FRONT WHEEL ALIGNMENT

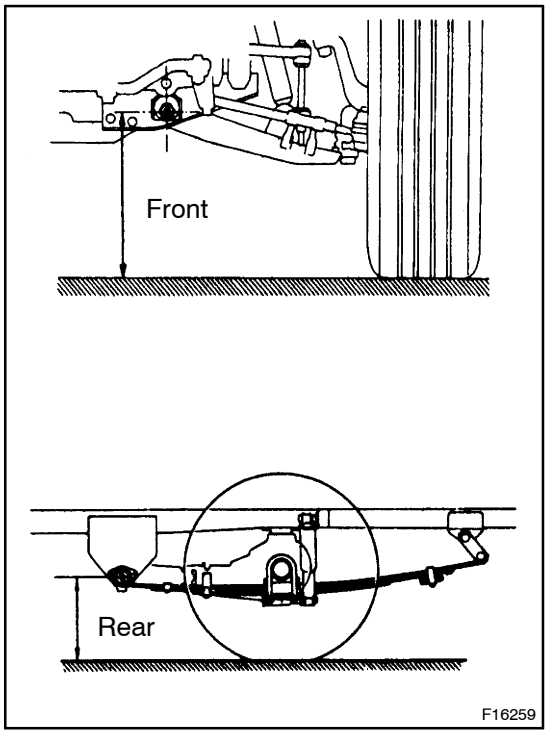
SA28R–01

INSPECTION

HINT:

Before inspecting or adjusting the wheel alignment, make sure the vehicles posture is normal in non–loaded condition.

1. **INSPECT TIRE (See page SA–1)**



2. **MEASURE VEHICLE HEIGHT**

Vehicle height:

Tire size	Front*1 mm (in.)	Rear*2 mm (in.)
215/70R17.5	262 ± 1 (10.315 ± 0.0394)	334 (13.150)
6.50R16–8 6.50R16–10	267 ± 1 (10.512 ± 0.0394)	Suspension Standard 330 (12.992) Option 340 (13.386)
7.00R16–10 7.00R16–12	288 ± 1 (11.336 ± 0.0394)	353 (13.898)

*1: Front measuring point

Measure the distance from the ground to the head center of the front side lower suspension arm mounting bolt.

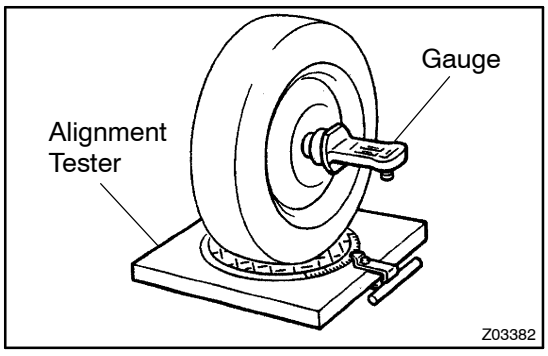
*2: Rear measuring point

Measure the distance from the ground to the center of the rear axle beam mounting bolt.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

If the vehicle height is not as specified, adjust it by pushing down or lifting the body.



3. **INSTALL CAMBER–CASTER–KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER**

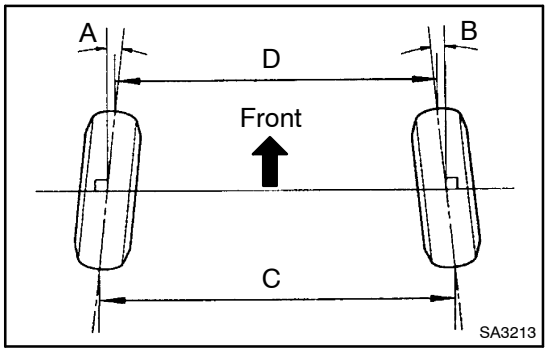
Follow the specific instructions for the equipments.

4. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber, caster and steering axis inclination:

Camber Left – right error	0° ± 30' (0° ± 0.5°) 30' (0.50°) or less
Caster Left – right error	4°30' ± 30' (4.5° ± 0.5°) 30' (0.50°) or less
Steering axis inclination	13°00' (13.0°)

If the steering axis inclination is not within the specified value, after the camber and caster have been correctly adjusted, recheck the steering knuckle and front wheel for bearing or looseness.

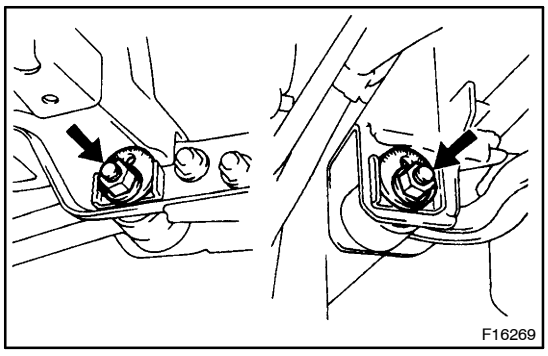


5. INSPECT TOE–IN

Toe–in (total):

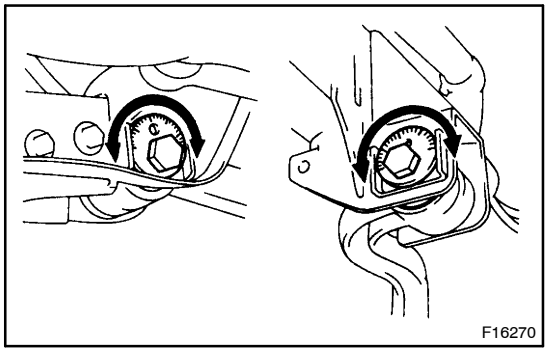
Tire size	Toe–in (total)	
215/70R17.5 6.50R16–8 6.50R16–10	A+B: C–D:	0°12' ± 0°2' 17" (0.2° ± 0.038°) 2.5 ± 1 mm (0.098 ± 0.039 in.)
7.00R16–10 7.00R16–12	A+B: C–D:	0°17' 24" ± 0°2' 13" (0.29° ± 0.037°) 3.5 ± 1 mm (0.138 ± 0.039 in.)

If the toe–in is not within the specified value, adjust the rack ends.



