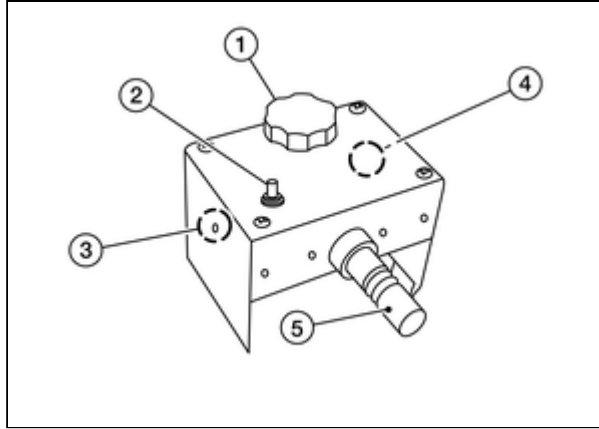


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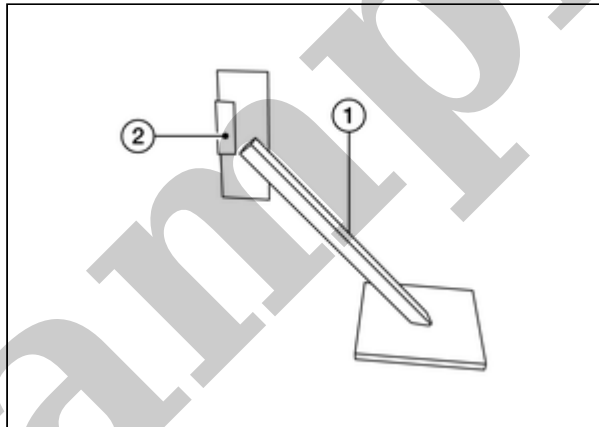
2021 NISSAN Cube Service and Repair Manual

[Go to manual page](#)



SIEMD-7109633-0000000013711820-03-
ALOIA0116ZZO-3B280544-LOIA0116ZZ

1. Tightening knob ①
 2. Power ON/OFF button ②
 3. Front laser beam opening ③
 4. Rear laser beam opening ④
 5. Attaching shaft ⑤
- Rear stand as shown in the illustration.



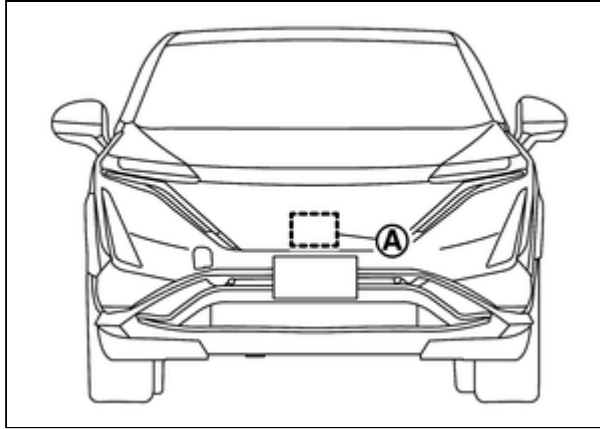
SIEMD-7109633-0000000013711820-04-
ALOIA0117ZZO-3B2804EE-LOIA0117ZZ

1. Rear stand ①
 2. Laser signal reception plate ②
- Distance chain (not shown)

Preparation

1. ADVANCE PREPARATION FOR RADAR ALIGNMENT PROCEDURE

1. Adjust all tire pressure to the specified value.
2. Empty the vehicle. (Remove any luggage from the passenger compartment, luggage room, etc.)
3. Shift the selector lever to “P” position, and release the parking brake.
4. Fully fill the fuel tank, and then check that the coolant and oils are filled up to correct level.
5. Clean the distance sensor area ① of the front bumper grille.



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Refer to Vehicle Set Up.

Vehicle Set Up

Accurate adjustment of the radar alignment requires that the target board, wheel adapter, laser assembly, and rear stand be properly positioned.

