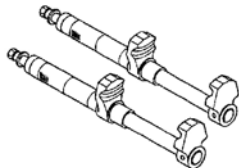
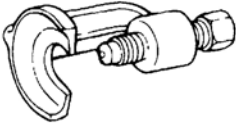


2002 SUSPENSION SYSTEMS

Rear - Sedona

GENERAL

SPECIAL SERVICE TOOLS

Tool (Number and Name)	Illustration	Use
OK2A1 341 AA1A Coil spring comp		Used to remove and install coil spring.
OK130 283 021 Ball joint puller		Used to remove tie rod and ball joint.

G01093383

Fig. 1: Illustrating Service Tools
Courtesy of KIA MOTORS AMERICA, INC.

SYMPTOM-RELATED DIAGNOSTIC PROCEDURE

SUSPENSION SYSTEM

Problem	Possible cause	Action
Body rolls	Deteriorated stabilizer bar and stabilizer control links Worn or deteriorated stabilizer bar bushing Worn or deteriorated lower arm bushing Shock absorber malfunction	Replace Replace Replace Replace
Poor riding comfort	Weak coil spring Shock absorber malfunction	Replace Replace
Abnormal noise from suspension	Poor lubrication or wear of lower arm ball joint Shock absorber malfunction Worn or deteriorated stabilizer bar bushing Worn or deteriorated lower arm bushing	Replace, Lubricate Replace Replace Replace
Instable riding	Weak coil spring Shock absorber malfunction Worn or deteriorated lower arm bushing Worn or deteriorated stabilizer bar bushing Improperly adjusted wheel alignment Damaged lower arm ball joint Steering system malfunction Deformed or unbalanced wheel	Replace Replace Replace Replace Adjust Replace <i>Refer to section ST Gr.</i> <i>Refer to next page</i>
Heavy steering wheel operation	Poor lubrication or wear of lower arm ball joint Improperly adjusted wheel alignment Steering system malfunction Deformed or unbalanced wheel	Replace, Lubricate Adjust <i>Refer to section ST GR.</i> <i>Refer to next page</i>
Steering pulls to one side	Weak coil spring Worn or deteriorated stabilizer bar bushing Worn or deteriorated lower arm bushing Damaged lower arm ball joint Improperly adjusted wheel alignment Steering system malfunction Brake system malfunction Deformed or unbalanced wheel	Replace Replace Replace Replace Replace <i>Refer to section ST Gr.</i> <i>Refer to section BR Gr.</i> <i>Refer to next page</i>
Steering wheel vibrates	Damaged lower arm ball joint Shock absorber malfunction Loose shock absorber installation Worn or deteriorated lower arm bush Worn or deteriorated stabilizer bar bush Improperly adjusted wheel alignment Worn or damaged wheel bearing Steering system malfunction Deformed or unbalanced wheel	Replace Replace Tighten Replace Replace Adjust Replace <i>Refer to section ST Gr.</i> <i>Refer to next page</i>
Steering wheel does not return	Lower arm ball joint stuck or damaged Improperly adjusted wheel alignment Steering system malfunction Deformed or unbalanced wheel	Replace Adjust <i>Refer to section ST Gr.</i> <i>Refer to next page</i>

G01093384

Fig. 2: Diagnostic Procedure Chart
Courtesy of KIA MOTORS AMERICA, INC.

SPECIFICATIONS

SUSPENSION SYSTEM

Item				Specification
Front	Suspension type			Macpherson strut
	Shock absorber			Double-acting, Gas filled
	Stabilizer	Type		Torsion bar
		Diameter in (mm)		1.02 (ø26)
	Wheel alignment	Toe in (mm)	No passenger load	-0.04±0.1 (-0.9±2.5)
			Five passenger load	-0.01±0.1 (-0.3±2.5)
		Camber (degree)	No passenger load	0.51°±0.5°
			Five passengers load	0.26°±0.5°
		Caster (degree)	No passenger load	1.88°±0.5°
Five passengers load			1.94°±0.5°	
Rear	Suspension type			Five links & coil
	Shock absorber			Double-acting, Gas filled
	Stabilizer	Type		Torsion bar
		Diameter in (mm)		1.18 (ø30)

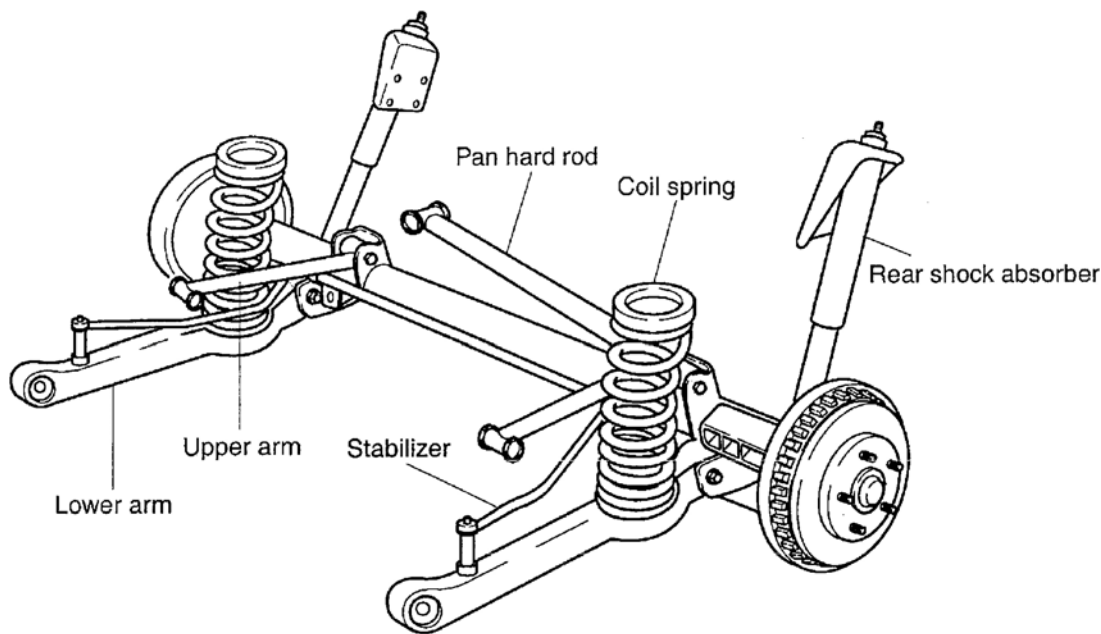
G01093386

Fig. 3: Suspension System Specifications
Courtesy of KIA MOTORS AMERICA, INC.

