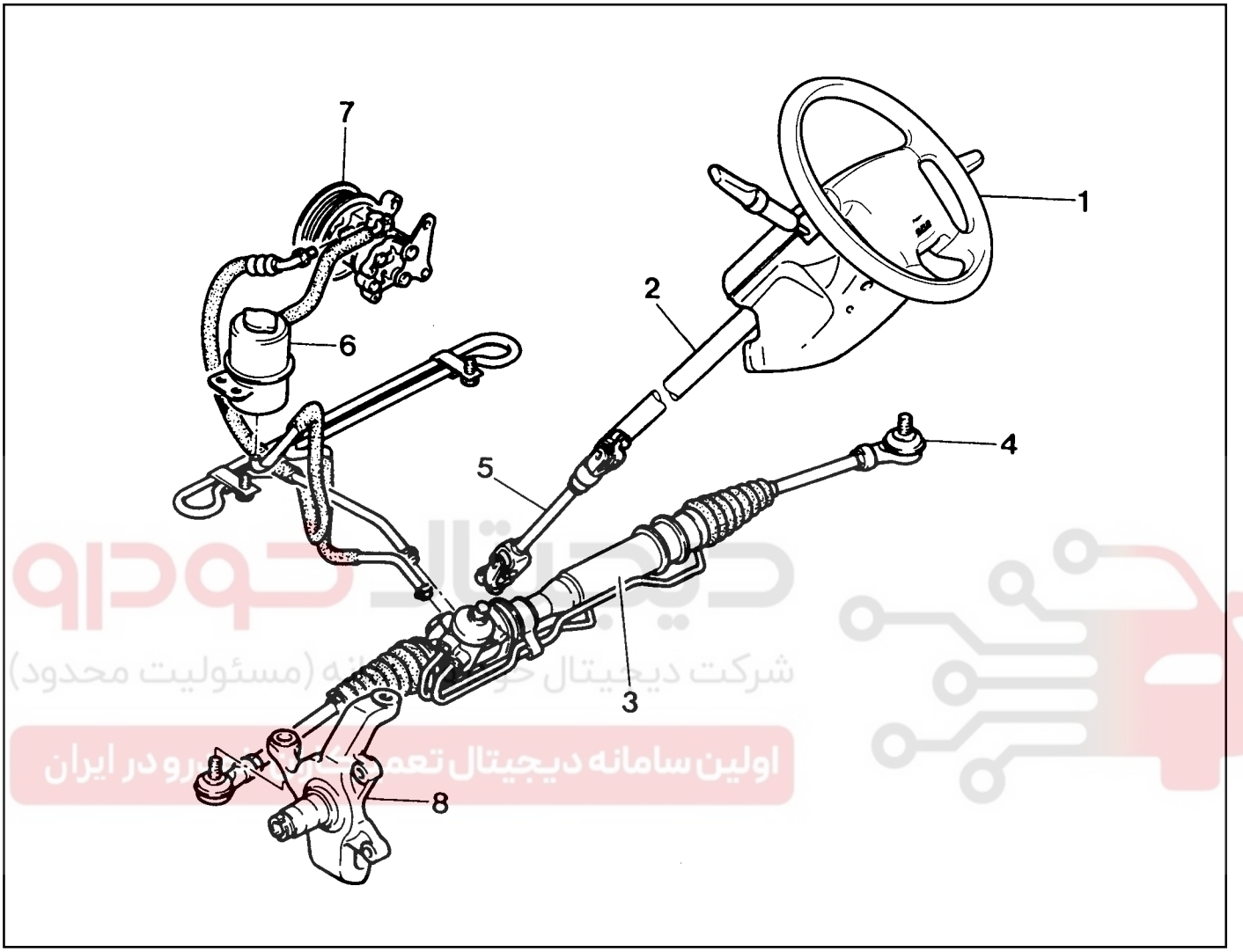
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COMPONENT LOCATOR

STEERING SYSTEM



1 Steering Wheel
2 Steering Column Shaft
3 Steering Gear Box
4 End Ass'y - Tie Rod
5 Lower Shaft
6 Oil Reservoir
7 Oil Pump
8 Steering Knuckle

