

2022 Toyota Truck Tundra 4WD V6-3.5L Turbo (V35A-FTS)

Vehicle > Sensors and Switches > Sensors and Switches - Accessories and Optional Equipment > Collision Avoidance Sensor > Adjustments

BLIND SPOT MONITOR SENSOR - ADJUSTMENT [03/2022 -]

PARK ASSIST / MONITORING: BLIND SPOT MONITOR SENSOR: ADJUSTMENT; 2022 MY Tundra Tundra HV [03/2022 -]

PROCEDURE

1. BSM ECU DATE SAVE

NOTICE:

- Confirm that communication malfunction with other parts is not detected before changing blind spot monitor sensor.
- When the ECU data cannot be saved due to an ECU malfunction or a communication malfunction, perform the blind spot monitor beam axis confirmation.
- In the following situations, perform blind spot monitor beam axis confirmation after the blind spot monitor sensor has been replaced with a new one.
 - When a minor collision is suspected.
 - For a vehicle that has undergone sheet metal repairs.
 - For a vehicle in which the system frequently operates inappropriately or fails to operate.
 - When a DTC for rear side radar sensor (module "B") beam axis misalignment (horizontal) or rear side radar sensor (module "A") beam axis misalignment (horizontal) has been stored.
 - When RoB code for Rear Side Radar Sensor (Module "B") Beam Axis Not Adjusted or Rear Side Radar Sensor (Module "A") Beam Axis Not Adjusted has been stored.
 - When RoB code Rear Side Radar Sensor (Module "B") Blockage or Rear Side Radar Sensor (Module "A") Blockage has been stored.
 - When RoB code for Rear Side Radar Sensor (Module "B") Blockage Level 2 or Rear Side Radar Sensor (Module "A") Blockage Level 2 has been stored.

HINT:

By performing BSM "A" ECU data save or BSM "B" ECU data save, it becomes possible to save the beam axis adjustment value to the GTS.

Body Electrical > Blind Spot Monitor "B" > Utility

Tester Display
BSM "B" ECU Data Save

Body Electrical > Blind Spot Monitor "A" > Utility

Tester Display

Tester Display
BSM "A" ECU Data Save

HINT:

The "B" is on the RH side and the "A" is on the LH side.

Part Name	Tester Item
Blind spot monitor sensor RH	Blind Spot Monitor "B"
Blind spot monitor sensor LH	Blind Spot Monitor "A"

b. Check the results displayed for the BSM "A" ECU data save or BSM "B" ECU data save.

2. BSM ECU DATE WRITE

NOTICE:

- The value saved from the old blind spot monitor sensor RH before replacement should be written to the new blind spot monitor sensor RH.
- The value saved from the old blind spot monitor sensor LH before replacement should be written to the new blind spot monitor sensor LH.
- In the following situations, to prevent incorrect or unnecessary operation of the blind spot monitor sensor, do not perform the procedure to write data to the BSM ECU.
 - When the BSM data was copied from a different vehicle than the one to which BSM data will be written.
 - When the BSM ECU data saved from the old blind spot monitor sensor LH before replacement will be written to a new blind spot monitor sensor RH.
 - When the BSM ECU data saved from the old blind spot monitor sensor RH before replacement will be written to a new blind spot monitor sensor LH.

HINT:

By performing BSM "A" ECU data write or BSM "B" ECU data write, the beam axis adjustment value from the old blind spot monitor sensor before replacement can be written to the new blind spot monitor sensor.

Body Electrical > Blind Spot Monitor "B" > Utility

Tester Display
BSM "B" ECU Data Write

Body Electrical > Blind Spot Monitor "A" > Utility

Tester Display
BSM "A" ECU Data Write

HINT:

The "B" is on the RH side and the "A" is on the LH side.

