



SRD-111 Wheel Aligner

Operation Manual







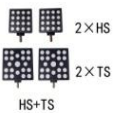






GUILIN SINOMAKE SCI-TECH DEVELOPMENT CO.,LTD.



SRD111 3D WHEEL ALINGER PARTS LIST

Model: **SRD111**

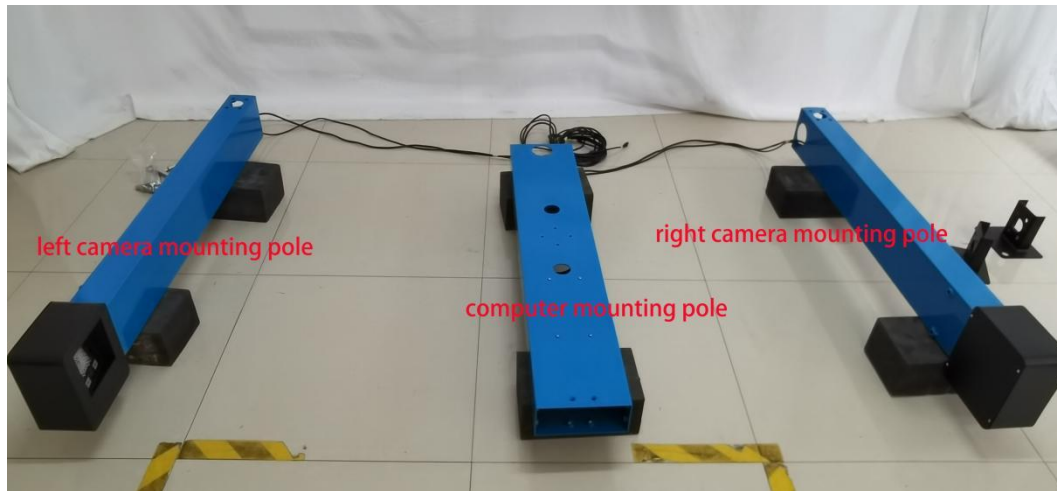
| No. | Part description | Qty | unit | Remark | Picture |
|-----|------------------------|-----|-------|--------------------------|---|
| 1 | Camera mounting pole | 2 | pcs | 2 sections each piece |  |
| 2 | Computer mounting pole | 1 | piece | |  |
| 3 | Cable assy | 1 | set | Installed on camera pole |  |
| 4 | Aligner power supply | 1 | piece | |  |
| 5 | Software dongle | 1 | piece | |  |
| 6 | Computer | 1 | piece | |  |
| 7 | Monitor | 1 | piece | | |
| 8 | Keyboard&mouth | 1 | set | | |
| 9 | Target | 1 | set | 4pcs (2HS+2TS) |  |
| 10 | Clamp | 1 | set | 4pcs |  |
| 11 | Clamp hanger | 1 | set | 4pcs |  |
| 12 | Turntable | 1 | set | 2pcs |  |
| 13 | Steering&brake | 1 | set | |  |

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SRD111 3D WHEEL ALINGER ACCEMBLY PROCEDURE



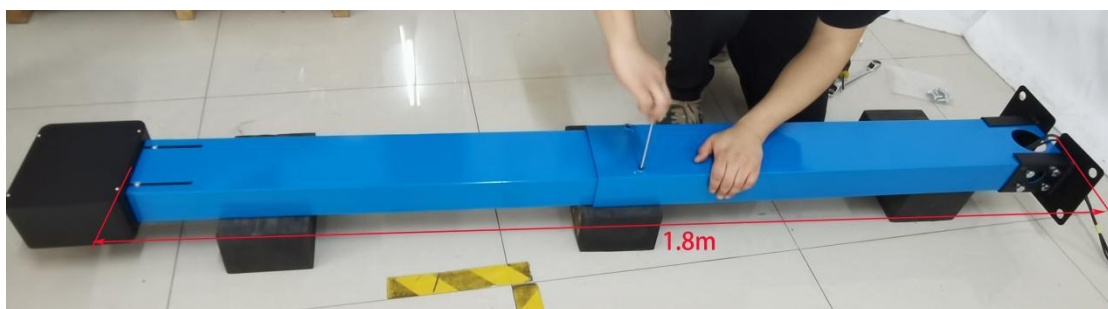
Remove camera mounting pole and computer mounting pole on the position



