

MIG/MAG WELDING MACHINES



LASTIMIG 301 – 401 – 601 **Manual and operating instructions** LM301-601/V0929/eng/rc



**CE-VERKLARING VAN OVEREENSTEMMING
CE-DECLARATION DE CONFORMITE
CE-DECLARATION OF CONFORMITY**

LASTEK BELGIUM N.V./S.A.
Industriepark Wolfstee
Toekomstlaan 50
2200 Herentals

verklaart hiermede dat de volgende machines:
déclare par la présente que les appareils suivants:
declares herewith that the following machines:

LASTIMIG 301 art.nr./No. d'art. 2340005 - 2340006
series: **32630701 – 32630999**

LASTIMIG 401 art.nr./No. d'art. 2340105 – 2340106 – 2340107 - 2340109 – 2340205 - 2340207.....
series: **32641001 – 32641999**

LASTIMIG 601 art.nr./No. d'art. 2340305 – 2340307 – 2340405 – 2340407.....
series: **3466300 – 3466999**

waarop deze verklaring betrekking heeft, met volgende richtlijnen/normen overeenstemt:
auxquels rapporte cette déclaration, sont conformes aux directives/normes suivantes:
to which this declaration refers, are in compliance with following directives/standards

73/23/CEE	laagspanningsrichtlijn/directive basse tension/directive low tension
89/392/CEE	machinerichtlijn/directive machines/directive machines
93/68/CEE	markering CE/marquage CE/marketing CE
EN 60974-1	Veiligheidsvoorschriften voor lasmachines Instructions de sécurité pour appareils de soudage Security instructions for welding machines

Herentals, 23.07.1999

Lastek Belgium n.v./s.a.



Ir. R. Creten

INHOUDSTAFEL

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0. INTRODUCTION

Dear customer,

You have just acquired a Lastek MIG/MAG welding machine, a welding equipment of excellent quality. We thank you for the trust in our products.

During development and manufacture of Lastek welding machines, only spare parts of highest quality have been used. In order to obtain a high life span, even for heavy duty applications, all parts have to fulfil severe Lastek standards.

All Lastek machines are manufactured in accordance with existing safety rules and CE legal directives. The CE-marking and CE declaration confirm this conformity.

Lastek reserve the rights to make changes without previous notification. Illustrations and characteristics are not contractually binding and do not engage the responsibility of the manufacturer.

Safety rules must be observed and particularly those concerning protective measures against electric currents.

Lastek welding machines are intended for purchase and use by commercial/industrial users and persons trained and experienced in the use and maintenance of welding equipment. Have all installation, operation, maintenance and repair work performed only by qualified people.

This manual contains important information for a safe and economical use of the welding machine. Read and understand this manual before installation, operation, maintenance and repair work with this machine.

This manual does not replace instructions of service personnel of Lastek. Read and understand the manuals of all accessories belonging to or used with the equipment.

Warranty shall not apply to equipment that has been modified by any party other than Lastek, or equipment that has improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment that has been used for operation outside of the specifications for the equipment.

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Herentals 1 December 2000

1. SAFETY INFORMATION AND PRECAUTIONS DURING WELDING

WARNING! Arc welding can be hazardous.

Protect yourself and others from possible serious injury or death. Keep children away. Pacemaker wearers away until consulting your doctor.

Have all installation, operation, maintenance and repair work performed only by qualified people.

In welding, as in most jobs exposure to certain hazards occurs. Welding is safe when precautions are taken. The safety information given below is a summary of the most important safety information. Read and follow all safety standards.

ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live when ever the output is on. The input power cir and machine internal circuits are also live when power is on. In semi automatic 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.

1. Do not touch live electrical parts.
2. Wear dry, hole-free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulating mats or covers.
4. Disconnect input power or stop engine before installing or servicing this equipment. Lock input power disconnect switch open, or remove line fuses so power cannot be turned on accidentally.
5. Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
6. Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.
7. Use fully insulated electrode holders. Never dip holder in water to cool it or lay it down on the ground or the work surface. Do not touch holders connected to two welding machines at the same time or touch other people with the holder or electrode.
8. Do not use worn, damaged, undersized, or poorly spliced cables.
9. Do not wrap cables around your body.
10. Ground the work piece to a good electrical (earth) ground.
11. Do not touch electrode while in contact with the work (ground) circuit.
12. Use only well-maintained equipment. Repair or replace damaged parts at once.
13. In confined spaces or damp locations, do not use a welder with AC output unless it is equipped with a voltage reducer. Use equipment with DC output.
14. Wear a safety harness to prevent falling if working above floor level.
15. Keep all panels and covers securely in place.