CAUTION:

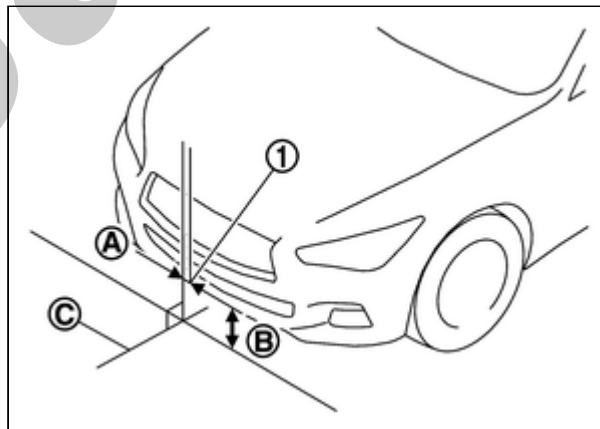
If the radar alignment is adjusted with the target board, wheel adapter, laser assembly, or rear stand in the incorrect position, the AEB/I-FCW systems will not function properly or the alignment procedure may not be completed successfully.

1. PREPOSITION TARGET BOARD



NOTE:

- To identify the sensor wave axis center, measure the point ① as shown in the illustration.

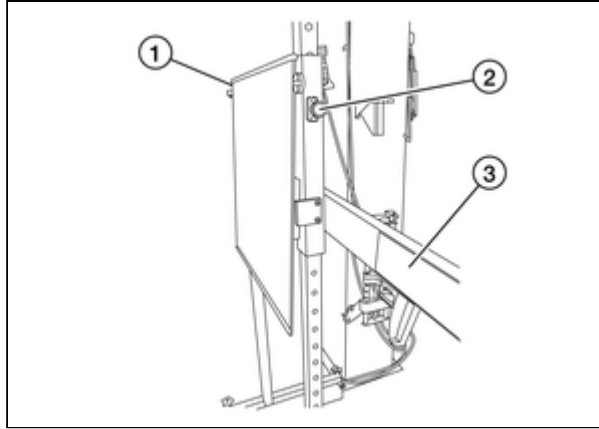


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A	: 0 mm (0 in)
B	: 813.6 mm (32.03 in)
C	: Vehicle center

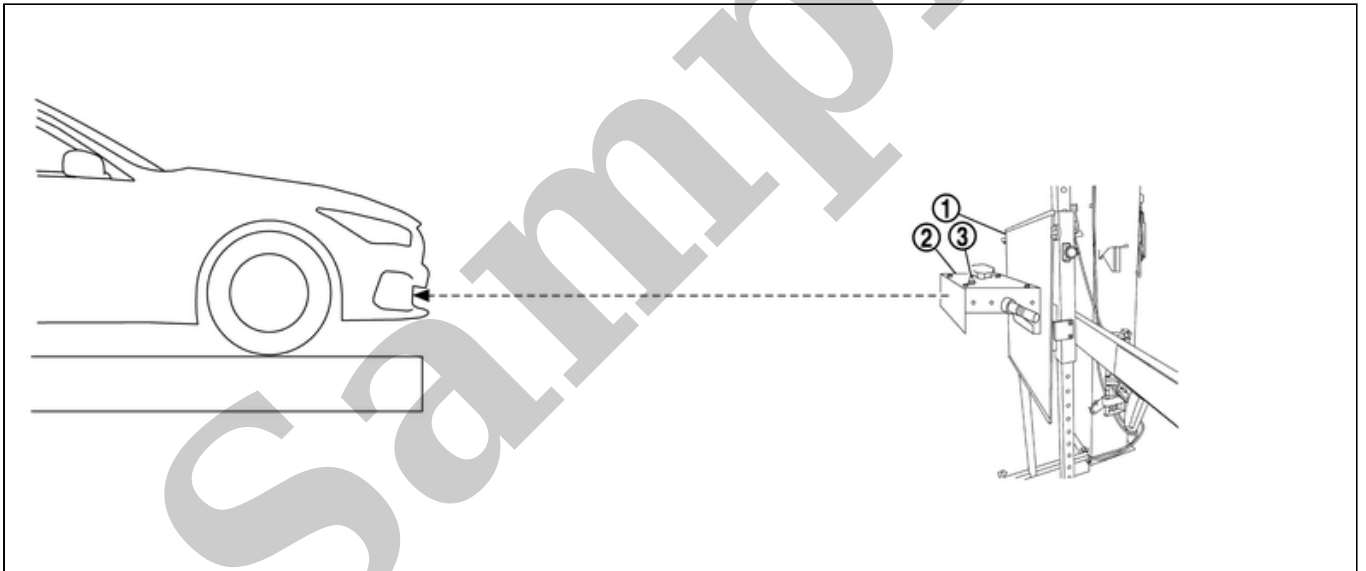
- Target board setting must be in the center position. (Position 2)
- Attaching the distance sensor alignment kit attachment board to the target board.

