

Last Modified: 8-3-2015	6.6 N	Doc ID: RM000001V43020X
Model Year Start: 2016	Model: 4Runner	Prod Date Range: [08/2015 -]
Title: ALIGNMENT / HANDLING DIAGNOSIS: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2016 MY 4Runner [08/2015 -]		

ADJUSTMENT

NOTICE:

If the wheel alignment has been adjusted, and if suspension or underbody components have been removed/installed or replaced, be sure to perform the following initialization procedure in order for the system to function normally:

- Perform zero point calibration of the yaw rate and acceleration sensor and the test mode inspection.

1. INSPECT TIRES

- (a) Inspect the tires .

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 then measure the vehicle height.

Text in Illustration

*a	Front Side
*b	Rear Side

Measuring points:

A

Ground clearance of the center of the front wheel

B

Ground clearance of the center of the front adjusting cam bolt

C

Ground clearance of the center of the rear wheel

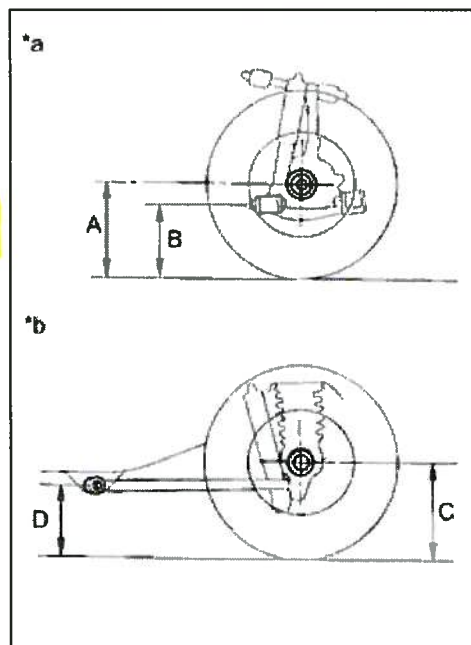
D

Ground clearance of the center of the rear lower control arm front side

If the vehicle height is not as specified, adjust the height by pressing down on the vehicle several times to stabilize the suspension.

Standard Vehicle Height (Unloaded Vehicle):

VEHICLE MODEL	GRADE	FRONT (A - B)	REAR (C - D)
GRN280L-GKAGKA	SR5, SR5 Premium	116.7 mm (4.59 in.)	80.7 mm (3.18 in.)
	LIMITED	117.2 mm (4.61 in.)	85.4 mm (3.36 in.)
GRN285L-GKAGKA	SR5, SR5 Premium	94.9 mm (3.74 in.)	68.8 mm (2.71 in.)
	Trail, Trail Premium (w/o KDSS)	95.6 mm (3.76 in.)	69.8 mm (2.75 in.)
	Trail, Trail Premium (w/ KDSS)	98.2 mm (3.87 in.)	72.1 mm (2.84 in.)
	LIMITED	97.6 mm (3.84 in.)	72.5 mm (2.85 in.)

**NOTICE:**

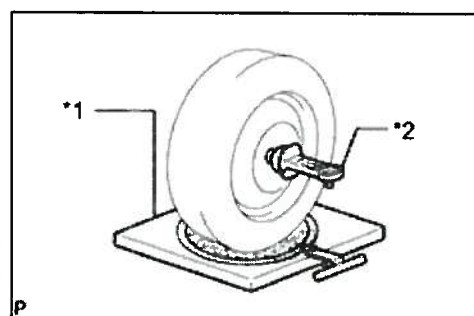
The standard value shown here is a value that is used for adjusting the wheel alignment and does not indicate the height of an actual vehicle.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

- (a) Install a camber-caster-kingpin gauge or place the front wheels on the center of a wheel alignment tester.

