2. Wheel Alignment
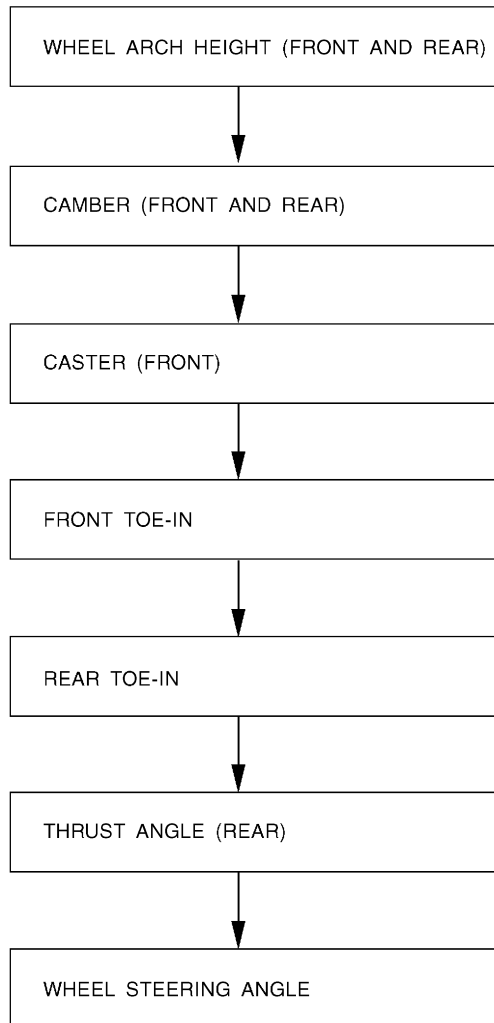
A: INSPECTION

Check, adjust and/or measure wheel alignment in accordance with procedures indicated in figure:

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┌─────────────────────────────────────────────┐
│                                             │
│        ┌─────────────────────────────┐      │
│        │ WHEEL ARCH HEIGHT (FRONT AND REAR) │
│        └─────────────────────────────┘      │
│                      │                      │
│                      ▼                      │
│        ┌─────────────────────────────┐      │
│        │   CAMBER (FRONT AND REAR)    │      │
│        └─────────────────────────────┘      │
│                      │                      │
│                      ▼                      │
│        ┌─────────────────────────────┐      │
│        │       CASTER (FRONT)        │      │
│        └─────────────────────────────┘      │
│                      │                      │
│                      ▼                      │
│        ┌─────────────────────────────┐      │
│        │        FRONT TOE-IN         │      │
│        └─────────────────────────────┘      │
│                      │                      │
│                      ▼                      │
│        ┌─────────────────────────────┐      │
│        │         REAR TOE-IN         │      │
│        └─────────────────────────────┘      │
│                      │                      │
│                      ▼                      │
│        ┌─────────────────────────────┐      │
│        │      THRUST ANGLE (REAR)    │      │
│        └─────────────────────────────┘      │
│                      │                      │
│                      ▼                      │
│        ┌─────────────────────────────┐      │
│        │     WHEEL STEERING ANGLE    │      │
│        └─────────────────────────────┘      │
│                                  FS-00078   │
└─────────────────────────────────────────────┘
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1. WHEEL ARCH HEIGHT

1) Adjust the tire pressure to specifications.
2) Set the vehicle under "curb weight" conditions. (Empty luggage compartment, install spare tire, jack, service tools, and top up fuel tank.)
3) Set the steering wheel in a wheel-forward position.
4) Suspend a thread from wheel arch (point "A" in figure below) to determine the point directly above center of spindle.
5) Measure the distance between measuring point "A" and center of spindle.