ARC RAYS can burn eyes and skin; NOISE can damage hearing.

Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some processes can damage hearing.

1. Wear a welding helmet fitted with a proper shade of filter (see ANSI Z49.1 listed in Safety Standards) to protect your face and eyes when welding or watching.
2. Wear approved safety glasses. Side shields recommended.
3. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.
5. Use approved earplugs or earmuffs if noise level is high.

FUMES AND GASES can be hazardous to your health.

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

1. Keep your head out of the fumes. Do not breathe the fumes.
2. If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
3. If ventilation is poor, use an approved air-supplied respirator.
4. Read the Material Safety Data Sheets (MSDS) and manufacturer's instruction for metals, consumables, coatings, and cleaners.
5. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
7. 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.

WELDING can cause fire or explosion.

Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, weld spatter, hot work piece, and hot equipment can cause fires and burns. Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
4. Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
7. Do not weld on closed containers such as tanks or drums.
8. Connect work cable to the work as close to the welding area as practical to prevent welding current from travelling long, possibly unknown paths and causing electric shock and fire hazards.
9. Do not use welder to thaw frozen pipes.
10. Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

FLYING SPARKS AND HOT METAL can cause injury.

Chipping and grinding cause flying metal. As welds cool, they can throw off slag.

1. Wear approved face shield or safety goggles. Side shields recommended.
2. Wear proper body protection to protect skin.
3. Do not touch hot (just welded) parts without protection gloves.
4. A cut wire end can cause stab wounds

GASCYLINDERS 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.

1. Protect compressed gas cylinders from excessive heat, mechanical shocks, and arcs.
2. Keep cylinders away from any welding or other electrical circuits.
3. Never allow a welding electrode to touch any cylinder.
4. Install and secure cylinders in an upright position by chaining them to a stationary support or equipment cylinder rack to prevent falling or tipping.
5. Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
6. Turn face away from valve outlet when opening cylinder valve.
7. Keep protective cap in place over valve except when cylinder is in use or connected for use.
8. Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

MOVING PARTS can cause injury.

Moving parts, such as fans, rotors, and belts can cut fingers and hands and catch loose clothing.

1. Keep all doors, panels, covers, and guards closed and securely in place.
2. Stop engine before installing or connecting unit.
3. Have only qualified people remove guards or covers for maintenance and troubleshooting as necessary.
4. To prevent accidental starting during servicing, disconnect negative (-) battery cable from battery.
5. Keep hands, hair, loose clothing, and tools away from moving parts.
6. Reinstall panels or guards and close doors when servicing is finished and before starting engine.

MAGNETIC FIELDS FROM HIGH CURRENTS can affect pacemaker operation

1. Pacemaker wearers keep away.

2. TECHNICAL DATA



TECHNICAL DATA		LM 301	LM401	LM 601
Mains voltage	V	3x230 / 3x400	3x230 / 3x400	3x230 / 3x400
Rating	KVA	6.4	10	23
Fuses	A	20/15	30/20	60/40
Welding voltage	V	13-32	14-34	15-46
Welding current range	A	40-300		40-400
Welding current	A	300	400	600
	at 60% duty cycle	230	310	465
	at 100% duty cycle			
Duty cycle (DC)	%	60	60	60
	at I _{max} (10 min)			
Number of selections		16	25	36
Wire speed	m/min	0-22	0-22	0-22
Wire diameter	mm	0.8 ÷ 1.2	0.8 ÷ 1.6	0.8 ÷ 2.4
Control voltage	V	24	24	24
Motor voltage	V	42	42	42
Intermediate cable 10m	mm ²	35	50	70
Insulation class		H		H
Protection class		IP21	IP21	IP21
Dimensions	mm	1040x720x760	1040x720x760	1040x720x760
Weight	kg	165	195	225

3. GENERAL DESCRIPTION

3.1. PRINCIPLE OF GAS SHIELDED METAL ARC WELDING (MIG/MAG^o)

When gas shielded metal arc welding the welding arc burns between the melting wire electrode and the work piece. Protection gas used is argon, carbon dioxide (CO₂) or a mixed gas there of or other gases.

