

Operator Manual

I-Track II

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1 EC Declaration of Conformity



EC Declaration of Conformity

We **Car-O-Liner Group AB**
Hulda Mellgrens gata 1
SE-421 32 Västra Frölunda
Sweden

herewith declare under the sole responsibility that the product:

Type of equipment: JOSAM distance laser

Model(s) / Type(s): JT712

Serial number(s): —

is in conformity with the provisions of the following EU directive(s):

EMC Directive 2014/30/EU

and other applicable directives:

2006/25/EC **Artificial Optical Radiation Directive**
(Standard used: EN 60825-1:2007)

2011/65/EU **RoHS directive**



.....
Morgan Elskär, Director Business Unit Truck & Bus OEM
Örebro, 11 September 2018

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EC Declaration of Conformity

We **Car-O-Liner Group AB**
Hulda Mellgrens gata 1
SE-421 32 Västra Frölunda
Sweden

herewith declare under the sole responsibility that the product:

Type of equipment: JOSAM measuring head

Model(s) / Type(s): JT731

Serial number(s): —

for use together with JOSAM battery charger JT603

is in conformity with the provisions of the following EU directive(s):

EMC Directive 2014/30/EU

References of standards and/or technical specifications applied for this declaration of conformity:

European Standards **EN 61000-6-3:2007**
EN 61000-6-1:2007+A1:2011

and other applicable directives:

2006/25/EC **Artificial Optical Radiation Directive**
(Standard used: EN 60825-1:2007)

2011/65/EU **RoHS directive**



Morgan Ekskär, Director Business Unit Truck & Bus OEM
Örebro, 11 September 2018

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2 System description

2.1 Introduction

The Homebase system uses Bluetooth for the transmission of information between measuring units, the distance laser tool and computer.

2.2 Technical data

Feature	Measurement range	Accuracy
Toe	$\pm 25^{\circ*}$	$\pm 0.25\text{mm/m}^*$
Camber	$-5\dots+10^{\circ}$	$\pm 3^*$ min
Caster	$\pm 20^{\circ}$	
KPI	$\pm 20^{\circ}$	
Max Turn	60°	

* For each measuring head.

Operational time 12 h**

Charging time 1 h

Laser Class 2

Technical data for laser

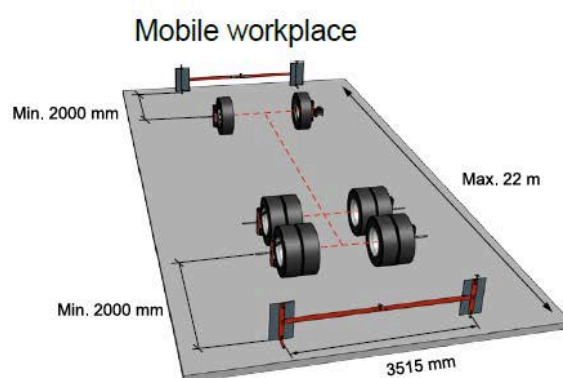
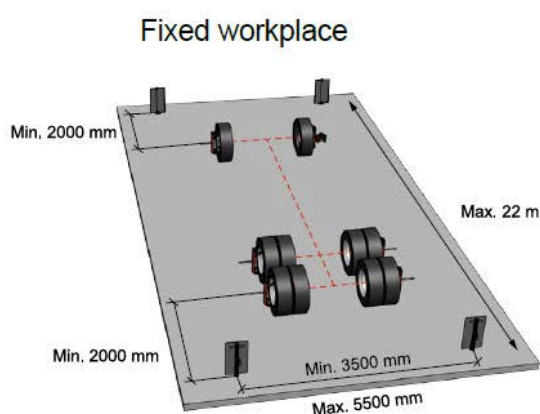
Wavelength: 670 nm

Pulse duration: 136 μs

Max. output energy: <190 nJ

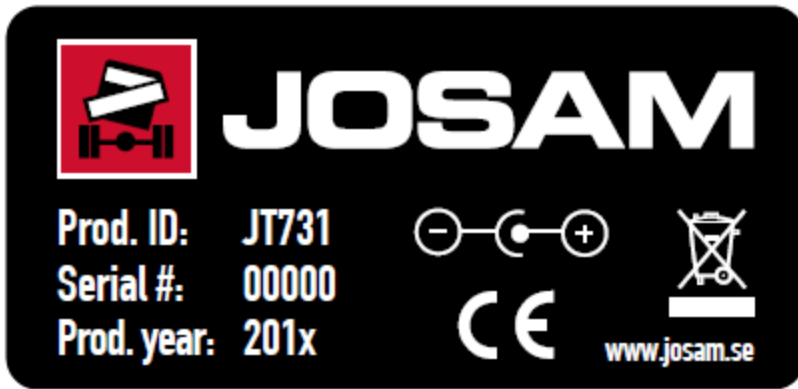
Frequency: 77 Hz

2.3 Measurement setup



2.4 Safety signs and labels

Every device is marked with a serial number, a CE symbol that certifies that the product is approved.



Caution – Class 2 laser.

Radiation when open. Do not stare into the beam.



The batteries are of Li-Ion type and are not environmentally friendly. Dispose of batteries according to local regulations.

2.5 Component description

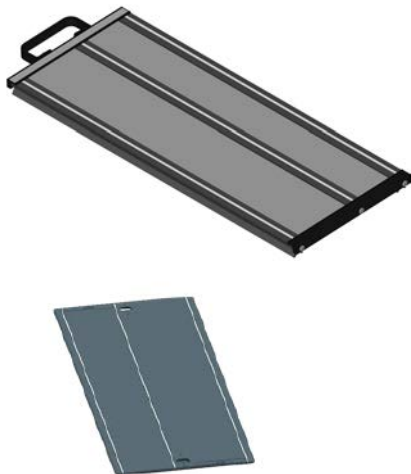
2.5.1 I-track II components

Measuring head



The measuring head is a battery powered device for measuring toe, camber, caster, KPI and max turn angles. When aimed at the targets the measuring head sends a laser beam that scans the reflex strips on the surface of the target. When the laser beam hits a reflex strip the reflex strip illuminates (not visible to the human eye). The detector in the measuring head detects the strip and can then read the distance and angles. The detector can also distinguish which target is scanned depending on the distance between each strip.

Reflective target scales

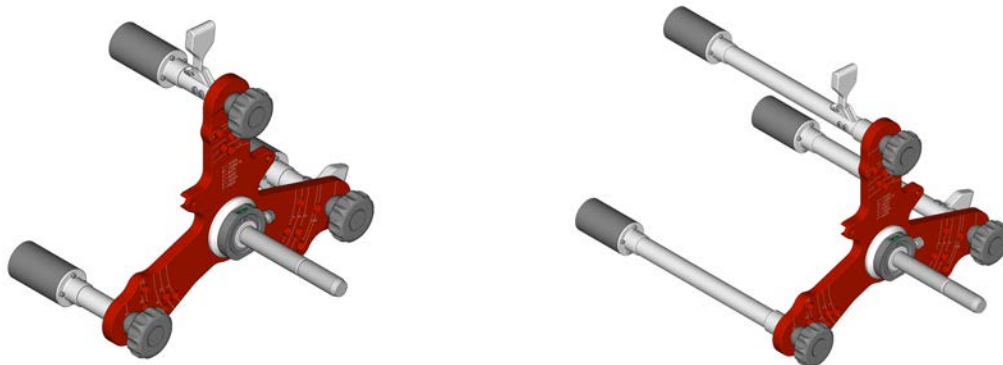


The reflective target scales comprise of luminous strips which enable the lasers to identify distance and angle. Each target is unique to its purpose. It is important that the correct target is placed in the correct position. To maintain a high level of accuracy during measurement, the targets must be kept clean at all times.

Magnetic wheel adapter

The magnetic wheel adapter is supplied in both short and long versions. It is attached to the wheel nuts, and fits the following bolt circle diameters:

Bolts	Ø (mm)
10	335
10	285.75
8	275
6	245
10	225
6	205

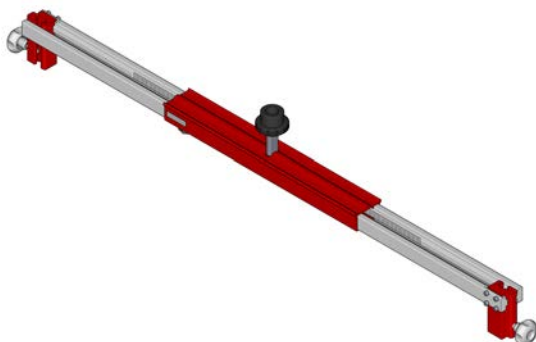


Universal wheel adapter



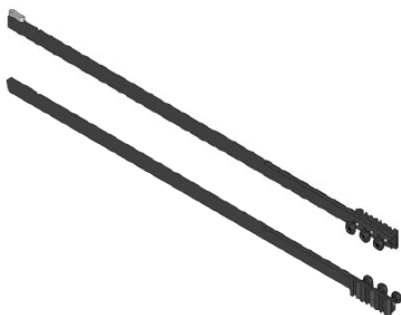
For 16-24" rims.

Self-centering frame gauge



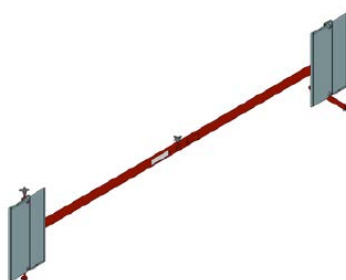
For the assembling of reflective targets when using a trailer. The frame gauge is assembled to a towing eyelet, directly on frame or king-pin.

Frame gauge extensions left and right



For use on a trailer. The gauges are equipped with a numbered scale to ensure that the reflective target scales are assembled at the same position on both ends of the gauge and a spirit level to ensure that the gauges are correctly levelled.

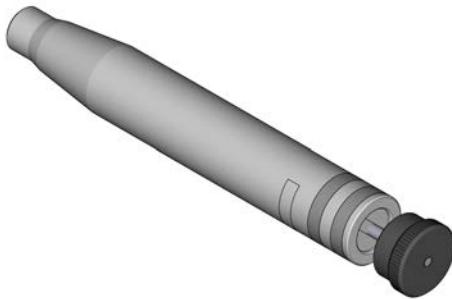
Mobile target scales



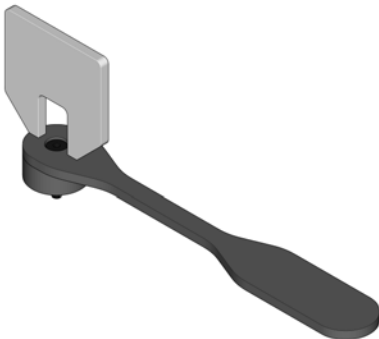
The mobile target scales can be moved according to the required distance during measurement. The scales can be used in measurements of varying sizes and can be adjusted according to the measurement. Distance is set before measurement.

Centre line tool

The centre line tool is used to calculate the centre line of the chassis. The centre line tool consists of a trolley, a battery powered distance laser for measuring the distance and a reference axle on to which the measuring unit is assembled. The centre line tool is rolled by the operator along the chassis to take measurements at various points on the chassis during frame reference measurement.

Front adapters

The front adapters are assembled to the front of the vehicle to support the self-centering frame gauges or frame reference targets. There are several types of front adapters available, adapted for different vehicle models.

Frame reference target

Is assembled with various front adapters to the tow bars on the vehicle to create a reference point for the centre line tool.

Steering wheel holder

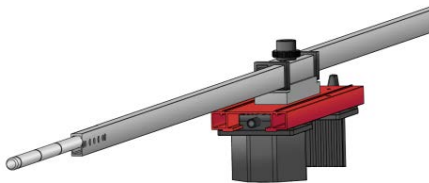
Is used to lock the steering wheel in the straight ahead position.

Low friction plate



The low friction plates are used to eliminate friction between the floor and tire when adjusting twiststeer and toe on the front axle. The plates can hold a weight of up to six tons each.

Towbar tool



Equipment for locating the first frame of the trailer.

Semi trailer tool

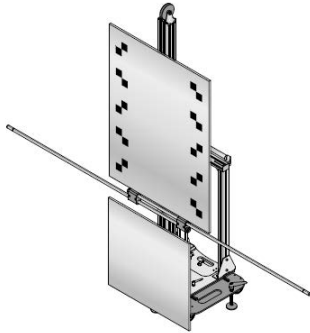


Equipment for locating the frame on semi-trailer.

Drive on ramp JT753

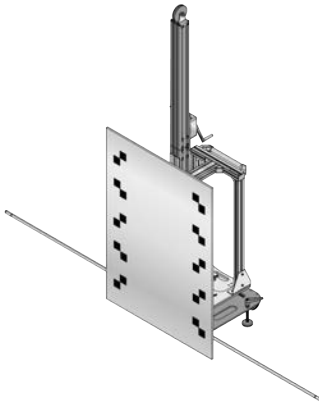


The ramp can be used with non-friction plate AM268/AM245, turntable JT295 and wooden plate 12860.

ADAS calibration stand (dual board)

The stand consists of two optical targets used for static calibration of the vehicle's radar and camera sensors. Static calibration means that the vehicle is calibrated while standing in the workshop, as opposed to a driving (dynamic) calibration.

The stand is used together with the measuring heads to align and position the targets at the correct distance and height. Calibration is then made using the vehicle manufacturer's electronic service device and procedures.

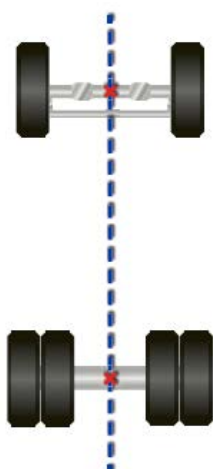
ADAS calibration stand (single board)

The stand consists of a target used for static calibration of the vehicle's radar and camera sensors. Static calibration means that the vehicle is calibrated while standing in the workshop, as opposed to a driving (dynamic) calibration.

The stand is used together with the measuring heads to align and position the targets at the correct distance and height. Calibration is then made using the vehicle manufacturer's electronic service device and procedures.

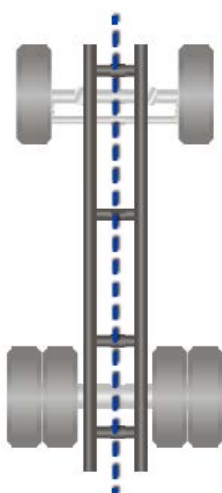
2.5.2 Measurement references

Geometrical centre line



The geometrical centre line of a vehicle is a reference line drawn through the calculated centre points of the front axle and the main driven axle. This is the standard reference used in I-track II when measuring wheel angles without performing a frame reference measurement prior to the wheel angle measurements.

Frame centre line



Frame centre line is a reference line drawn through the centre of the vehicle frame or chassis. In I-track II, the frame centre line is detected by using the centre line tool during a frame reference measurement, or by using vehicle-mounted target scales in both front and rear.

Wheel angle definitions

For explanations of wheel angle definitions used in this manual, see the Homebase 4 manual (T 194).

3 Software settings

This manual will only describe the sections specific to the I-track II plugin. For the common settings, see the Homebase 4 Manual (T 194).

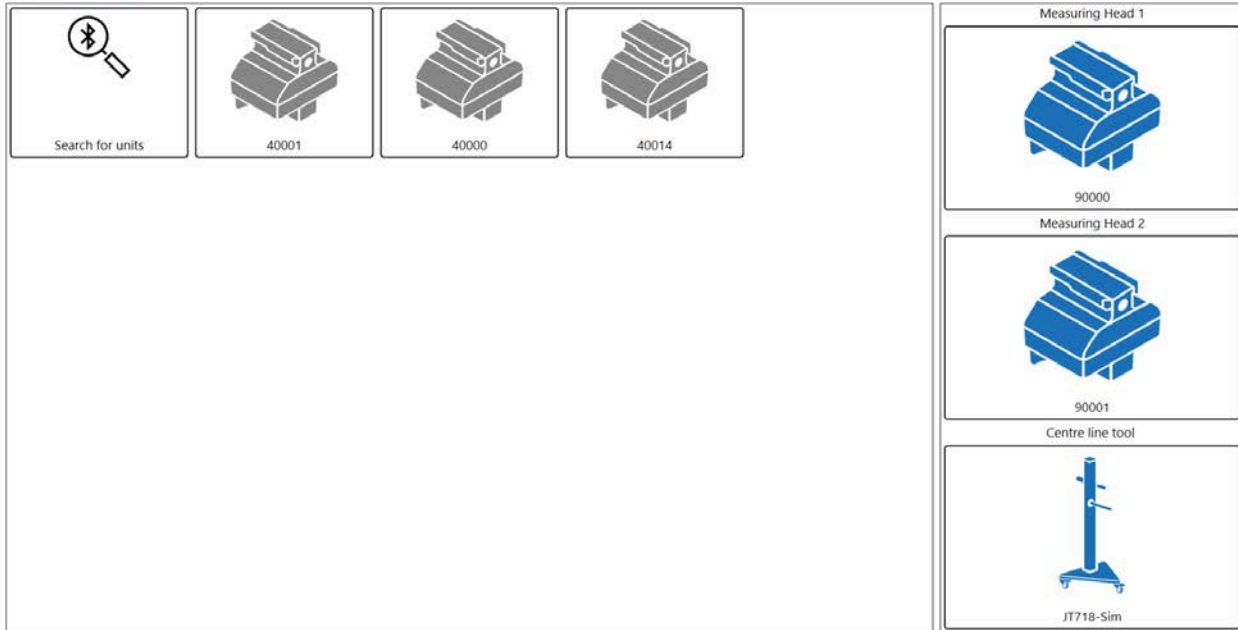


Click **[Settings]** to enter the program setup. Before using the system for the first time, it is required to enter the setup area to configure the program settings. These settings will then be stored in the program.



3.1 Communication

Units [Laser System](#) [Camera System](#) [Tire Management](#) [Customization](#) [Licenses](#) [About](#)
[Communication](#) [Equipment](#) [Workflow](#)



The left side of the screen shows all available devices that can be used.



If no available devices are visible, make sure the devices you wish to use are switched on, then press **[Search for units]** and wait until the devices appear in the available devices list (in some cases it may be necessary to repeat this process).

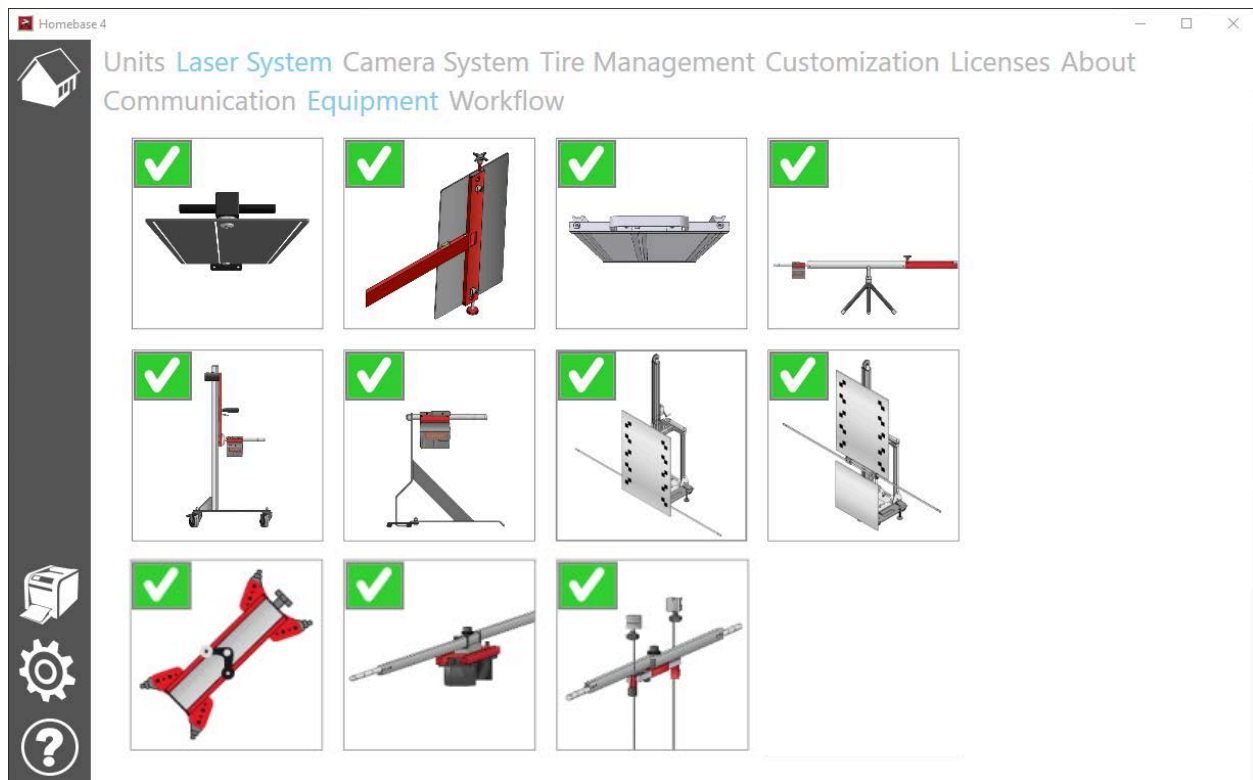
When your devices are visible, select the devices you wish to use by clicking on them once. The device will then move to the right side of the screen, and the program will attempt to connect to it.

A successful connection is indicated by a change of colour to blue

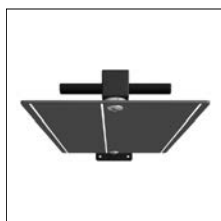


The software will remember your selection and will automatically try to connect to the same devices the next time it is started.

3.2 Equipment



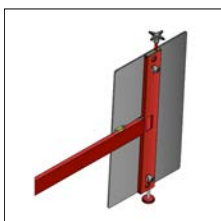
The Equipment tab is used to tell the software what equipment you have in your workshop. The software will use this information to decide which functions to enable.



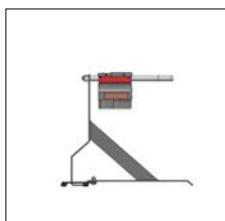
Fixed floor mounted target scales



Centerline tool



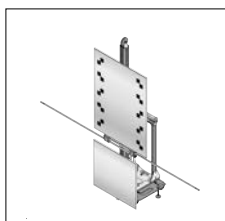
Mobile target scales



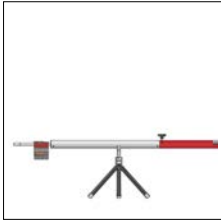
Articulated bus tool



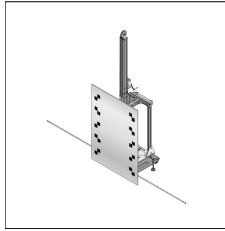
Vehicle-mounted target scales



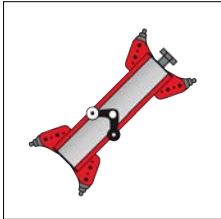
ADAS calibration stand (dual board)



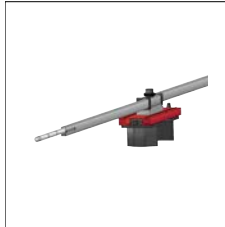
Trailer bar



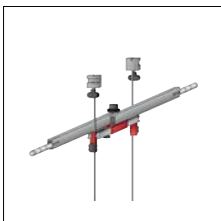
ADAS calibration stand (single board)



Adjustable wheel adapter



Towbar tool



Semi trailer tool



Remember to update these settings when your workshop equipment inventory has been changed.

3.3 Workflow

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[Communication](#) [Equipment](#) [Workflow](#)

- ☒ Measure maximum turn
- ☐ Measure twinsteer with play
- ☐ The program uses right hand steering as default
- ☒ Offset visible
- ☐ Show checklist before each new order

Steerbox measurement type

- ☒ Singlesided (individual toe)
- ☐ Doublesided

Measure maximum turn:

Check this box if the measurement flow of all wheel angles should include the measurement of maximum wheel turn. This measurement is optional for the measurement of trucks. This measurement box is ticked by default.

Measure twinsteer with play:

Check this box for the measurement of twinsteer with play. This process will take more time to complete, but the result will be more accurate.

The program uses right hand steering as a default:

Check this box if right-hand steering is to be used as a default.

Steerbox measurement type

Selects how the software will calculate the steering box value.

- **Singlesided** means that the steering box value will be equal to the toe on the side where the steering box is placed.
- **Doublesided** means that the steering box value will be a combination of left and right toe. (Independent of where the steering box is placed)

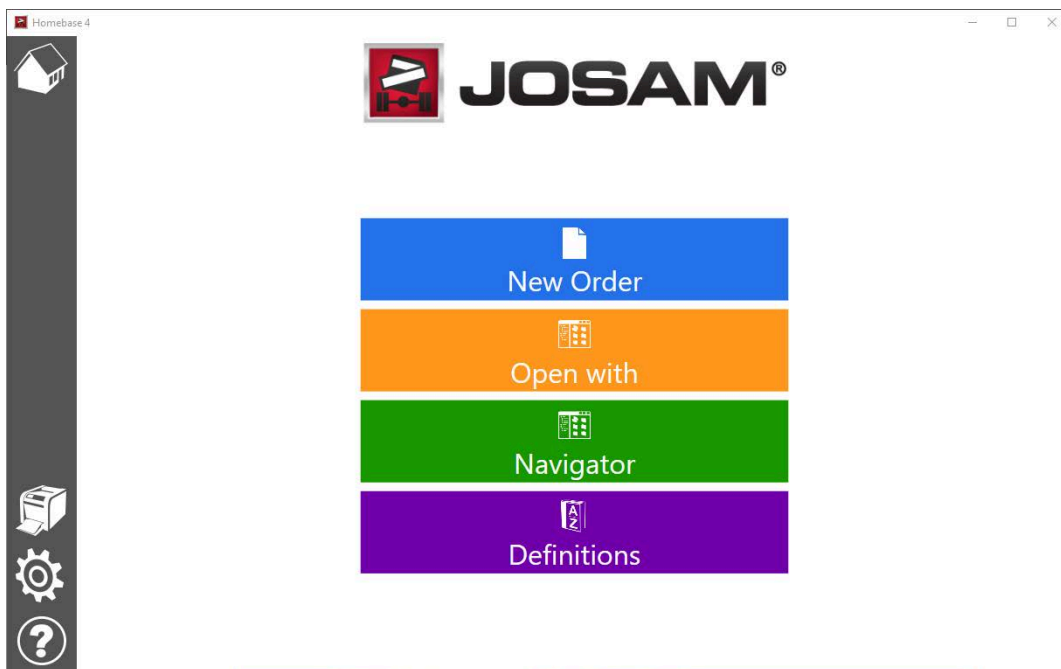
Show checklist before each new order:

Check this box to show a checklist with reminders each time a new order is created.

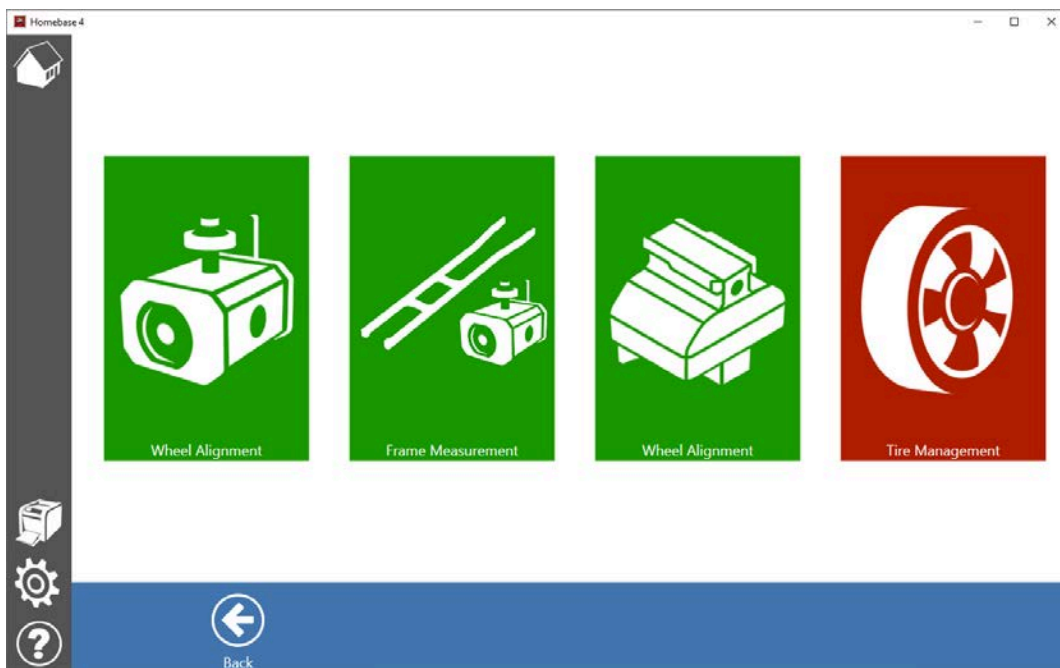
Before proceeding with the order please:

Check for play
 Check for unevenness in the floor
 Check ride height
 Check RTD (Rest Tread Depth)
 Check the tire sizes (same size, brand and type)
 Check tire pressure
 Make sure that your wheel alignment equipment is calibrated

4 Create a work order



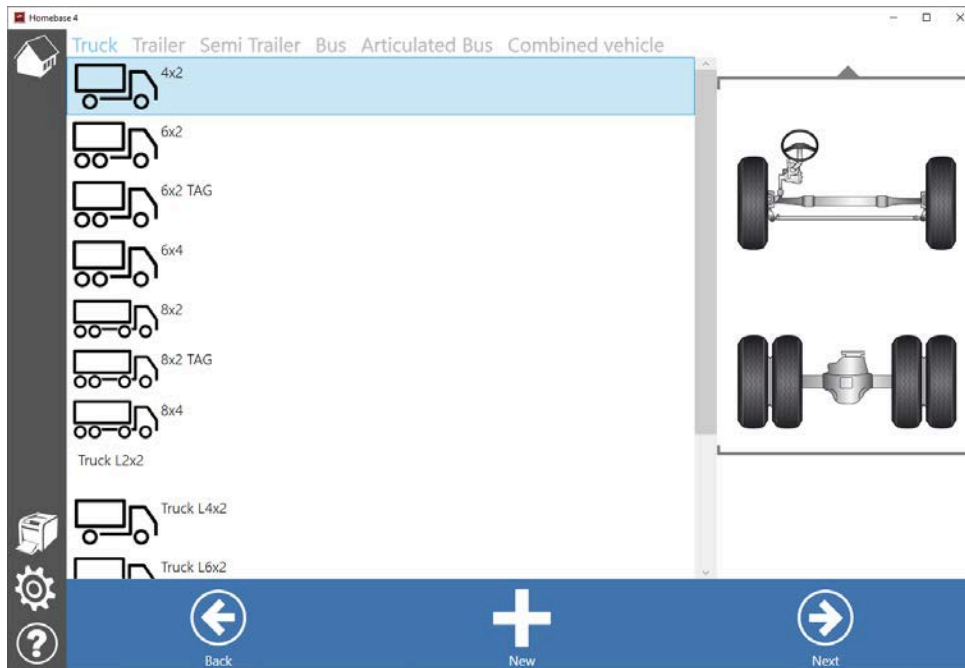
To access the new order menu, click on **[New order]**



The list of plugins may vary depending on the installation.

Select **[Wheel Alignment]**





Select a vehicle type from the top menu (Truck, Trailer, Semi-trailer, Bus, Articulated Bus, or Combined vehicle). Click on the desired vehicle definition.

If the desired definition doesn't exist, a new definition can be created by clicking **[New]**



See Homebase 4 User Guide, chapter Definitions, for detailed instructions.

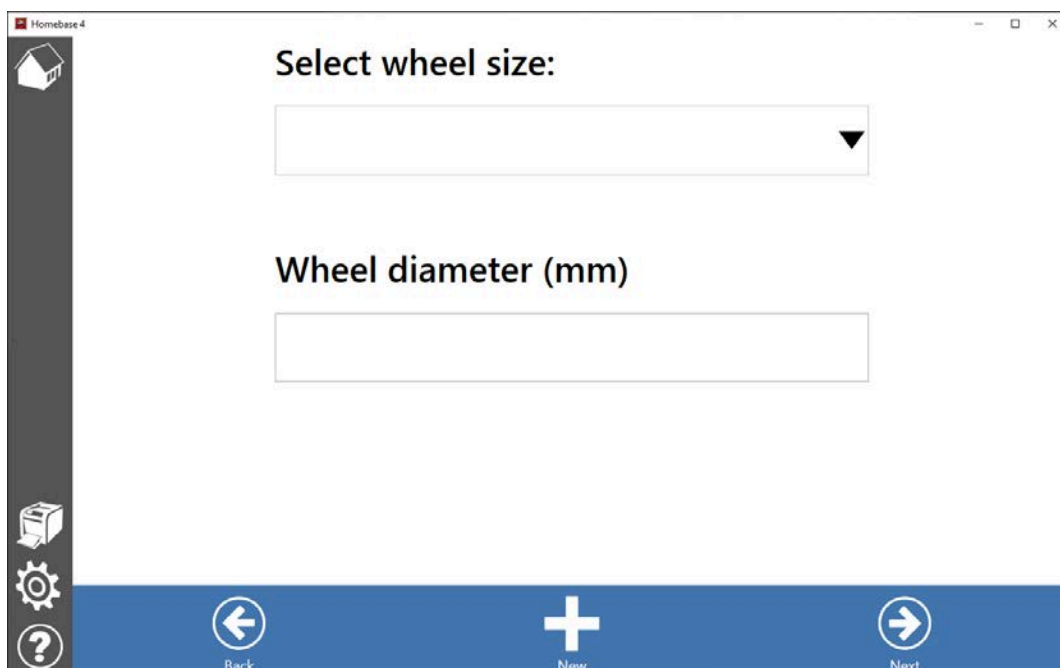
Click on **[Next]** to continue.



