

# **HEADLIGHT TESTER**

**Series 2019**

**MANUAL FOR USE AND  
MAINTENANCE**



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## ACCEPTANCE OF THE MACHINE

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At the time of delivery it is essential to check at once and make sure you have received all the material indicated in the shipping documents and that the machine has not undergone damage during shipment. In this case, show the damage to the forwarder and inform our customer service department. Only if you proceed promptly in this way will it be possible to obtain any missing material and reimbursement of the damage.

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## FOREWORD

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This is a device designed for correct headlight beam alignment of any motor vehicle.

The machine must be used for this purpose only. Even the finest of machines can function properly and ensure profitable service only if used correctly and kept in the best possible condition. For this reason, we ask you to read this manual with care and to reread it whenever difficulties should arise in using the machine. In case of need, we remind you that our service centers, organized in cooperation with our retailers, are always at your disposal for any advice you may need.

**NOTE:** the manufacturer may decide to make changes in the device without notice, in order to adapt it to technological advances and specific production or installation needs. Therefore, even if the illustrations shown in the manual differ slightly from the machine in your possession, the safety and instructions about it are guaranteed.

TECHNICAL DATA	U/M	
Width	mm	600
Length	mm	670
Height	mm	1740
Weight	kg	30
Minimum working height	mm	240
Maximum working height	mm	1410

## SYMBOLS USED IN THE MANUAL



Warning symbol

Read the sections preceded by this symbol with particular care, for the safety of the operator and the machine.

## PREPARATION OF THE MACHINE

### HANDLING CRATED MACHINE

The machine is packed in a special crate divided into three parts.

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

Every part is, in turn, separately packed.

Do not stack more than two crates.

The packed weight is 30 kg.

The external dimensions are:

**W:** 630 mm

**L:** 1720 mm

**H:** 310 mm

### HOW TO UNPACK THE MACHINE

Open the crate from the top and remove the parts.

Keep the crate for possible shipping needs.

## DESCRIPTION OF THE MACHINE

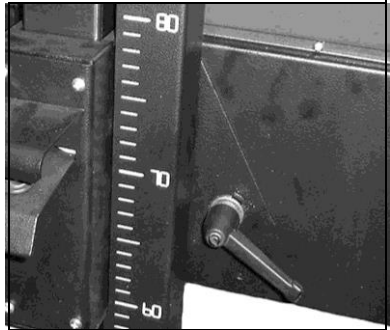
### DESCRIPTION

The headlight tester is a device that serves to test headlights of all types, for motor vehicles, cars and trucks in general. Aiming with the mirror visor.

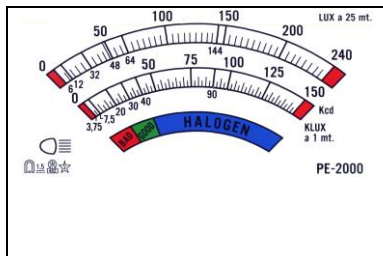
The device is mobile, equipped with a base mounted on rubberized wheels.



The optical chamber is adjustable in height by means of slides on precise, silent, plastic runners on a column marked with a centimeter scale for exact positioning with respect to the headlight.



The analogical instrument is equipped with three scales, two of which are graduated and one colored.



The visor that facilitates the alignment of the device to the vehicle is a mirror type.



## GENERAL SAFETY RULES

**The following rules must be followed carefully to prevent damage to the operator and machine.**

- Read the machine labels, do not cover them for any reason, and replace them immediately if they should be damaged.
- The device should only be used by authorized personnel, trained in its use.
- Do not use the device in an explosive atmosphere.
- The working environment should be dry and sufficiently ventilated.
- When moving the machine, pay attention to other people, especially children, in the vicinity.
- Do not bump shelves or scaffoldings where there may be a danger of falling objects: you and the machine could be hurt.
- The storage temperature should be between  $-5^{\circ}$  and  $+55^{\circ}\text{C}$ .
- The working temperature should be between  $+5^{\circ}$  and  $+45^{\circ}\text{C}$ .
- Provide an adequate exhaust system for the exhaust gas, since the headlight test must be performed with the engine of the motor vehicle running. Accidental inhalation of carbon monoxide can cause serious damage to the organism, with a fatal outcome in some cases. Contact our agent in your zone, who can indicate the most suitable system for your company.
- Do not leave the headlight tester in the sun or in the immediate vicinity of hot objects like heaters, radiators, etc.
- Do not leave the headlight tester out in the rain or in an excessively damp place as its electronic circuits could be damaged.
- If the headlight tester will not be used for a prolonged period, we recommend that you cover it with its dust cover (optional).
- There is a battery in the headlight tester that could cause a fire or explosion hazard if handled improperly. To prevent this risk do not heat or use open flames near the battery and, when replacing it, use one with the same characteristics.
- When you encounter any malfunction in use of the machine, contact the retailer or send the machine to the nearest service center.
- In case of parts replacements, order ORIGINAL replacement parts from a concessionaire or authorized retailer.
- Tampering with any part of the machine will cause invalidation of the warranty.



