Copyright Information

Copyright © 2021 by SHENZHEN SMARTSAFE TECH CO.,LTD. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of SMARTSAFE.

Neither SMARTSAFE nor its affiliates shall be liable to the purchaser of this unit or third parties for damages, losses, costs, or expenses incurred by purchaser or third parties as a result of: Accident, misuse, or abuse of this unit, or unauthorized modifications, repairs, or alterations to this unit, or failure to strictly comply with SMARTSAFE operating and maintenance instructions. SMARTSAFE shall not be liable for any damages or problems arising from the use of any options or any consumable products other than those designated as Original SMARTSAFE Products or SMARTSAFE Approved Products by SMARTSAFE.

All information, specifications and illustrations in this manual are based on the latest information available at the time of printing. SMARTSAFE reserves the right to make changes at any time without prior written or oral notice.

Trademark Information

SmartSafe is a registered trademark of SHENZHEN SMARTSAFE TECH CO.,LTD. in China and other countries. All other SMARTSAFE trademarks, service marks, domain names, logos, and company names referred to in this manual are either trademarks, registered trademarks, service marks, domain names, logos, company names of SMARTSAFE or are otherwise the property of SMARTSAFE or its affiliates. In countries where any of the SMARTSAFE trademarks, service marks, domain names, logos and company names are not registered, SMARTSAFE claims other rights associated with unregistered trademarks, service marks, domain names, logos, and company names. Other products or company names referred to in this manual may be trademarks of their respective owners. You may not use any trademark, service mark, domain name, logo, or company name of SMARTSAFE or any third party without permission from the owner of the applicable trademark, service mark, domain name, logo, or company name. You may contact SMARTSAFE by visiting the website at www.newsmartsafe.com, or writing to SHENZHEN SMARTSAFE TECH CO.,LTD., 3F, Building B, Qiao'an Technology Industrial Park, Guanlan, Longhua New District, Shenzhen, to request written permission to use Materials on this manual for purposes or for all other questions relating to this manual.

Safety Precautions

iSmartADAS HD calibration tool is used for the calibration of commercial vehicle ADAS system, and is used in conjunction with vehicles and diagnostic device. In order to avoid personal injury or death, property damage and accidental injury, please read all the safety tips in this chapter carefully before using the product:

• In order to avoid improper operation, iSmartADAS HD operators need to have a background of motor vehicle technical knowledge, and be familiar with the hazards, risks and working conditions in the repair shop.

• This point applies to all the tips of each chapter in this manual. In addition, the operator is requested to pay attention to the working methods and safety warnings after the operation prompts.

• In addition, please refer to the regulations of the Industrial and Commercial Bureau, labor unions, automobile manufacturers, and environmental protection regulations, as well as all laws and regulations related to automobile repair shops.

The safety information explained here covers all the situations that SmartSafe is aware of. SmartSafe cannot know, predict, or suggest all possible hazards. The operator must ensure that the maintenance operations performed under any circumstances will not cause harm to personal safety.

Warning Symbols and Definitions	
⚡	Indicates that there is a serious hazard. If it is not evaded or wrongly operated, it will cause death or serious injury to the user.
⚠	Indicates that there is a potentially dangerous situation. If it is not circumvented or wrongly operated, it will cause minor injuries or property damage.
📋	Indicates the points of attention when using and the use situation to be avoided as much as possible.

⚡

The exhaust gas from the engine contains a variety of toxic compounds (such as hydrocarbons, carbon monoxide, nitrogen oxides, etc.), which can cause unresponsiveness, and even serious personal injury or death. The vehicle under test should be parked in a well-ventilated place during operation.

⚡

It is forbidden to replace the built-in lithium battery by yourself, and the internal battery must be replaced by an authorized maintenance organization or authorized technician. Modification of the battery pack or improper replacement of the battery pack can cause an explosion.

⚠

Please read all safety warnings and operating information carefully. Failure to follow the safety warnings and operating information may result in electric shock, fire or serious personal injury.

1. Always keep the vehicle calibration in a safe environment.
2. Do not connect or disconnect the diagnostic equipment when the ignition switch is on or the engine is running.
3. Do not operate the diagnostic equipment while driving the vehicle to avoid distraction and cause a car accident.
4. Before starting the engine, the hand brake should be pulled, especially the front wheels should be blocked, and the gear lever should be placed in Neutral (manual transmission) or [P] position (automatic transmission) to avoid starting the engine and causing the vehicle to rush out and hurt people .
5. No smoking or sparks near the battery or engine. Do not operate the device in an explosive environment.
6. Please provide a fire extinguisher next to the workplace.
7. Please wear protective glasses when inspecting the car.
8. Make anti-rolling settings for the vehicle.
9. Be extremely careful when working around the ignition coil, distributor cap, ignition circuit and ignition plug. The voltage generated by these components when the engine is running is very dangerous.
10. To avoid damaging the diagnostic device or generating incorrect data, please ensure that the vehicle battery is sufficiently charged and the connection of vehicle diagnostic link connector is clean and safe.

Precautions for operating iSmartADAS HD Calibration Tool
To avoid user injury or device damage caused by improper operation, please pay attention to the following points:

• Please be sure to install it in accordance with the method described in the manual.

• Prevent iSmartADAS HD from contacting water and being violently impacted.

• Prevent iSmartADAS HD from long-time sunlight.

• The light source should ensure that there are no reflection points on the calibration target.

• There should be no direct light source in the camera's field of view, otherwise the camera will reduce the exposure and darken the captured calibration target, which will adversely affect the calibration.

• The light source should ensure that the illumination of the calibration work site is evenly distributed.

• Please maintain iSmartADAS HD regularly.

Precautions for operating the vehicle

When performing calibration operations, please read the following information carefully:

• Ensure that all wheels of the vehicle are parked on level ground.

• Set the gear position to P (parking) state for Automatic Transmission vehicles.

• During the test, make sure the connection between the diagnostic device and the diagnostic link connector is good which is to avoid signal interruption affecting the test.

• The vehicle system is operating normally and there is no fault stored in the ECU DTC memory.

• To avoid losing the connector, please make sure to remove it from the vehicle diagnostic link connector after use.

Precautions for using laser equipment

• Please store in a dry place.

• The laser beam is projected directly into the eyes, which can cause eye damage.

• Do not look directly at the laser beam.

• Please fix the laser instrument, do not point the laser beam at people or animals.

• Do not operate the laser level around children. Do not allow children to use laser equipment.

• Do not use a magnifying glass or telescope to observe the laser beam.

• Do not tear off or scratch the warning labels on the laser equipment.

• Do not bring the instrument close to the pacemaker.

• Do not operate the instrument in an explosive environment, such as an environment with flammable liquid, gas or dust.

• Do not use strong detergents or chemicals to clean the instrument. The instrument can be cleaned with water or a small amount of soap with water.

• Please prevent the instrument from falling down.

• When installing the laser, make sure that it is firmly installed.

Contents

1. Product Introduction

1.1 About ADAS

ADAS stands for "Advanced Driver Assistance System". Its principle is to use vehicle cameras, radars, distance measurement and other sensors to sense the surrounding environment, collect data, and perform identification, detection and tracking for static and dynamic objects at any time during vehicle driving. Combined with the navigation map data, perform system calculation and analysis, so as to allow the driver to perceive the possible danger in advance, which effectively increase the comfort and safety of driving.

The cameras and sensors used in ADAS must be precisely calibrated and adjusted. Incorrect calibration will cause the system to output incorrect results or even completely fail, resulting in serious accidents or even death.

1.2 About iSmartADAS HD

As a comprehensive and flexible calibration tool for the Advanced Driving Assistance System of commercial vehicles, the iSmartADAS HD calibration tool of SmartSafe enables you to effectively and accurately calibrate various types of camera and radar driving assistance systems, such as the front camera for the Lane Departure Warning system, radar sensors for ACC (Adaptive Cruise Control) and more.

The iSmartADAS HD calibration tool has two main components:

• iSmartADAS HD calibration tool-used to determine the locations of vehicle to be calibrated and the calibration tool, combined with the calibration software to complete the ADAS system calibration. It is mainly composed of a calibration main frame (including base components, rotating components, middle frame components, cross member components and target brackets), wheel clamp components, rangefinders, ranging panels, camera calibration targets, ACC radar targets (including mounting plate), central laser and other components.
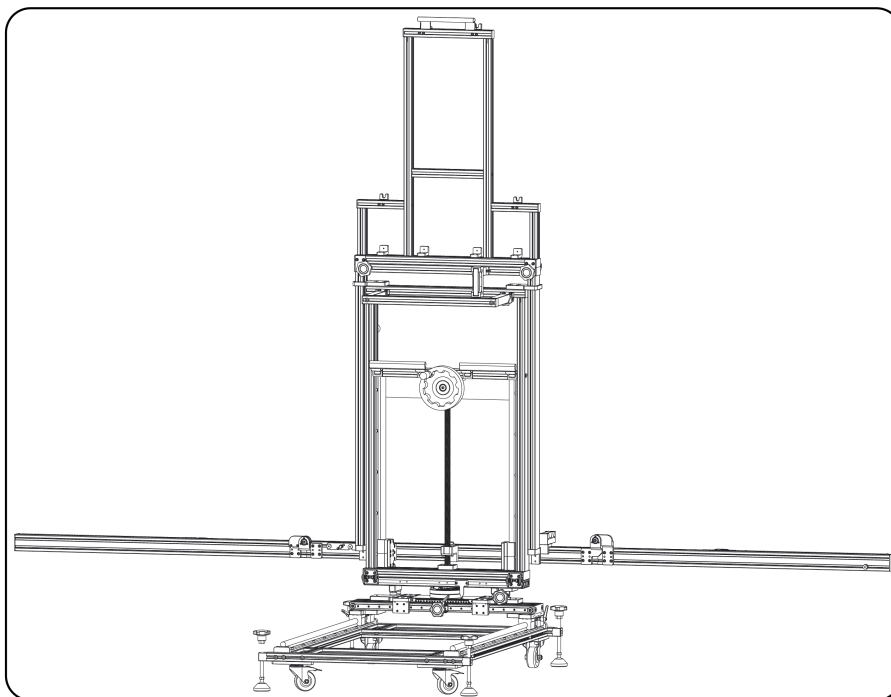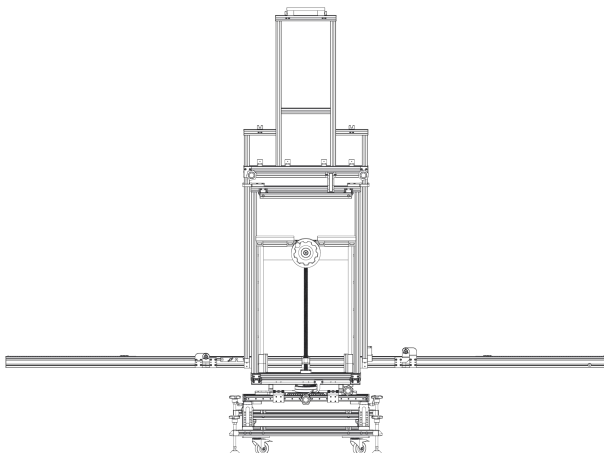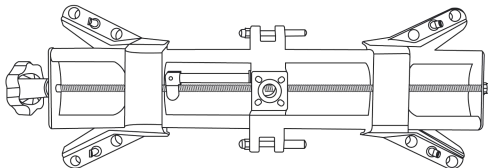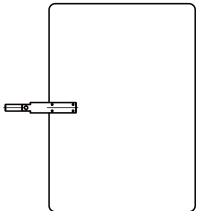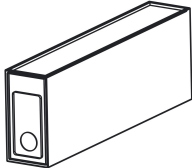

• Diagnostic tool (need to be purchased separately) - The calibration tool needs to be used together with a diagnostic tool that is compatible with the ADAS function of commercial vehicles authorized or approved by SmartSafe.
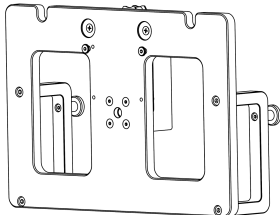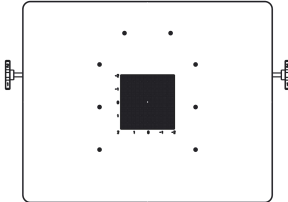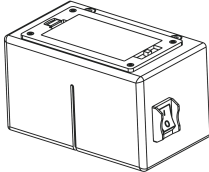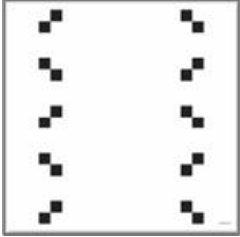
1.3 Packing List

Please check the packing list after receiving the calibration tool, so that you can immediately complain about potential damage or missing components. For different destinations, accessories may be different. Please consult your local dealer for more details.

Please note when unloading: heavy equipment may fall and cause personal injury. Please unload the equipment with the help of others or use appropriate auxiliary tools as needed.