FS-00079
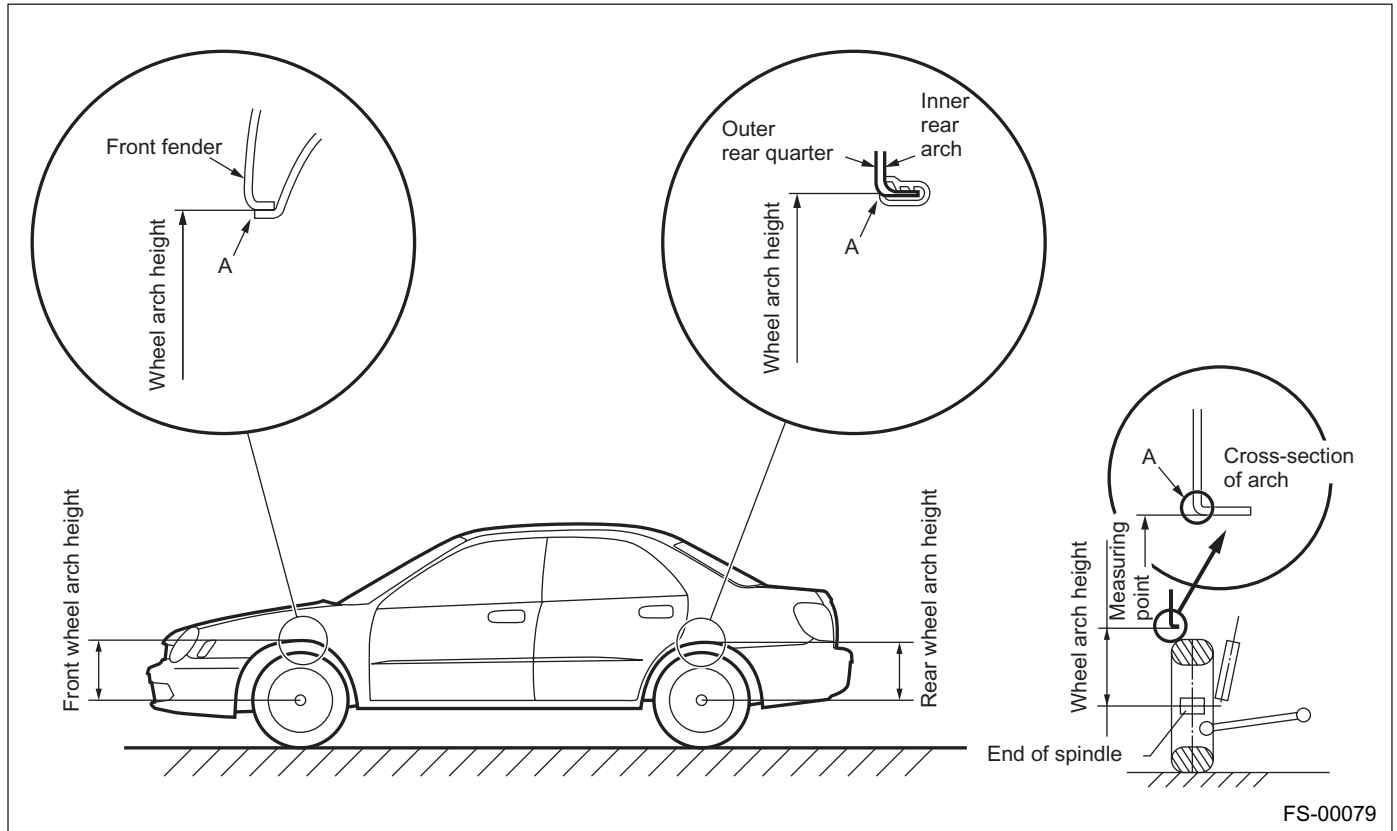
Model		Specified wheel arch height [tolerance: +12 mm (+0.47 in) / −24 mm (−0.94 in)]	
		Turbo	Non-turbo
Sedan	Front	396 mm (15.59 in)	406 mm (15.98 in)
	Rear	376 mm (14.80 in)	381 mm (15.0 in)
Wagon	Front	387 mm (15.24 in)	397 mm (15.63 in)
	Rear	376 mm (14.80 in)	381 mm (15.0 in)
OUTBACK	Front	—	402 mm (15.83 in)
	Rear	—	386 mm (15.20 in)

2. CAMBER

• Inspection

1) Place the front wheel on turning radius gauge. Make sure the ground contacting surfaces of front and rear wheels are set at the same height.
2) Set the ST into the center of the wheel, and then install the wheel alignment gauge.
ST   927380002   ADAPTER