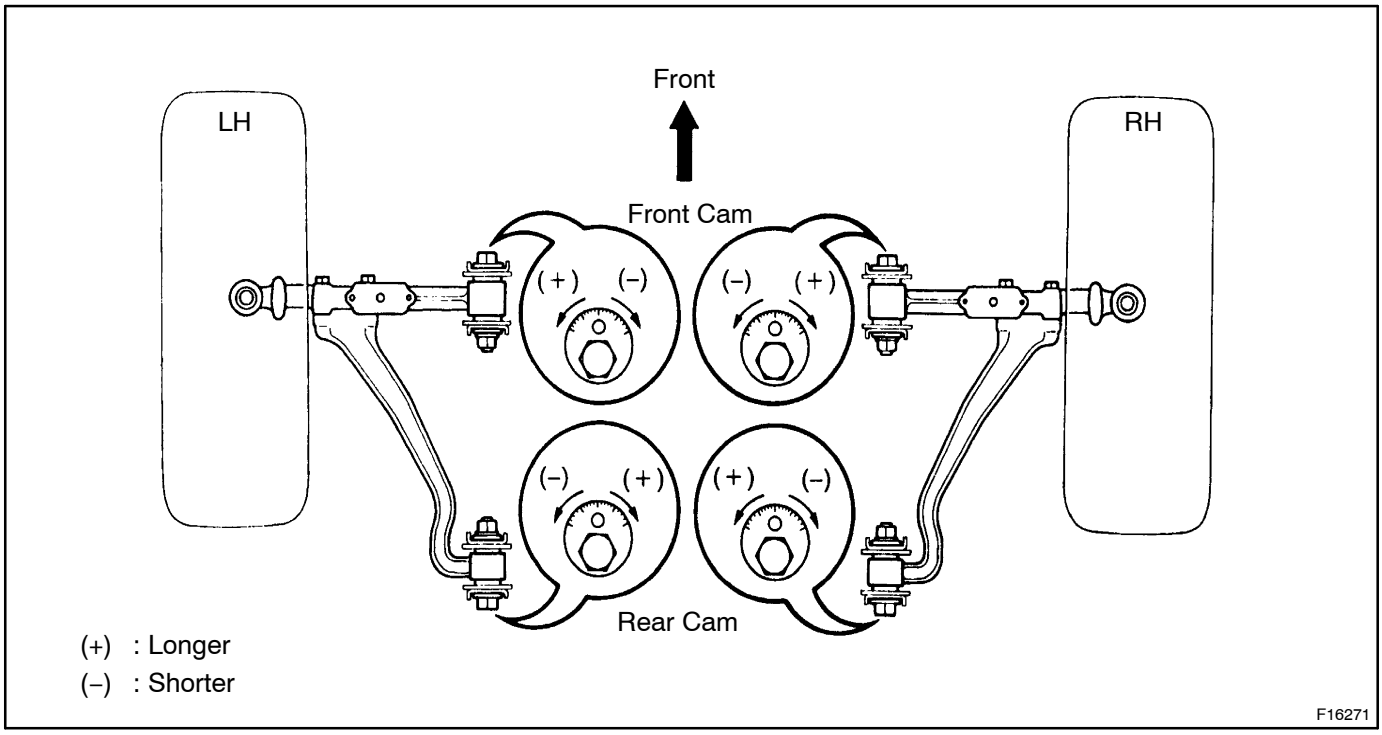
6. ADJUST CAMBER AND CASTER

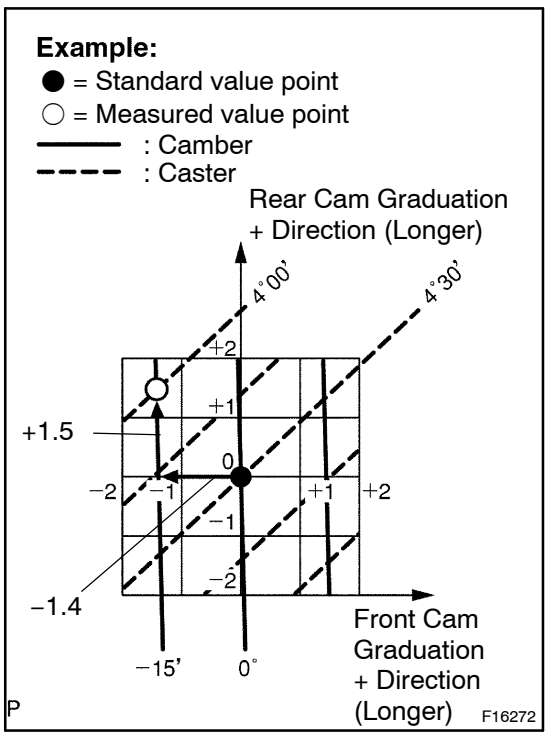
(a) Loosen the front and/or rear adjusting cam nuts.



(b) Adjust the camber and caster by the front and/or rear adjusting cams.

HINT:
Try to adjust the camber and caster to the middle of the specified value.





(c) How to read the adjustment chart (using examples).

(1) Find the wheel alignment standard value applicable for a particular model.

(2) Mark the selected standard value on the adjustment chart.