Name of Accessories	Reference Picture	Quantity
Main Frame		1
Wheel Clamp		2
Wheel Clamp Panel		2
Laser Range Finder		4

Mounting Plate LAH05-01		1
ACC Reflector LAH05-02		1
Central Laser LAC09-02		1
Ranging Panel LAH09-01		1
ADAS Activation Card	-	1
User Manual	-	1
Packing List	-	1

Calibration Target	Reference Picture	Quantity
Iveco/Man/Scania LDW Target LAH01-01		1
Volvo/Renault LDW Target LAH01-02		1
Isuzu LDW Target LAH01-03		1
UD/Nissan LDW Target LAH01-04		1
Note: Different product configurations provide different targets. For details, please consult customer service or local dealers.		

2. Get to Know iSmartADAS HD Calibration Tool

2.1 Main Components

The iSmartADAS HD calibration tool is mainly composed of the following components:
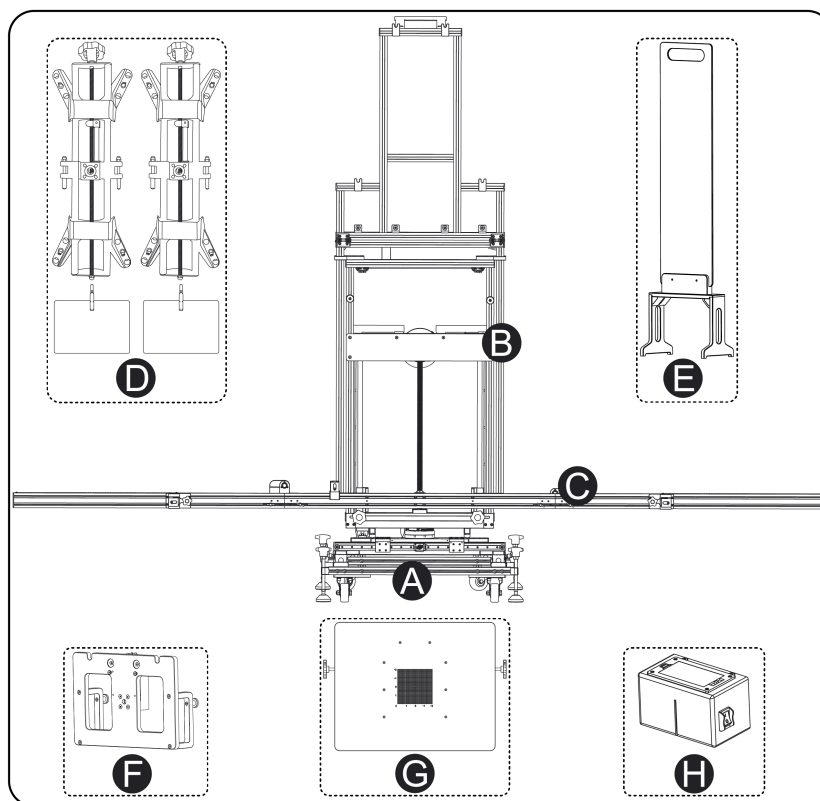
(*This diagram is not a physical picture of the product, which is only for explanation. Due to the continuous improvement of the product, it will be updated from time to time, please refer to the actual product.*)

No.	Specific Description
A	**Base Components** Used to fix the lifting components, balance the cross members and target brackets installed on the lifting components, and support front and back adjustment. The base is equipped with 4 rollers, which is convenient for users to move the equipment.
B	**Lifting Components** It is fixed on the base and is used to fix the cross member and the target bracket, which can realize the height lifting of the equipment and the fine adjustment of the left and right sides and the parallel fine adjustment of the equipment.
C	**Cross Member Components** It is installed on the lifting assembly and is used to place the central rangefinder and the mounting plate.
D	**Wheel Clamp Assembly** It is installed on the rear wheel of the vehicle and cooperates with the left and right positioning rangefinders on the cross member to adjust the parallelism of the calibration

|	
	equipment with the vehicle.
E	**Ranging Panel** Used to measure the distance between the device and the vehicle with a central rangefinder.
F	**Mounting Plate** It is used to hang central laser and ACC reflector, etc.
G	**ACC Reflector** Used to calibrate vehicle ACC radar.
H	**Central Laser** Used for auxiliary adjustment to equipment and vehicle center alignment.

2.2 Base Components
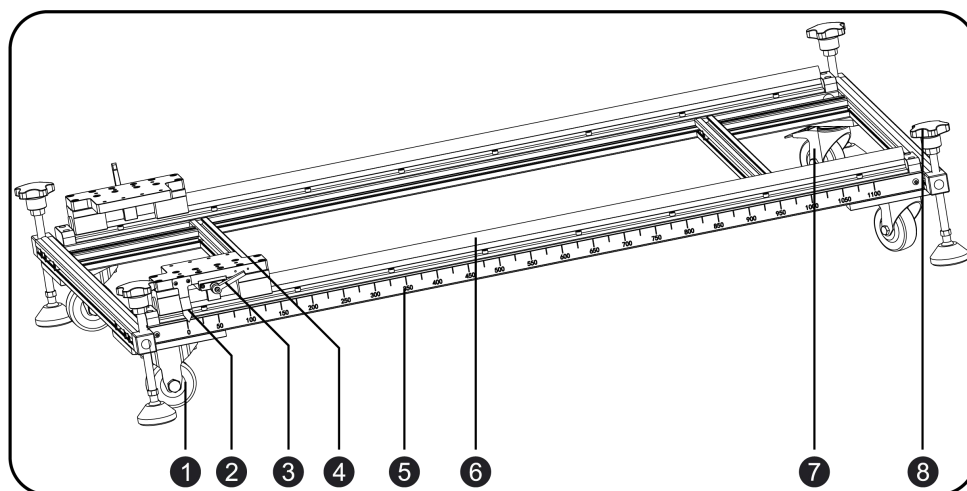
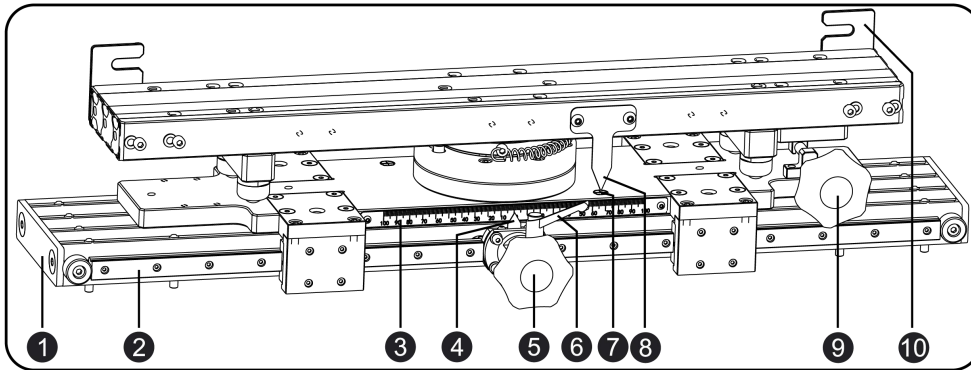| No.	Specific Description
1	**Directional Wheel** Used to move the calibration equipment back and forth.
2	**Indicator Arrow** Used to indicate the front and back adjustment position of the device.
3	**Handle Locker** Used to fix the front and back adjustment slider. When not locked, the slider can move back and forth on the slide rail.
4	**Slider Connection Block** Used to connect rotating components.
5	**Scale**
6	**Slide**
7	**Universal Wheel (with Brake Device)**

|	Used to control the moving direction of the equipment; press the brake device to lock the universal wheel and fix the position of the equipment.
8	**Adjustment Knob** Used to adjust the equipment level.

2.3 Lifting Components
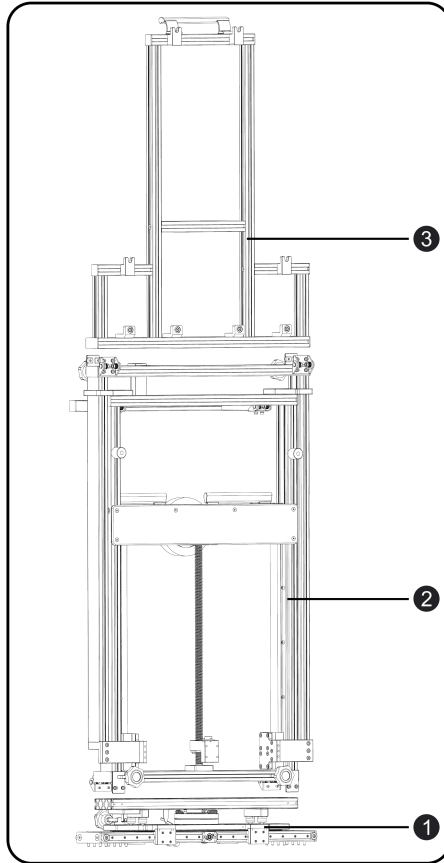
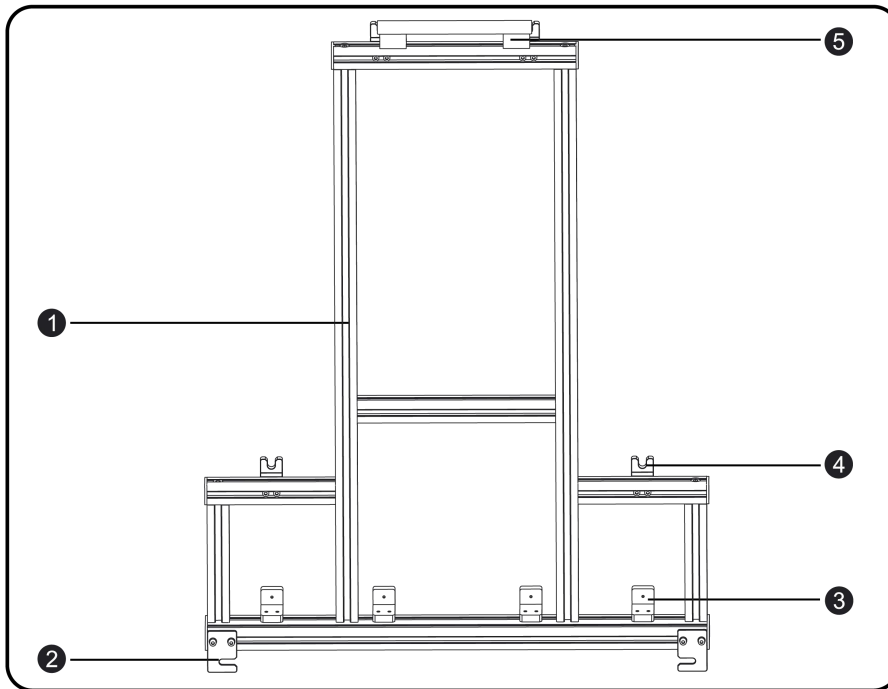| No.	Specific Description
1	**Rotating Components** Used to fix the middle frame components, and can control the left and right fine-tuning and parallel fine-tuning of the equipment.
2	**Middle Frame Components** Used to control the lifting of equipment.
3	**Bracket Assembly** Used to hang the front camera target.

2.3.1 Rotating Components

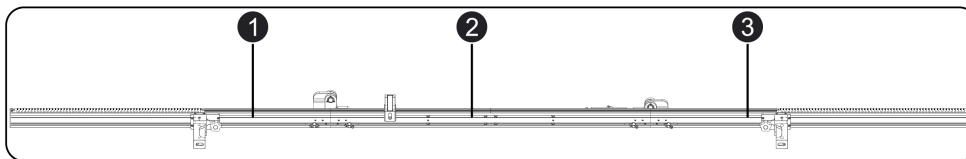| No.	Specific Description
1	**End Cap**
2	**Slide**
3	**Scale**
4	**Indicating Arrow (Panning Left and Right)** Used to indicate the position of the left and right fine-tuning of the device.
5	**Left and Right Fine-Tuning Knob** It is used to adjust the left and right position of the equipment to facilitate the determination of the centering of the equipment and the vehicle.
6	**Handle Locker** Used to fix the left and right fine-tuning knobs (5).
7	**Parallel Fine-tuning Reset Indicator** When the indicator arrow (8) points to the central cross point, it means that the device has returned to its original position.
8	**Indicating Arrow (Angle Rotation)**
9	**Parallel Fine-tuning Knob** It is used to adjust the angle of the equipment to facilitate the determination of the equipment parallel to the vehicle.
10	**Middle Frame Component Fixing Plate** Used to lock the middle frame assembly with the fixing knob II.

