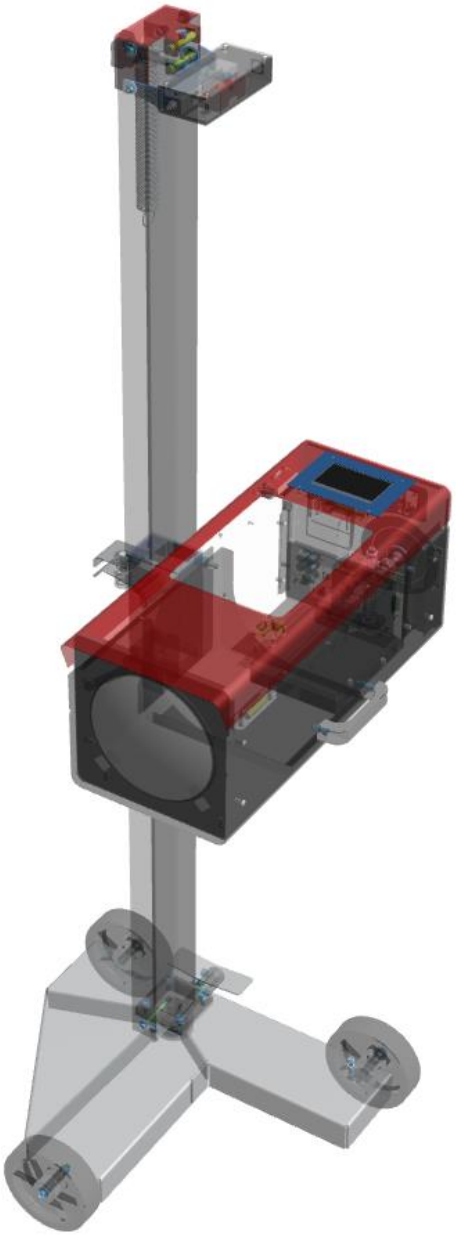
Use, maintenance and spare parts manual for headlight beam setter

HL 40 TOUCH



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1 Information on this manual

1.1 Information for use

Read the manual carefully. Pay particular attention to the first pages, where the safety regulations and liability conditions are indicated. The information contained herein is exclusively for personal protection while using the tool.
While using the device, it is advisable to refer to the pages where the individual operating phases are described, in order to prevent any risks for people and for the tool itself.
The tool can only be used by a technician who has received specific training in the automotive sector. The information and knowledge acquired during training will no longer be indicated or repeated in this user manual.

1.2 Symbols

	**WARNING/NOTE** This symbol indicates a possibly dangerous situation which, if not avoided, may result in minor injuries or serious injuries. The texts marked with the word "NOTE" contain useful and important information. It is therefore recommended to follow them carefully.

2 Safety indications

2.1 General safety indications

	• The diagnostic tool is intended for use on vehicles only. In order to be able to use the tool, the user must have good technical knowledge in the automotive sector and therefore, be familiar with the sources of danger and risks associated with working in the workshop and on the vehicle. • All of the warnings and instructions featured in the various chapters of the user manual applies. It is also necessary to take the precautions and safety measures indicated below. In any case, all of the general provisions of the Labour Inspectorate, of trade associations and of manufacturers of motorised vehicles, all anti-pollution standards as well as all laws, decrees and rules of conduct that the workshop is commonly required to comply with, must always be applied.

2.2 Safety indications relating to the device

	To avoid any incorrect use of the device with consequent injuries to the user or irreparable damage to the tool, comply with the following: • Select functions and menu entries on the touch-screen only with the use of a special tactical pen or with clean fingers. Do not use any other tool (for example a screwdriver) • Protect the TFT display and the device from a prolonged exposure to sun light • Make all necessary connections strictly following the instructions in the user guide or user manual. • Protect the device from humidity (not water-resistant). • Protect the device from hard hits (for example from falling). • Do not open the tool. Only technicians authorised by Top Auto can open the tool. The warranty shall be considered void in the event of unauthorised interventions on the tool. • In the event of malfunctions, contact Top Auto technical staff or a commercial partner immediately. • Have the lens replaced if it is scratched or damaged • The image displayed on the control panel may be affected by dirt and scratches. Clean the lens only with a soft cloth with glass cleaner. • Regularly check the condition of the 12 V batteries inside the optical box and of the 3 traditional 1.5V AA type batteries of the laser module (check for the presence of leaks/sulphonation).

2.3 Safety indications - Risk of injury

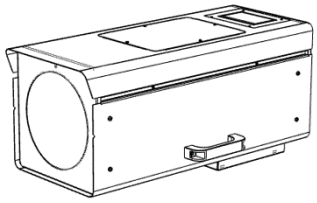
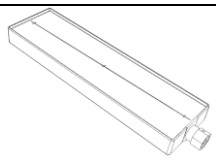
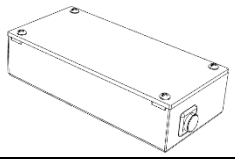
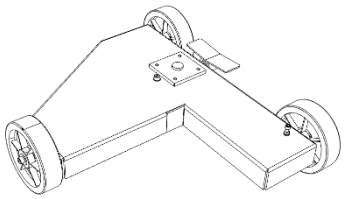
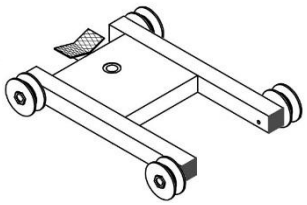
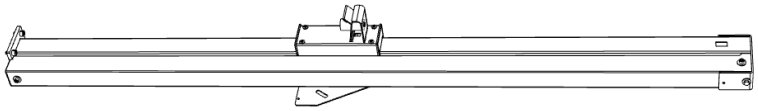
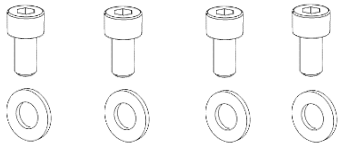
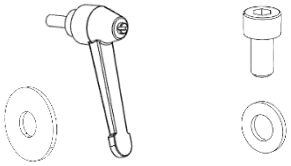
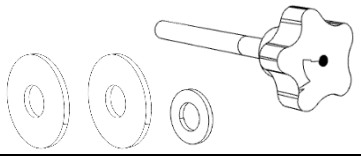
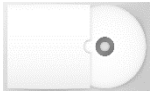
	Carrying out work on the vehicle exposes the operator to the risk of suffering injuries caused by the rotating components or by the accidental movement of the vehicle. Therefore, strictly follow these instructions: • Block the vehicle in such a way as to prevent it from moving. • If the vehicle features automatic transmission, put the lever in the Parking position (P). • Never touch moving parts. • Place cables far from moving parts.

2.4 Safety indications relating to the LASER

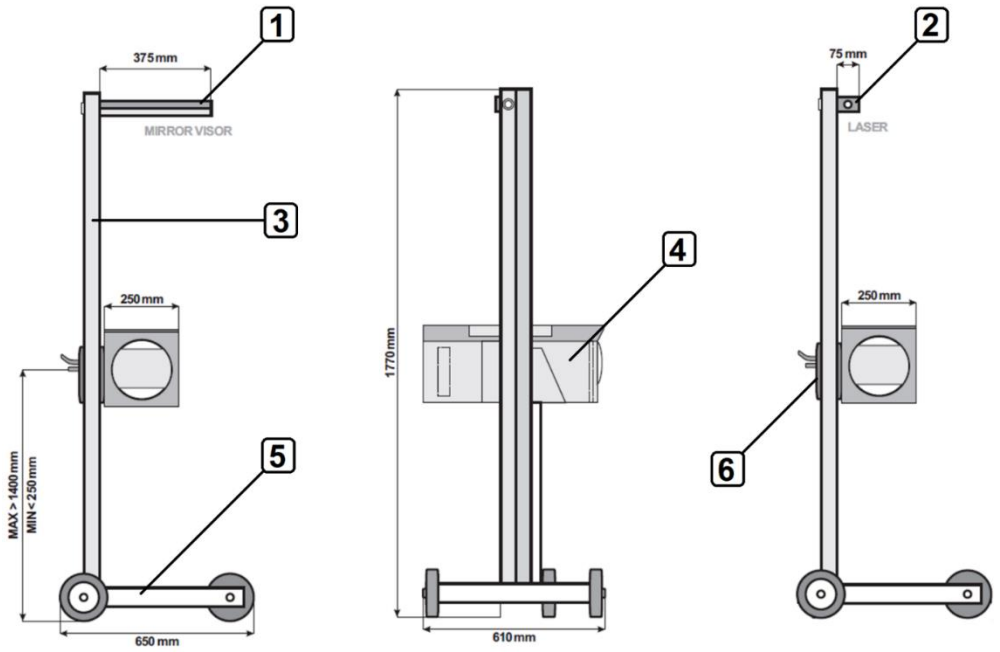
	Using the laser exposes the operator to the risk of injuries to the eyes. Therefore, strictly follow these instructions: • Never aim the laser beam at people, doors or windows. • Never look directly into the laser beam. • Make sure that the workspace is appropriately illuminated. • Avoid the risk of tripping. • Protect the mechanical parts from the risk of falling or becoming detached.

3 Description of the tool

3.1 Details of the supply

QUANTITY	DESCRIPTION	
1	Optical chamber	
1	Mirror visor or LASER visor (optional)	 or 
1	Base on wheels or H base for rails (optional)	 or 
1	Column with sliding system	
1	Accessory kit A to attach the column to the base	• 4 screws M8 x 30 • 4 washers 8 x 16 
1	Accessory kit B to attach the optical chamber to the sliding system	• 1 snap lever M8 x 20 • 1 screw M8 x 20 • 1 washer 8 x 16 • 1 washer 8 x 24 
1	Accessory kit C to attach the visor to the column	• 1 handwheel M10 x 70 • 1 cup spring 10 x 20 • 2 washers 10 x 30 
1	Use and maintenance manual	
1	CD with PC SW	

3.2 Overview of the tool



Position	Description
1	**Mirror visor** It allows to make a correct alignment between the tool and the vehicle
2	**Laser visor (optional)** It allows to make a correct alignment between the tool and the vehicle
3	**Column**
4	**Optical chamber**
5	**Base on wheels** It allows for the tool to be moved
6	**Sliding system** It allows for the vertical movement of the tool

3.3 Technical characteristics

HEIGHT	166 cm
WIDTH	61 cm
LENGTH	65 cm
WEIGHT	30 kg
MINIMUM OPERATING HEIGHT	23 cm
MAXIMUM OPERATING HEIGHT	146 cm
POWER SUPPLY	1 x 12V BATTERIES

The tool is supplied packed in a recycled cardboard box

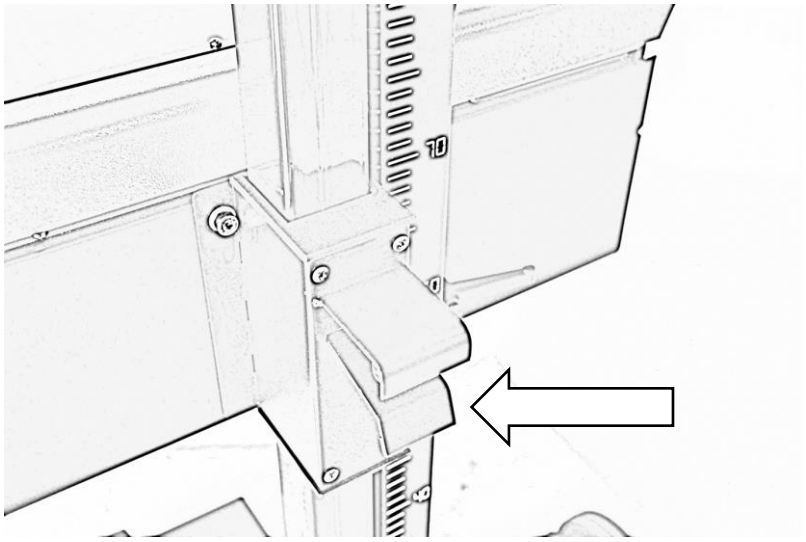
To assemble the tool, see paragraph **4 "Assembly"**

3.3 Using the sliding system

To adjust the height of the optical chamber, proceed as follows:

1. Hold the optical chamber from below with one hand and the sliding system with the other
2. Press the sliding system lever (see photo below)
3. Move the optical chamber vertically to the desired height
4. Release the sliding system lever

