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Contents

Contents ii

1. Packing List 1

2. Main Components 3

2.1 Main Frame 3

2.2 Doppler Simulator 5

2.3 ACC Radar Target 6

2.4 Corner Reflector 7

3. Calibration Procedure 8

3.1 Calibration with LAM05-02 ACC Radar Reflector 8

3.1.1 Determining point A and point B 8

3.1.2 Determining the vehicle center line P 8

3.1.3 Determining the placement of calibration tools 9

3.1.4 Installing the ACC radar target and adjusting the calibration tool to level 9

3.1.5 Adjusting the height 10

3.1.6 Adjust the angle 10

3.1.7 Adjust the direction of ACC radar sensor 12

3.1.8 Calibration completed 12

3.2 Calibration using LAC05-03 Corner Reflector 12

3.2.1 Determine point A and point B 12

3.2.2 Determine point E and point F 13

3.2.3 Determine point D and point C 14

3.2.4 Placing and installing the target 14

3.2.5 Perform the calibration 15

3.3 Calibration using LAC05-04 Doppler Simulator 15

4. Service&Maintenance 17

1. Packing List

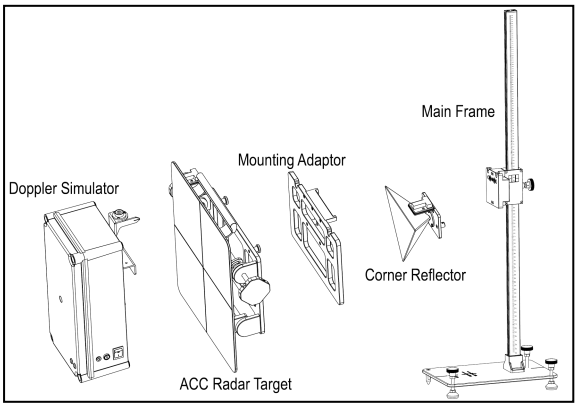
For different destinations, accessories may be different. Please consult your local dealer for more details.

Accessories	Picture for Reference	Quantity
Main Frame		1
ACC Radar Target LAM05-02		1
Doppler Simulator LAC05-04		1
Corner Reflector LAC05-03		1
Mounting Adaptor LAR09-01		1
Switching Power Supply （12V 5A）		1
Socket Spanner		1
Five-line Laser Device LAM09-01		1
Power Adaptor		1

Plumb Line LAM09-06		1
Laser Reflector LAM09-03		1
Auxiliary Mirror LAM09-04		1
Tape-10m		1
Positioning Bracket LAM09-05		1
Cross Sticker		10
Activation Card	-	1
User Manual	-	1
Packing List	-	1

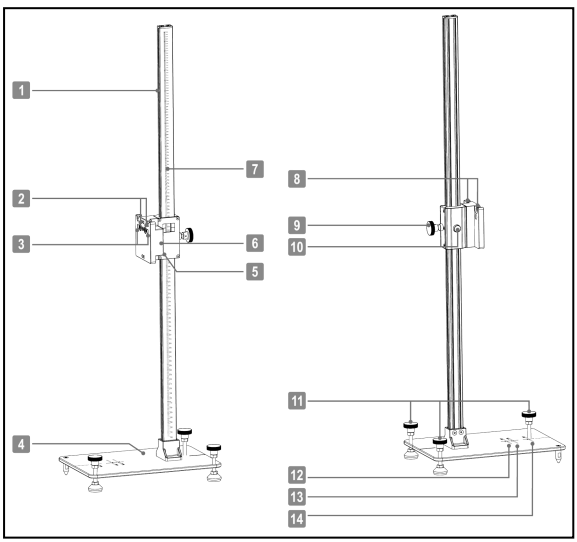
2. Main Components

ADAS radar 3 in 1 calibration tool mainly consists of the following components：



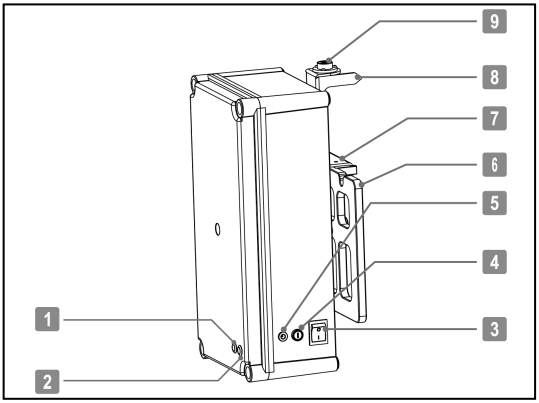
(*This drawing is not a picture of actual product, which is for illustration purposes only. Due to the continuous improvement of the product, it will be updated from time to time, please refer to the actual product.)