2.3.2 Middle Frame Components
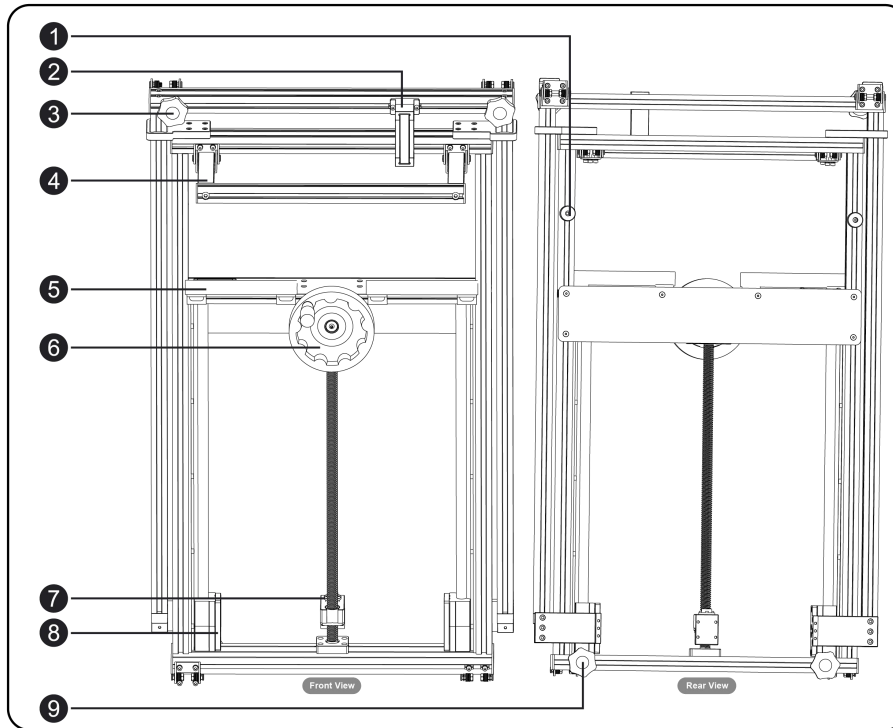
No.	Specific Description
1	**Support Column** Used to support the bracket assembly when the device is folded.
2	**Height Range Finder**
3	**Fixing Knob I** Used to fix the bracket assembly to the middle frame assembly to ensure that the bracket assembly is firmly connected.
4	**Support Bar** Used to support the lifting components when the equipment is folded.
5	**Handle** Convenient to move the device.
6	**Lifting Hand Wheel** Used to adjust the height of the equipment.
7	**Spirit Level**
8	**Slider** It is connected with the cross member and is used for the lifting and guiding of the middle frame assembly and the target bracket assembly.
9	**Fixed Knob II** It is used to fix the middle frame assembly to the rotating assembly to ensure a stable connection of the middle frame assembly.

2.3.3 Target Bracket Components

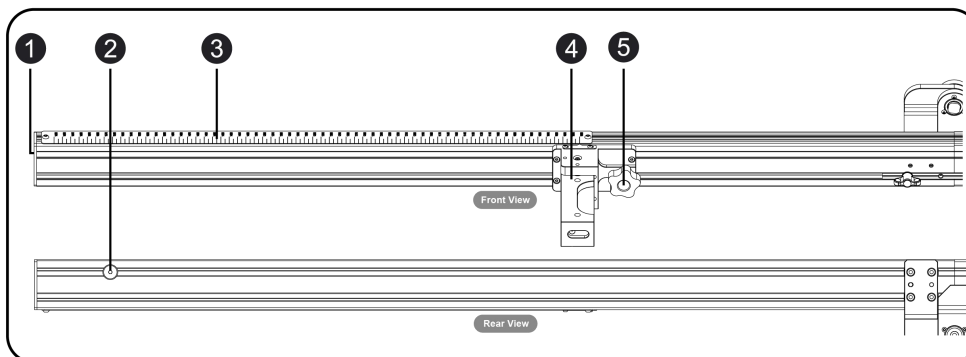| No.	Specific Description
1	**Target Holder**
2	**Bracket Assembly Fixing Plate** Used to lock the target bracket on the middle frame assembly with the fixing knob I.
3	**Abutment Plate** Used to bear against the target to ensure that the target and the outside of the cross member are on the same horizontal plane after installation.
4	**U-shaped Hanging Slot** Used to install the front camera target.
5	**Handle** It is convenient to push and pull the device when the device is folded.

2.4 Cross Member Components

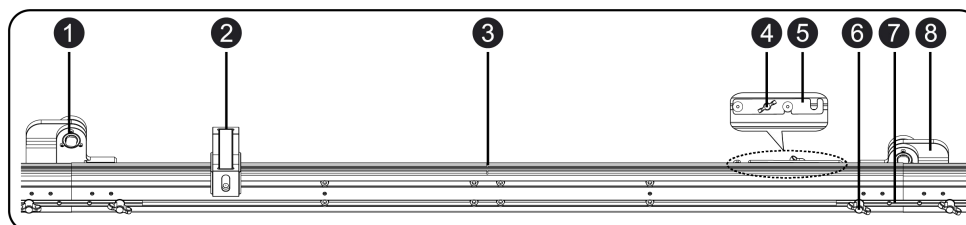| No.	Specific Description
1	**Extended Arm (left)** Used to place the left-side positioning rangefinder assembly, which can be folded to fit the right extended arm (you need to fold the right extended arm on the middle cross member first).
2	**Middle Cross Member**

		Used to place the central rangefinder components and hang the mounting plate.
3		**Extended Arm (Right)** Used to place the right-side positioning rangefinder component, which can be folded on the middle cross member.

2.4.1 Left Extended Arm of the Cross Member

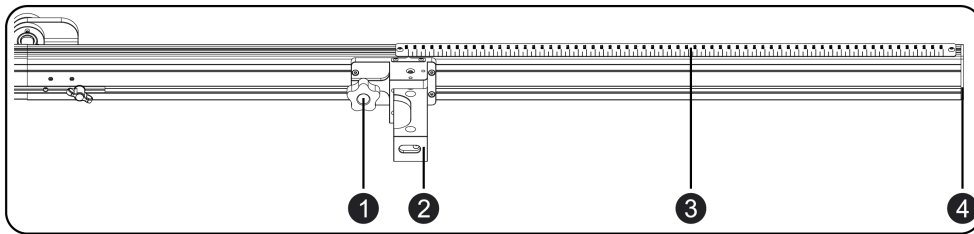| No.	Specific Description
1	**End Cap (Left)**
2	**Fixing Screws** After the left and right extended arms are folded, they are used to fix the three sections of the cross member.
3	**Scale (Left)**
4	**Positioning Rangefinder (Left)** It is used to measure the distance between the device and the wheel clamp panel, and cooperate with the positioning rangefinder on the right cross arm to make sure that the device is parallel to the vehicle.
5	**Fixed knob** Used to lock the rangefinder components.

2.4.2 Middle Cross Member

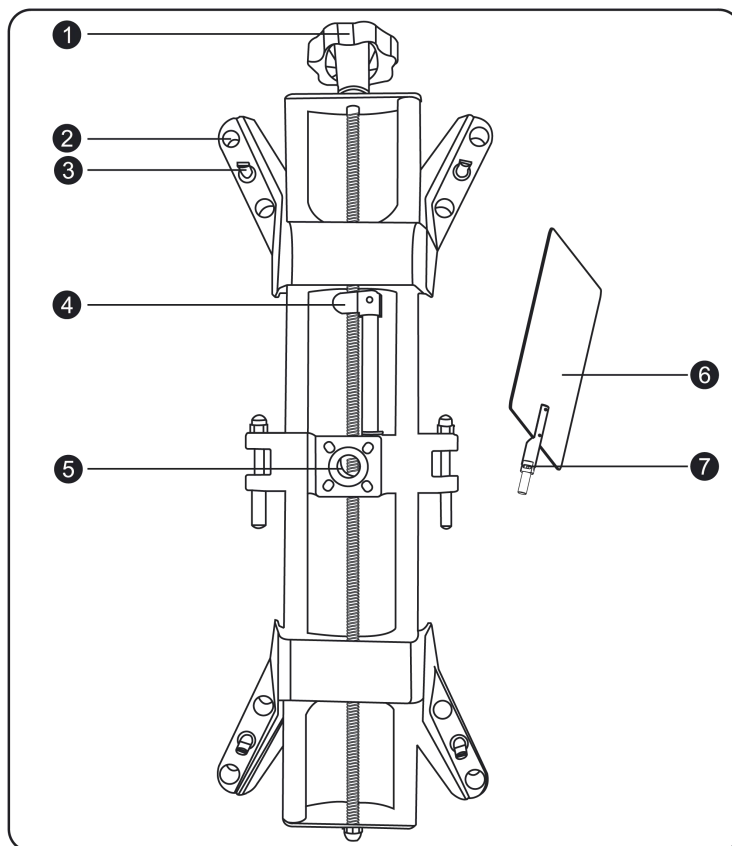| No.	Specific Description
1	**Hinge Holder (left)** It is used to connect the left extended arm and the middle cross member and realize the folding of the left extended arm.
2	**Central Rangefinder Components** It is used to measure the distance between the device and the vehicle and needs to be

	used with a ranging panel.
3	**Center Scale Mark** Used to mark the position where the mounting plate is centrally installed on the cross member.
4	**Lock Knob I** Used to fix the folded cross member components to avoid movement.
5	**Caliper** Used to cooperate with the locking knob I to fix the folded cross member extended arm.
6	**Lock Knob II** Used to lock the fixed plate (7), the fixed plate can be moved left and right when it is not locked.
7	**Fixed Plate** It is used to connect the extended arm and the middle cross member firmly.
8	**Hinge Holder (Right)** Used to connect the right extended arm and the middle cross member and realize the folding of the right extended arm.

## 2.4.3 Right Extended Arm of the Cross Member

No.	Specific Description
1	**Fixing Knob** Used to fix the position of the rangefinder component.
2	**Positioning Rangefinder (Right)** Used to measure the distance from the device to the wheel clamp.
3	**Scale (Right)**
4	**End Cap (Right)**

2.5 Wheel Clamp Components

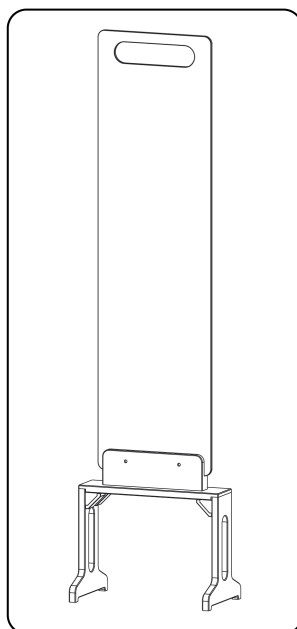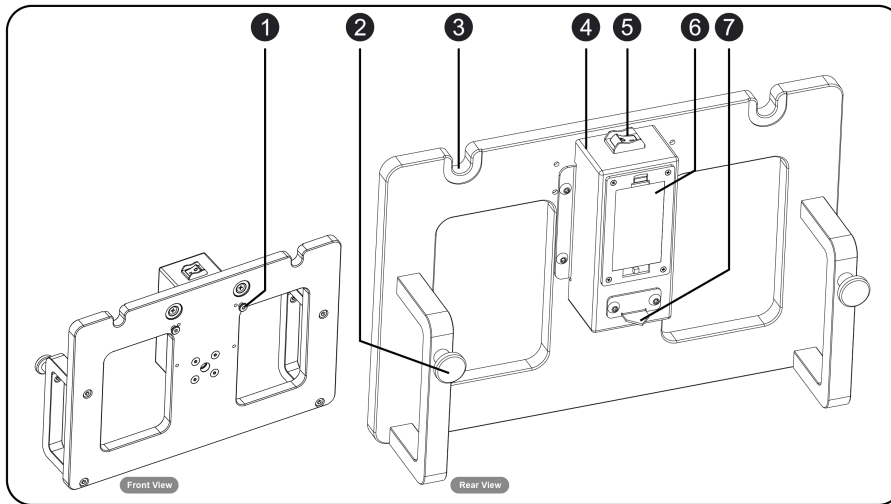| No.	Specific Description
1	**Adjustment Knob** Used to adjust the opening degree of the upper and lower clamping arms to adapt to different sizes of tires.
2	**Claw Mounting Hole** Used to install the claws, each clamp arm has three mounting holes to meet the needs of different sizes of tires.
3	**Claw** Used to fix the wheel clamp on the wheel hub of the vehicle.
4	**Fixing Screw** Used to lock the wheel clamp panel in the mounting hole (5).
5	**Mounting Holes** Used to install the wheel clamp panel.
6	**Wheel Clamp Panel** Used to measure the distance from the device to the wheel clamp with the positioning rangefinder on the cross member.
7	**Spirit Level** Used to judge whether the wheel clamp panel is vertical.

2.6 Central Laser (LAC09-02)
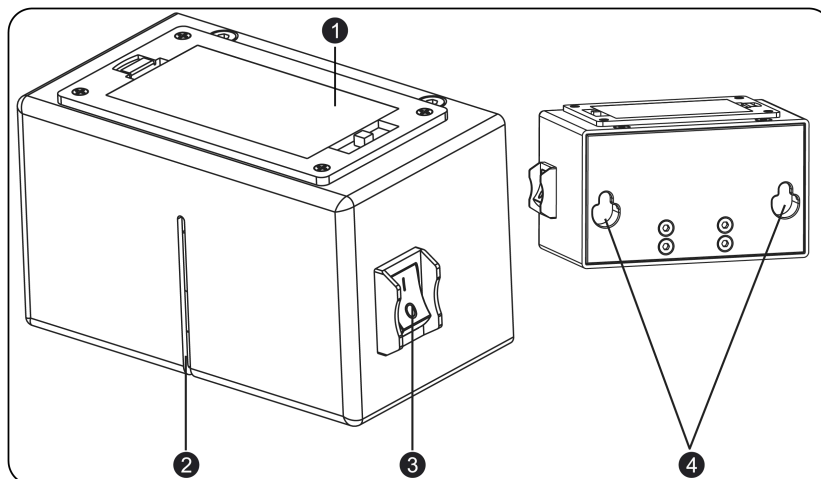
No.	Specific Description
1	**Battery Case** For powering the laser, 2 AA batteries are required.
2	**Laser Line Output Port**
3	**Switch** Used to turn on or off the laser line of the central laser.
4	**Gourd Hole** Used to hang the central laser on the pegs of the mounting plate.