1. Position the target board in front facing the right front side of the vehicle:



SIEMD-7109633-000000013711822-02-
ALOIA0115ZZO-3B283F6D-LOIA0115ZZ

1. Place the marked center of the target board ① 813.6 mm (32.03 in) \pm 50 mm (1.97 in) facing the distance sensor.
2. Adjust the height of the target board using the adjustable nut ② to achieve the proper height. The up/down tolerance is \pm 30 mm (1.18 in).
3. Adjust the target board lateral position aligning the marked center of the board horizontally with the center of the distance sensor. The right/left tolerance is \pm 80 mm (3.15 in).
2. Extend the machined arm of the target board exposing the reflective surface ③ to the right front side of the vehicle.
3. Place one side of the laser assembly ② flush against the center of the target board ① to assist in the positioning.



SIEMD-7109633-000000013711822-03-JSOIA1221ZZO-3B283F1E-SOIA1221ZZ

4. Turn the laser assembly ON ③ allowing the laser beam to emit through the opening of the laser assembly toward the center of the distance sensor.
5. Move the target board ① as necessary so that center of target board aligns with center of distance sensor.
6. Turn the laser assembly OFF when done.

Are using Hunter alignment equipment?

YES>>

Refer to Hunter's equipment instructions for complete vehicle set up and target board setting. Then, refer to Distance Sensor Adjustment.

NO>>

[GO TO 2.](#)

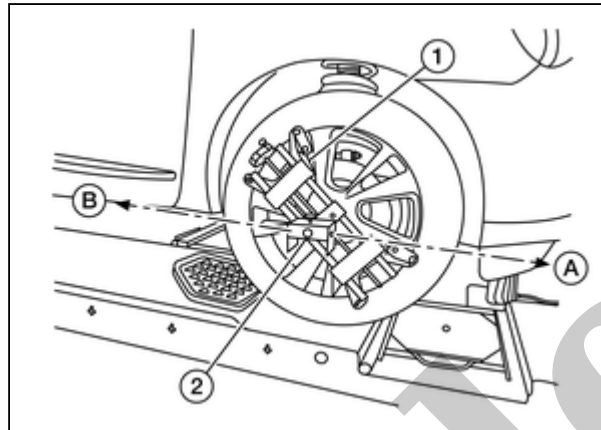
2. INSTALLING LASER ASSEMBLY



NOTE:

- Insure the steering wheel is positioned in the center straight forward position.
- Insure all 4 vehicle wheels do not contain any physical damage.

1. Install the wheel adapter ① on the right front wheel.



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ALOIA0118ZZO-3B283F36-LOIA0118ZZ

2. Mount the laser assembly ② to the wheel adapter ① as shown in the figure.



NOTE:

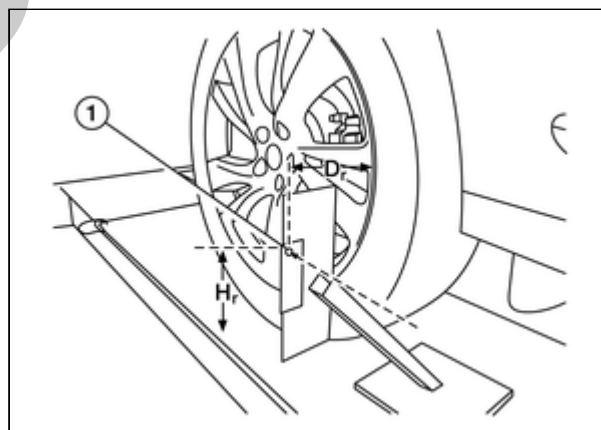
When the power switch is turned ON, the front laser signal (A) will be emitted toward the front target board, and the rear laser signal (B) will be emitted toward the rear of the vehicle.

