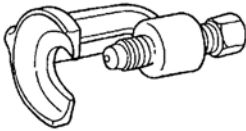
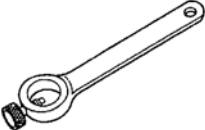



2002 STEERING

Steering Column/Shaft - Sedona

GENERAL

SPECIAL SERVICE TOOLS

Tool (Number and Name)	Illustration	Use
OK130 283 021 Puller, ball joint		Used for removing tie rod end.
OK130 322 020 Attachment, steering worm bearing preload measuring		Used for measuring pinion pre-load.
OK210 323 AA0 Gauge set, power steering		Used for measuring fluid pressure.

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**Fig. 1: Identifying Special Service Tools**  
Courtesy of KIA MOTORS AMERICA, INC.

SYMPTOM-RELATED DIAGNOSTIC PROCEDURE

Problem	Possible cause	Action
Movements of steering feels heavy	Looseness or damage of power steering belt Insufficient power steering fluid or air insertion Crushed or twisted hoses Pipe damage Leakage of power steering fluid Low fluid pressure  Insufficient air pressure in tire Incorrect wheel alignment adjustment Steering gear linkage binding Interference between steering column and parts Steering column intermediate shaft coupling does not operate	Adjust or replace power steering belt Fluid fill up or air bleeding Replace hoses Replace pipes Repair or replace leaking parts Repair or replace power steering pump or gear  Adjust tire air pressure Adjust wheel alignment Replace or repair steering gear linkage Repair or replace steering column Perform the turning effort
Poor returning of steering wheel	Insufficient air pressure in tire Incorrect wheel alignment adjustment Steering gear linkage binding Malfunction of steering gear Steering column intermediate shaft coupling does not operate Steering column is overweight, restricted or bent	Adjust tire air pressure Adjust wheel alignment Repair or replace steering gear linkage Replace steering gear Perform the turning effort  Inspect steering column or replace
Irregular steering power	Looseness of power steering belt Malfunction of steering column or looseness of mounting bolt Steering gear linkage binding Malfunction of steering gear	Adjust power steering belt Repair or tightening of steering column  Repair or replace steering linkage Replace steering gear
Steering wheel pulls to one side	Insufficient air pressure in tire Improper preload adjustment or worn of wheel bearing Incorrect wheel alignment Malfunction of steering gear Uneven tire wear Fatigued front coil spring Dragging brake(s) Damaged front wheel tie rod(s) Damaged front wheel knuckle Front suspension lower arm or stabilizer bar bushing worn or damaged Front suspension lower arm bent or loose	Adjust tire air pressure Adjust or replace wheel bearing Adjust wheel alignment Replace steering gear Replace tire or align Replace coil spring Adjust brake(s) Replace front wheel tie rod Inspect knuckle or replace Repair or replace  Replace or tighten

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**Fig. 2: Identifying Symptom-Related Diagnostic Procedures (1 Of 2)**  
**Courtesy of KIA MOTORS AMERICA, INC.**

Problem	Possible cause	Action
Leakage of power steering fluid	Problem with hose coupling	Repair or replace hose coupling
	Clogged or damaged hoses	Replace hoses
	Damage of power steering fluid reservoir	Replace reservoir
	Over flow	Air bleeding or adjust fluid level
	Malfunction of power steering pump	Replace power steering pump
	Malfunction of steering gear	Replace steering gear
Abnormal noise	Looseness of power steering pump	Tightening of power steering pump
	Looseness of steering gear	Tightening of steering gear
	Looseness of power steering pump bracket	Tightening of power steering pump bracket
	Looseness of power steering pump pulley nut	Tightening of power steering pump pulley nut
	Excessive tightness or looseness of belt	Adjust power steering pump belt
	Air insertion	Air bleeding
	Malfunction of steering gear	Replace steering gear
	Malfunction of power steering pump	Replace power steering pump
	Interference on steering column or pressure hose	Remove interference on steering column or repair/replace hoses
	Looseness or excessive tightness of steering linkage	Adjust tightness of steering linkage or replace steering linkage

