

2002 WHEEL ALIGNMENT

Specifications & Procedures

AVALON

PROCEDURES

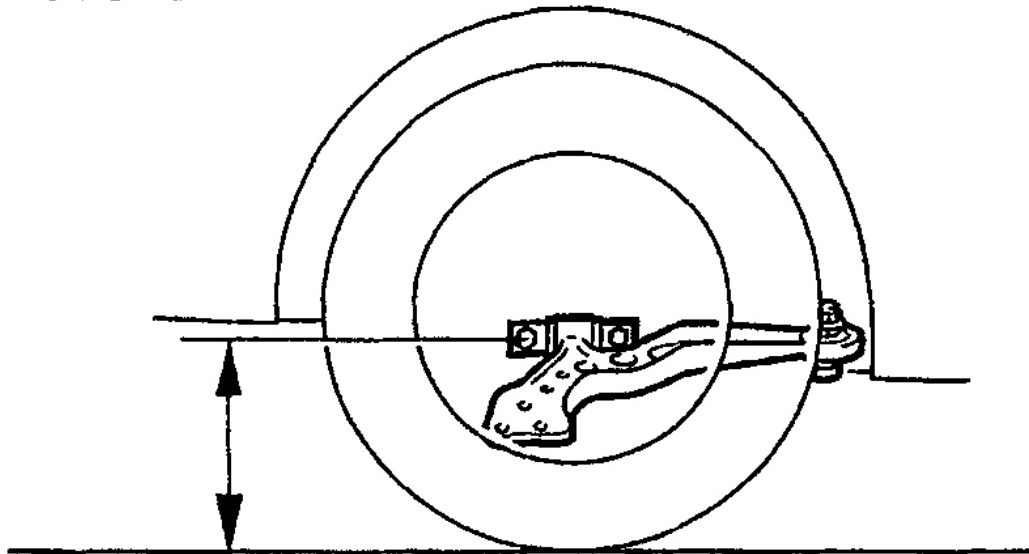
Front Wheel Alignment

NOTE: w/VSC:

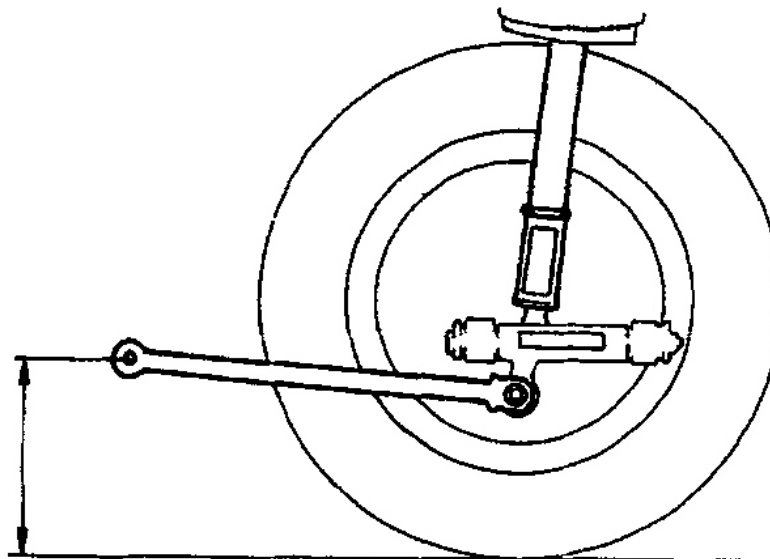
Be sure to perform the steering angle sensor zero point calibration after adjusting the front wheel alignment (See STEP 3 - STEERING ANGLE SENSOR ZERO POINT CALIBRATION).

1. Measure vehicle height .

Front:



Rear:



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Fig. 1: Identifying Vehicle Height Measuring Points
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

Front* ¹ mm (in.)	Rear* ² mm (in.)
213 (8.39)	266 (10.47)

*¹: Front measuring point

Measure the distance from the ground to the 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 front side strut rod mounting bolt.

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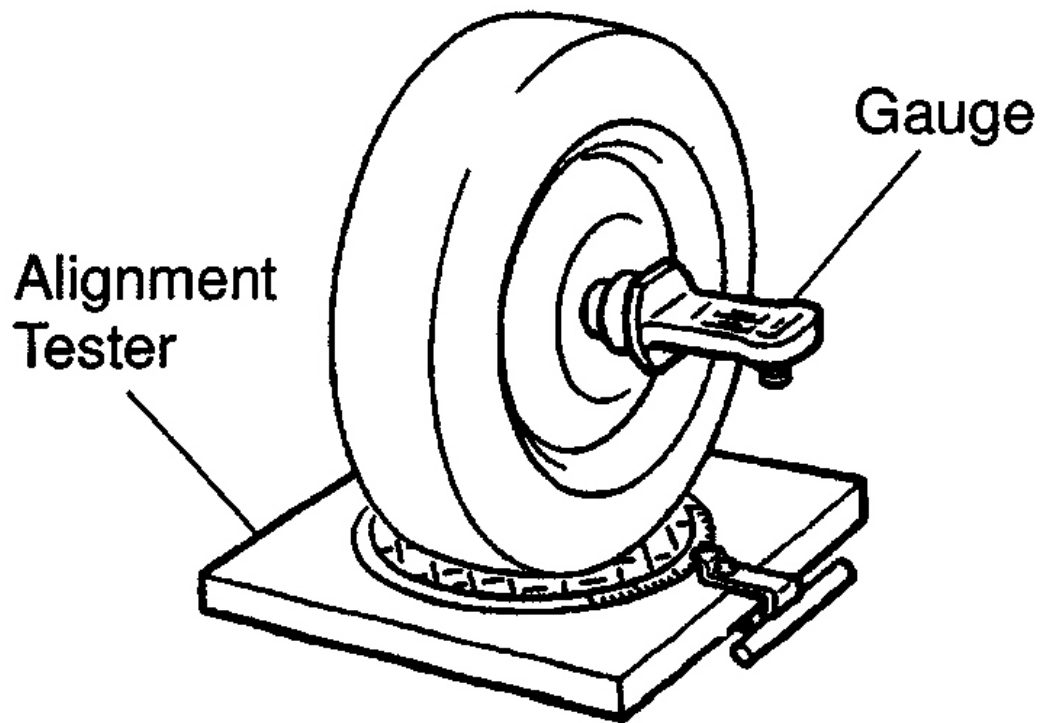
Fig. 2: Identifying Vehicle Height Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .



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Fig. 3: Installing Gauge On Wheel

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber, caster and steering axis inclination:

Camber	$-0^{\circ}37' \pm 45'$ ($-0.62^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less
Caster	$2^{\circ}10' \pm 45'$ ($2.17^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less
Steering axis inclination	$13^{\circ}04' \pm 45'$ ($13.07^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

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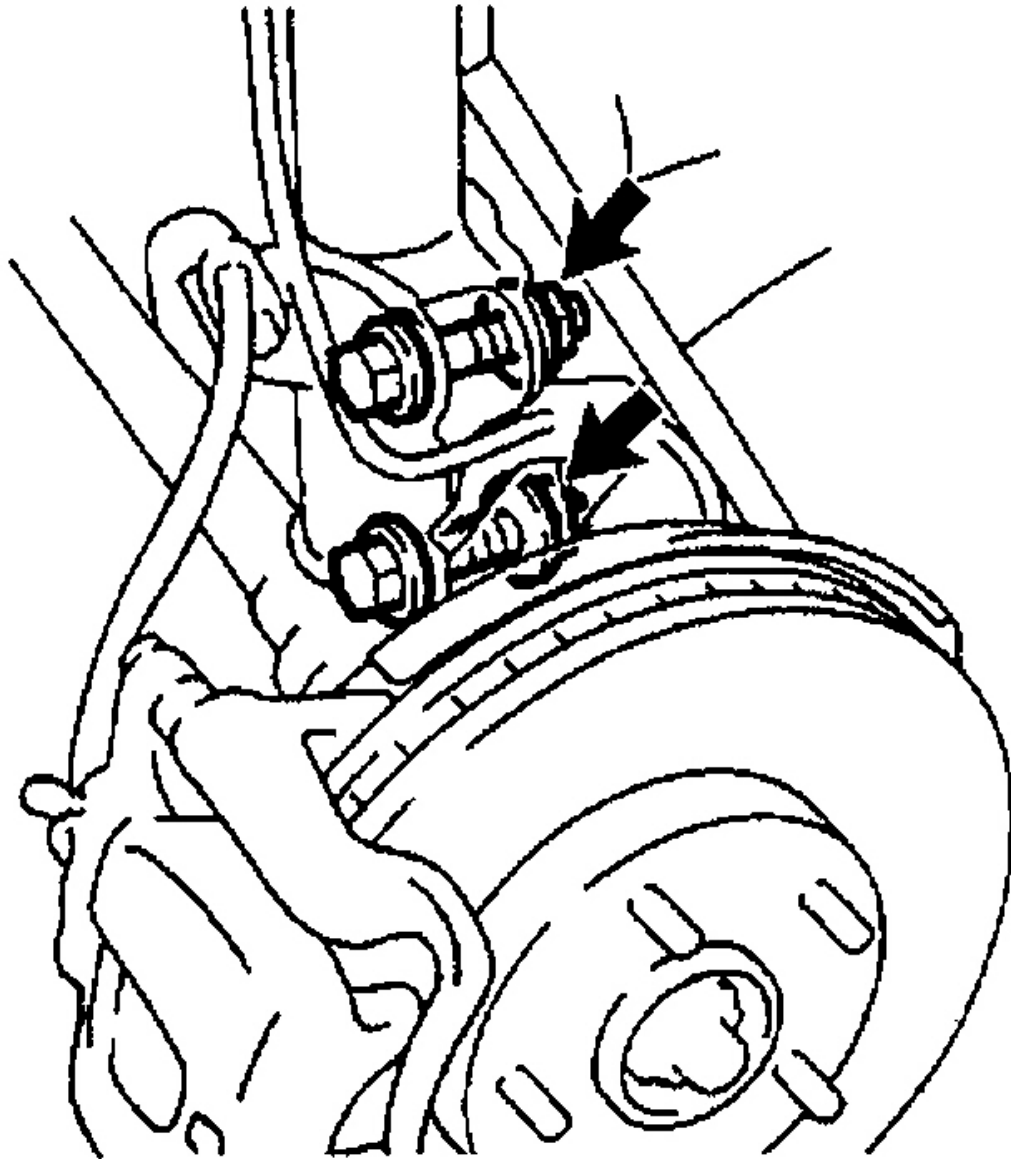
Fig. 4: Identifying Camber, Caster & Steering Axis Inclination Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

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

- a. Remove the front wheel and ABS speed sensor clamp.
- b. Remove the 2 nuts on the lower side of the shock absorber.



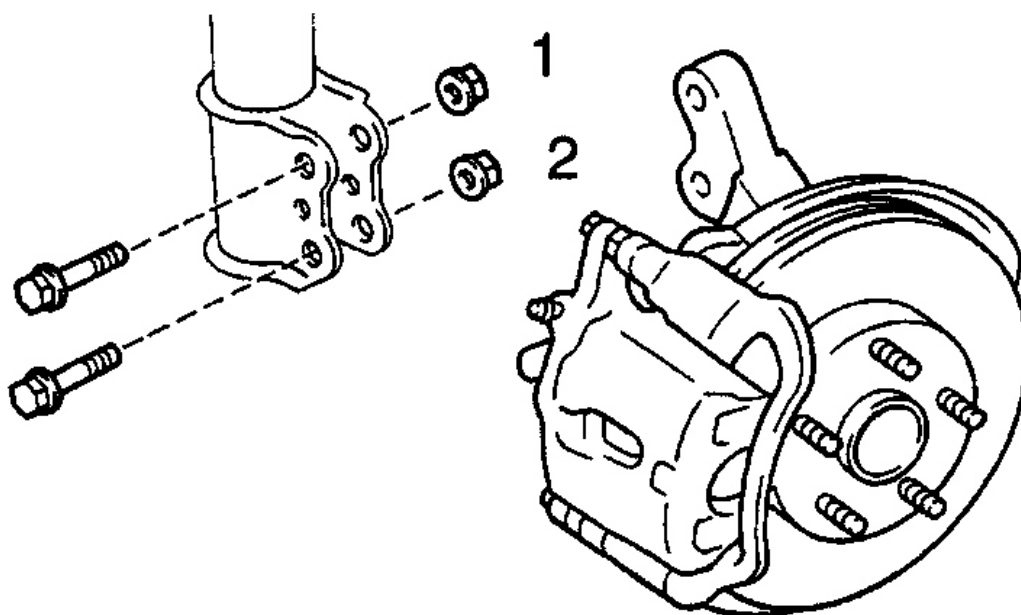
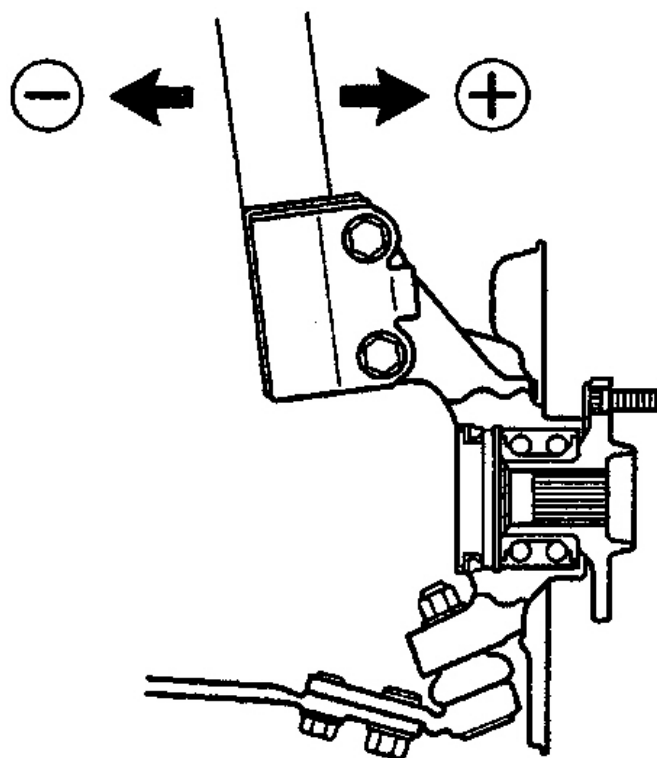
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Fig. 5: Locating Nuts For Removal

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.

- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



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Fig. 6: Adjusting Camber In Direction In Which Adjustment Is Required
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 211 N.m (2,150 kgf.cm, 156 ft.lbf)

g. Install the ABS speed sensor clamp and front wheel.

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

h. Check the camber.

NOTE:

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

If the camber is not within the specified value, use the table in **Fig. 7** to estimate how much additional camber adjustment will be required, and select the camber adjusting bolt.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-17001		90105-17003		90105-17004		90105-17005	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

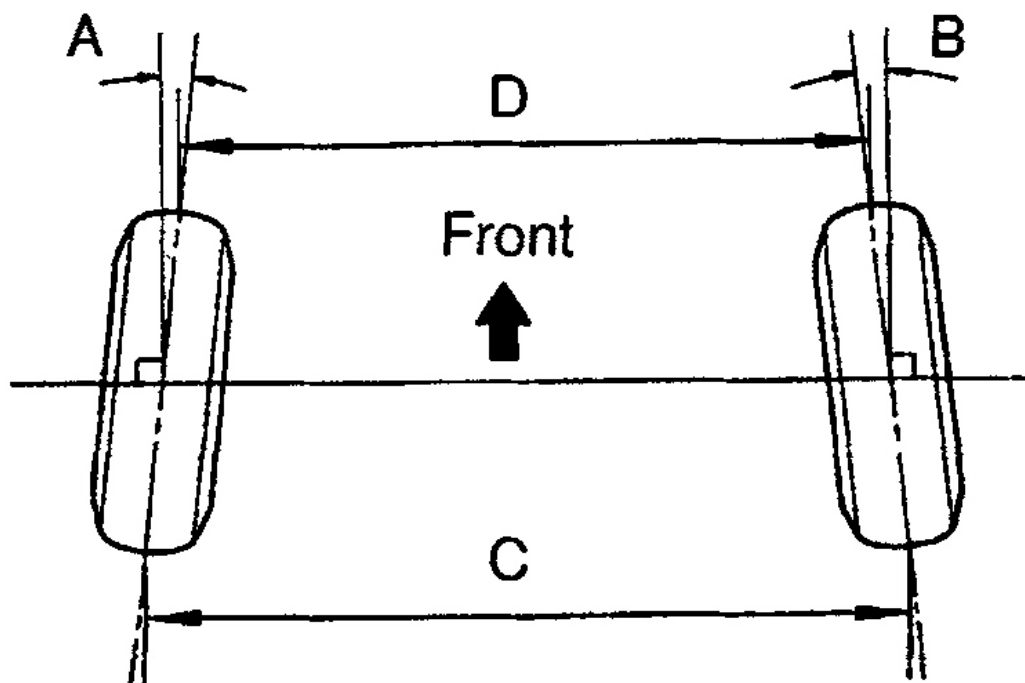
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Fig. 7: Displaying Camber Adjusting Bolt Table
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. Between steps b and c , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

5. Inspect toe-in .



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Fig. 8: Identifying Toe-In Measurement Points
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ} \pm 12' (0^{\circ} \pm 0.2^{\circ})$ $C - D: 0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
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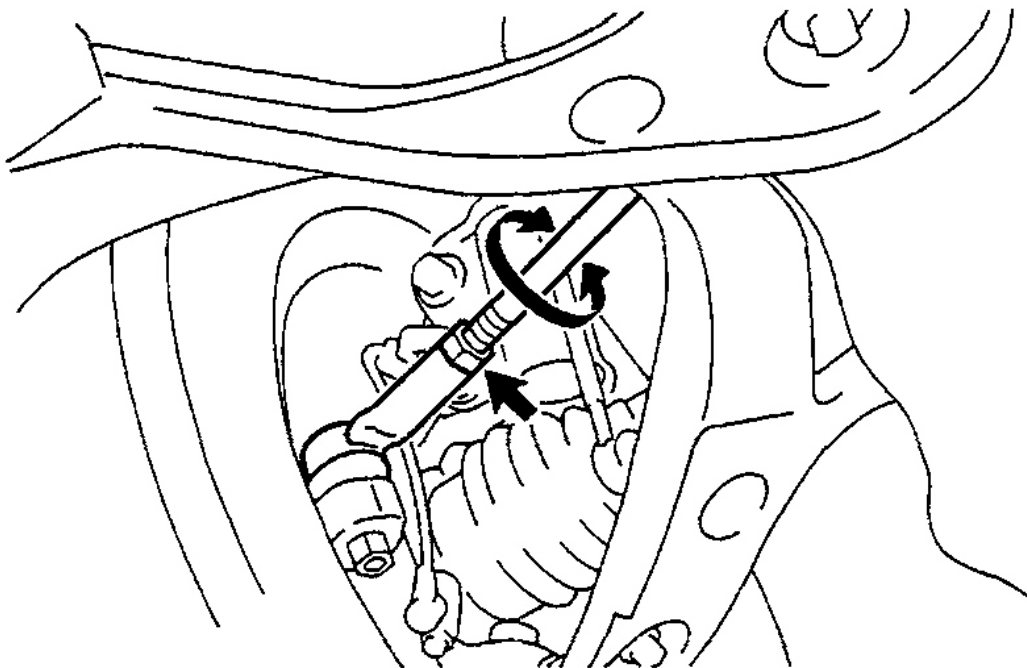
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Fig. 9: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. Adjust toe-in .

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



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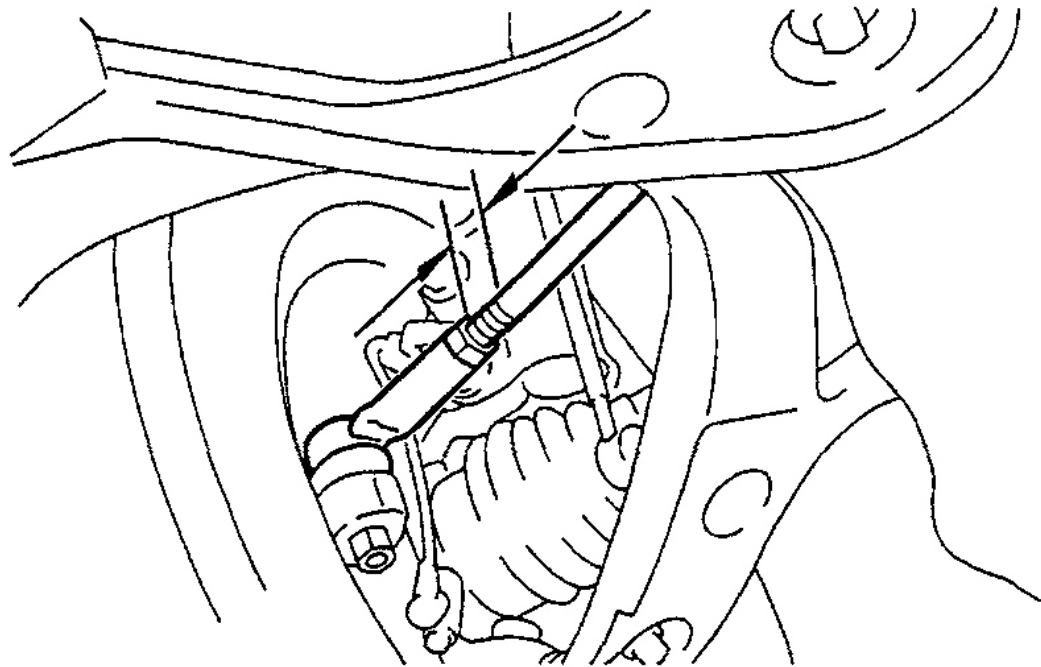
Fig. 10: Loosening Tie Rod End Lock Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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: 1.5 mm (0.059 in.) or less



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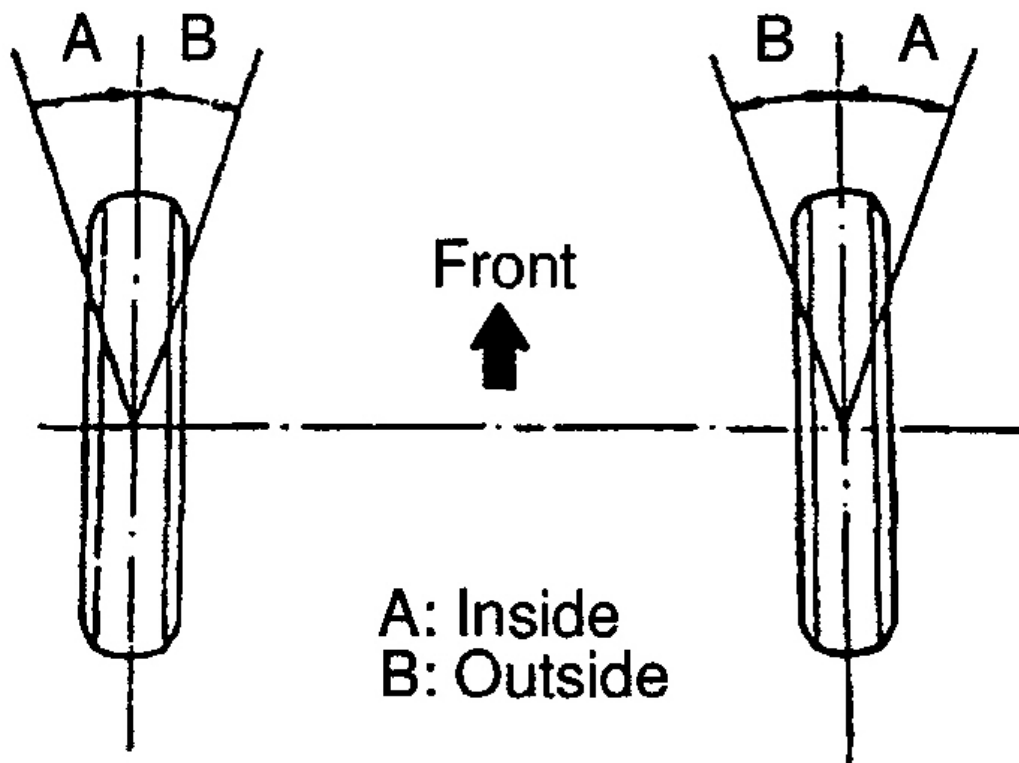
Fig. 11: Checking Rack End Lengths Are Equal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Torque the tie rod end lock nuts.
Torque: 74 N.m (750 kgf.cm, 54 ft.lbf)
- f. Place the boots on the seats and install the clips.

NOTE: **Make sure that the boots are not twisted.**

7. Inspect wheel angle .

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



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Fig. 12: Identifying Wheel Turning Angle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

Inside wheel	$35^{\circ}45' \pm 1^{\circ}$ ($35.75^{\circ} \pm 1^{\circ}$)
Outside wheel: Reference	$31^{\circ}23'$ (31.38°)

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Fig. 13: Identifying Wheel Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

end lengths.

Rear Wheel Alignment

- 1. **Measure vehicle height** (see step **MEASURE VEHICLE HEIGHT** .
- 2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester** .

Follow the specific instructions of the equipment manufacturer.

- 3. **Inspect camber** .

Camber:

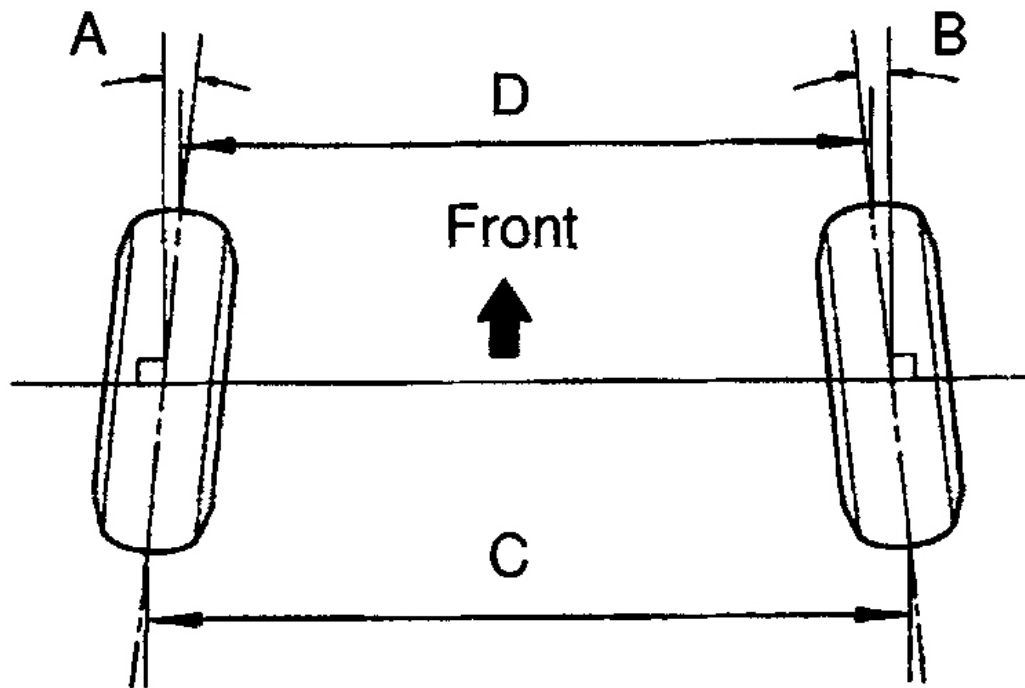
Camber	$-0^{\circ}43' \pm 45'$ ($-0.72^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

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Fig. 14: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the measured value is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

- 4. **Inspect toe-in** .



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Fig. 15: Identifying Toe-in Measurement Points
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ}24' \pm 12' (0.4^{\circ} \pm 0.2^{\circ})$ $C - D: 4 \pm 2 \text{ mm } (0.16 \pm 0.08 \text{ in.})$
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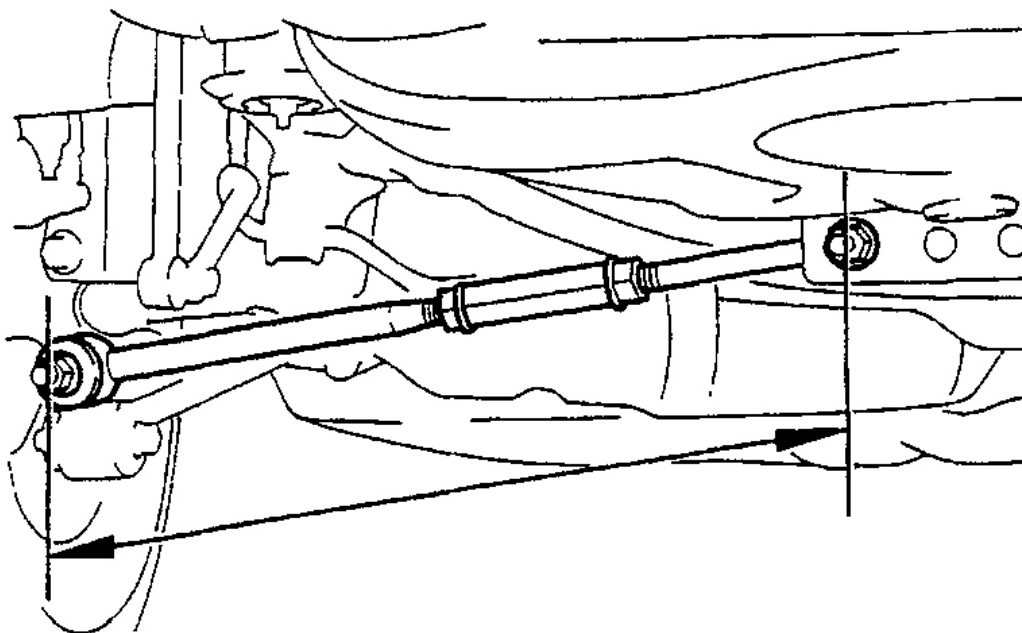
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Fig. 16: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, adjust it at the No. 2 lower suspension arm.

5. Adjust toe-in .

- a. Measure the lengths of the right and left No. 2 lower suspension arms.



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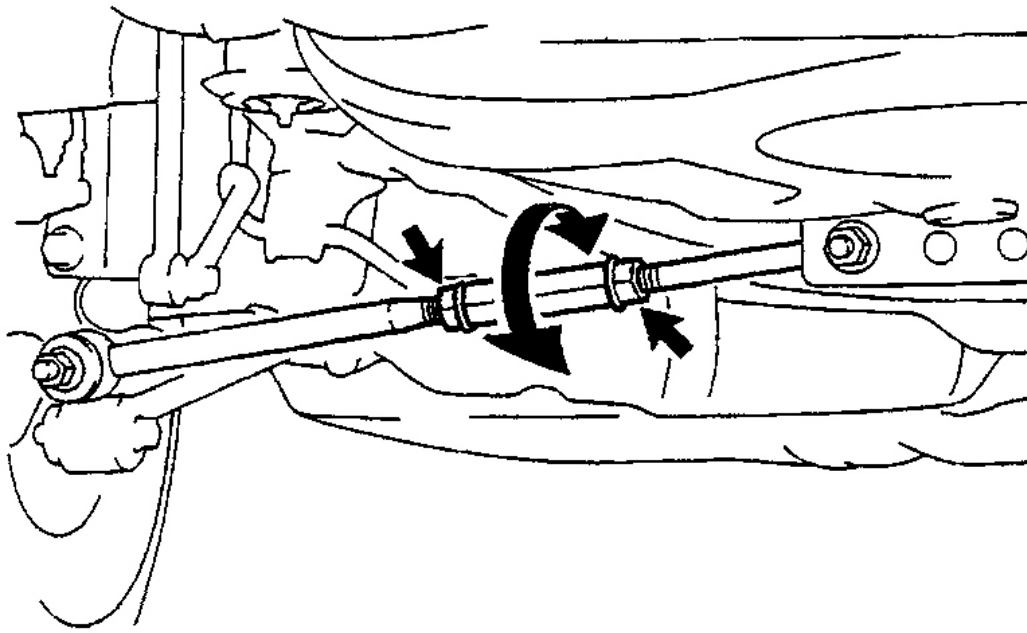
Fig. 17: Measuring Lower Suspension Arm No. 2 Length
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

No. 2 lower suspension arm length difference:

1 mm (0.04 in.) or less

If the right-left difference is greater than the specified value, adjust the length.

- b. Loosen the lock nuts.



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Fig. 18: Loosening Lock Nuts

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Turn the right and left adjusting tube by an equal amount to adjust toe-in.

NOTE:

- Try to adjust the toe-in to the center value.
- One turn of the each adjusting tube will adjust the toe-in by about 36' (0.6°, 6.7 mm, 0.264 in.).

- d. Torque the lock nuts.

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

SPECIFICATIONS

Cold tire inflation pressure	P205/65R15 92H	Front, rear	210 kPa (2.1 kgf/cm ² , 31 psi)
	P205/60R16 91H	Front, rear	220 kPa (2.2 kgf/cm ² , 32 psi)
Front Wheel alignment	Vehicle height	Front* ¹ Rear* ²	213 mm (8.39 in.) 266 mm (10.47 in.)
	Camber	Right-left error	-0°37' ± 45' (-0.62° ± 0.75°) 45' (0.75°) or less
	Caster	Right-left error	2°10' ± 45' (2.17° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Right-left error	13°04' ± 45' (13.07° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	Rack end length difference	0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle	Inside wheel Outside wheel: Reference	35°45' ± 1° (35.75° ± 1°) 31°23' (31.38°)
Rear wheel alignment	Camber	Right-left error	-0°43' ± 45' (-0.72° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	No. 2 lower suspension arm length difference	0°24' ± 12' (0.4° ± 0.2°, 4 ± 2 mm, 0.16 ± 0.08 in.) 1 mm (0.04 in.) or less
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)
Front drive shaft	Drive shaft standard length	LH RH	586.0 ± 2.0 mm (23.071 ± 0.079 in.) 881.6 ± 2.0 mm (34.709 ± 0.079 in.)
	Lower ball joint turning torque		1.0 – 3.4 N·m (10 – 35 kgf·cm, 8.7 – 30 in.-lbf)
Front suspension	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Rear suspension	No. 2 lower suspension arm length		512.3 mm (20.169 in.)
	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

*1: Front measuring point

Measure the distance from the ground to the 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 front side strut rod mounting bolt.

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Fig. 19: Wheel Alignment Specifications (Avalon)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

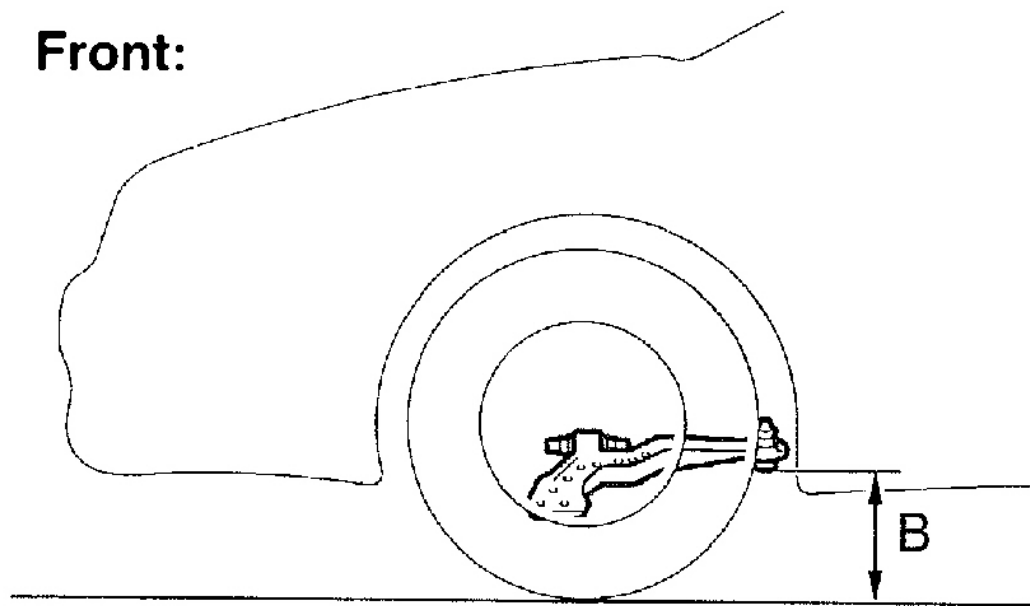
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PROCEDURES

Front Wheel Alignment

1. Inspect tire .
2. Measure vehicle height .

Front:



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Fig. 20: Measuring Vehicle Height (Front)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

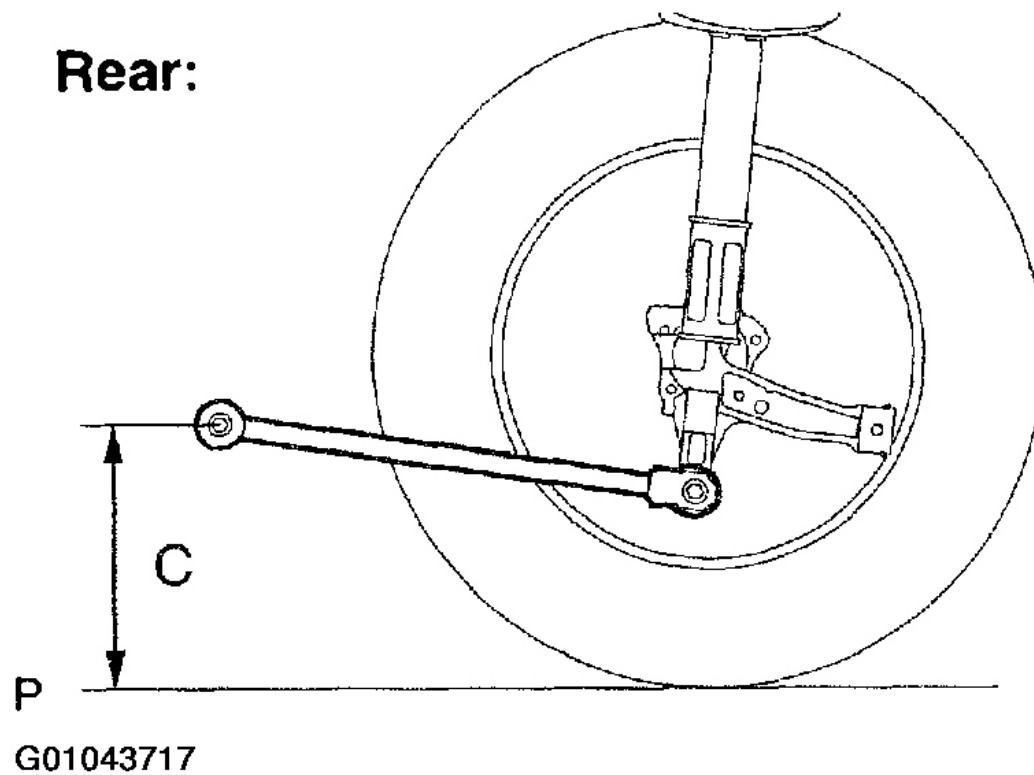


Fig. 21: Measuring Vehicle Height (Rear)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

1MZ-FE COMFORT:

Front	A – B: 120 mm (4.72 in.)
Rear	D – C: 46 mm (1.81 in.)

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Fig. 22: Identifying Vehicle Height Measurements (1MZ-FE Comfort)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1MZ-FE PREMIUM:

Front	A – B: 119 mm (4.69 in.)
Rear	D – C: 47 mm (1.85 in.)

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Fig. 23: Identifying Vehicle Height Measurements (1MZ-FE Premium)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1MZ-FE SPORT:

Front	A – B: 120 mm (4.72 in.)
Rear	D – C: 48 mm (1.89 in.)

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Fig. 24: Identifying Vehicle Height Measurements (1MZ-FE Sport)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2AZ-FE COMFORT:

Front	A – B: 119 mm (4.69 in.)
Rear	D – C: 45 mm (1.77 in.)

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Fig. 25: Identifying Vehicle Height Measurements (2AZ-FE Comfort)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2AZ-FE PREMIUM:

Front	A – B: 120 mm (4.72 in.)
Rear	D – C: 45 mm (1.77 in.)

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Fig. 26: Identifying Vehicle Height Measurements (2AZ-FE Premium)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2AZ-FE SPORT:

Front	A – B: 120 mm (4.72 in.)
Rear	D – C: 48 mm (1.89 in.)

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Fig. 27: Identifying Vehicle Height Measurements (2AZ-FE Sport)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

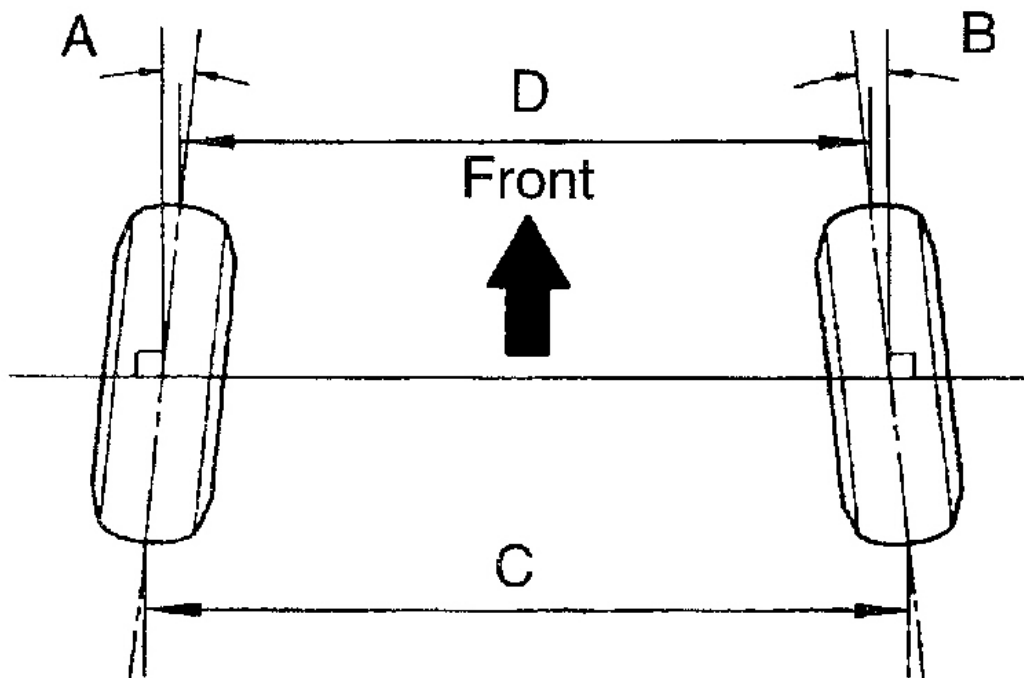
Measuring points:

- A: Ground clearance of front wheel center**
- B: Ground clearance of lower suspension arm No. 2 set bolt center**
- C: Ground clearance of strut rod set bolt center**
- D: Ground clearance of rear wheel center**

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

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

3. Inspect toe-in .



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Fig. 28: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^\circ \pm 12' (0^\circ \pm 0.2^\circ)$ $C - D: 0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
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Fig. 29: Identifying Toe-In Equation Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

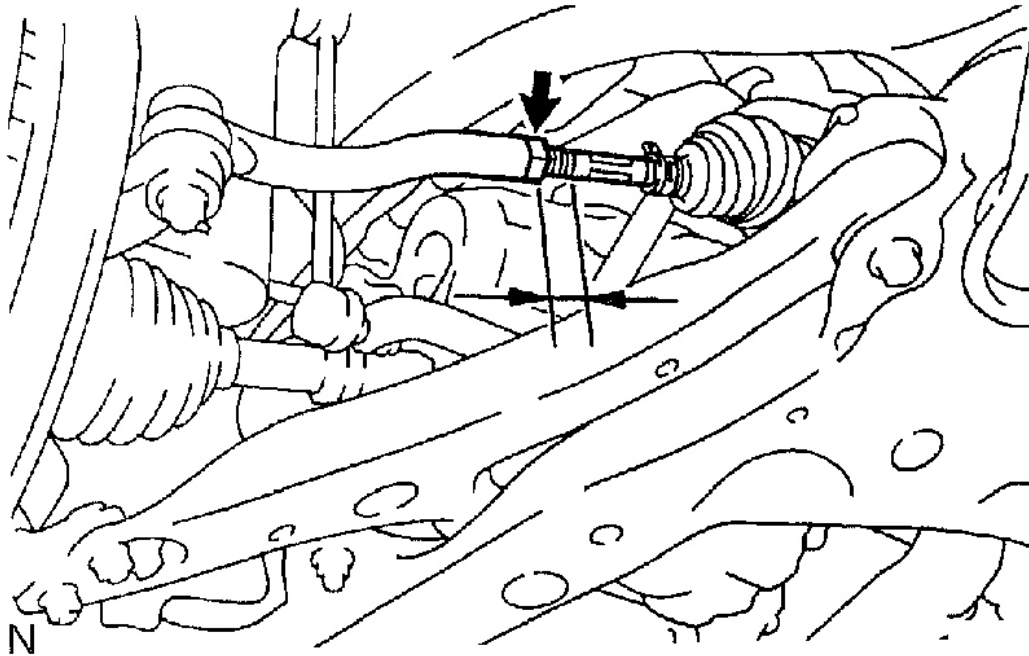
4. Adjust toe-in .

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

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

NOTE: 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.



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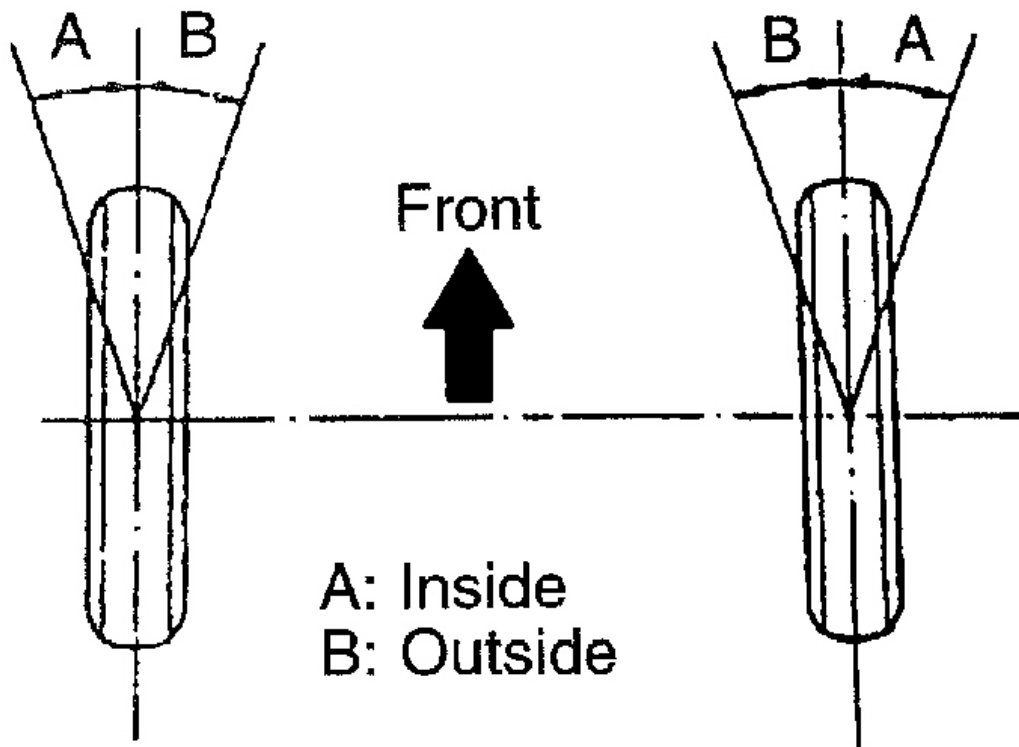
Fig. 30: Checking For Equal Length Rack Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Torque the tie rod end lock nuts.
Torque: 74 N.m (755 kgf.cm, 55 ft.lbf)
- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

5. Inspect wheel angle .

- a. Turn the steering wheel fully and measure the turning angle.



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Fig. 31: Identifying Wheel Turning Angles
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

15 inch:

See **Fig. 32** .

Inside wheel	$39^{\circ}04' \pm 2^{\circ}$ ($39.07^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$33^{\circ}44'$ (33.73°)

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Fig. 32: Identifying Wheel Turning Angle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16 inch:

See **Fig. 33** .

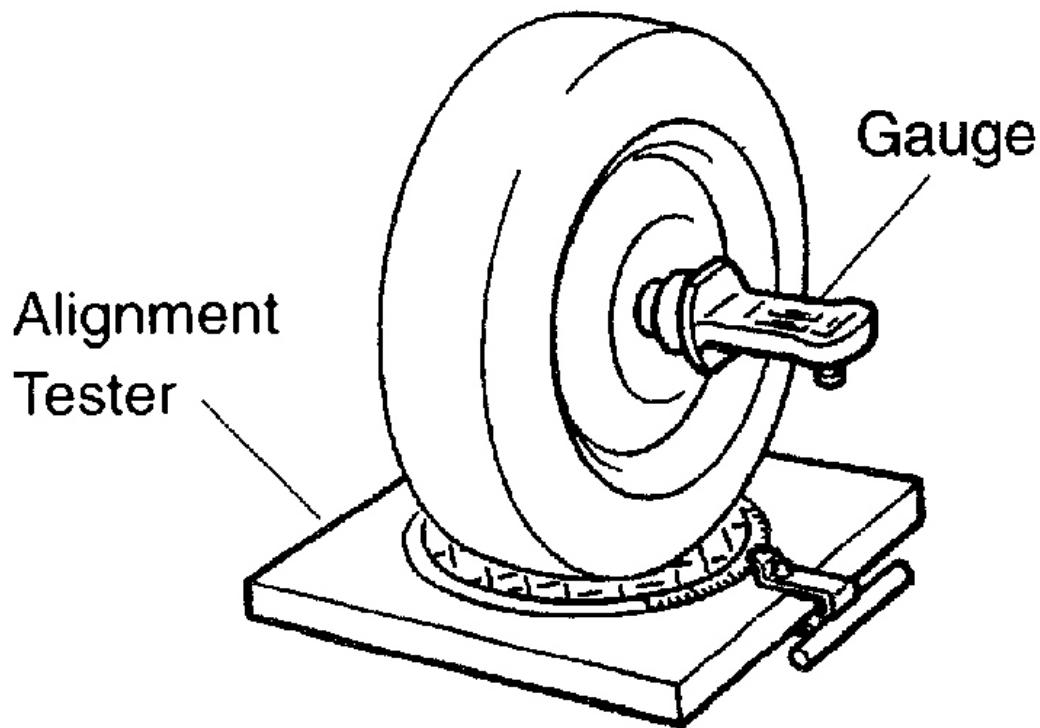
Inside wheel	$36^{\circ}39' \pm 2^{\circ}$ ($36.65^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$32^{\circ}11'$ (32.18°)

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Fig. 33: Identifying Wheel Turning Angle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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. Install the camber/caster/kingpin gauge or position vehicle on wheel alignment tester.



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Fig. 34: Installing Camber/Caster/Kingpin Gauge
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Inspect the camber, caster and steering axis inclination.

Camber and steering axis inclination:

Camber Right-left error	$-0^{\circ}43' \pm 45' (-0.72^{\circ} \pm 0.75^{\circ})$ 45' (0.75°) or less
Steering axis inclination	11°27' (11.45°)

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Fig. 35: Displaying Camber & Steering Axis Inclination Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Caster

1MZ-FE SPORT:

Caster	$2^{\circ}39' \pm 45' (2.65^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

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Fig. 36: Displaying Caster Specifications (1MZ-FE Sport)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1 MZ-FE Except SPORT:

Caster	$2^{\circ}37' \pm 45' (2.62^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

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Fig. 37: Displaying Caster Specifications (1 MZ-FE Except Sport)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2AZ-FE SPORT:

Caster	$2^{\circ}43' \pm 45' (2.72^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

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Fig. 38: Displaying Caster Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2AZ-FE Except SPORT:

Caster	$2^{\circ}39' \pm 45' (2.65^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

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Fig. 39: Displaying Caster Specifications

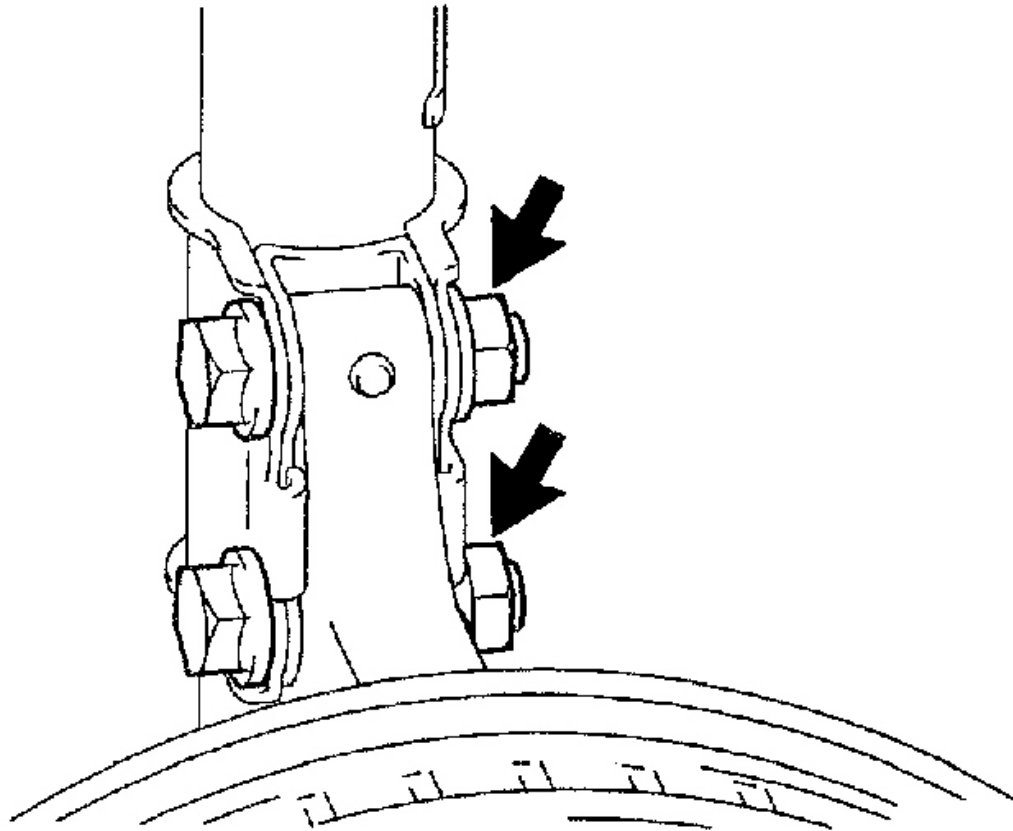
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the caster and steering axis inclination are not within the specified values, after the camber has been correctly adjusted, re-check the suspension parts for damaged and/or worn out parts.

7. **Adjust camber .**

NOTE: **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.

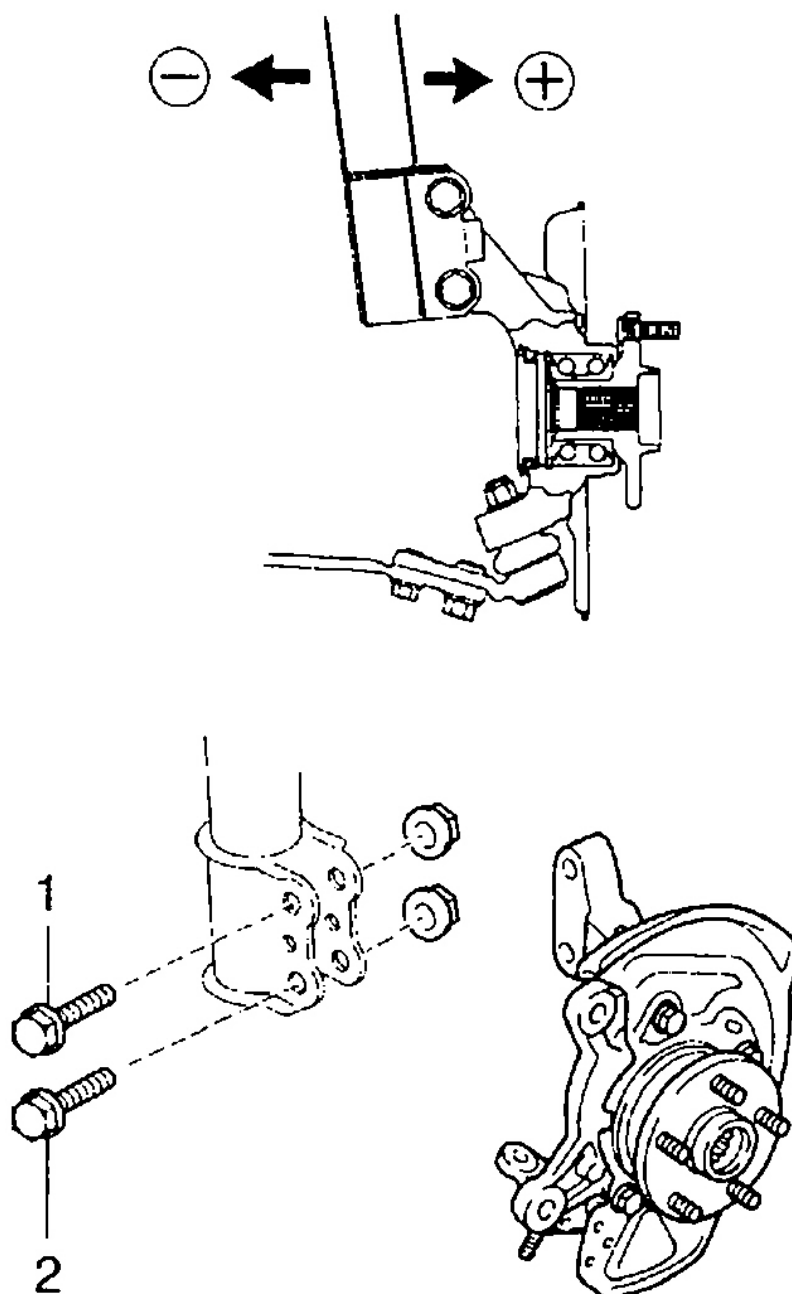


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Fig. 40: Locating Lower Shock Absorber Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **When removing nut, stop the bolt from rotating and loosen the nut.**

- c. Clean the installation surfaces of the shock absorber and the steering knuckle.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



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Fig. 41: Moving Shock Absorber In Or Out To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Tighten the nuts.

Torque: 210 N.m (2,141 kgf.cm, 155 ft.lbf)

NOTE: When installing nut, stop the bolt from rotating and torque the nut.

g. Install the front wheel.

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

h. Check the camber.

NOTE:

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

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

NOTE: Tighten the adjusting bolt with a washer and a new nut.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-17008		90105-17009		90105-17010		90105-17011	
			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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Fig. 42: Displaying Camber Adjustment Bolt Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. At step b , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

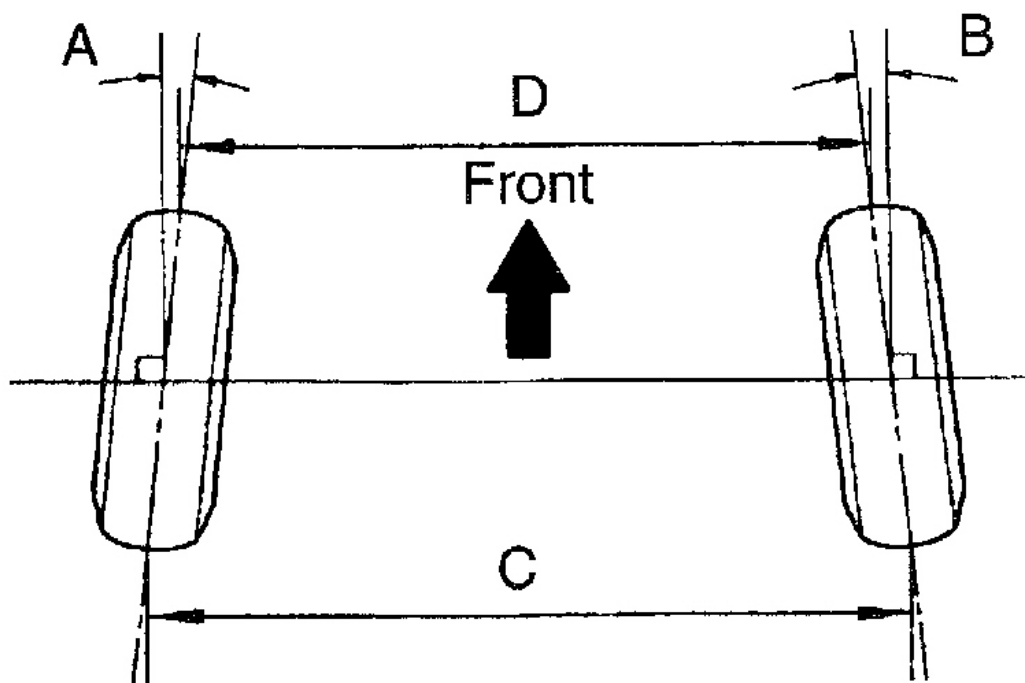
Rear Wheel Alignment

1. Inspect tire .
2. Measure vehicle height (see step MEASURE VEHICLE HEIGHT).

NOTE: Before inspecting the wheel alignment, adjust the vehicle height to the

specified value.

3. Inspect toe-in .



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Fig. 43: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ}22' \pm 11' (0.4^{\circ} \pm 0.2^{\circ})$ $C - D: 4 \pm 2 \text{ mm } (0.16 \pm 0.08 \text{ in.})$
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G01043866

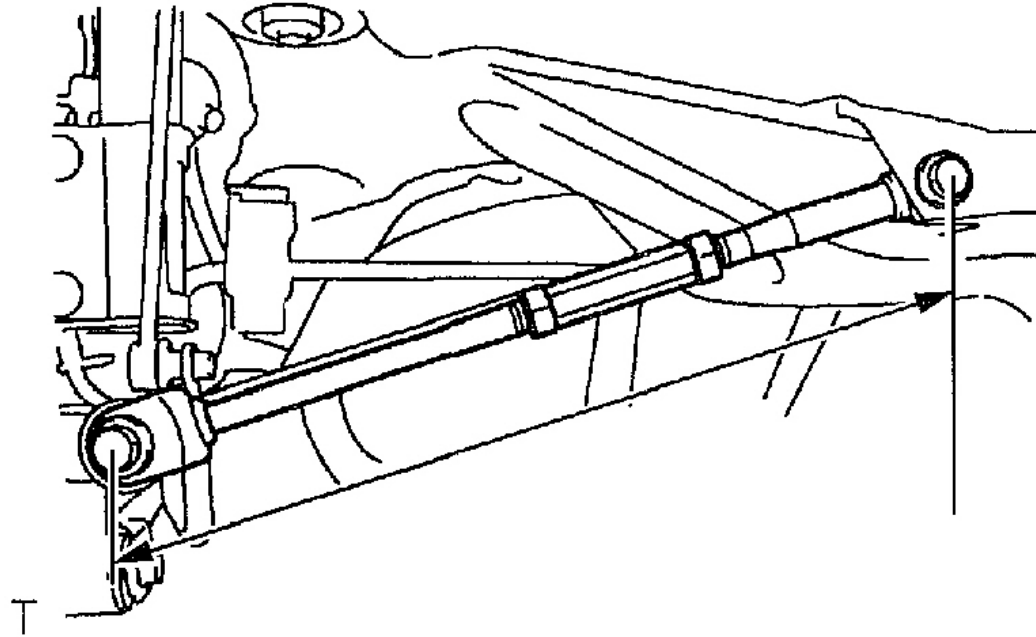
Fig. 44: Identifying Toe-In Equation Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, inspect and replace the suspension parts if necessary.

4. Adjust toe-in .

- a. Measure the lengths of the right and left No. 2 lower suspension arms.



G01043868

Fig. 45: Measuring Rear Lower Suspension Arm Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

No. 2 lower suspension arm length difference: 1.0 mm (0.04 in.) or less

If the left-right difference is larger than 1.0 mm (0.04 in.), adjust it by following the procedures below.

- b. Loosen the lock nuts.

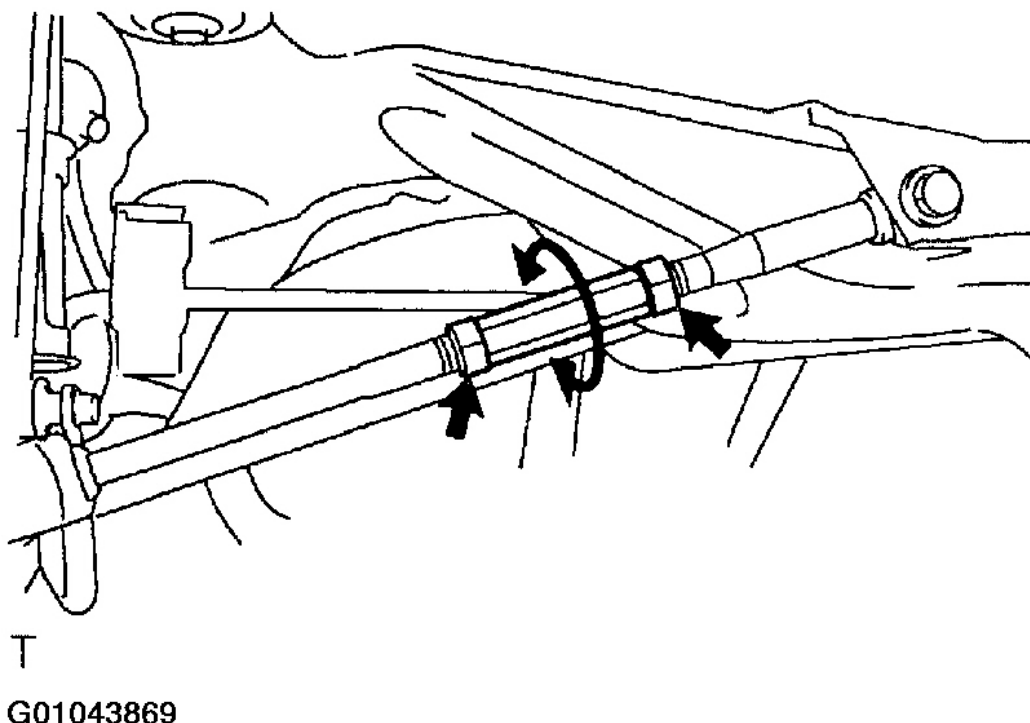


Fig. 46: Adjusting Rear Suspension Arm
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Turn the right and left adjusting tube by an equal amount to adjust toe-in.

NOTE:

- Try to adjust the toe-in to the center value.
- One turn of the each adjusting tube will adjust the toe-in by approximately 67' (1° 12', 10.8 mm, 0.425 in.).

- d. Torque the lock nut.

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

- e. **Inspect camber .**

Camber	Right-left error	$-1^{\circ}16' \pm 45' (-1.27^{\circ} \pm 0.75^{\circ})$ 45' (0.75") or less
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G01043870

Fig. 47: Identifying Camber Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Camber is not adjustable. If the measurement is not within the specification, inspect the suspension parts for damaged and/or worn-out parts and replace them if necessary.

SPECIFICATIONS

Cold tire inflation pressure	Tire size: P205/65R15 92T	Front, Rear	
	Tire size: P205/65R15 92H	Front, Rear	
	Tire size: P215/60R16 94V	Front, Rear	220 kPa (2.0 kgf/cm ² , 29 psi)
Front wheel alignment	Vehicle height		
	1MZ-FE COMFORT	Front: A *1 – B *2 Rear: D *4 – C *3	120 mm (4.72 in.) 46 mm (1.81 in.)
	1MZ-FE PREMIUM	Front: A *1 – B *2 Rear: D *4 – C *3	119 mm (4.69 in.) 47 mm (1.85 in.)
	1MZ-FE SPORT	Front: A *1 – B *2 Rear: D *4 – C *3	120 mm (4.72 in.) 48 mm (1.89 in.)
	2AZ-FE COMFORT	Front: A *1 – B *2 Rear: D *4 – C *3	119 mm (4.69 in.) 45 mm (1.77 in.)
	2AZ-FE PREMIUM	Front: A *1 – B *2 Rear: D *4 – C *3	120 mm (4.72 in.) 45 mm (1.77 in.)
	2AZ-FE SPORT	Front: A *1 – B *2 Rear: D *4 – C *3	120 mm (4.72 in.) 48 mm (1.89 in.)
	Toe-in (total)		0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.)
		Rack end length difference	1.5 mm (0.059 in.) or less
	Wheel angle		
	15 inch	Inside wheel	39°04' ± 2° (39.07° ± 2°)
		Outside wheel: Reference	33°44' (33.73°)
	16 inch	Inside wheel	36°39' ± 2° (36.65° ± 2°)
		Outside wheel: Reference	32°11' (32.18°)
	Camber		-0°43' ± 45' (-0.72° ± 0.75°)
		Right-left error	45' (0.75°) or less
Front suspension	Caster		
	1MZ-FE SPORT		2°39' ± 45' (2.65° ± 0.75°)
		Right-left error	45' (0.75°) or less
	1MZ-FE Except SPORT		2°37' ± 45' (2.62° ± 0.75°)
		Right-left error	45' (0.75°) or less
	2AZ-FE SPORT		2°43' ± 45' (2.72° ± 0.75°)
	2AZ-FE Except SPORT		45' (0.75°) or less
		Right-left error	45' (0.75°) or less
	Steering axis inclination		11°27' ± 45' (11.45° ± 0.75°)
		Right-left error	45' (0.75°) or less
Front suspension	Lower ball joint turning torque		0.98 – 3.43 N·m (10 – 35 kgf·cm, 8.7 – 30 in.·lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 1.96 N·m (0.5 – 20 kgf·cm, 0.4 – 17.4 in.·lbf)

- *1: Ground clearance of front wheel center
- *2: Ground clearance of lower suspension arm No. 2 set bolt center
- *3: Ground clearance of strut rod set bolt center
- *4: Ground clearance of rear wheel center

G00212707

Fig. 48: Wheel Alignment Specifications - Front (Camry)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rear wheel alignment	Toe-in (total)	0°22' ± 11' (0.3° ± 0.2°, 4.0 ± 2.0 mm, 0.16 ± 0.08 in.)
	Camber Right-left error	-1°16' ± 45' (-1.27° ± 0.75°) 45' (0.75°) or less
Rear suspension	Stabilizer bar link ball joint turning torque	0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

G00371067

Fig. 49: Wheel Alignment Specifications - Rear (Camry)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

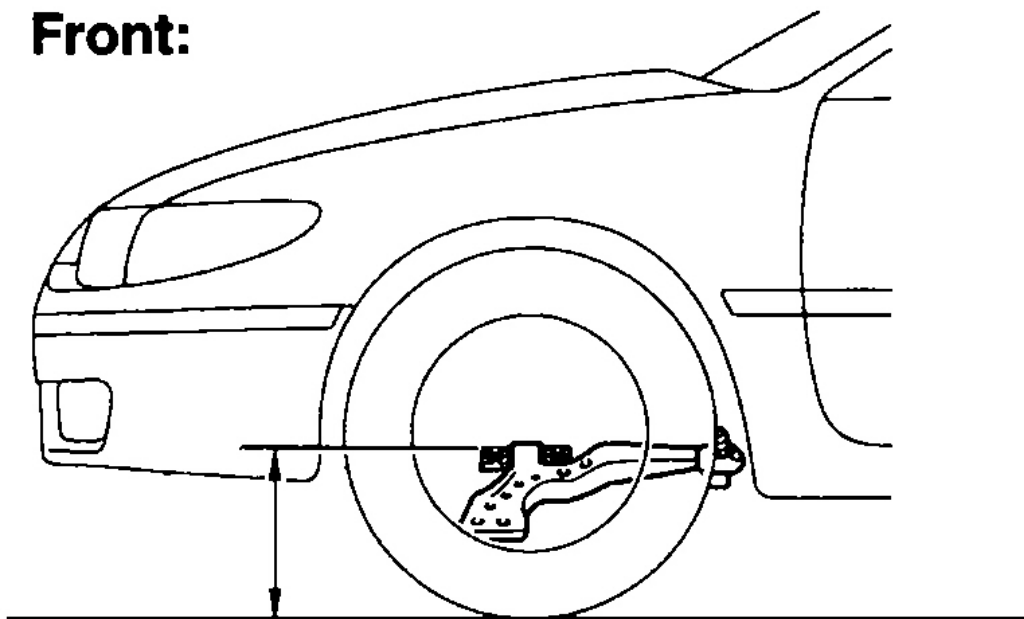
CAMRY SOLARA

PROCEDURES

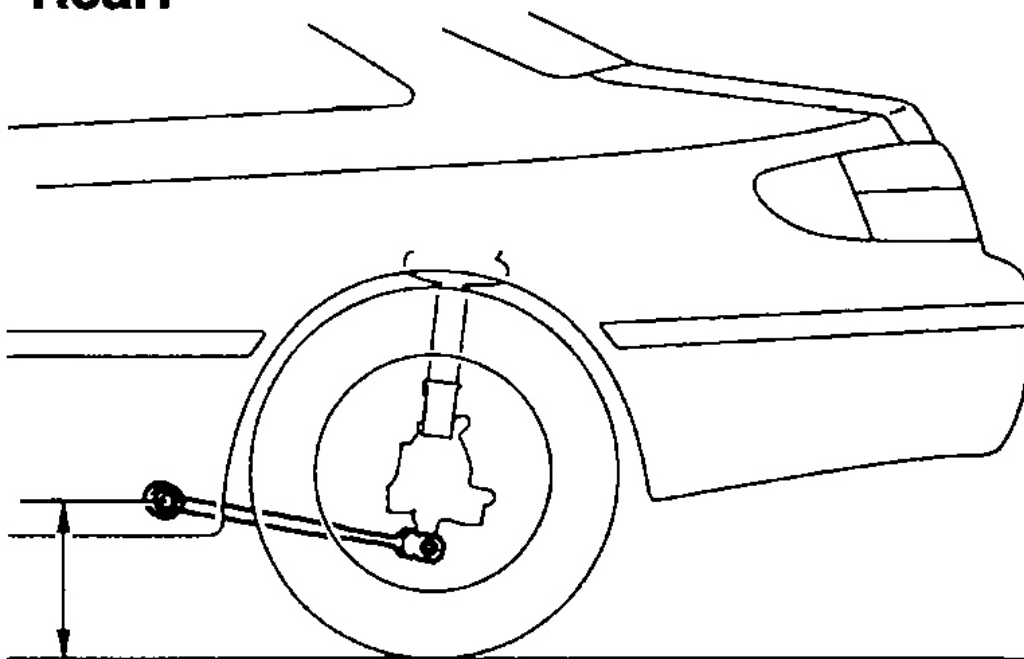
Front Wheel Alignment

- 1. Measure vehicle height .

Front:



Rear:



G01099011

Fig. 50: Measuring Vehicle Height

Vehicle height:

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
205/65R15	220 (8.66)	268 (10.55)
205/60R16	221 (8.70)	269 (10.59)

***¹: Front measuring point**

Measure the distance from the ground to the 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 front side strut rod mounting bolt.

