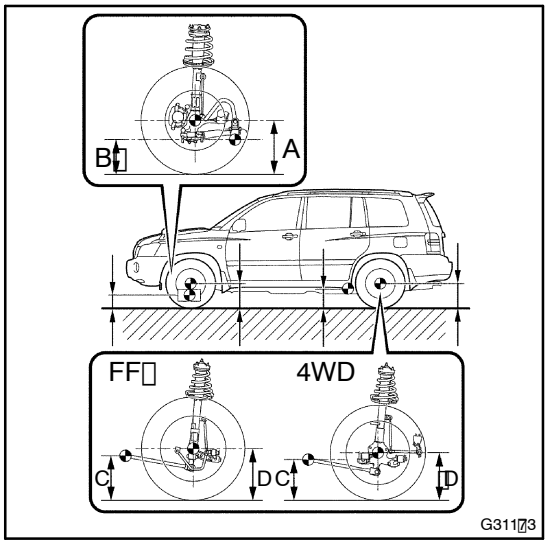
FRONT WHEEL ALIGNMENT

260IP–02

ADJUSTMENT

1. INSPECT TIRE (SEE PAGE 28–1)



2. MEASURE VEHICLE HEIGHT

Vehicle height:

Front (A – B)	110.1 mm (4.33 in.)
Rear (C – D)	30.5 mm (1.20 in.)

Measuring points:

A: Ground clearance of front wheel center

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

C: Ground clearance of strut rod set bolt center

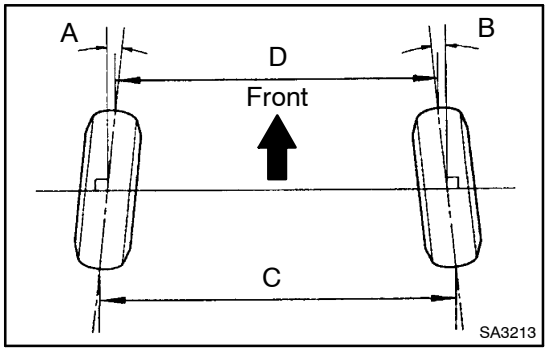
D: Ground clearance of rear wheel center

NOTICE:

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

HINT:

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



3. INSPECT TOE–IN

Toe–in:

Toe–in (total)	A + B: 0° ± 10' (0° ± 0.16°) C – D: 0 ± 2 mm (0 ± 0.08 in.)

- Measure "C–D" only when "A+B" can not be measured.
- If the toe–in is not within the specified value, adjust the rack ends.

4. ADJUST TOE–IN

(a) Remove the rack boot set clips.

(b) Loosen the tie rod end lock nuts.

(c) Adjust the rack ends if the difference in thread length between the right and left rack ends is not within the specified range.

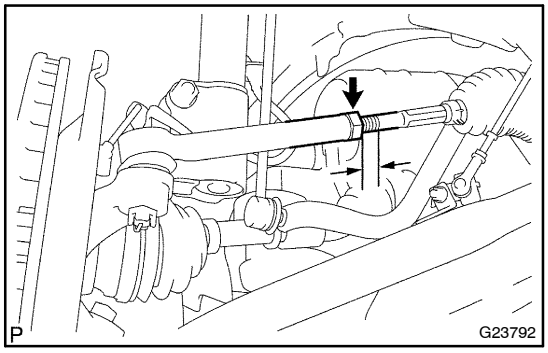
(1) Extend the shorter rack end if the measured toe–in deviates toward the outer–side.

(2) Shorten the longer rack end if the measured toe–in deviates toward the inner–side.

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

HINT:

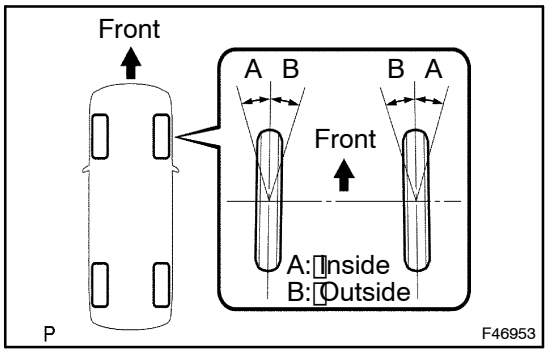
Try to adjust the toe–in to the center of the specified value.



(e) Make sure that the lengths of the right and left rack ends are the same.
Rack end length difference: 1.5 mm (0.059 in.) or less
(f) Torque the tie rod end lock nuts.
Torque: 74 N·m (755 kgf·cm, 55 ft·lbf)

NOTICE:
Temporarily tighten the lock nut while holding the hexagonal part of the steering rack end so that the lock nut and the steering rack end do not turn together. Hold the with a across flat of the tie rod end and tighten the lock nut.