REAR SUSPENSION SYSTEM

COMPONENT

CAUTION: When tightening (by specified torque) the nuts of the arms and links of the rear suspension system, the wheels of the vehicle shall be in contact with ground and under loads (2 passengers load at the front seats if possible).



G01093421

Fig. 4: Illustrating Rear Suspension System Components
Courtesy of KIA MOTORS AMERICA, INC.

DESCRIPTION AND OPERATION

Rear suspension

The rear suspension design on this vehicle uses coil springs, five links, shock absorber, stabilizer and rear axle assembly.

It is designed to handle the various load requirements of the vehicle. The rear coil springs provide a comfortable unloaded ride and also ample rear suspension travel when the vehicle is loaded.

Rear wheel alignment

Alignment adjustment is not required. The rear axle alignment settings are preset at the factory, therefore no alignment is necessary.

Panhard rod

The panhard rod prevents excessive side to side movement of the rear axle. The panhard rod is used to keep the location of the axle in the correct position for optimum handling and control of the vehicle.

Stabilizer bar

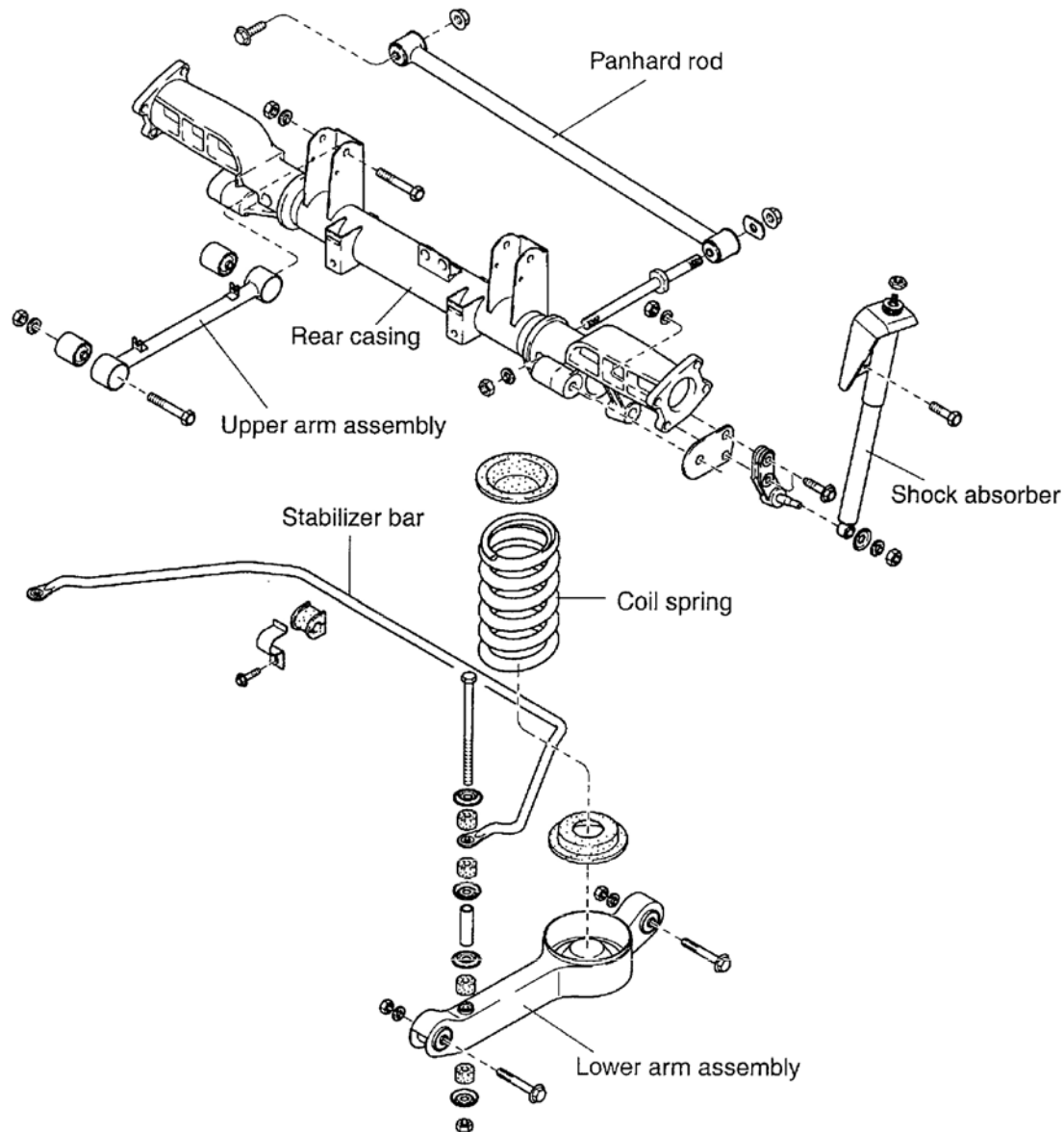
The stabilizer bar interconnects both sides of the rear axle and attaches to the rear lower arm jounce. Rebound movements affecting one wheel are partially transmitted to the opposite wheel to reduce body roll. All parts are

serviceable, and axle bushings to the stabilizer is split for easy removal and replacement.

CASING

NOTE: Casing is rear axle beam.