Text in Illustration

*1	Wheel Alignment Tester
*2	Gauge



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

Standard Camber Inclination (Unloaded Vehicle):

VEHICLE MODEL	GRADE	CAMBER INCLINATION	RIGHT-LEFT DIFFERENCE
GRN280L-GKAGKA	SR5, SR5 Premium	-0°37' +/-30' (-0.62° +/-0.5°)	30' (0.5°) or less
	LIMITED	-0°38' +/-30' (-0.63° +/-0.5°)	30' (0.5°) or less
	SR5, SR5 Premium	-0°1' +/-30' (-0.02° +/-0.5°)	30' (0.5°) or less
	Trail, Trail Premium	-0°3' +/-30' (-0.05° +/-0.5°)	30' (0.5°) or less

GRN285L-GKAGKA	(w/o KDSS)		
	Trail, Trail Premium (w/ KDSS)	-0°7' +/-30' (-0.12° +/-0.5°)	30' (0.5°) or less
	LIMITED	-0°6' +/-30' (-0.10° +/-0.5°)	30' (0.5°) or less

Standard Caster Inclination (Unloaded Vehicle):

VEHICLE MODEL	GRADE	CASTER INCLINATION	RIGHT-LEFT DIFFERENCE
GRN280L-GKAGKA	SR5, SR5 Premium	3°40' +/-30' (3.67° +/-0.5°)	30' (0.5°) or less
	LIMITED	3°50' +/-30' (3.83° +/-0.5°)	30' (0.5°) or less
GRN285L-GKAGKA	SR5, SR5 Premium	3°15' +/-30' (3.25° +/-0.5°)	30' (0.5°) or less
	Trail, Trail Premium (w/o KDSS)	3°16' +/-30' (3.27° +/-0.5°)	30' (0.5°) or less
	Trail, Trail Premium (w/ KDSS)	3°21' +/-30' (3.35° +/-0.5°)	30' (0.5°) or less
	LIMITED	3°22' +/-30' (3.37° +/-0.5°)	30' (0.5°) or less

Standard Steering Axis Inclination (Unloaded Vehicle):

VEHICLE MODEL	GRADE	STEERING AXIS INCLINATION
GRN280L-GKAGKA	SR5, SR5 Premium	12°42' +/-30' (12.70° +/-0.5°)
	LIMITED	12°44' +/-30' (12.73° +/-0.5°)
GRN285L-GKAGKA	SR5, SR5 Premium	12°11' +/-30' (12.18° +/-0.5°)
	Trail, Trail Premium (w/o KDSS)	12°12' +/-30' (12.20° +/-0.5°)
	Trail, Trail Premium (w/ KDSS)	12°16' +/-30' (12.27° +/-0.5°)
	LIMITED	12°15' +/-30' (12.25° +/-0.5°)

4. ADJUST CAMBER AND CASTER

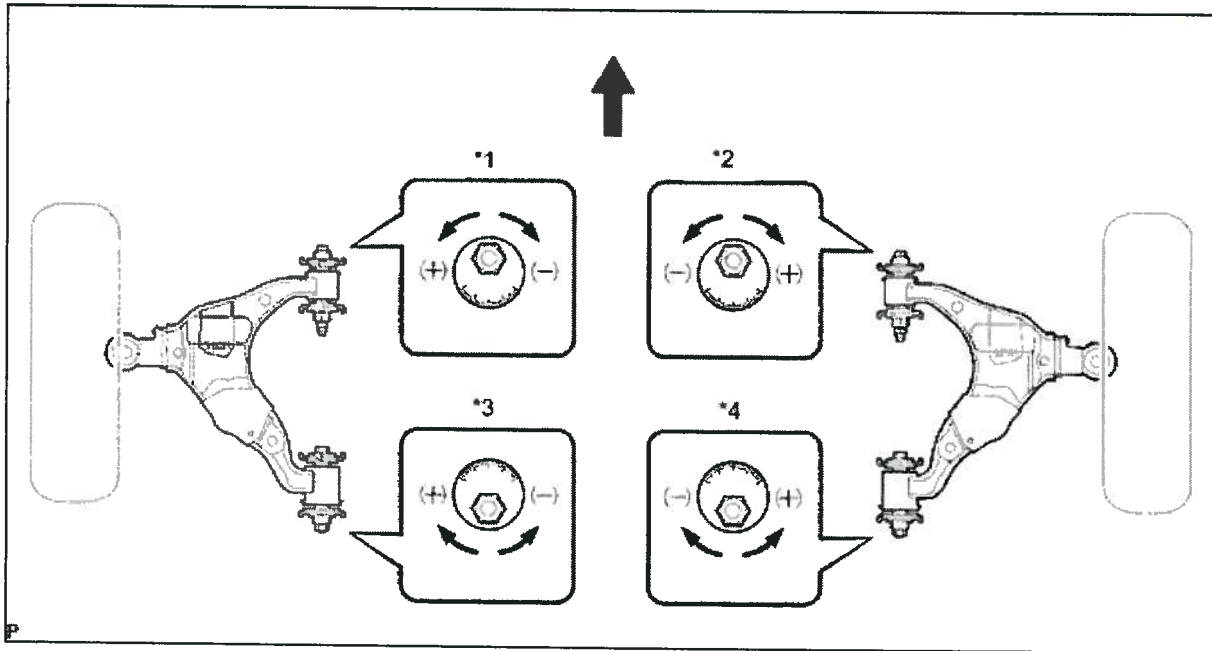
HINT:

