

# Your Ultimate Source for OEM Repair Manuals

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## 2021 NISSAN Armada Service and Repair Manual

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- For proper system operation and adjustment, all vehicle wheels must be of the same size.

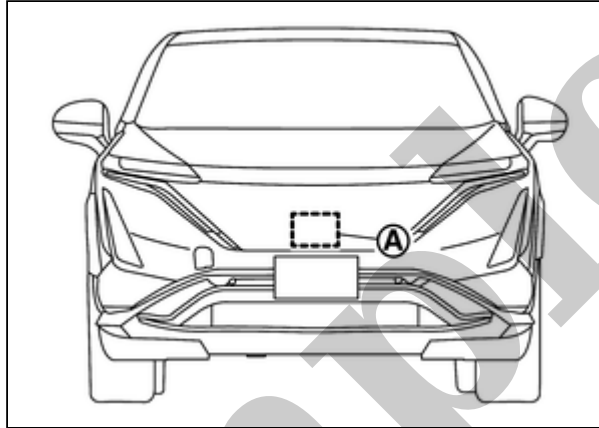
## Preparation

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### 1. ADVANCE PREPARATION FOR RADAR ALIGNMENT

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1. Adjust all tire pressure to the specified value.
2. Empty the vehicle. (Remove any luggage from the passenger compartment, trunk room, etc.)
3. Shift the selector lever to “P” position, and release the parking brake.
4. Clean the distance sensor area ① of the front bumper grille.



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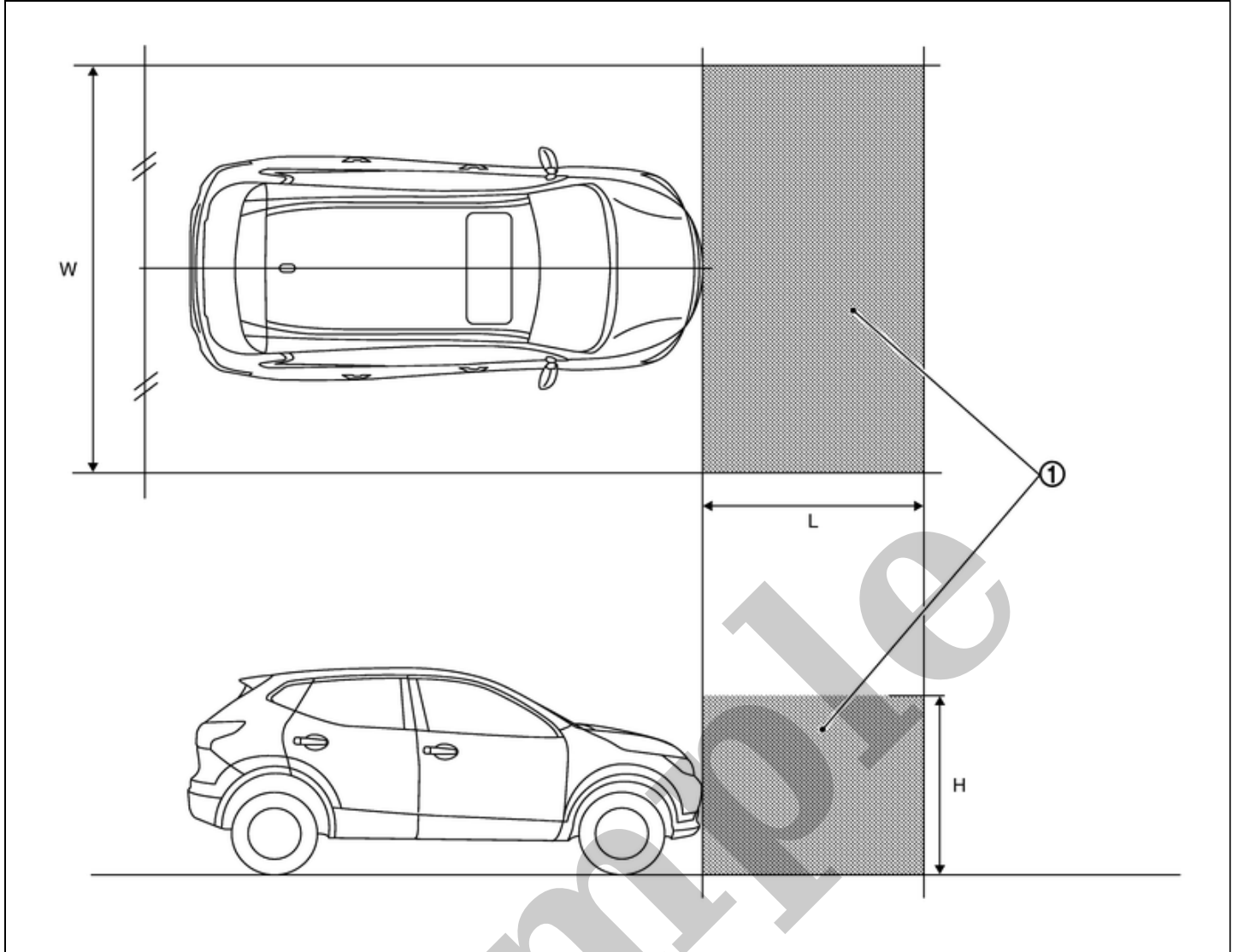
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[GO TO 2.](#)