G01099010

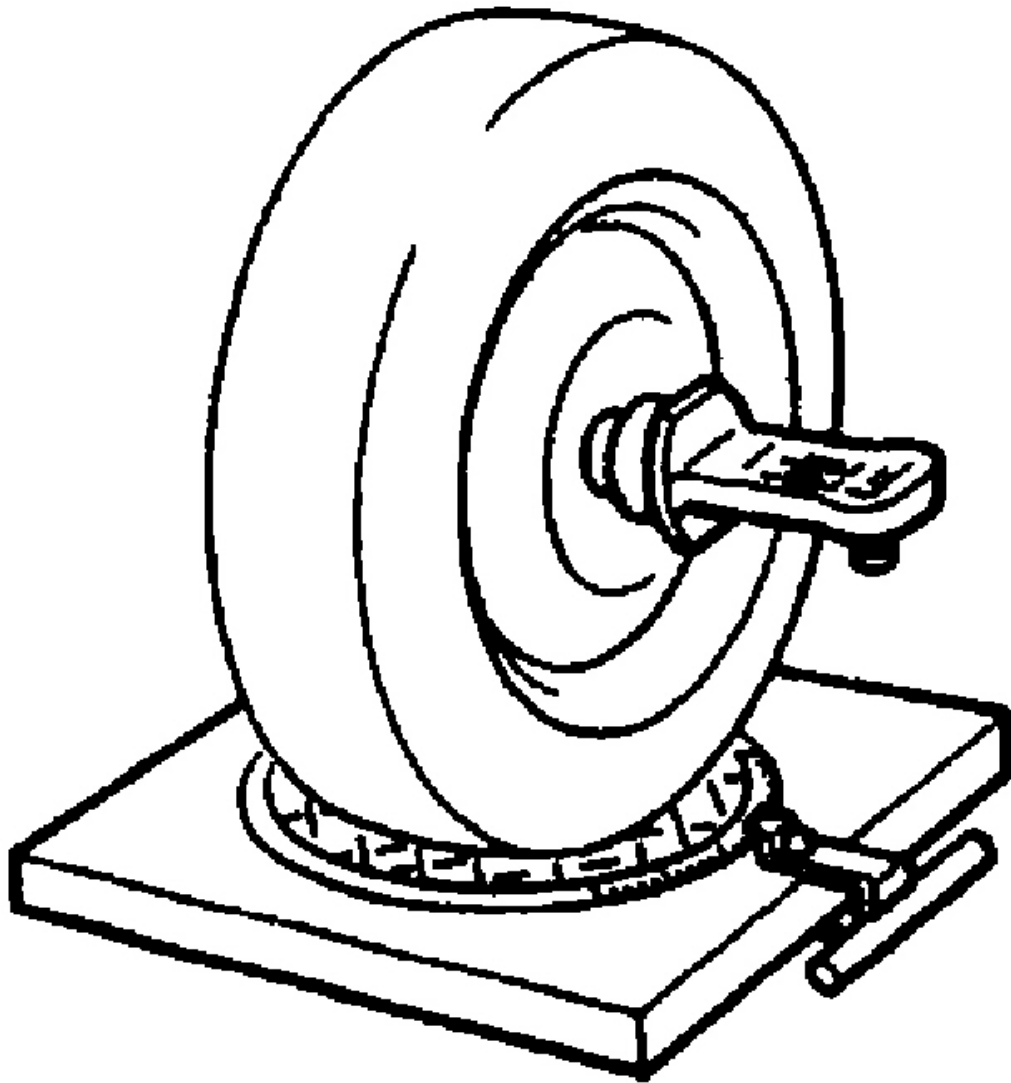
Fig. 51: Identifying Wheel Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .



G01099012

Fig. 52: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber, caster and steering axis inclination:

Camber	$-0^{\circ}31' \pm 45' (-0.52^{\circ} \pm 0.75^{\circ})$ Right-left error $45' (0.75^{\circ})$ or less
Caster	$2^{\circ}08' \pm 45' (2.13^{\circ} \pm 0.75^{\circ})$ Right-left error $45' (0.75^{\circ})$ or less
Steering axis inclination	$12^{\circ}54' \pm 45' (12.90^{\circ} \pm 0.75^{\circ})$ Right-left error $45' (0.75^{\circ})$ or less

G01099013

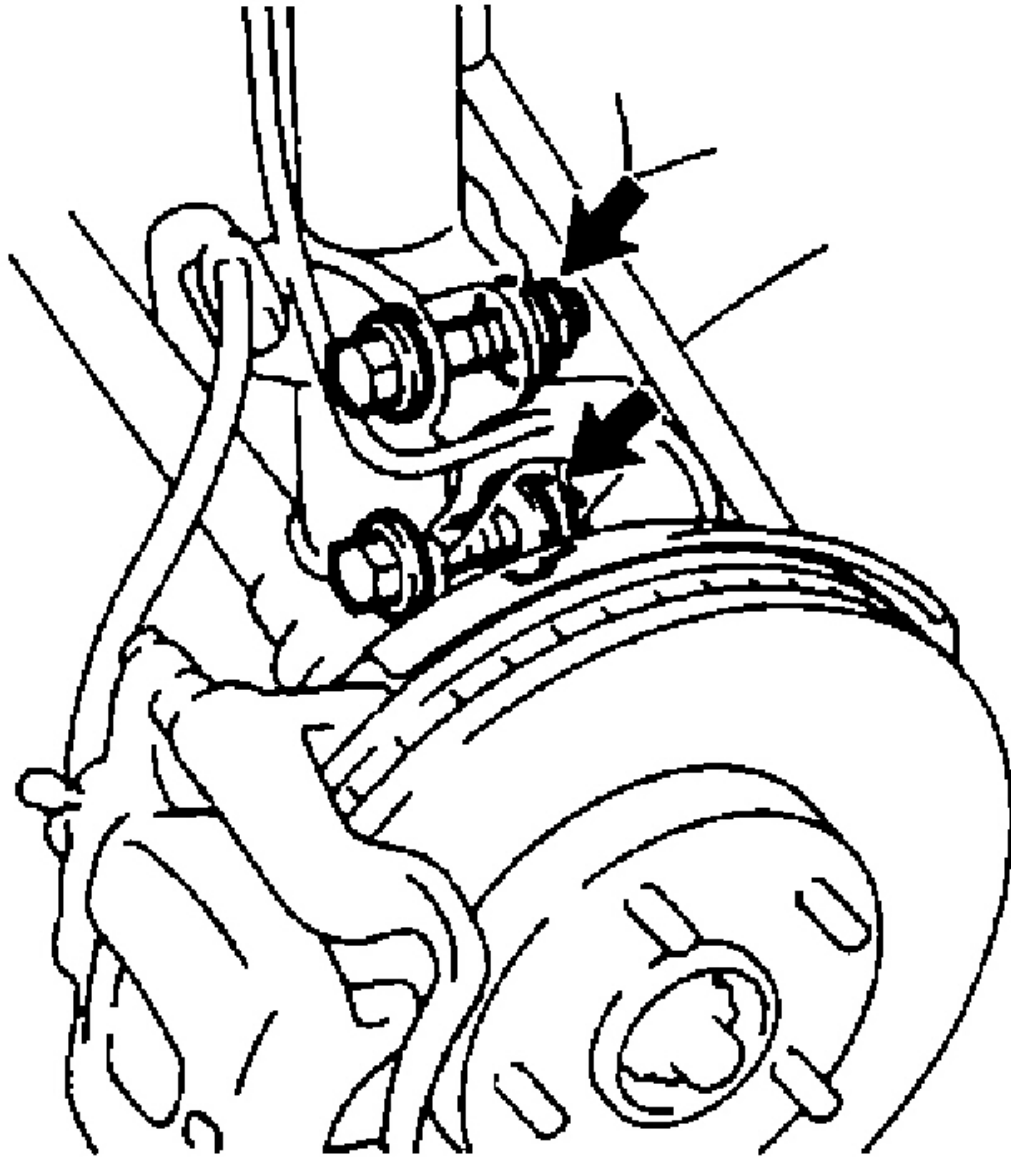
Fig. 53: Identifying Camber, Caster & Steering Axis Inclination Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

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

- a. Remove the front wheel and ABS speed sensor clamp.
- b. Remove the 2 nuts on the lower side of the shock absorber.

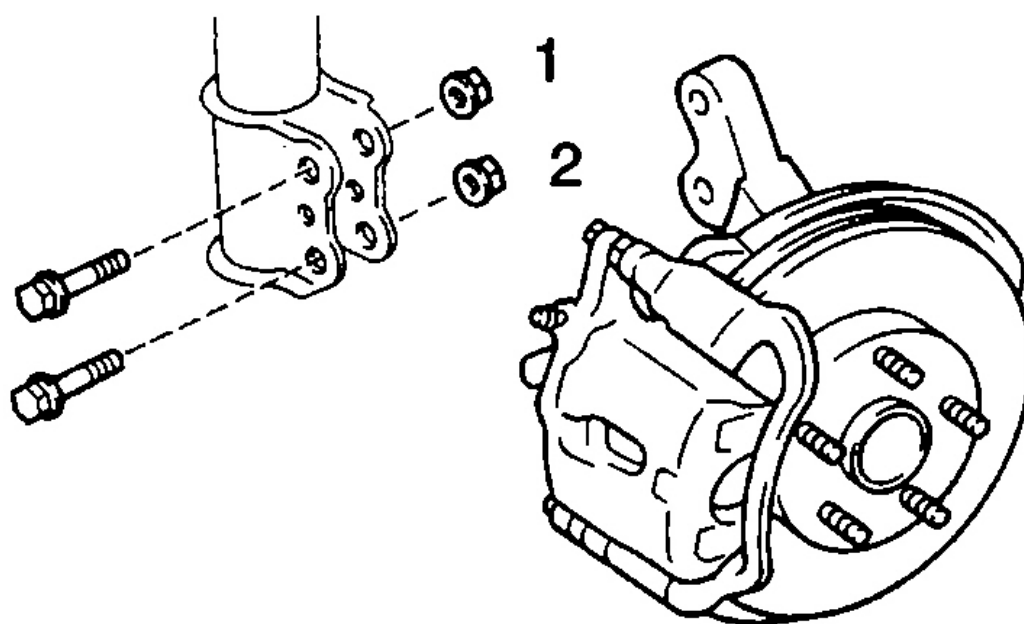
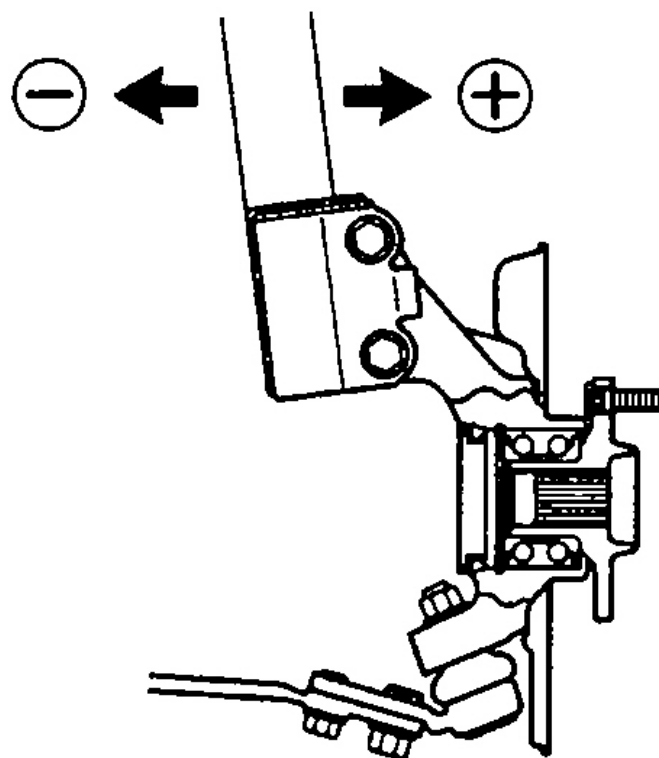


G01099014

Fig. 54: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.

- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



G01099015

Fig. 55: Moving Lower Shock To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 220 N.m (2,250 kgf.cm, 162 ft.lbf)

g. Install the ABS speed sensor clamp and front wheel.

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

h. Check the camber.

NOTE:

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

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

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-17001		90105-17003		90105-17004		90105-17005	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

G01099016

Fig. 56: Displaying Camber Adjusting Bolt Table
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. Between step b and c , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

5. Inspect toe-in .

Toe-in:

Toe-in (total)	$A + B: 0^\circ \pm 12' (0^\circ \pm 0.2^\circ)$ $C - D: 0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
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G01099017

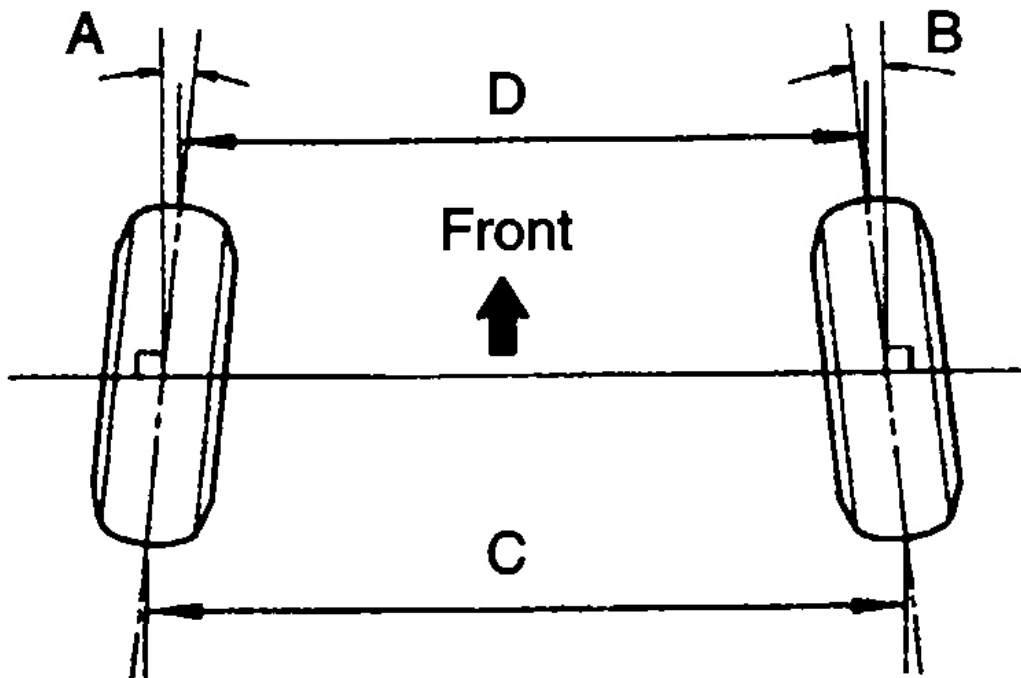
Fig. 57: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. Adjust toe-in .

- a. Remove the rack boot set clips.

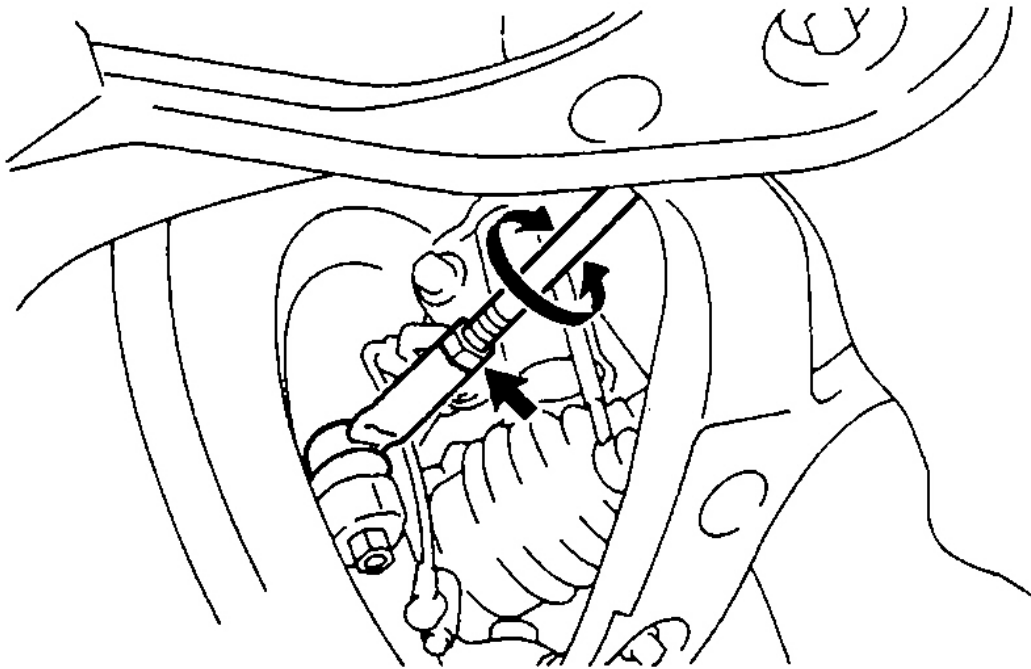


G01099018

Fig. 58: Identifying Toe-in Measurement

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Loosen the tie rod end lock nuts.



G01099019

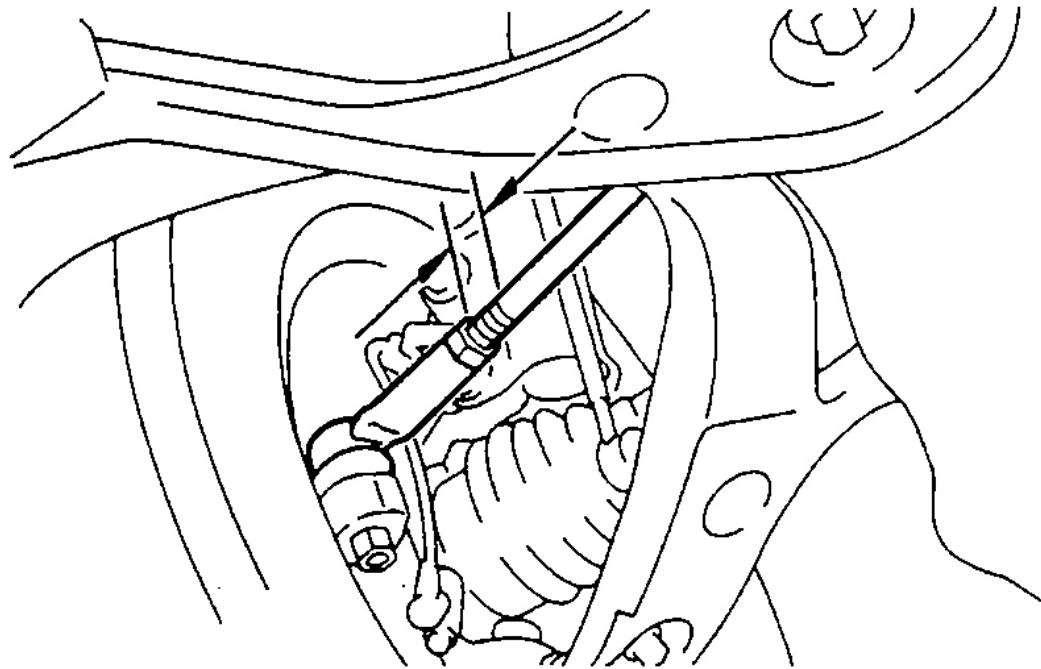
Fig. 59: Adjusting Tie Rod Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: **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.



G01099020

Fig. 60: Checking For Equal Rack End Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference: 1.5 mm (0.059 in.) or less

- e. Torque the tie rod end lock nuts.

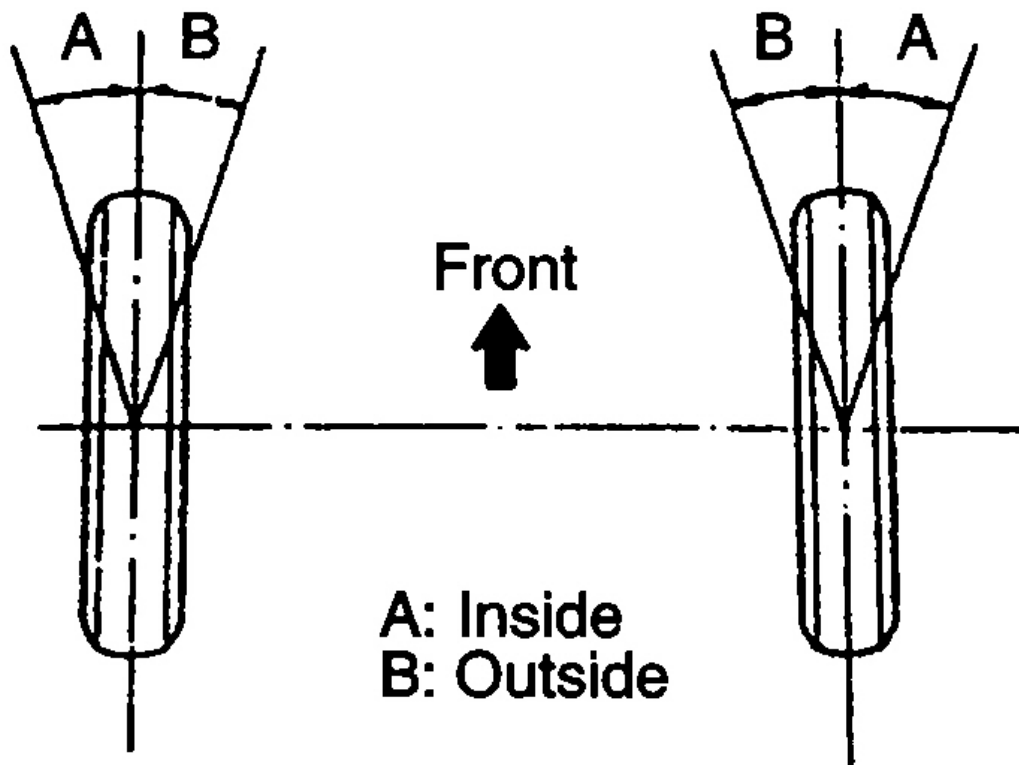
Torque: 74 N.m (750 kgf.cm, 54 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .

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



G01099022

Fig. 61: Identifying Wheel Turning Angles
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

Inside wheel	$34^{\circ}19' \pm 1^{\circ}$ ($34.32^{\circ} \pm 1^{\circ}$)
Outside wheel: Reference	$30^{\circ}22'$ (30.37°)

G01099021

Fig. 62: Wheel Turning Angle Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

end lengths.

Rear Wheel Alignment

- 1. **Measure vehicle height (see step MEASURE VEHICLE HEIGHT) .**
- 2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**

Follow the specific instructions of the equipment manufacturer.

- 3. **Inspect camber .**

Camber:

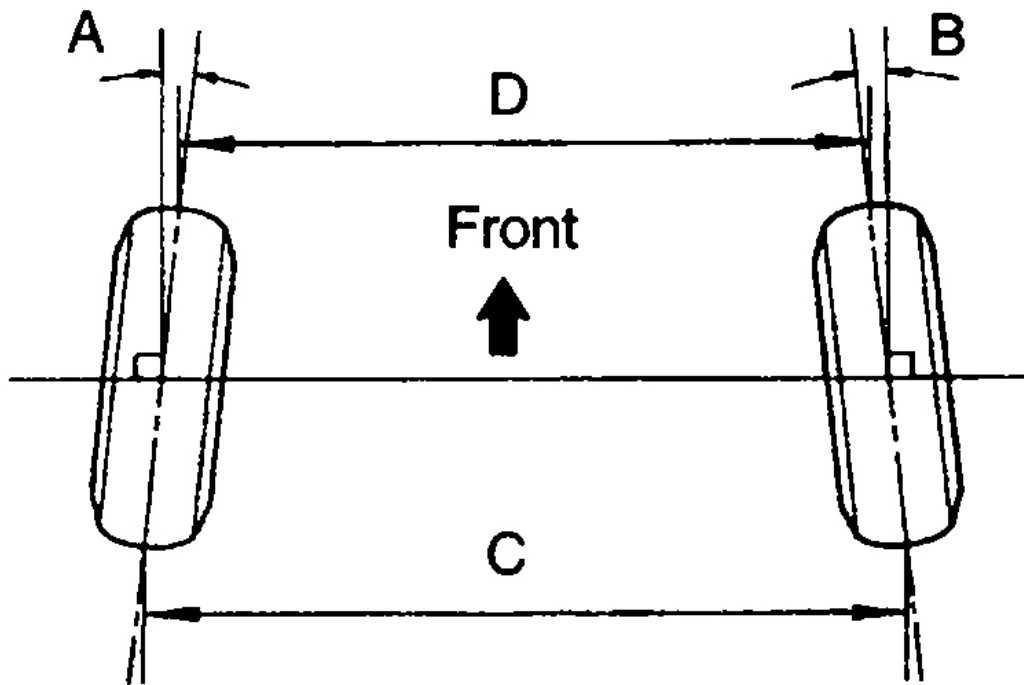
Camber	$-0^{\circ}39' \pm 45'$ ($-0.65^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

G01099023

Fig. 63: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the measured value is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

- 4. **Inspect toe-in .**



G01099025

Fig. 64: Identifying Toe-in Measurements
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ}24' \pm 12' (0.4^{\circ} \pm 0.2^{\circ})$ $C - D: 4 \pm 2 \text{ mm } (0.16 \pm 0.08 \text{ in.})$
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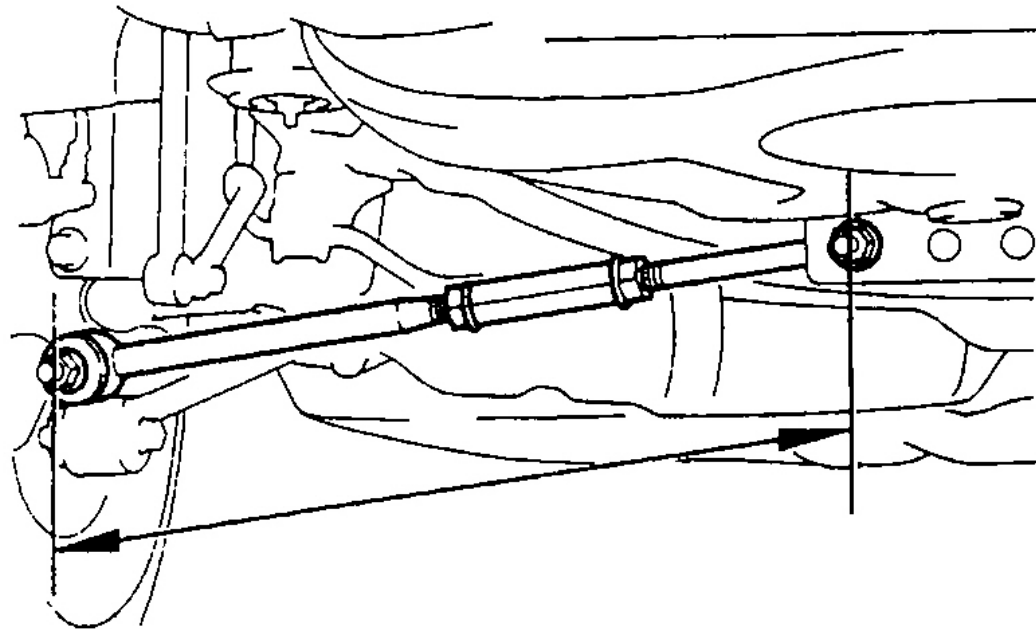
G01099024

Fig. 65: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, adjust it at the No. 2 lower suspension arm.

5. Adjust toe-in .

- Measure the lengths of the right and left No. 2 lower suspension arms.



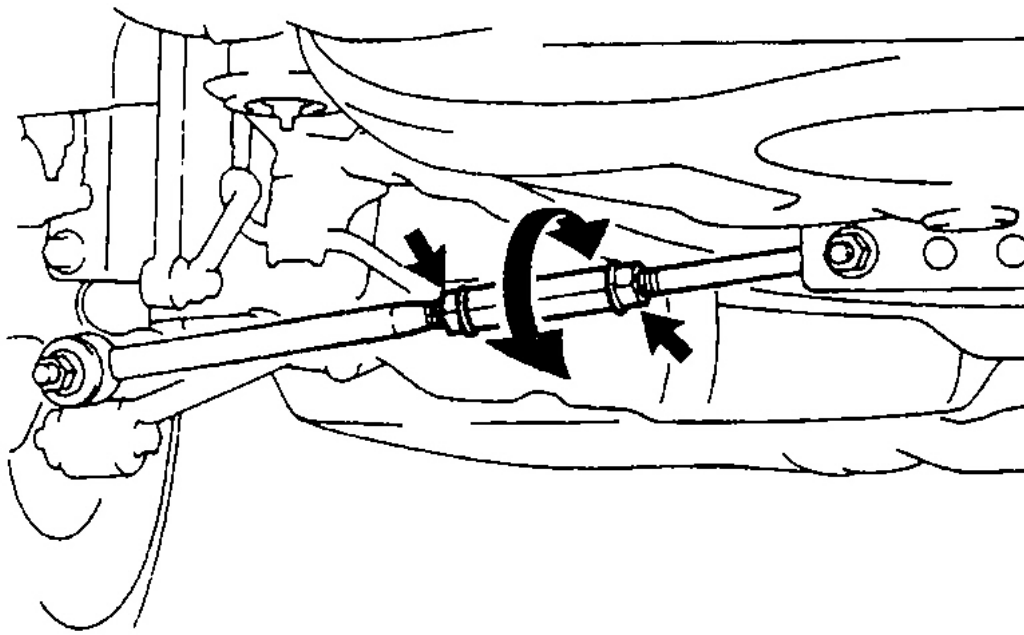
G01099026

Fig. 66: Measuring Lower Suspension Arm Length
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**No. 2 lower suspension arm length difference:
1 mm (0.04 in.) or less**

If the right-left difference is greater than the specified value, adjust the length.

- b. Loosen the lock nuts.



G01099027

Fig. 67: Adjusting Lower Suspension Arm Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Turn the right and left adjusting tube by an equal amount to adjust toe-in.

NOTE:

- Try to adjust the toe-in to the center value.
- One turn of the each adjusting tube will adjust the toe-in by about 36' (0.6°, 6.7 mm, 0.264 in.).

- d. Torque the lock nuts.

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

SPECIFICATIONS

Cold tire inflation pressure	P205/65R15 92H (Front, rear)	Coupe Convertible	200 kPa (2.0 kgf/cm ² , 29 psi) 220 kPa (2.2 kgf/cm ² , 32 psi)
	P205/60R16 91H (Front, rear)	Coupe Convertible	220 kPa (2.2 kgf/cm ² , 32 psi) 230 kPa (2.3 kgf/cm ² , 33 psi)
Front wheel alignment	Vehicle height		
	Tire size: 205/65R15	Front*1 Rear*2	220 mm (8.66 in.) 268 mm (10.55 in.)
	Tire size: 205/60R16	Front*1 Rear*2	221 mm (8.70 in.) 269 mm (10.59 in.)
	Camber	Right-left error	-0°31' ± 45' (-0.52° ± 0.75°) 45' (0.75°) or less
	Caster	Right-left error	2°08' ± 45' (2.13° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Right-left error	12°54' ± 45' (12.90° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)		0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.)
	Rack end length difference		1.5 mm (0.059 in.) or less
Wheel angle	Inside wheel		34°19' ± 1° (34.32° ± 1°)
	Outside wheel: Reference		30°22' (30.37°)

*1: Front measuring point

Measure the distance from the ground to the 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 front side strut rod mounting bolt.

FRONT

Rear wheel alignment	Camber	Right-left error	-0°39' ± 45' (-0.65° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	No. 2 lower suspension arm length difference	0°24' ± 12' (0.4° ± 0.2°, 4 ± 2 mm, 0.16 ± 0.08 in.) 1 mm (0.04 in.) or less
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
Front axle	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)
Front drive shaft	RH drive shaft		
	Tip of the inboard joint shaft to the dust cover falls		
	Distance	2AZ-FE 1MZ-FE	90 - 91 mm (3.543 - 3.583 in.) 100.5 mm (3.957 in.)
	Drive shaft standard length		
	2AZ-FE	LH RH	696.6 ± 2.0 mm (27.425 ± 0.079 in.) 972.4 ± 2.0 mm (38.283 ± 0.079 in.)
	1MZ-FE (M/T)	LH RH	601.5 ± 2.0 mm (23.681 ± 0.079 in.) 871.6 ± 2.0 mm (34.315 ± 0.079 in.)
Boot clamp clearance		LH RH	586.0 ± 2.0 mm (23.071 ± 0.079 in.) 881.6 ± 2.0 mm (34.709 ± 0.079 in.)
		A B C	1.9 mm (0.075 in.) or less 1.5 - 2.5 mm (0.059 - 0.098 in.) 3.0 - 4.0 mm (0.118 - 0.157 in.)
Front suspension	Damper clamp clearance		0.5 - 1.2 mm (0.020 - 0.047 in.)
	Lower ball joint turning torque		1.0 - 3.4 N-m (10 - 35 kgf-cm, 8.7 - 30 in.-lbf)
	Stabilizer bar link ball joint turning torque		0.05 - 1.0 N-m (0.5 - 10 kgf-cm, 0.4 - 8.7 in.-lbf)

REAR

G00212711

Fig. 68: Wheel Alignment Specifications (Camry Solara)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

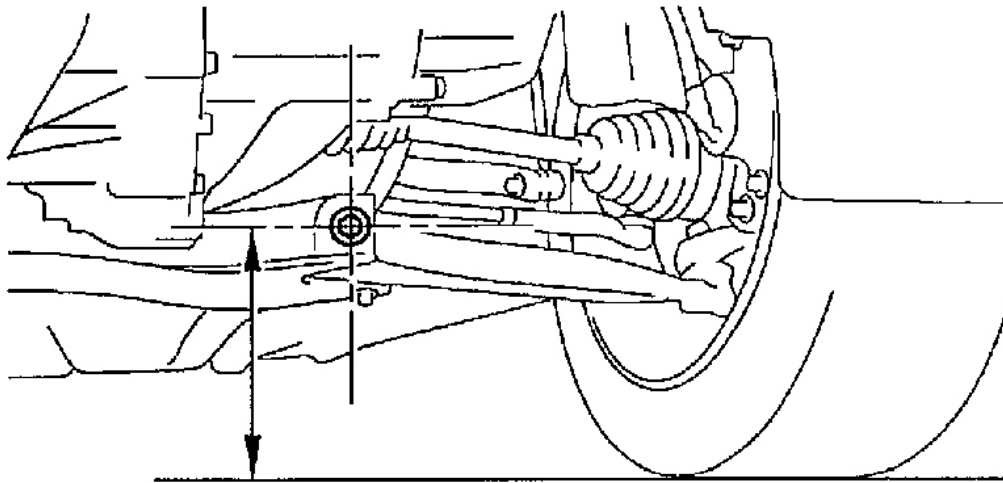
CELICA

PROCEDURES

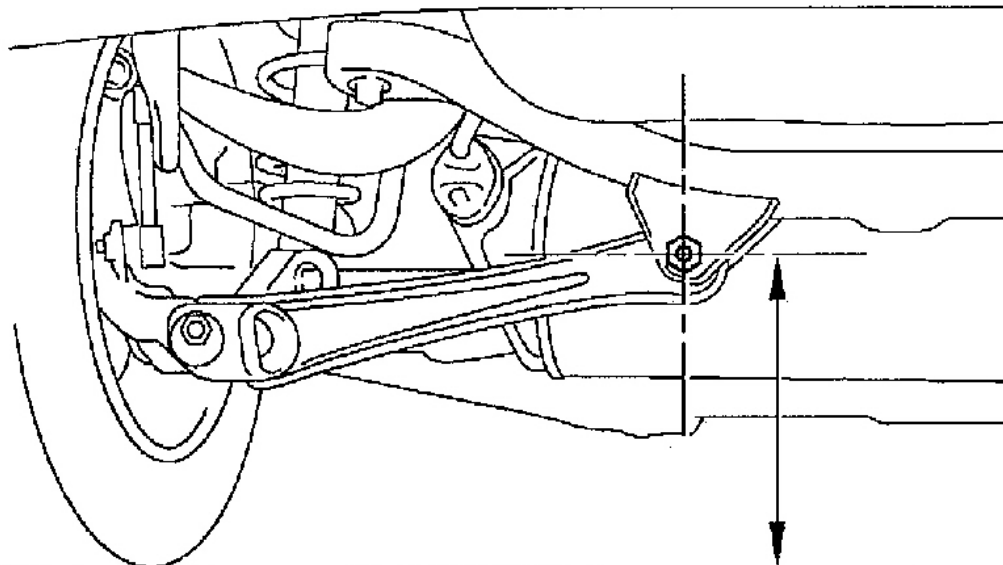
Front Wheel Alignment

1. Measure vehicle height .

Front:



Rear:



N

G01056256

Fig. 69: Measuring Vehicle Height
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
195/60R15, P195/60R15	190 (7.48)	224 (8.82)
205/55R15, P205/55R15	190 (7.48)	226 (8.90)
205/50R16	193 (7.60)	225 (8.86)

*¹: Front measuring point

Measure the distance from the ground to the 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 side lower suspension arm suspension member side set bolt.

G01056255

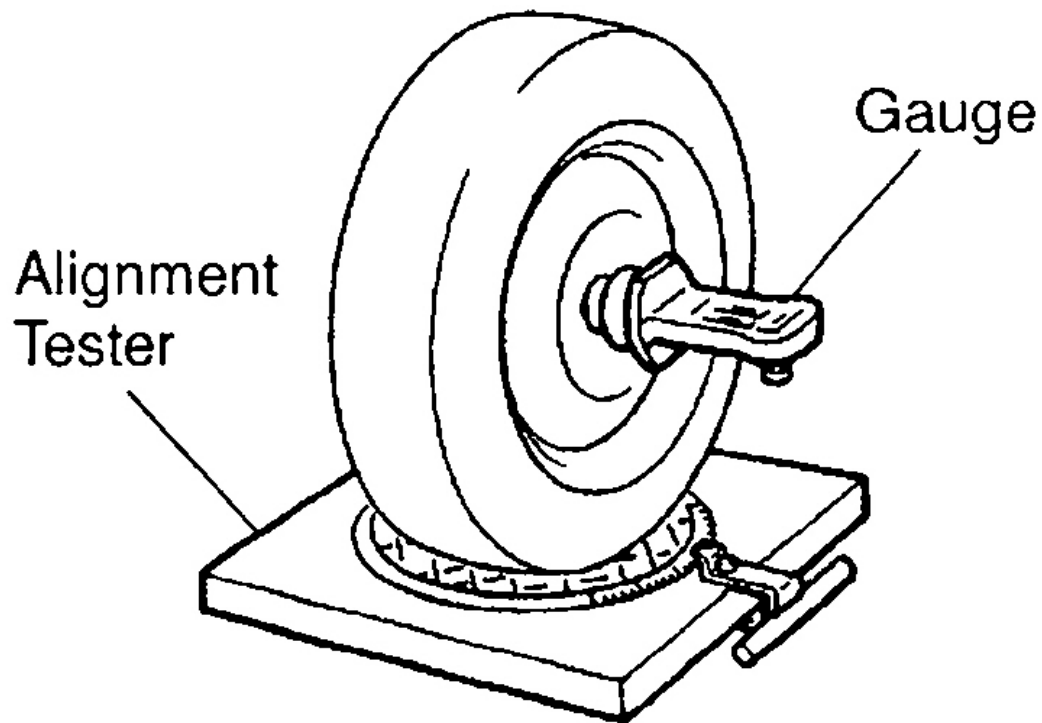
Fig. 70: Identifying Vehicle Height Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .



G01056257

Fig. 71: Install Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber, caster and steering axis inclination:

195/60R15, P195/60R15 tire:

Camber		$-0^{\circ}28' \pm 45'$ ($-0.47^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Caster		$2^{\circ}07' \pm 45'$ ($2.12^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Steering axis inclination		$13^{\circ}09' \pm 45'$ ($13.15^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less

G01056258

Fig. 72: Identifying Camber, Caster & Steering Axis Inclination Specifications (195/60R15, P195/60R15)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

205/55R15, P205/55R15 tire:

Camber		$-0^{\circ}25' \pm 45'$ ($-0.42^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Caster		$2^{\circ}01' \pm 45'$ ($2.02^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Steering axis inclination		$13^{\circ}04' \pm 45'$ ($13.07^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less

G01056259

Fig. 73: Identifying Camber, Caster & Steering Axis Inclination Specifications (205/55R15, P205/55R15)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

205/50R16 tire:

Camber	$-0^{\circ}29' \pm 45'$ ($-0.48^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less
Caster	$2^{\circ}02' \pm 45'$ ($2.03^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less
Steering axis inclination	$13^{\circ}12' \pm 45'$ ($13.20^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

G01056260

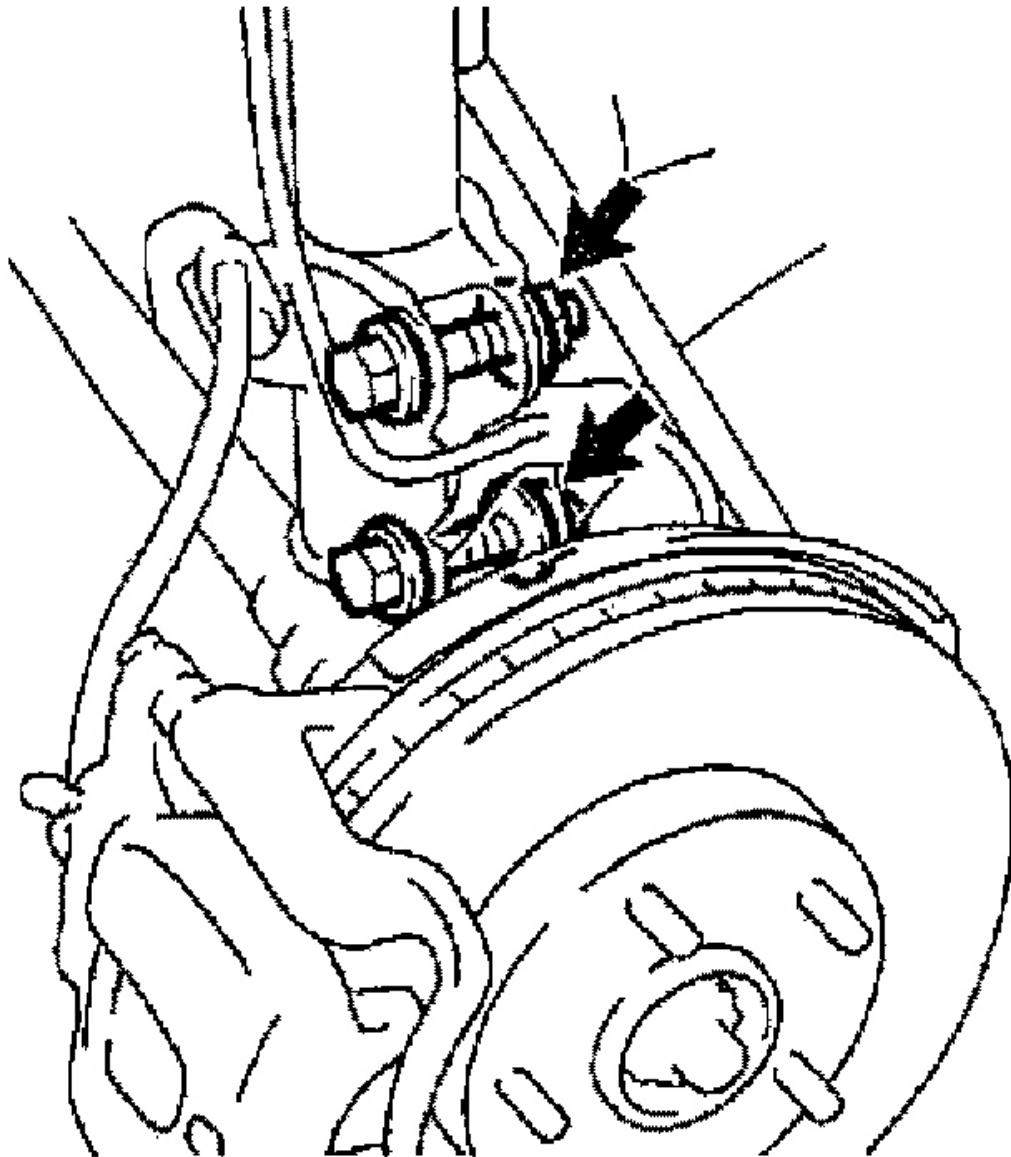
Fig. 74: Identifying Camber, Caster & Steering Axis Inclination Specifications (205/50R16)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

NOTE: **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.

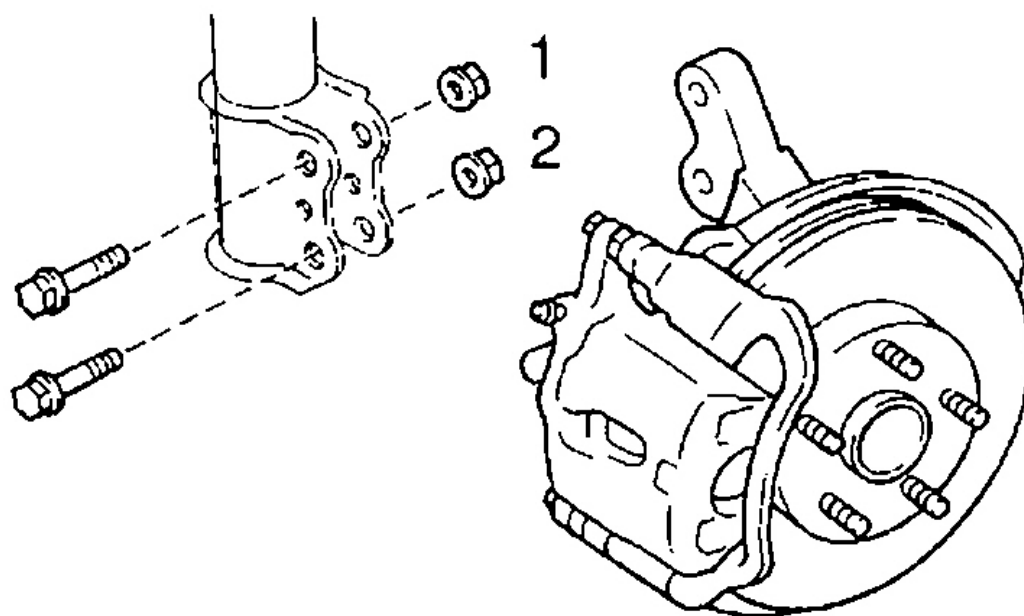
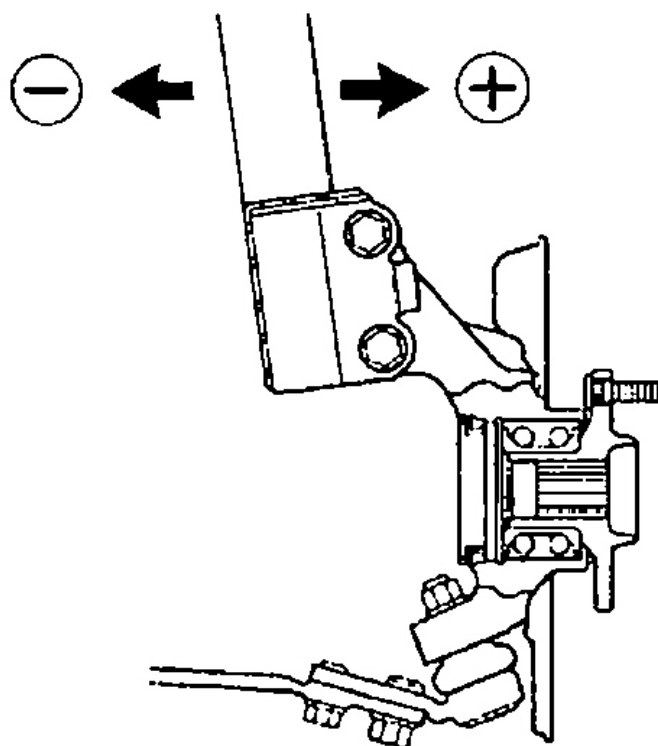


G01056261

Fig. 75: Loosening Lower Shock Absorber Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.

- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



G01056262

Fig. 76: Using Lower Shock to Adjust Camber
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 153 N.m (1,560 kgf.cm, 113 ft.lbf)

g. Install the front wheel.

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

h. Check the camber.

NOTE:

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

If the camber is not within the specified value, using the table in **Fig. 77** , estimate how much additional camber adjustment will be required, and select the camber adjusting bolt.

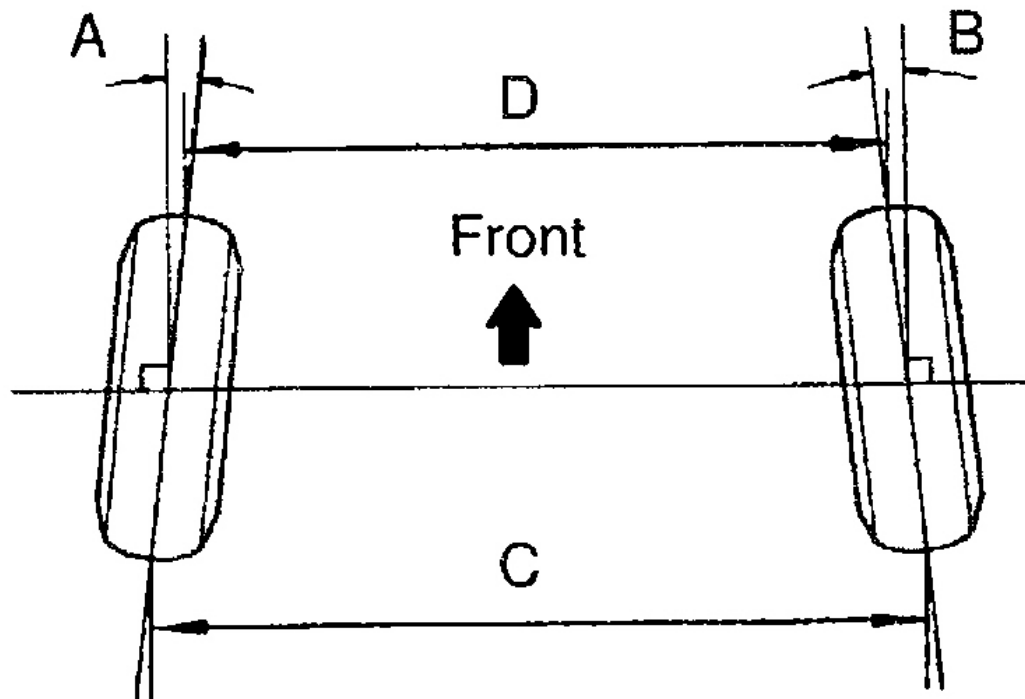
Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-15001		90105-15004		90105-15005		90105-15006	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

Fig. 77: Displaying Camber Adjustment Bolt Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. Between step b and c , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

5. Inspect toe-in .



G01056265

Fig. 78: Identifying Toe-In Measurements
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

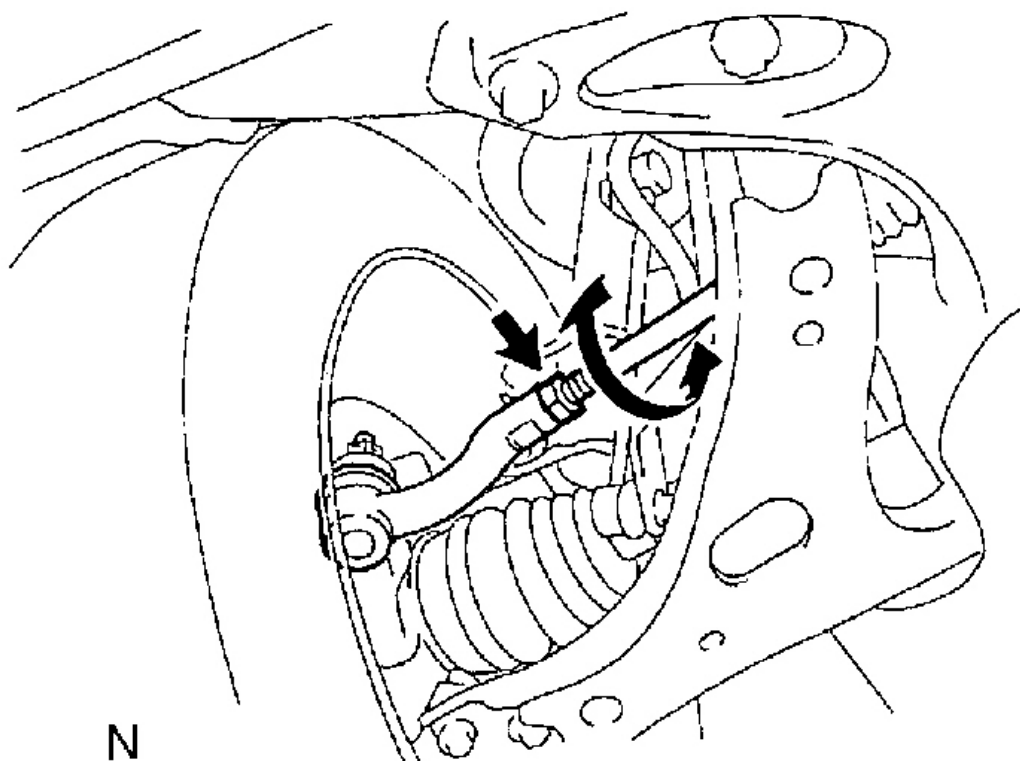
Toe-in (total)	$A + B: 0^{\circ} \pm 12' (0^{\circ} \pm 0.2^{\circ})$ $C - D: 0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
-------------------	---

G01056264

Fig. 79: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. **Adjust toe-in .**
 - a. Remove the rack boot set clips.
 - b. Loosen the tie rod end lock nuts.



G01056266

Fig. 80: Adjusting Tie Rod Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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: 1.5 mm (0.059 in.) or less

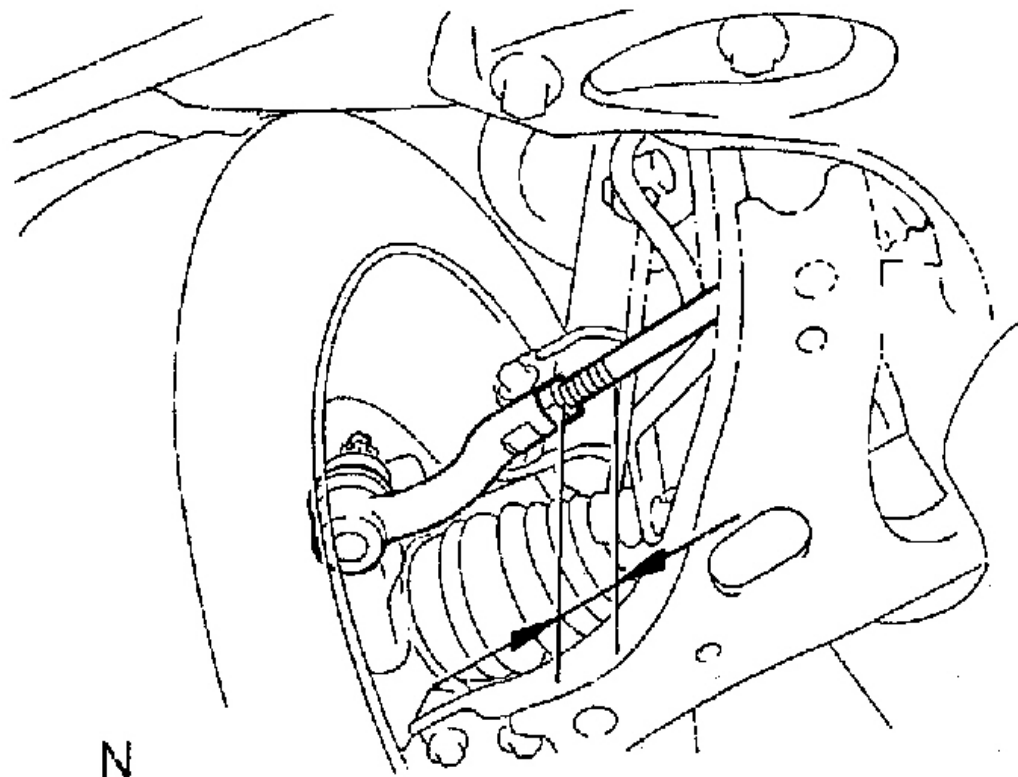


Fig. 81: Checking For Equal Rack End Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

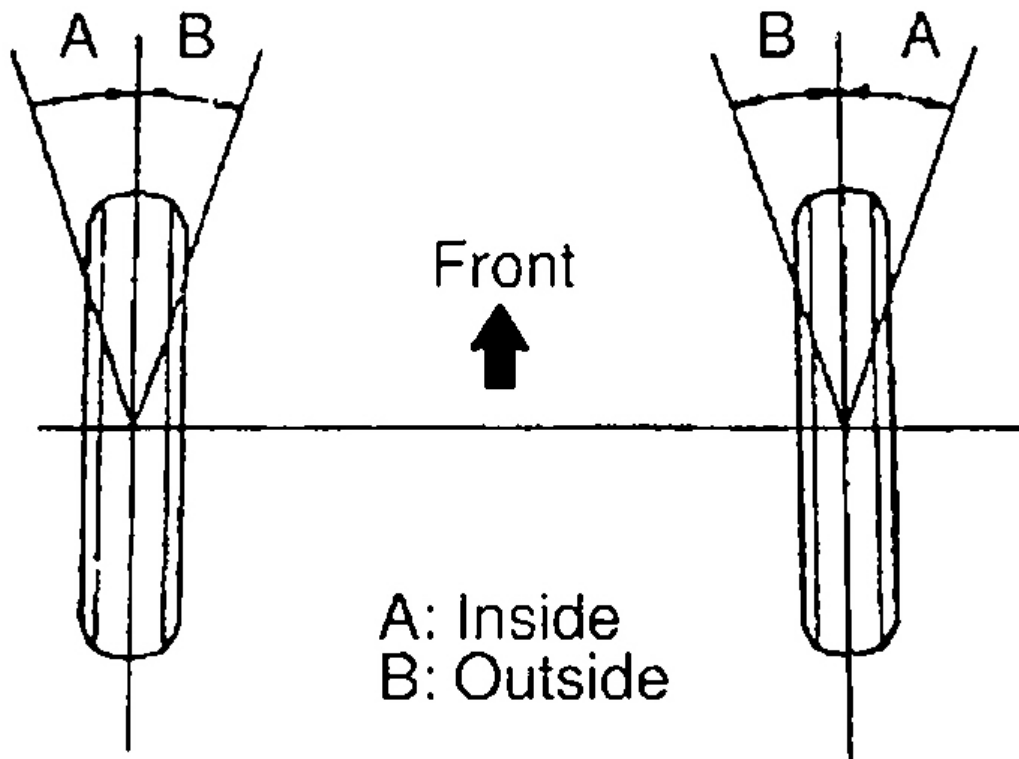
- e. Torque the tie rod end lock nuts.

Torque: 74 N.m (750 kgf.cm, 54 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .



G01056271

Fig. 82: Identifying Wheel Turning Angles
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Wheel turning angle:

195/60R15, P195/60R15 tire:

Inside wheel	$38^{\circ}41' \pm 2^{\circ}$ ($38.68^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$33^{\circ}20'$ (33.33°)

G01056268

Fig. 83: Identifying Wheel Turning Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

205/55R15, P205/55R15 tire:

Inside wheel	$38^{\circ}46' \pm 2^{\circ}$ ($38.77^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$33^{\circ}25'$ (33.42°)

G01056269

Fig. 84: Identifying Wheel Turning Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

205/50R16 tire:

Inside wheel	$38^{\circ}38' \pm 2^{\circ}$ ($38.63^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$33^{\circ}19'$ (33.32°)

G01056270

Fig. 85: Identifying Wheel Turning Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Rear Wheel Alignment

1. **Measure vehicle height (see step MEASURE VEHICLE HEIGHT) .**
2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**

Follow the specific instructions of the equipment manufacturer.

3. **Inspect camber .**

Camber:

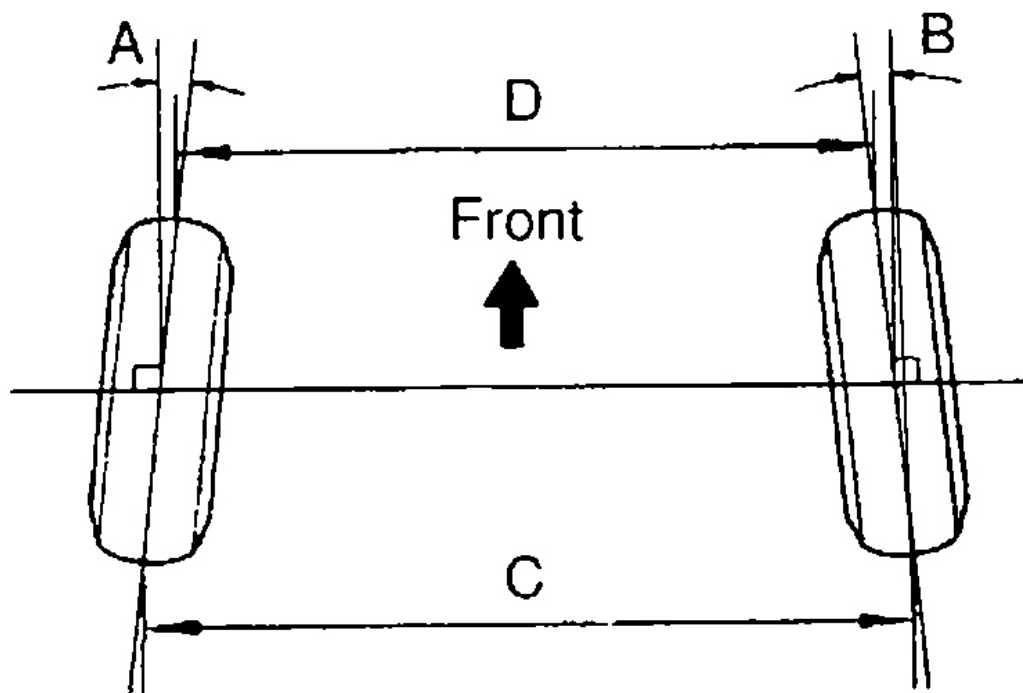
Camber	$-1^{\circ}11' \pm 45' (-1.18^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

G01056272

Fig. 86: Identifying Camber Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the camber is not within the specified value, after the toe-in is inspected, see step 5 to adjust.

4. Inspect toe-in .



G01056274

Fig. 87: Identifying Toe-in Measurements
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	A + B: $0^{\circ}18' \pm 12'$ ($0.3^{\circ} \pm 0.2^{\circ}$) C - D: 3 ± 2 mm (0.12 ± 0.08 in.)
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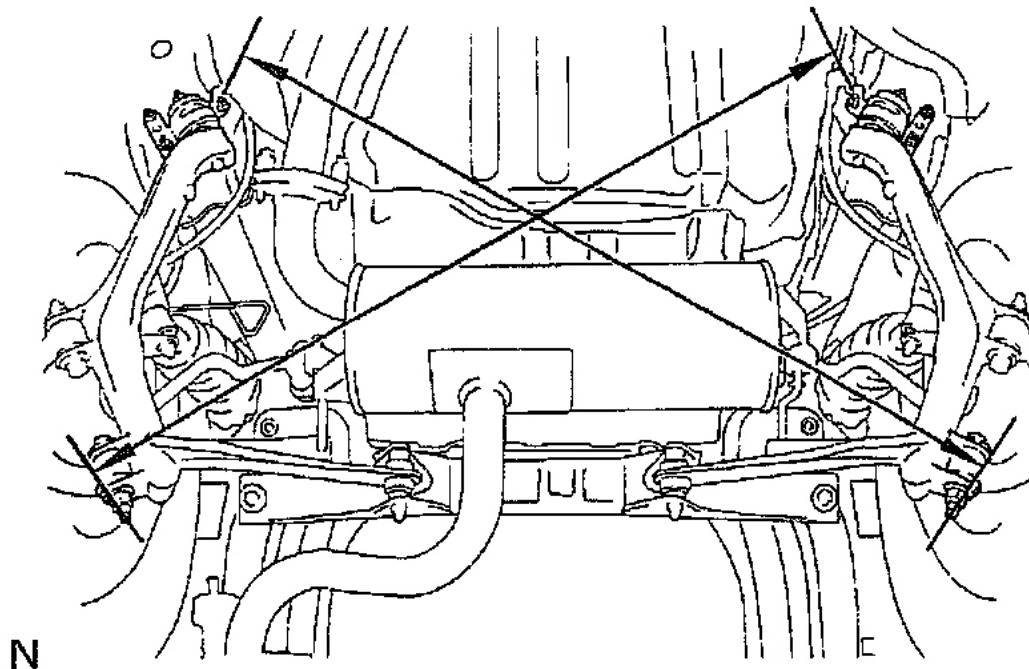
G01056273

Fig. 88: Identifying Toe-In Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, see step 5 to adjust.

5. Adjust camber and toe-in .

- a. Measure the distance from the LH lower suspension arm bracket set bolt to the RH axle carrier rear side set bolt as shown in **Fig. 89** .



G01056275

Fig. 89: Measuring Distance Between Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Employ the same manner to the RH-LH.

Length difference: 6 mm or less

If it exceeds the specified value, adjust it by turning the adjusting cams.

- c. Loosen the upper and lower arm adjusting cam set nuts.

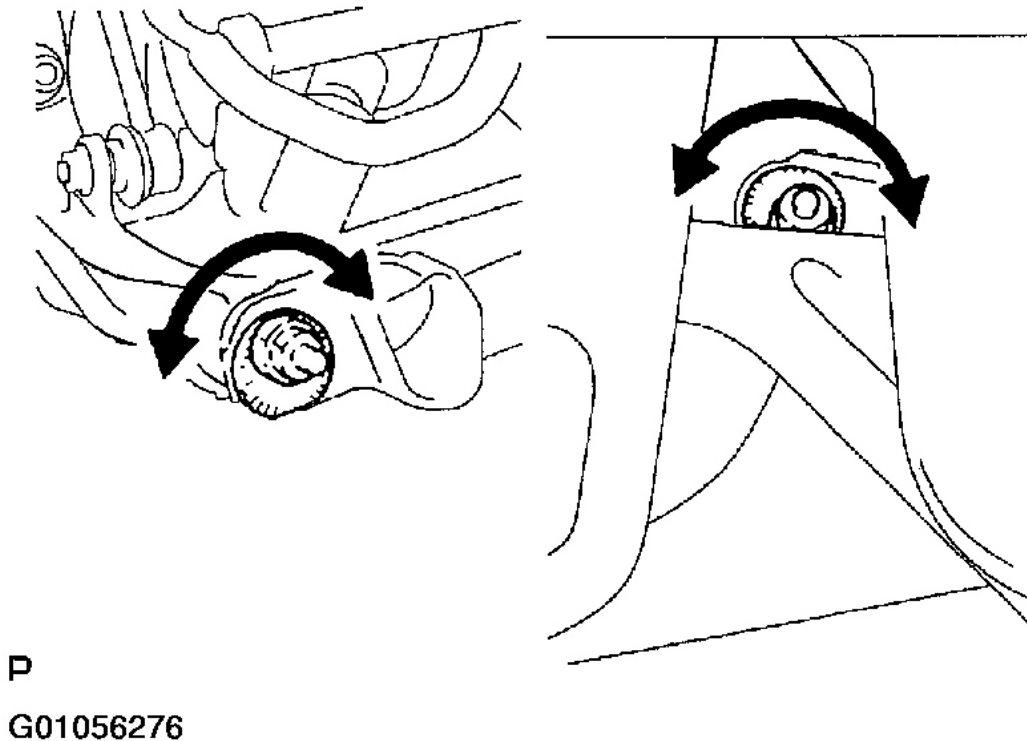


Fig. 90: Loosening Upper & Lower Arm Adjusting Cam Set Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Adjust the camber and toe-in by turning the adjusting cams.

NOTE: Try to adjust the camber and toe-in to the center of the specified values.

- e. Torque the upper and lower arm adjusting cam set nuts.

Torque: 74 N.m (755 kgf.cm, 55 ft.lbf)

6. How to read adjustment chart (example) .

- a. Measure the present alignment.

Example:

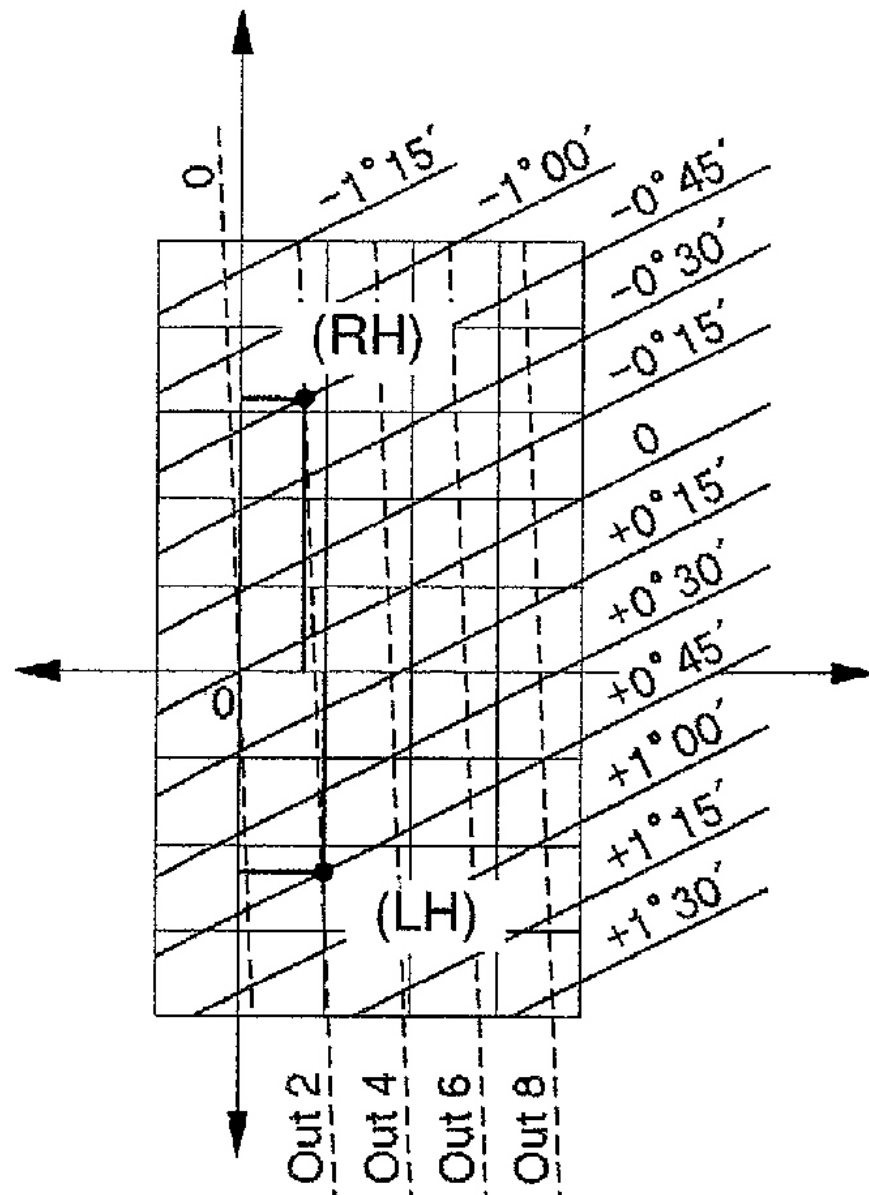
Camber (RH): -0+/-26' (-0.43°)

Camber (LH): -1+/-56' (-1.93°)

Toe-in (total): IN 7 mm (0.28 in.)

Example:

————— Camber
----- Toe-in



G01056277

Fig. 91: Displaying Example Of Adjustment Chart

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Mark the difference between the standard value (A) and the measured value (B) on the adjustment chart in **Fig. 91** .

Standard value:

Camber:-1°11'(-1.18°)

Toe-in (total): IN 3mm (0.12 in.)

Formula: A-B = C

Camber (RH): -1°11' - (-0°26')= -0°45'

Camber (LH): -1°11' -(-1°56')= 0°45'

Toe-in (total): IN3 - IN7 = OUT 4

Toe-in (each side): OUT 2

- c. As shown in the example chart in **Fig. 91** , read the distance from the marked point to the origin of the chart, and adjust the upper and/or lower arm adjusting cams accordingly.