Part Name	Tester Item
Blind spot monitor sensor RH	Blind Spot Monitor "B"
Blind spot monitor sensor LH	Blind Spot Monitor "A"

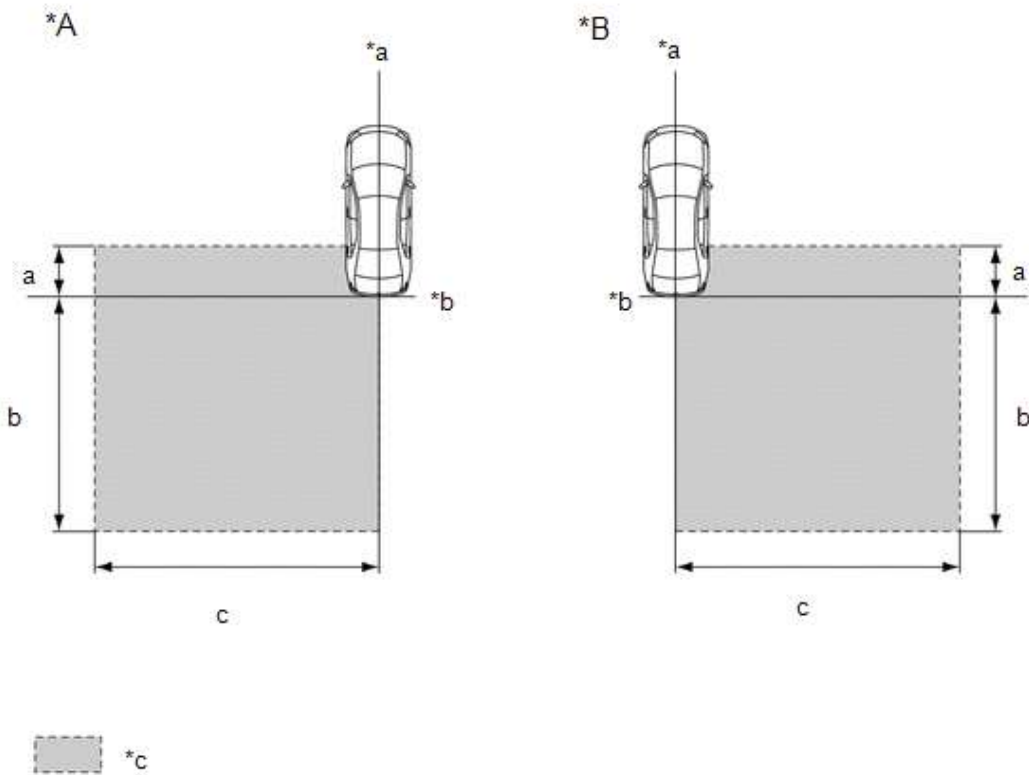
b. Check the results displayed for the BSM "A" ECU data write or BSM "B" ECU data write.

3. PERFORM BLIND SPOT MONITOR BEAM AXIS CONFIRMATION

HINT:

The blind spot monitor beam axis confirmation is performed to confirm whether the sensor's beam axis is correct, and perform adjustment of the beam axis by using a reflector.

a. When performing the blind spot monitor beam axis confirmation, move the vehicle to a place where the space shown in the illustration can be secured.



*A	Left Side of Vehicle	*B	Right Side of Vehicle
*a	Vehicle Center Line	*b	Edge of Rear Bumper
*c	Inspection Area	-	-

Standard:

Location	Measurement
a	1 m (3.28 ft.)
b	5 m (16.40 ft.)
c	6 m (19.68 ft.)

NOTICE:

- **Perform this inspection on level ground.**
- **Make sure that there are no metal objects around the vehicle or on the ground.**
- **Unload the vehicle before beginning the inspection.**
- **Confirm that the tire pressure is correct before beginning the inspection.**
- **Do not place any objects other than the reflector (such as a large metallic object) in or allow people to enter the inspection area (W 6 m [19.68 ft.] x L 6 m [19.68 ft.] x H 3 m [9.84 ft.]) shown in the illustration.**

b. Place the reflector.

1. Hang a weight with a pointed tip from the center of the symbol emblem, and mark the rear center point of the vehicle (point A) on the ground.