### 2. RADAR ALIGNMENT OPERATION AREA

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Position the vehicle in a place that is level and where ① area can be secured.



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W	: 3000 mm (118.11 in)
L	: 2000 mm (78.74 in)
H	: 2000 mm (78.74 in)



**NOTE:**

① is a no object zone.

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Go to Setting The Target Board.

## Setting The Target Board

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

**CAUTION:**

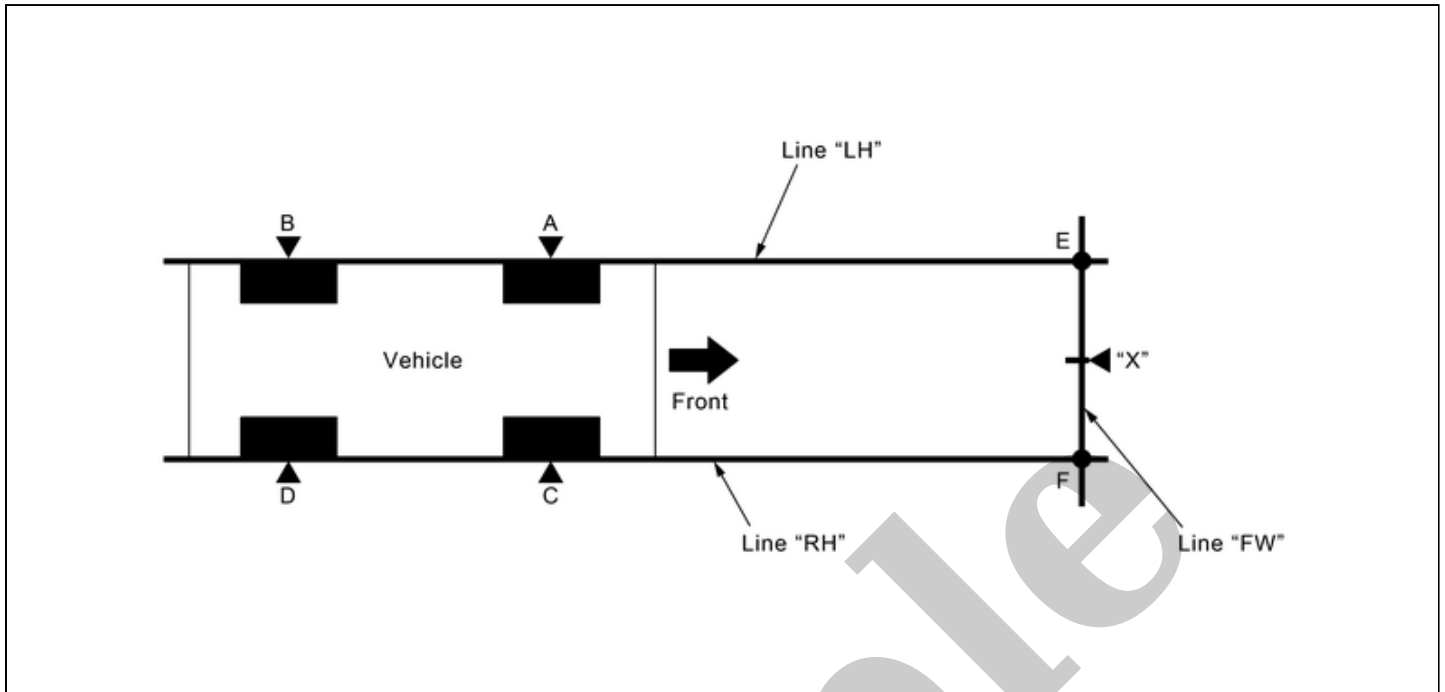
If the radar alignment is adjusted with the target board in the incorrect position, the AEB/I-FCW systems do not function normally.