COMPONENT



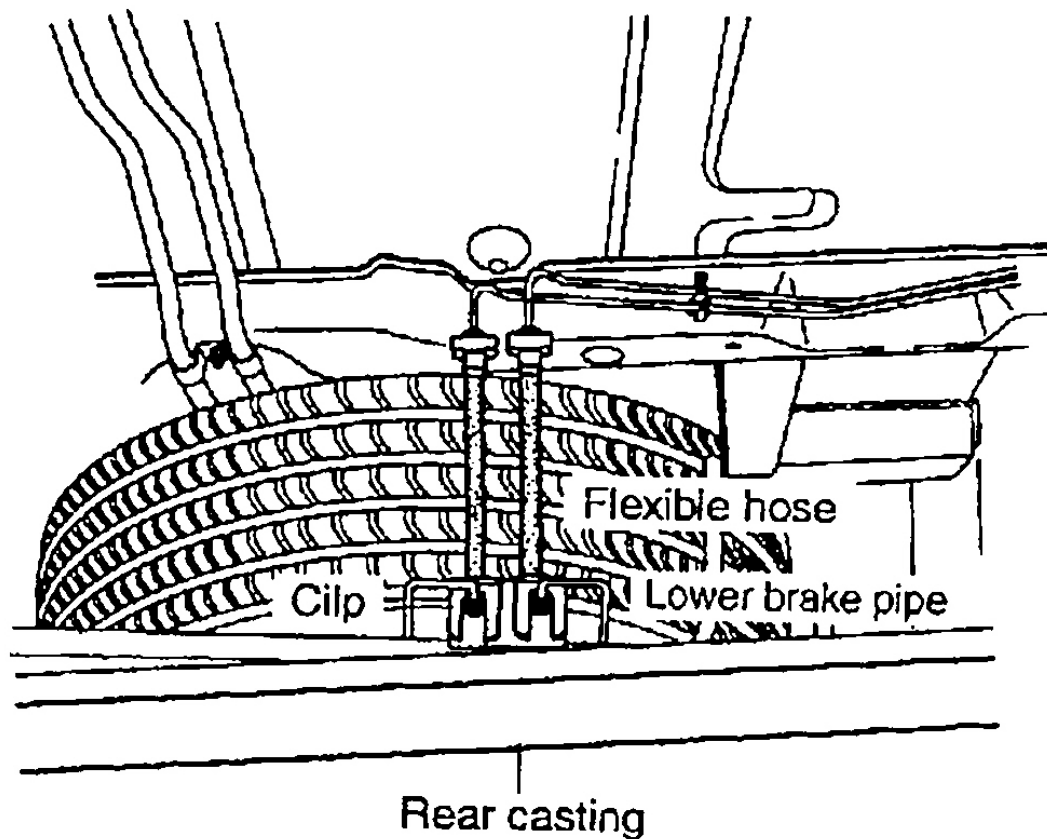
G01093422

Fig. 5: Illustrating Casing Components
Courtesy of KIA MOTORS AMERICA, INC.

REMOVAL

1. Raise the rear of vehicle and support it with safety stands.
2. Remove the rear wheels.
3. Disconnect lower brake pipes and flexible hoses after loosening the brake pipe nuts and pulling out the flexible hose clips.

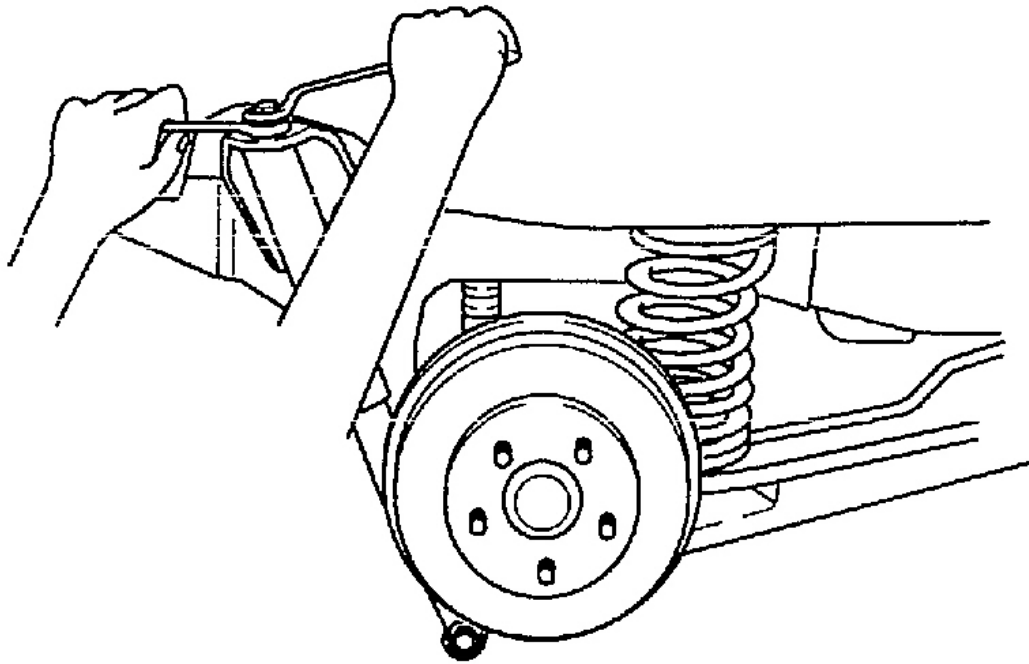
NOTE: After disconnecting lower brake pipes, plug them to prevent leakage of fluid from the flexible hoses.



G01093423

Fig. 6: Disconnecting Lower Brake Pipes And Flexible Hoses
Courtesy of KIA MOTORS AMERICA, INC.

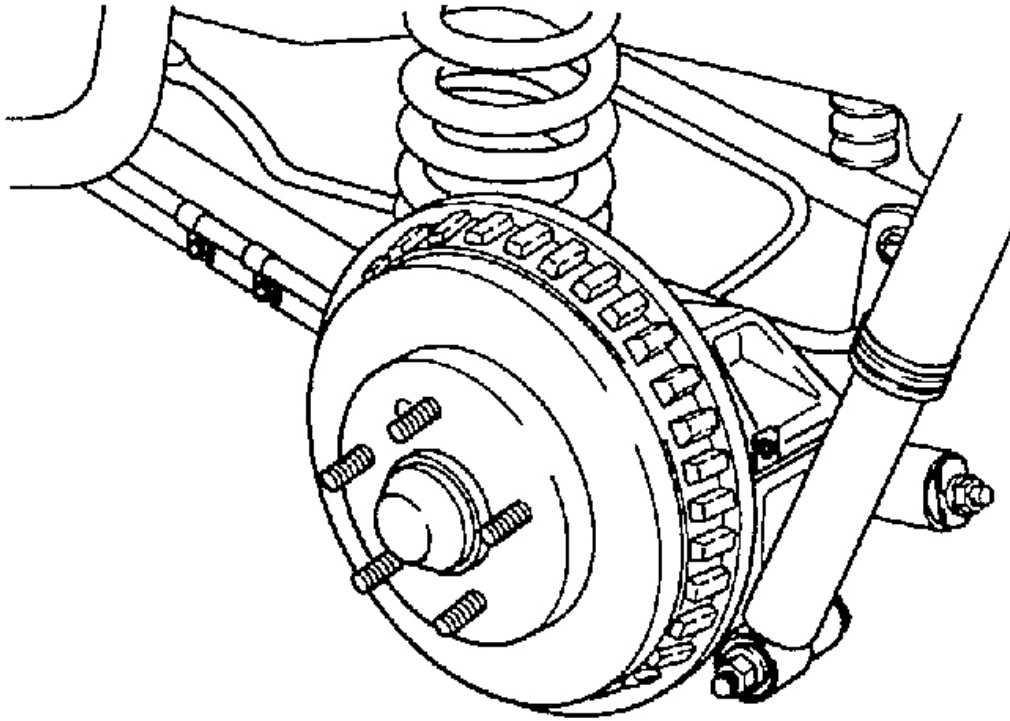
4. Raise the rear axle housing to facilitate removal of the rear suspension.
5. Remove the rear shock absorber safety nut, upper nut and washer.
6. Remove the shock absorber assembly.