2.1 Main Frame



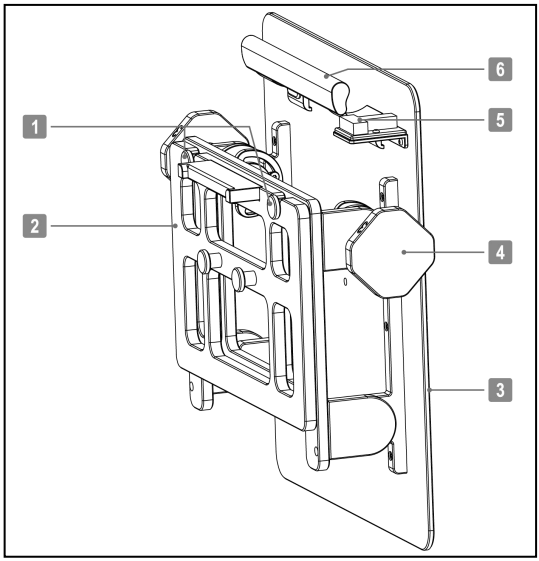
No.	Description
1	**Column (including scale)** It is fixed on the base for installing the lifting slider.
2	**Magnet**
3	**Target Positioning Hole** Used for installation of target (such as corner reflector).
4	**Base** Used to fix the column. Support level adjustment of calibration tool.
5	**Switch** Used to turn on or off the laser beam.
6	**Battery Case** Supply power to the laser, and two AA batteries are required.
7	**Scale**
8	**Target Positioning Slot** Used to attach target or mounting adaptor.
9	**Lifting Slider Locking Knob** Used to fix the the lifting slider position.
10	**Lifting Control Button** Used to control the movement of the lifting slider. Need to loosen the lifting slider locking knob (9) before use.
11	**Level Adjustment Knob** Used to adjust the level of the calibration tool.
12	**Y1 Reference Point** Corner reflector (LAC05-03) placement reference point.
13	**Y2 Reference Point** ACC radar target (LAM05-02) placement reference point.
14	**Y3 Reference Point** Doppler simulator (LAC05-04) placement reference point.

2.2 Doppler Simulator



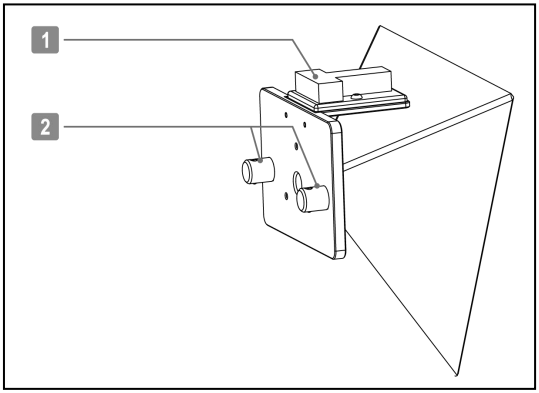
No.	Description
1	**Status LED**
2	**Power LED**
3	**Power Switch**
4	**Fuse Cover**
5	**DC-IN Port**
6	**Mounting Adaptor**
7	**Hanging Board**
8	**Scale Indication Arrow**
9	**Spirit Bubble**

2.3 ACC Radar Target



No.	Description
1	**Hanging Nail**
2	**Mounting Adaptor**
3	**ACC Radar Reflector**
4	**Angle Adjustment Knob**
5	**Spirit Bubble**
6	**Handle**