The optical chamber is now at the desired height



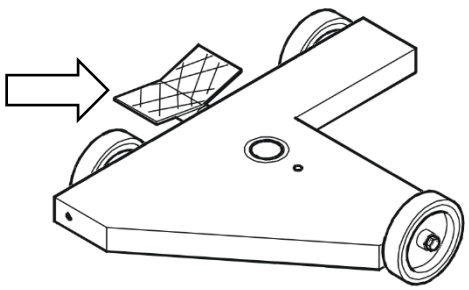
3.4 Using the swivel base brake (only versions that feature it)

To turn the column with the optical chamber, proceed as follows:

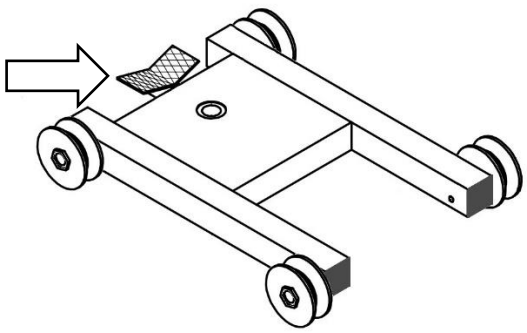
1. Press the base brake with your foot to release the column (see below)
2. Turn the column and position the optical chamber in the desired direction
3. Press the base brake with your foot again to lock the column (see below)

The optical chamber is now locked in the desired position

STANDARD SWIVEL BASE



H-SHAPED SWIVEL BASE



NB The headlight tester is delivered with the battery disconnected! Connect it after assembly!! (par. 10.2)

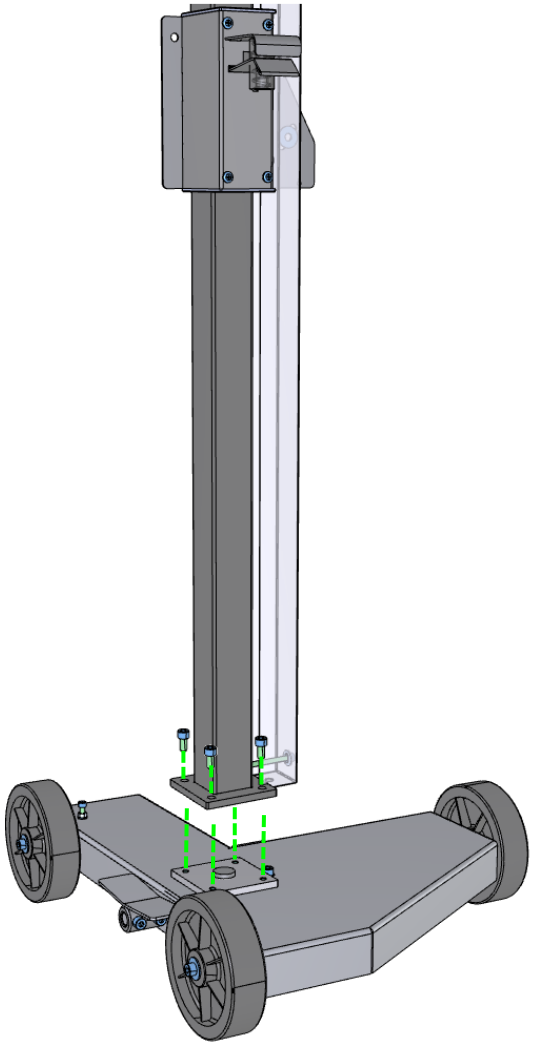
4 Assembly

1. Assemble the column (3) onto the base (5) using accessory kit A. Pay attention to the direction of the sliding system, as shown in the figure below.

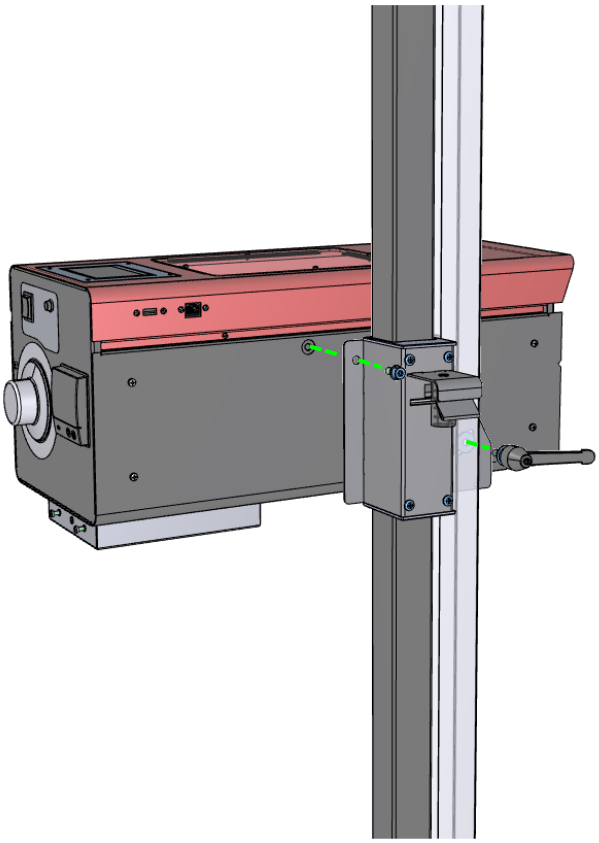
2. Attach the optical box (4) to the sliding system (6) using accessory kit B. Use the 8 x 16 washer to secure the screw and the 8 x 24 washer for the snap lever. To attach the snap lever more easily, use a flat-head screwdriver

3. Attach the mirror visor (1) to the column (3) using accessory kit C. The cup spring must be inserted between the washer and the visor. After securing the visor, use an Allen wrench to tighten the screw so as to lock it permanently.

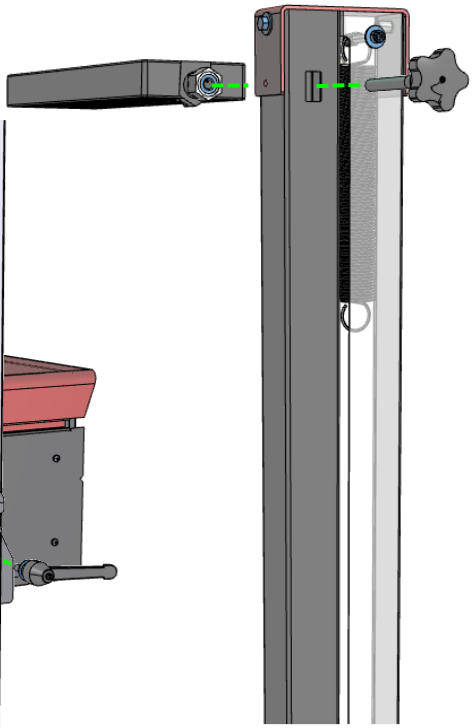
	**NOTE** **The LASER visor (optional) is supplied with its own accessory kit and instructions for installation.**



1.



2.



3.

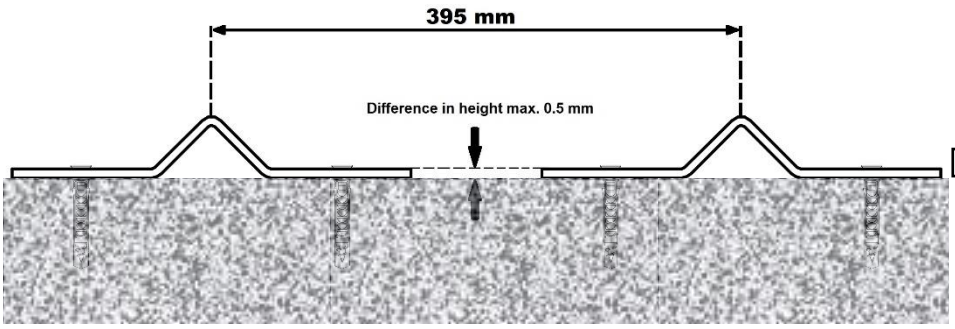
4.1 Assembling the sliding guides (only versions that feature them)

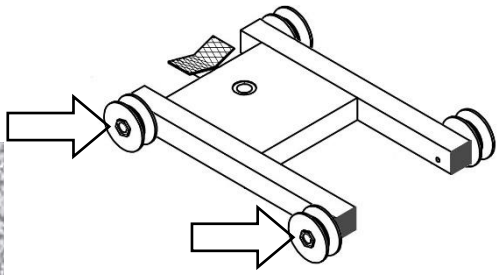
If the device features sliding guides, they must be installed on the floor. During assembly, the guide can be used as a drilling template. In order to be able to control and adjust the headlights accurately, the following must be complied with when installing the guides:

- The support surface of the vehicle and the plane of the sliding guides of the device must be parallel to each other in both extension points.
- The difference in height of the sliding surfaces of the wheels must not be greater than 0.5 mm.
- The guides must rest on the floor for their entire length in order to prevent them from being deformed.
- The guides must be installed in pairs at 90° with respect to the longitudinal axis of the vehicle.

	**NOTE** **To obtain the support surface of the vehicle, the information given in para. 5 applies**

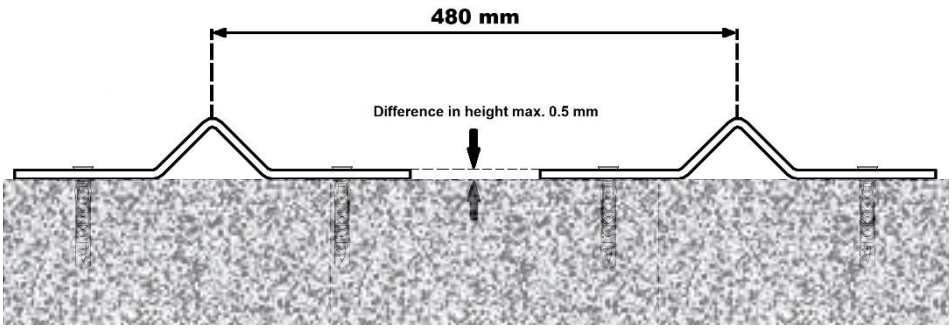
H-SHAPED swivel base

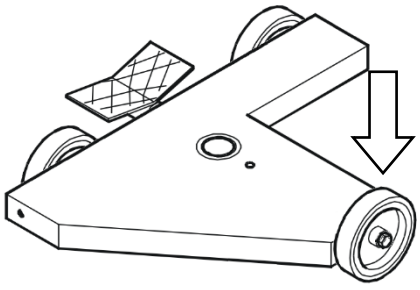




The support surfaces of the device can be compensated thanks to the two eccentric clamp screws on the base (see image on the side)

