

# FRONT WHEEL ALIGNMENT

## ADJUSTMENT

### 1. INSPECT TIRE (See page TW-1)

### 2. MEASURE VEHICLE HEIGHT

(a) Vehicle height.

**Vehicle height:**

**Except air suspension**

|     | Front B - A         | Rear D - C         |
|-----|---------------------|--------------------|
| FF  | 119.6 mm (4.71 in.) | 41.1 mm (1.62 in.) |
| 4WD | 109.6 mm (4.32 in.) | 31.1 mm (1.22 in.) |

**Air suspension**

|     | Front B - A         | Rear D - C         |
|-----|---------------------|--------------------|
| FF  | 116.9 mm (4.60 in.) | 41.1 mm (1.62 in.) |
| 4WD | 119.9 mm (4.41 in.) | 36.1 mm (1.42 in.) |

**Measuring points:**

**A:**

Ground clearance of lower suspension arm  
No.2 bush set bolt center

**B:**

Ground clearance of front wheel center

**C:**

Ground clearance of strut rod set bolt center

**D:**

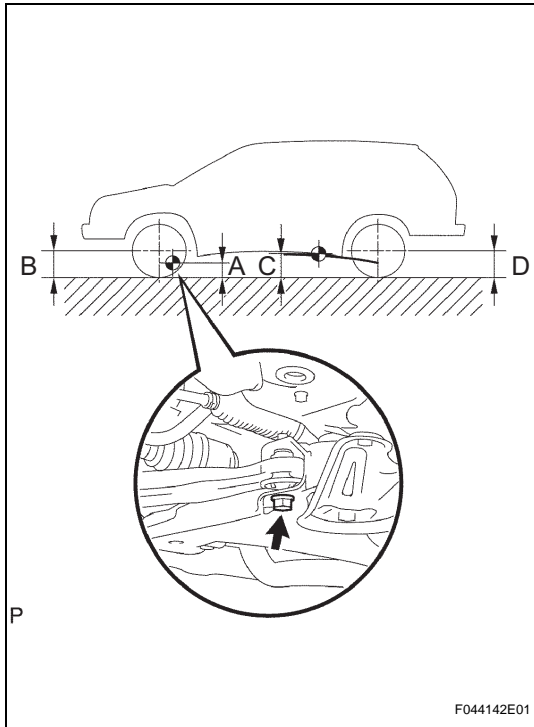
Ground clearance of rear wheel center

**NOTICE:**

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

**HINT:**

Bounce the vehicle at the corners up and down to stabilize the suspension and inspect vehicle height.



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### 3. INSPECT TOE-IN

(a) Inspect toe-in.

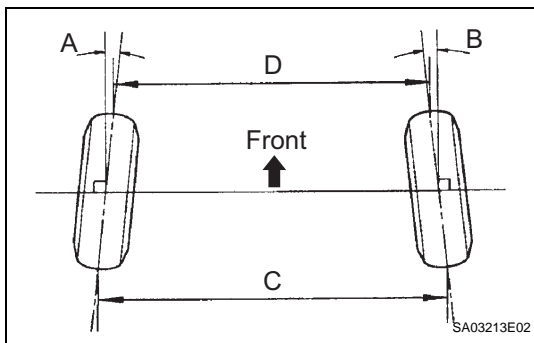
**Toe-in**

|                |                           |
|----------------|---------------------------|
| Toe-in (total) | -                         |
| A + B:         | 0° +- 12' (0° +- 0.16°)   |
| C - D:         | 0 +- 2 mm (0 +- 0.08 in.) |

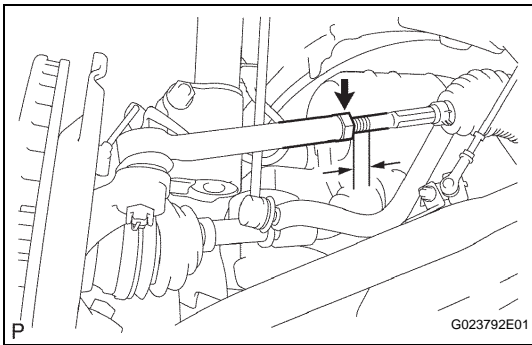
If the toe-in is not within the specified range, adjust it at the rack ends.