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**Fig. 3: Identifying Symptom-Related Diagnostic Procedures (2 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

**SPECIFICATIONS**

Item \ Type		P/S
Steering wheel	Outer diameter in (mm)	14.96 (380)
	Lock to lock turns	3.40
Steering column	Type	Collapsible
	Joint type	Universal joint
	Tilt stroke (degree)	±4.7°
Steering rack	Type	Rack and pinion
	Gear ratio	19.24 : 1
	Rack travel in (mm)	5.51 (140)
P/S fluid	Capacity US qt (liter)	1.05 (1.0)
	Type	PSF-III

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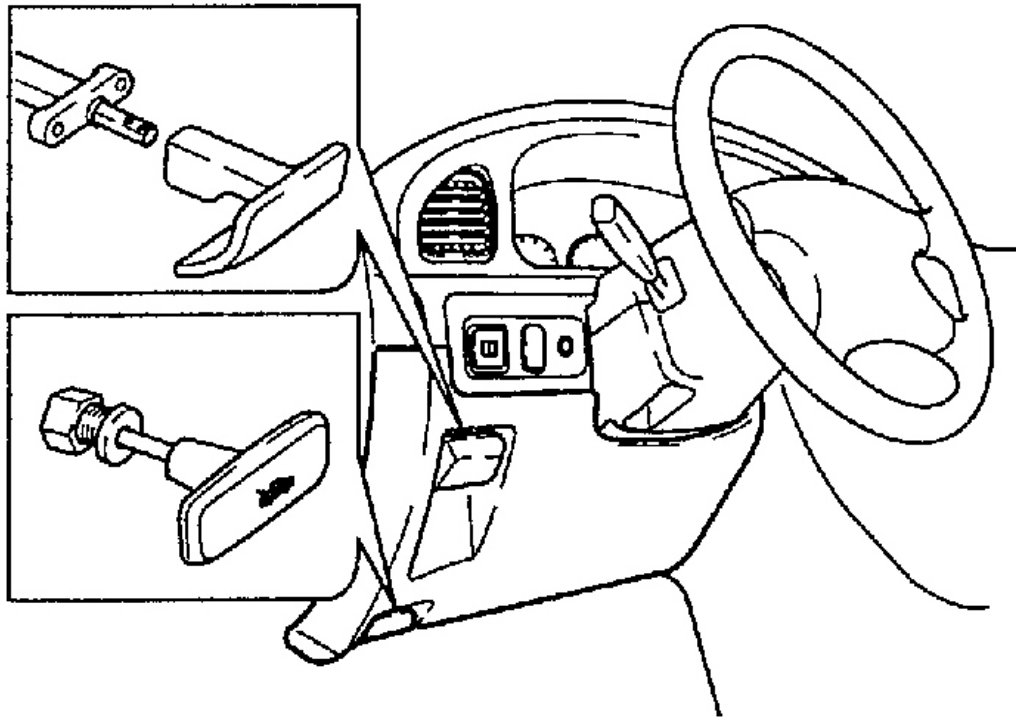
**Fig. 4: Identifying Steering System Specifications**  
Courtesy of KIA MOTORS AMERICA, INC.

**REMOVAL & INSTALLATION**

**REMOVAL**

**WARNING:** Before proceeding, see air bag enabling and disabling procedures, in **DISABLING & ACTIVATING AIR BAG SYSTEM** article.