STANDARD swivel base



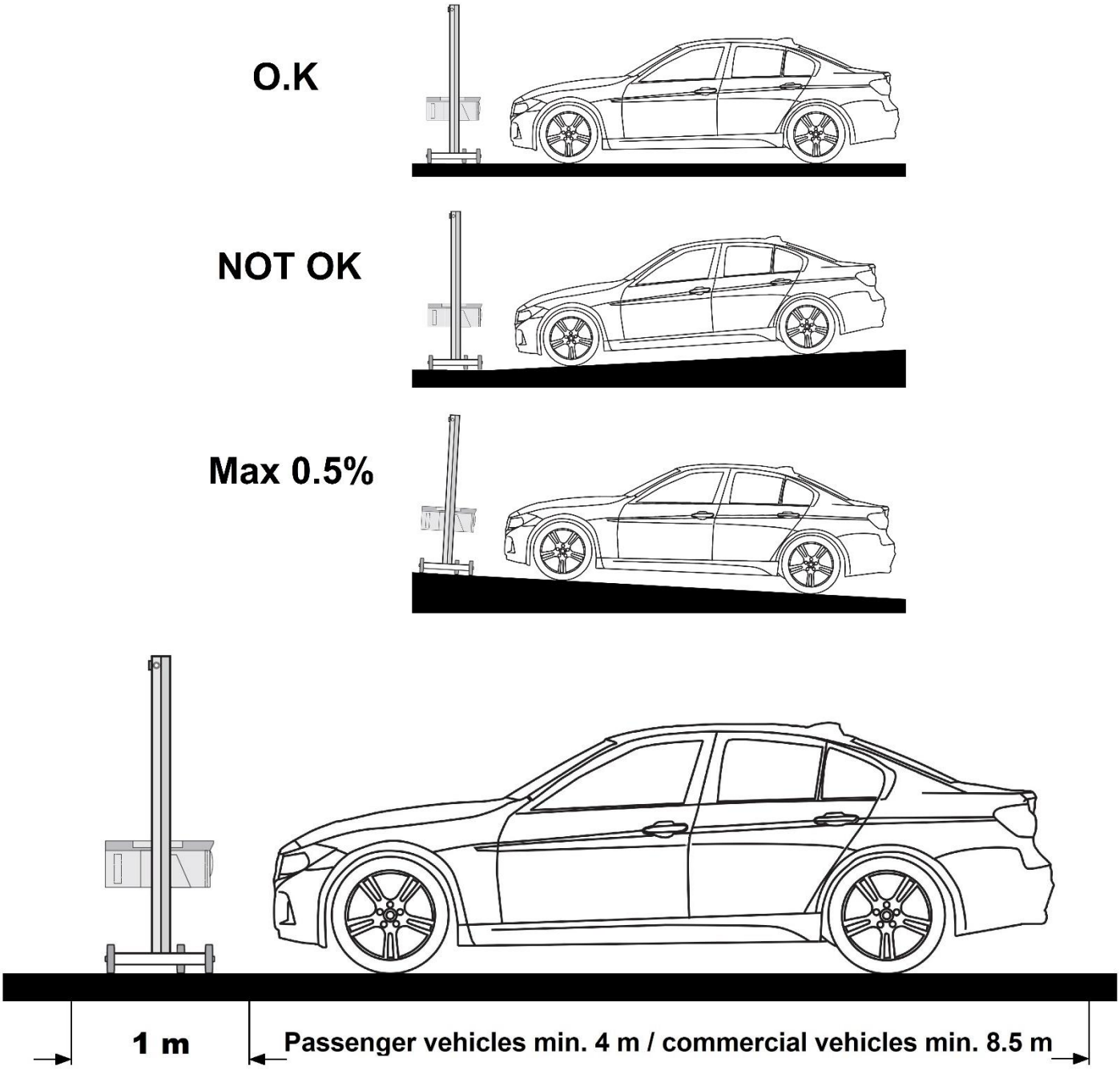


The support surfaces of the device can be compensated thanks to the three offset holes where the front wheel is mounted (see image on the side)

5 ISO 1060 Control Surface

When testing the headlights, the floor must be as level as possible. If this is not possible, the headlight beam setter and the vehicle must at least be on a surface with a uniform difference in height and, in any case, with a slope not exceeding 0.5%.

	WARNING!!! **The characteristics and the condition of the support surfaces are essential for correct headlight adjustment. It is not recommended to test the headlights on floors that are not perfectly flat and even, as the adjustment may not be accurate.**



6 Preparing the vehicle

	NOTE **The tyres must be inflated to the required pressure!**

The following loads must be on the vehicle:

- Motor vehicles: one person or 75 kg on the driver's seat and no other loads.
- Trucks and other vehicles with one or more axles: no load.
- Single-axle vehicles and tractors and operating machines with one axle (with driver's seat or trailer): one person or 75 kg on the driver's seat.

If there is a hydraulic or pneumatic suspension, the engine must run at medium speed, until the height of the vehicle no longer changes. If there is automatic headlight correction or continuous or two-level adjustment, it is necessary to follow the manufacturer's instructions.

	NOTE **National provisions must be complied with in any case.**

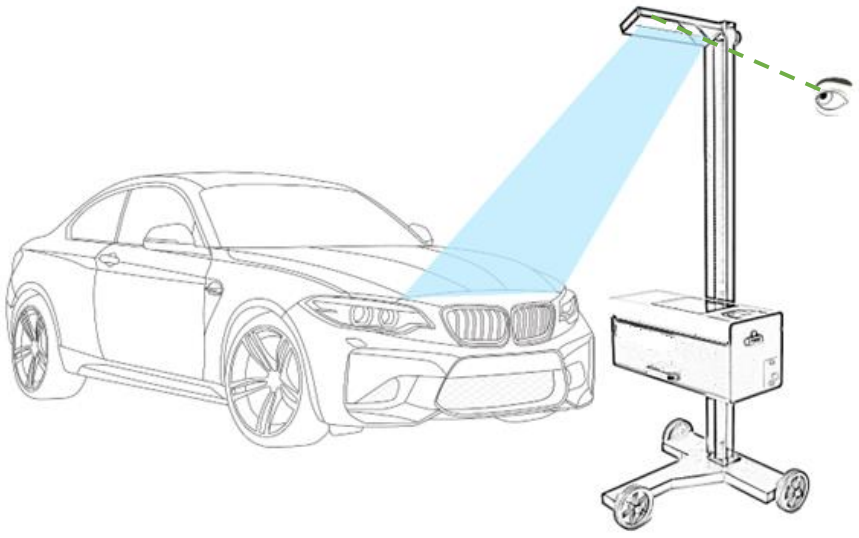
7 Alignment

	NOTE **Make sure that, once it has been moved in front of each headlight, the headlight beam setter remains parallel to the vehicle, by checking through the visor. The freewheel trolley of the headlight beam setter does not guarantee perfectly linear sliding, which can also be affected by ground imperfections or by the operator's movement.**

7.1 Alignment by means of MIRROR visor

Position the optical box with the mirror visor in such a way that the visor line touches two points at the same height, symmetrical with respect to the longitudinal axis of the vehicle.

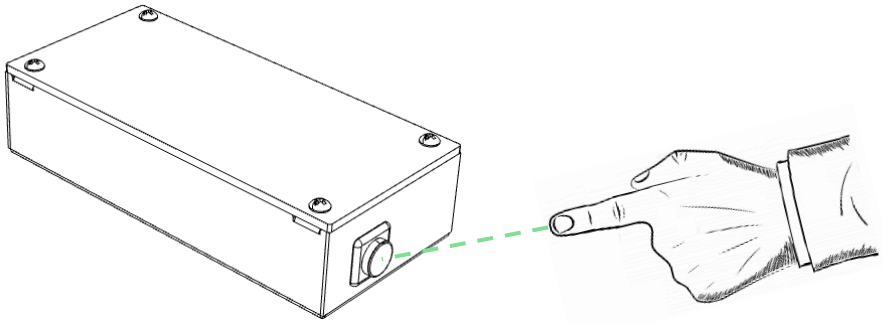
If you find it difficult to align the device on some trucks or buses with a very curved front, bring the centre of the headlight back on the ground with a plumb line, or using another method, and detect it with the visor.



7.2 Alignment by means of LASER visor (only versions that feature it)

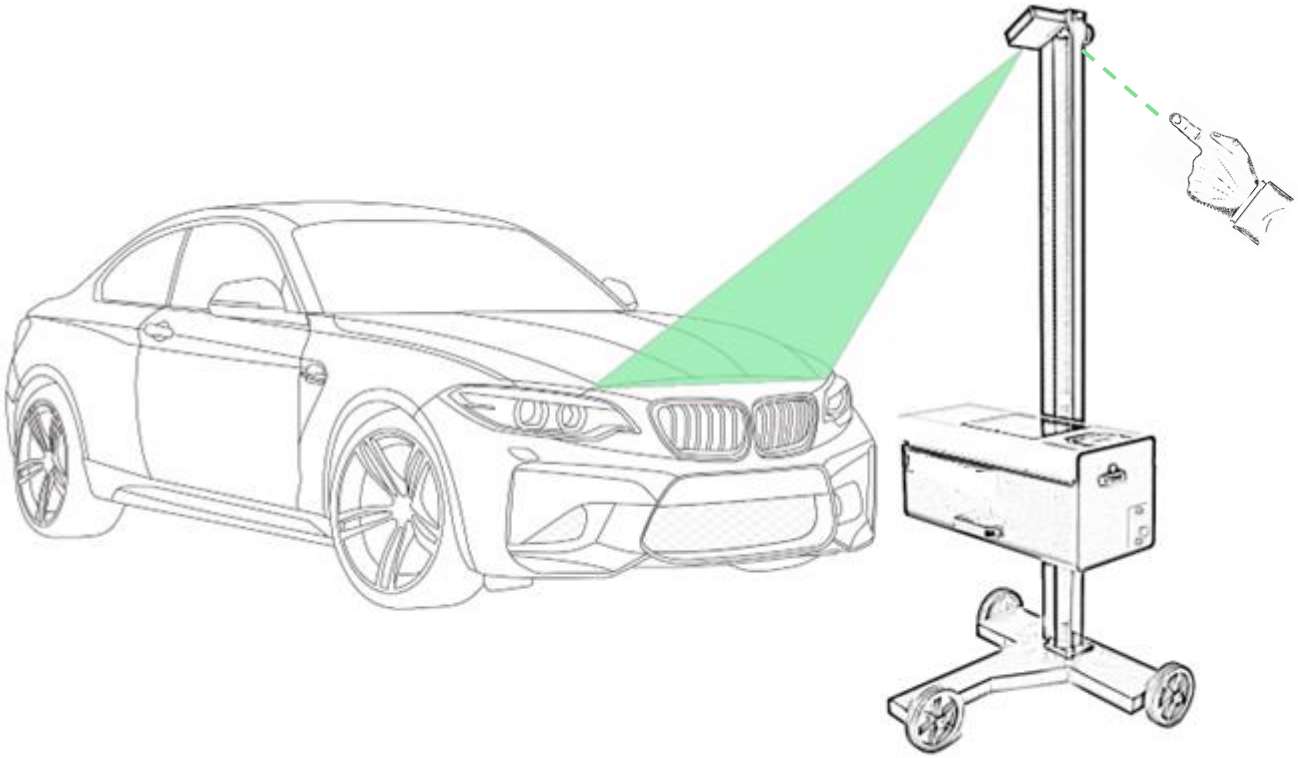
	**WARNING** **Using the laser exposes the operator to the risk of injuries to the eyes. Therefore, strictly follow these instructions:** **• Never aim the laser beam at people, doors or windows.** **• Never look directly into the laser beam.** • Make sure that the workspace is appropriately illuminated. • Avoid the risk of tripping. • Protect the mechanical parts from the risk of falling or becoming detached.

The LASER visor is equipped with a return button to prevent the risk of injuring the operator. To turn on the laser, **press and hold the green button** located at the back of the visor, as shown below:



Position the optical box with the laser visor in such a way that the green laser line touches two points at the same height, symmetrical with respect to the longitudinal axis of the vehicle.

If you find it difficult to align the device on some trucks or buses with a very curved front, bring the centre of the headlight back on the ground with a plumb line, or using another method, and detect it with the visor.



NOTE

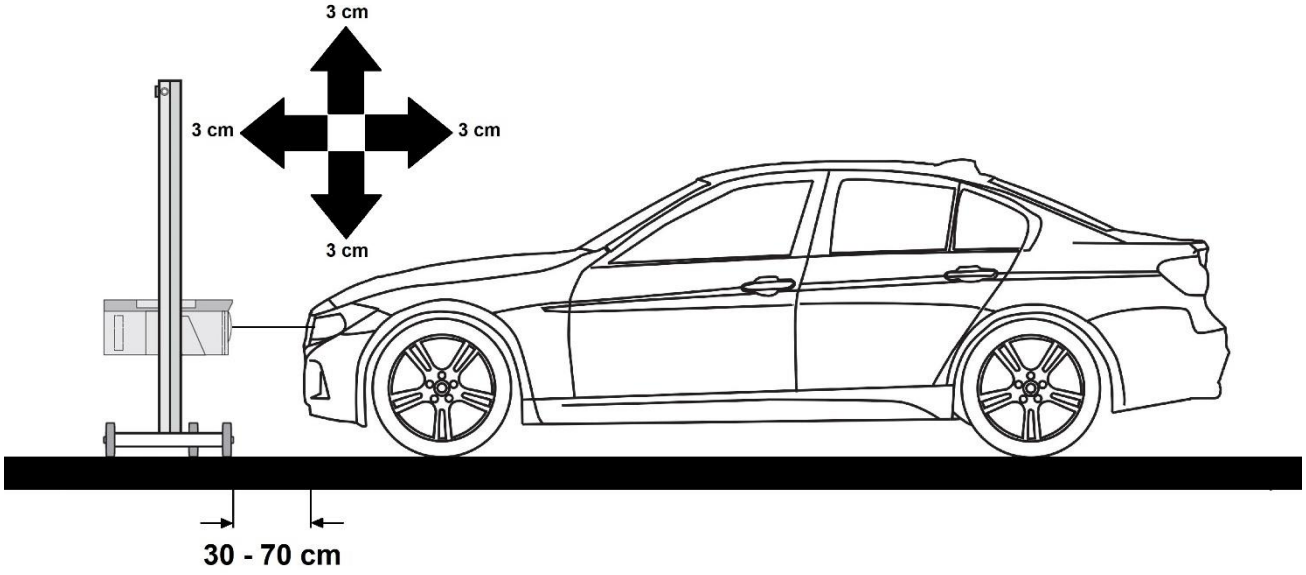
If the headlight beam setter is not equipped with a rail system, **ITS ALIGNMENT WITH THE VEHICLE MUST BE VERIFIED IN FRONT OF EACH HEADLIGHT TO BE CHECKED**

1. Position the headlight beam setter in front of the headlight to be checked.
2. Measure the height of the floor at the centre of the light and move the optical box to the corresponding height, making use of the graduated scale on the pole. The top part of the sliding system must be used as a reference.
   (This operation is not performed if the device features a laser pointing system, see para. 7.3)
3. Make sure that the optical box is at the centre of the headlights.