The welding wire is fed by the wire feeder through the welding torch up to the contact tube.

The contact tube is connected to the positive terminal of the welding machine. The mass cable is connected to the negative terminal. So the welding arc is formed between the work piece and the wire, melting the welding wire end and the base metal. The welding wire acts as electrode as well as welding material in the same time.

The molten wire and the weld bead are protected by the protection gas against air and oxygen out of the surrounding air. The protection gas is lead through the welding torch and streams out of the gas tube.

3.2. CONSTRUCTION

The Lastimig 301/401/601 are designed for welding solid wires, depending on the power of the machine, from diameter 0.6 up to 1.6 mm with protection gas, as well as for cored wires from 1.2 up to 2.4 mm, with or without protection gas.

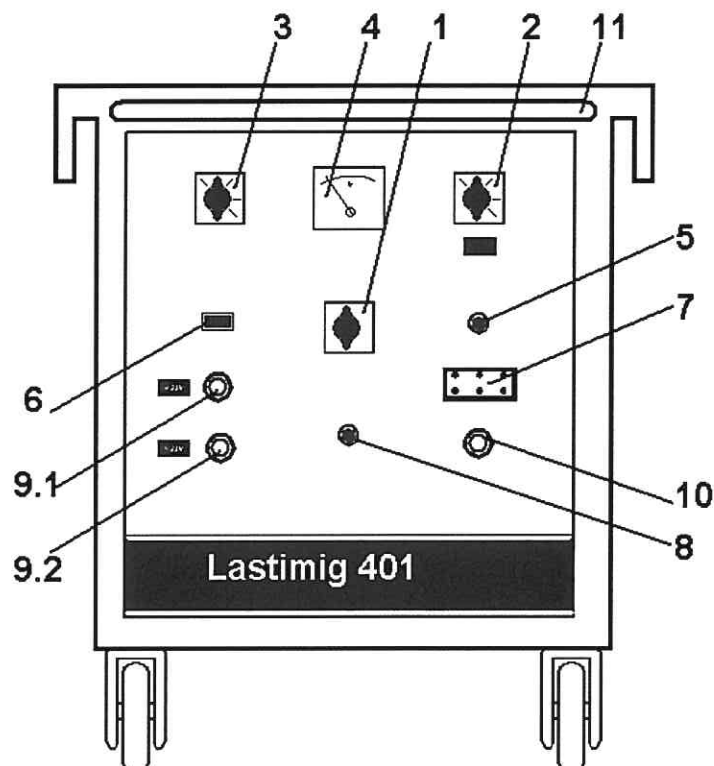
They are suitable for MAG welding of unalloyed and low alloyed steel (with CO₂ or Argon/CO₂ – protection gas M21 according to EN 439), welding of stainless steel (with Ar/2%CO₂ or Ar/2%O₂ – protection gas M11 or M13 according to EN 439) and for MIG welding of aluminium (with inert gas, Ar or Ar/He)

The Lastimig 301/401/601 have excellent welding characteristics thanks to:

- a three phase welding transformer with a constant voltage arc characteristic
- solid copper windings
- direct current self with two outputs to change the short circuit frequency
- excellent welding properties even at low welding current
- strong motor for the wire feeder
- easy regulation of the wire speed which assures a constant drive torque on the whole range
- functional and aesthetic housing
- solid construction in steel plate with a bottle support, four rubber wheels, four lifting eyes and a handle
- central and compact torch connection on the wire feeder

3.3. FRONT PANEL AND CONTROLS

The next controls are situated on the front panel:



1. **main switch:** this switch acts on the three phases of the mains. In position 0, the welding machine is off voltage. (Also switching from 230 V on 400 V)
2. **voltage switch coarse:** this is a multi-position (Lastimig 301 = 4 positions, Lastimig 401 = 5 positions, Lastimig 601 = 6 positions) dividing the voltage range in 4 (5 or 6 parts)
3. **voltage switch fine:** with this switch a fine regulation of the voltage is possible. It has 4 (LM301), 5 (LM401) or 6 (LM601) positions. So this means: 4x4 = 16 regulation possibilities (LM301), 5x5 = 25 (LM401) and 6x6 = 36 (LM601)
4. **Voltmeter:** giving the voltage on the DC side of the rectifier. The open circuit voltage is always somewhat higher than the welding voltage and the slope setting. (This Voltmeter may be replaced by a digital meter)
5. **Voltage check push button:** to check the open circuit voltage corresponding a certain voltage switch setting.