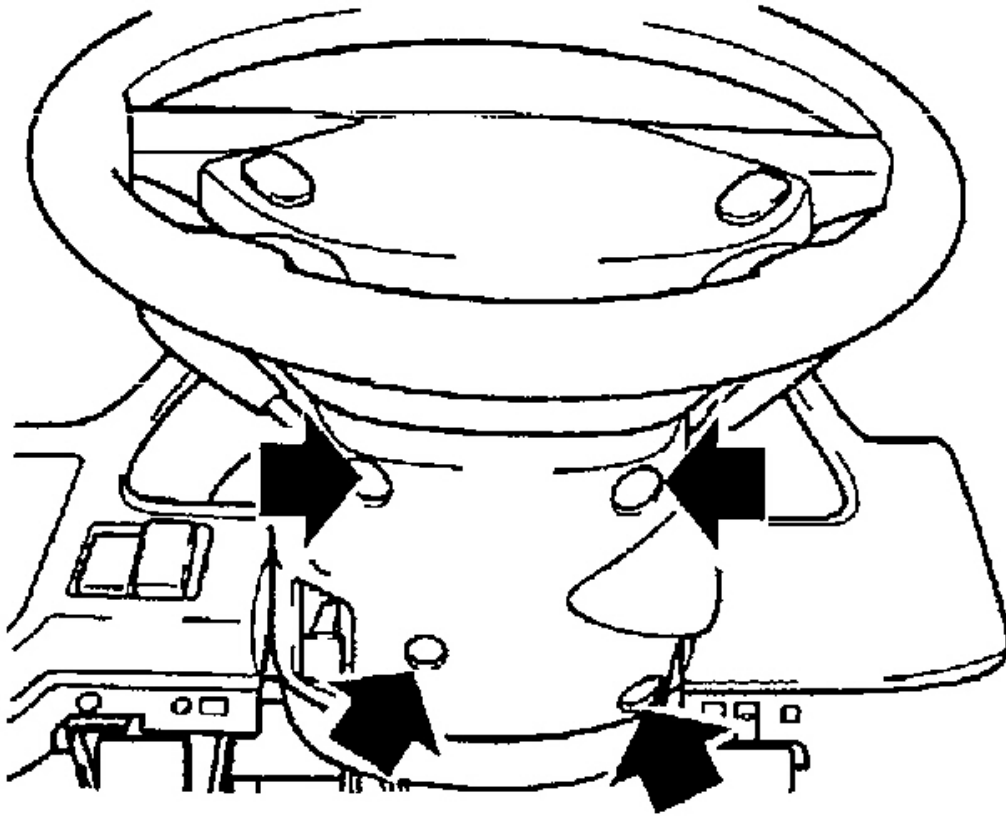
1. Disconnect (-) terminal of battery.
2. Place vehicle in a straight forward position.
3. Remove under cover.



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**Fig. 5: Removing Under Cover**  
Courtesy of KIA MOTORS AMERICA, INC.

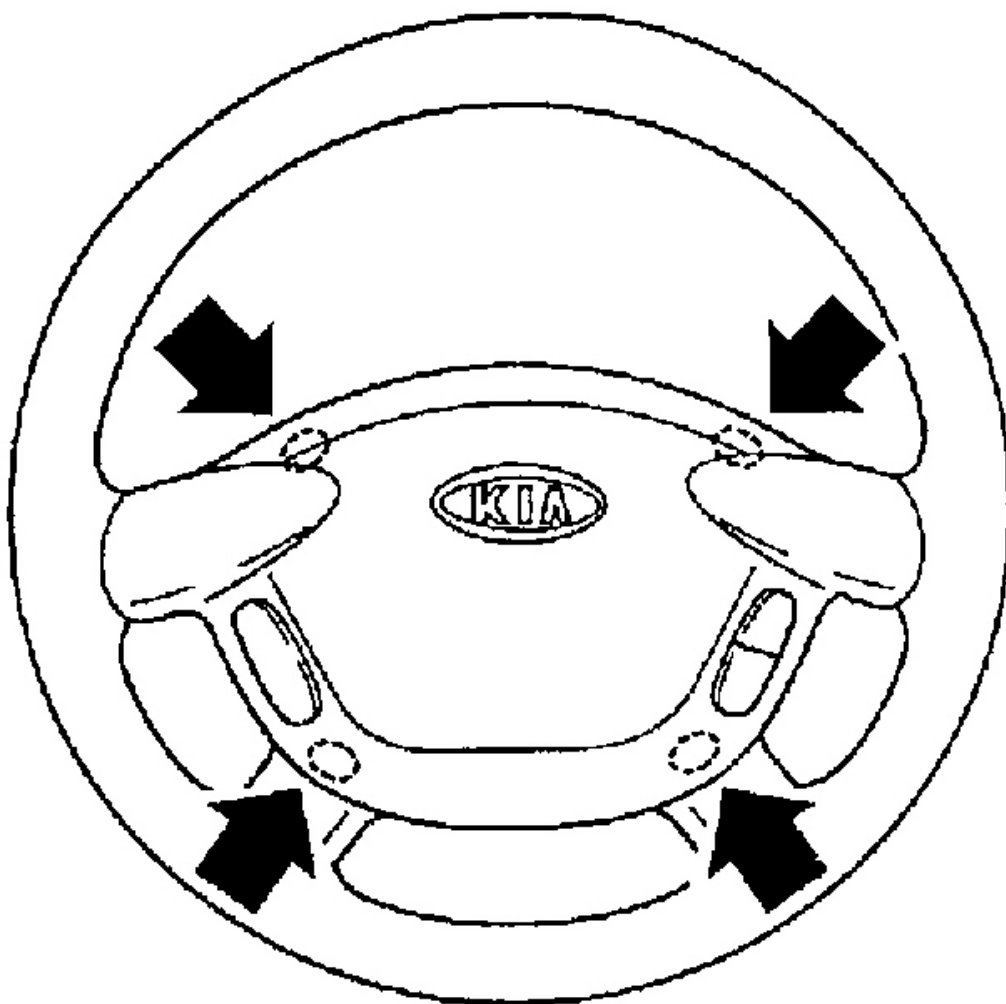
4. Loosen four lower steering column cover screws and separate upper and lower steering column covers.



