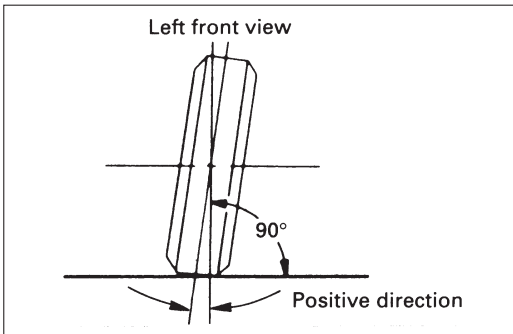


GENERAL DESCRIPTION

"Front End Alignment" refers to the angular relationship between the front wheels, the front suspension attaching parts and the ground.

Proper front end alignment must be maintained in order to insure efficient steering, good directional stability and to prevent abnormal tire wear.

The most important factors of front end alignment are wheel toe in, wheel camber and axle caster.

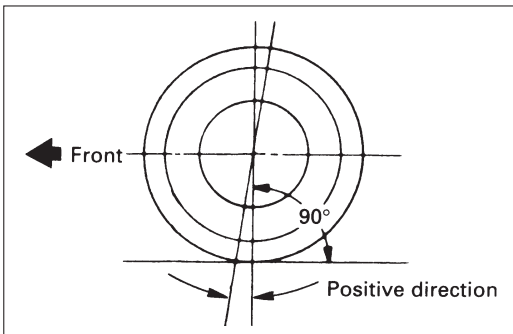


DEFINITION OF TERMS

CAMBER

Camber is the inward or outward tilting of the front wheels from the vertical. When the wheels tilt outward at the top, the camber is positive (+). When the wheels tilt inward at the top, the camber is negative (-). The amount of tilt measured in degrees from the vertical is called the camber angle.

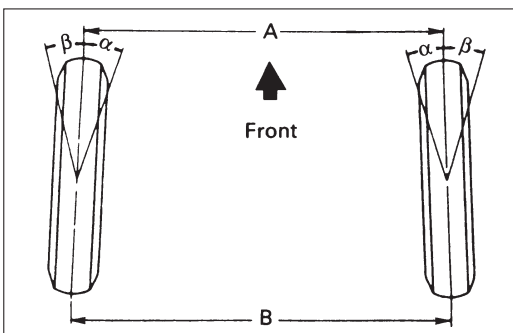
If camber is extreme or unequal between the wheels, improper steering and excessive tire wear will result. Negative camber causes wear on the inside tire, while positive camber causes wear to the outside.



CASTER

Caster is the tilting of the wheel axis either forward or backward from the vertical (when viewed from the side of the vehicle). A backward tilt is positive (+) and a forward tilt is negative (-).

On the short and long arm type suspension you cannot see a caster angle without a special instrument, but if you look straight down from the top of the upper control arm to the ground, the ball joints do not line up (fore and aft) when a caster angle other than 0 degree is present. With a positive angle, the lower ball joint would be slightly ahead (toward the front of the vehicle) of the upper ball joint center line.



TOE-IN

Toe in is the turning of the front wheels. The actual amount of toe in is normally a fraction of a degree. Toe in is measured from the center of the tire treads or from the inside of the tires. The purpose of toe in is to insure parallel rolling of the front wheels and to offset any small deflections of the wheel support system which occurs when the vehicle is rolling forward. Incorrect toe in results in excessive toe in and unstable steering. Toe in is the last alignment to be set in the front end alignment procedure.

ON-VEHICLE SERVICE

INSPECTION

Before making any adjustments affecting caster, camber or toe in, the following front end inspection should be made.

INSPECT

1. Tires for proper inflation pressure. Refer to "Wheels and Tires" in section 3E.
2. Front wheel bearings for proper adjustment. Refer to "Front Wheel Drive" in section 4C.
3. Ball joints, tie rod ends and relay rods. If excessive looseness is noted, correct before adjusting. Refer to "Steering Linkage" in section 2A.
4. Wheel and tires for run-out. Refer to "Wheels and Tires" in section 3E.
5. Trim height. If not within specifications, the correction must be made before adjusting caster.
6. Steering gear for looseness at the frame.
7. Shock absorbers for leaks or any noticeable noise. Refer to "Front Suspension" in section 3C.
8. Control arms or stabilizer bar attachment for looseness. Refer to "Front Suspension" in section 3C.
9. Alignment equipment. Follow the manufacturer's instructions.
10. Level of the vehicle. The vehicle must be on a level surface.

