

Subject

**Millimeter Wave Radar Sensor Floor Slope Compensation**

Market

USA

Service Category

Engine/Hybrid System

Section

Cruise Control

Applicability

Toyota Models with Manually Adjusted Millimeter Wave Radar Sensor

**APPLICABLE VEHICLES**

2013-2015	Avalon HV	2014-2016	Highlander
2016-2018	Mirai	2014-2016	Highlander HV
2011-2017	Sienna	2013-2015	Land Cruiser
2012-2015	Prius PHV	2015-2018	Camry
2010-2015	Prius	2015-2018	Camry HV
2012-2017	Prius V	2013-2015	Avalon

**CONDITION**

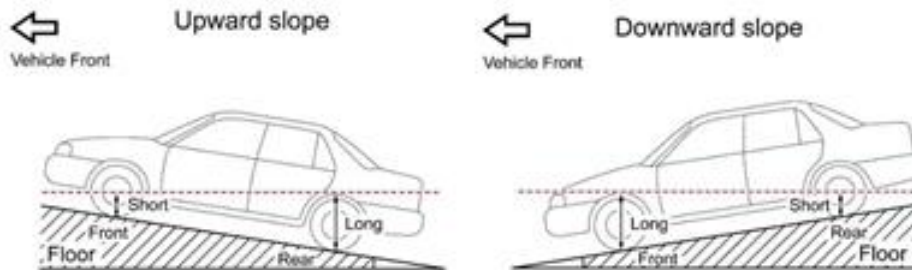
For proper calibration of the millimeter wave radar sensor, the vehicle must be on a level surface. If a level surface is not available, this tech tip should be used in conjunction with the repair manual to set the angle of the front millimeter wave radar sensor and reflector height before performing beam axis adjustment.

**RECOMMENDATIONS**

**PREPARE VEHICLE FOR CALIBRATION**

- REFER TO THE APPLICABLE VEHICLE'S REPAIR MANUAL FOR CALIBRATION PREPARATION

**DETERMINE FLOOR SLOPE AND SET VERTICAL ANGLE OF MILLIMETER WAVE RADAR SENSOR**



**[FLOOR SLOPE AND VERTICAL ANGLE CALIBRATION VIDEO](#)**

Subject

# Millimeter Wave Radar Sensor Floor Slope Compensation

Market

USA

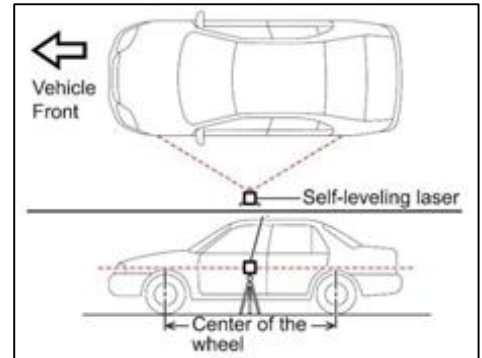
Applicability

Toyota Models with Manually Adjusted Front Millimeter Wave Radar Sensor

## 1. INSTALL THE LASER LEVEL ONTO THE TRIPOD

- A. Install the tripod head attachment onto the base of the laser level.
- B. Engage the tripod head attachment onto the tripod and lock it in position.

**SST: 01816-00103 (Laser Level) [DEMO VIDEO](#)  
01816-00104 (Tri-pod)**



## 2. MEASURE THE FLOOR SLOPE ON BOTH SIDES OF VEHICLE

- A. Place the tripod and laser approximately 6 ft. away from the side of the vehicle.
- B. Level the tripod base and head using the built-in bubble levels.
- C. Turn on the laser and ensure that the laser switch is placed in the UNLOCKED position, so it can automatically level.
- D. Measure the distance from the floor to the laser line at the vertical center of the front wheel and record the value.
- E. Measure the distance from the floor to the laser line at the vertical center of the rear wheel and record the value.
- F. Repeat steps A-E for the opposite side.