G01093424

Fig. 7: Removing The Shock Absorber Assembly
Courtesy of KIA MOTORS AMERICA, INC.

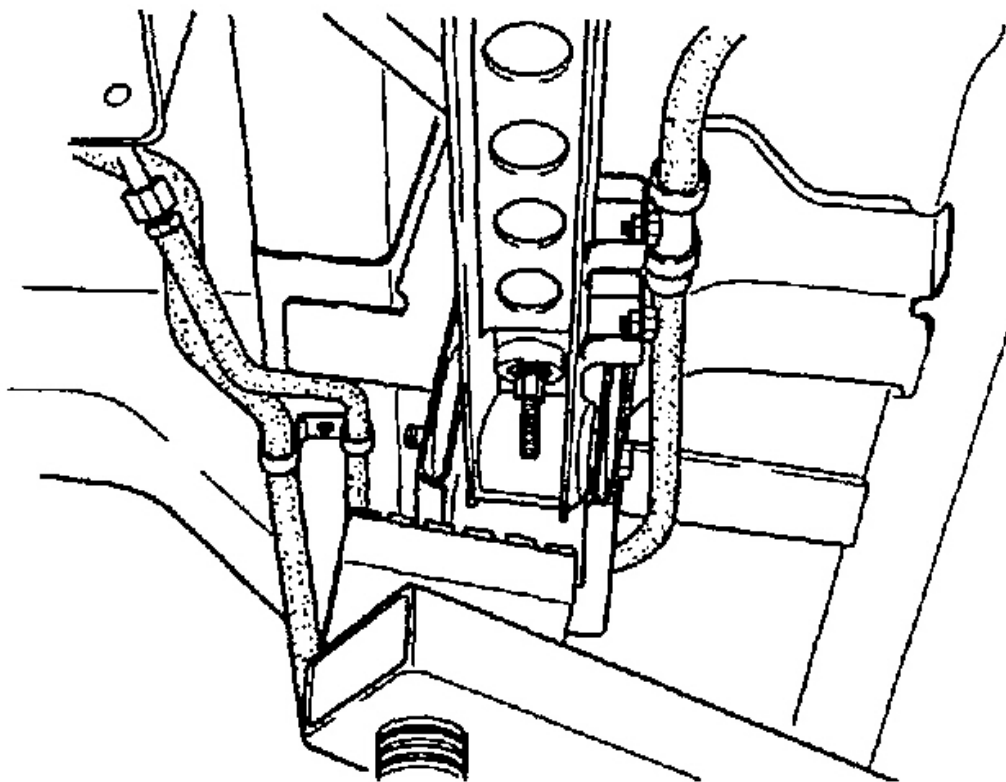
7. Remove the shock absorber lower nut and washer.



G01093425

Fig. 8: Removing The Shock Absorber Lower Nut And Washer
Courtesy of KIA MOTORS AMERICA, INC.

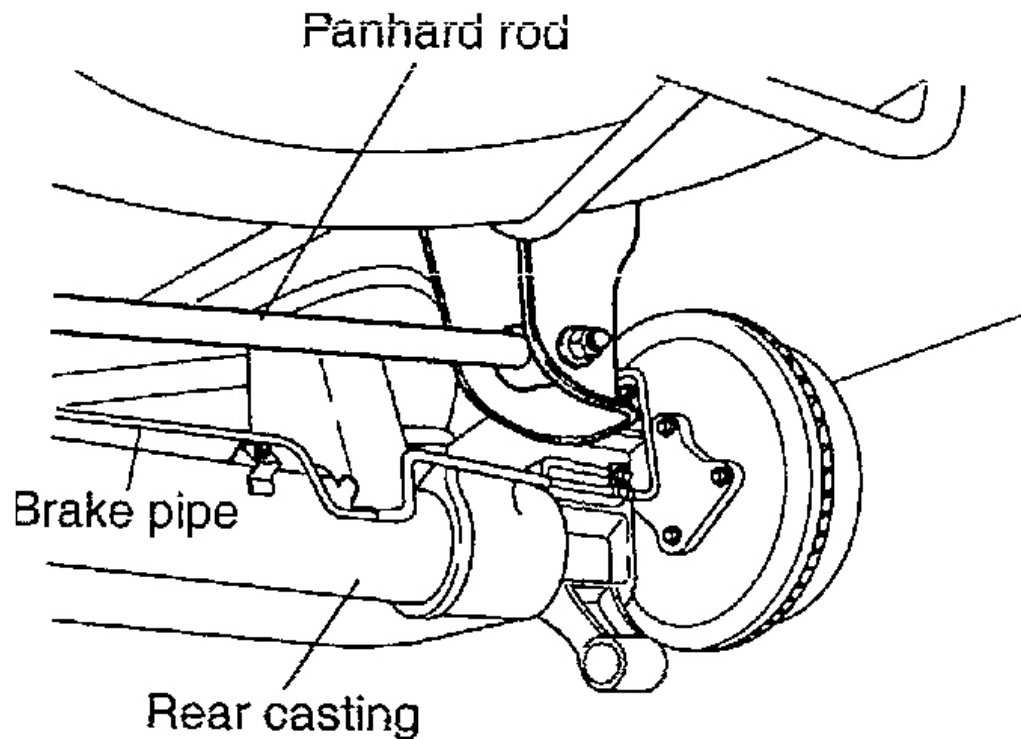
8. Loosen the stabilizer bar bolt and nut and remove pipe, cushions and retainers.



G01093426

Fig. 9: Loosening The Stabilizer Bar Bolt And Nut
Courtesy of KIA MOTORS AMERICA, INC.