(g) Place the boots on the seats and install the clips.
HINT:
Make sure that the boots are not twisted.
(h) Perform VSC system calibration (see page 05–234).



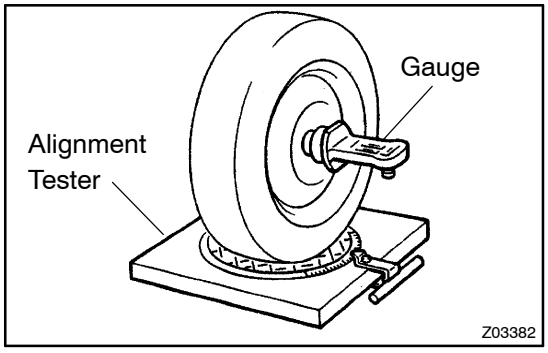
5. INSPECT WHEEL ANGLE

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

Wheel turning angle:

Inside wheel	35°41’ ± 2° (35.68° ± 2°)
Outside wheel: Reference	31°22’ (31.37°)

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) Remove the center ornament.
(c) Set the camber–caster–steering axis inclination gauge at the center of the axle hub or drive shaft.
(d) Inspect the camber,caster and steering axis inclination.

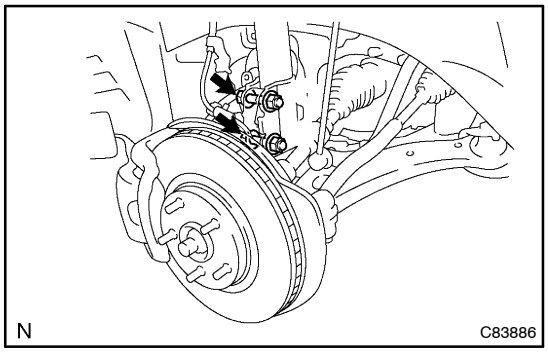
Camber, caster and steering axis inclination:

Camber	−0°35’ ± 45’ (−0.58° ± 0.75°)
Right–left error	45’ (0.75°) or less
Caster	2°45’ ± 45’ (2.75° ± 0.75°)
Right–left error	45’ (0.75°) or less
Steering axis inclination	10°35’ ± 45’ (10.58° ± 0.75°)
Right–left error	45’ (0.75°) or less

NOTICE:
- **Inspect while the vehicle is empty (without the spare tire or tools onboard).**
- **The maximum tolerance of right and left difference for the camber and caster is 45’ or less.**

(e) Remove the camber–caster–steering axis inclination gauge and attachment.
(f) Install the center ornament.

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



7. ADJUST CAMBER

NOTICE:

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

(a) Remove the front wheel.

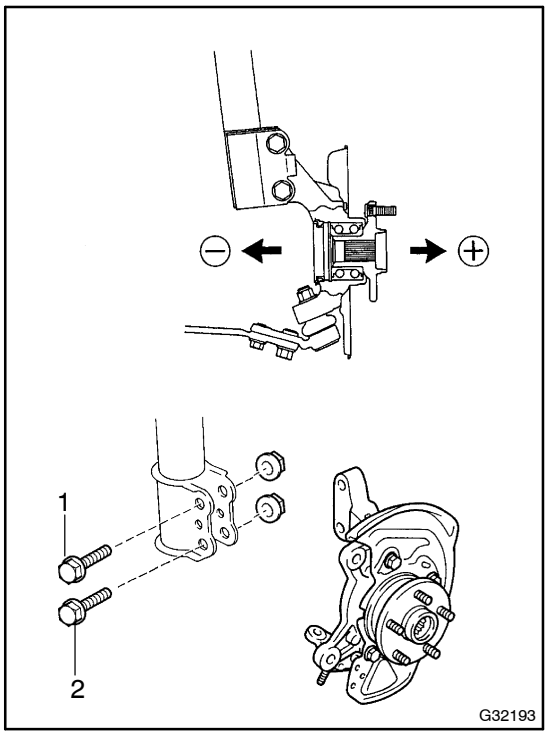
(b) Remove the 2 nuts on the lower side of the shock absorber.

HINT:

When removing the nuts, keep the bolts from rotating.

(c) Clean the installation surface of the shock absorber and the steering knuckle.

(d) Temporarily install the 2 nuts.



(e) Fully push or pull the front axle hub in the direction of the required adjustment.

(f) Tighten the nuts.

Torque: 230 N·m (2,350 kgf·cm, 170 ft·lbf)

HINT:

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

(g) Install the front wheel.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

NOTICE:

Keep the bolts from rotating and torque the nuts.