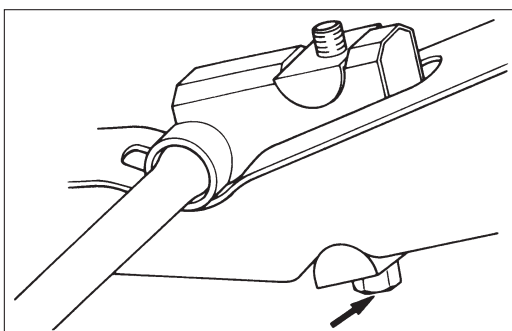
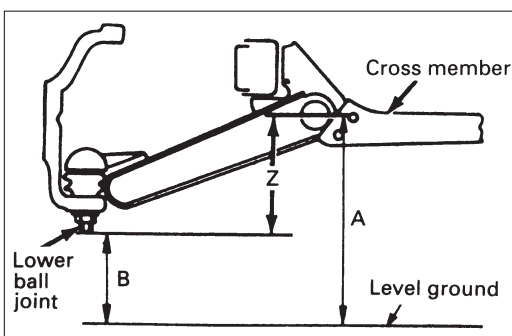
TRIM HEIGHT ADJUSTMENT

Adjust the trim height by means of the adjusting bolt on the height control arms.

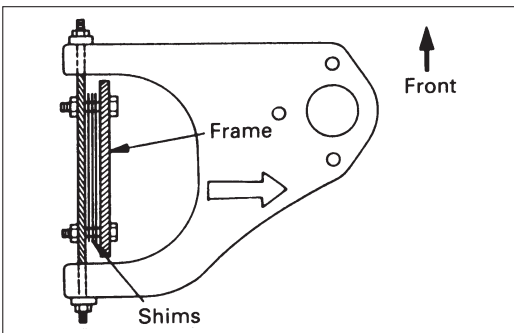
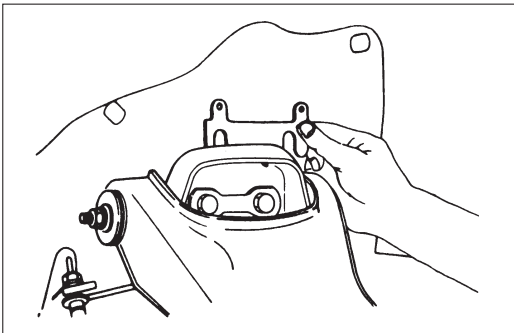
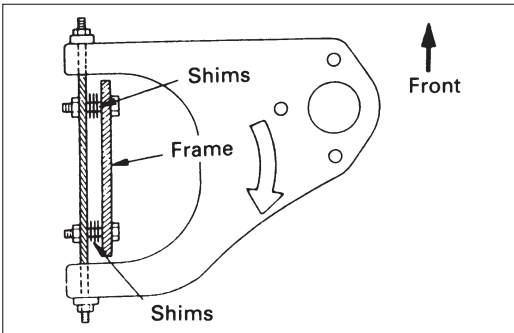
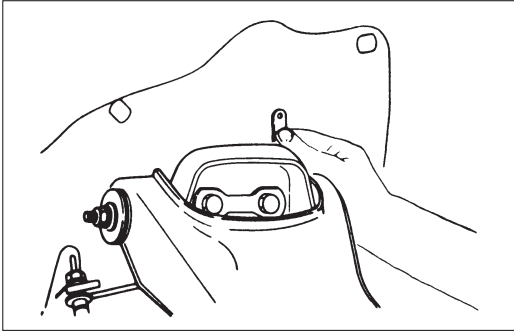


CAUTION:
When adjusting front end alignment, be sure to begin with trim height as trim height adjustment may change other adjusted alignments.

1. Check and adjust the tire inflation pressures.
2. Park the vehicle on a level ground and move the front of the vehicle up and down several times to settle the suspension.
3. Make necessary adjustment with the adjusting bolt on the height control arms.



Trim Height (Z)	mm (in)
	139 ± 5 (5.47 ± 0.2)



CASTER ADJUSTMENT

The caster angle can be adjusted by means of the caster shims installed between the chassis frame and fulcrum pins.

Caster Angle
~~199~~ model

	$2 \ 10 \pm \ 45$
<hr/>	
200 model and later	
RH	$2 \ 22 \pm \ 45$
LH	$2 \ 10 \pm \ 45$

CAUTION:
 Left and right side to be equal within 30'

NOTE:
 Difference of the caster shim front/rear thickness shall be 3.2 mm (0.126 in) or less. Overall thickness of caster shim and camber shim shall be 10.8 mm (0.425 in) or less.

Tighten the fulcrum pin bolt to the specified torque.

Fulcrum Pin Bolt Torque	Nm (kg·m / lb·ft)
$152(155/112)$	

CAMBER ADJUSTMENT

The camber angle can be adjusted by means of the camber shims installed in position between the chassis frame and fulcrum pins.