2.4 Corner Reflector



No.	Description
1	**Spirit Bubble**
2	**Positioning Pin**

3. Calibration Procedure

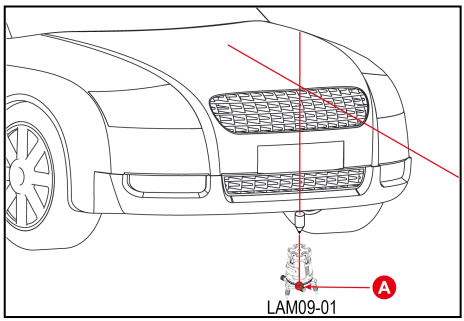
When using the ADAS radar 3 in 1 calibration tool for calibration operations, please strictly follow the software prompts on the diagnostic equipment.

3.1 Calibration with LAM05-02 ACC Radar Reflector

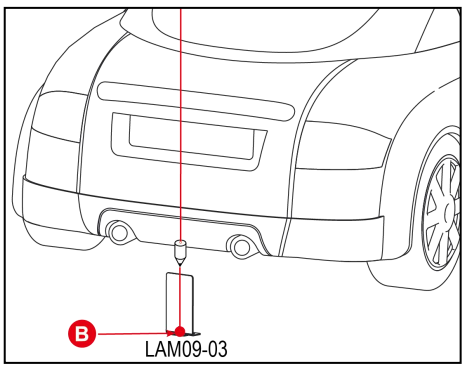
Let's take calibrating the radar in the vehicle center as an example to introduce the operation steps.

3.1.1 Determining point A and point B

1) Suspend a plumb line LAM09-06 against the center of the front vehicle emblem and let it naturally drop to the ground. Place a cross sticker marked as Point A. Place the five-wire laser instrument LAM09-01 at point A.



2) Suspend a plumb line LAM09-06 against the center of the rear vehicle emblem and let it naturally drop to the ground. Place a cross sticker marked as Point B. Place the laser reflector LAM09-03 at point B.



3) Place the auxiliary mirror LAM09-04 in front of the vehicle.

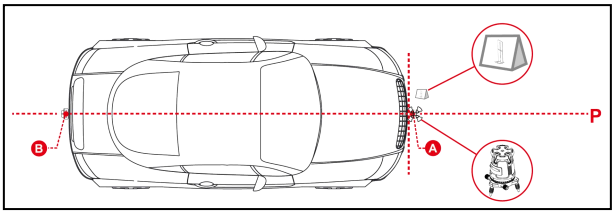
3.1.2 Determining the vehicle center line P

1) Adjust the five-line laser instrument to level and turn on the instrument, press the V button on the instrument to turn on the

four-direction laser beam.

2) Observe the position of the laser beam with the auxiliary mirror LAM09-04, rotate the fine-tuning knob of the five-line laser instrument to make the vertical laser beam irradiate on the reflective stripe of the laser reflector LAM09-03.

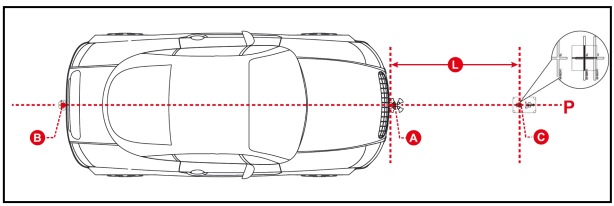
Note: If the vehicle chassis is too low and the laser cannot pass through, please exchange the positions of the five-line laser instrument and the laser reflector LAM09-03.



3.1.3 Determining the placement of calibration tools

1) Place a cross sticker on the center line P to mark as point C so that the distance from point A to point C is equal to L, and L is the distance prompted by the software.

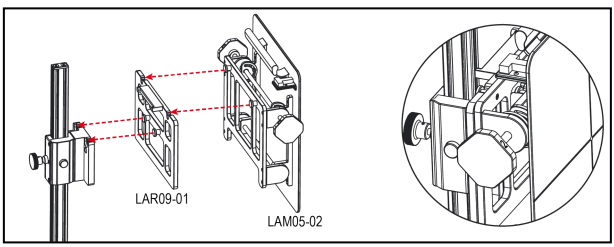
2) Place the calibration tool at point C so that point C coincides with position Y2 on the calibration tool base.