fix left camera mounting pole's base

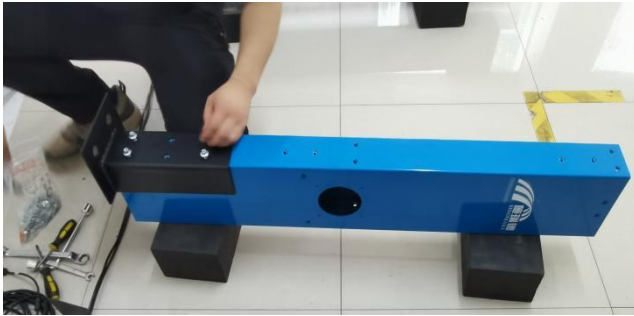


Loosen screws on the mounting pole

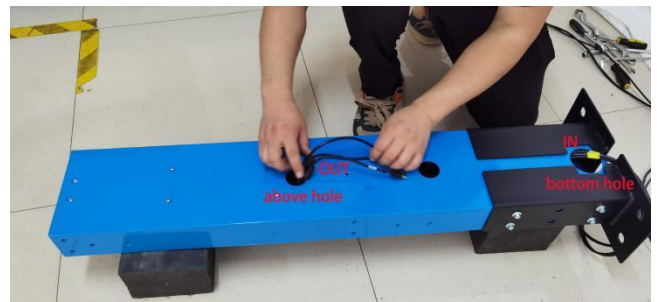


Pull out the second section of the left mounting pole, the total length from the base to the camera is about 1.8 m. Then lock the screws.

With the same procedure to assemble the right camera mounting pole.



fix computer mounting pole's base,thread the cable assy through the bottom hole to the above hole



Fix the computer



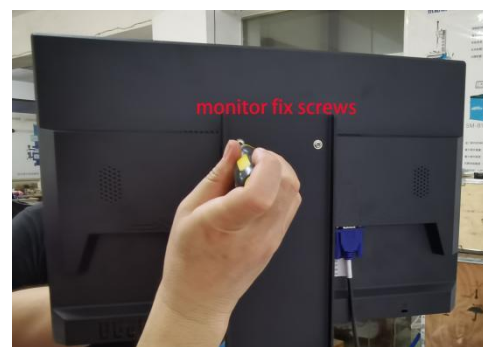
fix the keyboard support



Fix the monitor's support, plug in the power cable and data cable in advance



Fix the monitor on the support with 2 screws

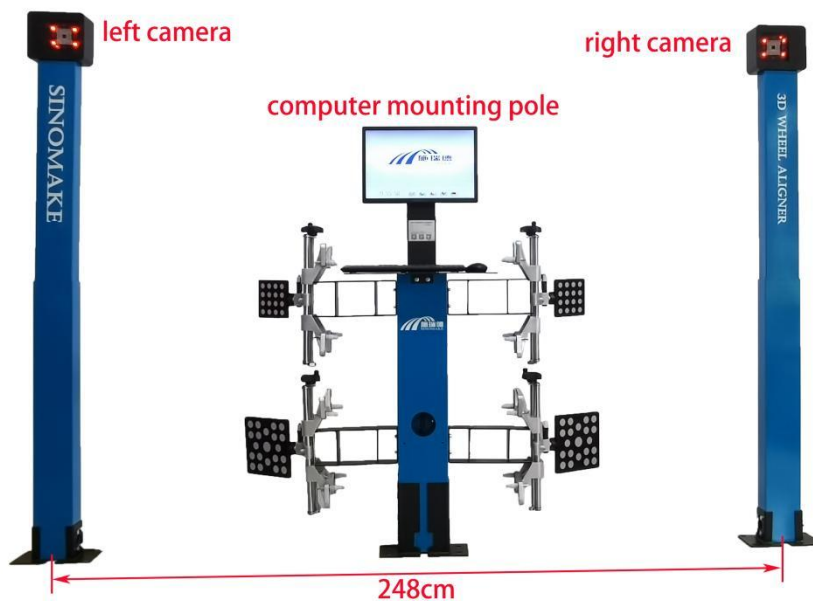




Connect the computer power cable, monitor data cable, wheel aligner power cable and two camera USB data cables. Plug the dongle into a USB socket



Fix clamp hangers, hang the clamps and target.



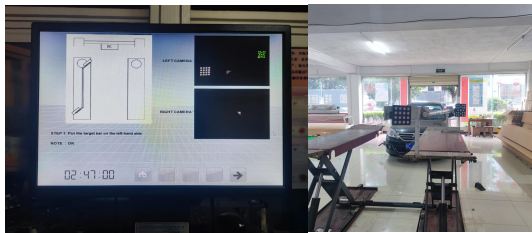
Keep two camera pole's distance about 248cm. Fix all the poles on the ground. Run alignment system, do RCP calibration.