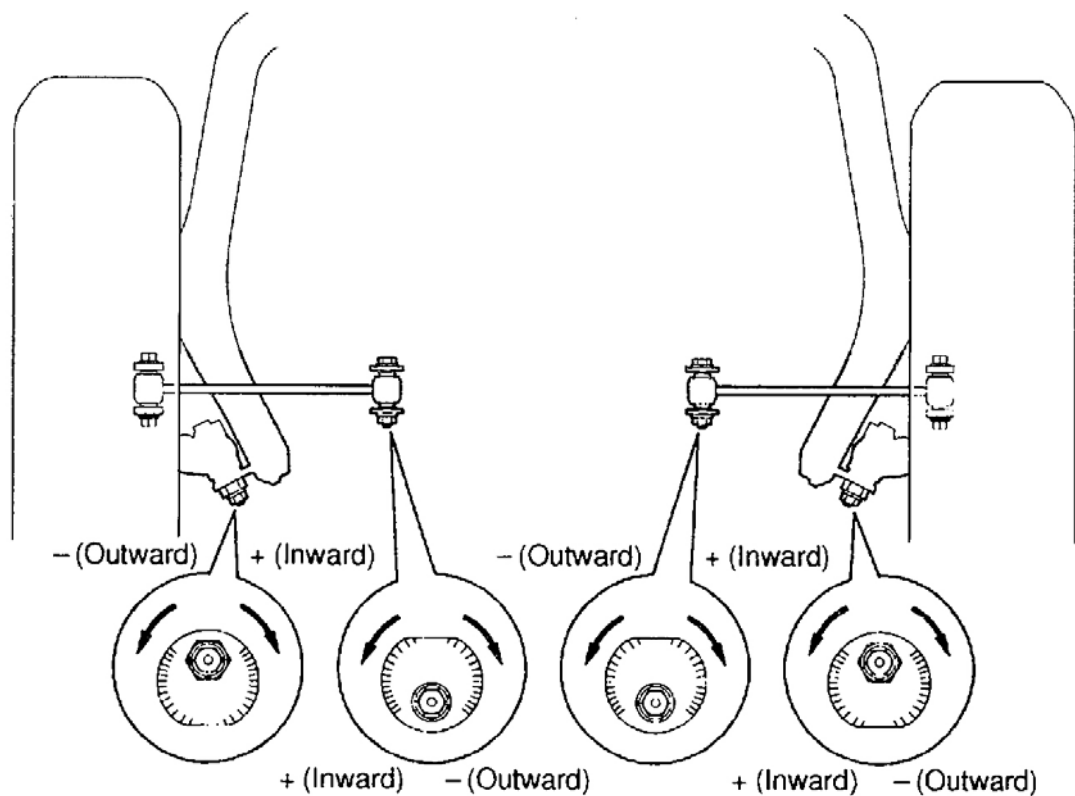
Amount to turn adjusting cams (by graduation):

Upper arm cam (RH): + (Inward) 3.2

Lower arm cam (RH): + (Inward) 0.8

Upper arm cam (LH): - (Outward) 2.3

Lower arm cam (LH): + (Inward) 1.0



G01056278

Fig. 92: Identifying Upper And/Or Lower Arm Adjusting Cams
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

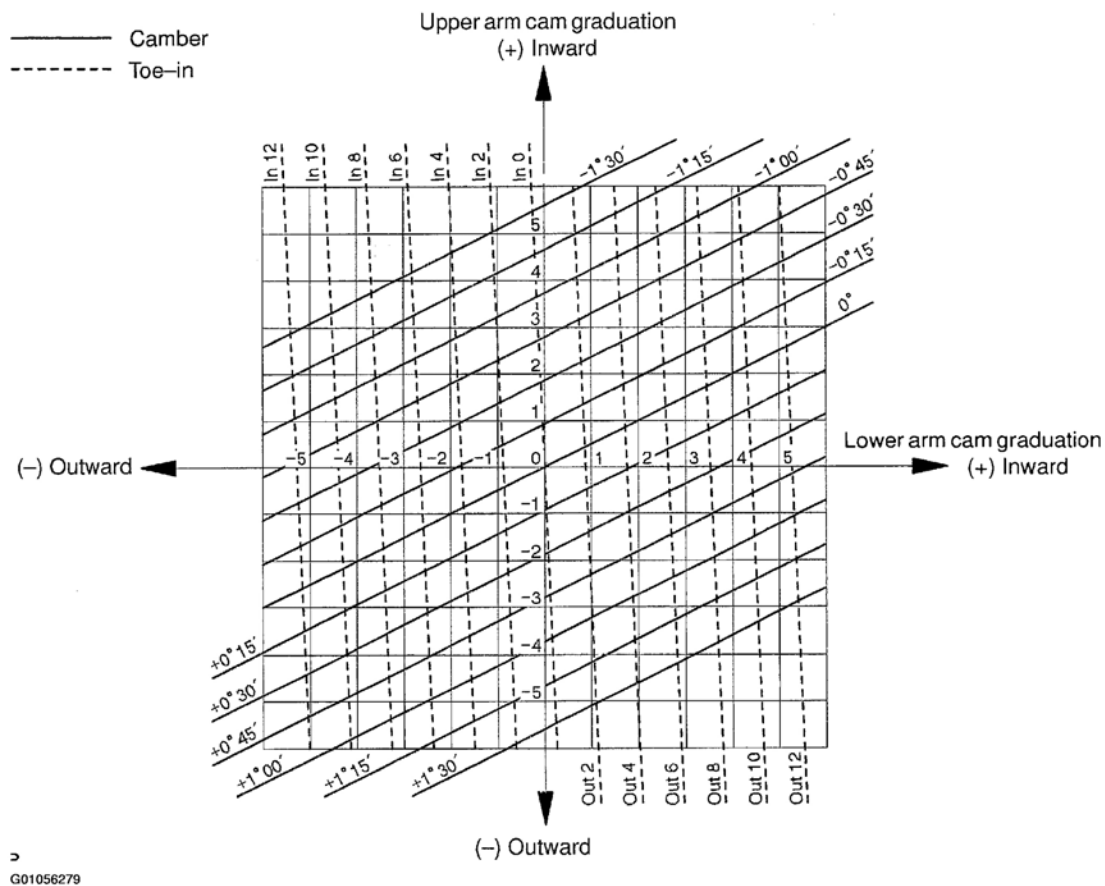


Fig. 93: Displaying Adjustment Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SPECIFICATIONS

Cold tire inflation pressure	1ZZ-FE engine models		
	195/60R15 88H P195/60R15 87H	Front, rear	210 kPa (2.1 kgf/cm ² , 29 psi)
	2ZZ-GE engine models		
	205/55R15 87V P205/55R15 87V 205/50R16 87V	Front, rear	220 kPa (2.2 kgf/cm ² , 32 psi)
Front Wheel alignment	Vehicle height		
	Tire size: 195/60R15, P195/60R15	Front*1	190 mm (7.48 in.)
		Rear*2	224 mm (8.82 in.)
	Tire size: 205/55R15, P205/55R15	Front*1	190 mm (7.48 in.)
		Rear*2	226 mm (8.90 in.)
	Tire size: 205/50R16	Front*1	193 mm (7.60 in.)
		Rear*2	225 mm (8.86 in.)
	Camber		
	195/60R15, P195/60R15		-0°28' ± 45' (-0.47° ± 0.75°)
	205/55R15, P205/55R15		-0°25' ± 45' (-0.42° ± 0.75°)
Rear wheel alignment	205/50R16		-0°29' ± 45' (-0.48° ± 0.75°)
	Right-left error		45' (0.75°) or less
	Caster		
	195/60R15, P195/60R15		2°07' ± 45' (2.12° ± 0.75°)
	205/55R15, P205/55R15		2°01' ± 45' (2.02° ± 0.75°)
	205/50R16		2°02' ± 45' (2.03° ± 0.75°)
	Right-left error		45' (0.75°) or less
	Steering axis inclination		
	195/60R15, P195/60R15		13°09' ± 45' (13.15° ± 0.75°)
	205/55R15, P205/55R15		13°04' ± 45' (13.07° ± 0.75°)
Front axle	205/50R16		13°12' ± 45' (13.20° ± 0.75°)
	Right-left error		45' (0.75°) or less
	Toe-in (total)		0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.)
	Rack end length difference		1.5 mm (0.059 in.) or less
	Wheel angle		
	195/60R15, P195/60R15	Inside wheel	38°41' ± 2° (38.68° ± 2°)
		Outside wheel: Reference	33°20' (33.33°)
	205/55R15, P205/55R15	Inside wheel	38°46' ± 2° (38.77° ± 2°)
		Outside wheel: Reference	33°25' (33.42°)
	205/50R16	Inside wheel	38°38' ± 2° (38.63° ± 2°)
Front axle		Outside wheel: Reference	33°19' (33.32°)
	Camber		
	Right-left error		-1°11' ± 45' (-1.18° ± 0.75°)
Rear wheel alignment	Toe-in (total)		0°18' ± 12' (0.3° ± 0.2°, 3 ± 2 mm, 0.12 ± 0.08 in.)
	Toe-in cross measurement difference		6 mm (0.24 in.) or less
	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)

G00212715

Fig. 94: Wheel Alignment Specifications (Celica)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

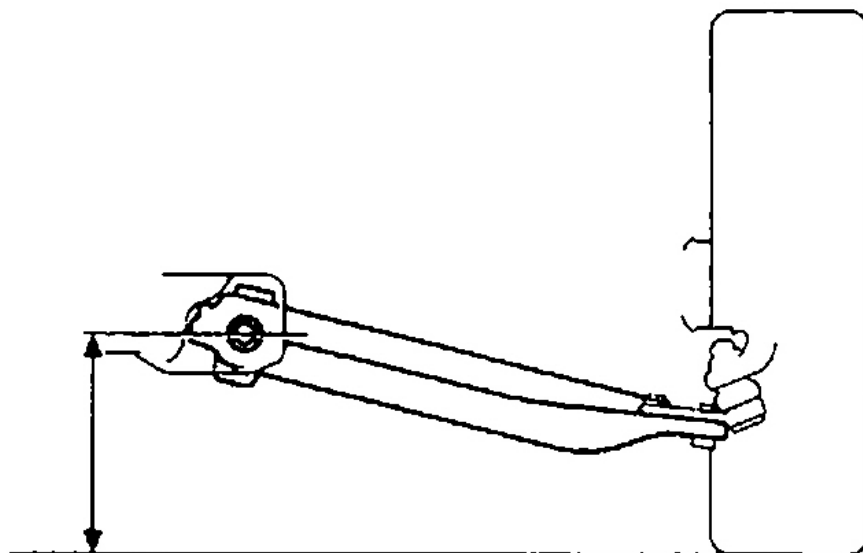
COROLLA

PROCEDURES

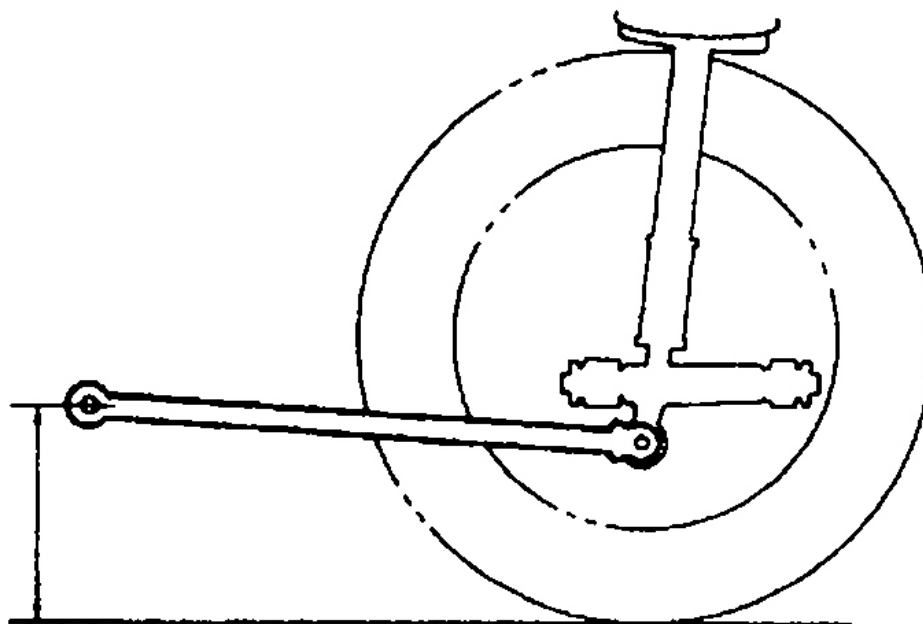
Front Wheel Alignment

1. **Measure vehicle height .**

Front



Rear



G01083094

Fig. 95: Measuring Vehicle Height
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
175/65R14	185 (7.28)	245 (9.65)
185/65R14	190 (7.48)	250 (9.84)

*¹: Front measuring point

Measure the distance from the ground to the 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 front side strut rod mounting bolt.

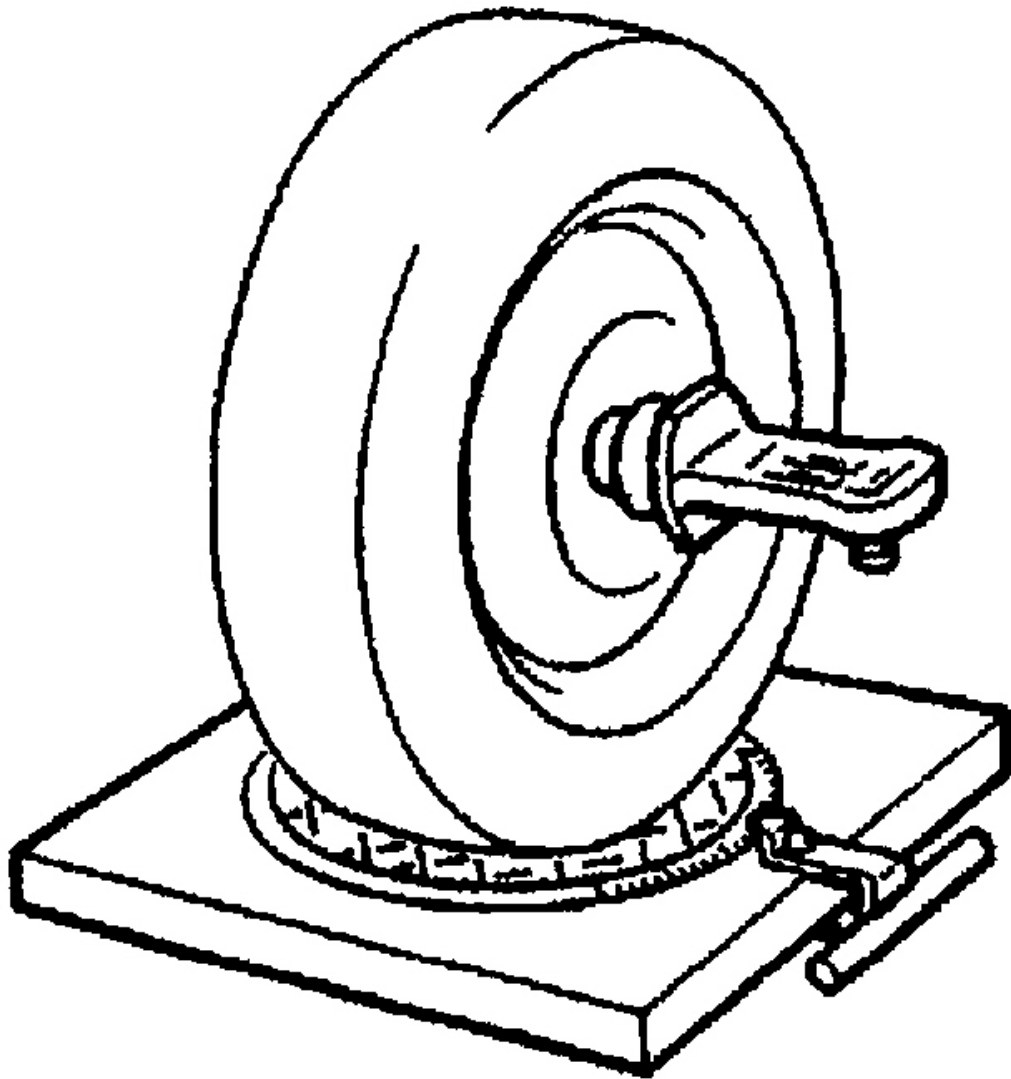
G01083093

Fig. 96: Identifying Vehicle Height Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

If the vehicle height is not the specified value, try to adjust by pushing down on or lifting the body.

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .



G01083095

Fig. 97: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber:

-	$-0^{\circ}11' \pm 45' (-0.18^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

G01083096

Fig. 98: Identifying Camber Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Caster:

-	$1^{\circ}19' \pm 45' (1.32^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

G01083097

Fig. 99: Identifying Caster Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Steering axis inclination:

-	$12^{\circ}38' \pm 45' (12.63^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

G01083098

Fig. 100: Identifying Steering Inclination Specifications

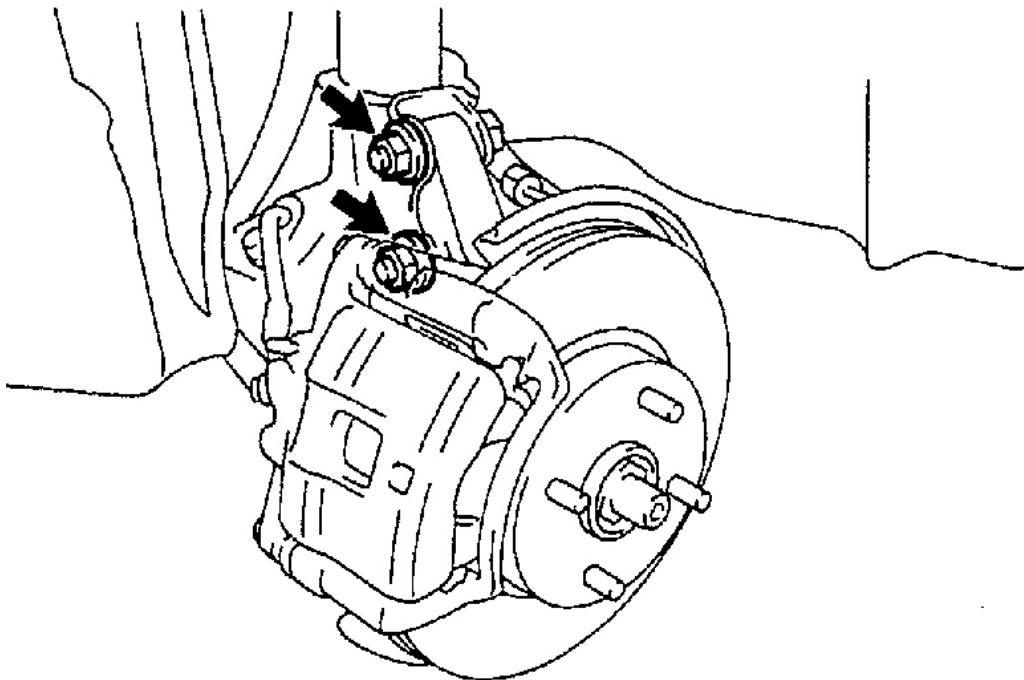
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

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

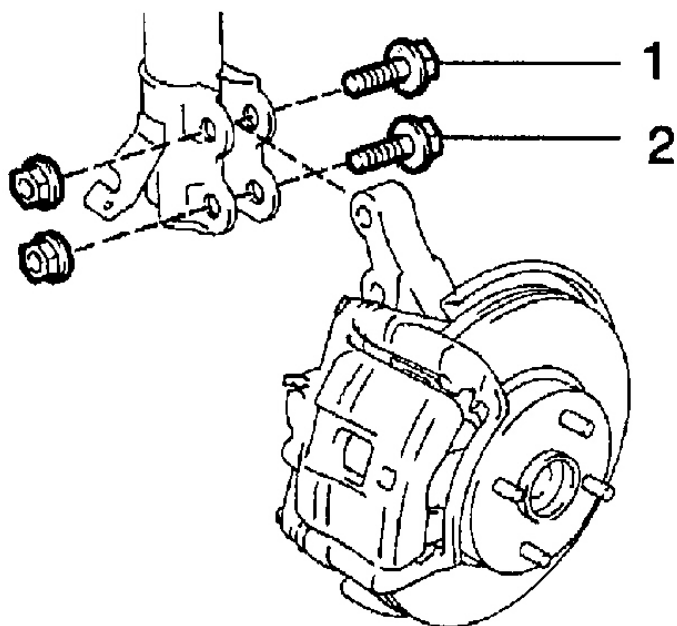
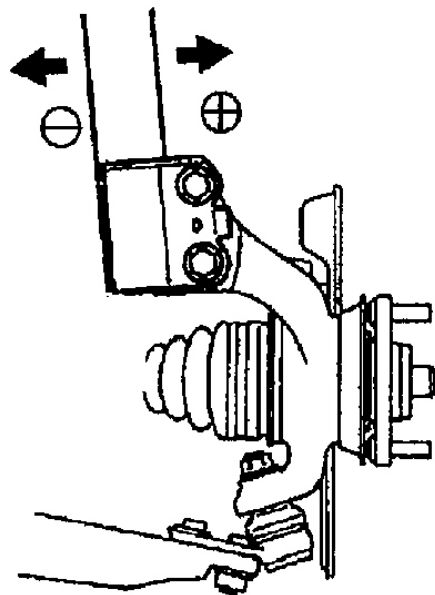
- a. Remove the front wheel.
- b. Remove the 2 nuts on the lower side of the shock absorber.



G01083099

Fig. 101: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



G01083100

Fig. 102: Moving Shock Absorber To Adjust Camber
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 274 N.m (2,800 kgf.cm, 203 ft.lbf)

g. Install the front wheel.

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

h. Check the camber.

NOTE:

- Try to adjust the camber to the center of the specified value.
- Adjusting value for the set bolts is 6' - 30' (0.1° - 0.5°). If the camber is not within the specified value, using the table in Fig. 103, estimate how much additional camber adjustment will be required, and select the camber adjusting bolt.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-15001		90105-15004		90105-15005		90105-15006	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

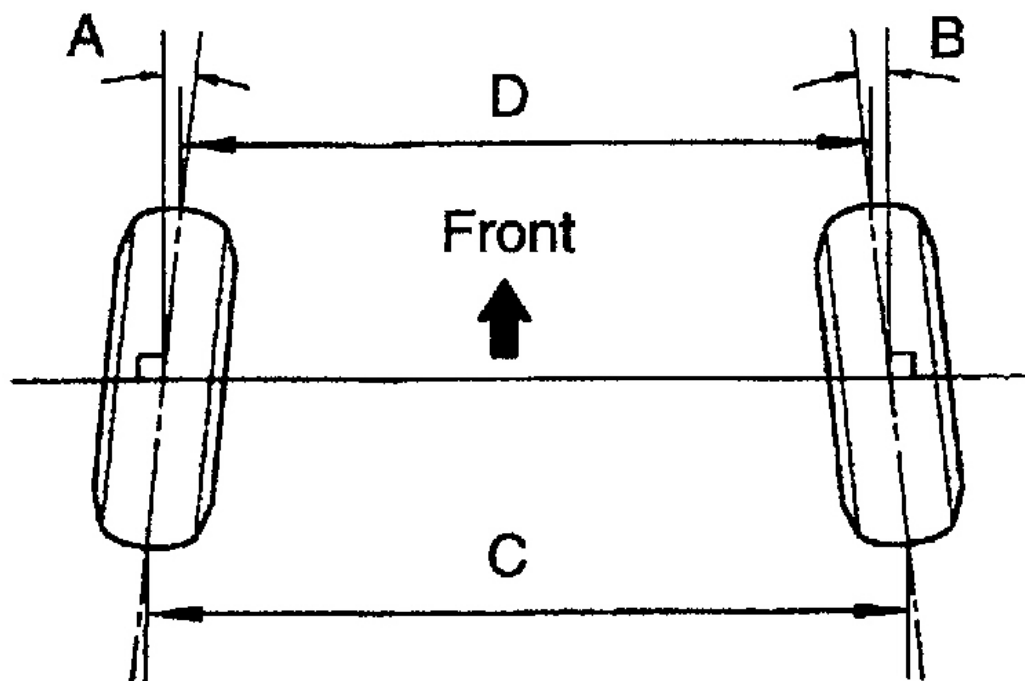
G01083101

Fig. 103: Displaying Camber Adjustment Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. Between steps b and c , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

5. Inspect toe-in .



G01083103

Fig. 104: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in (total):

A + B	$0^{\circ}06' \pm 12' (0.1^{\circ} \pm 0.2^{\circ})$
C - D	$1 \pm 2 \text{ mm } (0.04 \pm 0.08 \text{ in.})$

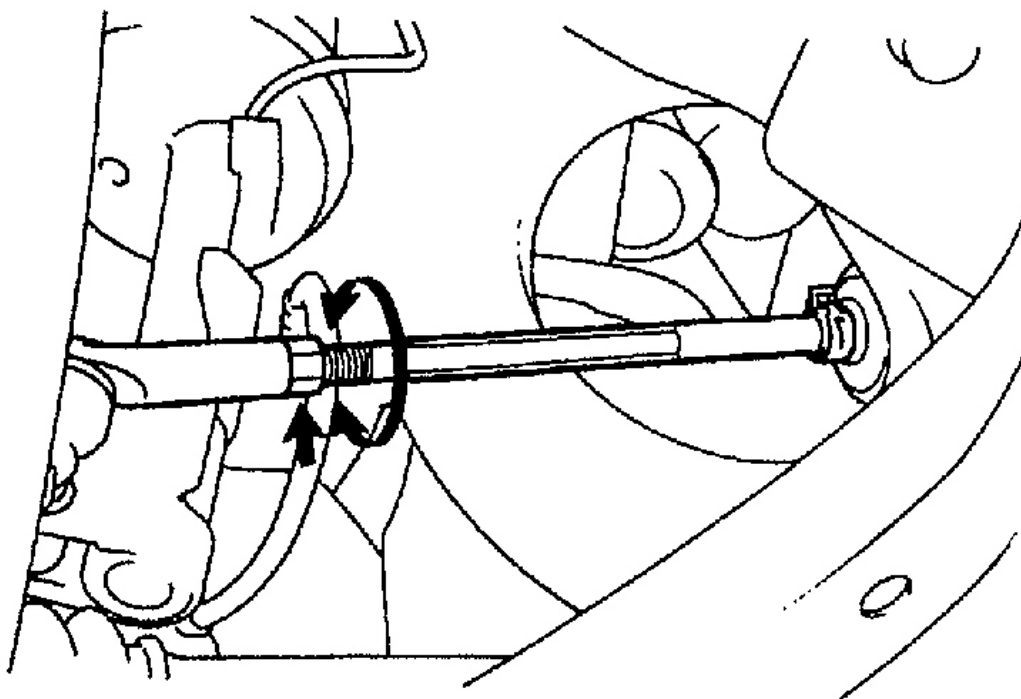
G01083102

Fig. 105: Identifying Toe-In Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. Adjust toe-in .

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



G01083104

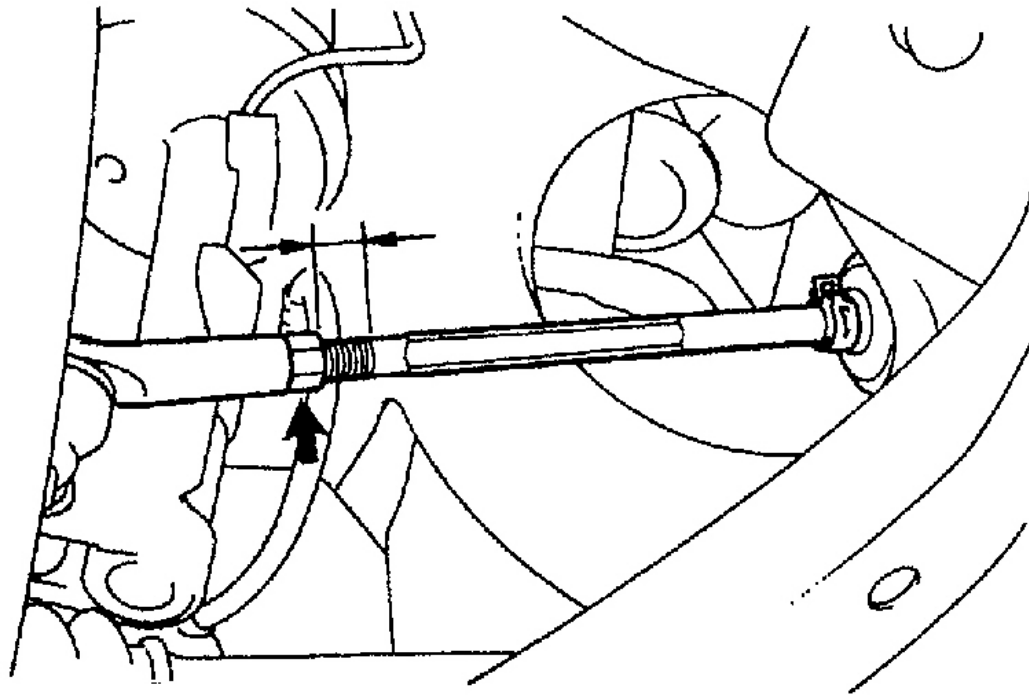
Fig. 106: Adjusting Tie Rod Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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



G01083105

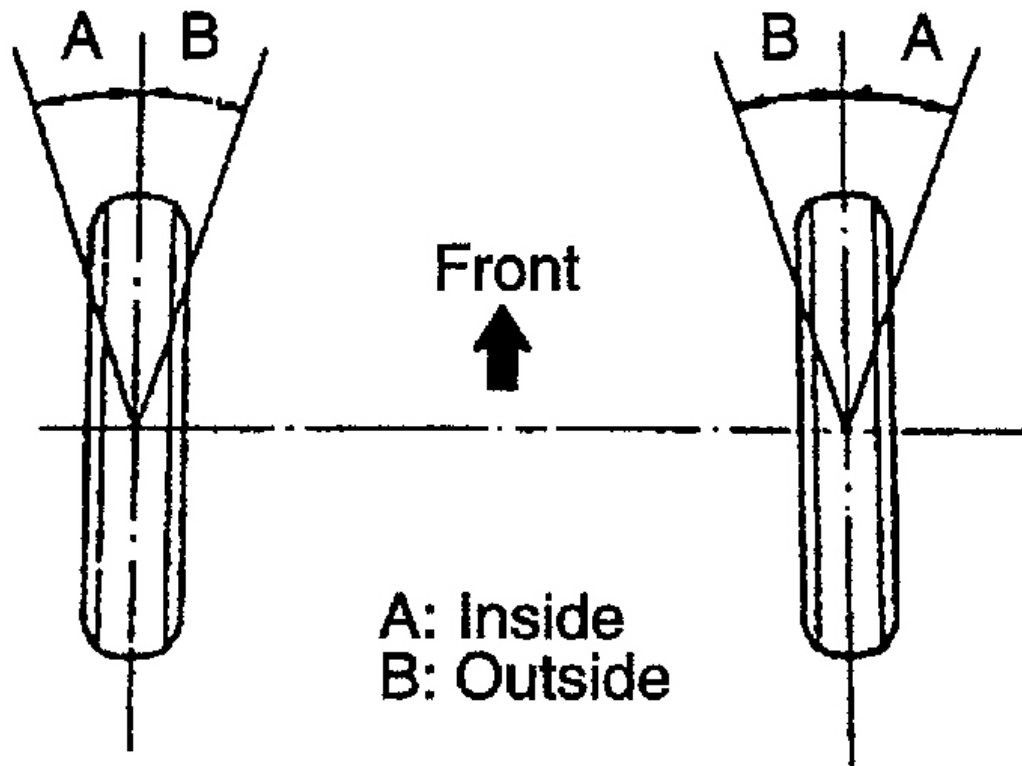
Fig. 107: Checking For Equal Rack End Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- 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.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .

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



G01083107

Fig. 108: Identifying Wheel Turning Angles
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle: See [Fig. 109](#) .

Inside wheel	$39^{\circ}13' \pm 2^{\circ}$ ($39.22^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$33^{\circ}22'$ (33.37°)

G01083106

Fig. 109: Identifying Wheel Turning Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Rear Wheel Alignment

- 1. **Measure vehicle height (see MEASURE VEHICLE HEIGHT) .**
- 2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**

Follow the specific instructions of the equipment manufacturer.

- 3. **Inspect camber .**

Camber:

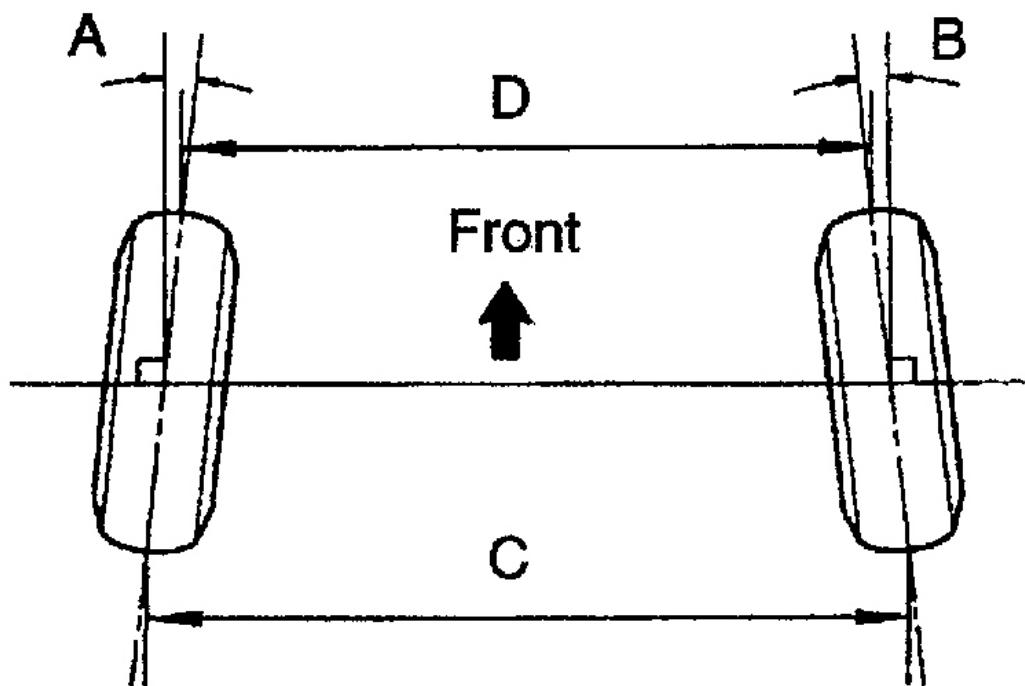
	$-0^{\circ}55' \pm 45' (-0.92^{\circ} \pm 0.75^{\circ})$
Right-left error	45' (0.75°) or less

G01083108

Fig. 110: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the measured value is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

- 4. **Inspect toe-in .**



G01083110

Fig. 111: Identifying Toe-In Measurements
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in (total):

A + B	$0^{\circ}24' \pm 12' (0.4^{\circ} \pm 0.2^{\circ})$
C - D	$4 \pm 2 \text{ mm } (0.16 \pm 0.08 \text{ in.})$

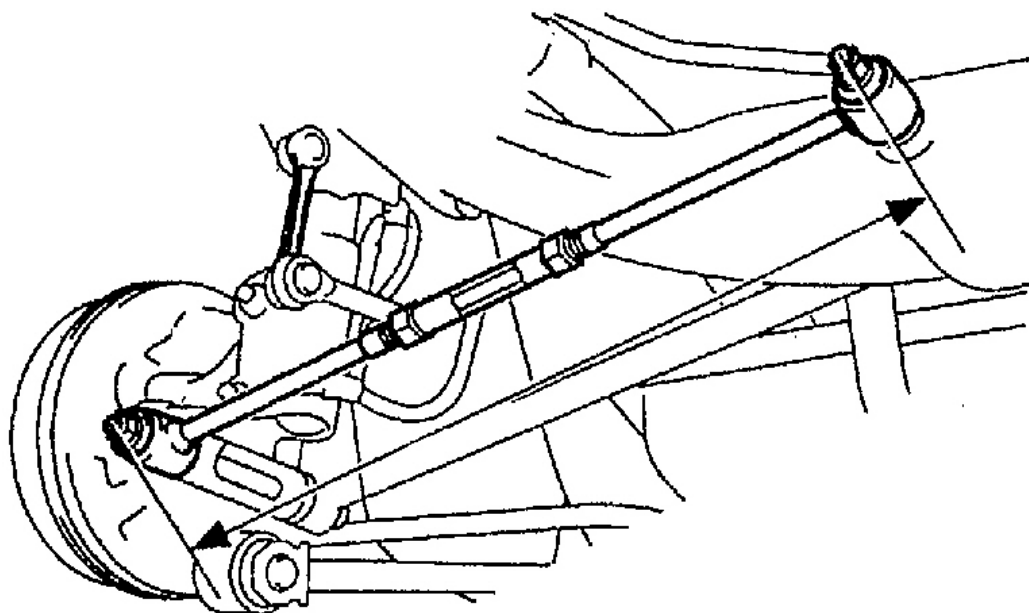
G01083109

Fig. 112: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, adjust it at the No. 2 lower suspension arm.

5. Adjust toe-in .

- a. Measure the lengths of the right and left No. 2 lower suspension arms.



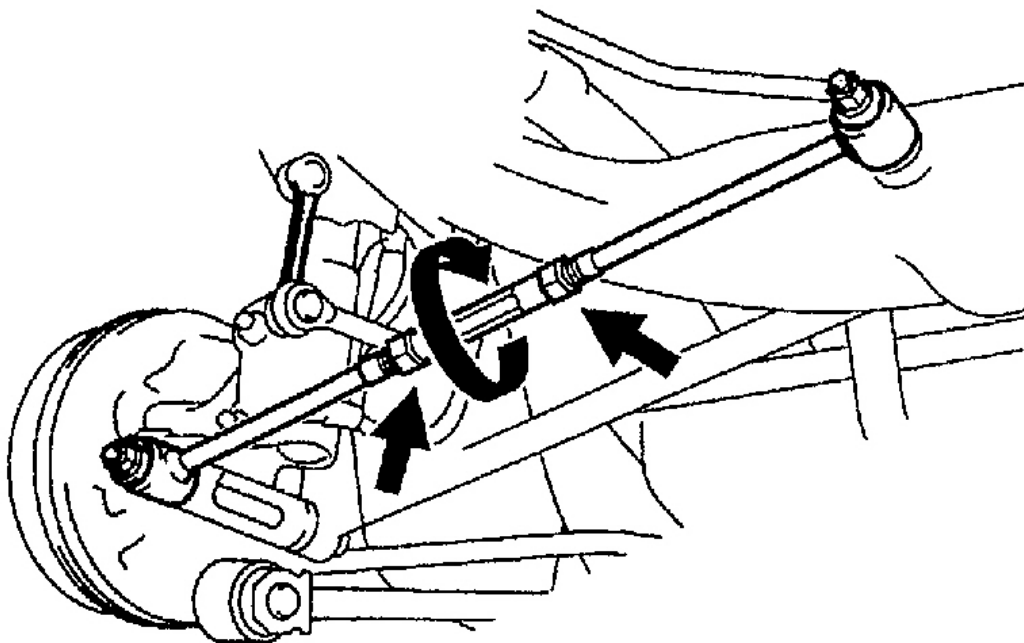
G01083111

Fig. 113: Measuring Lower Suspension Arm Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

No. 2 lower suspension arm length difference:
1 mm (0.04 in.) or less

If the right-left difference is greater than the specified value, adjust the length.

- b. Loosen the lock nuts.
- c. Turn the right and left adjusting tube by an equal amount to adjust toe-in.



G01083112

Fig. 114: Adjusting Toe-In

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- Try to adjust the toe-in to the center value.
- One turn of the each adjusting tube will adjust the toe-in by about 54' (0.9°, 9.0 mm, 0.354 in.).

d. Torque the lock nuts.

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

SPECIFICATIONS

Cold tire inflation pressure	P175/65R1481S	Front, rear	210 kPa (2.1 kgf/cm ² , 30 psi)
	P185/65R1485S	Front, rear	210 kPa (2.1 kgf/cm ² , 30 psi)
Front Wheel alignment	Vehicle height		
	175/65R14	Front	185 mm (7.28 in.)
		Rear	245 mm (9.65 in.)
	185/65R14	Front	190 mm (7.48 in.)
		Rear	250 mm (9.84 in.)
	Camber	Right-lefterror	-0°11' ± 45' (-0.18° ± 0.75°) 45' (0.75°) or less
	Caster	Right-lefterror	1°19' ± 45' (1.32° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Right-lefterror	12°38' ± 45' (12.63° ± 0.75°) 45' (0.75°) or less
Rear wheel alignment	Toe-in (total)	Rack end length difference	0°06' ± 12' (0.1° ± 0.2°, 1 ± 2 mm, 0.04 ± 0.08 in.) 1.0 mm (0.039 in.) or less
	Toe-in (total)	No. 2 lower suspension arm length difference	0°24' ± 12' (0.4° ± 0.2°, 4 ± 2 mm, 0.16 ± 0.08 in.) 1 mm (0.04 in.) or less
	Camber	Right-lefterror	-0°55' ± 45' (-0.92° ± 0.75°) 45' (0.75°) or less
	Wheel angle	Inside wheel Outside wheel: Reference	34°13' ± 2° (39.22° ± 2°) 33°22' (33.37°)
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Front drive shaft	Drive shaft standard length	LH RH	540.2 ± 5.0 mm (21.268 ± 0.197 in.) 857.4 ± 5.0 mm (39.756 ± 0.197 in.)
	Lower ball joint turning torque		1.0 – 2.9 N·m (10 – 30 kgf·cm, 8.7 – 26 in.-lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Rear suspension	No. 2 lower suspension arm length		502.0 ± 1.5 mm (19.764 ± 0.059 in.)
	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

G00212719

Fig. 115: Wheel Alignment Specifications (Corolla)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

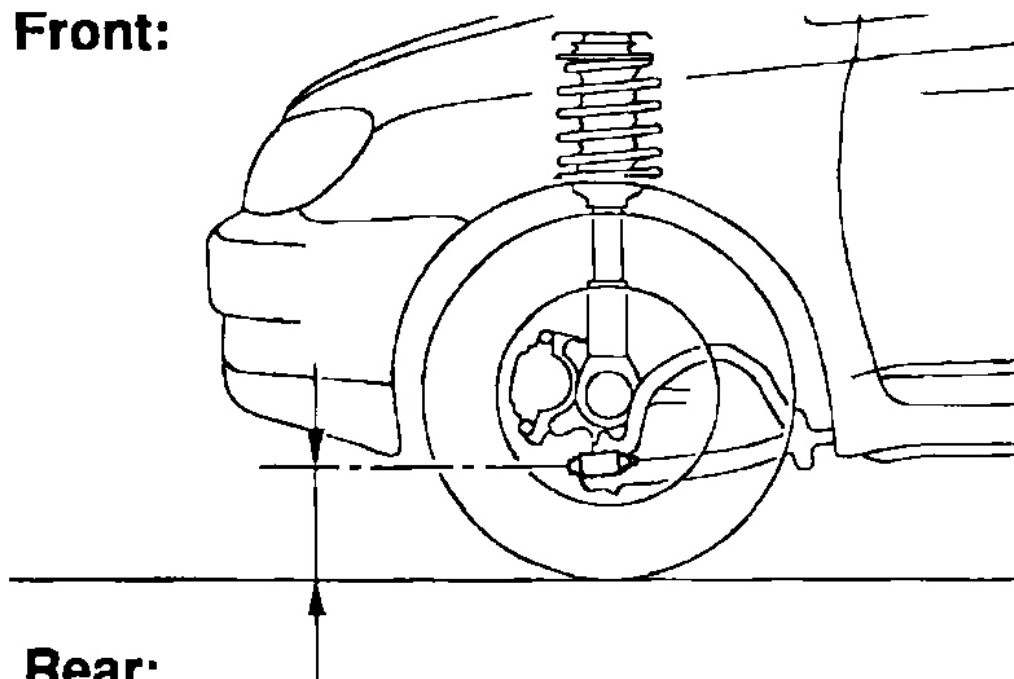
ECHO

PROCEDURES

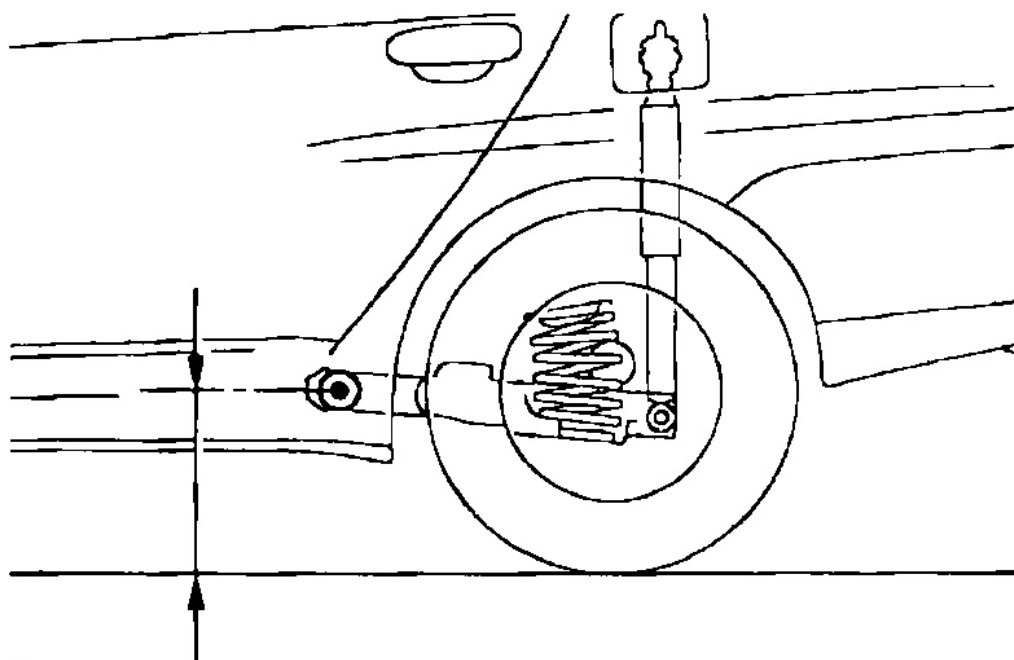
Front Wheel Alignment

1. Measure vehicle height .

Front:



Rear:



N

G01101198

Fig. 116: Measuring Vehicle Height

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
P175/65R14	187 (7.36)	264 10.39)

*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.

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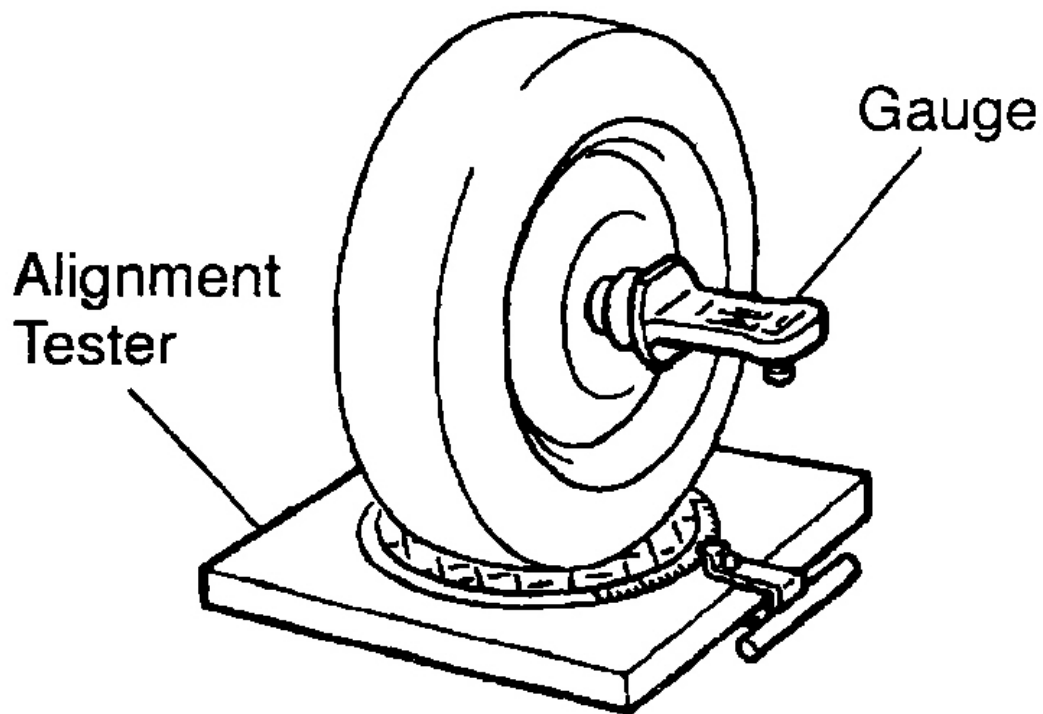
Fig. 117: Identifying Vehicle Height Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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

2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**



G01101199

Fig. 118: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination nest .

Camber, caster and steering axis inclination:

Camber		$-0^{\circ}37' \pm 45'$ ($-0.62^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Caster		
	Manual steering	$0^{\circ}48' \pm 45'$ ($0.80^{\circ} \pm 0.75^{\circ}$)
	Power steering	$1^{\circ}46' \pm 45'$ ($1.77^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Steering axis inclination		$10^{\circ}08' \pm 45'$ ($10.13^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less

G01101200

Fig. 119: Identifying Camber, Caster & Steering Axis Inclination
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

NOTE: **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.

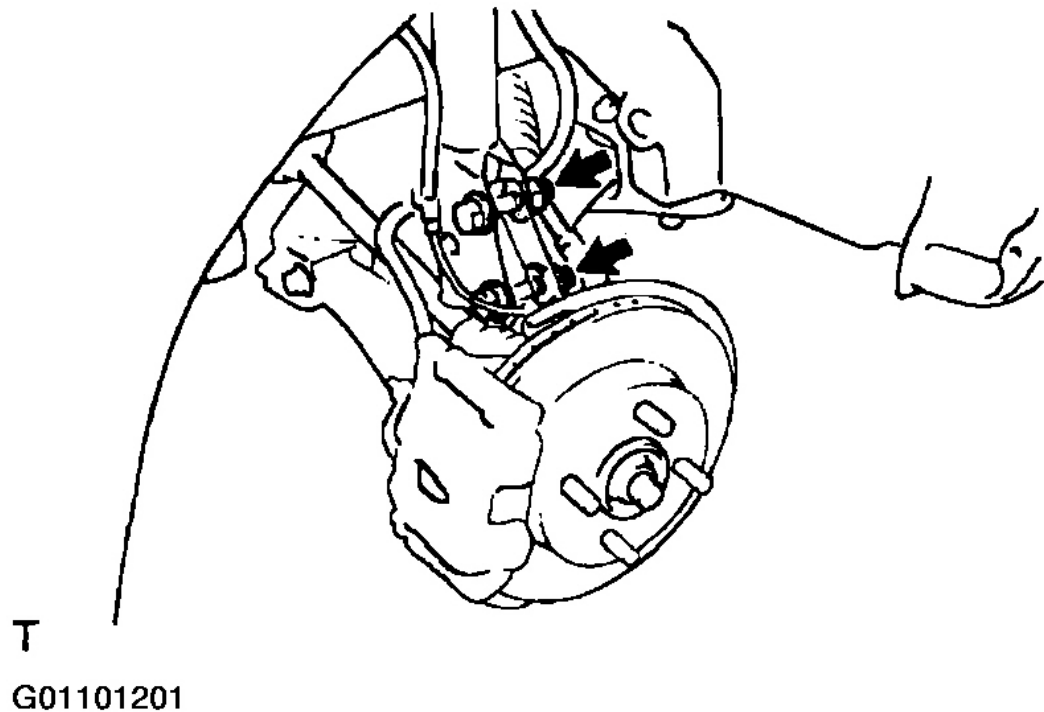
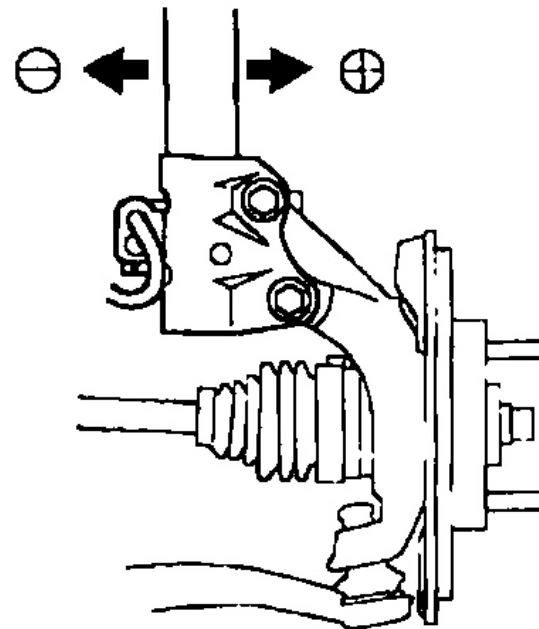


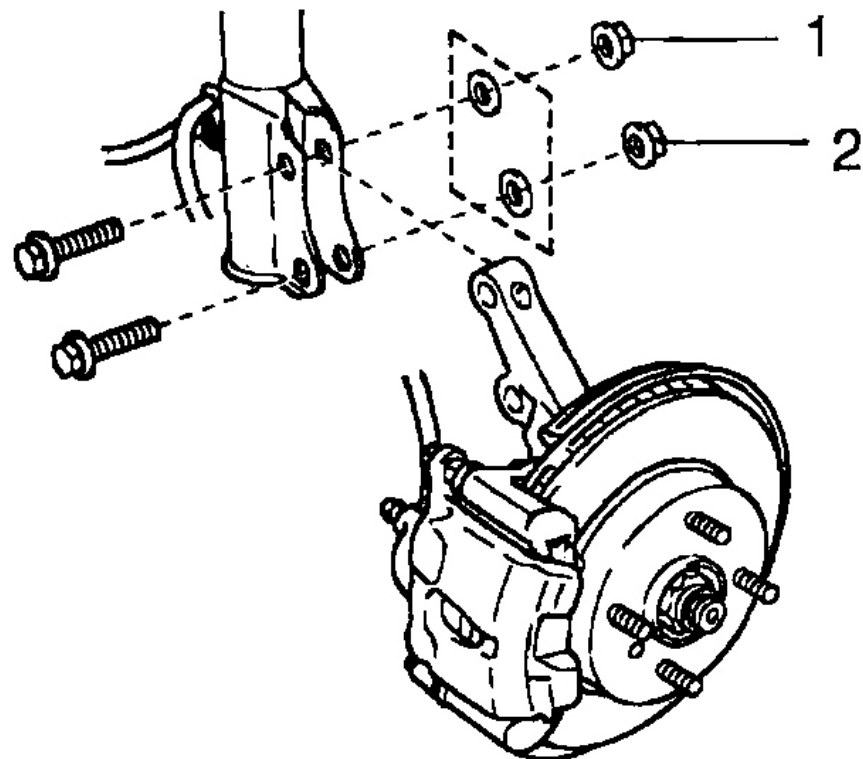
Fig. 120: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If reusing the bolts and/or nuts, coat the threads of nuts with engine oil.

- c. Clean the installation surfaces of the shock absorber and the steering knuckle.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



 : Use with adjusting bolt



N

G01101203

Fig. 121: Moving Lower Shock To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 132 N.m (1,350 kgf.cm, 97 ft.lbf)

g. Install the front wheel.

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

h. Check the camber.

NOTE:

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

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

NOTE:

Tighten the adjusting bolt with a washer and a new nut.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt			
	90105-14140		90105-14146		90105-14147	
			1 Dot 		2 Dots 	
	1	2	1	2	1	2
15'	●			●		
30'	●					●
45'			●			●
1°00'			●		●	●

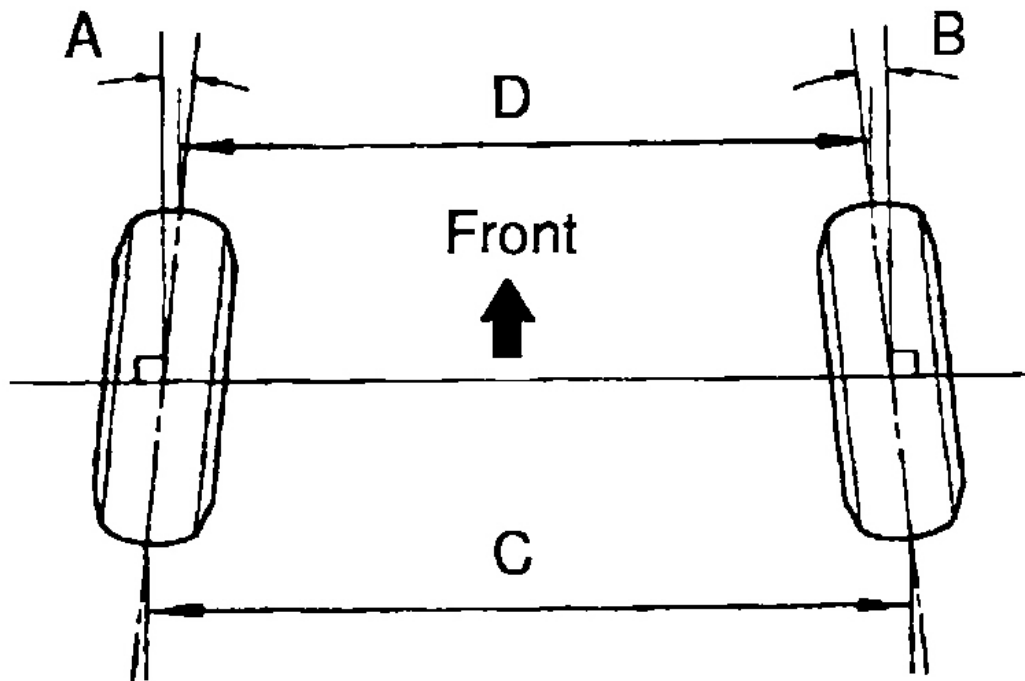
G01101202

Fig. 122: Displaying Camber Adjusting Bolt Table
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. At step b , replace 1 or 2 selected bolts.

NOTE: **When replacing the 2 bolts, replace 1 bolt for each time.**

5. **Inspect toe-in .**



G01101205

Fig. 123: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ} \pm 12' (0^{\circ} \pm 0.2^{\circ})$ $C - D: 0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
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G01101204

Fig. 124: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. Adjust toe-in .

- 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.

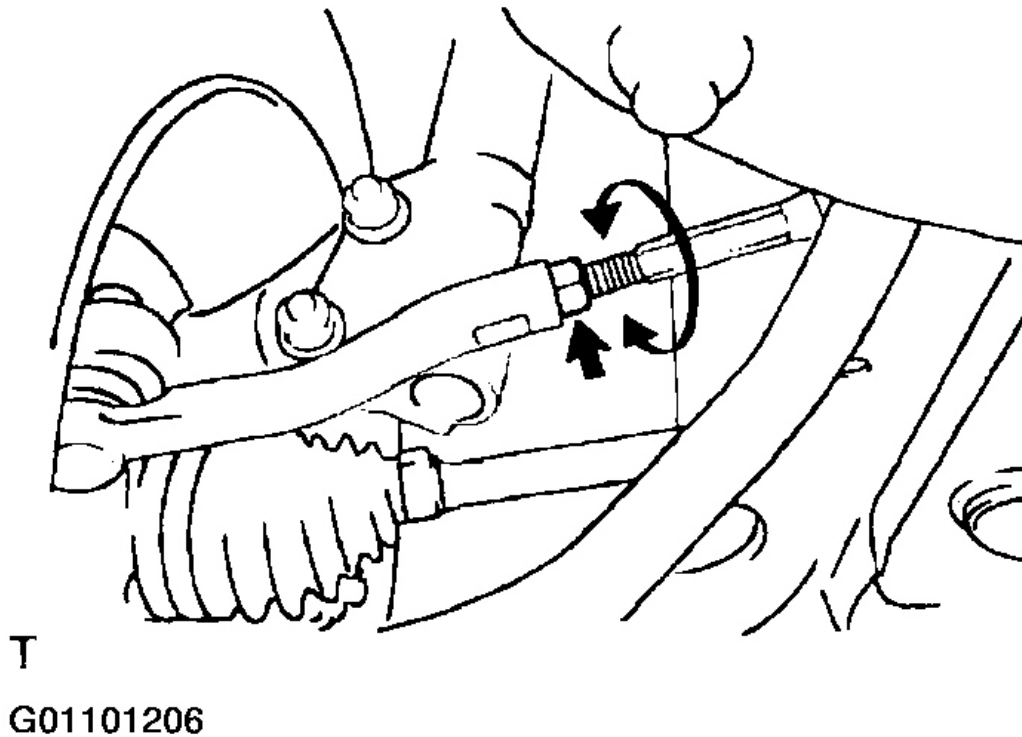


Fig. 125: Adjusting Tie Rod Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: 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.

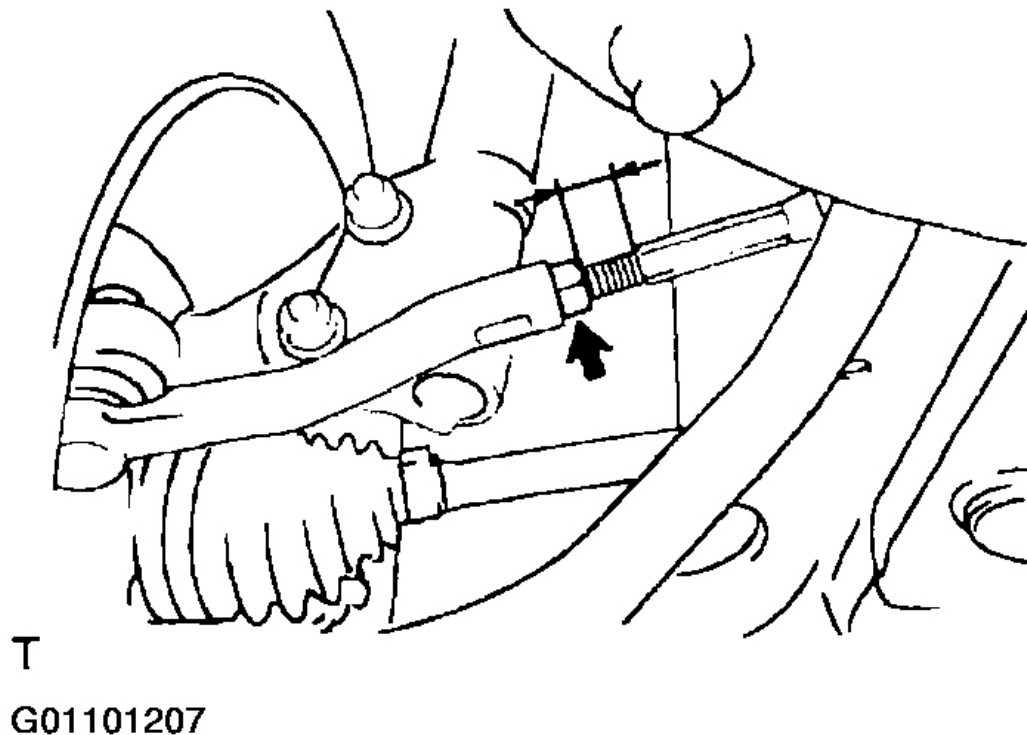


Fig. 126: Checking For Equal Rack End Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference: 1.5 mm (0.059 in.) or less

- e. Torque the tie rod end lock nuts.

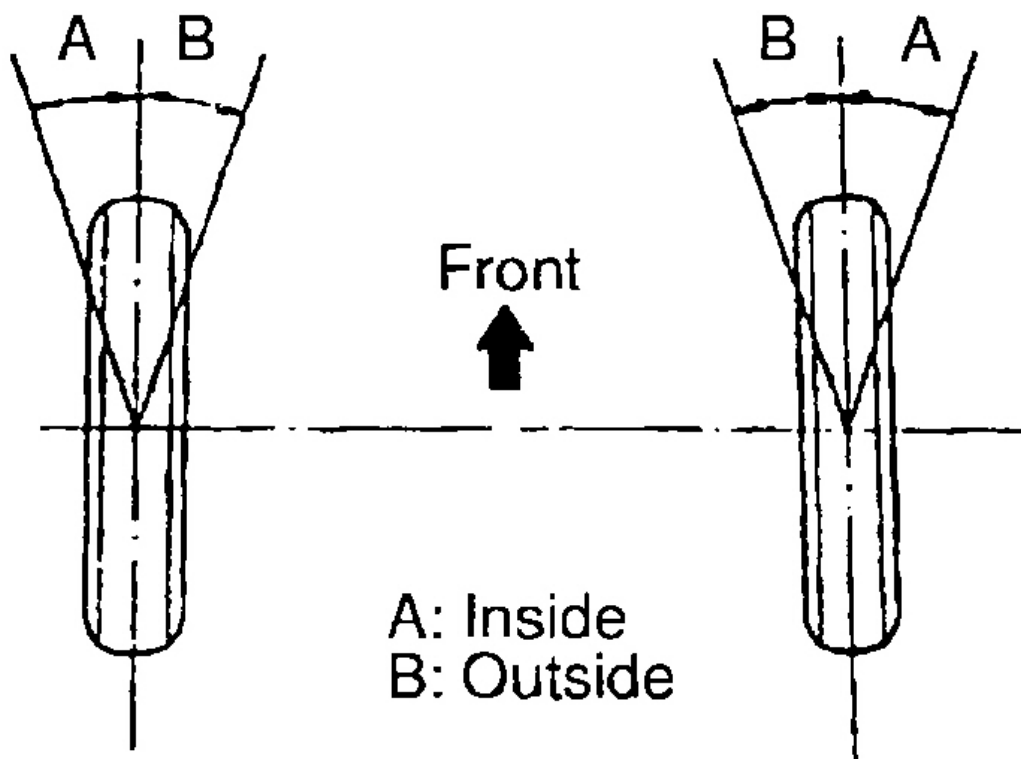
Torque: 47 N.m (480 kgf.cm, 35 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .

Turn the steering wheel fully and measure the turning angle.



G01101209

Fig. 127: Identifying Wheel Turning Angles
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

	Manual steering	Power steering
Inside wheel	$36^{\circ}56' \pm 2^{\circ}$ ($36.94^{\circ} \pm 2^{\circ}$)	$36^{\circ}56' \pm 2^{\circ}$ ($36.93^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$32^{\circ}07' (32.12^{\circ})$	$32^{\circ}17' (32.28^{\circ})$

G01101208

Fig. 128: Identifying Wheel Turning Angle Specifications

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

Rear Wheel Alignment

- 1. Measure vehicle height (see MEASURE VEHICLE HEIGHT) .

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

- 2. Inspect camber .

Camber:

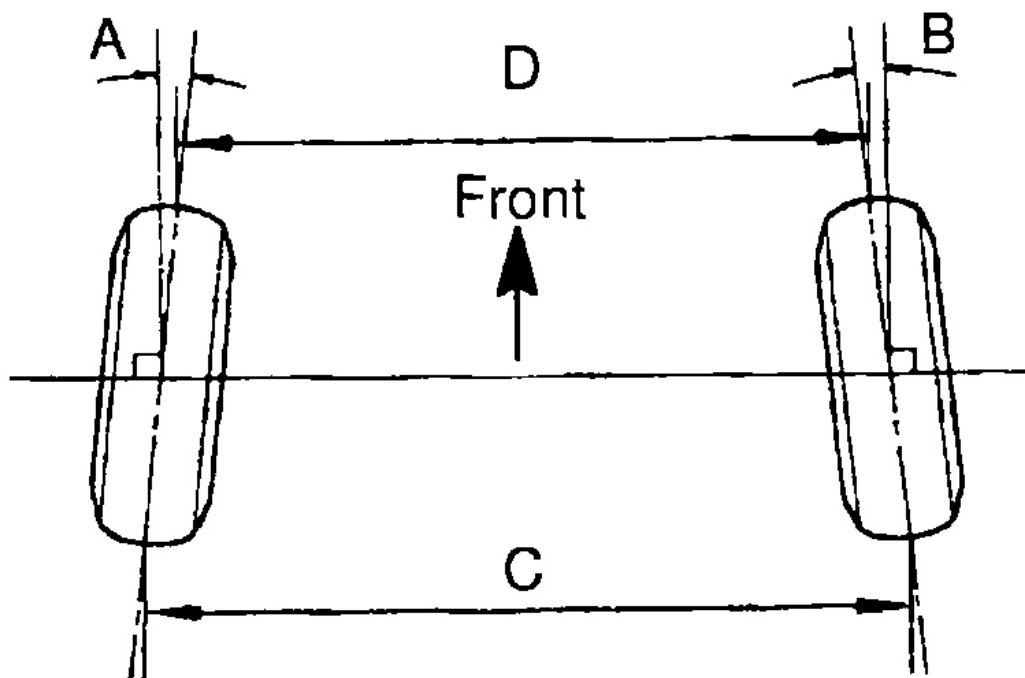
Camber	$-0^{\circ}57' \pm 45'$ ($-0.95^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

G01101210

Fig. 129: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the measured value is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

- 3. Inspect toe-in .



G01101212

Fig. 130: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	A + B: $0^{\circ}21' \pm 20'$ ($0.35^{\circ} \pm 0.33^{\circ}$) C - D: 3.3 ± 3.0 mm (0.13 ± 0.12 in.)
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G01101211

Fig. 131: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, inspect and replace the suspension parts as necessary.

SPECIFICATIONS

Cold tire inflation pressure	Tire size: P175/65R14 81S	Front Rear	220 kPa (2.2 kgf/cm ² , 32 psi) 220 kPa (2.2 kgf/cm ² , 32 psi)
Front wheel alignment	Vehicle height P175/65R14	Front*1 Rear*2	187 mm (7.36 in.) 264 mm (10.39 in.)
	Camber	Right-left error	-0°37' ± 45' (-0.62° ± 0.75°) 45' (0.75°) or less
	Caster	Manual steering Power steering Right-left error	0°48' ± 45' (0.80° ± 0.75°) 1°46' ± 45' (1.77° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Right-left error	10°08' ± 45' (10.13° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	Rack end length difference	0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle		
	Manual steering Power steering	Inside wheel Outside wheel: Reference Inside wheel Outside wheel: Reference	36°56' ± 2° (36.44° ± 2°) 32°07' (32.12°) 36°56' ± 2° (36.93° ± 2°) 32°17' (32.28°)
Rear wheel alignment	Camber	Right-left error	-0°57' ± 45' (-0.95° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)		0°21' ± 20' (0.35° ± 0.33°) 3.3 ± 3.0 mm (0.13 ± 0.12 in.)
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)
Front drive shaft	Drive shaft standard length	LH	574.3 ± 5.0 mm (22.610 ± 0.197 in.)
		RH	813.3 ± 5.0 mm (32.020 ± 0.197 in.)
Front suspension	Lower suspension arm ball joint turning torque		0.59 – 3.43 N·m (6 – 35 kgf·cm, 5.2 – 30 in.-lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)

*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.

G00212723

Fig. 132: Wheel Alignment Specifications (Echo)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HIGHLANDER

PROCEDURES

Front Wheel Alignment

1. **Inspect tire .**
 - a. Check the tires for wear and proper inflation pressure.
 Cold tire inflation pressure:

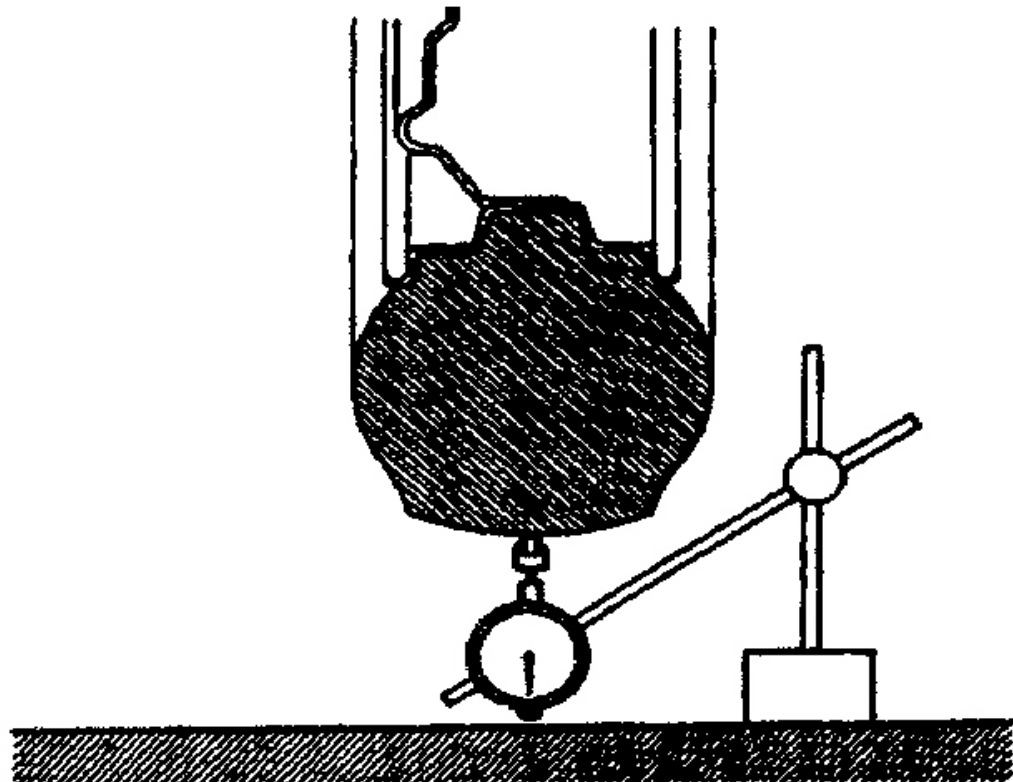
Tire size	Front, Rear kPa (kgf/cm ² , psi)
P225/70R16 101S	210 (2.1, 30)

G01063929

Fig. 133: Identifying Tire Size & Pressure
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a dial indicator, check the tire runout.

Tire runout: 3.0 mm (0.039 in.) or less



G01063930

Fig. 134: Using Dial Indicator To Check Tire Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Measure vehicle height .

Vehicle height:
(4WD)

Front	A – B: 108.1 mm (4.26 in.)
Rear	C – D: 30.5 mm (1.20 in.)

G01063931

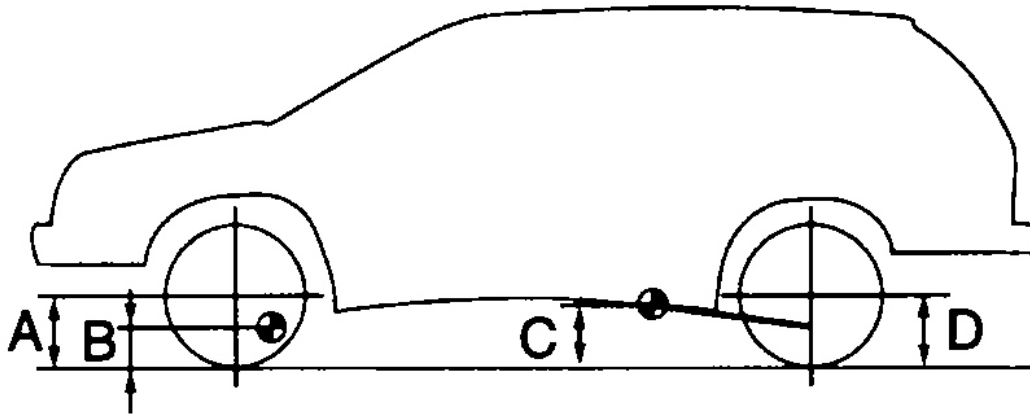
Fig. 135: Identifying Vehicle Height Specifications (4WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

(2WD)

Front	A – B: 118.1 mm (4.65 in.)
Rear	C – D: 40.5 mm (1.59 in.)

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Fig. 136: Identifying Vehicle Height Specifications (2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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Fig. 137: Identifying Ride Height Measuring Points
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

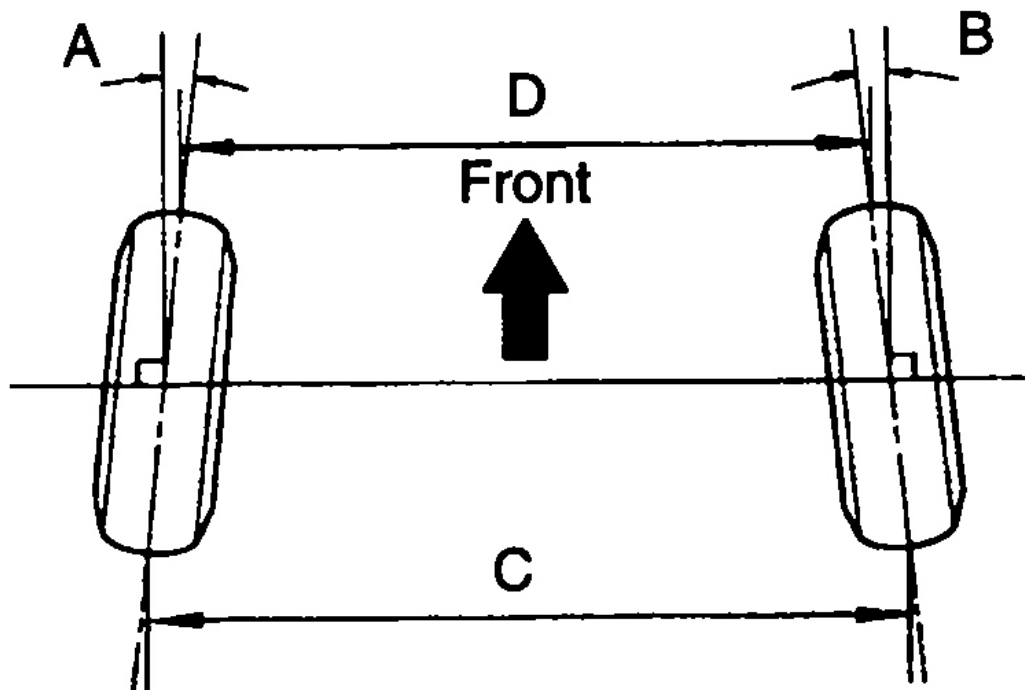
Measuring points:

- A: Ground clearance of front wheel center
- B: Ground clearance of lower suspension arm No. 2 set bolt center
- C: Ground clearance of strut rod set bolt center
- D: Ground clearance of rear wheel center

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

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

3. Inspect toe-in .



G01063935

Fig. 138: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-In (total)	$A + B: 0^{\circ} \pm 12' (0^{\circ} \pm 0.2^{\circ})$ $C - D: 0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
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G01063934

Fig. 139: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

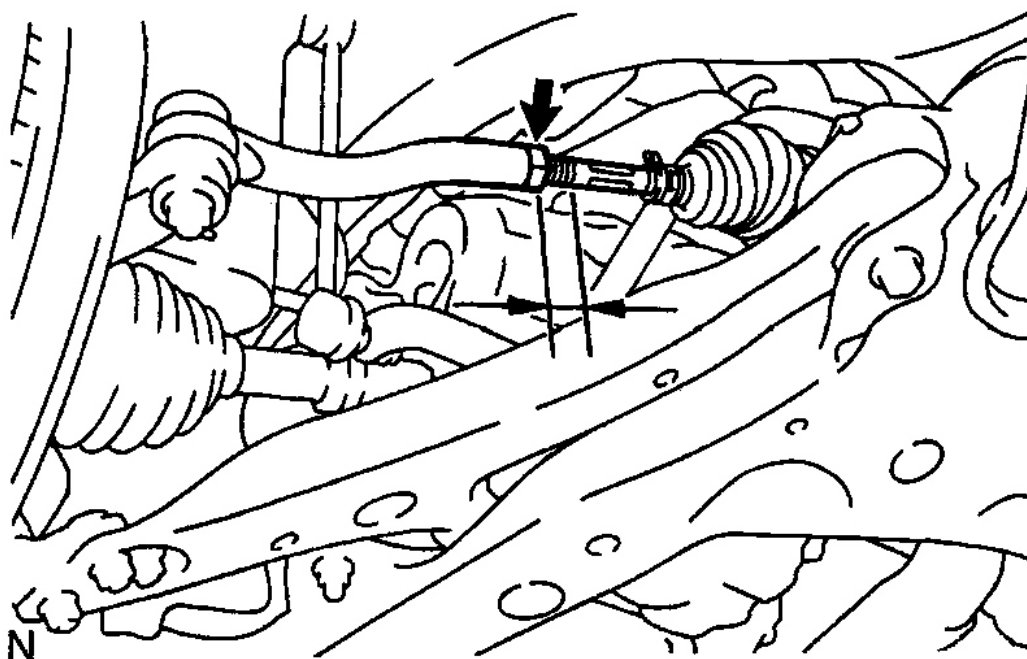
4. Adjust toe-in .

