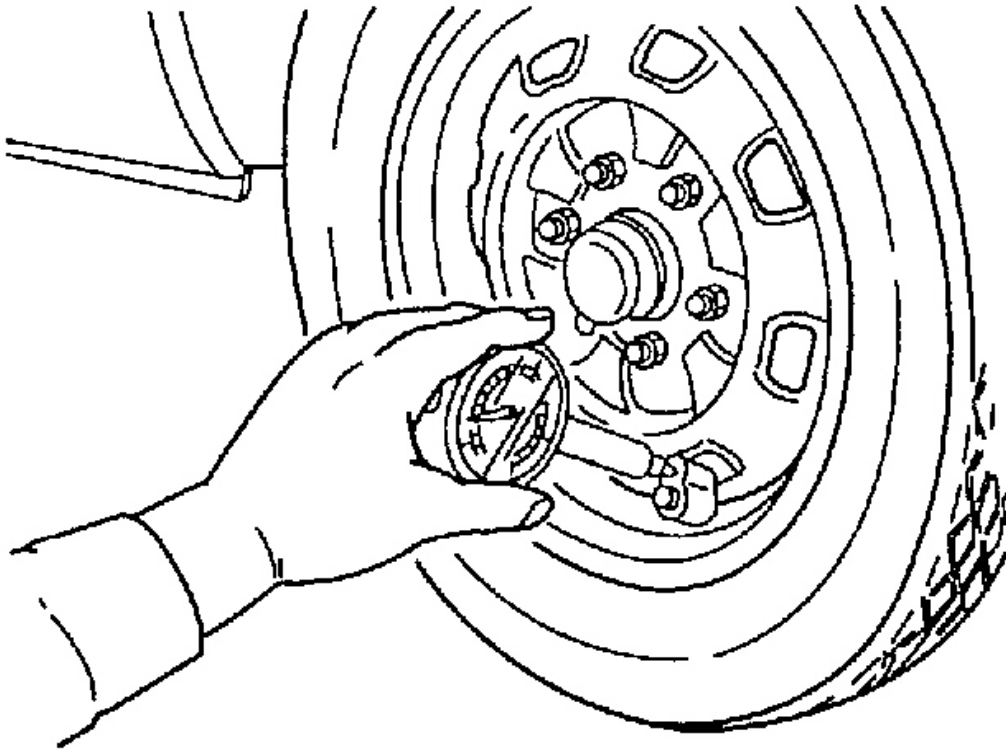


2002 WHEEL ALIGNMENT

Specifications & Procedures - Sedona

WHEEL ALIGNMENT PRE-INSPECTION

1. Set tire inflation pressures to recommended pressure, if necessary.



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Fig. 1: Setting Tire Pressure

Courtesy of KIA MOTORS AMERICA, INC.

2. Inspect front wheel bearing play; replace bearing if necessary.
3. Inspect wheel and tire runout.
4. Inspect ball joints and steering linkage for excessive play.
5. Vehicle must be on a level surface and have no luggage or passenger load.
6. Jounce the vehicle to check operation of shock absorbers.

- 7. Difference in height, between left and right sides of vehicle, from center of wheel up to edge of fender must not exceed 0.39 in. (10 mm).
- 8. Check that fuel tank is full, radiator coolant and engine oil are at specified levels, and spare tire, jack and tools are in designated positions.

FRONT WHEEL ALIGNMENT PROCEDURE

SPECIFICATIONS

CAUTION: Do not attempt to adjust the vehicles caster or camber by heating, bending or by performing any other modification to the vehicle's front suspension components.

Item		Specifications
Steering angle maximum (degree)	Inner	34.19°
	Outer	29.52°
Toe in (mm)	No passenger load	-0.04±0.1 (-0.9±2.5)
	Five passengers load	-0.01±0.1 (-0.3±2.5)
Camber angle (degree)	No passenger load	0.51°±0.5°
	Five passengers load	0.26°±0.5°
Caster angle (degree)	No passenger load	1.88°±0.5°
	Five passengers load	1.94°±0.5°

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Fig. 2: Alignment Specifications
Courtesy of KIA MOTORS AMERICA, INC.

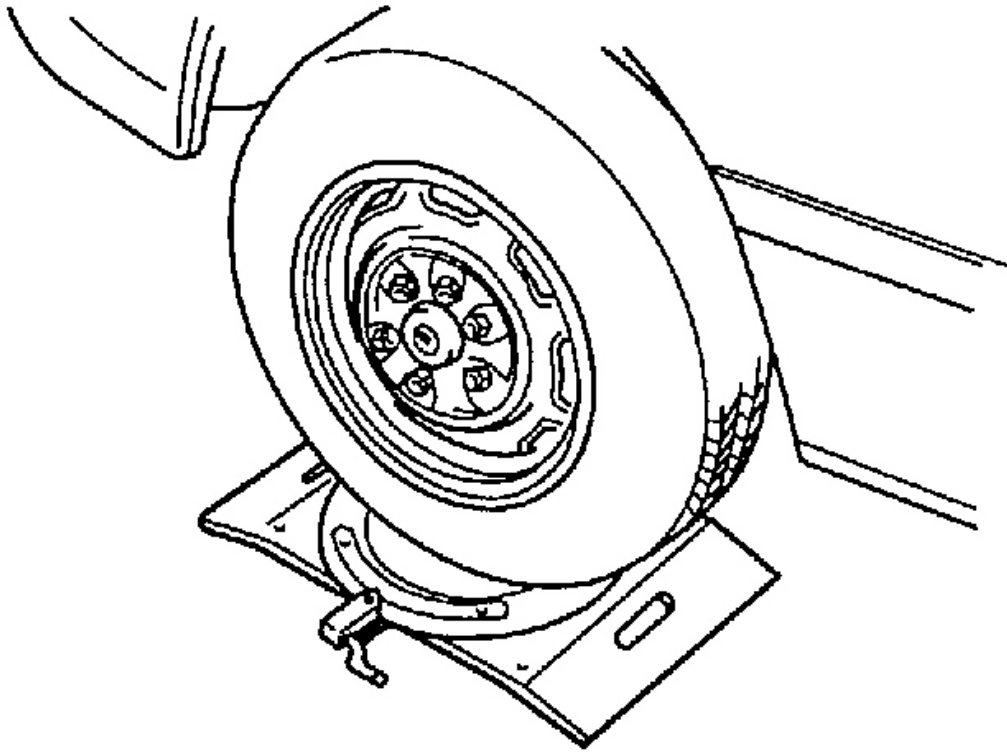
STEERING ANGLE MAXIMUM

INSPECTION

Measure the steering angle after placing the front wheel on a turning radius gauge.