RCP Calibration step

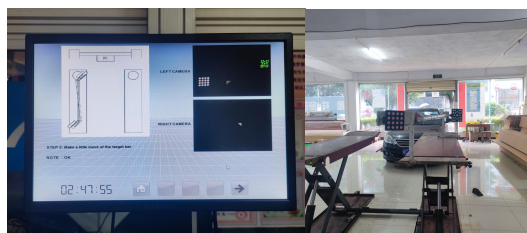
1. Run the wheel alignment system ,click the icon on the home screen



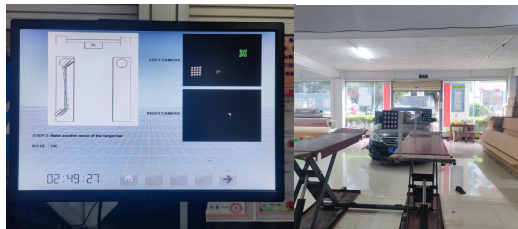
2. Put up the lift to a height where the camera can see the two target images on the calibration frame at the same time, place the calibration frame according to the software prompt and click (nine steps in total)



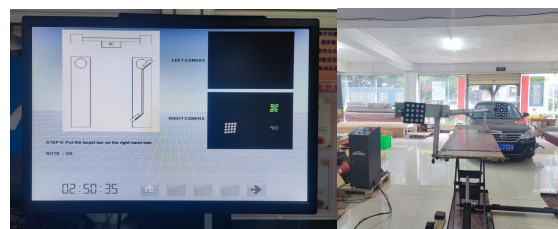
1



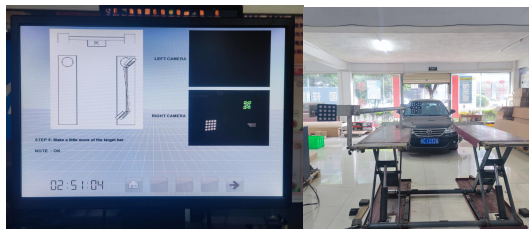
2



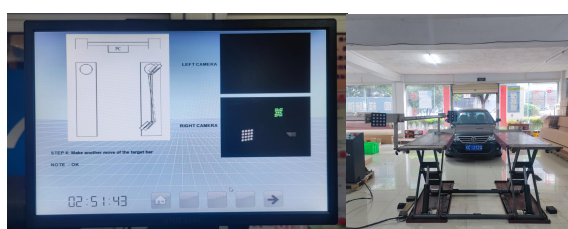
3



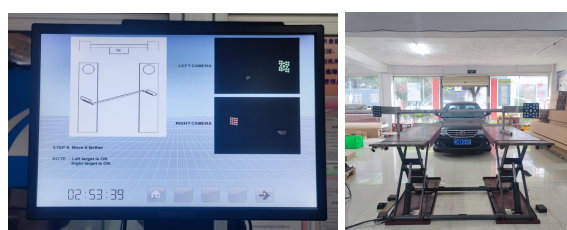
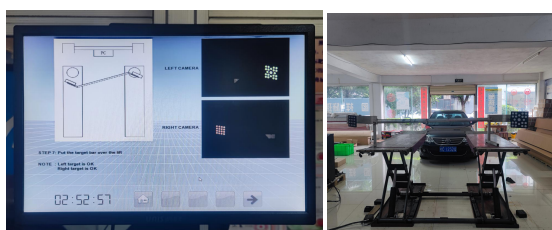
4



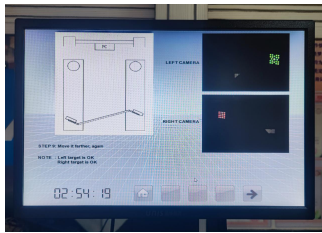
5



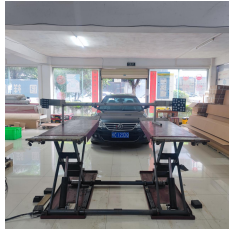
6



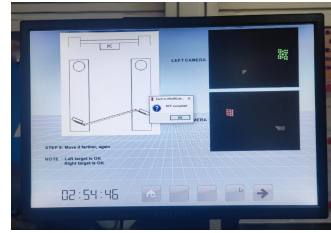
7



9



8



calibration is successful

When the client finished this step,the wheel alignment system is workable.

Install drivers and software(usually these driver software are installed already ,no need install again,here is for reference)

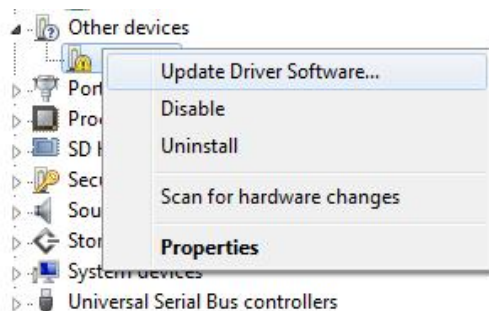
1. Install the USB SensorLock driver:

(i) Plug in the USB SensorLock.

(ii) Go to "Computer Management"->"Device Manager".

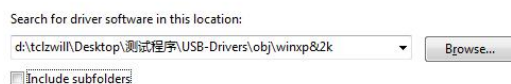


(iii) Find the device which with a "!" on it and right click it to choose "Update Driver Software..."



(iv) Choose "Browse my computer for driver software", and then locate it to the Folder on DVD "USB-Drivers\obj\winxp&2k". Push "Next".

Browse for driver software on your computer



Then you'll get the driver installed and can find the device.