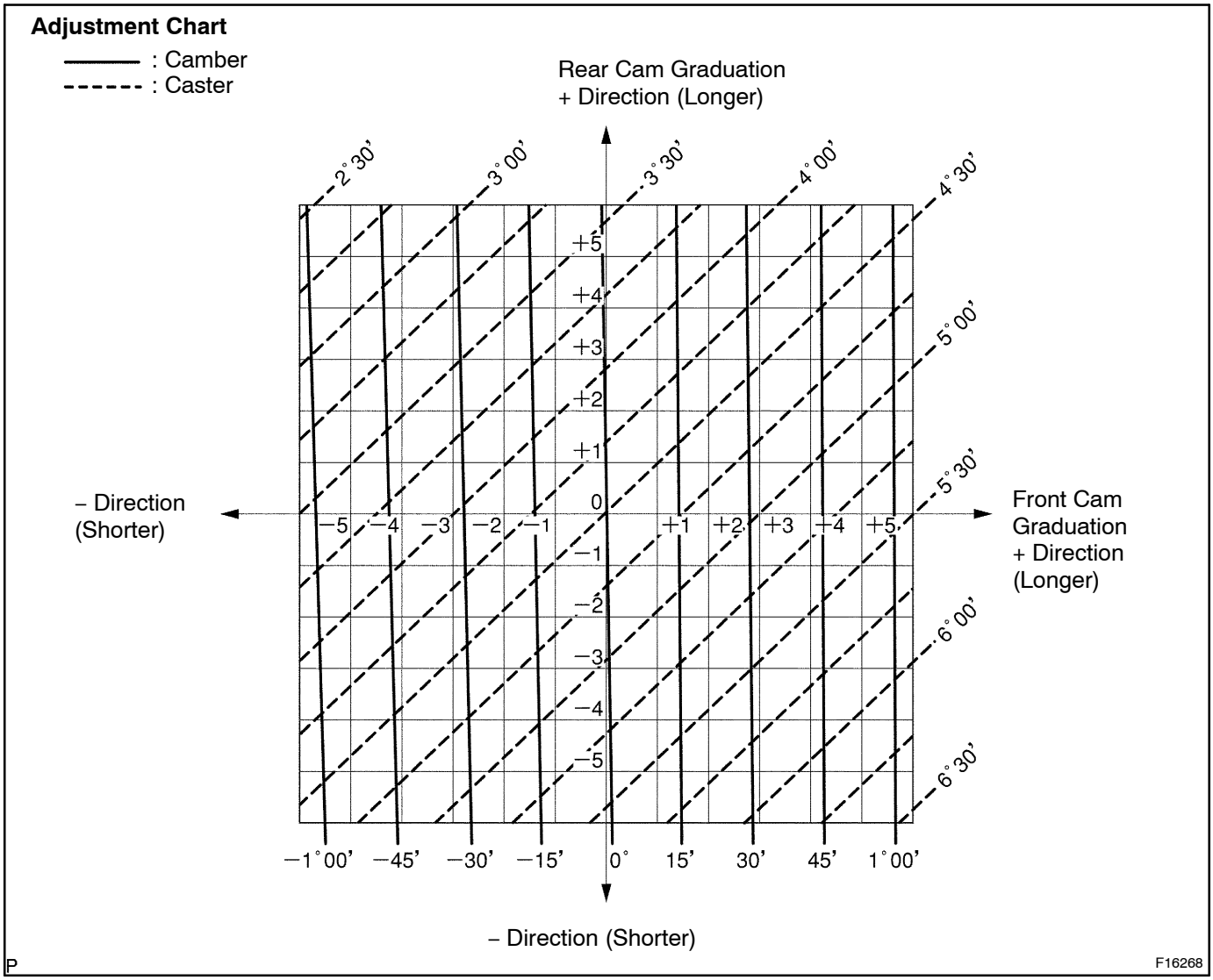
Example:
Camber: 0°00' (0°)
Caster: 4°30' (4.50°)

(3) Mark, on the adjustment chart, the alignment values measured with the vehicle non–loaded.