>>

[GO TO 3.](#)

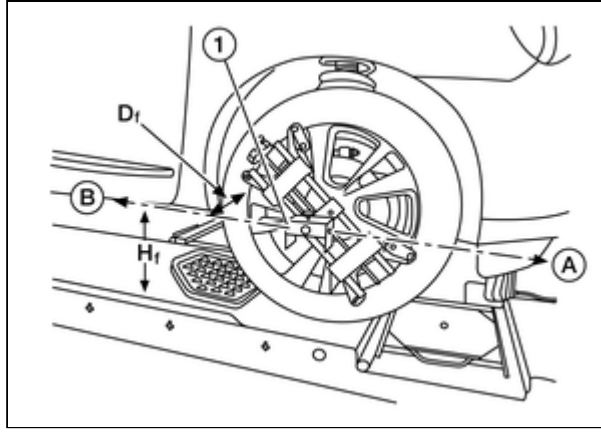
3. SETTING UP REAR STAND

1. Place the rear stand next to the right rear tire as shown in the figure.



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ALOIA0114ZZO-3B283F4C-LOIA0114ZZ

2. Turn the laser assembly ON allowing the laser beam to be emitted through the front and rear laser assembly openings.
3. Measure and record the distance (D_r) between the edge of the right rear wheel and the laser beam ① on the rear stand (horizontal line).
4. Measure and record the height (H_r) between the laser beam ① on the rear stand and ground level (vertical line).
5. Measure and record the distance (D_f) between the edge of the right front wheel and the laser beam signal/opening ① on the laser assembly (horizontal line).



SIEMD-7109633-06-LOIA0123ZZ

6. Measure and record the height (H_r) between the laser beam signal/opening ① on the laser assembly and ground level (vertical line).



NOTE:

- Horizontal adjustment [front distance (D_f) and rear distance (D_r)] is accomplished by slowly turning the steering wheel until the 2 distances are the same.
- Vertical adjustment [front height (H_f) and rear height (H_r)] is accomplished by rotating the laser assembly around its axis until the two heights are the same.
- Directional arrows ① and ② are shown to illustrate the direction of the laser assembly beams.

7. Adjust laser beam as necessary until the two distances match and the two heights match.



NOTE:

Must be verify both horizontal and vertical adjustments anytime one adjustment is made.

>>

Refer to Setting The Target Board.

Setting The Target Board

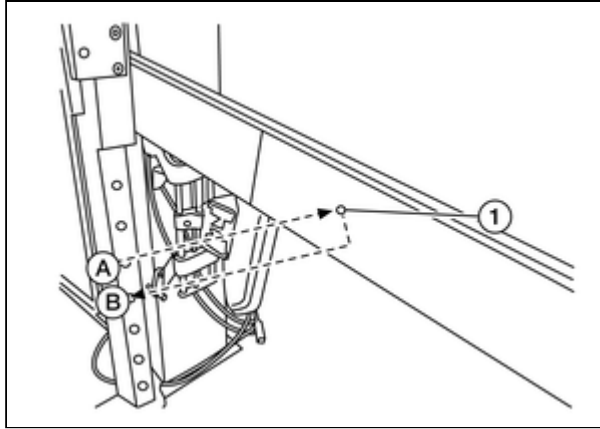
Accurate adjustment of the radar alignment requires that the target board be accurately positioned.

CAUTION:

If the radar alignment is adjusted with the target board in the incorrect position, the AEB/I-FCW systems will not function properly or the alignment procedure may not be completed successfully.

1. TARGET BOARD FINAL SETTING

1. With the target board arm extended, the laser beam ① emitted by the laser assembly ① will be reflected back ② toward the laser assembly.



