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MANUAL INSTRUCTIONS

TOP CAR 30



ATTENTION

Carefully read this manual before using the spot welder.

This appliance was produced in compliance with Directive 2006/42/CE.

This manual refers to the Top Car 30 welder.

This manual is supplied by PRIMA srl without any guarantee. PRIMA srl reserves the right to apply to this manual, at any time and without notice, modifications due to typing errors, inaccuracy of contents or improvements of the programs and devices.

In any case, possible modifications will be integrated in the subsequent editions of this manual. In no case PRIMA srl will be liable for direct, indirect, extraordinary, accidental or consequential damage caused by the use or the inability to use the spot welder or this documentation.

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WARNINGS AND PRECAUTIONS



Have the electrical connection carried out by qualified personnel in compliance with the relevant Laws and safety Codes. Make sure that the power supply panel is properly connected to the grounding system and that complies with the CEI EN 60 204/1 Standard.



WARNING



Do not use cables with damaged insulation, loose connection terminals or inadequate section.

Do not use the spot welder in humid, wet or rainy environments.



Always disconnect the machine from the power sockets during installation or inspection and maintenance operations.



Bring flammable materials or substances to a sufficient distance (at least 10 meters) from the working area.



It is extremely dangerous to weld (spot weld) containers or tanks which have contained liquid or gaseous substances or combustibles, because explosions may occur.

During spot welding, and especially when welding galvanized, painted or oil-stained sheet metal, smoke will be produced. Make sure there is an adequate air change or a suitable extraction system.



Always protect the eyes with special safety glasses, wear gloves, aprons and protective clothing without metal accessories.



During welding operations, the machine generates magnetic fields. Pay attention to the attraction of iron waste material from the process.

Watches as well as other mechanical, electric and/or electronic devices can be damaged.



WARNING: It is absolutely forbidden for those persons with pace-makers or other cardiac devices to use the machine.

Personnel must be experienced and properly trained in the use and procedure of resistance welding with this machine.

Do not allow unauthorized persons to access the working area; avoid that more than one person works simultaneously on the same machine.

The spot welder is equipped with moving parts, all those precautions should therefore be taken in order to avoid the establishment of hazardous conditions.

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DEFINITION OF THE TERMS

For the definition of the terms used in this manual, refer to the UNI EN ISO 12100:2010 Standard.

FEATURES OF THE MACHINE AND GENERAL INFORMATION

MOVABLE RESISTANCE WELDING STATION

Main components and controlling parts:

Mobile trolley on wheels made of metal frame.

Welding gun with plait cables covered with a special bushing.

Electro-pneumatic operation of welding gun closure.

Manometer unit for welding pressure regulation at the electrodes.

MICRO DIGITAL 5, synchronous, with pulses, heating and welding current regulation.

SCR-diode power unit.

This machine has been manufactured in compliance with the following regulations:

Machine Safety Directive 2006/42/CE

2014/30/EU Directive, electromagnetic compatibility.

2014/35/EU Directive, low voltage electric material.

2011/65/EU Directive, RoHS

EN 50063 Standard, building and installation of resistance welders.

UNI EN ISO 12100:2010 Standard, machinery safety.

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TECHNICAL SPECIFICATIONS AND PERFORMANCES

Table of general technical data:

DIMENSIONS	Top Car 30	
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Head WxLxH	mm	220x220x400
Welding cable with easy start gun	mm	3000
Welding cable with manual gun	mm	3000
Earth cable	mm	2000
Cable section	mm ²	50
Trolley WxLxH	mm	450x700x850
Overall dimensions WxLxH	mm	450x700x1070
Weight	Kg	18
Weight trolley	Kg	35

ELECTRICAL specifications	Top Car 30	
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Nominal power at 50%	KVA	2
Input voltage (*)	1ph V/Hz	230/50
Secondary no-load voltage	V	7
Secondary short-circuit current	KA	3,0
Secondary welding current	KA	2,5
Duty cycles	%	5
Rated power	KVA	16
Fuses	A	16

MECHANICAL FEATURES	Top Car 30	
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Noise level (ISO 7779)	dBA	<65
Ambient temperature	°C	5÷35
Air humidity	%	<90

Fig. 1

This appliance was produced in compliance with Directive 2006/42/CE.