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

- Loosen the front adjusting cam bolt and rear adjusting cam nut.
- Turn the front adjusting cam and rear adjusting cam in both directions, and adjust the camber and caster to the center value.

HINT:

- The camber and caster should be as close as possible to the center value.
- Adjust the camber and caster within +/-30'.

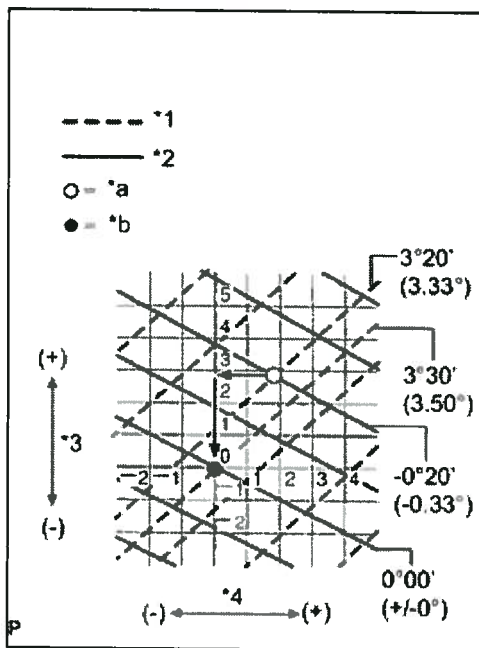
**Text in Illustration**

*1	Front Adjusting Cam LH	*2	Front Adjusting Cam RH
*3	Rear Adjusting Cam LH	*4	Rear Adjusting Cam RH
	Front	-	-

(c) Read the adjustment chart (example).

Text in Illustration

*1	Caster
*2	Camber
*3	Front Adjusting Cam
*4	Rear Adjusting Cam
*a	Measured Value
*b	Standard Value



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

(2) Mark the selected standard value on the adjustment chart.

Standard Value (Reference)

CAMBER	CASTER
0°00' (0.00°)	3°30' (3.50°)

(3) Mark the alignment value measured when the vehicle is unloaded on the adjustment chart.