### 1. TARGET BOARD HEIGHT ADJUSTMENT

Set the target board up to adjustable maximum height.

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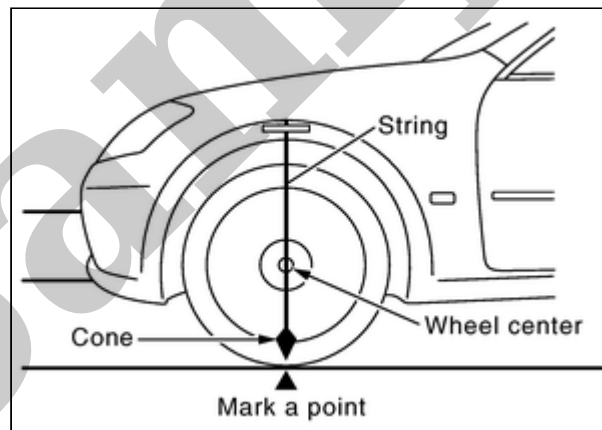
## 2. PREPARATION OF SETTING TARGET BOARD (1)



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"A"–"E" ("C"–"F") : 2000 mm (78.7 in)

1. Mark points "A", "B", "C" and "D" at the center of the lateral surface of each wheels.



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**NOTE:**

Hang a string with a cone from the fender so as to pass through the center of wheel, and then mark a point at the center of the lateral surface of the wheel.

2. Draw line "LH" passing through points "A" and "B" on the left side of vehicle.



**NOTE:**

Approximately 2 m (6.56 ft) or more from the front end of vehicle.

3. Mark point "E" on the line "LH" at the positions 2000 mm (78.7 in) from point "A".
4. Draw line "RH" passing through points "C" and "D" on the right side of vehicle in the same way as step 2.



**NOTE:**

Approximately 2 m (6.56 ft) or more from the front end of vehicle.

5. Mark point “F” on the line “RH” at the positions 2000 mm (78.7 in) from point “C”.
6. Draw line “FW” passing through the points “E” and “F” on the front side of vehicle.
7. Mark point “X” at the center of point “E” and “F” on the line “FW”.

**CAUTION:**

Make sure that “E” to “X” is equal to “F” to “X”.

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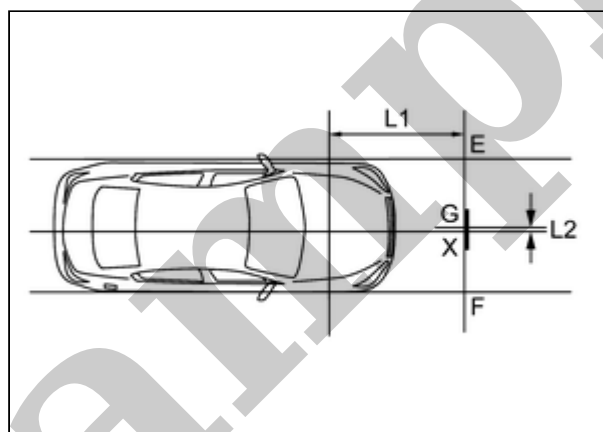
[GO TO 3.](#)

### 3. SETTING TARGET BOARD

Place the center of target board on point “G” at line “E-F” and install the target board.

**CAUTION:**

For performing the radar alignment correctly, securely install (target board) to be parallel with the “E-F” line.



