

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JD00
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: ALIGNMENT / HANDLING DIAGNOSIS: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2020 MY Supra [03/2019 -]		

ADJUSTMENT

CAUTION / NOTICE / HINT

NOTICE:

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

HINT:

Camber and toe-in influence each other. Adjust the toe-in first in order to simplify the adjustment procedure.

PROCEDURE

1. INSPECT TIRES

Click here [INFO](#)

2. PREPARATION FOR INSPECTION AND ADJUSTMENT

NOTICE:

- Before inspecting the wheel alignment, adjust the vehicle height to the specified value.
- Be sure to perform measurement on a level surface.
- If it is necessary to go under the vehicle for measurement, confirm that the parking brake is applied and the vehicle is secured with chocks.

(a) Check vehicle interior and luggage compartment for load status, if applicable, unload vehicle.

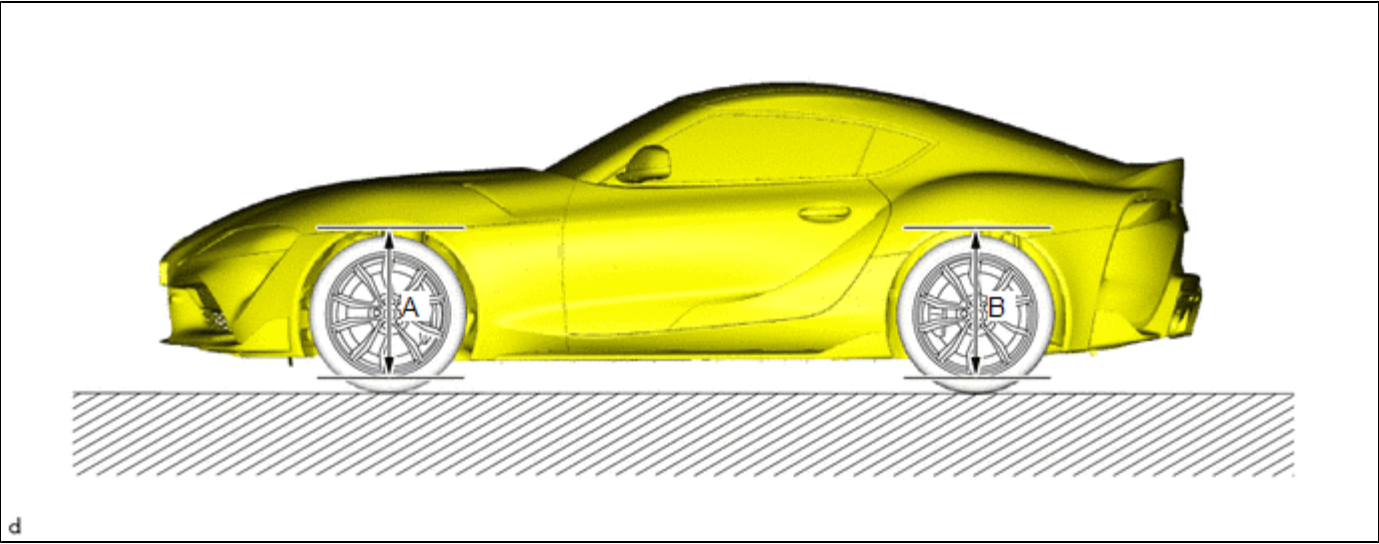
(b) Place specified load into the vehicle.

- Driver seat center position: 68 kg (149.9 lb)
- Passenger seat center position: 68 kg (149.9 lb)
- Luggage compartment center position: 14 kg (30.9 lb)
- Fuel tank: full tank

(c) Position weights in the luggage compartment until the nominal ride-level height of the vehicle is reached.

(d) Position weights in the footwell as far as possible in the direction of front axle until the nominal ride-level height of the vehicle is reached.

(e) Measure the vehicle height.