Standard: Inner: 34.19° +/- 2°

Outer: 29.52° +/- 2°

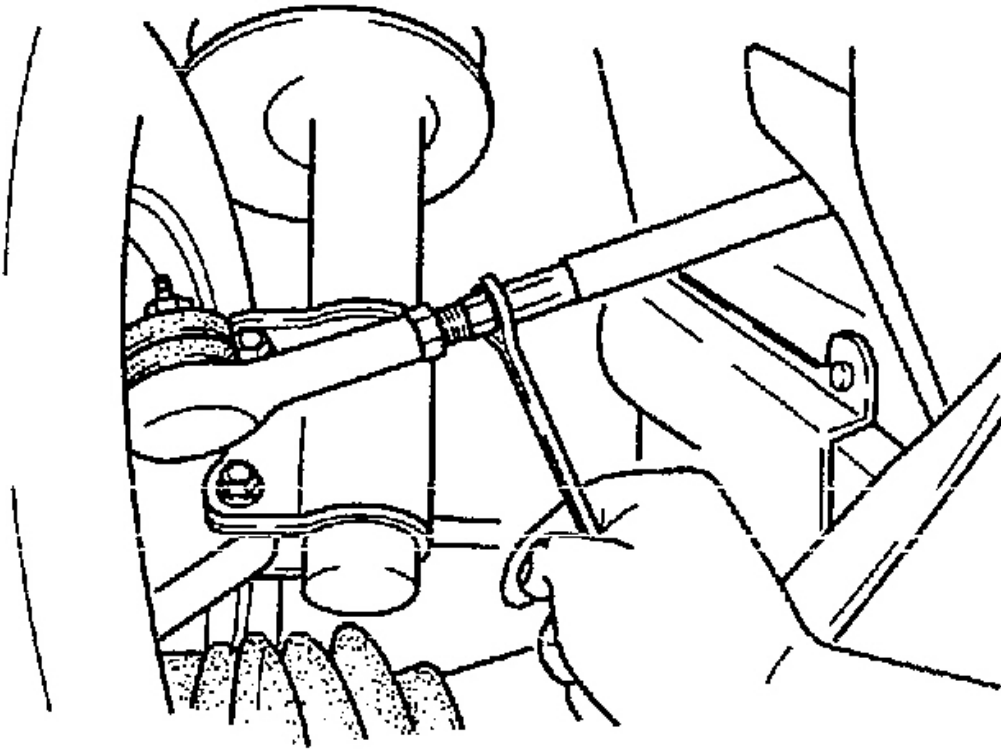


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Fig. 3: Measuring Steering Angle
Courtesy of KIA MOTORS AMERICA, INC.

ADJUSTMENT

1. Place both front wheels on a turning radius gauge.
2. Turn wheels fully to left and note angles for left (inner) and right (outer) wheels.
3. Loosen both left and right tie rod lock nuts, then turn both tie rods to achieve specified angles. Tighten lock nuts.



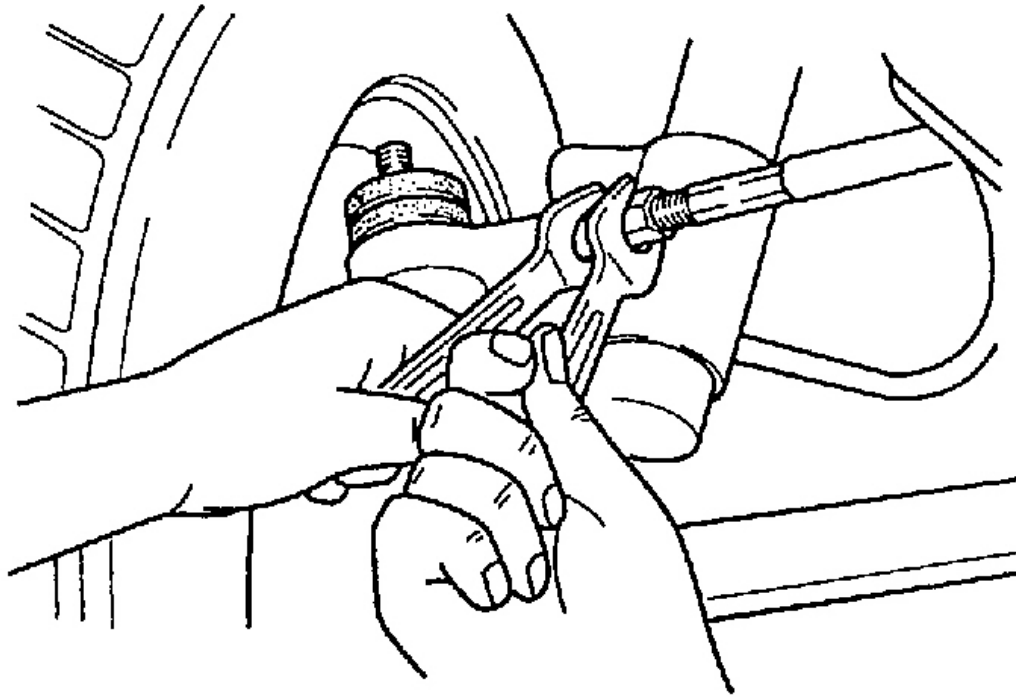
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Fig. 4: Loosening Tie Rod Lock Nuts
Courtesy of KIA MOTORS AMERICA, INC.

4. Repeat for a full right turn; right is now inner and left is now outer.
5. Tighten tie rod lock nuts.

Tightening torque: 50~58 lbs. ft (69~78 N.m, 7.0~8.0 kg.m)

6. Inspect and adjust toe after adjusting steering angle.



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Fig. 5: Tightening Tie Rod Lock Nuts
Courtesy of KIA MOTORS AMERICA, INC.