Wheel Alignment Specification

Camber Angle	$0 \pm \ 30$
King pin inclination	$12 \ 30 \pm \ 30$

CAUTION:
 Left and right side to be equal within 30'

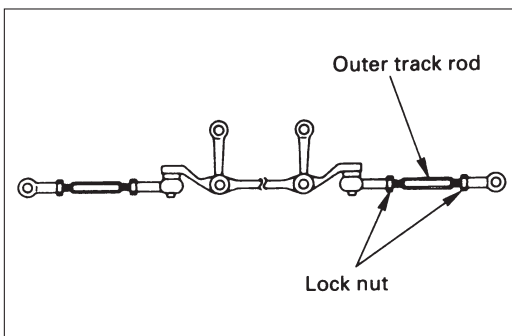
NOTE:
 Overall thickness of caster shim and camber shim shall be 10.8 mm (0.425 in) or less.

Tighten the fulcrum pin bolt to the specified torque.

Fulcrum Pin Bolt Torque	Nm (kg·m / lb·ft)
$152(155/112)$	

	Position of shim		Camber angle	Caster angle
	Front side	Rear side		
Caster shim	When added	When removed	Decreases	Decreases
	When removed	When added	Increases	Increases
	————	When removed	Unchanged	Decreases
	————	When added	Unchanged	Increases
Camber shim	When added		Decreases	Unchanged
	When removed		Increases	Unchanged

TOE-IN ADJUSTMENT



1. To adjust the toe in angle, loosen the lock nuts on the outer track rods and turn the outer track rods. Turn both rods the same amount, to keep the steering wheel centered.

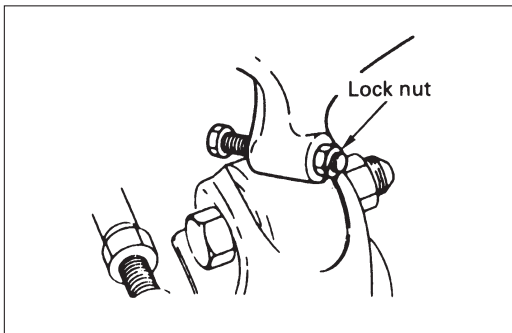
Toe in _____ mm (in)
 $0 \pm 2 (0 \pm 0.08)$



2. Tighten the lock nut to the specified torque.

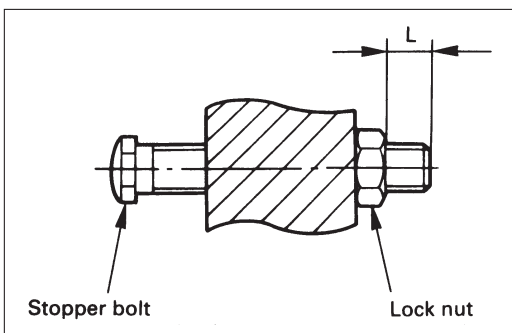
Lock Nut Torque _____ Nm (kg·m, lb·ft)
 118 (120/87)

MAXIMUM STEERING ANGLE ADJUSTMENT



The maximum steering angle of the front wheels can be adjusted with the stopper bolts under the frame side members.

1. Position each front wheel on the turning radius gauge in a straight-ahead position.
2. Set the parking brake firmly.
3. Adjust the inside wheel angle of each side with the stopper bolts.



NOTE:

The maximum protruding length (L) of stopper bolt from the lock nut should be 10 mm (0.4 in) or less.

2A - 6 FRONT END ALIGNMENT

- 4 Similarly adjust the inside wheel angle of the other side with stopper bolt.

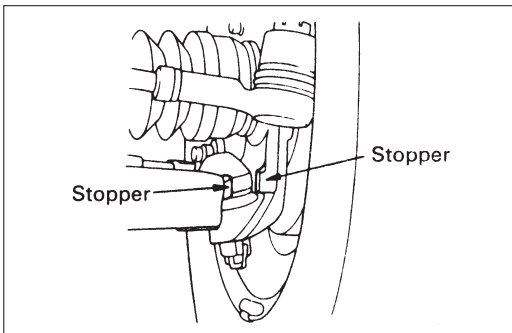
Maximum Steering Angle

Inside wheel	$34 \begin{smallmatrix} +0 \\ -2 \end{smallmatrix}$
Outside wheel	32

NOTE:

Maximum steering angles should be set after adjusting front wheel alignment.

- 5 If the stop between the lower link end and the knuckle comes ahead of the stopper bolt, adjust the stopper bolt so that inner stopper bolt touches the drop arm (relay lever).



- 6 Tighten the lock nut to the specified torque.

Lock Nut Torque	Nm (kg·m lb·ft)
23(23/17)	