

Last Modified: 9-7-2011	6.4 N	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001Y3B01XX
Title: SUSPENSION: FRONT WHEEL ALIGNMENT: ADJUSTMENT (2011 RAV4)		

ADJUSTMENT

1. INSPECT TIRES

- (a) Inspect the tires INFO.

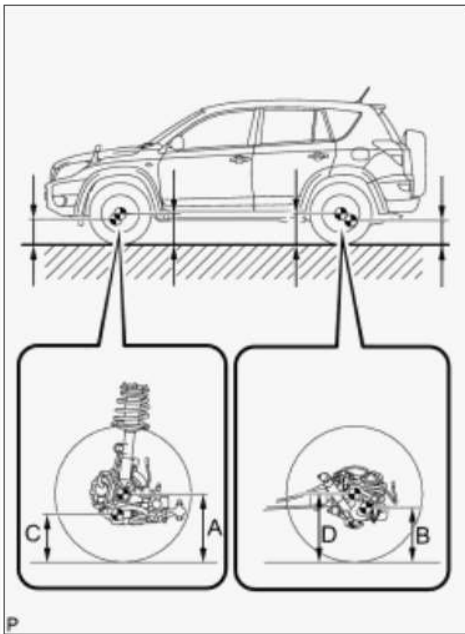
2. MEASURE VEHICLE HEIGHT

NOTICE:

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

- (a) Press down on the vehicle several times to stabilize the suspension, and measure the vehicle height.
- (b) Measure the front vehicle height.
 - (1) Measure the distance from the ground to the center of the lower suspension arm front mounting bolt.
- (c) Measure the rear vehicle height.
 - (1) Measure the distance from the ground to the center of the body side No. 2 suspension arm mounting bolt.

Standard vehicle height (unloaded vehicle):



TIRE SIZE	FRONT C - A	REAR D - B
215/70R16	89 mm (3.50 in.)	57 mm (2.24 in.)
225/65R17 235/55R18	97 mm (3.82 in.)	65 mm (2.56 in.)
225/65R17*	97 mm (3.82 in.)	54 mm (2.13 in.)

NOTICE:

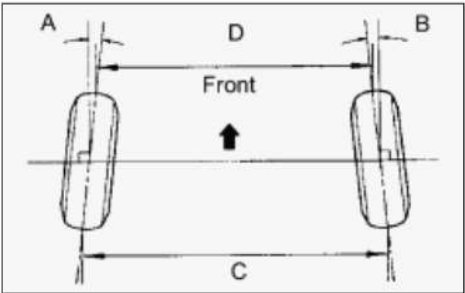
The standard value shown here is a value that is used for adjusting the wheel alignment and does not indicate the height of an actual vehicle.

HINT:

- *: w/ 3rd seat.
- If the vehicle height is not as specified, press down on the vehicle several times to stabilize the suspension. Then measure the vehicle height again.

3. INSPECT TOE-IN

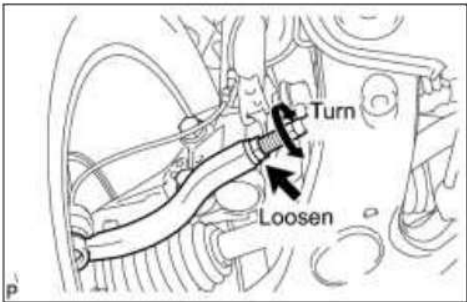
Standard toe-in (unloaded vehicle):



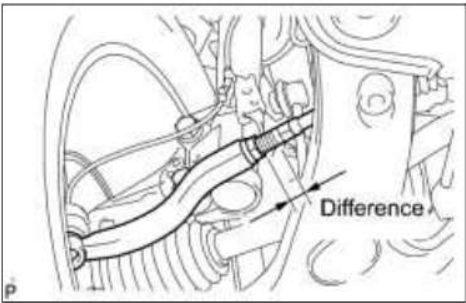
TIRE SIZE	FRONT A + B REAR C - D
215/70R16 225/65R17 235/55R18	A + B: 0°05' +-10' (0.08°+-0.16°) C - D: 1.0 +-2.0 mm (0.04 +-0.08 in.)

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

4. ADJUST TOE-IN



- (a) Remove the boot 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 to the center value.



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

Standard difference:
1.5 mm (0.059 in.) or less

- (e) Tighten the tie rod end lock nuts.
Torque: 55.5 N·m (566 kgf·cm, 41ft·lbf)
- (f) Place the boots on the seats and install the clips.