CASTER AND CAMBER

INSPECTION

1. Place the front wheel on a turning radius gauge.
2. Attach caster/camber gauge to front hub.
3. Measure the caster/camber and note readings.

Camber:

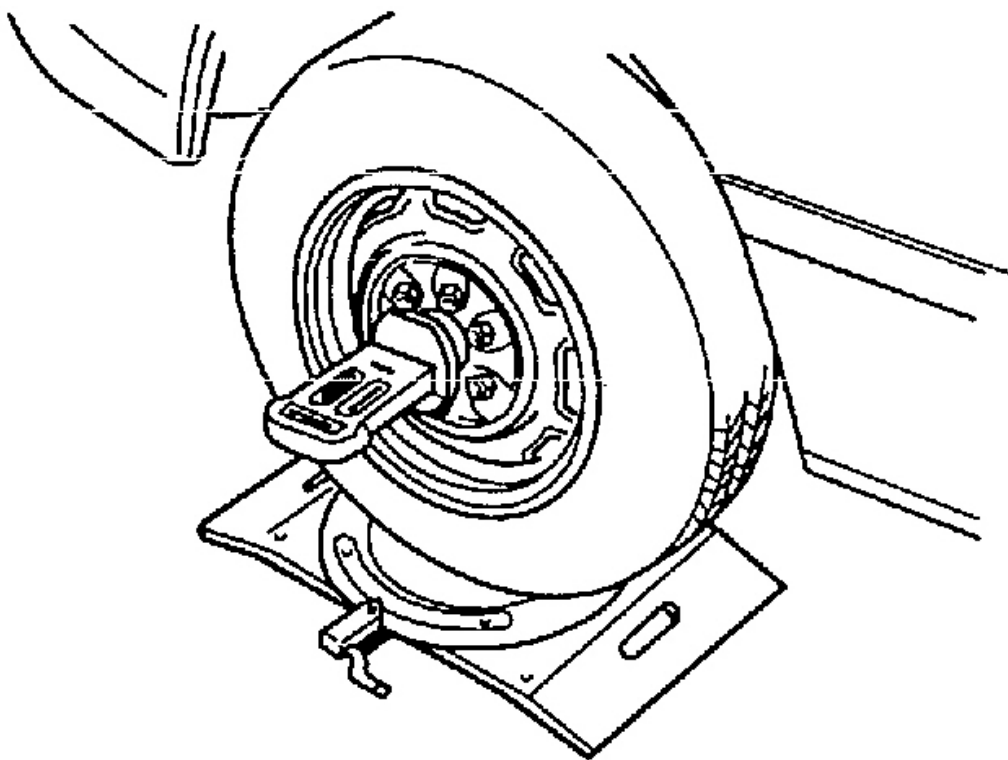
0.51° +/-0.5° (No passenger load)

0.26° +/-0.5° (Five passengers load)

Caster:

1.88° +/-0.5° (No passenger load)

1.94° +/-0.5° (Five passengers load)

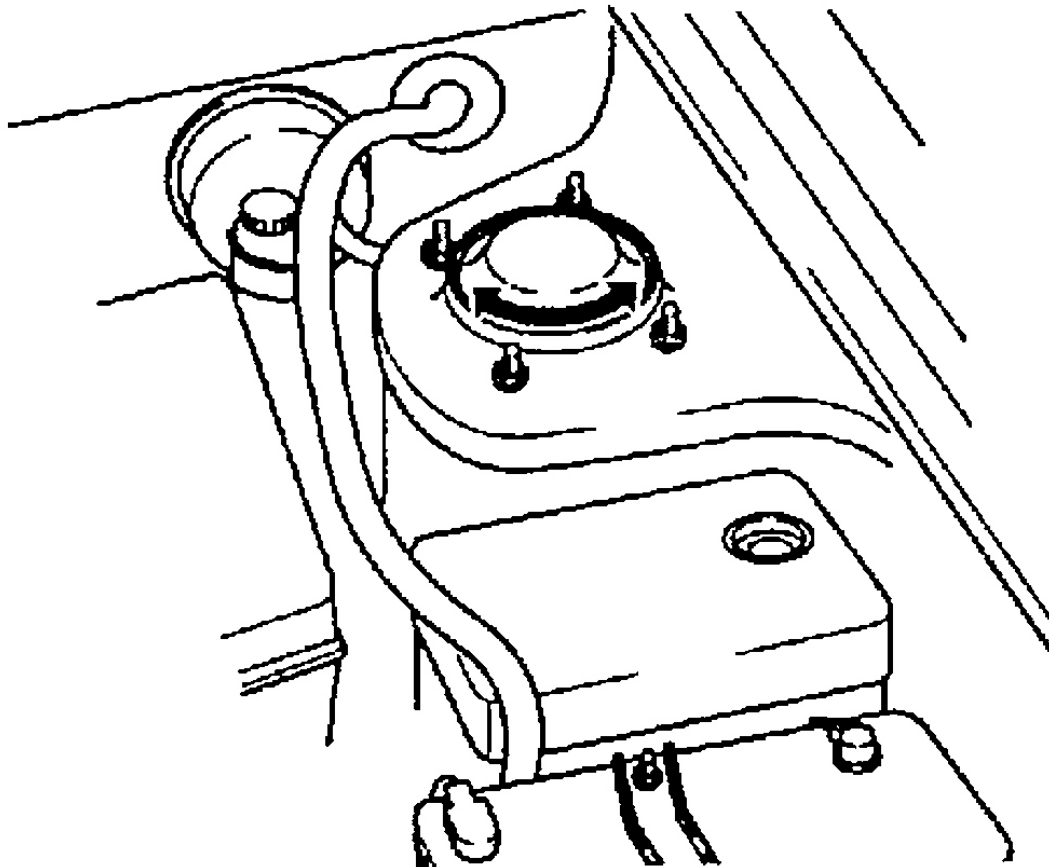


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Fig. 6: Measuring Camber/Caster
Courtesy of KIA MOTORS AMERICA, INC.