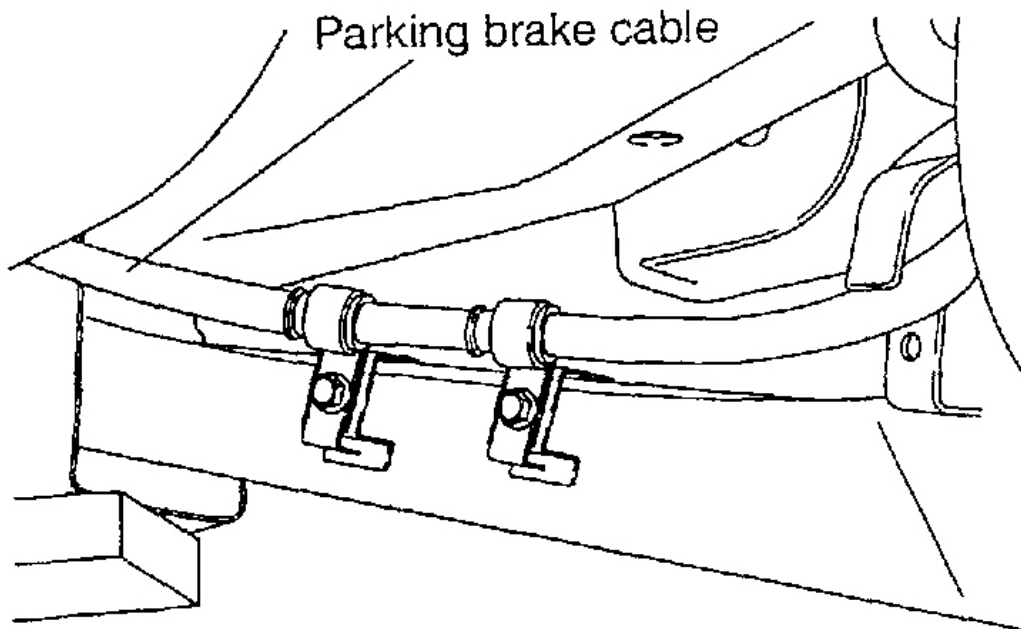
9. Remove the stabilizer plate and rubber bush after loosening bolt from the stabilizer bracket of rear casing.
10. Remove the stabilizer bar.
11. Loosen the panhard rod bolts and nuts and remove the panhard rod.



G01093427

Fig. 10: Removing The Panhard Rod
Courtesy of KIA MOTORS AMERICA, INC.

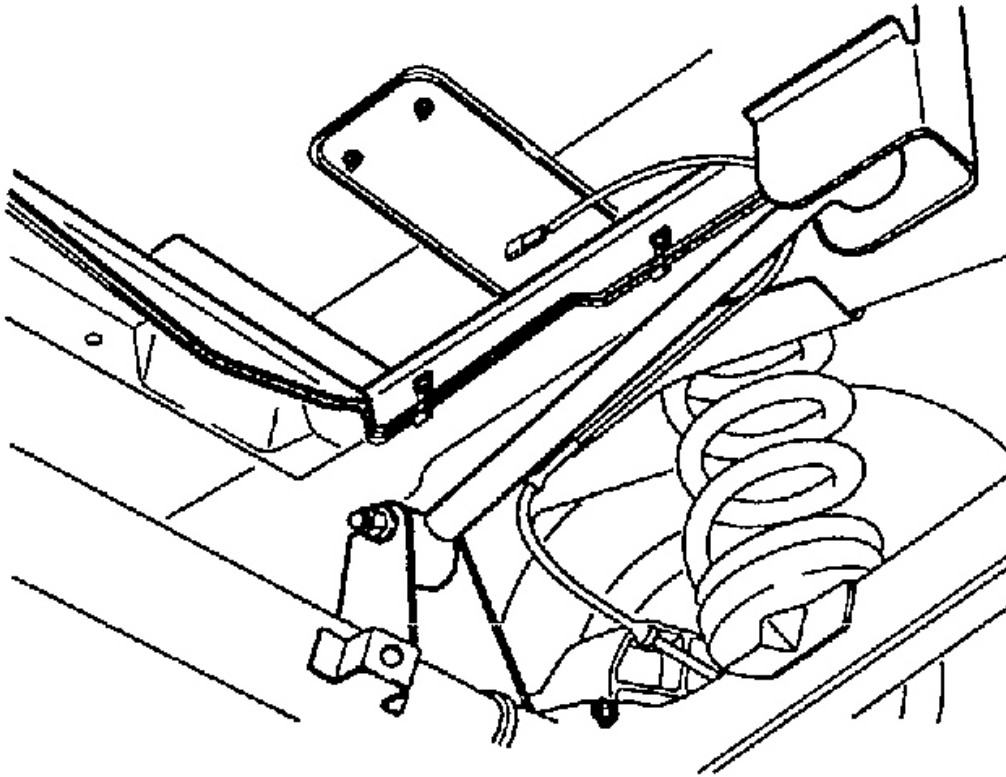
12. Remove the parking brake cable from the lower arm assembly after loosening the parking brake cable bolts.



G01093428

Fig. 11: Removing The Parking Brake Cable
Courtesy of KIA MOTORS AMERICA, INC.

13. Loosen the lower arm bolts and nuts and remove the lower arm assembly.
14. Loosen the upper arm bolts and nuts and remove the upper arm assembly.



G01093429

Fig. 12: Removing The Upper Arm Assembly
Courtesy of KIA MOTORS AMERICA, INC.

15. Remove the seat rubber and coil spring.

REPLACEMENT/INSPECTION

1. Install the lower arm assembly to the rear casing and tighten the washer bolt and nut.

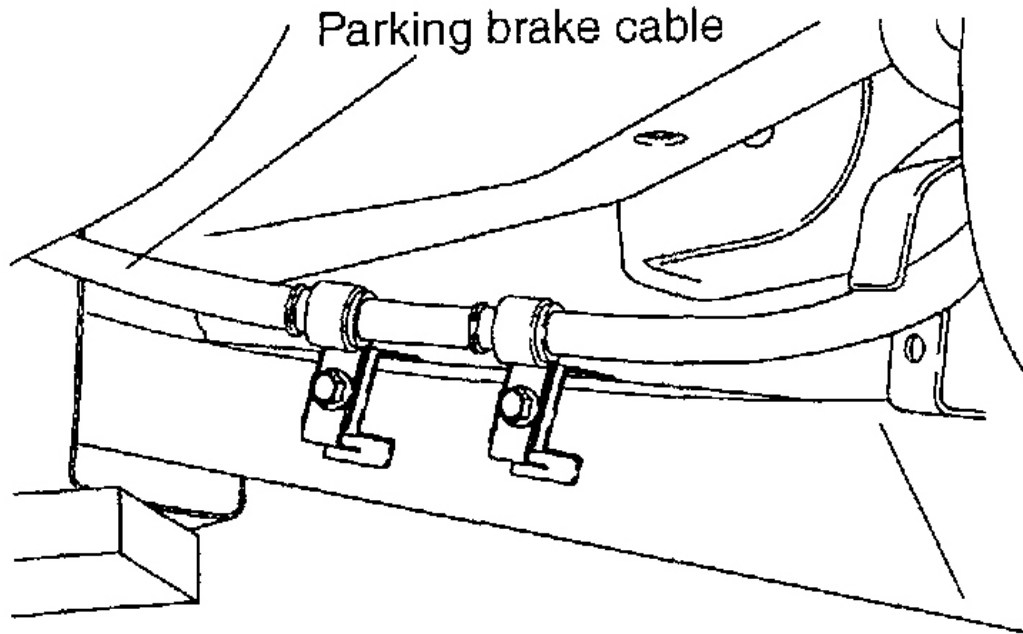
Tightening torque: 87-101 lb.ft (118-137 N.m, 12-14 kg.m)