2. Install the Camera driver:

- (i) Plug in the Cameras.
 - (ii) Same as (ii) on previous page.
 - (iii) You'll find two devices with "!" and have the same name. Right click one of them to choose "Update Driver Software...".
 - (iv) Choose "Browse my computer for driver software", and then locate it to the Folder on DVD "Camera-Drivers\drivers". Push "Next"
- Do (iii) and (iv) for the other one with "!".

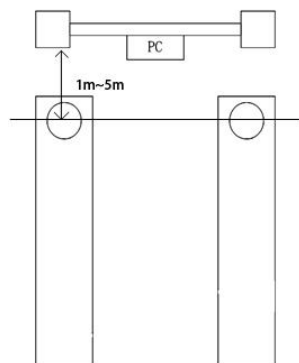
3. Install Cameras onto the Beam (Optional)

For those clients who buy cameras not assembled on beam, or make new camera replace old ones on beam, it is crucial to read this section carefully.

For every camera, there is an ID tag on it, like "NC121001" for example. And we will also attach a corresponding file for it online or via DVD, "NC121001.dat". Now, Let's say you're going to install two cameras onto the beam, "NC121001" on the left and "NC121002" on the right (the left side is your left-hand side when you stand in front of the camera beam facing it). You just need to copy "NC121001.dat" into the corresponding software folder, and rename it as "Camera0.dat" (0 means left). Do it also for "NC121002.dat" and rename it as "Camera1.dat" (1 means right). Then, start up the software and do the RCP calibration (see RCP calibration section).

4. Locate the Beam

Set the beam in front of the lift, and make it parallel to the line that across both turntables' center. The distance from the camera to the line above should be 1 to 5m. The distance between two camera centers is around 2.55m. Tune the level of the beam to see all target panels (using the camera view in software) when the car is lift up.



5. Fix target boards onto clamps

Each Aligner has FOUR target boards and FOUR clamps. Please check the height of the clamps first. If they're of the same height, you can pair the target board and the clamp in any way. If two of the clamps are higher and the other two are lower, you need to fix the front target board onto the higher clamp and the rear target board onto the lower clamp.

Besides, SRD-606 offers different target boards. If they are two small and two big, the small ones should be for the front wheels and the big ones for the rear wheels. If they are in same size, the two with smaller circles are for the front wheels and the two with bigger circles are for the rear wheels.

6. How to Use the Software



Homepage

Button 1: Quit

Button 2: Configuration

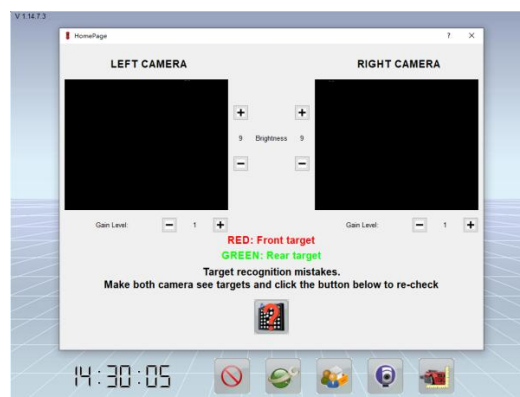
Button 3: Customer Document

Button 4: Camera View

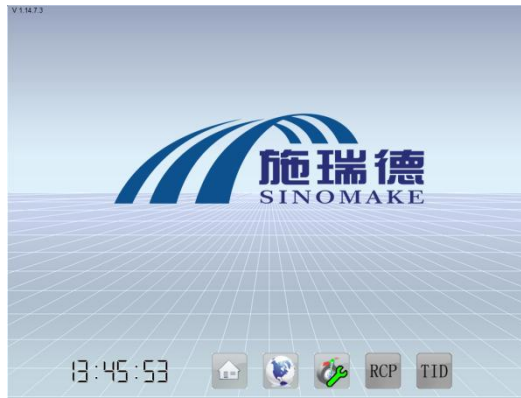
Button 5: Car Selection

Since this software can be used with several kinds of target boards, we require you to do the auto-recognition at the first time. Click “Camera View” button and you can see live views of both cameras, and you will get the information of whether the target boards are caught correctly. Let the both target boards seen in the LEFT camera, and if it still tells you “Target recognition mistakes”, it means you are using the target boards which is not default in the software. Just click the bottom button to let it find right target type, and when it is completed, you will not need to do this again until you change to different kind of target boards.

Here, you can also adjust the camera brightness and gain in order to fit some extreme environment. For example, if one side is in the sun light, you can adjust that camera’s brightness and gain to let target circles in both views seem similarly clear.