Click on **[Back]** to return to the plugin selection window.



If the desired wheel size doesn't exist, a new definition can be created by clicking **[New]**



Select a wheel size and wheel diameter. Selecting the wheel size informs the software how far the vehicle is to be rolled in the rolling sequence.

Click on **[Next]** to continue with the selected dimensions. Continue to page 21.



New

Click on **[Back]** to return to the definition selection window.



Back

Create new tire size

Tire designation

Wheel diameter (mm)



Back



New



Save

Enter the tire designation (tire code) and the wheel diameter. Click on **[Save]**

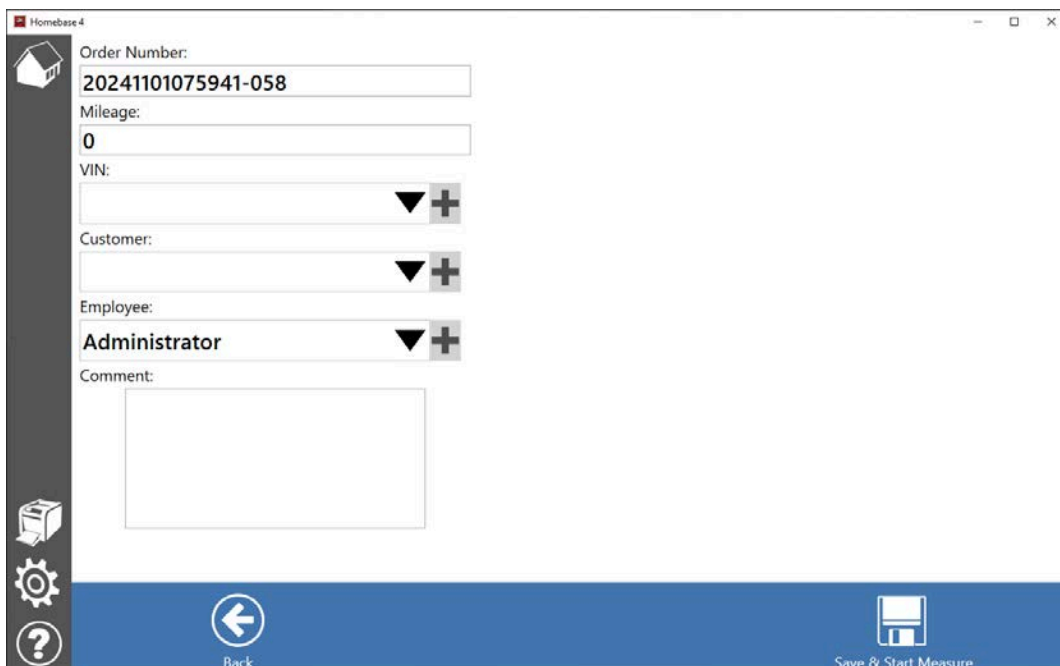


Save

Click on **[Back]** to return to the wheel size selection window.



Back



Enter the VIN (Vehicle Identification Number) or vehicle number plate. A previously used VIN can also be selected from the list.

Enter or choose customer and employee. Add comments if needed.

Click on **[Save and start measure]** , to enter the plugin and start measuring.



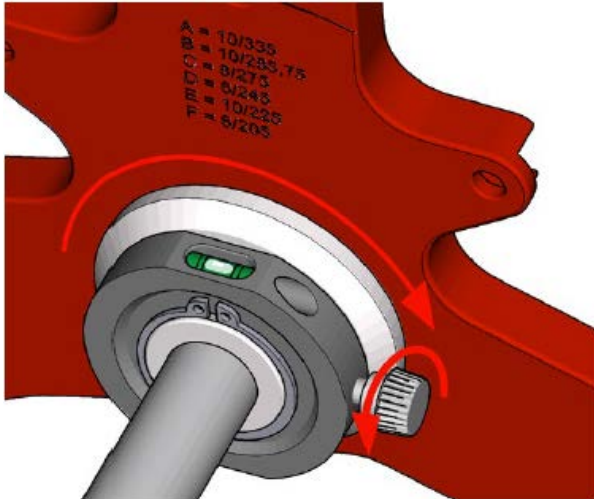
Click on **[Back]** to return to the definition selection window.



5 Measurement preparations

5.1 Preparation for wheel adapters

Magnetic wheel adapter



The magnetic adapter is equipped with two integrated spirit levels to determine that the wheel has rolled 180° during measurement. When the spirit levels under the holder has rotated to the top, the wheel has rolled 180°.

Mount a wheel adapter on every wheel on the vehicle. Make sure that the wheel adapters are correctly and firmly attached. Rotate the spirit level holder so that the bubble is levelled and lock it.

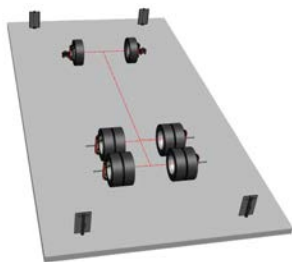
The wheel adapter is now ready to be used in measurements.

Universal ("classic") wheel adapter



If JOSAM i-track II classic wheel adapters are being used, make sure to mount every wheel adapter with the main knob facing upwards.

5.2 Target scales mounted in the workshop



Place them according to the correct position:

- (A) Left front
- (B) Left rear
- (C) Right front
- (D) Right rear

For vehicle types other than (semi-) trailer make sure the front of the vehicle is positioned facing the front scales.

5.3 Target scales mounted on the vehicle



Assemble the self-centering frame gauges, gauge extensions and the scales at the front and at the rear of the vehicle.

For trailers, use the special clamp for tow eyelet or towbar clamp.



For semi-trailers, use the special clamp for king-pin or frame.



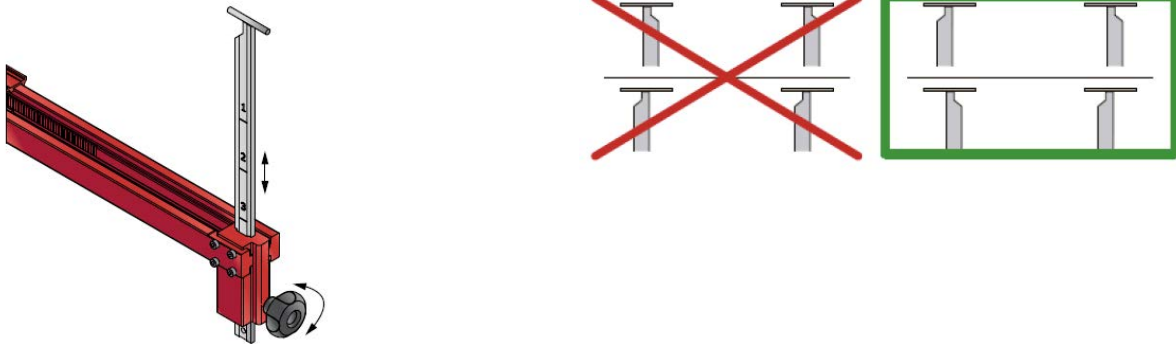
For both trailers and semi-trailers the trailer bar can be used.



Windy environment

Attach the stabilizer bracket to the hangers. Secure the hangers to the chassis frame. This will prevent swaying and vibration.

Adjustment of self-centering frame gauges



Use the adjusting device on the self-centering frame gauges to adjust until the extensions are horizontal. Check the bubble on the gauge extension.

Place the frame gauge hangers symmetrically on the frame gauge.

Adjustment of target scales

Position the target scale and the measuring head so that they face each other centre to centre. Notice numerical markings on the extensions, note the reading indicated on the inner edge of the target scale. The reading should be the same for all scales when assembled.



Adjust the height of the target scale so that its center is positioned at the same level as the lower edge of the measuring head. Position the other target scales at the same height and reading as the first target scale.

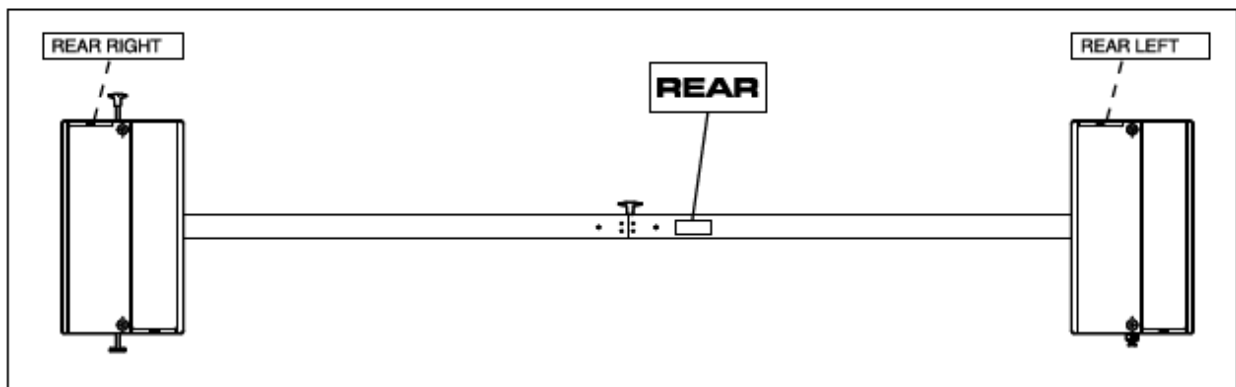
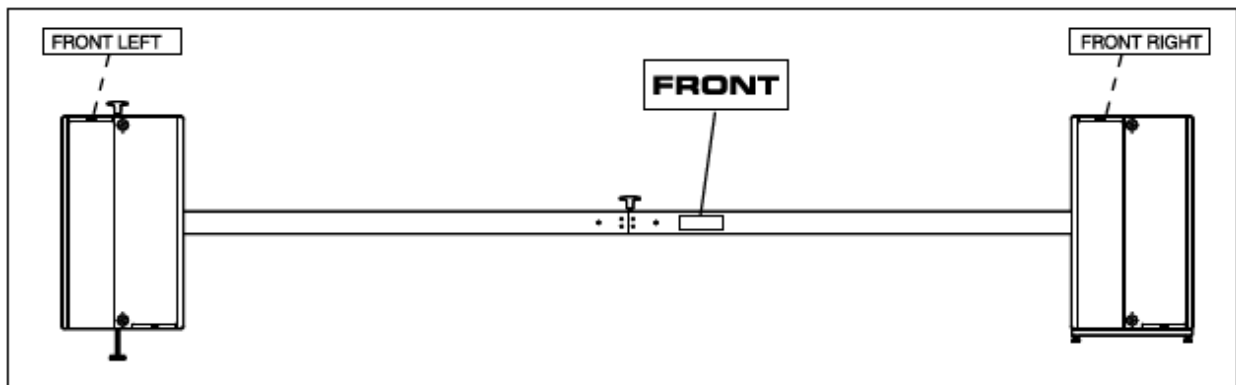
Preparations are now completed.



Do not alter the position of the self centering frame gauges while measuring procedure is in progress. The accuracy of the system depends on the position of the axle in relation to the target scales.

6 Setup of mobile target scales

Before measurement, assemble the front and rear target pairs as displayed in the diagram below:




The rails are used for storing the target scales on a wall.


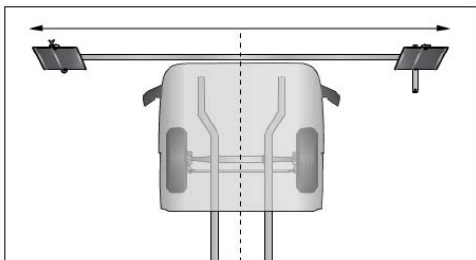
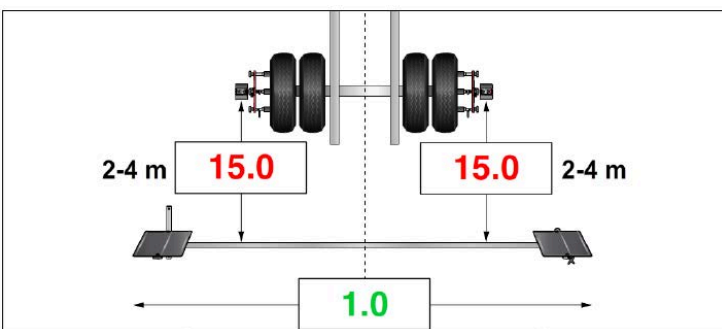


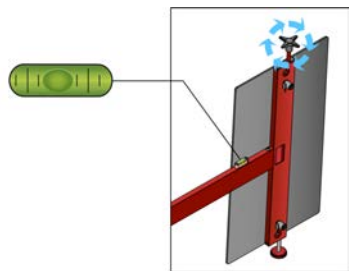
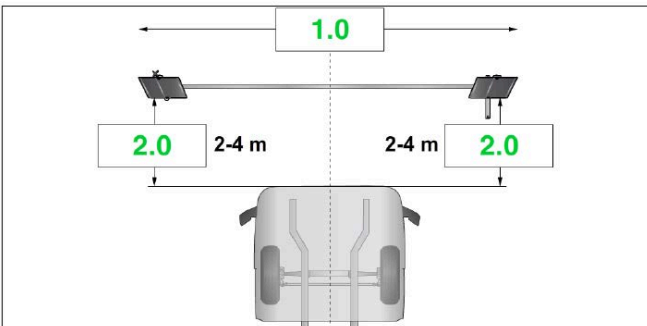



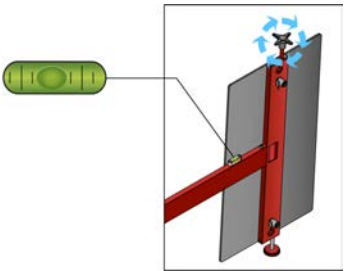
Check the calibration of the portable work bay regularly. See instructions in installation guide T 157.

Before starting measurement, position the targets in a box formation as close to the frame centre line as possible.

Procedure for work bay setup

1.	Mount all wheel adapters on the vehicle.	
2.	Mount the measuring heads on the rear axle.	
3.	Click on [Setup] in I-Track main window.	

4.	Click on [Center Mobile Scales]	
5.	 <p>Place the front targets directly against the front bumper, centred in relation to the vehicle's centre line.</p>	
6.	 <p>Place the rear targets at least 2 m (~6 feet) behind the rearmost axle of the vehicle, and centred in relation to the frame centre line. Place measuring heads on the rearmost axle.</p>	
7.	Click on [Next]	
8.	The software checks that the distances relative to the rear targets are within specified limits.	
9.	When all values are green, click [Next] in the software.	
10.	 <p>Level the rear target scales using the adjustment knob.</p>	
11.	 <p>Move the front targets according to the distances shown in the software.</p>	

12.	Click on [Next]	
13.	 <p>Level the front target scales using the adjustment knob.</p>	
14.	Start the measurement.	



Important

Hazard: Do not alter the position of the target scales while measuring procedure is in progress. If scales have been moved by mistake, restart the procedure.

Risk: Restart the procedure

How to avoid: Do not alter the position of the target scales while measuring procedure is in progress.



Important! The mobile targets are not to be used with the optional centre line tool.



Important! The mobile targets are not to be used with the optional trailer bar.



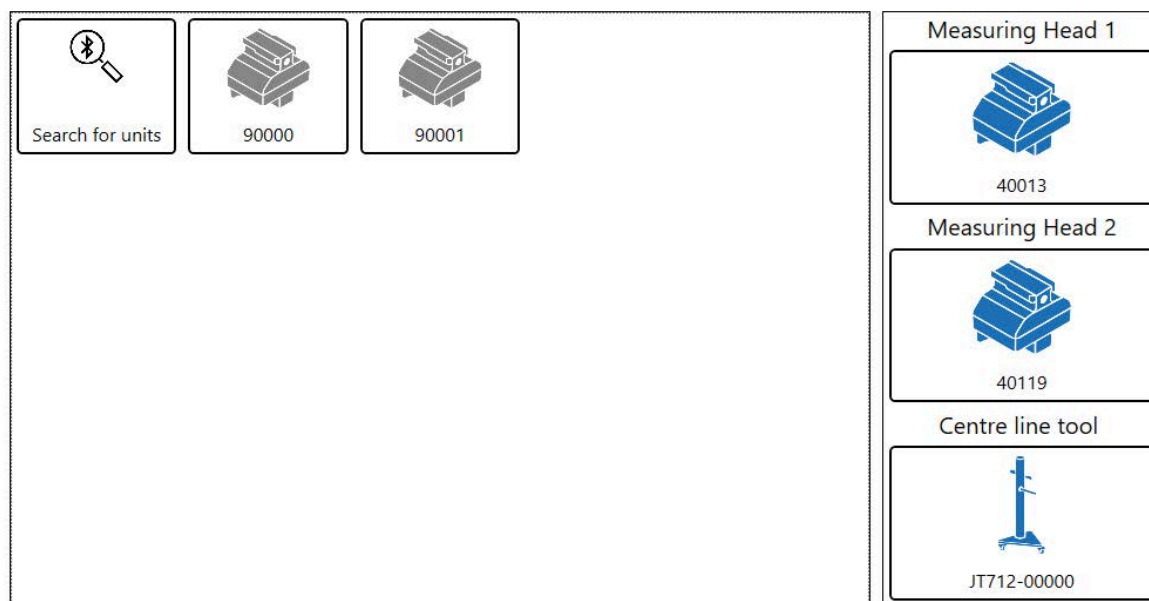
See separate installation guide T 157 for further instructions on assembly and calibration of mobile target scales.

7 System start-up

To start up the system before measurement, click on **[Settings]** in the start window.



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Communication Equipment Workflow



Click on **[Communication]** in the settings window.



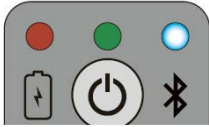
Switch on both measuring heads and the optional centre line tool laser.



A green LED will light up to indicate the systems are activated.

7.1 Connect the measuring head and distance laser

See [3.1 "Communication", page 15](#).



The Bluetooth LED on the unit will display a steady blue light to indicate that they are connected. The software will now display that the units are connected.

If the software cannot find the units, click on **[Search for units]**



Check the calibration of the measuring heads regularly, see "Software settings" on page 12.



Check the calibration of the workbay regularly, see instructions in the installation guide.



Check the rest of the equipment regularly for damages and play that can affect the measurements' accuracy.

8 Runout

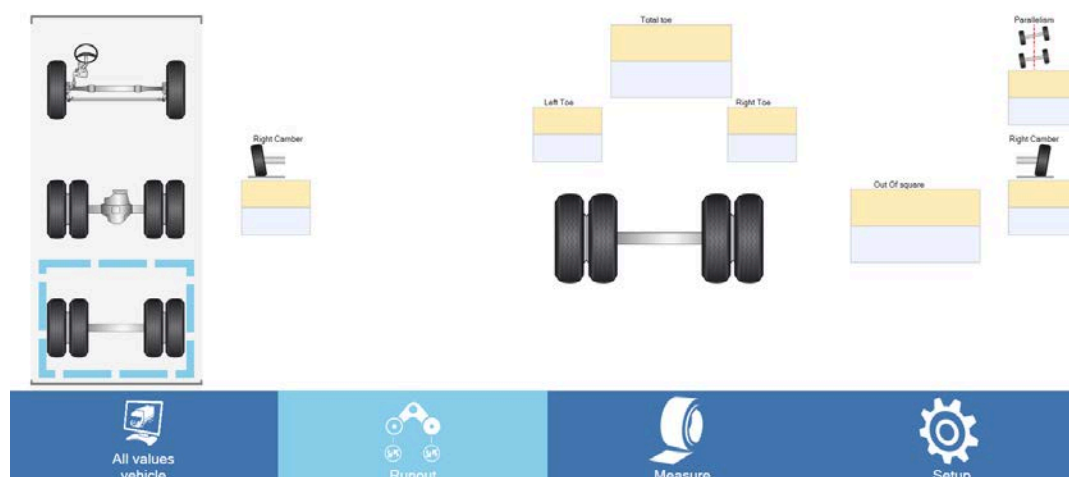
Start by creating a new order, see [4 "Create a work order", page 19](#).

To access the Runout, the “Adjustable wheel adapter” must be selected in the Equipment setting, see [3.2 Equipment, page 16](#)

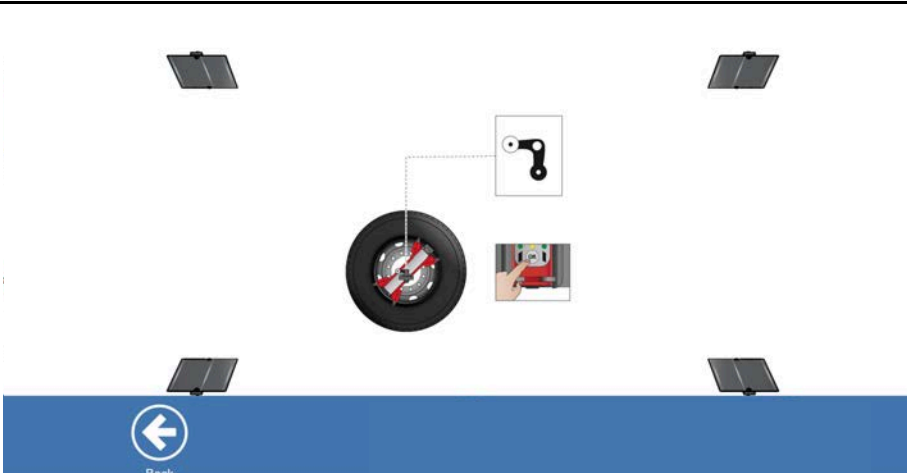
To start the Runout click on **[Runout]** in the bottom menu.

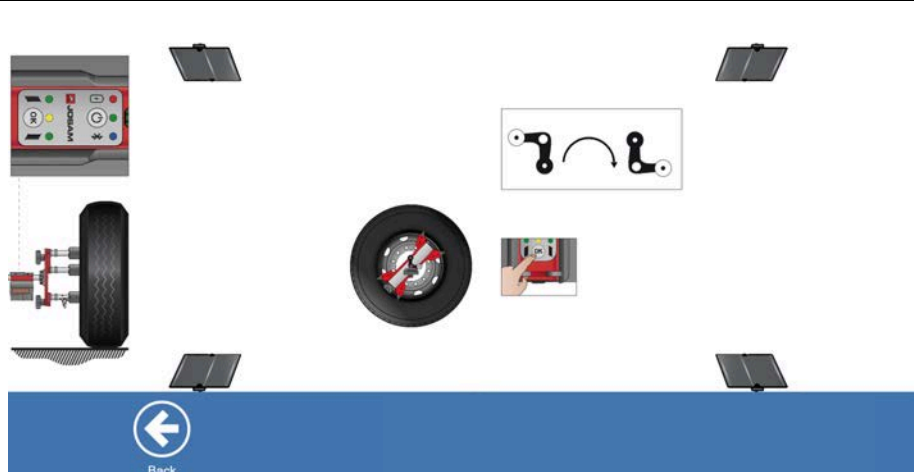
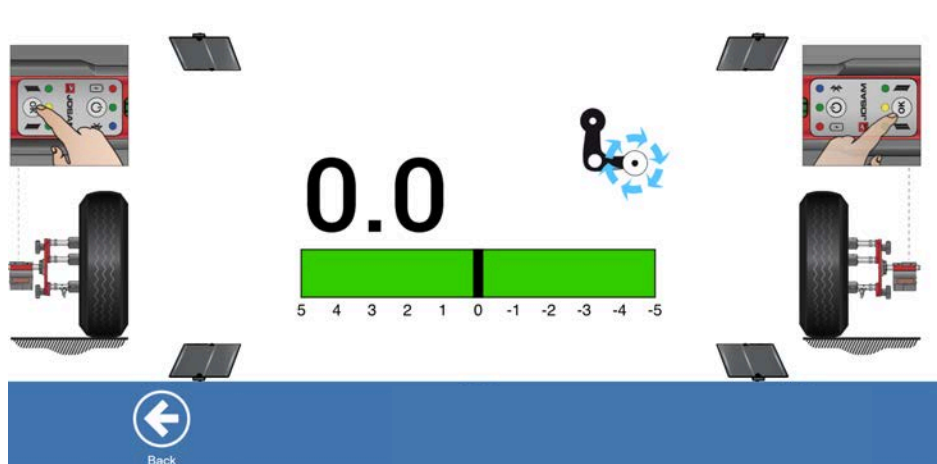



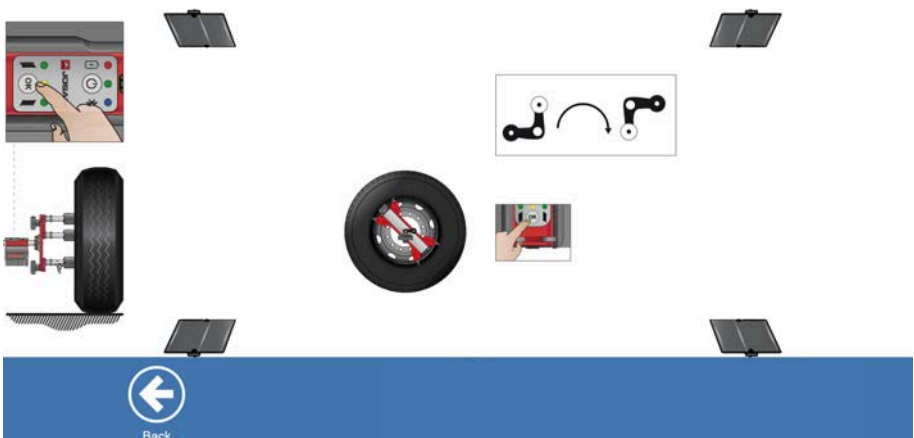
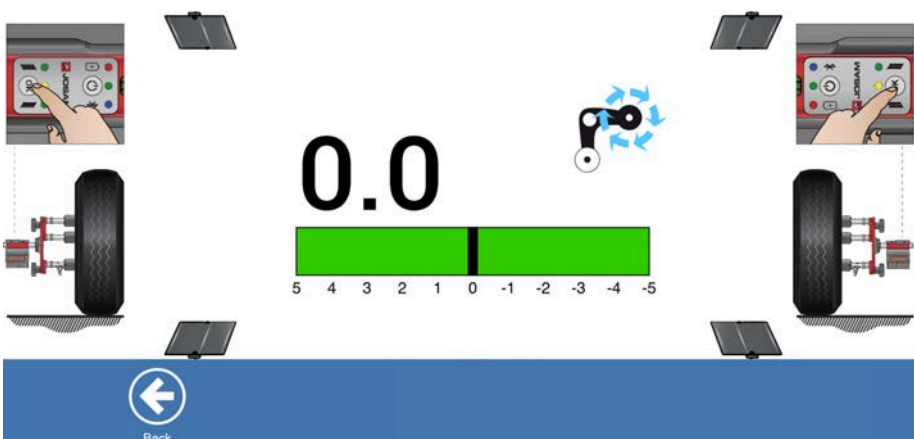
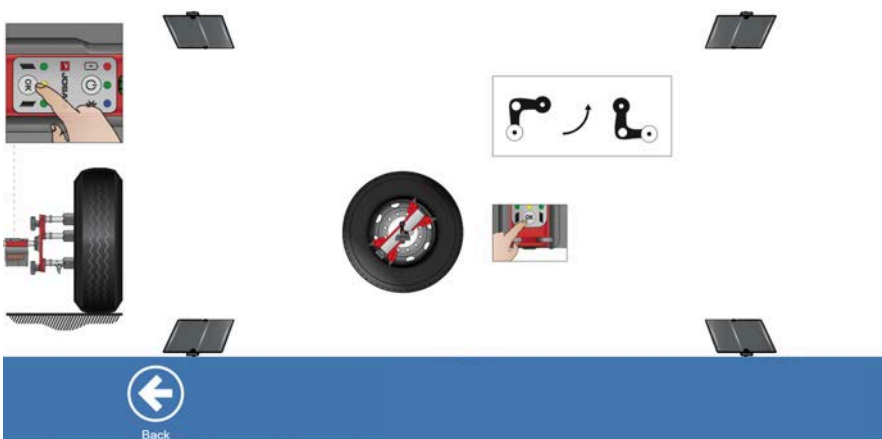
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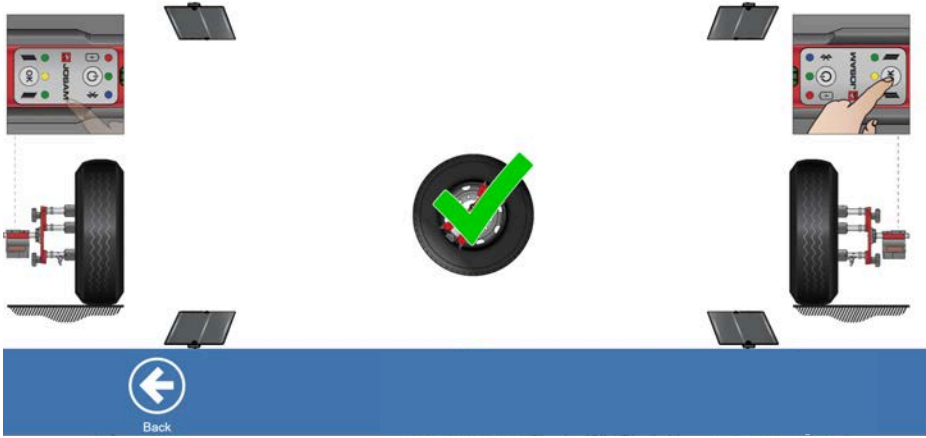
Follow these steps to complete the runout:

1.	Axle jacked up.
2.	Mount the measuring heads on the wheel adapters.
3.	 <p>Turn the wheel so that the wheel clamp arm points straight forward (white knob in the picture). Press [OK] on the measuring head.</p>

4.	 <p>Turn the wheel 180 degrees so that the wheel clamp arm points straight in the opposite direction (white knob in the picture). Press [OK] on the measuring head.</p>
5.	 <p>Adjust horizontal white wheel clamp knob until reading is within 0,2 mm/m. Press [OK]</p>
6.	 <p>Turn the wheel 90 degrees so that the opposite wheel clamp arm points straight forward (black knob in the picture). Press [OK] on the measuring head.</p>

7.	 <p>Turn the wheel 180 degrees so that the opposite wheel clamp arm points straight in the opposite direction (black knob in the picture). Press [OK] on the measuring head.</p>
8.	 <p>Adjust horizontal the black wheel clamp knob until reading is within 0,2 mm/m. Press [OK]</p>
9.	<p>To check the Runout compensation finally turn the wheel 90 degrees so that the opposite wheel clamp arm points straight backwards (white knob in the picture).</p>
10.	 <p>Press [OK] on the measuring head.</p>



11.	 <p data-bbox="268 672 1251 703">If the value exceeds 0,02 repeat Runout procedure. Otherwise, Runout is complete.</p>
12.	Press [OK] on the measuring head to redo the runout.

