# FRONT WHEEL ALIGNMENT

SA0IN–03

## INSPECTION

**1. MEASURE VEHICLE HEIGHT**

(a) Release the parking brake.

(b) Bounce the vehicle up and down several times to stabilize the suspension.

(c) Set the shift lever in the N range.

(d) Move the vehicle forward and backward by pushing it to settle the tires.

**NOTICE:**

**Block the wheels to keep the vehicle from rolling.**

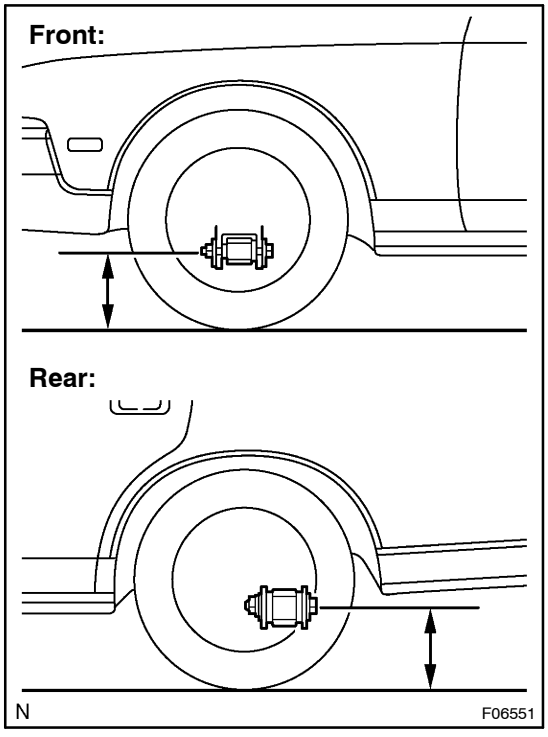
(e) Start the engine.

(f) Set the height control switch in the ”HIGH” position, then after waiting for 1 minute with the vehicle height in the raised condition, set the switch in the ”NORM” position to lower the vehicle height.

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

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 (12.13 in.) vehicle height will be the value described in the chart below.

**Vehicle height:**

| Tire size | Front*1 mm (in.) | Rear*2 mm (in.) |
|---|---|---|
| 225/60R16 | 250 ± 10 (9.84 ± 0.39) | 222.5 ± 10 (8.76 ± 0.39) |

**Right–left 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 the distance from the ground to the center of the lower suspension arm mounting bolt.

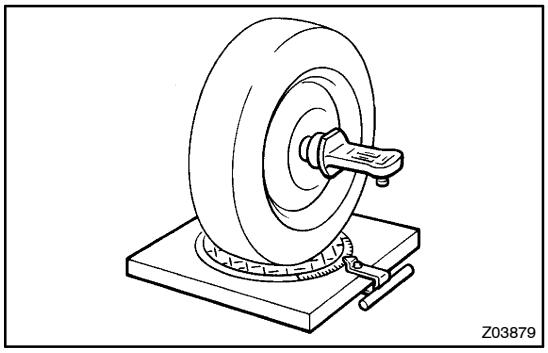
*2: Rear measuring point

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

**NOTICE:**

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

If the vehicle height is not the specified value, adjust it by the height control sensor link (See page SA–119).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**2. INSTALL CAMBER–CASTER–KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER**

Follow the specific instructions of the equipment manufacturer.

**3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION**

**Camber, caster and steering axis inclination:**

| | |
|---|---|
| Camber | 0°05' ± 45' (0.08° ± 0.75°) |
| Right–left error | 30' (0.5°) or less |
| Caster | 7°25' ± 45' (7.42° ± 0.75°) |
| Right–left error | 30' (0.5°) or less |
| Steering axis inclination | 8°40' ± 45' (8.67° ± 0.75°) |
| Right–left error | 30' (0.5°) or less |

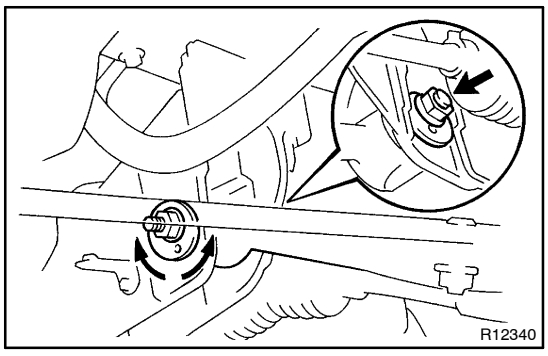
If the steering axis inclination is not within the specified value, after the camber and caster have been correctly adjusted, recheck the steering knuckle for bearing or looseness.

**4. ADJUST CAMBER**

HINT:

After the camber has been adjusted, inspect the caster and toe–in.

(a) Remove the suspension member brace.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(b) Loosen the camber adjusting cam nut.

(c) Turn the camber adjusting cam and adjust camber.

HINT:

- Try to adjust the camber to center of the specified value.
- The camber will change by about 7'18" (0.12°), corresponding to each graduation of the cam.

(d) Torque the camber adjusting cam nut.

