LAMPERT.

Operating Manual
USM

USM

OPERATING MANUAL (translation)
Welding microscope USM with hinged bracket

Dear Customer,

This operating manual is intended to familiarize you with the commissioning process and operation of your "USM" welding microscope. Please read the operating instructions carefully and follow the advice given here diligently. Disruptions and operational faults will thus be avoided. Your personal safety, constant availability and long service life can be assured by this.

THE COMMISSIONING OF THE DEVICE MUST ONLY BE UNDERTAKEN BY TRAINED SPECIALISTS AND ONLY WITHIN THE SCOPE OF APPROPRIATE USE. THE MANUFACTURER ACCEPTS NO LIABILITY FOR DAMAGES CAUSED THROUGH INAPPROPRIATE USE AND IMPROPER OPERATION. THE “GENERAL SAFETY REQUIREMENTS” AND "PERSONAL BODY PROTECTION" CHAPTERS MUST BE READ BEFORE COMMISSIONING.

Please keep these operating instructions safe.

The equipment produced by “Lampert Werktechnik GmbH” fulfils the conformity requirements of the CE mark and is constructed in accordance with the VDE guidelines. The eye protection systems used on the "USM" welding microscope are tested and certified by DIN-CERTCO (DIN department for eye protection).

Only use original spare parts for maintenance and overhaul work. Our customer service department will naturally be happy to help you.

THE DEVICE MUST ONLY BE OPENED OR MODIFIED BY AUTHORISED CUSTOMER SERVICE PERSONNEL, OTHERWISE ALL GUARANTEES AND WARRANTIES ARE VOID.

August 2014

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1. WARNING AND INFORMATION SIGNS

	Warning! “Warning” identifies a potentially dangerous situation. If this is not avoided, the consequences can be death or severe injuries.
	Caution! "Caution!" identifies a potentially hazardous situation. If this is not avoided, the consequences can be slight or minor injuries as well as property damage.
	Note! “Note” identifies the product at risk from the hazard and possible damage to the equipment.
	Important! "Important!" designates user tips and other especially useful information. This is not a signal word for hazardous or dangerous situations.

2. APPROPRIATE USE (FIELD OF APPLICATION)

- USM: Observation and microscopic viewing of objects through the ocular of the microscope and illumination of the working area.
- USM unit may only be used for welding if it has been properly connected to a PUK fine-welding device.

3. SAFETY INSTRUCTIONS

3.1 GENERAL SAFETY REQUIREMENTS

PERSONS WHO WEAR ACTIVE IMPLANTS (HEART PACEMAKERS) MUST MAINTAIN A SAFETY DISTANCE OF 20CM BETWEEN THE WELDING CURRENT CABLE / SOURCE OF THE WELDING CURRENT AND THE IMPLANT.

The opening of the device is only permitted when undertaken by an electrician. Before opening remove the mains cable and ensure that the device is de-energized. Discharge any components in the device that could hold electrical charge.

In case of doubt or uncertainty, always consult with a specialist. Our customer support department is naturally always available to assist you with their professional trained personnel, appropriate tooling and equipment.

Both the mains and welding currents can be a source of danger.

Always remove the mains plug when exchanging the LED unit. (Only use original replacement LED units from Lampert).

The device must be isolated from the mains power when undertaking any repair or maintenance work on the power source. The power socket is to be clearly blocked when undertaking any work on the system beyond minor manipulations where it is necessary to leave the workplace, even for brief periods.

The highest and thus the most dangerous voltage in the welding circuit is the no-load voltage. The highest permissible no-load voltages are recorded in the national and international regulations in accordance with the type of welding current, construction of the current source and the extent of the electrical hazard to the workplace.

If it can be assumed that risk-free operation is no longer possible, the unit must be put out of operation and secured against being unintentionally restarted.

It can be assumed that risk-free operation is no longer possible, if

- the equipment shows visible signs of damage,
- malfunctions occur,
- or the equipment is no longer working.

THE DEVICE MUST ONLY BE OPENED BY AUTHORISED SERVICE PERSONNEL!

THE USM IS A PIECE OF ELECTRICAL EQUIPMENT. NATIONAL REGULATIONS ON TESTING INTERVALS AND THE SCOPE OF REQUIRED RECURRING SAFETY-RELATED TESTS MUST BE OBSERVED.

3.2 HAZARDS AND PERSONAL BODY PROTECTION

EYE PROTECTION WHEN WELDING:

Never look into the arc without eye protection; always use a welding mask with certified protective glass. (min. protection class 11)

In addition to light and thermal radiation, which can cause dazzling and burning, the electric arc also emits UV radiation. With insufficient protection this invisible ultraviolet radiation causes very painful conjunctivitis, which can first be noticed hours later.