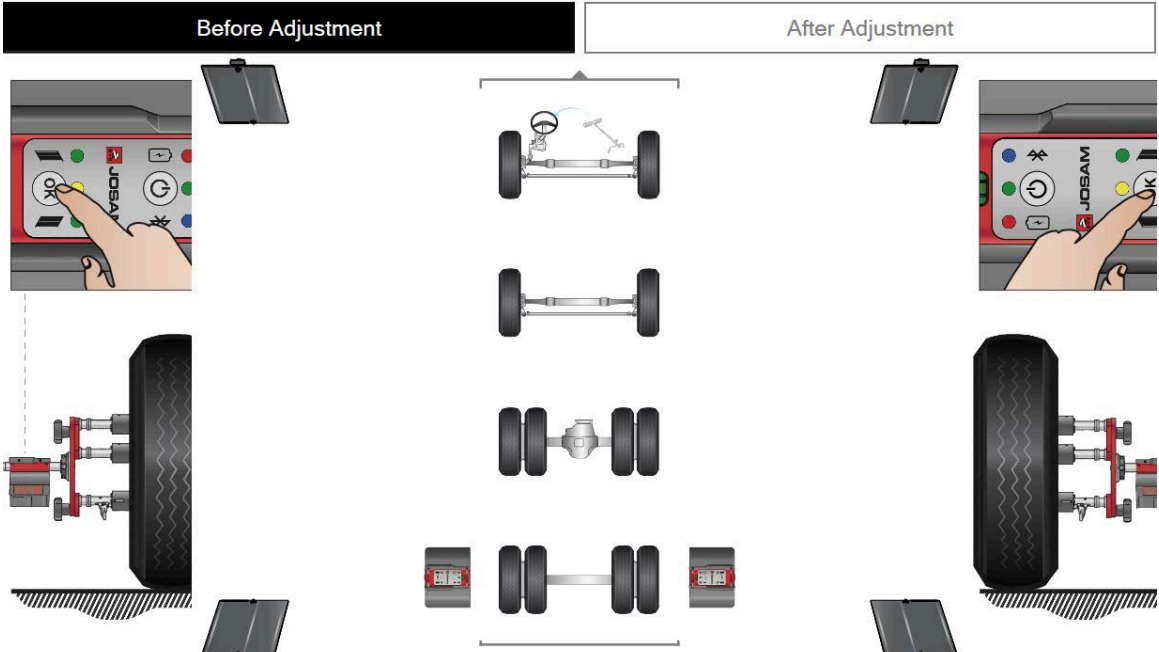
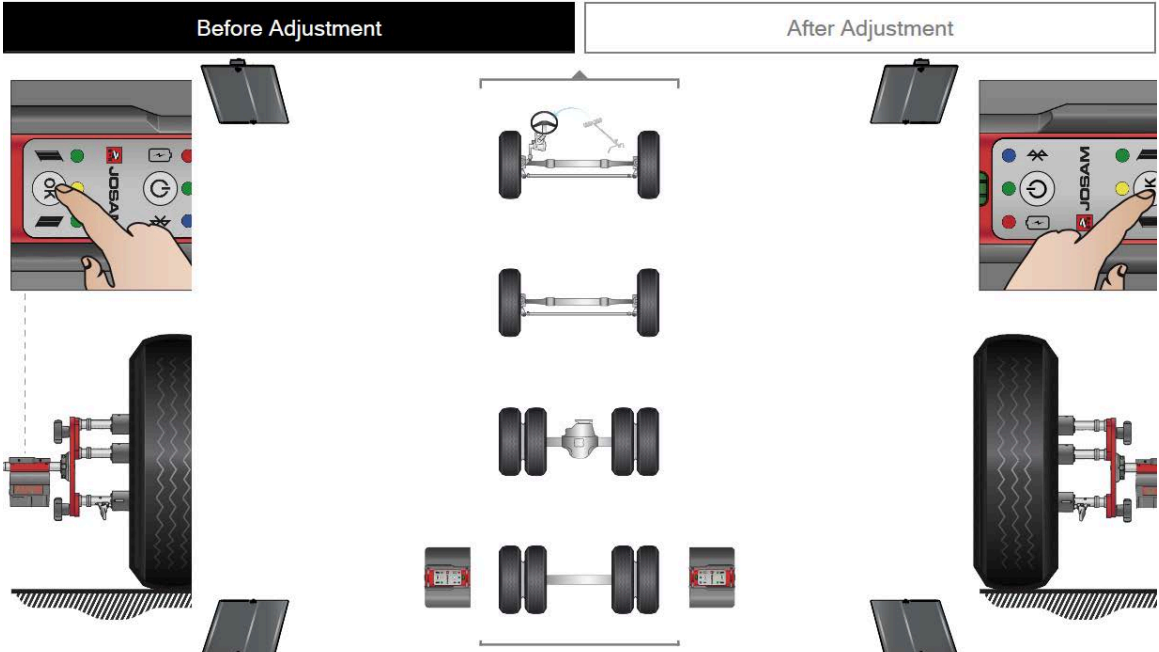

9 Measure truck or bus



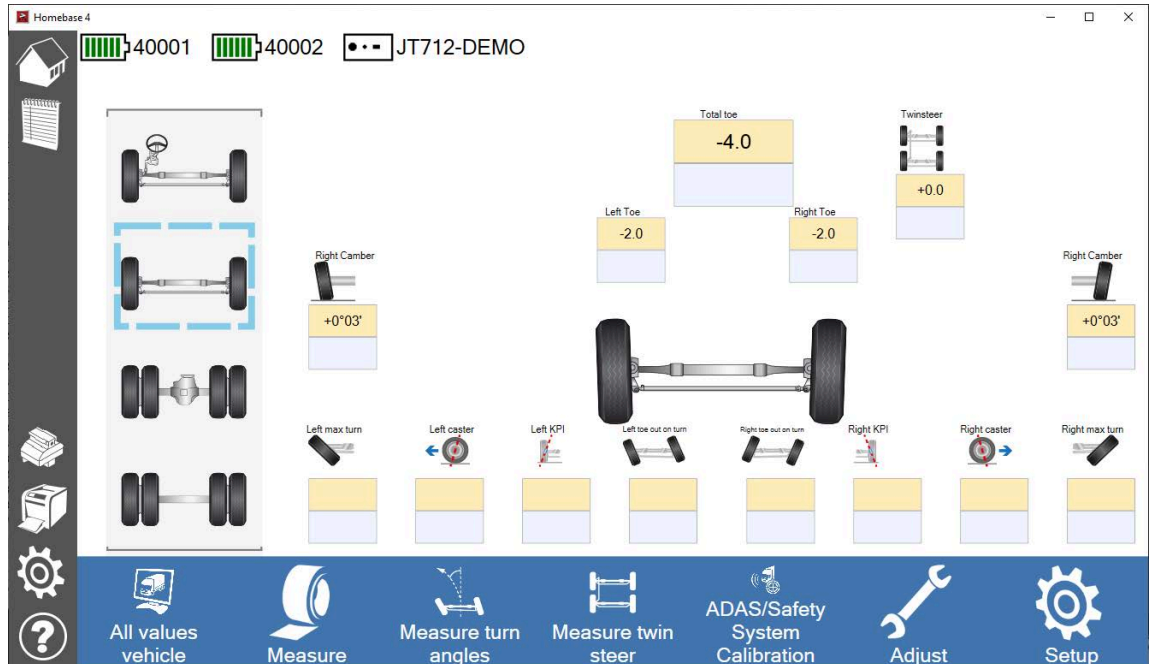

Start by creating a new order, see 4 "Create a work order", page 19.

9.1 Measure toe and camber

Up to two operators may measure at the same time using two measuring heads simultaneously, on each side of the vehicle. There is no specified measuring flow other than that all wheels must be measured according to the instructions given in the software.

In the I-track II measuring method, all axles are measured before adjustment.

1.	Mount a wheel adapter on each wheel.
2.	Lock the steering wheel in the straight ahead position.
3.	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div> <p>Mount the measuring heads according to the software instructions. Press OK on a measuring head on any side of the vehicle.</p>
4.	The green LED will light up to indicate that a measurement has been registered.
5.	<p>The software will indicate which wheel to measure next. Move the measuring head accordingly and then press OK on the measuring head. Repeat for each wheel.</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid blue; padding: 2px; margin-right: 10px;">i</div> <div style="background-color: #f0f0f0; padding: 5px; border: 1px solid #ccc;">Do not use the measuring equipment to rotate the wheel!</div> </div>
6.	<p>When all wheels have been measured the operator is instructed to roll the vehicle.</p> <div style="text-align: center;">  </div>

7.	 <p>During rolling the screen will display the roll distance. The software always displays the direction in which the vehicle is physically moving.</p>
8.	 <p>When the required distance is reached the software will display a stop sign.</p>
9.	<p>Press OK on a measuring head on any side. This will inform the software that rolling has been completed, and at the same time a second measurement of that wheel will be made.</p>
10.	 <p>Measure all remaining wheels according to the software instructions.</p> <div data-bbox="271 1680 359 1769">  </div> <p>For vehicle with varying tire sizes: Choose the most common tire size on the vehicle. Then, raise the axles with the deviating tire sizes and rotate the wheels 180°.</p>

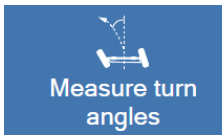
After measuring is complete, the following options are visible:

**All values vehicle:**

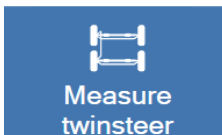
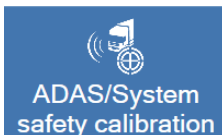
Switch to view All values vehicle

**Measure:**

Measure all axles.

**Measure turn angles:**(only visible when a steering axle is selected). See chapter: [14 "Measure caster, KPI, TOOT and max turn"](#), [page 70](#).

It is strongly recommended to adjust the horizontal wheel angles (toe/camber/out of square) before measuring turn angles. Otherwise there is a risk that the vehicle has been moved during lifting and the horizontal angles have been changed.

**Measure twinsteer:**(only visible when other steerable axles are selected). See chapter: [15 "Measure twinsteer axles"](#), [page 75](#).**ADAS/Safety system calibration:**(only visible when a complete recent measurement has been performed, i.e: will not appear on orders previously measured.) See chapter: [17 "ADAS/Safety system calibration \(FLS & LPOS\)"](#), [page 81](#).**Adjust:**See chapters: [16 "Adjust twinsteer axles"](#), [page 78](#), [14.2 "Adjust max turn"](#), [page 72](#).**Setup:**

Perform I-track II specific settings, calibrations & placement of mobile scales.

9.2 Measure toe and camber, using centreline tool



Measure Frame Reference for frame centre line is to be performed according to customer requirements.

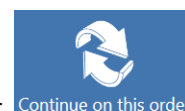
Mount a measuring head on to the inner groove of the axle on the centre line tool.

In the Start window click on either **[New Order]** if starting a new order.



See [4 "Create a work order"](#), [page 19](#)

or click on Navigator and **[Continue on this order]** to proceed with the current order.



The plugin window for I-track II will be displayed.






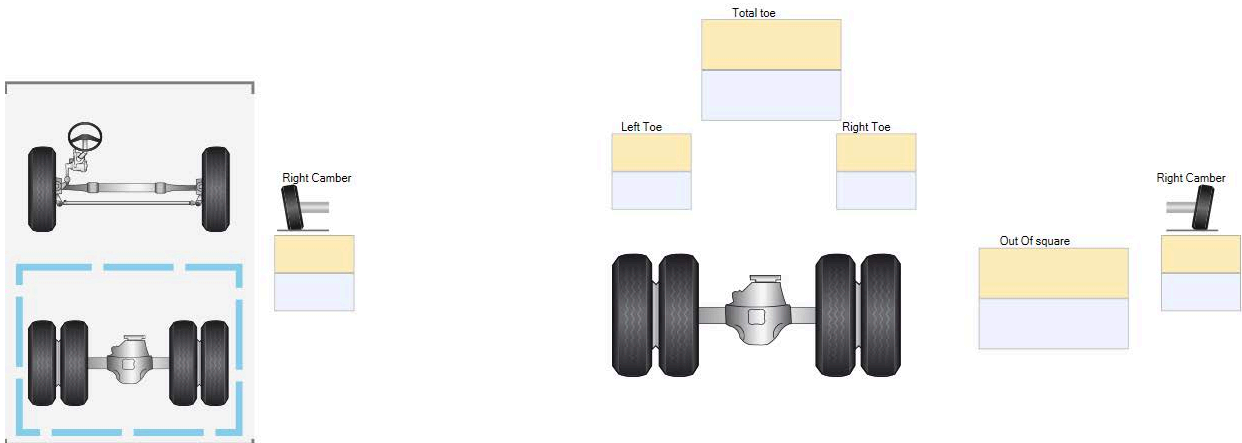
Click on **[Wheel alignment]**

The software will proceed to the main measurement window.



Shiny or reflective surfaces may disturb the laser equipment. Make sure that any such surfaces are covered before start of measurement.

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Displays the connected units. Number of bars indicate battery level.



Displays the centre line tool (if pre-chosen) is connected.



Displays units are disconnected.




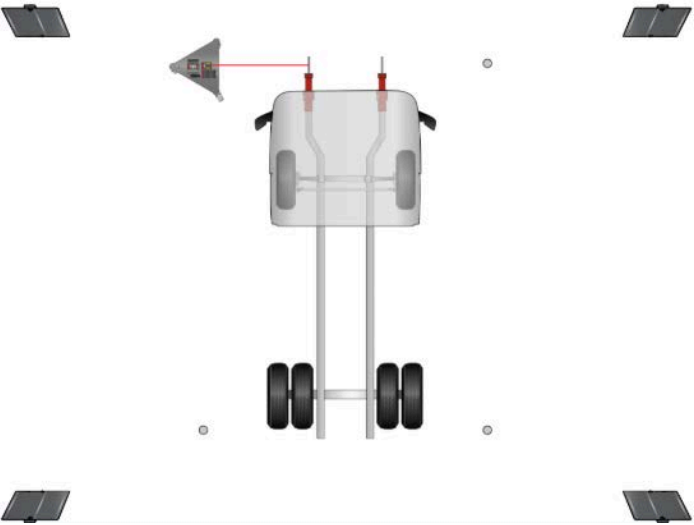

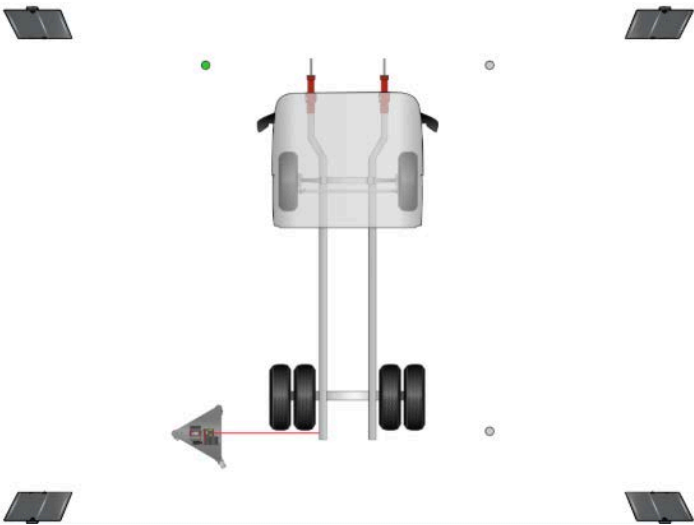
Setup

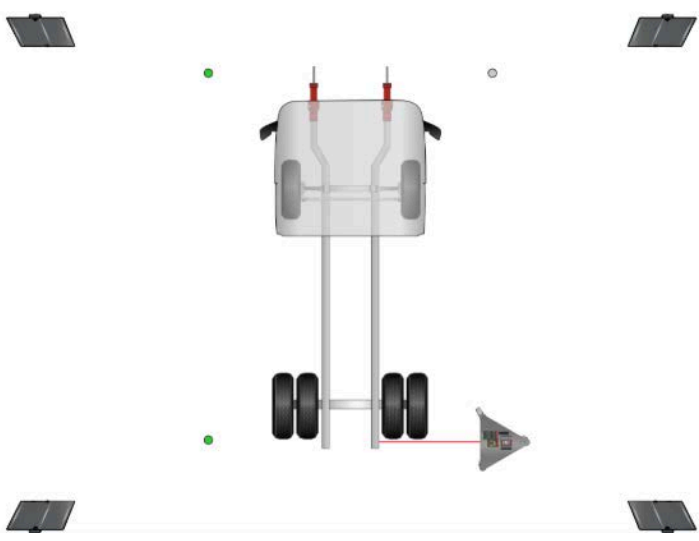
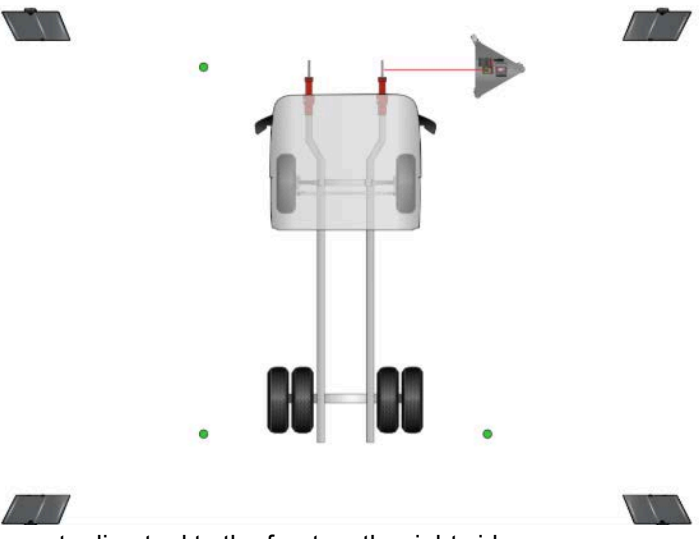
Access to the Main menu and Calibration and demo mode. Check the demo box to run the software in demo mode. No measuring heads are needed.



Measure

Starts the measurement process.

1.	Click on [Measure] to access the measurement mode. If the centre line tool is activated in the setup menu, the software will enter the frame centre line measurement process automatically.	
2.	 <p>Position the centre line tool on the left front side. Make sure that the laser is aimed at the correct position on the chassis (on the frame reference target). If frame reference targets can not be used, an aiming point in the wheel housing can be used.</p> <div data-bbox="231 952 1391 1048">  Make sure that the distance laser is aimed at a flat surface. </div>	
3.	Press OK on the measuring head. When the LEDs display a green light a measurement has been taken.	
4.	 <p>Roll the centre line tool to the rear of the chassis.</p>	
5.	Press OK on the measuring head. When the LEDs display a green light a measurement has been taken.	

6.	 <p>Roll the centre line tool to the rear on the right side of the vehicle. Make sure that the laser is aimed at a similar position as on the left side of the chassis.</p>
7.	<p>Press OK on the measuring head. When the LEDs display a green light a measurement has been taken.</p>
8.	 <p>Roll the centre line tool to the front on the right side. Make sure that the laser is aimed a similar position as on the left side of the chassis.</p>
9.	<p>Press OK on the measuring head. When the LEDs display a green light a measurement has been taken.</p>
10.	<p>All measurements for the frame reference are completed.</p>

The software will now proceed to measure toe and camber.

9.3 Adjust toe and camber

The Adjust toe and camber mode displays live values during measurement. Adjustment to toe and camber can be made after measurements. Make sure that the measuring heads are placed on the selected axle for adjustment.

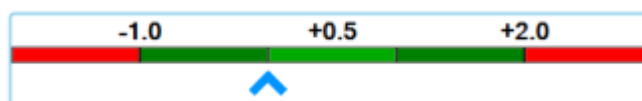
In the main window, choose which axle to adjust and click on **[Adjust]**.
Place low friction plates below all steered axles.



If specifications are used:

- Green text indicates that the values are within the preset tolerances.
- Red text indicates that they are not within the preset tolerances.

The indicator bar shows the measured value relative to the limits.

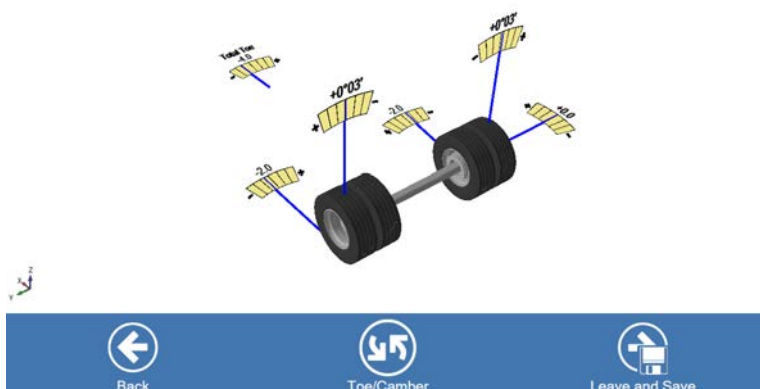


The blue arrows indicate the live value during adjustment. The blue arrow will move along the bar as adjustment is performed. The operator can see the live value in comparison to the set tolerances.



If more than two rigid axles are measured, a parallelism view can be selected.

Clicking **[Adjust 3D]** will show a 3D-representation of the axle with live values.





Make sure to tighten all bolts and nuts before pressing **[Leave and Save]**
The result will be displayed on the screen.



We recommend that the complete vehicle is re-measured after adjustment.

10 Measure a trailer

10.1 Setup

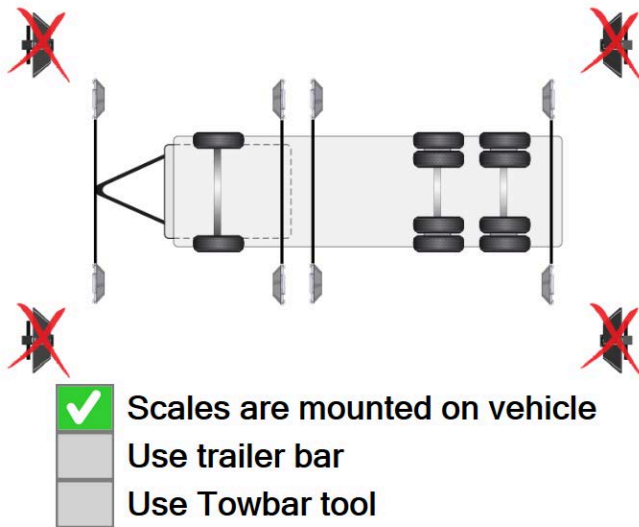
Start by creating a new order, see [4 "Create a work order", page 19](#).

Select scale setup for the coming measurement.



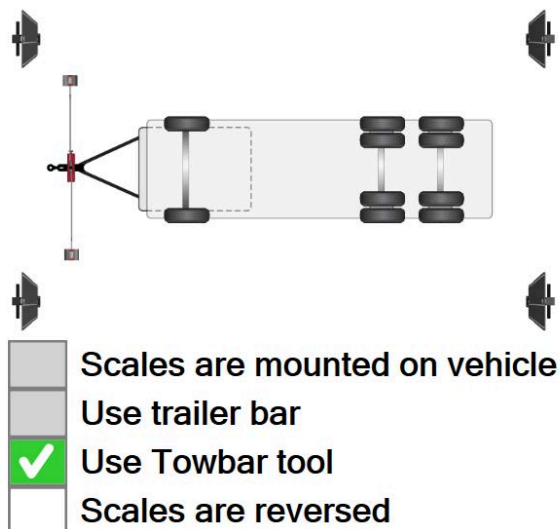
Carefully check the setup options for every new vehicle.

Checkbox "Scales are mounted on vehicle":



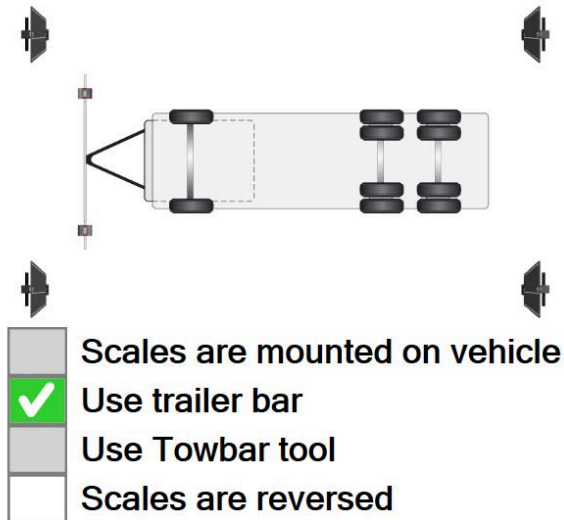
See [11.2 "Measure with scales mounted on vehicle", page 56](#)

Checkbox "Use TowbarTool":



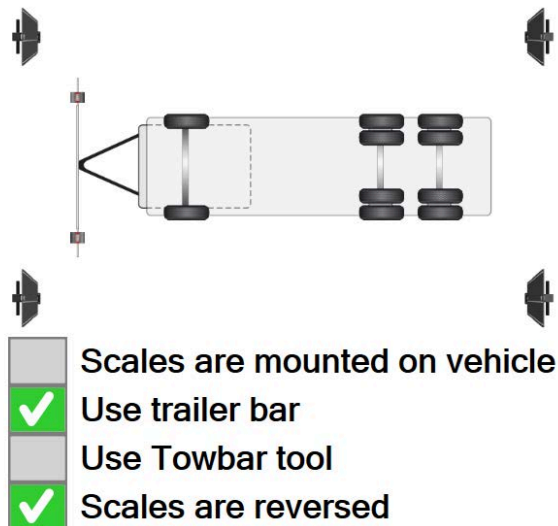
See [10.4 "Measure with Towbar tool", page 50](#)

Checkbox "Use trailer bar":



See [11.3 "Measure with trailer bar", page 58](#)

Checkbox "Scales are reversed":



Used if the vehicle is reversed into the work bay so that the front of the vehicle is facing the rear targets. All axles are measured simultaneously.



At least one checkbox must be selected to be able to proceed with measurement

Press **[Measure]** to enter the measurement sequence.

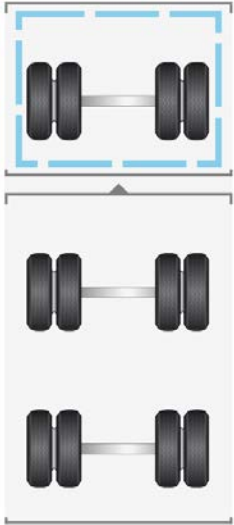




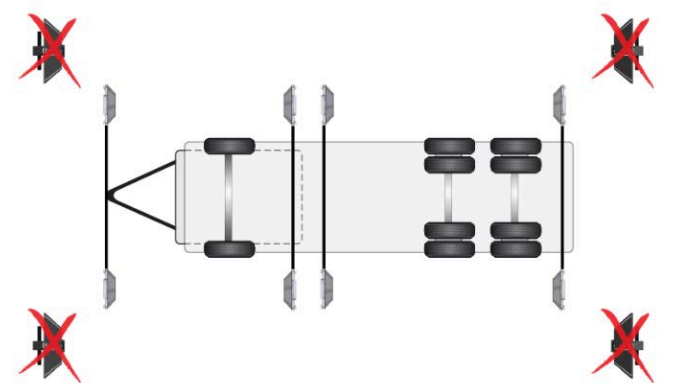



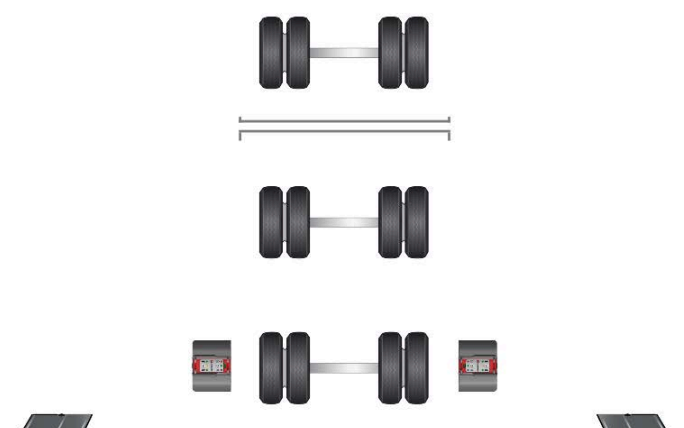

10.2 Measure with scales mounted on vehicle

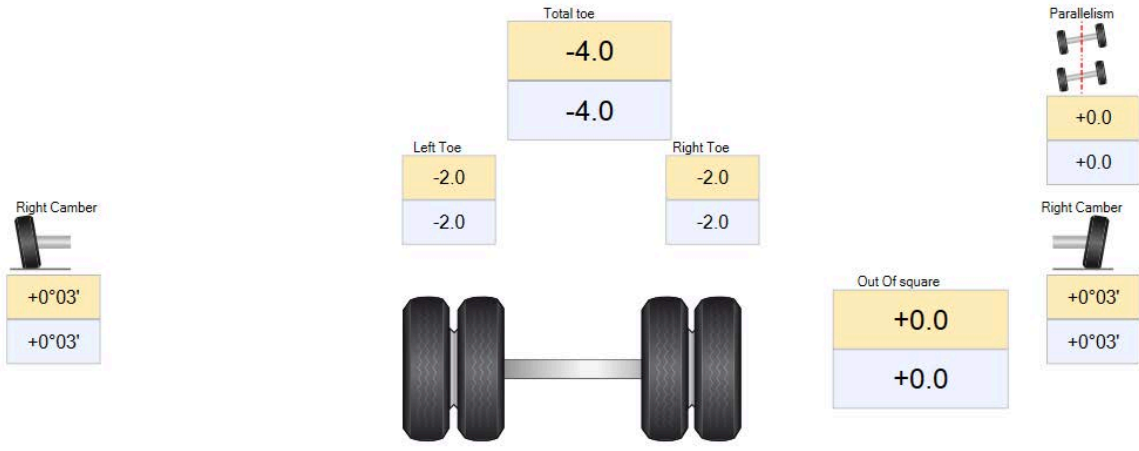


You need the Vehicle-mounted target scales to be able to perform this measurement

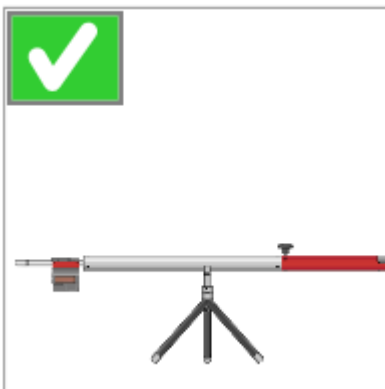
Hang reference targets on the vehicle. Make sure to cover existing scales in the workshop bay. All axles are measured individually.

1.	Start by creating a new order.	
2.	 <p>Select the axle you wish to measure.</p>	
3.	Then press [Measure]	
<p>If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.</p>		



4.	 <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background-color: green; margin-right: 5px;"></div> <p>Scales are mounted on vehicle</p> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background-color: gray; margin-right: 5px;"></div> <p>Use trailer bar</p> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background-color: gray; margin-right: 5px;"></div> <p>Use Towbar tool</p> </div>
<p>Tell the software that you wish to use the Vehicle-mounted target scales. Then press [Next]</p> <div style="float: right; border: 1px solid black; padding: 5px; background-color: #0056b3; color: white; text-align: center; width: 50px;">  Next </div>	
5.	<div style="display: flex; justify-content: space-around; border-bottom: 1px solid black; margin-bottom: 10px;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div> 
<p>Place a measuring head on both wheels of the axle and press the [OK] button on one of the measuring heads to take the initial measurements.</p> <p>Rotate all wheels on axle for half a turn. (180 degrees) This can also be accomplished by pulling the trailer forward or backward until the wheels have rotated 180 degrees.</p> <div style="float: right; text-align: center;">  </div>	

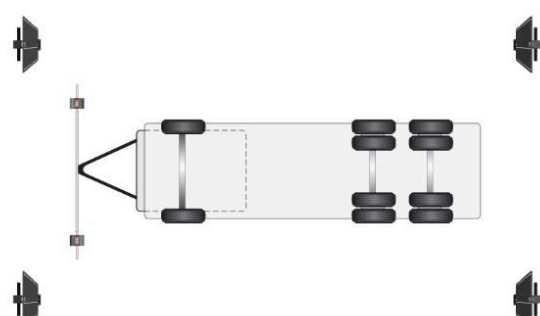

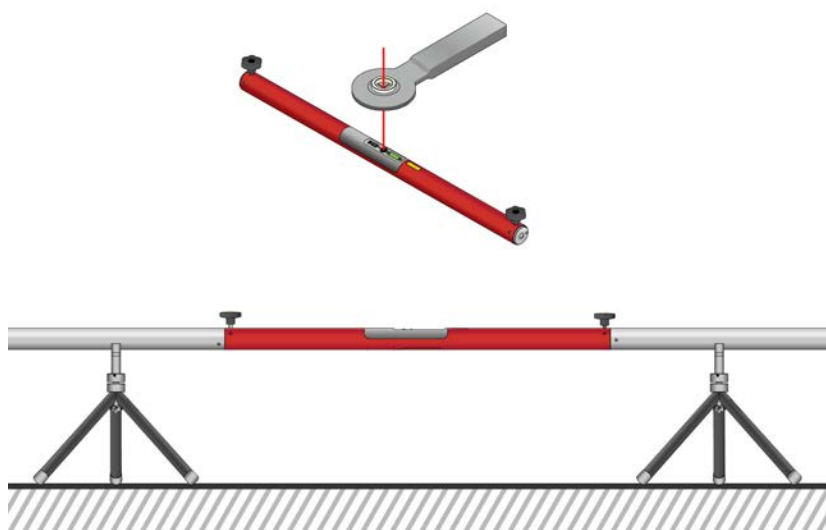
6.	Press the [OK] button on one measuring head to take the second measurements.
7.	<div style="text-align: center;">  </div> <p>The software will display the results for toe, camber, out of square and parallelism measurements.</p>

10.3 Measure with trailer bar

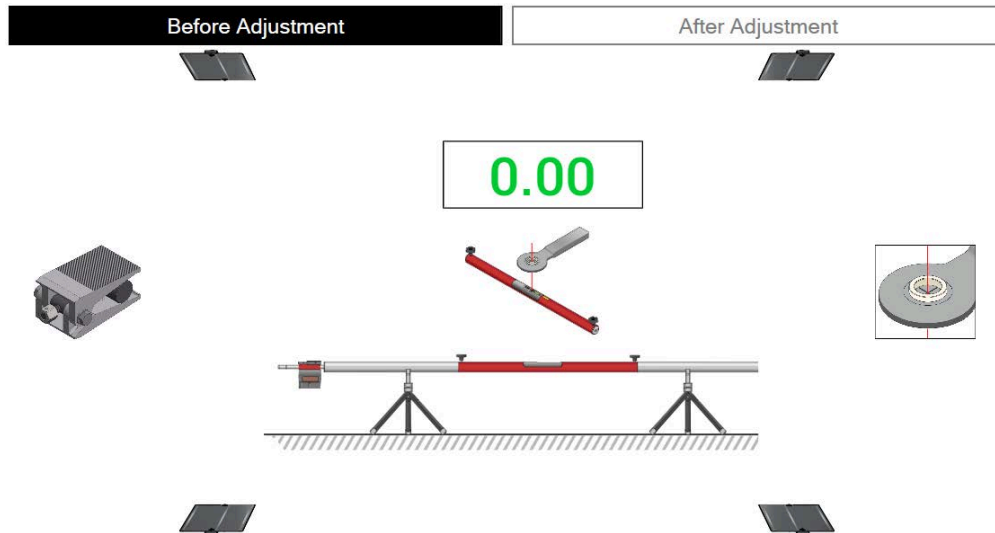


You need the trailer bar tool to be able to perform this measurement

1.	Start by creating a new order.	
2.	Press [Measure]	
If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.		

3.	 <div data-bbox="343 526 909 728"> <input type="checkbox"/> Scales are mounted on vehicle <input checked="" type="checkbox"/> Use trailer bar <input type="checkbox"/> Use Towbar tool <input type="checkbox"/> Scales are reversed </div>
	<div data-bbox="263 750 1173 828"> Tell the software that you wish to use the Trailer bar tool. Then press [Next] </div> <div data-bbox="1181 750 1300 828">  </div>
4.	Mount a wheel adapter on each wheel of the axles to measure.
5.	Mount and level the Trailer bar tool between the frame rails as close to the front of the trailer as possible.
6.	 <p data-bbox="263 1512 1436 1612">Place both measuring heads on the trailer bar. Place the trailer bar on two stands directly under the trailer tow eyelet.. Level the trailer bar using the bubble. Switch the laser on and point it at the centre of the tow eyelet.</p>

7.