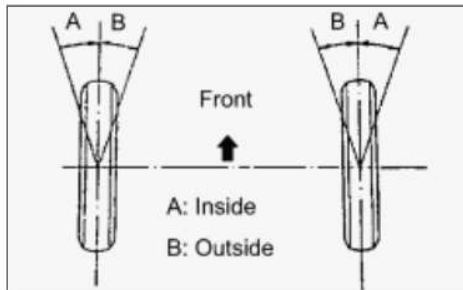
HINT:

Make sure that the boots are not twisted.

5. INSPECT WHEEL ANGLE

- (a) Turn the steering wheel to the left and right full lock positions, and measure the turning angle.

Standard wheel angle (unloaded vehicle):



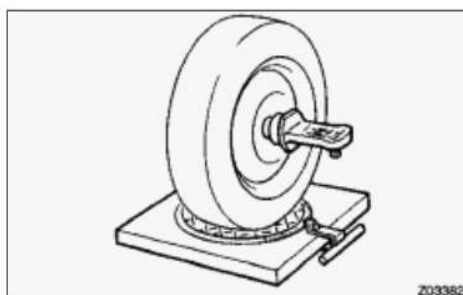
TIRE SIZE	INSIDE WHEEL ANGLE	OUTSIDE WHEEL ANGLE (REFERENCE)
215/70R16	38°55' (36°55' to 40°55') (38.9° {36.9° to 40.9°})	32°20' (32.3°)
225/65R17 (2GR-FE) 235/55R18 (2GR-FE)	35°50' (33°50' to 37°50') (35.8° {33.8° to 37.9°})	30°29' (30.5°)
225/65R17 (2AR-FE) 235/55R18 (2AR-FE)	38°44' (36°44' to 40°44') (38.7° {36.7° to 40.7°})	32°13' (32.2°)

If the angles are not as specified, check and adjust the right and left rack end lengths.

6. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

- (a) Install the camber-caster-kingpin gauge or place the front wheels on the center of the wheel alignment tester.
- (b) Inspect the camber, caster and steering axis inclination.

Standard camber inclination (unloaded vehicle):



TIRE SIZE	CAMBER INCLINATION
215/70R16	-0°08' +-45' (-0.13°+-0.75°)
225/65R17 235/55R18	-0°11' +-45' (-0.18°+-0.75°)

Standard caster inclination (unloaded vehicle):

TIRE SIZE	CASTER INCLINATION
215/70R16	5°43' +-45' (5.72°+-0.75°)
225/65R17 235/55R18	5°50' +-45' (5.83°+-0.75°)

225/65R17*	5°37' +-45' (5.62°+-0.75°)
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HINT:

***: w/ 3rd seat**

Standard steering axis inclination (unloaded vehicle):

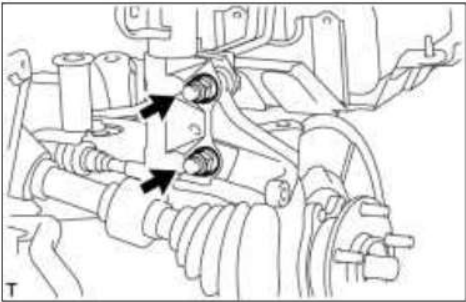
TIRE SIZE	STEERING AXIS INCLINATION
215/70R16	11°16' +-30' (11.27°+-0.50°)
225/65R17 235/55R18	11°26' +-30' (11.43°+-0.50°)

7. ADJUST CAMBER AND CASTER

NOTICE:

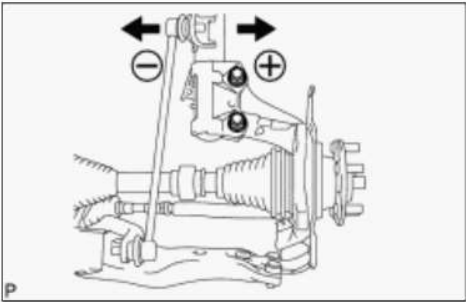
After the camber has been adjusted, inspect the toe-in.

(a) Remove the front wheel.



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

- (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.

(f) Tighten the 2 nuts.

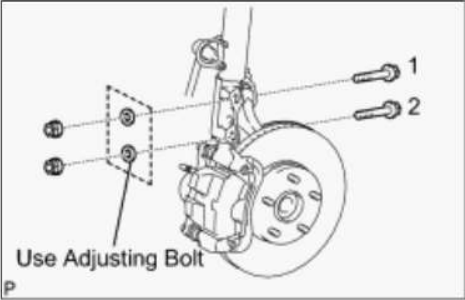
Torque: 240 N·m (2,447 kgf·cm, 177ft·lbf)

(g) Install the front wheel.