NOTE

Maximum height and lateral deviations: 3 cm.

Distance from the front edge of the optical box to the headlight: from 30 to 70 cm.



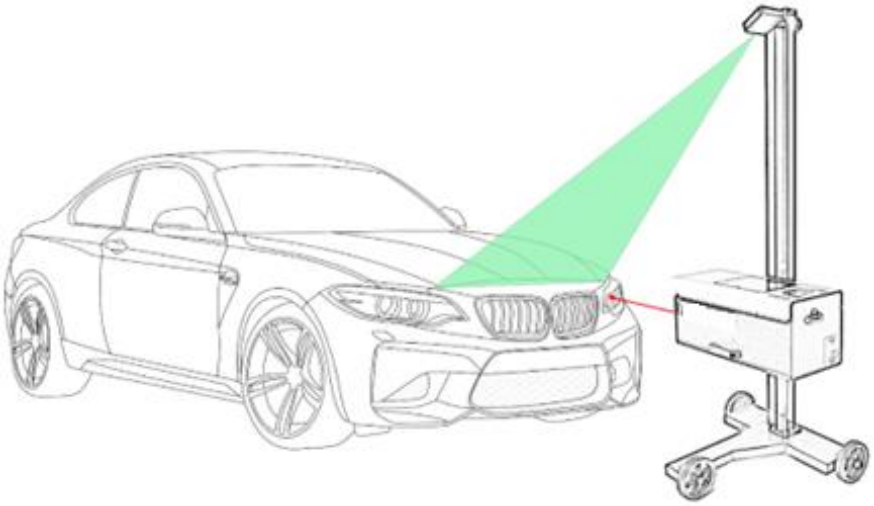
7.3 Using the LASER pointer

WARNING

Using the laser exposes the operator to the risk of injuries to the eyes. Therefore, strictly follow these instructions:

- **Never aim the laser beam at people, doors or windows.**
- **Never look directly into the laser beam.**
- Make sure that the workspace is appropriately illuminated.
- Avoid the risk of tripping.
- Protect the mechanical parts from the risk of falling or becoming detached.

The device is equipped with the LASER POINTER accessory, it can be used to facilitate the positioning of the device at the centre of the headlight to be checked. After checking the alignment by means of the visor, turn on the pointer by pressing the yellow button on the display. Use the sliding system to move the optical chamber with the laser dot to the centre of the headlight to be checked (see below).



8 Checking and/or adjusting the headlights

	NOTE The headlight beam setter allows to check all headlight systems, including DE, FF, LED systems and xenon headlights. The rectangle drawn on the control screen corresponds to the dimensions of the mandatory control surface in accordance with the directives relating to the adjustment of vehicle headlights. After adjusting them, the headlights must be secured to the vehicle in such a way that no involuntary variation occurs. The adjustment of the headlights must always be checked after repairing the vehicle suspension. The same is recommended also after replacing a headlight bulb.

In vehicles with automatic compensation of the inclination of the headlights or of the bodywork according to the load, it is necessary to
respect the specific features of these devices according to the manufacturer's instructions.

In vehicles where it is possible to manually adjust the headlights, the device must be in the locking position required for basic adjustment.

For headlights with adjustment devices for 2 positions only, where the locking positions are not marked in a particular way, proceed as follows:

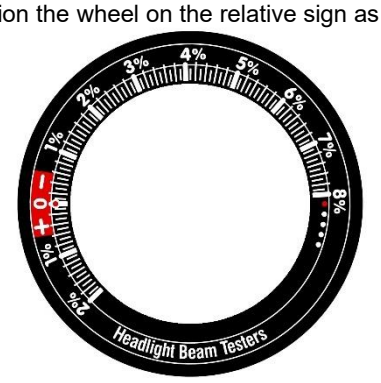
• In vehicles where the light beam rises as the load increases, make the adjustment in the final position of the device, where the light beam is at the maximum height.

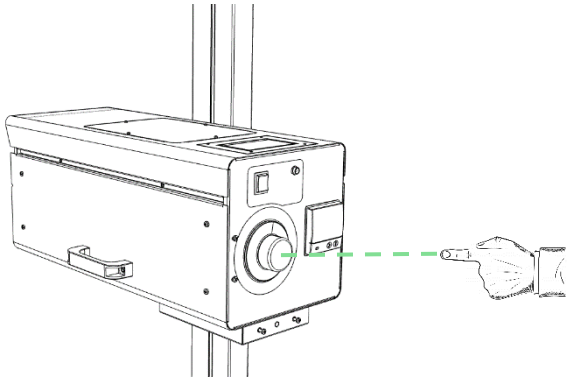
• In vehicles where the light beam drops as the load increases, make the adjustment in the final position of the device, where the light beam is at the minimum height.

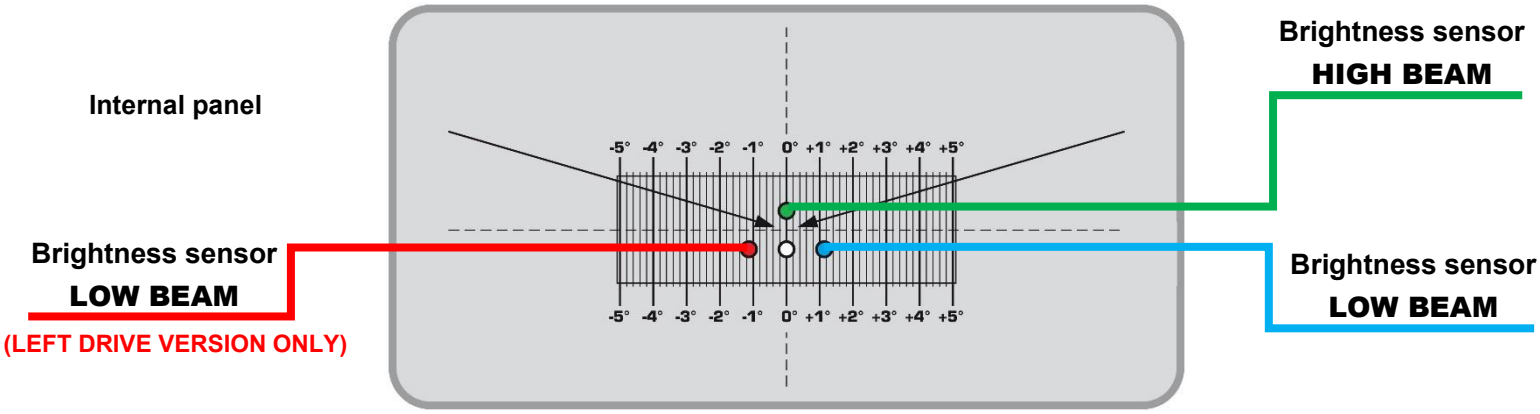
8.1 Internal panel

The internal panel moves by means of the graduated wheel situated at the back of the optical box. Depending on the type of vehicle to be controlled, position the wheel on the relative sign as follows:

Graduated Wheel







WHEEL IN POSITION 1: For vehicles with height from the ground to the centre of the headlights up to 80 cm.

WHEEL IN POSITION 1.5: For vehicles with height from the ground to the centre of the headlights over 80 cm.

On some motor vehicles, the manufacturer may have indicated, near the headlight, the inclination that the lights should have. In this situation, use the manufacturer's indication.

EXAMPLE: 1.2% is printed on the headlight - turn the WHEEL to position 1.2.

	**NOTE** **Before testing the headlights, CAREFULLY CHECK THAT THE SPIRIT LEVEL IN THE OPTICAL CHAMBER IS LEVEL.** If necessary, to level the optical chamber, open the friction lever, move the optical chamber until it is perfectly levelled, then tighten the friction lever again. Proceed to test the headlight.

A) Prepare the headlight beam setter and the vehicle as per previous instructions and turn on the low beam headlights; the headlight projection will appear on the internal panel.

B) Check that it corresponds to the reference line.

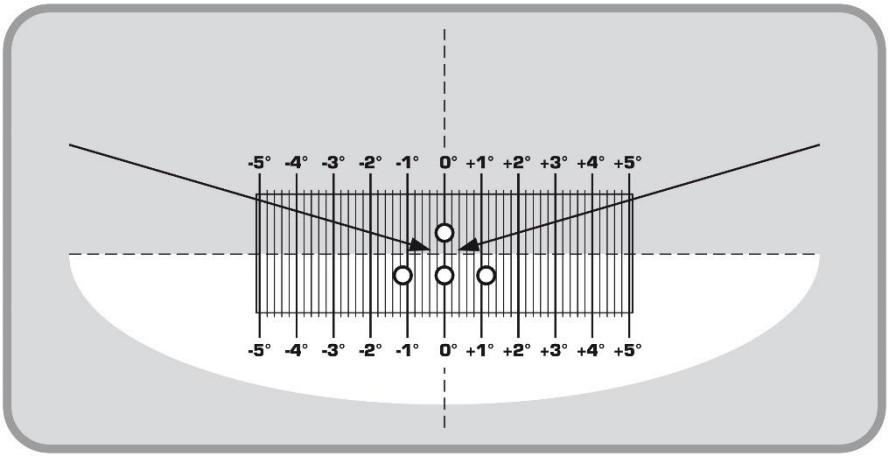
C) If necessary, act on the headlight adjustment system until the desired result is obtained.

8.2 SYMMETRICAL LOW BEAM HEADLIGHTS

Adjust the wheel in the correct position (see paragraph 8.1).

Switch on the low beam headlights: the light/dark limit must cover the entire width of the screen, if possible, horizontally along the reference line. If necessary, correct the headlight adjustment using the adjustment screws.

Example of European symmetrical low beam headlight adjustment:

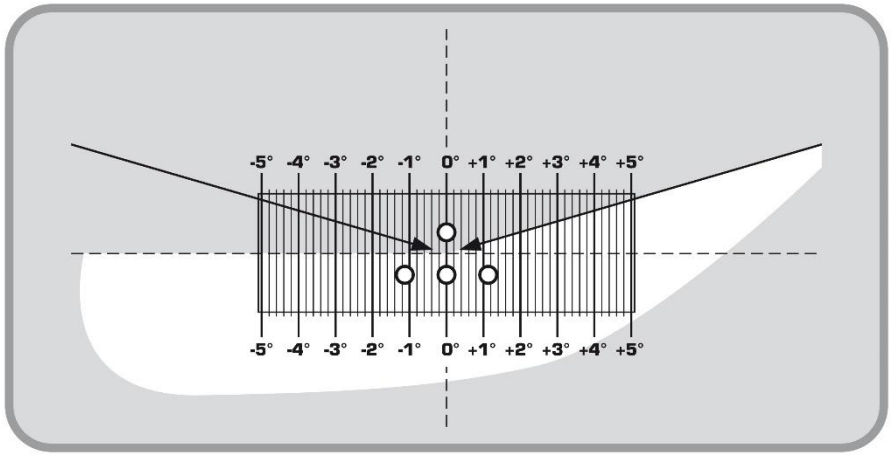


8.3 ASYMMETRICAL LOW BEAM HEADLIGHTS

Adjust the wheel in the correct position (see paragraph 8.1).

Switch on the low beam headlights: in headlights with an asymmetrical low beam, the light/dark limit must be in contact with the reference line. The intersection point between the left part and the right increasing part of the light/dark limit must coincide with the central mark (central cross of the panel). The light core of the light beam is therefore located to the right of the vertical line that crosses the central mark.
To make it easier to detect the intersection point of the centre line of the headlight, cover and uncover it alternately a few times. Finally, check the low beam headlight again.