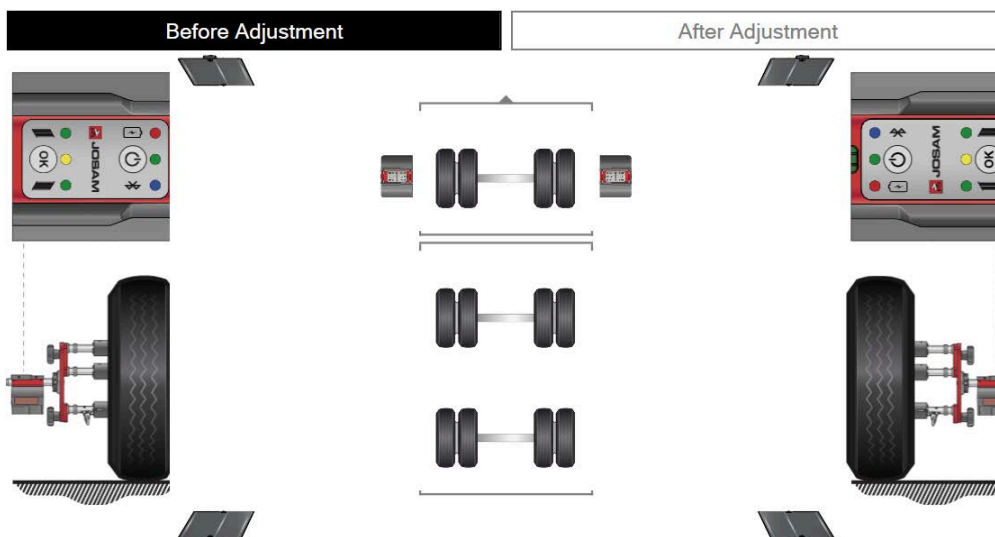
Then press **OK** on the measuring heads to start levelling the trailer bar. Adjust the trailer bar in level, indicated with green digits, using the instructions on the screen. When ready move the trailer bar sideways so that the laser points exactly in the centre of the tow eyelet.. Then press **OK** or push the button on one of the measuring heads.

Make sure that the tool is centered between the frame rails.



Lock the dolly on a full trailer using the dolly lock by placing it between the dolly and trailer chassis. Tighten so that the dolly cannot move in relation to the chassis.

8.



Start the flow by placing a measuring head on the Trailer bar tool and press the button on the measuring head to take the initial measurements.

When the software has registered the measurements the operator moves the measuring head to the first axle, which will be measured the same way. All wheels including the Trailer bar tool must be measured according to the instructions given in the software.

When the wheels have been measured the operator is instructed to rotate the wheels 180°. This can be accomplished by lifting the axle and rotate the wheels 180°.



9.	Perform a second measurement, starting as instructed in the software.
10.	<div style="text-align: center;"> </div> <p>The software will display the results for toe, camber, out of square and parallelism measurements.</p>





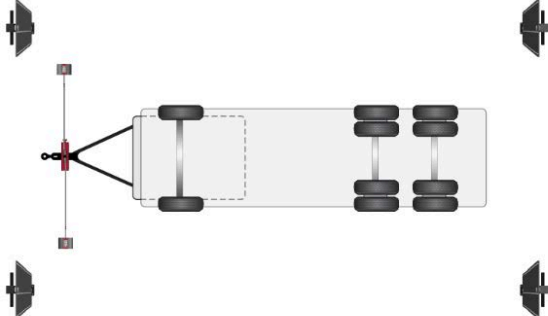

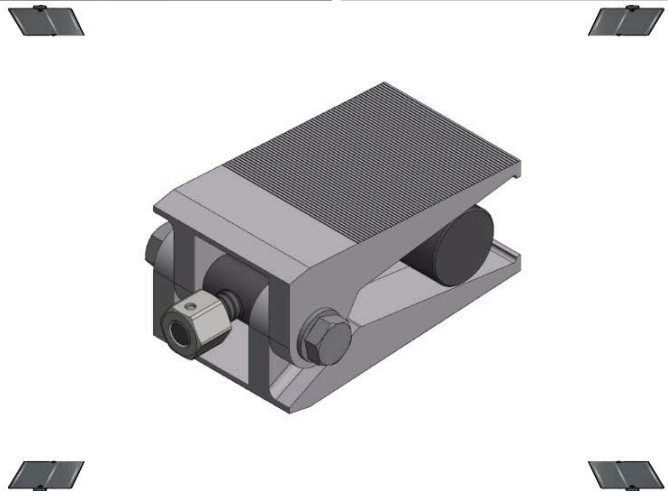
Make sure to remove the dolly lock from the trailer

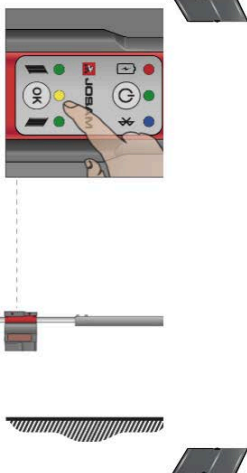
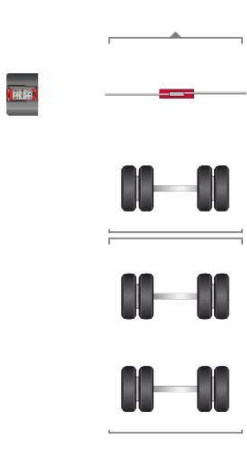

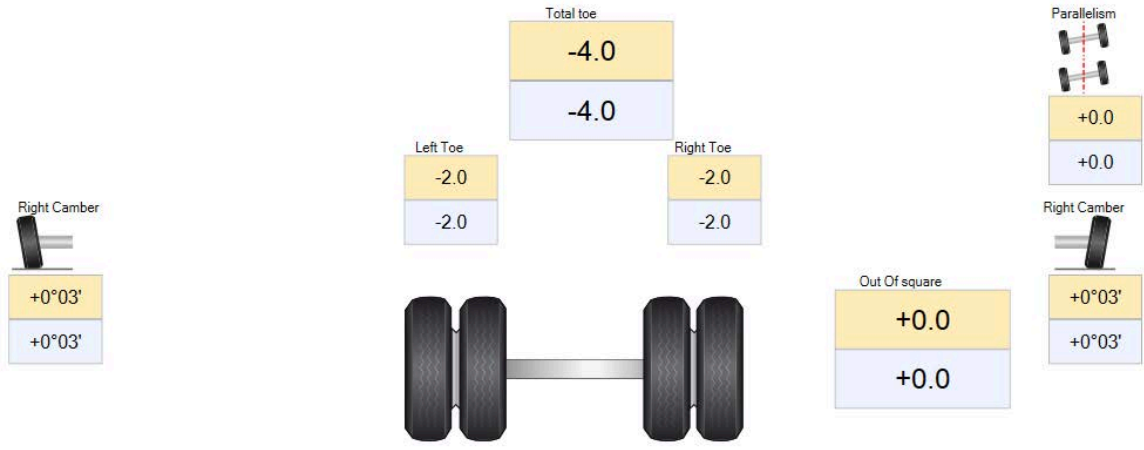
10.4 Measure with Towbar tool



You need the Towbar tool to be able to perform this measurement

1.	Start by creating a new order.	
2.	Press [Measure]	
<p>If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.</p>		

3.	 <div data-bbox="343 537 893 728"> <p><input type="checkbox"/> Scales are mounted on vehicle</p> <p><input type="checkbox"/> Use trailer bar</p> <p><input checked="" type="checkbox"/> Use Towbar tool</p> <p><input type="checkbox"/> Scales are reversed</p> </div>	
<p>Tell the software that you wish to use the Towbar bar tool. Then press [Next]</p>		
4.	<p>Mount a wheel adapter on each wheel of the vehicle.</p>	
5.	<p>Mount the Towbar tool on the tow bar of the trailer.</p>	
6.	<div data-bbox="231 952 1236 996"> <div>Before Adjustment</div> <div>After Adjustment</div> </div>  <p>Next window will show a reminder to mount/lock the Dolly wedge. Click [OK] when this has been checked.</p>	

7.	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div> <p>Start the flow by placing a measuring head on the Towbar tool and press the button on the measuring head to take the initial measurements.</p> <p>When the software has registered the measurements the operator moves the measuring head to the first axle, which will be measured the same way. All wheels including the Towbar tool must be measured according to the instructions given in the software.</p> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 20px;"> <div style="width: 60%;"> <p>When all wheels have been measured the operator is instructed to rotate the wheels 180°. This can be accomplished by pulling the trailer forward or backward until the stop sign appears.</p> </div> <div style="width: 35%; text-align: center;">  </div> </div>
8.	<p>Perform a second measurement, starting as instructed in the software.</p>
9.	<div style="text-align: center; margin-bottom: 20px;">  </div> <p>The software will display the results for toe, camber, out of square and parallelism measurements.</p>

11 Measure a semi-trailer

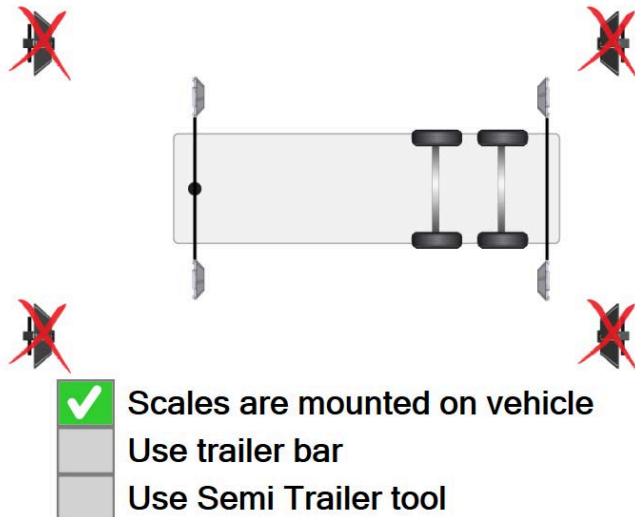
11.1 Setup

Start by creating a new order, see [4 "Create a work order", page 19](#).

Mount a wheel adapter on each wheel of the vehicle. Make sure that each wheel adapter is levelled.

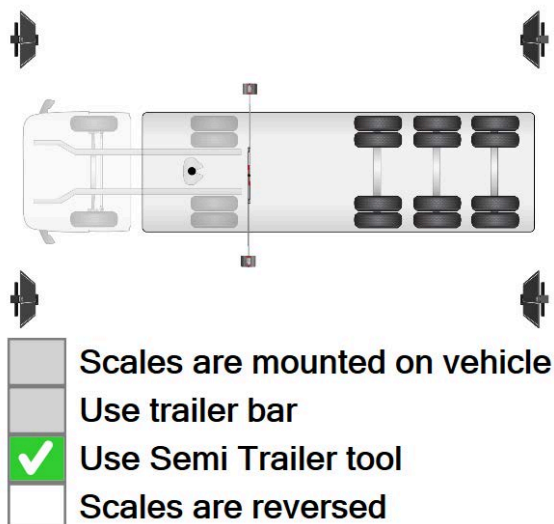
Select scale setup for the coming measurement.

Checkbox "Scales are mounted on vehicle":



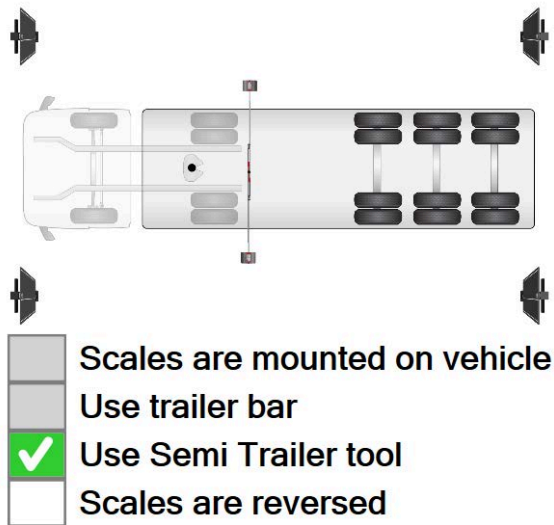
See [11.2 "Measure with scales mounted on vehicle", page 56](#)

Checkbox "Use Semi Trailer Tool":



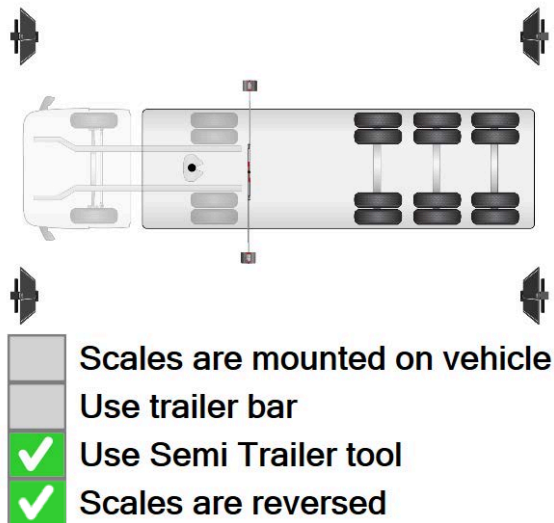
See [11.4 "Measure with Semi trailer tool", page 60](#)

Checkbox "Use Semi Trailer Tool":



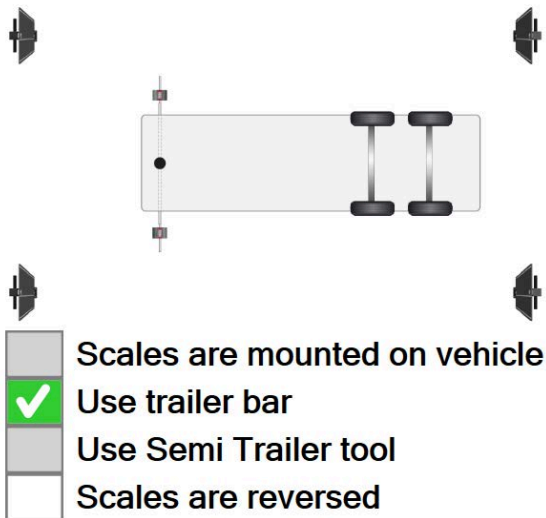
See [11.4 "Measure with Semi trailer tool", page 60](#)

Checkbox "Use Semi Trailer Tool" and "Scales are reversed":



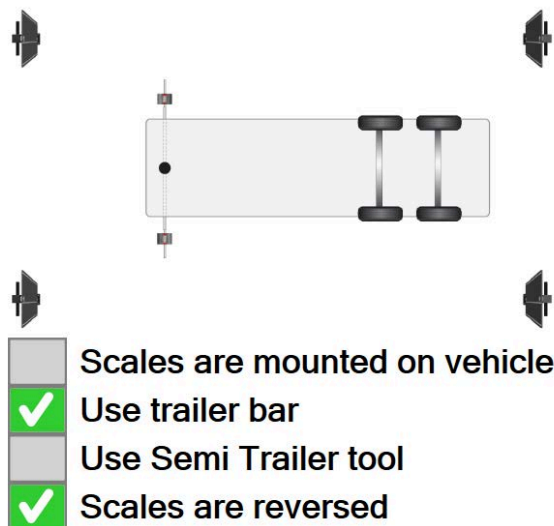
Used if the vehicle is reversed into the work bay so that the front of the vehicle is facing the rear targets. All axles are measured simultaneously.

Checkbox "Use trailer bar":



See [11.3 "Measure with trailer bar", page 58](#)

Checkbox "Use trailer bar" and Scales are reversed":



Used if the vehicle is reversed into the work bay so that the front of the vehicle is facing the rear targets. All axles are measured simultaneously.



At least one checkbox must be selected to be able to proceed with measurement

Press **[Measure]** to enter the measurement sequence.



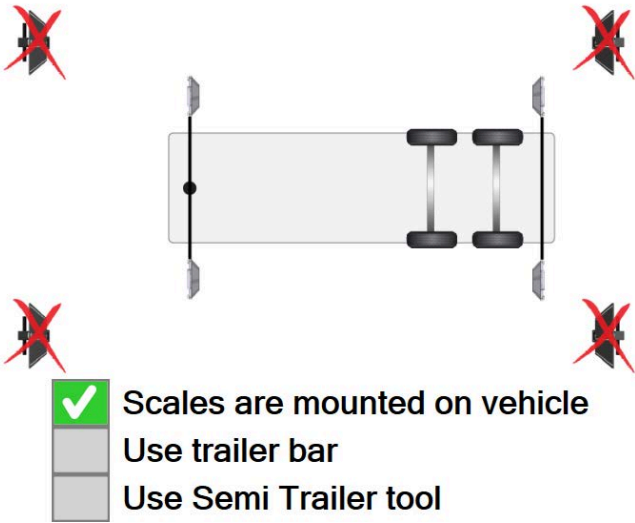



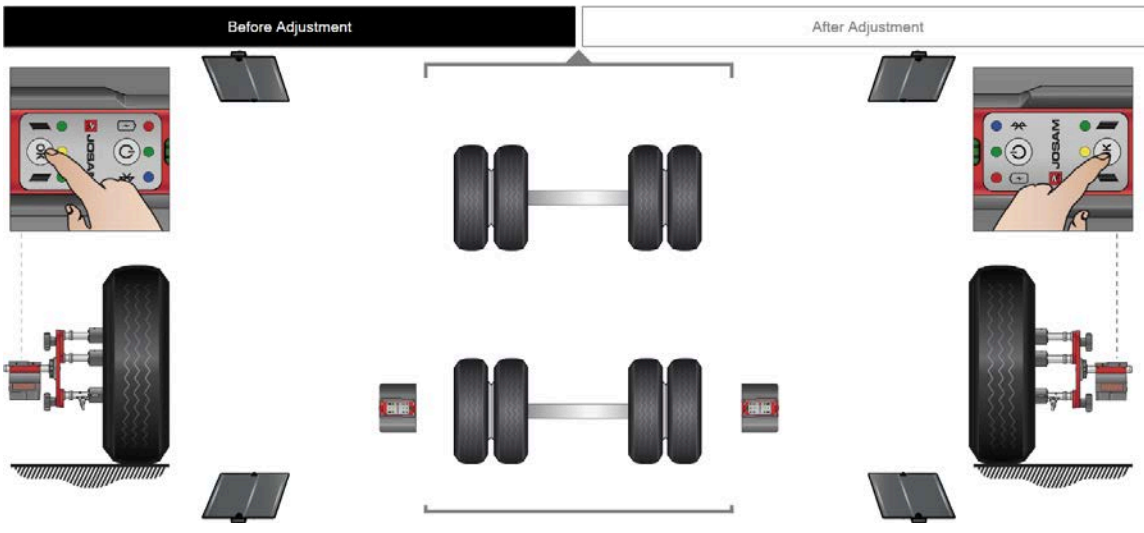

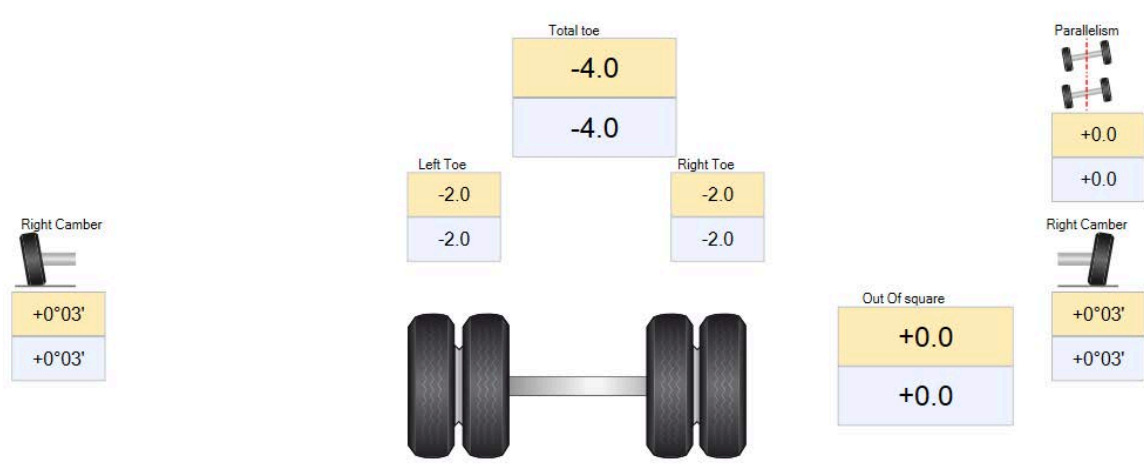
If using "Use trailer bar" option you will be required to level the trailer bar. If using "Scales are mounted on the vehicle", the software will proceed directly to the measurement sequence.

11.2 Measure with scales mounted on vehicle

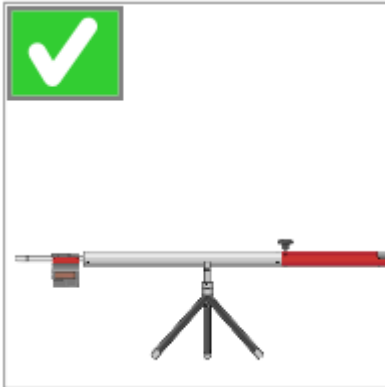


You need the Vehicle-mounted target scales to be able to perform this measurement



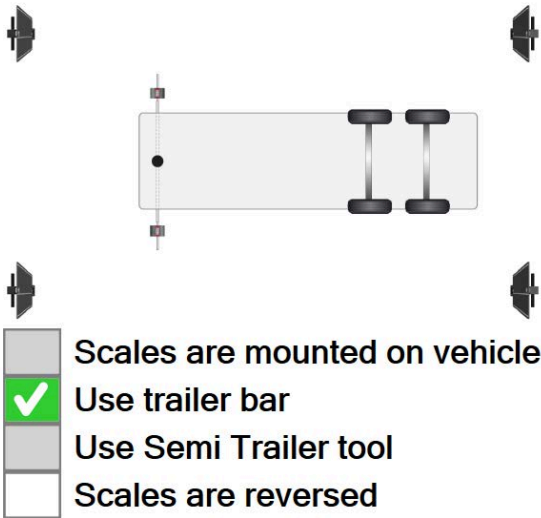

1.	Start by creating a new order.	
2.	Press [Measure]	
If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.		
3.	 <p>Scales are mounted on vehicle Use trailer bar Use Semi Trailer tool</p>	
	Tell the software that you wish to use the Vehicle-mounted target scales. Then press [Next]	
4.	Hang reference targets on the vehicle. Make sure to cover any additional target scales in the workshop bay.	
5.	Mount a wheel adapter on each wheel of the vehicle.	

6.	<div data-bbox="231 197 1380 728">  </div> <p data-bbox="231 739 1380 795">Start the flow by placing a measuring head on the rear axle of the semi trailer and press the button on the measuring head to take the initial measurement.</p> <p data-bbox="231 806 1380 896">When the software has registered the measurements the operator moves the measuring head to the first axle, which will be measured the same way. All wheels must be measured according to the instructions given in the software.</p> <div data-bbox="231 907 1380 1142"> <p data-bbox="231 974 1109 1075">When the wheels have been measured the operator is instructed to rotate the wheels 180°. This can be accomplished by pulling the trailer forward or backward until the stop sign appears.</p>  </div>
7.	Perform a second measurement, starting as instructed in the software.
8.	<div data-bbox="231 1220 1380 1691">  </div> <p data-bbox="231 1736 1380 1769">The software will display the results for toe, camber, out of square and parallelism measurements.</p>

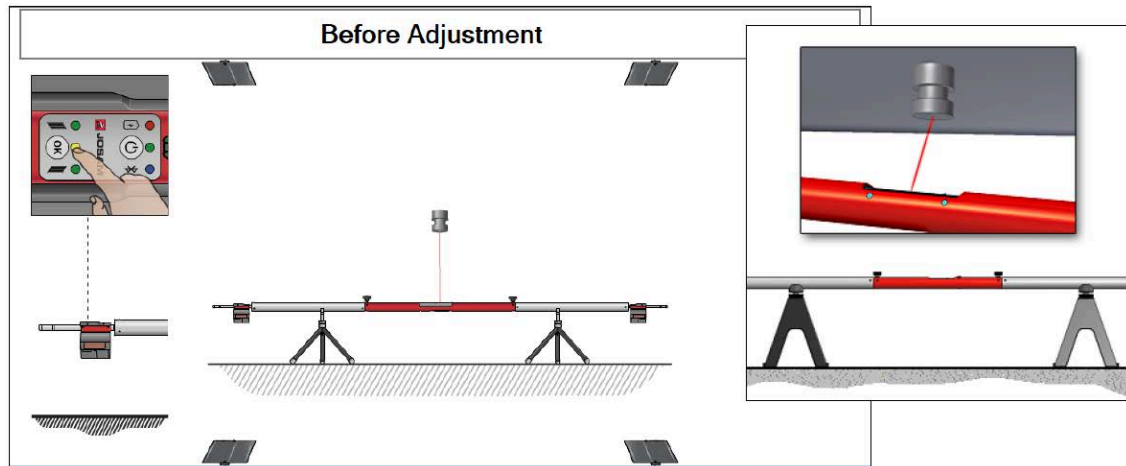
11.3 Measure with trailer bar



You need the trailer bar tool to be able to perform this measurement

1.	Start by creating a new order.	
2.	Press [Measure]	
If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.		
3.		
	Tell the software that you wish to use the Trailer bar tool. Then press [Next]	
4.	Mount a wheel adapter on each wheel of the vehicle.	
5.	Mount and level the Trailer bar tool between the frame rails as close to the front of the semi trailer as possible.	

6.

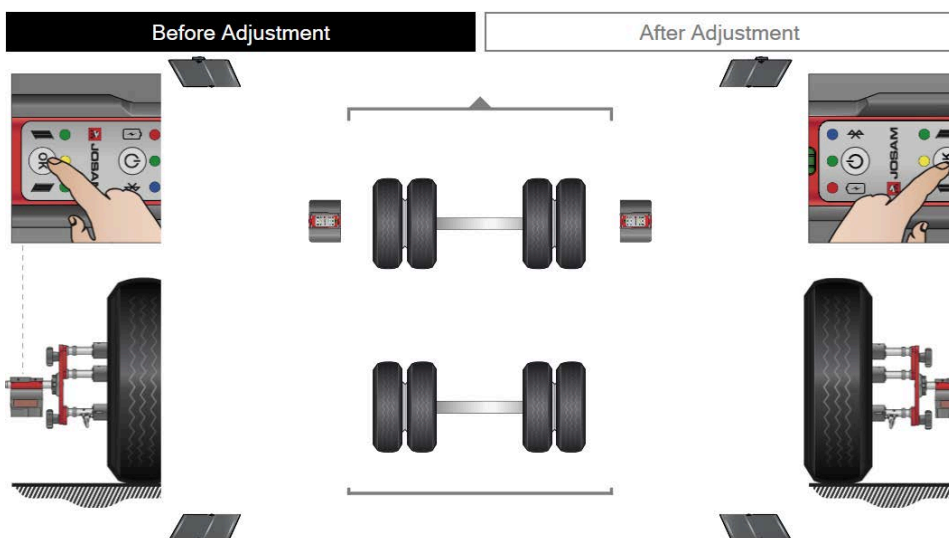


Place both measuring heads on the trailer bar. Place the trailer bar on two stands directly under the semi trailer king-pin. Level the semi trailer bar using the bubble. Switch the laser on and point it at the centre of the king-pin.

Then press **OK** on the measuring heads to start levelling the trailer bar. Adjust the trailer bar in level, indicated with green digits, using the instructions on the display. When ready move the trailer bar sideways so that the laser points exactly in the centre of the king-pin. Then press **OK** or push the button on one of the measuring heads.

Make sure that the tool is centered between the frame rails.

7.

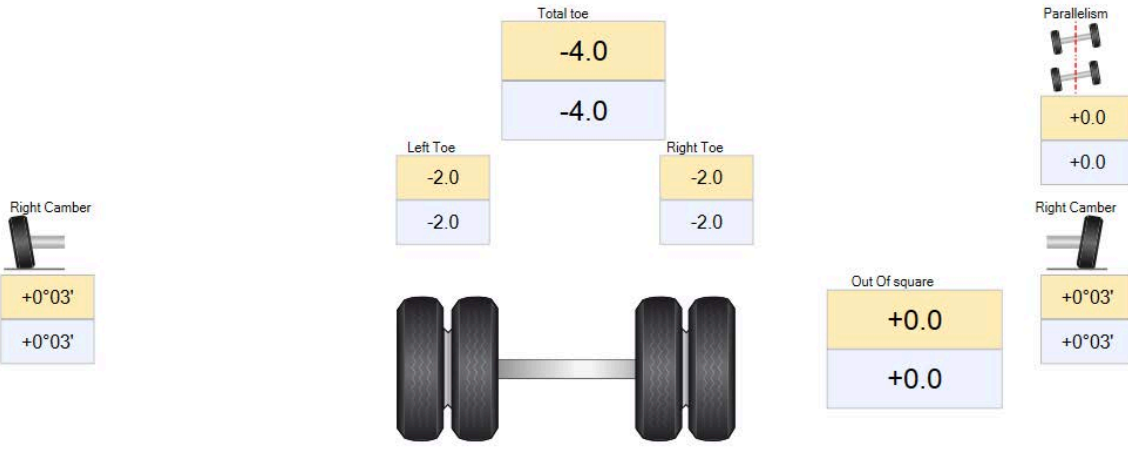


Start the flow by placing a measuring head on the Trailer bar tool and press the button on the measuring head to take the initial measurements.

When the software has registered the measurements the operator moves the measuring head to the first axle, which will be measured the same way. All wheels including the Trailer bar tool must be measured according to the instructions given in the software.