**Torque: 251 N·m (2,560 kgf·cm, 185 ft·lbf)**

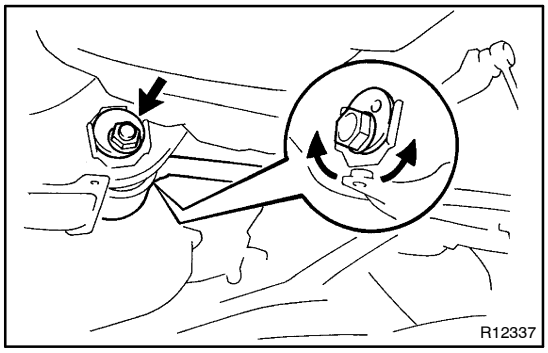
(e) Install the suspension member brace.

**Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)**

**5. ADJUST CASTER**

HINT:

After the caster has been adjusted, inspect the toe–in.




(a) Loosen the caster adjusting cam nut.

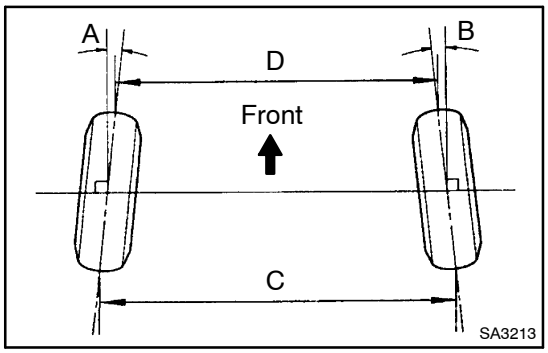
(b) Turn the caster adjusting cam and adjust the caster.

HINT:

- Try to adjust the caster to the center of the specified value.
- The caster will change by about 8’18” (0.14˚), corresponding to each graduation of the cam.

(c) Torque the caster adjusting cam nut.

**Torque: 201 N·m (2,050 kgf·cm, 148 ft·lbf)**




**6. INSPECT TOE–IN**

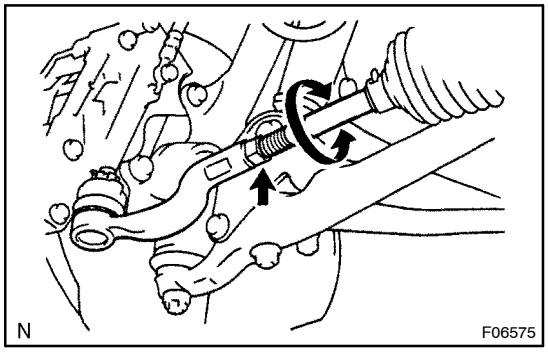
**Toe–in:**

| | |
|---|---|
| Toe–in (total) | A + B: 0˚06’ ± 12’ (0.1˚ ± 0.2˚)<br>C – D: 1 ± 2 mm (0.04 ± 0.08 in.) |

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

**7. ADJUST TOE–IN**

(a) Remove the rack boot set clips.

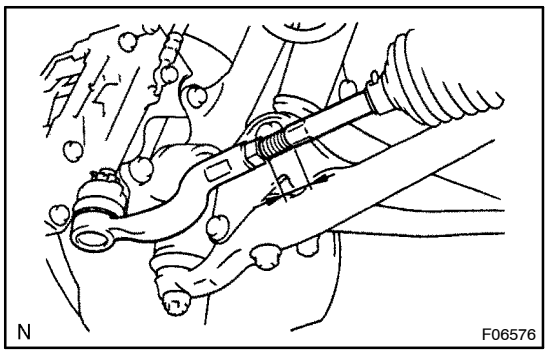



(b) Loosen the tie rod end lock nuts.

(c) Turn the right and left rack ends by an equal amount to adjust the toe–in.

HINT:

Try to adjust the toe–in to the center of the specified value.




(d) Make sure that the lengths of the right and left rack ends are the same.

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

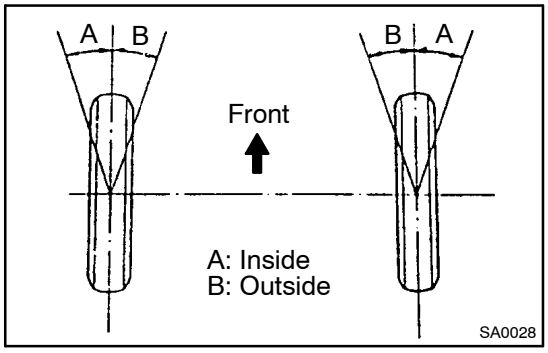
(e) Torque the tie rod end lock nuts.

**Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)**

(f) Place the boots on the seats and install the clips.

HINT:

Make sure that the boots are not twisted.




## 8. INSPECT WHEEL ANGLE

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

**Wheel turning angle:**

| | |
|---|---|
| Inside wheel | 42˚00' ± 1˚30' (42.0˚ ± 1.5˚) |
| Outside wheel: Reference | 34.0˚ |

If the right and left inside wheel angles differ from the specified value, check the right and left rack end lengths.