Camera View



Configuration

Button 1: Homepage

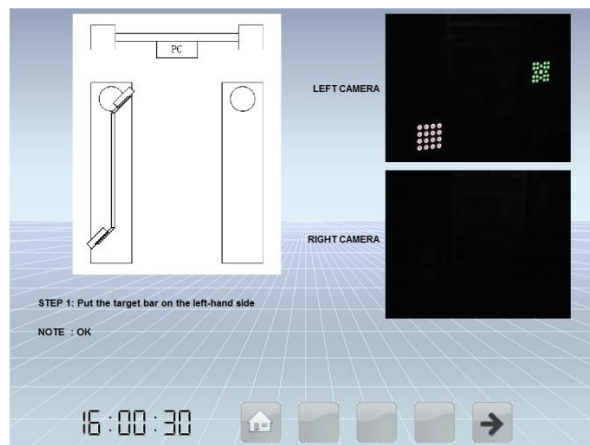
Button 2: Language

Button 3: Measure Option

Button 4: RCP Calibration

Button 5: TID Calibration

You can change display language in “Language” page. In “Measure Option” page, you can choose the positioning vehicle distance. For most vehicles you can just keep using default distance. If the vehicle is too long and the lift is too short, there is not enough space to do the default distance positioning, you can use shorter distance: 3/4 or 1/2.



RCP Calibration

Button 1: Homepage

Button 5: RCP next step

When the cameras assembled on the beam is replaced or moved, you need to do the RCP calibration. Very unlikely, if the beam is hit terribly and blend, you also need to do the RCP calibration. The RCP calibration includes 9 steps, and the message at the lower left of the screen will indicate which step you are in, what you should do, and what problem exists. Only when the current step is out of problem, the “next” button will be activated. This page also offers the live views of both cameras, to help you make sure the position of calibration stick is OK. From step 1 to step 6, be carefully that do not let the front target shadows the rear targets. From step 7 to step 9, let both targets close to the center of camera view.

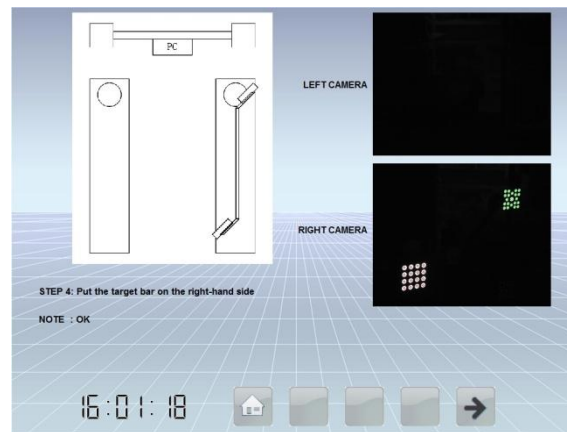
Here is an illustration:

Step 1 to Step 3

Place the calibration stick in the view of left camera.

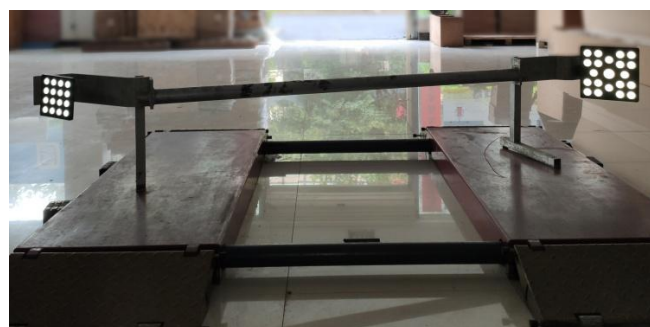


Let the front and rear targets at the position in the camera view as below. Move the stick

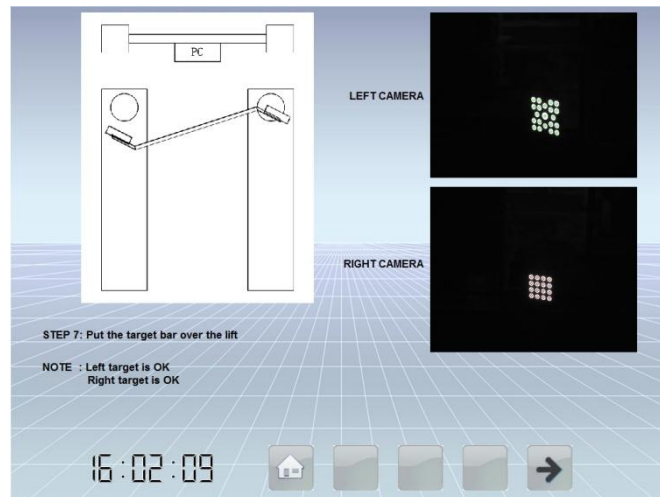


Step 7 to step 9

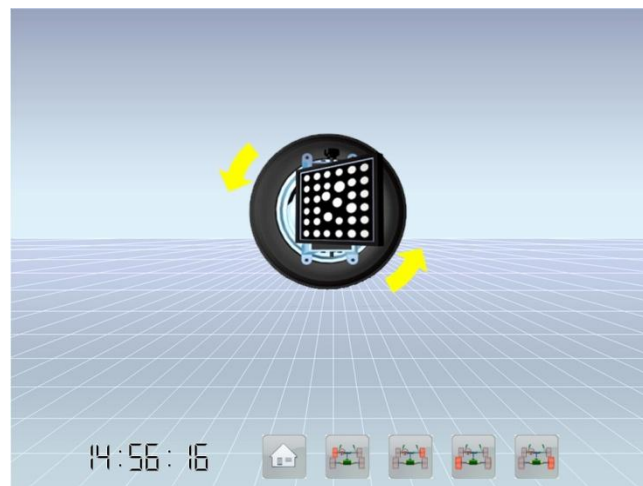
Place the calibration stick over the lift.