2. Install the seat rubber and coil spring to the lower arm assembly.
3. Tighten the washer bolt and nut to body.

Tightening torque: 87-101 lb.ft (118-137 N.m, 12-14 kg.m)

4. Install the parking brake cable to the lower arm assembly and tighten the parking brake cable bolts.

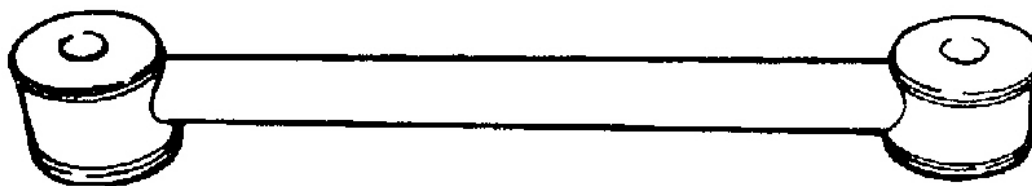
Tightening torque: 14-19 lb.ft (16-23 N.m, 1.6-2.3 kg.m)



G01093430

Fig. 13: Installing The Parking Brake Cable
Courtesy of KIA MOTORS AMERICA, INC.

5. Inspect the upper arm for bends, cracks and/or other damage and inspect the upper arm bushings for wear and/or deterioration.

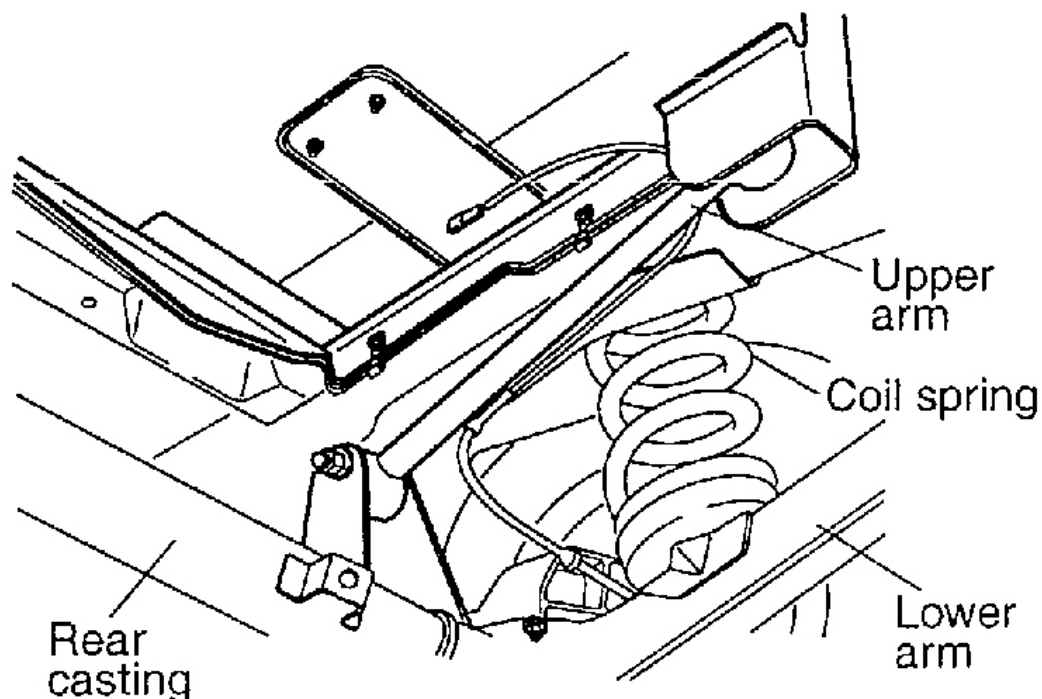


G01093431

Fig. 14: Inspecting The Upper Arm
Courtesy of KIA MOTORS AMERICA, INC.

6. Install the upper arm assembly and bolts.

Tightening torque: 55-69 lb.ft (74-93 N.m, 7.6-9.5 kg.m)



G01093432

Fig. 15: Installing The Upper Arm Assembly

Courtesy of KIA MOTORS AMERICA, INC.

7. Inspect the panhard rod for bend, cracks and/or other damage and inspect the panhard rod bushings for wear and/or deterioration.
8. Install the panhard rod assembly and tighten bolts and nuts.

Tightening torque:

- Axle: 99-116 lb.ft (134-157 N.m, 13.7-16 kg.m)
- Body: 135-155 lb.ft (183-210 N.m, 18.7-21.5 kg.m)

9. Align the stabilizer bushing with the steel clamp on the stabilizer bar. Locat the bushing adjacent to the position line on stabilizer bar.