Example of European asymmetrical low beam headlight adjustment:

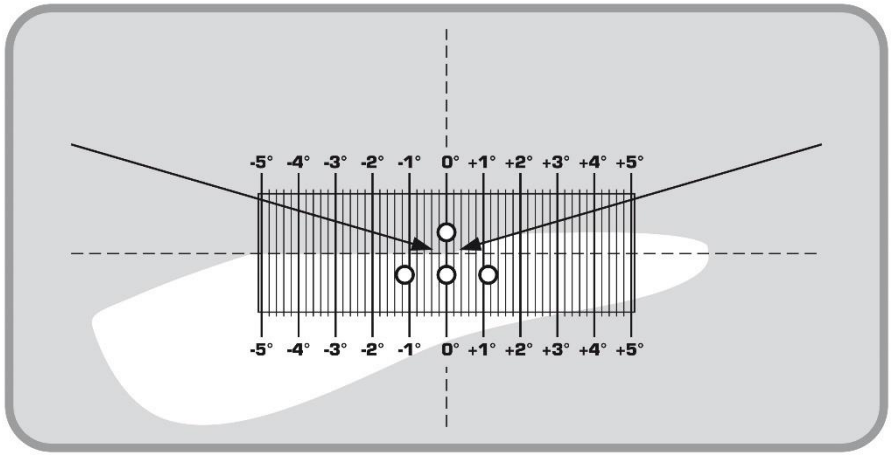


8.4 LED-XENON LOW BEAM HEADLIGHTS

Adjust the wheel in the correct position (see paragraph 8.1).

Switch on the low beam headlights: in headlights with an asymmetrical low beam, the light/dark limit must be in contact with the reference line. The intersection point between the left part and the right increasing part of the light/dark limit must coincide with the central mark (central cross of the panel). The light core of the light beam is therefore located to the right of the vertical line that crosses the central mark.
To make it easier to detect the intersection point of the centre line of the headlight, cover and uncover it alternately a few times. Finally, check the low beam headlight again.

Example of European LED-XENON low beam headlight adjustment:

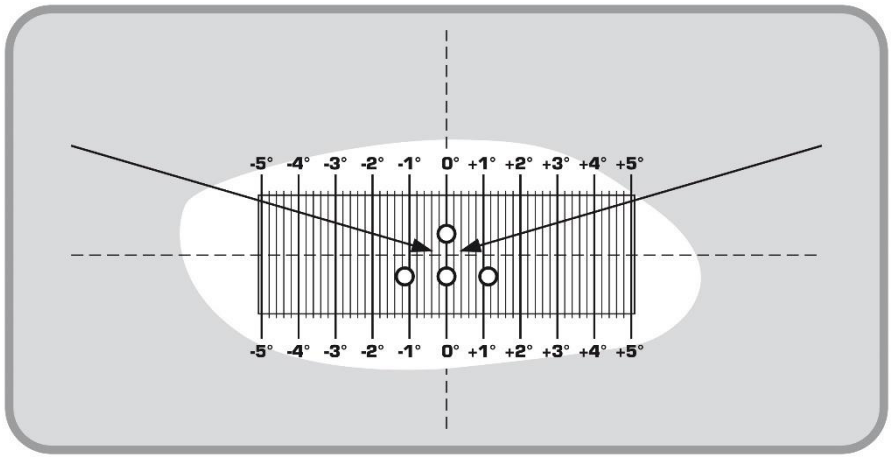


NB some halogen headlights have a high color temperature (>4000k). In this case it may be necessary to manually select the type of headlight by pressing the HAL/LED XE icon

8.5 HIGH BEAM HEADLIGHTS

	**NOTE** After perfectly adjusting the clear/dark limit of the low beam headlight, the centre of the light beam of the high beam headlight must be on the **HIGH BEAM brightness sensor**

When the high beam headlights are not located on the same plane as the low beam headlights, the high beam headlight test must be performed centring the light beam as shown in the picture:

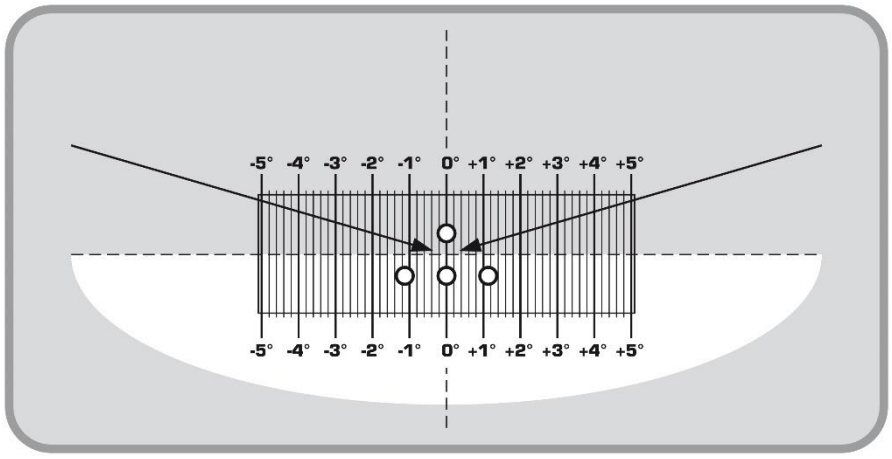


8.6 FOG LIGHTS

Adjust the wheel in the correct position (see paragraph 8.1).

Switch on the fog lights: the light/dark limit must cover the entire width of the screen, if possible, horizontally along the dotted line. If necessary, correct the fog light adjustment using the adjustment system available.

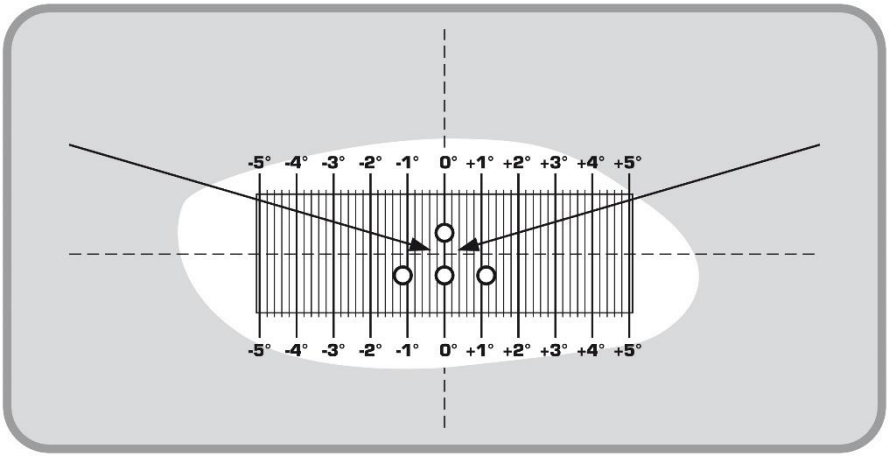
Example of European fog light adjustment:



8.7 Special lights for HIGH BEAMS

Switch on the high beam headlights: the centre of the light beam must be on the **HIGH BEAM brightness sensor**; if necessary, correct it using the adjustment system available.

Example of special high beam light adjustment:



NOTE
In the case of separate high beam modules (e.g. in combination with bi-xenon headlights), the high beam headlight must be adjusted according to the instructions of the manufacturer of the vehicle, as there may be different possibilities.

9 Test of light position and intensity

The device is equipped with high precision internal Luxmeter that permit to check, after adjusting the headlights, whether the maximum permitted value of the low beam headlight has been exceeded and whether the minimum lighting power of the high beam headlight and/or whether the maximum power has been exceeded.

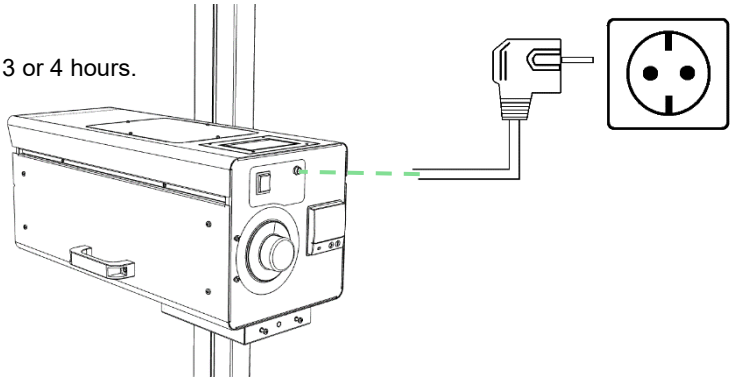
9.1 Charging the battery

Before using the device, charge the annex battery for at least 3 or 4 hours.
To charge the battery proceed as described below:

1. Insert the electric plug in the device charging socket

2. Connect the plug in the electric socket.

The battery is now charging...



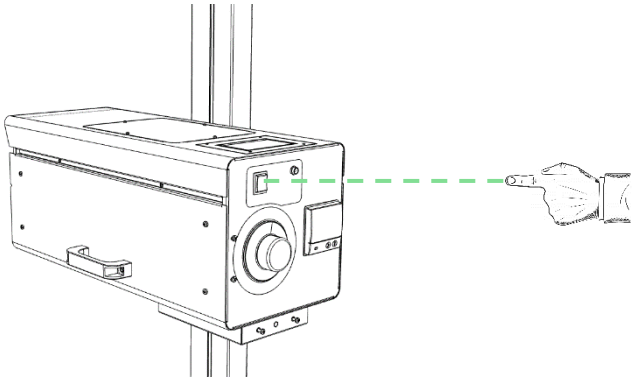
9.2 Turning ON/OFF the device

To turn ON the device, proceed as described below:

1.Push the ON/OFF button of the optical body and wait for at least 15 seconds. The divice will automatically turn on, opening the main menu.

The device is now ready for use.

To turn OFF the device push ON/OFF button again

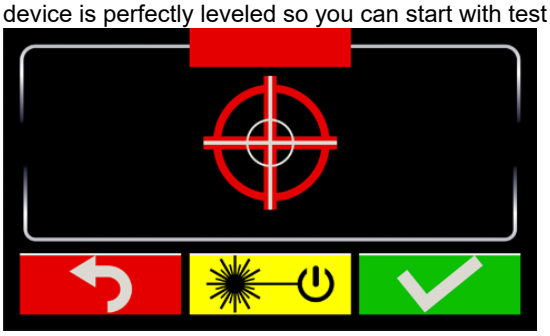


9.3 Device configuration

When turning on the device, you'll see the following screen:

9.3.1 Test

By pressing on TEST will start the device configuration for the headlight test showing the internal electronic level.
If the level is red, it means that the device is not perfectly leveld so you have to adjust it. If the level is green it means that the device is perfectly leveled so you can start with test



NOT OK

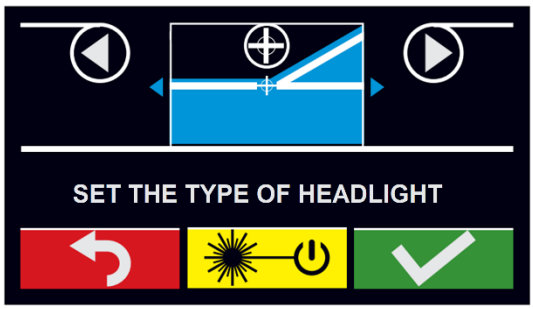
OK

 Use this button to go back to Home Screen

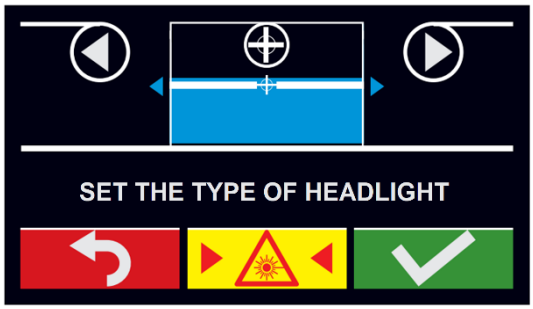
 Use this button to turn ON/OFF the laser pointing system

 Use this button to confirm and go to next step

By pressing green button will open the screen for the setting of the HEADLIGHT TYPE (SYMMETRYCAL OR ASYMMETRYCAL)



ASYMMETRYCAL HEADLIGHT



SYMMETRYCAL HEADLIGHT

 Use these arrows to choose between symmetrycal and asymmetrycal headlights

 Use this button to go back to the electronic level screen

 Use this button to turn ON/OFF the laser pointing system

 Use this button to confirm the selection and go to next step

By pressing green button will open the screen for the setting of the HEADLIGHT height (this data is set just for the printout, it is irrelevant for the test).