Let both targets be as closer to the center of views as possible. Adjust the position until the message says both targets' position is OK. Click "next" button to move to step 8.



Move the stick back until the message says both targets' position is OK. Click "next" button to move to step 9. Again move the stick back until the message says both targets' position is OK. Click "next" button to complete the RCP calibration.



TID Calibration

Button 1: Homepage

Button 2: Front Left TID

Button 3: Front Right TID

Button 4: Rear Left TID

Button 5: Rear Right TID

The TID calibration should be run when you install the target panel to the fixture. At the first time you set up this alignment, you need to do TID calibration for four panels. After that, you need to do TID calibration only when you change new target panels. When you run the TID calibration, you need to jack the car up first. Then you click the wheel button you want to make TID calibration (button 2 to button 5). If the target board is detected, both on the screen and the camera LED it will instruct you to rotate the wheel back and forth about 20 degrees. After that a message box "TID complete" will jump out and the TID calibration for this wheel is done. Do TID calibration for other wheels in this way, too.



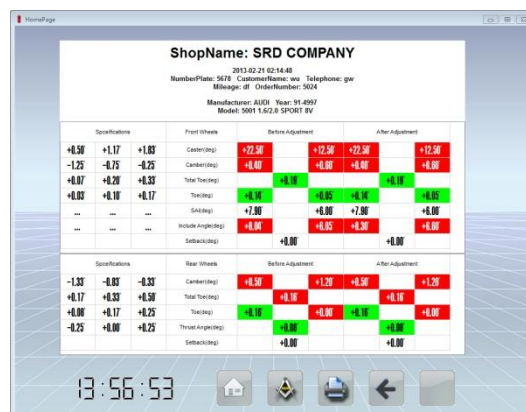
Customer Document

Button 1: Homepage

Button 2: Delete

Button 4: Previous

You can find former customer measurement data in this page. Type part of plate number in, for example, “678”, all the history data whose number plate has “678” will show in the upper table. Double click the data you want to check can jump to the print page. Single click to choose it and click “delete” button can delete it. You can also change the shop name, which will show on the print page.



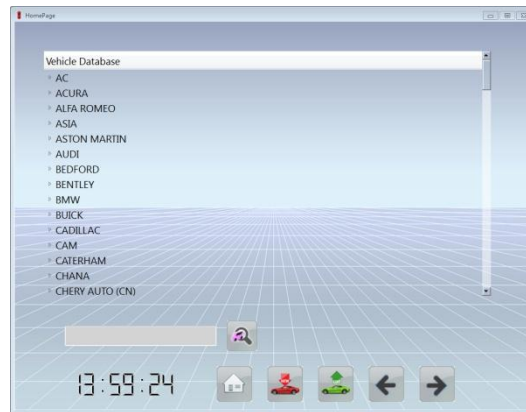
Print Page

Button 1: Homepage

Button 2: Change Unit

Button 3: Print

Button 4: Previous



Vehicle Selection

Button 1: Homepage

Button 2: Add New Vehicle Model

Button 3: Edit Current Vehicle Model

Button 4: Previous

Button 5: Customer Information

Select the vehicle you want, double click it or click “next” button to continue. To find a specific vehicle data, type part of the vehicle model name in the searching text label below and click the button beside to search. For example, you can type in “pass” to search “Dodge - campass” or “Passat” data.

When you select a vehicle data, click button 3 can check and edit its standard values. The jump out window is show as following.

| Manufacturer: VOLKSWAGEN Year: 10-13 Model: PASSAT [36], [G02], [G07], [G11], [G12], [G15] 5 | | | | | | | |
|---|-------|-------|-------|------|-------|-------|-------|
| | Min | Pref | Max | Diff | Min | Pref | Max |
| Front | | | | | | | |
| Caster(deg) | 7.03 | 7.51 | 8.03 | | 7.03 | 7.51 | 8.03 |
| Camber(deg) | -1.00 | -0.56 | 0.00 | | -1.00 | -0.56 | 0.00 |
| SAI(deg) | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Toe(deg) | 0.00 | 0.00 | 0.16 | | 0.00 | 0.00 | 0.16 |
| Total Toe(deg) | | | 0.00 | 0.17 | 0.33 | | |
| Rear | | | | | | | |
| Camber(deg) | -1.83 | -1.31 | -0.83 | | -1.83 | -1.31 | -0.83 |
| Toe(deg) | 0.00 | 0.00 | 0.16 | | 0.00 | 0.00 | 0.16 |
| Total Toe(deg) | | | 0.00 | 0.17 | 0.33 | | |
| Max Thrust(deg) | | | | 0.17 | | | |