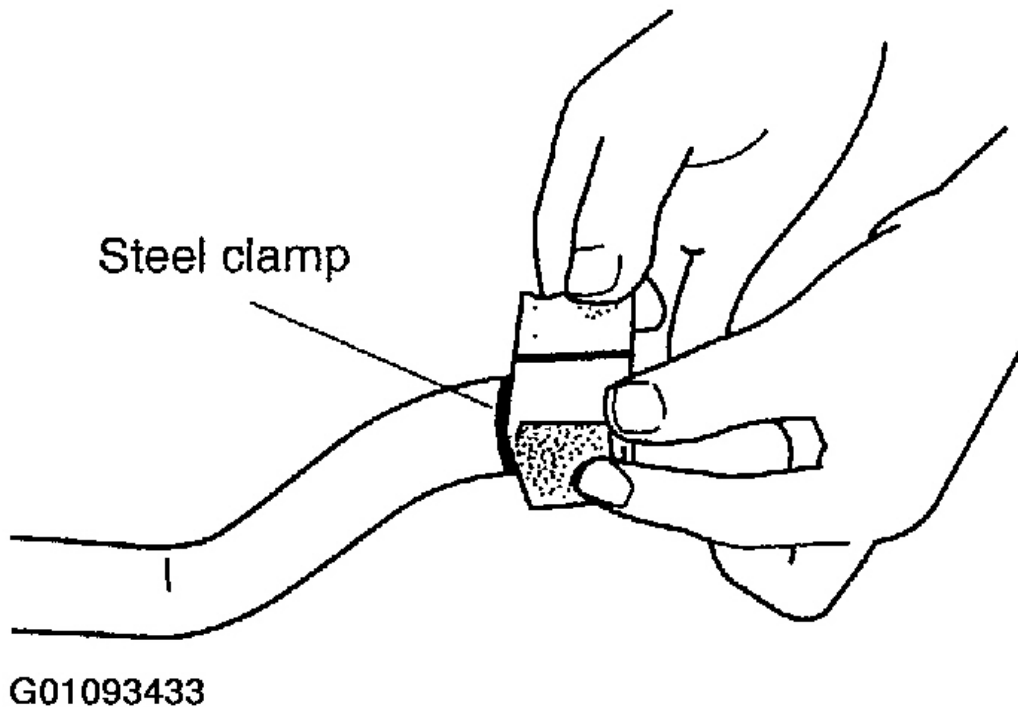


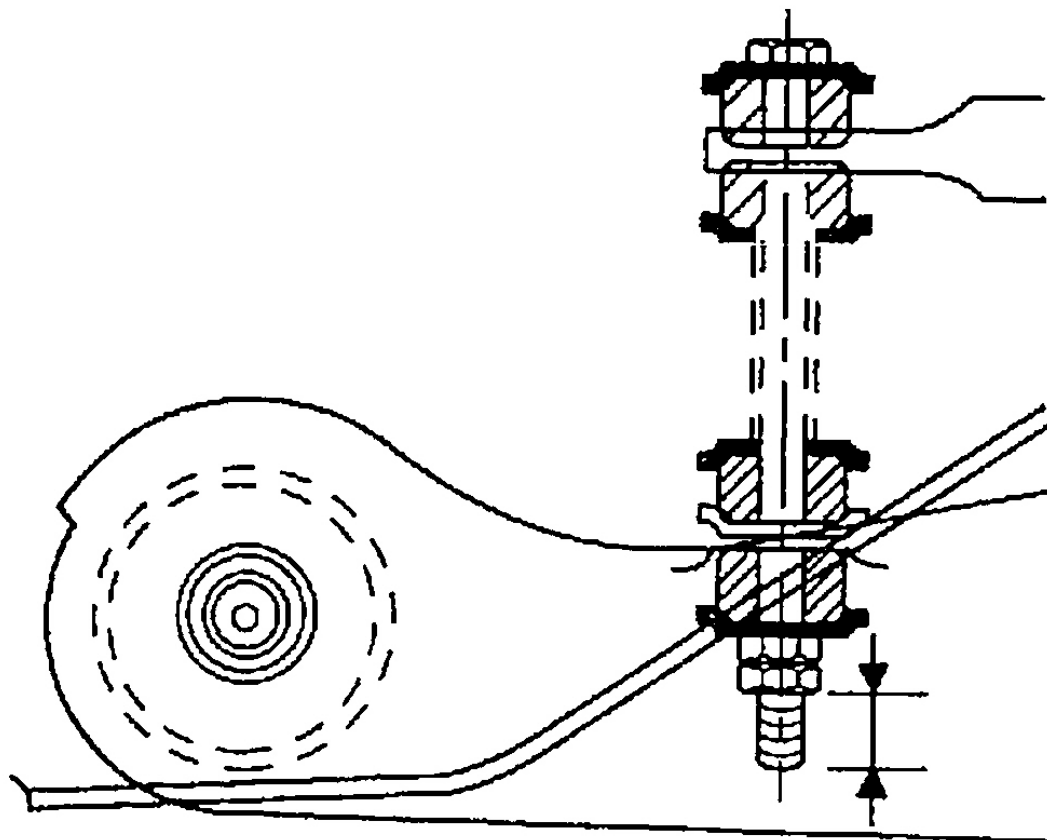
Fig. 16: Aligning The Stabilizer Bushing
Courtesy of KIA MOTORS AMERICA, INC.

10. Tighten the stabilizer bolts to rear casting.

Tightening torque: 32-40 lb.ft (43-54 N.m, 4.4-5.5 kg.m)

11. Tighten the stabilizer nuts so that the specified length of the thread is exposed and then tighten the lock nuts with the specified tightening torque.

- **Specification: 0.37-0.60 in (9.4-15.4 mm)**
- **Tightening torque: 17-20 lb.ft (24-28 N.m, 2.4-2.9 kg.m)**



G01093434

Fig. 17: Tightening The Stabilizer Nuts
Courtesy of KIA MOTORS AMERICA, INC.