The USM welding microscope with its integrated LCD protective welding screen offers reliable protection against these risks and provides permanent protection from UV / IR rays in both light and dark state. The protective class of the filter is defined such that dazzling by the arc is effectively prevented.

Persons who are nearby to the electric arc and assistants must also be informed of the dangers and equipped with the appropriate protection; if necessary set up protective partition walls.

EYE PROTECTION WHEN OPERATING THE LED ILLUMINATION:

Never look into the LED lamp or its reflections without eye protection; always use a welding mask with certified protective glass (min. protection class 3).

4. SETUP AND INSTALLATION

4.1 CONNECT EYE PROTECTION AND LED ILLUMINATION FOR THE USM WELDING MICROSCOPE:

The circular connector for the eye protection system should be inserted into the connecting socket marked with the red eye protection symbol on the rear side of the device and is to be tightened in place with the coupling nut (hand tight). The LED illumination connector should be inserted into the connecting socket marked with the yellow illumination symbol on the rear of the PUK welding device. In doing so, observe the colour coding of the connection cables.

WARNING!

ONLY SUITABLE ORIGINAL EYE PROTECTION SYSTEMS FROM LAMPERT MAY BE CONNECTED TO THE WELDING SYSTEM!

OTHER EYE PROTECTION SYSTEMS ARE NOT APPROVED AND CAN LEAD TO PERMANENT HEALTH DAMAGE OR DAMAGE TO THE WELDING DEVICE.