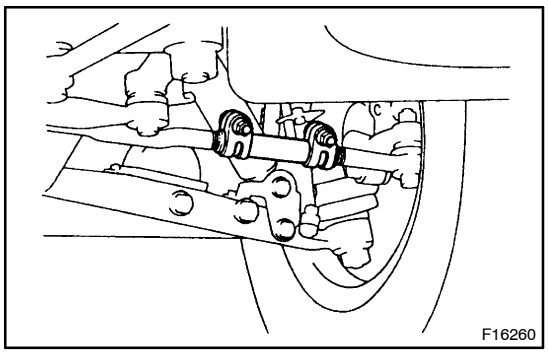
Example:
Camber: –0°15' (–0.25°)
Caster: 4°00' (4.00°)

(4) As shown in the illustration, read the distance from the standard value to the measured value, and then adjust the front and/or rear adjusting cams accordingly.

Front cam: – (Shorter) 1.4 direction
Rear cam: + (Longer) 1.5 direction

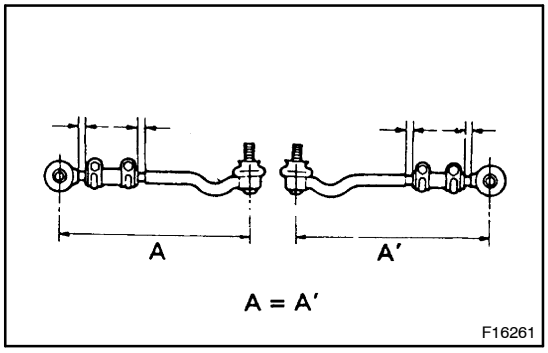


(d) Torque the front and/or rear adjusting cam nuts.
Torque: 215 N·m (2,200 kgf·cm, 158 ft·lbf)



7. ADJUST TOE–IN

(a) Loosen the clamp bolts and nuts.



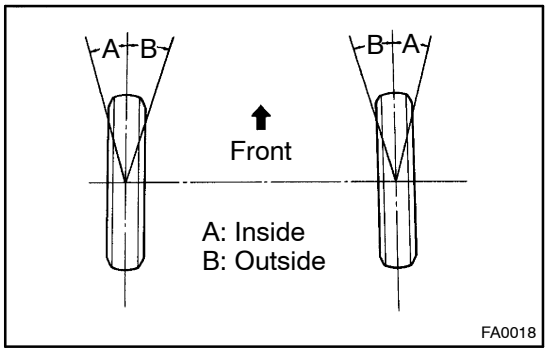
(b) Adjust the toe–in by turning the left and right tie rod tubes equally.

HINT:

The lengths of the left and right tie rods are equal.

(c) Torque the tie rod.

Torque: 40 N·m (410 kgf·cm, 30 ft·lbf)

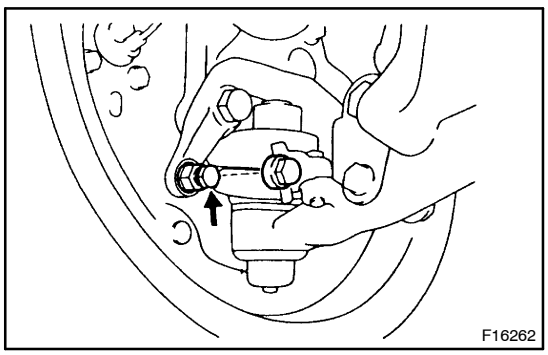


8. INSPECT WHEEL ANGLE

Turn the steering wheel fully and measure the turning angle.

Wheel turning angle:

Item		Inside wheel	Outside wheel: Reference
BB59R	Max.	43° – 46° (43.0° – 46.0°)	41°30' (41.5°)
Others	Max.	37°30' – 40°30' (37.5° – 40.5°)	35°50' (35.8°)



If the right and left wheel turning angles differ from the specified value, adjust the wheel angle with the knuckle stopper bolts

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

If the wheel angle still cannot be adjusted within the limits, inspect and replace the damaged or worn steering parts.