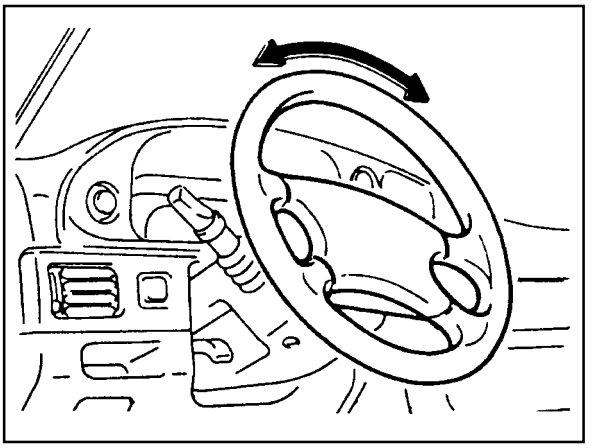
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MAINTENANCE AND REPAIR ON-VEHICLE SERVICE

INSPECTION

Steering Wheel Freeplay Inspection Procedure



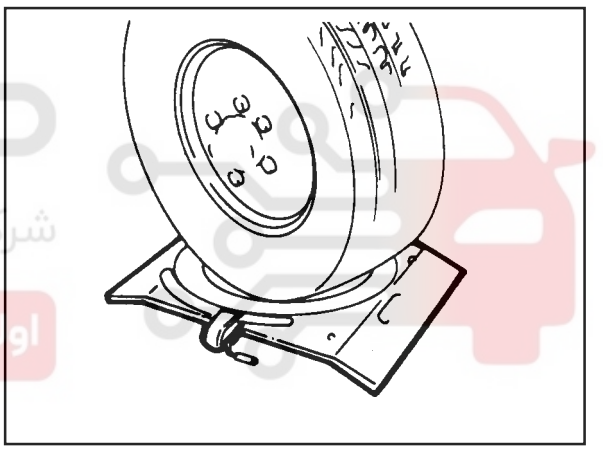
1. Start the engine and set the wheels in straight ahead position.
2. Slightly move the steering wheel to the left and right and measure steering wheel free play when the front wheel is start to move.

Standard	Max. 30mm

Notice

If exceeds specification, the steering column shaft connections and steering linkage .clearance. Replace or repair if necessary.

Steering Angle Inspection Procedure



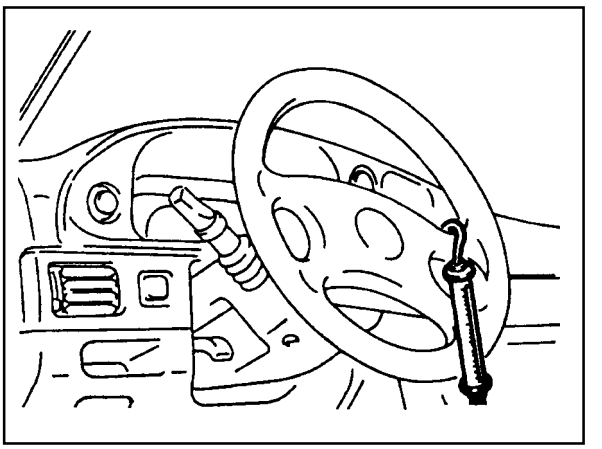
1. Place the front wheel on a measuring tool.
2. Rotate steering wheel all the way right and left and measure steering angle

Standard	Inner	33°37'
	Outer	31°50'

Notice

If out of standard, check or adjust toe-in.

Steering Effort Inspection Procedure



1 Place a vehicle on the paved flat ground with front wheels in a straight ahead position.

2 Start the engine and run it at 1,000rpm.

3 Using a scale, measure the steering effort in both directions.

Standard	Max. 3.0kg

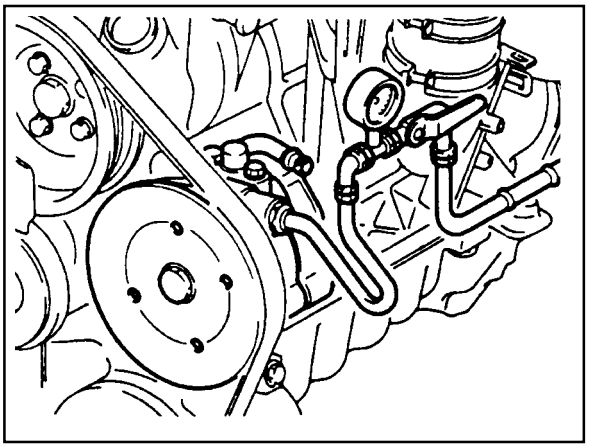
Notice

The difference in steering effort of left and right should be within 0.6 kg.

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OIL PUMP PRESSURE CHECK



Oil Pump Pressure Check

1. Disconnect the pressure hose from the oil pump connect a pressure gauge between the oil pump and pressure hose
2. Bleed the system . Start the engine and turn the steering wheel form lock several times until oil temperature is up to 50°C
3. Run the engine at 1,000 rpm.
4. Close the pressure gauge valve and check oil pressure.