FS-00007
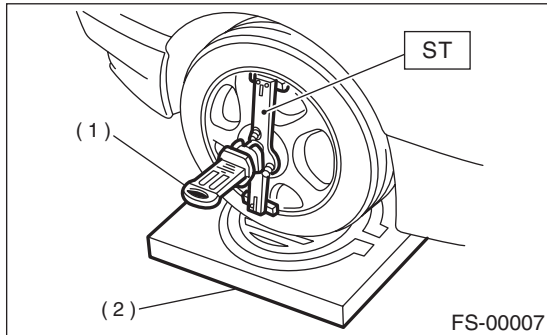
(1) Alignment gauge
(2) Turning radius gauge

NOTE:
Refer to the "SPECIFICATIONS" for the camber values.
Front: <Ref. to FS-2, SPECIFICATIONS, General Description.>
Rear: <Ref. to RS-2, SPECIFICATIONS, General Description.>

• Front camber adjustment

1) Loosen the two self-locking nuts located at the lower front portion of strut.

CAUTION:
• When the adjusting bolt needs to be loosened or tightened, hold its head with a wrench and turn the self-locking nut.
• Discard the loosened self-locking nut and replace with a new one.

2) Turn the camber adjusting bolt so that the camber is set at the specification.
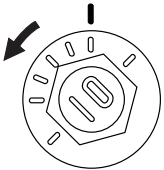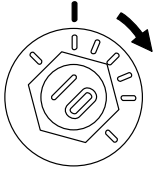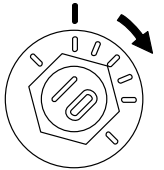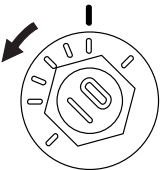
NOTE:
Moving the adjusting bolt by one scale graduation changes the camber by approximately 0°10′.

FS-00008
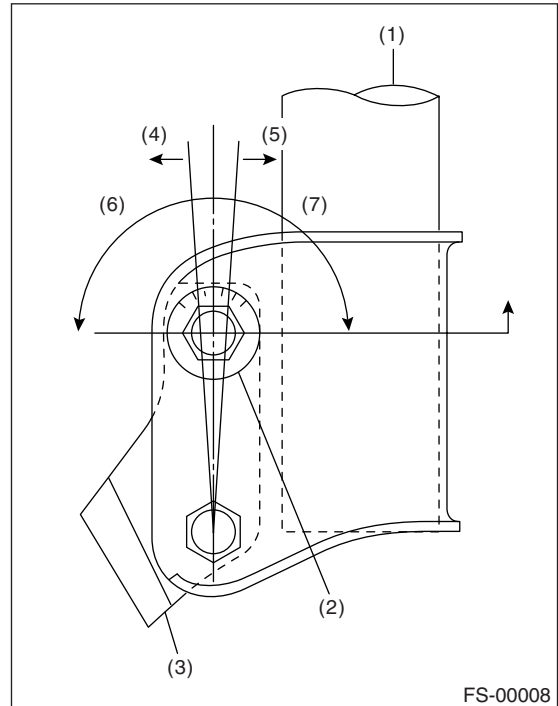
(1) Strut
(2) Adjusting bolt
(3) Housing
(4) Outer
(5) Inner
(6) Camber is increased.
(7) Camber is decreased.

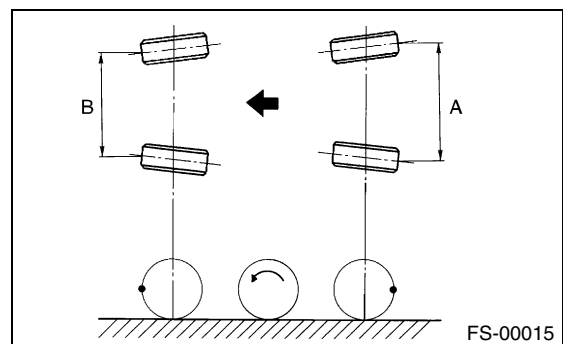|	Left side		Right side	
Camber is increased.	FS-00009	Rotate counterclockwise.	FS-00010	Rotate clockwise.
Camber is decreased.	FS-00010	Rotate clockwise.	FS-00009	Rotate counterclockwise.

3) Tighten the two self-locking nuts.