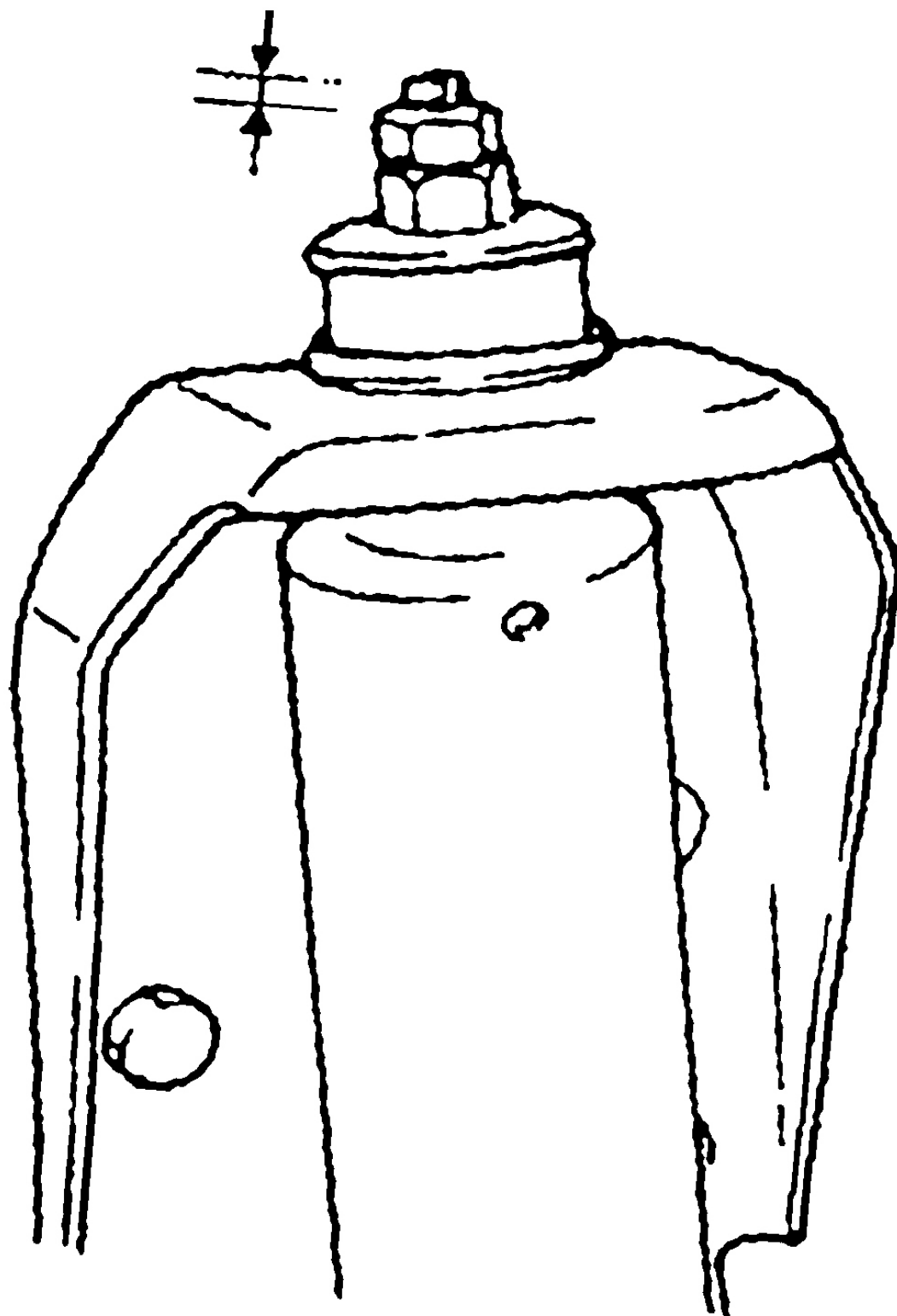
12. Install the shock absorber bracket and tighten bolts.

Tightening torque: 55-69 lb.ft (74-93 N.m, 7.6-9.5 kg.m)

13. Tighten the shock absorber nuts until the specified length of the thread is exposed.

- **Tightening torque: 41-47 lb.ft (55-64 N.m, 5.6-6.5 kg.m)**
- **Specification: 0.41-0.45 in (10.5-11.5 mm)**

CAUTION: Tighten bolts and nuts lightly, and after lowering the vehicle (no passenger load condition) tighten it to the specified torque. Do not remove rear jounce stop unless damage is detected.



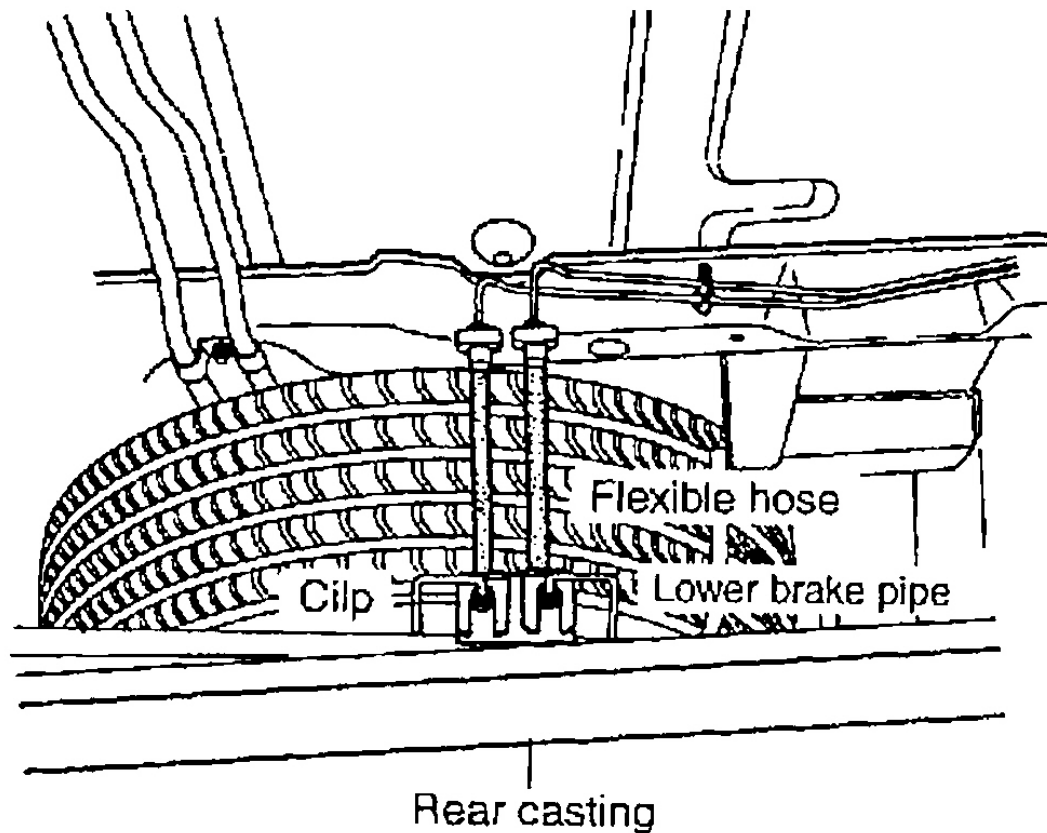
G01093435

Fig. 18: Tightening The Shock Absorber Nuts
Courtesy of KIA MOTORS AMERICA, INC.

14. Tighten the shock absorber lower bolts and nuts.

Tightening torque: 55-69 lb.ft (74-93 N.m, 7.6-9.5 kg.m)

15. Lower the rear axle housing.
16. Connect the lower brake pipes and flexible hoses and fix the flexible hose clips to the bracket of rear casting.



G01093436

Fig. 19: Connecting The Lower Brake Pipes And Flexible Hoses
Courtesy of KIA MOTORS AMERICA, INC.

17. Install wheel and tires.
18. Lower vehicle.