The diagram illustrates the setup for aligning the Blind Spot Monitor sensor. It shows the rear of a vehicle with a string and weight hanging from the center of the symbol emblem. A callout provides a top-down view of the sensor area, showing the string and weight hanging from the center of the emblem. The callout includes labels: *a for the string, *b for the weight, *c for the center of the emblem, and *d for the bilateral symmetry of the sensor area.

*a	String	*b	Weight
*c	Center	*d	Bilateral Symmetry

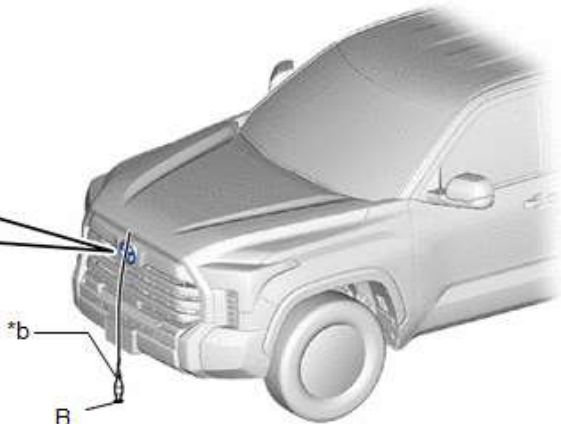
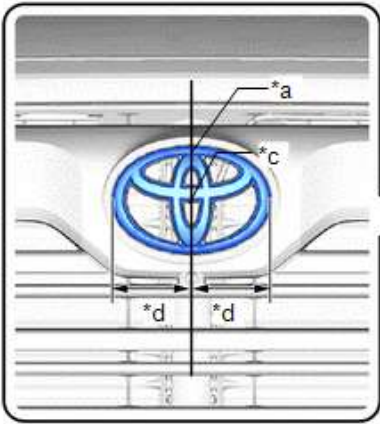
HINT:

Lightly flick the string with your fingers several times to confirm that the string is aligned with mark A.

2. for Type A:

Hang a weight with a pointed tip from the center of the radiator grille (or front panel) emblem,

and mark the front center point of the vehicle (point B) on the ground.



0

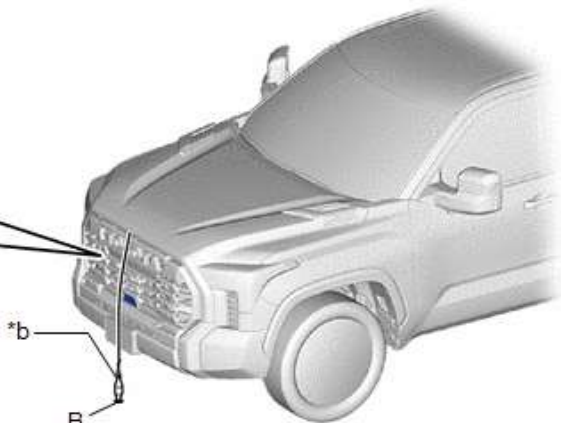
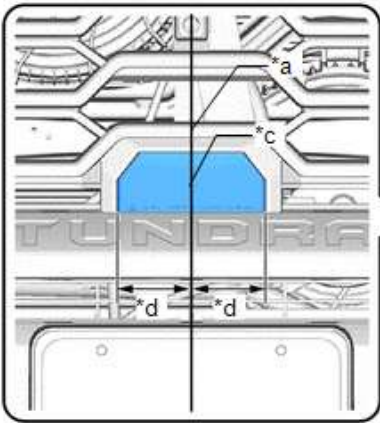
*a	String	*b	Weight
*c	Center	*d	Bilateral Symmetry

HINT:

Lightly flick the string with your fingers several times to confirm that the string is aligned with mark B.

3. for Type B:

Hang a weight with a pointed tip from the center of the front panel center garnish, and mark the front center point of the vehicle (point B) on the ground (placement position).