Vehicle Height:

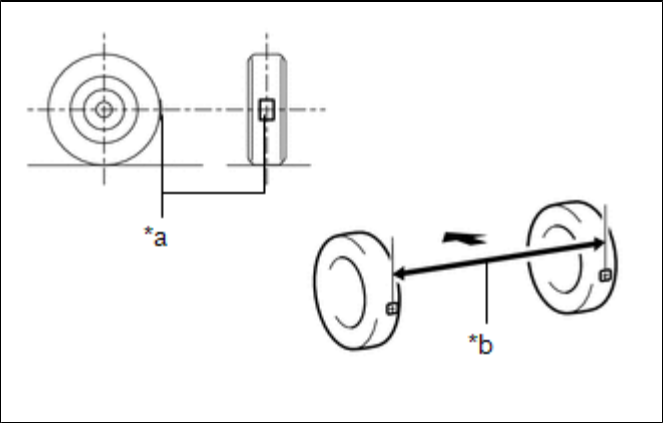
TIRE SIZE	EQUIPMENT	FRONT (A)	REAR (B)
18 inch	w/o AVS	621 mm (2.04 ft.)	619 mm (2.03 ft.)
	w/ AVS	614 mm (2.01 ft.)	612 mm (2.01 ft.)
19 inch	w/o AVS	634 mm (2.08 ft.)	632 mm (2.07 ft.)
	w/ AVS	627 mm (2.06 ft.)	625 mm (2.05 ft.)

NOTICE:

- Height is measured vertically through wheel center from lower rim flank to wheel arch edge.
- The tolerance for the vehicle height is 2 mm (0.0787 in.) or less.
- The difference between the left and right is 2 mm (0.0787 in.) or less.

3. INSPECT TOE-IN

- (a) Bounce the vehicle up and down at the corners to stabilize the suspension.
- (b) Release the parking brake and move the shift position to N.
- (c) Push the vehicle straight ahead approximately 5 m (16.4 ft.). (Step C)
- (d) Put tread center marks on the rearmost points of the front wheels and measure the distance between the marks (dimension B).



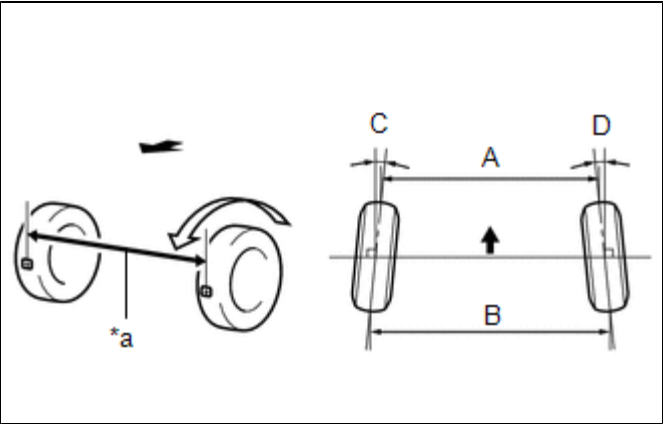
*a	Tread Center Mark
*b	Dimension B

	Front of the Vehicle
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(e) Slowly push the vehicle straight ahead to cause the front wheels to rotate 180°. Use the front tire valve as a reference point.

HINT:
Do not allow the wheels to rotate more than 180°. If the wheels rotate more than 180°, perform the procedure from step C again.

(f) Measure the distance between the tread center marks on the front of the wheels (dimension A).



*a	Dimension A
	Front of the Vehicle

Toe-in:

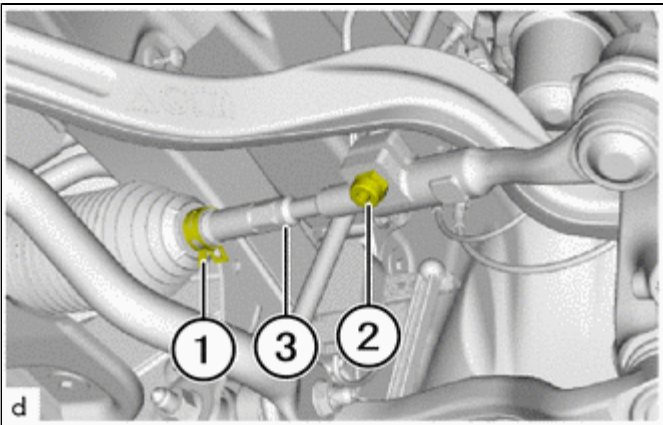
SPECIFIED CONDITION
C + D: 0°16' +/- 0°12' (0.27° +/- 0.20°)
B - A: 3.1 +/- 2.3 mm (0.1220 +/- 0.0906 in.)