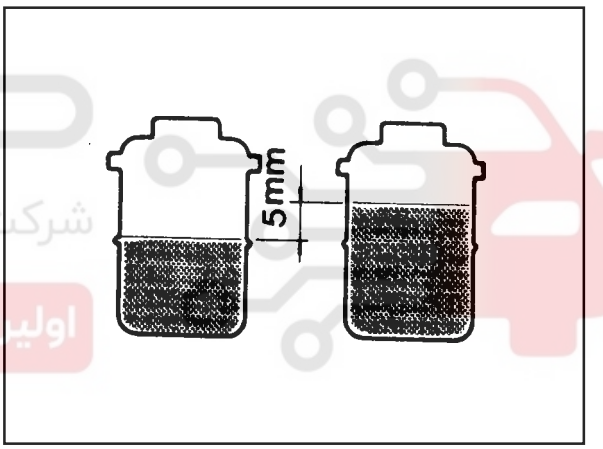
Relief Pressure	75 - 82 kg/cm^2

Notice

Do not keep the valve closed for more than 10 seconds.

5. Remove the pressure gauge and connect the pressure hose.
6. Do bleeding procedure.

BLEEDING OF POWER STEERING SYSTEM



Bleeding of Power Steering System

1. Disconnect the fuel line. Using a starter motor, crank the engine and turn the steering wheel from lock to lock 5 or 6 times.

Notice

Do bleeding with engine cranking. If bleed with idling, there can be a air contact with oil.

2. Connect the fuel feed line and start the engine at idle speed.
3. Turn the steering wheel from lock to lock until there is no more air in oil reservoir.
4. Connect the oil level is within specification.
5. By turning the steering wheel left to right, check the oil level change.