ALWAYS OBSERVE THE OPERATING INSTRUCTIONS FOR THE CONNECTED EYE PROTECTION SYSTEM

4.2 DESCRIPTION OF THE CONTROL ELEMENTS

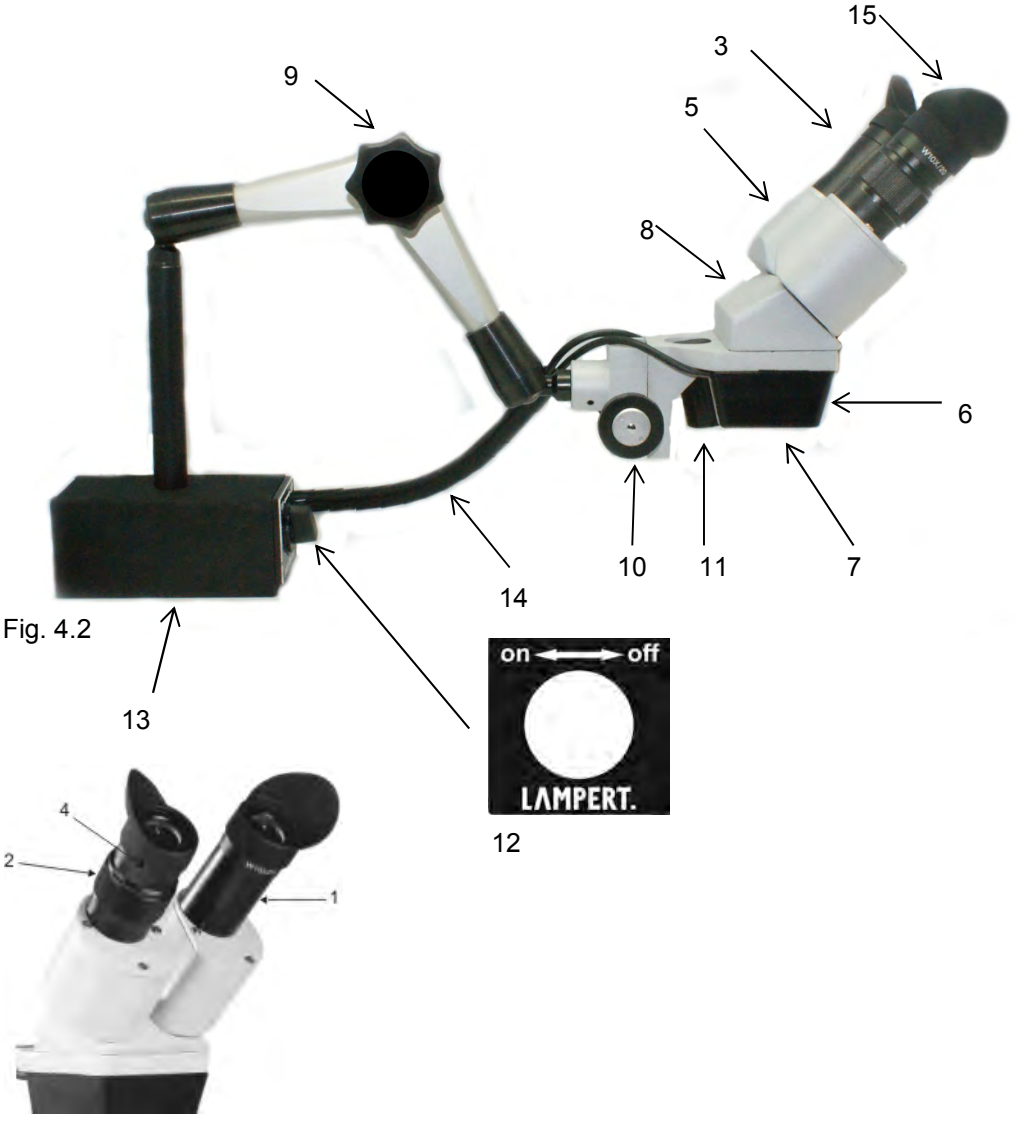


Fig. 4.2

(1) OCULAR
(2) DIOPTER CONTROL
(3) OCULAR TUBES
(4) LOCKING SCREW
(5) PRISM HOUSING
(6) GLARE PROTECTION FILTER (SHUTTER)
(7) PROTECTIVE GLASS
(8) HEAD
(9) ROTARY FIXING KNOB OF THE HINGED BRACKET
(10) FOCUSSING KNOB
(11) LED LIGHTING
(12) MAGNET SWITCH
(13) MAGNET
(14) SHUTTER AND LED LIGHTING CONTROL LEADS
(15) EYE CUPS

4.3 CONFIGURATION OF THE WELDING MICROSCOPE:

ESSENTIAL PRIOR TO THE INITIAL WELDING OPERATION: PRECISE CONFIGURATION OF THE MICROSCOPE OPTICS

FIRST STEPS

Stand the magnet of the supporting arm with its underside on a firm, ferromagnetic, smooth and clean base and set the magnet switch (12) to ON.

ALWAYS CHECK MICROSCOPES STABILITY AFTER FIXING.

ADJUSTING THE INTEROCULAR DISTANCE

Look through the two oculars (1) and move the ocular tubes (3) inwards or outwards by holding the prism housing (5) still and moving them in or out. The interocular distance is correct if the range of vision as viewed through the two oculars is complete and is united into a single image. The interocular distance should be individually set for each user.

FOCUSING

Rotate the focusing knob (10) to a medium focus range. Adjust the mounting height of the microscope head: Hold the microscope head (8) with one hand, without touching one of the lenses, and use the other hand to release the screw on the head bracket. The head can now be moved. Look through the oculars and move the microscope head up or down until the object appears focused. Now re-tighten the adjusting screw on the head bracket once more. Subsequently use the focusing knob (10) to focus the image.

THE MICROSCOPE HEAD IS UNSECURED WITH FIXING ROTARY KNOB LOOSENED.

DIOPTRE ADJUSTMENT

The sleeve for adjusting the diopter (2) is fitted to the left-hand ocular. In the normal position, the lower part of the tube is aligned to the marking on the ocular tube. In the event of differing vision in both eyes: Open the right eye only, look into the right-hand ocular and adjust the focus using the focusing knob (10). Now look through the left-hand ocular with your left eye and adjust the focus by turning the diopter control (2) on the left tube until the image appears focused.

NOTE!

PRIOR TO WELDING, ALWAYS CHECK THE FUNCTION OF THE EYE PROTECTION FILTER AS DESCRIBED IN CHAPTER 5.5 "FILTER TEST" OF PUK MANUAL. IF THE EYE PROTECTION FILTER (SHUTTER) FAILS TO SWITCH OVER FROM LIGHT TO DARK, THEN IT MUST BE IMMEDIATELY EXCHANGED BY **SPECIALIST PERSONNEL**.

5. CARE OF THE SYSTEM COMPONENTS

5.1 CARE OF WELDING MICROSCOPE

Your welding microscope requires a minimum of maintenance under normal working conditions. However, it is essential that a few points are observed in order to guarantee the functionality and to keep the spot welding device fully operational for years to come.

- Clean the device occasionally with a suitable cloth.
- Use the supplied dust cover to cover up the microscope after use.

IF WORK OR REPAIRS THAT ARE NOT DESCRIBED IN THESE OPERATING INSTRUCTIONS ARE NECESSARY THEN CONTACT YOUR DEALER.

WARNING!