Edit current vehicle model

Double click the text box to type new value in. If some data values is not available, for example, there is no standard value for Passat’s SAI, you need to type 0 in the SAI “Min”, “Pref”, and “Max” text boxes. You can just type in values in the left hand side boxes, the right hand side ones and total ones will be calculated automatically. For example, you type 0.1 in the Toe “Min” on the left, the Toe “Min” on the right will be 0.1 and the Total Toe “Min” will be 0.2 automatically. All the values except Toe values must be in unit of degree. If the standard value you can find is in unit of degree and minute, you need to change it into degree first. For example, you cannot type in 1 degree 45 minute, but 1.75 instead. The toe unit can be changed between degree and mm, if the



standard value of toe you find is in unit of mm, you need to click to change “Toe(deg)”

into “Toe(mm)” and then type in the value. After the edition, click “next” to save, click “previous”



to cancel, click to delete current vehicle data.

In vehicle selection page, click button 2 to add a new vehicle data into the database.

HomePage

Enter standard values for the new car

Enter car information

Manufacturer: Year: Model:

| Front | Min | Pref | Max | Diff | Min | Pref | Max |
|----------------|------|------|------|------|------|------|------|
| Caster(deg) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Camber(deg) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SAI(deg) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Toe(deg) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | |
| | | | Min | Pref | Max | | |
| Total Toe(deg) | | | 0.00 | 0.00 | 0.00 | | |

| Rear | Min | Pref | Max | Diff | Min | Pref | Max |
|-----------------|------|------|------|------|------|------|------|
| Camber(deg) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Toe(deg) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | |
| | | | Min | Pref | Max | | |
| Total Toe(deg) | | | 0.00 | 0.00 | 0.00 | | |
| Max Thrust(deg) | | | | 0.00 | | | |

Navigation buttons: Home, Back, Forward, Left, Right

Add new vehicle model

Adding a new vehicle data is similar to the editing process. The only difference is you need to type in or choose “Manufacture” first, and then type in “Year” and “Model”.

HomePage

VOLKSWAGEN, 16-17
PASSAT [4], [62, G07, G11, G12, G13] S...

NumberPlate:

CustomerName:

Mileage:

Telephone:

OrderNumber:

Please enter other information

Navigation buttons: Home, Back, Forward, Left, Right

14:31:52

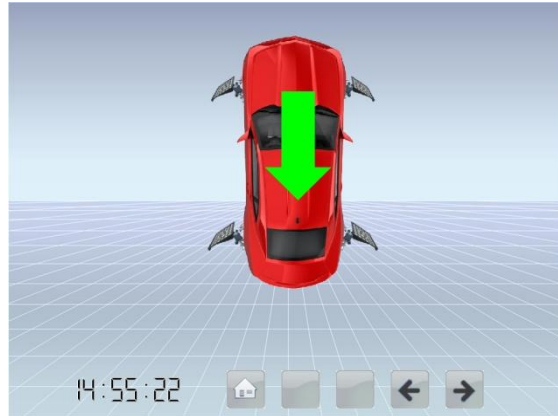
Customer Information

Type in the plate number of vehicle first. If the vehicle has been in the customer database, the other information will show, otherwise, you need to type them in one by one. If you do not type in the plate number, later measurement result will not be saved.

Button 1: Homepage

Button 4: Previous

Button 5: Positioning



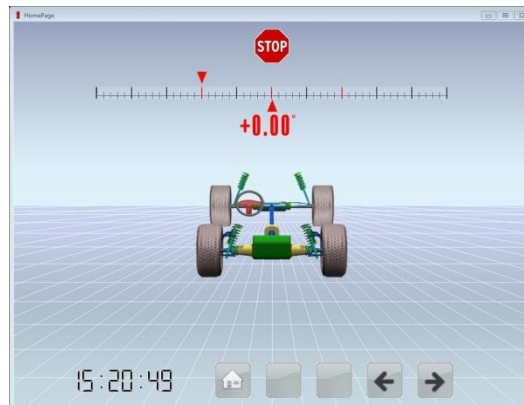
Positioning

Button 1: Homepage

Button 4: Previous

Button 5: Steering

On this page, the red "X" is saying the corresponding target panel is not detected. When all panels are detected, a green arrow appears. The arrow lights around each camera will also instruct you to push forward, backward or stop. Please note that after you finish pushing car, it will go to next page automatically without click "Next" button. If you click "Next" button to force the software go next without pushing car, there will not be any measured value shown in later pages.