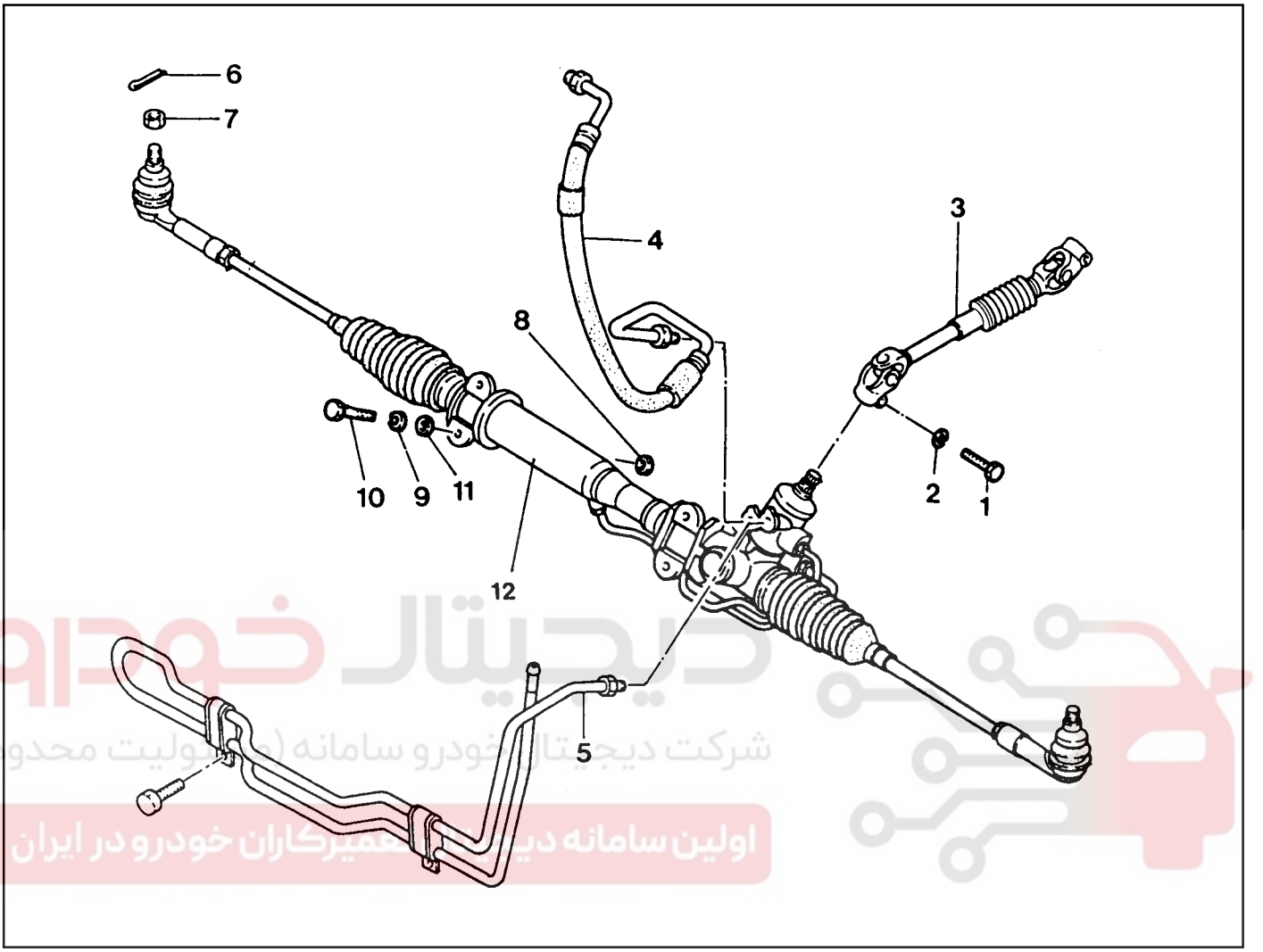
Notice

- If oil is not changes more than 5mm, do bleeding again.
- If oil level rises suddenly when stopped engine, again.

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STEERING GEAR BOX



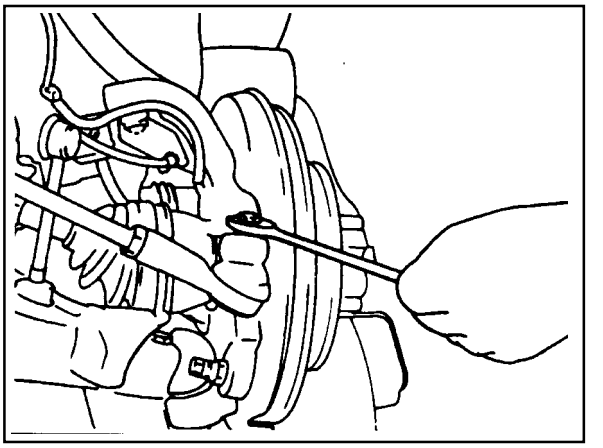
1	Bolt	30-40Nm	7	Slotted Nut	35-45Nm
2	Spring Washer		8	Nut	
3	Lower Shaft		9	Spring Washer	
4	Pressure Hose	12-18Nm	10	Bolt	35-45Nm
5	Return Pipe	12-18Nm	11	Washer	
6	Cotter Pin		12	Steering Gearbox Assembly	

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Removal & Installation Procedure

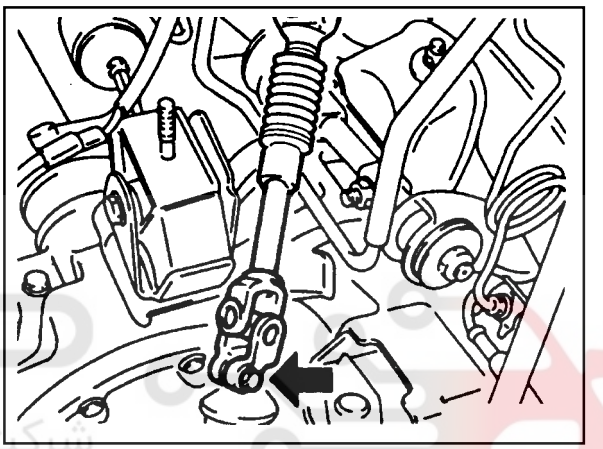
1. Remove the cotter pin and nut and separate the steering gear box tie rod from the steering knuckle arm using the puller.



Installation Notice

Tightening Torque	35 - 45 Nm

2. Remove the bolt and separate the lower sha from the steering gear box.

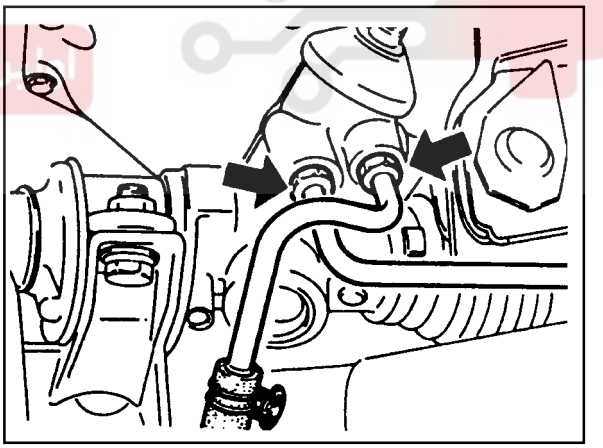


Installation Notice

Tightening Torque	30 - 40 Nm

Tighten the bolt toward threadless side of lower shaft coupling.