Tightening torque:
175 N·m (17.8 kgf-m, 129 ft-lb)

3. CASTER

• Inspection

1) Place the front wheel on turning radius gauge. Make sure the ground contacting surfaces of front and rear wheels are set at the same height.
2) Set the ST into the center of the wheel, and then install the wheel alignment gauge.
ST 927380002 ADAPTER
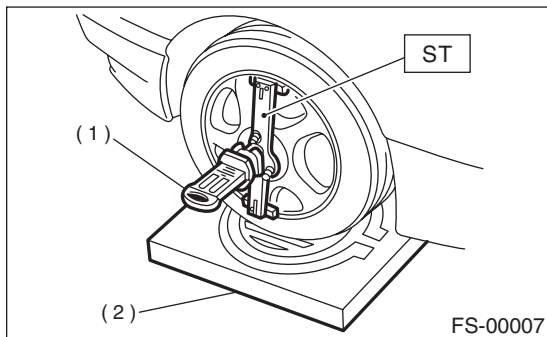
(1) Alignment gauge
(2) Turning radius gauge

NOTE:
Refer to the "SPECIFICATIONS" for the caster values. <Ref. to FS-2, SPECIFICATIONS, General Description.>

4. FRONT WHEEL TOE-IN

• Inspection

1) Using a toe gauge, measure the front wheel toe-in.

Toe-in:
0±3 mm (0±0.12 in)

2) Mark the rear sides of left and right tires at height corresponding to the center of spindles and measure distance "A" between marks.
3) Move the vehicle forward so that the marks line up with front sides at height corresponding to the center of spindles.
4) Measure the distance "B" between left and the right marks. Toe-in can then be obtained by the following equation:
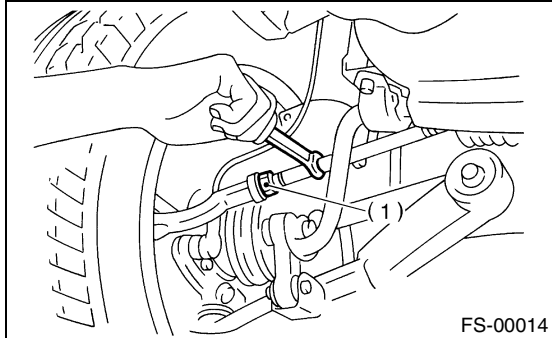
A − B = Toe-in

• Adjustment

1) Loosen the left and right side steering tie-rods lock nuts.

2) Turn the left and right tie rods equal amounts until the toe-in is at the specification.
Both the left and right tie-rods are right-hand threaded. To increase toe-in, turn both tie-rods clockwise equal amounts (as viewed from the inside of the vehicle).

FS-00014

(1) Lock nut

3) Tighten the tie-rod lock nut.

Tightening torque:
  83 N·m (8.5 kgf-m, 61.5 ft-lb)

CAUTION:
Correct the tie-rod boot, if it is twisted.

NOTE:
Check that the left and right wheel steering angle is within specifications.

5. REAR WHEEL TOE-IN

• Inspection

1) Using a toe-in gauge, measure the rear wheel toe-in.

Toe-in:
  0±3 mm (0±0.12 in)

2) Mark the rear sides of left and right tires at height corresponding to the center of spindles and measure distance "A" between marks.
3) Move the vehicle forward so the that marks line up with front sides at height corresponding to the center of spindles.

4) Measure the distance "B" between left and right marks. Toe-in can then be obtained by the following equation:

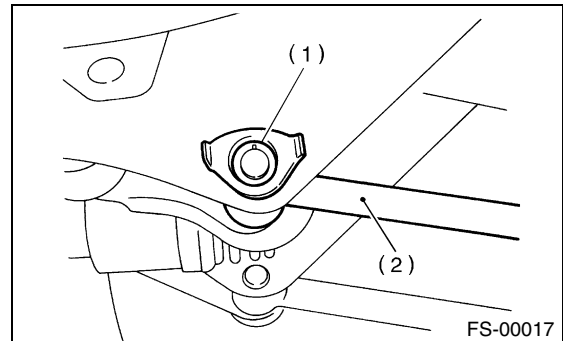**A − B = Toe-in**

FS-00015
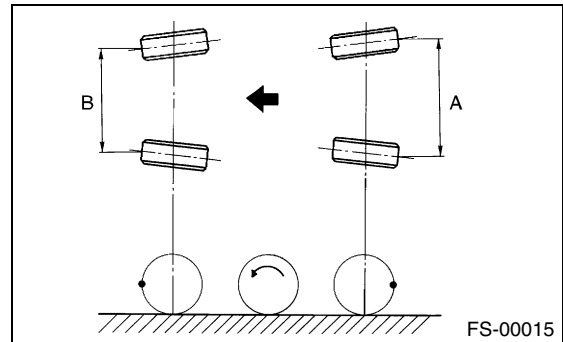
• Adjustment

1) Loosen the self-locking nut on inner side of link rear.