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**Fig. 6: Separating Upper & Lower Steering Column Covers**  
Courtesy of KIA MOTORS AMERICA, INC.

5. Loosen four bolts from steering wheel and remove steering wheel cover.

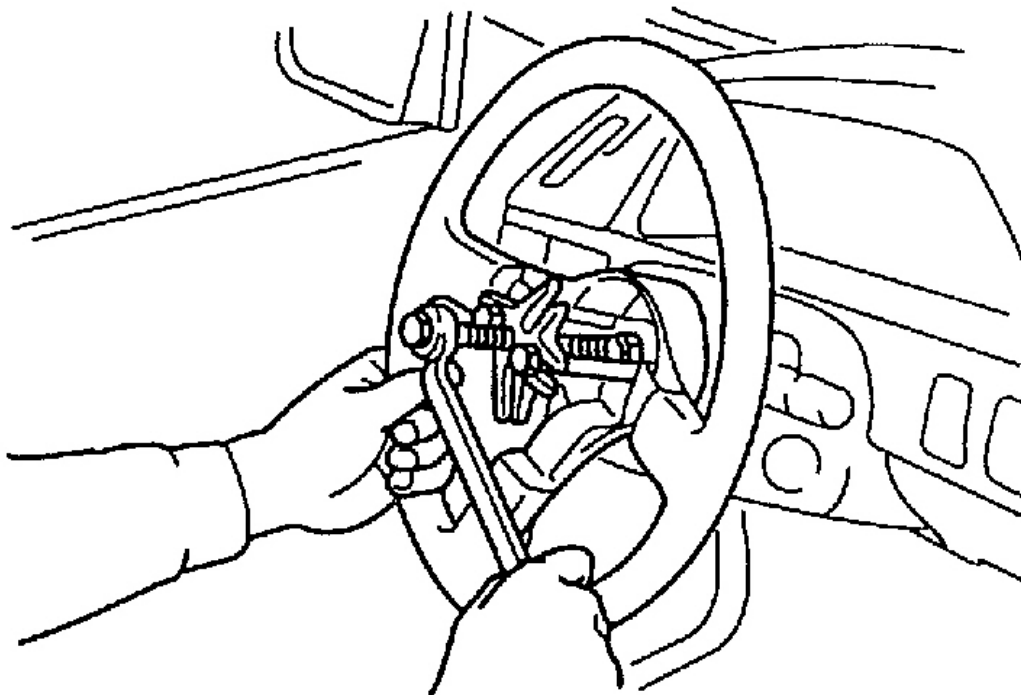


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**Fig. 7: Removing Steering Wheel Cover**  
Courtesy of KIA MOTORS AMERICA, INC.