2.7 Ranging Panel (LAH09-01)

With a central rangefinder component, it is used to measure the distance between the device and the vehicle.

2.8 Mounting Plate (LAH05-01)

No.	Specific Description
1	**Pegs** Used to anchor the central laser.
2	**Hanging Pin** Used to hang the mounting plate on the cross member.
3	**Hanging Slot** Used to hang ACC reflector.
4	**Laser**
5	**Switch** Used to turn on/off the laser.
6	**Battery Case** For powering the laser, 2 AA batteries are required.
7	**Indicator Arrow** Used to indicate whether the mounting plate is installed in the middle of the cross member.

2.9 ACC Reflector (LAH05-02)
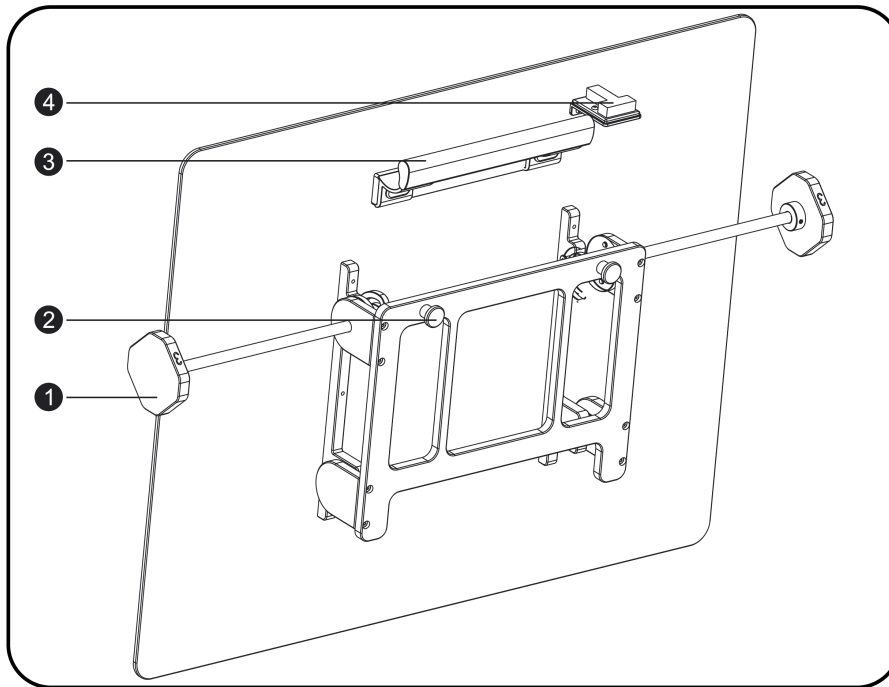
| No.	Specific Description
1	**Gear Knob** Used to adjust the angle of the ACC reflector.
2	**Positioning Pegs** Used to hang the ACC reflector on the mounting plate.
3	**Handle**
4	**Spirit Level**

3. Initial Use

3.1 Install the Calibration Main Frame

Before leaving the factory, the main calibration frame has been folded to facilitate transportation, please follow the steps below to unfold it.

1. Pull up the lifting assembly to be perpendicular to the base.

2. Push the fixing knobs ① on the left and right sides into the bottom of the fixing board slot and tighten the fixing knobs to ensure that the rotating components are installed firmly.
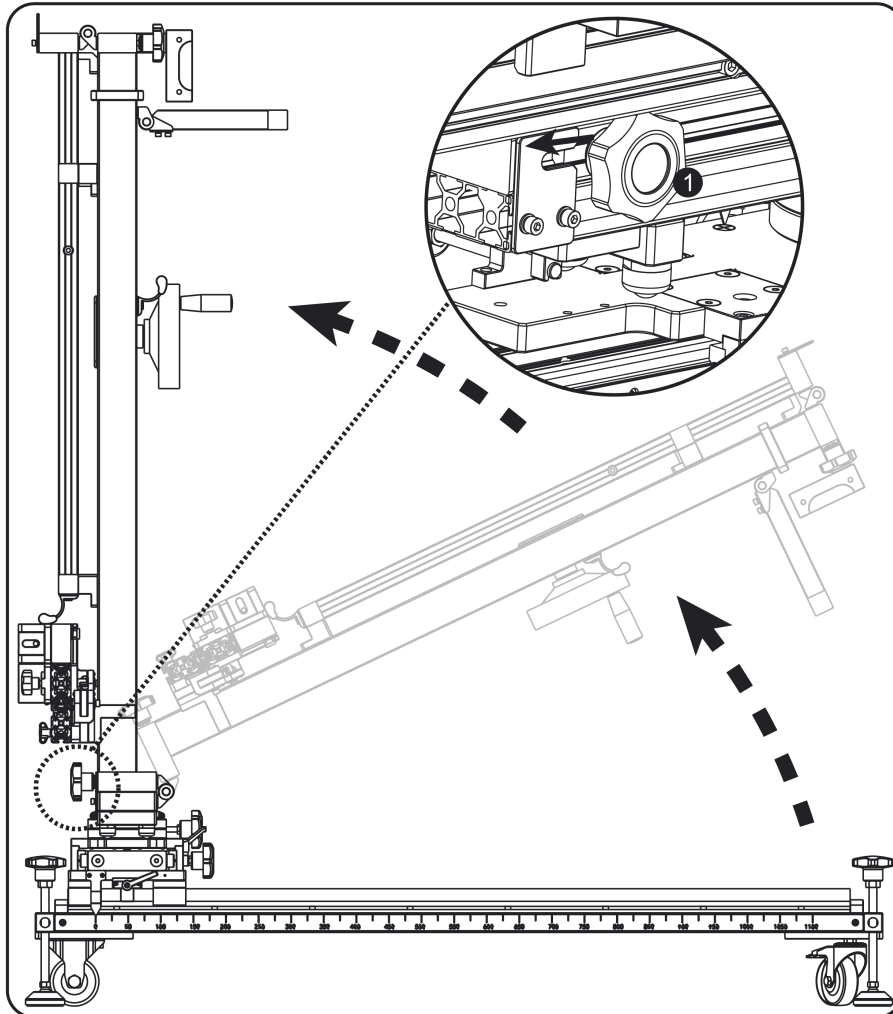

3. Push the bracket assembly up to stand upright.

4. Push the fixing knobs ② on the left and right sides into the bottom of the fixing plate slot and tighten the fixing knobs to ensure that the bracket assembly stands firmly.
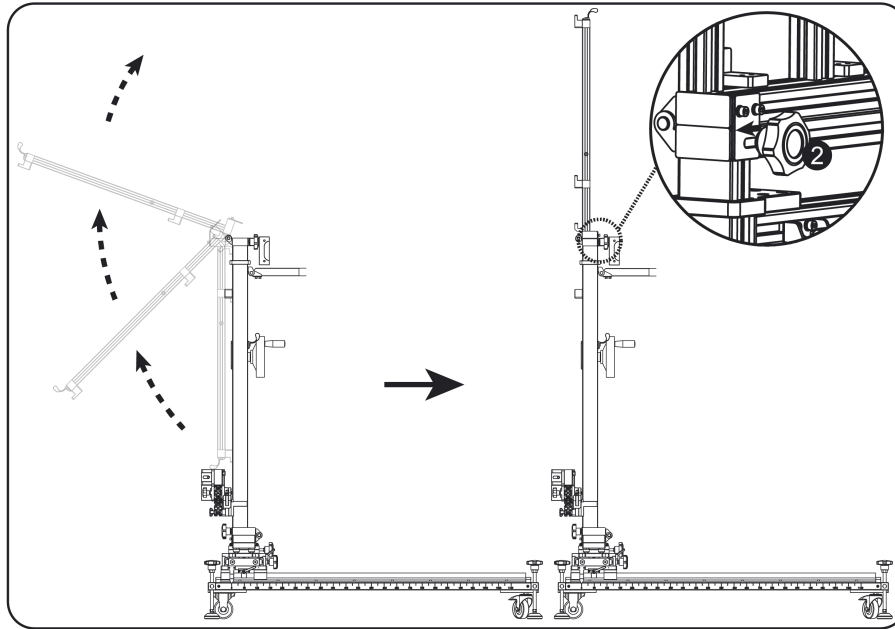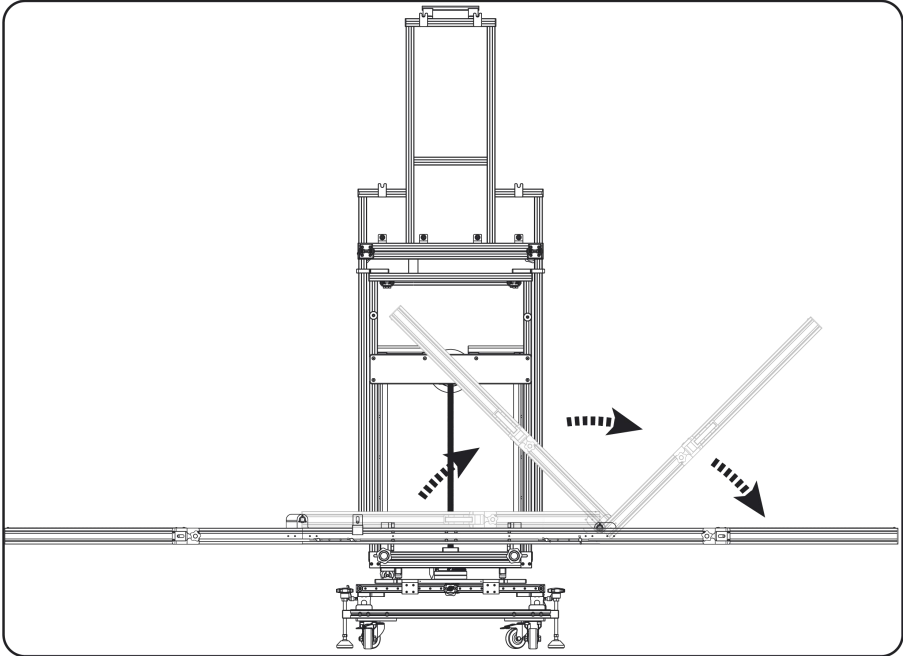
5. Loosen the locking knob ③, fix the caliper ④ to the screw ⑤ and tighten the locking knob, as shown in the figure below.
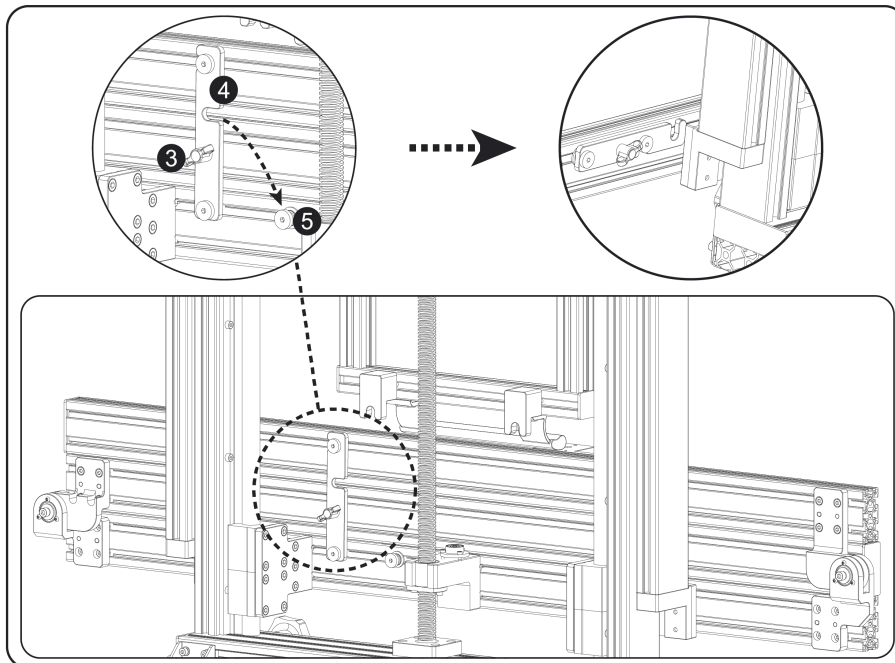
6. Unfold the left extended arm of the cross member to fully fit the left port of the middle cross member.
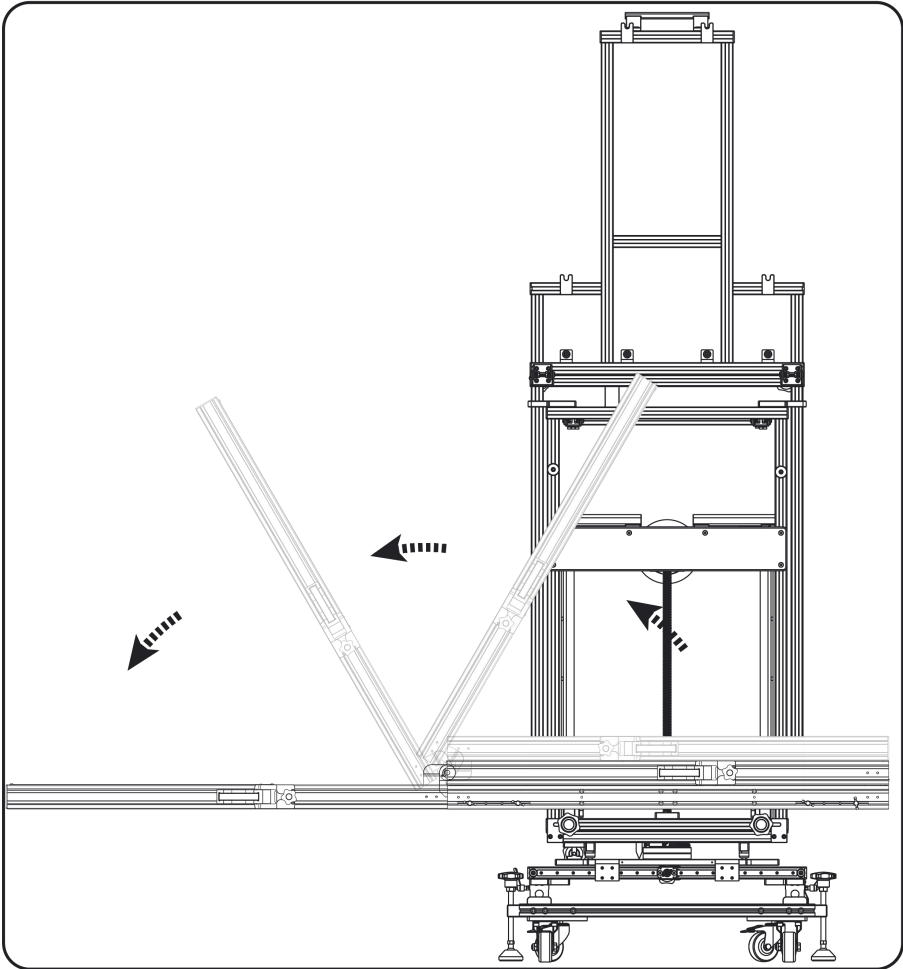
7. Unfold the right extended arm of the cross member to fully fit the right port of the middle cross member.