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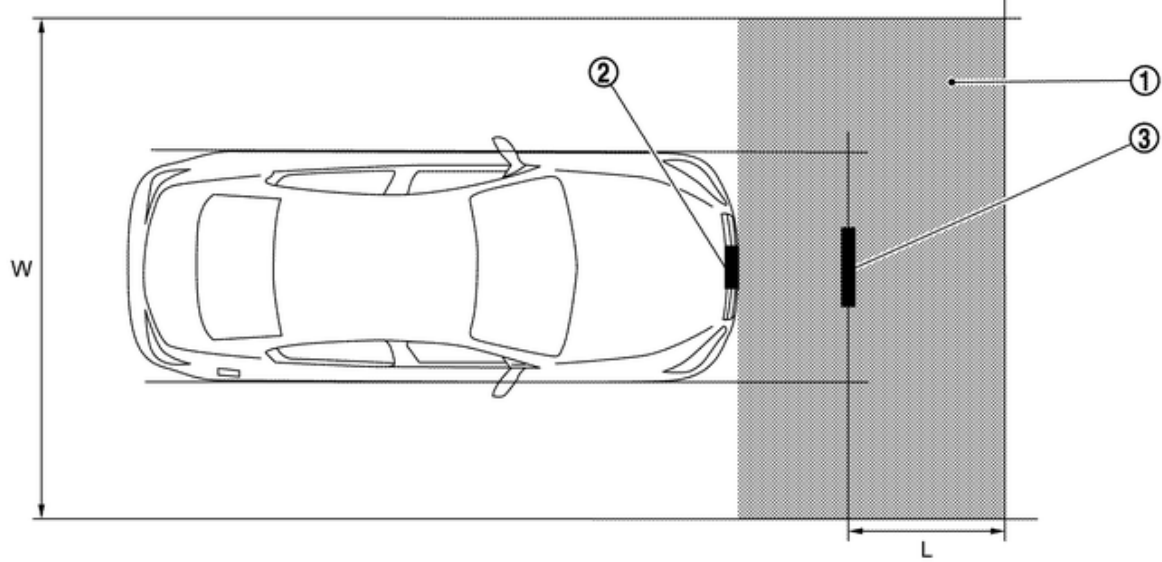
L1	: 2000 mm (78.7 in)
L2	: 0 mm (0 in)

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[GO TO 4.](#)

### 4. CHECK THE TARGET BOARD INSTALLATION AREA

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



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①	No object zone	②	Distance sensor	③	Target board
W.	3000 mm (118.11 in)	L.	1500 mm (59.06 in)		

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Go to Radar Alignment.

## Radar Alignment

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"> <li>▪ DTC is detected</li> <li>▪ The position of the target board is incorrect</li> <li>▪ Vehicle is moving</li> </ul>	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"> <li>▪ DTC is detected</li> <li>▪ The position of the target board is shifted horizontally</li> <li>▪ Vehicle is moving</li> </ul>	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"> <li>▪ DTC is detected</li> <li>▪ The position of the target board is shifted vertically</li> <li>▪ Vehicle is moving</li> </ul>	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"> <li>▪ DTC is detected</li> <li>▪ The position of the target board is shifted horizontally and vertically</li> <li>▪ Vehicle is moving</li> </ul>	Check the vehicle alignment condition and perform radar alignment again
This display direction is looking from driver seat side.	 <b>NOTE:</b> <b>This is not an error message, so service procedures are not required.</b>	
Target is not detected. (Reflection radio waves is weak.) Reconfirm the placing condition, and then re-perform adjustment.	<ul style="list-style-type: none"> <li>▪ A target is not-yet -placed</li> <li>▪ The position of the target board is incorrect</li> <li>▪ The position of the distance sensor is incorrect</li> </ul>	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"> <li>▪ The position of the target board is shifted horizontally</li> <li>▪ The position of the distance sensor is shifted horizontally</li> </ul>	Check the vehicle alignment condition and perform radar alignment again
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"> <li>▪ The position of the target board is shifted vertically</li> <li>▪ The position of the distance sensor is shifted vertically</li> </ul>	Check the vehicle alignment condition and perform radar alignment again

Displayed item	Possible cause	Service procedure
EEPROM writing is error. Re-perform adjustment or replace the ECU.	<ul style="list-style-type: none"> <li>▪ The condition of the alignment is incorrect</li> <li>▪ Distance sensor malfunction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the vehicle alignment condition and perform radar alignment again</li> <li>▪ If same message displays again, replace the distance sensor</li> </ul>
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"> <li>▪ Check if any DTC is detected in “Self Diagnostic Result” of other ECU except distance sensor</li> <li>▪ If any DTC is not detected, replace the distance sensor</li> </ul>
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 $0 \pm 4.00$ 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.

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RADAR ALIGNMENT END

## TYPE 2

### Description



## OUTLINE OF RADAR ALIGNMENT PROCEDURE

- A 4-wheel vehicle alignment must be performed before proceeding with radar alignment procedure.
- Always perform the radar alignment after removing and installing or replacing the distance sensor.
- Always perform the radar alignment if rear axle toe settings have been made.