CAMBER ADJUSTMENT

1. Attach camber gauge to front hubs per manufacturer's instructions, and note readings.
2. If readings do not meet specifications, lift front of vehicle until front wheels clear floor, and support with safety stands.
3. Remove four mounting block nuts.



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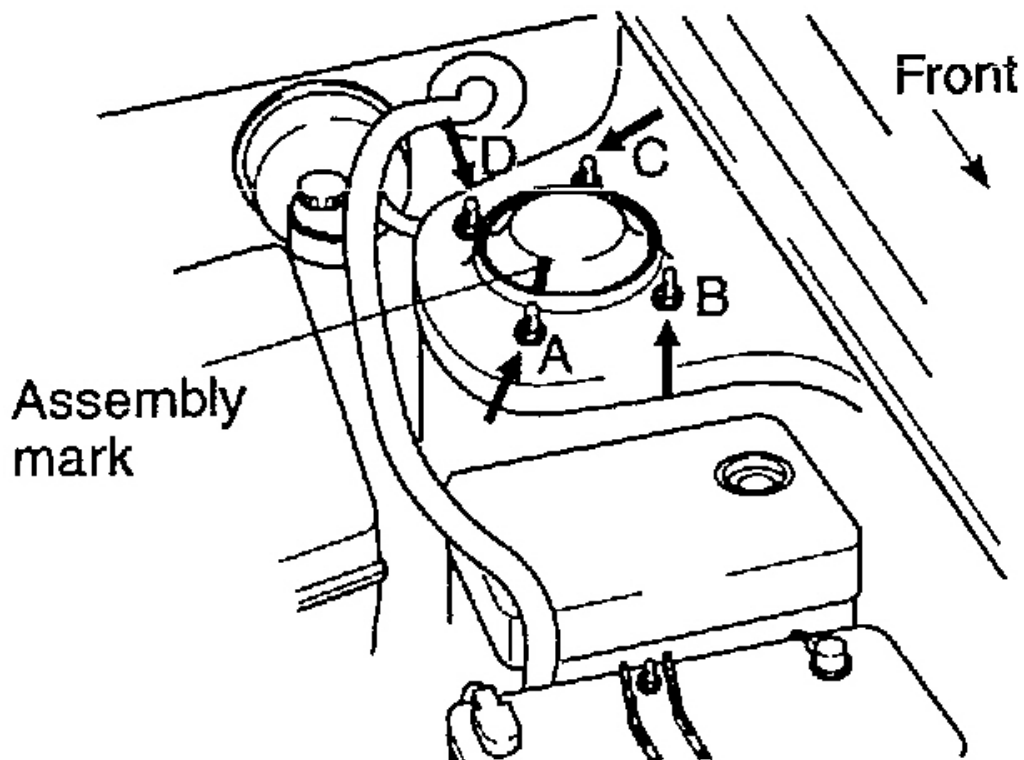
Fig. 7: Removing Mounting Block Nuts
Courtesy of KIA MOTORS AMERICA, INC.

4. Push mounting block downward to disengage studs, and turn it to position that corresponds to the difference between the initial reading and the specification.

Alternate positions	Change from starting position
	Camber angle
A	0°
B	0.38°
C	0.38°
D	0°

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Fig. 8: Mounting Block Camber Specifications
Courtesy of KIA MOTORS AMERICA, INC.

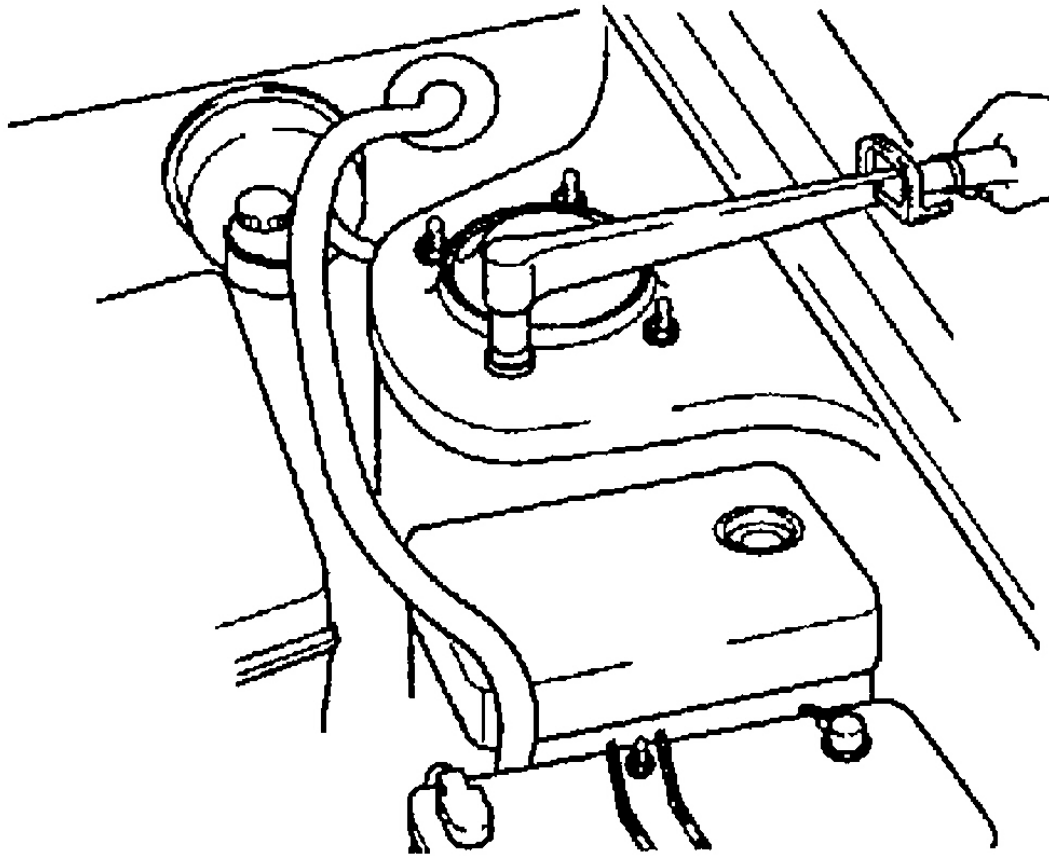


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Fig. 9: Positioning Mounting Block To Adjust Camber
Courtesy of KIA MOTORS AMERICA, INC.