(h) Install the front wheel.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

(i) Check the camber.

If the measured value is not within the specified range, calculate the required adjustment amount using the formula below.

(Camber adjustment amount) = Center of the specified range – Measured value

Check installed bolts combination. Select appropriate bolts from the table below to adjust the camber to within the specified range.

Move the axle toward (+) in step (e)	Refer to table (1) (Move the axle toward positive side)
Move the axle toward (–) in step (e)	Refer to table (2) (Move the axle toward negative side)

HINT:

- Measure the camber with the bolts currently installed and check the amount of loosness from the specified range.
  (Ex:The measured value is –1°35')
- Determine whether the direction of the required adjustment is toward the positive or negative side.
  (Ex:Refer to table (1) (Move the axle toward positive side))
- Check the required adjustment amount from the measured value.(Table(1), Table(2))
  (Ex:Select "Adjusting value:0°45' to 1°00' ")
- Check the currently installed bolts combination.
  (Ex:"Installed bolt:1–No Dot 2–2Dots")
- Select the adjusting bolts.
  (Ex:"Selected Bolt Combination" results in F:1–3Dots 2–3Dots)
- Measure the alignment again and check that it is within the specified range.
  (Ex:Measured value is wihin –0°35' ± 45')

Table (1) (Move the axle toward positive side)

Adjusting Value \ Installed Bolt								
	1	No Dot	No Dot	No Dot	No Dot	1 Dot	2 Dots	3 Dots
	2	No Dot	1 Dot	2 Dots	3 Dots	3 Dots	3 Dots	3 Dots
−1°30’ to −1°15’								G
−1°15’ to −1°00’							G	A
−1°00’ to −0°45’						G	A	B
−0°45’ to −0°30’					G	A	B	C
−0°30’ to −0°15’				G	A	B	C	D
−0°15’ to 0°			G	A	B	C	D	E
0° to 0°15’		A	B	C	D	E	F	
0°15’ to 0°30		B	C	D	E	F		
0°30’ to 0°45’		C	D	E	F			
0°45’ to 1°00’		D	E	F				
1°00’ to 1°15’		E	F					
1°15’ to 1°30’		F						

Selected Bolt Combination

	A	B	C	D	E	F	G
1	 90105–17012	 90105–17012	 90105–17012	 90105–17013	 90105–17014	 90105–17015	 90105–17012
2	 90105–17013	 90105–17014	 90105–17015	 90105–17015	 90105–17015	 90105–17015	 90105–17012

Bolt Distinguishing Mark

No Dot	1 Dot	2 Dots	3 Dots
 90105–17012	 90105–17013	 90105–17014	 90105–17015

F47223

The body and suspension may be damaged if the camber is not correctly adjusted according to the above table.

NOTICE:

Replace the nut with a new one when replacing the bolt.

(j) Repeat the steps mentioned above. At step (b), replace 1 or 2 selected bolts.

HINT:

Replace one bolt at a time when replacing 2 bolts.

Table (2) (Move the axle toward negative side)

Adjusting Value \ Installed Bolt								
	1	No Dot	No Dot	No Dot	No Dot	1 Dot	2 Dots	3 Dots
	2	No Dot	1 Dot	2 Dots	3 Dots	3 Dots	3 Dots	3 Dots
−1°30' to −1°15'		F						
−1°15' to −1°00'		E	F					
−1°00' to −0°45'		D	E	F				
−0°45' to −0°30'		C	D	E	F			
−0°30' to −0°15'		B	C	D	E	F		
−0°15' to 0°		A	B	C	D	E	F	
0° to 0°15'			G	A	B	C	D	E
0°15' to 0°30				G	A	B	C	D
0°30' to 0°45'					G	A	B	C
0°45' to 1°00'						G	A	B
1°00' to 1°15'							G	A
1°15' to 1°30'								G

Selected Bolt Combination

	A	B	C	D	E	F	G
1	 90105–17012	 90105–17012	 90105–17012	 90105–17013	 90105–17014	 90105–17015	 90105–17012
2	 90105–17013	 90105–17014	 90105–17015	 90105–17015	 90105–17015	 90105–17015	 90105–17012

Bolt Distinguishing Mark

No Dot	1 Dot	2 Dots	3 Dots
 90105–17012	 90105–17013	 90105–17014	 90105–17015

F47223

The body and suspension may be damaged if the camber is not correctly adjusted according to the above table.

NOTICE:

Replace the nut with a new one when replacing the bolt.

(k) Repeat the steps mentioned above. At step (b), replace 1 or 2 selected bolts.

HINT:

Replace one bolt at a time when replacing 2 bolts.