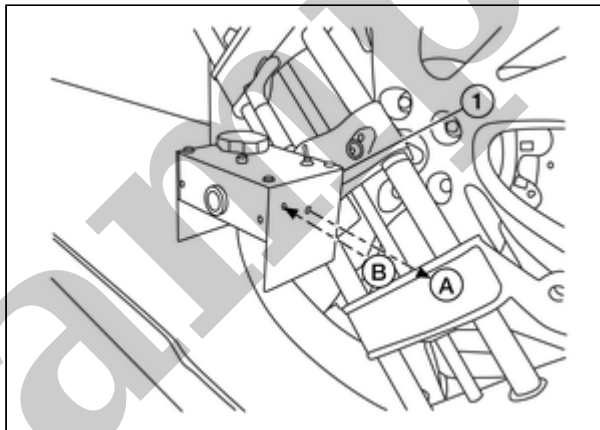
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ALOIA0120ZZO-3B286294-LOIA0120ZZ



NOTE:

When adjusted properly, reflected laser beam **(B)** must align with emitted laser beam **(A)** and the two laser beams will be seen as one.

2. Rotate the target board to achieve the necessary horizontal adjustment.
3. Adjust the target board leveling screws to achieve the necessary vertical adjustment.
4. The figure shown illustrates the laser beam **(A)** emitted by the laser assembly **(1)** and its reflection **(B)** off of the target board arm.



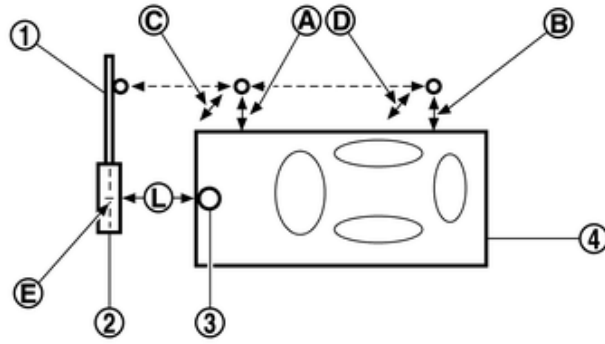
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ALOIA0119ZZO-3B28625E-LOIA0119ZZ

>>

[GO TO 2.](#)

2. CHECK THE POSITION OF THE TARGET BOARD

Do not place anything other than the target board in the space shown in front of the vehicle (view from top).



SIEMD-7109633-09-000235156

①	Target board arm	②	Target board	③	Distance sensor
④	Vehicle				
Ⓐ	Distance between front wheel and laser beam (D_f)	Ⓑ	Distance between rear wheel and laser beam (D_r)	Ⓒ	Height between front laser beam and ground (H_f)
Ⓓ	Height between rear laser beam and ground (H_r)	Ⓔ	Target board center position	Ⓕ	1010 - 1110 mm (39.76 - 43.7 in)

>>

Refer to Distance Sensor Adjustment.

Distance Sensor Adjustment

The radar alignment is performed automatically with CONSULT.

CAUTION:

Perform all necessary work for radar alignment until the adjustment completes as shown in the procedure. If the procedure does not complete, the AEB/ProPILOT Assist/I-FCW systems are inoperable.

1. PERFORM RADAR ALIGNMENT

1. Set the vehicle to READY.
2. Connect CONSULT and select "Work support" of "LASER/RADAR".
3. Select "MILLIWAVE RADAR ADJUST".



NOTE:

Confirm the following items;

- The target should be accurately placed.
- The vehicle should be stopped.

4. Select "Start" after the conditions displayed on CONSULT are satisfied.

CAUTION:

Never select "Start" when the target is not accurately placed.

5. Select “Next” after the “Radar alignment conditions are ready.” screen is displayed.



NOTE:

If the radar is in alignment at this time, “In progress” is displayed. It may take several 10s of seconds until the result is displayed.

6. Confirm the displayed item.

- “Completed.”: Go to 7.
- Except “Completed.”: Perform the following services.