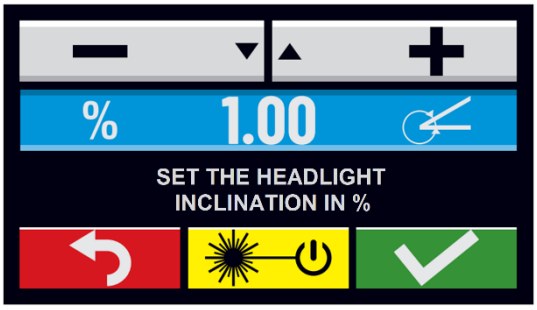
 Use these arrows to change the headlights height

 Use this button to go back to the selection of the headlight type

 Use this button to turn ON/OFF the laser pointing system

 Use this button to confirm the height and go to next step

By pressing green button will open the screen for the setting of the HEADLIGHT Inclination (this data is set just for the printout, it is irrelevant for the test). It is the same inclination set trough graduated wheel as on chap. 8.1



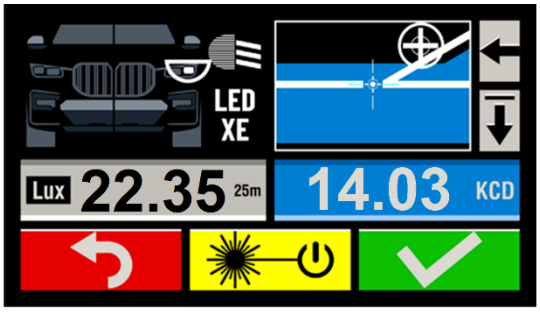
 Use these arrows to change the headlight inclination

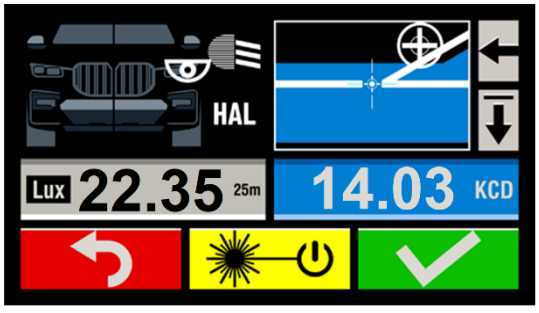
 Use this button to go back to the setting of headlight height

 Use this button to turn ON/OFF the laser pointing system

 Use this button to confirm the inclination and go to next step

The device is ready for the first **test of the Low beam right headlight**, displaying on the screen its position and the luminous intensity. As the device has automatic detection of the light type, you will see near the position of the light that you are testing the written LED/XE (it means that you are testing led or xenon headlights) or HAL (it means you are testing halogen headlights)



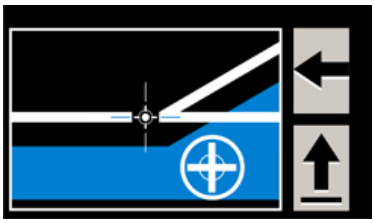


This part of the screen is showing the type and position of the headlight that you are testing

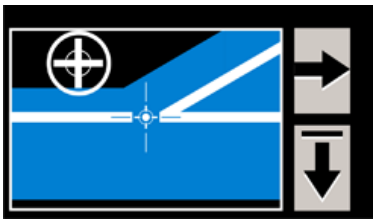
LED/XENON LOW BEAM RIGHT HEADLIGHT

HALOGEN LOW BEAM RIGHT HEADLIGHT

This part of the screen is showing if the projection of the headlight is correct or not



Position of the headlight is too low and right side



Position of the headlight is too high and left side

POSITION OF THE HEADLIGHT IS PERFECT

This part of the screen is showing the light intensity of the headlight

Light intensity of the headlight in Lux/25m

Light intensity of the headlight in Kcand/1m

Use this button to go back to the setting of headlight inclination

Use this button to turn ON/OFF the laser pointing system

Use this button to confirm the test and go to next step

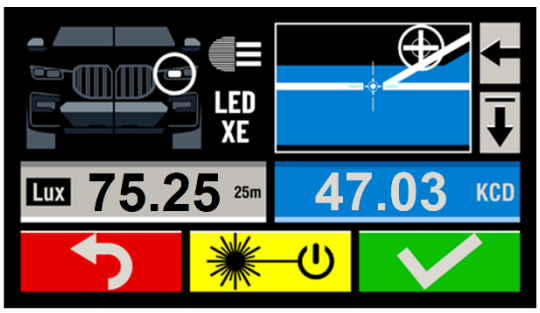
If the headlight is correctly positioned and the light intensity is regular according to the rules, press the green button to proceed with test on next headlight (high beam right).

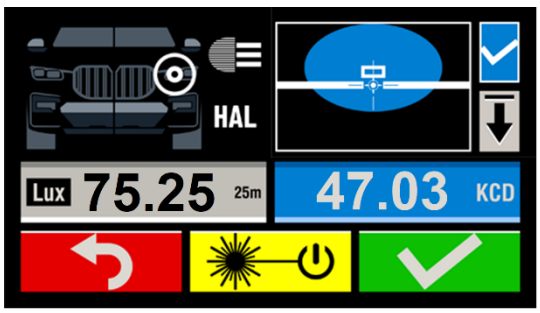
LOW BEAM HEADLIGHT LIMITS

(Italian law)

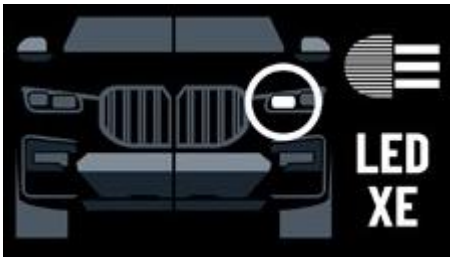
6 - 144 Lux/25m

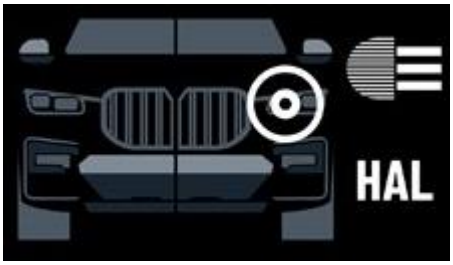
The device is ready now for **the test of High Beam right headlight**, displaying on the screen its position and the luminous intensity.





This part of the screen is showing the type and position of the headlight that you are testing

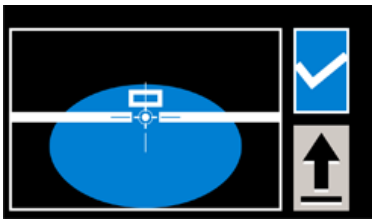




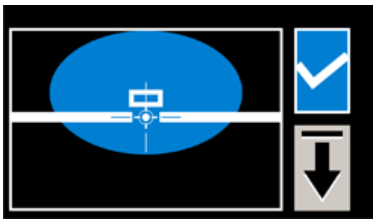
LED/XENON HIGH BEAM RIGHT HEADLIGHT

HALOGEN HIGH BEAM RIGHT HEADLIGHT

This part of the screen is showing if the projection of the headlight is correct or not



Position of the headlight is too low



Position of the headlight is too high

POSITION OF THE HEADLIGHT IS PERFECT

This part of the screen is showing the light intensity of the headlight

Light intensity of the headlight in Lux/25m

Light intensity of the headlight in Kcand/1m

Use this button to go back to the test of Low Beam Right Headlight

Use this button to turn ON/OFF the laser pointing system

Use this button to confirm the test and go to next step

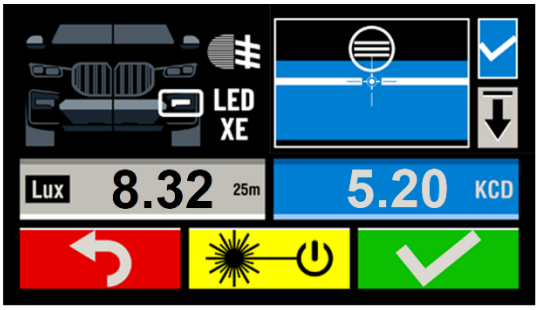
If the headlight is correctly positioned and the light intensity is regular according to the rules, press the green button to proceed with test on next headlight (fog beam right).

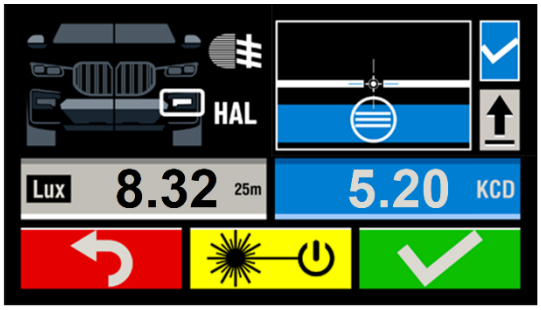
HIGH BEAM HEADLIGHT LIMITS

(Italian law)

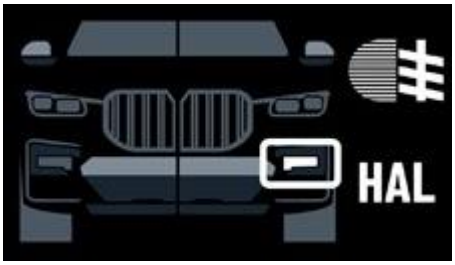
32 – 240 Lux/25m

The device is ready now for **the test of Fog Beam right headlight**, displaying on the screen its position and the luminous intensity.





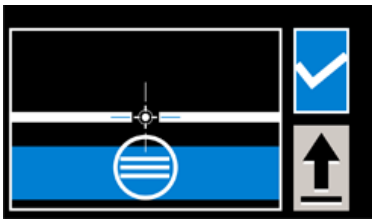
This part of the screen is showing the type and position of the headlight that you are testing



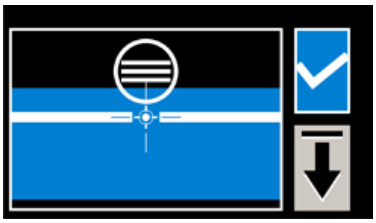
LED/XENON FOG BEAM RIGHT HEADLIGHT

HALOGEN FOG BEAM RIGHT HEADLIGHT

This part of the screen is showing if the projection of the headlight is correct or not



Position of the headlight is too low



Position of the headlight is too high

POSITION OF THE HEADLIGHT IS PERFECT

This part of the screen is showing the light intensity of the headlight

Light intensity of the headlight in Lux/25m

Light intensity of the headlight in Kcand/1m

Use this button to go back to the test of High Beam Right Headlight

Use this button to turn ON/OFF the laser pointing system

Use this button to confirm the test and go to next step

If the headlight is correctly positioned and the light intensity is regular according to the rules, press the green button to proceed with test on next headlight (Low beam left).