When the wheels have been measured the operator is instructed to rotate the wheels 180°. This can be accomplished by lifting the axle and rotate the wheels 180°





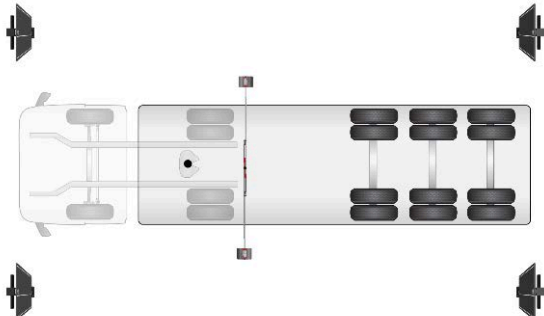

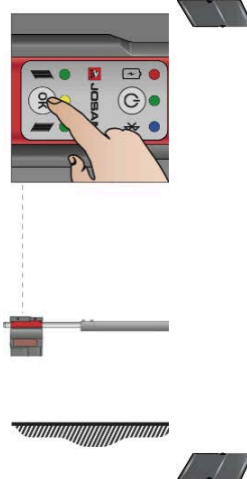
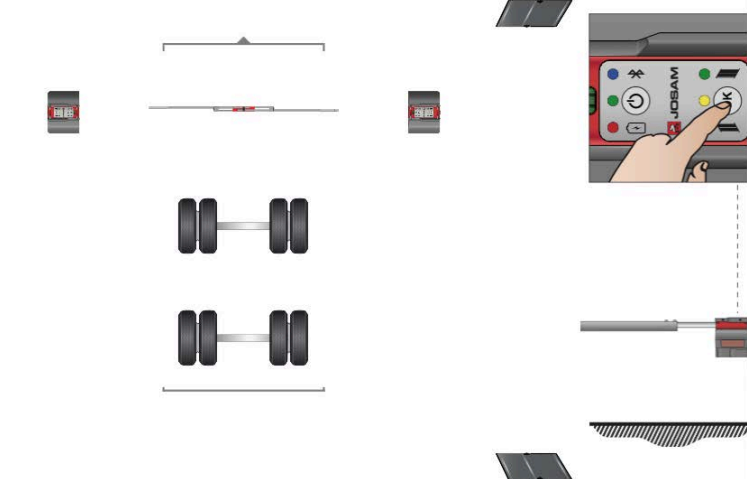

8.	Perform a second measurement, starting as instructed in the software.
9.	<div style="text-align: center;">  </div> <p>The software will display the results for toe, camber, out of square and parallelism measurements.</p>

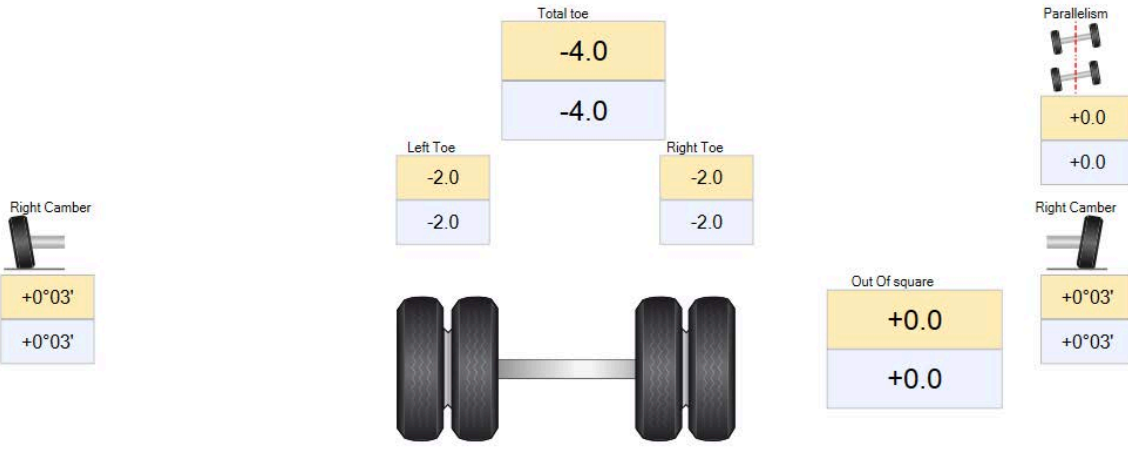
11.4 Measure with Semi Trailer tool



You need the Semi trailer tool to be able to perform this measurement

1.	Start by creating a new order.	
2.	Press [Measure]	
<p>If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.</p>		

3.	 <div data-bbox="379 537 925 728"> <p>Scales are mounted on vehicle</p> <p>Use trailer bar</p> <p><input checked="" type="checkbox"/> Use Semi Trailer tool</p> <p><input type="checkbox"/> Scales are reversed</p> </div>
	<p>Tell the software that you wish to use the Semi trailer tool. Then press [Next]</p> <div data-bbox="1141 757 1260 824">  </div>
4.	Mount a wheel adapter on each wheel of the vehicle.
5.	Mount and level the Semi trailer tool between the frame rails as close to the front of the trailer as possible.
Make sure that the tool is centered between the frame rails.	
6.	<div data-bbox="231 1037 1244 1563"> <div> <p>Before Adjustment</p>  </div> <div> <p>After Adjustment</p>  </div> </div> <p>Start the flow by placing both measuring heads on the Semi trailer tool and press the button on each measuring head to take the initial measurements.</p> <p>When the software has registered the measurements the operator moves the measuring head to the first axle, which will be measured the same way. All wheels including the Semi trailer tool must be measured according to the instructions given in the software.</p>
	<p>When the wheels have been measured the operator is instructed to rotate the wheels 180°. This can be accomplished by pulling the trailer forward or backward until the stop sign appears.</p> <div data-bbox="1141 1753 1396 1960">  </div>

7.	Perform a second measurement, starting as instructed in the software.
8.	 <p>The software will display the results for toe, camber, out of square and parallelism measurements.</p>

12 Measure a combined vehicle

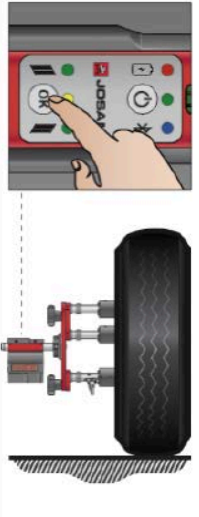
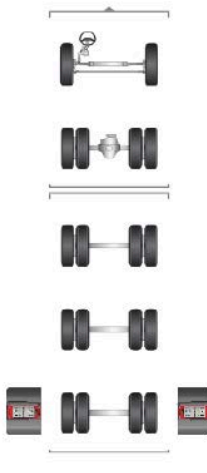
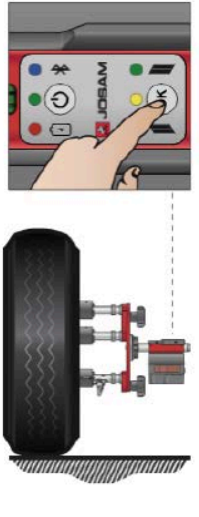


Start by creating a new order, see [4 "Create a work order", page 19](#).

12.1 Conditions

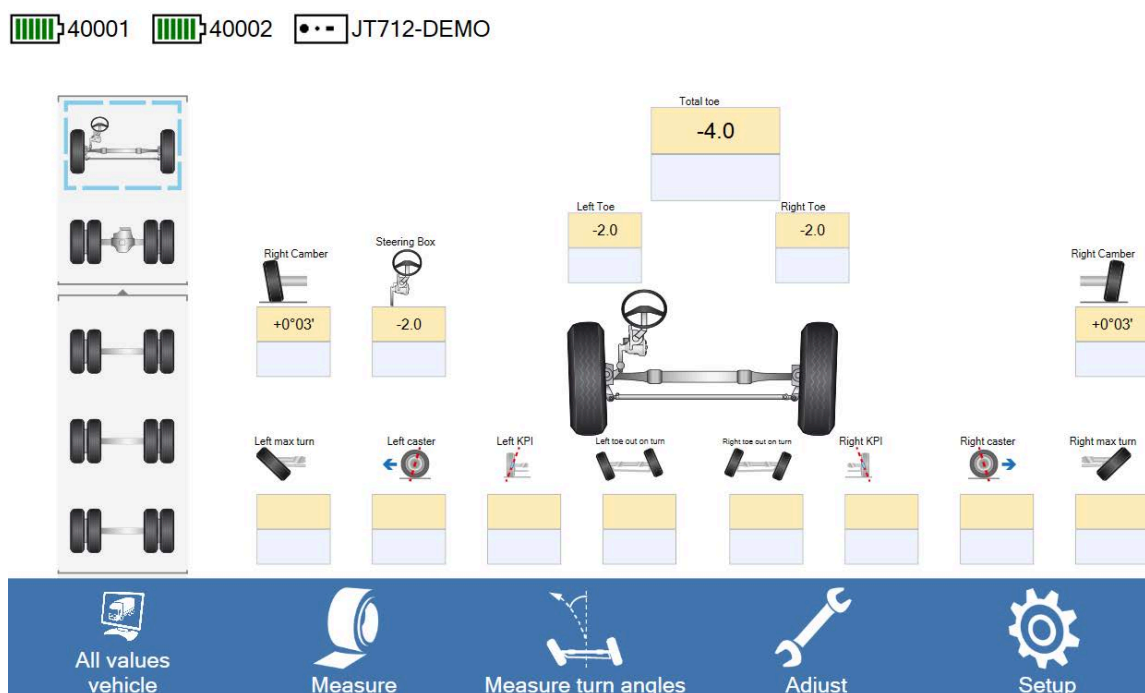


All axles are measured simultaneously before adjustment. Mount a wheel adapter on each wheel of both vehicles. Make sure that all wheel adapters are levelled. Lock the steering wheel in the straight ahead position.

12.2 Measure

<p>1.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div> <p>Place the measuring head on the wheel adapter on the rear axle.</p> <p>Press the button on the measuring head to start the measurements for toe, camber and wheel position for that particular wheel. When the software has registered the data the user interface moves the measuring head to the axle in front, which can be measured the same way.</p> <p>There is no specified measuring flow other than that all wheels must be measured according to the instructions given in the software.</p>
<p>2.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 65%;"> <p>When all wheels have been measured the operator is instructed to roll all wheels 180°. Rotate the wheels 180°.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>i Do not use the measuring equipment to rotate the wheel!</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>i For vehicle with varying tire sizes: Choose the most common tire size on the vehicle. Then, raise the axles with the deviating tire sizes and rotate the wheels 180°.</p> </div> </div> <div style="width: 30%; text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 65%;"> <p>The software will show a stop sign when vehicle has rolled the required distance.</p> </div> <div style="width: 30%; text-align: center;">  </div> </div>

3.



Perform a second measurement of the toe, camber and wheel position, starting with the front axle. After the rolling measurement, the software has measured toe, camber, parallelism and steering box position.



When performing measurement of a combined vehicle, the values for the semi-trailer will only be shown for toe, camber and parallelism. No out-of-square will be presented on the semi-trailer. This is because the out-of-square value for the connected semi-trailer cannot be calculated with precision. The tractor unit, however, will have all horizontal angles presented.



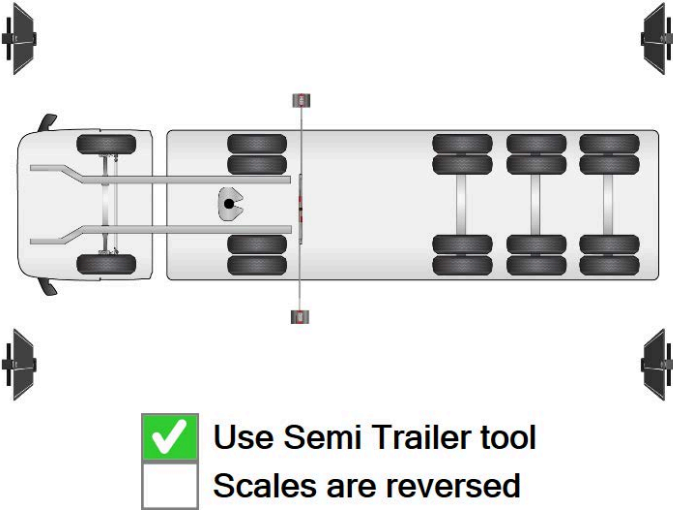

To measure and adjust the semi-trailer correctly, it is strongly recommended to separate it from the tractor and measure it using self-centering frame gauges hung front and rear, or by using the trailer bar.

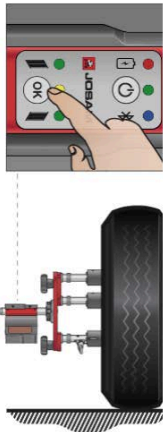
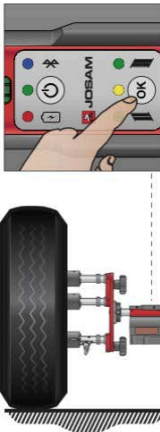

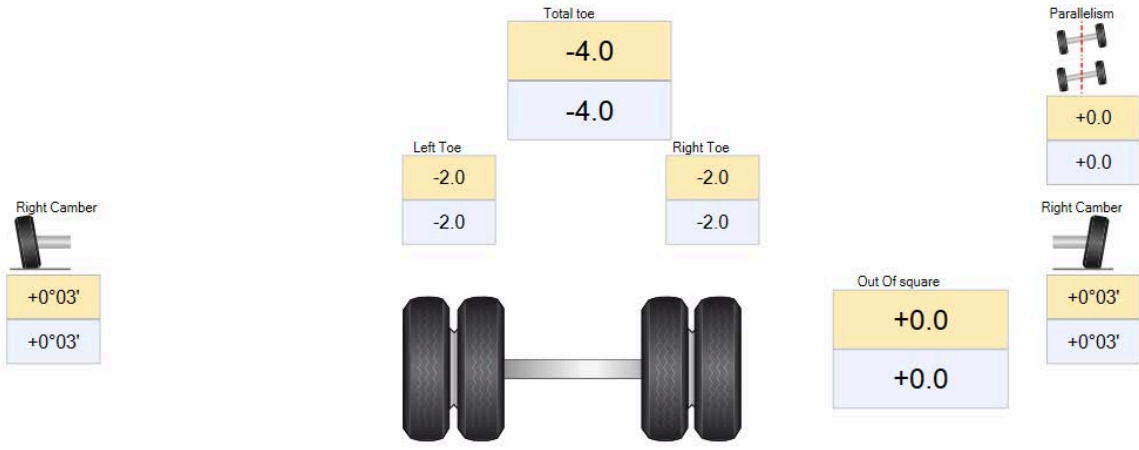
12.3 Measure with Semi Trailer tool



You need the Semi trailer tool to be able to perform this measurement

Hang reference targets on the vehicle. Make sure to cover existing scales in the workshop bay. All axles are measured individually.

1.	Start by creating a new order.	
2.	Mount a wheel adapter on each wheel of the vehicle.	
3.	Mount and level the Semi trailer tool between the frame rails as close to the front of the combined vehicle as possible. Make sure that the tool is centered between the frame rails.	
4.	Press [Measure]	
If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the [Laser System -> Equipment] tab.		
5.	 <div> <input checked="" type="checkbox"/> Use Semi Trailer tool <input type="checkbox"/> Scales are reversed </div>	
Tell the software that you wish to use the Semi trailer tool. Then press [Next]		

6.	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div> <p>Start the flow by placing a measuring head on the Semi trailer tool and press the button on the measuring head to take the initial measurements.</p> <p>When the software has registered the measurements the operator moves the measuring head to the first axle, which will be measured the same way. All wheels including the Semi trailer tool must be measured according to the instructions given in the software.</p> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 20px;"> <div style="width: 60%;"> <p>When the wheels have been measured the operator is instructed to rotate the wheels 180°. This can be accomplished by pulling the combined vehicle forward or backward until the stop sign appears.</p> </div> <div style="width: 35%; text-align: center;">  </div> </div>
7.	Perform a second measurement, starting as instructed in the software.
8.	<div style="text-align: center; margin-bottom: 20px;">  </div> <p>The software will display the results for toe, camber, out of square and parallelism measurements.</p>


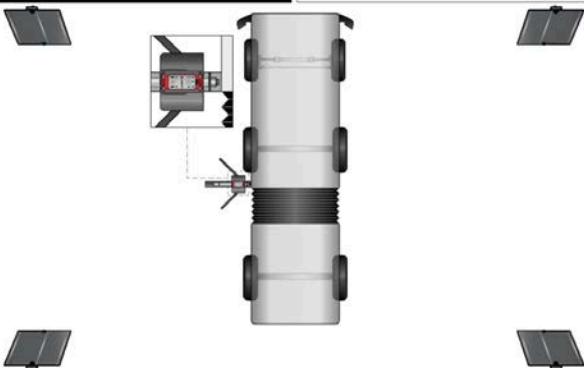
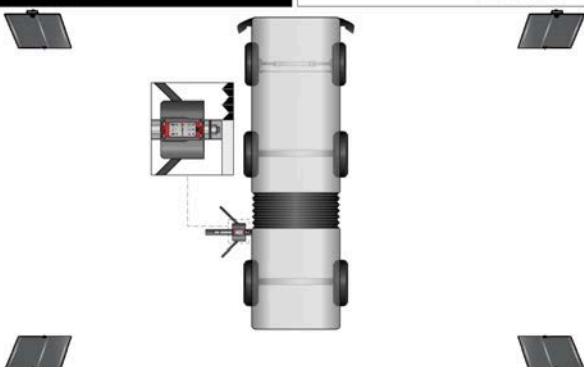
13 Measure an articulated bus



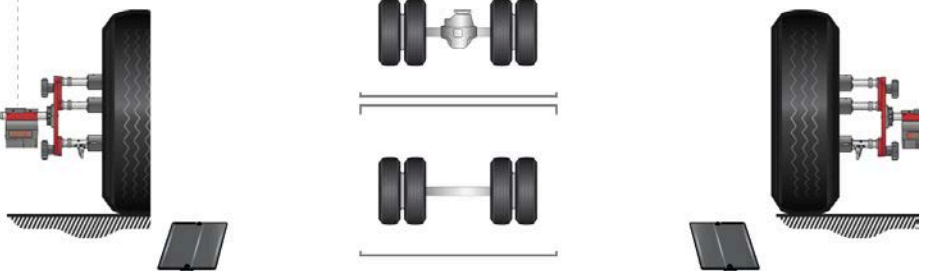



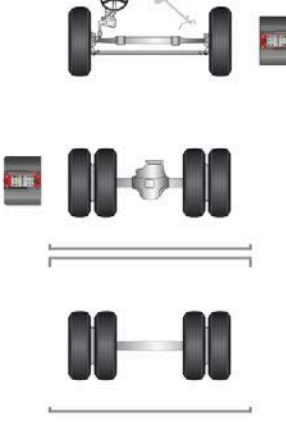
Start by creating a new order, see [4 "Create a work order", page 19](#).

With the I-track II measuring method, all axles are measured simultaneously before adjustment. Mount a wheel adapter on each wheel of the vehicle and make sure that they are levelled. Lock the steering wheel in straight ahead position.

If the centre line tool option is checked, the system will proceed to chapter ["9.2 Measure toe and camber, using centreline tool", page 37](#).

If the centre line tool is not selected in setup, the measurement process will proceed with measuring using the articulated bus stand.

<p>1.</p>	 <div data-bbox="268 987 1161 1391"> <div> <div>Before Adjustment</div> <div>After Adjustment</div> </div>  <p>Place the stand in the front part of the bus, just in front of the "accordion". Make sure the stand touches the bus body. Press [OK].</p> </div>
<p>2.</p>	<div data-bbox="268 1469 1161 1872"> <div> <div>Before Adjustment</div> <div>After Adjustment</div> </div>  <p>Place the stand in the rear part of the bus, just rear of the "accordion". Make sure the stand touches the bus body. Press [OK]</p> </div>

3.	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div>  <p>Then place the stand in the rear part of the bus, just behind the "accordion". Make sure the stand touches the bus body. Press [OK].</p>
4.	Mount the measuring head on the wheel adapter as instructed by the software.
5.	Press [OK] to start the measurements for toe, camber and wheel position for that particular wheel. Repeat the process on the wheels on both sides of the axle, one at a time.
6.	<div style="display: flex;"> <div style="flex: 1;"> <p>When all wheels have been measured the operator is instructed to roll all wheels 180°. During rolling the screen will display the distance needed to roll. The software always displays the direction in which the vehicle is physically moving.</p> <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p>i Do not use the measuring equipment to rotate the wheel!</p> </div> </div> <div style="flex: 0.5; text-align: center;">  </div> </div>
7.	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before Adjustment</p>  </div> <div style="text-align: center;"> <p>After Adjustment</p>  </div> </div>  <p>Repeat the process from front to rear</p>
8.	After rolling, all wheels have to be measured again by moving the measuring head according to the software instructions.
9.	After the second measurement the software has measured toe, camber, out of square, parallelism and steering box position alignment.

14 Measure caster, KPI, TOOT and max turn

This mode is used to measure the turn angles on a steering axle. Measuring max turn angles uses the camber values by default.




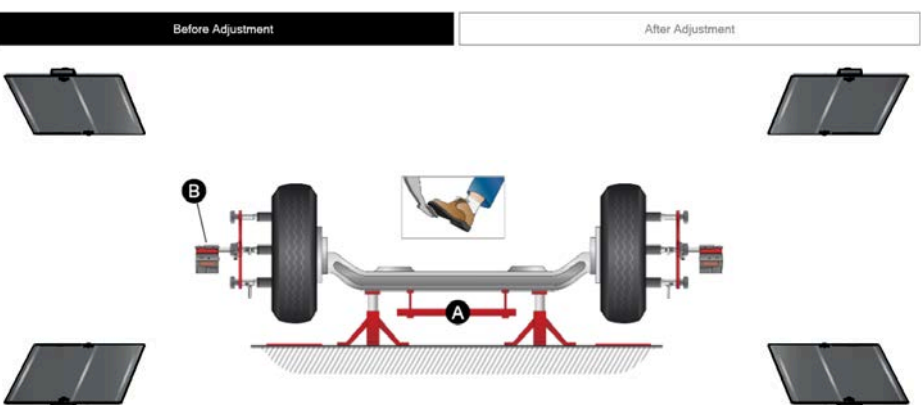
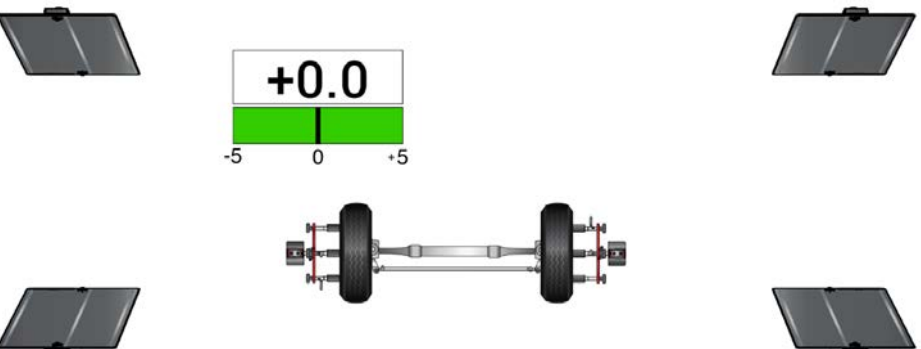
Attention


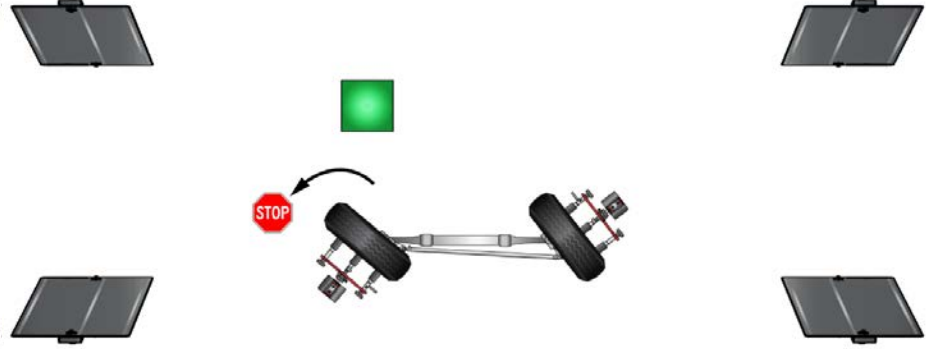
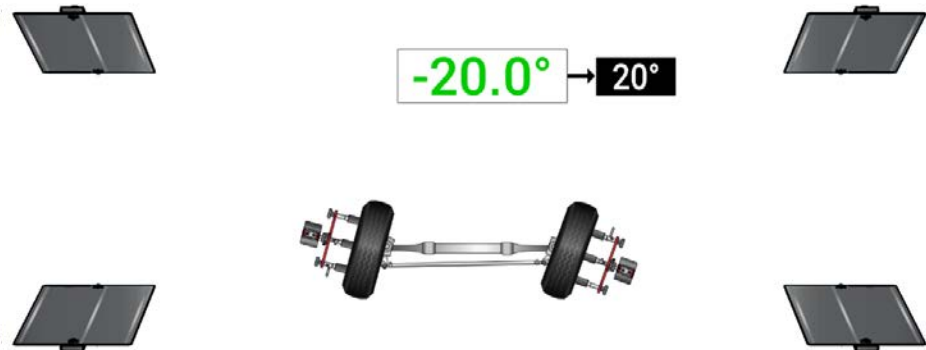
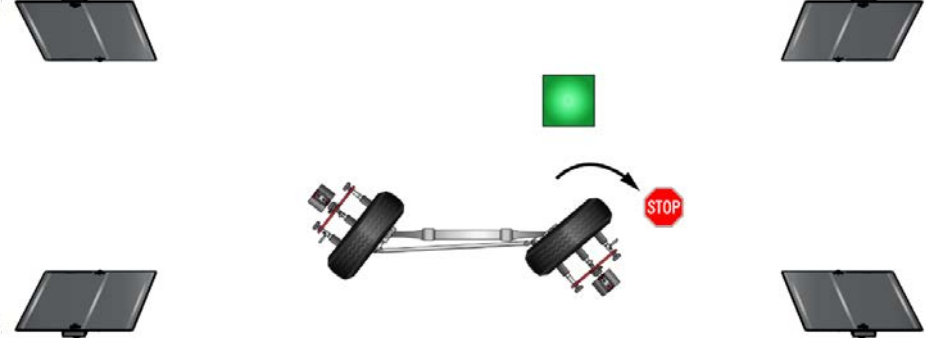
Hazard: Brake the wheels of the axle to be measured.

Risk: Measurement will not be correct

How to avoid: Brake the wheels of the axle to be measured.

14.1 Measuring steps for all turn-related angles

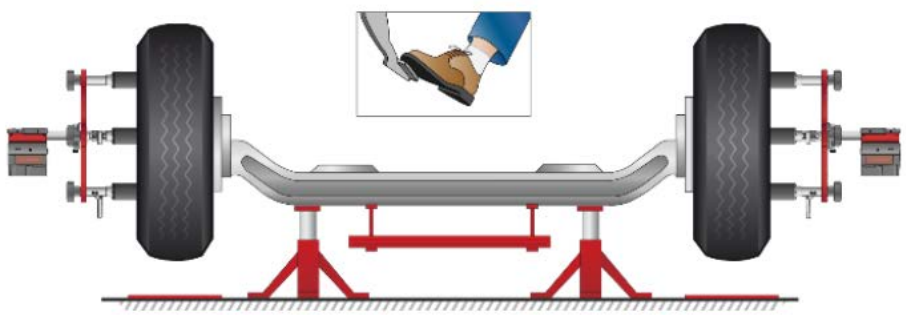



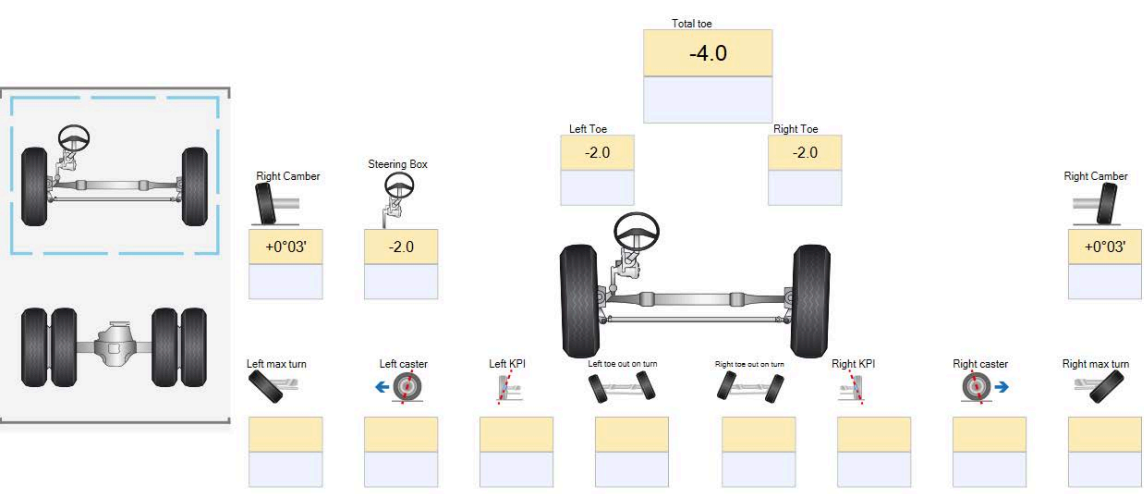







1.	Click on [Measure turn angles]	
2.	<div> <div>Before Adjustment</div> <div>After Adjustment</div> </div>  <p>Check that the steering axle is slightly lifted above floor with two jacks and levelled. Use spirit level (A).</p>	
3.	Check the bubble (B) on the wheel adapter to make sure it is levelled.	
4.	Mount the measuring heads on the wheel adapters.	
5.	 <p>Put the steering wheel in straight forward position. <u>Brake the front wheels!</u></p>	
6.	The software will now proceed automatically.	

7.	 <p>Turn the wheels gently 20° to the left or until the figures are displayed in green.</p>
8.	<p>Wait for I-track II to continue.</p>
9.	 <p>Turn the wheels gently to the maximum left.</p>
10.	<p>Wait until the square illuminates.</p>
11.	 <p>Turn the wheels gently 20° to the right.</p>
12.	<p>Wait for I-track II to continue.</p>
13.	 <p>Turn the wheels gently to the maximum right.</p>

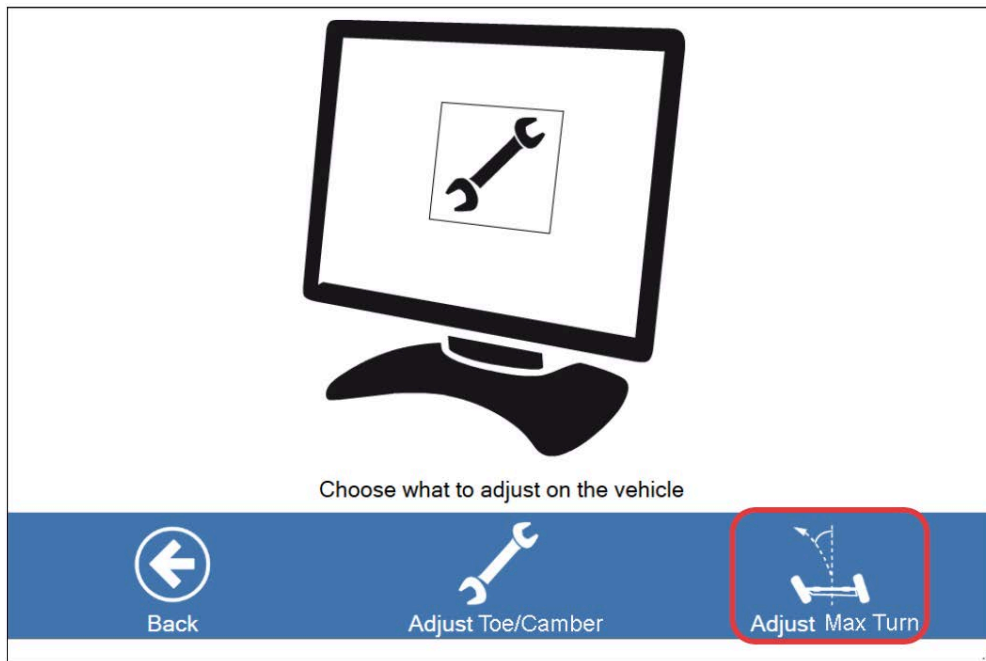
14.	Wait until the green square illuminates.
15.	Put the steering wheel in straight forward position.

14.2 Adjust max turn

The Adjust max turn mode displays live values under measurement. Adjust max turn is made after toe, camber and max turn measurements.

1.	 <p>Brake the wheels.</p>
2.	Make sure that the steering axle is slightly jacked up using two jacks and make sure that it is levelled.
3.	Make sure that the measuring heads are mounted on the wheel adapters.
4.	<div> <div>  40001  40002  JT712-DEMO </div> <div>  </div> <div> <div>  All values vehicle  Measure  Measure turn angles  ADAS/Safety System Calibration  Adjust  Setup </div> </div> </div> <div> <p>Note that all turn angles need to be measured before adjustment can be made.</p> <p>Click on [Adjust]</p> </div> <div>  Adjust </div>

5.


In the main window click on **[Adjust max turn]**

6. Live values are shown in the adjust max turn window.


7.

Turn the steering wheel to the left and press **[Next]** when finished adjusting.


8.







 Back

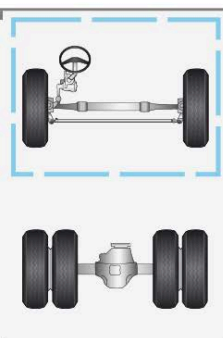

 Leave and Save

Turn the steering wheel to the right and press **[Leave and Save]** when finished adjusting.

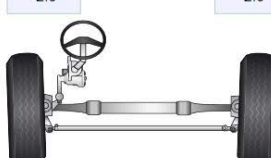



9.

 40001
 40002
 JT712-DEMO




Total toe	
-4.0	-4.0
Left Toe	Right Toe
-2.0	-2.0
-2.0	-2.0






+0°03'

+0°03'




+0°03'

+0°03'




22.5°

25.9°




+5°59'

+5°59'




+0°00'

+0°00'




-0°06'

-0°06'




+0°06'

+0°06'




+0°00'

+0°00'




-5°57'


-5°57'





-19.9°


-19.9°


 All values vehicle

 Measure

 Measure turn angles

 ADAS/Safety System Calibration

 Adjust

 Setup

When the result window appears, the results are saved. See the values marked with red circles.