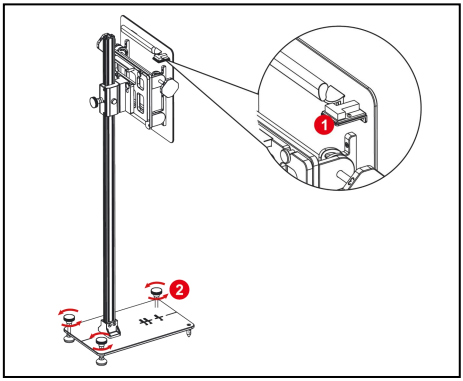
3.1.4 Installing the ACC radar target and adjusting the calibration tool to level

1) Place mounting adaptor LAR09-01 and install ACC radar reflector LAM05-02.

2) Rotate the angle adjustment knob to adjust the ACC radar reflector LAM05-02 to position 2.



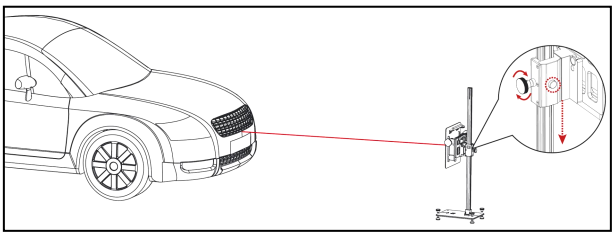
3) Observe the spirit bubble ① on the ACC radar reflector, rotate the level adjustment knob ② as needed to make the bubble at the center position.



3.1.5 Adjusting the height

1) Turn on the laser beam.

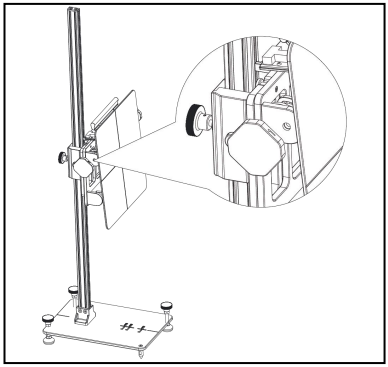
2) Adjust the height of the calibration tool so that the laser beam irradiated at the center of radar sensor.



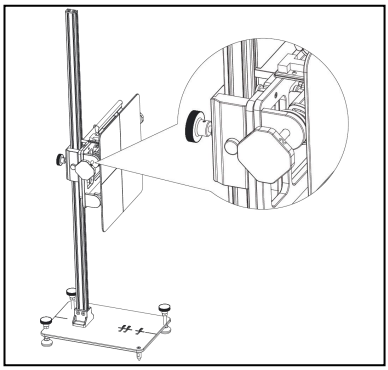
Note: In the case of the radar sensor with a mirror, the laser point is required to be irradiated on mirror position of the radar sensor, and ensure that the laser beam can be reflected back to the center of ACC reflector.

3.1.6 Adjust the angle

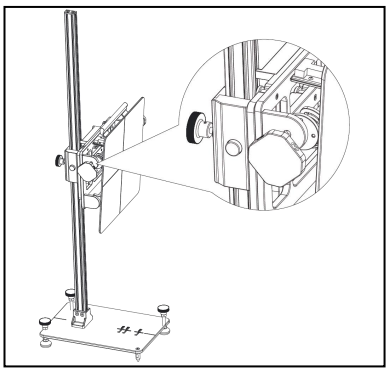
1) Adjust the ACC radar reflector LAM05-02 to position 1.



2) Adjust the ACC radar reflector LAM05-02 to position 2.

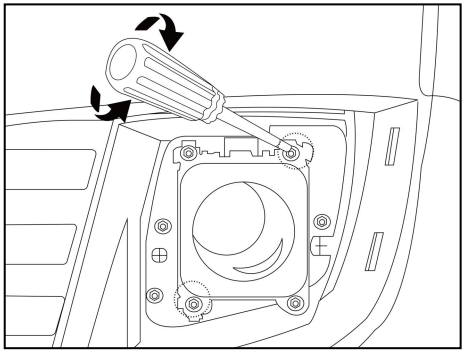


3) Adjust the ACC radar reflector LAM05-02 to position 3.