5. Install and tighten mounting nuts to specified torque.

Tightening torque: 34~46 lbs. ft (46~63 N.m, 4.7~6.4 kg.m)



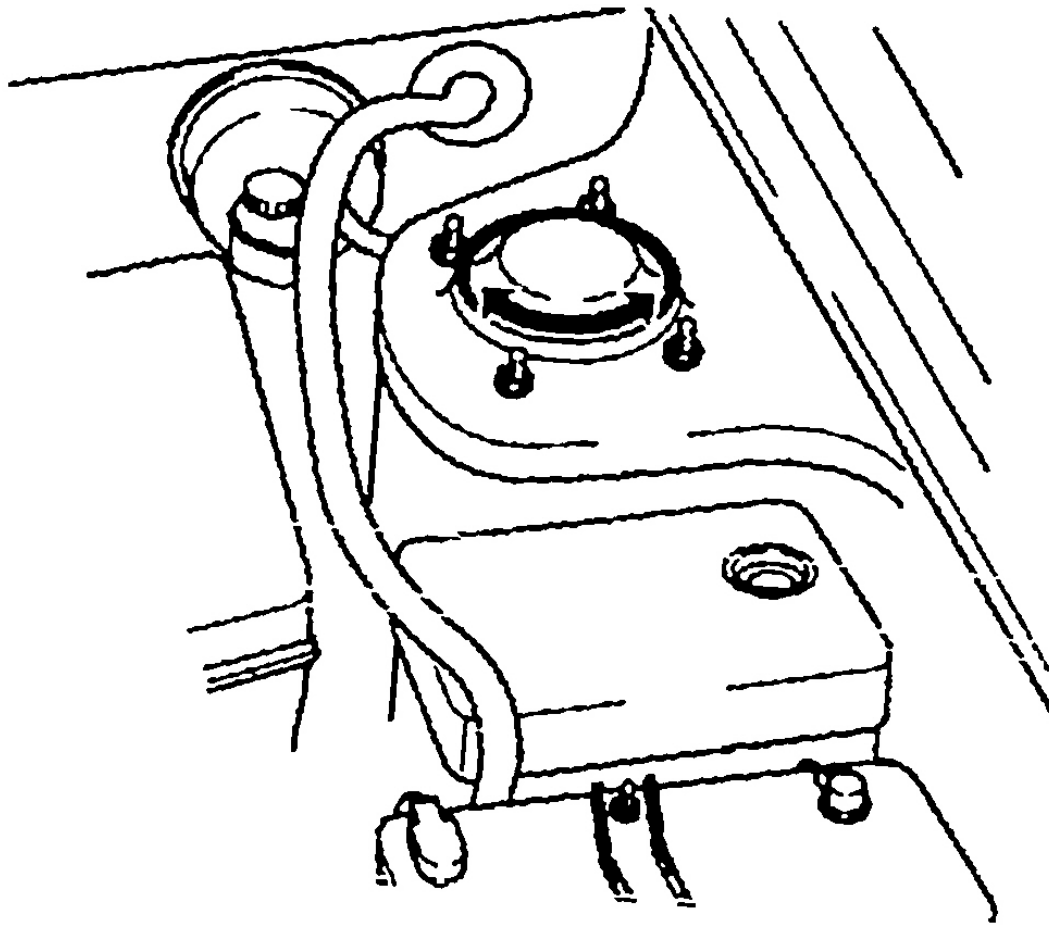
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Fig. 10: Tightening Mounting Block Nuts
Courtesy of KIA MOTORS AMERICA, INC.

6. Lower vehicle and recheck camber. Readjust if necessary.

CASTER ADJUSTMENT - 1

1. Attach caster gauge to front hubs per manufacturer's instructions, and note readings.
2. If readings do not meet specifications, lift front of vehicle until front wheels clear floor, and support with safety stands.
3. Remove four mounting block nuts.



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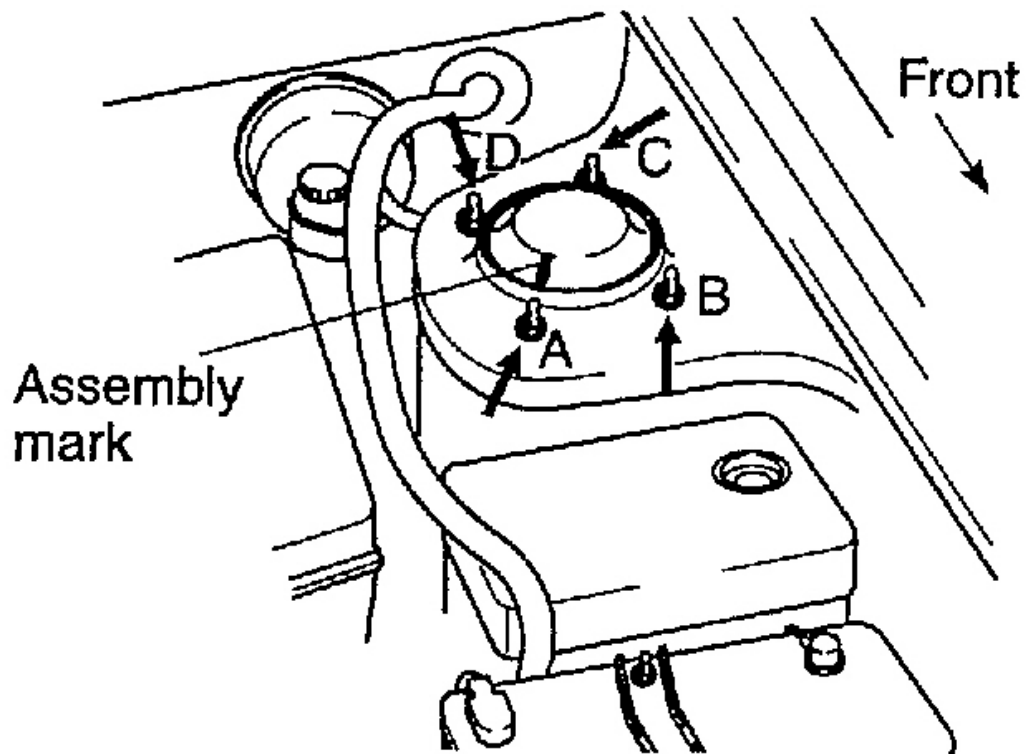
Fig. 11: Removing Mounting Block Nuts
Courtesy of KIA MOTORS AMERICA, INC.