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Operator Manual


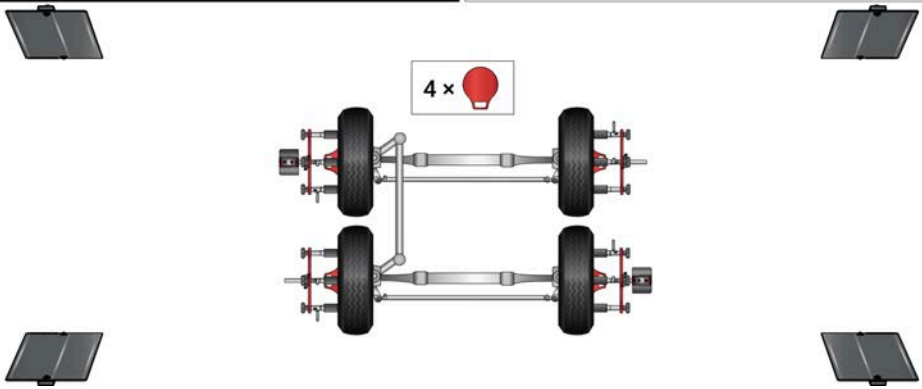

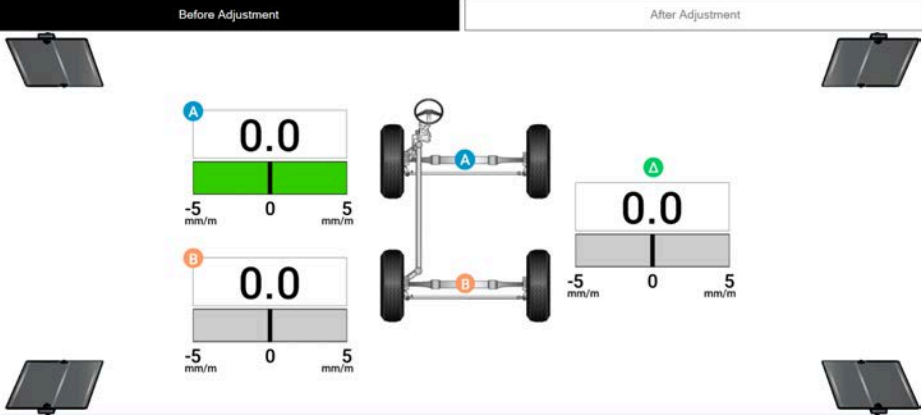

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15 Measure twinsteer axles

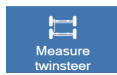
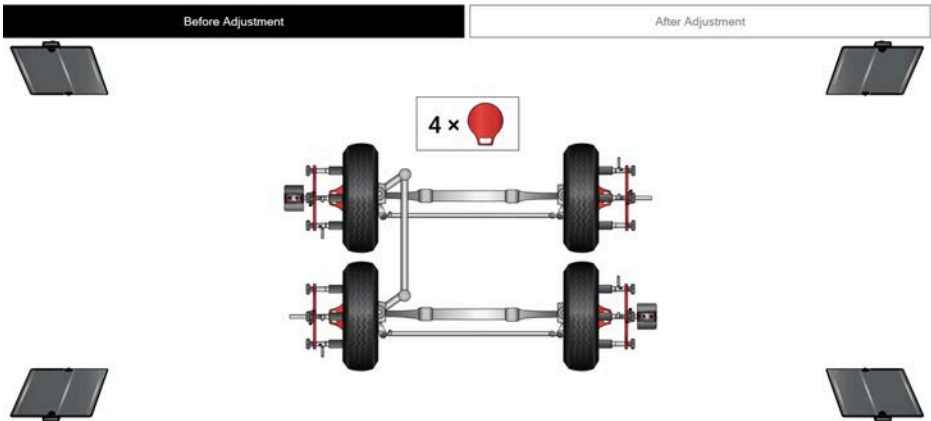

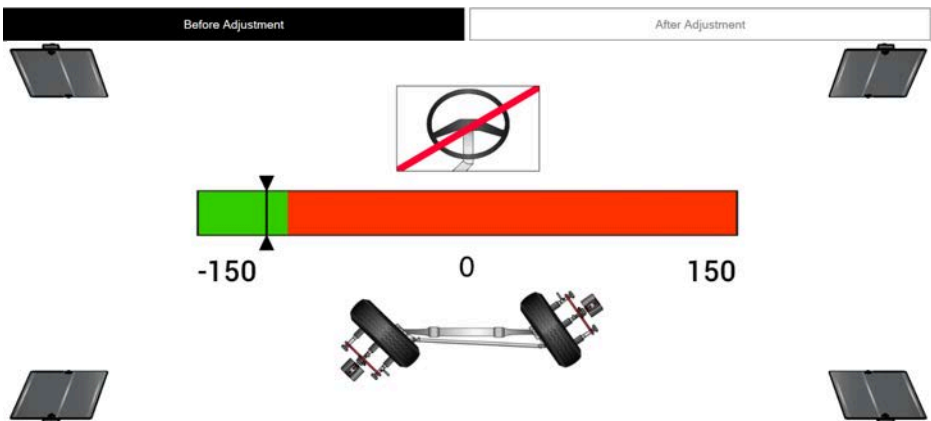
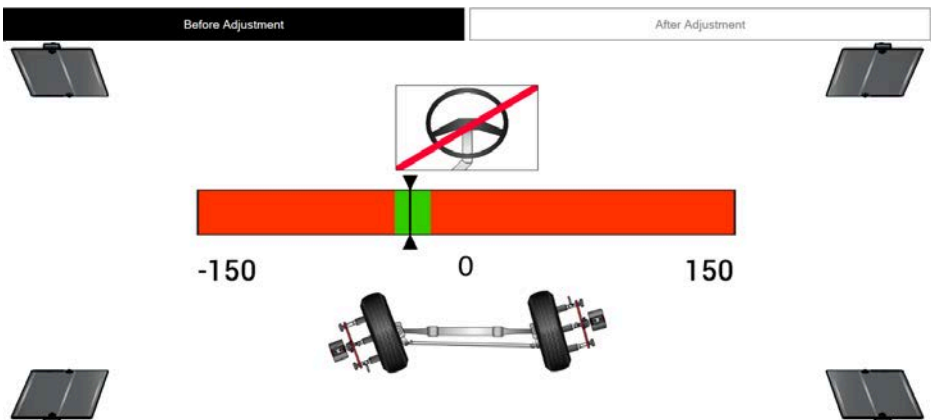
The Twinsteer axle menu is used to measure the parallelism of two steering axles. There are two methods implemented in the software, one including measurement of play and one without play. To change method, see [3 "Software settings", page 14](#)

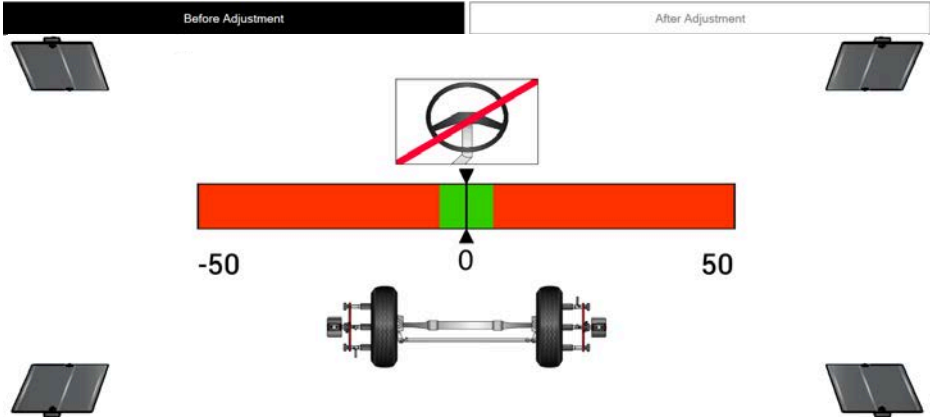
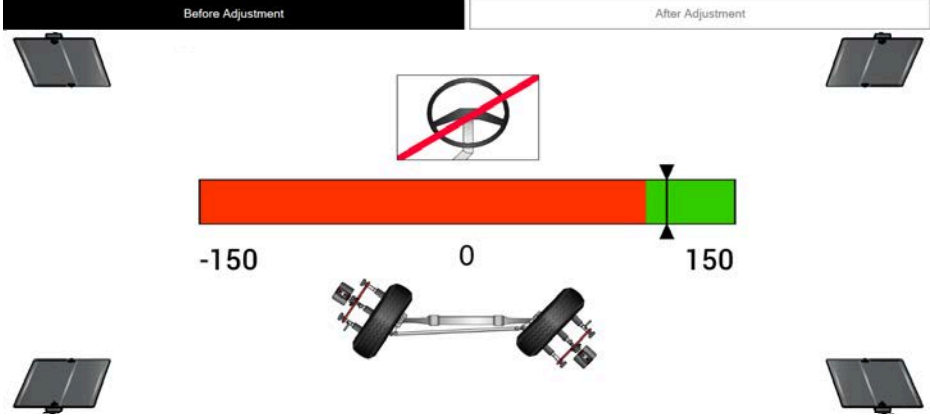
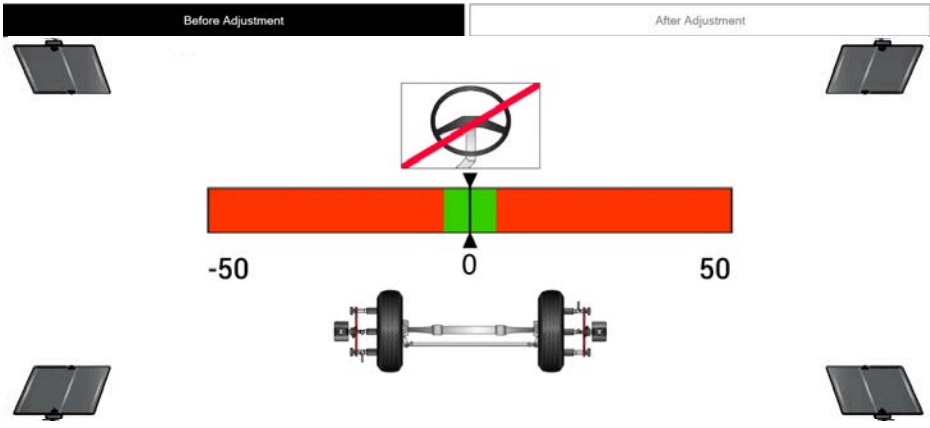
The methods in the following pages are described for left hand steering.

15.1 Measure without play procedure

1.	Perform a toe and camber measurement on all axles. For measurement procedure see 9.3 "Adjust toe and camber", page 41	
2.	Lift both axles and put low friction plates under the wheels. Make sure the wheels don't rotate.	
3.	Select the axle you would like to align with the first steering axle. Click on [Measure Twinsteer]	
4.	<div> <div>Before Adjustment</div> <div>After Adjustment</div> </div> 	
	Mount the measuring heads on both steering axles as displayed on the screen.	
5.	Press [Next] in the software.	
6.	<div> <div>Before Adjustment</div> <div>After Adjustment</div> </div> 	
	Turn the steering wheel until position A is displayed in green.	
7.	Press [Next] to save the result.	

15.2 Measure twinsteer with play procedure

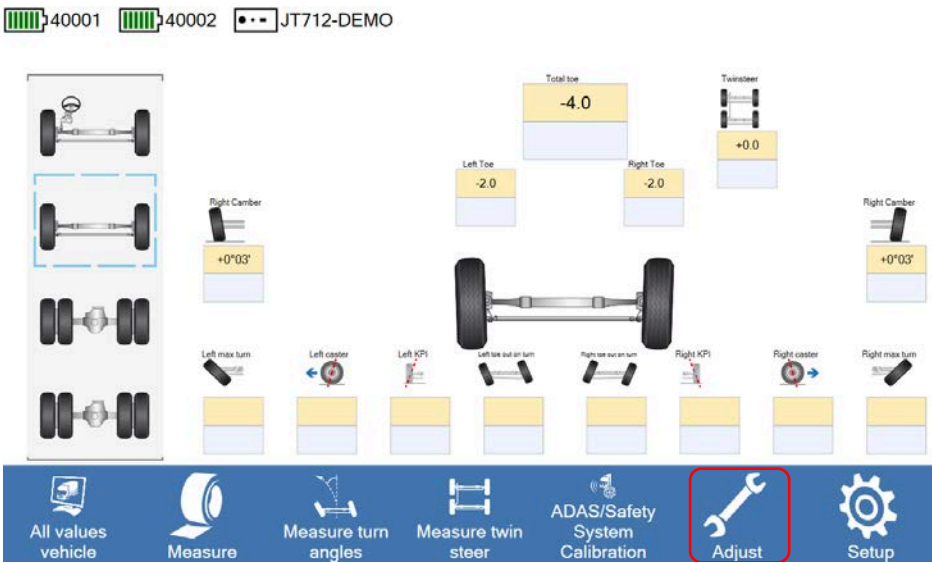
1.	Perform a toe and camber measurement on all axles. For measurement procedure see 9.3 "Adjust toe and camber", page 41 .	
2.	Lift both axles and put low friction plates under the wheels. Make sure the wheels don't rotate.	
3.	Select the axle you would like to align with the first steering axle. Click on [Measure Twinsteer]	
4.	 <p>Mount the measuring heads on both steering axles as displayed on screen.</p>	
5.	Press [Next] in the software.	
6.	Centre the steering wheel until the marker is within the green area.	
7.	 <p>Turn the wheel gently out to the green area (at least -100 mm/m).</p>	
8.	 <p>Turn the wheel gently back to the green area (between -25 and -35 mm/m).</p>	

9.	<div data-bbox="231 201 1165 616"> <div>Before Adjustment</div> <div>After Adjustment</div>  <p>-50 0 50</p> </div> <p>Centre the steering wheel until the marker is within the green area.</p>
10.	<div data-bbox="231 683 1165 1097"> <div>Before Adjustment</div> <div>After Adjustment</div>  <p>-150 0 150</p> </div> <p>Turn the wheel gently out to the green area (at least +100 mm/m).</p>
11.	<div data-bbox="231 1153 1165 1579"> <div>Before Adjustment</div> <div>After Adjustment</div>  <p>-50 0 50</p> </div> <p>Centre the steering wheel until the marker is within the green area.</p>
12.	<p>The measurement is now completed. The values are automatically saved.</p>

16 Adjust twinsteer axles


The Adjust twinsteer axle mode displays the toe values simultaneously during the adjustment of the twin steered axles. Choose the steered axle to adjust from the axle list to the left.

1.



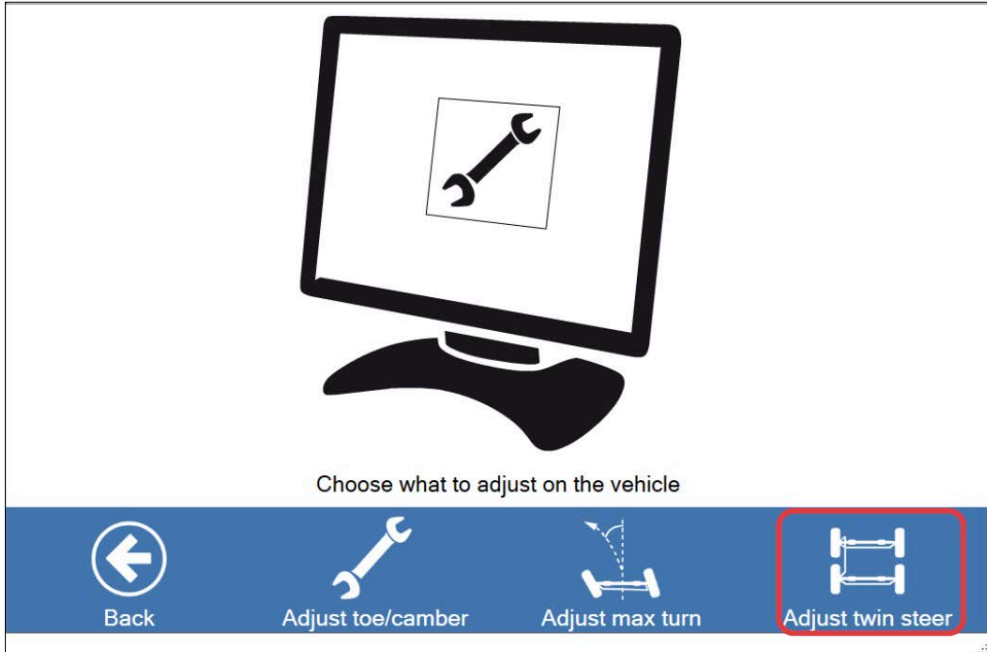
Click on **[Adjust]**

Note that all turn angles need to be measured before adjustment can be made.




Adjust

2.



Click on **[Adjust twinsteer]**

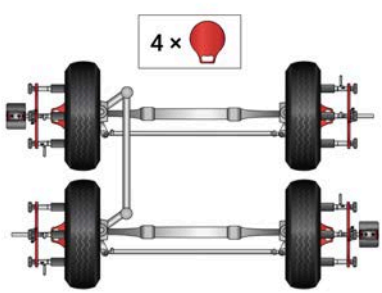

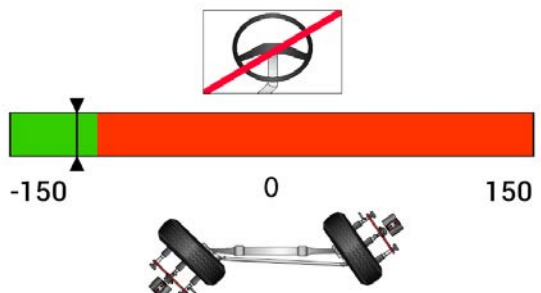
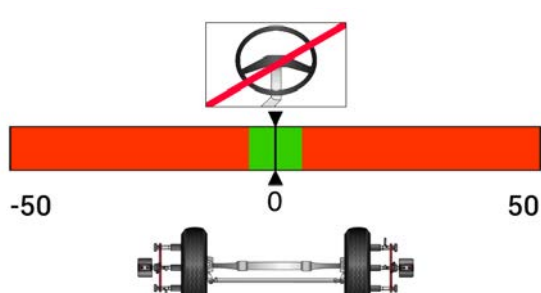


Adjust twin steer

16.1 Adjust twinsteer without play


To adjust twinsteer without play, follow the same procedure as for measuring without play, see [15.1 "Measure without play procedure", page 75](#)

16.2 Adjust twinsteer with play


1.	<div style="display: flex; justify-content: space-between;"> <div style="background-color: black; color: white; padding: 2px;">Before Adjustment</div> <div style="background-color: white; color: gray; padding: 2px;">After Adjustment</div> </div>  <p>Mount the measuring heads on both steering axles as displayed on screen.</p>
2.	<div style="display: flex; justify-content: space-between;"> <div>Click on [Next]</div> <div style="background-color: #007bff; color: white; padding: 5px; border-radius: 5px;">  Next </div> </div>
3.	<div style="display: flex; justify-content: space-between;"> <div style="background-color: black; color: white; padding: 2px;">Before Adjustment</div> <div style="background-color: white; color: gray; padding: 2px;">After Adjustment</div> </div>  <p>Turn the steering wheel to the indicated value on the screen (it will vary depending of the measured twinsteer value).</p>
4.	<div style="display: flex; justify-content: space-between;"> <div style="background-color: black; color: white; padding: 2px;">Before Adjustment</div> <div style="background-color: white; color: gray; padding: 2px;">After Adjustment</div> </div>  <p>Center the steering wheel gently so that the marker is within the green area.</p>

5.

Before Adjustment

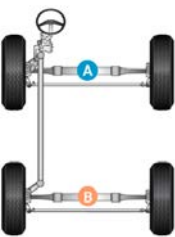


After Adjustment



A

-5 mm/m
5 mm/m
0.0



A

-5 mm/m
5 mm/m
0.0


B

-5 mm/m
5 mm/m
0.0

B

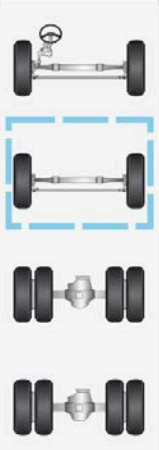
-5 mm/m
5 mm/m
0.0

The system will now display the live values. Press **[Next]** to exit and save the twinsteer value.



Next

6.



Total toe

-5 mm/m
5 mm/m
-4.0

Twinsteer

-5 mm/m
5 mm/m
+0.0

Left Toe

-5 mm/m
5 mm/m
-2.0

Right Toe

-5 mm/m
5 mm/m
-2.0

Left Camber

-5 mm/m
5 mm/m
+0°03'

Right Camber

-5 mm/m
5 mm/m
+0°03'

Left max turn

-5 mm/m
5 mm/m
0.0

Left caster

-5 mm/m
5 mm/m
0.0

Left KPI

-5 mm/m
5 mm/m
0.0

Left toe out on turn

-5 mm/m
5 mm/m
0.0

Right toe out on turn

-5 mm/m
5 mm/m
0.0

Right KPI

-5 mm/m
5 mm/m
0.0


Right caster

-5 mm/m
5 mm/m
0.0

Right max turn

-5 mm/m
5 mm/m
0.0

The results are displayed on the screen.



Next

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17 ADAS/Safety system calibration

ADAS = Advanced driver assistance systems



Attention

Hazard: A wheel alignment must have been made prior to ADAS calibration. Do not move the vehicle after completed wheel alignment.

Risk: Wheel Alignment measurement will not be correct

How to avoid: Do not move the vehicle after completed wheel alignment.




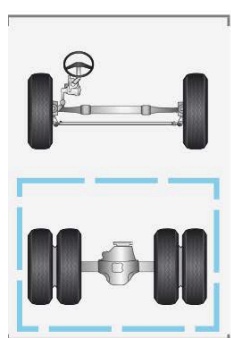






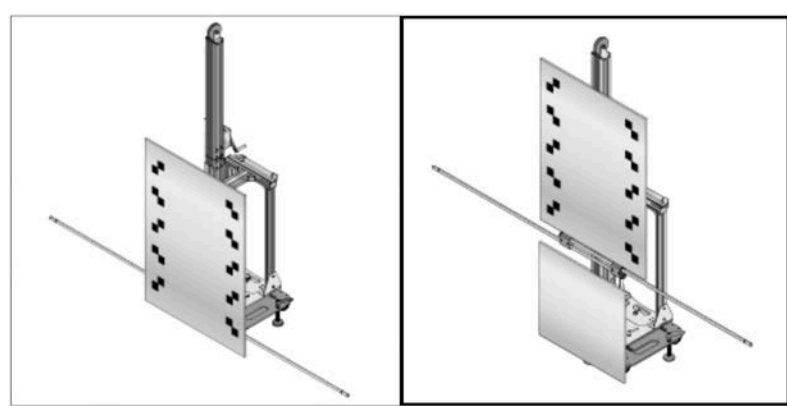



Danger

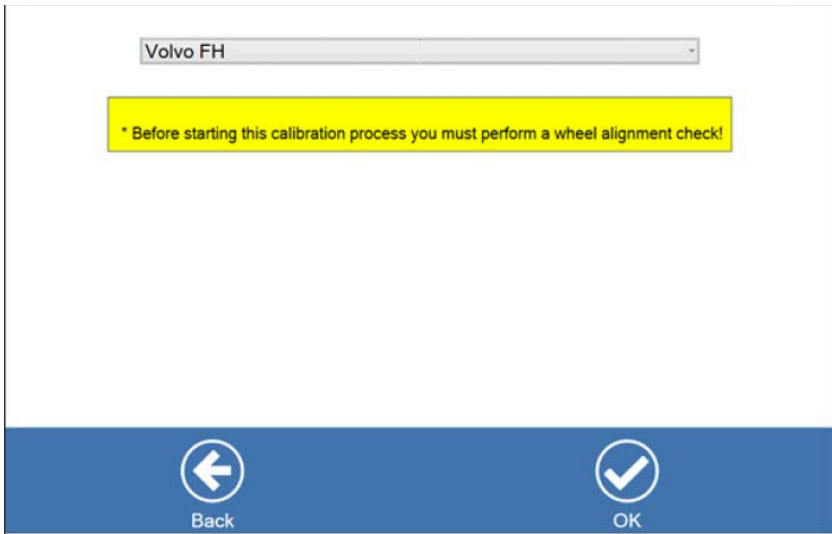


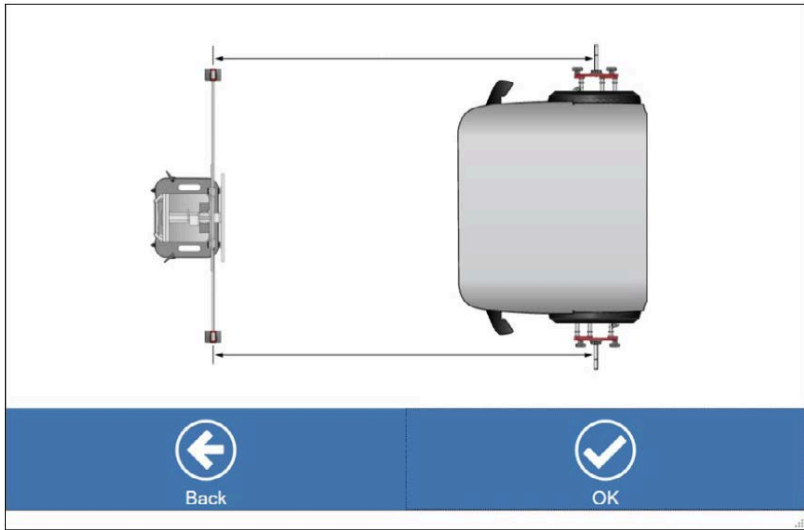

Hazard: Floor obstacles, uneven floor and wind gusts can make the calibration stand unstable. Be cautious when handling the calibration stand near a service pit.

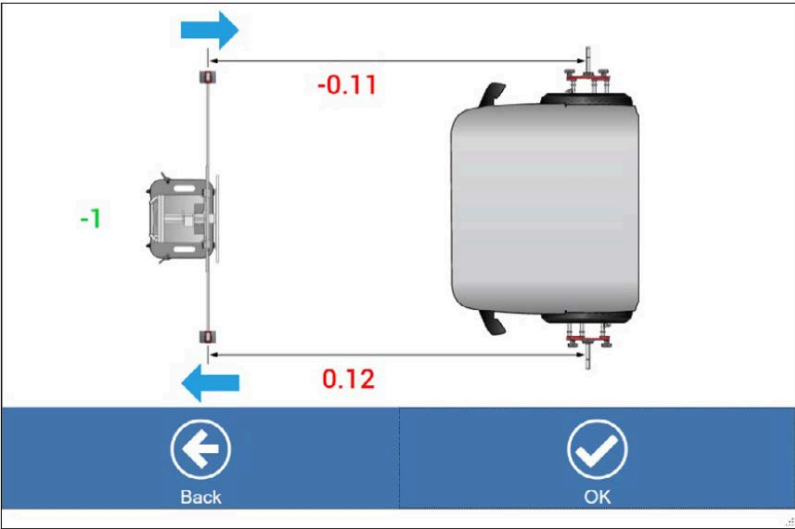
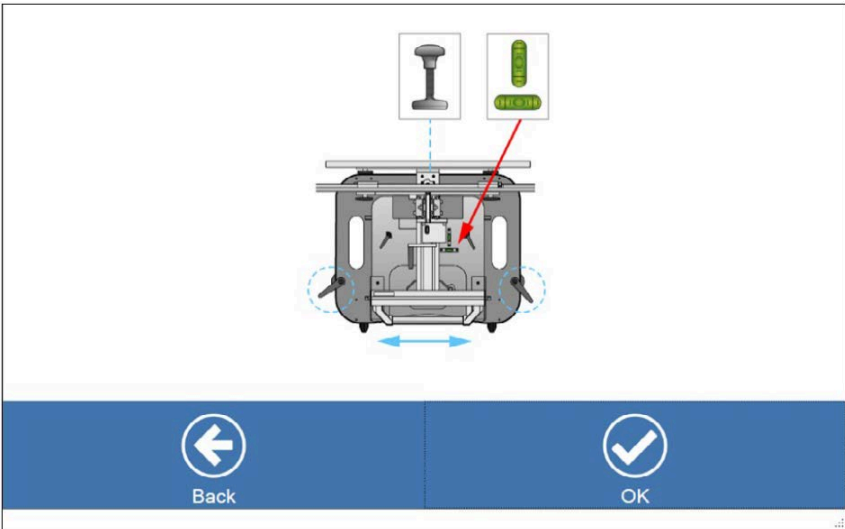

Risk: Obstacle may tip and cause damage or personal injury

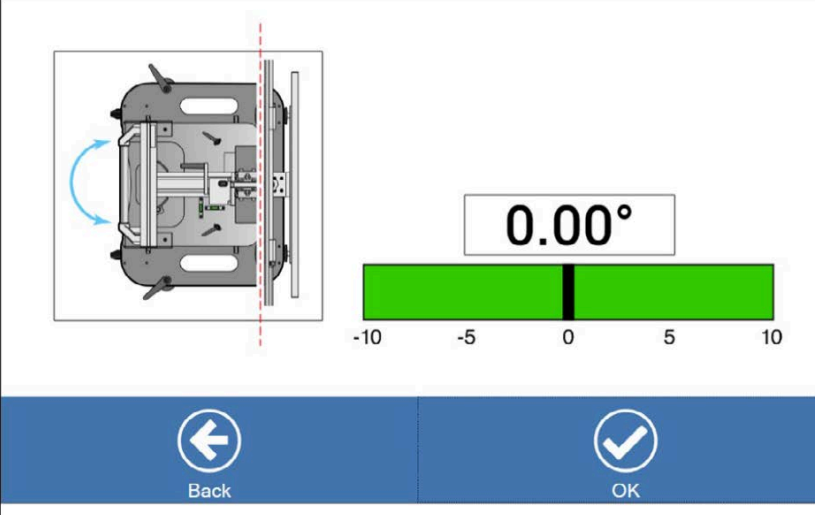

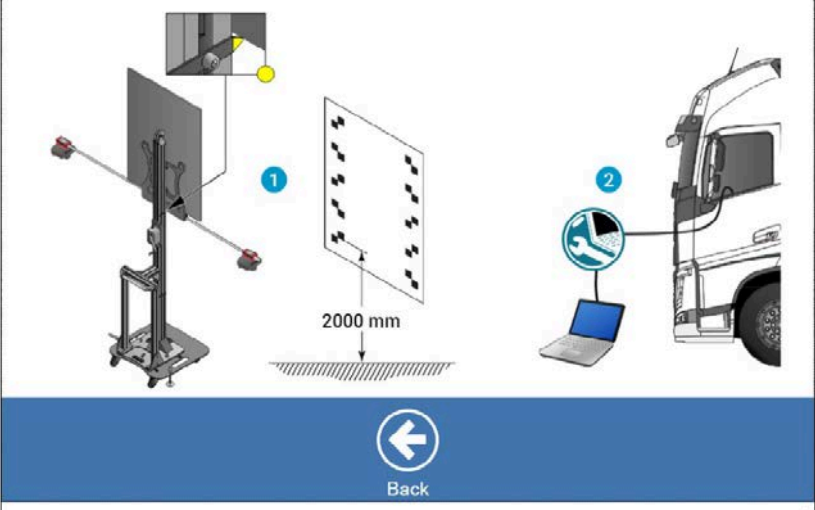
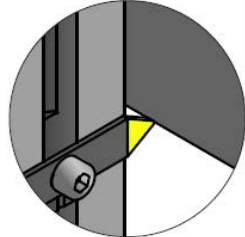
How to avoid: Be cautious when handling the calibration stand near a service pit.

17.1 Measurement with dual board calibration stand

1.	<div data-bbox="263 257 742 313">  40001  40002  JT712-DEMO </div> <div data-bbox="263 403 494 739">  </div> <div data-bbox="502 481 582 627"> <p>Right Camber</p> <p>+0°03'</p> </div> <div data-bbox="798 336 1380 694"> <p>Total toe</p> <p>-4.0</p> <p>Left Toe</p> <p>-2.0</p> <p>Right Toe</p> <p>-2.0</p> <p>Out Of square</p> <p>+0.0</p> <p>Right Camber</p> <p>+0°03'</p> </div> <div data-bbox="263 806 1388 929"> <div>  All values vehicle </div> <div>  Measure </div> <div>  ADAS/Safety System Calibration </div> <div>  Adjust </div> <div>  Setup </div> </div>
	<div data-bbox="263 952 1165 1019"> In the I-Track main window, click on [Adas/Safety System Calibration] </div> <div data-bbox="1173 952 1300 1019">  ADAS/System safety calibration </div>
2.	<div data-bbox="263 1041 1053 1444">  </div> <div data-bbox="263 1467 1053 1579"> <div>  Back </div> <div>  Next </div> </div>
	<div data-bbox="263 1691 1165 1680"> Choose calibrate [FLS/LPOS] and press [Next] </div> <div data-bbox="1173 1691 1300 1680">  Next </div>

3.		
	<p>Select vehicle model and press [OK]</p> <div data-bbox="231 801 323 891">  </div> <div data-bbox="343 801 1109 873"> <p>Make sure that the rods are fully extended until they hit the stop rings. If not done correctly the measurement will be incorrect.</p> </div>	
4.		
	<p>Extend the calibration rods and mount the measuring heads on the rods. Place the target in front of the vehicle perpendicular to the vehicle's centre-line. Click [OK]</p>	

5.	 <p>Move the unit until the correct distances are reached (the blue adjustment arrows disappear and the distance values become green).</p>
6.	 <p>Lower the feet and make sure the platform is levelled. Use the feet adjustment screws to level the platform. Click [OK]</p> <div data-bbox="1185 1391 1299 1462">  </div>

7.		
	Rotate the platform until the angle indicator turns green. Click [OK]	
8.		
	<p>Set the height on target according to the vehicle's configurations given in Tech Tool.</p> <p>When setting the height make sure that the yellow or blue arrow is level with the lower edge of the calibrating target.</p>	
9.	Positioning complete. Calibration in Tech Tool can now be initiated.	