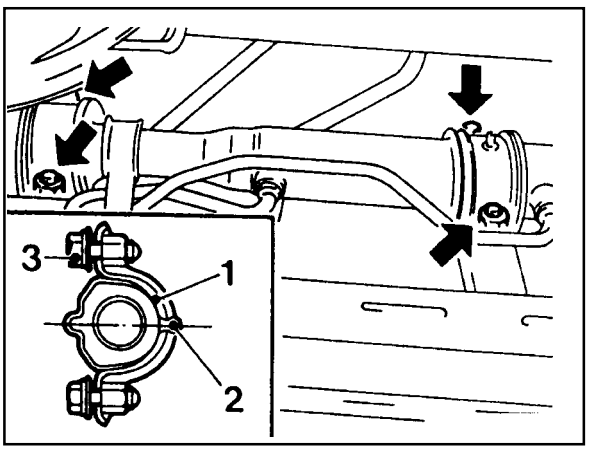
3. Remove the oil pipe from the steering gear box and drain the oil.



Installation Notice

Tightening Torque	12 - 18 Nm

4. Remove the clamp bolts and remove the steering gear box assembly.



Installation Notice

Tightening Torque	70 - 90 Nm

Notice

- Be careful not to damage the rubber(1).
- When installing tighten the bolt (3) with the rubber (2)being inserted to the hole of clamp.

5. Bleed the air from system.
6. Check the toe-in.

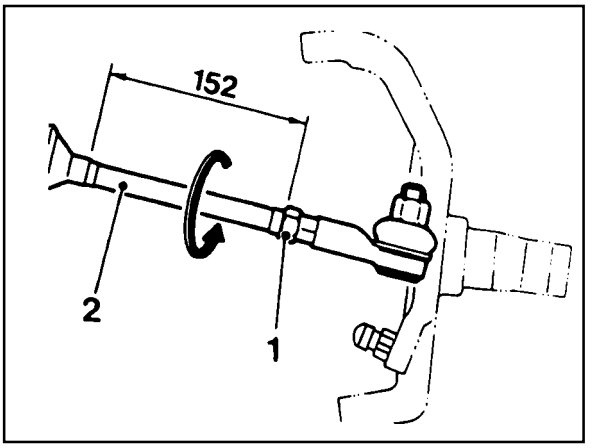
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Inspection Procedure

1. Check the distance of tie rod and toe-in data and, if necessary, adjust as below.
2. Adjustment
   - Unscrew the adjuster nut (1) and adjust the distance by turning the rod (2) counterclockwise.

Distance of Tie Rod	152mm



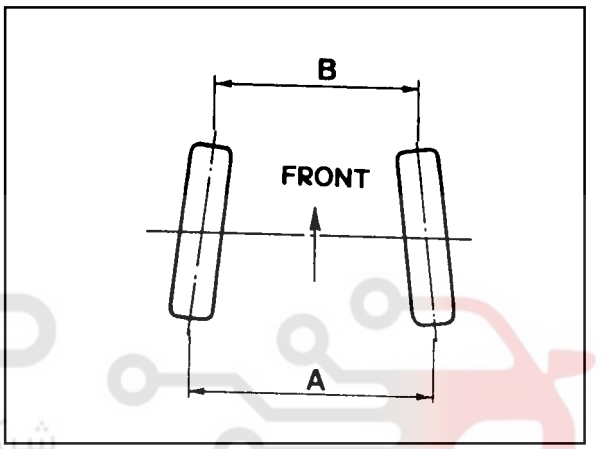
   - Check the toe-in date (A~B)

Toe-in	0 - 4 mm

   - If the ton-in is normal, tighten the adjuster nut (1) to the specified toque with tie rod (2) being fixed.