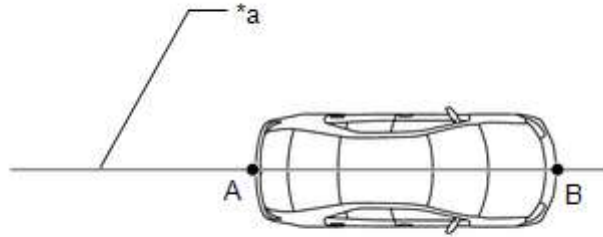
0

*a	String	*b	Weight
*c	Center	*d	Bilateral Symmetry

HINT:

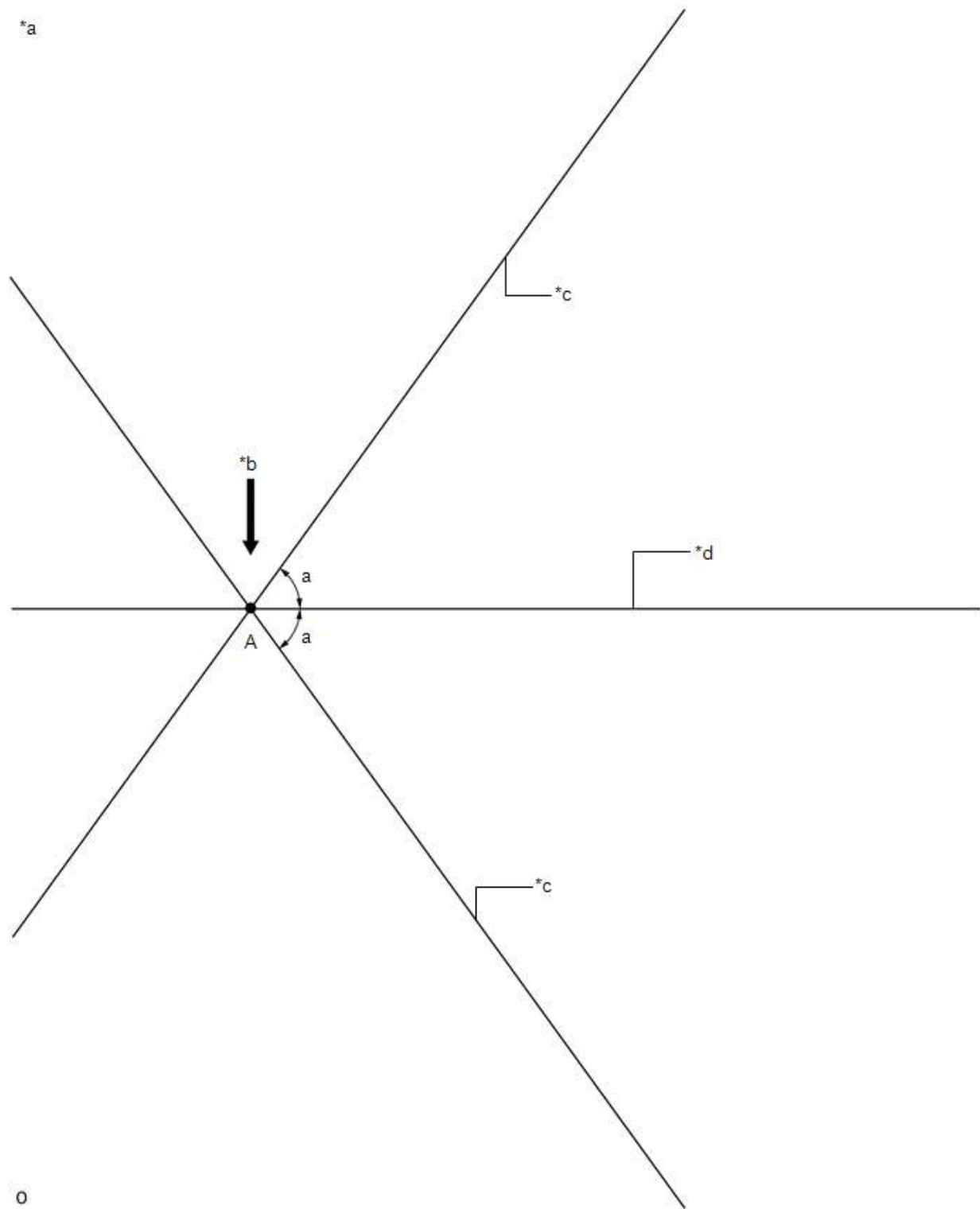
Lightly flick the string with your fingers several times to confirm that the string is aligned with mark B.