PACKING

The spot welder is packed in a sturdy cardboard box.

For shipment by sea in a container, the spot welder is sealed with salt resistant plastic material.

On request, the spot welder is supplied on a pallet with wooden case and fastened with steel strips.

UNPACKING

Remove the panels of the wooden case (if provided).

Remove the steel strips.

Remove the protective plastic.

Remove the cardboard box.

CAUTION: The packing materials – wood, nails, plastics, cardboard etc. – must not be left within reach of children, as they could be a source of danger.

The packing materials must be sorted and placed in waste according to current legal regulations.

STORAGE

The spot welder must be stored at a temperature between 0 and 40 °C in a dry place, protected from weather and far from heat sources.

The spot welder must be handled carefully, avoiding shocks and falls which could compromise its integrity.

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INSTALLATION

PRECAUTIONS AND CHECKS

CAUTION: During all installation and connection operations, the machine must be absolutely isolated from the power supply line.

CAUTION: Installation must be carried out by qualified personnel in accordance with current standards and the manufacturer's instructions.

CAUTION: Before connecting the machine to the power supply, make sure that the data on the nameplate of the spot welder correspond to the voltage and frequency of the distribution network available at the site of installation.

Electrical safety of the spot welder is obtained only by connecting it to an efficient grounding system made in compliance with the applicable Regulations.

Ensure the validity of the installation by requesting an inspection by specialized technicians.

The Manufacturer cannot be held liable for any damage caused by the lack or ineffectiveness of the grounding system.

Check that the installed power on the electric supply meter as well as the cables of the electrical plant are adequate for the rated power of the spot welder.

CAUTION: In case the user makes modifications, alterations or changes of the spot welder or integrates it in a plant, any liability of the Manufacturer shall be void and the user is obliged to remove the CE mark.

The non-observance of the above instructions will render the safety system provided by the Manufacturer ineffective, resulting in serious risks to persons and property.

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ELECTRICAL CONNECTION

The electrical connection of the spot welder to the mains must be carried out by qualified personnel.

The electrical connection must be made in compliance with the prescriptions of the EN 50063 CEI 26-6 and CEI 64/8 Standard - installation of resistance welders (spot welders) - to an electrical panel connected to the grounding system, provided with a differential circuit breaker of adequate capacity for the power of the spot welder (tab.1, p.6, Electrical Features) and complying with CEI EN 60204/1 Standards.

Make sure that the power line size (conductor section) and the fuse capacity are adequate.

Caution: The spot welder is a SINGLE PHASE and provided with a power cable with two leads, plus a third conductor intended only for connection to the grounding system; therefore, they can be connected to a single-phase power supply, or to a three-phase power supply of which only two of the three available phases will be used.

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MICRODIGITAL 5: WELDING CONTROL (fig. 2, p. 10)

Microprocessor-based welding control.

The machine is turned on by operating the main switch, two horizontal lines appear on the display indicating the correct power supply, and the machine automatically goes into the standby function. Each time the selectors are activated, the welding parameters are set and shown on the display with default values.

1) "MANUAL-AUTOMATIC" SELECTOR

Select the operating modes, manual ST, automatic AU, the operating mode selected will be indicated on display.

2) "MR" WELDING SELECTOR

Activates the welding function of rapid mass "MR". Default setting, welding time of 6 mains cycles.

3) TIP WELDING SELECTOR

Activates the tip welding function. Default setting, welding time of 1 mains cycle, cold welding.

4) PULSE HEATING SELECTOR

Activates the sheet metal heating function with a copper electrode and pulse process to dose the sheet metal heating level. Default setting, heating current of 60%.

5) CARBON ELECTRODE HEATING SELECTOR

Activates the heating function for metal heating operations using the carbon electrode. Default setting, heating current of 30%.