6. **Control light:** this light is burning when the power switch is in the ON position
7. **Receptacle for connecting the feeding cable to the wire feeder:** 42V AC between 1 and 6 and 24V AC between 2 and 6.
8. **Fuses:** protecting the control and motor feeding against over current due to a defect or a short circuit
9. **Negative terminal** to connect the ground cable: terminal 9.1 is with complete self and 9.2 is with half self.
10. **Positive terminal** to connect the intermediate cable from the wire feeder
11. **Handle:** to move in a safe way the power source

4. INSTRUCTIONS FOR USE

1. First check if the power source is switched on the right voltage. The welding machines Lastimig 301, 401 and 601 are built for 3x230 V or 3x400 V. Before installing the machine be sure that the safety pin of the main switch 1 is in the right position (230V or 400V).
2. Connect the power cable to the mains.
WARNING: the yellow/green wire is the ground wire en HAS TO BE connected
3. Put the gas cylinder on the support at the backside of the machine. Connect the regulator and the flow meter, turn the flow meter to 0 (no flow) and open the cylinder valve.
4. Connect the intermediate cable between the power source and the wire feeder, and connect the gas hose to the gas regulator on the cylinder.
5. Put a welding torch, suitable for the work to be done (capacity and length) into the central connector and turn it tight to the right. Generally spoken:
 - 200 A torch suitable for 0.8 mm wire
 - 300 A torch suitable for wire from 1.0 to 1.2 mm
 - 400 A torch suitable for wire from 1.2 to 1.6 mm
6. Put the wire spool on the wire feeder. Before entering the free wire end into the wire feed mechanism, it should be straightened over about 10 cm (4 inches) from the end, to avoid every obstruction from the wire in the liner, the gun and the contact tips.
Now the pressure wheel is put on its place by means of the lever.
7. Open the gas cylinder and regulate the gas flow of gas on the necessary value (generally 8 – 12 l/min).
8. Turn the power switch (1) into the position "ON". The welding voltage is chosen by means of the two voltage switches (2) and (3), and checked on the voltmeter (4) by pushing the test button (5).
On the wire feeder, the wire speed is set on the right position.
By pushing now the gun switch, the wire will come into the liner and the torch gun. The Lastimig 301/401/601 is now ready to weld.

5. TROUBLE SHOOTING

<u>TROUBLE</u>	<u>CAUSE</u>	<u>CORRECTION</u>
1. no current on the power source	a) line disconnect switch is open b) plug out of the receptacle c) fuses removed or blown d) wire disconnected in plug or receptacle	a) close the switch b) plug into the receptacle c) replace fuses d) fix the wire
2. wire feeding motor does not turn	a) fuse blown on the front panel b) printed circuit defect c) interruption in the intermediate cable	a) replace fuse b) replace printed circuit c) repair or replace cable
3. nothing happens when pushing the gun switch	a) cable not connected b) control wires in torch gun disconnected c) interruption in intermediate cable (on nr. 2 or nr. 6) d) micro switch defect e) printed circuit defect f) intermediate cable not connected g) fuse blown on the front panel h) line fuse blown	a) fix the cable b) check all contacts in the gun switch and fix loosen wires c) check plugs and fix it. In case of defect intermediate cable: replace d) replace micro switch e) replace printed circuit f) connect the intermediate cable g) replace fuse h) replace line fuse
4. no welding arc is formed	a) ground cable not connected b) wire/weld selector on the wire feeder is in position "wire" c) interruption in intermediate cable	a) connect the ground cable b) put the switch into position "weld" c) check plugs and fix it. In case of defect intermediate cable: replace
5. porosities in the weld bead	a) no gas or insufficient gas flow b) gas hose defective or obstructed c) dirty work piece (oil, grease, rust, paint) d) welding nozzle too far from the work piece e) gas nozzle is dirty or obstructed	a) open the gas cylinder completely, regulate flow (7-20 l/min) b) replace gas hose and check all connections for tightness c) clean work piece d) hold the welding gun closer to the work piece e) clean the nozzle
6. weld bead is convex	a) welding backwards	a) weld forwards
7. wire burns into the contact	a) wire speed too low b) resistance in the gun liner c) wire reel too tightened d) resistance in the contact tip e) welding voltage too high f) arc length too short g) pressure on the driving wheel too low	a) increase speed b) check the liner and replace if necessary c) release the brake d) replace contact tip e) reduce the welding voltage f) keep the gun torch farther from work piece g) increase pressure
8. binding defects	a) the molten pool flows ahead	a) increase the welding speed
9. too much spattering during welding	a) welding voltage too low b) nozzle obstructed c) gun too far from the work piece d) dirt on the work piece e) insufficient gas flow f) wire speed too high	a) increase welding voltage b) clean nozzle c) keep the gun closer to the work piece d) clean work piece e) increase gas flow f) reduce wire speed
10. no or insufficient penetration	a) wrong protection gas b) welding current too low c) wrong polarity	a) check gas cylinder and if necessary use another cylinder b) increase welding current by increasing welding voltage and wire speed c) check the cables: the ground cable has to be connected to the negative terminal and the welding gun to the positive terminal
11. irregular wire speed / wire speed not constant	a) wire reel is too tight or too loose b) problem with welding torch c) control defective	a) readjust the wire reel brake b) the welding torch has to be blown through regularly. The torch liner and the drive wheels must correspond with the type and diameter of wire c) contact Lastek service