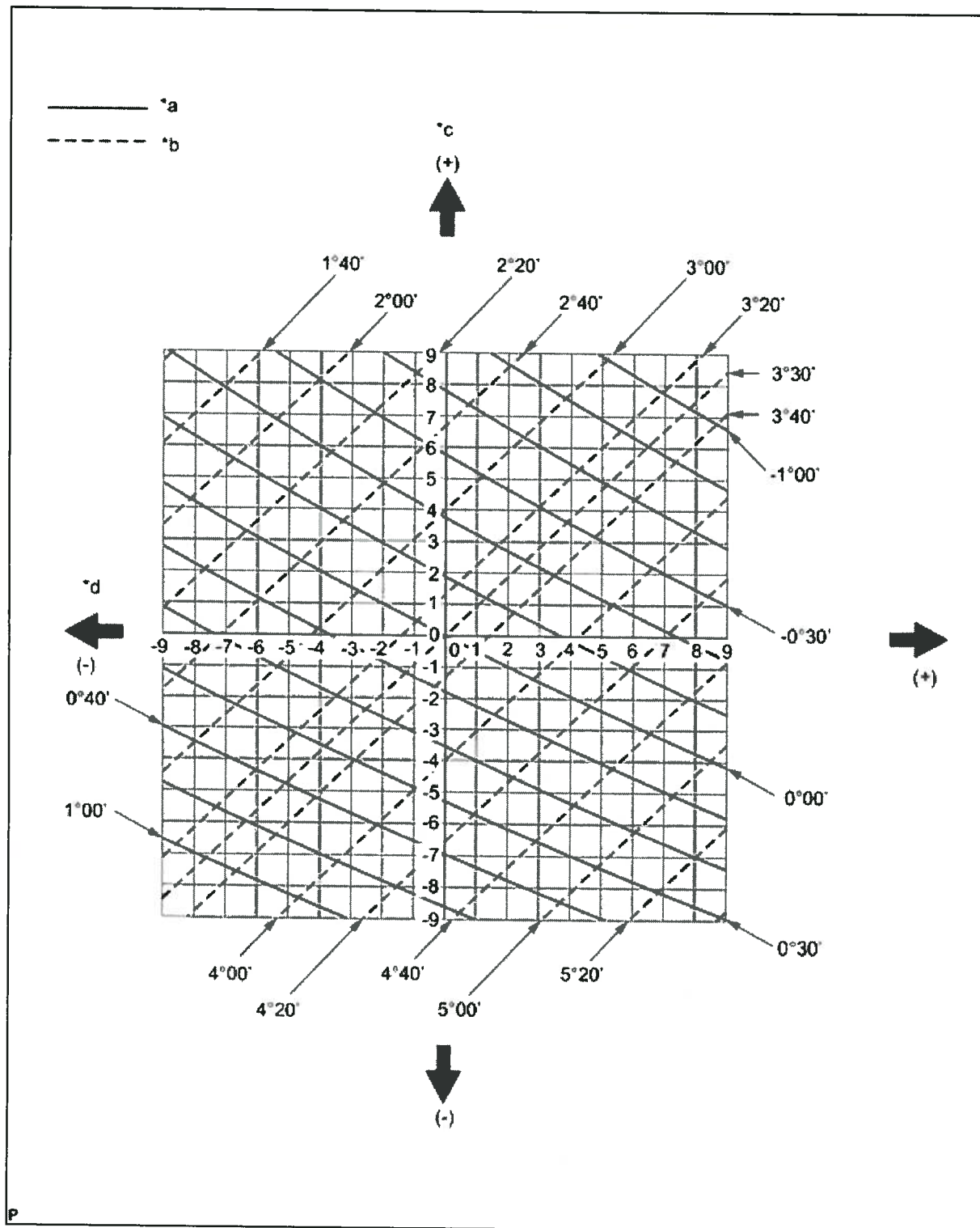
Measured Value (Reference)

CAMBER	CASTER
-0°20' (-0.33°)	3°20' (3.33°)

(4) As shown in the chart, read the distance from the marked point to 0, and adjust the front and/or rear adjusting cams accordingly.

Amount to Turn Adjusting Cams (by Gradation)

FRONT ADJUSTING CAM	REAR ADJUSTING CAM
+3	+2



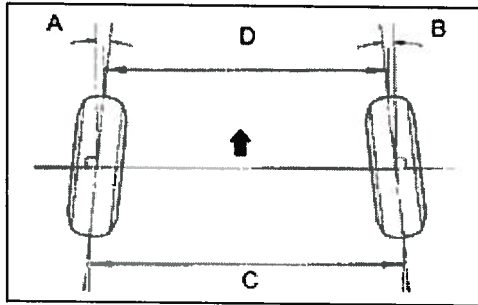
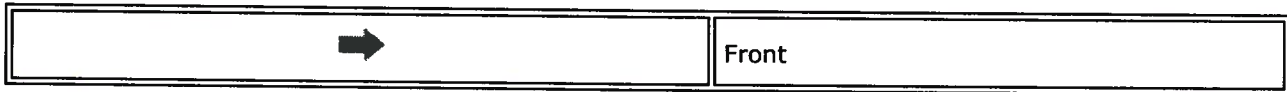
Text in Illustration

*a	Camber	*b	Caster
*c	Front Cam Graduation	*d	Rear Cam Graduation

5. INSPECT TOE-IN

(a) Bounce the vehicle up and down at the corners to stabilize the suspension and inspect the toe-in.