4. Draw a vehicle center line so that it passes through mark A and B (front and rear center points).



*a	Vehicle Center Line
----	---------------------

5. Enlarge and print out the poster shown in the illustration.

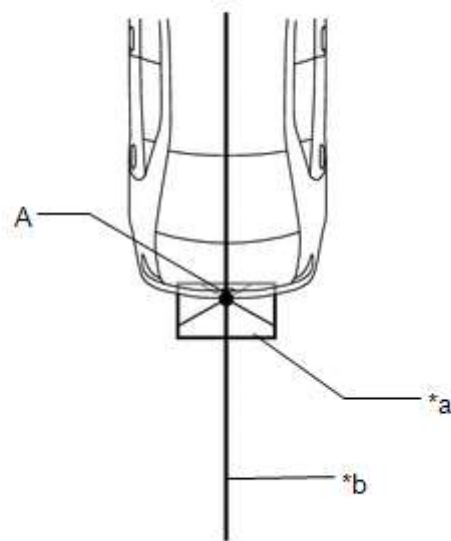


*a	Poster	*b	Edge of Rear Bumper
*c	Line C	*d	Vehicle Center Line

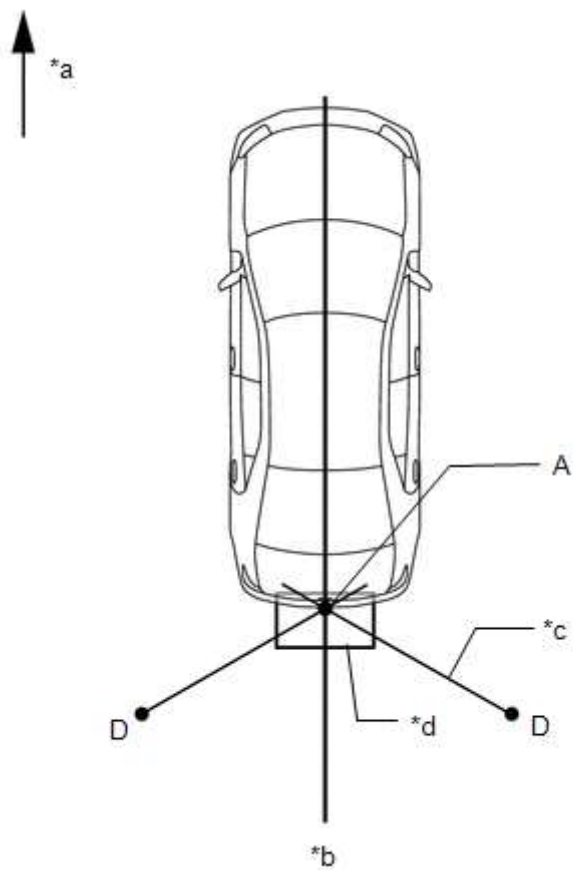
Standard:

Part	Angle
a	54.1°

6. Attach the printed poster to the floor with the vehicle center line aligned with point A as shown in the illustration.