17.2 Measurement with single board calibration stand

1.	<div data-bbox="263 280 646 313"> 40001 40002 JT712-DEMO </div> <div data-bbox="263 336 1165 806"> <div data-bbox="263 716 1165 806"> <div> All values vehicle</div> <div> Measure</div> <div> ADAS/Safety System Calibration</div> <div> Adjust</div> <div> Setup</div> </div> </div>
In the I-Track main window, click on [Adas/Safety System Calibration] <div data-bbox="1181 828 1300 907"> ADAS/System safety calibration </div>	
2.	<div data-bbox="263 918 1061 1467"> <div data-bbox="263 1344 1061 1467"> <div> Back</div> <div> FLS/LPOS</div> <div> FLR/FLC</div> </div> </div> <div data-bbox="263 1467 1444 1653"> <div> Choose calibrate [FLS/LPOS] <div data-bbox="1181 1478 1300 1556"> FLS/LPOS </div> </div> <div> or [FLR/FLC] <div data-bbox="1181 1568 1300 1646"> FLR/FLC </div> </div> </div>

17.2.1 FLS/LPOS

Choose calibrate [FLS/LPOS] and press [Next]



Volvo FH

* Before starting this calibration process you must perform a wheel alignment check!

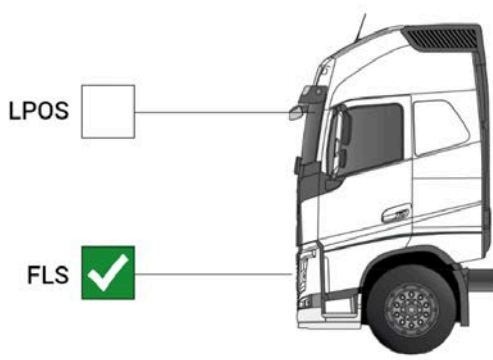
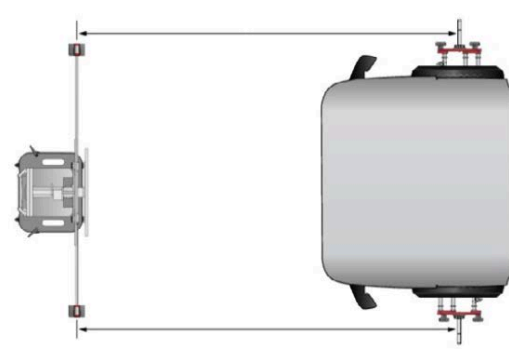

Back

OK

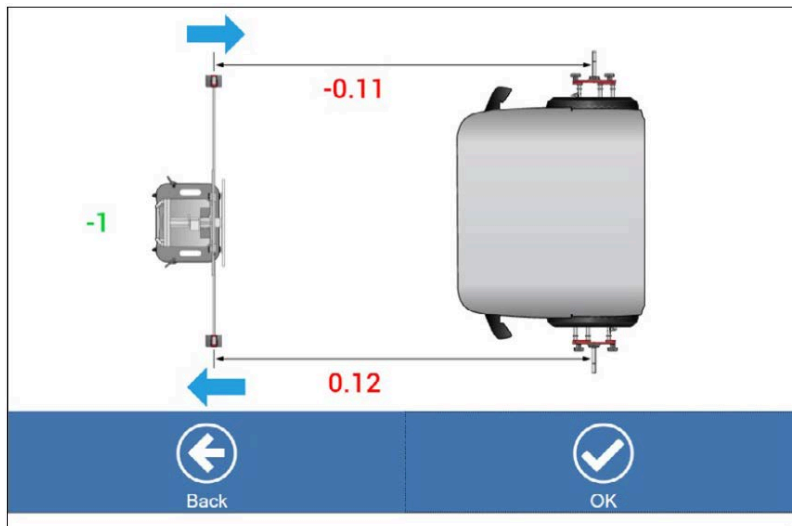
Select vehicle model and press [OK]



17.2.1.1 FLS

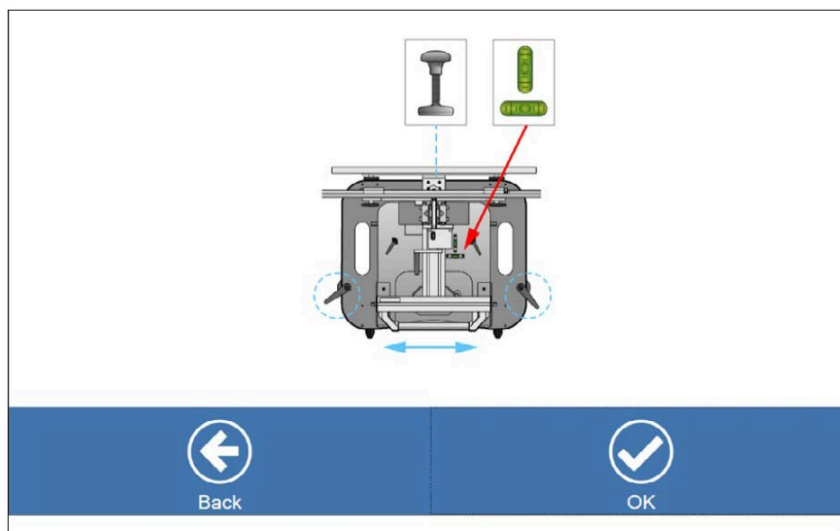
1.	 <div data-bbox="268 676 1008 788"> ← Back ✓ OK </div>	
	Choose calibrate [FLS] and press [Next]	<div data-bbox="1184 810 1300 878"> → Next </div>
2.	 <div data-bbox="268 1303 1072 1429"> ← Back ✓ OK </div>	
	<p>Mount the measuring heads on the calibration rod. Place the target in front of the vehicle perpendicular to the vehicle's centreline. Click [OK]</p> <div data-bbox="268 1534 363 1624">  </div> <p>Make sure that the rods are fully extended until they hit the stop rings. If not done correctly the measurement will be incorrect.</p>	<div data-bbox="1184 1512 1300 1579"> ✓ OK </div>

3.



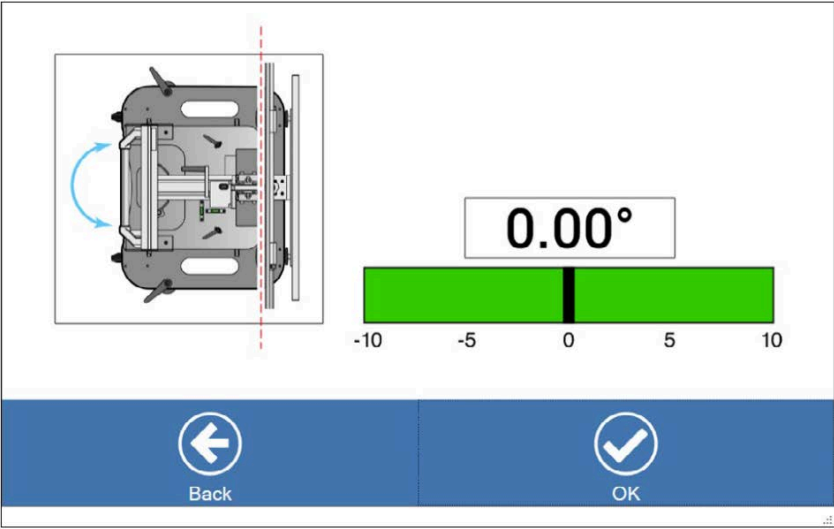

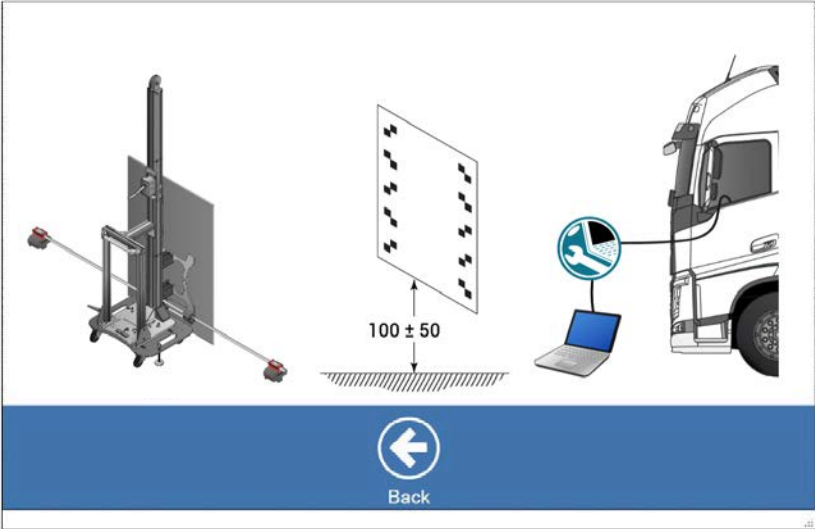
Move the unit until the correct distances are reached (the blue adjustment arrows disappear and the distance values become green).

4.








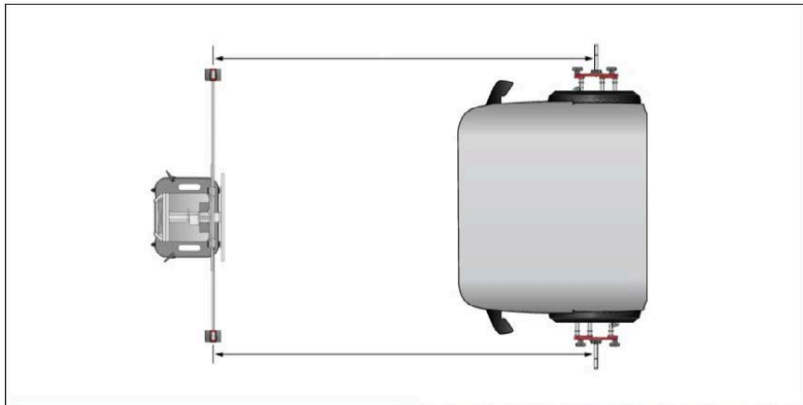





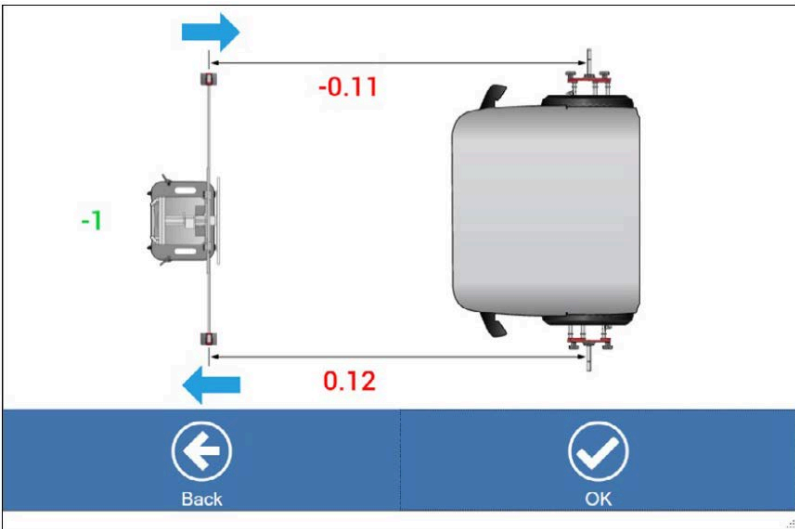
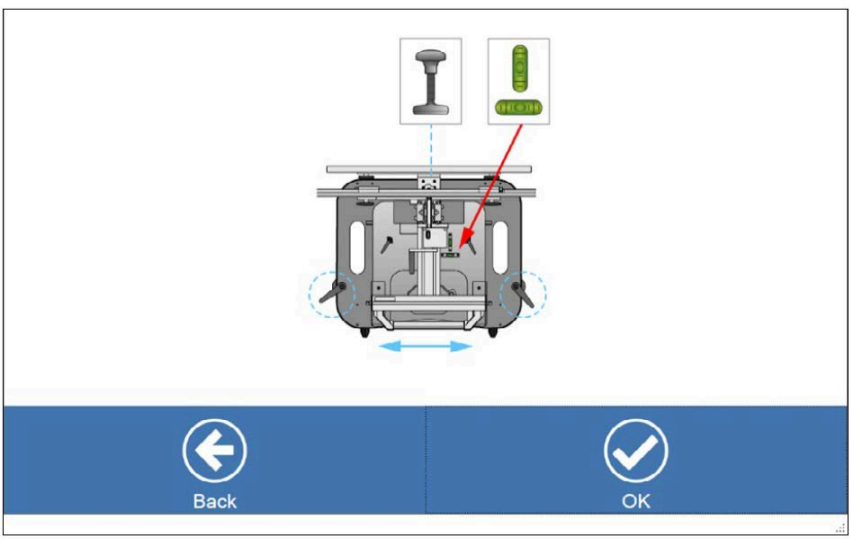
Lower the feet and make sure the platform is levelled.
Click **[OK]**

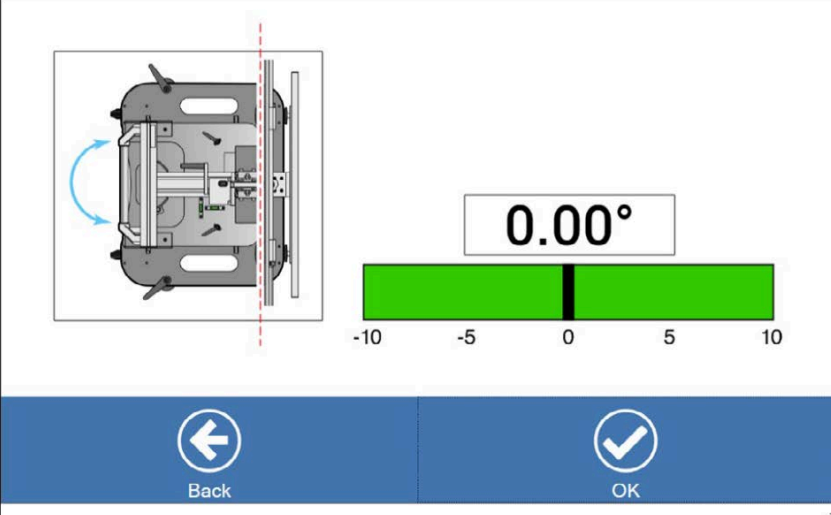

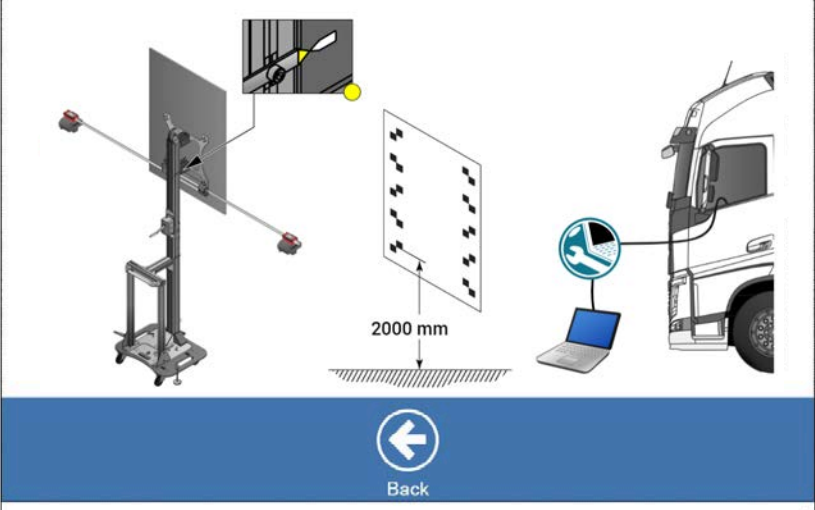
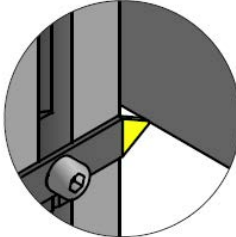


5.		
	<p>Rotate the platform until the angle indicator turns green. Click [OK]</p>	
6.		
7.	<p>Positioning completed. Calibration in Tech Tool can now be initiated.</p>	

17.2.1.2 LPOS

1.	<div data-bbox="316 365 454 421">LPOS </div> <div data-bbox="336 544 454 589">FLS </div>  <div data-bbox="231 672 938 784">   </div>	
	<p>Choose calibrate [LPOS] and press [OK]</p> <div data-bbox="231 857 327 947">  </div> <div data-bbox="343 857 1109 925"> <p>Make sure that the rods are fully extended until they hit the stop rings. If not done correctly the measurement will be incorrect.</p> </div>	
2.	 <div data-bbox="231 1377 1037 1500">   </div>	
	<p>Extend the calibration and mount the measuring heads on the rods.. Place the target in front of the vehicle perpendicular to the vehicle's centreline. Click [OK]</p>	

<p>3.</p>	 <p>Move the unit until the correct distances are reached (the blue adjustment arrows disappear and the distance values become green).</p>
<p>4.</p>	 <p>Lower the feet and make sure the platform is levelled. Use the feet adjustment screws to level the platform. Click [OK]</p>

5.		
	Rotate the platform until the angle indicator turns green. Click [OK]	
6.		
	<p>Set the height on target according to the vehicle's configurations given in Tech Tool.</p> <p>When setting the height make sure that the yellow or blue arrow is level with the lower edge of the calibrating target.</p>	
7.	Positioning complete. Tech Tool can now be initiated.	

17.2.2 FLR/FLC


Choose calibrate **[FLR/FLC]** and press **[Next]**




Make sure that the rods are fully extended until they hit the stop rings. If not done correctly the measurement will be incorrect.

Volvo FH

* Before starting this calibration process you must perform a wheel alignment check!

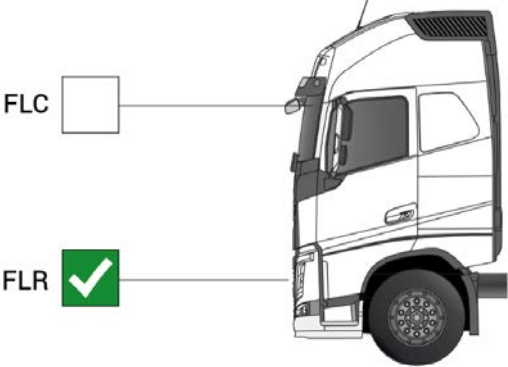









 Back

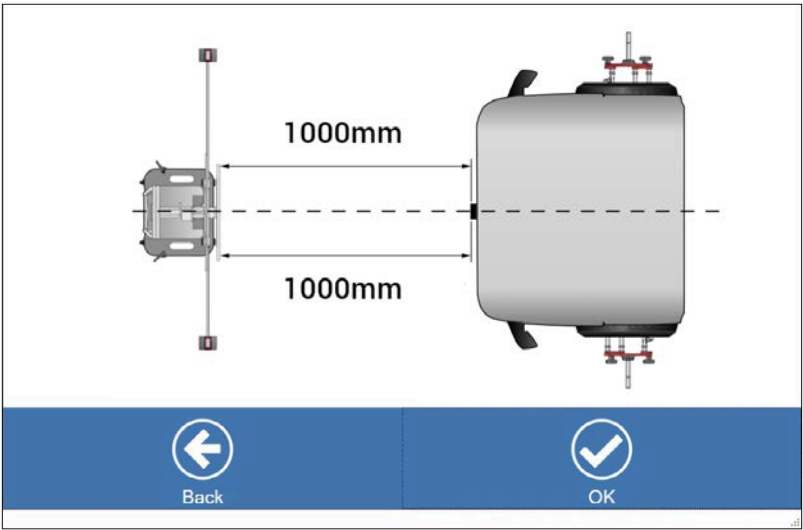




 OK

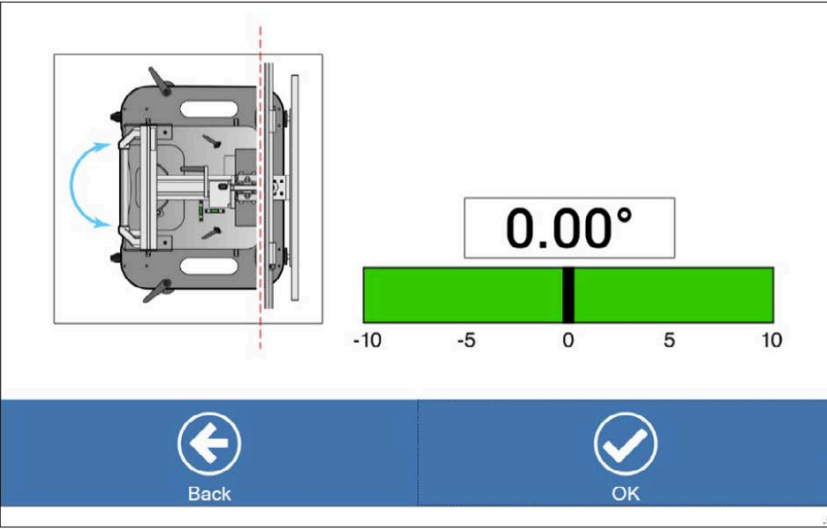

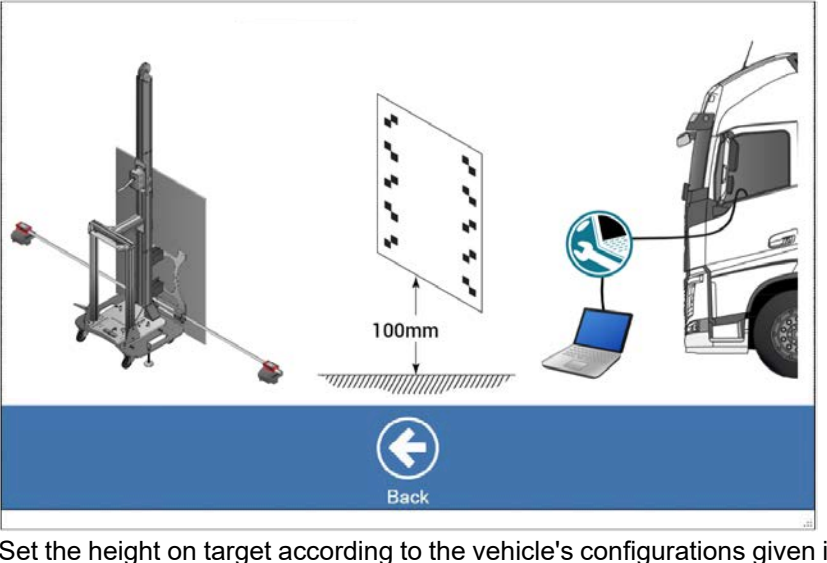
Select vehicle model and press **[OK]**



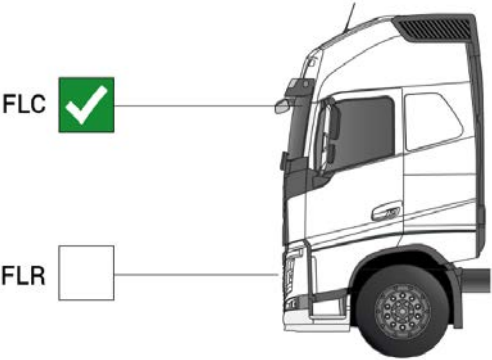
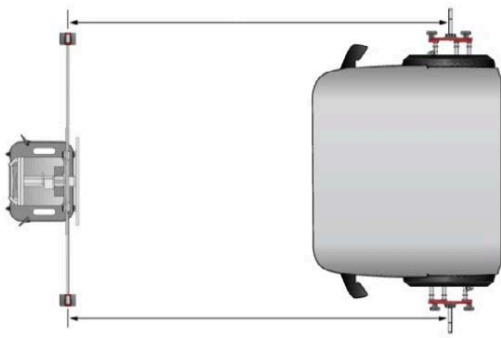
17.2.2.1 FLR

1.	<div data-bbox="300 280 810 645">  </div> <div data-bbox="231 667 877 784"> <div>  </div> <div>  </div> </div>
	<div data-bbox="231 824 1133 873">Choose calibrate [FLR] and press [OK]</div> <div data-bbox="1141 806 1260 884">  </div>
2.	<div data-bbox="231 907 1037 1422"> <div data-bbox="303 1075 813 1131">Distance to floor <input type="text" value="0"/> mm</div> <div data-bbox="821 963 1021 1232">  </div> <div data-bbox="231 1310 1037 1411"> <div>  </div> <div>  </div> </div> </div> <div data-bbox="1157 907 1356 1411">  </div>
3.	<div data-bbox="231 1500 1133 1556">Press [OK]</div> <div data-bbox="1141 1489 1260 1568">  </div>

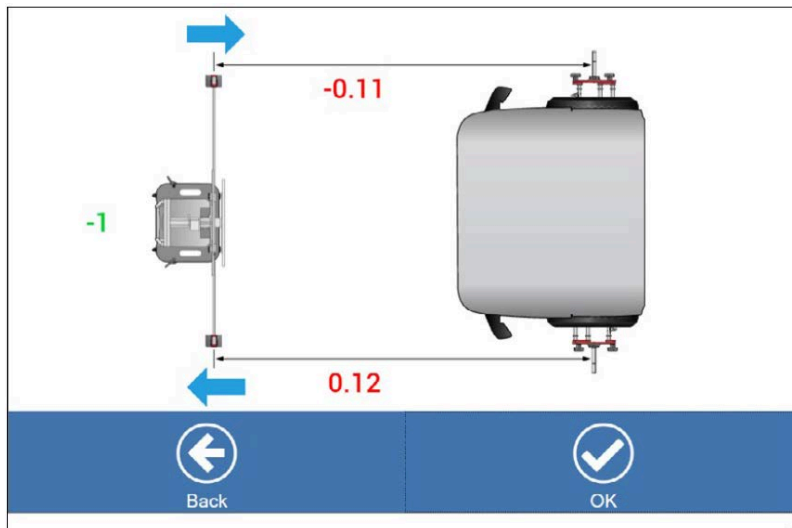
4.		
	<p>Place the target in front of the vehicle cab, perpendicular to the vehicle's centre line.</p> <p>Click [OK]</p>	
5.		
	<p>Lower the feet and make sure the platform is levelled. Use the feet adjustment screws to level the platform.</p> <p>Click [OK]</p>	

6.		
	Rotate the platform until the angle indicator turns green. Click [OK]	
7.		Set the height on target according to the vehicle's configurations given in Tech Tool.
8.	Positioning complete. Tech Tool can now be initiated.	

17.2.2.2 FLC

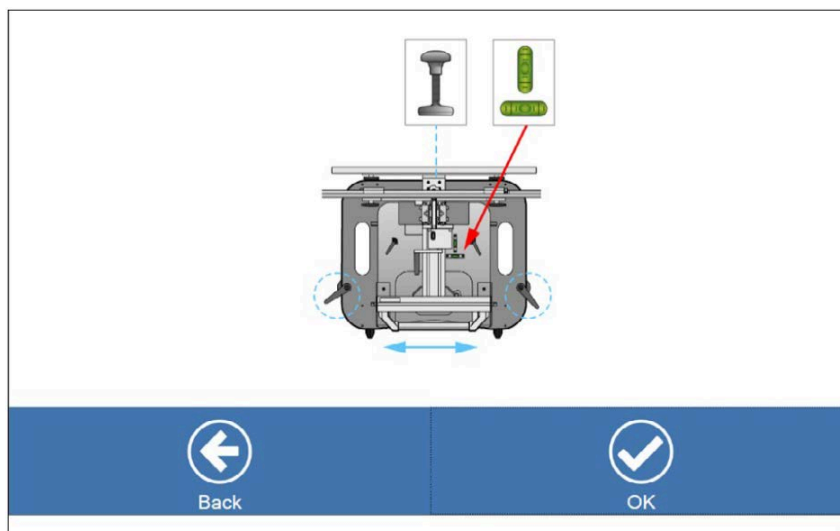
1.	 <p>FLC <input checked="" type="checkbox"/></p> <p>FLR <input type="checkbox"/></p>	
<p>Choose calibrate [FLC] and press [OK]</p>		<input checked="" type="checkbox"/> OK
2.		
<p>Extend the calibration and mount the measuring heads on the rods. Place the target in front of the vehicle perpendicular to the vehicle's centreline. Click [OK]</p>		<input checked="" type="checkbox"/> OK

3.



Move the unit until the correct distances are reached (the blue adjustment arrows disappear and the distance values become green).

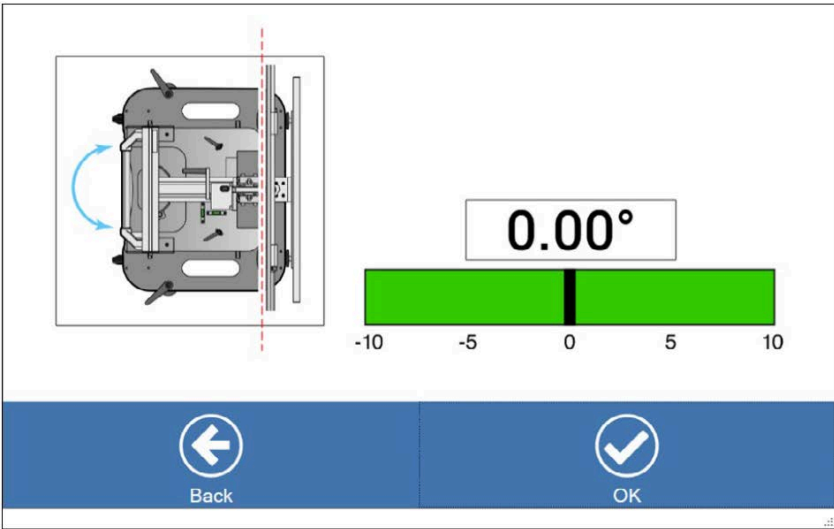

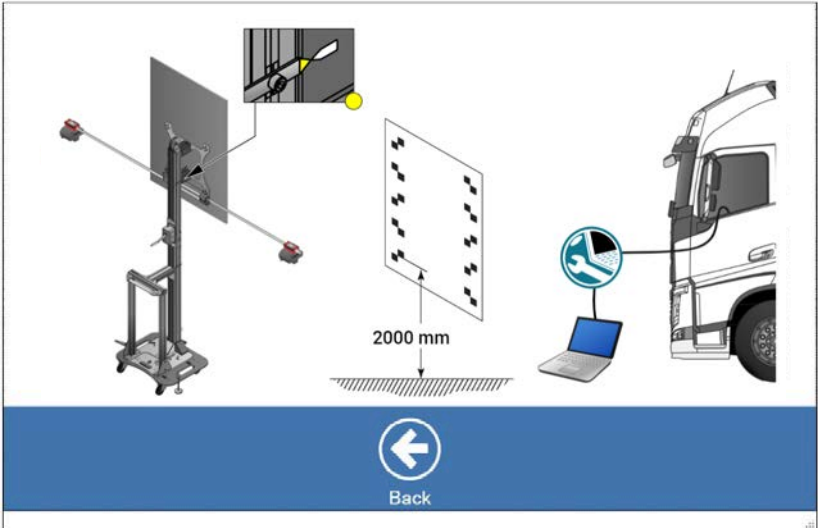
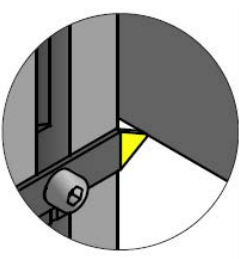
4.



Lower the feet and make sure the platform is levelled. Use the feet adjustment screws to level the platform.