- a. Remove the rack boot set clips.

- b. Loosen the tie rod end lock nuts.
- c. Turn the right and left rack ends by an equal amount to adjust the toe-in.

NOTE: 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.



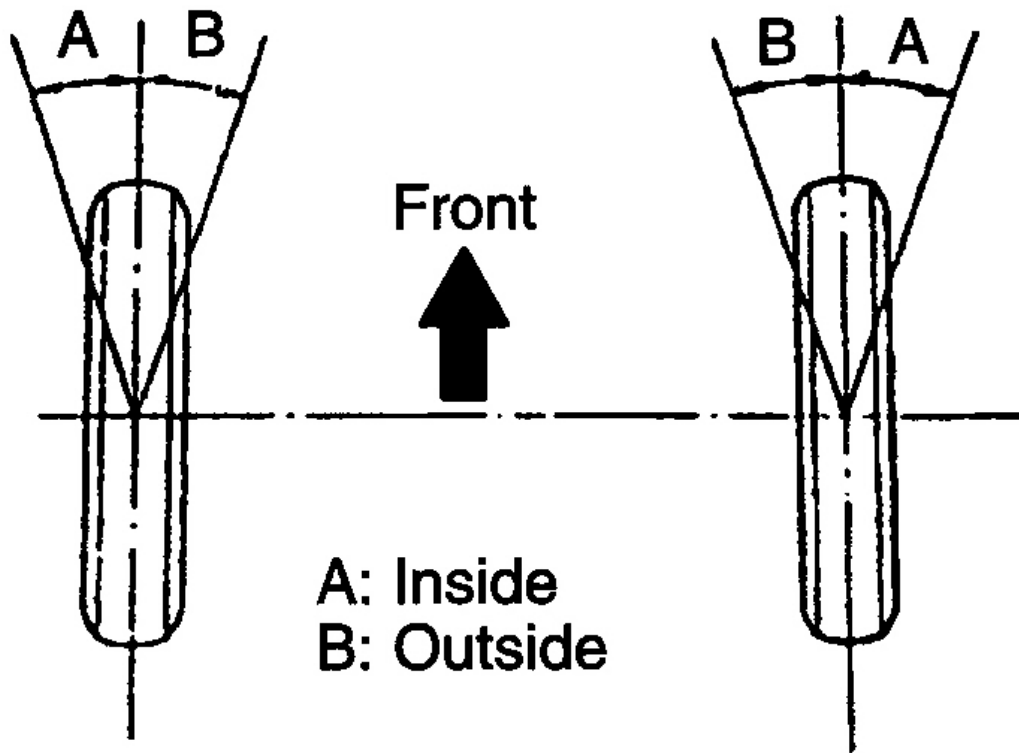
G01063936

Fig. 140: Checking For Equal Rack End Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Torque the tie rod end lock nuts.
Torque: 74 N.m (755 kgf.cm, 55 ft.lbf)
- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

5. Inspect wheel angle .



G01063939

Fig. 141: Identifying Wheel Turning Angles

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the steering wheel fully and measure the turning angle.

Wheel turning angle:

(4WD)

Inside wheel	$35^{\circ}41' \pm 1^{\circ}30' (35.68^{\circ} \pm 1.5^{\circ})$
Outside wheel: Reference	$31^{\circ}22' (31.37^{\circ})$

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Fig. 142: Identifying Wheel Turning Angle Specifications (4WD)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

(2WD)

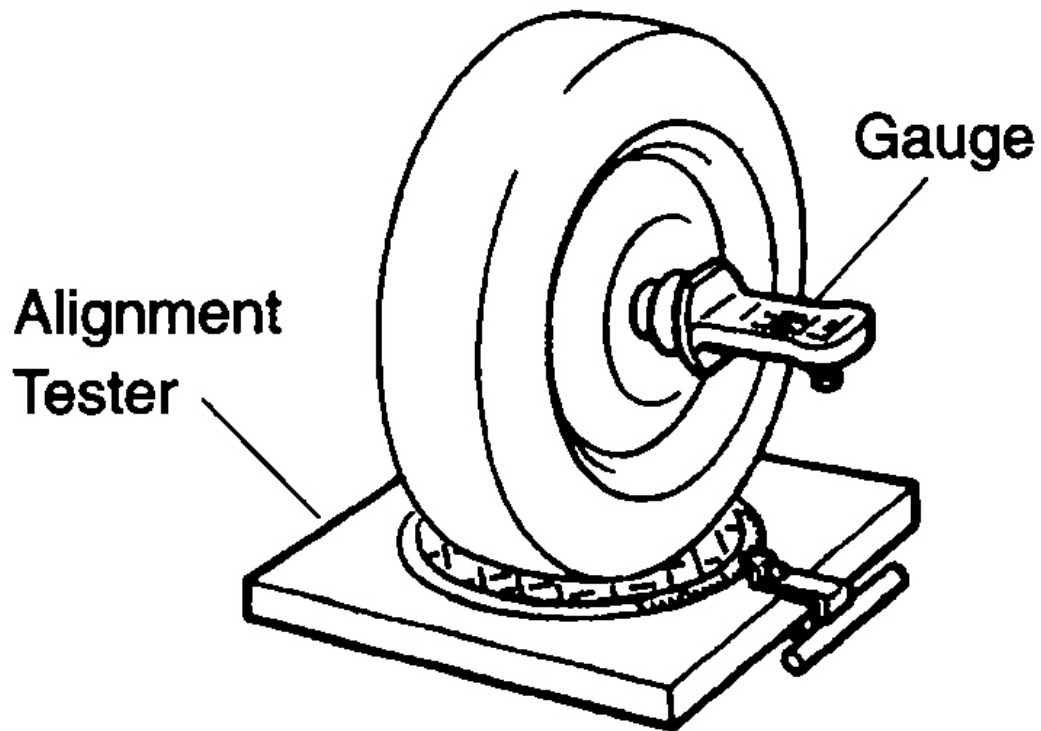
Inside wheel	$35^{\circ}28' \pm 1^{\circ}30'$ ($35.47^{\circ} \pm 1.5^{\circ}$)
Outside wheel: Reference	$31^{\circ}13'$ (31.22°)

G01063938

Fig. 143: Identifying Wheel Turning Angle Specifications (2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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. Install the camber/caster/kingpin gauge or position vehicle on wheel alignment tester.



G01063941

Fig. 144: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Inspect the camber, caster and steering axis inclination.
Camber, caster and steering axis inclination:
(4WD)

Camber	$0^{\circ}35' \pm 45' (-0.58^{\circ} \pm 0.75^{\circ})$ Right-left error 45' (0.75°) or less
Caster	$2^{\circ}45' \pm 45' (2.75^{\circ} \pm 0.75^{\circ})$ Right-left error 45' (0.75°) or less
Steering axis inclination	$10^{\circ}35' \pm 45' (10.58^{\circ} \pm 0.75^{\circ})$ Right-left error 45' (0.75°) or less

G01063940

Fig. 145: Identifying Camber, Caster & Steering Axis Inclination Specifications (4WD)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

(2WD)

Camber	$-0^{\circ}40' \pm 45' (-0.67^{\circ} \pm 0.75^{\circ})$ Right-left error 45' (0.75°) or less
Caster	$2^{\circ}45' \pm 45' (2.75^{\circ} \pm 0.75^{\circ})$ Right-left error 45' (0.75°) or less
Steering axis inclination	$10^{\circ}45' \pm 45' (10.75^{\circ} \pm 0.75^{\circ})$ Right-left error 45' (0.75°) or less

G01063942

Fig. 146: Identifying Camber, Caster & Steering Axis Inclination Specifications (2WD)

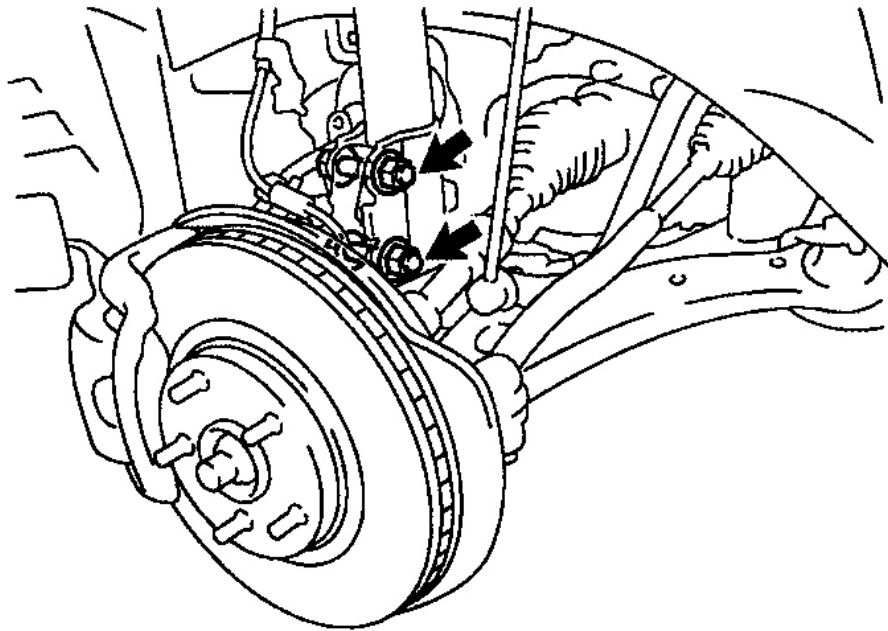
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

7. Adjust camber .

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

- Remove the front wheel.
- Remove the 2 nuts on the lower side of the shock absorber.

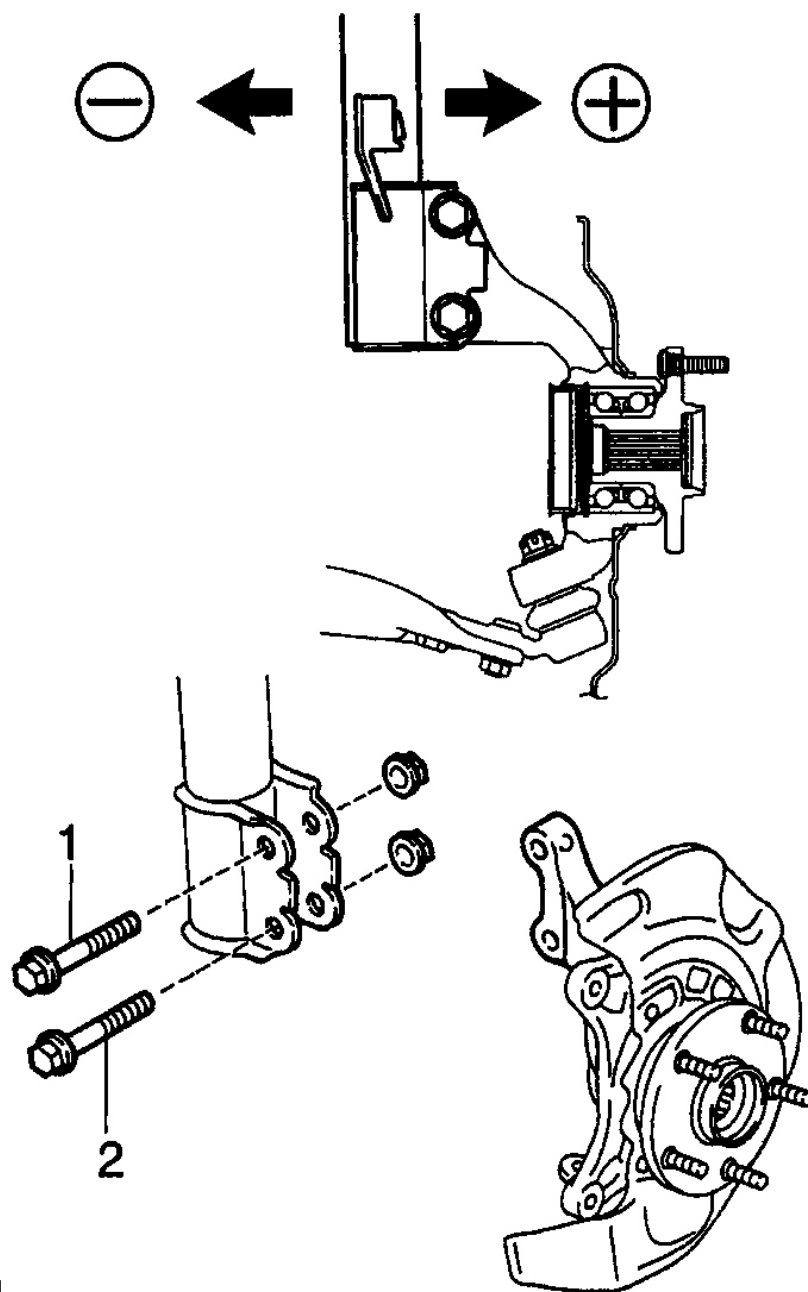


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Fig. 147: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Clean the installation surfaces of the shock absorber and the steering knuckle.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



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G01063944

Fig. 148: Moving Shock Absorber To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Tighten the nuts.

Torque: 210 N.m (2,140 kgf.cm, 155 ft.lbf)

- g. Install the front wheel.

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

- h. Check the camber.

NOTE:

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

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

NOTE:

Tighten the adjusting bolt with a washer and a new nut.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-17008		90105-17009		90105-17010		90105-17011	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

G01063945

Fig. 149: Displaying Camber Adjusting Bolt Table
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. At step b , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

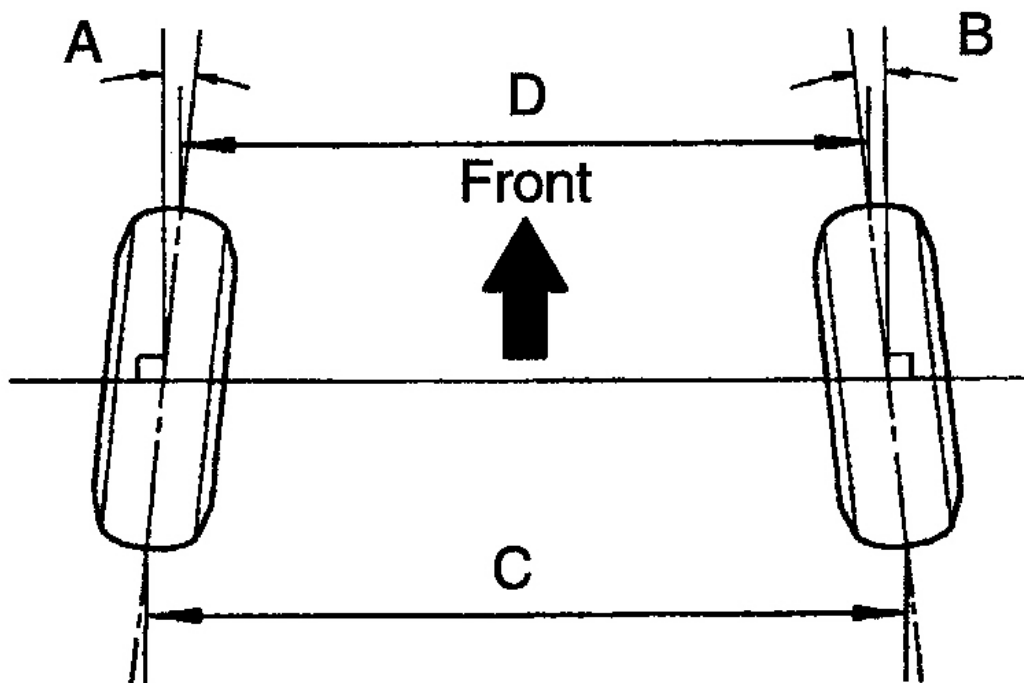
Rear Wheel Alignment

1. Inspect tire (see INSPECT TIRE) .
2. Measure vehicle height (see MEASURE VEHICLE HEIGHT) .

NOTE: Before inspecting the wheel alignment, adjust the vehicle height to the

specified value.

3. Inspect toe-in .



G01064480

Fig. 150: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ}18' \pm 12' (0.3^{\circ} \pm 0.2^{\circ})$ $C - D: 3 \pm 2 \text{ mm } (0.12 \pm 0.08 \text{ in.})$
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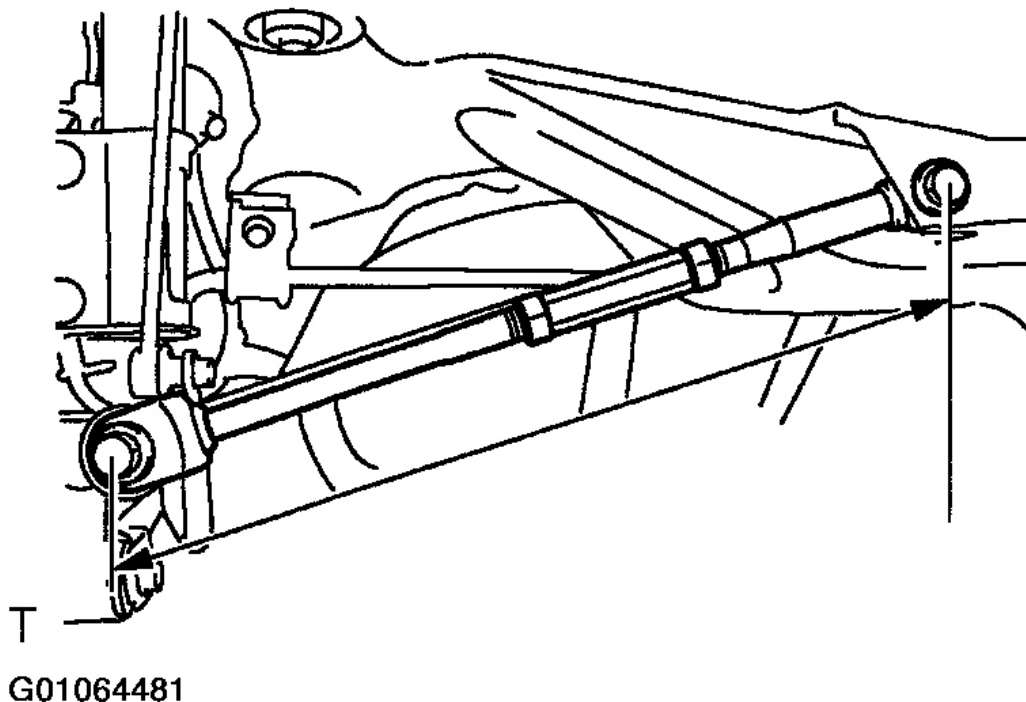
Fig. 151: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, inspect and replace the suspension parts as necessary.

4. **Adjust toe-in (2WD drive type) .**

- a. Measure the lengths of the right and left No. 2 lower suspension arms.



G01064481

Fig. 152: Measuring Lower Suspension Arm Length
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

No. 2 lower suspension arm length difference: 1.0 mm (0.04 in.) or less

If the left-right difference is larger than 1.0 mm (0.04 in.), adjust it by following the procedures below.

- b. Loosen the lock nuts.

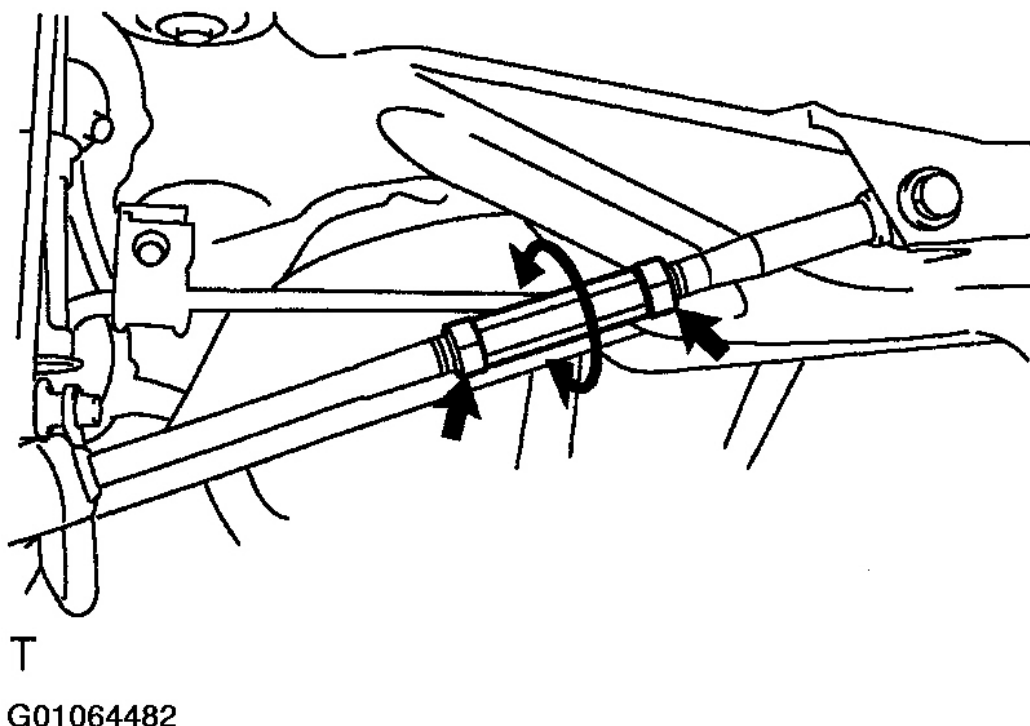


Fig. 153: Adjusting Lower Suspension Arm Lengths
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Turn the right and left adjusting tube by an equal amount to adjust toe-in.

NOTE:

- Try to adjust the toe-in to the center value.
- One turn of the each adjusting tube will adjust the toe-in by about 67' (1°11', 11.1 mm, 0.437 in.).

- d. Torque the lock nut.

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

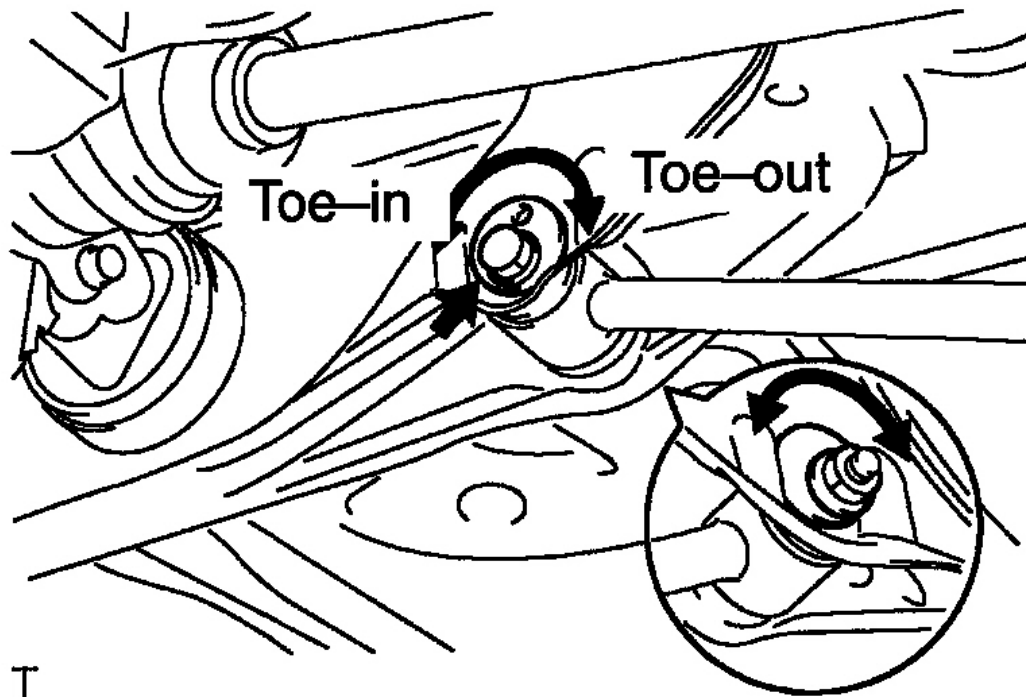
5. Adjust toe-in (4WD drive type) .

- a. Measure the distance between each wheel disc and corner of the toe-adjusting cam then confirm that left and right distances are the same.

No. 2 lower suspension arm length difference: 1.0 mm (0.04 in.) or less

If the left-right difference is larger than 1.0 mm (0.04 in.), adjust it by following the procedures below.

- b. Turn the toe-adjusting cam by an equal amount to adjust toe-in.



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Fig. 154: Using Adjusting Cam To Adjust Toe

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- Try to adjust the toe-in to the center value.
- The toe-in will change by the following specifications corresponding to each graduation of the cam.

Approx. 3.3 mm (0.13 in.)

- c. Torque the lock bolt.

Torque: 113 N.m (1,150 kgf.cm, 83 ft.lbf)

6. Inspect camber .

4WD:

Camber	Right-left error	$-0^{\circ}45' \pm 45' (-0.75^{\circ} \pm 0.75^{\circ})$ 45' (0.75") or less
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G01064484

Fig. 155: Identifying Camber Specifications (4WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2WD:

Camber	Right-left error	$-1^{\circ}20' \pm 45' (-1.33^{\circ} \pm 0.75^{\circ})$ 45' (0.75") or less
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G01064485

Fig. 156: Identifying Camber Specifications (2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Camber is not adjustable, if the measurement is not within the specification, inspect the suspension parts for damaged and/or worn-out parts and replace them as necessary.

SPECIFICATIONS

Cold tire inflation pressure	Tire size: P225/70R16 101S	Front, Rear	220 kPa (2.1 kgf/cm ² , 30 psi)
Front wheel alignment	Vehicle height		
	4WD models	Front: A *1 – B *2 Rear: C *3 – D *4	108.1 mm (4.26 in.) 30.5 mm (1.20 in.)
	2WD models	Front: A *1 – B *2 Rear: C *3 – D *4	118.1 mm (4.65 in.) 40.5 mm (1.59 in.)
	Toe-in (total)		0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.)
		Rack end length difference	1.5 mm (0.059 in.) or less
	Wheel angle		
	4WD models	Inside wheel Outside wheel: Reference	35°41' ± 1°30' (35.68° ± 1.5°) 31°22' (31.37°)
Front wheel alignment	2WD models	Inside wheel Outside wheel: Reference	35°28' ± 1°30' (35.47° ± 1.5°) 31°13' (31.22°)
	Camber		
	4WD models		–0°35' ± 45' (–0.58° ± 0.75°)
	2WD models		–0°40' ± 45' (–0.67° ± 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			
	4WD models		10°35' ± 45' (10.58° ± 0.75°)
	2WD models		10°45' ± 45' (10.75° ± 0.75°)
Front suspension		Right–left error	45' (0.75°) or less
	Lower ball joint turning torque		0.98 – 3.43 N·m (10 – 35 kgf·cm, 8.7 – 30 in.·lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 1.96 N·m (0.5 – 20 kgf·cm, 0.4 – 17.4 in.·lbf)

- *1: Ground clearance of front wheel center
- *2: Ground clearance of lower suspension arm No. 2 set bolt center
- *3: Ground clearance of strut rod set bolt center
- *4: Ground clearance of rear wheel center

FRONT

Rear wheel alignment	Toe-in (total)		0°18' ± 12' (0.3° ± 0.2°, 3 ± 2 mm, 0.12 ± 0.08 in.)
		No. 2 lower suspension arm length difference	1.0 mm (0.04 in.) or less
	Camber		
	4WD models		–0°45' ± 45' (–0.75° ± 0.75°)
	2WD models		–1°20' ± 45' (–1.33° ± 0.75°)
		Right–left error	45' (0.75°) or less
Rear suspension	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)

REAR

G00212727

Fig. 157: Wheel Alignment Specifications (Highlander)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

LAND CRUISER

PROCEDURES

Front Wheel Alignment

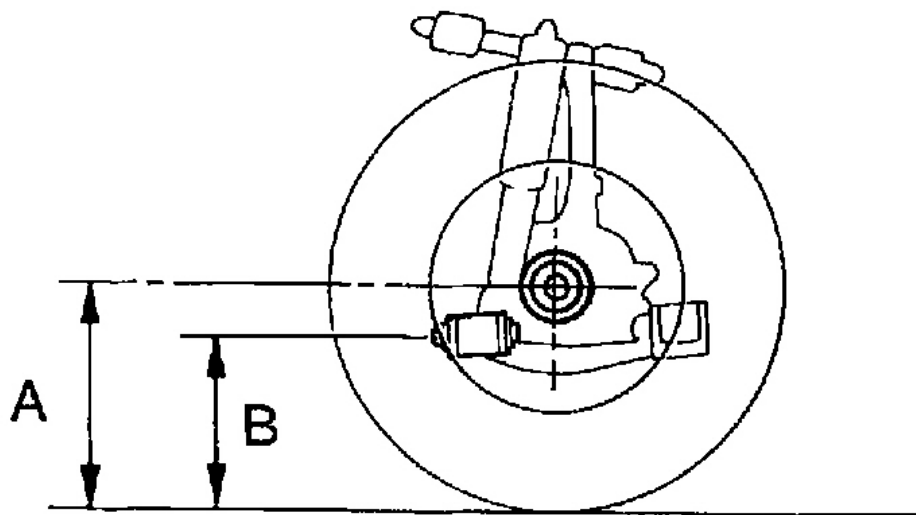
1. Measure vehicle height .
 Vehicle height:

Front	A – B: 71 mm (2.795 in.)
Rear	C – D: 51 mm (2.008 in.)

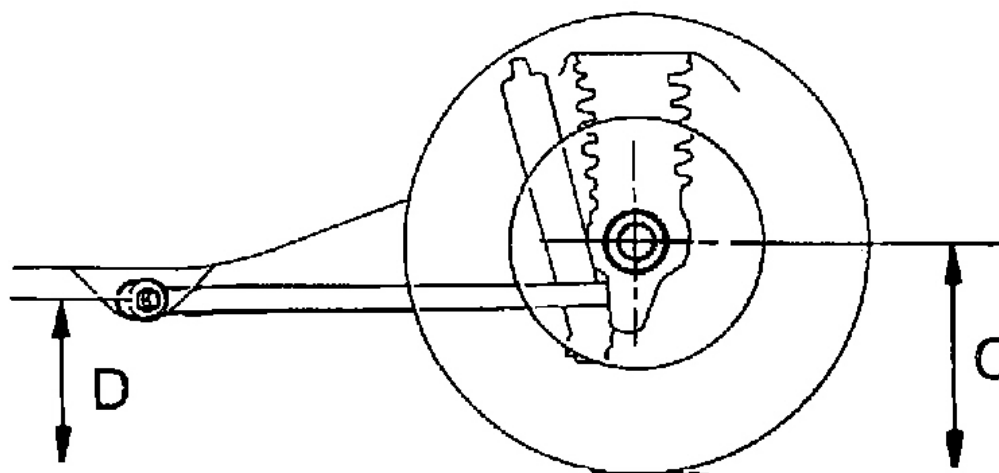
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Fig. 158: Identifying Vehicle Height Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front:



Rear:



G01032640

Fig. 159: Identifying Vehicle Height Measuring Points
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Measuring points:

A: Ground clearance of spindle center

B: Ground clearance of lower suspension arm front bolt center

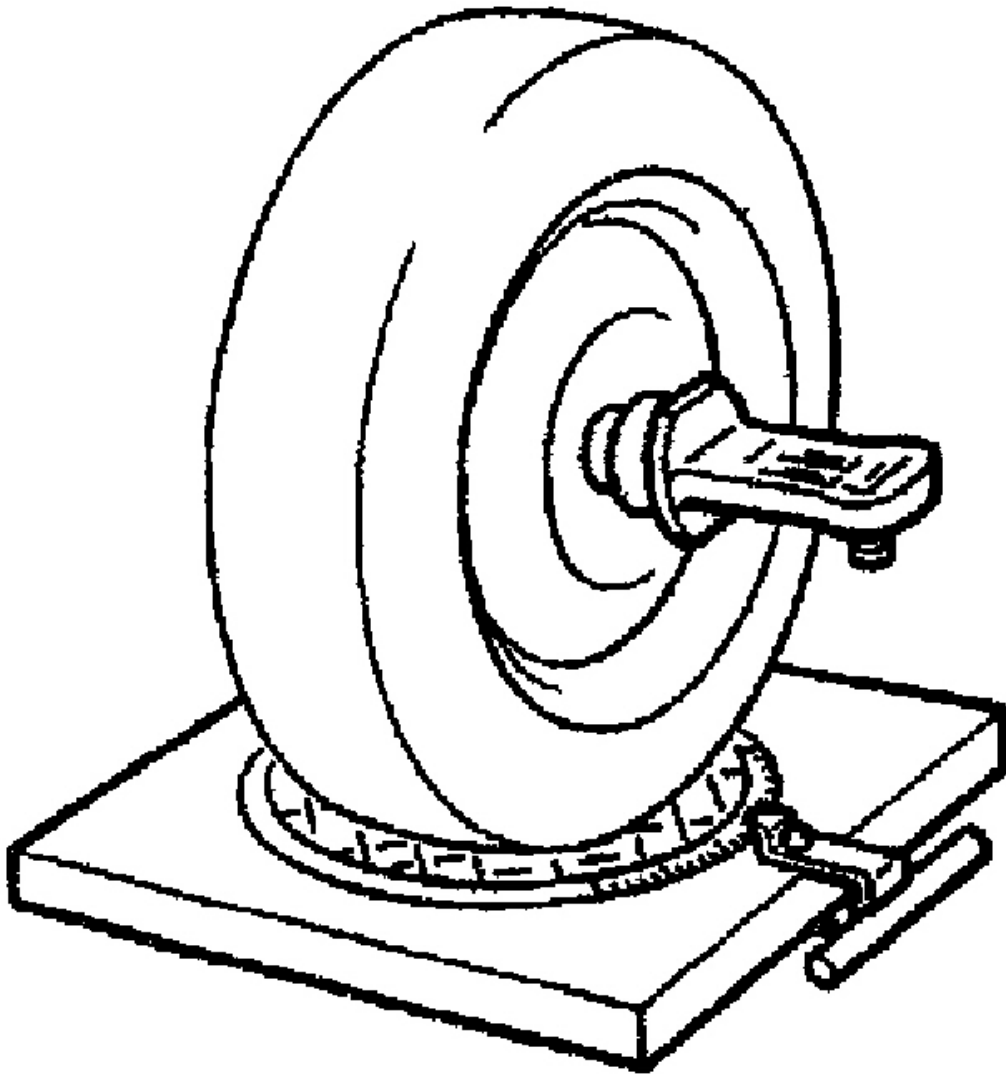
C: Ground clearance of rear axle shaft center

D: Ground clearance of lower control arm front bolt center

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

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

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .



G01032642

Fig. 160: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber, caster and steering axis inclination:

Camber		$0^{\circ}05' \pm 45'$ ($0.08^{\circ} \pm 0.75^{\circ}$)
	Right-left error	30' (0.5°) or less
Caster		$2^{\circ}30' \pm 45'$ ($2.5^{\circ} \pm 0.75^{\circ}$)
	Right-left error	30' (0.5°) or less
Steering axis inclination		$12^{\circ}10' \pm 45'$ ($12.17^{\circ} \pm 0.75^{\circ}$)
	Right-left error	30' (0.5°) or less

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Fig. 161: Identifying Camber, Caster & Steering Axis Inclination Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

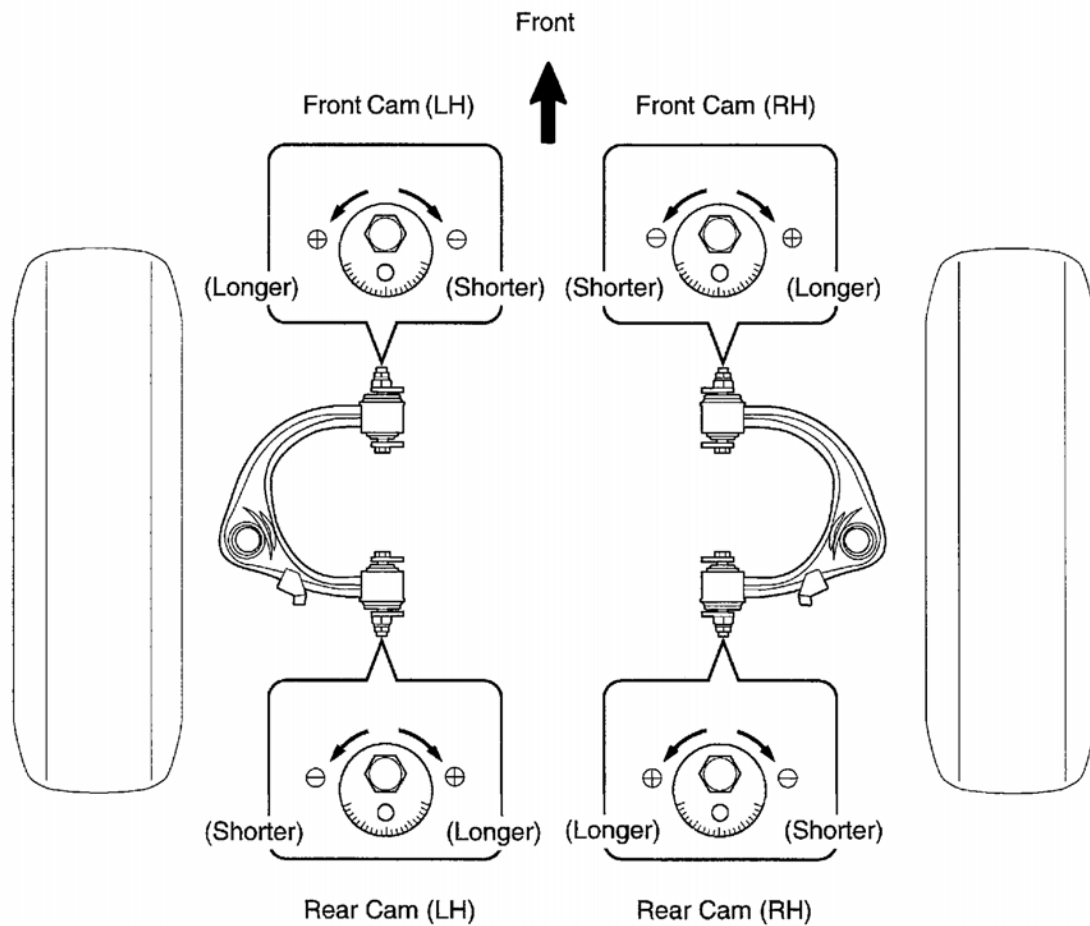
If the steering axis inclination is not within the specified value, after the camber and caster have been correctly adjusted, recheck the steering knuckle and front wheel for bearing or looseness.

4. Adjust camber and caster .

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

- Loosen the front and/or rear adjusting cam nuts.
- Adjust the camber and caster by front and/or rear adjusting cams.

NOTE: Try to adjust the camber and caster to the center of the specified value.



G01032643

Fig. 162: Adjusting Camber & Caster By Front And/Or Rear Adjusting Cams
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

(Example)

- Camber
- - - - - Caster
- = Calculated value
- = 0 point

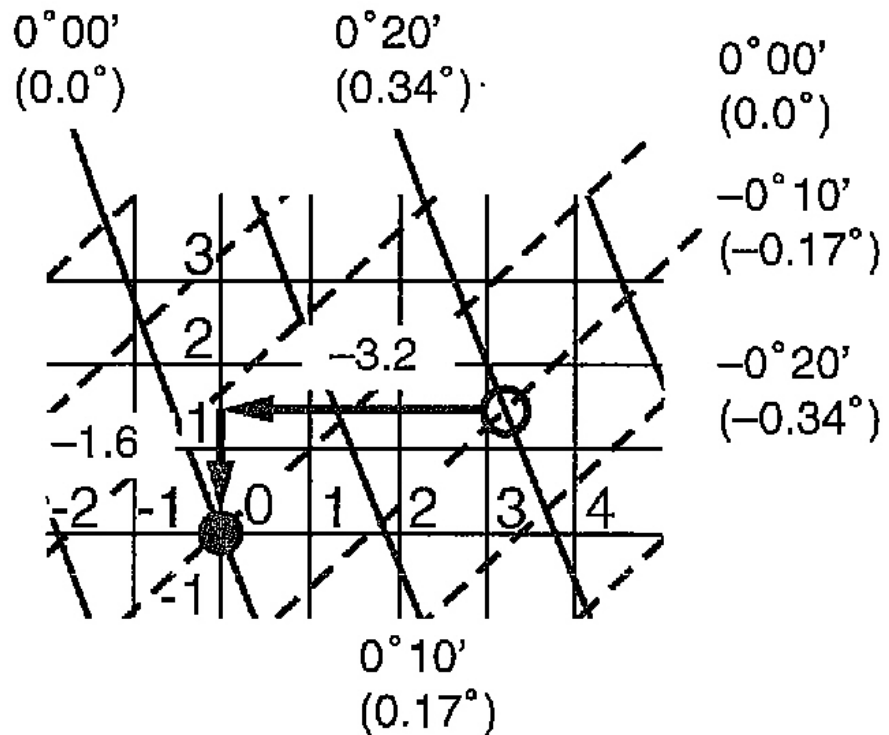


Fig. 163: Displaying Example Adjustment Chart
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Measure the present alignment.

Camber: $-0^{\circ}15'$ (-0.25°)

Caster: $2^{\circ}40'$ (2.67°)

2. Mark the difference between the standard value (A) and the measured value (B) on the adjustment chart in **Fig. 163** .

Standard value:

Camber: $0^{\circ}05'$ (0.08°)

Caster: $2^{\circ}30'$ (2.5°)

Formula: $A - B = C$

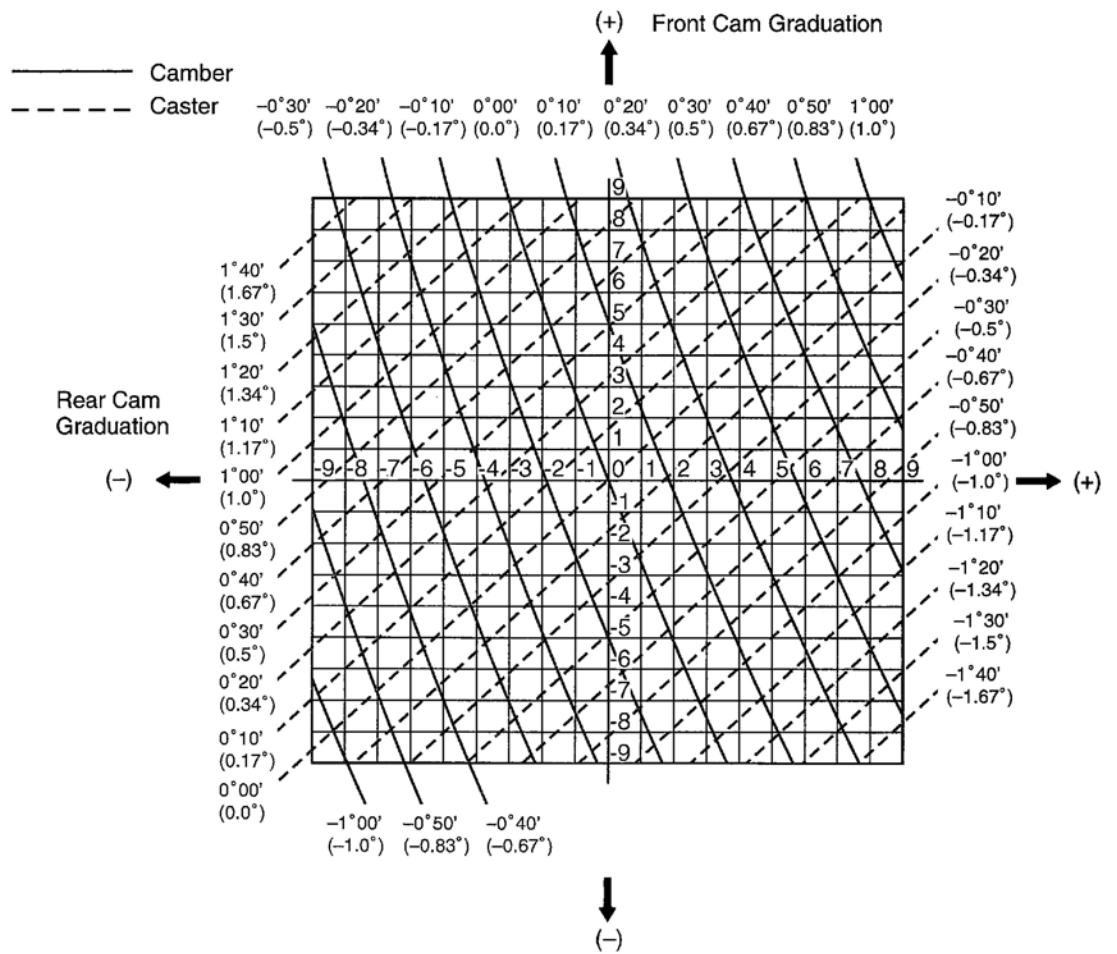
Camber: $0^{\circ}05' - (-0^{\circ}15') = 0^{\circ}20'$

Caster: $2^{\circ}30' - 2^{\circ}40' = -0^{\circ}10'$

3. As shown in the chart in **Fig. 163** , read the distances from the marked point to 0 point, and adjust the front and/or rear adjusting cams accordingly.

Front cam: - (Shorter) 1.6

Rear cam: - (Shorter) 3.2



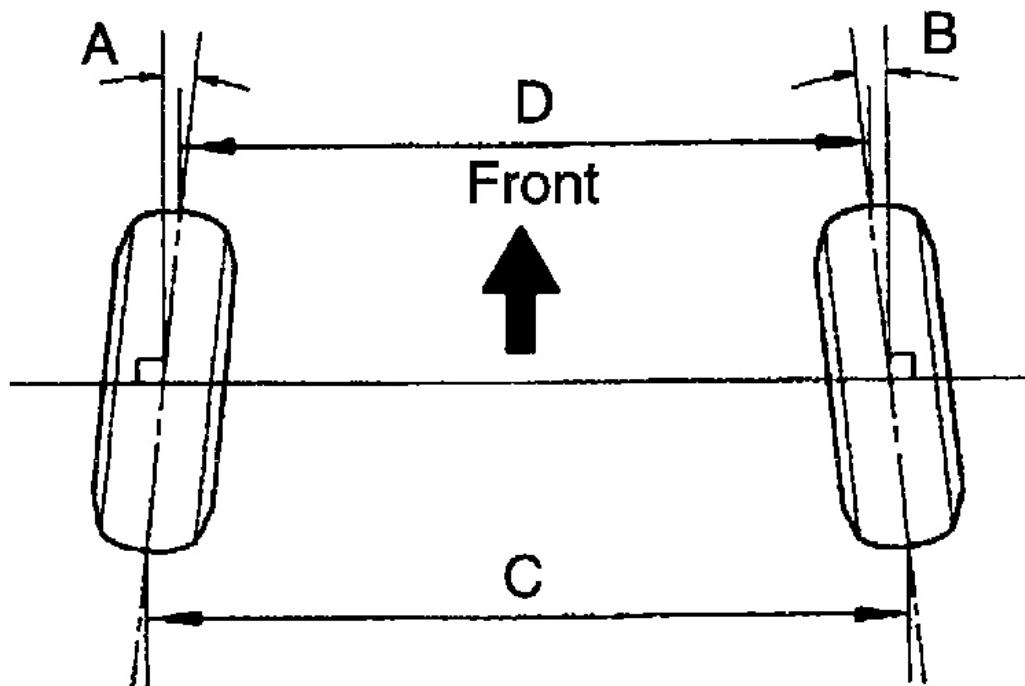
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Fig. 164: Displaying Camber/Caster Adjusting Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Torque the front and/or rear adjusting cam nuts.

Torque: 98 N.m (1,000 kgf.cm, 72 ft.lbf)

5. Inspect toe-in .



G01032647

Fig. 165: Identifying Toe-In Measurements
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ}06' \pm 12' (0.1^{\circ} \pm 0.2^{\circ})$ $C - D: 1 \pm 2 \text{ mm } (0.04 \pm 0.08 \text{ in.})$
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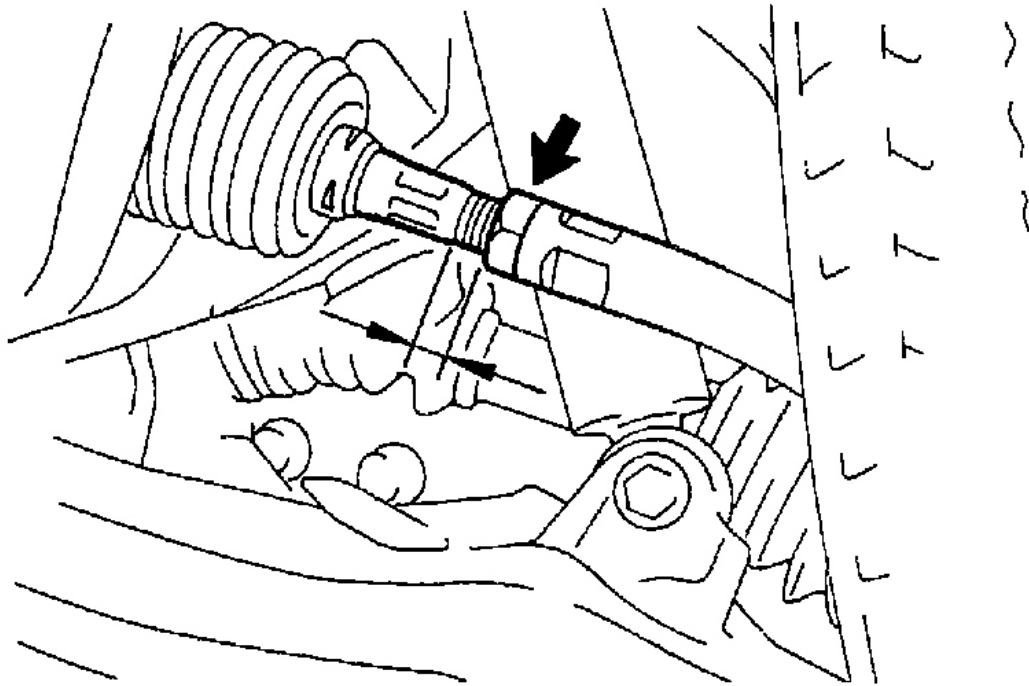
Fig. 166: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. Adjust toe-in .

- a. Check or adjust the lengths of the rack ends, then adjust the toe-in.

Rack end length difference: 3.0 mm (0.118 in.) or less



G01032648

Fig. 167: Checking Lengths Of Rack Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the boot clamps.
- c. Loosen the tie rod end lock nuts.
- d. Turn the right and left rack ends by an equal amount to adjust the toe-in.

NOTE: Try to adjust the toe-in to the center of the specified value.

- e. Tighten the tie rod end lock nuts.

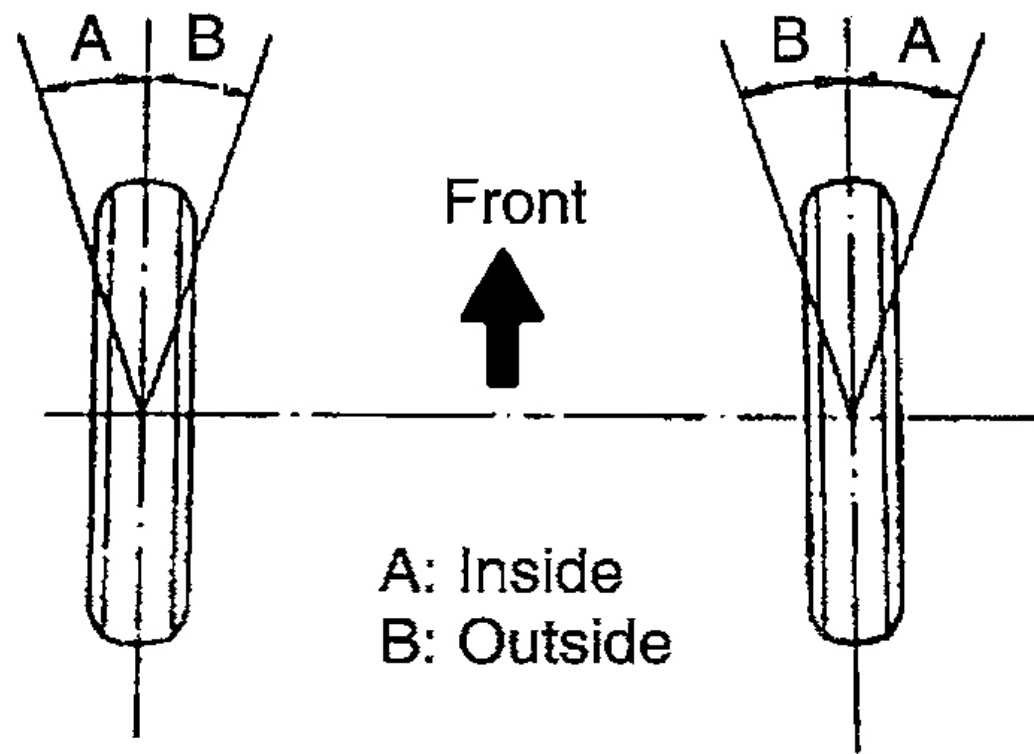
Torque: 55 N.m (560 kgf.cm, 41 ft.lbf)

- f. Place the boots on the seats and install the clamps.

NOTE: Make sure that the boots are not twisted.

7. Inspect and adjust wheel angle .

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



G01032650

Fig. 168: Identifying Wheel Turning Angles
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

Inside wheel	$36^{\circ}42'$ ($33^{\circ}42' - 36^{\circ}42'$) 36.7° ($33.7^{\circ} - 36.7^{\circ}$)
Outside wheel: Reference	$32^{\circ}36'$ 32.6°

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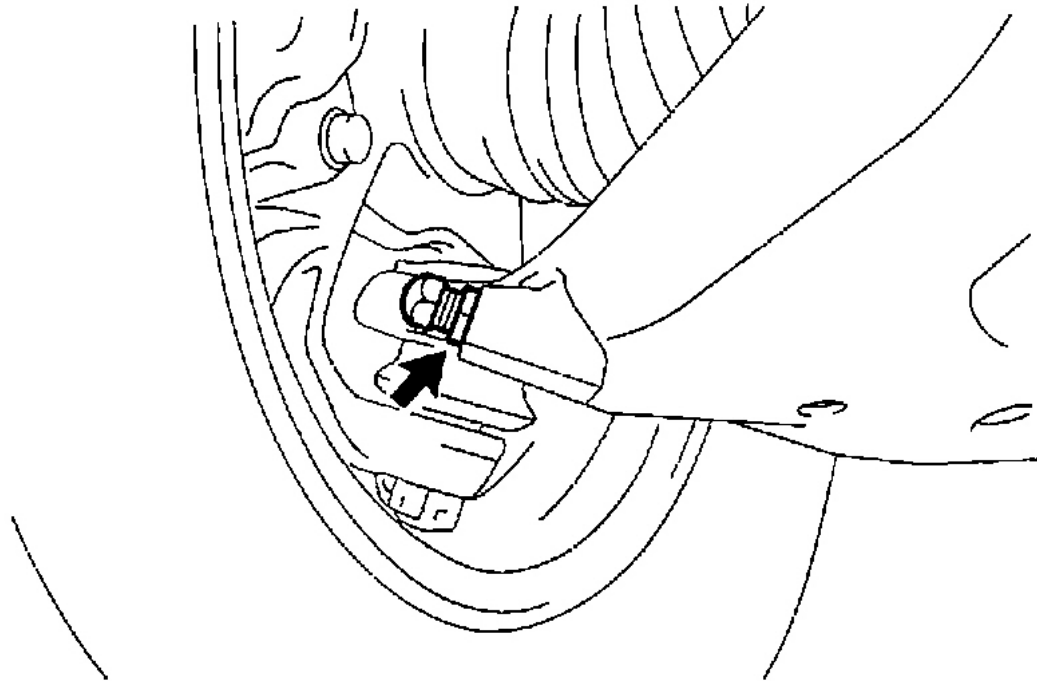
Fig. 169: Identifying Wheel Turning Angle Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

- b. When toe-in is normal after inspection, adjust wheel angle with the knuckle stopper bolt of the lower suspension arm.

Torque: 44 N.m (450 kgf.cm, 32 ft.lbf)



G01032651

Fig. 170: Locating Knuckle Stopper Bolt

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SPECIFICATIONS

Cold tire inflation pressure	Tire size P275/70R16	Front	200 kPa (2.0 kgf/cm ² , 29 psi)
		Rear	220 kPa (2.2 kgf/cm ² , 32 psi) 240 kPa (2.4 kgf/cm ² , 35 psi)
Front wheel alignment	Vehicle height		
	Front	A – B	71 mm (2.795 in.)
	Rear	C – D	51 mm (2.008 in.)
	Camber		0° 05' ± 45' (0.08° ± 0.75°)
		Right–left error	30' (0.5°) or less
	Caster		2° 30' ± 45' (2.5° ± 0.75°)
		Right–left error	30' (0.5°) or less
	Steering axis inclination		12° 10' ± 45' (12.17° ± 0.75°)
		Right–left error	30' (0.5°) or less
	Toe–in (total)		0° 06' ± 12' (0.1° ± 0.2°, 1 ± 2 mm, 0.04 ± 0.08 in.)
		Rack end length difference	3.0 mm (0.118 in.) or less
	Wheel angle	Inside wheel	36° 42' (33° 42' – 36° 42')
		Outside wheel: Reference	36.7° (33.7° – 36.7°) 32° 36' 32.6°
Front axle	Front axle hub preload (at starting)		42 – 67 N (4.3 – 6.8 kgf, 9.5 – 15.0 lbf)
	Snap ring thickness		1.8 mm (0.0709 in.) 2.0 mm (0.0787 in.) 2.2 mm (0.0866 in.) 2.4 mm (0.0945 in.) 2.6 mm (0.1024 in.) 2.8 mm (0.1102 in.)
Front drive shaft	Front drive shaft length		573.9 ± 5.0 mm (22.594 ± 0.197 in.)
Front suspension	Upper suspension arm ball joint turning torque		1.0 – 4.4 N·m (10 – 45 kgf·cm, 8.9 – 39 in.-lbf)
	Lower suspension arm ball joint turning torque		0.29 – 2.94 N·m (3 – 30 kgf·cm, 2.6 – 26 in.-lbf)
Rear axle shaft	Bearing backlash	Max.	0.6 mm (0.024 in.)
	Axle shaft deviation	Max.	0.05 mm (0.0020 in.)
	Axle shaft runout	Max.	2.0 mm (0.079 in.)
	Axle shaft flange runout	Max.	0.05 mm (0.0020 in.)

*: Trailer towing

A: Ground clearance of spindle center

B: Ground clearance of lower suspension arm front bolt center

C: Ground clearance of rear axle shaft center

D: Ground clearance of lower control arm front bushing center

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Fig. 171: Wheel Alignment Specifications (Land Cruiser)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

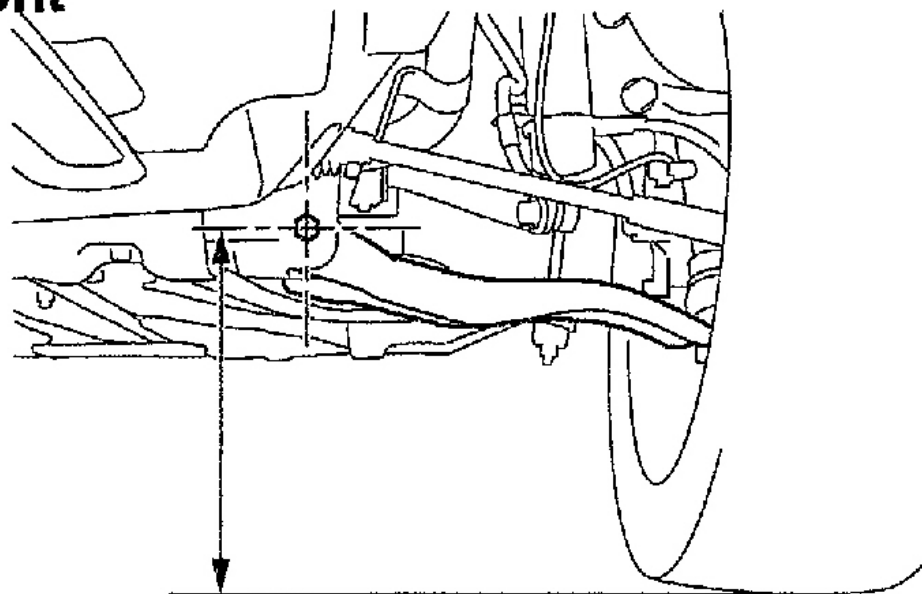
MR2

PROCEDURES

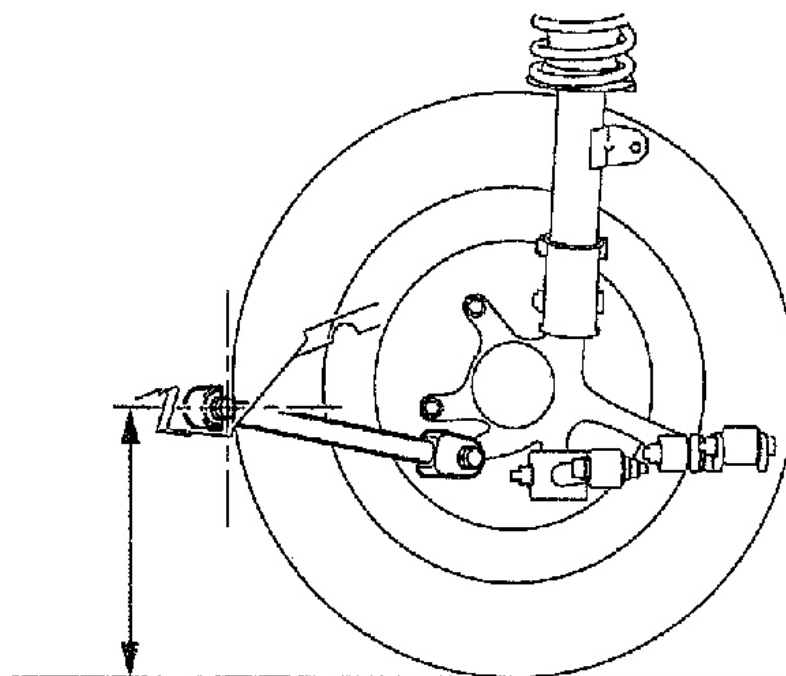
Front Wheel Alignment

1. Measure vehicle height .

Front



Rear



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G01099438

Fig. 172: Identifying Vehicle Height Measuring Points
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

Front* ¹	204 mm (8.03 in.)
Rear* ²	270 mm (10.63 in.)

*¹: Front measuring point

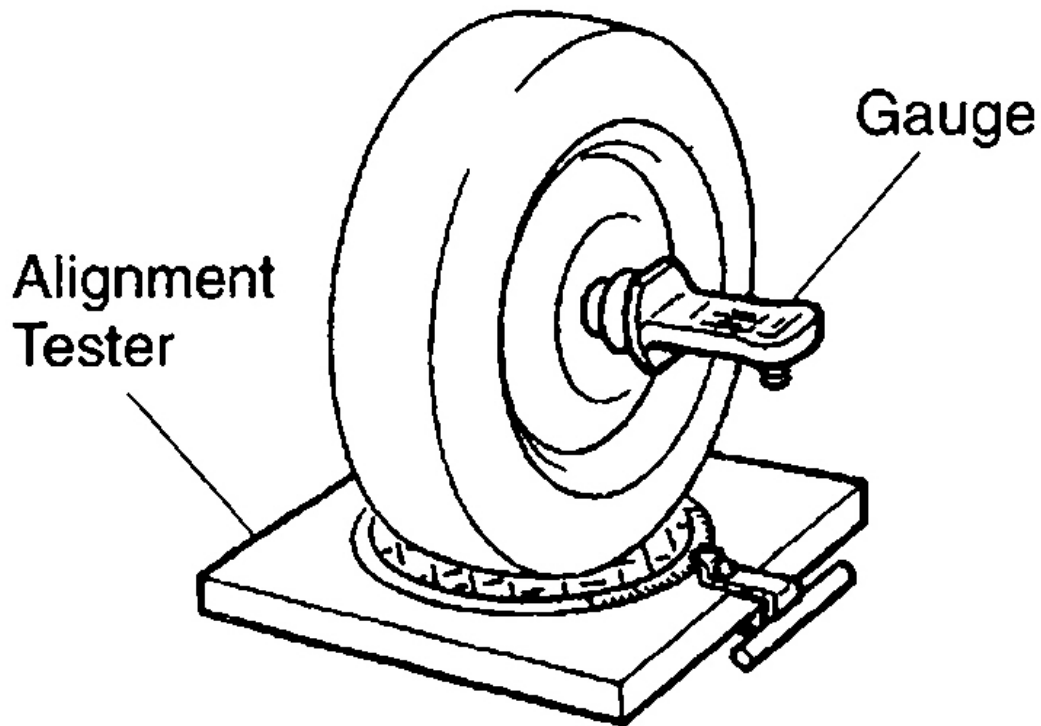
G01099437

Fig. 173: Identifying Vehicle Height Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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

2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**



G01099439

Fig. 174: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber, caster and steering axis inclination:

Camber		$-0^{\circ}47' \pm 45'$ ($-0.78^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Caster		$3^{\circ}08' \pm 45'$ ($3.13^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Steering axis inclination		$14^{\circ}52' \pm 45'$ ($14.87^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less

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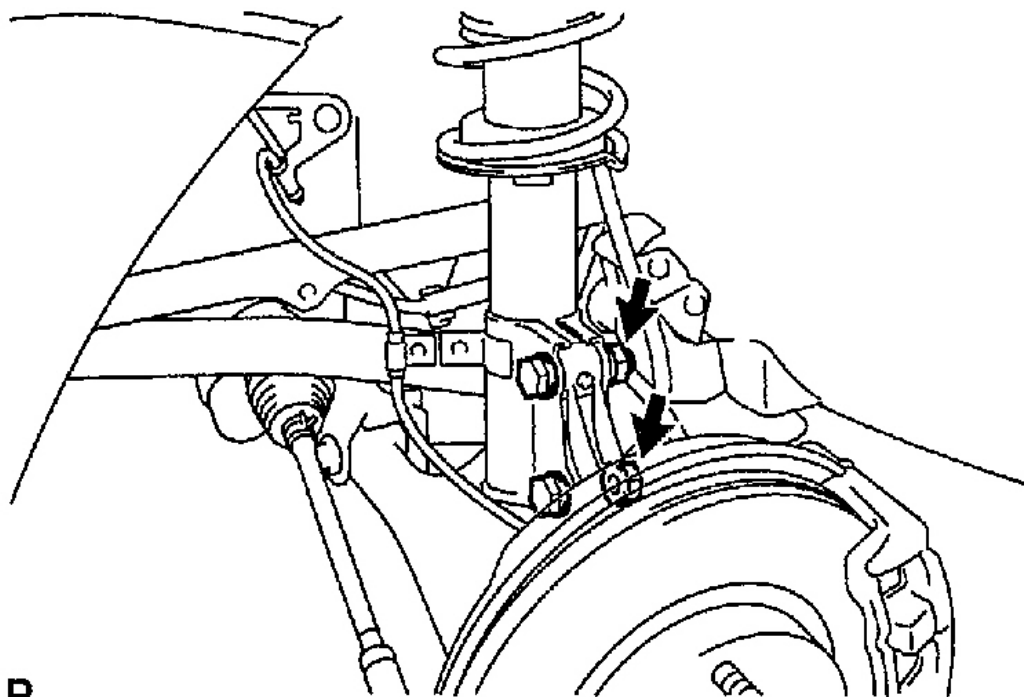
Fig. 175: Identifying Camber, Caster & Steering Axis Inclination Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

NOTE: **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.

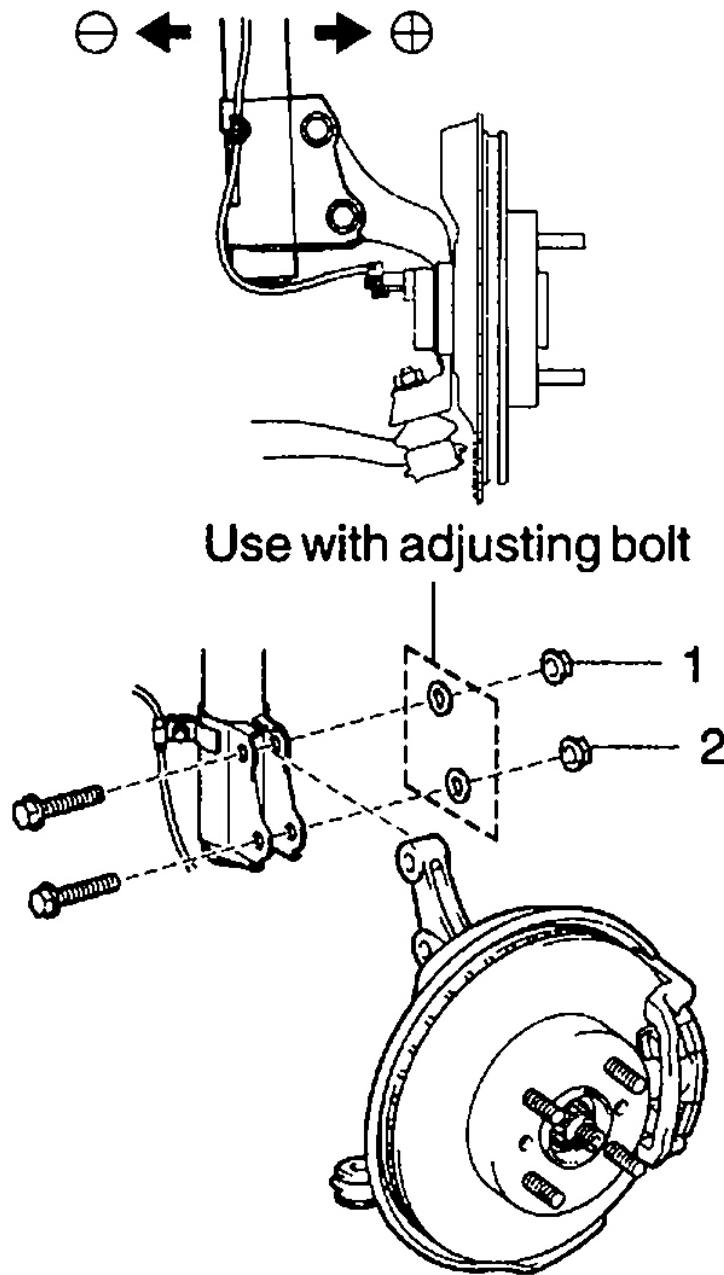


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Fig. 176: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



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G01099442

Fig. 177: Using Shock Absorber To Adjust Camber
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 140 N.m (1,430 kgf.cm, 103 ft.lbf)

g. Install the front wheel.

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

h. Check the camber.

NOTE:

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

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

NOTE:

Tighten the adjusting bolt with a washer and a new nut.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt			
	90105-14140		90105-14146		90105-14147	
						
	1	2	1	2	1	2
15'	●			●		
30'	●					●
45'			●			●
1°00'					●	●

N

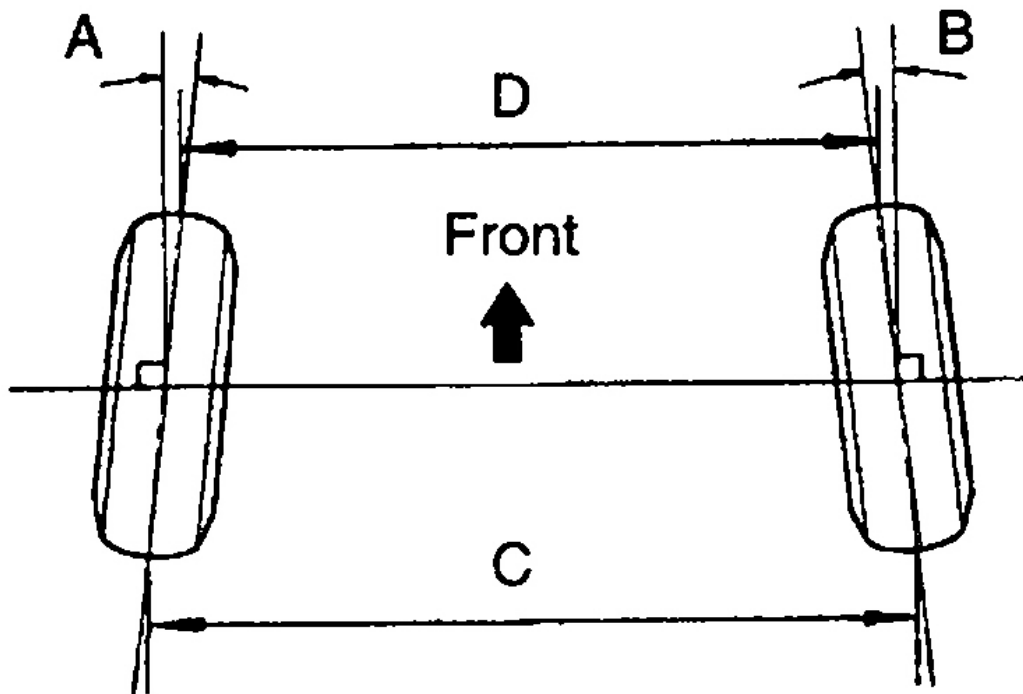
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Fig. 178: Displaying Camber Adjusting Bolt Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. Between step b and c , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

5. Inspect toe-in .



G01099445

Fig. 179: Identifying Toe-In Measurements
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

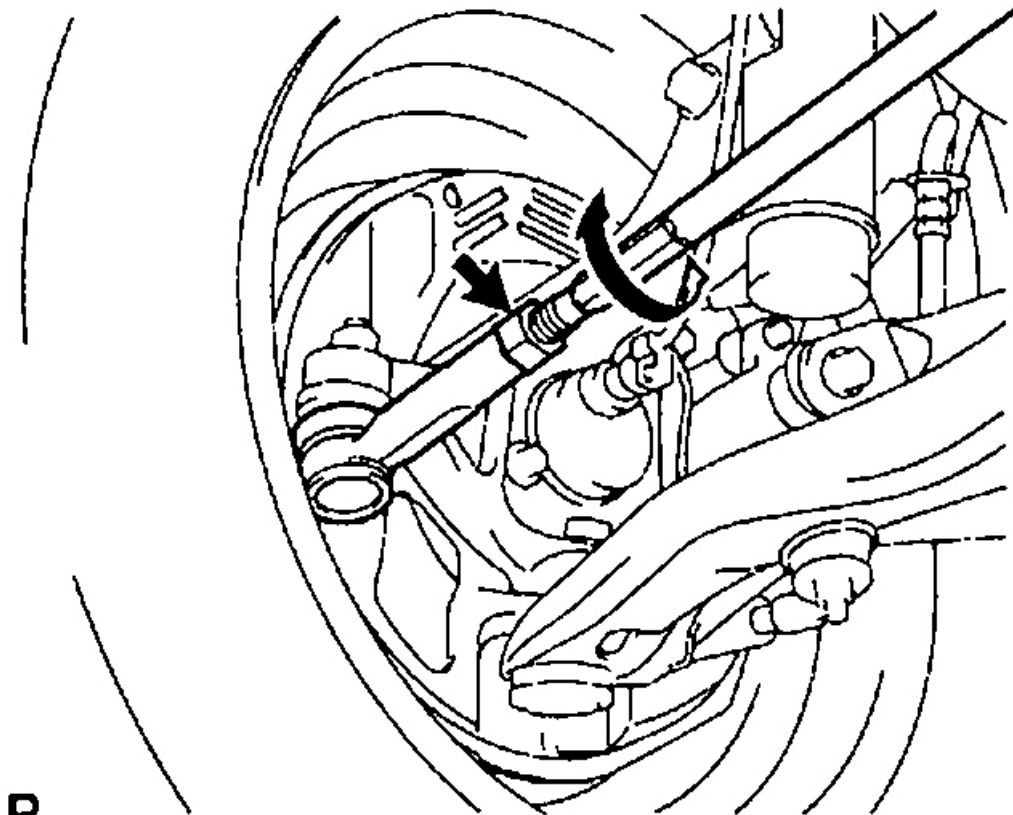
Toe-in (total)	A + B: $0^{\circ}09' \pm 12'$ ($0.15^{\circ} \pm 0.2^{\circ}$) C - D: 1.5 ± 2 mm (0.06 ± 0.08 in.)
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Fig. 180: Identifying Toe-In Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

- 6. **Adjust toe-in .**
 - a. Remove the rack boot set clips.
 - b. Loosen the tie rod end lock nuts.



