HEADLIGHT BEAM TESTER

ART. 2066

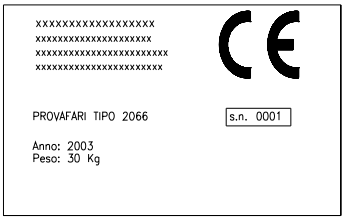
USE AND SERVICING MANUAL

English: ORIGINAL INSTRUCTION TRANSLATION

INDEX

TAKING DELIVERY OF THE APPLIANCE

At the moment of taking delivery of the device make sure that you have received all the material indicated on the accompanying documentation and that the device has not suffered any damage during transport. If this should be the case point out the extent of the damage to the forwarder and in the meantime contact our customer service department. Only by promptly following this procedure will it be possible to receive the missing material and compensation for damages.



INTRODUCTION

This is an appliance designed for correctly centering the headlights of any motor vehicle.
The appliance must be used exclusively for such purpose. Even the best machinery can only function properly and efficiently if used correctly and kept fully efficient. We therefore request that you carefully read this instruction booklet and refer to it every time any difficulties should arise when using the device. In case of need, we would like to remind you that our service centres, organised jointly with our retailers, are always willing to provide any advice required.

NOTE: for the purposes of updating the device in line with technological progress and specific production or installation requirements, the manufacturer may decide without warning to introduce modifications to it. As a result, even if the illustrations shown in this manual should differ slightly from the device in your possession, the safety features and instructions given in it remain applicable.

TECHNICAL DATA	U/M	
width	mm	600
length	mm	670
height	mm	1740
weight	kg	30
minimum operating height	mm	240
maximum operating height	mm	1410
power supply voltage art. 2066/D	V D.C.	9
power supply voltage art. 2066/I	V D.C.	12

SYMBOLS USED IN THE MANUAL

Warning symbol
Read the section preceded by this symbol carefully, for the safety of the operator and the appliance

PREPARATION OF THE APPLIANCE

HANDLING THE PACKAGED APPLIANCE

The device has its own special box divided into three parts:

- Optical box, mirror visor
- Base, handle
- Column complete with sliding mechanism.

Not more than two boxes should be piled on top of each other.
The weight is 30 kg.
The measurements of the boxes are:

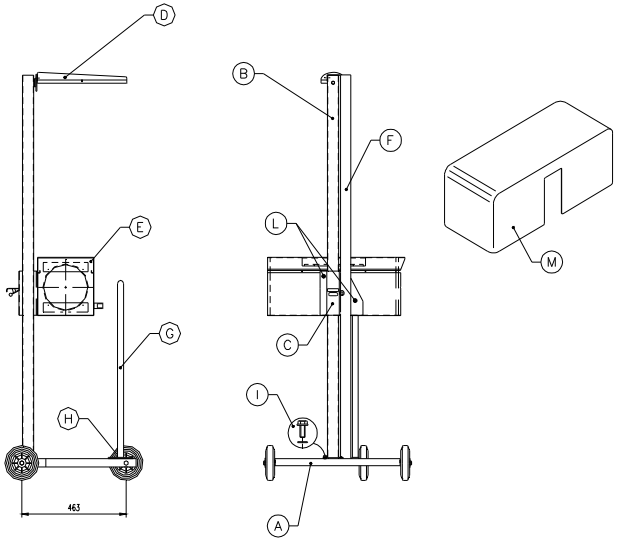
B: 630 mm
L: 1720 mm
H: 310 mm

HOW TO UNPACK THE APPLIANCE

Open the top end of the box and pull out the parts.
Keep the box for possible transport requirements.