6. Disconnect horn switch connector.
7. Make an alignment mark on steering wheel and steering shaft for proper installation.
8. Remove nut from end of steering shaft.

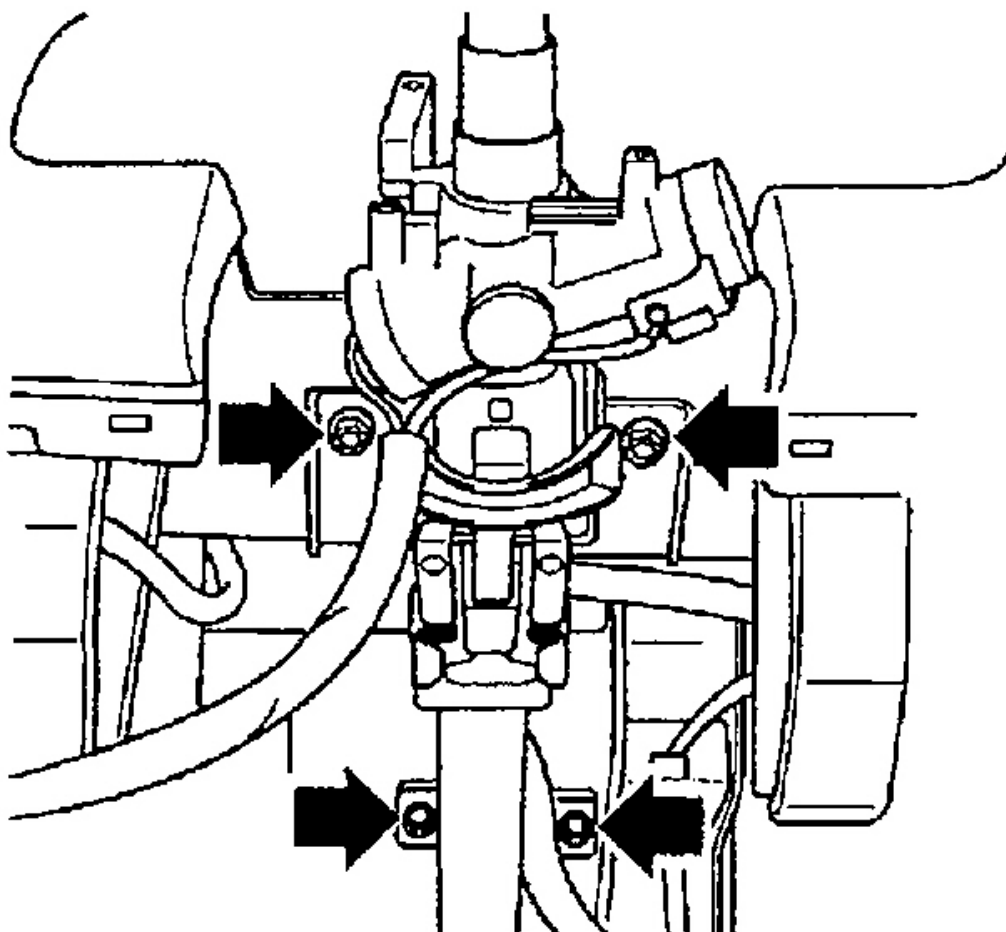
**NOTE:**      **Do not remove steering wheel by hitting end of shaft with a hammer.**  
                 **Damage to shaft threads and shaft support bearings could occur.**



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**Fig. 8: Removing Steering Wheel**  
Courtesy of KIA MOTORS AMERICA, INC.

9. Remove steering wheel with a suitable puller.
10. Loosen three screws and remove clock spring. See **CLOCKSPRING** .
11. Loosen three combination switch screws.
12. Disconnect combination switch connectors.
13. Slide combination switch off steering column shaft.
14. Disconnect ignition switch connector.
15. Remove inter lock cable and then remove inter lock mounting bracket.
16. Loosen two universal joint pinch bolt.
17. Loosen four upper tilt assembly mounting nuts, and remove the upper tilt assembly.