Follow the same procedure for all headlights of the left side

After the test of the left fog light, the software allows you to print data or to send them to the PC where, thanks to the appropriate software, they can be saved and printed

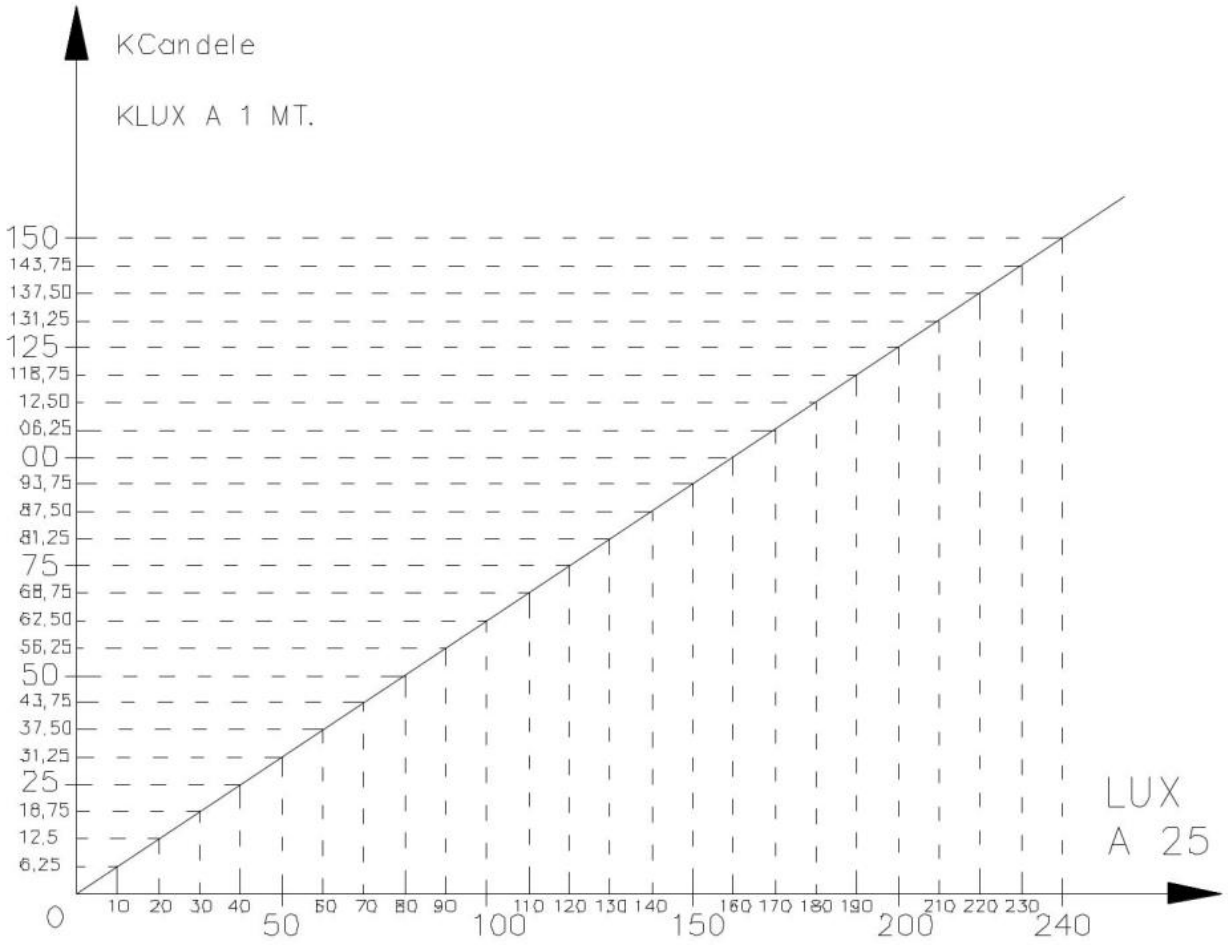
At the end of the tests turn off the device by pressing the POWER button

NOTE
The brightness values for headlights combined with several built-in modules must be evaluated according to the instructions of the manufacturer of the vehicle due to the **different** adjustment possibilities.
Before checking the brightness values, visually check the headlights.

Failure to reach the values indicated able may be caused by the following errors:

ERROR	*CAUSE*
The battery voltage drops considerably	Low battery, faulty alternator
Considerable difference between battery voltage and bulb voltage	Poor power connections, poor line or insufficient section sizing, poor ground connections, faulty switch contacts, oxidised or rusty connectors on the fuses
The reflectors are steamed up or corroded	Water seepage in the headlight due to leaks caused by deformation of the lens, insufficient ventilation, mechanical damage and ageing
Indefinable light/dark limit	Broken lamp holder, bulb not steady in the holder (it has become loose)
Impossible to adjust the headlight	Faulty headlight adjustment, the reflector has become detached from the adjustment screws (vibrations)
Weak reddish light in xenon headlights	Faulty power supply or gas discharge lamp
Brief ignition upon start-up with xenon headlights	Insufficient feeder power supply, e.g. power line section too small

9.4 Klux/1m – Lux/25m conversion table



10 Checking the device

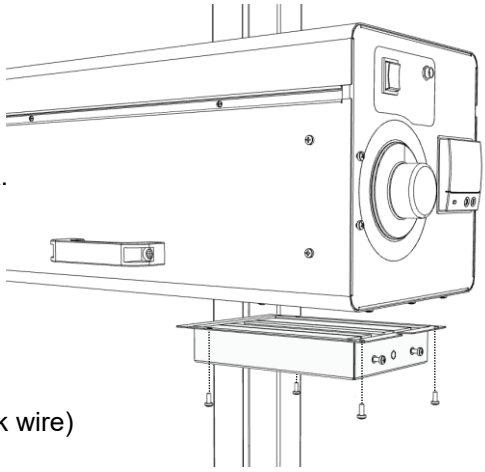
Top Auto headlight beam setters are supplied already calibrated. If the device is used improperly in the workshop (for example if it is overturned), the calibration may be lost. For this reason, it is recommended, based on the frequency of use, to have the device checked using an appropriate calibrator at regular intervals, for example by contacting your supplier.

10.1 Cleaning

It is good practice to protect the tool from dust when it is not used. A cover for the optical chamber is available on request. Periodically wipe it with a damp cloth to remove any stains. The paint that covers the tool is resistant to detergents. Do not grease the column and do not use alcohol to clean it.

	**WARNING** **Do not leave the device in areas where there may be corrosive vapours, for example in areas where batteries are charged or in painting areas.**

10.2 Substitution of 12V batteries



To substitute the batteries, proceed as following:

1. Turn off the device and remove all cables connected to it
2. Remove the 4 screws holding the battery cover under the optical box.
3. Remove the batteries
4. Dispose of batteries by current norms and regulations.

Take into consideration assembly and polarity direction (V+ red wire; V- black wire)

5. Substitute battery 12 V.
6. The assembly takes place in reverse order.

NB Connect the battery after installing the headlight tester.
(The headlight is delivered with the battery disconnected)

11 Additional instructions

11.1 Decommissioning and disposal

According to directive 2012/19/EU, the machine cannot be disposed of as municipal waste, but it must be delivered to a specialised centre for the separate collection and disposal of WEEE (Waste Electrical and Electronic Equipment), or it can be returned to the supplier if a new one is purchased. Those who release WEEE into the environment will be fined. If released into the environment or used improperly, WEEE can release substances dangerous for the environment itself and for human health.

11.2 Battery disposal

The machine uses 1 x 12V battery which is considered special waste and as such must be disposed of according to the regulations in force.

12 Spare parts

12.1 General provisions

When replacing parts, use only ORIGINAL SPARE PARTS.

The use of non-original spare parts shall immediately suspend the warranty; in addition to this, the **Manufacturer** shall not be held responsible for any accidents that may occur.

The **Manufacturer** offers its Customers its Technical Assistance Service to solve any issues regarding the use and maintenance of the device.

To order spare parts, use the form attached, which must be completed in all its parts.

Below is a list specifying, for the individual parts, the number corresponding to its position in the exploded views, the code and the description.

Any orders (which must be sent via email) must be addressed to:

12.2 SPARE PARTS REQUEST FORM

The following page features the form that must be used to order spare parts.

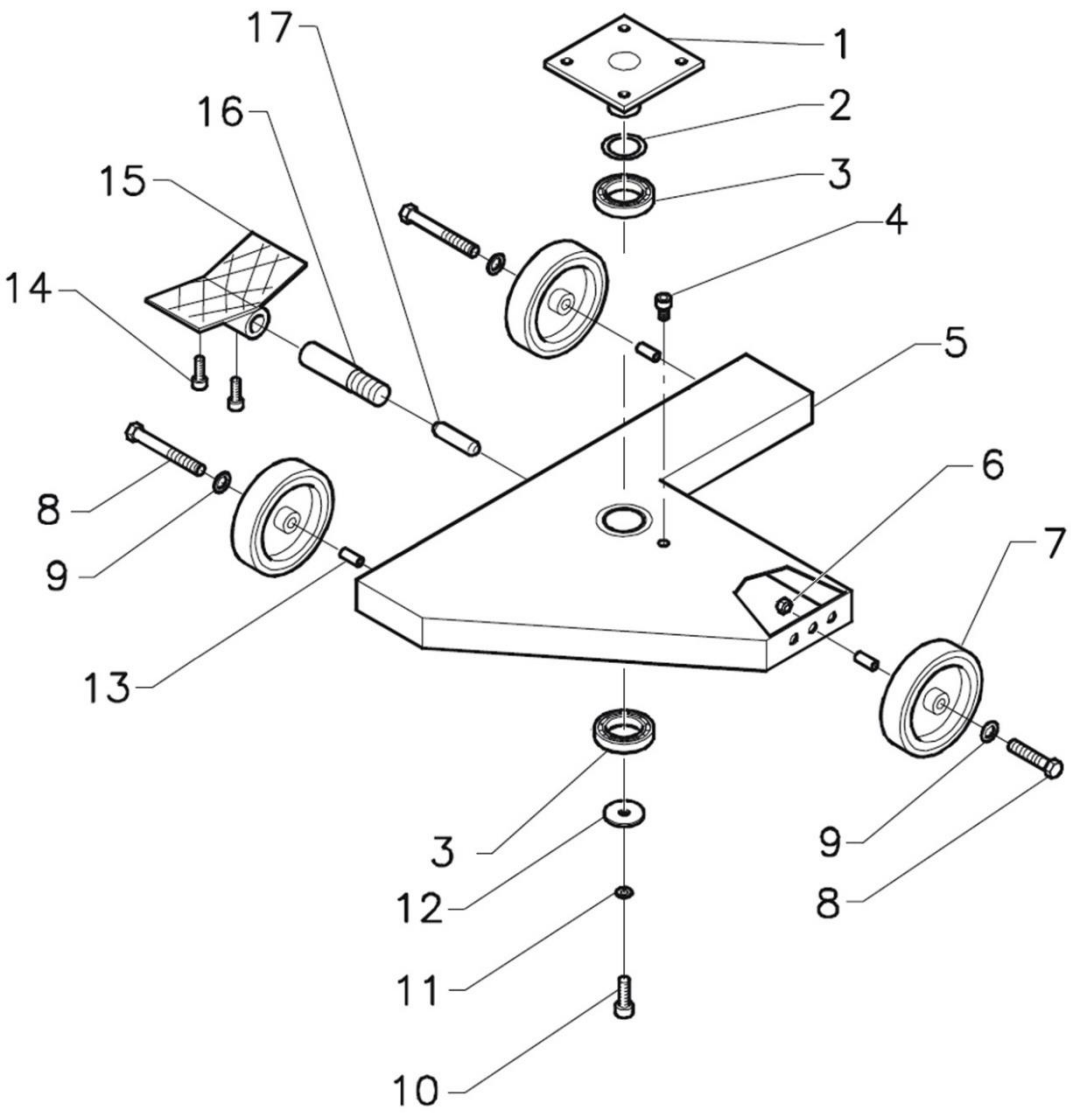
When requesting spare parts or a quote for spare parts, it is advisable to photocopy the form and complete it in all its parts.

Filling it out completely is very important to have a prompt response from the **Manufacturer's Technical Assistance Service.**

	SPARE PARTS REQUEST FORM
CUSTOMER:	
MODEL:	**SERIAL No.:**
YEAR OF MANUFACTURE:	
SHIPPING ADDRESS:	
TELEPHONE:	**FAX:**

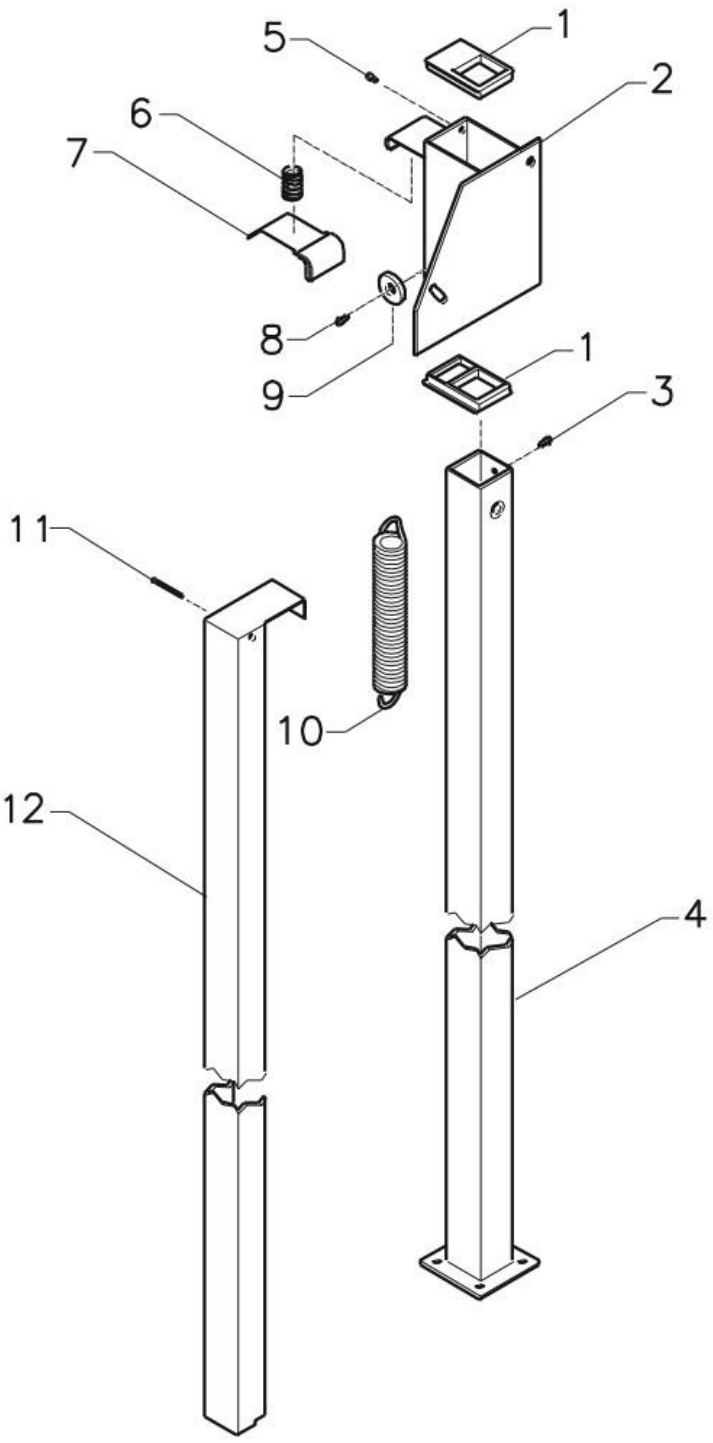
DRAWING No.	POS.	CODE - DESCRIPTION	QUANTITY