*a	Poster
*b	Vehicle Center Line



*a	Vehicle Front
*b	Vehicle Center Line
*c	String
*d	Poster

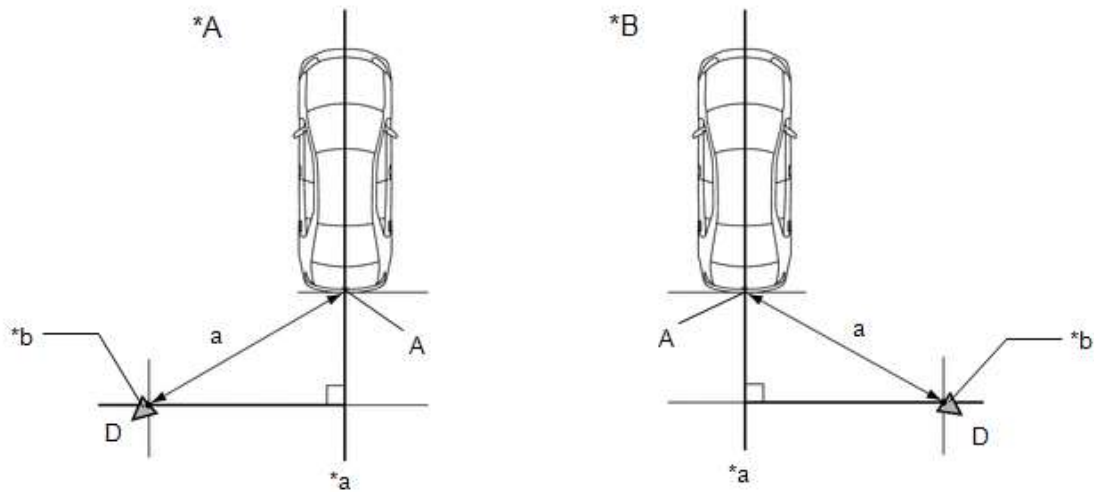
7. Align a piece of string with line C and mark point D at a distance of 3088 mm (10.1 ft.) from point A.

8. Set the reflector at the point D shown in the illustration below.

SST : 09870-60000

09870-60010

SST : 09870-60040



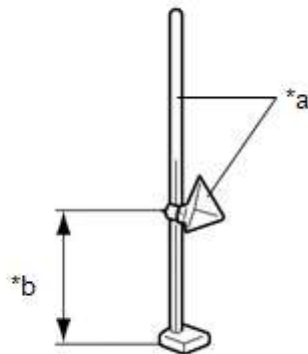
*A	Left Side of Vehicle	*B	Right Side of Vehicle
*a	Vehicle Center Line	*b	Reflector

Standard:

Part	Length
a	3088 mm (10.1 ft.)

NOTICE:

- except lifted trucks:

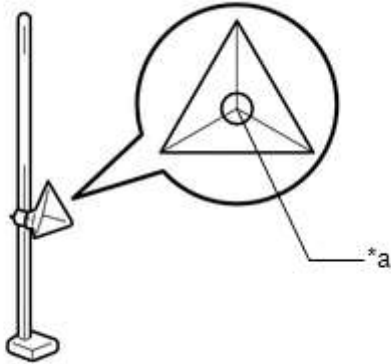


H

*a	SST (Reflector)
*b	▪ except lifted trucks: 674.5 mm (2.21 ft.) ▪ for lifted trucks: 745 mm (2.44 ft.)

Set the reflector so that its center is 674.5 mm (2.21 ft.) above the ground.

- for lifted trucks:
Set the reflector so that its center is 745 mm (2.44 ft.) above the ground.
- The center of the triangular pyramid is the reference point for the setting position and angle.



*a	Center of Triangular Pyramid
----	------------------------------

- Set the reflector as shown in the illustration so that the center of the triangular pyramid faces the blind spot monitor sensor.

- c. Perform the blind spot monitor beam axis display.
1. Turn the blind spot monitor system on.

Body Electrical > Blind Spot Monitor "B" > Utility

Tester Display
BSM "B" Beam Axis Display

Body Electrical > Blind Spot Monitor "A" > Utility

Tester Display
BSM "A" Beam Axis Display

HINT:

The "B" is on the RH side and the "A" is on the LH side.

Part Name	Tester Item
Blind spot monitor sensor RH	Blind Spot Monitor "B"
Blind spot monitor sensor LH	Blind Spot Monitor "A"

3. Check the results displayed for the BSM beam axis display.

Allowable Range:

Item	Blind Spot Monitor Sensor RH (B)	Blind Spot Monitor Sensor LH (A)
Angle	-3.6 to +3.6°	-3.6 to + 3.6°

HINT:

If the displayed results are outside the permissible range, the following are possible causes. Therefore, implement countermeasures, check the blind spot monitor beam axis and perform the procedure again.