6. GASES AND WELDING WIRES

6.1. GAS

The shielding gas has a great influence on the metallurgical reactions in the welding arc.

In semi-automatic LMIG/MAG welding difference is made between two types of gases:

1. inert gas (Metal Inert Gas = MIG) such as argon (Ar) giving no reaction in the arc (EN 439: group I).
2. active gases (Metal Active Gas = MAG) such as oxygen (O₂) and carbon dioxide (CO₂), giving a reaction in the welding arc with the molten metal (EN 439 group M). These are mixtures of gases containing oxygen (O₂) and/or carbon dioxide (CO₂). In order to compensate for these reactions in the weld pool, the welding wire should contain enough deoxidising elements;

In practice, the following gases are used for shielded metal arc welding:

- argon (Ar): only for non-ferrous metals and their alloys such as. aluminium, copper, nickel.
- carbon dioxide (CO₂): for mild and low alloy steels and for some flux cored wires. With carbon dioxide welding with open arc (spray arc) is not possible.
- mixed gases with two or three components: with 75-90% Ar, 5-25% CO₂ and 0-10% O₂. They are used for all types of steel, except for stainless steel. The arc is somewhat harder than in an argon atmosphere, but softer than in pure CO₂. Welding with these gases yields lesser spattering. So less final processing is needed, this means better quality at lower cost.
- mixed gas for stainless steel, argon with 0-2% O₂ or 0-3% CO₂: This yields no carbon input and less oxidation. After pickling and cleaning the corrosion resistance of the base metal is not affected.

The needed gas flow depends on the wire diameter, the dimensions of the work piece, the size of the gas nozzle, the form of the weld joint and the welding position, the welding current and the environmental conditions such as ventilation and draft.

Typical values for mixed gases are min. 7 and max. up to about 16 l/min. For argon gas: typical min. 10 and max. about 16 l/min.

Rule of thumb for regulation of gas flow:

For different types of steel: wire diameter x 10 = quantity of gas in l/min
For stainless steel: wire diameter x 11 = quantity of gas in l/min
For alloys of aluminium: wire diameter x 12 = quantity of gas in l/min

6.2. WELDING WIRE

The welding wire, fed as a continuous electrode in the welding arc, acts in the same time as the positive electrode of the welding arc and as melting weld metal. So the welding wire quality determines the weld bead quality.

The correct chemical composition, the precise wire diameter, the perfect copper layer on the wire surface and the correct winding of the wire are essential for obtaining a regular wire speed and constant melting rate yielding a high quality deposit.

Lastek welding wires are carefully and regularly checked. They have good welding characteristics with a high quality deposit.

6.2.1. WELDING OF MILD STEEL

For welding mild steel Lastifil 20 is used with mixed gas Ar-CO₂ (flow: 8 - 20 l/min). The wire diameter has to be chosen according to the plate thickness and the available welding power. The values mentioned below in the table can help you as a rule of thumb for selection of wire diameter:

Plate thickness (mm)	Wire diameter (mm)
0 - 1.5	0.6
1 - 5	0.8
3 - 8	1.0
6 - 10	1.2
8 - ...	1.6

Remark 1: the following spare parts have to be changed when changing wire diameter:
 the contact tip, the liner, the driving wheels, the pressure wheel, (and possibly the gas nozzle).

