FRONT WHEEL ALIGNMENT

SA17I–09

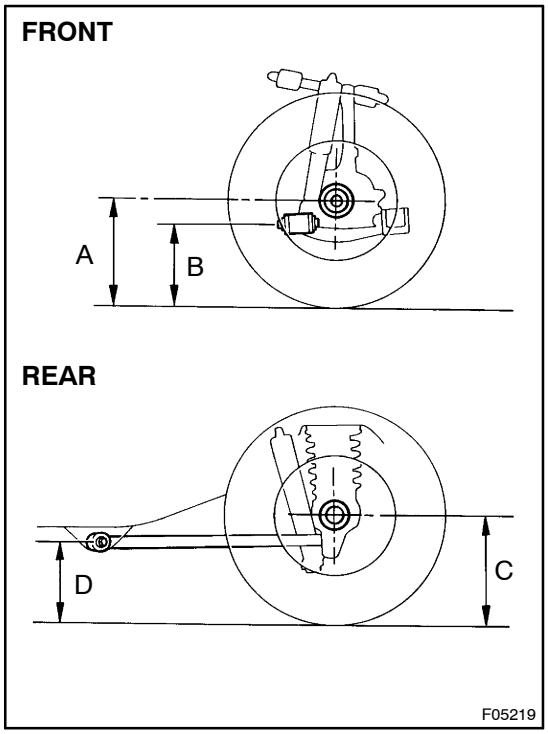
INSPECTION

NOTICE:

After adjusting wheel alignment perform the VGRS calibration.

HINT:

- For the steering wheel off–center, perform the "steering off–center" (See page DI–162).
- Check that the "STRAIGHT ANG FLG" is "VALID" in the DATA LIST (See page DI–91 step 5.).



1. MEASURE VEHICLE HEIGHT

Vehicle height

EUROPE

Engine	Front	Rear
2UZ–FE	A – B: 75.0 mm (2.953 in.)	C – D: 40.0 mm (1.575 in.)
1HD–FT	A – B: 76.0 mm (2.992 in.)	C – D: 41.0 mm (1.614 in.)

GENERAL

Engine	Front	Rear
2UZ–FE	A – B: 76.0 mm (2.992 in.)	C – D: 31.0 mm (1.220 in.)
1HD–T	A – B: 76.0 mm (2.992 in.)	C – D: 34.0 mm (1.339 in.)

G.C.C.

Engine	Front	Rear
2UZ–FE	A – B: 72.0 mm (2.835 in.)	C – D: 53.0 mm (2.087 in.)
1FZ–FE	A – B: 71.0 mm (2.795 in.)	C – D: 64.0 mm (2.520 in.)

AUSTRALIA

Front	A – B: 75.0 mm (2.953 in.)
Rear	C – D: 39.0 mm (1.535 in.)

w/ AHC System

Front	A – B: 83.0 mm (3.268 in.)
Rear	C – D: 71.0 mm (2.795 in.)

Measuring points:

A: Ground clearance of spindle center

B: Ground clearance of lower suspension arm front bolt center

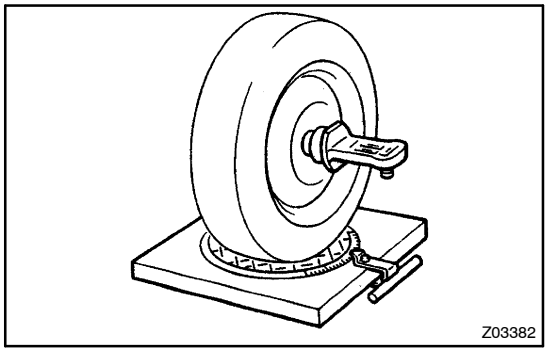
C: Ground clearance of rear axle shaft center

D: Ground clearance of lower control arm front bolt center

NOTICE:

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.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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

EUROPE AND GENERAL (2UZ –FE)