Possible Causes	Countermeasure
Incorrect SST (reflector) position	Check the position of SST (reflector) and checking space and perform the procedure again
A metallic object is located in the vicinity of the checking space	Check the position of SST (reflector) and checking space and perform the procedure again
The blind spot monitor sensor installation is abnormal	Check the installation condition of the blind spot monitor sensor

d. Perform the blind spot monitor beam axis adjustment.

Body Electrical > Blind Spot Monitor "B" > Utility

Tester Display
BSM "B" Beam Axis Adjustment

Body Electrical > Blind Spot Monitor "A" > Utility

Tester Display
BSM "A" Beam Axis Adjustment

HINT:

When values on the axis display are in the allowable range, performing this adjustment compensates for any deviation from the normal value.

4. PERFORM BLIND SPOT MONITOR SENSOR INSTALLATION CONDITION INSPECTION

NOTICE:

- Perform this inspection on level ground.
- Unload the vehicle before beginning the inspection.
- Confirm that the tire pressure is correct before beginning the inspection.

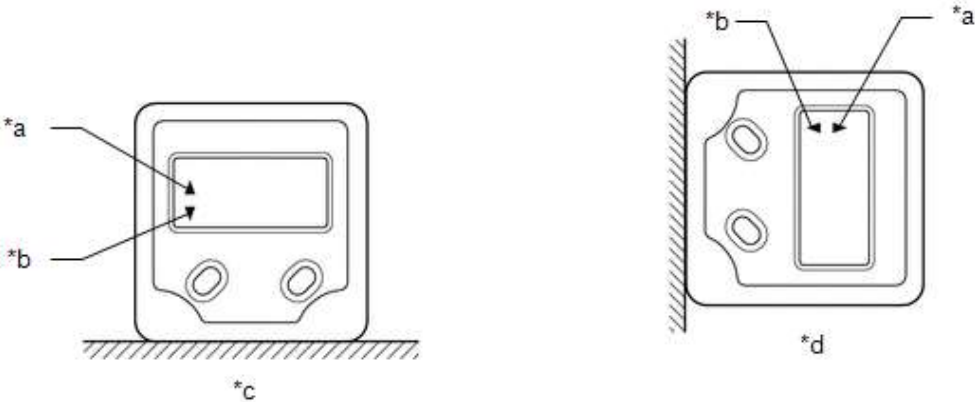
HINT:

The blind spot monitor sensor installation condition inspection is performed to confirm whether the sensor is perpendicular to the floor surface (+/-2.2°) by using a digital angle gauge, and that the sensor is 46 to 54° from the line parallel to the vehicle center line.

- a. Remove the rear bumper assembly.

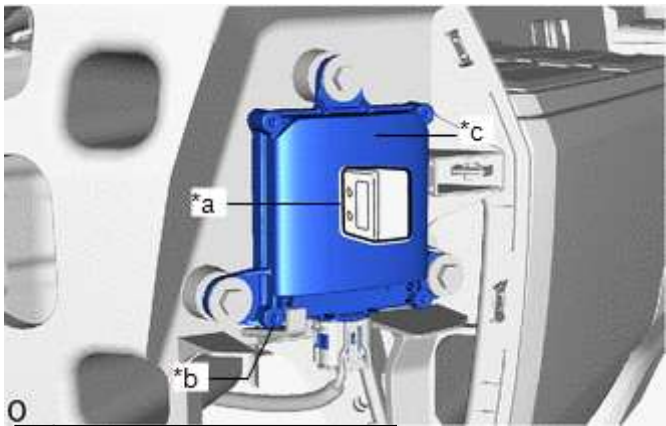
Click here [**EXTERIOR PANELS / TRIM: REAR BUMPER: REMOVAL**]

- b. Place the digital angle gauge on a level (gradient within 1%) and perform zero-point adjustment as shown in the illustration.