6) WELDING OR HEATING SELECTOR

Activates the welding function with single point procedure, of screws and rivets, etc., and sheet metal heating with copper electrode. Default setting, welding or sheet metal heating time of 20 mains cycles.

7) VALUE INCREASE SELECTOR

8) VALUE DECREASE SELECTOR

9) DISPLAY FOR SET VALUE READING

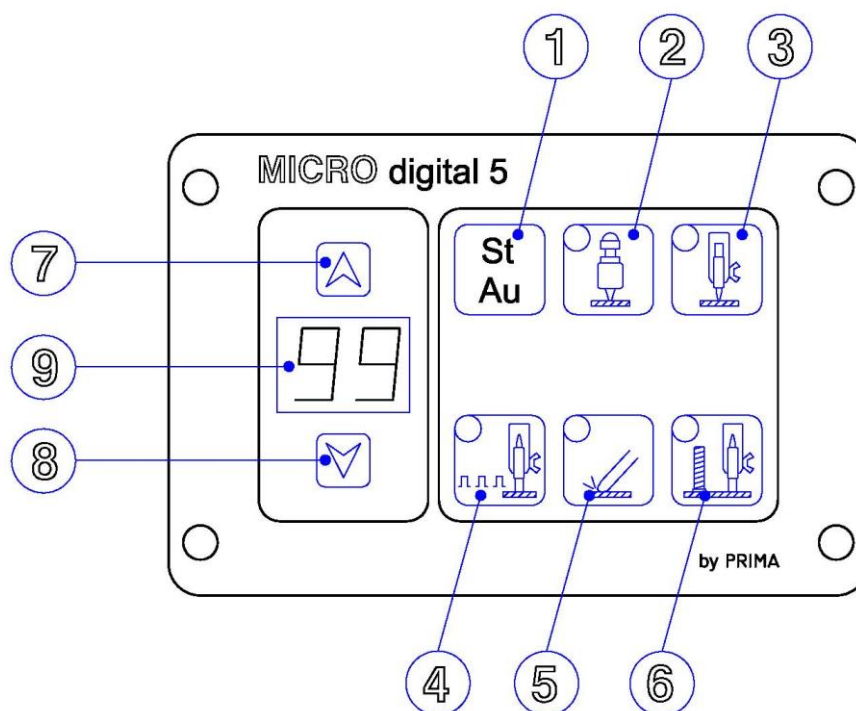


Fig. 2 MICRO DIGITAL 5 type welding control front panel

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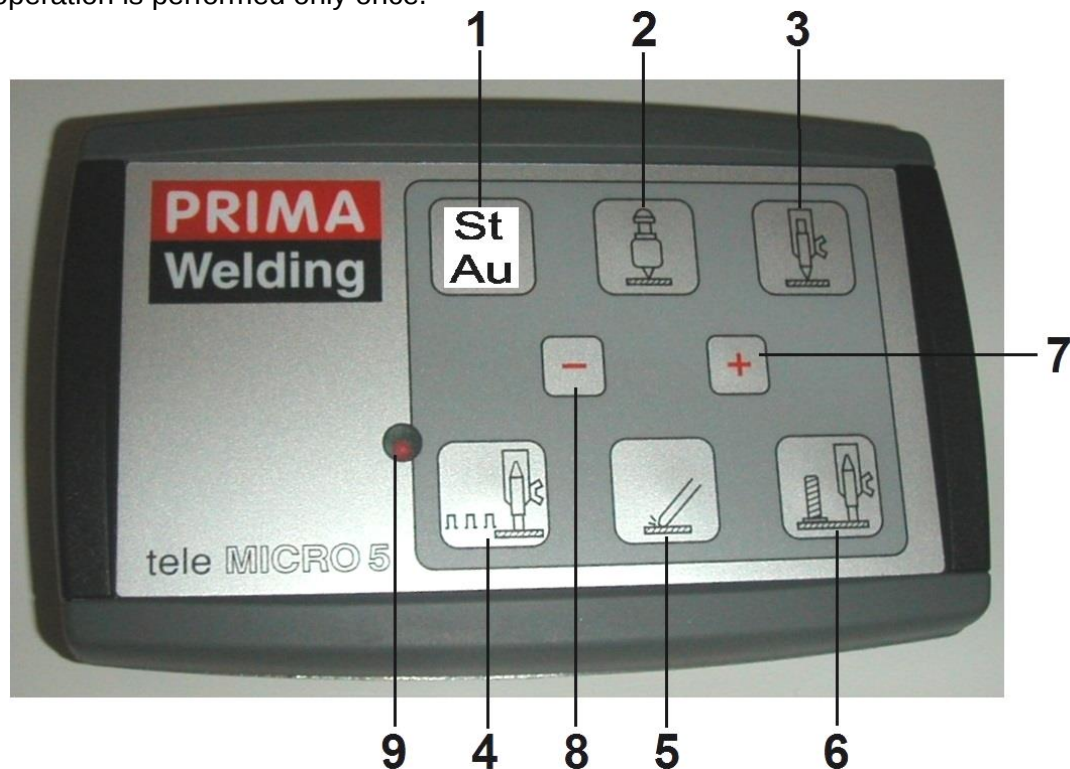
TELEMICRO 5: mobile welding control.