12.3 Exploded view of STANDARD swivel base (0HBP338HB00)



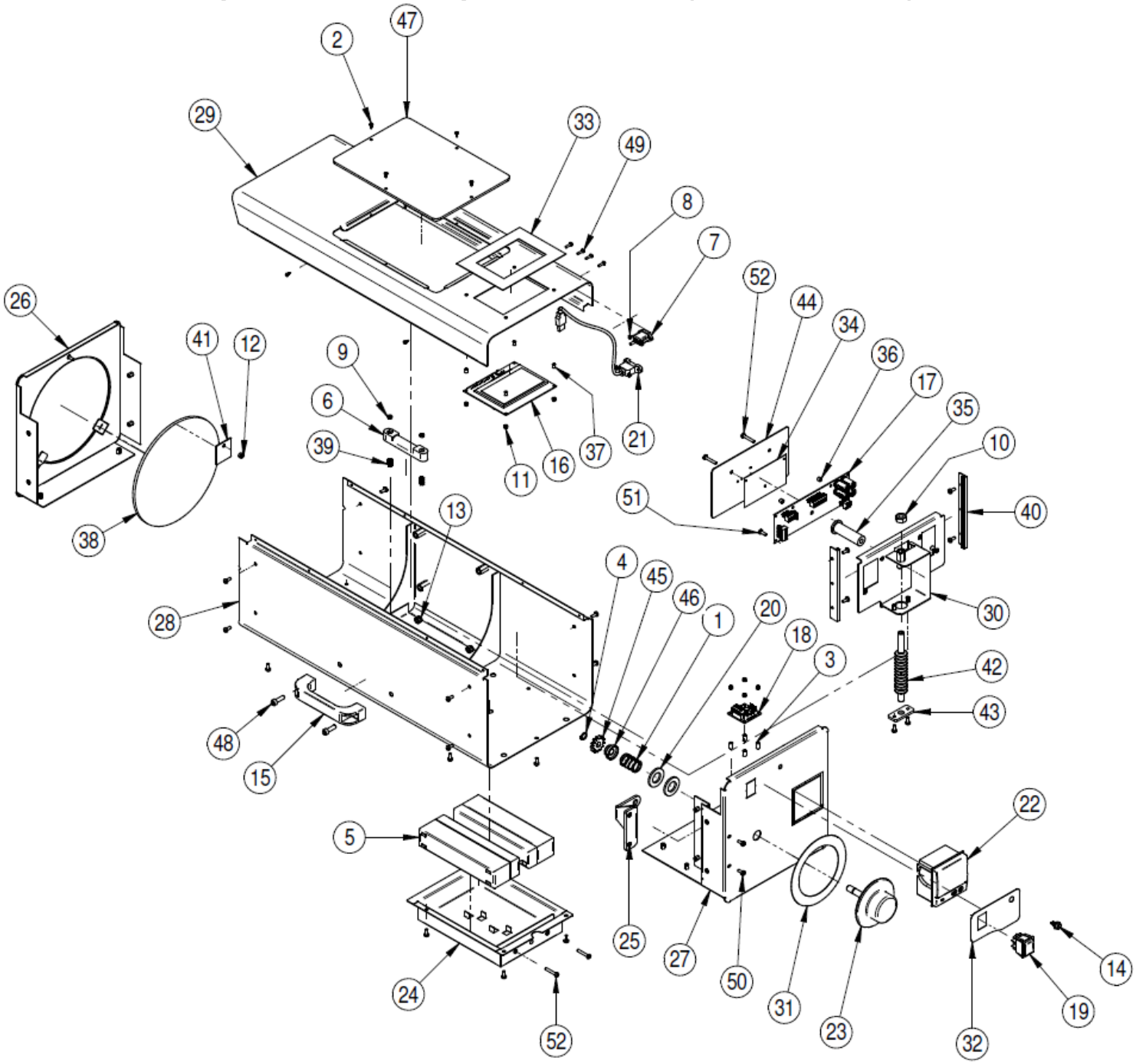
POS.	CODE	DESCRIPTION	Q.TY
1	ZHB00414HB00	Column fastening plate	1
2	ZHB0518HB00	Wear washer	1
3	0HB0519HB00	Ball bearing	2
4	VM8x16	Screw M8x16	1
5	CHB0520HB00	Platform made of welded and painted sheet metal	1
6	DM8A	Self-locking nut M8	1
7	0RT0007HB00	Standard wheel Ø 150	3
8	VM8x65	Screw M8x65	3
9	R8x24	Washer 8x24	3
10	VM8x25	Screw M8x25	1
11	R8x16	Washer 8x16	1
12	R6x24	Washer 6x24	1
13	0RT0008HB00	Bush for wheel	3
14	VM8x20	Screw M8x20	2
15	CHB0521HB00	Brake lever	1
16	ZHB0522HB00	Brake lever pin	1
17	ZHB0523HB00	Brass brake bush	1

12.4 Exploded view of column (0HBC004HB00)



POS.	CODE	DESCRIPTION	Q. TA
1	0HB0146HB00	Column guide frame	2
2	CHB0243HB00	Painted sliding sheet	1
3	VM6x16	Screw M6x16	1
4	YVHB0109HB00	Painted headlight beam setter pole H1660	1
5	VA5x18	Self-tapping screw 5x18 large head	4
6	0HB0128HB00	Sliding gun spring	1
7	0HB0305HB00	Complete brake lever	1
8	VM5x5	Screw M5x5	1
9	R6x24	Washer 6x24	1
10	0HB0127HB00	Headlight beam setter cover spring	1
11	VM6x45	Screw M6x45	1
12	YSHB0241HB00	Screen-printed pole cover	1

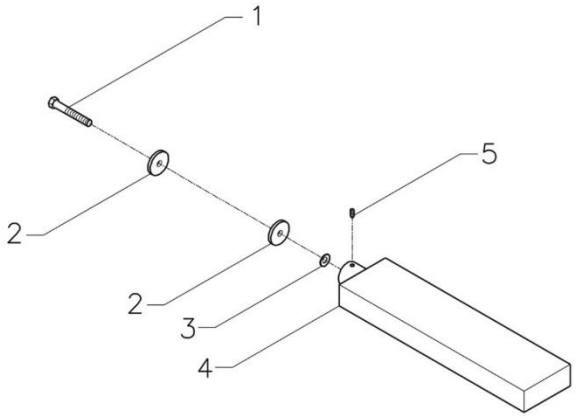
12.5 Exploded view of optical chamber (0HBS063HB40)



POS.	CODE	DESCRIPTION	Q. TY
1	2123	MOLLA COMPRESSIONE Øei22.2 d=1.7	1
2	7049-3_5X9.5Z	VITE UNI EN ISO 7049 - ST2.9 X 8	8
3	960100042	Distanziale Whrth Elektronik, H 10mm	4
4	AEUNI7434-10	ANELLO ELASTICO UNI 7435-10	1
5	BATT-12V	BATTERIA 12V	2
6	BOLLA 16X16X98	BOLLA 16X16X98	1
7	CN-RJ45-Ethernet	ATTACCO ETHERNET	1
8	Dado_M3	DADO M3 UNI 5588	4
9	Dado_M4	DADO M4 UNI 5588	2
10	DADOM10	DADO M10 EN 24032	1
11	DADOM3_UNI7473	Nut Selflocking - M3 - UNI 7473	8
12	DADOM4_UNI7473	DADO M4 UNI 7473	1
13	DADOM6_UNI7473	DADO M6 UNI 7473	2
14	JACK 2.1	JACK FEMMINA 2.1	1
15	MAN-140X40X25	MANIGLIA	1
16	PS299R01	Display centrafari HL40 TOUCH	1
17	PS351R00	Scheda Fotodiodi CENTRAFARI HL40	1

18	PS357R00	ACCELEROMETRO	1
19	PULS-ON-OFF	INTERRUTTORE ON/OFF	1
20	RONDM18	RONDELLA UNI 6592 D=19X34	2
21	RR0148	Prolunga USB (RR0148)	1
22	RRSTAMPANTE-A	STAMPANTE RR301-401 - 0SR021CR000	1
23	TA600008	MANOPOLA + PERNO + GRANO	1
24	TA600009-01	SCATOLA BATTERIA CENTRAFARI HL40	1
25	TA660003-03	STAFFA DI GUIDA PERNO	1
26	TA702051	CHIUSURA 'LENTE' CENTRAFARI	1
27	TA702052-01	CHIUSURA RETRO CENTRAFARI	1
28	TA702054-01	CASSA PER SCATOLA OTTICA	1
29	TA702056-01	COPERCHIO SUPERIORE CENTRAFARI	1
30	TA725101-01	PORTAPLANCIA CENTRAFARI HL40	1
31	TA750012	ADESIVO GRADUATO PER ROTELLA	1
32	TA750042	ADESIVO COMANDI CENTRAFARI HL40	1
33	TA750043	ADESIVO CENTRAFARI - DISPLAY	1
34	TA750044	FILTRO OTTICO ADESIVO - PLANCIA	1
35	TA751025-01	BUSSOLA IN PLASTICA	1
36	TA755015-01	DISTANZIALE CENTRAFARI 5 mm	2
37	TA755016	DISTANZIALE CENTRAFARI 6 mm	4
38	TA757021	LENTE CENTRAFARI Ø200	1
39	TA758002	MOLLA COMPRESSIONE Øe=9 d=1 Lo=24	2
40	TA765024	PROFILO DI GUIDA IN ABS	2
41	TA765027-01	PIASTRINA FORATA	1
42	TA765065	PERNO DENTATO CON MODULO 2	1
43	TA765066-01	PIASTRINA DI CENTRAGGIO	1
44	TA765136	PLANCIA GRADUATA CENTRAFARI	1
45	TA770014-03	RUOTA DENTATA Z=13 m=2 Dp.26	1
46	TA773070	SUPPORTO MOLLA	1
47	TA778006	VETRO OBLO' CENTRAFARI STANDARD	1
48	VITEUNI5931_M6X20	VITE M6 X 20 UNI 5931	2
49	VITEUNI7045_M3X12	VITE TESTA BOMBATA INT.CROCE M3X12	4
50	VITEUNI7045_M4X10	VITE TESTA BOMBATA INT.CROCE M4X10	25
51	VITEUNI7045_M4X12	VITE TESTA BOMBATA INT.CROCE M4X12	2
52	VITEUNI7045_M4X25	VITE TESTA BOMBATA INT.CROCE M4X25	4

12.6 Exploded view of mirror visor (0HBV001HB00)



POS.	CODE	DESCRIPTION	Q. TA
1	0HB0148HB00	Handwheel 10x70 for mirror visor	1
2	R10x30	Washer 10x30	2
3	MT10x20	Cup spring 10x20	1
4	0HB0119HB00	Plastic visor without mirror	1
5	GM6x6	Grub screw M6x6	1
6	0HB0154HB00	Screen-printed glass mirror (not visible)	1