Steering

Button 1: Homepage

Button 4: Previous

Button 5: Values Before Adjustment

Steer the vehicle left 10 degree, then you can choose to steer to left 20 degree (can measure toe-out) or right 10 degree (only measure caster and SAI). Please note that after you finish steering car, it will go to next page automatically without click "Next" button. If you click "Next" button to force the software go next without steering, there will not be "Caster" or "KPI" values shown in later pages.



Values Before Adjustment

Button 1: Homepage

Button 2: Toe-out

Button 3: Wheel Base

Button 4: Previous

Button 5: Rear Wheel Adjustment

On this page, values of four wheels are printed on screen in three colors. GREEN means the value is between the standard MIN and MAX. RED means it is not. GRAY means either the value is missing (it is not measured or it is not available due to the corresponding target panel not being detected), or the standard MIN or MAX is not recorded in the database. The red arrow shows how closer the value is to the PREF value ($0.5 * (MIN + MAX)$). The two buttons on the left bottom corner can change the value unit between degree and mm, or between degree decimal and degree minute.



Rear Wheel Adjustment

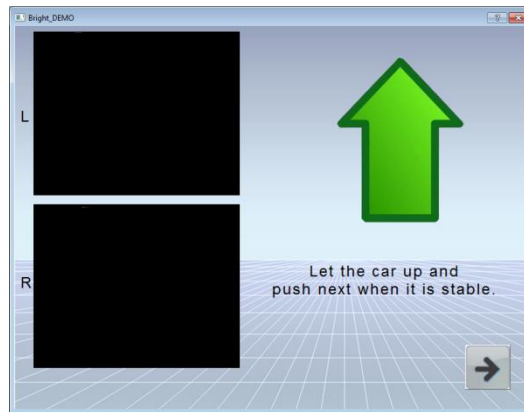
Button 1: Homepage


Button 4: Previous

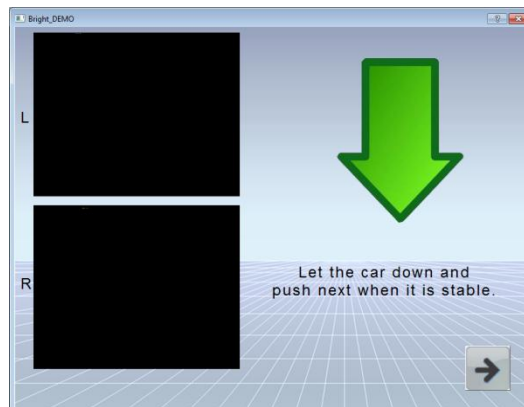
Button 5: Front Wheel Adjustment



Push and jack the car up according to the instruction window, and click "NEXT".



Then the button will change to , which means when you finish adjust the rear wheels (or wait for finishing adjusting the front wheels also), and need to jack the car down, click it first and do the jack down according to the instruction window, and click "NEXT".



Front Wheel Adjustment

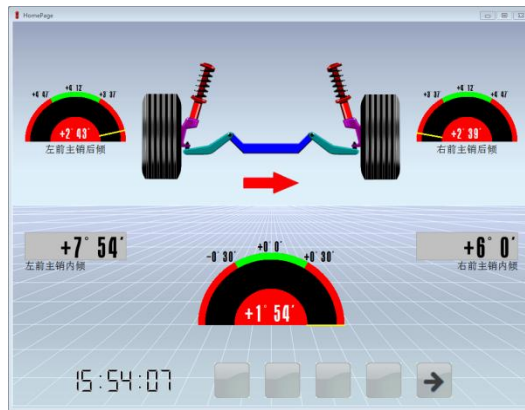
Button 1: Homepage

Button 3: Cradle Adjustment

Button 4: Previous

Button 5: Values After Adjustment

This page is almost the same as the rear wheel adjustment page.



Cradle Adjustment

You can do the cradle adjustment to adjust some vehicles' caster and SAI.

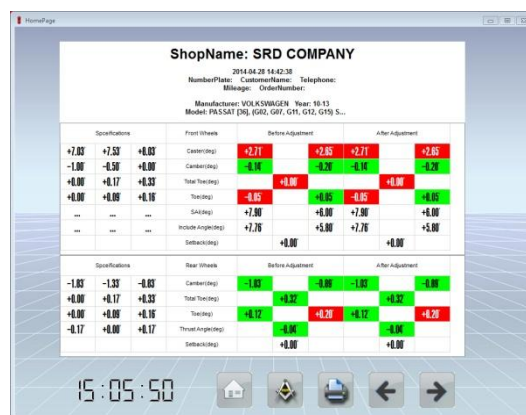


Values After Adjustment

Button 1: Homepage

Button 4: Previous

Button 5: Print Page



Print Page

Button 1: Homepage

Button 2: Change Unit

Button 3: Print

Button 4: Previous

Button 5: Finish