Tightening

Tightening Torque	65 - 80Nm



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SECTION 6E

STEERING WHEEL AND COLUMN

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Maintenance and Repair **6E-2**
On-Vehicle Service 6E-2
Steering Column 6E-2

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m
Steering Wheel Mounting Nut	50 - 80
Steering Lower Shaft Bolt	30 - 40
Steering Column Shaft Bolt	9 - 14
Steering Column Mounting Bolt	15 - 20

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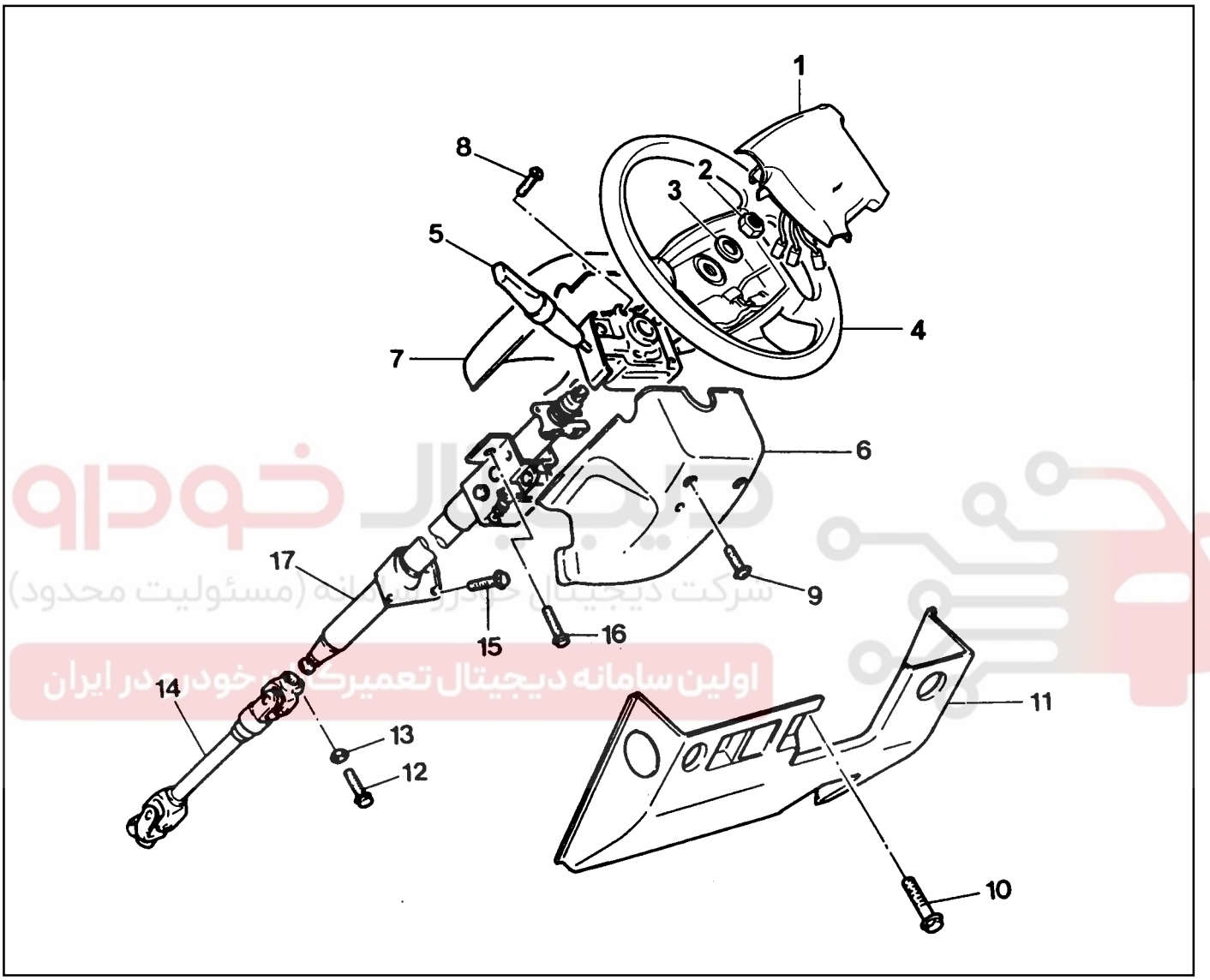
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