DESCRIPTION OF THE APPLIANCE

STRUCTURE OF THE APPLIANCE



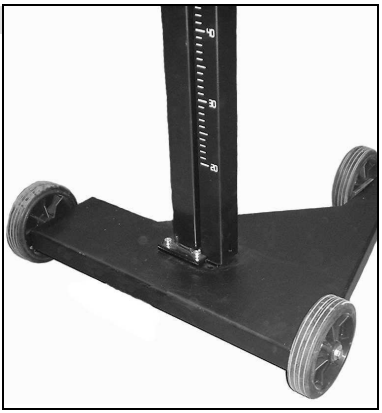
a) Base
b) Column
c) Sliding mechanism
d) Mirror visor
e) Optical box
f) Spring cover
g) handle (optional)
h) wheels
i) screws for attaching the base
l) accessories for attaching the optical box
m) dust cover (optional)

DESCRIPTION

The headlight beam tester is a device for testing the headlights of all types of motor vehicles, cars and heavy goods vehicles in general.
Pointing device with mirror visor.

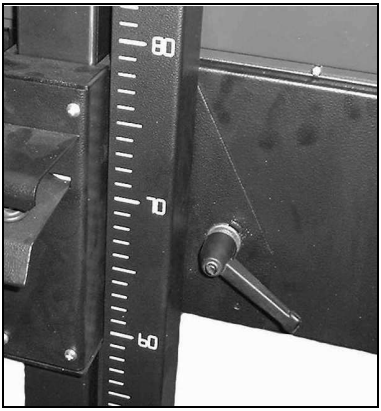
Mod.: 2066/D and 2066/I
Built-in battery power supply
Serial interface RS232

The appliance can be mobile and is provided with a base fitted onto rubber castors.



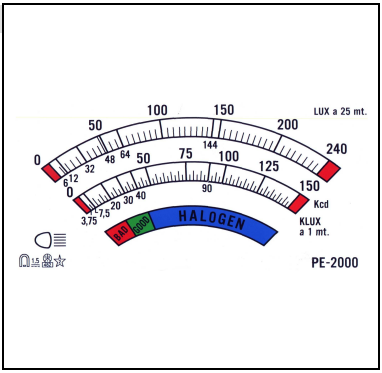
DESCRIPTION OF THE APPLIANCE

The optical box can be adjusted height-wise by sliding it along silent and precise, plastic sliding blocks balanced by a spring mounted on the inside of metal sheeting cover containing a centimetre gauge for exact positioning in relation to the headlight.



ART. 2066 AND 2066/S

The analogical instrument has three scales, two of which are graduated and one of which is coloured



ART. 2066/D

The digital display means the luminous intensity value can be quickly read.

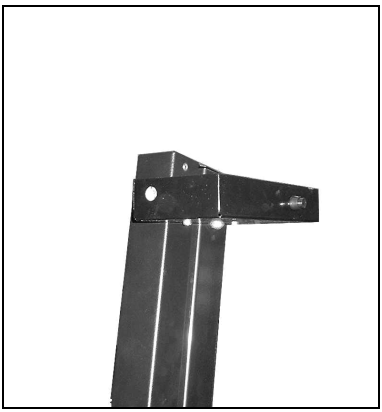
DESCRIPTION OF THE APPLIANCE

ART. 2066 I

The control monitor has a large, back-lit LCD display and serial socket RS232, enabling a number of operations to be carried out simply, guiding the operator in the centering of the headlight.

The visor facilitating alignment of the device with the vehicle functions by means of a mirror.

Or by means of a laser beam as optional.



GENERAL SAFETY PRECAUTIONS

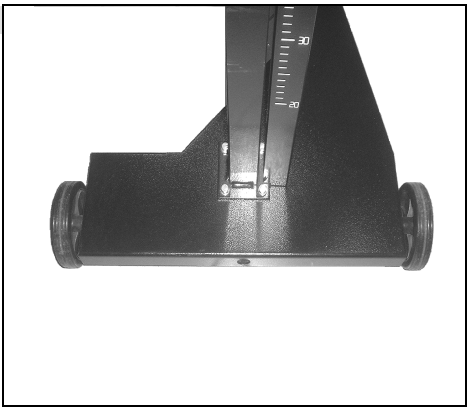
The rules shown below should be followed carefully to prevent damage to the operator or the device