Telemicro 5 is equipped with a 9-volt-battery of the 6LP3146 type.

To enable and combine the "Telemicro 5" to the "TopCar 30" spotter, perform the following operation:

- Switch on the TopCar 30 spotter by keeping a button on the remote control pressed.

Note: This operation is performed only once.



1) "MANUAL-AUTOMATIC" SELECTOR

Select the operating modes, manual ST, automatic AU, the operating mode selected will be indicated on display.

2) "MR" WELDING SELECTOR

Activates the welding function of rapid mass "MR". Default setting, welding time of 6 mains cycles.

3) TIP WELDING SELECTOR

Activates the tip welding function. Default setting, welding time of 1 mains cycle, cold welding.

4) PULSE HEATING SELECTOR

Activates the sheet metal heating function with a copper electrode and pulse process to dose the sheet metal heating level. Default setting, heating current of 60%.

5) CARBON ELECTROD HEATING SELECTOR Activates the heating function for metal heating operations using the carbon electrode. Default setting, heating current of 30%.

6) WELDING OR HEATING SELECTOR

Activates the welding function with single point procedure, of screws and rivets, etc., and sheet metal heating with copper electrode. Default setting, welding or sheet metal heating time of 20 mains cycles.

7) VALUE INCREASE SELECTOR

8) VALUE DECREASE SELECTOR

9) LED: lights up every time a command is executed.

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START-UP

WARNING: Remember some safety precautions to be taken in order to avoid hazardous situations.

The operator must have adequate knowledge and training in resistance welding procedures (spot welding) with this type of spot welder.

Do not allow unauthorized persons to access the working area.

Avoid that more than one person works simultaneously on the same spot welder.

The spot welder is equipped with moving elements, welding arms and electrodes.

CAUTION:

During welding operations, do not wear magnetic metal objects such as rings, bracelets, watches etc., as these objects may be violently attracted by the magnetic field generated by the spot welder or considerably overheated due to the Joule effect and cause burns.

The operator must wear safety glasses, gloves and apron to protect himself from burns, hand cuts and sparkling incandescent particles.

Note: Individual protection systems must comply with current standards.

LIMIT OF USE

This spot welder has been designed, dimensioned and manufactured to perform resistance welding on thin steel sheet (fig.1, p.6, Electrical Features). Any use with different welding procedures, non-iron metals, different sheet thickness or with more duty cycles as indicated may affect proper operation and cause damage to the spot welder.

Therefore the machine must only be intended for the use indicated and described in this manual, any other use is to be considered improper and may result in danger to the operator's safety and material damage.

The manufacturer cannot be held liable for any personal injuries or material damage caused by improper or unreasonable use.