**NOTE: Measure using either inches or millimeters.**



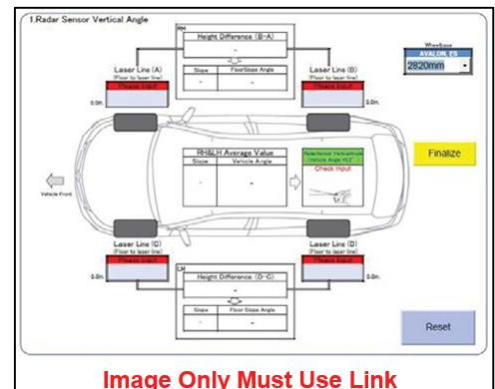
## 3. CALCULATE VERTICAL ANGLE FOR MILLIMETER WAVE RADAR SENSOR

- A. Open the slope calculator link, select the appropriate vehicle from the dropdown, and enter the measured values at each wheel in the correct locations.

**NOTE: Ensure the correct measurement value (inches or mm) is selected prior to calculating.**

- B. Press the finalize button and then press calculate.
- C. The sheet will calculate the required vertical angle and reflector height adjustment based on the floor slope. Record these readings.

**[SLOPE CALCULATOR LINK](#)**



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## 4. SET VERTICAL ANGLE OF MILLIMETER WAVE RADAR SENSOR

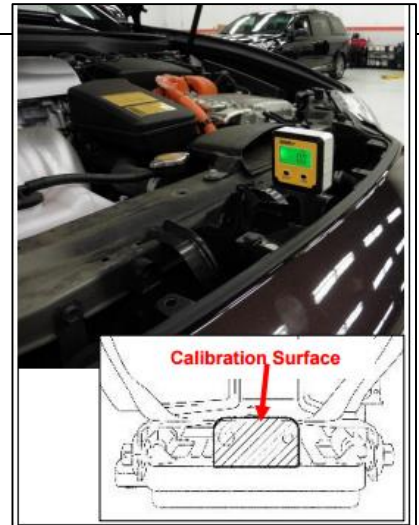
- A. Clean the top of the radar sensor surface and SST "Attachment A" mounting surfaces of any dust and debris.
- B. Place "Attachment A" (short or long depending on available clearance) on top of the radar sensor calibration surface as shown.
- C. Place the digital angle gauge on "Attachment A" with the screen facing the passenger side of the vehicle and retrieve sensor angle.

**NOTE:** Once the digital angle gauge has been powered on, the unit must be set to "Absolute Mode", ABS will be displayed in the upper right corner of the display.


**SST: 09989-00010-01 or 09989-00010-L (Attachment A) 01815-00102 (Digital Angle Gauge) [DEMO VIDEO](#)**



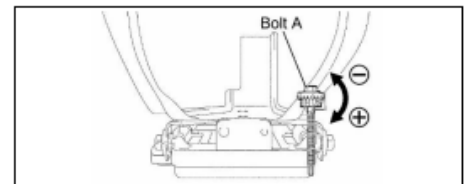
The digital angle gauge SST is directional and must be placed with the screen facing the passenger side of the vehicle for the up/down indicator to properly display the angle of the radar sensor. The tool indicates a positive or negative angle based on the right side of the tools vertical location.



- D. Adjust the radar vertical angle to the value calculated on the slope calculation sheet.



When adjusting the vertical angle ensure you pay attention to the up/down indicators on both the calculation sheet and digital angle gauge.



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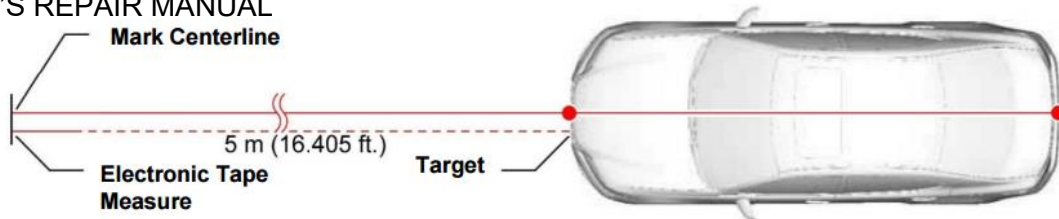
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## SET TARGET PLACEMENT AND PERFORM SENSOR CALIBRATION