3.1.7 Adjust the direction of ACC radar sensor

If it is required to adjust the sensor position, please use the adjustment screw to adjust the two adjustment bolts by following the software prompts, and perform the operations of **Step 3.1.6** again. If no adjustment is needed, skip this step.



3.1.8 Calibration completed

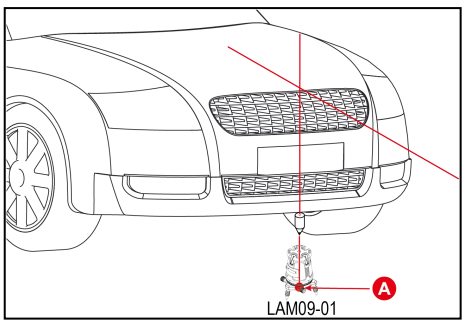
Save the ADAS report after the calibration completed. It is recommended to rescan the system after completing the calibration to confirm that the fault has been resolved.

3.2 Calibration using LAC05-03 Corner Reflector

When using LAC05-03 corner reflector, it needs to measure the distance from the target to the vehicle. You can choose to measure from the vehicle front bumper or from the vehicle front hub center. Let's take the example of measuring the distance from the target to the the front hub center and calibrating the radar at the vehicle center to introduce the operation steps.

3.2.1 Determine point A and point B

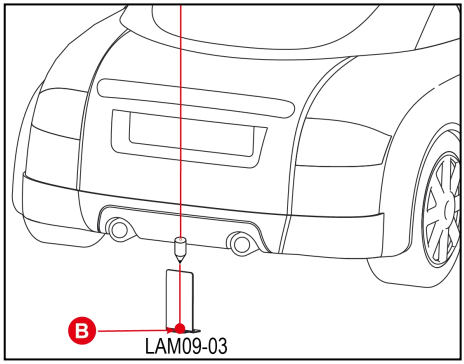
1) Suspend a plumb line LAM09-06 against the center of the front vehicle emblem and let it naturally drop to the ground. Place a cross sticker marked as Point A. Place the five-wire laser instrument LAM09-01 at point A.



LAM09-01

2) Suspend a plumb line LAM09-06 against the center of the rear vehicle emblem and let it naturally drop to the ground. Place a cross sticker marked as Point B. Place the laser reflector

LAM09-03 at point B.



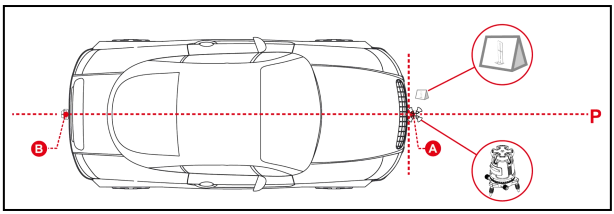
3) Place the auxiliary mirror LAM09-04 in front of the vehicle.

Step 2. Determine the vehicle center line P

1) Adjust the five-line laser instrument to level and turn on the instrument, press the V button on the instrument to turn on the four-direction laser beam.

2) Observe the position of the laser beam with the auxiliary mirror LAM09-04, rotate the fine-tuning knob of the five-line laser instrument to make the vertical laser beam irradiate on the reflective stripe of the laser reflector LAM09-03.

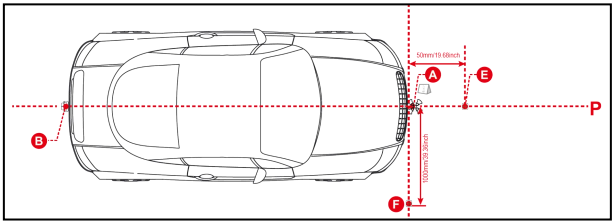
Note: If the vehicle chassis is too low and the laser cannot pass through, please exchange the positions of the five-line laser instrument and the laser reflector LAM09-03.



3.2.2 Determine point E and point F

1) Place a cross sticker on the vertical laser beam of the five-line laser instrument and mark it as point E. It is recommended that the distance from point A to point E be 500mm/19.68inch.