CAUTION:
• When loosening or tightening the adjusting bolt, hold the bolt head and turn self-locking nut.
• Discard the loosened self-locking nut and replace with a new one.
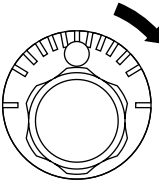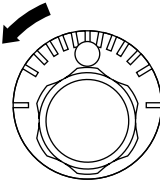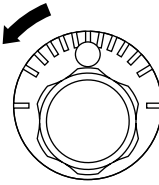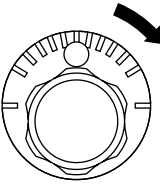

FS-00017

(1) Adjusting bolt
(2) Link rear

2) Turn the adjusting bolt head until toe-in is at the specification.

NOTE:
When the left and right wheels are adjusted for toe-in at the same time, the movement of one scale graduation changes toe-in by approximately 1.5 mm (0.6 in).

	Left side		Right side	
Toe-in is increased.	FS-00018	Rotate clockwise.	FS-00019	Rotate counterclockwise.
Toe-in is decreased.	FS-00019	Rotate counterclockwise.	FS-00018	Rotate clockwise.

3) Tighten the self-locking nut.

Tightening torque:
  100 N·m (10.2 kgf-m, 74 ft-lb)

6. STEERING ANGLE

• Inspection

1) Place the vehicle on a turning radius gauge.
2) While depressing the brake pedal, turn the steering wheel fully to the left and right. With the steering wheel held at each fully turned position, measure both the inner and outer wheel steering angle.
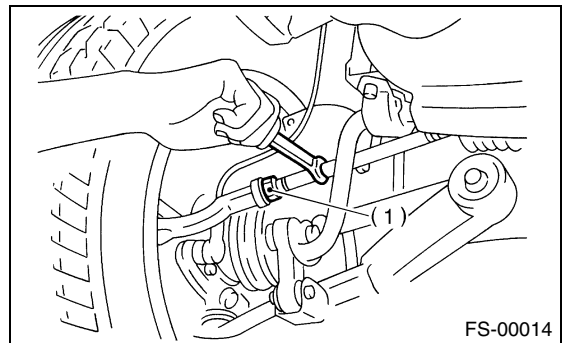
Steering angle:

Model	Turbo, sedan and OUTBACK	Others
Inner wheel	34°05'±1.5°	36°55'±1.5°
Outer wheel	29°35'±1.5°	31°35'±1.5°

• Adjustment

Turn the tie-rod to adjust the steering angle of both inner and outer wheels.

CAUTION:
- **Check the toe-in.**
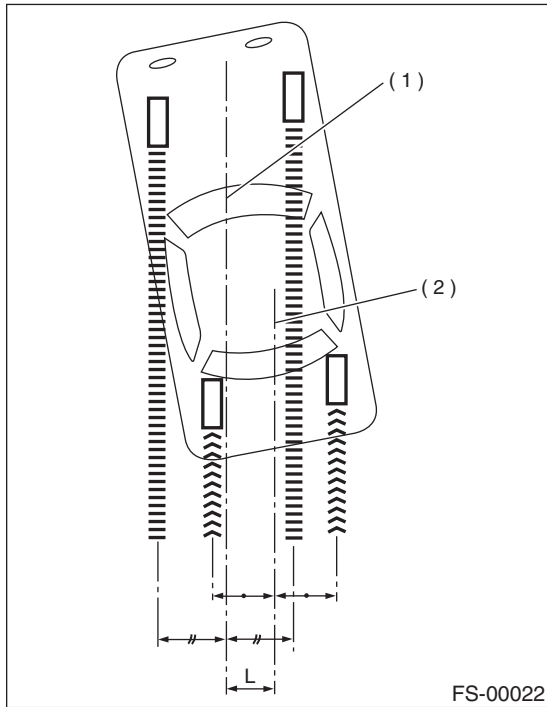- **Correct the boot if it is twisted.**

FS-00014

(1) Lock nut

7. THRUST ANGLE

• Inspection

1) Position the vehicle on a level surface.
2) Move the vehicle 3 to 4 meters directly forward.
3) Determine the locus of both front and rear axles.
4) Measure the distance "L" between center line of loci of the axles.