### 4. ADJUST TOE-IN

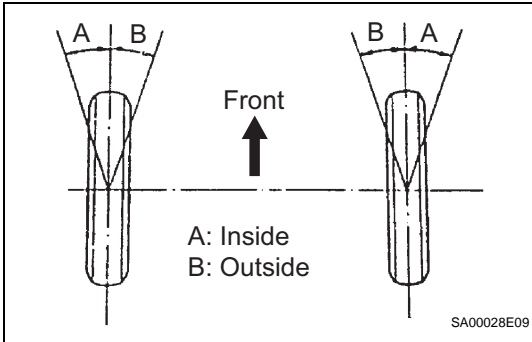
- (a) Remove the rack boot set clips.
- (b) Loosen the tie rod end lock nuts.



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- (c) Turn the right and left rack ends by equal amounts 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.
- (e) Place the boots on the seats and install the clips.  
HINT:  
Make sure that the boots are not twisted.
- (f) Perform VSC system calibration (See page BC-5).



**5. INSPECT WHEEL ANGLE**

- (a) Turn the steering wheel fully left and right and measure the turning angle.

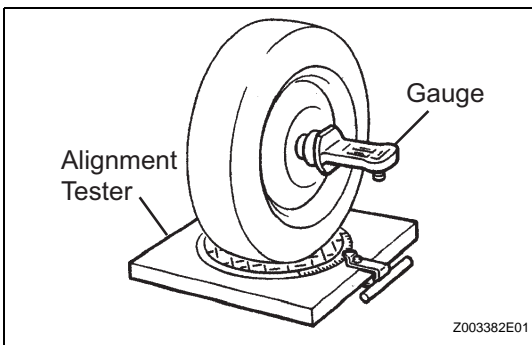
**Wheel turning angle:  
Except air suspension**

|     | Inside wheel                 | Outside wheel:<br>Reference |
|-----|------------------------------|-----------------------------|
| FF  | 35°28' ± 2°<br>(35.47° ± 2°) | 31°13' (31.22°)             |
| 4WD | 35°41' ± 2°<br>(35.68° ± 2°) | 31°22' (31.37°)             |

**Air suspension**

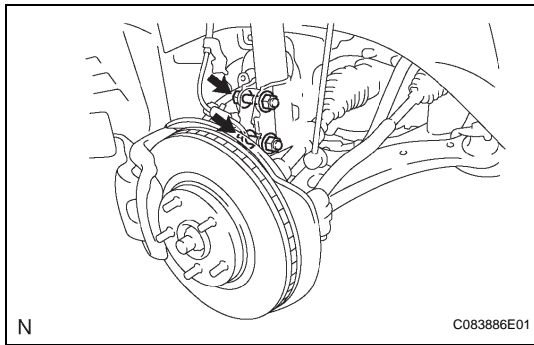
|     | Inside wheel                 | Outside wheel:<br>Reference |
|-----|------------------------------|-----------------------------|
| FF  | 35°42' ± 2°<br>(35.70° ± 2°) | 31°18' (31.30°)             |
| 4WD | 35°48' ± 2°<br>(35.80° ± 2°) | 31°18' (31.30°)             |

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



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

- (a) Put the front wheel on the center of the alignment tester.



- (b) Set the camber-caster-king pin gauge and attachment at the center of the axle hub or drive shaft.

**Camber, caster and steering axis inclination:  
Except air suspension**

|  | FF  | 4WD   |
|--|---|---|
| <b>Camber</b><br>Right-left error                    | -0°40' +- 45'<br>(-0.67° +- 0.75°)<br>45' (0.75°) or less | -0°35' +- 45'<br>(-0.58° +- 0.75°)<br>45' (0.75°) or less |
| <b>Caster</b><br>Right-left error                    | 2°51' +- 45'<br>(2.85° +- 0.75°)<br>45' (0.75°) or less   | 2°50' +- 45'<br>(2.83° +- 0.75°)<br>45' (0.75°) or less   |
| <b>Steering axis inclination</b><br>Right-left error | 10°45' +- 45'<br>(10.75° +- 0.75°)<br>45' (0.75°) or less | 10°45' +- 45'<br>(10.75° +- 0.75°)<br>45' (0.75°) or less |