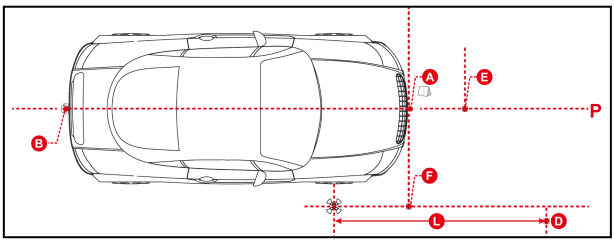
2) Place a cross sticker on the transverse laser beam of the five-line laser instrument and mark it as point F. It is recommended that the distance from point A to point F be 1000mm/39.36inch.



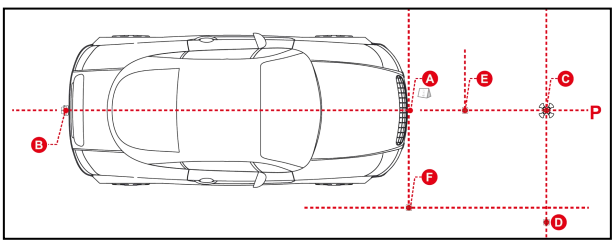
3.2.3 Determine point D and point C

1) Move the five-line laser instrument so that the transverse laser beam passes through point F and the vertical laser beam is aligned with the front hub center.

2) Place a cross sticker on its transverse laser beam and mark it as point D, so that the distance from the front hub center to point D is L, and L is the distance prompted by the software.

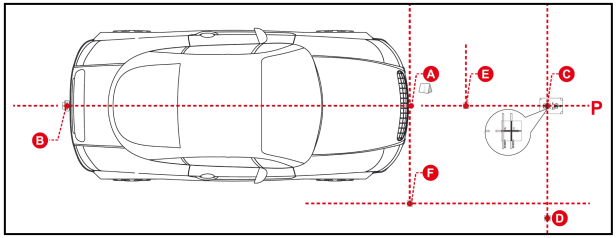


3) Move the five-line laser instrument so that its transverse laser beam passes through point D, and the vertical laser beam passes through points E and point A, place a cross sticker at the intersection of transverse laser beam and vertical laser beam , mark it as point C.

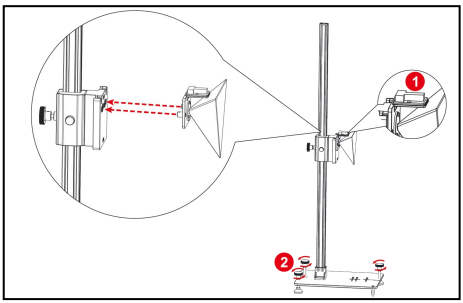


3.2.4 Placing and installing the target

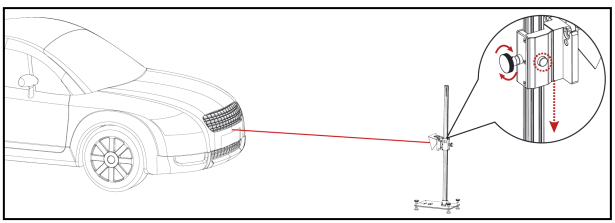
1) Remove the five-line laser instrument and place the calibration tool at point C so that point C coincides with the position Y2 on the calibration tool base.



2) Install the corner reflector LAC05-03. Observe the spirit bubble ①, rotate the level adjustment knob ② as needed to make the bubble at the center position.



3) Adjust the height of the calibration tool so that the laser beam irradiated at the center of radar sensor.