Click **[OK]**

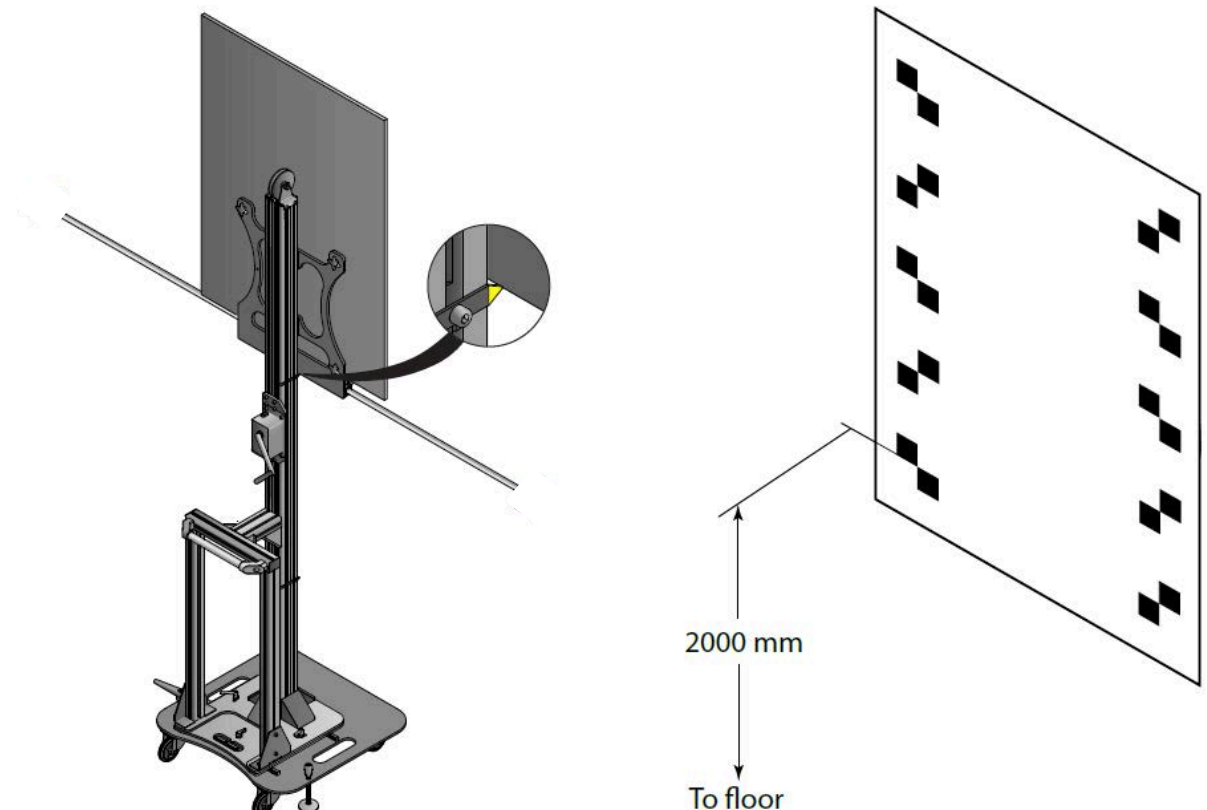


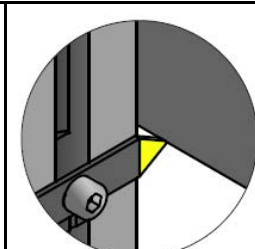
5.		
	Rotate the platform until the angle indicator turns green. Click [OK]	
6.		<p>Set the height on target according to the vehicle's configurations given in Tech Tool.</p> <p>When setting the height make sure that the yellow or blue arrow is level with the lower edge of the calibrating target.</p> 
7.	Positioning complete. Tech Tool can now be initiated.	

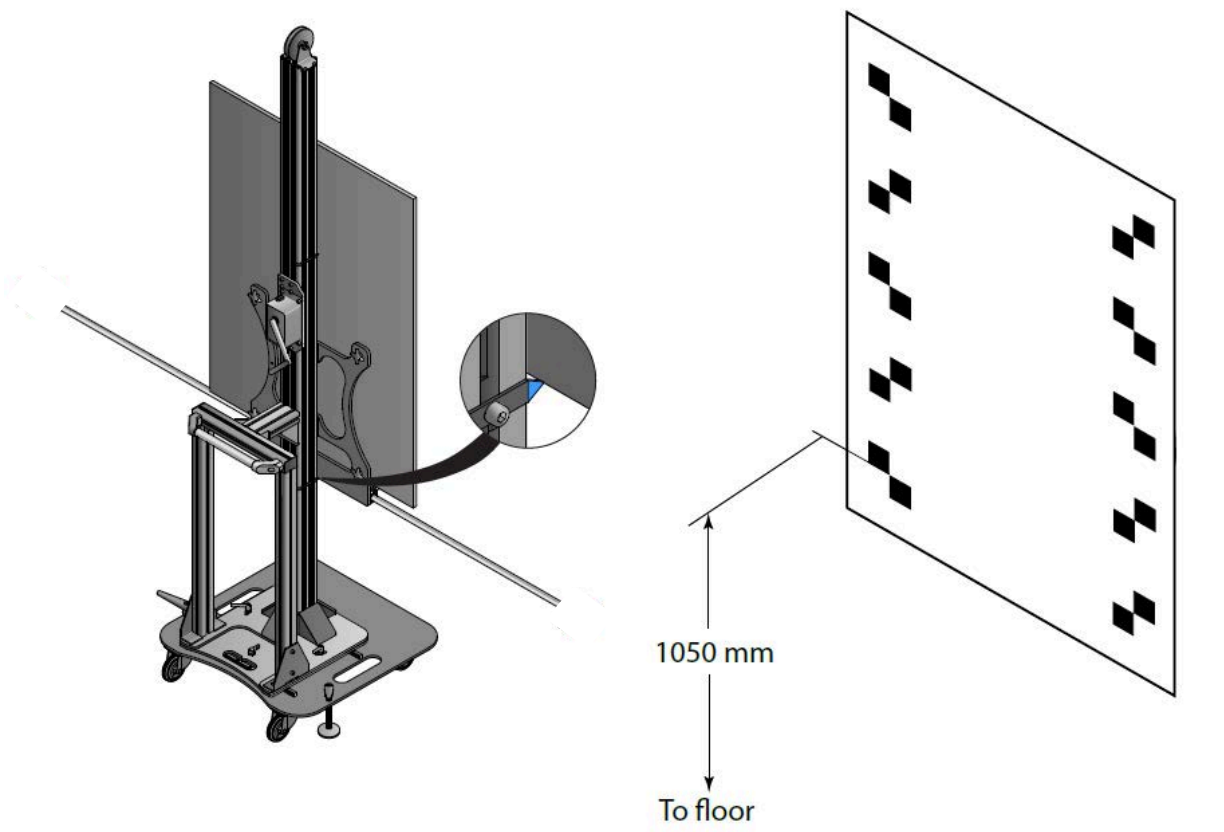
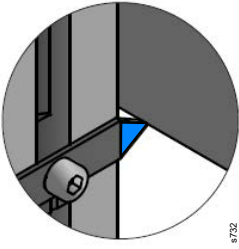
18 Calibration of ADAS target

The target must be calibrated once a week or after a new installation

LPOS calibration with high setting (2000 mm)



1.	Adjust the height of the target by rotating the crank clockwise.	
2.	Adjust the height of the target until the little yellow arrow is exactly level with the bottom edge of the red target holder.	
3.	Check the height of the target by measuring from the bottom edge of the second black square on the target to the floor.	

LPOS calibration with low setting (1050 mm)		
		
1.	Adjust the height of the target by rotating the crank counterclockwise.	
2.	Adjust the height of the target until the little blue arrow is exactly level with the bottom edge of the red target holder.	
3.	Check the height of the target by measuring from the bottom edge of the second black square on the target to the floor.	

19 Maintenance of magnetic wheel adapter

19.1 Periodic maintenance

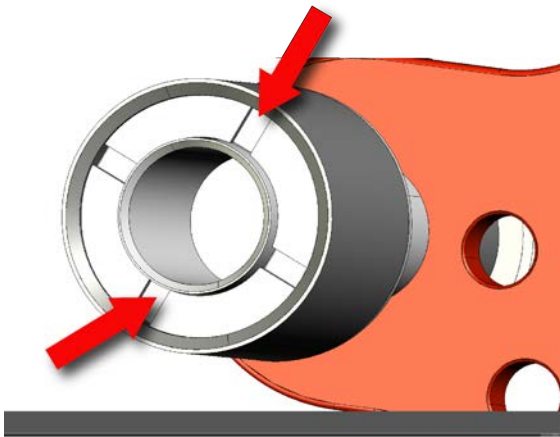
Once a month

- Check for any visible damage.
- Tighten the nuts if necessary.
- Clean the magnet feet from metallic dust.

Once a year

- Check the reference axle. Replace if worn out.

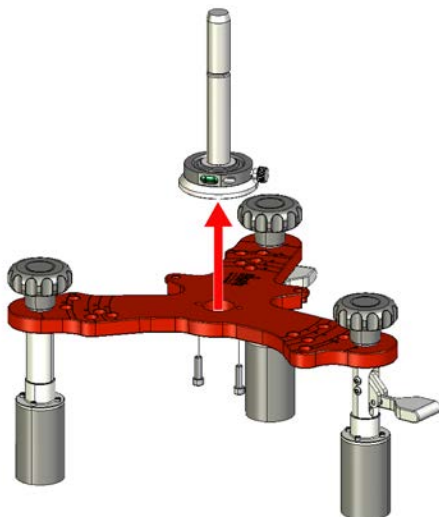
Cleaning a magnet foot



1. Remove any large metallic items such as nuts from the inside of the foot.
2. Use compressed air to blow the magnet foot and inner sleeve clean of debris. Take extra care around the magnet and in the gap between the magnets and inner sleeve.

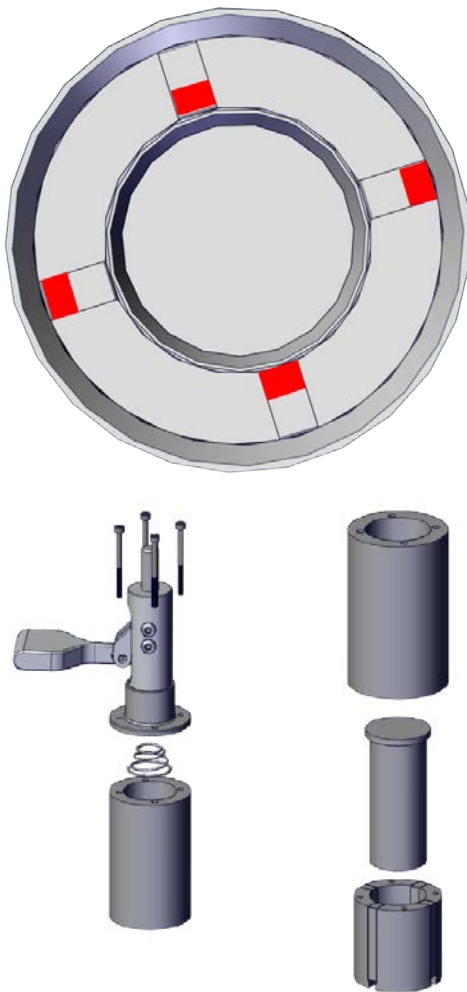
19.2 Repair

Replace the reference axle



1. Remove the two screws that secure the reference axle assembly to the frame.
2. Replace the worn reference axle assembly with the new part and re-assemble in reverse order. Tighten properly.

Replace an inner sleeve of a magnet foot



1. Remove the wheel adapter leg from the frame and turn it upside down.
2. Check if the polarization of the 4 magnets is clearly marked, as shown in illustration. If not, make sure to mark the magnets in order to be able to re-assemble the magnet foot correctly.



Caution

Hazard: Be sure to re-assemble the magnet foot with the polarization of the magnets positioned correctly. Every other magnet should be positioned with its north pole outwards. A single magnet placed with wrong polarization will render the magnet system of the entire foot powerless.

Risk: A single magnet placed with wrong polarization will render the magnet system of the entire foot powerless.

How to avoid: Be sure to re-assemble the magnet foot with the polarization of the magnets positioned correctly.

3. Place the leg, magnet foot down, on a flat surface.
4. Remove the 4 screws keeping the magnet foot assembled.
5. Carefully open up the magnet foot assembly and replace the sleeve.
6. Re-assemble in reverse order.

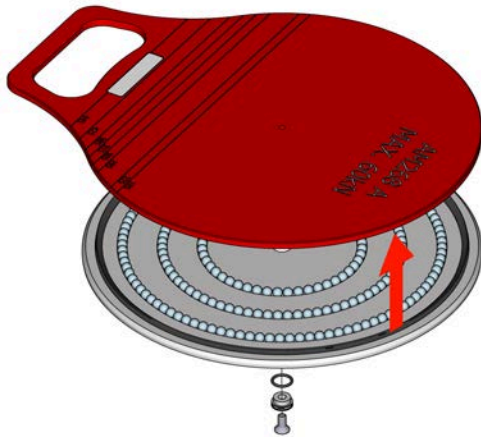
20 Maintenance of low friction plate

20.1 Preventive Maintenance

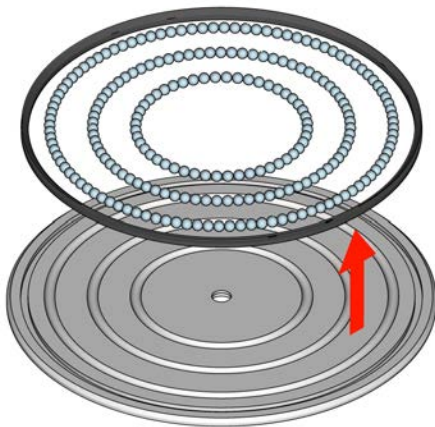
Once a week

- Check for any visible damage and that the low friction plate turns freely.

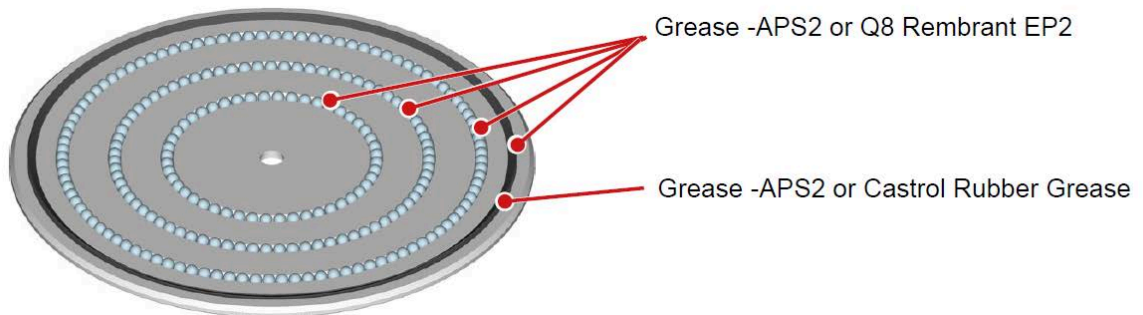
Replace ball bearings



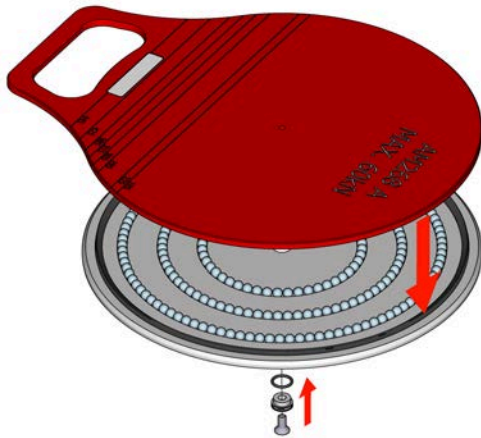
1. Remove the screw, seat and O-ring.



2. Remove the ball bearings.

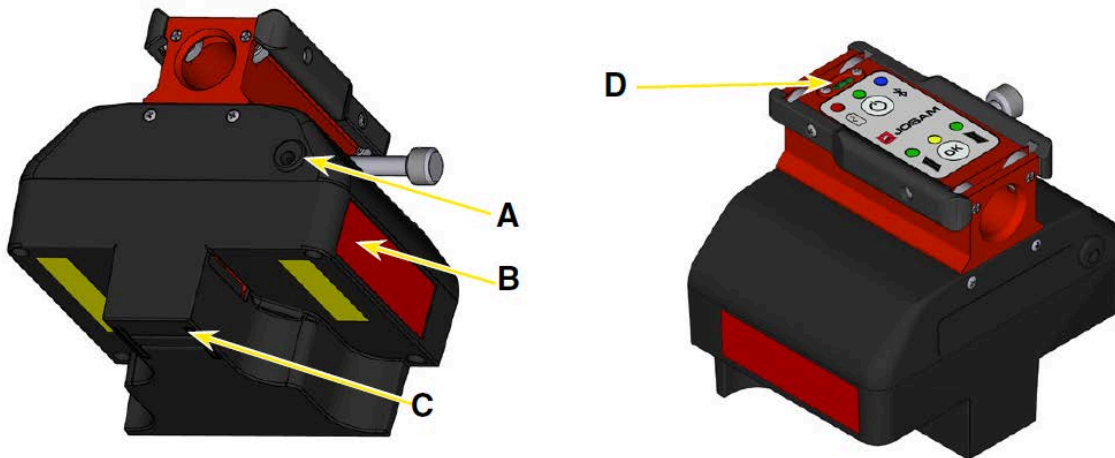


3. Replace with new ball bearings.
When replacing the ball bearings, lubricate with Q8 Rembrant EP2
or:
Grease -APS2 (for ball bearings)
Castrol Rubber Grease (for V-rail).



4. Replace the new O-ring, seat and screw when assembling the lid.

21 Maintenance of measuring head



A	Charger connector
B	Detector
C	Protection cover
D	Spirit level



If measuring head is subject to outer impact (dropping etc.), see 21.3 Calibration



Attention

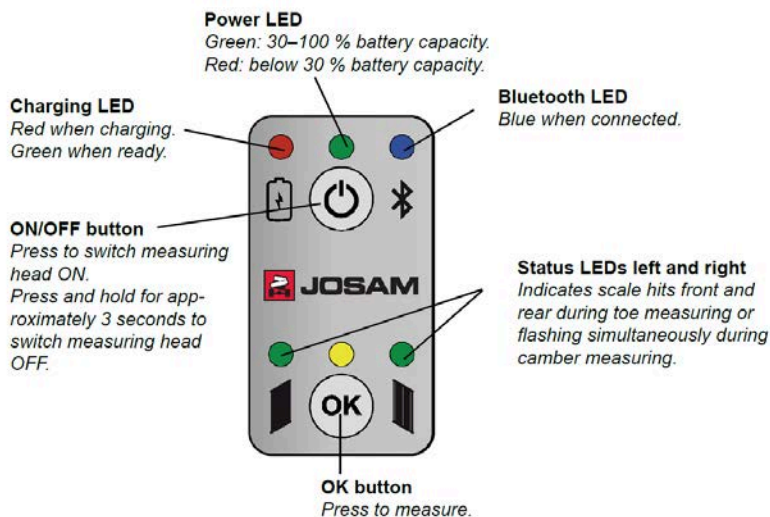
Hazard: Laser can NOT be replaced in the field.

Risk: Wrong measurements and damage to the measuring head.

How to avoid: Any service work need to be performed by authorized technicians in the manufacturer's factory.

21.1 Buttons and LED's on the measuring unit

The measuring head is powered on with the ON/OFF button and should be kept switched on. Connect to a charger at (A), when not in use.



21.2 Periodic maintenance

Once a week

- Wipe the detector lens with a dry clean cloth.
- Compare the measuring heads.

Battery

The measuring heads are supplied with Li-Ion batteries. When the control unit is not in use it shall be connected to the charger connector.



Attention

Hazard: Li-Ion batteries are not environmentally friendly and should be disposed of according to local regulations.

Risk: Dangerous to the environment

How to avoid: li-Ion batteries should be disposed of according to local regulations.



Attention

Hazard: Charging only allowed in office environment.

Risk: Charging only allowed in office environment.

How to avoid: Charge in office environment.

Troubleshooting

If there are any problems there are a few alternatives that can be used to diagnose the system.

To access these systems click on **[Setup]** in the I-track II plugin.



Then select **[Calibration]**



To access these systems click on **[Setup]** in the I-track II plugin.



The measuring head is malfunctioning.

Symptoms:

- The yellow LED malfunctions.
- The green LED flashes at a slower rate than normal.

To resolve the problem: Restart the unit. If the problem persists, send the measuring head to service for replacement.

Reflections

To troubleshoot issues with laser beam detection follow the steps below.

To access the reflection tests, click on **[Diagnose]**



Then click the icon for the unit you want to test for reflection. E.g.



Serial number	90000
Measuring unit side	Left
Number of reflexes in the front	3
Number of reflexes in the rear	3
Distance to front scales	6.0
Distance to rear scales	16.0
Toe	0.0
Version	1234



Normally there should be 3 reflexes in the front and 3 reflexes in the rear.

If there are more than 3 reflexes in either direction, there could be other reflective material in the path of the laser beam. Cover or remove the reflective material and try the Receiver test once more.

If there are less than 3 reflexes in either direction the laser beam is not seeing the targets.

There could be several causes for this. Broken or dirty target reflexes, something obstructing the laser beam or broken equipment.

The buttons **[Reflections]**  and **[Deviation]**  are primarily to be used by service centers to troubleshoot issues with the measuring heads.

21.3 Calibration

To ensure that the system keeps the accuracy within limits, the measuring heads must be regularly calibrated.

Tools needed:

- locking excenter JT31117





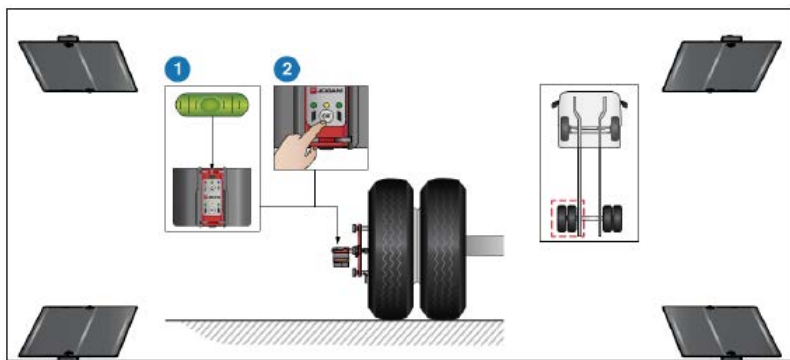


Warning


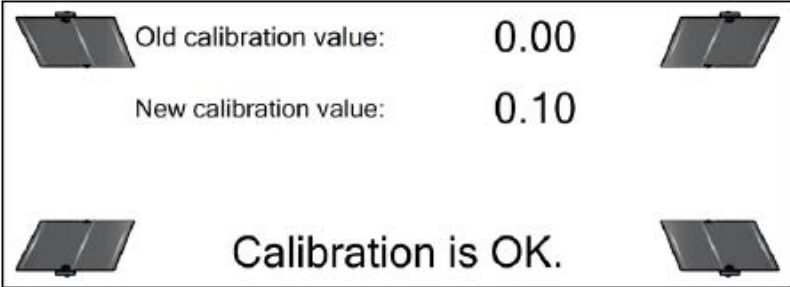
Hazard: It is imperative that all calibration is performed with the highest precision. Mistakes in the calibration procedure will result in incorrect measuring values.

Risk: Mistakes in the calibration procedure will result in incorrect measuring values.

How to avoid: Perform calibration with the highest precision.

1.	To enter the calibration mode click on [Setup]	
2.	Measuring unit compare Always compare the measuring units before calibration.	

3.	Click on [Compare units]	
4.	<div></div> <p>Mount wheel adapter on the left side of a non-steering axle. Distance to target scale should be at least 3 meters in both directions.</p> <p>Make sure that the axle is NOT jacked up.</p>	
Unit 1		
5.	Mount the first measuring head in the inner groove of the wheel adapter axle.	
6.	Centre the spirit level on top of the measuring unit.	
7.	Press OK on the measuring unit.	
8.	<div></div> <p>The results for the first unit are displayed.</p>	
Unit 2		
9.	Switch to measuring unit number 2, still working on the same wheel.	
10.	Centre the bubble on top of the measuring unit.	
11.	Press the OK button on the measuring head, to get the values for unit 2.	


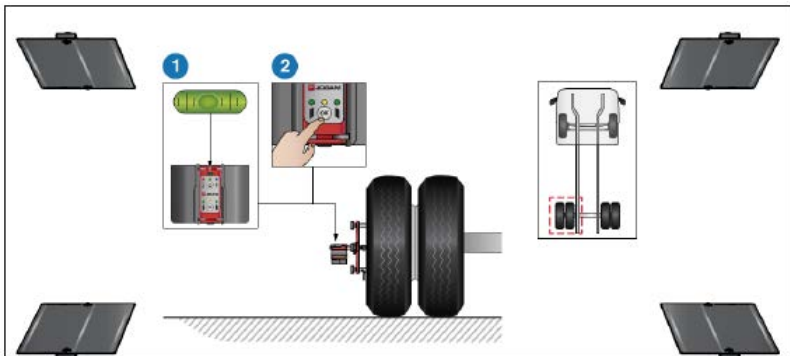
12.	 <p>The results for the second unit are displayed.</p>
13.	 <p>The software will now display the difference between the first and second unit.</p>

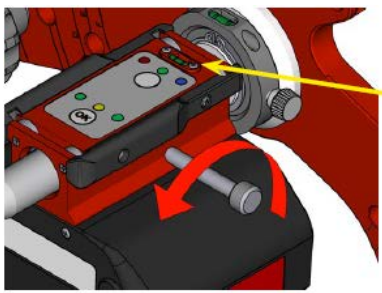
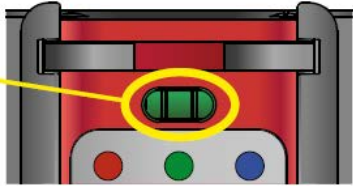
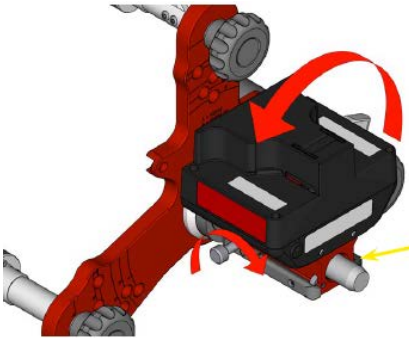
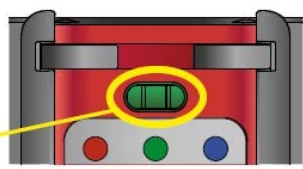
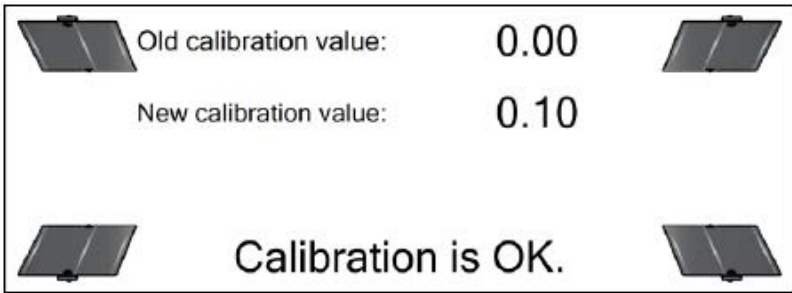




21.4 Toe calibration



The axle should not be jacked up.

The toe calibration menu is used to calibrate the Toe angle function in the measuring heads. Mount a wheel adapter and measuring head on the left side of a non-steering axle. Distance to target scale should be at least 3 meters in both directions.

1.	Click on [Calibrate Toe] in the software	
2.	 <p>The software displays the calibrate toe window.</p>	


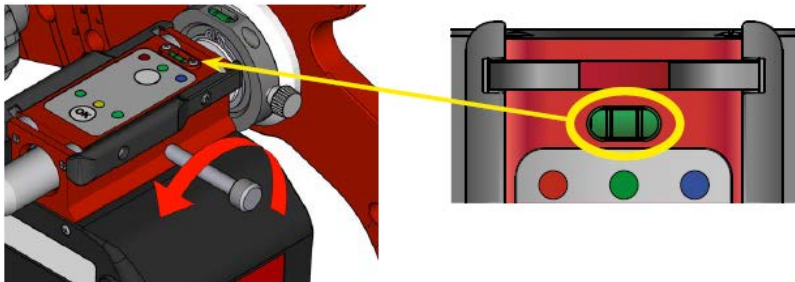
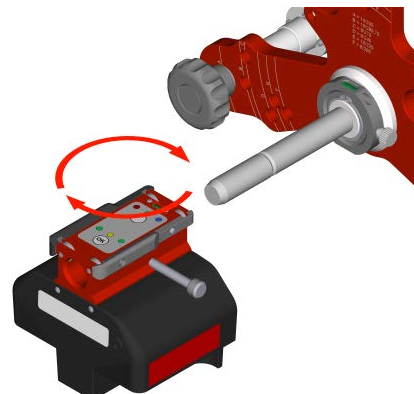
3.	  <p>Adjust until the top bubble indicates the measuring head is horizontal.</p>
4.	Lock the measuring head to the wheel adapter reference axle by tightening the locking excenter.
5.	Press OK button on the measuring head to get the values for the unit.
6.	Loosen the measuring head on the wheel adapter reference axle using the locking excenter.
7.	  <p>Rotate the measuring unit 180° until upside down.</p>
8.	Adjust until the top bubble indicates the measuring head is horizontal.
9.	Lock the measuring head to the wheel adapter reference axle by tightening the locking excenter.
10.	Press the OK button on the measuring unit to get the values for the unit.
11.	 <p>Old calibration value: 0.00 New calibration value: 0.10</p> <p>Calibration is OK.</p> <p>Old calibration and new calibration toe values are shown. The difference between both the readings should not exceed 1' (~0.3 mm/m).</p> <p>Select from below to continue:</p>
	<p>To calibrate the unit press [Store calibration]</p> <div data-bbox="268 1736 363 1825">  </div> <div data-bbox="379 1736 1161 1825"> <p>Make sure to store the calibration value.</p> </div> <div data-bbox="1181 1686 1300 1758">  </div>
	<p>To set the calibration to default click on [Restore factory calibration]</p> <div data-bbox="1181 1848 1300 1921">  </div>
	<p>If difference exceeds 1' the operator should perform the calibration procedure once more.</p> <p>Click on [Calibration menu] to perform a new calibration.</p> <div data-bbox="1181 1937 1300 2011">  </div>








21.5 Calibrate camber



The axle should not be jacked up.

The camber calibration is used to calibrate the camber angle function in the measuring heads. To do this, perform a camber measurement. The same measurement is then repeated with the measuring head turned 180° horizontally.

1.	Click on [Calibrate camber] in the calibration window.	
2.	 <p>Adjust until the integrated bubble indicates the measuring head is horizontal.</p>	
3.	Slide the measuring head on to the axle until the measuring head clicks into place.	
4.	Lock the measuring head to the wheel adapter reference axle by tightening the locking excenter.	
5.	Press OK button on the measuring head to get the values for the unit.	
6.	Unlock the measuring head by loosening the locking excenter.	
7.	 <p>Slide the measuring head off the axle and turn 180° horizontally.</p>	
8.	Slide the measuring head back on to the axle.	
9.	Adjust until the bubble indicates that the measuring head is horizontal.	
10.	Press the OK button on the measuring unit to get the values for the unit.	

11.	<div data-bbox="271 201 1069 560"> <p>Old calibration value: 0.00</p> <p>New calibration value: 0.67</p> <p>Recommendations: Recalibrate again.</p> <div>  Calibration menu  Store calibration  Restore factory calibration </div> </div> <p>Old calibration and new calibration camber values are shown. The difference between readings should not exceed 2' (= 0.6 mm/m).</p> <p>Select from below to continue:</p>	
	<p>To save the calibration in the measuring head, click on [Store calibration]</p> <div>  <div>Make sure to store the calibration value.</div> </div>	
	<p>To set the calibration to default click on [Restore factory calibration]</p>	
	<p>If difference exceeds 2' the operator should perform the calibration procedure once more.</p> <p>Click on [Calibration menu] to return to the calibration menu.</p>	

22 Error messages and indicators

The following error messages can appear in the measurement window.

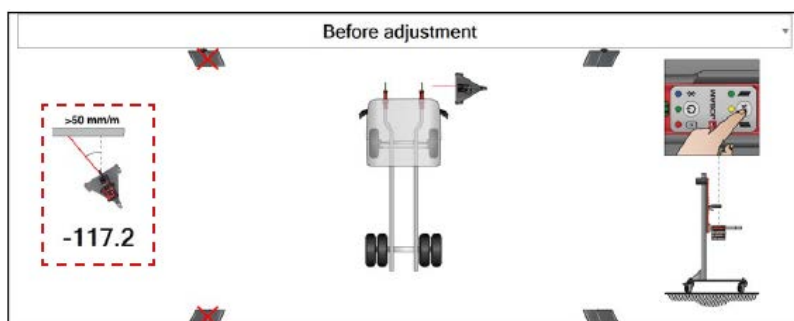
Warning

Values out of bounds, please redo the measurement

OK

If message “Values out of bounds, please redo the measurement” appears, something has gone wrong in the measurement. Please check the following:

- Check that steering wheel position is straight ahead..
- Check that distance between measuring head and scales are more than 1.5 meters before and after roll.
- Check that the TAG axle is ok
- Make reflection tests in Diagnose, see [21.2 Periodic maintenance, page 108](#)
- If using mobile scales, make sure that calibration has been performed

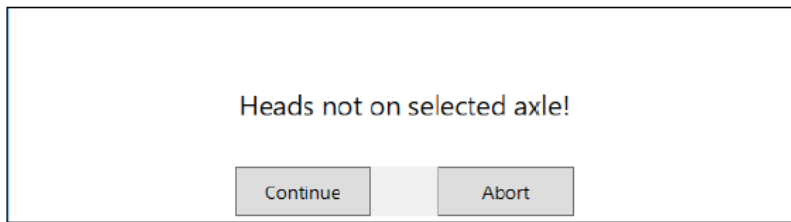


The Centre line tool is incorrectly placed.

Right measuring head not on correct axle
Please check position


OK

If the message Right measuring head not on correct axle. Please check position. appears, check position of measuring heads



If the message Head not on selected axle! appears, check measuring heads.



 The symbol informs the user that there is no contact between the target and the measuring head.



When the red cross is no longer displayed, the measuring head has established contact with the targets.



If you see this symbol it means that either you don't have the correct tools to measure the selected vehicle, or you have missed to tell the software about the tools you have in your workshop. Go back to Settings and check the **[Laser System -> Equipment]** tab.

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