8. Move the left side fixing plate to the junction of the left extended arm of the cross member and the middle cross member, so that the two locking knobs are respectively located on the left extended arm and the

middle cross member, tighten the locking knob to firmly connect the left extended arm of the cross member with the middle cross member, connect the right extended arm of the cross member with the middle cross member firmly as per these steps to ensure that the left and right extended arms and the middle cross member are on the same level.
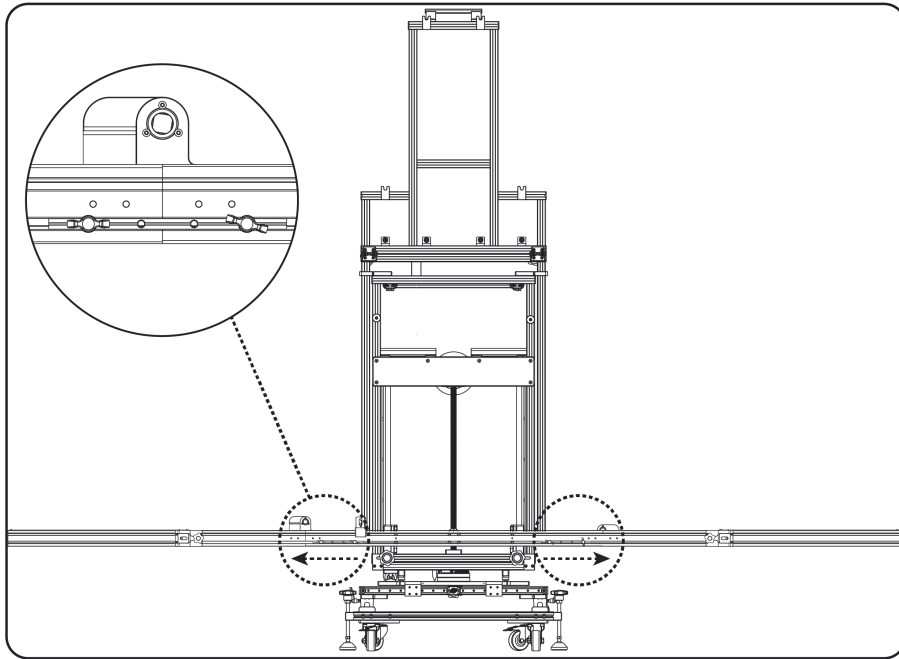
9. Unfold the positioning rangefinders on the left and right sides to be perpendicular to the cross member.
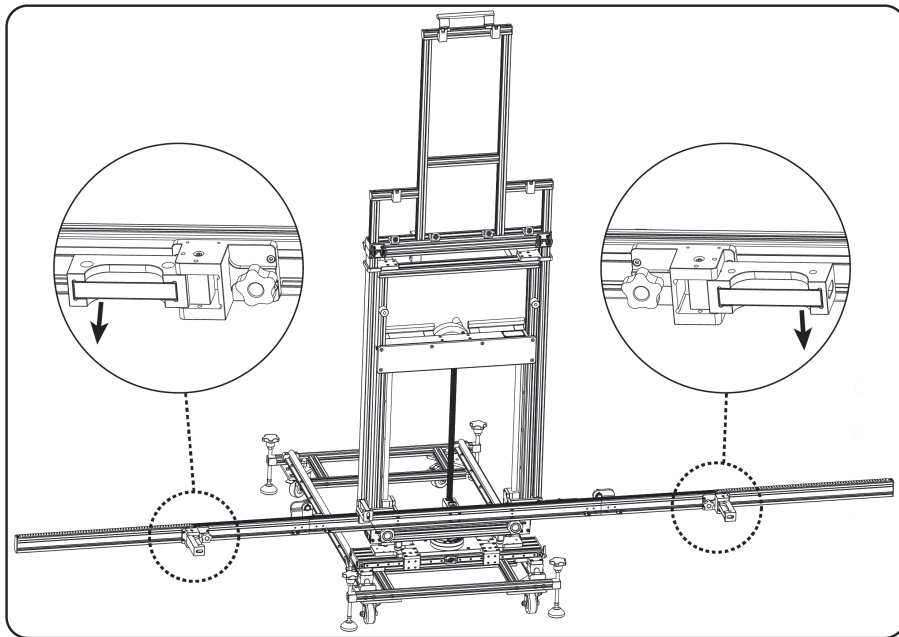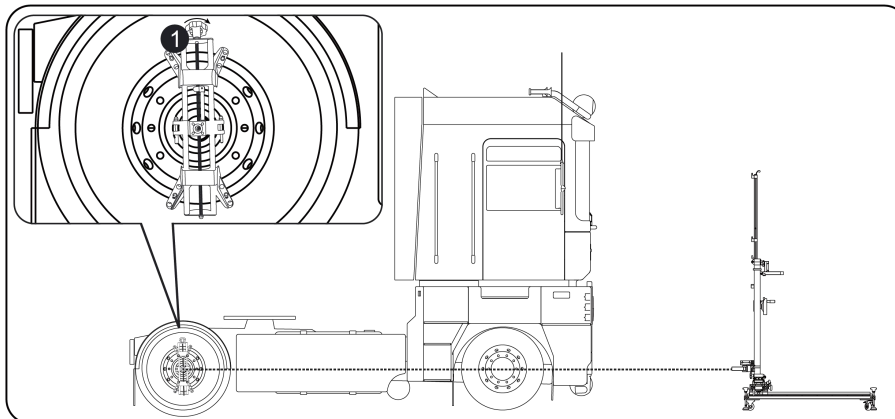

10. Press down the support bar to be parallel to the middle frame assembly, as shown in the figure below.
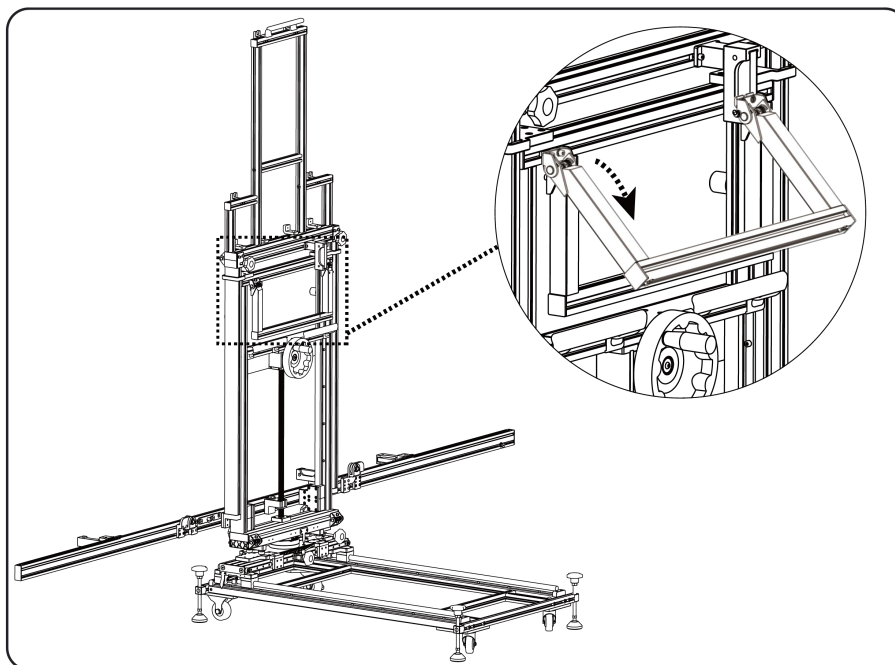
3.2 Install the Wheel Clamp Components

Follow the steps below to install the left and right wheel clamps on the vehicle rear wheels.

1. Install the wheel clamp on the vehicle rear wheels, and then turn the adjusting knob ① to tighten the wheel clamp.

2. Loosen the fixing screw ②, insert the wheel clamp panel into the mounting hole ④, make sure that the spirit level ③ of the wheel clamp panel is facing up and centered, and then tighten the fixing screw ②.
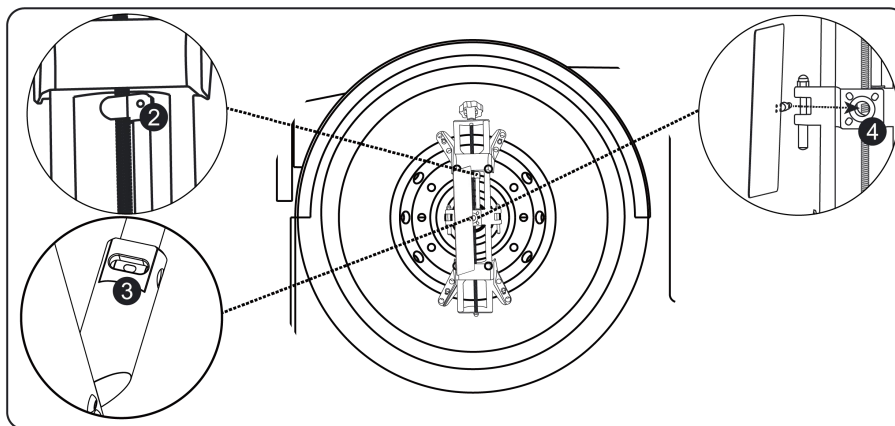
3.3 Activate the Software ADAS Calibration Function

Before using the calibration function, the user needs to activate the ADAS function authorization on the diagnostic tool (purchased separately) with the activation time card included with the machine.

The specific activation steps are as follows:

Note: For different diagnostic tools, the access to ADAS function may be different.