- Carefully read the safety labels on the device, do not cover them for any reason and replace them immediately if they should be damaged
- The device should only be used by authorised staff trained to use it.
- Do not use the device in an explosive environment.
- The workplace must be dry and sufficiently aired.
- When moving the device watch out for other people and especially children.
- Do not bang against shelves or scaffolding where there is a risk of falling objects, you could be injured or the device damaged.
- The storage temperature should be between -5°C and +55°C.
- The operating temperature should be between +5°C and 45°C.
- Provide an appropriate exhaust fumes extraction system, since the headlights must be tested with the engine on. Accidental inhalation of carbon monoxide can cause serious injury and even prove fatal. Contact our area representative to find out which is the best system for your premises.
- Avoid leaving the headlight beam tester exposed to sunlight or in the immediate vicinity of sources of heat such as stoves, radiators etc.
- Do not leave the headlight beam tester in the rain or in excessively damp places, the electronic circuits could be damaged.
- If the headlight beam tester is to be left idle for prolonged periods cover it with a special dustsheet (optional).
- The headlight beam tester contains a battery which if handled improperly could cause a risk of fire or explosion. To prevent such risks do not use sources of heat or naked flames near the battery and in the event of replacement use another with the same technical characteristics.
- If anomalous functioning of the device should be observed request the assistance of the retailer or send the machine to the nearest servicing centre.
- In the event of replacing components, request ORIGINAL spare parts from a concessionaire and/or Authorised Retailer.
- Tampering with any parts of the device will result in lapsing of the guarantee.

PREPARATION OF THE HEADLIGHT BEAM TESTER

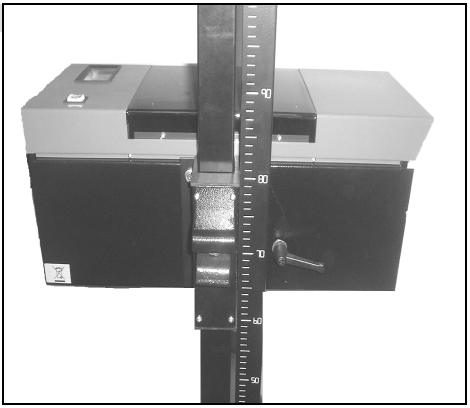
FITTING THE COLUMN TO THE BASE

Position the column on the base as shown in the photo.
Attach using the screws and nuts provided. (M8x20 screws – washer d.8 - nut M8)



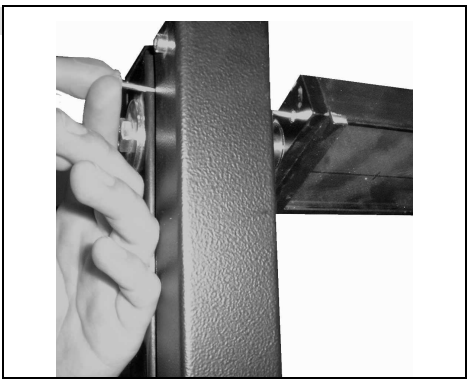
FITTING THE OPTICAL BOX

Position the optical box as shown in the photo.
Attach with washer d.8 and M8X20 screws, top left and with washer 8X24 (bigger)) and snap lever M8X20, bottom right.



FITTING THE MIRROR VISOR

The mirror visor is calibrated with the respective device during the testing phase and consequently cannot be used with other headlight beam testers.
Place the visor beside the plate so that the attachment holes and external rims coincide; screw on using the two screws provided.
Do not fit the mirror in a rotated position (protruding from the joint block) it would be in an incorrect position.
.



PREPARATION OF THE VEHICLE

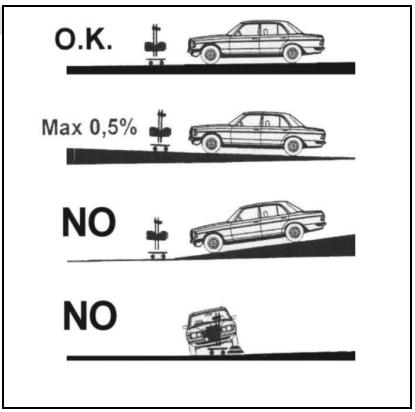
Make sure that the headlights are clean and dry. If the vehicle has its own headlight adjuster inside the vehicle, position this to “0”. Remove anything which might affect the correct position of the vehicle: mud, snow, ice etc. Straighten up the wheels of the vehicle. Make sure that the vehicle has no distortion of the body. Check that the tyre pressure is correct. Turn on the engine and perform the test. In the case of vehicles with pneumatic suspensions turn on the engine five minutes before starting the test and continue with the engine on.