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Fig. 181: Adjusting Tie Rod Ends

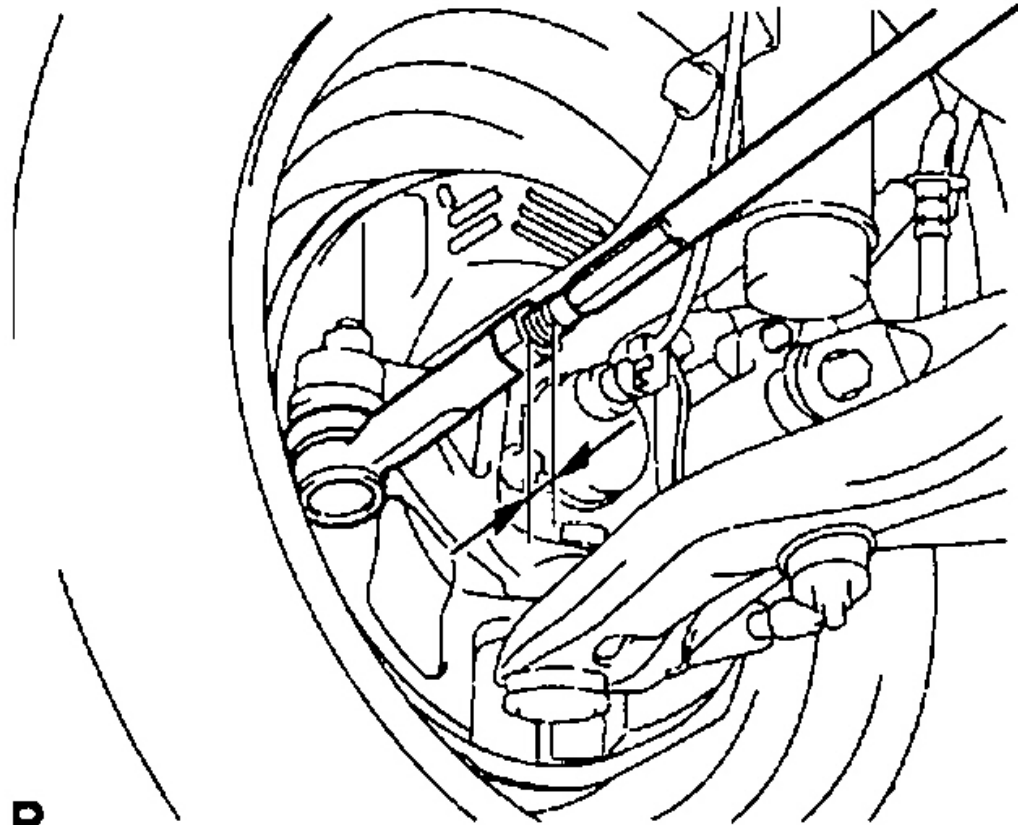
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: **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: 1.5 mm (0.059 in.) or less



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Fig. 182: Checking For Equal Length Tie Rod Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

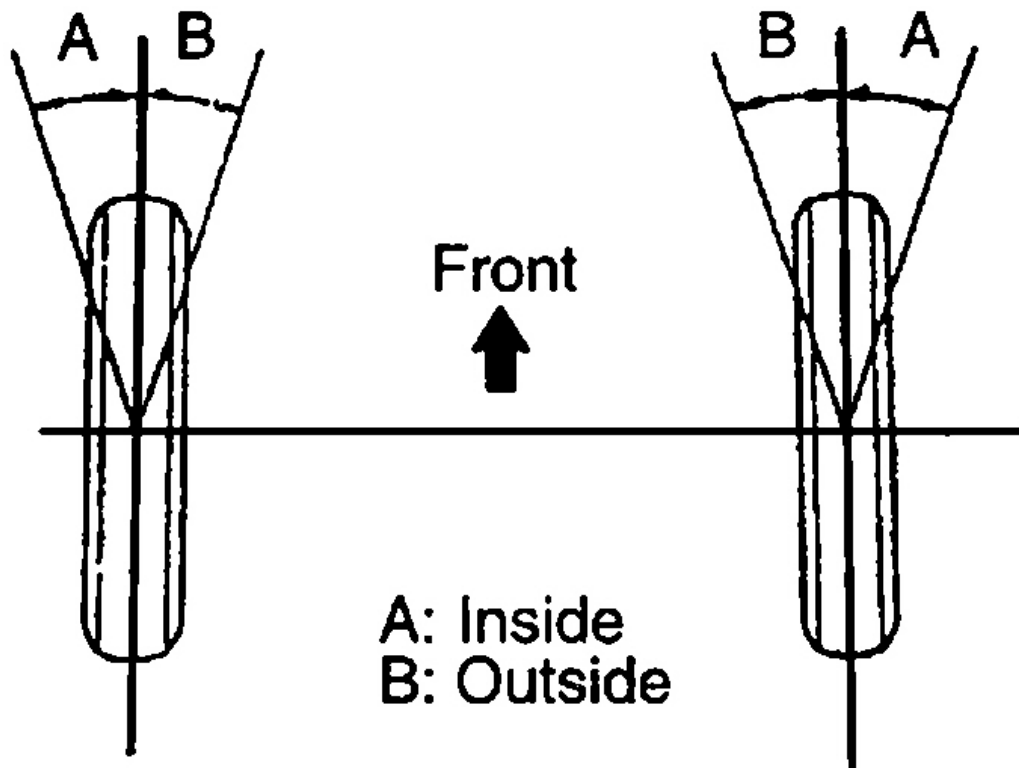
- e. Torque the tie rod end lock nuts.

Torque: 47 N.m (479 kgf.cm, 35 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .



G01099449

Fig. 183: Identifying Wheel Turning Angles

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Wheel turning angle:

Inside wheel	$38^{\circ}03' \pm 2^{\circ}$ ($38.05^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$32^{\circ}56'$ (32.93°)

G01099448

Fig. 184: Identifying Wheel Turning Angle Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Rear Wheel Alignment

- 1. **Measure vehicle height (see MEASURE VEHICLE HEIGHT) .**
- 2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**
Follow the specific instructions of the equipment manufacturer.
- 3. **Inspect camber .**

Camber:

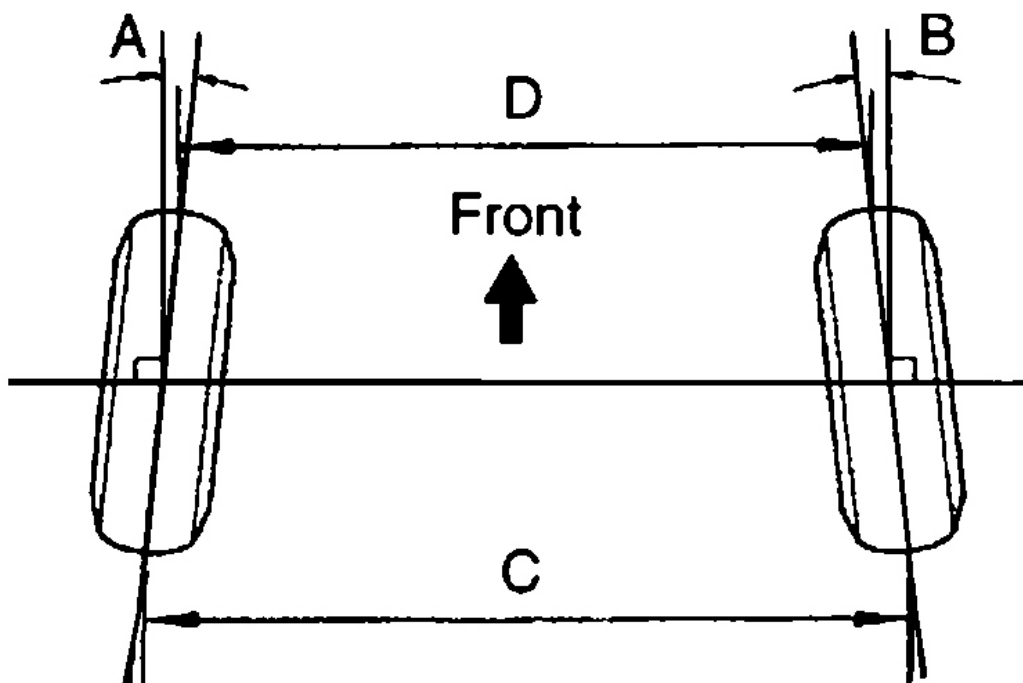
Camber	$-1^{\circ}05' \pm 45'$ ($-1.08^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

G01099450

Fig. 185: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the camber is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

- 4. **Inspect toe-in .**



G01099452

Fig. 186: Identifying Toe-In Measurements
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

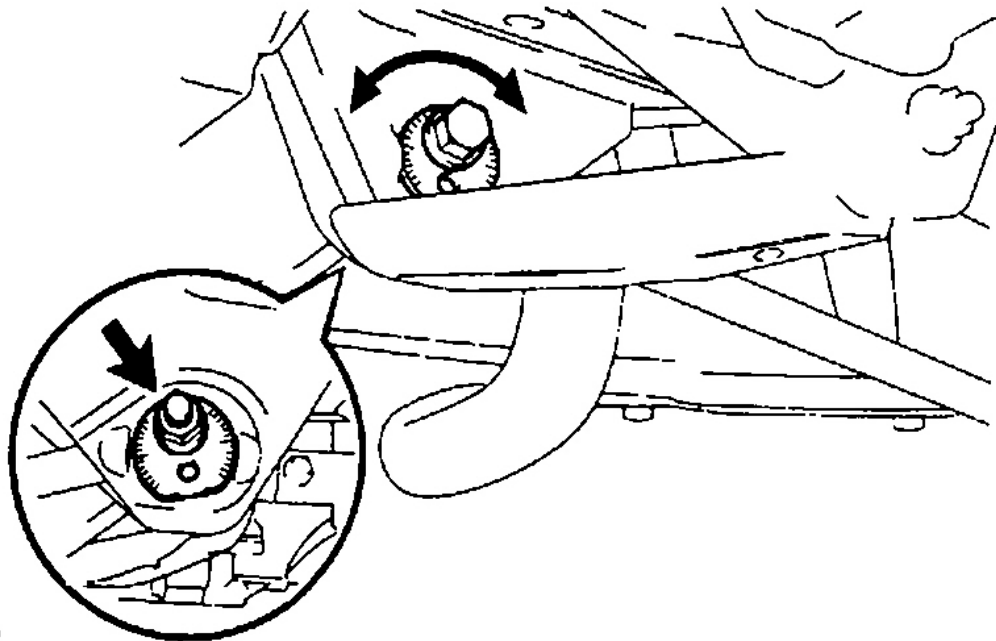
Toe-in (total)	$A + B: 0^{\circ}18' \pm 12' (0.3^{\circ} \pm 0.2^{\circ})$ $C - D: 3 \pm 2 \text{ mm } (0.12 \pm 0.08 \text{ in.})$
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G01099451

Fig. 187: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, adjust it at the adjusting cam.

- a. Loosen the lower arm adjusting cam set nut.



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Fig. 188: Loosening Lower Arm Adjusting Cam Set Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Adjust the toe-in by turning the adjusting cam.

Right-left error: 0.3 mm (0.012 in.) or less

NOTE:

- Try to adjust the toe-in to the center of the specified value.
- Control value toe changes about 1.7 mm per 1 scale.

- c. Torque the lower arm adjusting cam set nut.

Torque: 87 N.m (887 kgf.cm, 64 ft.lbf)

SPECIFICATIONS

Cold tire inflation pressure	185/55R1581V	Front	180 kPa (1.8 kgf/cm ² , 26 psi)
	205/50R1585V	Rear	220 kPa (2.2 kgf/cm ² , 32 psi)
Front Wheel alignment	Vehicle height	Front*1 Rear*2	204 mm (8.03 in.) 270 mm (10.63 in.)
	Camber	Right-lefterror	-0°47' ± 45' (-0.78° ± 0.75°) 45' (0.75°) or less
	Caster	Right-lefterror	3°08' ± 45' (3.13° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Right-lefterror	14°52' ± 45' (14.87° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	Rack end length difference	0°09' ± 12' (0.15° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle	Inside wheel Outside wheel: Reference	38°03' ± 2° (38.05° ± 2°) 32°56' (32.93°)
Rear wheel alignment	Camber	Right-lefterror	-1°05' ± 45' (-1.08° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	Right-lefterror	0°18' ± 12' (0.3° ± 0.2°, 3 ± 2 mm, 0.12 ± 0.08 in.) 0.3 mm (0.012 in.) or less
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Front suspension	Lower ball joint turning torque		0.59 – 3.43 N·m (6 – 35 kgf·cm, 5.2 – 30 in.-lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Rear drive shaft	Drive shaft standard length	RH LH	814.1 ± 5.0 mm (32.051 ± 0.197 in.) 570.4 ± 5.0 mm (22.457 ± 0.197 in.)
Rear suspension	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

*1: Front measuring point

Measure the distance from the ground to the 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 front side strut rod mounting bolt.

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Fig. 189: Wheel Alignment Specifications (MR2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

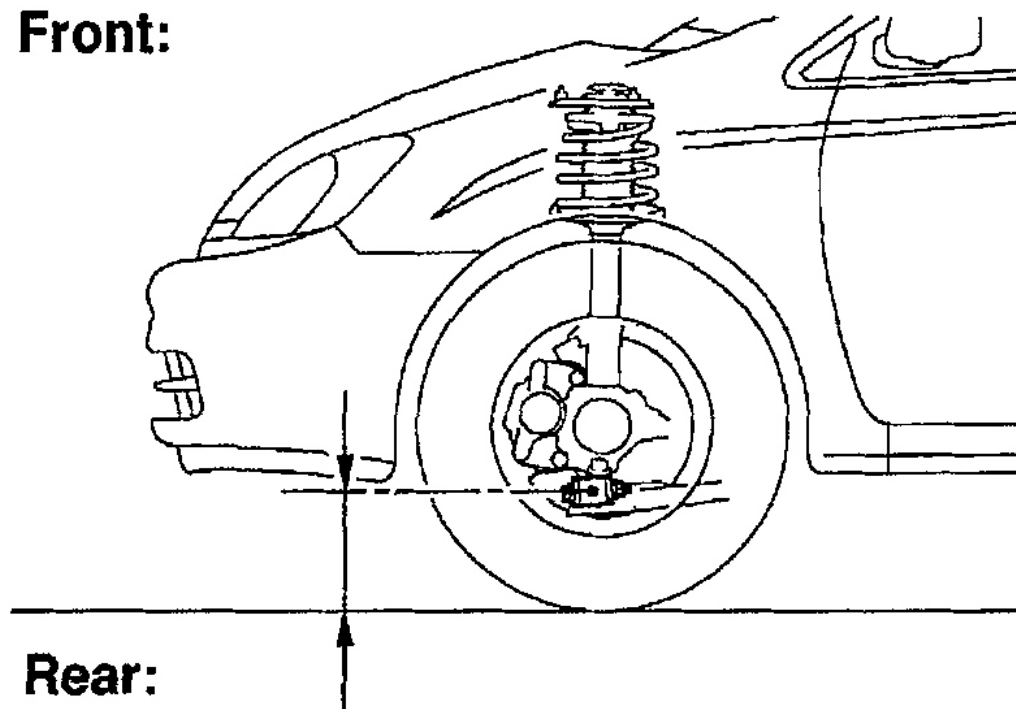
PRIUS

PROCEDURES

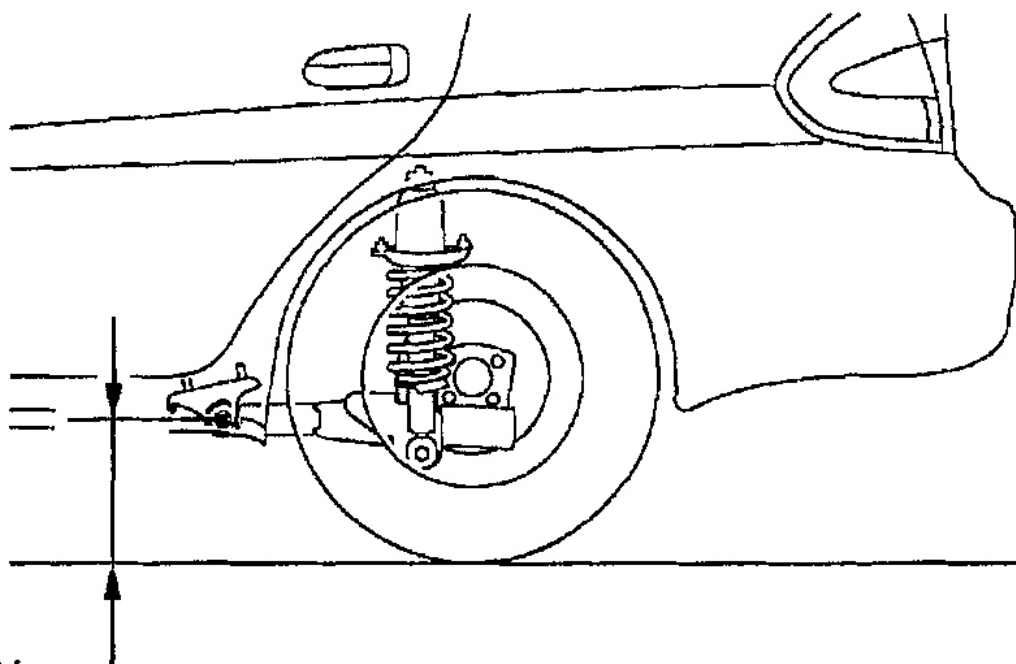
Front Wheel Alignment

1. Measure vehicle height .

Front:



Rear:



N

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Fig. 190: Identifying Vehicle Height Measuring Points
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
175/65R14	191 (7.52)	239 (9.41)

G01066556

Fig. 191: Identifying Vehicle Height Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

* 1: Front measuring point

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

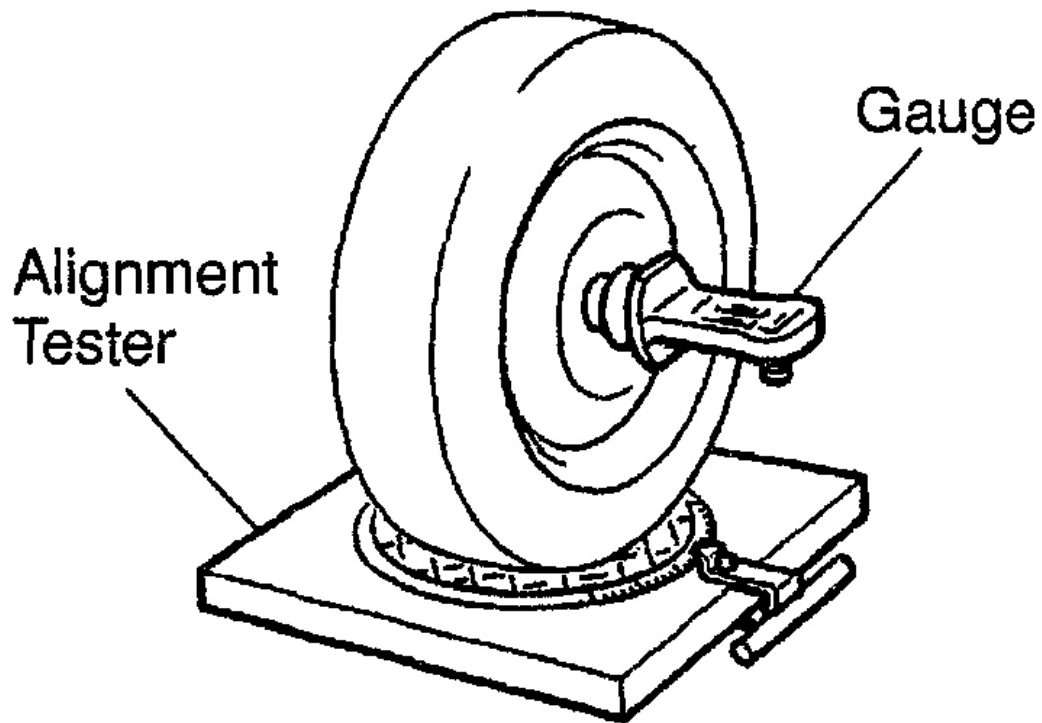
* 2: Rear measuring point

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

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

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

2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**



G01066558

Fig. 192: Install Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Camber, caster and steering axis inclination:

Camber		$-0^{\circ}26' \pm 45'$ ($-0.43^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Caster		$1^{\circ}02' \pm 45'$ ($1.03^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less
Steering axis inclination		$9^{\circ}52' \pm 45'$ ($9.87^{\circ} \pm 0.75^{\circ}$)
	Right-left error	45' (0.75°) or less

G01066559

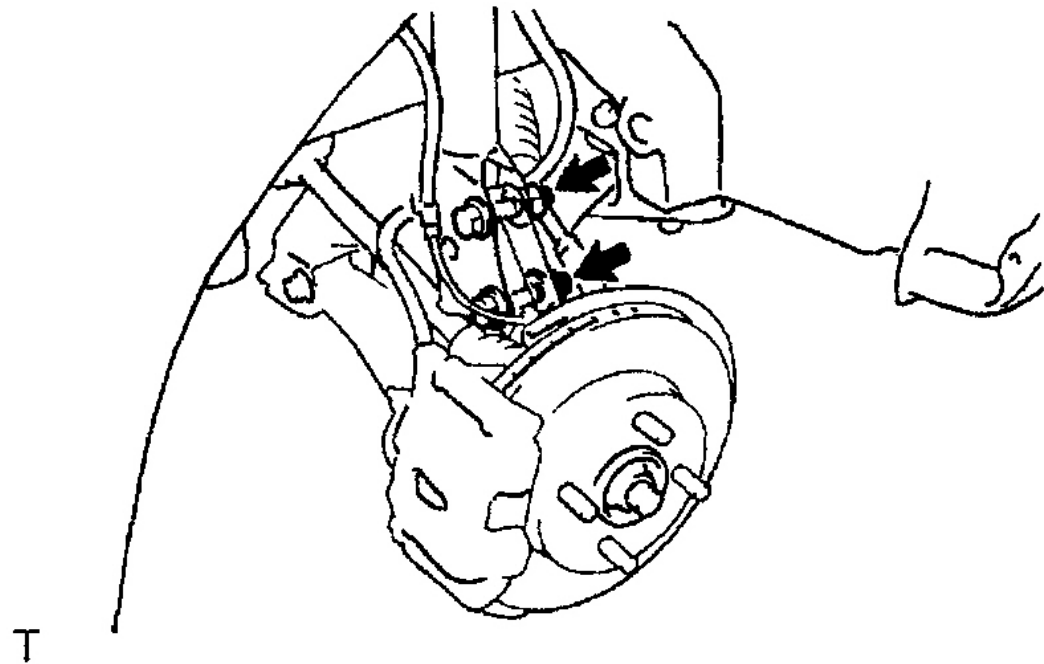
Fig. 193: Identifying Camber, Caster & Steering Axis Inclination Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 damaged and/or worn out parts.

4. Adjust camber .

NOTE: **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.

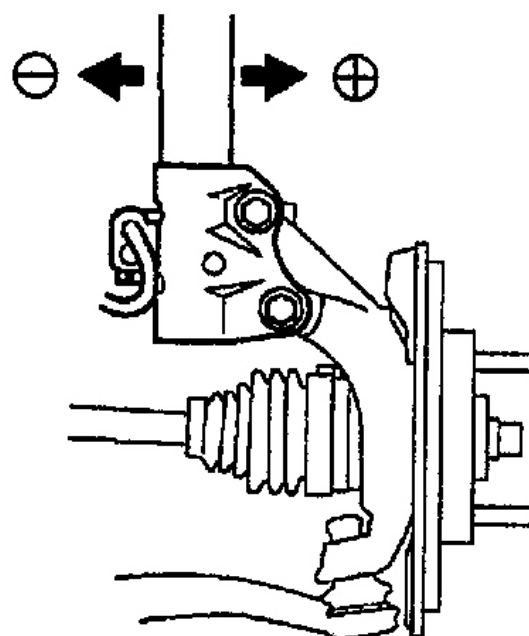


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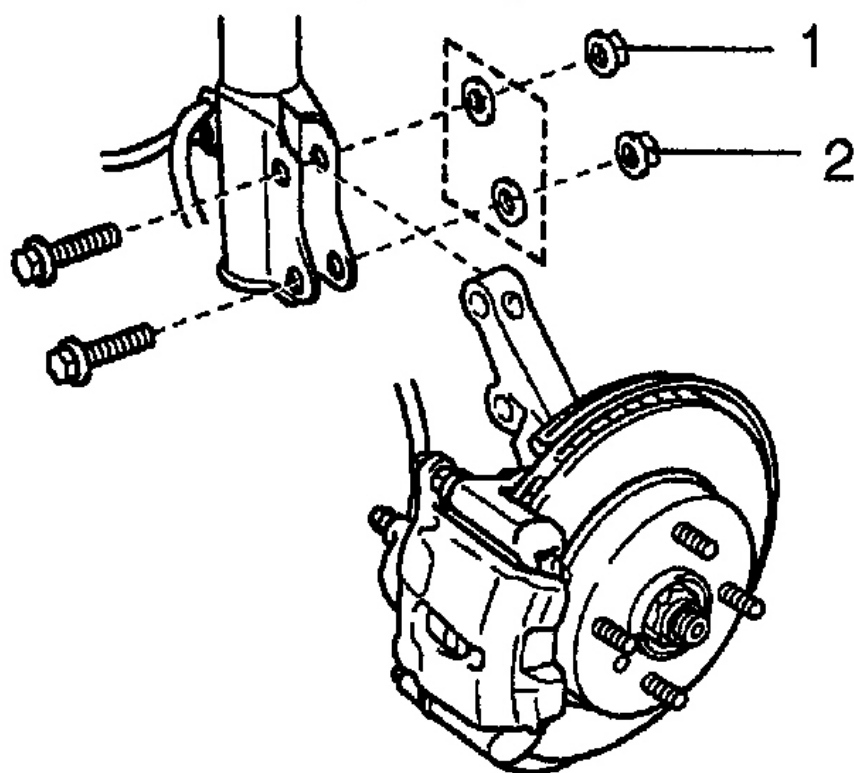
Fig. 194: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If reusing the bolts and/or nuts, coat the threads of nuts with engine oil.

- c. Clean the installation surfaces of the shock absorber and the steering knuckle.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



□ : Use with adjusting bolt



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Fig. 195: Using Shock Absorber To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the nuts.

Torque: 153 N.m (1,560 kgf.cm, 113 ft.lbf)

g. Install the front wheel.

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

h. Check the camber.

NOTE:

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

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

NOTE:

Tighten the adjusting bolt with a washer and a new nut.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-15001		90105-15004		90105-15005		90105-15006	
			1 Dot 		2 Dots 		3 Dots 	
	1	2	1	2	1	2	1	2
-1°30'--1°15'							●	●
-1°15'--1°00'					●			●
-1°00'--45'			●					●
-45'--30'	●							●
-30'--15'	●					●		
-15'--0'	●			●				
0'--15'	●			●				
15'--30'	●					●		
30'--45'	●							●
45'--1°00'			●					●
1°00'--1°15'					●			●
1°15'--1°30'							●	●

N

- (i) Do the steps mentioned above again. At step (b), replace 1 or 2 selected bolts.

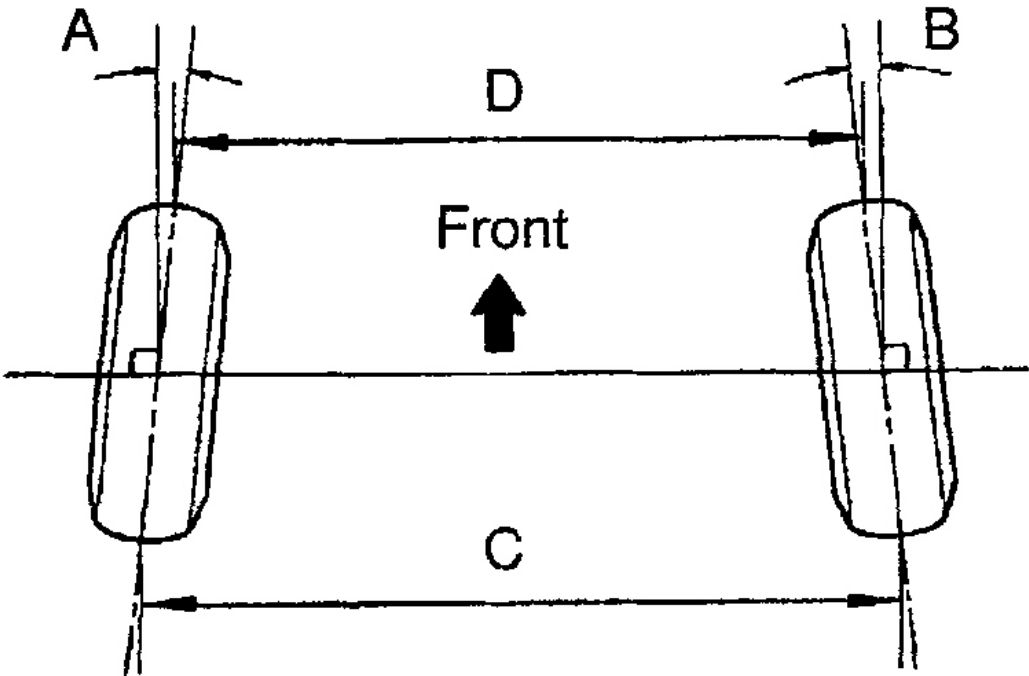
G01066561

Fig. 196: Displaying Camber Adjusting Bolt Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Do steps a through h again. At step b , replace 1 or 2 selected bolts.

NOTE: When replacing the 2 bolts, replace 1 bolt for each time.

5. Inspect toe-in .



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Fig. 197: Identifying Toe-In Measurements
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	A + B: 0°06' ± 12' (0.1° ± 0.2°) C - D: 1 ± 2 mm (0.04 ± 0.08 in.)
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Fig. 198: Identifying Toe-In Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. **Adjust toe-in .**

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

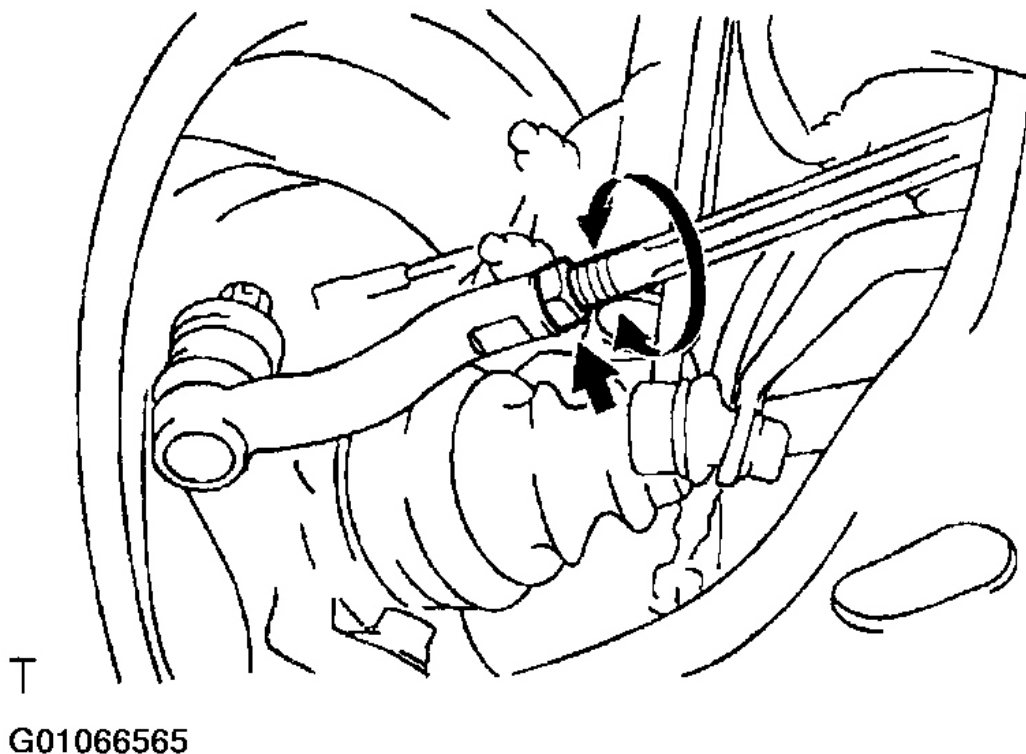


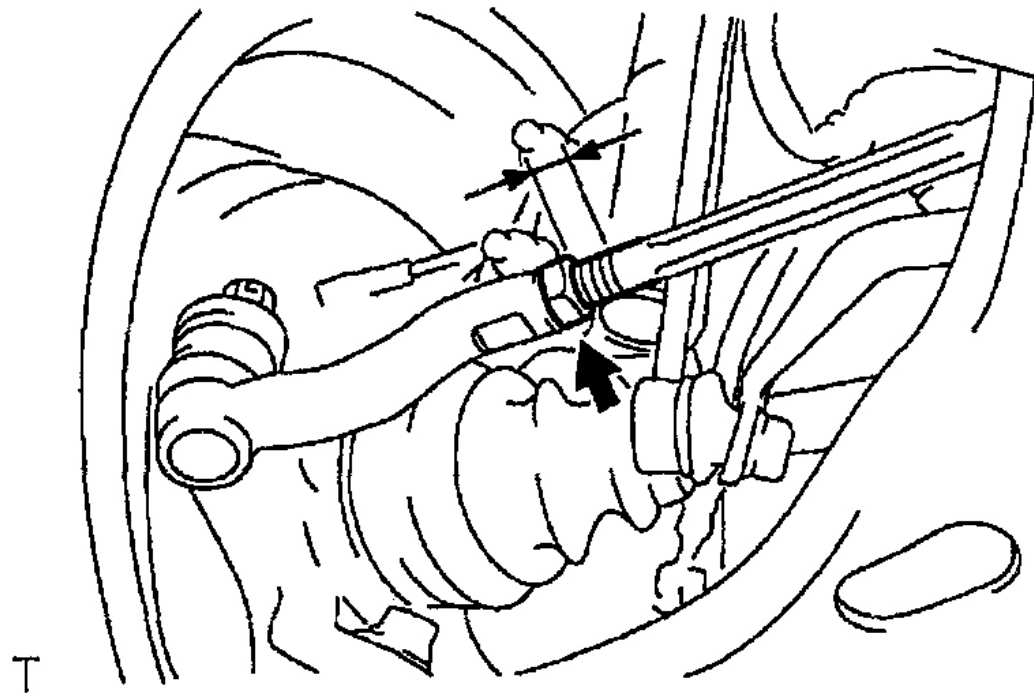
Fig. 199: Adjusting Tie Rod Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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.



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Fig. 200: Checking For Equal Length Rack Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference: 1.5 mm (0.059 in.) or less

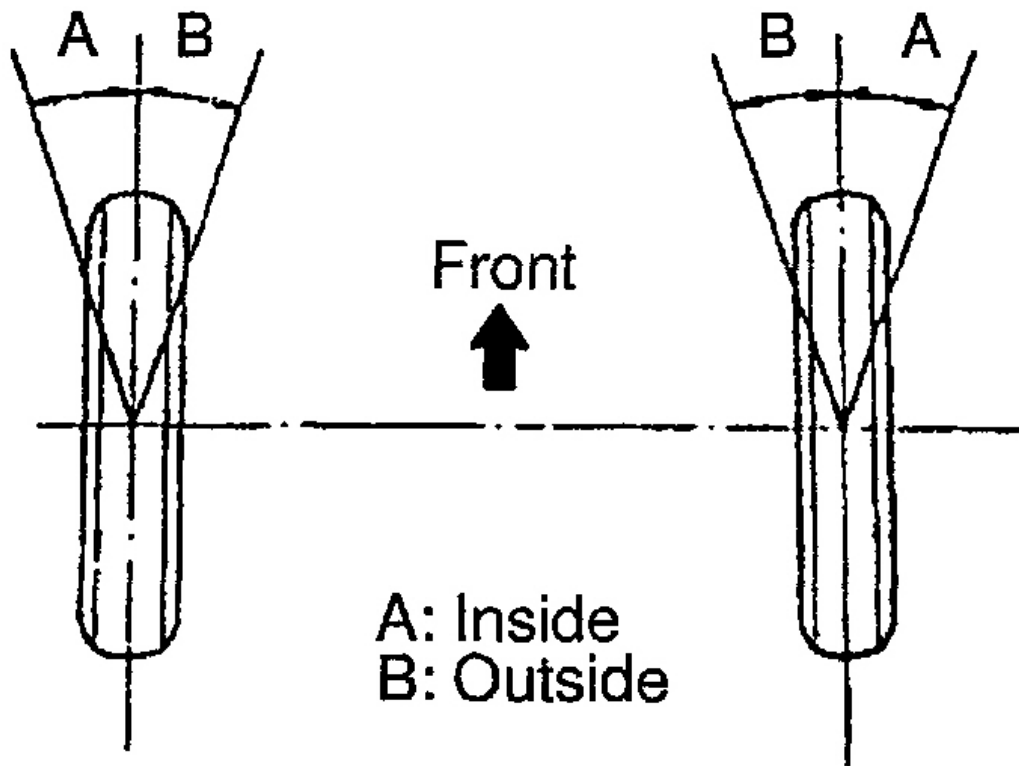
- e. Torque the tie rod end lock nuts.

Torque: 74 N.m (750 kgf.cm, 55 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

- 7. **Inspect wheel angle .**



G01066568

Fig. 201: Identifying Wheel Turning Angles
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Turn the steering wheel fully and measure the turning angle.

Wheel turning angle:

Inside wheel	$42^{\circ}42' \pm 2^{\circ}$ ($42.70^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$35^{\circ}54' (35.90^{\circ})$

G01066567

Fig. 202: Identifying Wheel Turning Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Rear Wheel Alignment

1. **Measure vehicle height** (see MEASURE VEHICLE HEIGHT) .

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

2. **Inspect camber** .

Camber:

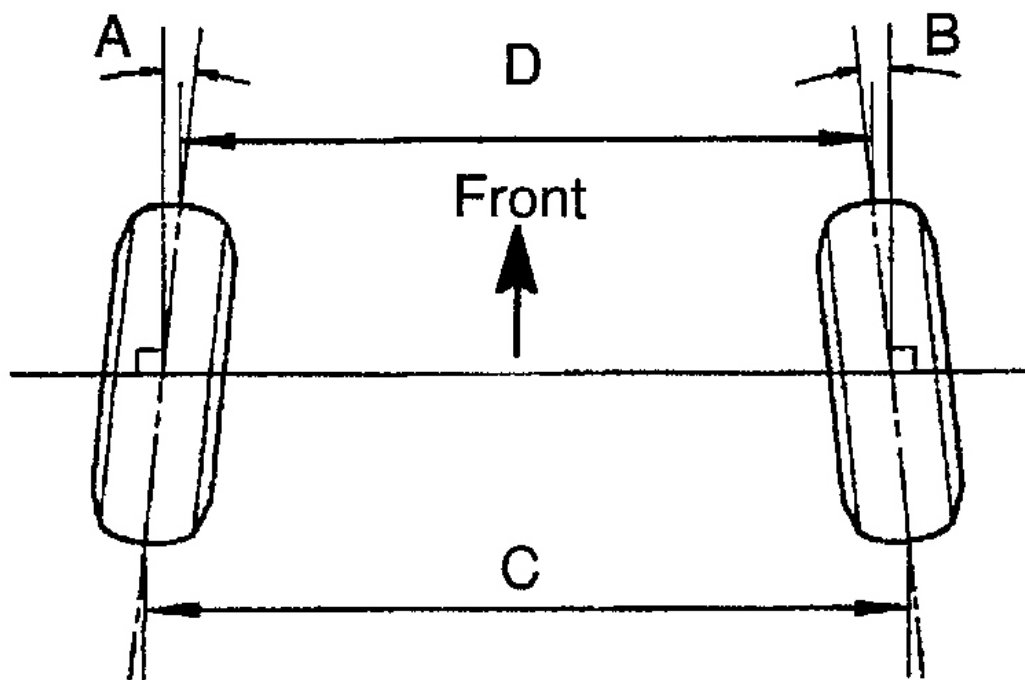
Camber	$-1^{\circ}30' \pm 45'$ ($-0.93^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less

G01066569

Fig. 203: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the measured value is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

3. **Inspect toe-in** .



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Fig. 204: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in:

Toe-in (total)	$A + B: 0^{\circ}06' \pm 20' (0.1^{\circ} \pm 0.33^{\circ})$ $C - D: 1 \pm 3.0 \text{ mm } (0.04 \pm 0.12 \text{ in.})$
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G01066570

Fig. 205: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, inspect and replace the suspension parts as necessary.

SPECIFICATIONS

Cold tire inflation pressure	Tire size: P175/65R14 84S	Front Rear	240 kPa (2.4 kgf/cm ² , 35 psi) 230 kPa (2.3 kgf/cm ² , 33 psi)
Front wheel alignment	Vehicle height P175/65R14	Front*1 Rear*2	191 mm (7.52 in.) 239 mm (9.41 in.)
	Camber	Right-left error	-0°26' ± 45' (-0.43° ± 0.75°) 45' (0.75°) or less
	Caster	Right-left error	1°02' ± 45' (1.03° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Right-left error	9°52' ± 45' (9.87° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	Rack end length difference	0°06' ± 12' (0.1° ± 0.2°, 1 ± 2 mm, 0.04 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle	Inside wheel Outside wheel: Reference	42°42' ± 2° (42.70° ± 2°) 35°54' (35.90°)
Rear wheel alignment	Camber	Right-left error	-1°30' ± 45' (-0.93° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)		0°06' ± 20' (0.1° ± 0.33°) 1 ± 3.0 mm (0.04 ± 0.12 in.)
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Front drive shaft	Drive shaft standard length	LH RH	579.9 ± 5.0 mm (22.831 ± 0.197 in.) 836.9 ± 5.0 mm (32.949 ± 0.197 in.)
Front suspension	Lower suspension arm ball joint turning torque		1.0 – 4.9 N·m (10 – 50 kgf·cm, 8.7 – 43 in.-lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)

*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.

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Fig. 206: Wheel Alignment Specifications (Prius)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

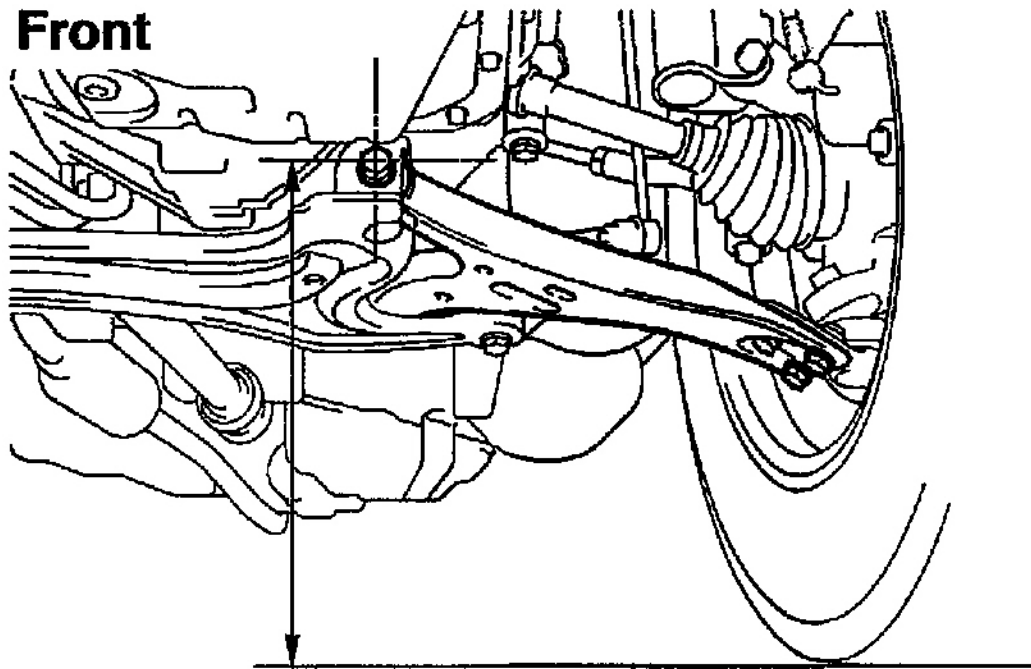
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PROCEDURES

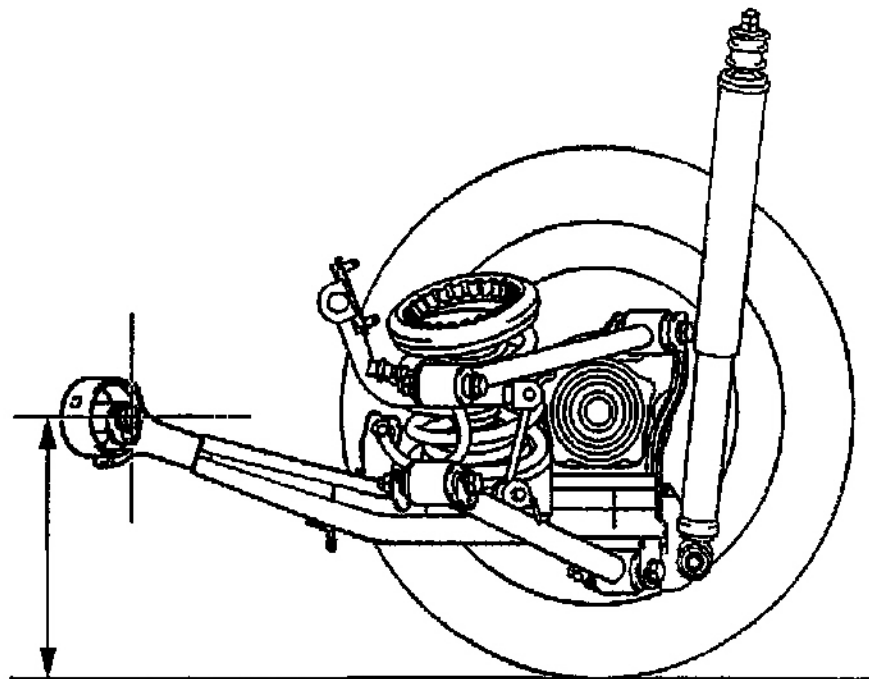
Front Wheel Alignment

1. **Measure vehicle height .**
 - a. Bounce the vehicle.
 - b. Measure the front vehicle height.

Front



Rear



P

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Fig. 207: Measuring Vehicle Height

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Front vehicle height: See **Fig. 208** .

2WD		225 mm (8.86 in.)
4WD	Tire size: 215/70R16	235 mm (9.25 in.)
	Tire size: 235/60R16	228 mm (8.98 in.)

G01084206

Fig. 208: Identifying Front Vehicle Height Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Measure the rear vehicle height.

Measure the distance from the ground to the center of the body side No. 1 suspension arm mounting bolt.

Rear vehicle height: See **Fig. 209** .

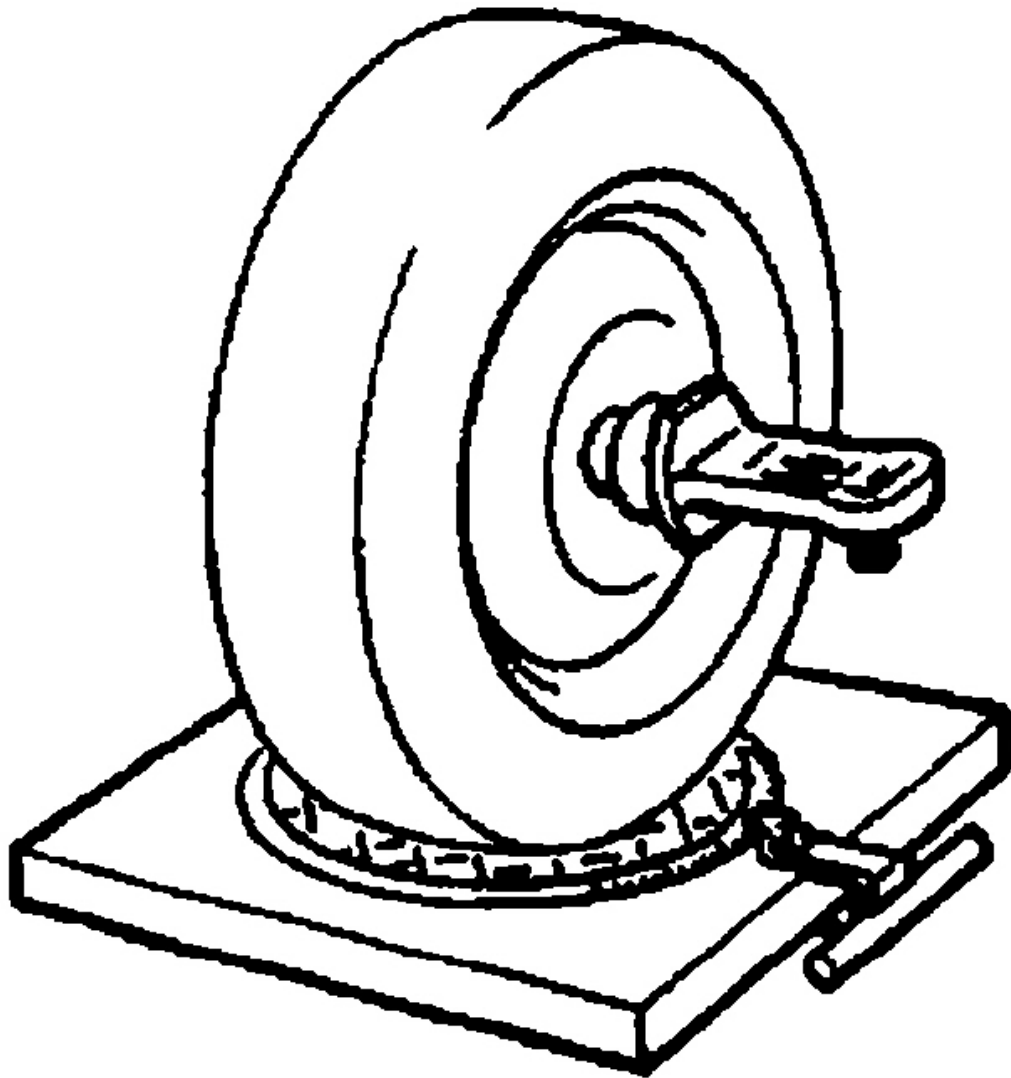
2WD		357 mm (14.06 in.)
4WD	Tire size: 215/70R16	366 mm (14.41 in.)
	Tire size: 235/60R16	359 mm (14.13 in.)

G01084207

Fig. 209: Identifying Rear Vehicle Height Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Install camber/caster/kingpin gauge and position vehicle on wheel alignment tester .



G01084212

Fig. 210: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

Left-right error: 45' (0.75°) or less

Camber:

2WD	$-0^{\circ}25' \pm 45' (-0.42^{\circ} \pm 0.75^{\circ})$
4WD	$-0^{\circ}20' \pm 45' (-0.33^{\circ} \pm 0.75^{\circ})$

G01084209

Fig. 211: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Caster:

2WD	$2^{\circ}00' \pm 45' (2.00^{\circ} \pm 0.75^{\circ})$
4WD	$1^{\circ}55' \pm 45' (1.92^{\circ} \pm 0.75^{\circ})$

G01084210

Fig. 212: Identifying Caster Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Steering axis inclination:

2WD	$11^{\circ}00' \pm 45' (11.00^{\circ} \pm 0.75^{\circ})$
4WD	$10^{\circ}45' \pm 45' (10.75^{\circ} \pm 0.75^{\circ})$

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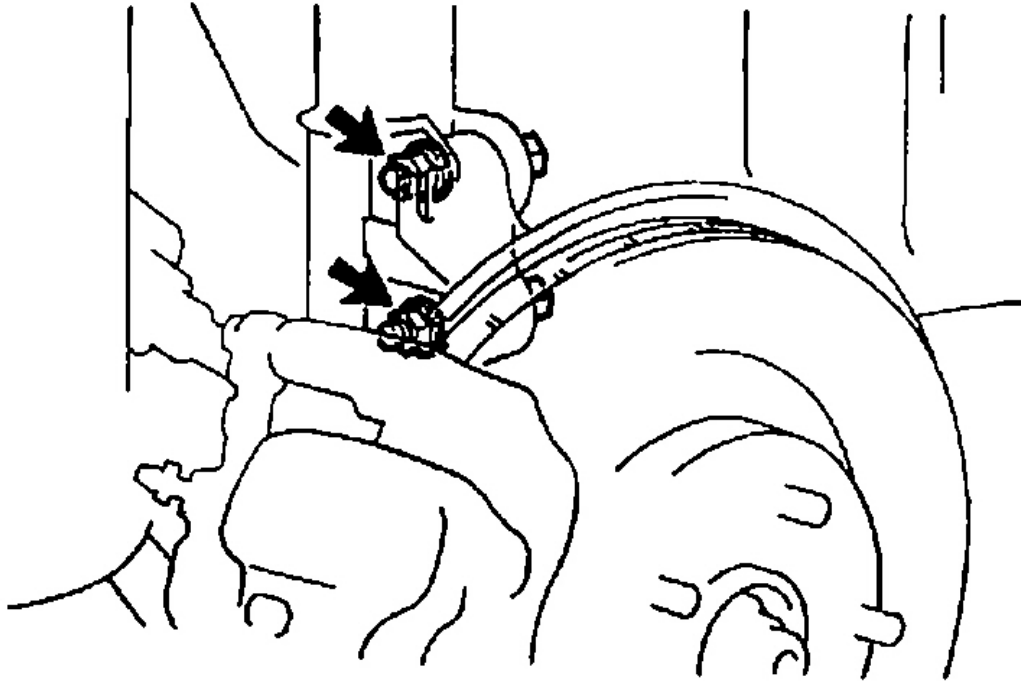
Fig. 213: Identifying Steering Axis Inclination Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the caster and steering axis inclination are not within the specification, after the camber has correctly adjusted, recheck the suspension parts for damaged and/or worn out parts.

4. Adjust camber .

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

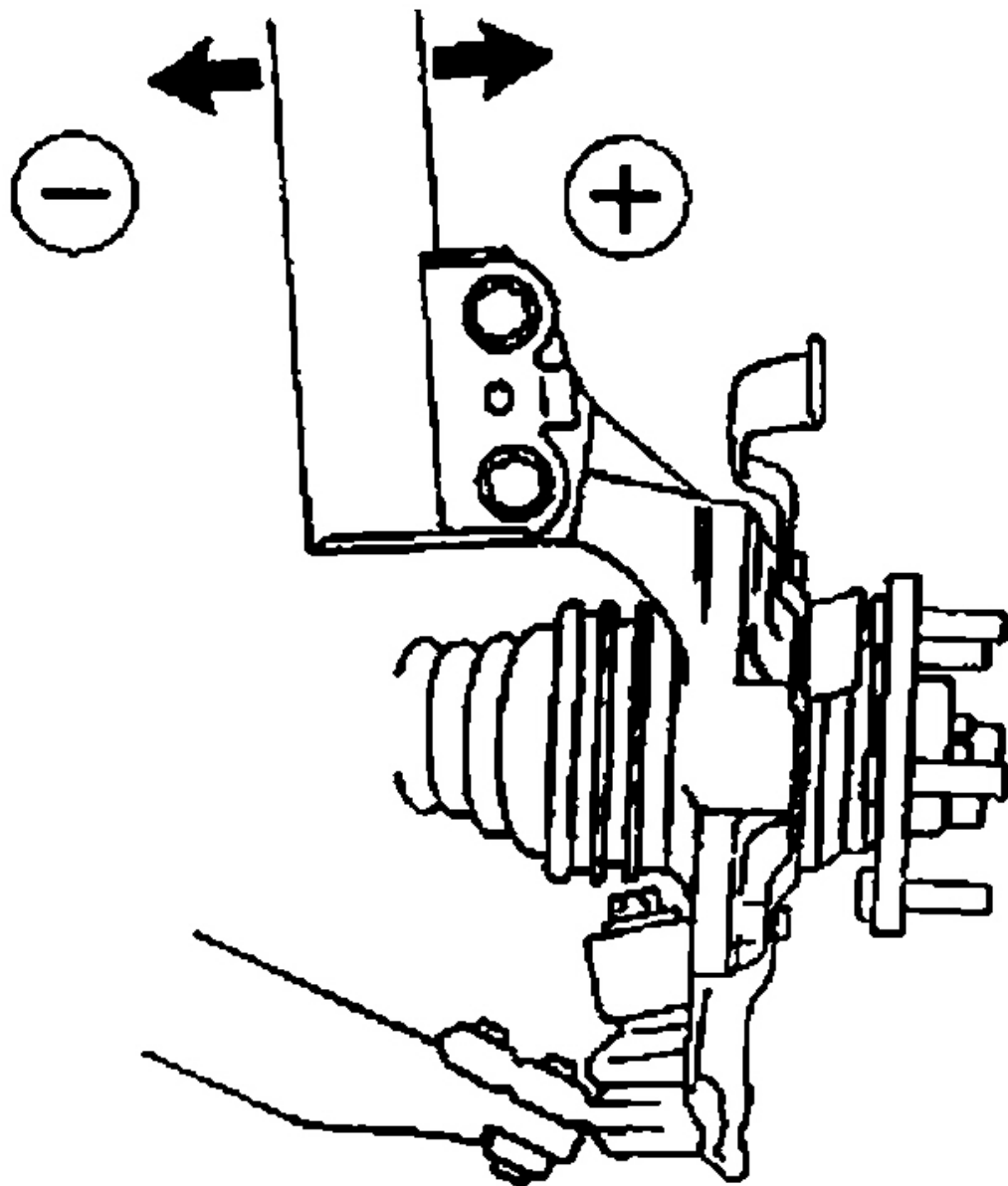
- a. Remove the front wheel.
- b. Remove the 2 nuts on the lower side of the shock absorber.



G01084213

Fig. 214: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction where the camber adjustment is required.



G01084214

Fig. 215: Using Shock Absorber To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Tighten the 2 nuts.

Torque: 143 N.m (1,460 kgf.cm, 105 ft.lbf)

g. Install the front wheel.

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

h. Check the camber.

NOTE:

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

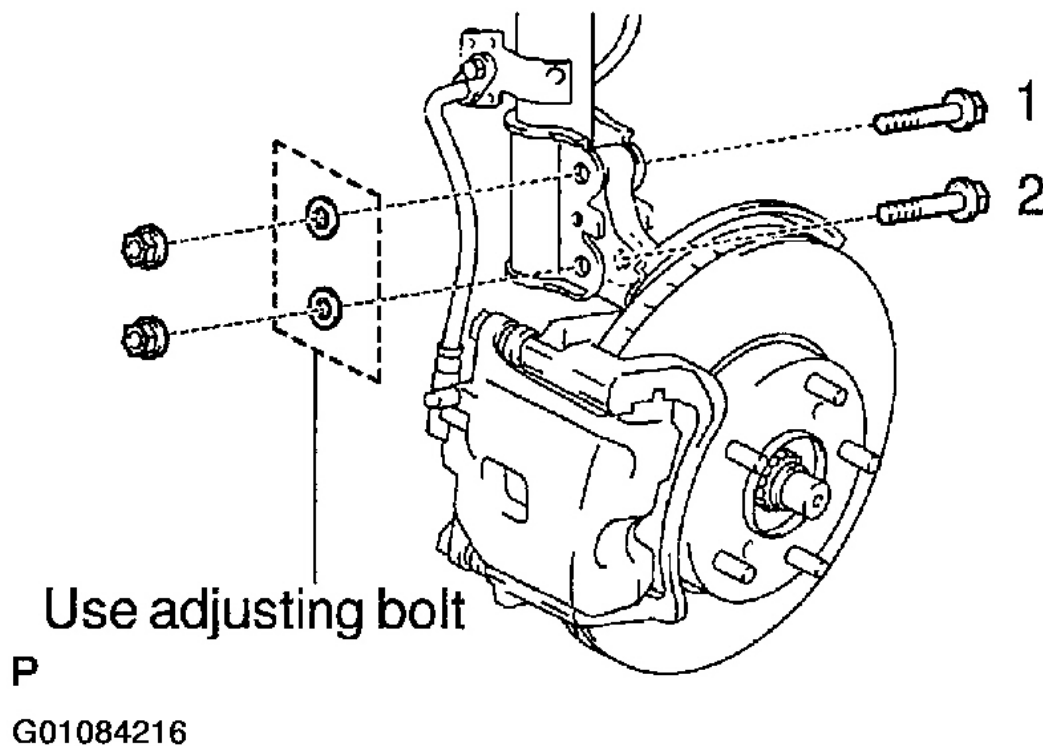


Fig. 216: Identifying Placement Of Adjusting Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the camber is not within the specification, estimate how much additional camber adjustment will be required and select the camber adjusting bolt using the following table in **Fig. 217** .

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-15001		90105-15004		90105-15005		90105-15006	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

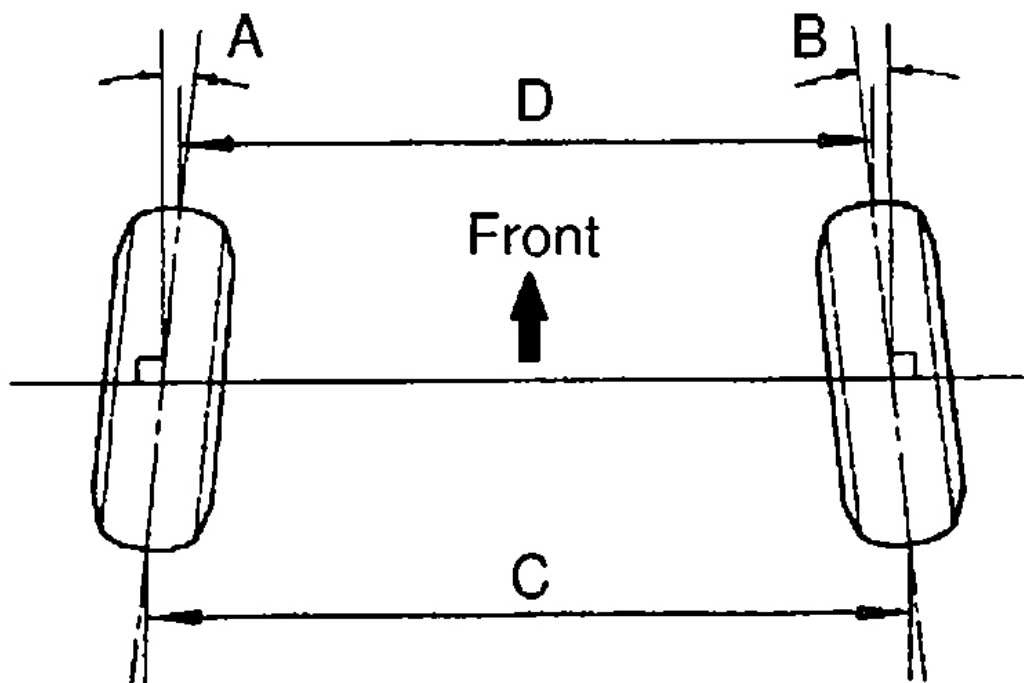
G01084215

Fig. 217: Displaying Camber Adjusting Bolt Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- i. Follow steps a through h again. Between the steps b and c , exchange 1 or 2 selected bolts with used ones.

NOTE: When exchanging the 2 bolts with used ones, exchange 1 bolt for each time.

5. Inspect toe-in .



G01084218

Fig. 218: Identifying Toe-In Measurements
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2WD	Toe-in (Total)	A + B:	$0^{\circ}00' \pm 10' (0^{\circ} \pm 0.16^{\circ})$
		C - D:	$0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$
4WD Tire size: 215/70R16	Toe-in (Total)	A + B:	$0^{\circ}05' \pm 10' (0.08^{\circ} \pm 0.16^{\circ})$
		C - D:	$1 \pm 2 \text{ mm } (0.04 \pm 0.08 \text{ in.})$
4WD Tire size: 235/60R16	Toe-in (Total)	A + B:	$0^{\circ}05' \pm 10' (0.08^{\circ} \pm 0.17^{\circ})$
		C - D:	$1 \pm 2 \text{ mm } (0.04 \pm 0.08 \text{ in.})$

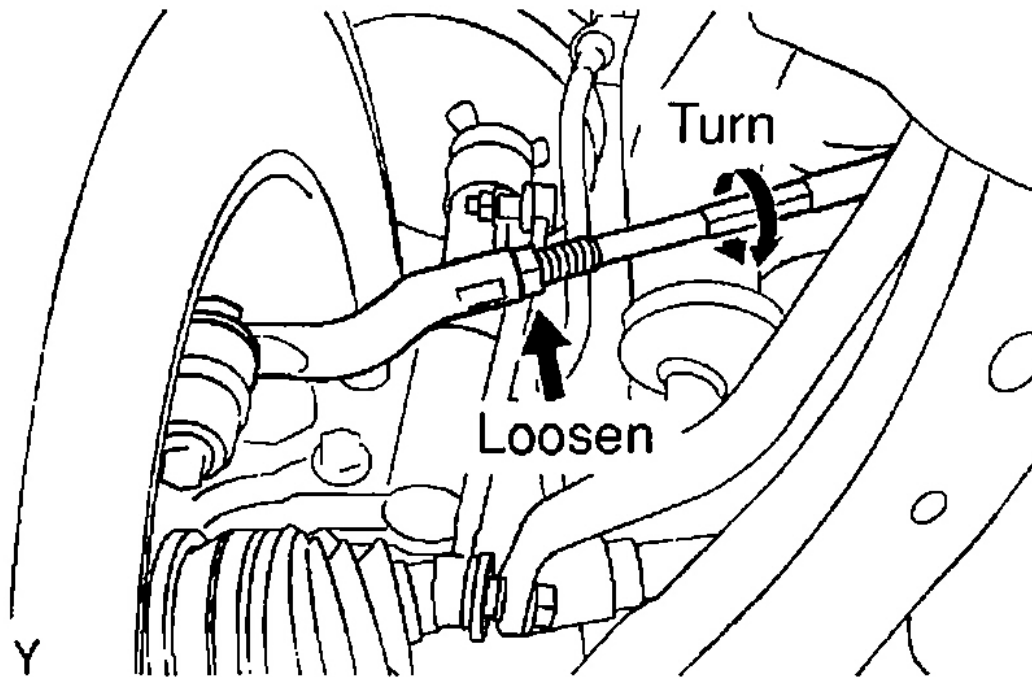
G01084217

Fig. 219: Identifying Toe-In Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specification, adjust it.

6. **Adjust toe-in .**

- a. Remove the boot clips.
- b. Loosen the tie rod end lock nuts.



G01084219

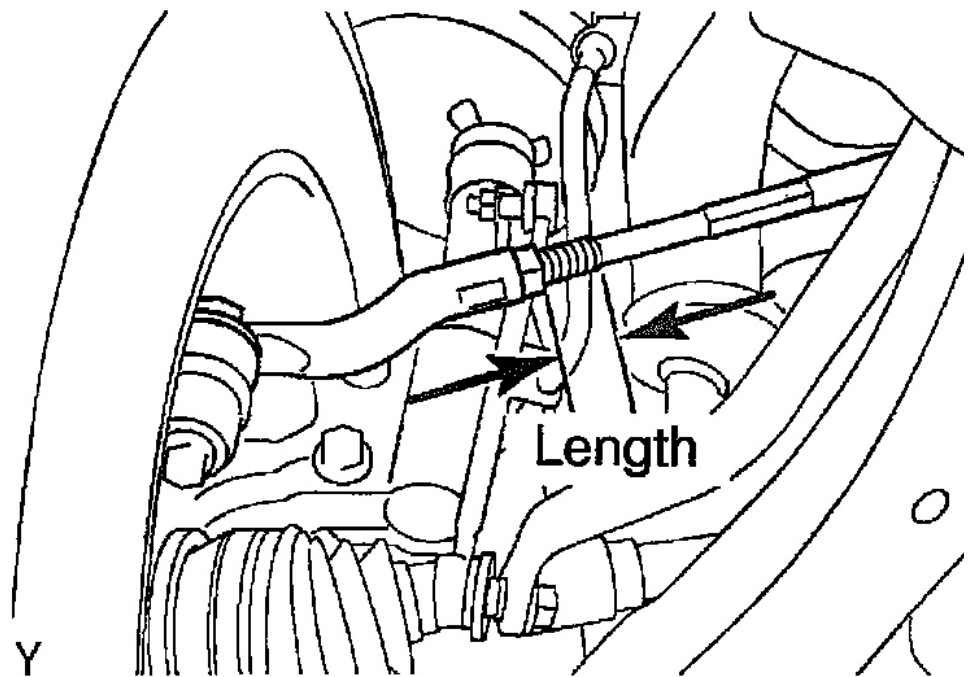
Fig. 220: Adjusting Tie Rod Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE:

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



G01084220

Fig. 221: Checking For Equal Length Rack Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Tie rod end length difference: 1.5 mm (0.059 in.) or less

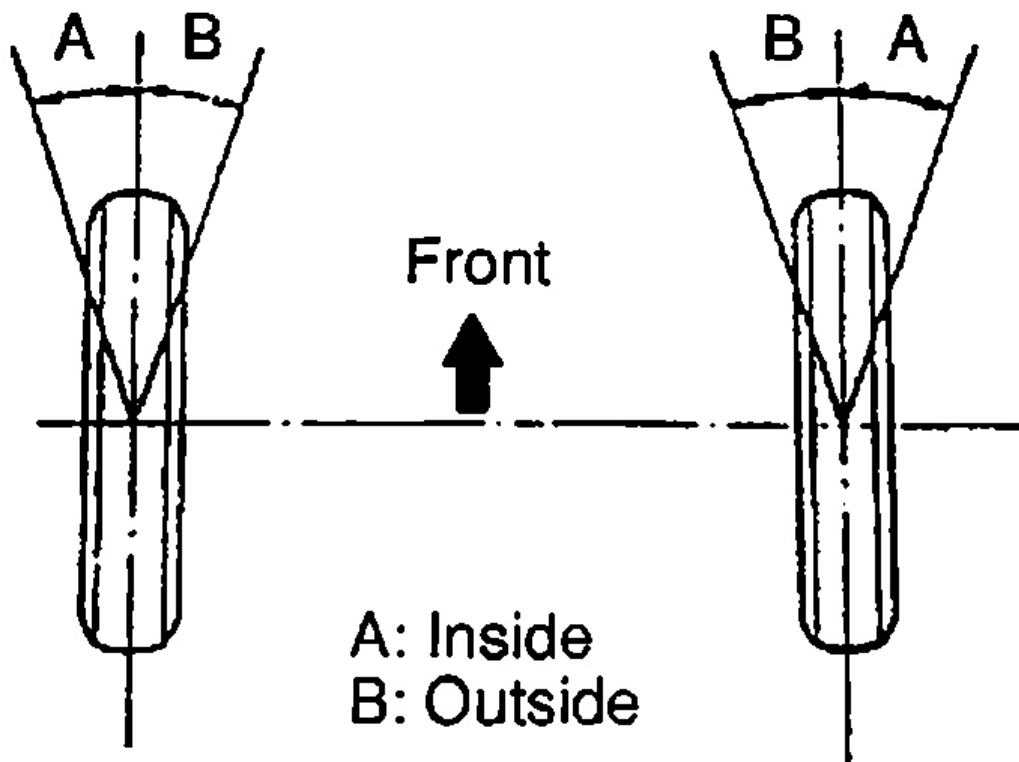
- d. Tighten the tie rod end lock nuts.

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

- e. Place the boot on the seat and install the boot clips.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .



G01084222

Fig. 222: Identifying Wheel Turning Angles
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Turn the steering wheel fully and measure the turning angle.

Inside		$35^{\circ} \pm 2^{\circ}$
Outside (Reference)	2WD	30°
	4WD	31°

G01084221

Fig. 223: Identifying Wheel Turning Angle Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel angle:

If the wheel angles differ from the specified value, check whether the length of the right and left rack ends is the same.

Rear Wheel Alignment

- 1. **Measure vehicle height** (see **MEASURE VEHICLE HEIGHT**) .
- 2. **Install camber/caster/kingpin gauge and position vehicle on wheel alignment tester** .
Follow the specifications of the equipment manufacturer.
- 3. **Inspect camber** .

Left-right error: 45' (0.75°) or less:

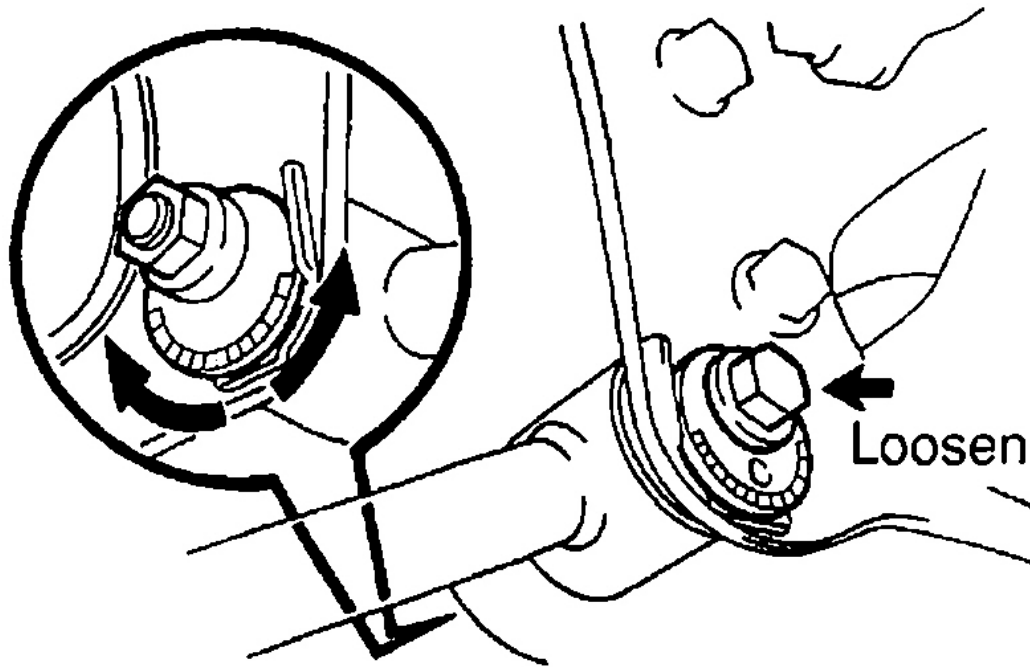
2WD		$-1^{\circ}15' \pm 45'$ ($-1.25^{\circ} \pm 0.75^{\circ}$)
4WD	Tire size: 215/70R16	$-0^{\circ}55' \pm 45'$ ($-0.92^{\circ} \pm 0.75^{\circ}$)
	Tire size: 235/60R16	$-0^{\circ}50' \pm 45'$ ($-0.83^{\circ} \pm 0.75^{\circ}$)

G01084223

Fig. 224: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the camber is not within the specified value, adjust the camber.

- 4. **Adjust camber** .
 - a. Loosen the camber adjust cam lock bolt.



G01084224

Fig. 225: Loosening Camber Adjust Cam Lock Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the camber adjust cam to adjust the camber.