Camber Left–right error	0° 05' ± 45' (0.08 ° ± 0.75°) 30' (0.5 °) or less
Caster Left –right error	2° 10' ± 45' (2.17 ° ± 0.75°) 30' (0.5 °) or less
Steering axis inclination Left–right error	12° 10' ± 45' (12.17 ° ± 0.75°) 30' (0.5 °) or less

GENERAL (1HD–T)

Camber Left–right error	0° 05' ± 45' (0.08 ° ± 0.75°) 30' (0.5 °) or less
Caster Left –right error	2° 25' ± 45' (2.42 ° ± 0.75°) 30' (0.5 °) or less
Steering axis inclination Left–right error	12° 10' ± 45' (12.17 ° ± 0.75°) 30' (0.5 °) or less

G.C.C. (2UZ –FE)

Camber Left–right error	0° 05' ± 45' (0.08 ° ± 0.75°) 30' (0.5 °) or less
Caster Left –right error	2° 15' ± 45' (2.25 ° ± 0.75°) 30' (0.5 °) or less
Steering axis inclination Left–right error	12° 10' ± 45' (12.17 ° ± 0.75°) 30' (0.5 °) or less

G.C.C. (1FZ–FE)

Camber Left–right error	0° 05' ± 45' (0.08 ° ± 0.75°) 30' (0.5 °) or less
Caster Left –right error	2° 50' ± 45' (2.83 ° ± 0.75°) 30' (0.5 °) or less
Steering axis inclination Left–right error	12° 10' ± 45' (12.17 ° ± 0.75°) 30' (0.5 °) or less

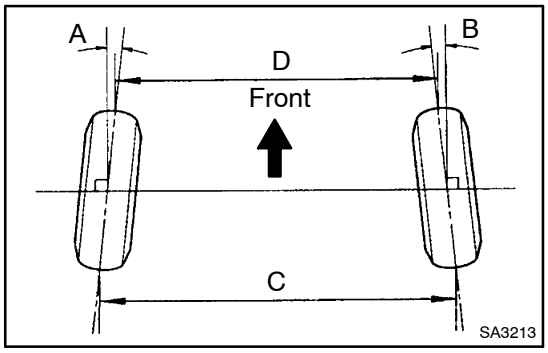
AUSTRALIA

Camber Left–right error	0° 05' ± 45' (0.08 ° ± 0.75°) 30' (0.5 °) or less
Caster Left –right error	2° 10' ± 45' (2.17 ° ± 0.75°) 30' (0.5 °) or less
Steering axis inclination Left–right error	12° 10' ± 45' (12.17 ° ± 0.75°) 30' (0.5 °) or less

w/ AHC System

Camber Left–right error	0° 00' ± 45' (0 ° ± 0.75°) 30' (0.5 °) or less
Caster Left –right error	3° 05' ± 45' (3.08 ° ± 0.75°) 30' (0.5 °) or less
Steering axis inclination Left–right error	12° 15' ± 45' (12.25 ° ± 0.75°) 30' (0.5 °) or less

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



4. INSPECT TOE –IN

w/ AHC System

Toe–in (total)	A + B: 0 °00' ± 12' (0 ° ± 0.2°) C – D: 0 ± 2 mm (0 ± 0.08 in.)

OTHERS

Toe–in (total)	A + B: 0 °06' ± 12' (0.1 ° ± 0.2°) C – D: 1 ± 2 mm (0.04 ± 0.08 in.)

If the toe –in is not within the specification, adjust the rack ends.