1. Start the diagnostic device and enter the software main interface.

2. Click the "ADAS" icon on the screen and select "Commercial Vehicle ADAS". If the ADAS function is not activated, the screen will display as follows:
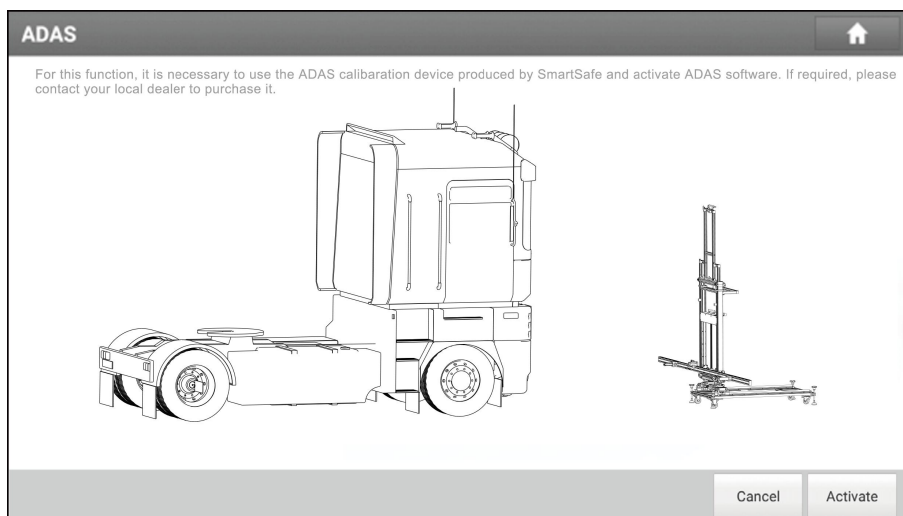
3. Click "Activate" to enter the following interface:

Please choose the device serial number to activate the ADAS software:

	⌄

Please enter the ADAS Activation Card password:

Activation Code

ACTIVATE

4. Select the correct device serial number, enter the 24-digit activation code (take out the ADAS activation card that comes with the machine, and scratch the coating area to display the activation code), and click "Activate".

5. Complete ADAS activation.

4. Start Using ADAS Calibration Tool

The calibration operation must strictly follow the software prompts on the diagnostic device. ADAS calibration can be divided into dynamic calibration and static calibration. For static calibration, calibration tool and the corresponding target must be used to complete. During static calibration, the user is required to place the calibration tool in a fixed position in front of the vehicle according to the software prompts and adjust the device to be centered parallel to the vehicle, use the correct calibration target, and adjust the target to the height specified by the software.

4.1 Preconditions for Using ADAS Calibration Tool

Reasons for calibration:

- Sensor control unit repair or replacement (ACC radar, front camera sensor replacement).
- The deviation angle of the sensor is out of normal range (the angle of installation position is incorrect).
- Move the position of the sensor on vehicle body (the position of sensor changed).
- Repair or replace the parts that fix the front sensor (bumper, front windshield replacement).
- Adjust the chassis.

Before using the calibration equipment to perform the calibration procedure, please ensure the following conditions:

- The vehicle must not be damaged on the position of the sensor.
- The fixed sensor parts and brackets cannot be deformed.
- Check the air pressure of the tire and correct it to the recommended value if necessary.
- Apply the parking brake and close the door.
- Make sure that the vehicle's coolant and oil should be within the recommended range, and fill up with fuel. The vehicle does not carry any items (passengers or cargo).
- Connect the VCI to the vehicle to ensure that the vehicle has no fault codes except for the ADAS-related systems.

4.1.1 Work Site Size

The recommended site when calibrating the front camera is as below:

Distance A = about 3.5 meters (i.e. the width of the cross member)

Distance B = about 3 meters (from cross member to wall or fixed object)

Distance C = at least 0.5 meters (from the edge of the cross member to other obstacles)

Distance D = varies from vehicle to vehicle, 0~5 meters; the specific instructions of the software shall prevail (from the target bracket to the vehicle)

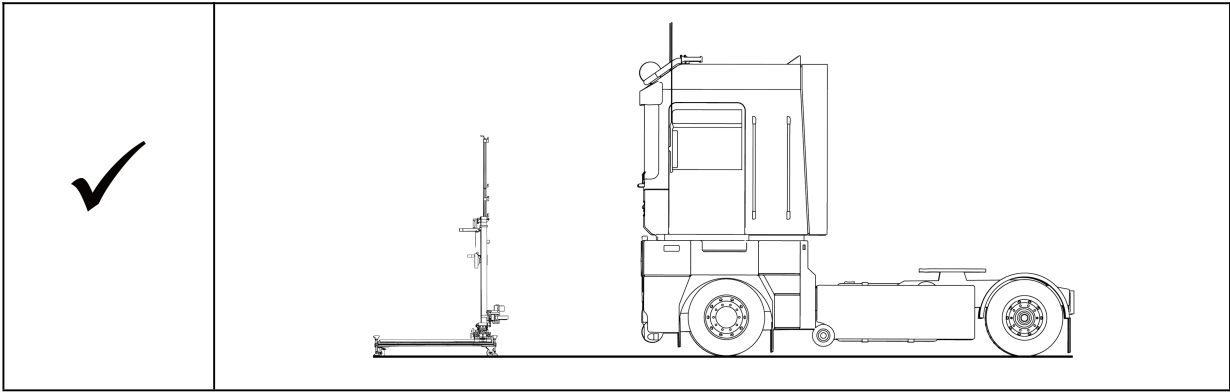Distance E = Reserve about 1 meter (from the vehicle to other obstacles)

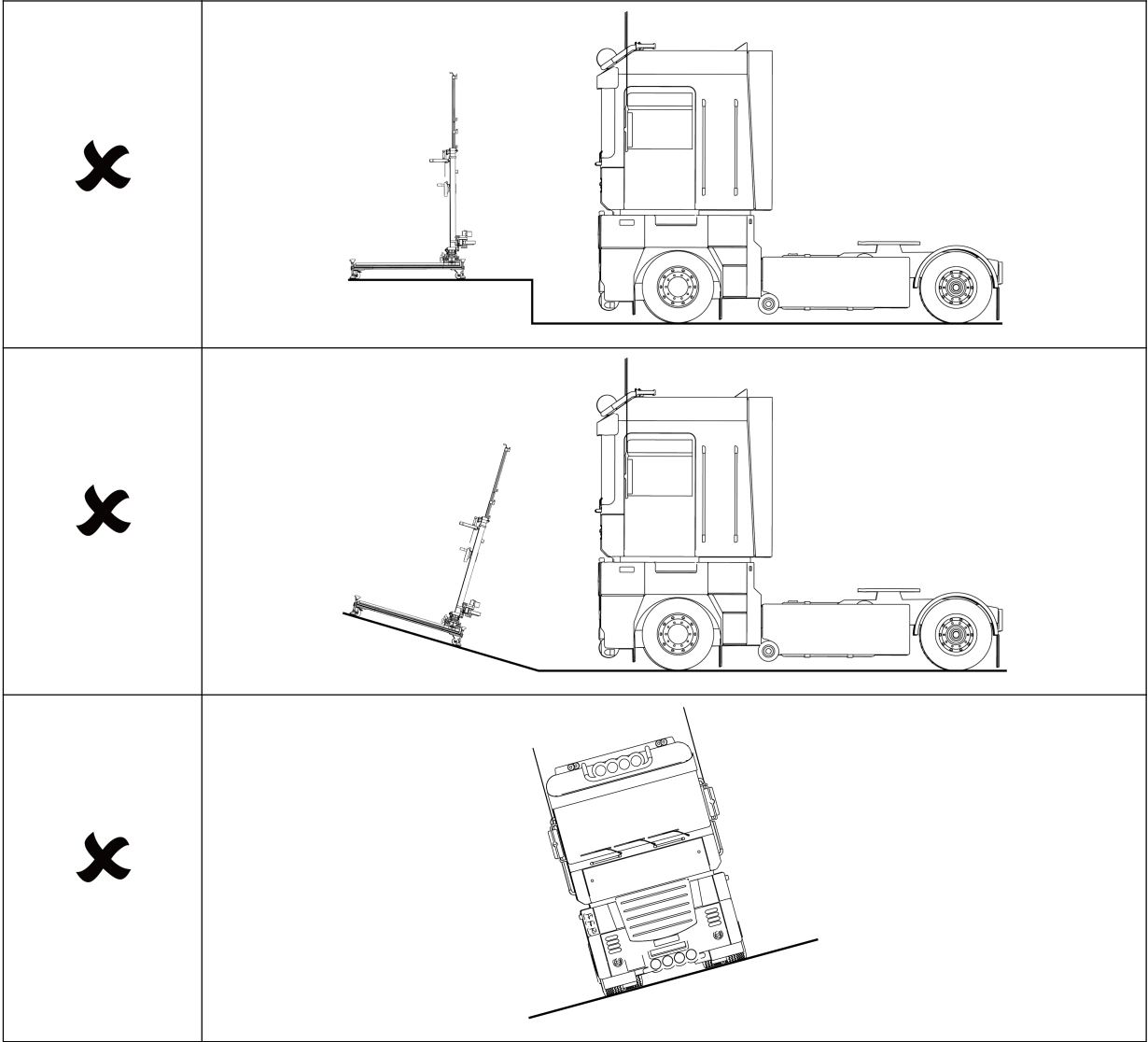Distance F = at least 0.5 meters (walkway for staff to walk)
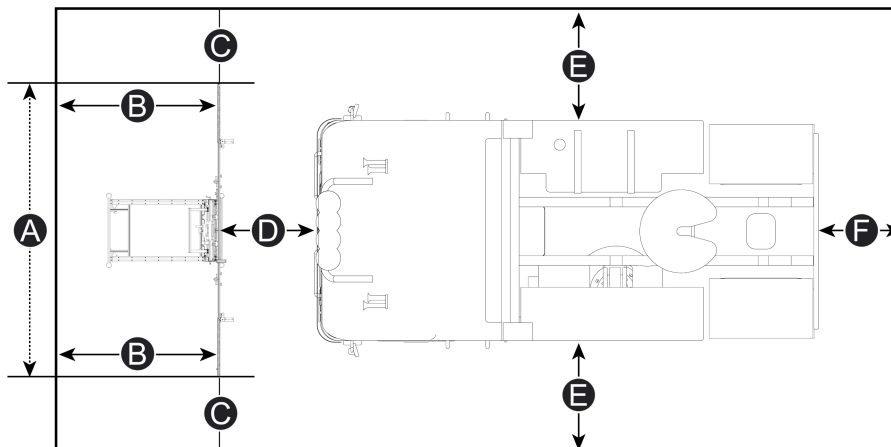
4.1.2 Work Site Ground Requirements

Ensure that all wheels of the vehicle are parked on level ground.

The correct method:

The incorrect method:

4.1.3 Work Site Lighting Requirements

✓　The lighting system around the calibration work site should be a non-frequency flash source, including but not limited to: LED light source, industrial lighting that meets international standards, and reverse phase dual light sources.

✓　There should be no direct light source in the camera's field of view, otherwise the camera will reduce the exposure and darken the captured calibration target, which will adversely affect the calibration.

✓　The light source should ensure that there are no reflection points on the calibration target.

✓　The light source should ensure that the illumination of the calibration work site is evenly distributed.

✓　Do not change the brightness of the light, and ensure that there are no other changing light sources around the work site, such as a lighted driving vehicle.

4.2 Camera Calibration

Before calibration, you need to connect the diagnostic device to the vehicle, start the APP, and then click "ADAS" to automatically scan to obtain vehicle information and enter the ADAS menu, or manually select the software of the model and the system that needs to be calibrated.

4.2.1 Front Camera Calibration

When using iSmartADAS HD to calibrate the vehicle front camera, you generally need to follow the steps below:
1. Reset the device according to the label on the calibration tool.
2. Install the wheel clamp and the ranging panel.
3. Determine the distance of the calibration tool.
4. Adjust the device to make it parallel to the vehicle and centered.
5. Select and install the target of corresponding vehicle model.
6. Adjust the height of calibration target.
7. Perform the calibration function.
Note: The placement of iSmartADAS HD calibration tool varies with vehicle models. Please strictly refer to the software prompts.

Take measuring the position of the wheel hub to the target as an example, and introduce the operation steps in detail:
[Step 1] Perform a reset of the device
Check the following positions of the calibration tool and perform a reset:
① Parallel fine-tuning position
② Left and right fine-tuning position
③ Front and rear fine-tuning position
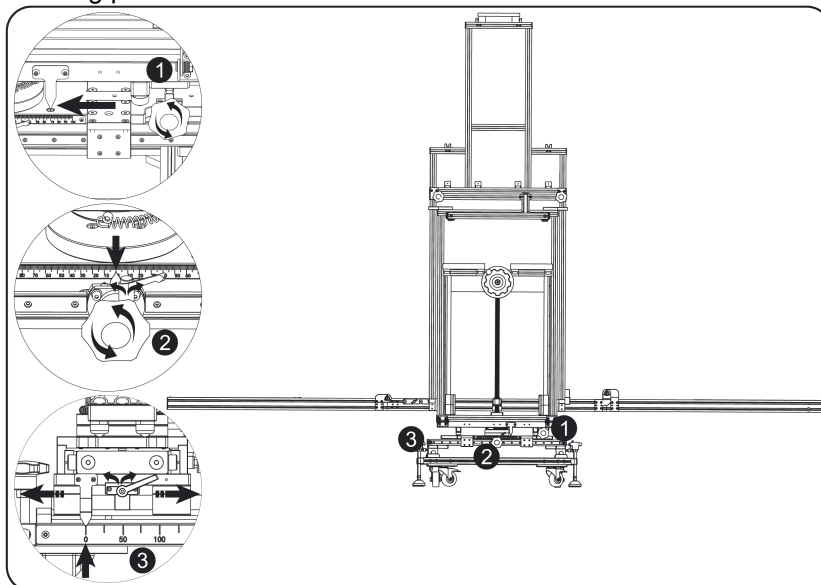
[Step 2] Install the wheel clamp and ranging panel

1. Install the wheel clamp ① on the vehicle left and right rear wheels, while ensuring that the spirit level ② is centered.