THE DEVICE MAY ONLY BE OPENED BY A QUALIFIED ELECTRICIAN!

5.2 CARE OF THE OPTICAL COMPONENTS

Do not attempt to disassemble optical components. Please contact the local technical customer service department for repairs which are not covered by this manual.

Remove dust from the lens surface with a special brush prior to cleaning. You can obtain suitable accessories in any photography store.

Cleaning the oculars: Do not remove the oculars (1) from the ocular tubes (3).

Clean the outer surfaces. In doing so, blow on them. Subsequently dry the lens with suitable cloth or paper for the purpose. Dry the lens with circular movements from the centre to the outside. Do not wipe over a dried lens as they can easily be scratched.

Cleaning and exchanging the protective glass of the eye protection filter:

NEVER DISMANTLE THE EYE PROTECTION FILTER (SHUTTER)!

Only clean the surface. Use a cotton cloth with glass cleaner.

If the protective glass (7) requires exchanging, slide it forwards out of the bracket and insert a new protective glass in the same manner.

6. TECHNICAL DATA

6.1 TECHNICAL DATA MICROSCOPE

Optical visual protection and illumination unit for exclusive use with PUK fine welding devices.
>>>Use only in dry rooms.

Operating temperature	+5°C to +40°C
Lamp "LED unit"	3W / 800mA
Protection class	III
Insulation class	B
Protection type	IP 20
Weight	4.3 Kg

6.2 OPTICAL DATA MICROSCOPE

Lens	1.0
Ocular	10x
Working distance	140 mm
Magnification factor	10x
Field of view	20 mm

6.3 TECHNICAL DATA LCD SHUTTER

Light shade	DIN 3
Dark shade	DIN 11
Switching time	<50ms
UV protection	>UV 15
IR protection	>IR 14

7. TROUBLESHOOTING

7.1 MICROSCOPE

	PROBLEMS WITH ELECTRICAL COMPONENTS		
A	**The LED illumination fails to operate**	Cable not connected.	Connect the plug to the connecting socket marked with the yellow illumination symbol on the PUK.
		LED faulty	Exchange LED unit (only use original replacement LED units from Lampert)
B	**Eye protection system (shutter) fails to operate**	Cable connected incorrectly	Connect the plug to the designated socket marked with the red eye protection symbol on the PUK.
		Eye protection filter faulty	Arrange to have eye protection unit replaced by qualified personnel
	IMAGE QUALITY		
D	**Poor resolution**	Oculars dirty.	Clean oculars.
E	**Marks or soiling in field of vision**	Oculars dirty.	Clean oculars.
		Protective glass dirty	Clean or exchange protective glass
	* Note: Marks in the field of vision can also be caused by soiling in the interior of the oculars. For this reason, it is recommended to have the lenses cleaned by an authorised customer service engineer		
	PROBLEMS WITH MECHANICAL COMPONENTS		
F	**Focus is not retained**	The sight slides down	Readjust the tension of the focusing knob

REPAIR
If the stereo microscope requires repair or adjustment by qualified personnel, we recommend sending it back to the dealer in its original packaging. Include a description of the problem or the desired adjustment.

WARNING: THE DEVICE MAY ONLY BE OPENED BY A QUALIFIED ENGINEER!

8. DISPOSAL INFORMATION:

Render discarded devices unusable by removing the mains cable.
Only for EU countries: In accordance with EU directive 2002/96/EC regarding the disposal of used electrical and electronic equipment, discarded electrical devices must be separated and collected and sent for recovery in an environmentally friendly manner.

9. EC – DECLARATION OF CONFORMITY

The manufacturer **"Lampert Werktechnik GmbH"**

Ettlebener Str. 27, D-97440 Werneck

Declares herewith that the following product:

welding microscope "USM" with hinged bracket

Comply with the stipulations of the directives identified below - including any changes applicable at the time of this declaration.

Applicable EC directives:

Per low voltage directive 2006/95/EC

Per EMC directive 2004/108/EC

The following harmonised standards have been applied:

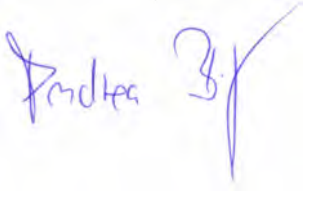
EN 379, EN 169

EN ISO 12100

EN 61000-6-1, EN 61000-6-3

Werneck, 01.08.2014

Lampert Werktechnik GmbH



Andrea Bauer-Lampert (Managing Director)

Text and illustrations represent the technical status at the time of printing. Subject to change.

Born in Germany.

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