HINT:
Measure "B - A" only when "C + D" cannot be measured.

4. ADJUST TOE-IN

HINT:
Camber and toe-in influence each other. Adjust the toe-in first in order to simplify the adjustment procedure.

(a) Separate the steering rack boot clips (1) from the steering rack boot.



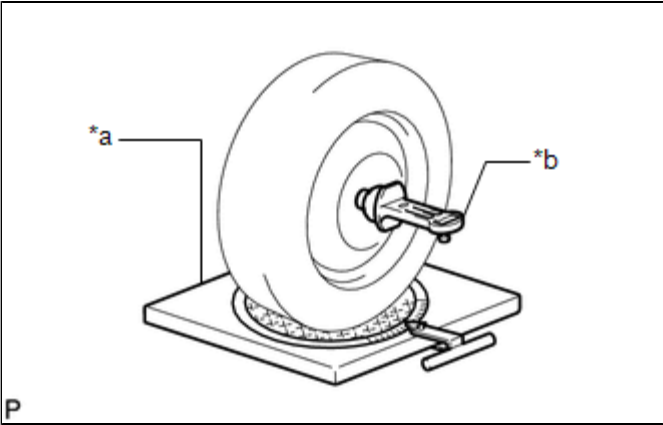
- (b) Loosen the T50 lock bolts (2) on the tie rod end.
- (c) Turn the right and left tie rods (3) by an equal amount to adjust the toe-in.
- (d) Tighten the T50 lock bolts (2) on the tie rod end.

Torque:
32 N·m {326 kgf·cm, 24 ft·lbf}

- (e) Place the steering rack boots on the seats and install the steering rack boot clips (1).

HINT:
 Make sure that the steering rack boots are not twisted.

5. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION



*a	Turning Radius Gauge
*b	Camber-caster-kingpin Gauge

- (a) Install a camber-caster-kingpin gauge and place the front wheels on the center of a turning radius gauge.

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

EQUIPMENT	CAMBER INCLINATION	RIGHT-LEFT DIFFERENCE
w/o AVS	-1°38' +/- 0°30' (-1.63° +/- 0.50°)	0°30' (0.50°) or less
w/ AVS	-1°45' +/- 0°30' (-1.75° +/- 0.50°)	

Caster:

CASTER INCLINATION	RIGHT-LEFT DIFFERENCE
7°35' +/- 0°30' (7.58° +/- 0.50°)	0°30' (0.50°) or less

Steering Axis Inclination:

STEERING AXIS INCLINATION REFERENCE
17°21' (17.35°)

6. ADJUST CAMBER

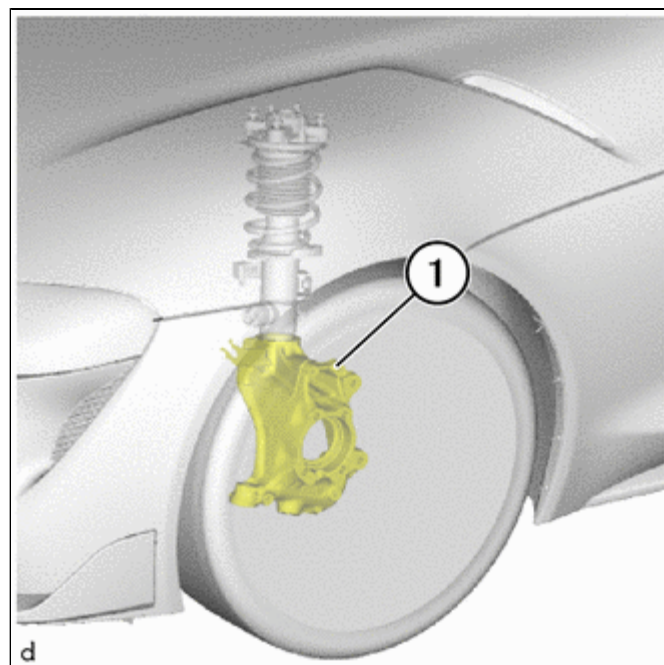
HINT:

Camber and toe-in influence each other. Adjust the toe-in first in order to simplify the adjustment procedure.