## PREPARATION OF THE HEADLIGHT TESTER

### ASSEMBLY OF THE COLUMN ON THE BASE

Position the column on the base as shown in the photo. Fasten with the hardware supplied. (M8x20 screw – d.8 washer - M8 nut)



### ASSEMBLY OF THE OPTICAL BOX

Insert the sliding system in the lower part of the column paying attention to the orientation, see pictures beside.



Place the sliding system in the lowest position. Place the optical box on the base and fix it at the sliding system as shown in the picture by a M8x20 screw and threaded lever.



## ASSEMBLY OF THE MIRROR VISOR

Place the screw whit washer and spring in the upper hole of the column until the screw pass through.

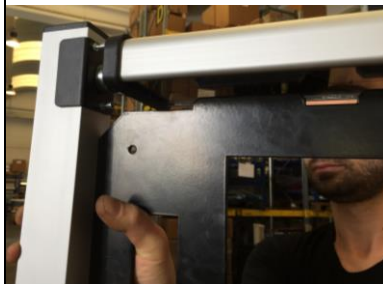
Place the .adjusting plate as in the picture



Fix the visor by the screw



Adjust the visor to obtain a perfect perpendicularity to the column



## PREPARATION OF THE VEHICLE

Make sure the headlights are clean and dry. If the vehicle is equipped with a headlight aligner, set in on "0". Eliminate anything that could affect the correct position of the vehicle: mud, snow, ice, etc. Straighten the wheels. Make sure the vehicle does not have any distortions of the frame. Make sure the tires are inflated at the correct pressure. Start the engine and perform the test. In case of vehicles with pneumatic suspension, start the engine five minutes before starting the test and proceed with the engine running.

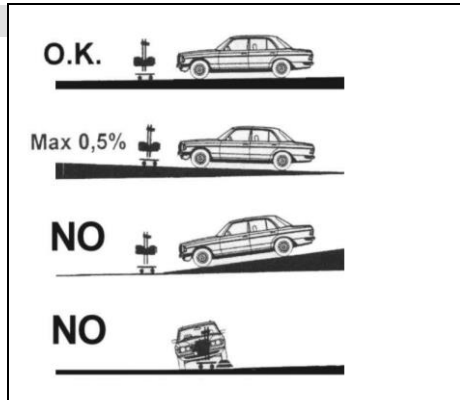


### CAUTION!

When operating in an enclosed space with the engine on, it is essential to evacuate the toxic gasses produced by combustion. We recommend using a specific fan for exhaust fumes.

### WORK SURFACE

During the headlight test the floor surface must be level. If this is not possible, the headlight tester should be positioned on a surface with a uniform slope, in any case not exceeding 0.5%. Do not test headlights on floors that are not perfectly regular and level, as the measurement might not be accurate.



## ALIGNMENT WITH THE VEHICLE

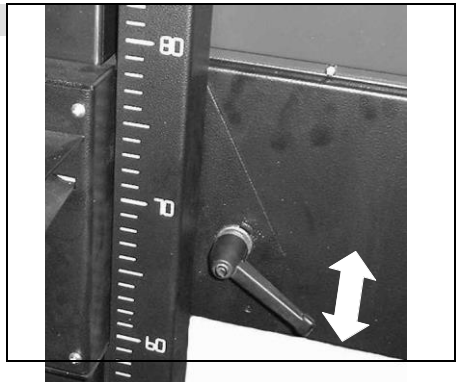
### POSITIONING

Place the headlight tester in front of the right headlight of the vehicle at a distance of about 20cm, measure the height from the floor at the center of the headlight and adjust the optical chamber at the corresponding height using the graduated scale on the column. As index of the scale use the top of the sliding runner.



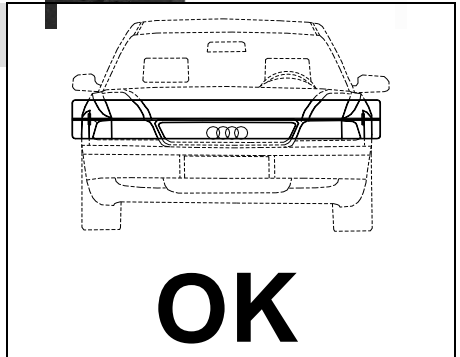
### ADJUSTMENT

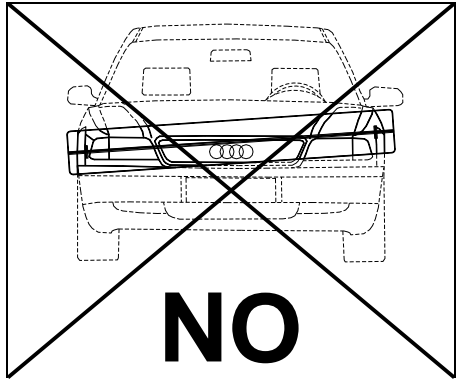
Make sure the optical chamber is horizontal by checking the level on the inside. If it is not perfectly horizontal loosen the lever shown in the figure and adjust the chamber position.