**Air suspension**

|  | FF  | 4WD   |
|--|---|---|
| <b>Camber</b><br>Right-left error                    | -0°40' +- 45'<br>(-0.67° +- 0.75°)<br>45' (0.75°) or less | -0°37' +- 45'<br>(-0.62° +- 0.75°)<br>45' (0.75°) or less |
| <b>Caster</b><br>Right-left error                    | 2°51' +- 45'<br>(2.85° +- 0.75°)<br>45' (0.75°) or less   | 2°50' +- 45'<br>(2.83° +- 0.75°)<br>45' (0.75°) or less   |
| <b>Steering axis inclination</b><br>Right-left error | 10°42' +- 45'<br>(10.70° +- 0.75°)<br>45' (0.75°) or less | 10°35' +- 45'<br>(10.58° +- 0.75°)<br>45' (0.75°) or less |

If the caster and steering axis inclination are not within the specified range after the camber has been correctly adjusted, recheck the suspension parts for damage and/or wear.

**7. ADJUST CAMBER**

**NOTICE:**

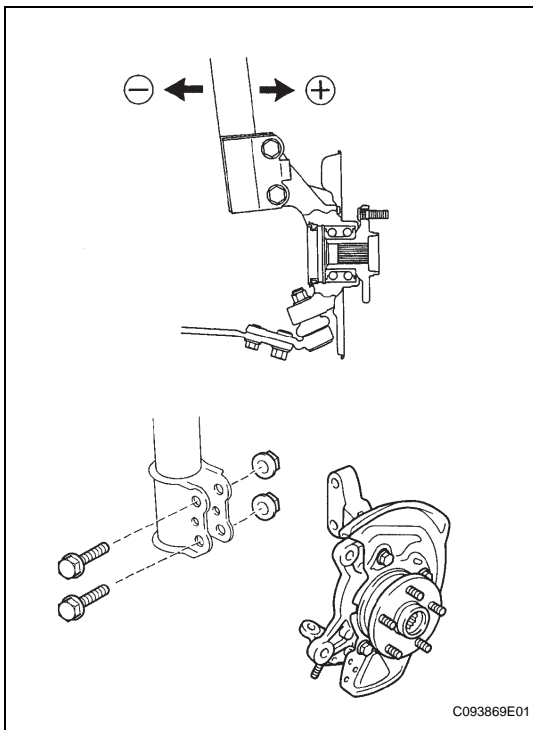
**After the camber has been adjusted, inspect the toe-in.**

- (a) Remove the front wheel.
- (b) Remove the 2 nuts on the lower side of the front shock absorber. (Procedure "B")

**NOTICE:**

**When removing the nuts, keep the bolts from rotating.**

- (c) Clean the installation surfaces of the shock absorber and the steering knuckle.
- (d) Temporarily install the 2 nuts.



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(e) Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which camber adjustment the nuts.

(f) Tighten the nuts.

**Torque: 230 N\*m (2,350 kgf\*cm, 170 ft.\*lbf)**

**NOTICE:**

**When the installing the nuts, keep the bolts from rotating and them torque the nuts.**

(g) Install the front wheel.

**Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)**

(h) Check the camber.





**HINT:**

- Try to adjust the camber to the center of the specified value.
- Adjusting value for the set bolts is 6' to 30' (0.1° to 0.5°).

If the camber is not within the specified value, estimate how much additional camber adjustment will be required, and select the camber adjusting bolt.

**NOTICE:**

**Tighten the adjusting bolt with a new nut.**

| Bolt            | Set Bolt  |   | Adjusting Bolt  |   |   |   |   |   |
|-----------------|---|---|---|---|---|---|---|---|
|                 | 90105-17012   |   | 90105-17013   |   | 90105-17014   |   | 90105-17015   |   |
| Adjusting Value |   |   | 1 Dot   |   | 2 Dots  |   | 3 Dots  |   |
|                 |  |   |  |   |  |   |  |   |
|                 | 1   | 2 | 1   | 2 | 1   | 2 | 1   | 2 |
| 15'             | ●   |   |   | ● |   |   |   |   |
| 30'             | ●   |   |   |   |   | ● |   |   |
| 45'             | ●   |   |   |   |   |   |   | ● |
| 1°00'           |   |   | ●   |   |   |   |   | ● |
| 1°15'           |   |   |   |   | ●   |   |   | ● |
| 1°30'           |   |   |   |   |   |   | ●   | ● |

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- (i) Do the step mentioned above again. At procedure "B", replace 1 or 2 selected bolts.  
 HINT:  
 When replacing the 2 bolts, replace 1 bolt at a time.  
**NOTICE:**  
**Refer to NOTICE.**