- (a) Adjust camber by changing steering knuckle (1) to service steering knuckle.

Service Steering Knuckle:

POSITION	TOYOTA PART NO. (BMW PART NO.)	CORRECTION VALUE
LH side	43212-WAA01 (6 878 613)	Standard
	43212-WAA02 (6 877 201)	-30' (-0.50°)
	43212-WAA03 (6 877 203)	+30' (+0.50°)
RH side	43211-WAA01 (6 878 614)	Standard
	43211-WAA02 (6 877 202)	-30' (-0.50°)
	43211-WAA03 (6 877 204)	+30' (+0.50°)



- (b) Remove the steering knuckle.

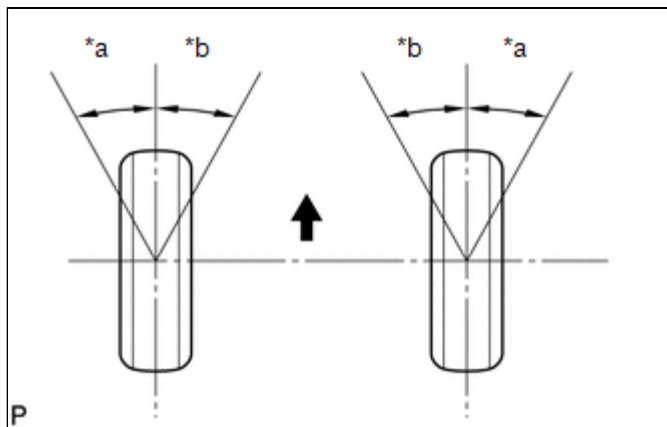
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- (c) Install the service steering knuckle.

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7. INSPECT WHEEL ANGLE

- (a) Put tread center marks on the rearmost points of a turning radius gauge.



*a	Inside
*b	Outside
	Front of the Vehicle

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

Wheel Turning Angle:

INSIDE WHEEL	OUTSIDE WHEEL
38°23' (38.38°)	29°09' (29.15°)

If the right and left inside wheel angles differ from the specified value, check and adjust the right and left tie rod lengths.

8. START-UP OF ELECTROMECHANICAL STEERING

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ADJUSTMENT

CAUTION / NOTICE / HINT

NOTICE:

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

HINT:

When adjusting the camber, the toe is also always changed. The camber must therefore be adjusted first.

PROCEDURE

1. INSPECT TIRES

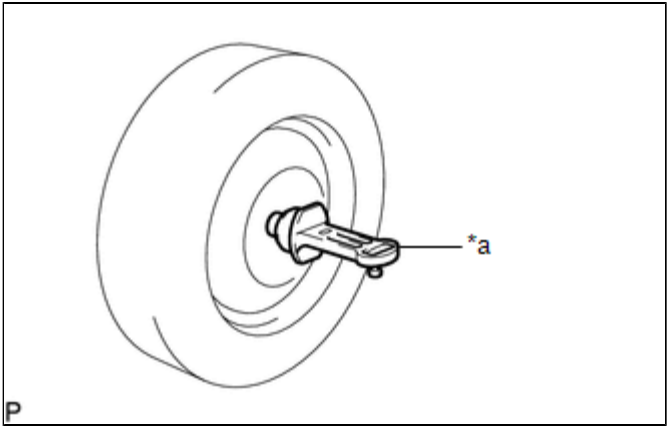
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2. PREPARATION FOR INSPECTION AND ADJUSTMENT

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3. INSPECT CAMBER

(a) Install a camber-caster-kingpin gauge.