Remark 2: the welding voltage has to be selected corresponding on the plate thickness and the welding position. For the selected welding voltage one corresponding wire speed value will give the best welding results.

6.2.2. WELDING OF STAINLESS STEEL

For MIG/MAG welding of most standard stainless steels the following Lastek wires are used: Lastifil 804 (316L) or Lastifil 803 (308L) with shielding gas Ar + 2-3% CO₂ or Ar + 1-2% oxygen (flow: 8 - 20 l/min.). The wire diameter (0.8, 1.0, 1.2 mm) depends on the plate thickness to be welded (see 6.2.1). For special types of stainless steel, consult Lastek service.

6.2.3. WELDING OF ALUMINIUM

For MIG-welding aluminium the following Lastek welding wires are available: Lastifil 77 for welding AlMg3 - AlMg5 etc., Lastifil 780 for welding crack sensitive alloys of aluminium and Lastifil 79 for welding Al99.5 -Al99, AlMn and AlMg1.

In any case the yielding gas has to be purely inert, pure argon (or mixtures Ar/He) with a flow of 8-20 l/min. Aluminium wire is soft and therefore the wire feeding system has to be 100% to the point to avoid resistance on the soft aluminium wire. This means a use of:

- drive wheels for aluminium
- a torch liner for aluminium
- or a teflon liner for aluminium
- a contact tip for aluminium (A) with correct diameter

Generally spoken for welding aluminium and alloys, the torch cables have to be as short as possible and avoid bending of the cables to reduce resistance in the liner. For production jobs we advice to use a push-pull torch, so the standard length of the torch cable can be 6 m without wire feed problems.

7. MAINTENANCE

In spite of their robustness, the welding performance of Lastek power sources depends upon careful use and a regular maintenance.

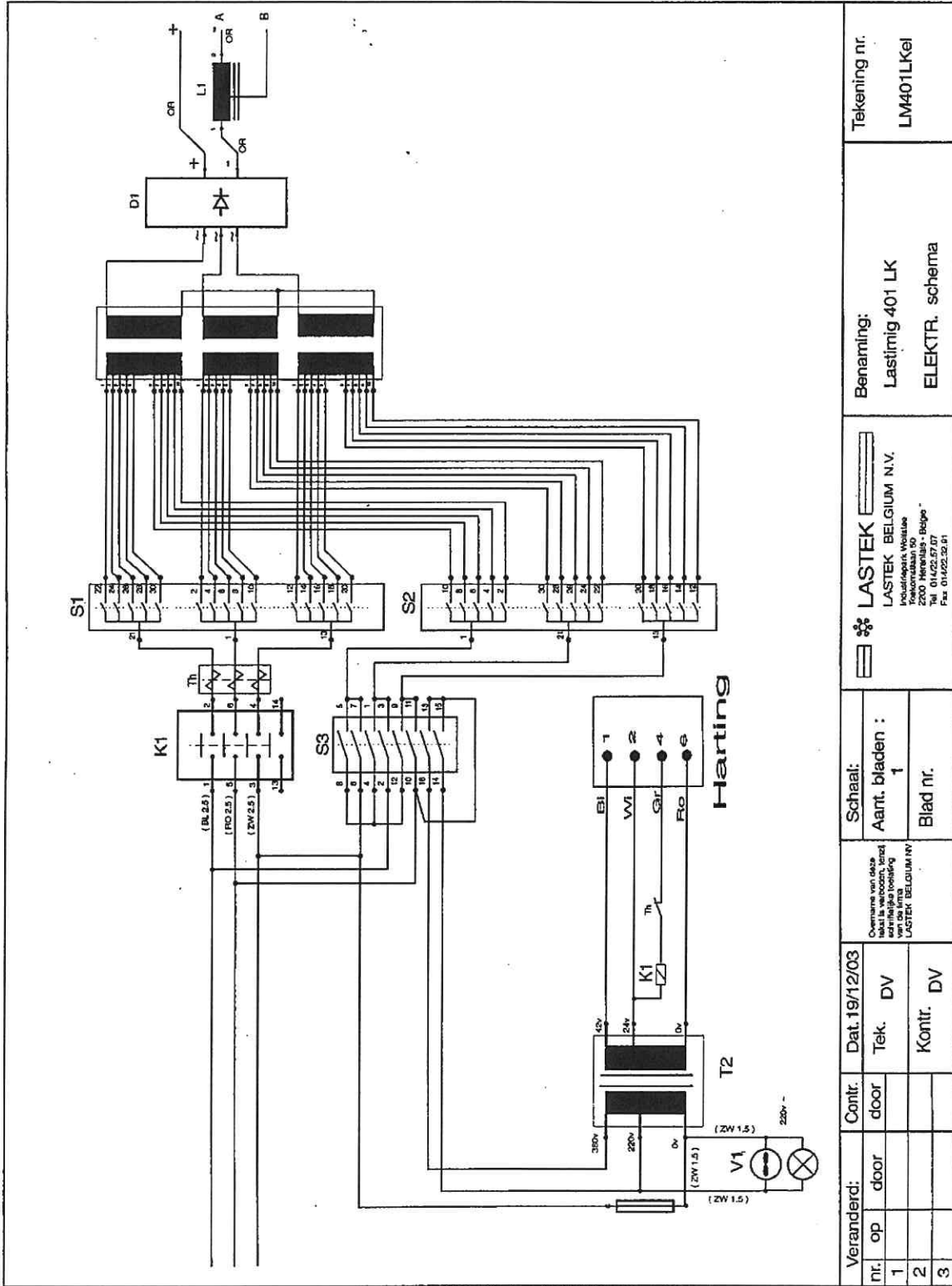
Once every 6 months (more often in dusty surroundings).