### ALIGNMENT WITH THE MIRROR VISOR

Locate two details, on the front of the vehicle, that are perfectly symmetrical between them (for example the top of the windshield or the headlights themselves). Make sure the line of the visor crosses the two points taken as reference and, if not, turn the headlight tester until they do.





# HEADLIGHT TEST

## ADJUSTMENT

Read at the top of the headlight the tilt indicated by the manufacturer, e.g. 1.2%, and turn the wheel on the bottom of the optical chamber as needed.

If there is no indication by the manufacturer, comply with the laws in force.



## CAUTION!

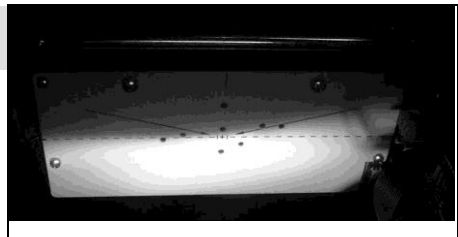
Remember that the headlight tilt must in any case comply with the law in force, which establishes that for **low beam headlights** at a height above ground of **up to 80 cm the tilt must be at least 1%**.

**For low beam headlights higher than 80 cm the tilt must be at least 1.5%.**



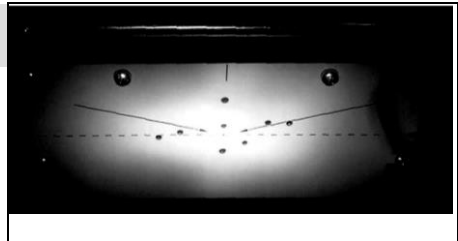
## TEST OF THE LOW BEAM HEADLIGHT

Check the position of the low beam projection on the control panel. It should be aligned with the silkscreen printed line.



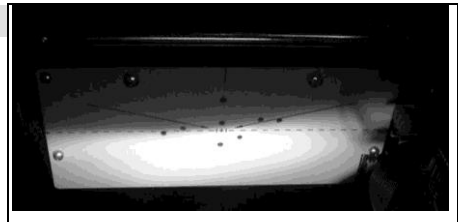
## TEST OF THE HIGH BEAM HEADLIGHT

Check the position of the high beam projection on the control panel. It should be oriented at the center. Read the luminous intensity value on the instrument.



## FOG LIGHT TEST

Check the position of the fog light projection on the control panel. It should be aligned with the silkscreen printed line.



# SUPPLEMENTARY INSTRUCTIONS

## PREPARATION OF THE VEHICLE IN ACCORDANCE WITH STVZO

According to the manufacturer's instructions, the vehicle should be placed in the normal driving position.

- a) Check the **tire pressure** according to the vehicle manufacturer's instructions.
- b) Load empty multi-axle vehicles with a person or place 75 kg on the driver's seat.
- c) Load two-wheeled vehicles or tractors or single-axle operating machinery (with driver or trailer) with a person or place 75 kg on the driver's seat.
- d) For vehicles with level adjustment, for example with hydraulic or air suspension, the vehicle must be set at the level foreseen for normal driving, depending on the vehicle manufacturer's instructions.
- e) If the vehicle is equipped with automatic adjustment of the illumination distance, the manufacturer's instructions must be followed.
- f) For *manually adjustable headlights* the adjustment mechanism must be in the prescribed rest position. For headlights with just two adjustment positions, for which the rest position is not marked, proceed as follows:
  - for vehicles on which the beam ascends with the load, the setting must be made at the highest position where the beam is at maximum intensity
  - for vehicles on which the beam descends with the load, the setting must be made at the lowest position where the beam is at minimum intensity.

It is important to note that the empty weight is the weight of the vehicle ready for use, without carrier, with the tanks fully installed and full (at least 90% corresponding to § 76 /756 / EWG enclosure 5) inclusive for all *pieces of equipment* involved in the operation. For other types of motor vehicles, such as motorcycles and vans, add 75 kg of weight of the driver.