### **WARNING:**

**Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.**

### **CAUTION:**

**The system does not operate normally unless the distance sensor is aligned properly.**

1. Required tools, refer to Required Tools.
2. Preparation, refer to Preparation.
3. Vehicle set up, refer to Vehicle Set Up.
4. Setting the target board, refer to Setting The Target Board.
5. Distance sensor adjustment, refer to Distance Sensor Adjustment.

## CAUTIONARY POINT FOR RADAR ALIGNMENT PROCEDURE

### **CAUTION:**

- **For radar alignment procedure, choose a level location with a few feet of working space in front and surrounding the vehicle.**
- **Vehicle must be stationary and unoccupied during the whole alignment procedure.**
- **Any slight vibration during the alignment procedure can cause the test to fail. If this happens, you will have to restart the alignment process.**
- **The battery voltage must not fall below 12 volts during the whole alignment procedure. Failure to maintain adequate battery voltage will cause the test to fail. If this happens, you will have to restart the alignment process.**
- **The target board must be set in front of the vehicle facing the sensor.**
- **Adjust the radar alignment with CONSULT. (The radar alignment procedure cannot be adjusted without CONSULT.)**
- **Never enter the vehicle during radar alignment.**
- **Never block the area between the radar and the target board at any time during the alignment process.**
- **Accurate steering wheel setting is crucial. Once set, do not disturb the steering wheel for the remainder of the alignment procedure.**
- **For proper system operation and adjustment, all vehicle wheels must be of the same size.**

## **Required Tools**

The following tools are necessary to perform distance sensor alignment:

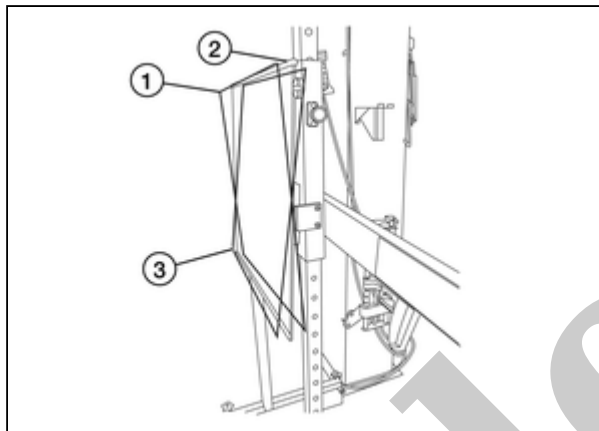
- Radar Sensor Aiming Kit 1–20–2851–1 Kit includes the following:
  - a) Target Board (Fixture)
  - b) Laser assembly
  - c) Rear Stand



**NOTE:**

Tools 1-20-2721-1-IF, 1-20-2722-1-IF and J-50808 have been superseded and are no longer available, but may still be used for distance sensor alignment.

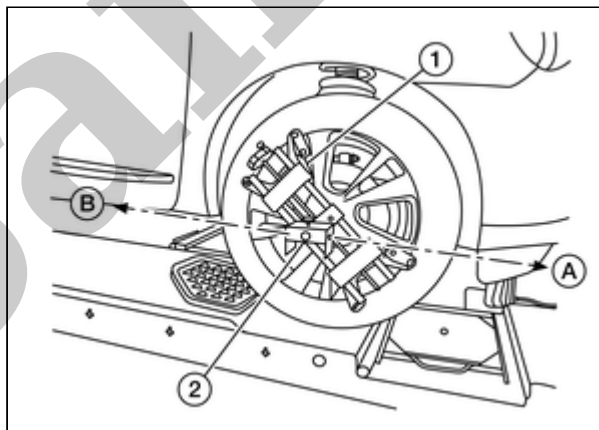
- Target board.



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1. ①: Position 1, with top tilted 2° toward vehicle (Not used).
2. ②: Position 2, vertical.
3. ③: Position 3, with top tilted 2° away from vehicle (Not used).

- Hunter self-centering wheel adapter ① [shown with laser assembly ② installed] (Hunter alignment rack head may be substituted).



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**NOTE:**

Directional arrows ① and ② are shown to illustrate the direction of the laser assembly beams.

- Laser assembly (with bi-directional laser beam) as shown in the illustration.