Displayed item	Possible cause	Service procedure
Alignment result is over threshold.	<ul style="list-style-type: none"> ▪ DTC is detected ▪ The position of the target board is incorrect ▪ Vehicle is moving 	Check the vehicle alignment condition and perform radar alignment again
Horizontal value is over threshold. Check the condition. Perform the adjust again.	<ul style="list-style-type: none"> ▪ DTC is detected ▪ The position of the target board is shifted horizontally ▪ Vehicle is moving 	Check the vehicle alignment condition and perform radar alignment again
Vertical value is over threshold. Check the condition. Perform the adjust again.	<ul style="list-style-type: none"> ▪ DTC is detected ▪ The position of the target board is shifted vertically ▪ Vehicle is moving 	Check the vehicle alignment condition and perform radar alignment again
Horizontal value and Vertical value are over threshold. Check the condition. Perform the adjust again.	<ul style="list-style-type: none"> ▪ DTC is detected ▪ The position of the target board is shifted horizontally and vertically ▪ Vehicle is moving 	Check the vehicle alignment condition and perform radar alignment again
This display direction is looking from driver seat side.	<p>NOTE: This is not an error message, so service procedures are not required.</p>	
Target is not detected. (Reflection radio waves is weak.) Reconfirm the placing condition, and then re-perform adjustment.	<ul style="list-style-type: none"> ▪ A target is not-yet -placed ▪ The position of the target board is incorrect ▪ The position of the distance sensor is incorrect 	Check the vehicle alignment condition and perform radar alignment again
Target setting is offset in horizontal direction. Reconfirm the placing condition. And then re-perform adjustment or re-install the radar.	<ul style="list-style-type: none"> ▪ The position of the target board is shifted horizontally ▪ The position of the distance sensor is shifted horizontally 	Check the vehicle alignment condition and perform radar alignment again

Displayed item	Possible cause	Service procedure
Target setting is offset in vertical direction. Reconfirm the placing condition. And then re-perform adjustment or re-install the radar.	<ul style="list-style-type: none"> The position of the target board is shifted vertically The position of the distance sensor is shifted vertically 	Check the vehicle alignment condition and perform radar alignment again
EEPROM writing is error. Re-perform adjustment or replace the ECU.	<ul style="list-style-type: none"> The condition of the alignment is incorrect Distance sensor malfunction 	<ul style="list-style-type: none"> Check the vehicle alignment condition and perform radar alignment again If same message displays again, replace the distance sensor
Hardware is imperfect. Replace the ECU.	Distance sensor hardware has trouble for alignment	Replace the distance sensor
Signal of vehicle side is imperfect or combination of ECU is incorrect. Diagnose the other ECU.	Other ECU except distance sensor have trouble for alignment	<ul style="list-style-type: none"> Check if any DTC is detected in “Self Diagnostic Result” of other ECU except distance sensor If any DTC is not detected, replace the distance sensor
Software is incorrect. Replace the ECU.	Distance sensor software is incorrect	Replace the distance sensor

7. Confirm displayed value.

Displayed item	Monitor item		Reference value
Completed	Vertical Angle	Radar angle	“DownW” or “UpW”
	Vertical Angle	Radar measurement result	(- 2.50) - (+ 3.00)
	Horizontal Angle	Radar angle	“LeftW” or “RightW”
	Horizontal Angle	Radar measurement result	Less than 0 ± 4.00 deg
	Alignment status	Alignment complete	

- Within reference value: Go to 8.
- Outside of reference value: Check the target board condition and perform radar alignment again.



NOTE:

- Check the condition of the distance sensor installation.
- Check the vehicle for damage.
- Replace distance sensor if it is outside the reference value, even when distance sensor installation is installed normally and the vehicle is not damaged.

8. Select “End”.

CAUTION:

Once “MILLIWAVE RADAR ADJUST” is started with CONSULT, always continue the work until the horizontal radar alignment is completed successfully. If the job is stopped midway, the radar alignment is not adjusted and the AEB/ProPILOT Assist/I-FCW systems cannot operate.

>>

RADAR ALIGNMENT END