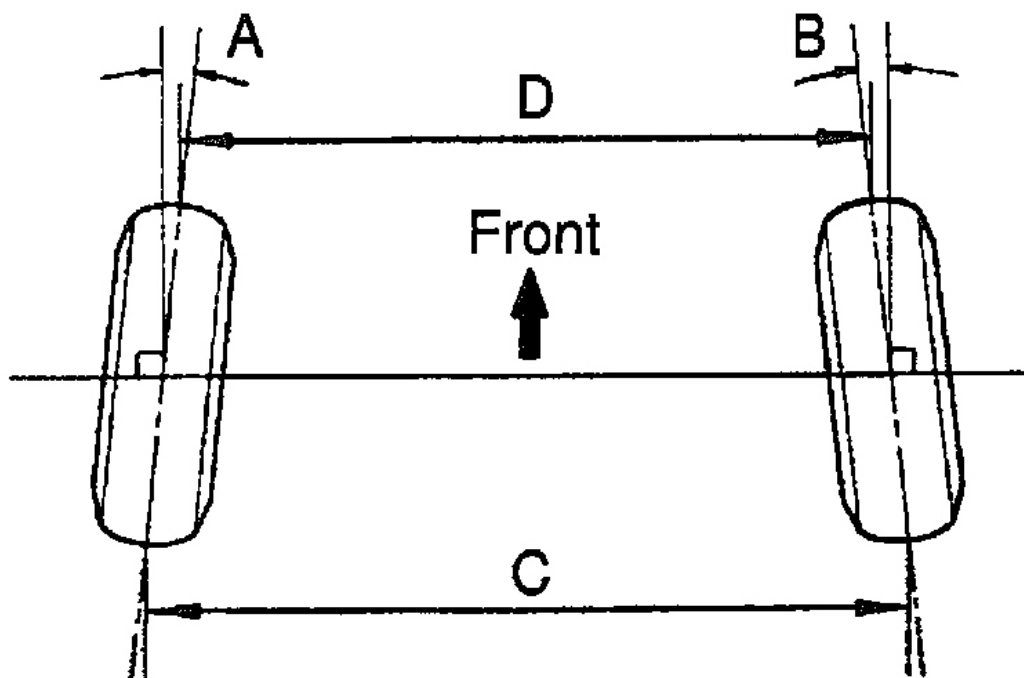
NOTE:

- Try to adjust the camber to the center of the specified value.
- The camber will change about 16' (0.27°) with each graduation of the cam.

- c. Tighten the lock bolt.

Torque: 113 N.m (1,150 kgf.cm, 83 ft.lbf)

5. **Inspect toe-in .**



G01084226

Fig. 226: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2WD	Toe-in (Total)	A + B:	$0^{\circ}19' \pm 10'$ ($0.32^{\circ} \pm 0.16^{\circ}$)
		C - D:	4 ± 2 mm (0.16 ± 0.08 in.)
4WD Tire size: 215/70R16	Toe-in (Total)	A + B:	$0^{\circ}14' \pm 10'$ ($0.24^{\circ} \pm 0.16^{\circ}$)
		C - D:	3 ± 2 mm (0.12 ± 0.08 in.)
4WD Tire size: 235/60R16	Toe-in (Total)	A + B:	$0^{\circ}15' \pm 10'$ ($0.25^{\circ} \pm 0.17^{\circ}$)
		C - D:	3 ± 2 mm (0.12 ± 0.08 in.)

G01084225

Fig. 227: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specified value, adjust it.

6. **Adjust toe-in .**

- a. Measure the distance between each wheel disc and corner of the cam bracket, then confirm that both are the same.

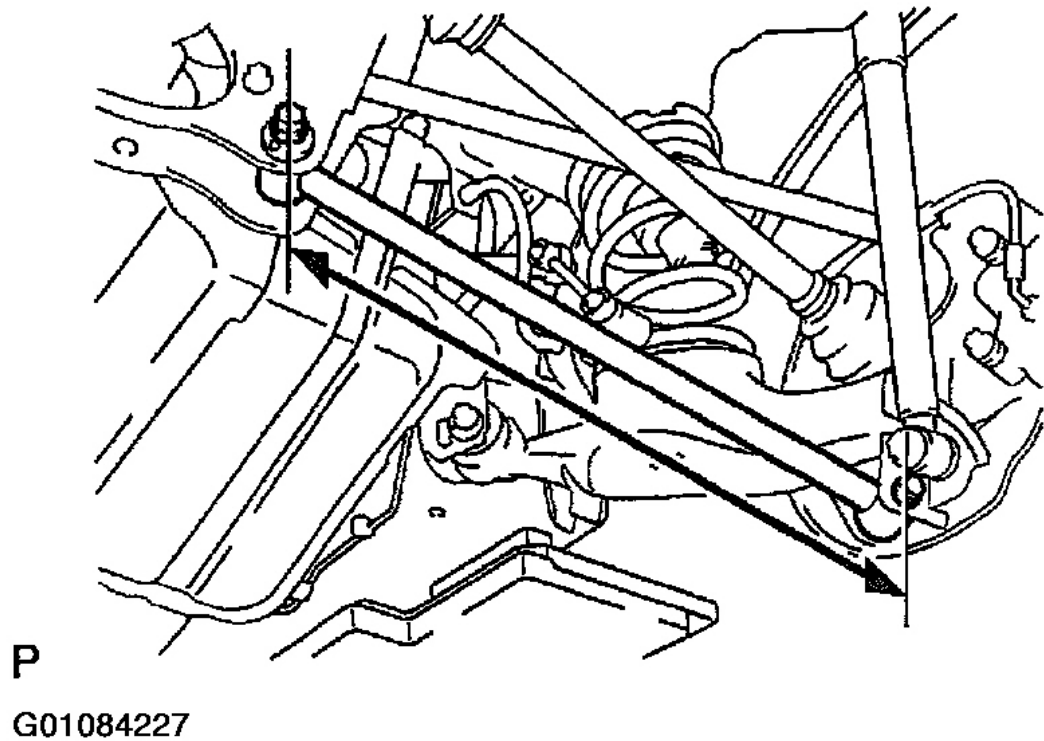
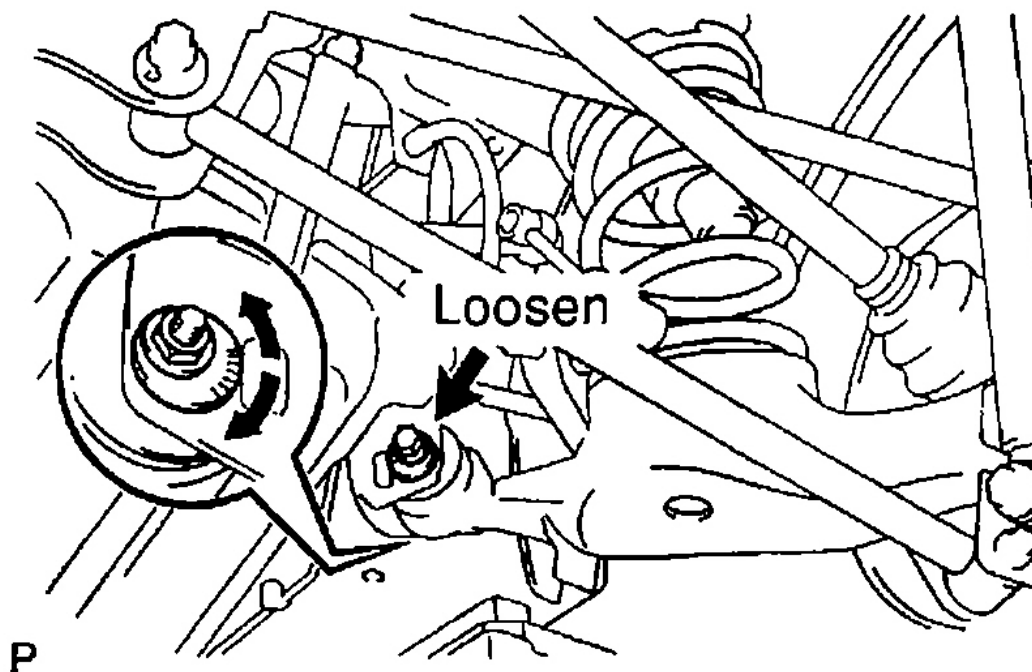


Fig. 228: Measuring Distance Between Each Wheel Disc & Corner Of Cam Bracket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Lower suspension arm length difference: 1 mm (0.04 in.) or less

If the difference between the left and right is more than 1 mm (0.04 in.), adjust it by following the step (b) to (d).

- b. Loosen the toe-adjust cam lock bolt.



G01084228

Fig. 229: Loosening Toe-Adjust Cam Lock Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Turn the toe-adjust cam an equal amount to adjust toe-in.

NOTE:

- Try to adjust the toe-in to the center value.
- The toe-in will change about 2.5 mm (0.10 in.) with each graduation of the cam (both side).

- d. Torque the lock bolts.

Torque: 132 N.m (1,350 kgf.cm, 97 ft.lbf)

SPECIFICATIONS

Tire and wheel	Cold tire inflation pressure	200 kPa (2.0 kgf·cm or bar, 29 psi)
Wheel balance	Imbalance after adjustment	8.0 g (0.018 lb) or less
Front wheel alignment	Front vehicle height 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16	225 mm (8.86 in.) 235 mm (9.25 in.) 228 mm (8.98 in.)
	Rear vehicle height 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16	357 mm (14.06 in.) 366 mm (14.41 in.) 359 mm (14.13 in.)
	Camber 2WD 4WD Left – right error	$-0^{\circ}25' \pm 45'$ ($-0.42^{\circ} \pm 0.75^{\circ}$) $-0^{\circ}20' \pm 45'$ ($-0.33^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less
	Caster 2WD 4WD Left – right error	$2^{\circ}00' \pm 45'$ ($2.00^{\circ} \pm 0.75^{\circ}$) $1^{\circ}55' \pm 45'$ ($1.92^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less
	Steering axis inclination 2WD 4WD Left – right error	$11^{\circ}00' \pm 45'$ ($11.00^{\circ} \pm 0.75^{\circ}$) $10^{\circ}45' \pm 45'$ ($10.75^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less
	Toe-in (total) 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16 Tie rod end length difference	$0^{\circ}00' \pm 10'$ ($0^{\circ} \pm 0.16^{\circ}$, 0 ± 2 mm, 0 ± 0.08 in.) $0^{\circ}05' \pm 10'$ ($0.08^{\circ} \pm 0.16^{\circ}$, 1 ± 2 mm, 0.04 ± 0.08 in.) $0^{\circ}05' \pm 10'$ ($0.08^{\circ} \pm 0.17^{\circ}$, 1 ± 2 mm, 0.04 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle Inside Outside (Reference) 2WD 4WD	$35^{\circ} \pm 2^{\circ}$ 30° 31°
Rear wheel alignment	Camber 2WD 4WD Tire size: 215/70R16 Tire size: 235/70R16 Left-right error	$-1^{\circ}15' \pm 45'$ ($-1.25^{\circ} \pm 0.75^{\circ}$) $-0^{\circ}55' \pm 45'$ ($-0.92^{\circ} \pm 0.75^{\circ}$) $-0^{\circ}50' \pm 45'$ ($-0.83^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less
	Toe-in (total) 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16 Lower suspension arm length difference	$0^{\circ}19' \pm 10'$ ($0.32^{\circ} \pm 0.16^{\circ}$, 4 ± 2 mm, 0.16 ± 0.08 in.) $0^{\circ}14' \pm 10'$ ($0.24^{\circ} \pm 0.16^{\circ}$, 3 ± 2 mm, 0.12 ± 0.08 in.) $0^{\circ}15' \pm 10'$ ($0.25^{\circ} \pm 0.17^{\circ}$, 3 ± 2 mm, 0.12 ± 0.08 in.) 1.0 mm (0.040 in.) or less
Front axle	Bearing backlash	0.05 mm (0.0020 in.)
	Axle hub deviation	0.07 mm (0.0028 in.)
Front axle Front drive shaft	Standard length 2WD 4WD RH LH RH LH	858.5 ± 5.0 mm (33.80 ± 0.197 in.) 585.4 ± 5.0 mm (23.00 ± 0.197 in.) 920.5 ± 5.0 mm (36.24 ± 0.197 in.) 520.5 ± 5.0 mm (20.47 ± 0.197 in.)
Front lower ball joint	Ball joint turning torque	1.0 – 4.9 N·m (10 – 50 kgf·cm, 9 – 43 in·lbf)

G00223859

Fig. 230: Wheel Alignment Specifications (RAV4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SEQUOIA

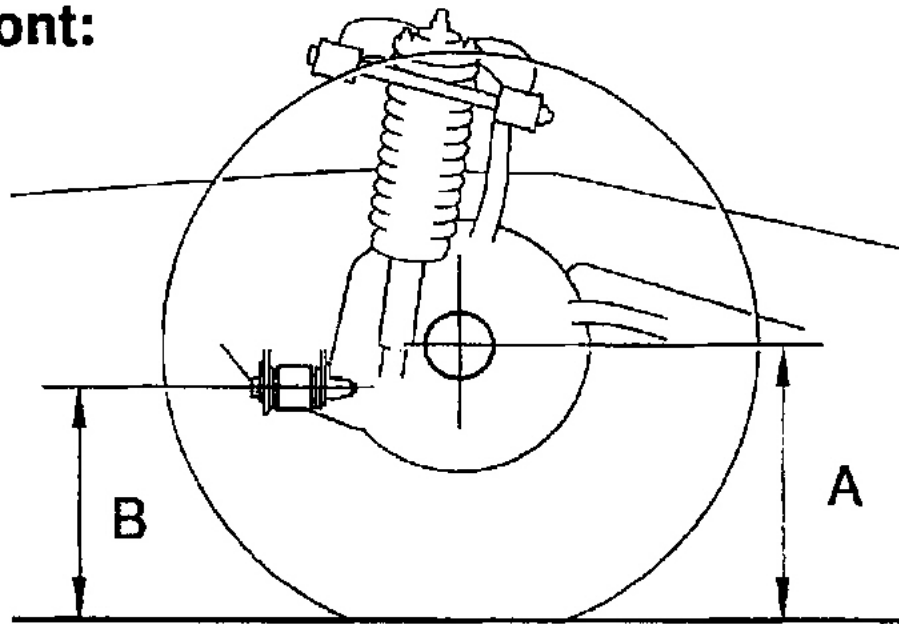
PROCEDURES

Front Wheel Alignment

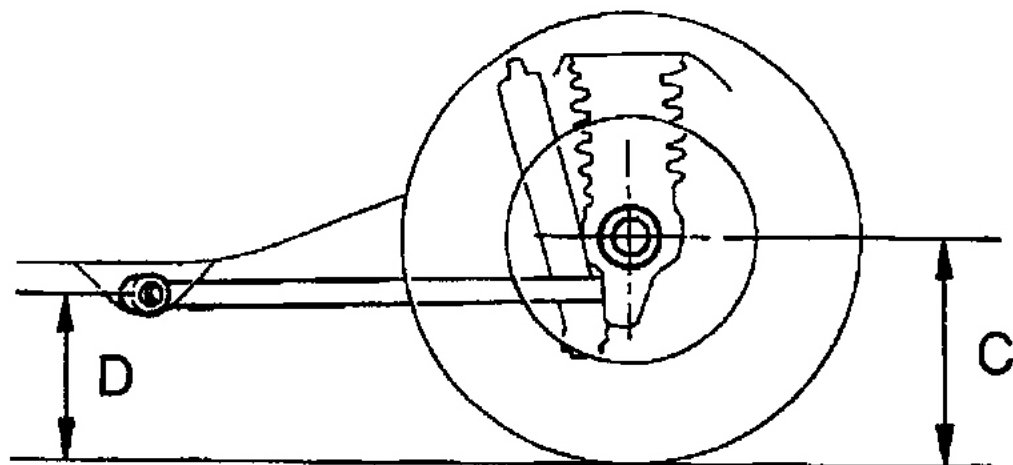
NOTE: Be sure to perform the zero point calibration of steering angle, master cylinder pressure, yaw rate and deceleration sensors. See PRE-CHECK .

1. Measure vehicle height (see Fig. 244) .

Front:



Rear:



G01129126

Fig. 231: Identifying Vehicle Height Measuring Points A-D
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Measuring points:

- A: Ground clearance of the front drive shaft center
- B: Ground clearance of the front adjusting cam bolt center
- C: Ground clearance of the rear axle shaft center
- D: Ground clearance of the rear lower control arm front bolt center

Vehicle height:

2WD:

Front	A – B: 86.0 mm (3.39 in.)
Rear	C – D: 104.0 mm (4.09 in.)

G01129124

Fig. 232: Identifying Vehicle Height

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4WD:

Front	A – B: 76.0 mm (3.0 in.)
Rear	C – D: 91.0 mm (3.58 in.)

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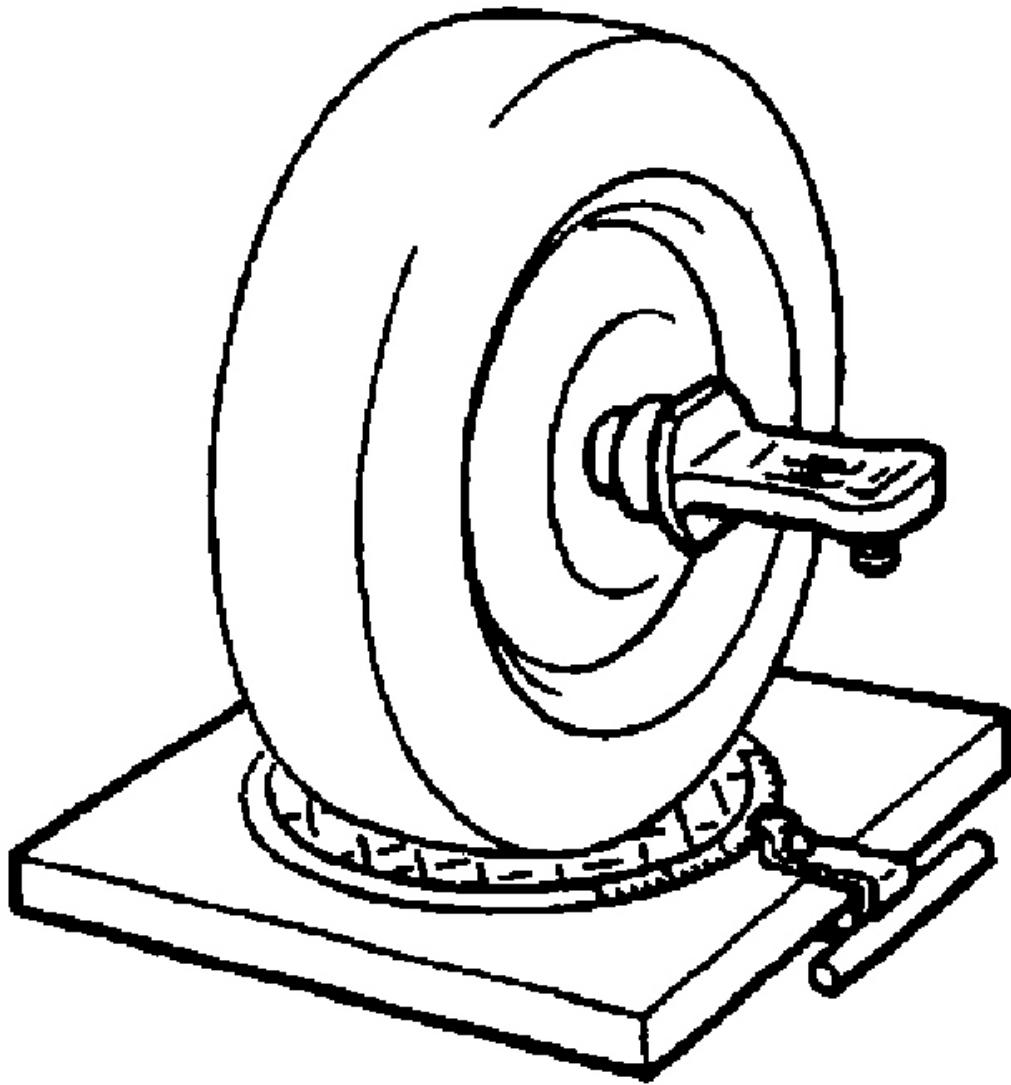
Fig. 233: Identifying Vehicle Height

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .



G01129127

Fig. 234: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

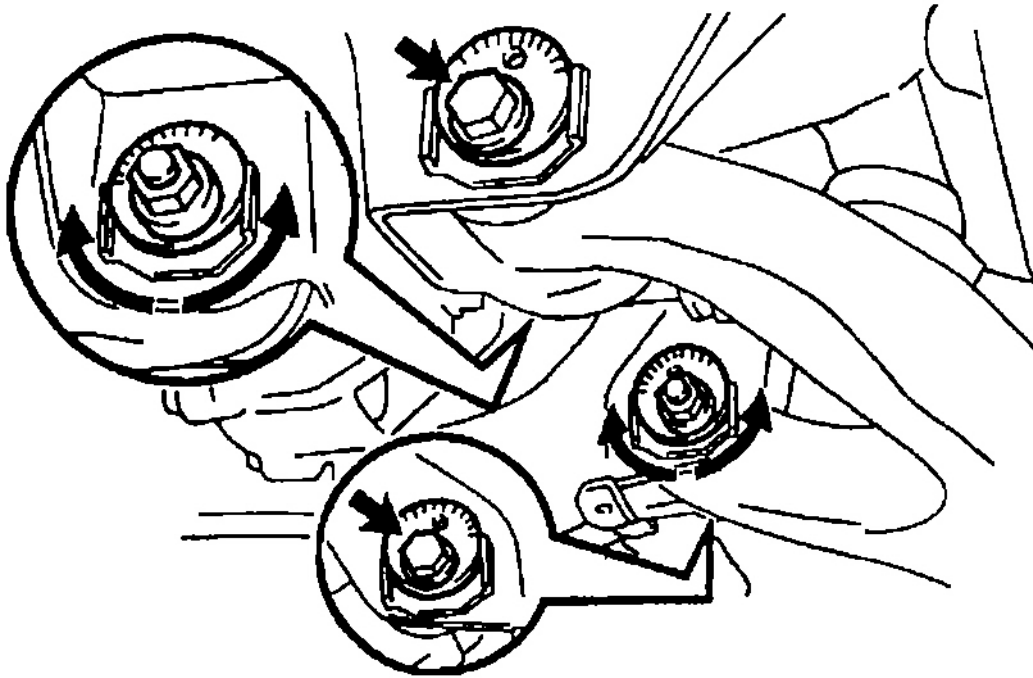
Follow the specific instructions of the equipment manufacturer.

3. **Inspect camber, caster and steering axis inclination (see Fig. 244 .**

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.

4. **Adjust camber and caster .**

- a. Loosen the front and/or rear adjusting cam set bolts.



G01129128

Fig. 235: Loosening Front And/Or Rear Adjusting Cam Set Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: **Try to adjust the camber and caster to the center of the specified values.**

- c. How to read adjustment chart (Example).

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

Example:

- = Standard value point
- = Measured value point

—— Camber

----- Caster

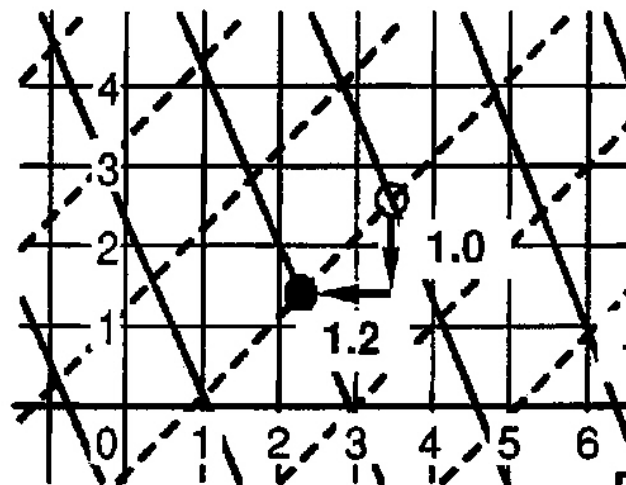
Front Cam

— direction



0°00'
0°10' (0.17°)

3°20' (3.33°)



— direction



Rear Cam

P

G01129129

Fig. 236: Displaying Adjustment Chart (Example)

2. Mark the selected standard value on the adjustment chart in **Fig. 236**.

Example:

Camber: 0° 00'

Caster: 3° 20' (3.33°)

3. Measure the present wheel alignment value with the vehicle in non-loaded condition.
4. Mark the measured present value on the adjustment chart in **Fig. 236**.

Example:

Camber: 0° 10' (0.17°)

Caster: 3° 20' (3.33°)

5. As shown in the example chart in **Fig. 236**, read the distance from the measured value to the standard value, and adjust the front and/or rear adjusting cams accordingly.

Amount to turn adjusting cams (by graduation):

Example:

Front cam: 1.0 (+direction)

Rear cam: 1.2 (+direction)

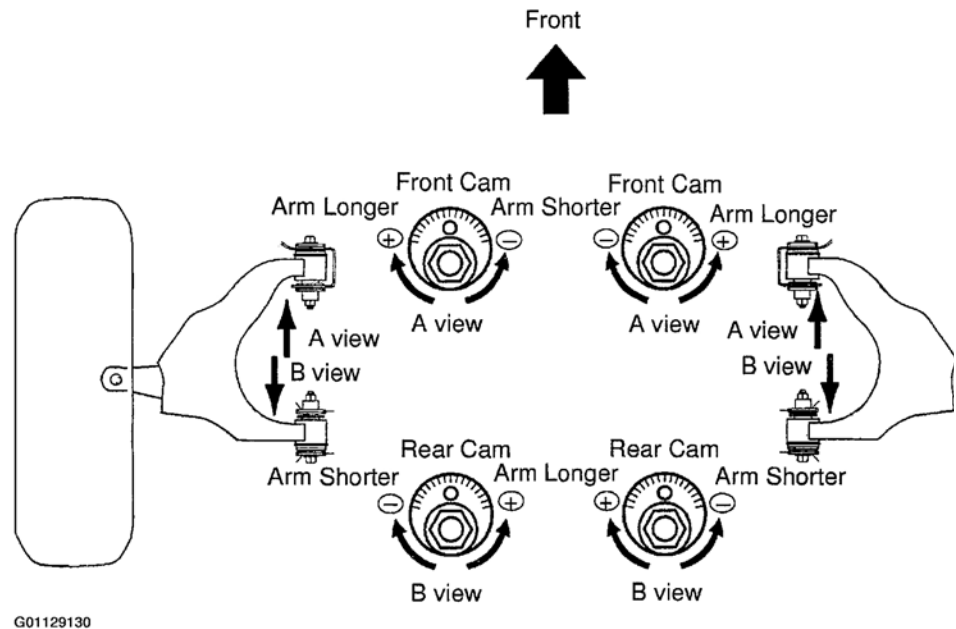
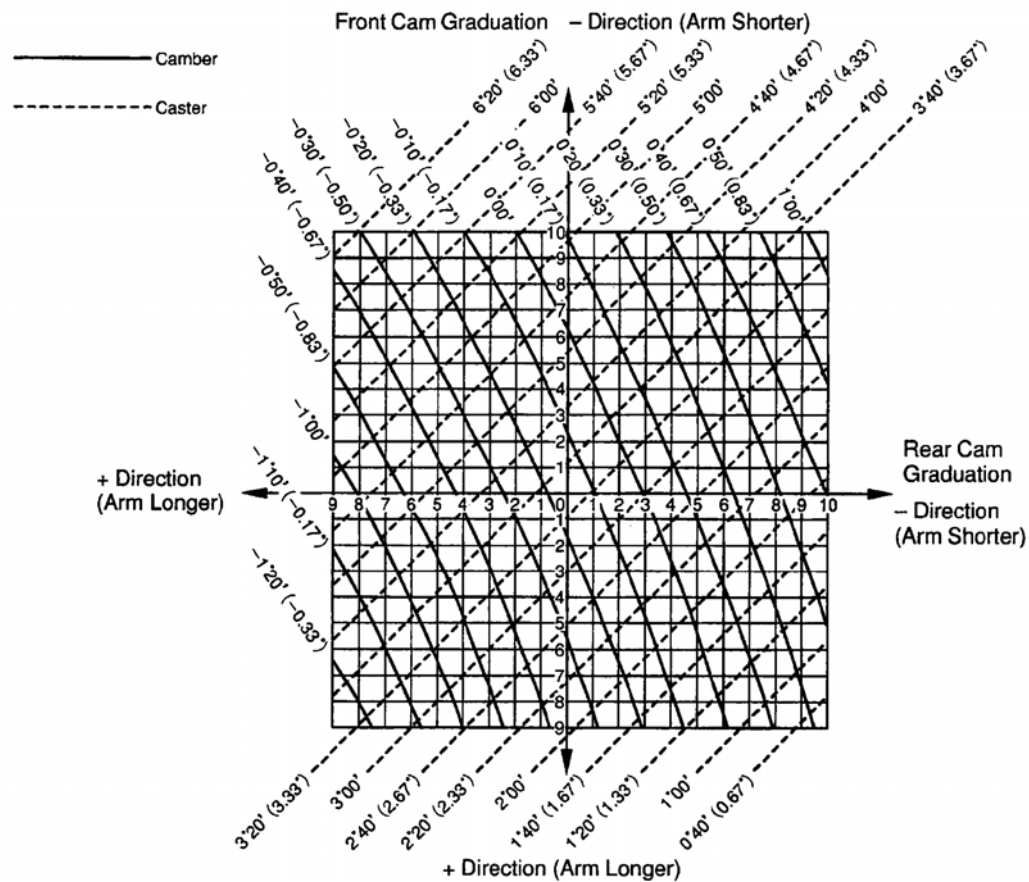


Fig. 237: Identifying Cams For Adjustment

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



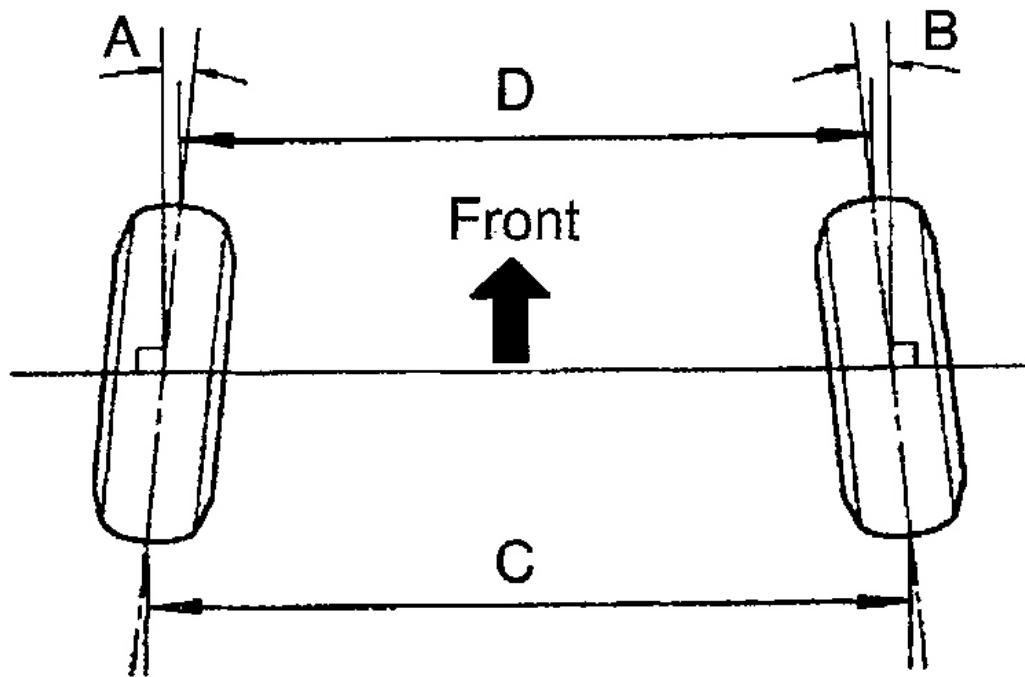
P
G01129131

Fig. 238: Displaying Adjustment Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Torque the front and/or rear adjusting cam set bolts.

Torque: 130 N.m (1,325 kgf.cm, 96 ft.lbf)

5. Inspect toe-in (see Fig. 244) .



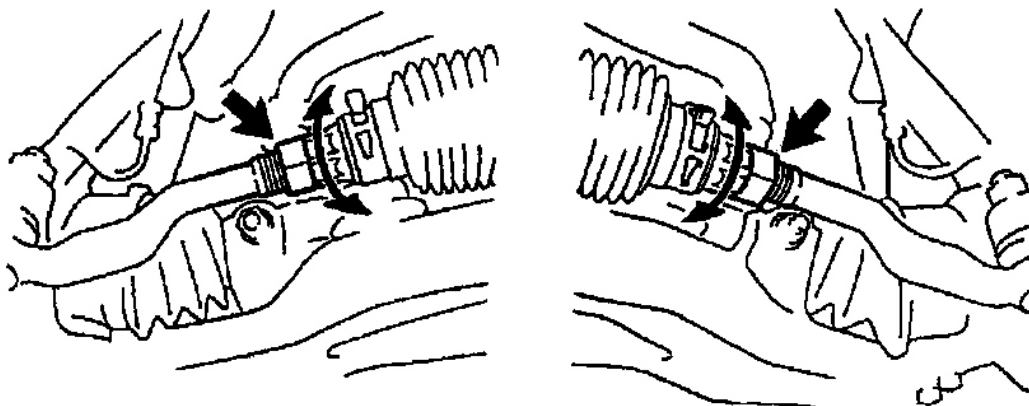
G01129132

Fig. 239: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. **Adjust toe-in and wheel angle .**
 - a. Remove the 2 clips.
 - b. Loosen the tie rod end lock nuts.



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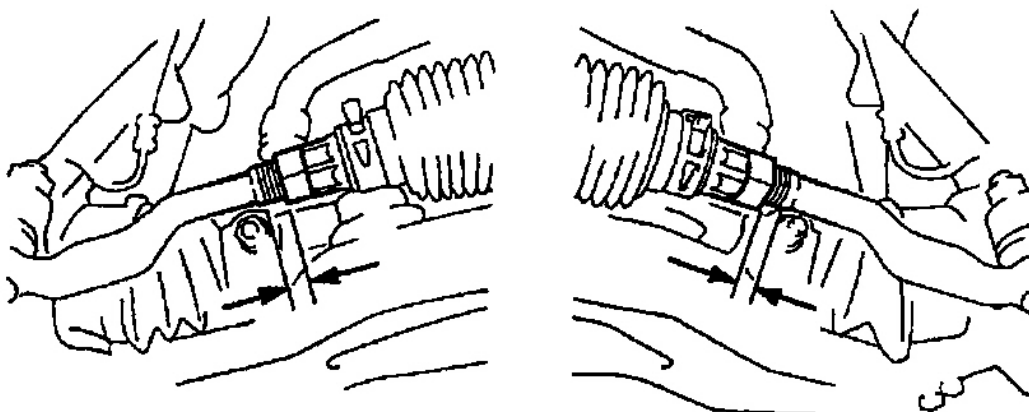
Fig. 240: Adjusting Tie Rod Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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.



G01129134

Fig. 241: Checking For Equal Length Rack Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference: 1.5 mm (0.059 in.) or less

- e. Tighten the tie rod end lock nuts.

Torque: 55 N.m (560 kgf.cm, 41 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

- g. Inspect the wheel angle.

Turn the steering wheel fully and measure the turning angle.

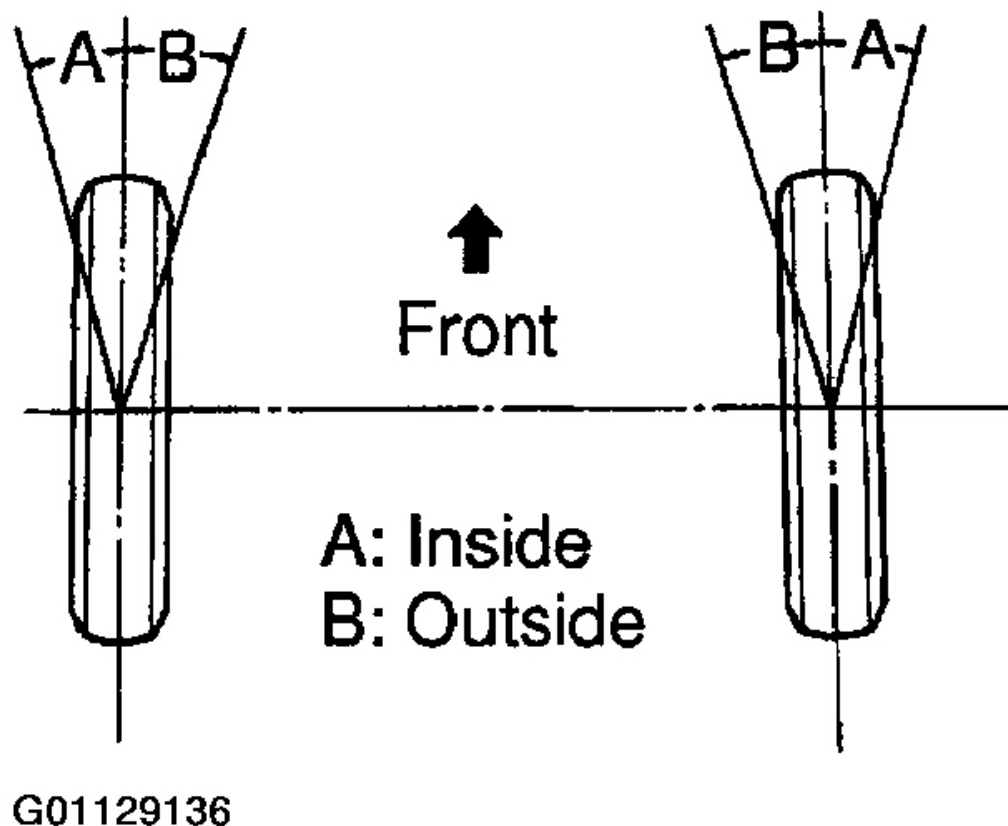


Fig. 242: Identifying Wheel Turning Angles

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

Drive train	Inside wheel	Outside wheel: Reference
2WD	33°40' – 36°40' (33.7° – 36.7°)	31°50' (31.8°)
4WD	33°50' – 36°50' (33.8° – 36.8°)	32°

G01129135

Fig. 243: Identifying Wheel Turning Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the right and left wheel turning angles differ from the specified value, readjust the toe-in and wheel angle within the specified value. At this time, 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

SPECIFICATIONS

Cold tire inflation pressure	Tire size: P245/70R16		Front	220 kPa (2.2 kgf/cm ² , 32 psi)
			Rear	240 kPa (2.4 kgf/cm ² , 35 psi)
	Tire size: P265/70R16		Front	220 kPa (2.2 kgf/cm ² , 32 psi)
			Rear	220 kPa (2.2 kgf/cm ² , 32 psi)
Front wheel Alignment	● Vehicle height			
	UCK35L-GKSSKA			
	Tire size: P245/70R16	Front: A* ¹ – B* ²	70.1 mm (2.759 in.)	
		Rear: C* ³ – D* ⁴	76.5 mm (3.011 in.)	
	Tire size: P265/70R16	Front: A* ¹ – B* ²	70.0 mm (2.755 in.)	
		Rear: C* ³ – D* ⁴	75.9 mm (2.988 in.)	
	UCK35L-GKSLKA		Front: A* ¹ – B* ²	71.1 mm (2.799 in.)
			Rear: C* ³ – D* ⁴	76.9 mm (3.027 in.)
	UCK45L-GKSSKA		Front: A* ¹ – B* ²	61.9 mm (2.437 in.)
			Rear: C* ³ – D* ⁴	64.0 mm (2.519 in.)
	UCK45L-GKSLKA		Front: A* ¹ – B* ²	62.5 mm (2.460 in.)
			Rear: C* ³ – D* ⁴	64.9 mm (2.555 in.)
	● Camber			
	Right-left error: 30' (0.5°) or less			
	UCK35L-GKSLKA		0°07' ± 45' (0.11° ± 0.75°)	
	UCK35L-GKSSKA		0°08' ± 45' (0.13° ± 0.75°)	
	UCK45L-GKSSKA		0°16' ± 45' (0.27° ± 0.75°)	
	UCK45L-GKSLKA		0°16' ± 45' (0.26° ± 0.75°)	
	● Caster			
	Right-left error: 30' (0.5°) or less			
	UCK35L-GKSSKA		2°57' ± 45' (2.95° ± 0.75°)	
	Tire size: P245/70R16		3°00' ± 45' (3.00° ± 0.75°)	
	Tire size: P265/70R16		3°00' ± 45' (3.00° ± 0.75°)	
	UCK35L-GKSLKA		3°02' ± 45' (3.03° ± 0.75°)	
	UCK45L-GKSSKA		2°36' ± 45' (2.61° ± 0.75°)	
	UCK45L-GKSLKA		2°38' ± 45' (2.64° ± 0.75°)	
	● Steering axis inclination			
	Right-left error: 30' (0.5°) or less			
	UCK35L-GKSSKA		10°38' ± 45' (10.63° ± 0.75°)	
	UCK35L-GKSLKA		10°39' ± 45' (10.65° ± 0.75°)	
	UCK45L-GKSSKA		10°29' ± 45' (10.48° ± 0.75°)	
	UCK45L-GKSLKA		10°30' ± 45' (10.50° ± 0.75°)	
	● Toe-in (total)			
	Rack end length difference: 1.5 mm (0.059 in.) or less			
	UCK35L-GKSSKA			
	Tire size: P245/70R16		0°05' ± 09' (0.09° ± 0.15°, 1.2 ± 2 mm, 0.05 ± 0.08 in.)	
Tire size: P265/70R16		0°05' ± 09' (0.09° ± 0.15°, 1.3 ± 2 mm, 0.05 ± 0.08 in.)		
UCK35L-GKSLKA		0°05' ± 09' (0.09° ± 0.15°, 1.2 ± 2 mm, 0.05 ± 0.08 in.)		
UCK45L-GKSSKA		0°05' ± 09' (0.08° ± 0.15°, 1.0 ± 2 mm, 0.04 ± 0.08 in.)		
UCK45L-GKSLKA		0°04' ± 09' (0.07° ± 0.15°, 1.0 ± 2 mm, 0.04 ± 0.08 in.)		

A*1: Ground clearance of the front drive shaft center

B*2: Ground clearance of the front adjusting cam bolt center

C*3: Ground clearance of the rear axle shaft center

D*4: Ground clearance of the rear lower control arm front bolt center

G00223860

Fig. 244: Wheel Alignment Specifications (Sequoia)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SIENNA

PROCEDURES

Front Wheel Alignment

- 1. Measure vehicle height .

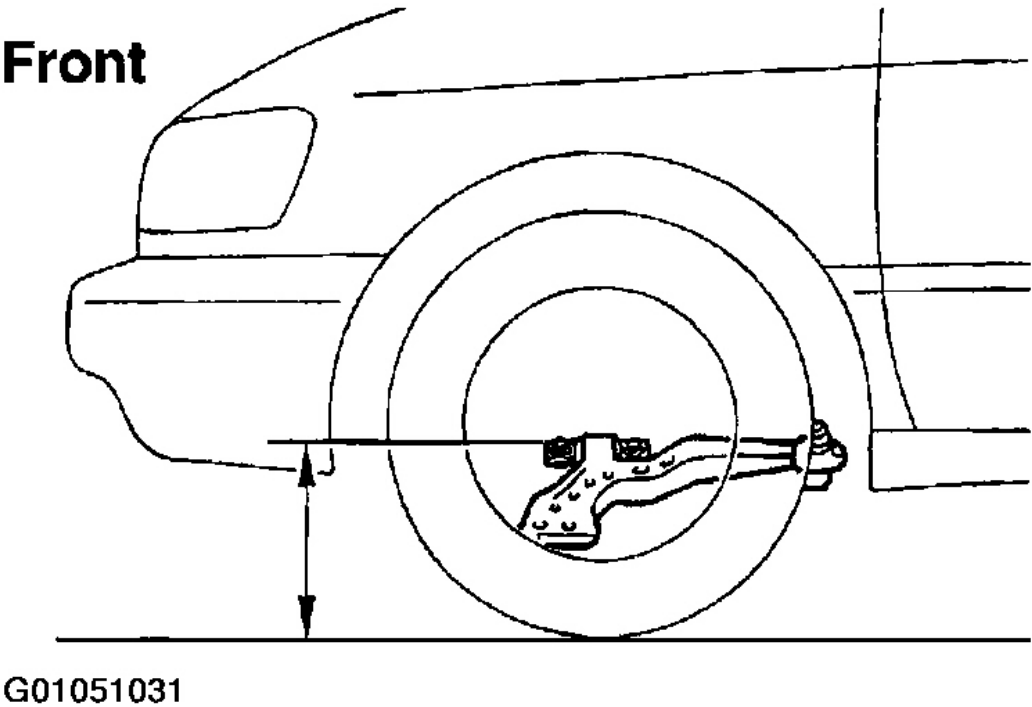


Fig. 245: Measuring Front Vehicle Height
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Tire size	Front* ¹ mm (in.)	Rear* ² mm (in.)
205/70R15	230 (9.06)	324 (12.76)
215/65R15	226 (8.90)	320 (12.60)

*¹: Front measuring point

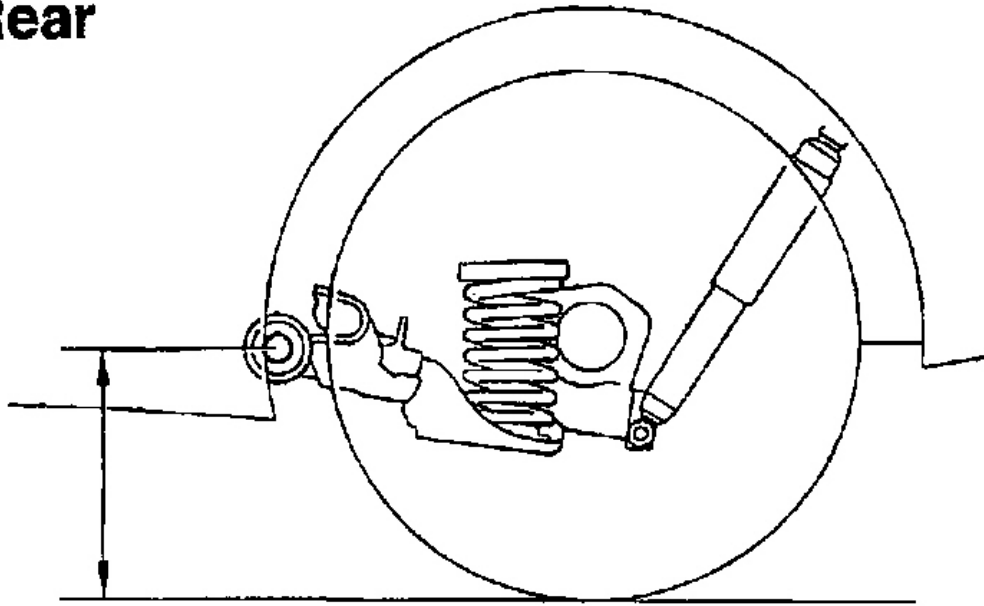
Fig. 246: Identifying Vehicle Height Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Measure from the ground to the center of the axle beam bushing.

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

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

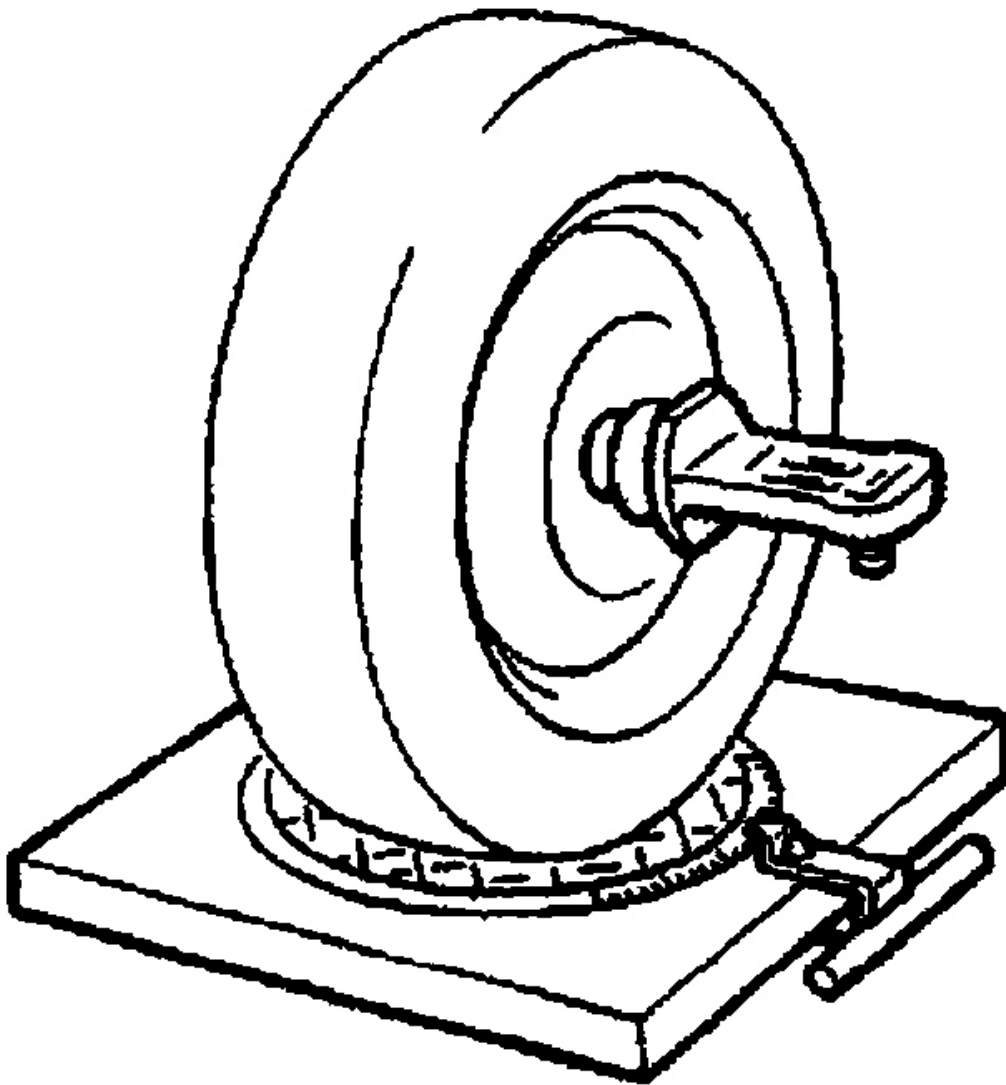
Rear



G01051032

Fig. 247: Measuring Rear Vehicle Height
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Install camber/caster/kingpin gauge onto vehicle or position vehicle on wheel alignment tester .



G01051034

Fig. 248: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. **Inspect camber, caster and steering axis inclination .**

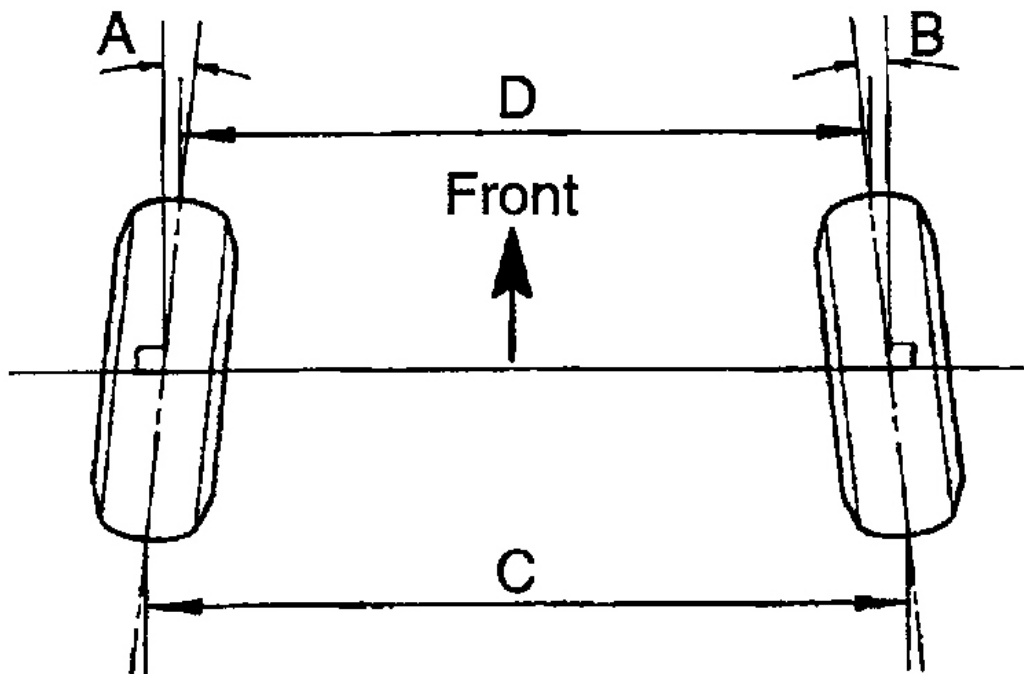
Camber		$-0^{\circ}32' \pm 45'$ ($-0.5^{\circ} \pm 0.75^{\circ}$)
	Left-right error	45' (0.75°) or less
Caster		$1^{\circ}32' \pm 45'$ ($1.53^{\circ} \pm 0.75^{\circ}$)
	Left-right error	45' (0.75°) or less
Steering axis inclination		$12^{\circ}35' \pm 45'$ ($12.58^{\circ} \pm 0.75^{\circ}$)

G01051033

Fig. 249: Identifying Camber, Caster & Steering Axis Inclination Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: If the caster and steering axis inclination are not within the specification, after the camber has correctly adjusted, recheck the suspension parts for damaged and/or worn out parts.

4. Inspect toe-in .



G01051036

Fig. 250: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in (Total)	$A + B: 0^{\circ}16' \pm 12' (0.27^{\circ} \pm 0.2^{\circ})$ $C - D: 2.6 \pm 2 \text{ mm } (0.10 \pm 0.08 \text{ in.})$
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G01051035

Fig. 251: Identifying Toe-In Specifications

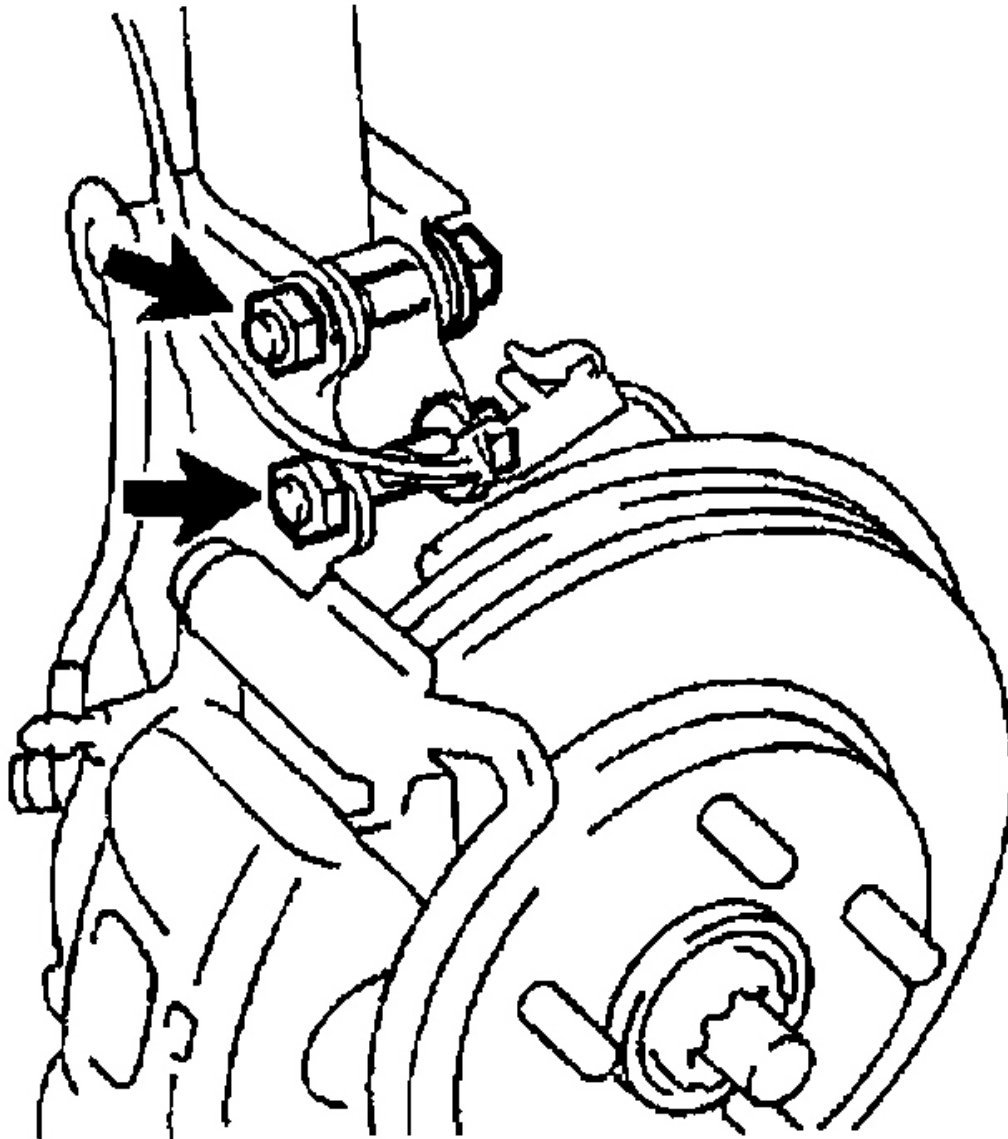
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

5. Adjust camber .

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

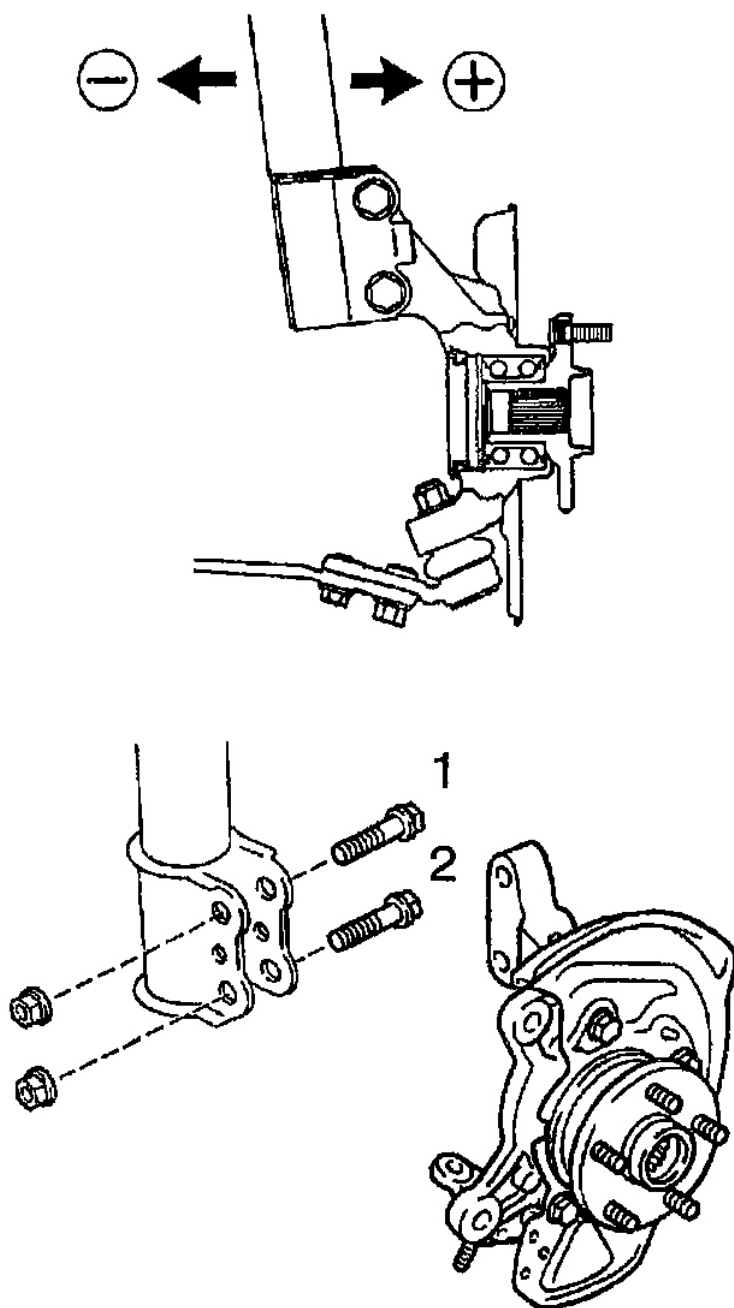
- a. Remove the front wheels and ABS speed sensor clamp.
- b. Remove the 2 nuts on the lower side of the shock absorber.



G01051037

Fig. 252: Loosening Lower Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Coat the threads of the nuts with engine oil.
- d. Temporarily install the 2 nuts.
- e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.



G01051039

Fig. 253: Using Shock Absorber To Adjust Camber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Tighten the nuts.

Torque: 210 N.m (2,150 kgf.cm, 155 ft.lbf)

g. Install the front wheels.

Torque: 104 N.m (1,050 kgf.cm, 77 ft.lbf)

h. Check the camber.

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

If the camber is not within the specification, using the table in **Fig. 254** , estimate for how much additional camber adjustment will be required, and select the camber adjusting bolt.

Bolt Adjusting Value	Set Bolt		Adjusting Bolt					
	90105-17001		90105-17003		90105-17004		90105-17005	
			1 Dot		2 Dots		3 Dots	
								
	1	2	1	2	1	2	1	2
15'	●			●				
30'	●					●		
45'	●							●
1°00'			●					●
1°15'					●			●
1°30'							●	●

G01051038

Fig. 254: Identifying Camber Specifications Table

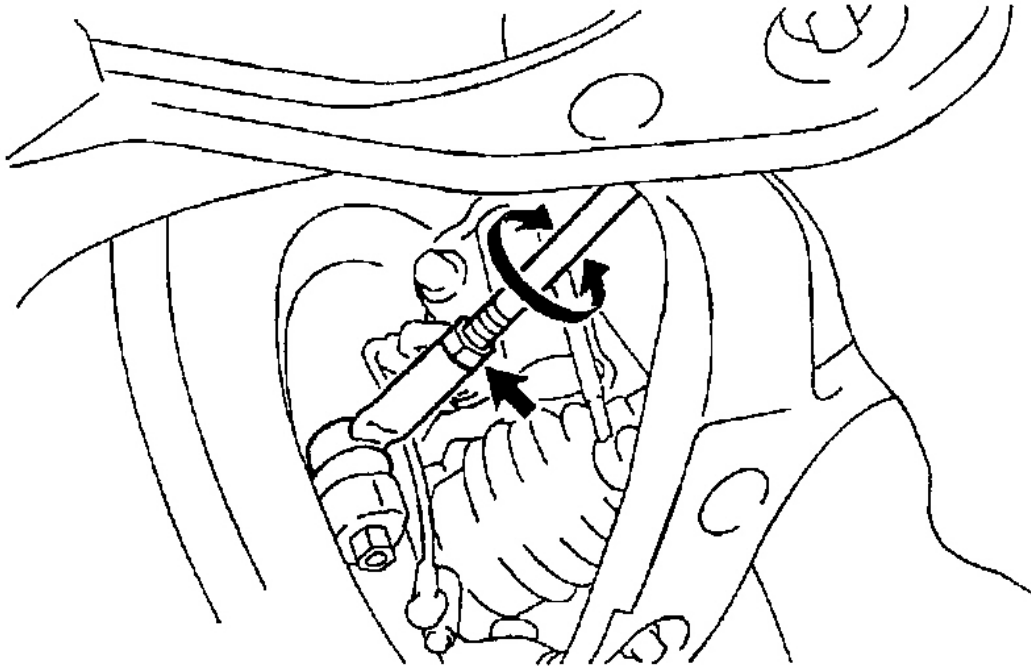
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

i. Follow steps a through h again. Between steps b and c , exchange 1 or 2 selected bolts.

NOTE: When exchanging the 2 bolts, exchange 1 bolt for each time.

6. Adjust toe-in .

- a. Remove the boot clamps.
- b. Loosen the tie rod end lock nuts.



G01051040

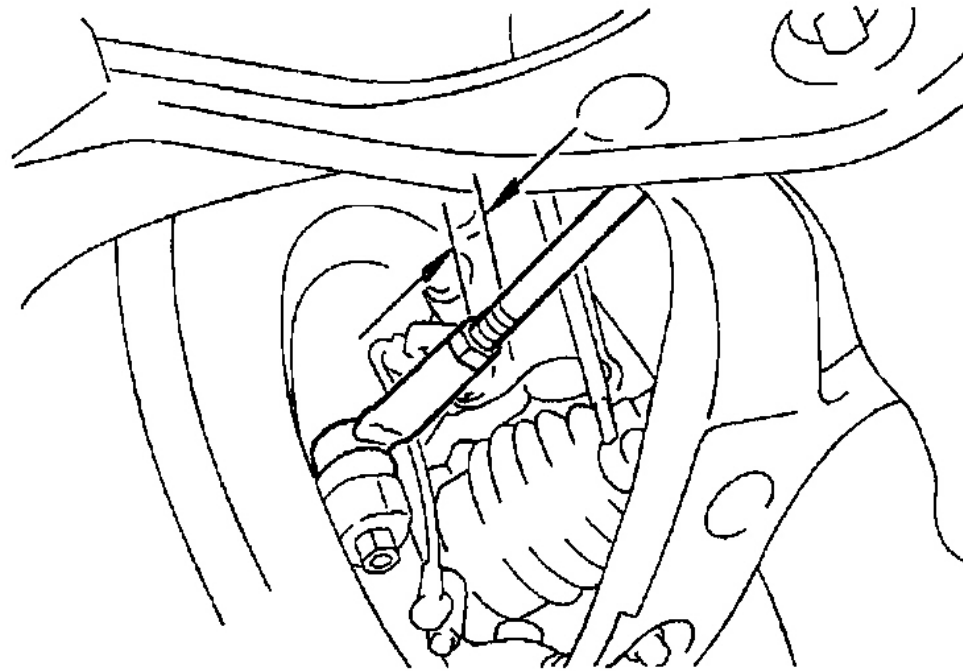
Fig. 255: Adjusting Tie Rod Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Turn the left and right rack ends an equal amount to adjust the toe-in.

NOTE:

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



G01051041

Fig. 256: Checking For Equal Length Rack Ends
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference:

1.5 mm (0.059 in.) or less

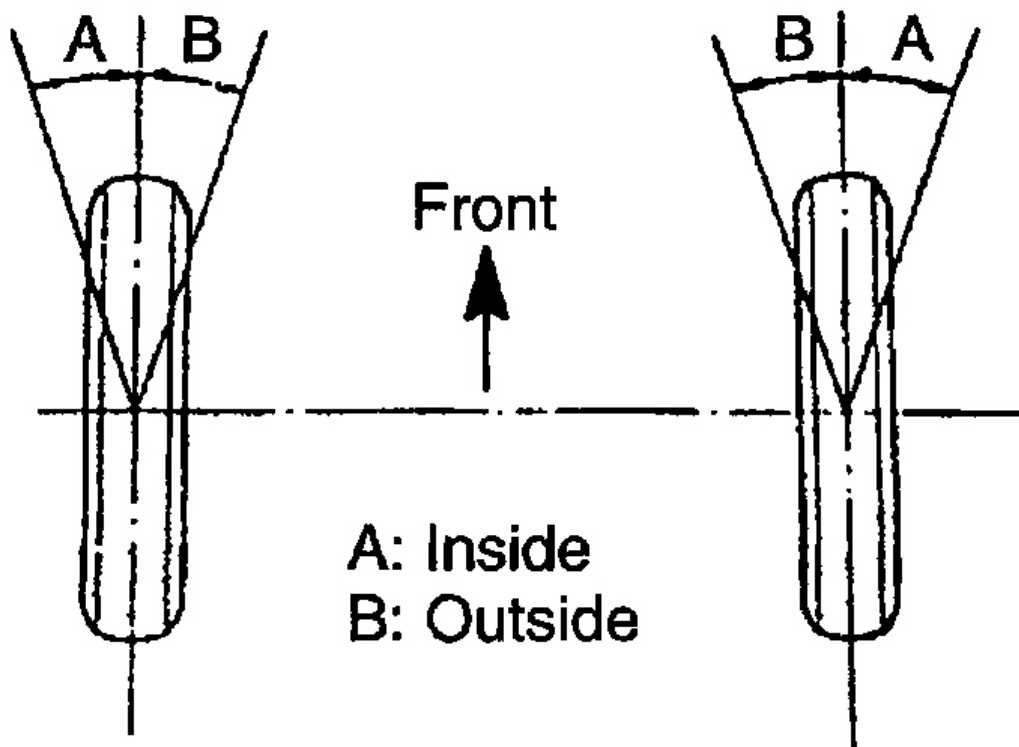
- d. Torque the tie rod end lock nuts.

Torque: 74 N.m (750 kgf.cm, 55 ft.lbf)

- e. Place the boot on the seat and install the clip it.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .



G01051043

Fig. 257: Identifying Wheel Turning Angles
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Inside wheel	$34^{\circ}19' \pm 1^{\circ}$ ($34.32^{\circ} \pm 1^{\circ}$)
Outside wheel < Reference >	$30^{\circ}19'$ (30.32°)

G01051042

Fig. 258: Identifying Wheel Turning Angle Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the wheel angles differ from the specification, check the left and right rack end lengths.

Rear Wheel Alignment

1. **Measure vehicle height** (see **MEASURE VEHICLE HEIGHT**) .

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

2. **Inspect camber** .

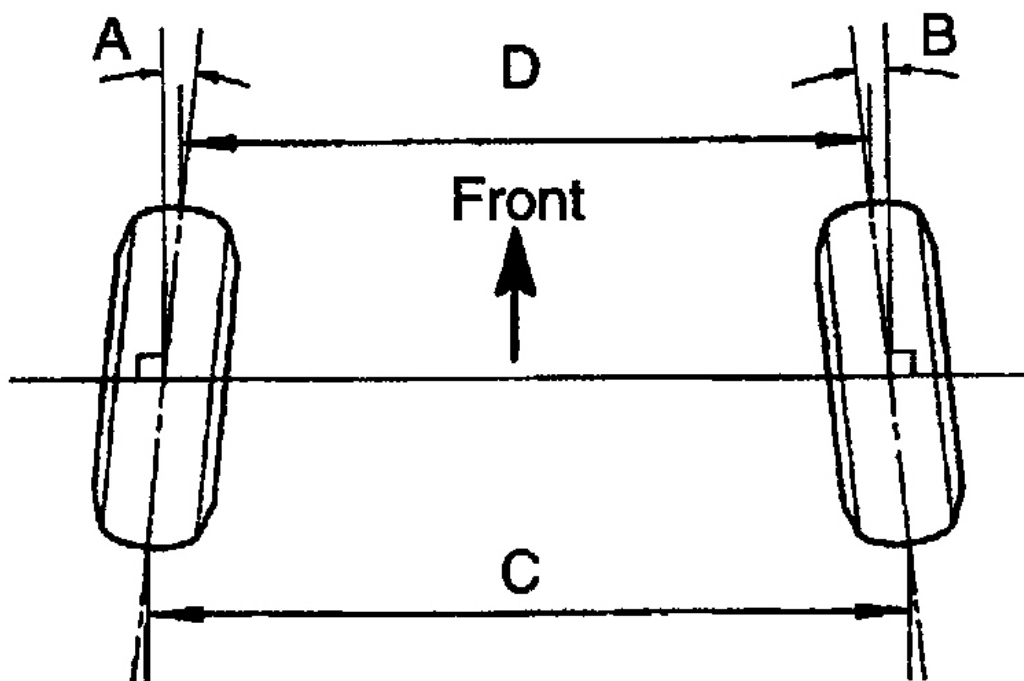
Camber	$-0^{\circ}55' \pm 45'$ ($-0.92^{\circ} \pm 0.75^{\circ}$)
Left-righterror	$45'$ (0.75°) or less

G01051044

Fig. 259: Identifying Camber Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Camber is not adjustable. If the measurement is not within the specifications, inspect the suspension parts for damaged and/or worn-out and replace them if necessary.

3. **Inspect toe-in** .



G01051046

Fig. 260: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in	A + B: $0^{\circ}13' \pm 18'$ ($0.22^{\circ} \pm 0.30^{\circ}$)
(Total)	C - D: 2.2 ± 3 mm (0.09 ± 0.12 in.)

G01051045

Fig. 261: Identifying Toe-In Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specification, inspect and replace the suspension parts as necessary.

SPECIFICATIONS

Cold tire inflation pressure (Normal driving)	P205/70R1595S	Front, Rear	240 kPa (2.4 kgf/cm ² , 35 bar or psi)
	P215/65R1595S	Front, Rear	220 kPa (2.2 kgf/cm ² , 32 bar or psi)* ¹ 240 kPa (2.4 kgf/cm ² , 35 bar or psi)* ²
Cold tire inflation pressure (Trailer towing)	P205/70R1595S	Front, Rear	240 kPa (2.4 kgf/cm ² , 35 bar or psi)
	P215/65R1595S	Front, Rear	240 kPa (2.4 kgf/cm ² , 35 bar or psi)
Front wheel alignment	Vehicle height	205/70R15	Front* ³ 230 mm (9.06 in.) Rear* ⁴ 324 mm (12.76 in.)
		215/65R15	Front* ³ 226 mm (8.90 in.) Rear* ⁴ 320 mm (12.60 in.)
	Camber	Left – right error	–0°32' ± 45' (–0.5° ± 0.75°) 45' (0.75°) or less
	Caster	Left – right error	1°32' ± 45' (1.53° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination		12°35' ± 45' (12.58° ± 0.75°)
	Toe-in (Total)		0°16' ± 12' (0.27° ± 0.2°) 2.6 ± 2 mm (0.10 ± 0.08 in.)
	Rack end length difference		1.5 mm (0.059 in.) or less
	Wheel angle	Inside wheel	34°19' ± 1° (34.32° ± 1°)
Outside wheel <Reference>		30°19' (30.32°)	
Rear wheel alignment	Camber	Left – right error	–0°55' ± 45' (–0.92° ± 0.75°) 45' (0.75°) or less
Toe-in (Total)		0°13' ± 18' (0.22° ± 0.30°) 2.2 ± 3 mm (0.09 ± 0.12 in.)	
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)
Front drive shaft	Drive shaft standard length	LH	586.0 ± 2.0 mm (23.071 ± 0.079 in.)
		RH	881.6 ± 2.0 mm (34.709 ± 0.079 in.)
Front suspension	Lower ball joint turning torque		1.0 – 3.4 N·m (10 – 35 kgf·cm, 8.7 – 30 in.·lbf)
	Stabilizer bar link turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)

*1: Vehicle load up to 6 passengers.

*2: Up to vehicle capacity weight.

*3: Front measuring point

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

*4: Rear measuring point

Measure from the ground to the center of the axle beam bushing.