2. Place the ranging panel LAH09-01 in the center of vehicle front wheel and make sure it is perpendicular to the front wheel.
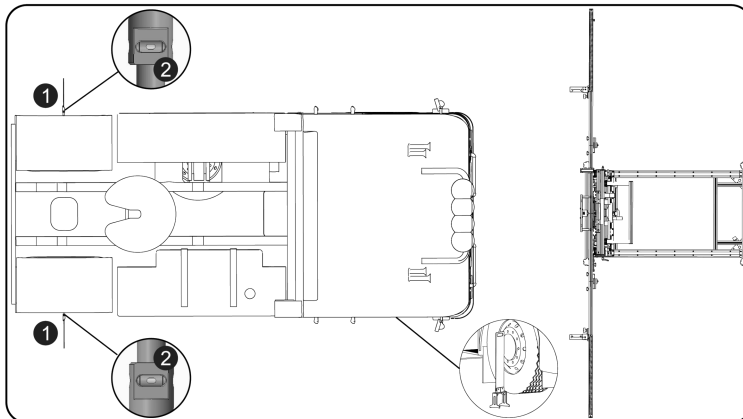

[Step 3] Determine the distance of the calibration tool placement

1. Hang the mounting plate LAH05-01 so that the centering mark is aligned with the center of the cross member.

2. Install and turn on the central laser LAC09-02, and place the device in front of the vehicle so that the laser line illuminates on the vehicle center.
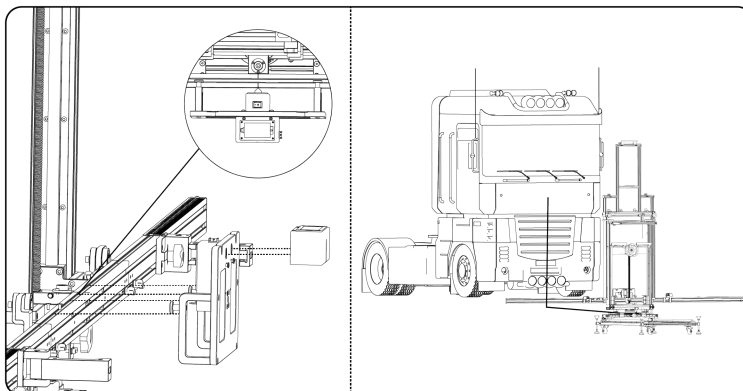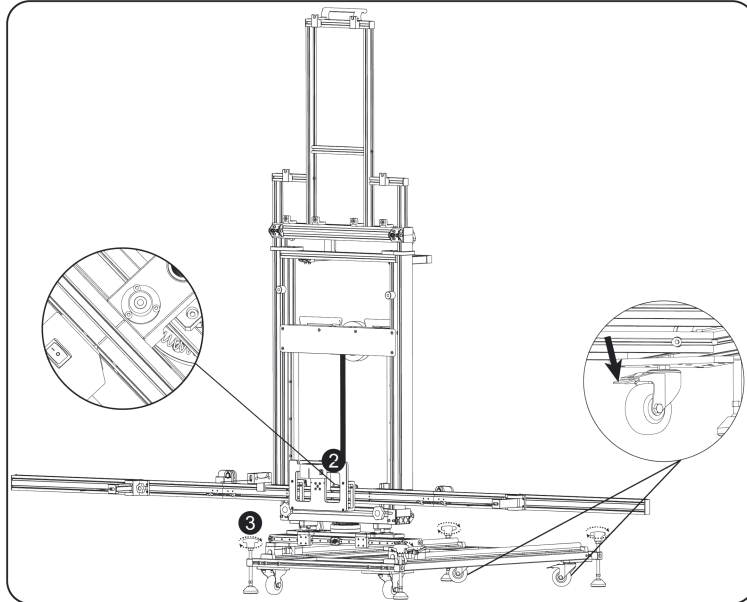

3. Install the range finder ① on the cross member, the range finder ① is on the same side as the rangefinder panel LAH09-01, turn on the range finder so that the laser spot illuminates on the rangefinder panel LAH09-01.

4. Find the correct placement of the device by going forward or backwards so that the value of the rangefinder ① is L, L=the distance prompted by software.
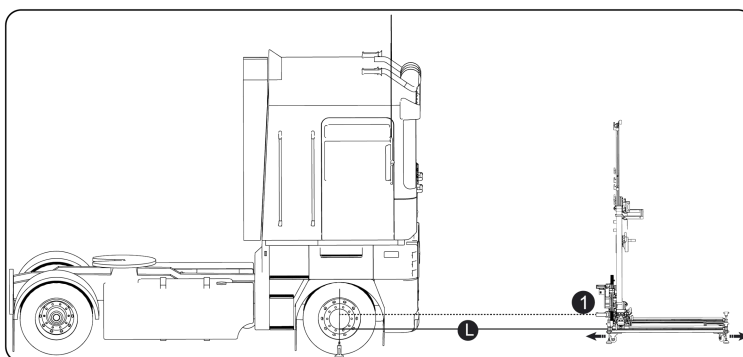
5. Monitor the spirit level ②, rotate the base adjustment knob ③, lock the moving wheels after the device has been leveled.

Note: If the laser spot cannot be illuminated on the ranging panel, adjust the height of the device.


[Step 4] Adjustment of the device to ensure parallel and center positioning to the vehicle

1. Activate and move the rangefinder ① on both sides of the cross member so the laser spot will illuminate on the wheel clamp panel.
2. Perform fine tuning on the parallel tuning knob ② to be consistent with the values of the rangefinder① on both sides (allow for a ±1mm tolerance)
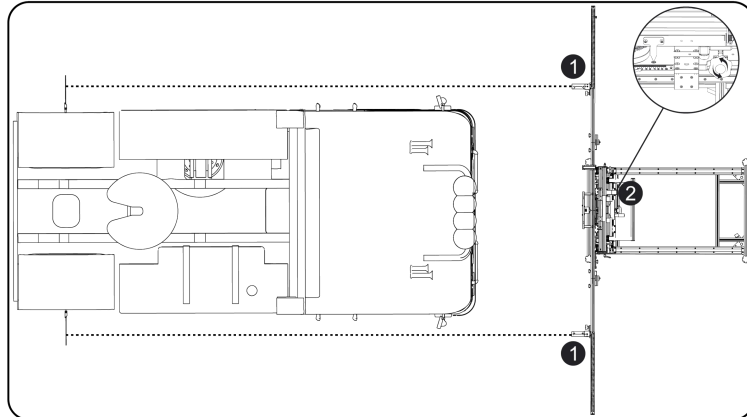

3. Perform fine tuning adjustment via the fine tuning knob for left and right fine tuning ③, while ensuring the laser line of the central laser LAC09-02 illuminate the center of the vehicle.
4. Turn off and remove the central laser LAC09-02.
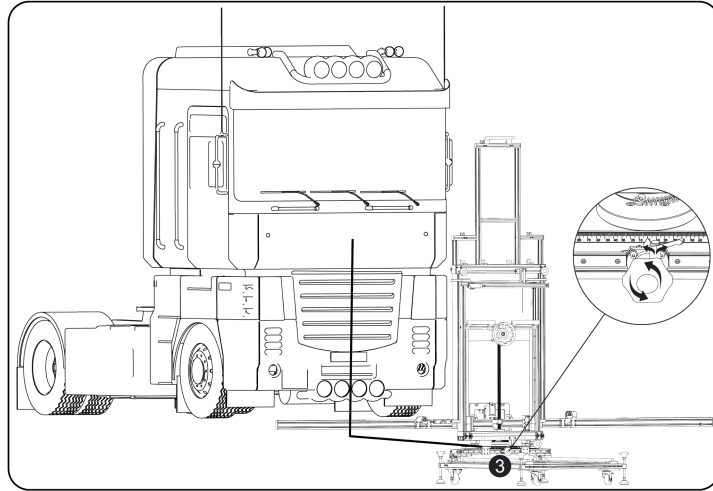
[Step 5] Installing the target
1. Select the corresponding target panel according to the vehicle model to be calibrated.
2. Here take the front camera target LAH01-01 as an example, and the installation method is as follows:

   1). Align the target with the slot and hang the target as shown in the figure below.
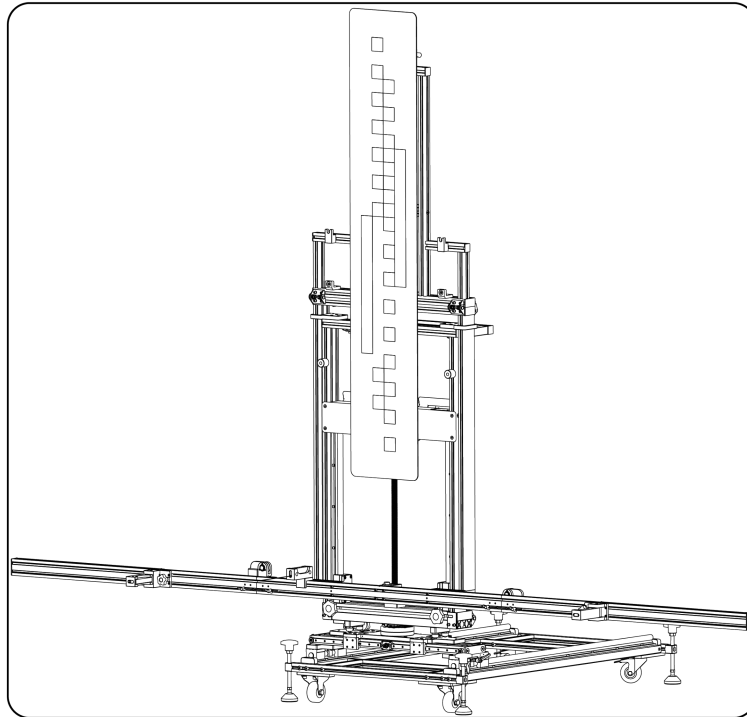
[Step 6] Adjust the height of target according to the software prompt
1. Turn on the height range finder ①, adjust the height of the device so that the value of height range finder ① is H (H = the height prompted by software).
*Note: Please make sure that the laser illumination area is free of water stains and other reflective objects that affect the measurement results.*
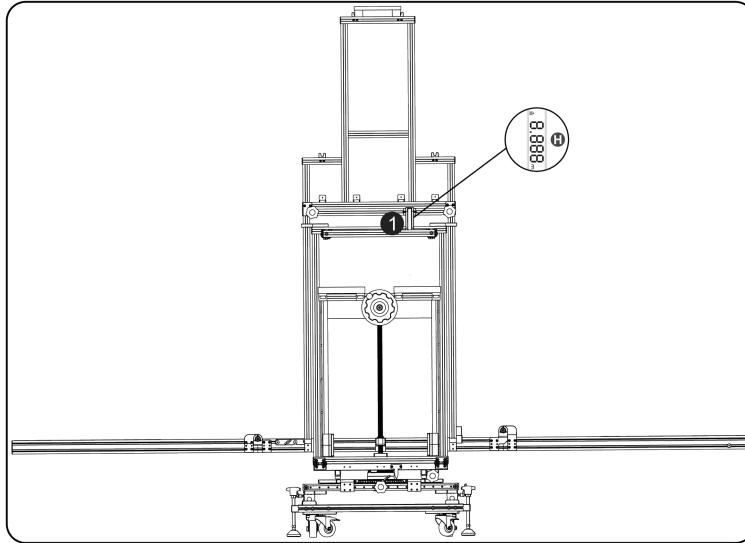
[Step 7] Perform calibration
Perform calibration function as per the software prompts. Save the ADAS report after the calibration completed. It is recommended to scan the system again after the calibration completed to confirm that the failure has been fixed.
Note: After performing the above calibration steps for some models, you need to place the device in the second position according to the software prompts to perform the calibration step again. In this case, please loosen the front and rear adjustment handle lock ①, move the target position backward by L, where L=the distance indicated by the software, and then execute the calibration function again.
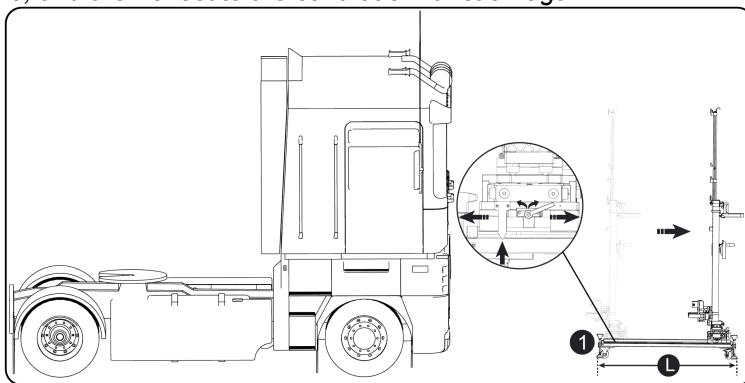
4.3 Radar Sensor Calibration

iSmartADAS HD calibration tool provides a variety of radar sensor calibration targets (optional), which are used to calibrate ADAS radar sensor. When using iSmartADAS HD to calibrate vehicle radar sensors, you generally need to follow the steps below (take ACC radar as an example):
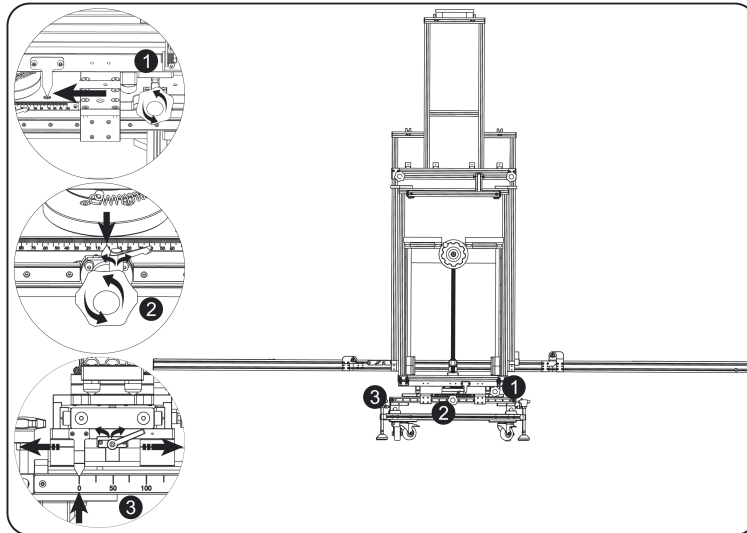1. Reset the calibration tool.
2. Install the wheel clamp and the ranging panel.
3. Determine the distance of device placement.
4. Adjust the device to make it parallel to the vehicle and centered.
5. Install the ACC radar reflector and adjust the level position.
6. Adjust the height.
7. Perform calibration.
8. Adjust the direction of ACC radar sensor.
9. Complete the calibration.