*a	Camber-caster-kingpin Gauge
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(b) Inspect the camber.

Camber:

EQUIPMENT	CAMBER INCLINATION	RIGHT-LEFT DIFFERENCE
w/o AVS	-1°50' +/- 0°25' (-1.83° +/- 0.42°)	0°30' (0.50°) or less
w/ AVS	-2°00' +/- 0°25' (-2.00° +/- 0.42°)	

4. ADJUST CAMBER

HINT:

When adjusting the camber, the toe is also always changed. The camber must therefore be adjusted first.

- (a) Remove the rear suspension arm cover.

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- (b) Remove the stoneguard.

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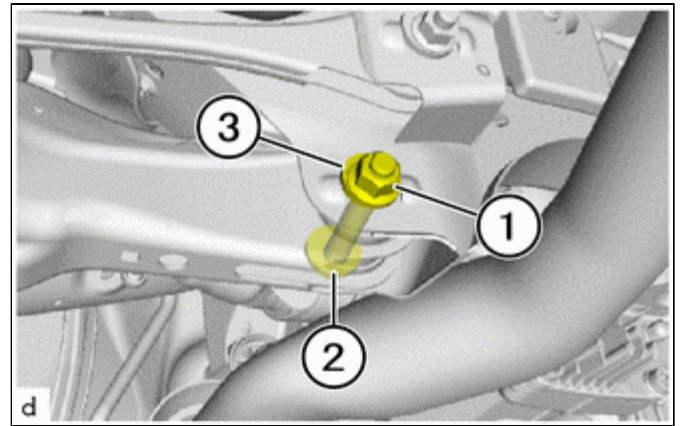
- (c) Remove the rear coil spring.

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- (d) Loosen the nut (1) of the rear No. 2 suspension arm (on the rear suspension member side).

NOTICE:

Hold the 18 mm camber adjust bolt (2) while rotating the nut (1).



- (e) Replace the nut (1), camber adjust bolt (2) and camber adjust washer (3).

CAUTION:

Do not pull out the camber adjustment bolt (2) before removing the rear coil spring.

NOTICE:

During installation, position camber adjust bolt (2) and camber adjust washer (3) in such a way that the eccentric points upward vertically.

- (f) Install the rear coil spring.

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- (g) Rotate the 18 mm camber adjust bolt (2) to adjust the camber.

- (h) Tighten the nut (1) of the rear No. 2 suspension arm (on the rear suspension member side).

Torque:

175 N·m {1785 kgf·cm, 129 ft·lbf}

NOTICE:

Hold the 18 mm camber adjust bolt (2) while rotating the nut (1).

- (i) Install the stoneguard.

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- (j) Install the rear suspension arm cover.

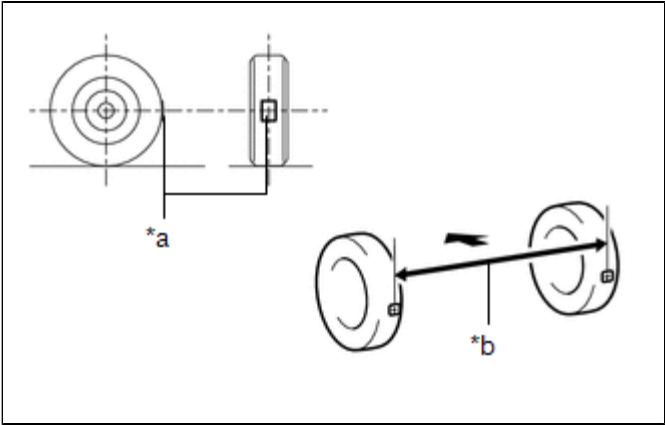
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5. INSPECT TOE-IN

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

- (b) Release the parking brake and move the shift position to N.

- (c) Push the vehicle straight ahead approximately 5 m (16.4 ft.). (Step C)
- (d) Put tread center marks on the rearmost points of the rear wheels and measure the distance between the marks (dimension B).