1. always pull out the mains plug
2. remove side covers of the power source
3. blow out the machine with dry compressed air
4. check all electrical contacts
5. check electrical wires and plugs for damage. Replace if necessary.
6. close the covers

WATER COOLER (for Lastimig models equipped with a water cooled welding torch)

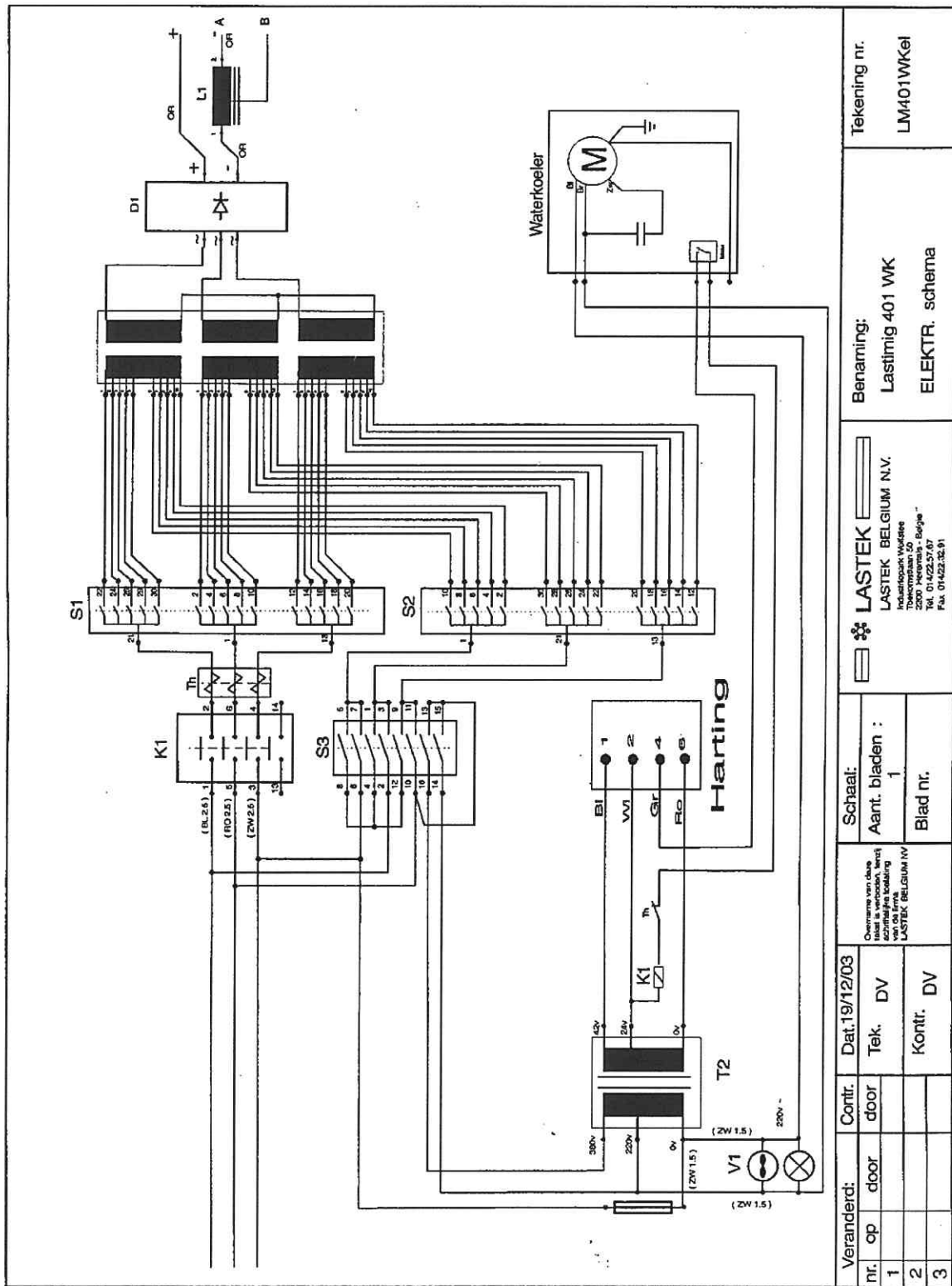
Since the cool liquid is in direct contact with conductors it is necessary to use the special Lastek cool liquid (art. nr. 2701100). For temperatures below 0°C the use of the Lastek cool liquid -15°C is needed (art.nr. 2701101).