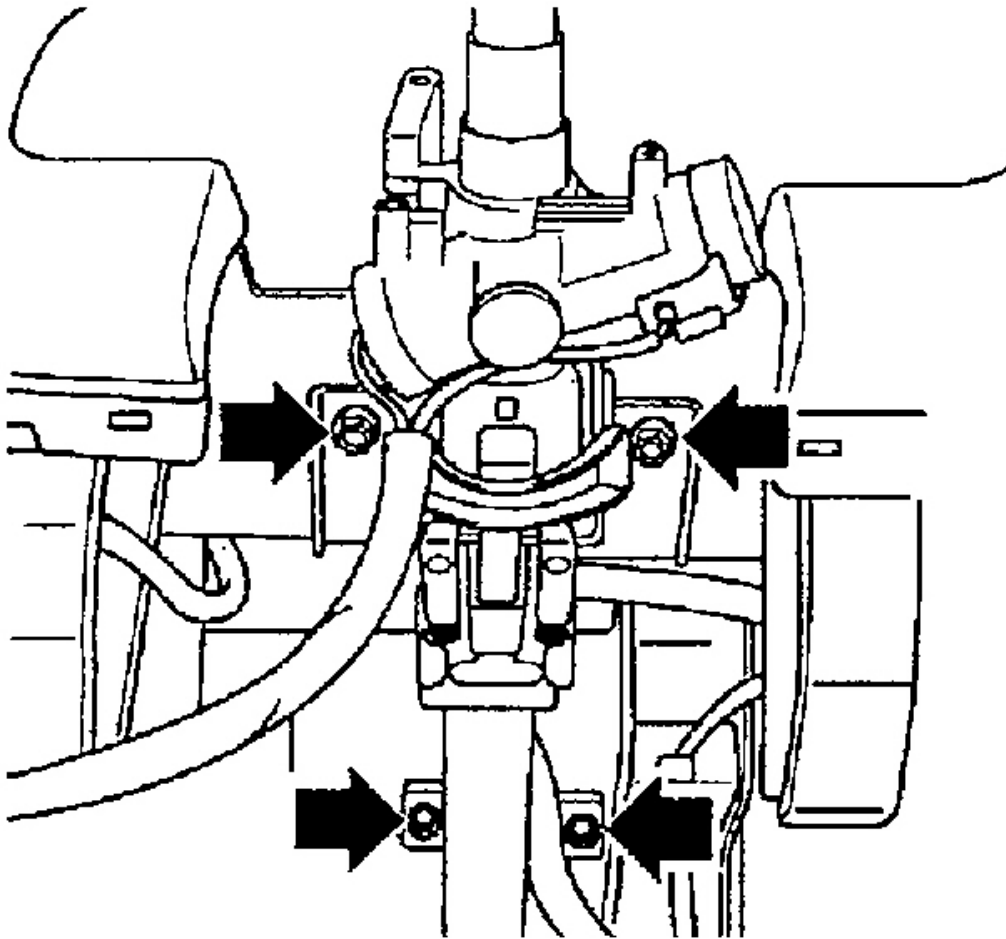
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**Fig. 9: Removing Upper Tilt Assembly**  
Courtesy of KIA MOTORS AMERICA, INC.

## INSTALLATION

1. Install upper tilt assembly to intermediate shaft.
2. Tighten four upper tilt assembly mounting nuts temporary.





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**Fig. 10: Tightening Upper Tilt Assembly Mounting Nuts**  
Courtesy of KIA MOTORS AMERICA, INC.

