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

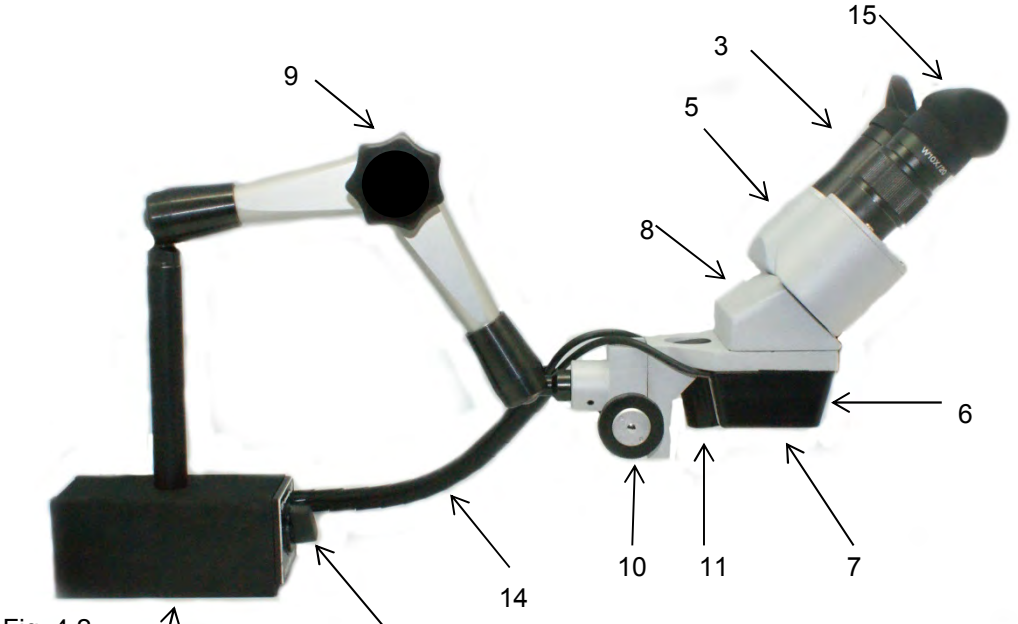


Fig. 4.2

(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. CONTACT

Lampert Tools USA, Inc.

67 East Madison, #512

Chicago, IL 60603

Phone: 1-866-478-5111

Fax: 1-312-641-2678

info@lampertusa.com

www.lampertusa.com

SECTION A – SAFETY PRECAUTIONS - READ BEFORE USING

A-1. Arc Welding Hazards

- ► **The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-4. Read and follow all Safety Standards.**
- ► **Only qualified persons should install, operate, maintain, and repair this unit.**
- ► **During operation, keep everybody, especially children, away.**

ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- _ Do not touch live electrical parts.
- _ Wear dry, hole-free insulating gloves and body protection.
- _ Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- _ Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- _ Use AC output ONLY if required for the welding process.
- _ If AC output is required, use remote output control if present on unit.
- _ Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- _ Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
- _ Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- _ When making input connections, attach proper grounding conduc-tor first – double-check connections.
- _ Frequently inspect input power cord for damage or bare wiring –replace cord immediately if damaged – bare wiring can kill.
- _ Turn off all equipment when not in use.
- _ Do not use worn, damaged, undersized, or poorly spliced cables.
- _ Do not drape cables over your body.
- _ If earth grounding of the workpiece is required, ground it directly with a separate cable.
- _ Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- _ Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- _ Wear a safety harness if working above floor level.
- _ Keep all panels and covers securely in place.
- _ Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- _ Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- _ Do not connect more than one electrode or work cable to any single weld output terminal.

SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.

- _ Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- _ Keep your head out of the fumes. Do not breathe the fumes.
- _ If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- _ If ventilation is poor, use an approved air-supplied respirator.
- _ Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- _ Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breath-ing air is safe.
- _ Do not weld in locations near degreasing, cleaning, or spraying op-erations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- _ Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

ARC RAYS can burn eyes and skin.

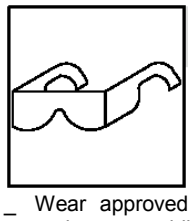
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- _ Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- _ Wear approved safety glasses with side shields under your helmet.
- _ Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- _ Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.

WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.



FLYING METAL can injure eyes.

- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

BUILDUP OF GAS can injure or kill.

- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

HOT PARTS can cause severe burns.

- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.

MAGNETIC FIELDS can affect pacemakers.

- Pacemaker wearers keep away.

Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

CYLINDERS can explode if damaged.

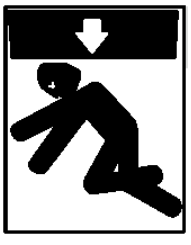
Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechani-cal shocks, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder – explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fit-tings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

A-2. Additional Symbols For Installation, Operation, And Maintenance

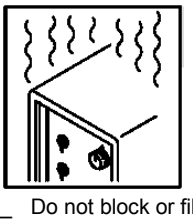
FIRE OR EXPLOSION hazard.

_ Do not install or place unit on, over, or near combustible surfaces.
_ Do not install unit near flammables.
_ Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.



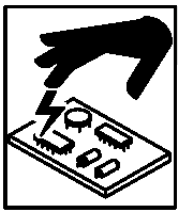
FALLING UNIT can cause injury.

_ Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
_ Use equipment of adequate capacity to lift and support unit.
_ If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.



OVERUSE can cause OVER-HEATING

_ Allow cooling period; follow rated duty cycle.
_ Reduce current or reduce duty cycle before starting to weld again.
_ Do not block or filter airflow to unit.



STATIC (ESD) can damage PC boards.

_ Put on grounded wrist strap BEFORE handling boards or parts.
_ Use proper static-proof bags and boxes to store, move, or ship PC boards.

MOVING PARTS can cause injury.

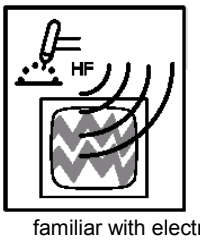
_ Keep away from moving parts.
_ Keep away from pinch points such as drive rolls.

WELDING WIRE can cause injury.

_ Do not press gun trigger until instructed to do so.
_ Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

MOVING PARTS can cause injury.

_ Keep away from moving parts such as fans.
_ Keep all doors, panels, covers, and guards closed and securely in place.



H.F. RADIATION can cause interference.

_ High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
_ Have only qualified persons familiar with electronic equipment perform this installation.
_ The user is responsible for having a qualified electrician prompt-ly correct any interference problem resulting from the installation.
_ If notified by the FCC about interference, stop using the equipment at once.
_ Have the installation regularly checked and maintained.
_ Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference

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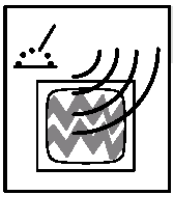

ARC WELDING can cause interference.

_ Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
_ Be sure all equipment in the welding area is electromagnetically compatible.
_ To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
_ Locate welding operation 100 meters from any sensitive elec-tronic equipment.
_ Be sure this welding machine is installed and grounded according to this manual.
_ If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

A-3. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami FL 33126 (phone: 305-443-9353, website: www.aws.org).

Recommended Safe Practices for the Preparation for Welding and Cut-ting of Containers and Piping, American Welding Society Standard AWS F4.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami, FL 33126 (phone: 305-443-9353, website: www.aws.org).

National Electrical Code, NFPA Standard 70, from National Fire Protec-tion Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269–9101 (phone: 617–770–3000, website: www.nfpa.org and www. sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202–4102 (phone: 703–412–0900, web-site: www.cganet.com).

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3 (phone: 800–463–6727 or in Toronto 416–747–4044, website: www.csa–in-ternational.org).

Practice For Occupational And Educational Eye And Face Protection,

ANSI Standard Z87.1, from American National Standards Institute, 11 West 42nd Street, New York, NY 10036–8002 (phone: 212–642–4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269–9101 (phone: 617–770–3000, website: www.nfpa.org and www. sparky.org).

OSHA, Occupational Safety and Health Standards for General Indus-try, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Super-intendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250 (there are 10 Regional Offices—phone for Region 5, Chicago, is 312–353–2220, website: www.osha.gov).

A-4. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields Welding current, as it flows through welding cables, will cause electro-magnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: “The body of evidence, in the committee’s judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard.” However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possi-ble.

About Pacemakers:

Pacemaker wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended.

Born in Germany.

Lampert Tools USA, Inc. · 67 East Madison, #512 · Chicago, IL 60603 · Phone: 1-866-478-5111 · info@lampertusa.com · www.lampertusa.com