*a	(+)	*b	(-)
*c	When Storing Zero Point	*d	After Storing Zero Point, Indicates 90° When Fully Horizontal

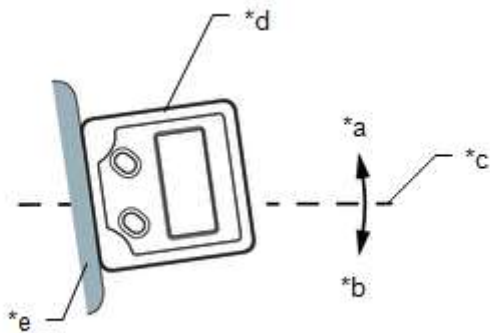
- c. Set the digital angle gauge to the outward facing surface of the blind spot monitor sensor as shown in the illustration, and check that the perpendicular angle of the blind spot monitor sensor is within the permissible range.



*a	Digital Angle Gauge
*b	Blind Spot Monitor Sensor
*c	Outward Facing Surface

HINT:

The outward facing surface (installation angle) is positive (+) when it faces higher than horizontal.



*a	(+)
*b	(-)
*c	Horizontal Line
*d	Digital Angle Gauge
*e	Outward Facing Surface

Standard:

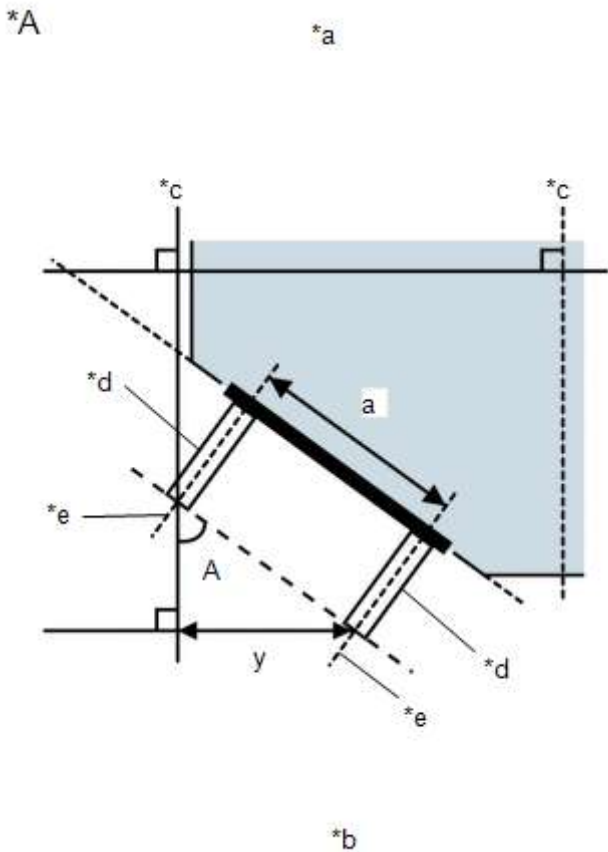
Item	Allowable Range
Blind Spot Monitor Sensor RH (B)	+87.8 to +92.2°
Blind Spot Monitor Sensor LH (A)	+87.8 to +92.2°

d. Using the sensor installation stud bolt center lines as a reference, check that the stud bolts are as shown in the illustration.

Standard:

Dimension	Specified Value
a	108 mm (4.25 in.)
y	78 to 87 mm (3.07 to 3.43 in.)

Degree	Specified Value
A	46 to 54°



*A	Vehicle Rear (LH)
*a	Vehicle Front
*b	Vehicle Rear
*c	Line Parallel to the Vehicle Center Line
*d	Stud Bolt
*e	Stud Bolt Center Line

HINT:

If the results are not as specified, it is possible that the blind spot monitor sensor installation area (frame, stud bolt) is deformed, so make corrections as necessary.

- e. Install the rear bumper assembly.

Click here [**EXTERIOR PANELS / TRIM: REAR BUMPER: INSTALLATION**]