G00223861

Fig. 262: Wheel Alignment Specifications (Sienna)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TACOMA

PROCEDURES

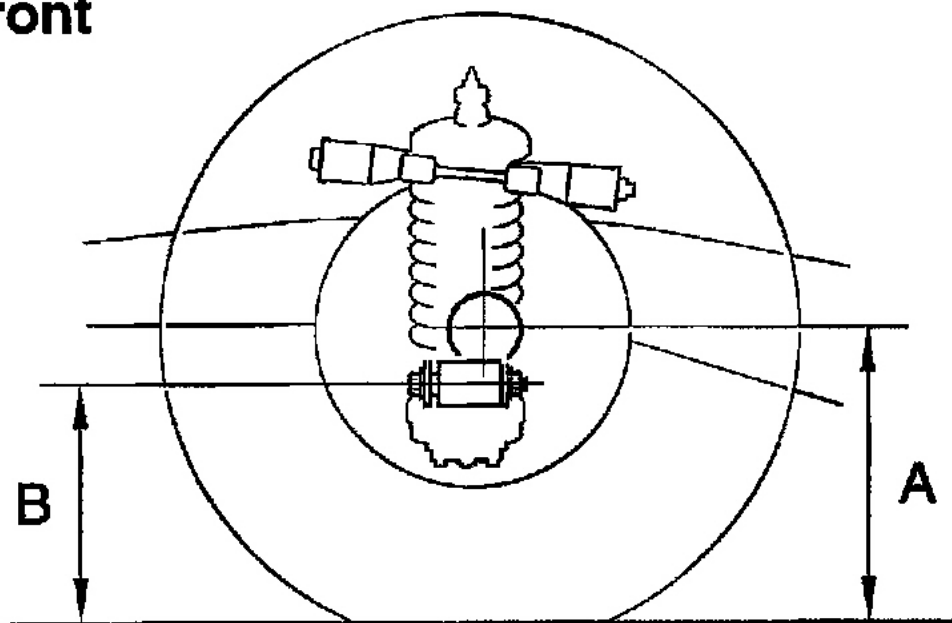
Front Wheel Alignment (2WD)

1. Measure vehicle height (see Fig. 283) .

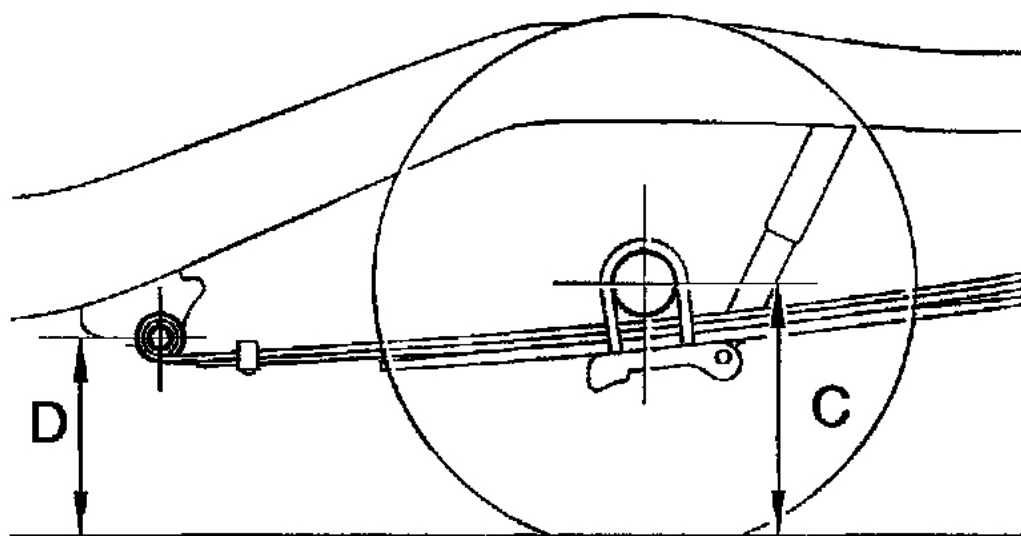
Measuring points:

- A. Ground clearance of spindle center. See **Fig. 263** .

Front



Rear



G01075195

Fig. 263: Identifying Measuring Points A-D
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- B. Ground clearance of lower suspension arm bolt center.
- C. Ground clearance of rear axle shaft center.
- D. Ground clearance of leaf spring front hanger pin bolt center.

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

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

2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .

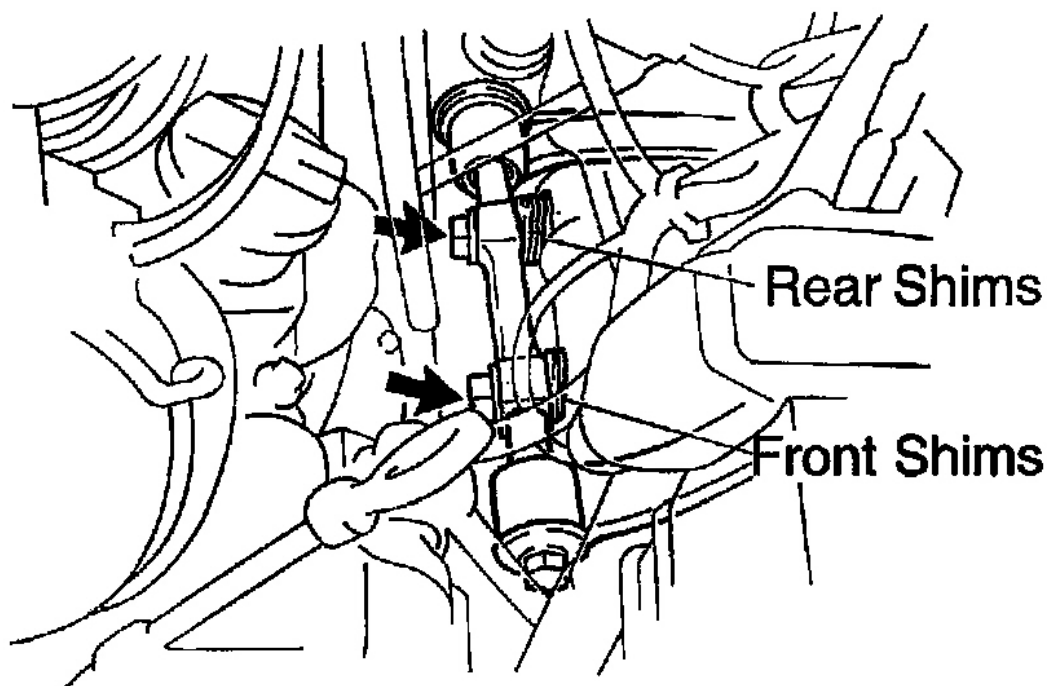
Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination (see Fig. 283 .

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.

4. Adjust camber and caster .

- a. Loosen the upper suspension arm set bolts.
- b. Adjust the camber and caster by adding or removing shims. See Fig. 266 .



G01075198

Fig. 264: Locating Camber & Caster Adjusting Shims
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4.0 mm (0.157 in.)	1.6 mm (0.063 in.)	1.2 mm (0.047 in.)
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G01075197

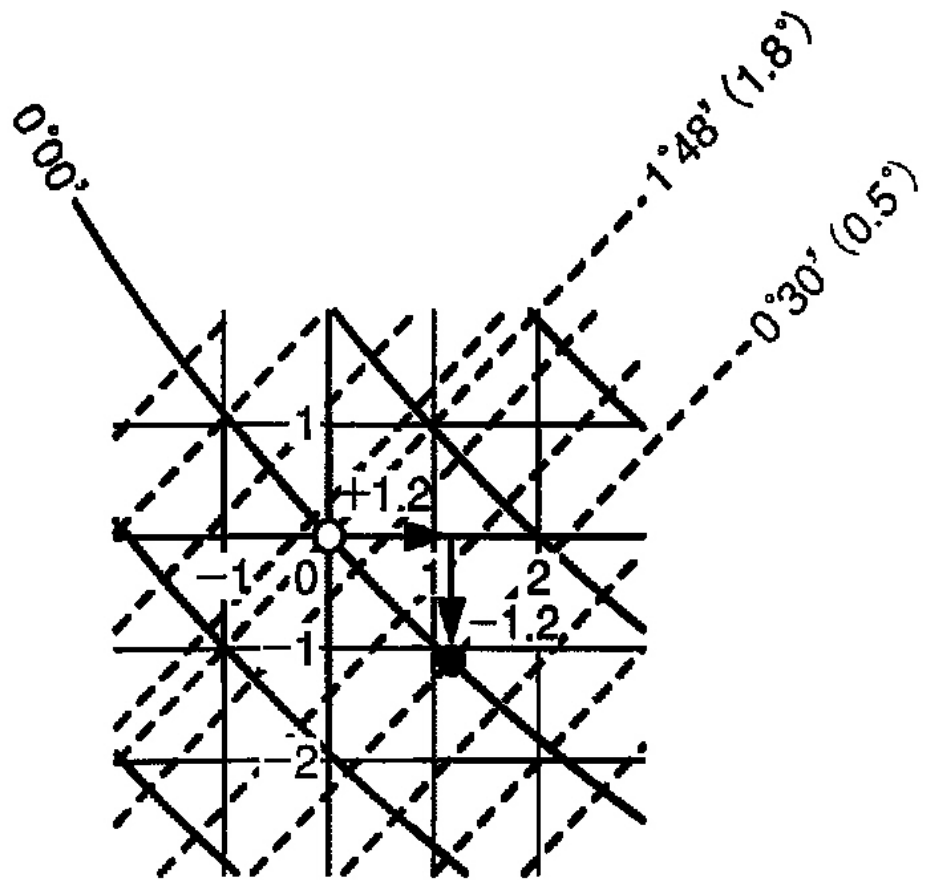
Fig. 265: Identifying Shim Thickness Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Try to adjust the camber and caster to the center of the specified values.

c. How to read adjustment chart.

Example

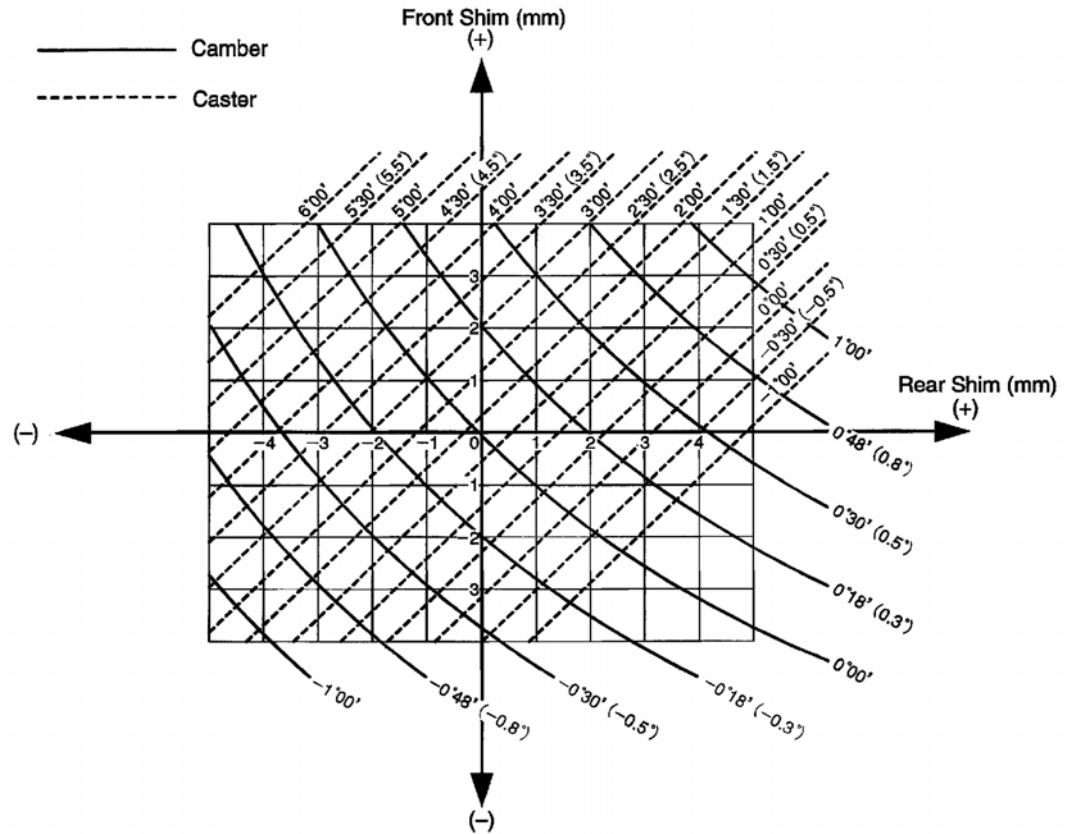
- Standard value point
- Measurement point
- Camber
- - - - - Caster



P

G01075199

Fig. 266: Example Of Camber & Caster Adjustment Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



P
 G01075200

Fig. 267: Camber & Caster Adjustment Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Find the wheel alignment standard value applicable for the particular model. See **Fig. 283** and **Fig. 284**.
2. Mark the selected standard value on the adjustment chart.

Example :

Camber: 0°00

Caster: 0°30'(0.5°)

3. Mark the alignment value measured when the vehicle was non-loaded on the adjustment chart.

Example :

Camber: 0°00

Caster: 1°48'(1.8°)

4. Read the distance from the measured value to the standard value, and adjust the front and/or rear shim thickness accordingly.

Example :

Front shim thickness: -1.2 mm (-0.047 in.)

Rear shim thickness: +1.2 mm (0.047 in.)

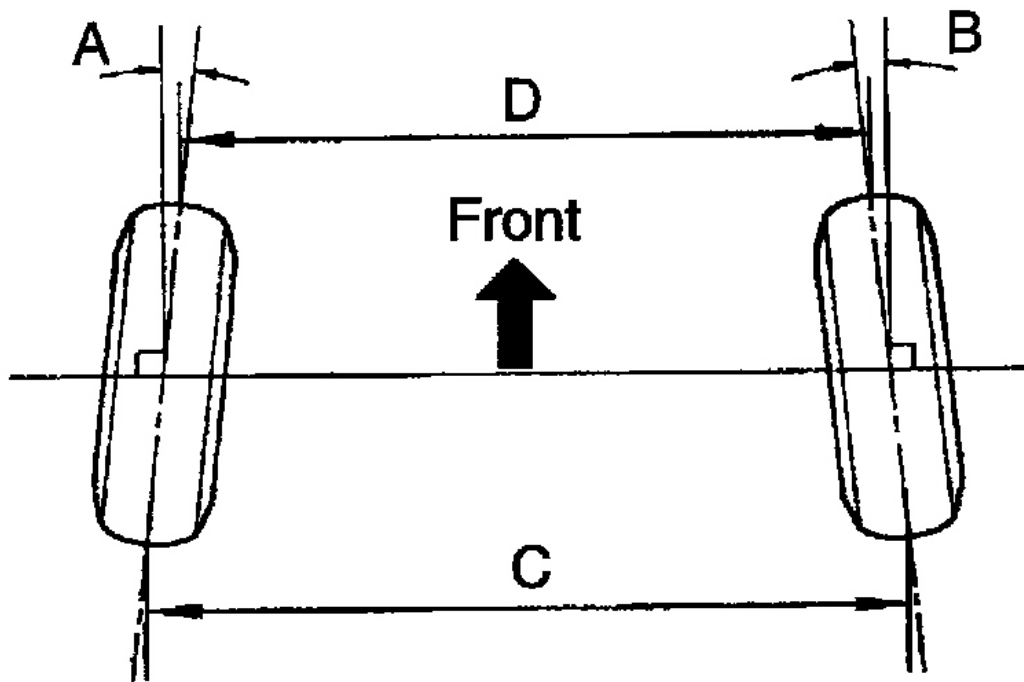
- d. Torque the upper suspension arm set bolts.

Torque: 130 N.m (1,300 kgf.cm. 94 ft.lbf)

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

NOTE: Adjust the shim thickness to 7 mm (4-11 mm), and adjust the difference between the front and rear of the upper suspension arm shaft to within 4 mm.

5. Inspect toe-in (see Fig. 284) .



G01075201

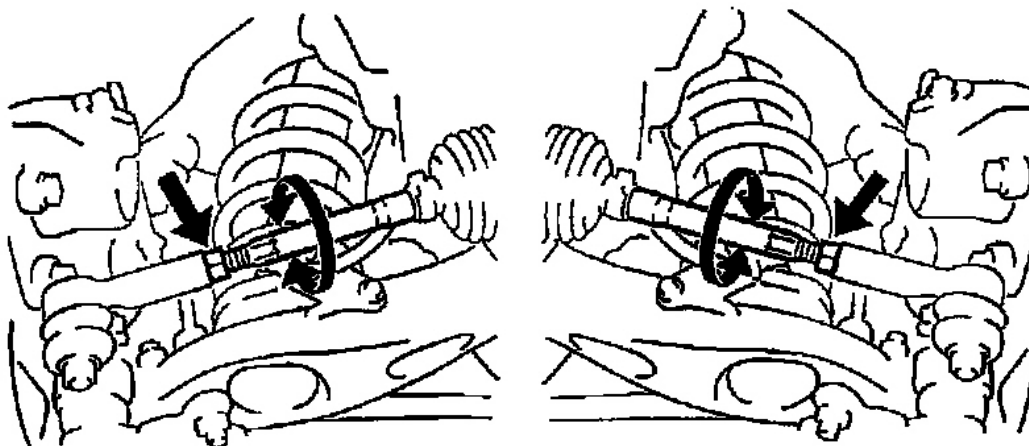
Fig. 268: Identifying Toe-in Measurements
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

6. Adjust toe-in .

- a. Remove the 2 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.

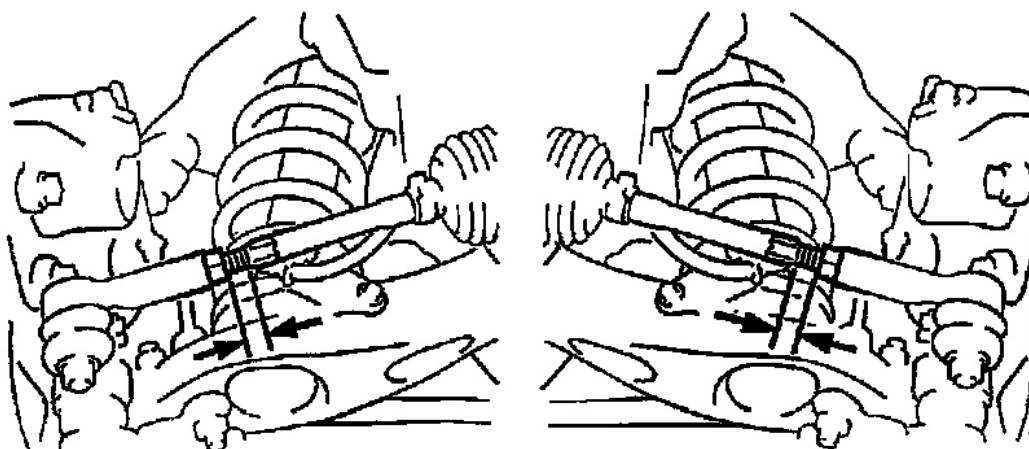
NOTE: Try to adjust the toe-in to the center of the specified value.



G01075202

Fig. 269: Using Rack Ends To Adjust Toe Setting
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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



G01075203

Fig. 270: Measuring Rack End Lengths
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference: 1.5 mm (0.059 in.) or less

- e. Tighten the tie rod end lock nuts.

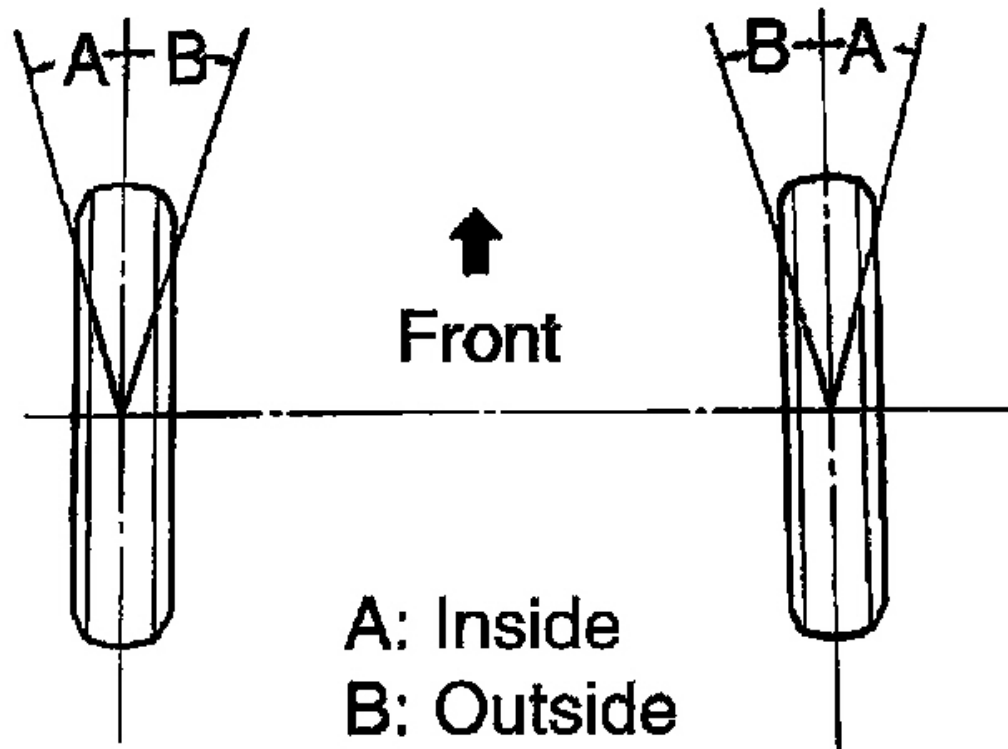
Torque: 54 N.m (550 kgf.cm, 40 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .

Turn the steering wheel fully and measure the turning angle.



G01075205

Fig. 271: Identifying Wheel Turning Angles
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

Item	Inside wheel	Outside wheel: Reference
Max.	36° (33° – 36°)	31° (28° – 31°)

G01075204

Fig. 272: Identifying Maximum Wheel Turning Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: If the rack ends lengths are not equal, the wheel turning angle cannot be adjusted properly.

Reinspect the toe-in after adjusting the rack ends lengths.

Front Wheel Alignment (4WD & Pre Runner)

NOTE: Pre runner is the model described below.

RZN191L-TRPDKAB
RZN196L-CRPDKAB
RZN196L-PRPDKAB
VZN195L-CRPDKAB
VZN195L-PRPDKAB

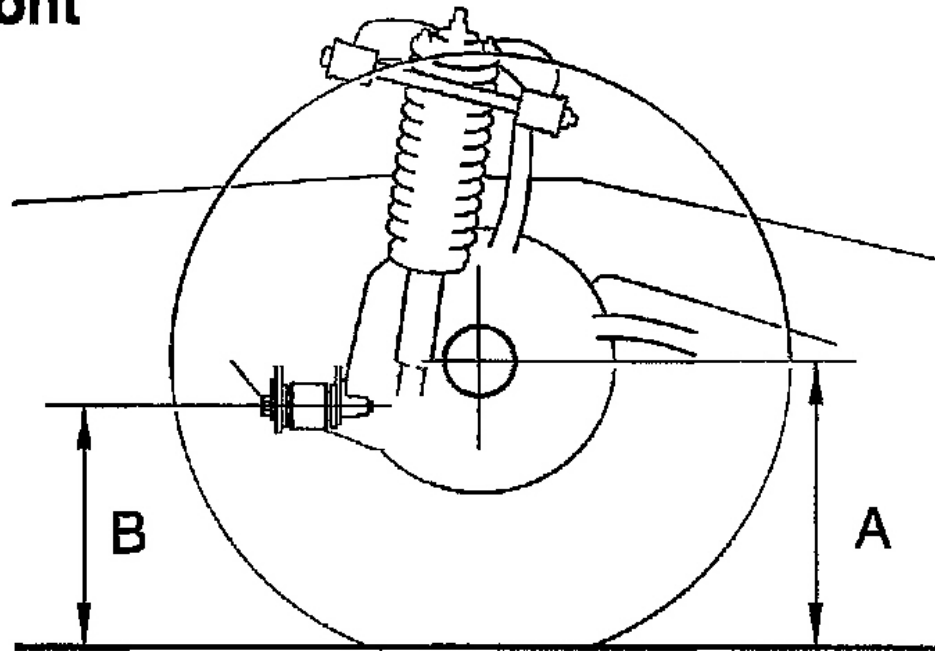
Model identifiers are called out in Fig. 284 through Fig. 290 .

- 1. Measure vehicle height** (See Fig. 284).

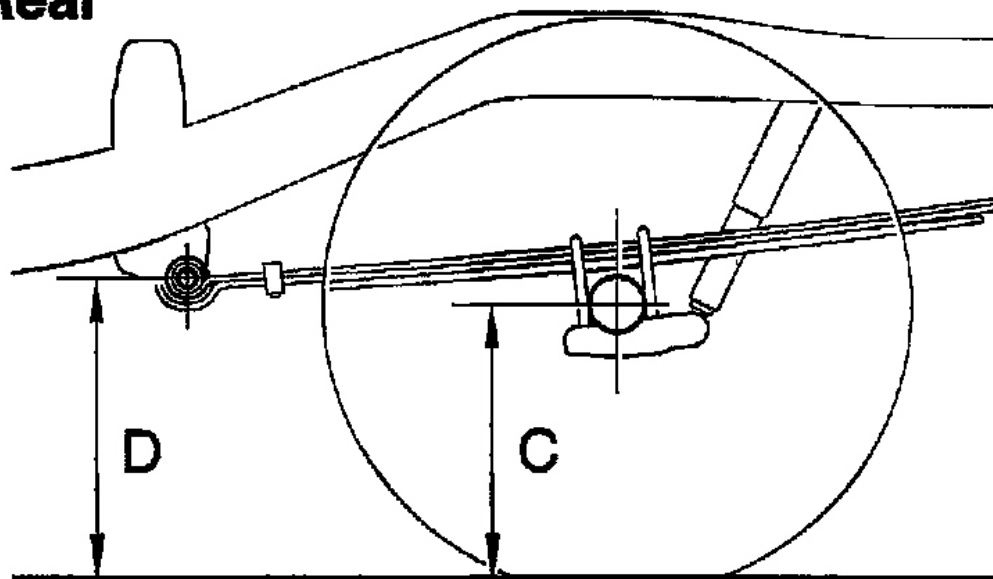
Measuring points

- A. Ground clearance of spindle center. See Fig. 273 .

Front



Rear



G01075206

Fig. 273: Identifying Measuring Points A-D

- B. Ground clearance of front adjusting cam bolt center.
- C. Ground clearance of rear axle shaft center.
- D. Ground clearance of leaf spring front hanger pin bolt center.

NOTE: Before inspecting the wheel alignment, adjust the vehicle height to the specified value.
If the vehicle height is not the specified value, try to adjust it by pushing down on or lifting the body.

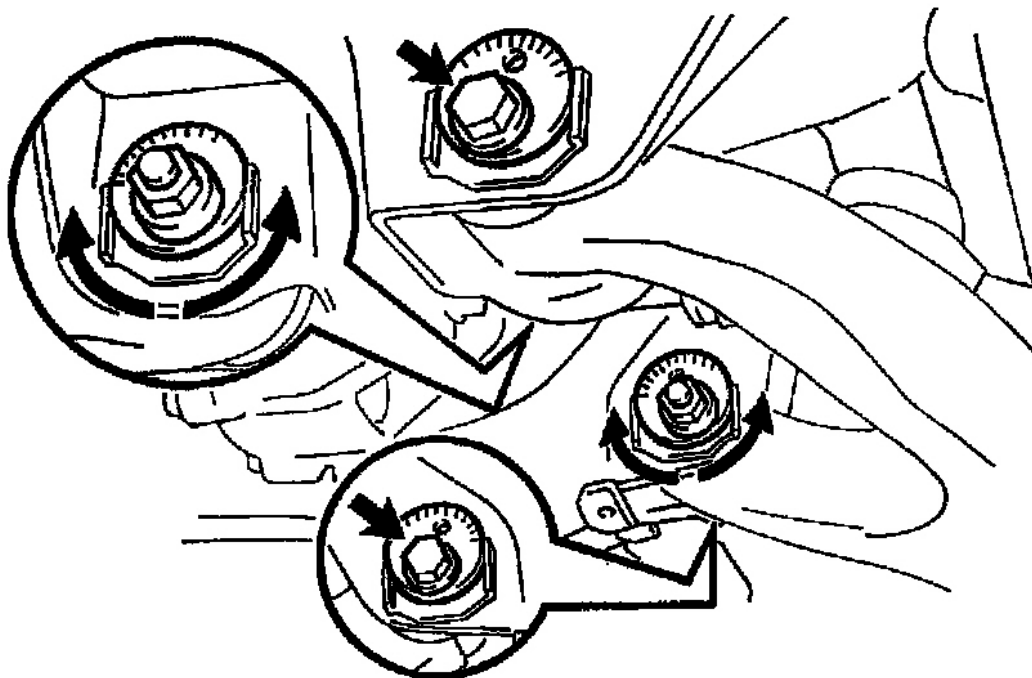
2. Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster & steering axis inclination (See Fig. 284 through Fig. 289).

4. Adjust camber and caster .

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



G01075208

Fig. 274: Locating Camber & Caster Adjusting Cams
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Adjust the camber and caster by front and/or rear adjusting cams (See **Fig. 276** and **Fig. 277**).

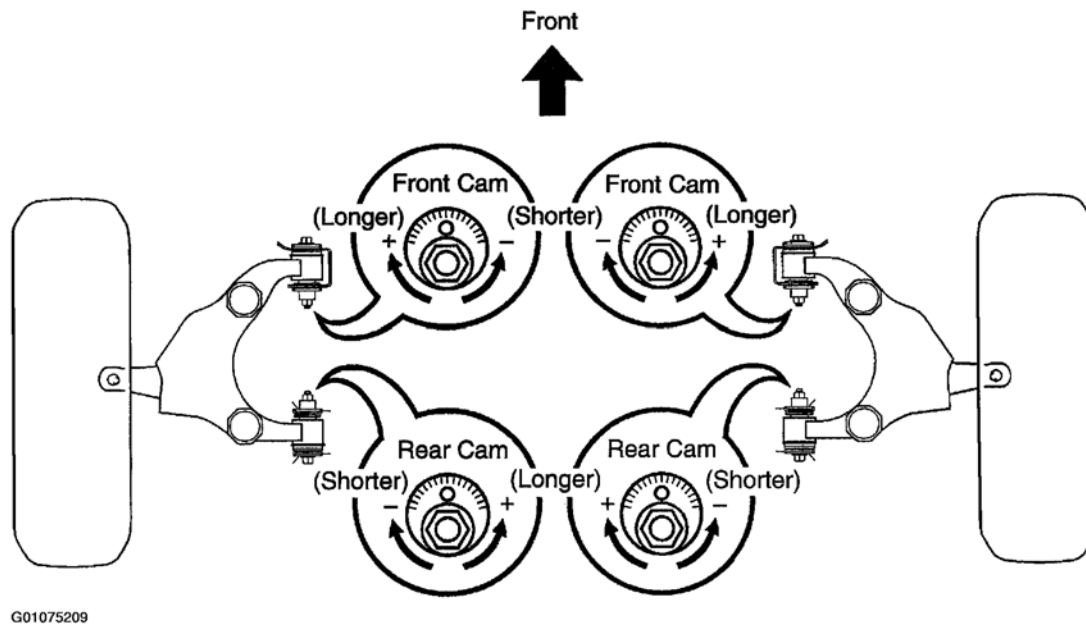


Fig. 275: Adjusting Camber & Caster
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Try to adjust the camber and caster to the center of the specified values.

- c. How to read adjustment chart.

1. Find the wheel alignment standard value applicable for the particular model.
2. Mark the selected standard value on the adjustment chart. See **Fig. 277** .

Example :

Camber $0^{\circ}10'$ (0.17°)

Caster $1^{\circ}40'$ (1.67°)

3. Mark the alignment value measured when the vehicle was non-loaded on the adjustment chart. See **Fig. 277** .

Example :

Camber - $0^{\circ}10'$ ($- 0.17^{\circ}$)

Caster $1^{\circ}40'$ (1.67°)

4. As shown in the chart, read the distance from the measured value to the standard value, and adjust the front and/or rear adjusting cams accordingly. See **Fig. 276** and **Fig. 277** .

Example :

Front cam: -(Shorter) 2.9

Rear cam: -(Shorter) 2.7

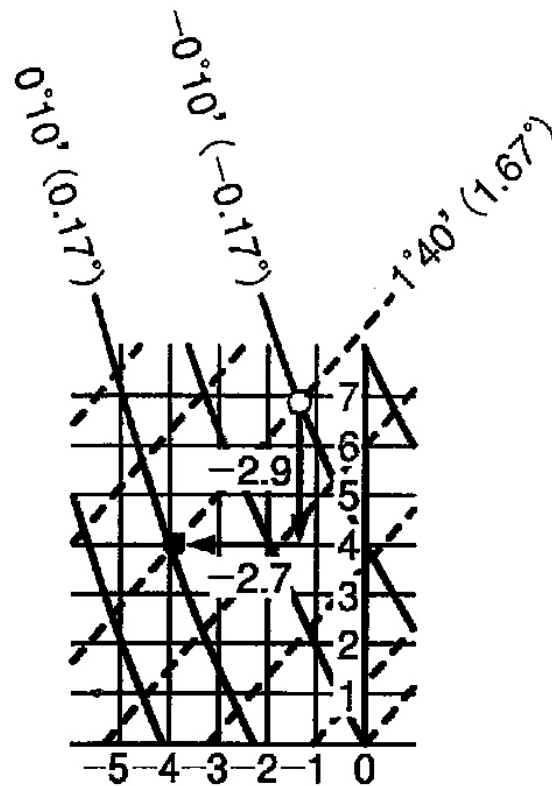
Example

● Standard value point

○ Measurement point

—— Camber

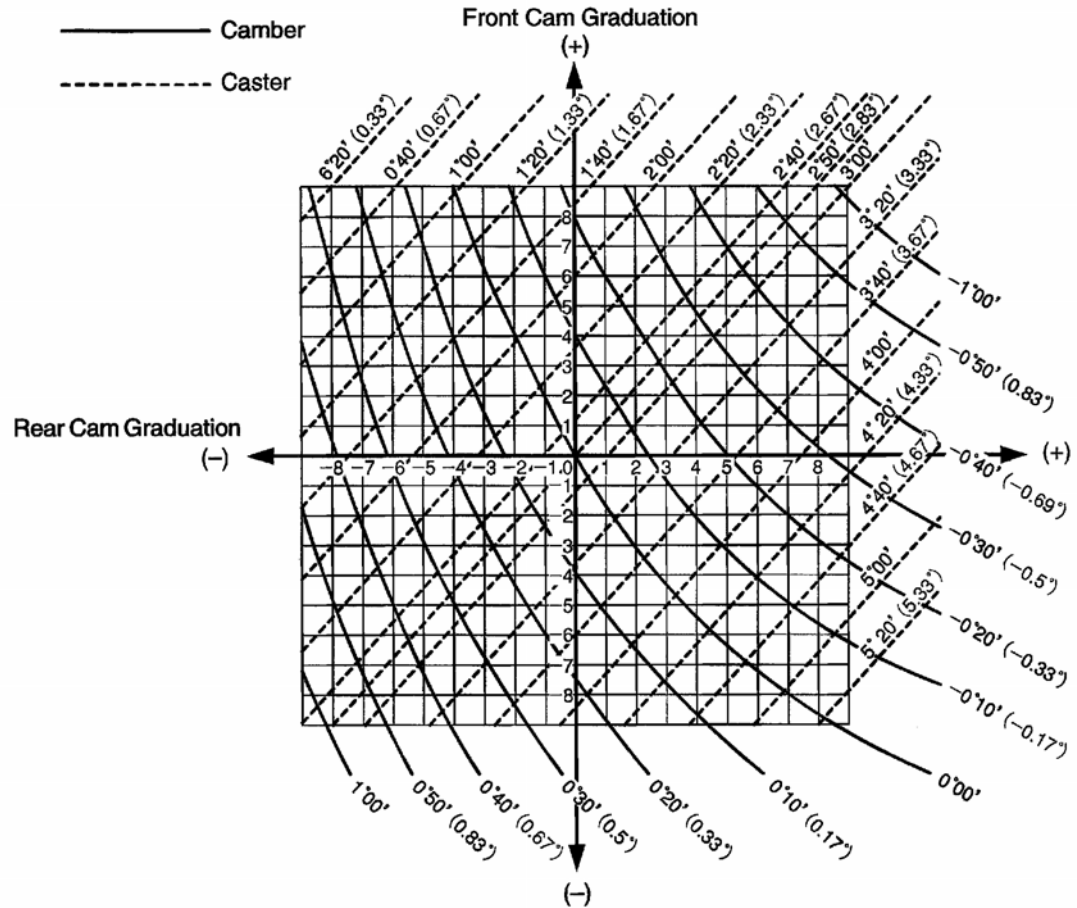
----- Caster



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G01075210

Fig. 276: Example Of Camber & Caster Adjustment Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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 G01075211

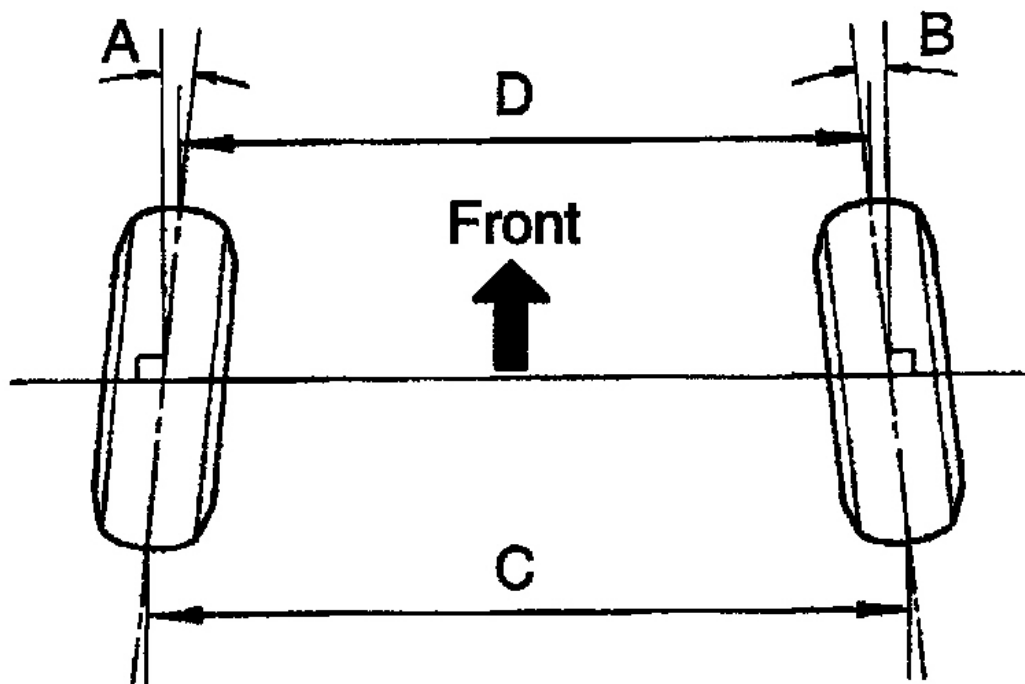
Fig. 277: Camber & Caster Adjustment Chart
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Torque the front and/or rear adjusting cam nuts.

Torque: 130 N.m (1,325 kgf.cm, 96 ft.lbf)

5. **Inspect toe-in** (See **Fig. 290**).

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



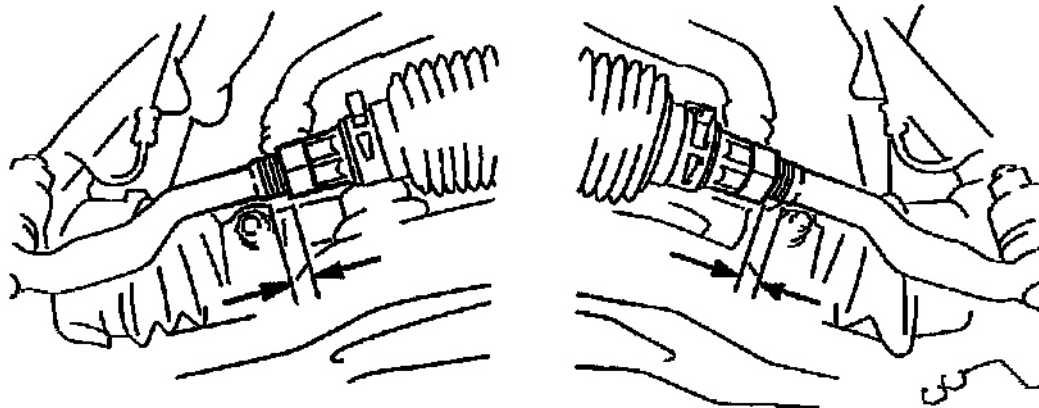
G01075212

Fig. 278: Identifying Toe-in Measurements
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. Adjust toe-in and wheel angle .

NOTE: First, check or adjust the lengths of the rack ends, then adjust the toe-in.

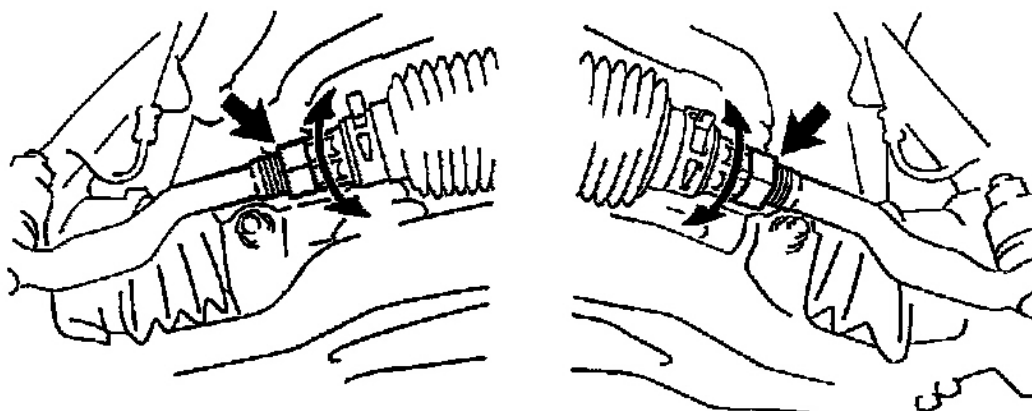
Rack end length difference: 1.5 mm (0.059 in.) or less



G01075213

Fig. 279: Measuring Lengths Of Rack Ends
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 2 clips.
- b. Loosen the tie rod end lock nuts.



G01075214

Fig. 280: Locating Tie Rod End Lock Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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: 1.5 mm (0.059 in.) or less

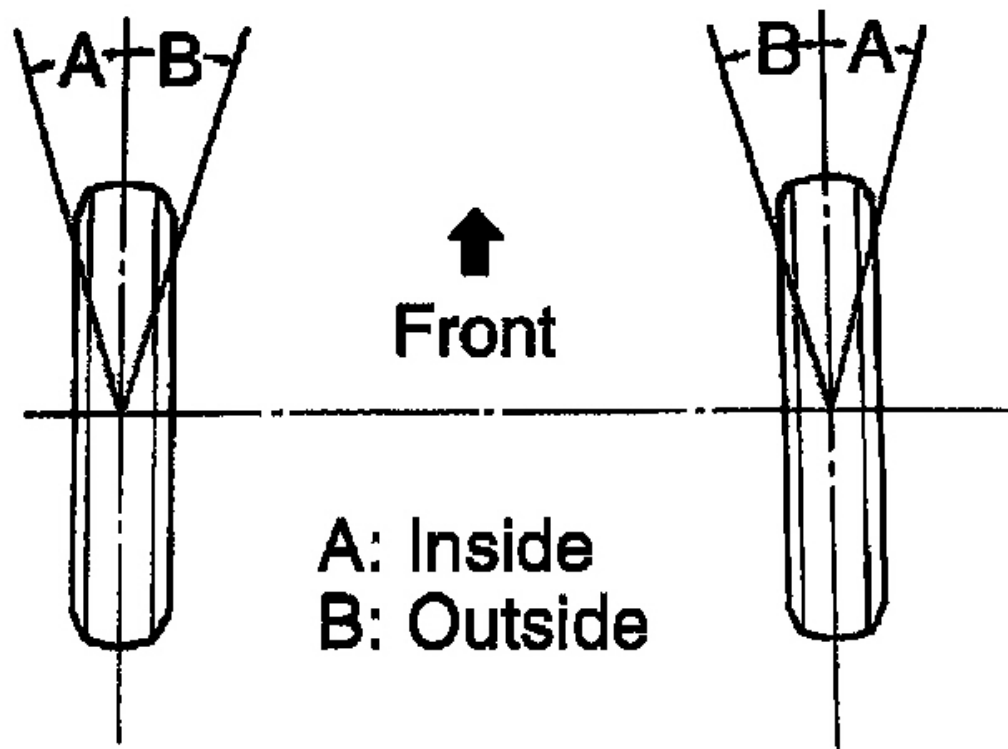
- e. Tighten the tie rod end lock nuts.

Torque: 55 N.m (560 kgf.cm, 41 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

- g. Inspect the wheel angle.



G01075216

Turn the steering wheel fully and measure the turning angle.

Item	Insidewheel	Outsidewheel: Reference
Max.	37° 05' (35° 05' – 38° 05') (37.08° (35.08° – 38.08°))	32° 20' (32.33°)

G01075215

Fig. 282: Identifying Maximum Wheel Turning Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the right and left wheel turning angles differ from the specified value, readjust the toe-in and wheel angle within the specified value. At this time, the right and left error lengths of the rack end may be less than 1.5 mm (0.059 in.).

SPECIFICATIONS

Cold tire inflation pressure	P205/75R15 97S	Front	200 kPa (2.0 kgf/cm ² , 29 psi)
		Rear	200 kPa (2.0 kgf/cm ² , 29 psi)
	P235/55R16 96T	Front	200 kPa (2.0 kgf/cm ² , 29 psi)
		Rear	220 kPa (2.2 kgf/cm ² , 32 psi)
	P225/75R15 102S	Front	180 kPa (1.8 kgf/cm ² , 26 psi)
		Rear	200 kPa (2.0 kgf/cm ² , 29 psi)
	P265/70R16 111S	Front	180 kPa (1.8 kgf/cm ² , 26 psi)
		Rear	180 kPa (1.8 kgf/cm ² , 26 psi)
	P265/70R16 111T		
	Except double cab models	Front	180 kPa (1.8 kgf/cm ² , 26psi)
		Rear	200 kPa (2.0 kgf/cm ² , 29psi)
	Double cab models	Front	180 kPa (1.8 kgf/cm ² , 26psi)
Front wheel Alignment (2WD except pre runner)	● Vehicle height		
	RZN140L-TRMDKAB	Front: A* ¹ - B* ² Rear: C* ³ - D* ⁴	26 mm (1.02 in.) 37 mm (1.46 in.)
	RZN140L-TRPDKAB	Front: A* ¹ - B* ² Rear: C* ³ - D* ⁴	28 mm (1.10 in.) 38 mm (1.50 in.)
	RZN150L-CRMDKAB	Front: A* ¹ - B* ² Rear: C* ³ - D* ⁴	25 mm (0.98 in.) 46 mm (1.18 in.)
	RZN150L-CRPDKAB	Front: A* ¹ - B* ² Rear: C* ³ - D* ⁴	27 mm (1.06 in.) 46 mm (1.18 in.)
	VZN150L-CRMDKAB	Front: A* ¹ - B* ² Rear: C* ³ - D* ⁴	35 mm (1.38 in.) 57 mm (2.24 in.)
	● Camber		0° 00' ± 45' (0.00° ± 0.75°)
		Right-left error	30' (0.5°) or less
	● Caster		Right - left error: 30' (0.5°) or less
	RZN140L-TRMDKAB		
	Tire size: P205/75R15 97S		0° 13' ± 45' (0.22° ± 0.75°)
	Tire size: P235/55R16 96T		0° 12' ± 45' (0.20° ± 0.75°)
	RZN140L-TRPDKAB		
	Tire size: P205/75R15 97S		0° 13' ± 45' (0.21° ± 0.75°)
	Tire size: P235/55R16 96T		0° 12' ± 45' (0.20° ± 0.75°)
	RZN150L-CRMDKAB		
	Tire size: P205/75R15 97S		0° 40' ± 45' (0.67° ± 0.75°)
	Tire size: P235/55R16 96T		0° 40' ± 45' (0.66° ± 0.75°)
	RZN150L-CRPDKAB		
	Tire size: P205/75R15 97S		0° 41' ± 45' (0.68° ± 0.75°)
	Tire size: P235/55R16 96T		0° 40' ± 45' (0.67° ± 0.75°)
	VZN150L-CRMDKAB		0° 55' ± 45' (0.92° ± 0.75°)
	● Steering axis inclination		10° 00' ± 45' (10.00° ± 0.75°)
		Right-left error	30' (0.5°) or less

Measuring point

A*¹: Ground clearance of spindle center

B*²: Ground clearance of lower suspension arm bolt center

C*³: Ground clearance of rear axle shaft center

D*⁴: Ground clearance of leaf spring front hanger pin bolt center

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Fig. 283: Wheel Alignment Specifications (Tacoma 1 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (2WD except pre runner, cont'd)	● Toe-in (Total) Rack end length difference: 1.5 mm (0.059 in.) or less		
	RZN140L-TRMDKAB		0°09' ± 12' (0.15° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.)
	RZN140L-TRPDKAB		0°08' ± 12' (0.13° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.)
	RZN150L-CRMDKAB		0°09' ± 12' (0.15° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.)
	RZN150L-CRPDKAB		0°08' ± 12' (0.14° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	Tire size: P205/75R15 97S		0°09' ± 12' (0.14° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	Tire size: P235/55R16 96T		0°09' ± 12' (0.14° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	VZN150L-CRMDKAB		0°09' ± 12' (0.16° ± 0.2°, 1.7 ± 2 mm, 0.07 ± 0.08 in.)
	● Wheel angle (Max.)	Inside wheel Outside wheel: Reference	36° (33° - 36°) 31° (28° - 31°)
Front wheel Alignment (4WD and pre runner)	● Vehicle height		
	RZN161L-TRMDKAB		
	Normal	Front: A*1 - B*2 Rear: C*3 - D*4	42 mm (1.65 in.) -43 mm (-1.69 in.)
	Heavy duty leaf spring		
	Tire size: P225/75R15 102S	Front: A*1 - B*2 Rear: C*3 - D*4	42 mm (1.65 in.) -40 mm (-1.57 in.)
	Tire size: P265/70R16 111S, P265/70R16 111T	Front: A*1 - B*2 Rear: C*3 - D*4	42 mm (1.65 in.) -41 mm (-1.61 in.)
	RZN161L-TRPDKAB		
	Normal	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -43 mm (-1.69 in.)
	Heavy-duty leaf spring		
	Tire size: P255/75R15 102S	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -40 mm (-1.57 in.)
	Tire size: P265/70R16 111S, P265/70R16 111T	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -41 mm (-1.61 in.)
	VZN170L-CRMDKAB		
	Normal		
	Tire size: P225/75R15 102S, P265/75R15 111T	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -44 mm (-1.73 in.)
	Tire size: P265/75R15 111S	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -45 mm (-1.77 in.)
	Off-road package	Front: A*1 - B*2 Rear: C*3 - D*4	53 mm (2.10 in.) -39 mm (-1.54 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S, P265/70R16 111S	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -39 mm (-1.54 in.)
	Tire size: P265/70R16 111T	Front: A*1 - B*2 Rear: C*3 - D*4	40 mm (1.57 in.) -38 mm (-1.50 in.)

Measuring point

A*1: Ground clearance of spindle center

B*2: Ground clearance of front adjusting cam bolt center

C*3: Ground clearance of rear axle shaft center

D*4: Ground clearance of leaf spring front hanger pin bolt center

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Fig. 284: Wheel Alignment Specifications (Tacoma 2 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (4WD and pre runner, cont'd)	VZN170L-CRPDKAB		
	Normal		
	Tire size: P225/75R15 102S,	Front: A*1 – B*2	41 mm (1.61 in.)
	P265/70R16 111T	Rear: C*3 – D*4	–44 mm (–1.73 in.)
	Tire size: P265/70R16 111S	Front: A*1 – B*2	41 mm (1.61 in.)
		Rear: C*3 – D*4	–45 mm (–1.77 in.)
	Off-road package	Front: A*1 – B*2	49 mm (1.93 in.)
		Rear: C*3 – D*4	–39 mm (–1.54 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S,	Front: A*1 – B*2	41 mm (1.61 in.)
	P265/70R16 111T	Rear: C*3 – D*4	–38 mm (–1.50 in.)
	Tire size: P265/70R16 111S	Front: A*1 – B*2	41 mm (1.61 in.)
		Rear: C*3 – D*4	–39 mm (–1.54 in.)
	VZN170L-PRPDKAB		
	Normal	Front: A*1 – B*2	68 mm (2.68 in.)
		Rear: C*3 – D*4	–20 mm (–0.79 in.)
	Off-road package	Front: A*1 – B*2	69 mm (2.72 in.)
		Rear: C*3 – D*4	–17 mm (–0.67 in.)
	RZN171L-CRMDKAB		
	Normal		
	Tire size: P225/75R15 102S,	Front: A*1 – B*2	39 mm (1.54 in.)
	P265/70R16 111S	Rear: C*3 – D*4	–44 mm (–1.73 in.)
	Tire size: P265/70R16 111T	Front: A*1 – B*2	39 mm (1.54 in.)
		Rear: C*3 – D*4	–43 mm (–1.69 in.)
	Off-road package	Front: A*1 – B*2	52 mm (2.05 in.)
		Rear: C*3 – D*4	–38 mm (–1.50 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S,	Front: A*1 – B*2	39 mm (1.54 in.)
	P265/70R16 111T	Rear: C*3 – D*4	–38 mm (–1.50 in.)
	Tire size: P265/70R16 111S	Front: A*1 – B*2	39 mm (1.54 in.)
		Rear: C*3 – D*4	–39 mm (–1.54 in.)
	RZN171L-CRPDKAB		
	Normal		
	Tire size: P225/75R15 102S,	Front: A*1 – B*2	40 mm (1.57 in.)
	P265/70R16 111T	Rear: C*3 – D*4	–43 mm (–1.69 in.)
	Tire size: P265/70R16 111S	Front: A*1 – B*2	40 mm (1.57 in.)
		Rear: C*3 – D*4	–44 mm (–1.73 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S,	Front: A*1 – B*2	40 mm (1.57 in.)
	P265/70R16 111T	Rear: C*3 – D*4	–38 mm (–1.50 in.)
	Tire size: P265/70R16 111S	Front: A*1 – B*2	40 mm (1.57 in.)
		Rear: C*3 – D*4	–39 mm (–1.54 in.)

Measuring point

A*1: Ground clearance of spindle center

B*2: Ground clearance of front adjusting cam bolt center

C*3: Ground clearance of rear axle shaft center

D*4: Ground clearance of leaf spring front hanger pin bolt center

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Fig. 285: Wheel Alignment Specifications (Tacoma 3 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (4WD and pre runner, cont'd)	RZN191L-TRPDKAB		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	39 mm (1.54 in.) –46 mm (–1.18 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S	Front: A*1 – B*2 Rear: C*3 – D*4	39 mm (1.54 in.) –42 mm (–1.65 in.)
	Tire size: P265/70R16 111S, P265/70R16 111T	Front: A*1 – B*2 Rear: C*3 – D*4	39 mm (1.54 in.) –43 mm (–1.69 in.)
	VZN195L-CRPDKAB		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	42 mm (1.65 in.) –46 mm (–1.81 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	47 mm (1.85 in.) –41 mm (–1.61 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S	Front: A*1 – B*2 Rear: C*3 – D*4	42 mm (1.65 in.) –40 mm (–1.57 in.)
	Tire size: P265/70R16 111S, P265/70R16 111T	Front: A*1 – B*2 Rear: C*3 – D*4	42 mm (1.65 in.) –39 mm (–1.54 in.)
	VZN195L-PRPDKAB		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	67 mm (2.64 in.) –23 mm (–0.91 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	68 mm (2.68 in.) –20 mm (–0.79 in.)
	RZN196L-CRPDKAB		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	39 mm (1.54 in.) –46 mm (–1.81 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	48 mm (1.89 in.) –41 mm (–1.61 in.)
	Heavy-duty leaf spring		
	Tire size: P225/75R15 102S, P265/70R16 111S	Front: A*1 – B*2 Rear: C*3 – D*4	39 mm (1.54 in.) –40 mm (–1.57 in.)
	Tire size: P265/70R16 111T	Front: A*1 – B*2 Rear: C*3 – D*4	39 mm (1.54 in.) –39 mm (–1.54 in.)
	RZN196L-PRPDKAB		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	66 mm (2.60 in.) –23 mm (–0.91 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	77 mm (3.03 in.) –19 mm (–0.75 in.)

Measuring point

A*1: Ground clearance of spindle center

B*2: Ground clearance of front adjusting cam bolt center

C*3: Ground clearance of rear axle shaft center

D*4: Ground clearance of leaf spring front hanger pin bolt center

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Fig. 286: Wheel Alignment Specifications (Tacoma 4 Of 8)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (4WD and pre runner, cont'd)	● Camber	Right – left error: 30' (0.5°) or less
	RZN161L.models	0°18' ± 45' (0.3° ± 0.75°)
	VZN170L.models	
	Except double cab models	
	Normal	0°18' ± 45' (0.3° ± 0.75°)
	Off-road package	0°06' ± 45' (0.1° ± 0.75°)
	Double cab models	
	Normal	-0°12' ± 45' (-0.2° ± 0.75°)
	Off-road package	-0°18' ± 45' (-0.3° ± 0.75°)
	RZN171L.models	
	Normal	0°18' ± 45' (0.3° ± 0.75°)
	Off-road package	0°06' ± 45' (0.1° ± 0.75°)
	RZN191L.models	0°18' ± 45' (0.3° ± 0.75°)
	VZN195L.models	
	Except double cab models	0°12' ± 45' (0.2° ± 0.75°)
	Double cab models	
	Normal	-0°12' ± 45' (-0.2° ± 0.75°)
	Off-road package	-0°18' ± 45' (-0.3° ± 0.75°)
	VZN196L.models	
	Except double cab models	
	Normal	0°18' ± 45' (0.3° ± 0.75°)
	Off-road package	0°12' ± 45' (0.2° ± 0.75°)
	Double cab models	
	Normal	-0°12' ± 45' (-0.2° ± 0.75°)
	Off-road package	-0°30' ± 45' (-0.5° ± 0.75°)
	● Caster	Right-left error: 30' (0.5°) or less
	RZN161L-TRMDKAB	
	Normal	
	Tire size: P225/75R15 102S	1°37' ± 45' (1.62° ± 0.75°)
	Tire size: P265/70R16 111S	1°38' ± 45' (1.63° ± 0.75°)
	Tire size: P265/70R16 111T	1°37' ± 45' (1.61° ± 0.75°)
	Heavy-duty leaf spring	
	Tire size: P225/75R15 102S	1°41' ± 45' (1.69° ± 0.75°)
	Tire size: P265/70R16 111S	1°43' ± 45' (1.71° ± 0.75°)
	Tire size: P265/70R16 111T	1°41' ± 45' (1.68° ± 0.75°)
	RZN161L-TRPDKAB	
	Normal	
	Tire size: P225/75R15 102S	1°37' ± 45' (1.62° ± 0.75°)
	Tire size: P265/70R16 111S	1°38' ± 45' (1.64° ± 0.75°)
	Tire size: P265/70R16 111T	1°37' ± 45' (1.61° ± 0.75°)
	Heavy-duty leaf spring	
	Tire size: P225/75R15 102S	1°42' ± 45' (1.70° ± 0.75°)
	Tire size: P265/70R16 111S	1°43' ± 45' (1.71° ± 0.75°)
	Tire size: P265/70R16 111T	1°41' ± 45' (1.69° ± 0.75°)
	VZN170L-CRMDKAB	
	Normal	
	Tire size: P225/75R15 102S	1°42' ± 45' (1.70° ± 0.75°)
	Tire size: P265/70R16 111S	1°43' ± 45' (1.72° ± 0.75°)
	Tire size: P265/70R16 111T	1°41' ± 45' (1.69° ± 0.75°)
	Off-road package	2°02' ± 45' (2.03° ± 0.75°)
	Heavy-duty leaf spring	
	Tire size: P225/75R15 102S	1°50' ± 45' (1.83° ± 0.75°)
	Tire size: P265/70R16 111S	1°51' ± 45' (1.85° ± 0.75°)
	Tire size: P265/70R16 111T	1°49' ± 45' (1.82° ± 0.75°)

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Fig. 287: Wheel Alignment Specifications (Tacoma 5 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (4WD and pre runner, cont'd)	VZN170L—CRPDKAB Normal Tire size: P225/75R15 102S, P265/70R16 111T Tire size: P265/70R16 111S Off-road package Heavy-duty leaf spring Tire size: P225/75R15 102S, P265/70R16 111T Tire size: P265/70R16 111S	
	VZN170L—PRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Off-road package	
	VZN171L—CRMDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Off-road package Heavy-duty leaf spring Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T	
	RZN171L—CRPDKAB Normal Tire size: P225/75R15 102S, P265/70R16 111T Tire size: P265/70R16 111S Heavy-duty leaf spring Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T	
	RZN191L—TRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Heavy-duty leaf spring Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T	
	VZN195L—CRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Off-road package Heavy-duty leaf spring Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T	

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Fig. 288: Wheel Alignment Specifications (Tacoma 6 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (4WD and pre runner, cont'd)	VZN195L-PRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Off-road package	2°31' ± 45' (2.53° ± 0.75°) 2°35' ± 45' (2.59° ± 0.75°) 2°33' ± 45' (2.56° ± 0.75°) 2°39' ± 45' (2.66° ± 0.75°)
	RZN196L-CRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Off-road package Heavy-duty leaf spring Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T	1°43' ± 45' (1.72° ± 0.75°) 1°44' ± 45' (1.73° ± 0.75°) 1°43' ± 45' (1.71° ± 0.75°) 1°56' ± 45' (1.94° ± 0.75°) 1°52' ± 45' (1.86° ± 0.75°) 1°52' ± 45' (1.87° ± 0.75°) 1°51' ± 45' (1.85° ± 0.75°)
	RZN196L-PRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S Tire size: P265/70R16 111T Off-road package	2°34' ± 45' (2.58° ± 0.75°) 2°35' ± 45' (2.59° ± 0.75°) 2°33' ± 45' (2.56° ± 0.75°) 2°45' ± 45' (2.75° ± 0.75°)
	● Steering axis inclination Right – left error: 30' (0.5°) or less	
	RZN161L models	10°30' ± 45' (10.5° ± 0.75°)
	VZN170L-CRMDKAB Except off-road package Off-road package	10°30' ± 45' (10.5° ± 0.75°) 10°42' ± 45' (10.7° ± 0.75°)
	VZN170L-CRPDKAB Except off-road package Off-road package	10°30' ± 45' (10.5° ± 0.75°) 10°36' ± 45' (10.6° ± 0.75°)
	VZN170L-PRPDKAB	11°00' ± 45' (11.0° ± 0.75°)
	RZN171L-CRMDKAB Except off-road package Off-road package	10°24' ± 45' (10.4° ± 0.75°) 10°49' ± 45' (10.7° ± 0.75°)
	RZN171L-CRPDKAB	10°30' ± 45' (10.5° ± 0.75°)
	RZN191L-TRPDKAB	10°24' ± 45' (10.4° ± 0.75°)
	VZN195L-CRPDKAB Except off-road package Off-road package	10°30' ± 45' (10.5° ± 0.75°) 10°36' ± 45' (10.6° ± 0.75°)
	VZN195L-PRPDKAB	11°00' ± 45' (11.0° ± 0.75°)
	VZN196L-CRPDKAB Except off-road package Off-road package	10°24' ± 45' (10.4° ± 0.75°) 10°36' ± 45' (10.6° ± 0.75°)
	VZN196L-PRPDKAB Normal Off-road package	10°54' ± 45' (10.9° ± 0.75°) 11°12' ± 45' (11.2° ± 0.75°)

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Fig. 289: Wheel Alignment Specifications (Tacoma 7 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment (4WD and pre runner, cont'd)	● Toe – in (Total) Rack end length difference : 1.5 mm (0.059 in.) or less	
	RZN161L–TRMDKAB Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T	0°07' ± 12' (0.12° ± 0.2°, 1.3 ± 2 mm, 0.05 ± 0.08 in.) 0°07' ± 12' (0.11° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.)
	RZN161L–TRPDKAB Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T	0°07' ± 12' (0.12° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.) 0°07' ± 12' (0.12° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	VZN170L–CRMDKAB Except off-road package Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°07' ± 12' (0.12° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.) 0°07' ± 12' (0.12° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.) 0°02' ± 12' (0.03° ± 0.2°, 0.4 ± 2 mm, 0.02 ± 0.08 in.)
	VZN170L–CRPDKAB Except off-road package Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°07' ± 12' (0.12° ± 0.2°, 1.3 ± 2 mm, 0.05 ± 0.08 in.) 0°07' ± 12' (0.11° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.) 0°03' ± 12' (0.06° ± 0.2°, 0.7 ± 2 mm, 0.03 ± 0.08 in.)
	VZN170L–PRPDKAB Except off-road package Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°04' ± 12' (0.07° ± 0.2°, 0.8 ± 2 mm, 0.03 ± 0.08 in.) 0°04' ± 12' (0.07° ± 0.2°, 0.9 ± 2 mm, 0.04 ± 0.08 in.) 0°03' ± 12' (0.06° ± 0.2°, 0.8 ± 2 mm, 0.03 ± 0.08 in.)
	RZN171L–CRMDKAB Except off-road package Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°07' ± 12' (0.12° ± 0.2°, 1.4 ± 2 mm, 0.05 ± 0.08 in.) 0°08' ± 12' (0.13° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.) 0°02' ± 12' (0.04° ± 0.2°, 0.5 ± 2 mm, 0.02 ± 0.08 in.)
	RZN171L–CRPDKAB Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T	0°07' ± 12' (0.12° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.) 0°07' ± 12' (0.12° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	RZN191L–TRPDKAB Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T	0°07' ± 12' (0.12° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.) 0°08' ± 12' (0.13° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.)
	VZN195L–CRPDKAB Except off-road package Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°06' ± 12' (0.10° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.) 0°06' ± 12' (0.10° ± 0.2°, 1.2 ± 2 mm, 0.05 ± 0.08 in.) 0°04' ± 12' (0.07° ± 0.2°, 0.8 ± 2 mm, 0.03 ± 0.08 in.)
	VZN195L–PRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°04' ± 12' (0.07° ± 0.2°, 0.9 ± 2 mm, 0.04 ± 0.08 in.) 0°04' ± 12' (0.07° ± 0.2°, 1.0 ± 2 mm, 0.04 ± 0.08 in.) 0°03' ± 12' (0.06° ± 0.2°, 0.8 ± 2 mm, 0.03 ± 0.08 in.)
	RZN196L–CRPDKAB Except off-road package Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°07' ± 12' (0.12° ± 0.2°, 1.4 ± 2 mm, 0.06 ± 0.08 in.) 0°08' ± 12' (0.13° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.) 0°04' ± 12' (0.07° ± 0.2°, 0.8 ± 2 mm, 0.03 ± 0.08 in.)
	RZN196L–PRPDKAB Normal Tire size: P225/75R15 102S Tire size: P265/70R16 111S, P265/70R16 111T Off-road package	0°04' ± 12' (0.07° ± 0.2°, 1.0 ± 2 mm, 0.04 ± 0.08 in.) 0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.) 0°00' ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.)
	● Wheel angle (max.) Inside wheel Outside wheel: Reference	35°05' – 38°05' (35.08° – 38.08°) 32°20' (32.33°)

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Fig. 290: Wheel Alignment Specifications (Tacoma 8 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TUNDRA

PROCEDURES

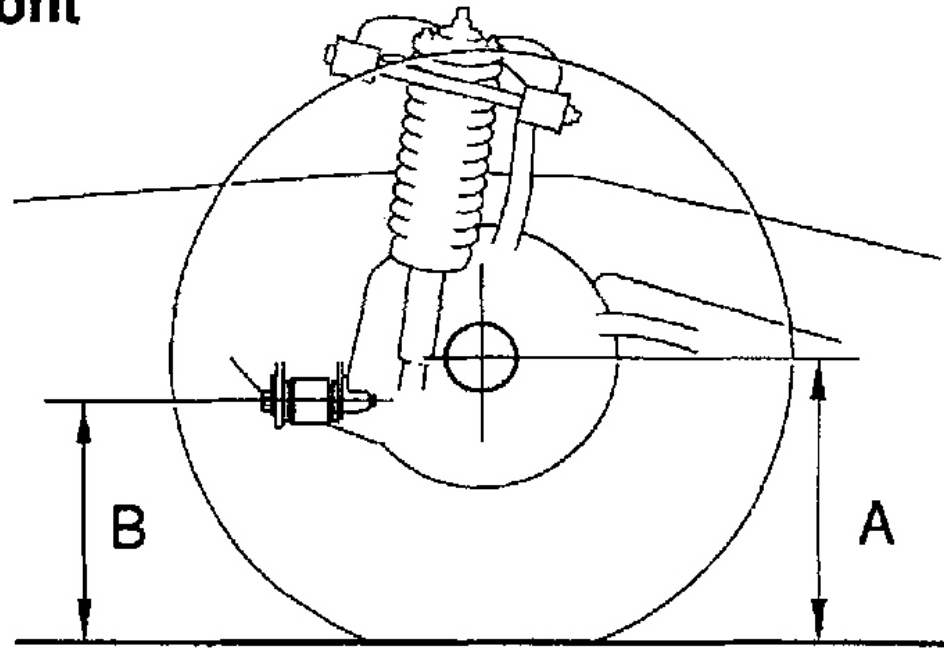
Front Wheel Alignment

1. **Measure vehicle height (see Fig. 302) .**

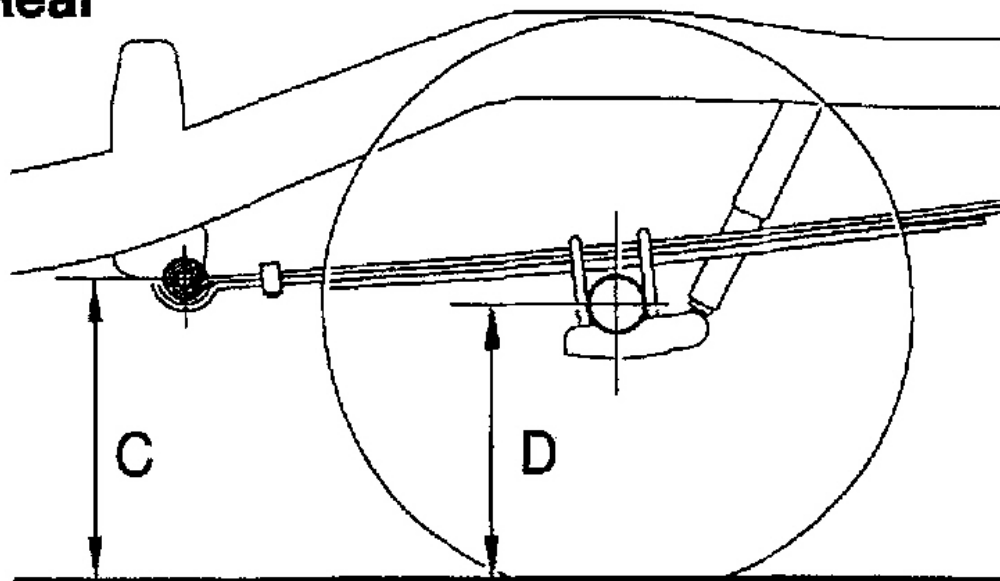
Measuring points:

- A. Ground clearance of the front drive shaft center

Front



Rear



G01090484

Fig. 291: Identifying Vehicle Height Measuring Points

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- B. Ground clearance of the front adjusting cam bolt center
- C. Ground clearance of the leaf spring front side bushing center
- D. Ground clearance of the rear axle shaft center

Vehicle height:

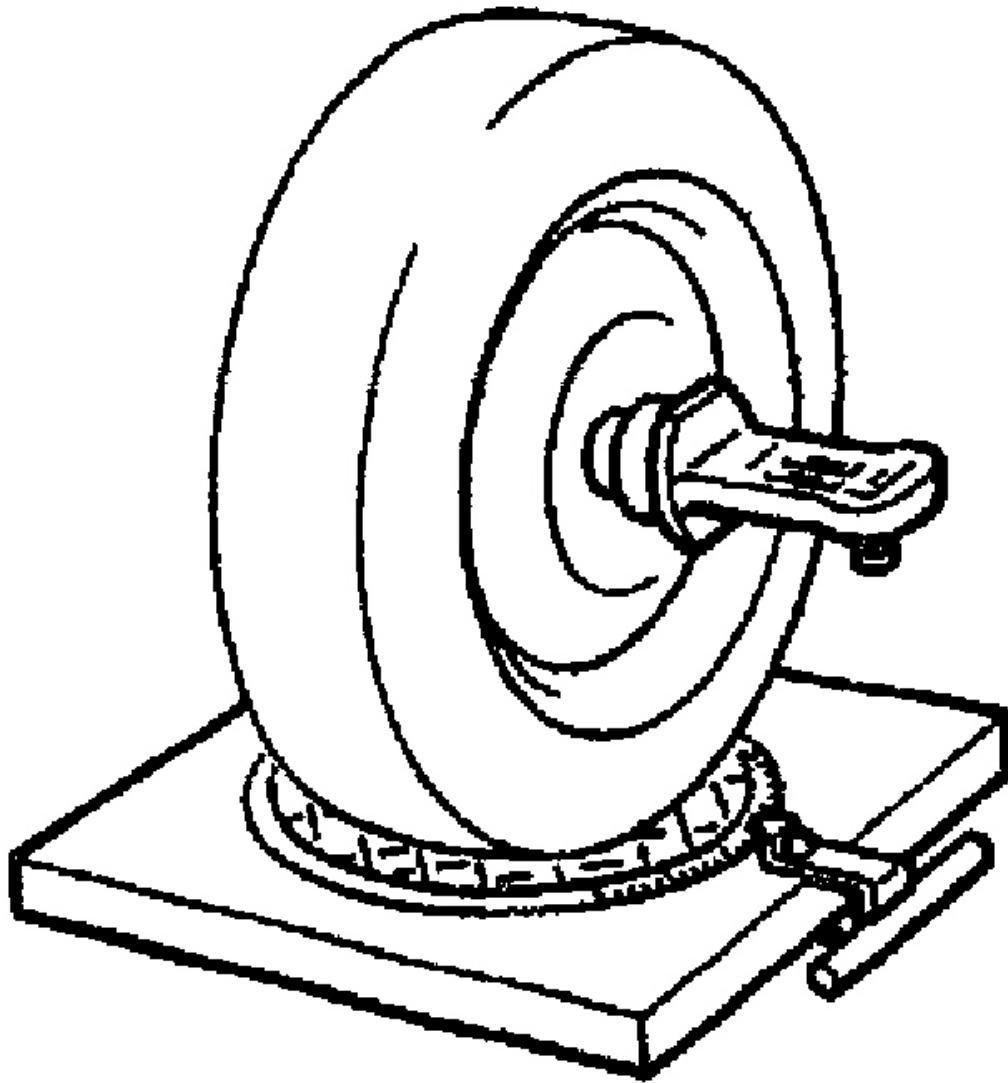
Front: A-B

Rear: C-D

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

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

2. **Install camber/caster/kingpin gauge or position vehicle on wheel alignment tester .**



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Fig. 292: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

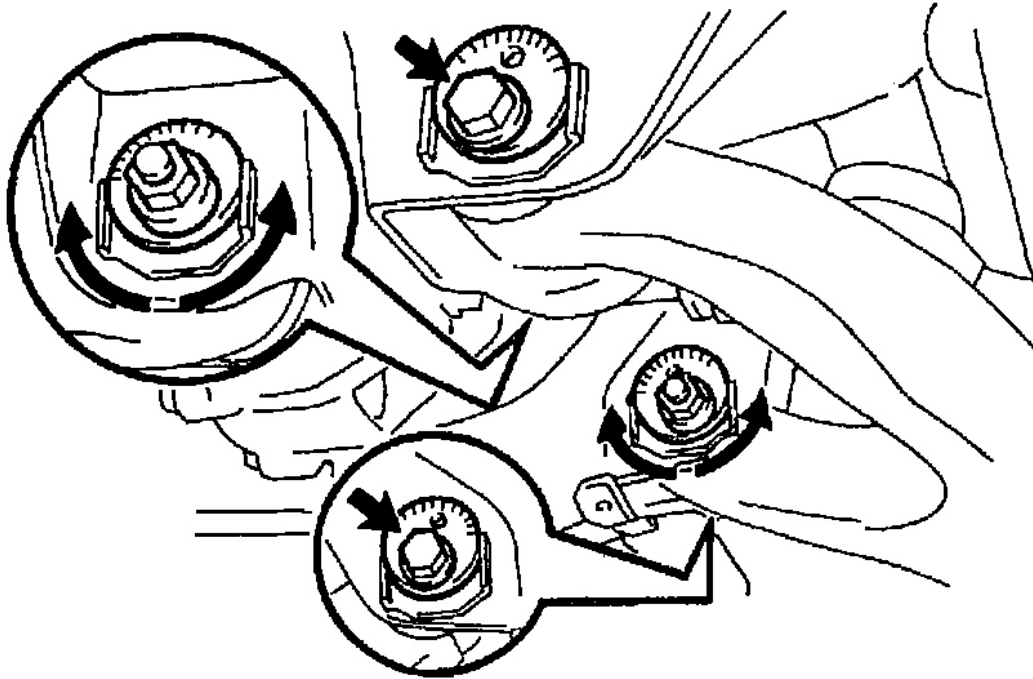
Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination (see Fig. 302) .