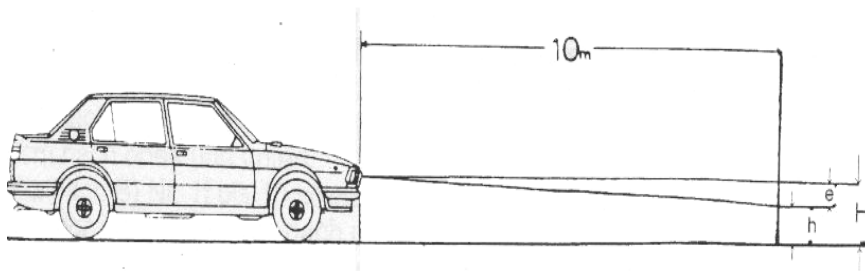
Carriers are containers designed to support a load, and may be used on top of or attached as load vehicles, such as containers or returnable containers.

***Pieces of equipment are, for example: spare tires, spare parts, tools, jacks, extinguishers, connecting panels, flat racks with flat handles and flat slats such as bars, non-skid devices, weights.***

## TESTING AND ADJUSTMENT OF HEADLIGHT IN ACCORDANCE WITH STVZO

For vehicles with headlights that can be positioned manually, the adjustment mechanism must be in the rest position prescribed for the basic position. Empty multi-axle vehicles must have a person on board or a 75 kg weight loaded on the driver's seat.

Single-axle vehicles such as tractors or single-axle operating machinery (with a driver's seat or trailer) must have a person on board or a 75 kg weight loaded on the driver's seat.



e= deviation of the light-dark barrier in cm at a distance of 10 meters

H= height of the headlight center on the space occupied in cm

h= height of the colored strip on the control surface above the space occupied in cm

To check the headlight, it is necessary to calculate the downward deviation of the beam on the 10 meter distance. See measurement "e" in the figure here above.

Generally speaking, the manufacturer's adjustment measurements are valid and should be found near the headlight or on the factory label.



## TABLE OF ADJUSTMENT IN ACCORDANCE WITH STVZO

According to § 50 8 StVzo for multi-axle trucks first authorized from January 1990, except tractors and operating machinery, the terms of law 75/756/EWG refer to headlights with low beams having construction height of not more than 1200 mm from the road. With this, adjustment of the headlights on these vehicles is related to the adjustment scale, regardless of whether or not concession EG or ECE has been granted regarding the construction of the illumination device for the truck.

From the table below you can see the adjustment measurement to be used for this type of vehicle.

Control tolerances for testing according to § 29 StVZO on an adjustment wall at 10 meters' distance.

The following deviations of the light-dark barrier position are indicated by the table below

- a) for vehicles according to A) like B) 1a to 1e of the table:  
up to 5 cm upward or downward
- b) for vehicles according to B) 1f to 1h like 2 and 3 of the table:  
up to 10 cm upward and 5 cm downward

The interruption between the horizontal piece and the upright of the dark-light barrier must not deviate by more than 5 cm from the vertical to cross the central mark toward the left or right.

Type of vehicle

Adjustment measurement “e” in cm at 10m



	Low beams	Fog light
A) multi-axle vehicles with first authorization from 01.01.1990, except tractors or farm/forestry equipment. With headlights, the maximum point of the illuminating surfaces of which is not higher than 1200 mm above the roadbed.	Adjustment measurement Indicated on the vehicle	see B)
<b>B) other trucks and heavy equipment</b>		
1. vehicles for which the highest point of the illuminating surface of the beam is not more than 140 cm above the space occupied.		
a. automobiles (also combined)	12	20
b. vehicles with adjustment handwheel or automatic leveling of the light beam*	10	20
c. tractors or multi-axle operating machinery d. single-axle equipment** e. trucks with front loading area		
f. trucks with rear loading area	except vehicles according to 1b	
g. tractors		
h. carriers	30	40
2. vehicles for which the highest point of the illuminating surface of the beam is higher than 140 cm above the positioning area.		
	H/3	H/3+7
3. tractors and semi-axle operating machinery with constant low beams on which the tilt necessary for centering the beam is indicated		
	2*N	20

\*) properties of this device are to be observed as indicated by the manufacturer.

\*\*\*) bicycles with motor with 3 Watt lighting system are to be treated like bicycles.

## SUPPLEMENTARY INSTRUCTIONS

### CLEANING AND MAINTENANCE

The machine does not require particular maintenance other than normal cleaning with a damp cloth (water and alcohol, or normal detergent).



### CAUTION!

Do not use nitro solvents

### DEMOLITION AND DISPOSAL

The machine is mainly composed of steel.

Other parts:

in plastic, some parts

in cardboard and paper, packing and documents.

The machine is painted with scratch-resistant epoxy powder.

In disposing of the machine, comply with the provisions of the local authorities.