3. Tighten lower mounting nuts.

**Tightening torque:**

**12 ~ 17 lb.ft (16 ~ 23 N.m, 1.6 ~ 2.3 kg.m)**

4. Tighten upper mounting nuts.

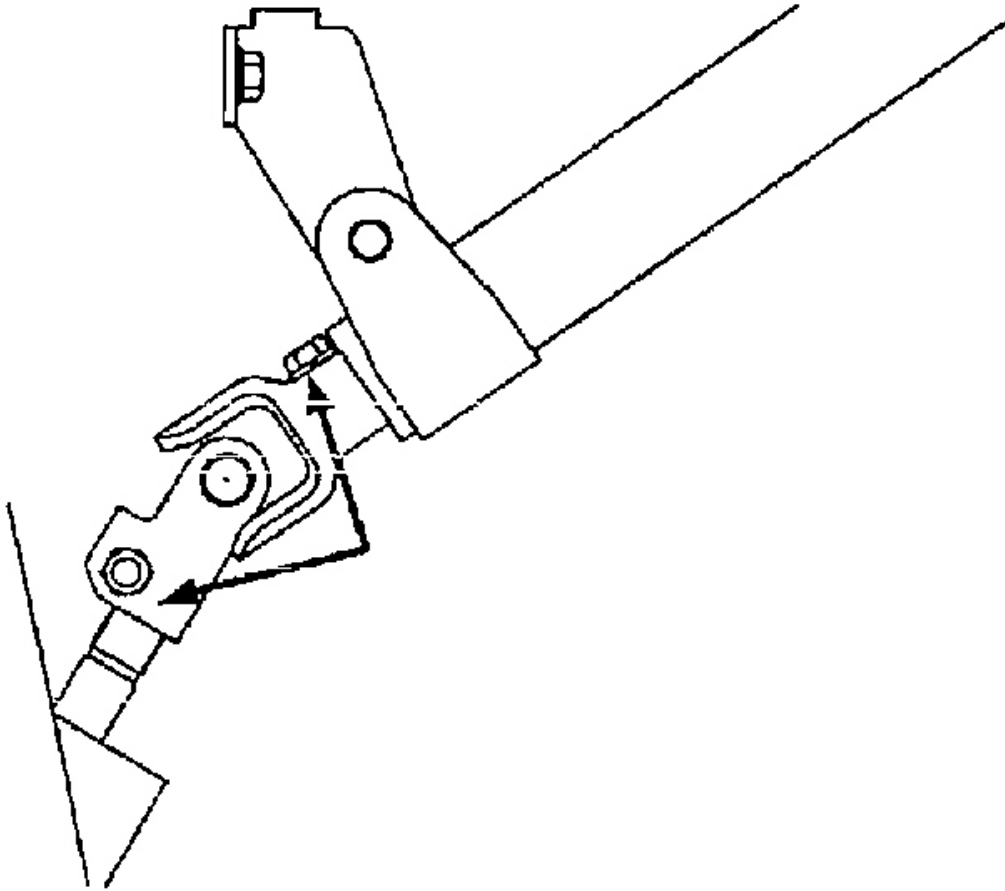
**Tightening torque:**

**12 ~ 17 lb.ft (16 ~ 23 N.m, 1.6 ~ 2.3 kg.m)**

5. Tighten the two universal joint bolts.

**Tightening torque:**

**16~20 lb.ft (21~26 N.m, 2.2~2.7 kg.m)**



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**Fig. 11: Tightening Universal Joint Bolts**  
**Courtesy of KIA MOTORS AMERICA, INC.**

6. Tighten inter lock mounting bracket bolt and install inter lock cable.
7. Install combination switch to upper tilt assembly.

**CAUTION:**

- Do not give more than 2.5 turns in either direction from zero point to avoid damage to clock spring.
- Do not disassemble.
- Do not apply oil or grease.

**NOTE:**

- Set front wheels straight.
- Turn clock spring clockwise to lock then back off 2.75 turns.
- Align > < mark

8. Install clock spring. See CLOCKSPRING article.
9. Connect all connector and fix the wire harness with clamp.
10. Properly Install steering wheel to steering shaft.
11. Tighten nut

**Tightening torque:**

**29~36 lb.ft (39~49 N.m, 4~5 kg.m)**

12. Connect horn switch connector.
13. Install steering wheel cover and tighten four bolts.
14. Install upper and lower steering column cover.

**NOTE:**

**Be careful that the screws do not change each other.**

15. Tighten three lower steering column cover screws and one ignition switch screw.