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

4. **Adjust camber and caster .**

- a. Loosen the front and/or rear adjusting cam set bolts.



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Fig. 293: Locating Front & Rear Adjusting Cams
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: Try to adjust the camber and caster to the center of the specified values.

- c. How to read adjustment chart (Example).

1. Find the applicable wheel alignment standard value for the particular model.
2. Mark the selected standard value on the adjustment chart.

Example

● = Standard value point
○ = Measured value point

———— Camber

----- Caster

Front Cam



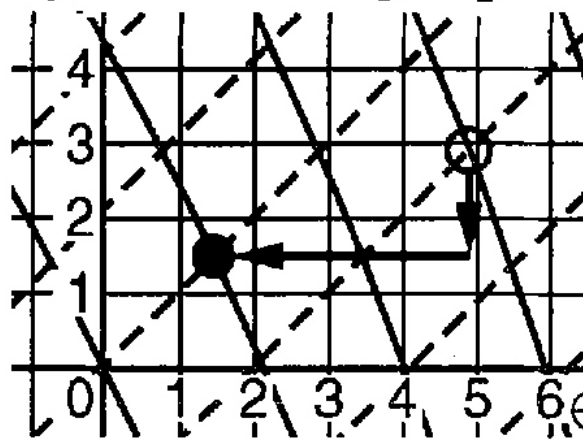
⊖ Direction
(Shorter)

0°10' (0.17°)

0°30' (0.50°)

3°00'

2°40' (2.67°)



Rear Cam



⊖ Direction
(Shorter)

N

G01090487

Fig. 294: Example Of Camber/Caster Adjustment Chart
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Example:

Camber: $0^{\circ} 10' (0.17^{\circ})$

Caster: $3^{\circ} 00'$

3. Measure the present wheel alignment value with the vehicle in non-loaded condition.
4. Mark the measured present value on the adjustment chart in **Fig. 294**.

Example:

Camber: $0^{\circ} 30' (0.50^{\circ})$

Caster: $2^{\circ} 40' (2.67^{\circ})$

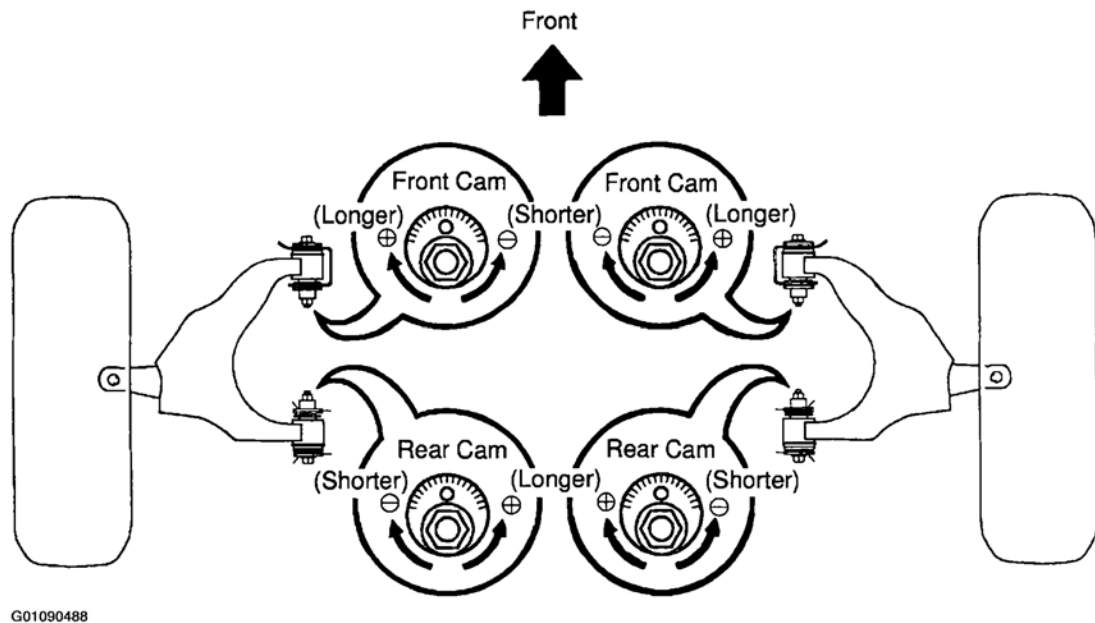
5. As shown in the example chart in **Fig. 294**, read the distance from the measured value to the standard value, and adjust the front and/or rear adjusting cams accordingly.

Amount to turn adjusting cams (by graduation):

Example:

Front cam: 1.3 + Direction

Rear cam: 3.3 + Direction



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Fig. 295: Identifying Cam Adjustment Directions
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

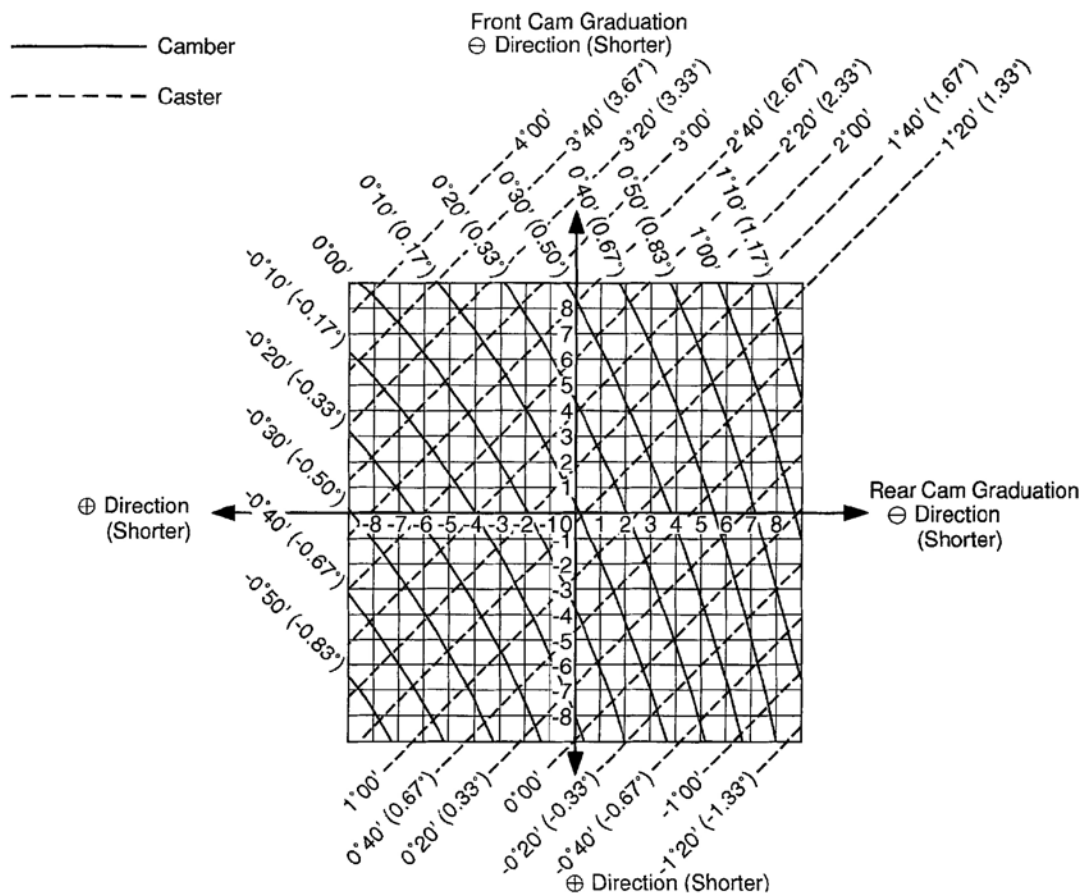


Fig. 296: Displaying Camber/Caster Adjustment Table
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Torque the front and/or rear adjusting cam set bolts.

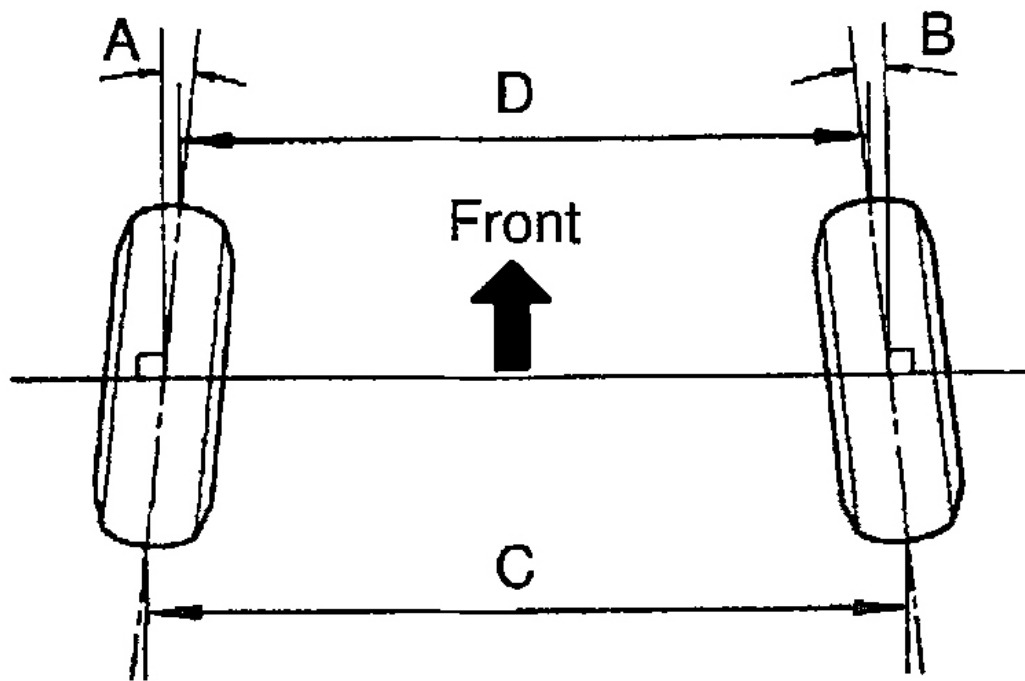
Torque: 130 N.m (1,325 kgf.cm, 96 ft.lbf)

5. **Inspect toe-in (see Fig. 302) .**

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

6. **Adjust toe-in and wheel angle .**

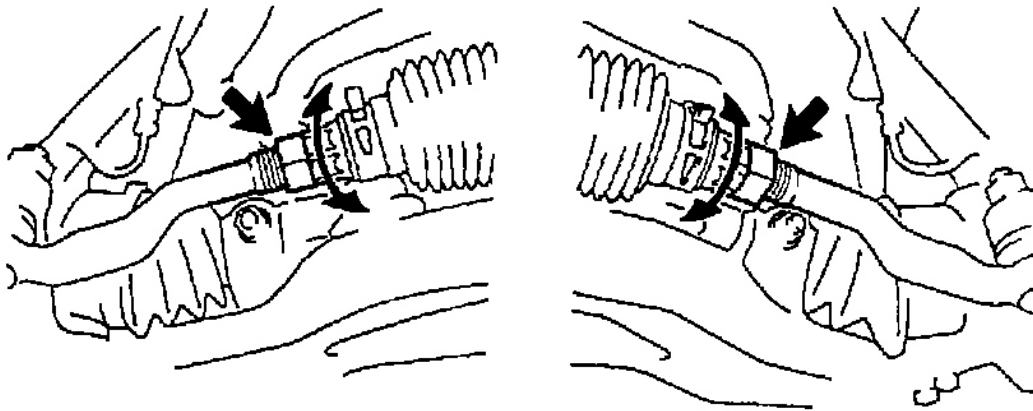
a. Remove the 2 clips.



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Fig. 297: Identifying Toe-in Measurements
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Loosen the tie rod end lock nuts.



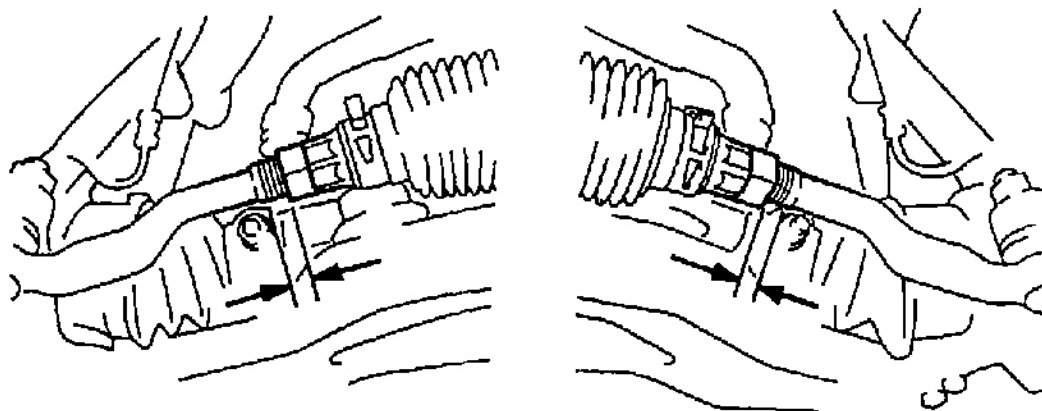
G01090491

Fig. 298: Loosening Tie Rod End Lock Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

NOTE: 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.



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Fig. 299: Checking For Equal Length Rack Ends

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Rack end length difference: 1.5 N.m (0.059 in.) or less

- e. Tighten the tie rod end lock nuts.

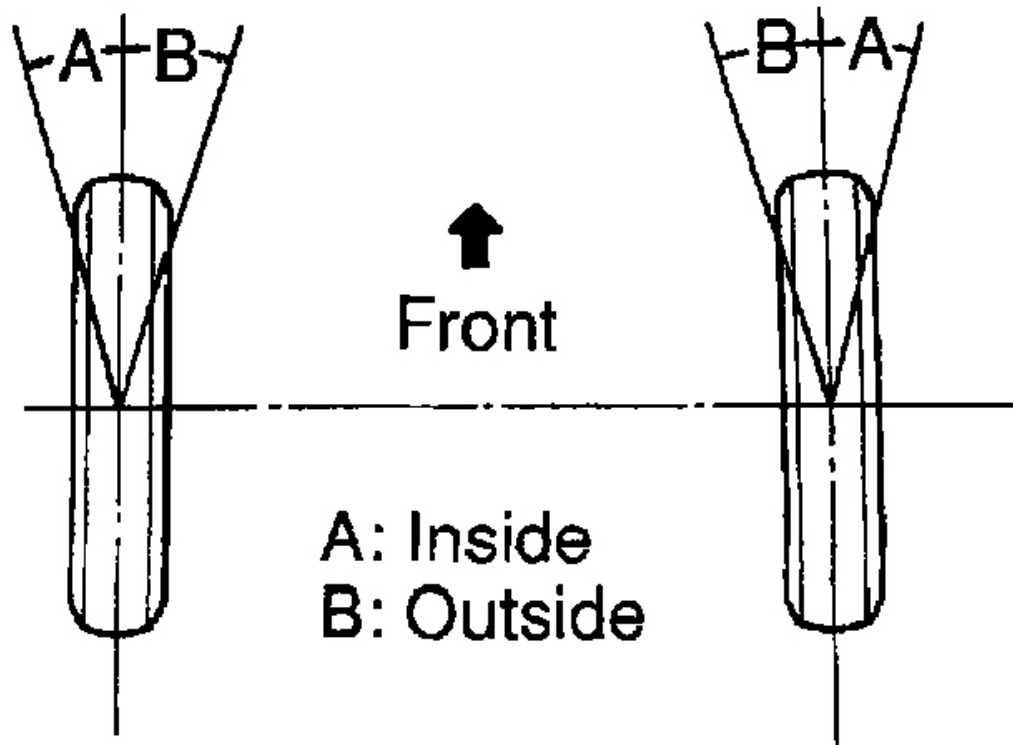
Torque: 55 N.m (560 kgf.cm, 41 ft.lbf)

- f. Place the boots on the seats and install the clips.

NOTE: Make sure that the boots are not twisted.

- g. Inspect the wheel angle.

Turn the steering wheel fully and measure the turning angle.



G01090494

Fig. 300: Identifying Wheel Turning Angles

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Wheel turning angle:

Drive train	Inside wheel	Outside wheel: Reference
2WD	33°50' – 34°50' (33.8° – 34.8°)	31°50' (31.8°)
4WD	34°35' – 37°35' (34.6° – 37.6°)	32°15' (32.3°)

G01090493

Fig. 301: Identifying Wheel Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the right and left wheel turning angles differ from the specified value, readjust the toe-in and wheel angle within the specified value. At this time, 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

SPECIFICATIONS

Cold tire inflation pressure	Tire size: P245/70R16	Front	180 kPa (1.8 kgf/cm ² , 26 psi)
		Rear	240 kPa (2.4 kgf/cm ² , 35 psi)
	Tire size: P265/70R16	Front	180 kPa (1.8 kgf/cm ² , 26 psi)
		Rear	200 kPa (2.0 kgf/cm ² , 29 psi)
Front wheel Alignment	• Vehicle height (2WD model for U.S.A.)		
	VCK30L-TRMDKA	Front: A*1 – B*2 Rear: C*3 – D*4	74.2 mm (2.921 in.) 53.2 mm (2.094 in.)
	VCK30L-TRSDKA	Front: A*1 – B*2 Rear: C*3 – D*4	76.6 mm (3.016 in.) 51.4 mm (2.024 in.)
	VCK30L-ARMSKA		
	Tire size: P245/70R16	Front: A*1 – B*2 Rear: C*3 – D*4	63.0 mm (2.480 in.) 54.3 mm (2.138 in.)
	Tire size: P265/70R16	Front: A*1 – B*2 Rear: C*3 – D*4	62.9 mm (2.476 in.) 54.7 mm (2.154 in.)
	VCK30L-ARSSKA		
	Tire size: P245/70R16	Front: A*1 – B*2 Rear: C*3 – D*4	65.1 mm (2.563 in.) 52.6 mm (2.071 in.)
	Tire size: P265/70R16	Front: A*1 – B*2 Rear: C*3 – D*4	65.0 mm (2.559 in.) 53.0 mm (2.087 in.)
	VCK30L-ARSLKA	Front: A*1 – B*2 Rear: C*3 – D*4	67.1 mm (2.642 in.) 51.4 mm (2.024 in.)
	UCK30L-ARSSKA		
	Normal (Tire size: P245/70R16)	Front: A*1 – B*2 Rear: C*3 – D*4	72.0 mm (2.835 in.) 50.9 mm (2.004 in.)
	Normal (Tire size: P265/70R16)	Front: A*1 – B*2 Rear: C*3 – D*4	71.8 mm (2.827 in.) 51.3 mm (2.020 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	39.4 mm (1.551 in.) 74.5 mm (2.933 in.)
	UCK30L-ARSLKA		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	73.9 mm (2.909 in.) 49.9 mm (1.965 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	41.5 mm (1.634 in.) 72.9 mm (2.870 in.)

A*1: Ground clearance of the front drive shaft center

B*2: Ground clearance of the front adjusting cam bolt center

C*3: Ground clearance of the leaf spring front side bushing center

D*4: Ground clearance of the rear axle shaft center

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Fig. 302: Wheel Alignment Specifications (Tundra 1 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	• Vehicle height (4WD model for U.S.A.)		
	VCK40L-TRMSKA		
	Tire size: P245/70R16	Front: A*1 – B*2	48.8 mm (1.921 in.)
		Rear: C*3 – D*4	70.4 mm (2.772 in.)
	Tire size: P265/70R16	Front: A*1 – B*2	48.6 mm (1.913 in.)
		Rear: C*3 – D*4	70.8 mm (2.787 in.)
	VCK40L-TRSSKA		
	Tire size: P245/70R16	Front: A*1 – B*2	50.8 mm (2.000 in.)
		Rear: C*3 – D*4	68.9 mm (2.713 in.)
	Tire size: P265/70R16	Front: A*1 – B*2	50.7 mm (1.996 in.)
		Rear: C*3 – D*4	69.3 mm (2.728 in.)
	UCK40L-TRSSKA		
	Tire size: P245/70R16	Front: A*1 – B*2	58.8 mm (2.315 in.)
		Rear: C*3 – D*4	72.9 mm (2.870 in.)
	Tire size: P265/70R16	Front: A*1 – B*2	58.6 mm (2.307 in.)
		Rear: C*3 – D*4	73.3 mm (2.886 in.)
Front wheel Alignment	VCK40L-ARMSKA		
	Normal (Tire size: P245/70R16)	Front: A*1 – B*2	39.5 mm (1.555 in.)
		Rear: C*3 – D*4	76.4 mm (3.008 in.)
	Normal (Tire size: P265/70R16)	Front: A*1 – B*2	39.4 mm (1.551 in.)
		Rear: C*3 – D*4	76.8 mm (3.024 in.)
	Off-road package	Front: A*1 – B*2	40.1 mm (1.579 in.)
		Rear: C*3 – D*4	77.0 mm (3.031 in.)
	VCK40L-ARSSKA		
	Normal (Tire size: P245/70R16)	Front: A*1 – B*2	41.7 mm (1.642 in.)
		Rear: C*3 – D*4	74.6 mm (2.937 in.)
	Normal (Tire size: P265/70R16)	Front: A*1 – B*2	41.5 mm (1.634 in.)
		Rear: C*3 – D*4	75.0 mm (2.953 in.)
	Off-road package	Front: A*1 – B*2	42.2 mm (1.661 in.)
		Rear: C*3 – D*4	75.2 mm (2.961 in.)
Front wheel Alignment	VCK40L-ARSLKA		
	Normal	Front: A*1 – B*2	43.4 mm (1.709 in.)
		Rear: C*3 – D*4	73.5 mm (2.894 in.)
	Off-road package	Front: A*1 – B*2	44.0 mm (1.732 in.)
		Rear: C*3 – D*4	73.8 mm (2.906 in.)
	UCK40L-ARSSKA		
	Normal (Tire size: P245/70R16)	Front: A*1 – B*2	50.0 mm (1.969 in.)
		Rear: C*3 – D*4	71.0 mm (2.795 in.)
	Normal (Tire size: P265/70R16)	Front: A*1 – B*2	49.9 mm (1.965 in.)
		Rear: C*3 – D*4	71.4 mm (2.811 in.)
	Off-road package	Front: A*1 – B*2	50.3 mm (1.980 in.)
		Rear: C*3 – D*4	71.7 mm (2.823 in.)
	UCK40L-ARSLKA		
	Normal	Front: A*1 – B*2	51.7 mm (2.035 in.)
		Rear: C*3 – D*4	69.9 mm (2.752 in.)
	Off-road package	Front: A*1 – B*2	52.1 mm (2.051 in.)
		Rear: C*3 – D*4	70.2 mm (2.764 in.)

A*1: Ground clearance of the front drive shaft center

B*2: Ground clearance of the front adjusting cam bolt center

C*3: Ground clearance of the leaf spring front side bushing center

D*4: Ground clearance of the rear axle shaft center

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Fig. 303: Wheel Alignment Specifications (Tundra 2 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	• Vehicle height (2WD model for CANADA)		
	VCK30L-TRMDKK	Front: A*1 – B*2 Rear: C*3 – D*4	76.8 mm (3.024 in.) 56.4 mm (2.220 in.)
	VCK30L-TRSDKK	Front: A*1 – B*2 Rear: C*3 – D*4	79.2 mm (3.118 in.) 54.6 mm (2.150 in.)
	UCK30L-ARSSKK		
	Tire size: P245/70R16	Front: A*1 – B*2 Rear: C*3 – D*4	73.6 mm (2.898 in.) 53.0 mm (2.087 in.)
	Tire size: P265/70R16	Front: A*1 – B*2 Rear: C*3 – D*4	73.5 mm (2.894 in.) 54.0 mm (2.126 in.)
	UCK30L-ARSLKK	Front: A*1 – B*2 Rear: C*3 – D*4	73.9 mm (2.909 in.) 52.6 mm (2.071 in.)
	• Vehicle height (4WD model for CANADA)		
	VCK40L-TRSDKK	Front: A*1 – B*2 Rear: C*3 – D*4	51.8 mm (2.039 in.) 72.4 mm (2.850 in.)
	UCK40L-TRSDKK	Front: A*1 – B*2 Rear: C*3 – D*4	59.6 mm (2.346 in.) 76.3 mm (3.004 in.)
	VCK40L-ARSSKK		
	Normal (Tire size: P245/70R16)	Front: A*1 – B*2 Rear: C*3 – D*4	43.5 mm (1.713 in.) 78.0 mm (3.071 in.)
	Normal (Tire size: P265/70R16)	Front: A*1 – B*2 Rear: C*3 – D*4	43.3 mm (1.705 in.) 78.0 mm (3.071 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	43.6 mm (1.717 in.) 75.9 mm (2.988 in.)
	UCK40L-ARSSKK		
	Normal (Tire size: P245/70R16)	Front: A*1 – B*2 Rear: C*3 – D*4	51.8 mm (2.039 in.) 74.0 mm (2.913 in.)
	Normal (Tire size: P265/70R16)	Front: A*1 – B*2 Rear: C*3 – D*4	51.6 mm (2.031 in.) 74.0 mm (2.913 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	51.7 mm (2.035 in.) 72.3 mm (2.846 in.)
	UCK40L-ARSLKK		
	Normal	Front: A*1 – B*2 Rear: C*3 – D*4	50.9 mm (2.004 in.) 72.0 mm (2.835 in.)
	Off-road package	Front: A*1 – B*2 Rear: C*3 – D*4	51.0 mm (2.008 in.) 70.0 mm (2.756 in.)

A*1: Ground clearance of the front drive shaft center

B*2: Ground clearance of the front adjusting cam bolt center

C*3: Ground clearance of the leaf spring front side bushing center

D*4: Ground clearance of the rear axle shaft center

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Fig. 304: Wheel Alignment Specifications (Tundra 3 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	● Camber (2WD model for U.S.A.) Right-left error: 30' (0.5°) or less	
	VCK30L-TRMDKA	$-0^{\circ}07' \pm 45' (-0.12^{\circ} \pm 0.75^{\circ})$
	VCK30L-TRSDKA	$-0^{\circ}10' \pm 45' (-0.16^{\circ} \pm 0.75^{\circ})$
	VCK30L-ARMSKA	$0^{\circ}03' \pm 45' (0.05^{\circ} \pm 0.75^{\circ})$
	VCK30L-ARSSKA	$0^{\circ}01' \pm 45' (0.02^{\circ} \pm 0.75^{\circ})$
	VCK30L-ARSLKA	$-0^{\circ}01' \pm 45' (-0.02^{\circ} \pm 0.75^{\circ})$
	UCK30L-ARSSKA	
	Normal	$-0^{\circ}05' \pm 45' (-0.09^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}19' \pm 45' (0.32^{\circ} \pm 0.75^{\circ})$
	UCK30L-ARSLKA	
	Normal	$-0^{\circ}07' \pm 45' (-0.12^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}18' \pm 45' (0.30^{\circ} \pm 0.75^{\circ})$
	● Camber (4WD model for U.S.A.) Right-left error: 30' (0.5°) or less	
	VCK40L-TRMSKA	$0^{\circ}14' \pm 45' (0.24^{\circ} \pm 0.75^{\circ})$
	VCK40L-TRSSKA	$0^{\circ}13' \pm 45' (0.22^{\circ} \pm 0.75^{\circ})$
	UCK40L-TRSSKA	$0^{\circ}08' \pm 45' (0.14^{\circ} \pm 0.75^{\circ})$
	VCK40L-ARMSKA	
	Normal	$0^{\circ}20' \pm 45' (0.33^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}20' \pm 45' (0.33^{\circ} \pm 0.75^{\circ})$
	VCK40L-ARSSKA	
	Normal	$0^{\circ}19' \pm 45' (0.31^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}19' \pm 45' (0.31^{\circ} \pm 0.75^{\circ})$
	VCK40L-ARSLKA	
	Normal	$0^{\circ}18' \pm 45' (0.30^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}17' \pm 45' (0.29^{\circ} \pm 0.75^{\circ})$
	UCK40L-ARSSKA	
	Normal	$0^{\circ}14' \pm 45' (0.23^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}14' \pm 45' (0.23^{\circ} \pm 0.75^{\circ})$
	UCK40L-ARSLKA	
	Normal	$0^{\circ}13' \pm 45' (0.21^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}13' \pm 45' (0.21^{\circ} \pm 0.75^{\circ})$
	● Camber (2WD model for CANADA) Right-left error: 30' (0.5°) or less	
	VCK30L-TRMDKK	$-0^{\circ}09' \pm 45' (-0.15^{\circ} \pm 0.75^{\circ})$
	VCK30L-TRSDKK	$-0^{\circ}11' \pm 45' (-0.19^{\circ} \pm 0.75^{\circ})$
	UCK30L-ARSSKK	$-0^{\circ}07' \pm 45' (-0.11^{\circ} \pm 0.75^{\circ})$
	UCK30L-ARSLKK	$-0^{\circ}07' \pm 45' (-0.11^{\circ} \pm 0.75^{\circ})$
	● Camber (4WD model for CANADA) Right-left error: 30' (0.5°) or less	
	VCK40L-TRSDKK	$0^{\circ}13' \pm 45' (0.22^{\circ} \pm 0.75^{\circ})$
	UCK40L-TRSDKK	$0^{\circ}08' \pm 45' (0.13^{\circ} \pm 0.75^{\circ})$
	VCK40L-ARSSKK	
	Normal	$0^{\circ}18' \pm 45' (0.30^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}17' \pm 45' (0.29^{\circ} \pm 0.75^{\circ})$
	UCK40L-ARSSKK	
	Normal	$0^{\circ}13' \pm 45' (0.22^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}13' \pm 45' (0.21^{\circ} \pm 0.75^{\circ})$
	UCK40L-ARSLKK	
	Normal	$0^{\circ}13' \pm 45' (0.22^{\circ} \pm 0.75^{\circ})$
	Off-road package	$0^{\circ}13' \pm 45' (0.22^{\circ} \pm 0.75^{\circ})$

G00223880

Fig. 305: Wheel Alignment Specifications (Tundra 4 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	• Caster (2WD model for U.S.A.)	Right-left error: 30' (0.5°) or less
	VCK30L-TRMDKA	1°56' ± 45' (1.93° ± 0.75°)
	VCK30L-TRSDKA	1°59' ± 45' (1.99° ± 0.75°)
	VCK30L-ARMSKA Tire size: P245/70R16 Tire size: P265/70R16	1°49' ± 45' (1.81° ± 0.75°) 1°50' ± 45' (1.84° ± 0.75°)
	VCK30L-ARSSKA Tire size: P245/70R16 Tire size: P265/70R16	1°52' ± 45' (1.87° ± 0.75°) 1°54' ± 45' (1.90° ± 0.75°)
	VCK30L-ARSLKA	1°58' ± 45' (1.96° ± 0.75°)
	UCK30L-ARSSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	1°58' ± 45' (1.97° ± 0.75°) 2°00' ± 45' (2.00° ± 0.75°) 1°10' ± 45' (1.16° ± 0.75°)
	UCK30L-ARSLKA Normal Off-road package	2°03' ± 45' (2.05° ± 0.75°) 1°13' ± 45' (1.22° ± 0.75°)
	• Caster (4WD model for U.S.A.)	Right-left error: 30' (0.5°) or less
	VCK40L-TRMSKA Tire size: P245/70R16 Tire size: P265/70R16	1°17' ± 45' (1.28° ± 0.75°) 1°19' ± 45' (1.31° ± 0.75°)
	VCK40L-TRSSKA Tire size: P245/70R16 Tire size: P265/70R16	1°20' ± 45' (1.33° ± 0.75°) 1°22' ± 45' (1.36° ± 0.75°)
	UCK40L-TRSSKA Tire size: P245/70R16 Tire size: P265/70R16	1°18' ± 45' (1.30° ± 0.75°) 1°20' ± 45' (1.34° ± 0.75°)
	VCK40L-ARMSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	1°04' ± 45' (1.07° ± 0.75°) 1°06' ± 45' (1.10° ± 0.75°) 1°09' ± 45' (1.15° ± 0.75°)
	VCK40L-ARSSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	1°08' ± 45' (1.14° ± 0.75°) 1°10' ± 45' (1.17° ± 0.75°) 1°13' ± 45' (1.21° ± 0.75°)
	VCK40L-ARSLKA Normal Off-road package	1°13' ± 45' (1.22° ± 0.75°) 1°16' ± 45' (1.26° ± 0.75°)
	UCK40L-ARSSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	1°17' ± 45' (1.28° ± 0.75°) 1°19' ± 45' (1.31° ± 0.75°) 1°21' ± 45' (1.35° ± 0.75°)
	UCK40L-ARSLKA Normal Off-road package	1°22' ± 45' (1.36° ± 0.75°) 1°24' ± 45' (1.40° ± 0.75°)

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Fig. 306: Wheel Alignment Specifications (Tundra 5 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	● Caster (2WD model for CANADA) Right-left error: 30' (0.5°) or less	
	VCK30L-TRMDKK	1°52' ± 45' (1.86° ± 0.75°)
	VCK30L-TRSDKK	1°55' ± 45' (1.92° ± 0.75°)
	UCK30L-ARSSKK	
	Tire size: P245/70R16	1°55' ± 45' (1.91° ± 0.75°)
	Tire size: P265/70R16	1°56' ± 45' (1.94° ± 0.75°)
	UCK30L-ARSLKK	1°59' ± 45' (1.98° ± 0.75°)
	● Caster (4WD model for CANADA) Right-left error: 30' (0.5°) or less	
	VCK40L-TRSDKK	1°14' ± 45' (1.24° ± 0.75°)
	UCK40L-TRSDKK	1°13' ± 45' (1.21° ± 0.75°)
	VCK40L-ARSSKK	
	Normal (Tire size: P245/70R16)	1°04' ± 45' (1.06° ± 0.75°)
	Normal (Tire size: P265/70R16)	1°05' ± 45' (1.09° ± 0.75°)
	Off-road package	1°11' ± 45' (1.19° ± 0.75°)
	UCK40L-ARSSKK	
	Normal (Tire size: P245/70R16)	1°13' ± 45' (1.21° ± 0.75°)
	Normal (Tire size: P265/70R16)	1°14' ± 45' (1.24° ± 0.75°)
	Off-road package	1°20' ± 45' (1.33° ± 0.75°)
	UCK40L-ARSLKK	
	Tire size: P245/70R16	1°19' ± 45' (1.31° ± 0.75°)
	Tire size: P265/70R16	1°24' ± 45' (1.40° ± 0.75°)

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Fig. 307: Wheel Alignment Specifications (Tundra 6 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	● Steering axis inclination (2WD model for U.S.A.) Right-left error: 30' (0.5°) or less	
	VCK30L-TRMDKA	10°52' ± 45' (10.87° ± 0.75°)
	VCK30L-TRSDKA	10°55' ± 45' (10.91° ± 0.75°)
	VCK30L-ARMSKA	10°41' ± 45' (10.69° ± 0.75°)
	VCK30L-ARSSKA	10°44' ± 45' (10.73° ± 0.75°)
	VCK30L-ARSLKA	10°46' ± 45' (10.76° ± 0.75°)
	UCK30L-ARSSKA	
	Normal	10°50' ± 45' (10.84° ± 0.75°)
	Off-road package	10°23' ± 45' (10.38° ± 0.75°)
	UCK30L-ARSLKA	
	Normal	10°52' ± 45' (10.87° ± 0.75°)
	Off-road package	10°24' ± 45' (10.40° ± 0.75°)
	● Steering axis inclination (4WD model for U.S.A.) Right-left error: 30' (0.5°) or less	
	VCK40L-TRMSKA	10°31' ± 45' (10.51° ± 0.75°)
	VCK40L-TRSSKA	10°32' ± 45' (10.53° ± 0.75°)
	UCK40L-TRSSKA	10°37' ± 45' (10.62° ± 0.75°)
	VCK40L-ARMSKA	
	Normal	10°25' ± 45' (10.41° ± 0.75°)
	Off-road package	10°25' ± 45' (10.42° ± 0.75°)
	VCK40L-ARSSKA	
	Normal	10°26' ± 45' (10.43° ± 0.75°)
	Off-road package	10°26' ± 45' (10.44° ± 0.75°)
	VCK40L-ARSLKA	
	Normal	10°27' ± 45' (10.45° ± 0.75°)
	Off-road package	10°28' ± 45' (10.46° ± 0.75°)
	UCK40L-ARSSKA	
	Normal	10°31' ± 45' (10.52° ± 0.75°)
	Off-road package	10°32' ± 45' (10.53° ± 0.75°)
	UCK40L-ARSLKA	
	Normal	10°32' ± 45' (10.54° ± 0.75°)
	Off-road package	10°33' ± 45' (10.55° ± 0.75°)
	● Steering axis inclination (2WD model for CANADA) Right-left error: 30' (0.5°) or less	
	VCK30L-TRMDKK	10°54' ± 45' (10.90° ± 0.75°)
	VCK30L-TRSDKK	10°57' ± 45' (10.95° ± 0.75°)
	UCK30L-ARSSKK	10°52' ± 45' (10.86° ± 0.75°)
	UCK30L-ARSLKK	10°52' ± 45' (10.87° ± 0.75°)
	● Steering axis inclination (4WD model for CANADA) Right-left error: 30' (0.5°) or less	
	VCK40L-TRSDKK	10°32' ± 45' (10.54° ± 0.75°)
	UCK40L-TRSDKK	10°37' ± 45' (10.62° ± 0.75°)
	VCK40L-ARSSKK	
	Normal	10°27' ± 45' (10.45° ± 0.75°)
	Off-road package	10°27' ± 45' (10.45° ± 0.75°)
	UCK40L-ARSSKK	
	Normal	10°32' ± 45' (10.54° ± 0.75°)
	Off-road package	10°32' ± 45' (10.54° ± 0.75°)
	UCK40L-ARSLKK	
	Normal	10°32' ± 45' (10.53° ± 0.75°)
	Off-road package	10°32' ± 45' (10.54° ± 0.75°)

G00223875

Fig. 308: Wheel Alignment Specifications (Tundra 7 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	• Toe-in (total) (2WD model for U.S.A.)	Rack end length difference: 1.5 mm (0.059 in.) or less
	VCK30L-TRMDKA	0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	VCK30L-TRSDKA	0°05' ± 12' (0.09° ± 0.2°, 1.3 ± 2 mm, 0.05 ± 0.08 in.)
	VCK30L-ARMSKA Tire size: P245/70R16 Tire size: P265/70R16	0°10' ± 12' (0.16° ± 0.2°, 2.1 ± 2 mm, 0.08 ± 0.08 in.) 0°10' ± 12' (0.16° ± 0.2°, 2.1 ± 2 mm, 0.08 ± 0.08 in.)
	VCK30L-ARSSKA Tire size: P245/70R16 Tire size: P265/70R16	0°09' ± 12' (0.15° ± 0.2°, 2.0 ± 2 mm, 0.08 ± 0.08 in.) 0°08' ± 12' (0.14° ± 0.2°, 1.9 ± 2 mm, 0.07 ± 0.08 in.)
	VCK30L-ARSLKA	0°08' ± 12' (0.13° ± 0.2°, 1.8 ± 2 mm, 0.07 ± 0.08 in.)
	UCK30L-ARSSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	0°07' ± 12' (0.12° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.) 0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.) 0°15' ± 12' (0.24° ± 0.2°, 3.2 ± 2 mm, 0.13 ± 0.08 in.)
	UCK30L-ARSLKA Normal Off-road package	0°06' ± 12' (0.10° ± 0.2°, 1.4 ± 2 mm, 0.05 ± 0.08 in.) 0°14' ± 12' (0.24° ± 0.2°, 3.1 ± 2 mm, 0.12 ± 0.08 in.)
	• Toe-in (total) (4WD model for U.S.A.)	Rack end length difference: 1.5 mm (0.059 in.) or less
	VCK40L-TRMSKA Tire size: P245/70R16 Tire size: P265/70R16	0°05' ± 12' (0.09° ± 0.2°, 1.3 ± 2 mm, 0.05 ± 0.08 in.) 0°06' ± 12' (0.10° ± 0.2°, 1.3 ± 2 mm, 0.05 ± 0.08 in.)
	VCK40L-TRSSKA Tire size: P245/70R16 Tire size: P265/70R16	0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.) 0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	UCK40L-TRSSKA Tire size: P245/70R16 Tire size: P265/70R16	0°03' ± 12' (0.06° ± 0.2°, 0.7 ± 2 mm, 0.03 ± 0.08 in.) 0°03' ± 12' (0.05° ± 0.2°, 0.6 ± 2 mm, 0.02 ± 0.08 in.)
	VCK40L-ARMSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	0°08' ± 12' (0.14° ± 0.2°, 1.9 ± 2 mm, 0.07 ± 0.08 in.) 0°08' ± 12' (0.14° ± 0.2°, 1.8 ± 2 mm, 0.07 ± 0.08 in.) 0°08' ± 12' (0.13° ± 0.2°, 1.7 ± 2 mm, 0.07 ± 0.08 in.)
	VCK40L-ARSSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	0°07' ± 12' (0.12° ± 0.2°, 1.7 ± 2 mm, 0.07 ± 0.08 in.) 0°08' ± 12' (0.13° ± 0.2°, 1.7 ± 2 mm, 0.07 ± 0.08 in.) 0°07' ± 12' (0.12° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.)
	VCK40L-ARSLKA Normal Off-road package	0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.) 0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	UCK40L-ARSSKA Normal (Tire size: P245/70R16) Normal (Tire size: P265/70R16) Off-road package	0°05' ± 12' (0.09° ± 0.2°, 1.2 ± 2 mm, 0.05 ± 0.08 in.) 0°05' ± 12' (0.09° ± 0.2°, 1.2 ± 2 mm, 0.05 ± 0.08 in.) 0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.05 ± 0.08 in.)
	UCK40L-ARSLKA Normal Off-road package	0°05' ± 12' (0.08° ± 0.2°, 1.0 ± 2 mm, 0.04 ± 0.08 in.) 0°05' ± 12' (0.08° ± 0.2°, 1.0 ± 2 mm, 0.04 ± 0.08 in.)

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Fig. 309: Wheel Alignment Specifications (Tundra 8 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Front wheel Alignment	• Toe-in (total) (2WD model for CANADA)		Rack end length difference: 1.5 mm (0.059 in.) or less
	VCK30L-TRMDKK		0°06' ± 12' (0.10° ± 0.2°, 1.3 ± 2 mm, 0.05 ± 0.08 in.)
	VCK30L-TRSDKK		0°05' ± 12' (0.09° ± 0.2°, 1.2 ± 2 mm, 0.05 ± 0.08 in.)
	UCK30L-ARSSKK		0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	Tire size: P245/70R16		0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	Tire size: P265/70R16		0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	UCK30L-ARSLKK		-0°02' ± 12' (-0.03° ± 0.2°, -0.5 ± 2 mm, -0.02 ± 0.08 in.)
	• Toe-in (total) (4WD model for CANADA)		Rack end length difference: 1.5 mm (0.059 in.) or less
	VCK40L-TRSDKK		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	UCK40L-TRSDKK		0°03' ± 12' (0.05° ± 0.2°, 0.6 ± 2 mm, 0.02 ± 0.08 in.)
	VCK40L-ARSSKK		0°07' ± 12' (0.12° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.)
	Normal (Tire size: P245/70R16)		0°07' ± 12' (0.12° ± 0.2°, 1.6 ± 2 mm, 0.06 ± 0.08 in.)
	Normal (Tire size: P265/70R16)		0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	Off-road package		0°07' ± 12' (0.11° ± 0.2°, 1.5 ± 2 mm, 0.06 ± 0.08 in.)
	UCK40L-ARSLKK		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
Front drive shaft	Normal (Tire size: P245/70R16)		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	Normal (Tire size: P265/70R16)		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	Off-road package		0°05' ± 12' (0.08° ± 0.2°, 1.0 ± 2 mm, 0.04 ± 0.08 in.)
	UCK40L-ARSSKK		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	Normal		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	Off-road package		0°05' ± 12' (0.08° ± 0.2°, 1.1 ± 2 mm, 0.04 ± 0.08 in.)
	Wheel angle		
	2WD model	Inside wheel	33°50' - 34°50' (33.8° - 34.8°)
		Outside wheel: Reference	31°50' (31.8°)
	4WD model	Inside wheel	34°35' - 37°35' (34.6° - 37.6°)
		Outside wheel: Reference	32°15' (32.3°)
Front suspension	Front drive shaft length		523.5 ± 2.0 mm (20.610 ± 0.079 in.)
	Upper ball joint turning torque		0.7 - 4.4 N·m (7 - 45 kgf·cm, 6 - 39 in.·lbf)
	Lower ball joint excessive play	Maximum	0.5 mm (0.020 in.)
	Lower ball joint turning torque		0.1 - 2.5 N·m (1 - 25 kgf·cm, 1 - 22 in.·lbf)
Front suspension	Stabilizer bar link ball joint turning torque		0.05 - 2.0 N·m (0.5 - 20 kgf·cm, 0.4 - 17 in.·lbf)

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Fig. 310: Wheel Alignment Specifications (Tundra 9 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

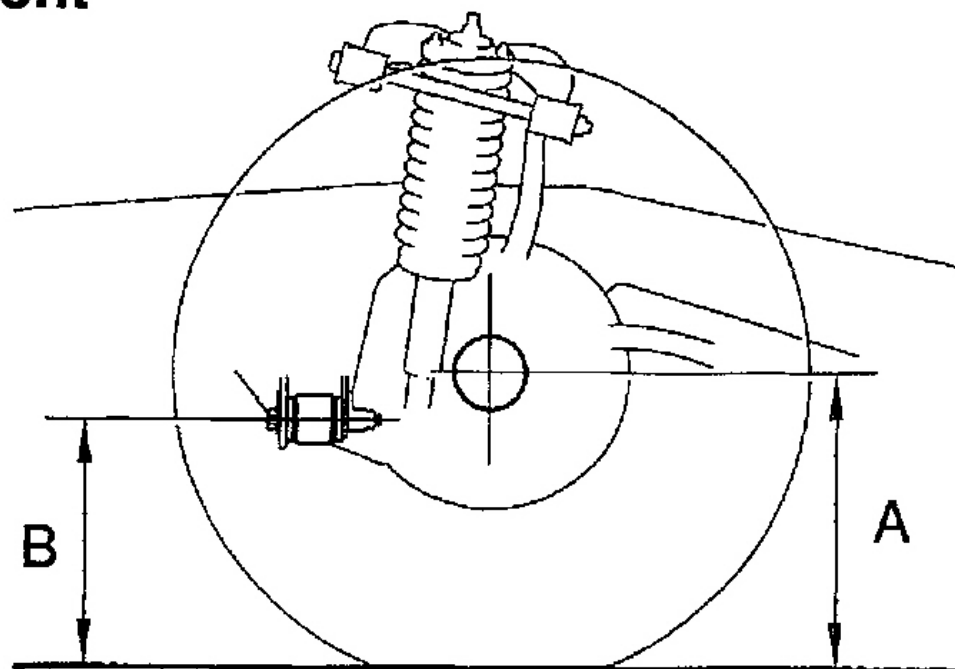
4RUNNER

PROCEDURES

Front Wheel Alignment

- 1. Measure vehicle height .

Front



Rear

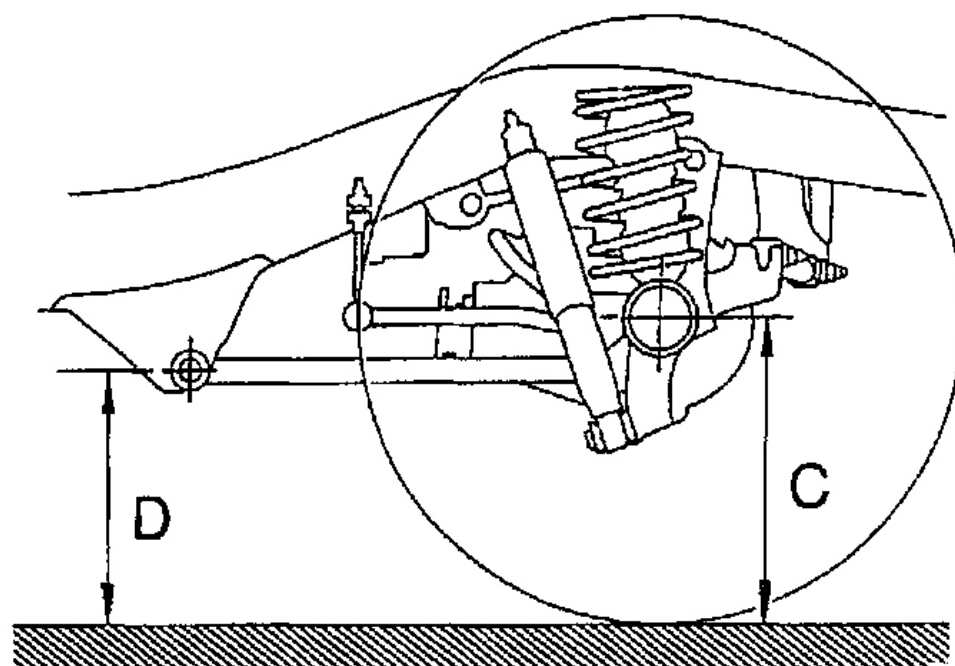


Fig. 311: Identifying Vehicle Height Measuring Points
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Vehicle height:

2WD:

Front	A – B: 72.2 mm (2.843 in.)
Rear	C – D: 52.0 mm (2.047 in.)

G01021547

Fig. 312: Identifying Vehicle Height Specifications (2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4WD:

Front	A – B: 69.9 mm (2.752 in.)
Rear	C – D: 50.7 mm (1.996 in.)

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Fig. 313: Identifying Vehicle Height Specifications (4WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Measuring points:

A: Ground clearance of spindle center

B: Ground clearance of front adjusting cam bolt center

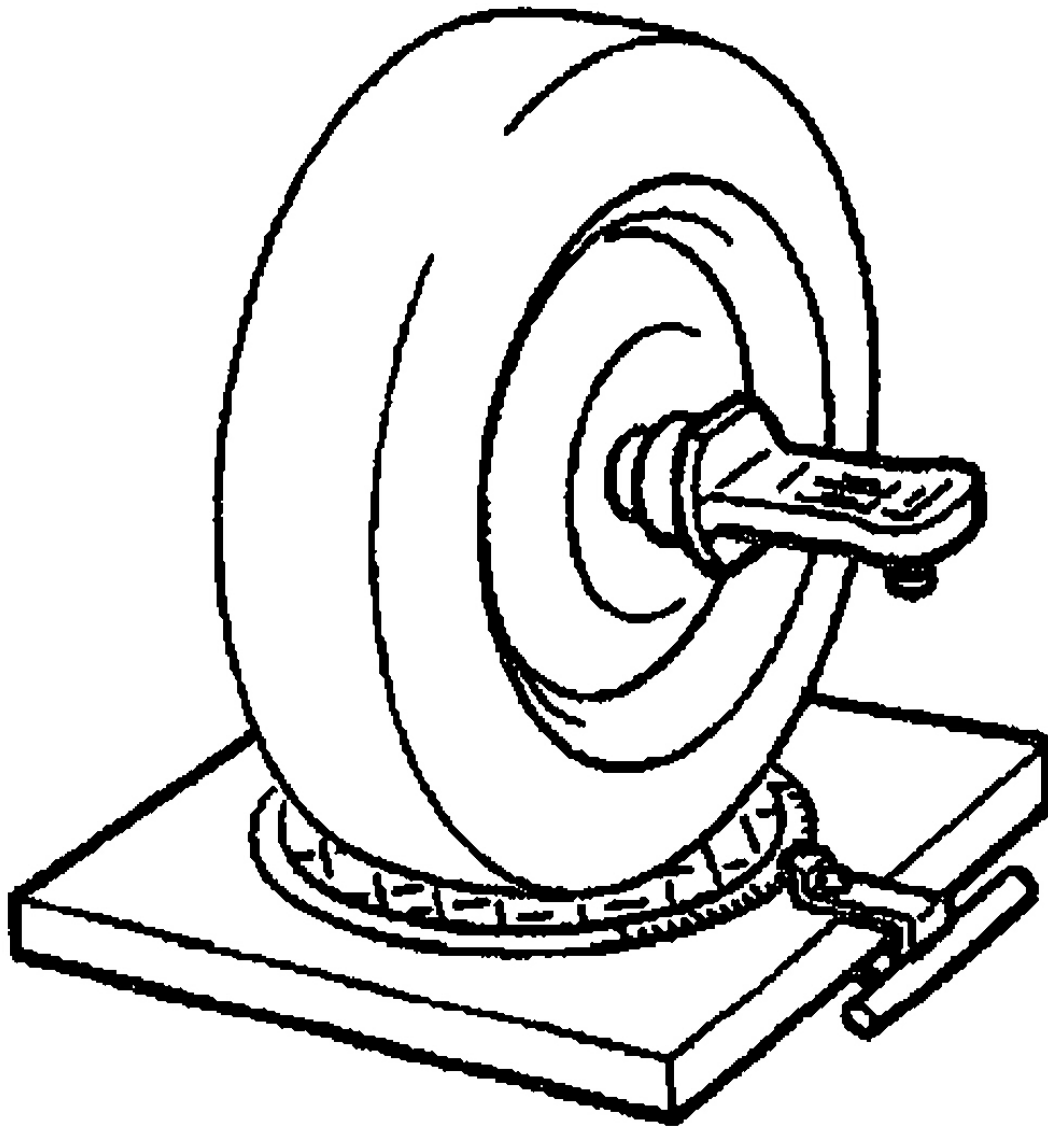
C: Ground clearance of rear axle shaft center

D: Ground clearance of lower control arm front bushing center

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

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

2. Install camber/caster/kingpin gauge or onto wheel alignment tester .



G01021550

Fig. 314: Installing Camber/Caster/Kingpin Gauge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Follow the specific instructions of the equipment manufacturer.

3. Inspect camber, caster and steering axis inclination .

2WD:

Camber	$-0^{\circ}15' \pm 45' (-0.25^{\circ} \pm 0.75^{\circ})$
Left-right error	30' (0.5°) or less
Caster	$3^{\circ}15' \pm 45' (3.25^{\circ} \pm 0.75^{\circ})$
Left-right error	30' (0.5°) or less
Steering axis inclination	$11^{\circ}00' \pm 45' (11^{\circ} \pm 0.75^{\circ})$
Left-right error	30' (0.5°) or less

G01021551

Fig. 315: Identifying Camber, Caster & Steering Axis Inclination Specifications (2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4WD:

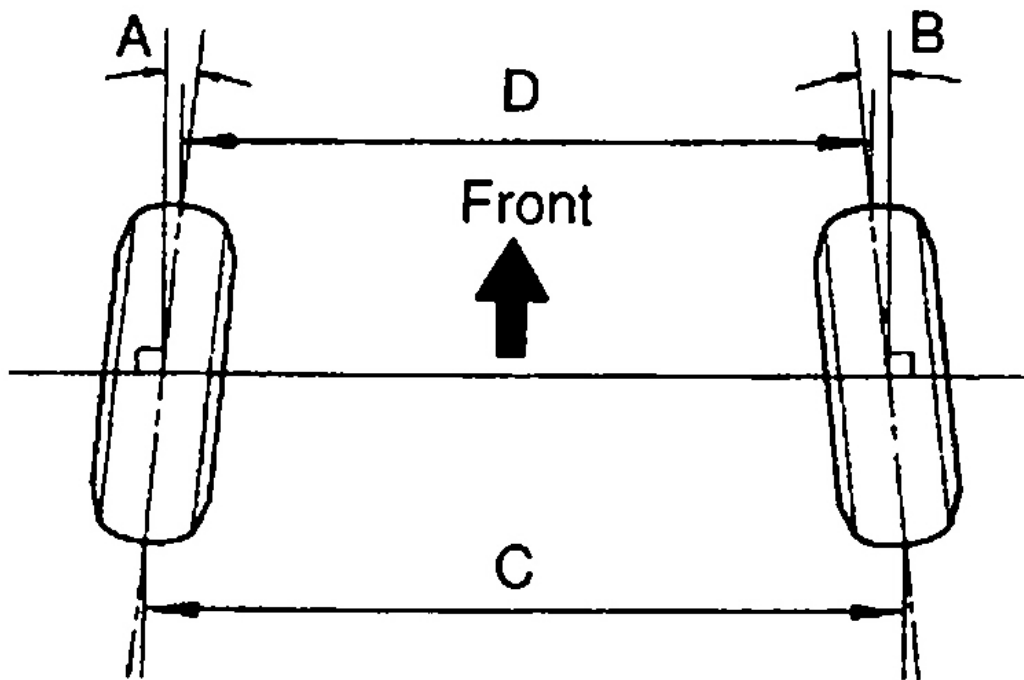
Camber	$-0^{\circ}15' \pm 45' (-0.25^{\circ} \pm 0.75^{\circ})$
Left-right error	30' (0.5°) or less
Caster	$3^{\circ}05' \pm 45' (3.06^{\circ} \pm 0.75^{\circ})$
Left-right error	30' (0.5°) or less
Steering axis inclination	$11^{\circ}00' \pm 45' (11.00^{\circ} \pm 0.75^{\circ})$
Left-right error	30' (0.5°) or less

G01021552

Fig. 316: Identifying Camber, Caster & Steering Axis Inclination Specifications (4WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

4. Inspect toe-in .



G01021554

Fig. 317: Identifying Toe-In Measurements

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Toe-in (total)	$A + B: 0^{\circ}12' \pm 12' (0.2^{\circ} \pm 0.2^{\circ})$ $C - D: 2 \pm 2 \text{ mm } (0.08 \pm 0.08 \text{ in.})$
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G01021553

Fig. 318: Identifying Toe-In Specifications

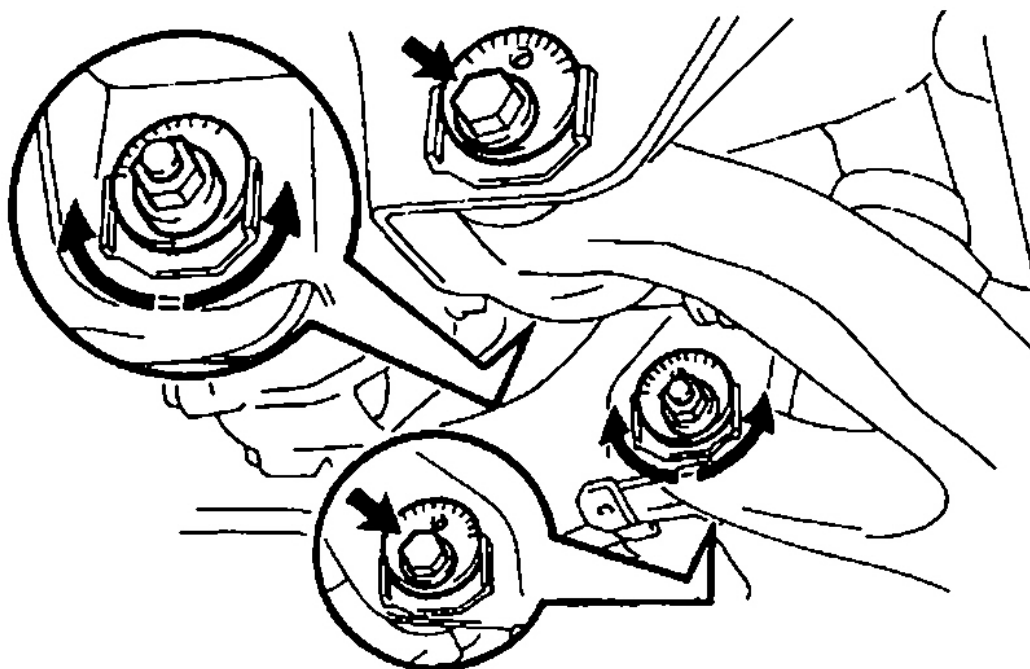
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the toe-in is not within the specification, adjust the rack ends.

5. **Adjust camber and caster .**

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

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



G01021555

Fig. 319: Locating Front & Rear Adjusting Cams
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

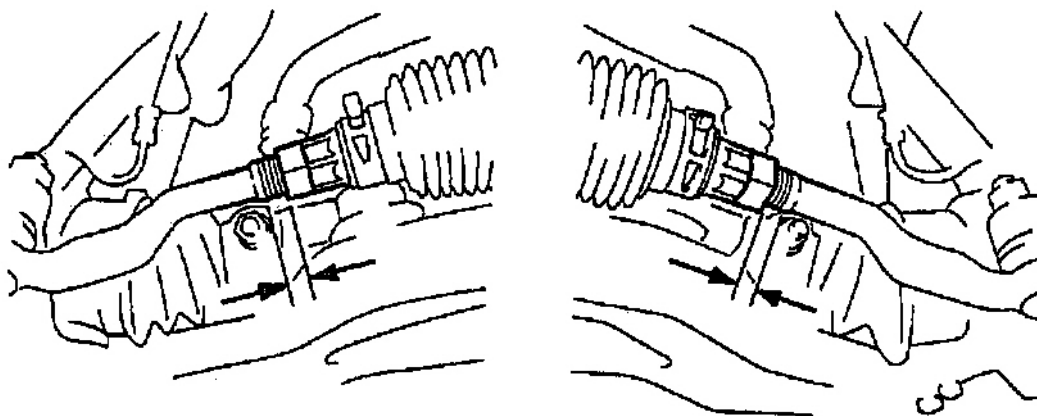
NOTE: Try to adjust the camber and caster to the center value.

- c. Torque the front and/or rear adjusting cam nuts.

Torque: 130 N.m (1,325 kgf.cm, 96 ft.lbf)

6. Adjust toe-in and wheel angle .

NOTE: First, check or adjust the lengths of the tie rod ends, then adjust the toe-in.

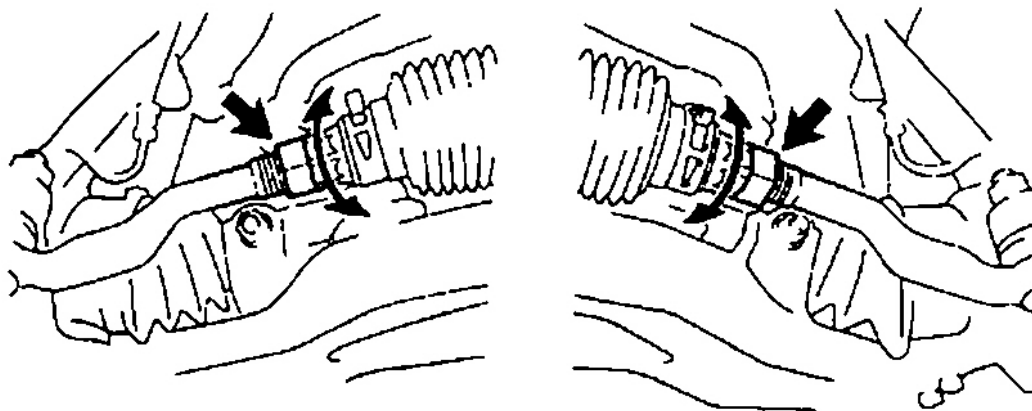


G01021556

Fig. 320: Checking For Equal Rod End Lengths
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Tie rod end length left-right error: 1.5 mm (0.059 in.) or less

- a. Remove the boot clamps.
- b. Loosen the rack end lock nuts.
- c. Turn the left and right rack ends an equal amount to adjust the toe-in.



G01021557

Fig. 321: Using Rack Ends To Adjust Toe Setting
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Try to adjust the toe-in the center value.

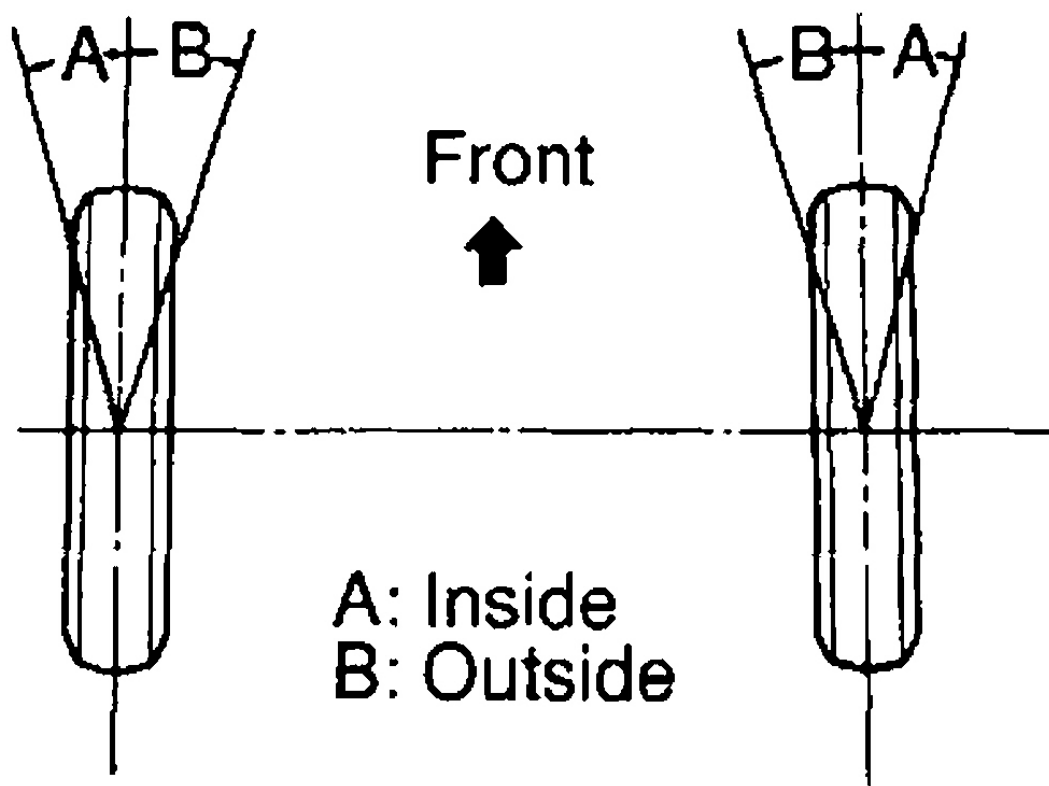
- d. Tighten the rack end lock nuts.

Torque: 55 N.m (560 kgf.cm, 41 ft.lbf)

- e. Place the boot on the seat and clip it.

NOTE: Make sure that the boots are not twisted.

7. Inspect wheel angle .



G01021559

Fig. 322: Identifying Wheel Turning Angles
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Inside wheel	Outside wheel (Reference)
35° (33° – 36°)	31°

G01021558

Fig. 323: Identifying Wheel Turning Angle Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If wheel angle deviates from the specifications, readjust the toe-in and wheel angle within the specifications. At this time, the lengths of the tie rod end may be within less than 1.5 mm (0.059 in.).

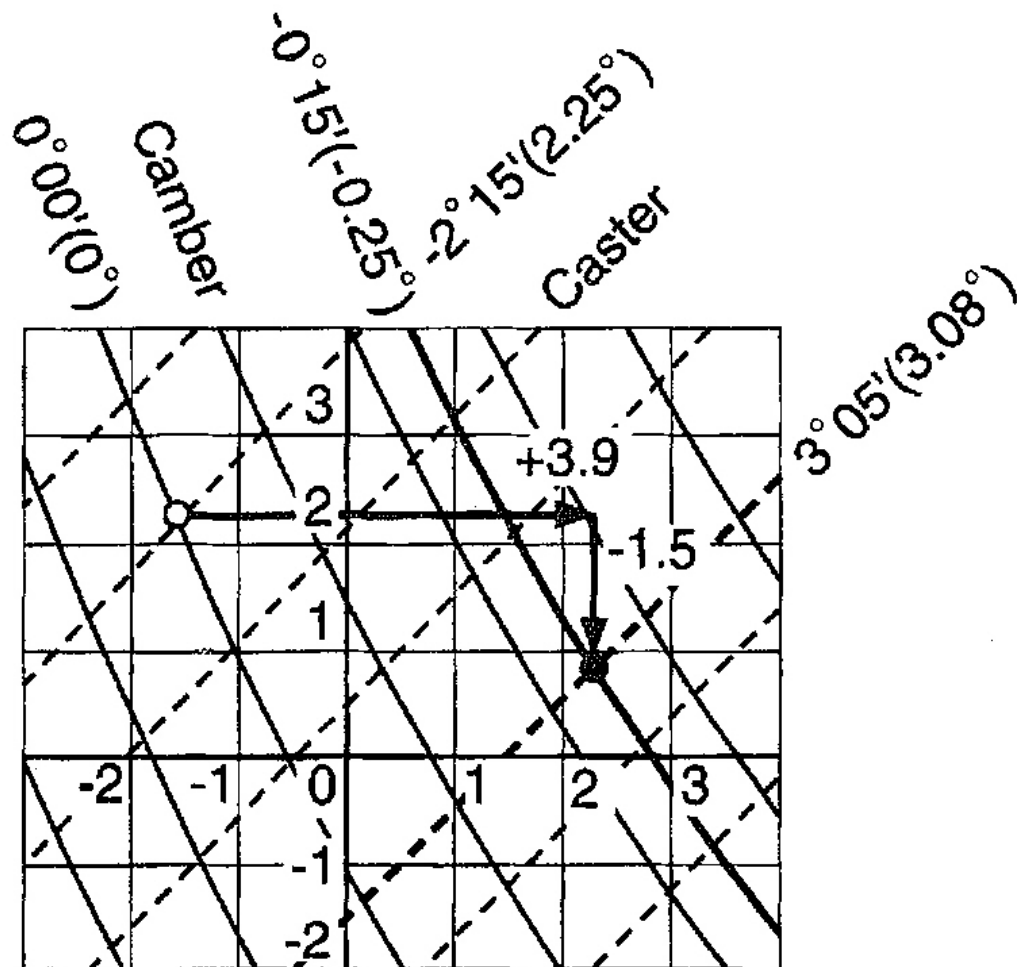
8. How to read adjustment chart .

- a. Find the wheel alignment standard value applicable for the tire size.

Example 2WD

● = Standard value point

○ = Measurement point



G01021560

Fig. 324: Identifying Adjustment Chart Example

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Mark the selected standard value on the adjustment chart in **Fig. 324**.

Example 2WD:

Camber -0°15' (-0.25°)

Caster 3°05' (3.08°)

- c. Mark on the adjustment chart in **Fig. 324** the alignment values measured at the vehicle height.

Example:

Camber 0°00' (0°)

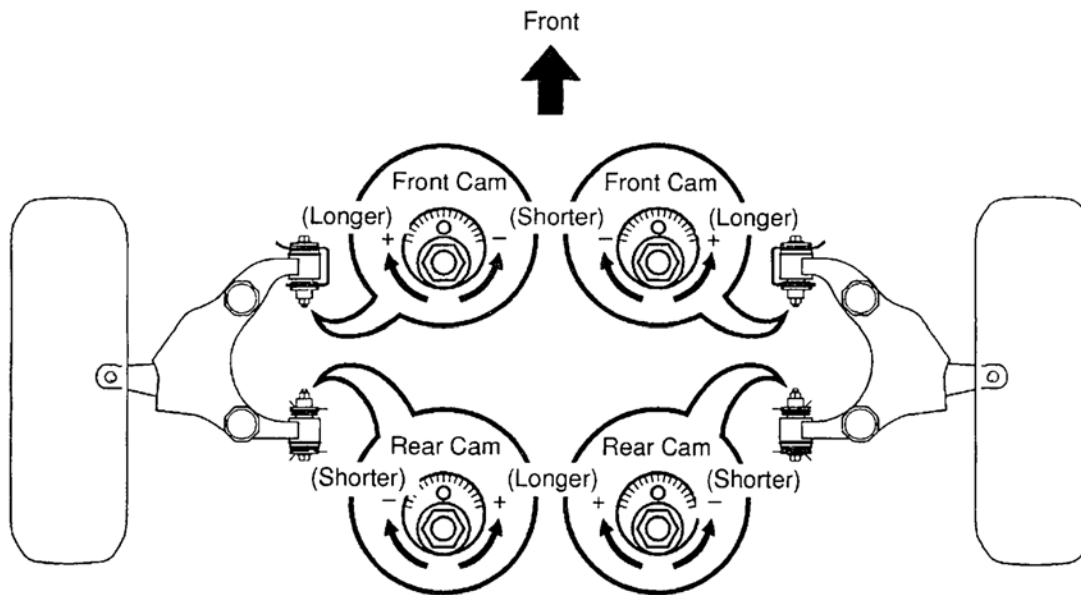
Caster 2°15' (2.25°)

- d. As shown in the illustration in **Fig. 324**, read the distance from the standard value to the measured value, and adjust the front and/or rear adjusting cams accordingly.

Example:

Front cam -(shorter) 1.5

Rear cam +(longer) 3.9



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Fig. 325: Identifying Camber/Caster Adjusting Cams
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Cold tire inflation pressure	Tire size		
	P225/75R15	Front	200 kPa (2.0 kgf/cm ² , 29 psi)
		Rear	200 kPa (2.0 kgf/cm ² , 29 psi)
	P265/70R16	Front	220 kPa (2.2 kgf/cm ² , 32 psi)
		Rear	220 kPa (2.2 kgf/cm ² , 32 psi)
Wheel alignment	Vehicle height		
	2WD	A*1 – B*2	72.2 mm (2.843 in.)
		C*3 – D*4	52.0 mm (2.047 in.)
	4WD	A*1 – B*2	69.9 mm (2.752 in.)
		C*3 – D*4	50.7 mm (1.996 in.)
	Camber		–0°15' ± 45' (–0.25° ± 0.75°)
		Left–right error	30' (0.5°) or less
	Caster	2WD	3°15' ± 45' (3.25° ± 0.75°)
Wheel alignment		4WD	3°05' ± 45' (3.06° ± 0.75°)
		Left–right error	30' (0.5°) or less
	Steering axis inclination		11°00' ± 45' (11° ± 0.75°)
		Left–right error	30' (0.5°) or less
	Toe–in (total)		0°12' ± 12' (0.2° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08in.)
		Tie rod end length difference	1.5 mm (0.059 in.) or less
	Wheel angle (Max.)		
		Inside wheel	35° (33° – 36°)
		Outside wheel	31°
Front drive shaft	Front drive shaft length		530.8 ± 5.0 mm (20.898 ± 0.197 in.)
Front suspension	Upper suspension ball joint turning torque		0.7 – 4.4 N·m (7 – 45 kgf·cm, 6 – 39 in.·lbf)
	Lower suspension ball joint turning torque		0.1 – 2.5 N·m (1 – 25 kgf·cm, 0.8 – 21.7 in.·lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 2.0 N·m (0.5 – 20 kgf·cm, 0.4 – 17 in.·lbf)
	Lower suspension ball joint excessive play	Max.	0.5 mm (0.020 in.)
Rear axle shaft	Shaft runout	Max.	2.0 mm (0.079 in.)
	Flange runout	Max.	0.1 mm (0.004 in.)
	Axle shaft bearing backlash	Max.	0.7 mm (0.027 in.)

*1: Ground clearance of spindle center

*2: Ground clearance of front adjusting cam bolt center

*3: Ground clearance of rear axle shaft center

*4: Ground clearance of lower control arm front bushing center

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Fig. 327: Wheel Alignment Specifications (4Runner)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.