8. ELECTRICAL DIAGRAM
Lastimig 401LK – (air-cooled)



Veranderd:		Contnr.	Dat. 19/12/03	Schaal:		Tekening nr.	
nr.	op door	door	Tek. DV	Aant. bladen :	1	LM401LKeI	
1				Blad nr.		ELEKTR. schema	
2				Overtreffe van deze tekening is niet aansprakelijk voor de firma LASTEK BELGIUM NV			
3				LASTEK BELGIUM N.V. Industriepark Woluwe Pouterlaan 50 1140 Melle, België Tel. 01422.87.77 Fax 01422.32.51			
				Benaming: Lastimig 401 LK ELEKTR. schema			

Lastimig 401WK (water-cooled)



Veranderd:	Contir.	Dat.19/12/03	Schaal:	Overtreffe van deze blad is verordon, leest van de hand van de firma LASTEK BELGIUM NV	Schaal: Aant. bladen : 1	Blad nr. 1	Benaming: Lastimig 401 WK ELEKTR. schema	Tekening nr. LM401WKel
nr. 1	op door	Tek. DV	LASTEK BELGIUM N.V. Industrieweg 10 Tolkenbos 20 2200 - Melle - België Tel. 014225787 Fax. 014225781					
nr. 2	door	Kontr. DV						
nr. 3								

9. LIST OF COMPONENTS OF ELECTRICAL DIAGRAM

Nr	Description.	Lastimig 301	Lastimig 401	lastimig 601
2	Contacteur C1	2300233	2300235	2300236
3	Bimetallic relay C2	2300237	2300237	---
4	Fan grid Fan propeller Fan ring	--- --- ---	--- --- ---	2221012 2300252 2300255
5	Transformer T1	2310500	2340500	2314500
6	Rectifier D1	2340030	2340130	2340330
7	Coil Se	2310510	2312510	2314510
8	Regulation transformer T2	2300389	2300389	2300389

10. LIST OF SPARE PARTS: FRONT PANEL LASTIMIG 301/401/601

Nr	Description	Lastimig 301	Lastimig 401	lastimig 601
1	Mains switch S1	2340115	2300335	2340315
2	Voltage switch coarse S3	2300303	2300304	2300312
3	Voltage switch fine S2	2300303	2300304	2300312
4	Voltmeter	2300227	2300227	2300227
5	Voltage check button S4	2300226	2300226	2300226
6a	Control light holder L1	2300277	2300277	2300277
6b	Control lamp	2300272	2300272	2300272
7a	Receptacle	2001038	2001038	2001038
7b	Mounting	2001039	2001039	2001039
8	Fuse holder F1 Fuse 2 A	2300290	2300290	2300290
9 & 10	DIX coupling	2001008	2001008	2001008
11	Handle	2340075	2340075	2340075