

FRONT WHEEL ALIGNMENT INSPECTION

SA01N-02

1. COIL SUSPENSION: MEASURE VEHICLE HEIGHT

When the radius of a tire is 308 mm (12.12 in.) vehicle height will be the value described in the chart below.

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
P225/60R16	264 (10.39)	243 (9.57)

*1: Front measuring point

Measure from the ground to the center of the lower suspension arm mounting bolt.

*2: Rear measuring point

Measure from the ground to the center of the lower suspension arm No.2 mounting bolt.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to specification.

If the vehicle height is not within the standard, try to adjust it by pushing down on or lifting the body.

2. AIR SUSPENSION: MEASURE VEHICLE HEIGHT

- (a) Bounce the vehicle up and down several times to stabilize the suspension.
- (b) Move the vehicle forward and backward by pushing it to settle the tires.
- (c) Place the shift lever in the N range.
- (d) Release the parking brake.

NOTICE:

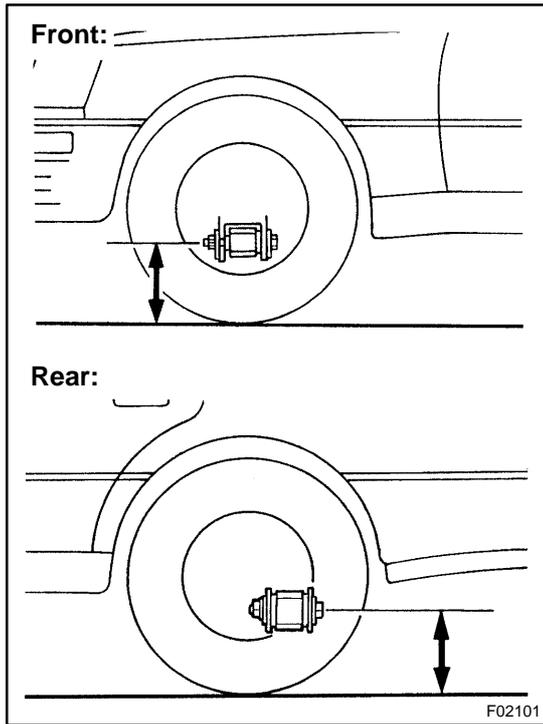
Block the wheels to keep the vehicle from rolling.

- (e) Start the engine.
- (f) Set the height control switch in the HIGH position, then after waiting 1 minute with the vehicle height in the raised condition, set the switch in the NORM position to lower the vehicle's height.

Wait 50 seconds with it in this condition. Repeat this operation one more.

HINT:

Be sure to perform this operation 2 times so that each suspension part settles down.



(g) When the radius of a tire is 308 mm (12.12 in.) vehicle height will be the value described in the chart below.

Tire size	Front*1 mm (in.)	Rear*2 mm (in.)
P225/60R16	250 ± 10 (9.84 ± 0.39)	222.5 ± 10 (8.76 ± 0.39)

Left-right error: 10 mm (0.39 in.) or less

Hf – Hr = 27.5 ± 15 mm (1.08 ± 0.59 in.)

Hf = Measured value of the front vehicle height

Hr = Measured value of the rear vehicle height

***1: Front measuring point**

Measure from the ground to the center of the lower suspension arm mounting bolt.

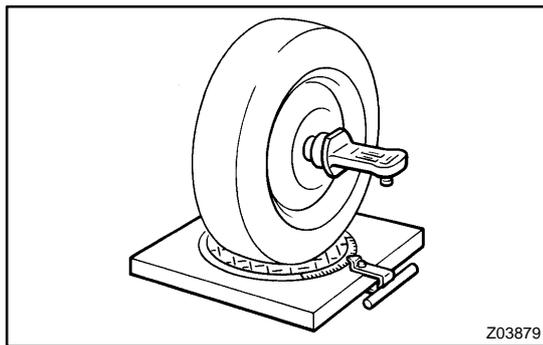
***2: Rear measuring point**

Measure from the ground to the center of the lower suspension arm No.2 mounting bolt.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to specification.

If the vehicle height is not standard, adjust it by turning the height control sensor link (See page SA-125).



3. INSTALL CAMBER-CASTER-KINGPIN GAUGE ONTO WHEEL ALIGNMENT TESTER

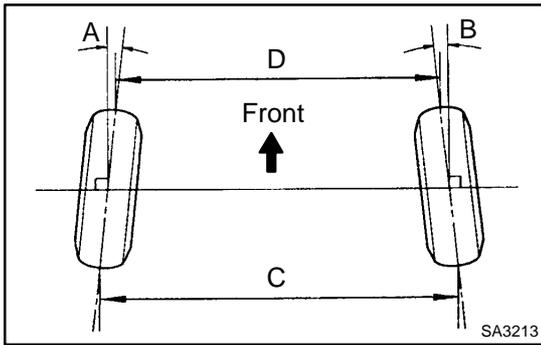
Follow the specific instructions of the equipment manufacturer.

4. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

	Coil suspension	Air suspension
Camber	0°20' ± 45' (0.33° ± 0.75°)	0°05' ± 45' (0.08° ± 0.75°)
Left-right error	30' (0.5°) or less	30' (0.5°) or less
Caster	7°00' ± 45' (7° ± 0.75°)	7°25' ± 45' (7.42° ± 0.75°)
Left-right error	30' (0.5°) or less	30' (0.5°) or less
Steering axis inclination	8°25' ± 45' (8.42° ± 0.75°)	8°40' ± 45' (8.66° ± 0.75°)
Left-right error	30' (0.5°) or less	30' (0.5°) or less

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

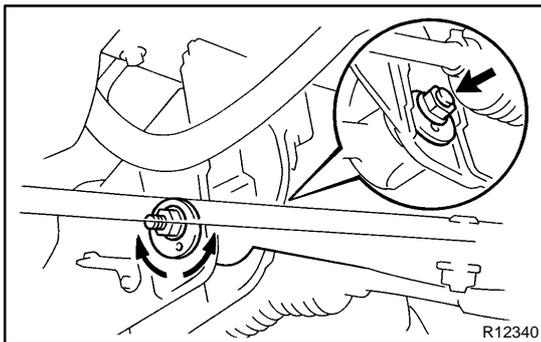
SUSPENSION AND AXLE – FRONT WHEEL ALIGNMENT



5. INSPECT TOE-IN

Coil suspension	A + B: $0^{\circ}18' \pm 12'$ ($0.3^{\circ} \pm 0.2^{\circ}$) C - D: 3 ± 2 mm (0.12 ± 0.08 in.)
Air suspension	A + B: $0^{\circ}06' \pm 12'$ ($0.1^{\circ} \pm 0.2^{\circ}$) C - D: 1 ± 2 mm (0.04 ± 0.08 in.)

If the toe-in is not within the specification, adjust it at the tie rod end.



6. ADJUST CAMBER

HINT:

- After adjusting the camber, inspect the caster and toe-in.
 - Try to adjust the camber to the center value.
- (a) Remove the suspension member brace.
 - (b) Loosen the camber adjusting cam nut.
 - (c) Turn the camber adjusting cam and adjust camber.

HINT:

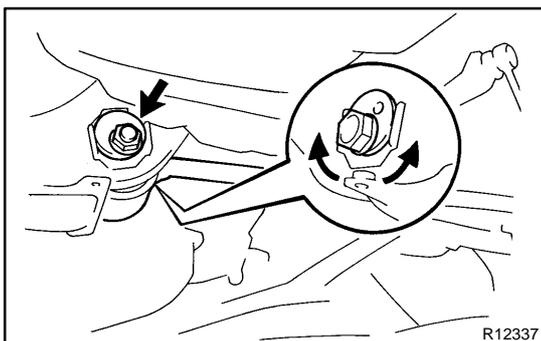
Camber changes about $7'20''$ (0.12°) with each graduation of the cam.

- (d) Torque the camber adjusting cam.
Torque: 251 N·m (2,560 kgf·cm, 185 ft·lbf)
- (e) Install the suspension member brace.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

7. ADJUST CASTER

HINT:

- After adjusting the caster, inspect the toe-in.
- Try to adjust the caster to the center value.

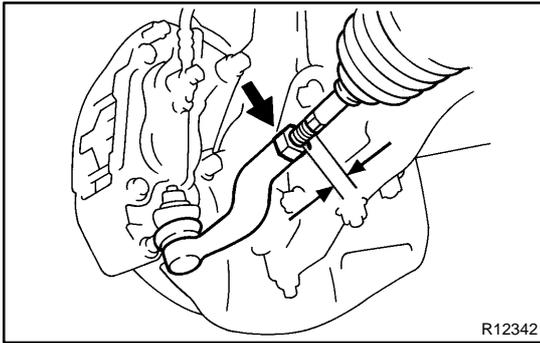


- (a) Loosen the caster adjusting cam nut.
- (b) Turn the caster adjusting cam and adjust camber.

HINT:

Caster changes about $8'20''$ (0.14°) with each graduation of the cam.

- (c) Torque the caster adjusting cam.
Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)



8. ADJUST TOE-IN

- (a) Remove the boot clips.
- (b) Loosen the tie rod end lock nut.
- (c) Turn the left and right rack ends an equal amount to adjust the toe-in.

HINT:

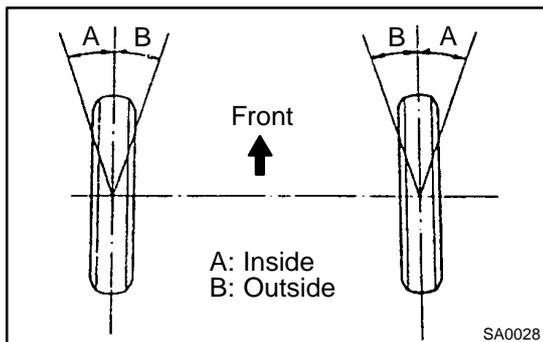
- Try to adjust the toe-in the center value.
- Make sure that the length of the left and right rack ends length is same.

Rack end length difference: 1.0 mm (0.039 in.) or less

- (d) Torque the tie rod end lock nuts.
Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)
- (e) Place the boot on the seat and clamp it.

HINT:

Make sure that the boots are not twisted.



9. INSPECT WHEEL ANGLE

Turn the steering wheel fully, and measure the turning angle.

	Coil suspension	Air suspension
Inside wheel	42°00' ± 1°30' (42° ± 1.5°)	42°00' ± 1°30' (42° ± 1.5°)
Outside wheel: Reference	34°20' (34.33°)	34°00' (34°)

If the wheel angles differ from the standard of the specification, inspect the toe-in.