WARNING!

When working in enclosed areas with the engine on, an extraction system for the noxious fumes produced is required. Use of a specific exhaust fume extraction system is recommended.

WORK SURFACE

During testing of the headlights the floor surface must be flat. If this is not possible the headlight beam tester and the vehicle should, at least, be positioned on a surface with an even difference in level and in any case with a slope of not more than 0.5%. The testing of headlights on surfaces which are not perfectly regular or flat is not recommended inasmuch as the adjustment of the same may not be correct.



ALIGNMENT WITH THE VEHICLE

POSITIONING

Place the headlight beam tester in front of the right headlight of the car at a distance of approx. 20cm, measure the height from the ground to the centre of the headlight and adjust the optical box to the corresponding height using the graduated scale on the column. Use the top of the sliding block as an index on the scale.

POSITIONING WITH THE HELP OF THE LASER POINTER

By turning the wheel on the back of the optical box to the "**0**", position, corresponding to the centre of the lens, a laser beam will be emitted which will help you to align the centre of the headlight.
When you set the inclination of the headlight using the wheel the laser will switch off automatically.

At the end of every test, to prevent the batteries from going flat, turn the inclination wheel situated at the back of the optical box to a percentage other than 0% (e.g. 1%).

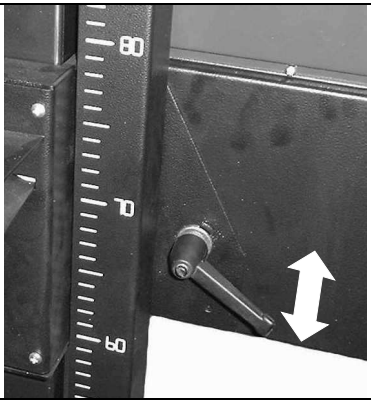
WARNING!

Do not look at the laser beam directly during this operation and make sure that it is not pointed at people near the workstation.

ALIGNMENT WITH THE VEHICLE

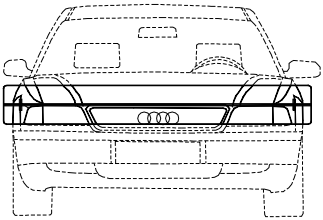
ADJUSTMENT

Check that the optical box is level by checking the spirit-level inside it. If it is not level, loosen the lever in the picture and adjust the box.

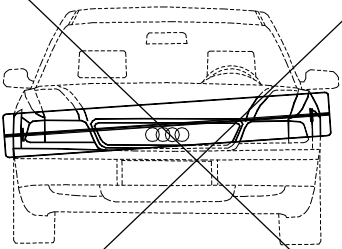


ALIGNMENT WITH THE MIRROR VISOR

Look for two symmetrical details on the front of the vehicle (such as the top of the windscreen or the headlights themselves). Make sure that the line on the visor coincides with the two points of reference, if not rotate the headlight beam tester until they do.
In the M version
- use the handle to rotate the headlight beam tester.



OK



NO

ALIGNMENT WITH THE VEHICLE

ALIGNMENT WITH THE LASER VISOR

The operator and designer of the workstation should be aware of the risks deriving from laser beams. The workstation should not in any case be in an area of transit, must be clearly identified and marked off by a yellow line and if possible enclosed by barriers.

Check that there are no people present in the testing area, release the column using the pedal, turn the visor downwards and turn it on.

Look for two details on the front part of the vehicle, such as the two headlights and turn the optical box until the two reference points coincide with the line projected by the visor, then block the column.