STEERING COLUMN



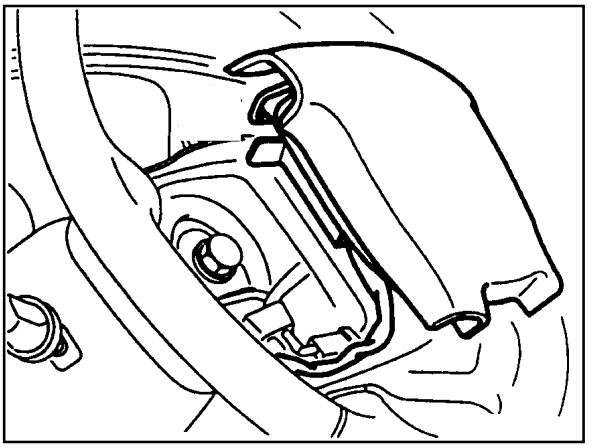
1 Horn Pad
2 Nut ..... 50-80 Nm
3 Washer
4 Steering Wheel
5 Combination Switch Assembly
6 Combination Switch Lower Cover
7 Combination Switch Upper Cover
8 Bolt
9 Bolt
10 Bolt
11 Crash Pad Panel
12 Bolt ..... 30-40 Nm
13 Spring Washer
14 Steering Column Shaft
15 Bolt ..... 9-14 Nm
16 Bolt ..... 13-40 Nm
17 Column & Shaft Assembly

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Removal & Installation Procedure

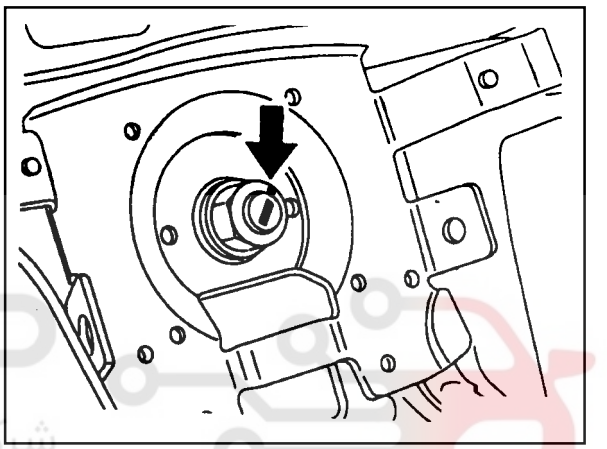
1. Remove the horn pad from the steering wheel and disconnect the connectors .



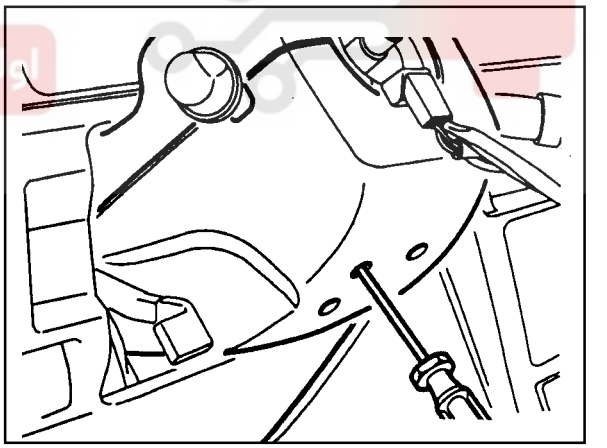
2. Place an alignment marks on the column shaft end and fixing nut and then remove the fixing nut.

Installation Notice

Tightening Torque	50 - 80 Nm



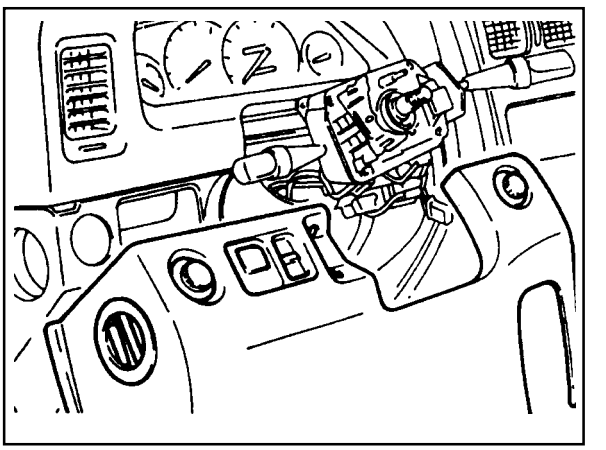
3. Remove the steering wheel.
4. Remove the combination switch upper cover .



5. Release the crash pad panel.

Notice

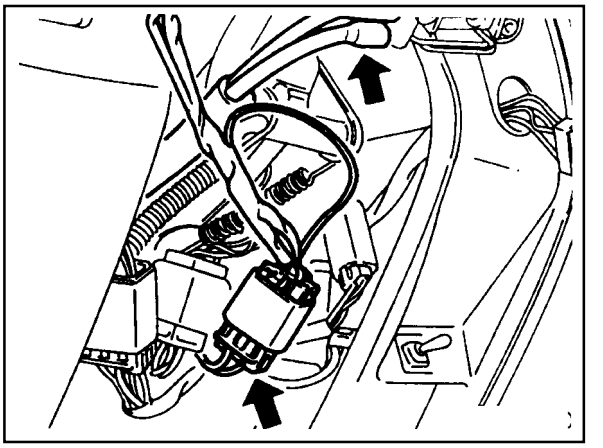
Remove the hood release wire and the other switch connectors.