4. Push mounting block downward to disengage studs, and turn it to position that corresponds to the difference between the initial reading and specification.

Alternate positions	Change from starting position
	Caster angle
A	0°
B	0°
C	0.39°
D	0.39°

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Fig. 12: Mounting Block Caster Specifications
Courtesy of KIA MOTORS AMERICA, INC.



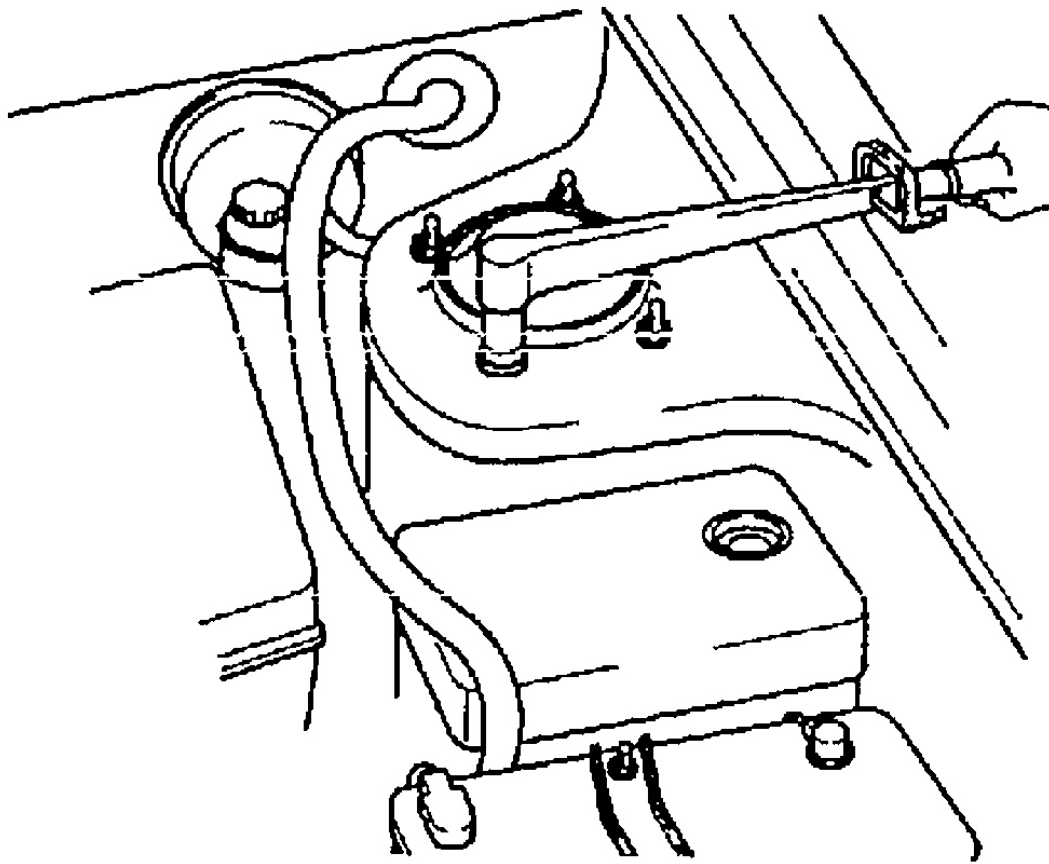
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Fig. 13: Positioning Mounting Block To Adjust Caster
Courtesy of KIA MOTORS AMERICA, INC.

5. Install and tighten mounting nuts to specified torque.

Tightening torque: 34~46 lbs. ft (46~63 N.m, 4.7~6.4 kg.m)

6. Lower vehicle. Recheck caster and readjust if necessary.

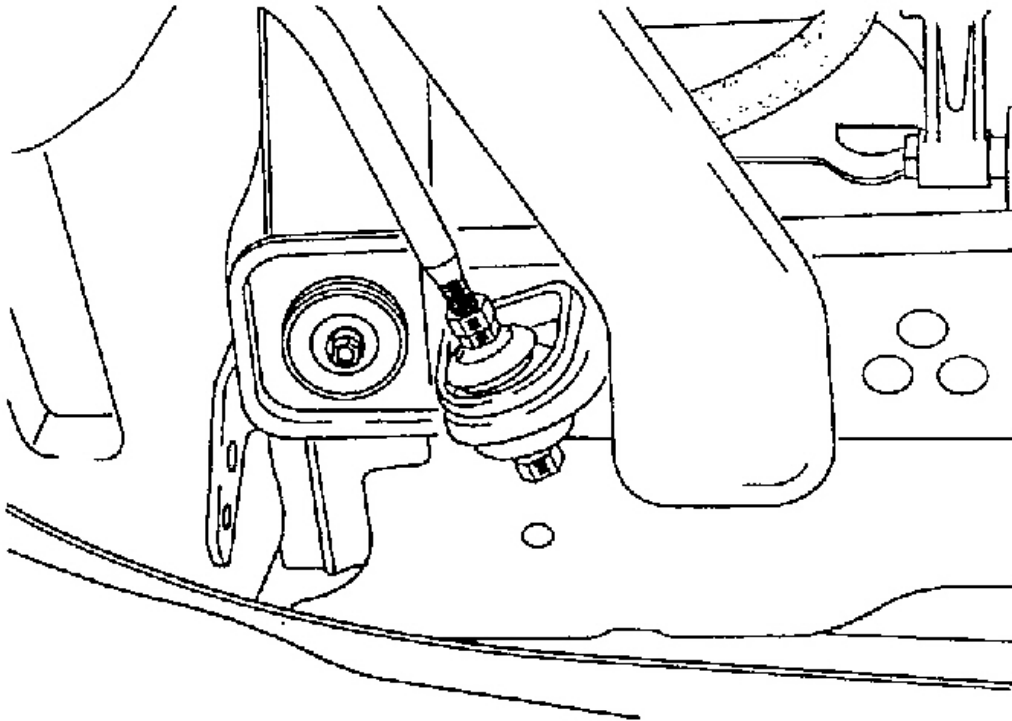


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Fig. 14: Tightening Mounting Block Nuts
Courtesy of KIA MOTORS AMERICA, INC.