WARNING!

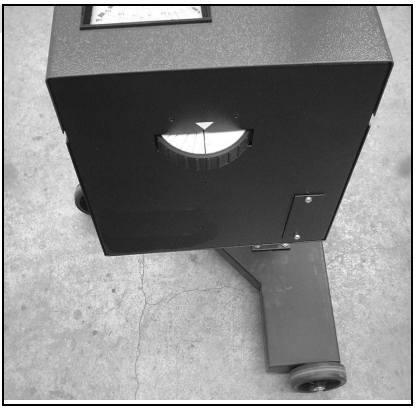
Turn off the laser immediately, before continuing any other operations, whether for testing or adjusting the headlight.

The line laser is in class 3A with a wavelength of 650 nm (nanometres) and a power of 3 mw (milliwatt) so that even direct observation of the beam with the assistance of amplifying observation instruments such as binoculars may be dangerous. Accidental exposure is not considered dangerous inasmuch as since the beam is visible the eyelid reflex does not allow exposure of more than 0.25 sec.

HEADLIGHT BEAM TESTING ART. 2066 AND 2066/D

ADJUSTMENT

At the top of the headlight read off the headlight inclination given by the manufacturer, e.g. 1.2%, turn the wheel situated at the back of the optical box accordingly.
Should no indications be given by the manufacturer, observe the current legal dispositions.

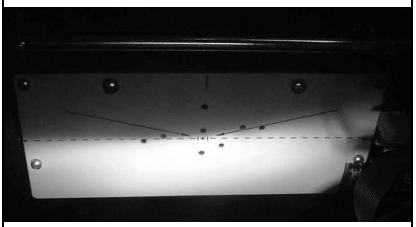


WARNING!

We remind you that the inclination of the headlights must in any case comply with current legislation, which states that for **lower beam headlights** situated at **up to 80cm from the ground the inclination must be at least 1%**.
For upper beam headlights above 80 cm, the inclination must be at least 1.5%.

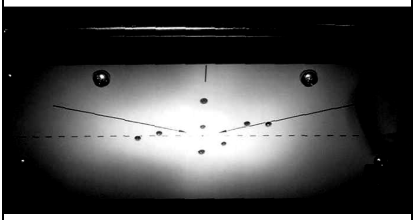
TESTING THE LOWER BEAM HEADLIGHT

Check that the position of the projection of the headlight is aligned with the serigraphed line on the test panel.
version 2066/D
- press the switch with the lower beam headlight symbol to read off the value



TESTING THE UPPER BEAM HEADLIGHT

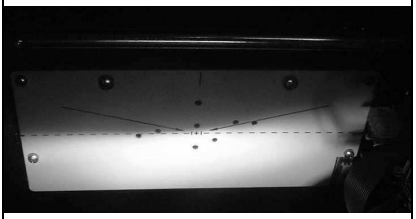
Check that the position of the projection of the headlight is central and press the switch with the upper beam headlight symbol to read off the value.



HEADLIGHT BEAM TESTING ART. 2066 AND 2066/D

TESTING THE FOGLIGHT BEAM

Check that the position of the projection of the foglight is aligned with the serigraphed line on the test panel and press the switch with the foglight symbol to read off the value



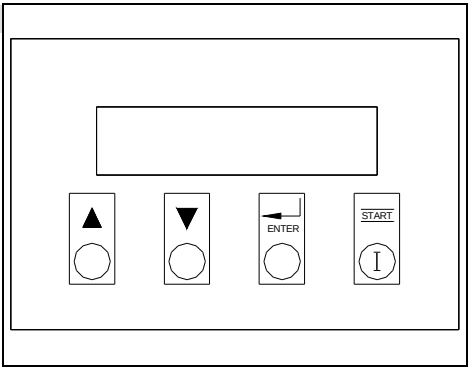
HEADLIGHT BEAM TESTING ART. 2066/ I

PREPARATION

Using the **UP** or **DOWN** buttons type in the height of the headlight from the ground and press **ENTER.**

WARNING!