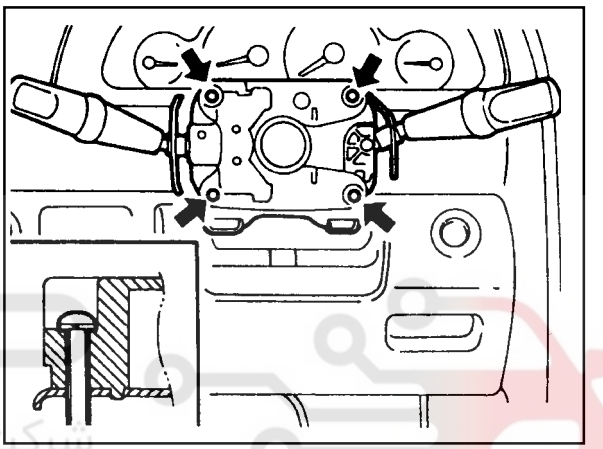
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6. Disconnect each connectors.
7. Remove the vacuum hose from the ignition switch(Diesel only) .



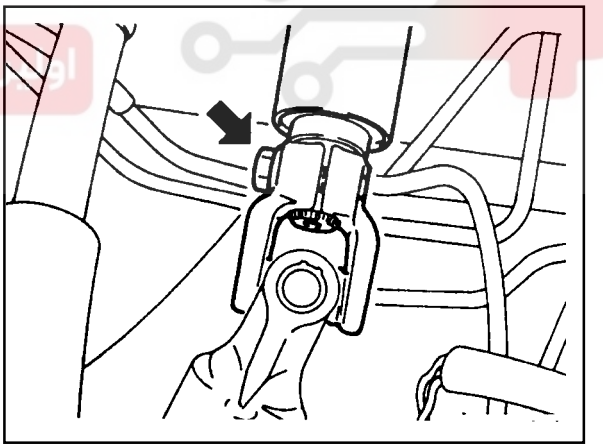
8. Remove the combination switch assembly.



9. Remove the lower shaft by removing the bolt of the steering column shaft.

Installation Notice

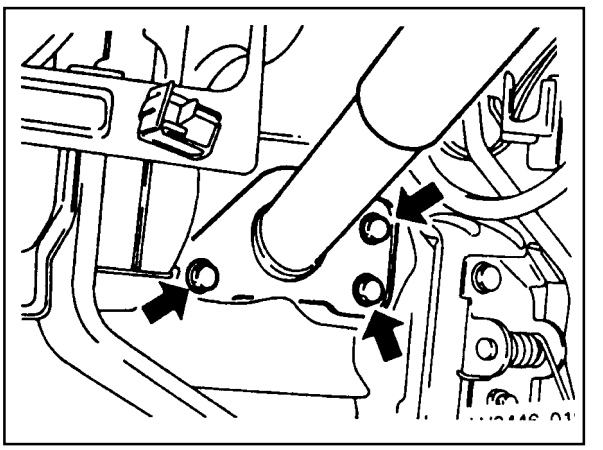
Tightening Torque	30 - 40 Nm



10. Remove the dash panel mounting bolts.

Installation Notice

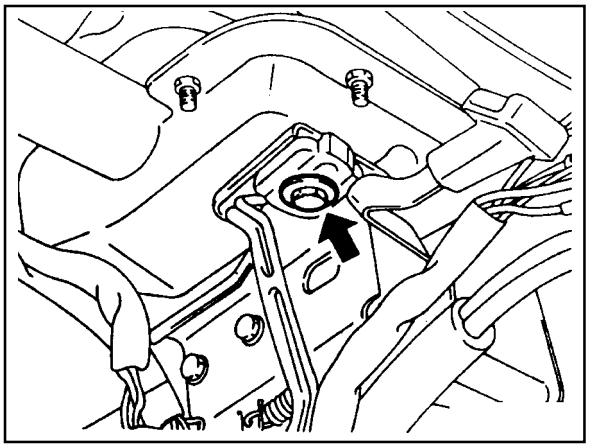
Tightening Torque	9 - 14 Nm



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11. Remove the steering column upper mounting bolt and pull out steering column assembly.



Installation Notice

Tightening Torque	30 - 40 Nm

12. Installation is reverse order of the removal.

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