Thrust angle:
Less than 20′ when "L" is equal to or less than 15 mm (59 in).

FS-00022

(1) Center line of loci (front axle)
(2) Center line of loci (rear axle)

### • Adjustment

1) Make the thrust angle adjustments by turning toe-in adjusting bolts of rear suspension equally in the same direction.
2) When one rear wheel is adjusted in a toe-in direction, adjust the other rear wheel equally in toe-out direction, in order to make the thrust angle adjustment.

3) When the left and right adjusting bolts are turned incrementally by one graduation in the same direction, the thrust angle will change approximately 16′ ["L" is almost equal to 12 mm (0.472 in)].

Thrust angle:
0°±20′

FS-00022
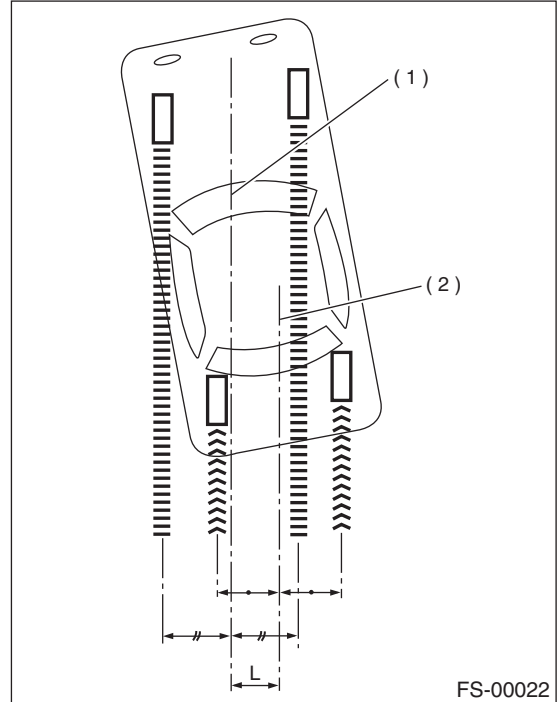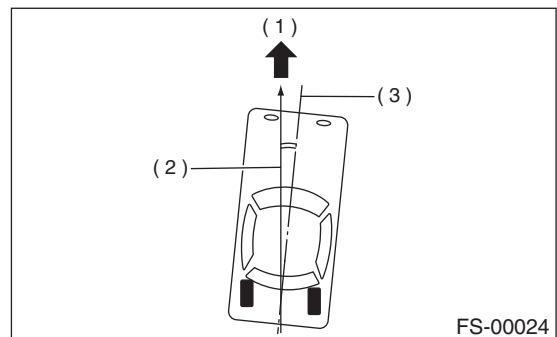
(1) Center line of loci (front axle)
(2) Center line of loci (rear axle)

NOTE:
Thrust angle refers to a mean value of left and right rear wheel toe angles in relation to the vehicle body center line. Vehicle is driven straight in the thrust angle direction while swinging in the oblique direction depending on the degree of the mean thrust angle.

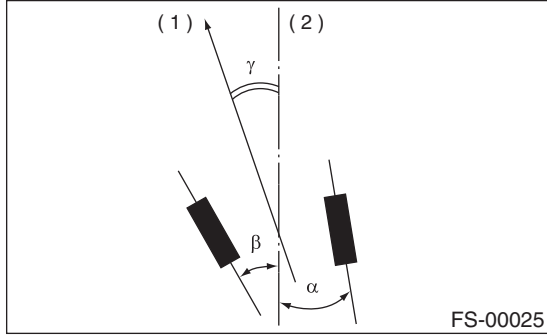FS-00024

(1) Front
(2) Thrust angle
(3) Body center line

Thrust angle: r = (*α* − *β*)/2

α: Right rear wheel toe-in angle
β: Left rear wheel toe-in angle

NOTE:
Here, use only positive toe-in values from each wheel to substitute for α and β in the equation.

FS-00025

(1) Front
(2) Body center line