If the writing **BATTERY FLAT** appears when turned on, connect the battery charger provided to the socket situated on the back of the optical box and leave to charge for at least **12** hours; testing can also be done however with the battery charger connected and functioning.

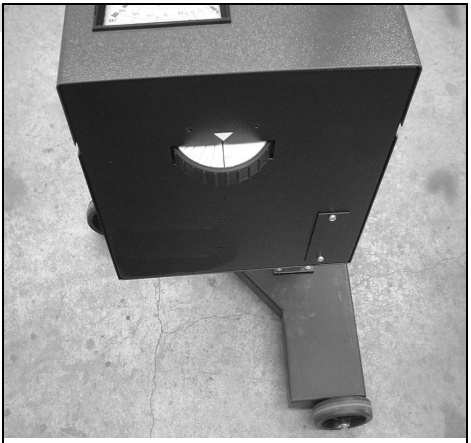


ADJUSTMENT

At the top of the headlight read off the headlight inclination stated by the manufacturer, e.g. 1.2%, turn the wheel situated at the back of the optical box accordingly.
Should no indications be given by the manufacturer, observe the current legal dispositions.

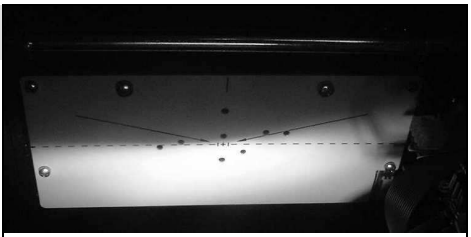
WARNING!

We remind you that the inclination of the headlights must in any case comply with current legislation, which states that for **lower beam headlights** situated at **up to 80cm from the ground the inclination must be at least 1%**.
For upper beam headlights above 80 cm, the inclination must be at least 1.5%.



TESTING THE LOWER BEAM HEADLIGHT

The display will now read "**CHECK RIGHT HEADLIGHT"**, press **ENTER**.
The wording "**ANB.DX KLX=015,2**" (right lower beam Klux= "read off value ") will now appear, check that the position of the projection of the headlight is aligned with the serigraphed line on the test panel and if so, press **ENTER**



HEADLIGHT BEAM TESTING ART. 2066/ I

TESTING THE UPPER BEAM HEADLIGHT

The wording "**ABB.DX KLX=041.5**" (right upper beam Klux= "read off value ") will now appear on the display, check the position of the projection of the headlight on the test panel and press **ENTER**.

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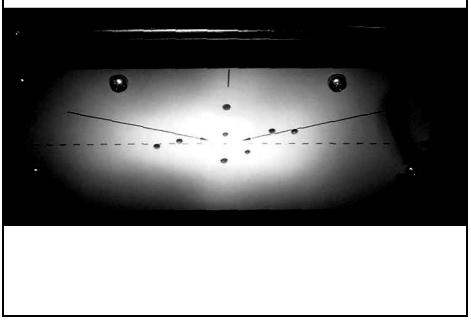
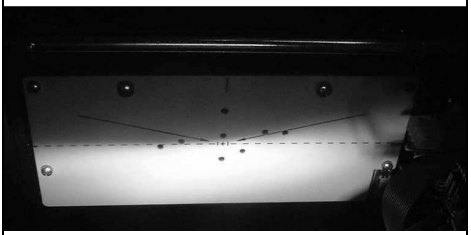


TESTING THE FOG LIGHT

The wording "**FNB.DX KLX=011.4**" (right foglight Klux= "read off value ") will now appear on the display, check the position of the projection of the foglight on the test panel and press **ENTER**.



Now move over to the left-hand side of the vehicle and repeat the test sequence.
At the end of the procedure the device will forward the data to the PC station.

WARNING!

After positioning on the left headlight, check the alignment once again using the visor.