5. ADJUST CAMBER AND CASTER

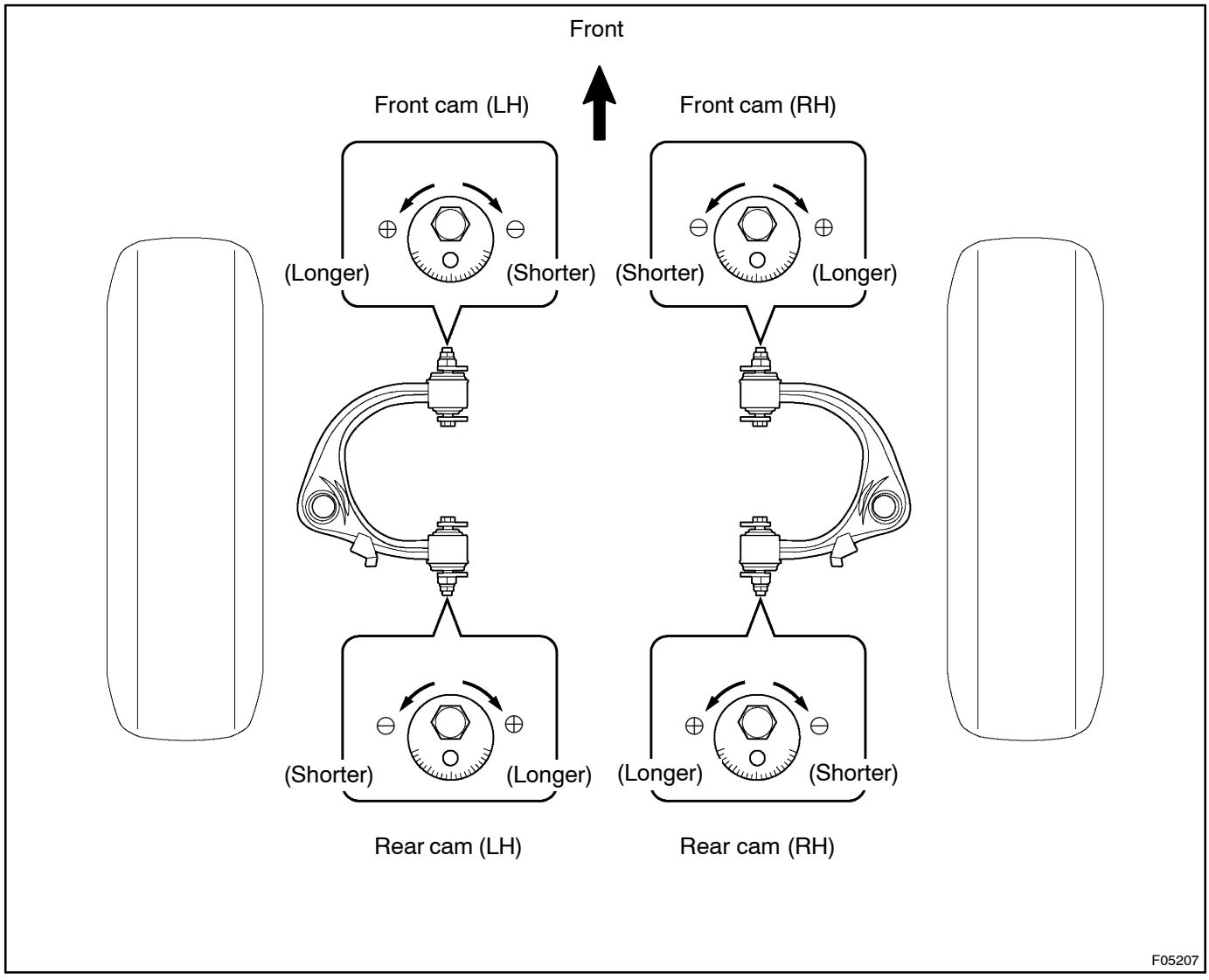
NOTICE:

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

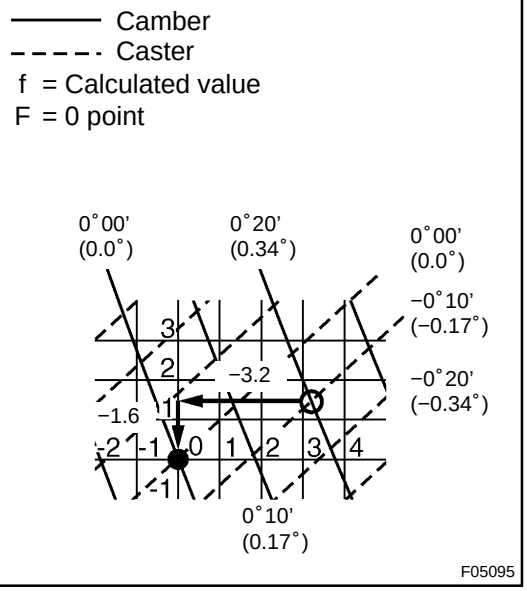
(a) Loosen the front and/or rear adjusting cam nuts.