Text in Illustration



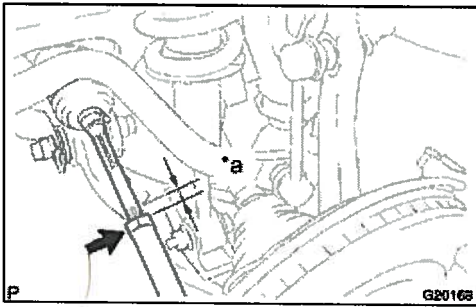
Standard Toe-in (Unloaded Vehicle):

VEHICLE MODEL	GRADE	TOE-IN
GRN280L-GKAGKA	SR5, SR5 Premium	A + B: 0°10' +/-0°9' (0.16° +/-0.15°) C - D: 2.35 +/-2 mm (0.09 +/-0.08 in.)
	LIMITED	A + B: 0°10' +/-0°9' (0.16° +/-0.15°) C - D: 2.16 +/-2 mm (0.09 +/-0.08 in.)
GRN285L-GKAGKA	SR5, SR5 Premium	A + B: 0°10' +/-0°9' (0.16° +/-0.15°) C - D: 2.29 +/-2 mm (0.09 +/-0.08 in.)
	Trail, Trail Premium (w/o KDSS)	A + B: 0°10' +/-0°9' (0.16° +/-0.15°) C - D: 2.11 +/-2 mm (0.08 +/-0.08 in.)
	Trail, Trail Premium (w/ KDSS)	A + B: 0°6' +/-0°9' (0.10° +/-0.15°) C - D: 1.49 +/-2 mm (0.06 +/-0.08 in.)
	LIMITED	A + B: 0°8' +/-0°9' (0.14° +/-0.15°) C - D: 1.60 +/-2 mm (0.06 +/-0.08 in.)

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

6. ADJUST TOE-IN

- Detach the rack boot set clips.
- Loosen the tie rod end lock nuts.
- Turn the right and left rack ends by an equal amount to adjust the toe-in to the center value.
- Check that the lengths of the right and left rack ends are approximately the same.



Standard difference:

0 +/-1 mm (0 +/-0.0394 in.) or less

Text in Illustration

*a	Length
➡	Lock Nut

(e) Tighten the tie rod end lock nuts.

Torque:

88 N·m {897 kgf·cm, 65ft·lbf}

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

HINT:

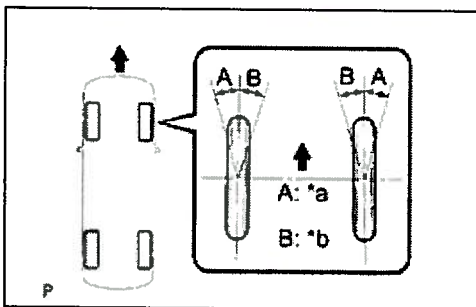
Make sure that the boots are not twisted.

7. INSPECT WHEEL ANGLE

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

Text in Illustration

*a	Inside
*b	Outside
➡	Front



Standard Wheel Turning Angle (Unloaded Vehicle):

VEHICLE MODEL	GRADE	INSIDE WHEEL ANGLE	OUTSIDE WHEEL ANGLE: REFERENCE

GRN280L-GKAGKA	SR5, SR5 Premium	29°48' to 32°48' (29.80° to 32.80°)	29°33' (29.55°)
	LIMITED	29°47' to 32°47' (29.78° to 32.78°)	29°31' (29.52°)
GRN285L-GKAGKA	SR5, SR5 Premium	30°20' to 33°20' (30.33° to 33.33°)	29°28' (29.47°)
	Trail, Trail Premium (w/o KDSS)	30°20' to 33°20' (30.33° to 33.33°)	29°27' (29.45°)
	Trail, Trail Premium (w/ KDSS)	30°17' to 33°17' (30.28° to 33.28°)	29°23' (29.38°)
	LIMITED	30°18' to 33°18' (30.30° to 33.30°)	29°24' (29.40°)

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

8. PLACE FRONT WHEELS FACING STRAIGHT AHEAD

9. PERFORM YAW RATE SENSOR ZERO POINT CALIBRATION

HINT:

Perform the yaw rate sensor zero point calibration .

10. PERFORM INITIALIZATION

HINT:

Some systems need to be initialized after the wheel alignment is adjusted .