ADDITIONAL INSTRUCTIONS

PREPARATION OF THE VEHICLE IN COMPLIANCE WITH STVZO

The vehicle should be placed in its normal driving position on the road as instructed by the manufacturer.

a) Check the **tyre pressure** as indicated by the car manufacturer.
b) Seat a person or place a 75kg weight in the driving seat of empty multi-axle vehicles.
c) Seat a person or place a 75kg weight in the driving seat of single-lane vehicles or tractors or single-axle work machinery (with driver or trailer).
d) For vehicles with level adjustment, such as hydraulic or air suspension, the vehicle should be set at the level foreseen for normal driving as indicated by the vehicle manufacturer.
e) If the vehicle has an automatic system for regulating the distance illuminated, observe the manufacturer's instructions.
f) For manually adjustable headlights the adjustment device should be in the prescribed rest position. For headlights with an adjustment device of only two positions, meaning that the rest position is not indicated, proceed as follows:
    - for vehicles on which the beam of light moves upwards, the setting should be made in the final position, where the beam of light is at the highest
    - for vehicles on which the beam of light moves downwards, the setting should be made in the final position, where the beam of light is at the lowest.

Please note that the empty weight is the weight of vehicle ready for use without roof racks, with the tanks fully mounted and full (at least 90% corresponding to § 76 /756 / EWG attachment 5) and including all the pieces of equipment involved in functioning. For other vehicles, such as motorbikes or vans, add 75 kg of weight for the driver.

Roof racks are containers destined to carry a load and to be used on top of the vehicle or to be towed behind it as a container vehicle, such as containers.

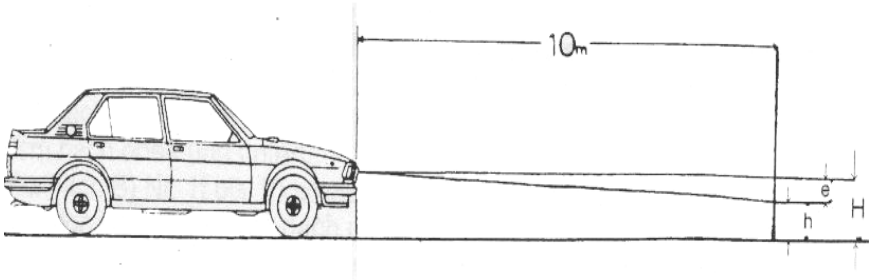
Pieces of equipment include, for example: spare tyres, spare parts, tools, jacks, extinguishers, joining walls, fl
racks with flat handles and flat bars, anti-slide device, weights.

ADDITIONAL INSTRUCTIONS

VERIFICATION AND ADJUSTMENT OF THE HEADLIGHT IN COMPLIANCE WITH STVZO

In vehicles on which the headlights can be positioned manually the adjustment lever should be in the rest position foreseen. Empty, multi-axle vehicles should have somebody on board or else be loaded with a 75kg weight in the driving seat.
Single axle vehicles such as tractors units or work machinery (with driving seat or trailer) should have somebody on board or else be loaded with a 75kg weight in the driving seat.
E= deviation of the light-dark barrier at a distance of 10 metres
H= height of the centre of the headlight on the occupied space in cm
H= height of the coloured band of the test surface above the occupied space in cm

To test the headlight, the deviation of the headlight beam downwards over 10 metres must be calculated. See the “e” measurement in the figure above
Generally speaking the manufacturer’s adjustment measurement, shown on the headlight or on the manufacturer’s label, applies.



STVZO ADJUSTMENT TABLE

According to § 50 paragraph 8 StVZO for multi-axle lorries first licensed from January 1990 onwards, except for tractors and work machinery, the regulations of law 75/756/EWG apply for headlights with lower beam with a construction height of not more than 1200mm from the carriageway. In compliance with such, the adjustment of the headlights of these vehicles is correlated to the regulation gauge, independently of whether the EG or ECE licence has been given regarding the manufacture of the illumination device for heavy goods vehicles or not.
The table below shows which adjustment measurement must be used for each type of vehicle.