CASTER ADJUSTMENT - 2

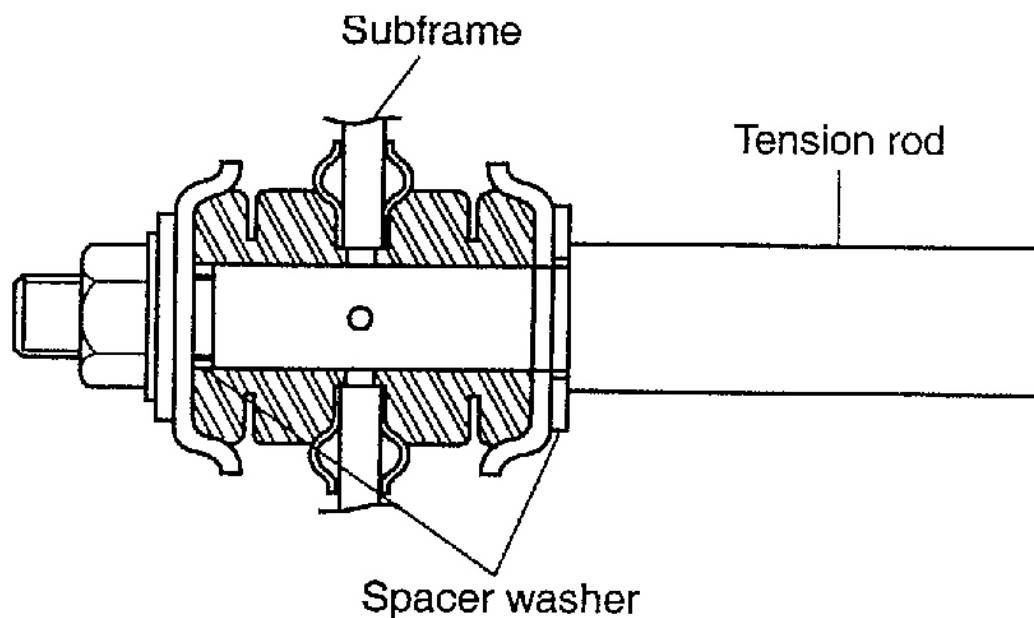
1. Attach caster gauge to front hubs per manufacturer's instructions, and note readings.
2. If readings do not meet specifications, lift front of vehicle until front wheels clear floor, and support with safety stands.
3. Mark alignment of tension rod nuts and spacer washers installed to subframe as shown in illustration.



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Fig. 15: Marking Tension Rod Position
Courtesy of KIA MOTORS AMERICA, INC.

4. If caster degree is smaller than specification, remove two washers which are installed to tension rod inward.



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Fig. 16: Removing Tension Rod Washers
 Courtesy of KIA MOTORS AMERICA, INC.

5. If caster degree is larger than specification, add two washers into tension rod to achieve specified degree.

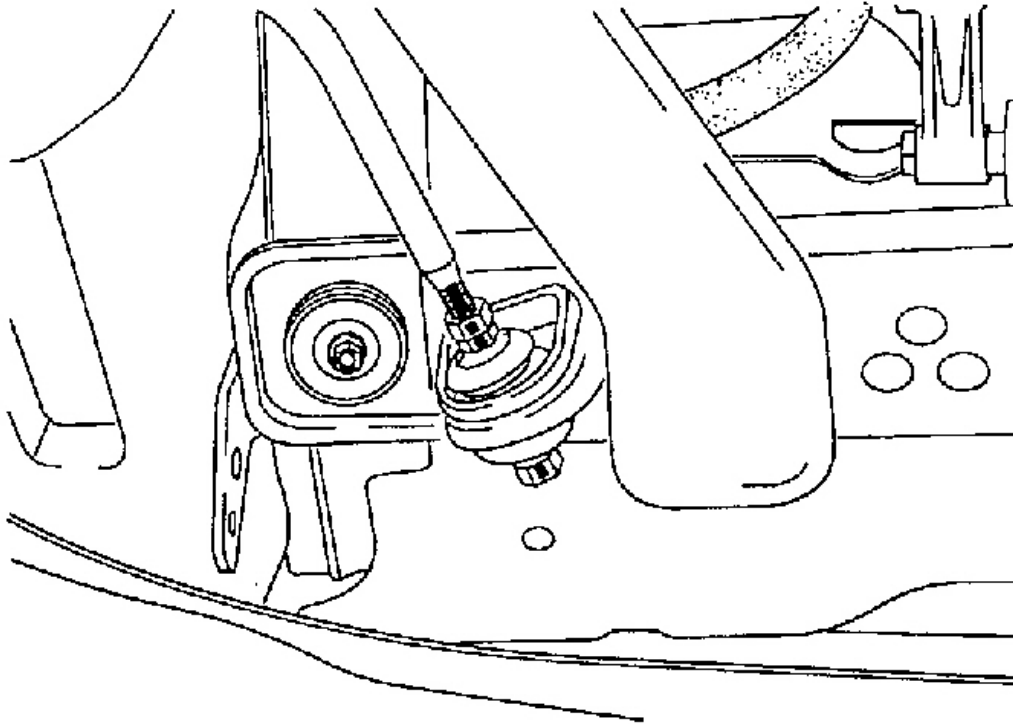
Condition	Change from caster adjustment degree
Two washers removal	0.32° increase
Two washers addition	0.32° decrease

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Fig. 17: Tension Rod Washer Adjustment Specifications
 Courtesy of KIA MOTORS AMERICA, INC.

6. Tighten tension rod nuts after aligning with mark made.

Tightening torque: 115~130 lbs. ft (157~177 N.m, 16~18 kg.m)



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Fig. 18: Aligning Tension Rod Marks
Courtesy of KIA MOTORS AMERICA, INC.