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

(h) Check the camber.

- If the measured value is not within the specified range, calculate the required adjustment amount using the formula below.
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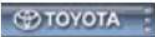
If the camber is not within the specification, estimate how much additional camber adjustment will be required and select the camber adjusting bolt using the following table.

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'							●	●		

(i) Repeat the steps mentioned above. When temporarily installing the 2 nuts, replace 1 or 2 selected bolts.

HINT:

Replace 1 bolt at a time when replacing 2 bolts.



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Title: SUSPENSION: REAR WHEEL ALIGNMENT: ADJUSTMENT (2011 RAV4)		

ADJUSTMENT

1. INSPECT TIRE

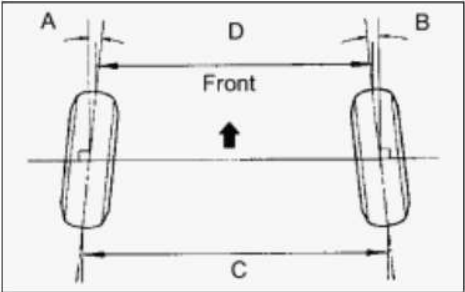
(a) Inspect the tire [INFO](#) .

2. MEASURE VEHICLE HEIGHT

(a) Measure the vehicle height [INFO](#) .

3. INSPECT TOE-IN

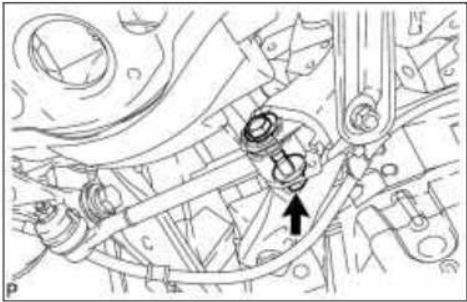
Standard toe-in:



ITEM	SPECIFIED CONDITION
Toe-in	A + B: 0°11' +-10' (0.18° +-0.17°)
(total)	C - D: 2.3 +-1 mm (0.09 +-0.04 in.)

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

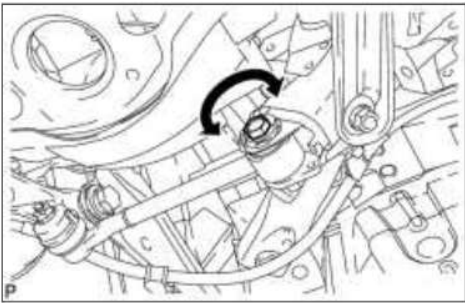
4. ADJUST TOE-IN



(a) Loosen the toe adjust cam nut.

(b) Turn the adjust cams by an equal amount to adjust the toe-in.

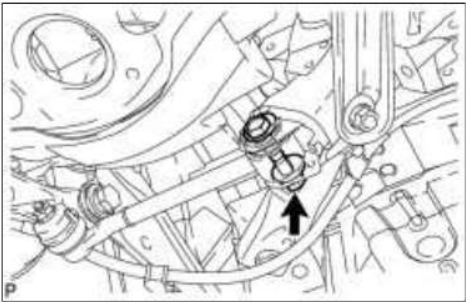
Standard toe-in:



ITEM	SPECIFIED CONDITION
Toe-in	A + B: 0°11' +-10' (0.18° +-0.17°)
(total)	C - D: 2.3 +-1 mm (0.09 +-0.04 in.)

HINT:

- Try to adjust the toe-in to the center value.
- The toe-in will change by approximately 3.6 mm (0.142 in.) for each gradation of the cam.



(c) Tighten the toe adjust cam nut.
Torque: 120 N·m (1224 kgf·cm, 89ft·lbf)

5. INSPECT CAMBER

- (a) Install the camber-caster-kingpin gauge or set the vehicle on the wheel alignment tester.
(b) Inspect the camber.

Standard camber:

ITEM		SPECIFIED CONDITION
Camber Right-left error	Tire Size: 215/70R16	-0°55' +-45' (-0.92 +-0.75°) 30' (0.5°) or less
	Tire Size: 225/65R17 Tire Size: 235/55R18	-1°04' +-45' (-1.07 +-0.75°) 30' (0.5°) or less
	Tire Size: 225/65R17*	-0°52' +-45' (-0.87 +-0.75°) 30' (0.5°) or less

HINT:

- *: w/ 3rd seat
- Camber is not adjustable. If the measurement is not within the specified range, inspect the suspension parts for damage and/or wear, and replace them if necessary.