1. LOCATE AND MARK THE CENTER LINE OF THE VEHICLE PER THE APPLICABLE VEHICLE'S REPAIR MANUAL

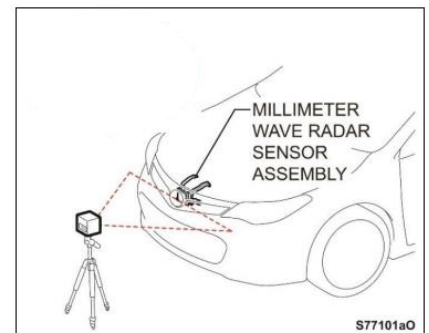


2. LOCATE THE REFLECTOR SST CALIBRATION POSITION PER THE APPLICABLE VEHICLE'S REPAIR MANUAL

3. SET REFLECTOR HEIGHT

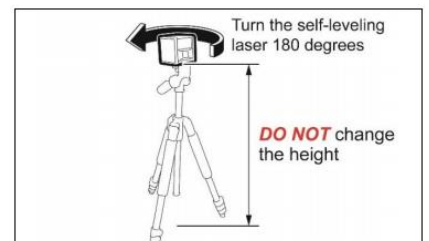
### [REFLECTOR HEIGHT ADJUSTMENT PROCEDURE VIDEO](#)

- A. Place the tripod and laser level in front of the vehicle.
- B. Level the tripod base and head using the built-in bubble levels.
- C. Turn on the laser level to the UNLOCKED position with both the vertical and horizontal laser lines being projected.
- D. Adjust the height of the tripod head and laser until the laser line crosses the center of the front emblem as shown.



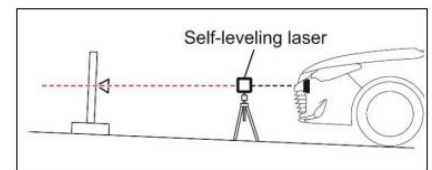
- The laser switch must be in the unlocked position so it can automatically self-level.
- If the laser light is flashing this indicates that the laser is not level or in the locked position.

- E. Turn the self-leveling laser 180 degrees and toward the reflector stand.



**Do not change the heights of the laser level or tripod when performing this step.**

- F. Adjust the height of the reflector until the center aligns with the laser lines as shown.



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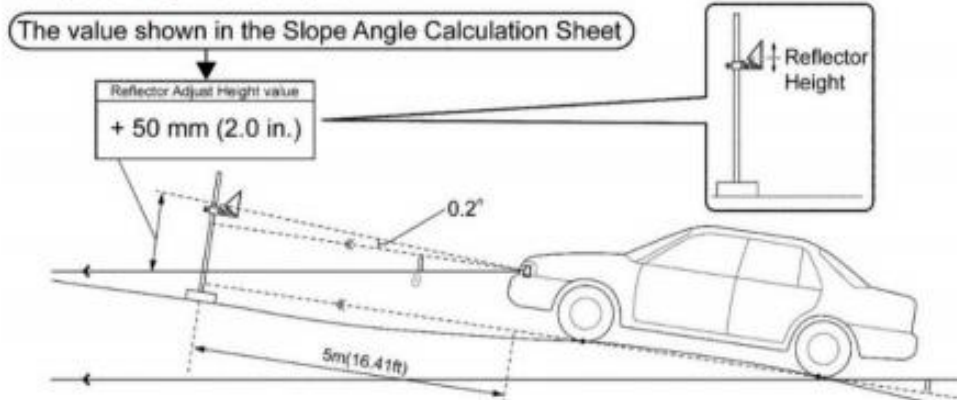
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Toyota Models with Manually Adjusted Front Millimeter Wave Radar Sensor

G. Adjust the height of the reflector up or down in accordance with the slope calculation sheet value.

### Example of Upward Slope



### PERFORM BEAM AXIS ADJUSTMENT OF THE MILLIMETER WAVE RADAR SENSOR.

- REFER TO THE APPLICABLE VEHICLE'S REPAIR MANUAL FOR BEAM AXIS ADJUSTMENT INSTRUCTIONS

### LINK REFERENCES

[SLOPE CALCULATOR LINK](#)

[FLOOR SLOPE AND VERTICAL ANGLE CALIBRATION VIDEO](#)

[REFLECTOR HEIGHT ADJUSTMENT PROCEDURE VIDEO](#)