Inspection tolerance for tests according to § 29 StVZO on a wall for adjustments at a distance of 10 metres.
The following deviations from the position of the dark-light barrier indicated in the table below

for vehicles A) and B) 1a to 1e of the table:
up to 5 cm upwards or downwards
for vehicles B) 1f to 1h and 2 ,3 of the table:
up to 10 cm upwards or downwards

The division between the horizontal and upright part of the dark-light barrier should not deviate by more than 5cm from the vertical through the central stencil towards the left or right.

ADDITIONAL INSTRUCTIONS

Type of vehicle 	Measure of adjustment “e” in cm at 10 metres	
	Foglights	Lower beam headlights
A) Multi-axle lorries first licensed from January 1990 onwards, except for tractors or farm or forest machinery with headlights in which the highest point of the illuminated area is not more than 1200mm from the carriageway.	measurement of adjustment indicated on the vehicle	See “B”
B) Other heavy vehicles		
1. Vehicles for which the highest point of the illuminated area is not more than 140 cm above the occupied space.		
a. cars (including combined vehicles)	12	20
b. vehicles with beam adjustment knob	10	20
c. engines or multi-axle work machinery		
d. single-axle heavy vehicles		
e. lorries with front load		
f. lorries with back load except for vehicles as per 1b.		
g. engines		
h. delivery vehicles	30	40
2. Vehicles for which the highest point of the illuminated area is higher than 140 cm above the positioning surface.	H/3	H/3 +7
3. Engines and split axle work vehicles with constant lower beam headlights on which the inclination needed for the centring of the beam of light is indicated.	2*N	20
*) the properties of this device are to be observed as instructed by the manufacturer **) **bicycles with motor with 3-watt lighting system shall be treated as bicycles.**		

ADDITIONAL INSTRUCTIONS

REPLACING THE LASER VISOR BATTERIES

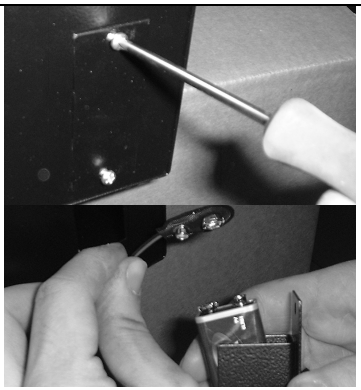
Unscrew the two screws on the cover of the laser visor and replace the 3 1.5V size AA batteries making sure you put them in the right way up; close the visor again fixing the cover on using the screws provided.

WARNING!

For longer duration we recommend using alkaline batteries.

REPLACING THE BATTERIES ART. 2066/D

Should the headlight beam tester device battery need replacing proceed as follows:
with a crosshead screwdriver unscrew the two self-tapping screws fixing the battery support to the back cover of the optical box.
Remove the support and extract the battery, detach the connector and replace.
Reassemble, repeating the operations described for dismantling in the reverse order.

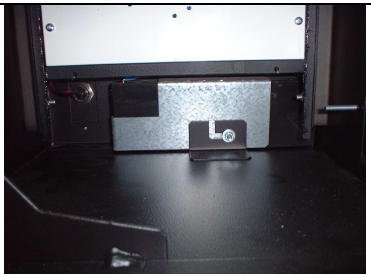


WARNING!

For longer duration we recommend using alkaline batteries

REPLACING THE BATTERIES ART. 2066/I

To replace the 12Vcc 2Ah lead battery proceed as follows:
Open the optical box, removing the cover, be careful not to damage the electrical connections.
The battery is behind the test panel, to remove it unscrew the nut with a socket wrench and unhook the attachment bracket. Remove the battery and replace with a new one making sure you put it in the right way up.
Reassemble and check the movement of the test panel before putting the cover back on.



ADDITIONAL INSTRUCTIONS

CLEANING AND SERVICING

The machine does not require special servicing apart from normal cleaning with a damp cloth (water and spirit or normal detergent).

WARNING!

Do not use nitrogen-based solvents

DEMOLITION AND DISPOSAL

The appliance is made mainly of steel.
Other parts:
Plastic: some small parts
Cardboard and paper: packaging and documents
Painting of the machine: epoxy, scratch-resistant powder.
For disposal of the machine, observe local council regulations.