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

HINT:
Try to adjust the camber and caster to the center value.



(Example)



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

(1) Measure the present alignment.

Camber: −0°20' (−0.33°)

Caster: 3°15' (3.25°)

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

Standard value:

Camber: 0°00' (0°)

Caster: 3°05' (3.08°)

Formula: A − B = C

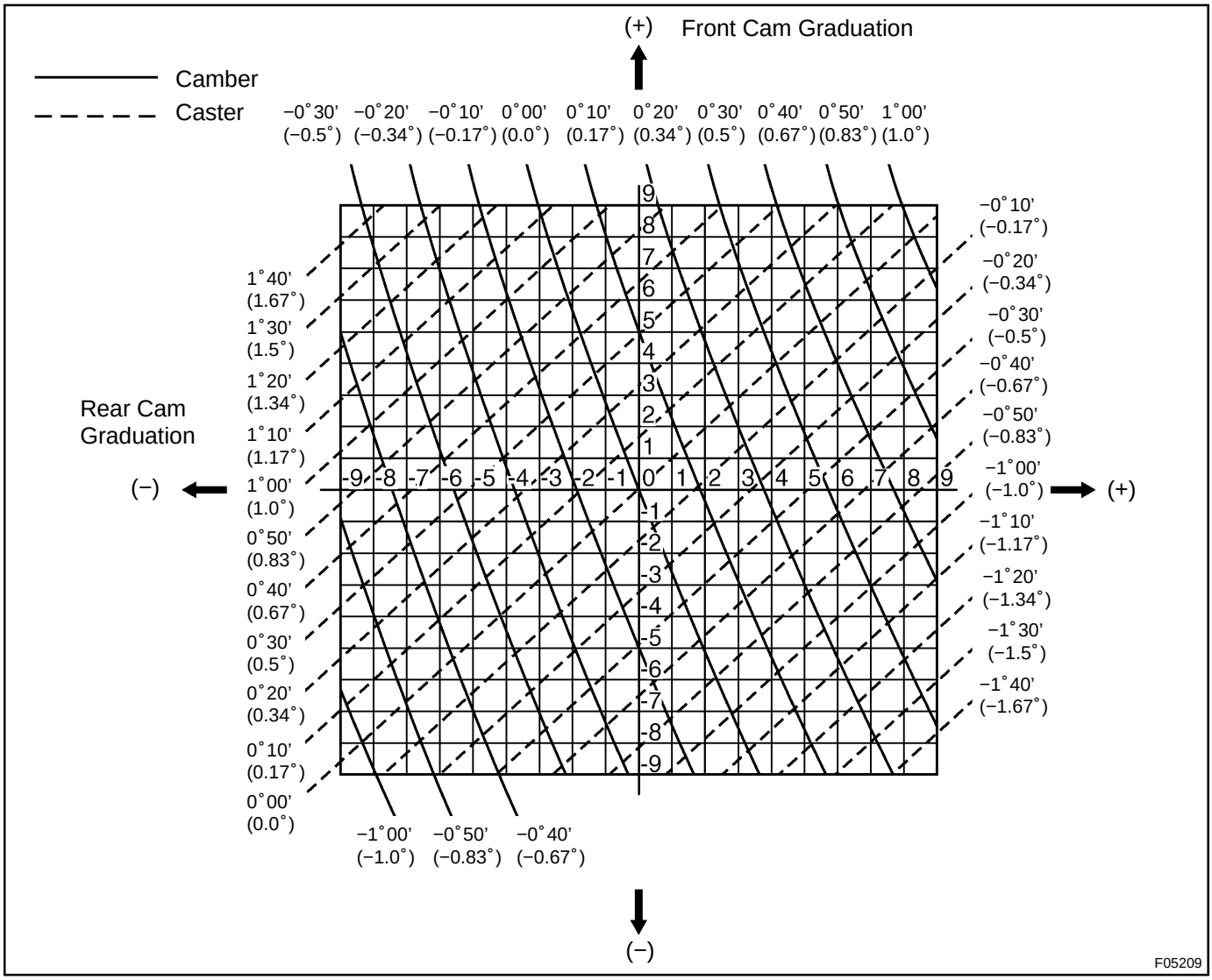
Camber: 0°00' − (−0°20') = 0°20'