The detailed operation steps are described as below:
[Step 1] Reset the calibration tool

Check the following positions of the calibration tool and perform a reset:
① Parallel fine-tuning position
② Left and right fine-tuning position
③ Front and rear fine-tuning position


[Step 2] Install the wheel clamp and ranging panel
1. Install the wheel clamp ① on the vehicle left and right rear wheels, while ensuring that the spirit level ② is centered.
2. Place the ranging panel LAC09-01 in front of the vehicle and make sure it is close to the bumper and parallel to the vehicle.
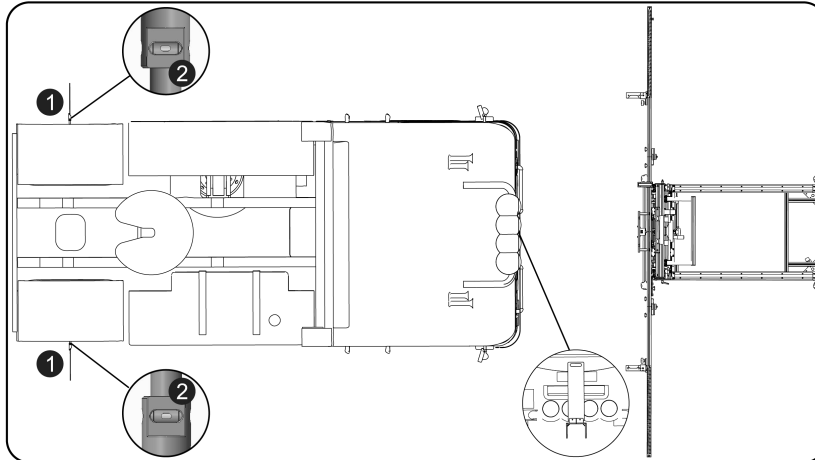
[Step 3] Determine the distance of device placement
1. Place the mounting plate LAC09-03 on the cross member so that the centering mark is aligned with the cross member center.
2. Assemble the central laser LAC09-02 on the mounting plate LAC09-03, turn on the laser, and place the device in front of the vehicle so that the laser line illuminates on the vehicle center.
3. Install the rangefinder ① in the middle area of the cross member, turn on the rangefinder so that the laser spot illuminates on the ranging panel LAC09-01.
4. Find the correct placement of the device by going forward or backwards so that the value of the rangefinder ① is L (L=the distance prompted by software).

Note: If the laser spot cannot be illuminated on the ranging panel, adjust the device height.
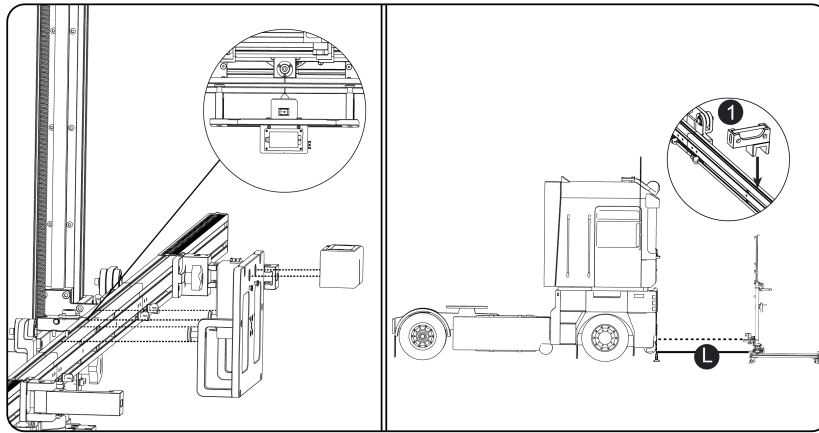
[Step 4] Adjustment of the device to ensure parallel and center positioning to the vehicle

1. Activate and move the rangefinder ① on both sides of the cross member so the laser spot will illuminate on the wheel clamp panel.

2. Perform fine tuning on the parallel tuning knob ② to be consistent with the values of the rangefinder① on both sides (allow for a ±1mm tolerance).
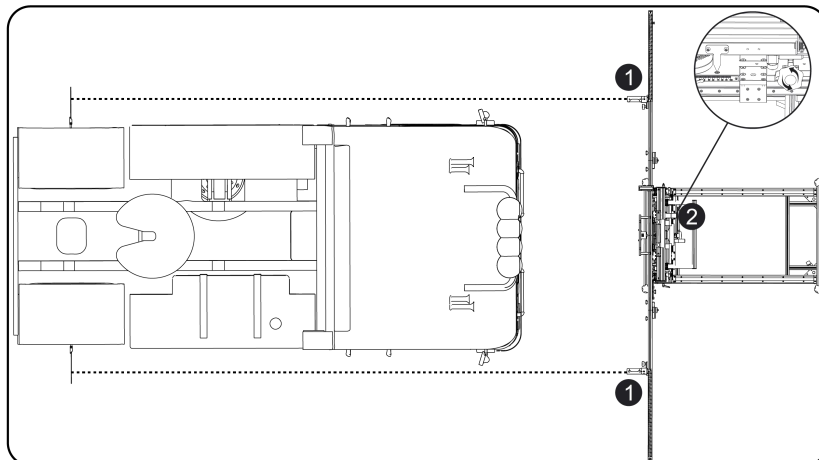

3. Perform fine tuning adjustment via the fine tuning knob for left and right fine tuning ③, while ensuring the central laser LAC09-02 illuminate the center of the vehicle.

4. Turn off and remove the central laser LAC09-02.
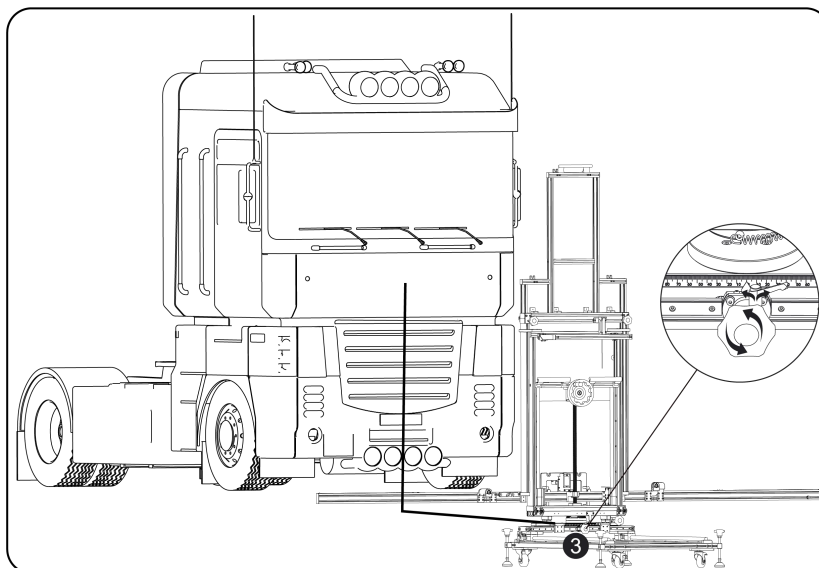
[Step 5] Install the ACC radar reflector and adjust the level position
1. Remove the central laser LAC09-02 and install the ACC radar reflector LAM05-02.

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

3. Rotate the base adjustment knob to ensure that the spirit level ① on the ACC radar reflector is centered.
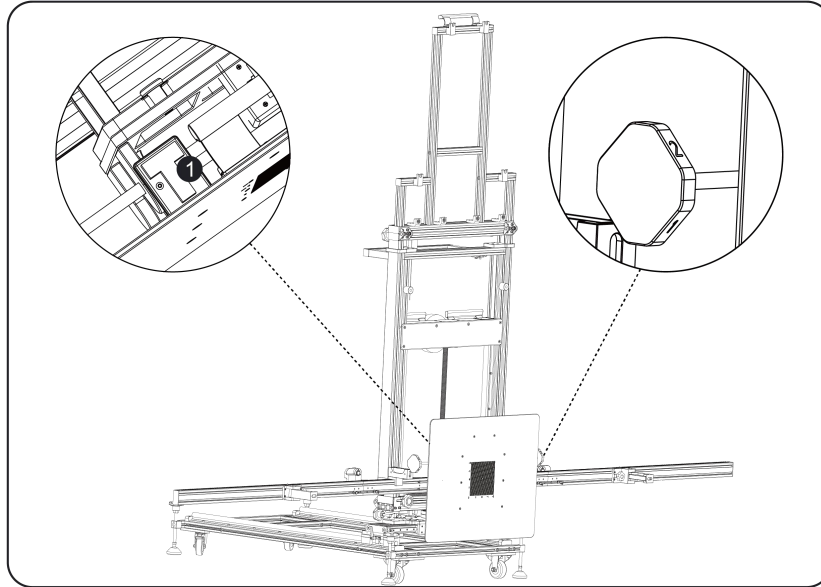

[Step 6] Adjust the height
1. Turn on the laser beam of the mounting plate LAC09-03.

2. Adjust the height of ADAS HD so that the laser spot illuminates on the center of radar sensor.

[Step 7] Perform calibration
Perform calibration function as per the software prompts.

[Step 8] Adjust the direction of ACC radar sensor
If you need to adjust the sensor position, please follow the software prompts, use the adjustment screw to adjust the two adjustment bolts, and perform [Step 7] again. If no adjustment is needed, skip this step.
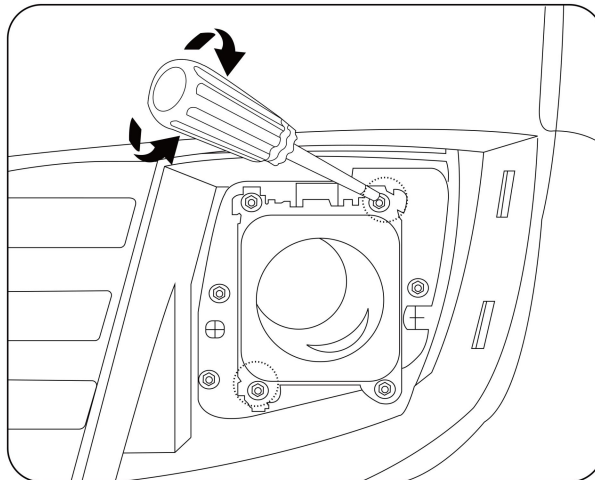
[Step 9] Calibration completed
Save the ADAS report after the calibration completed. It is recommended to scan the system again after the calibration completed to confirm that the fault has been resolved.

5. Service and 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

<u>**THANK YOU FOR CHOOSING SMARTSAFE!**</u>

If you have any questions or comments please contact:

SHENZHEN SMARTSAFE TECH CO., LTD.

TEL: +86-755-89589810

WEBSITE: www.newsmartsafe.com

ADDRESS: 3rd Floor, Building B, Qiao'an Technology Industrial Park, Guanlan Street, Longhua New District, Shenzhen, Guangdong, China
Post Code: 518110

Statement:

SMARTSAFE reserves the rights to make any change to product designs and specifications without notice. The actual object may differ a little from the descriptions in the manual in physical appearance, color and configuration. We have tried our best to make the descriptions and illustrations in the manual as accurate as possible, and defects are inevitable, if you have any question, please contact local dealer or after-sale service center of SMARTSAFE, SMARTSAFE does not bear any responsibility arising from misunderstandings.