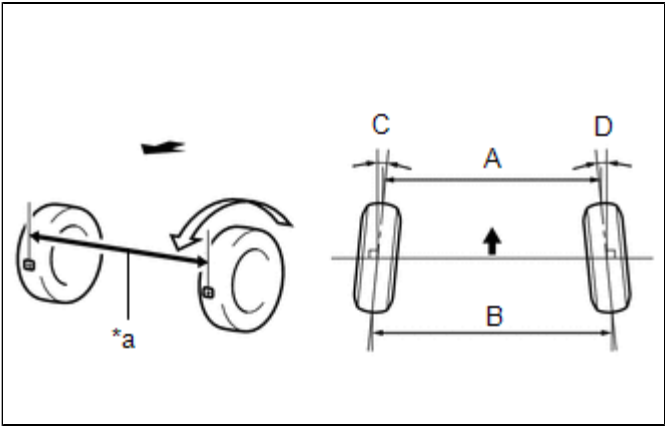


*a	Tread Center Mark
*b	Dimension B
	Front of the Vehicle

- (e) Slowly push the vehicle straight ahead to cause the rear wheels to rotate 180°. Use the rear tire valve as a reference point.

HINT:
 Do not allow the wheels to rotate more than 180°. If the wheels rotate more than 180°, perform the procedure from step C again.

- (f) Measure the distance between the tread center marks on the front of the rear wheels (dimension A).



*a	Dimension A
	Front of the Vehicle

Toe-in:

SPECIFIED CONDITION
C + D: 0°14' +/- 0°12' (0.23° +/- 0.20°)

HINT:

Measure "B - A" only when "C + D" cannot be measured.

6. ADJUST TOE-IN

HINT:

When adjusting the camber, the toe is also always changed. The camber must therefore be adjusted first.

- (a) Remove the rear suspension arm cover.

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- (b) Remove the stoneguard.

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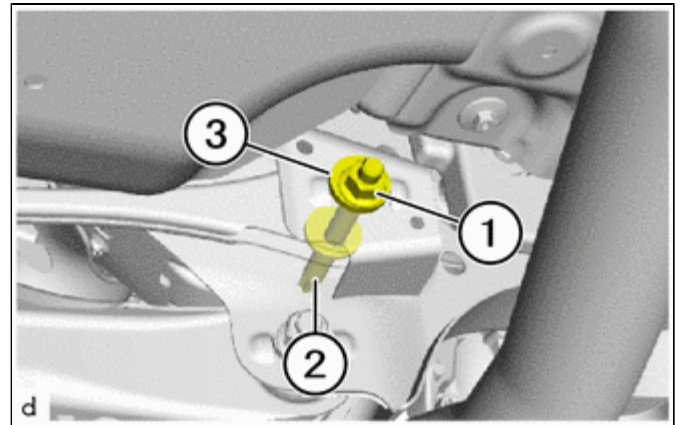
- (c) Remove the rear wheel.

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- (d) Loosen the 18 mm nut (1) of the toe control link (on the rear suspension member side).

NOTICE:

Hold the E14 toe adjust bolt (2) while rotating the 18 mm nut (1).



- (e) Replace the nut (1), toe adjust bolt (2) and toe adjust washer (3).

CAUTION:

Do not pull out the toe adjustment bolt (2) before removing the rear wheel.

NOTICE:

During installation, position toe adjust bolt (2) and toe adjust washer (3) in such a way that the eccentric points upward vertically.

- (f) Install the rear wheel.

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- (g) Rotate the E14 toe adjust bolt (2) to adjust the toe-in.

- (h) Tighten the 18 mm nut (1) of the toe control link (on the rear suspension member side).

Torque:

108 N·m {1101 kgf·cm, 80 ft·lbf}

NOTICE:

Hold the E14 toe adjust bolt (2) while rotating the 18 mm nut (1).

- (i) Install the stoneguard.

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(j) Install the rear suspension arm cover.

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7. ADJUST MILLIMETER WAVE RADAR SENSOR

- Before starting adjustment:

Click here

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- Adjustment:

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TOYOTA