7. Lower vehicle. Recheck caster and readjust if necessary.

TOE (TOTAL)

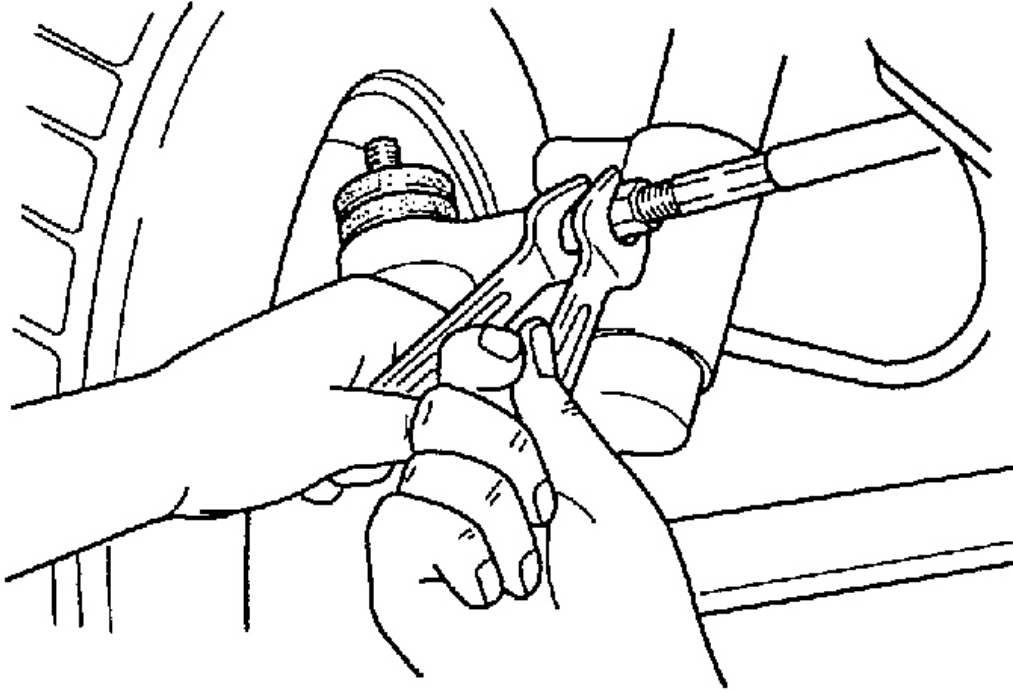
1. Measure toe angle with a toe angle gauge per manufacturer's instructions.
2. If measurement does not meet specification, loosen left and right tie rod lock nuts, then turn each tie rod as needed to achieve proper toe angle.

NOTE:

- Left and right tie rods are right hand threaded. To decrease toe angle thread right and left side tie rods into tie rod ends. To increase toe-in,

unthread tie rods.

- One full turn of both tie rods changes toe-in by about 0.24 in. (6 mm).
- It may be necessary to rotate one tie rod more than the other in order to achieve the proper toe angle and still retain a straight steering wheel.

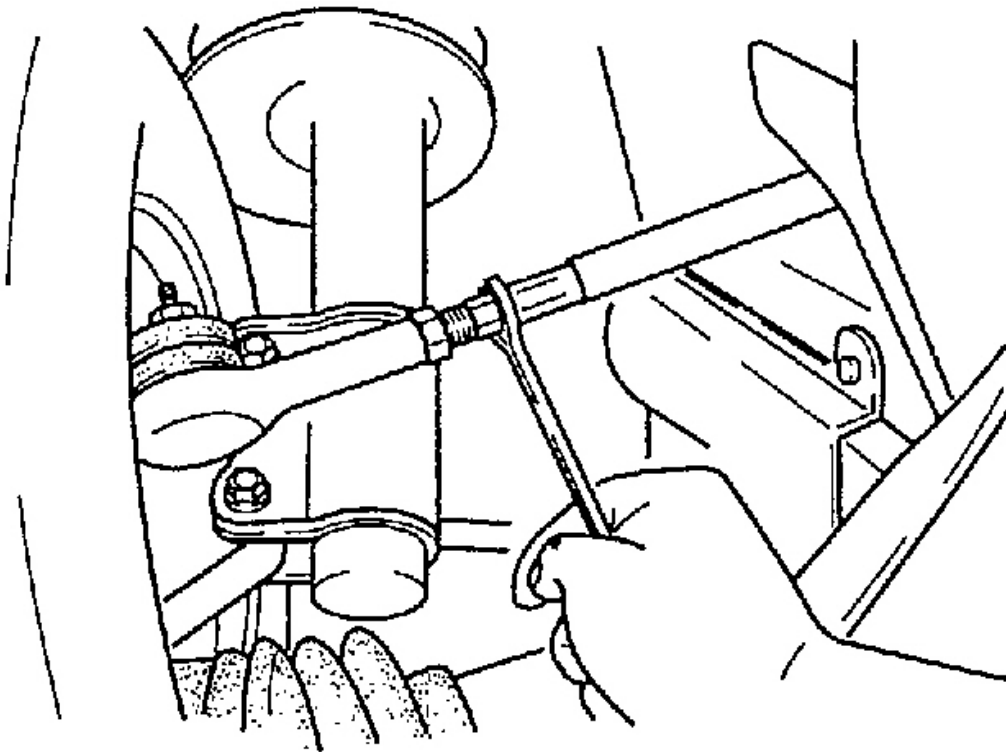


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Fig. 19: Adjusting Tie Rod Ends
Courtesy of KIA MOTORS AMERICA, INC.

3. Tighten tie rod lock nuts.

Tightening torque: 50~58 lbs. ft (69~78 N.m, 7.0~8.0 kg.m)



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Fig. 20: Tightening Tie Rod Lock Nuts
Courtesy of KIA MOTORS AMERICA, INC.

REAR WHEEL ALIGNMENT

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

NOTES ON WHEELS AND TIRES

1. Do not use wheels or tires other than specified types.
2. Aluminum wheels are easily scratched. Use a soft cloth when washing them, never a wire brush. If vehicle is steam cleaned, do not allow boiling water to contact wheels.
3. If alkaline compounds (such as saltwater or road salts) get on aluminum wheels, wash them as soon as possible to prevent damage. Use a mild detergent only.