Caster: 3°05' − 3°15' = −0°10'

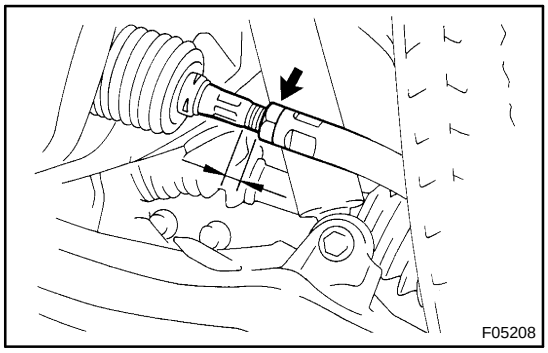
(3) As shown in the chart, read the distance from the marked point to 0 point, and adjust the front and/or rear adjusting cams accordingly.

Front cam: − (Shorter) 1.6

Rear cam: − (Shorter) 3.2



(d) Torque the front and/or rear adjusting cam nuts.
Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)



6. ADJUST TOE−IN

NOTICE:
After adjusting wheel alignment perform the VGRS calibration.

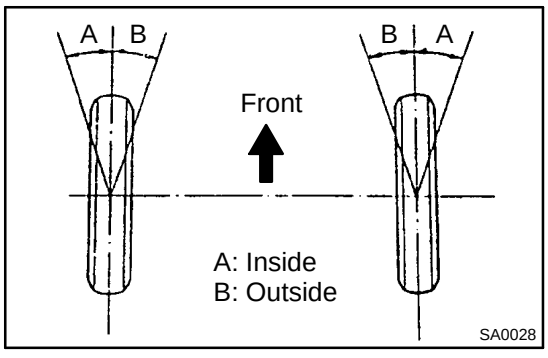
(a) Check or adjust the lengths of the rack ends, then adjust the toe−in.
Rack end length difference: 3.0 mm (0.118 in.) or less
(b) Remove the boot clamps.
(c) Loosen the tie rod lock nuts.
(d) Turn the left and right rack ends an equal amount to adjust the toe−in.

HINT:
Try to adjust the toe−in to the center value.

(e) Tighten the tie rod lock nuts.
(f) Place the boot on the seat and clamp it.

HINT:
Make sure that the boots are not twisted.

(g) Perform the VGRS system calibration (See page DI−100).
(h) Perform the zero point calibration of yaw rate and deceleration sensor (See Pub No. RM970E, page DI−185).

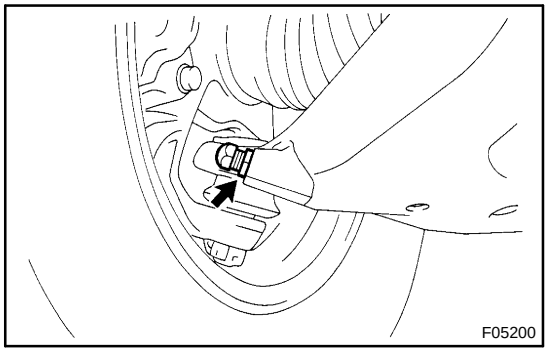


7. INSPECT AND ADJUST WHEEL ANGLE

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

Inside wheel	36˚42’ (33˚42’ − 36˚42’) 36.7˚ (33.7˚ − 36.7˚)
Reference: Outside wheel	32˚36’ 32.6˚

If the wheel angles differ from the standard of the specification, inspect the toe−in.



(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)