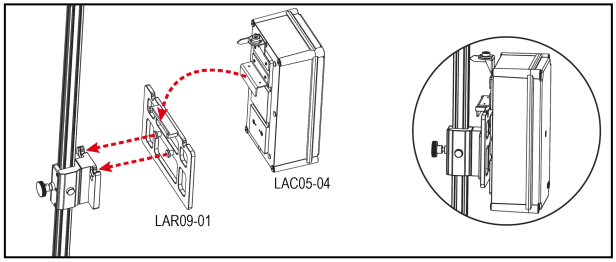


3.2.5 Perform the calibration

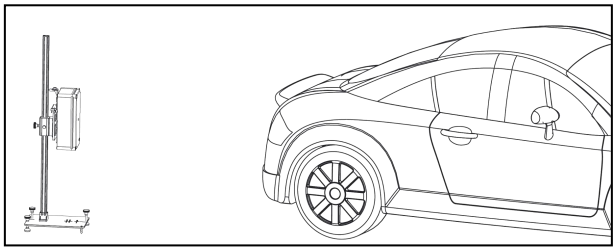
Perform radar calibration according to the software prompts, and save the ADAS report after the calibration is completed. It is recommended to rescan the system after completing the calibration to confirm that the fault has been resolved.

3.3 Calibration using LAC05-04 Doppler Simulator

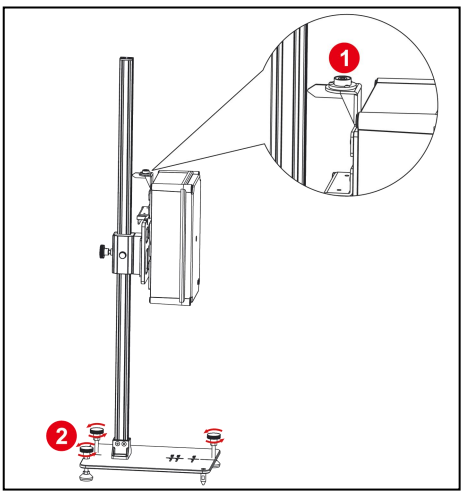
1) Place mounting adaptor LAR09-01 and install Doppler Simulator LAC05-04.



2) Place the Doppler Simulator in the correct position according to the software prompts.



3) Observe the spirit bubble ① on the Doppler Simulator, rotate the level adjustment knob ② as needed to make the bubble at the center position.



4) Adjusting the height as the software prompts.

5) Plug one end of the power adapter into the Doppler Simulator DC-IN jack, and connect the other end to a power outlet. Turn on the power switch of the Doppler Simulator, and when the status LED turns green, you can follow the software prompts to perform the calibration function.

4. Service&Maintenance

- Be careful when operating each accessory of the ADAS calibration tool.
- Use acid- and resin-free grease or oil to wipe the movable components regularly.
- Clean the ADAS calibration tool regularly with a mild detergent.
- If you use a standard household cleaner, spray it on a damp towel.
- If any component is damaged, please use the original replacement component to replace it immediately.

Warranty

THIS WARRANTY IS EXPRESSLY LIMITED TO PERSONS WHO PURCHASE SMARTSAFE PRODUCTS FOR PURPOSES OF RESALE OR USE IN THE ORDINARY COURSE OF THE BUYER'S BUSINESS.

SMARTSAFE electronic product is warranted against defects in materials and workmanship for one year from date of delivery to the user.

This warranty does not cover any part that has been abused, altered, used for a purpose other than for which it was intended, or used in a manner inconsistent with instructions regarding use. The exclusive remedy for any automotive meter found to be defective is repair or replacement, and SMARTSAFE shall not be liable for any consequential or incidental damages.

Final determination of defects shall be made by SMARTSAFE in accordance with procedures established by SMARTSAFE. No agent, employee, or representative of SMARTSAFE has any authority to bind SMARTSAFE to any affirmation, representation, or warranty concerning SMARTSAFE automotive meters, except as stated herein.

Disclaimer

The above warranty is in lieu of any other warranty, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

Purchase Order

Replaceable and optional parts can be ordered directly from your SMARTSAFE authorized tool supplier. Your order should include the following information:

Order quantity

Part number

Part name

Customer Service Center

For any problem met during the operation, please call +86-0755-89589810.

If the device needs to be repaired, please send it back to SmartSafe, and attach the Warranty Card, Product Qualification Certificate, Purchase Invoice and problem description. SmartSafe will maintain and repair the device for free when it is within warranty period. If it is out of warranty, SmartSafe will charge the repair cost and return freight.

SmartSafe address:

3310, Building 11, Tian'an Cloud Park, Bantian Street, Longgang District, Shenzhen,Guangdong, China

SmartSafe Website: www.newsmartsafe.com

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