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ENVIRONMENT

Working ambient temperature: 5°C to 35°C.

Working air humidity: lower than 90%.

STARTING THE MACHINE

WARNING: The first start-up of the spot welder must be carried out by qualified personnel. Before performing any welding operation, checks and adjustments must be made.

Make sure the electrical connection is carried out properly and in compliance with the applicable regulations.

Check the diameter and the good condition of the welding electrode tips.

Turning on: operate (close) the main switch, the display and the red LEDs indicate that the spot welder is properly energized.

Turning off: Operate (open) the main switch. The spot welder and the display turn off.

WARNING: The spot welder must be used by trained personnel.

WELDING GUN WITH MANUAL CONTROL

Welding gun with manual control button. All welding start operations are performed by the operator using the trigger in the gun.

AUTOMATIC WELDING, EASY START

The use of TOP CAR 30 is simplified by the use of a special EASY START electronic circuit to automatically start the welding cycle, which makes welding and heating operations easier and faster. The EASY START circuit starts the welding process after 3/10 of a second from the contact of the welding tip on the sheet metal.

CAUTION:

When the machine is switched on, the operating mode is manual, to switch to automatic mode, press the button 1 on the front panel.

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HANDLING

CAUTION: Special care must be taken when handling and positioning the spot welder on the shop floor during welding operations.

The spot welder is equipped with moving elements, therefore all precautions must be taken to avoid dangerous situations to arise.

The spot welder must be moved and positioned using the appropriate handle.

Do not allow unauthorized persons to access the working area; avoid that more than one person works simultaneously on the same machine.

Before operation check the machine for level and stable positioning.

MAINTENANCE

WARNING: Never remove the panels of the spot welder and access the interior without having previously removed the power cord from the power supply panel.

WARNING: Possible checks inside the spot welder, performed when energized, can cause heavy electrical shocks generated by direct contact with current carrying parts.

WARNING: Maintenance must be performed by qualified personnel.

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SCHEDULED MAINTENANCE

Maintenance of components and consumables must be carried out weekly or more frequently according to the use and the environmental conditions as listed below.

Check the welding electrodes every 100 spot welds; restore the original diameter of the tip (circa 4÷5 mm). Using a fine-grained file, remove iron residues that come off the sheet metal as well as the craters that have formed.

Thoroughly check and clean the clamping seats and welding terminals.

Check the state of the power cord and the tightness of the compressed air hoses.

Inspect the spot welder and remove dust and particles that may have settled on the various components.

With periodicity and frequency depending on the use, at least every 4 months, check all electrical contacts of the secondary circuit of the spot welder. Make sure the screws are tightened and that there are no signs of oxidation. Inspect all pneumatic hoses and check the hose clips for perfect seal.

The proper maintenance assures high welding performance of the machine and limits consumption and absorption to the power line.

Inside the machine all components, electrical and mechanical, should be inspected, clean from dust and remove any particles that may have settled on the various.

EXTRAORDINARY MAINTENANCE

Any repair or replacement of components of the spot welder, if required, must be performed by qualified personnel using only original spare parts.

WARNING: Replacement of components with non original spare parts and/or alterations of the machine causes the decay of any liability of the manufacturer for personal injuries or material damage that may arise.

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EMERGENCY

FIRE

In case of fire, use only powder fire extinguishers complying with the applicable Regulations.

WARNING: ABSOLUTELY DO NOT USE LIQUID FIRE EXTINGUISHERS AS THE MACHINE MAY BE UNDER ELECTRICAL VOLTAGE.

WARNING: WHEN BURNING, SOME PARTS OF THE MACHINE MAY PRODUCE TOXIC COMBUSTION GASES OR SMOKE.

DISASSEMBLY - DISPOSAL

CAUTION: If the machine is to be put out of service, provide for disassembly and disposal according to the applicable Regulations.

Carry out a differentiated sorting of materials:

Metal

Electric material

Electronic material

Plastic and rubber material

ATTENTION: Waste materials must be subdivided and disposed of in compliance with the applicable Laws.

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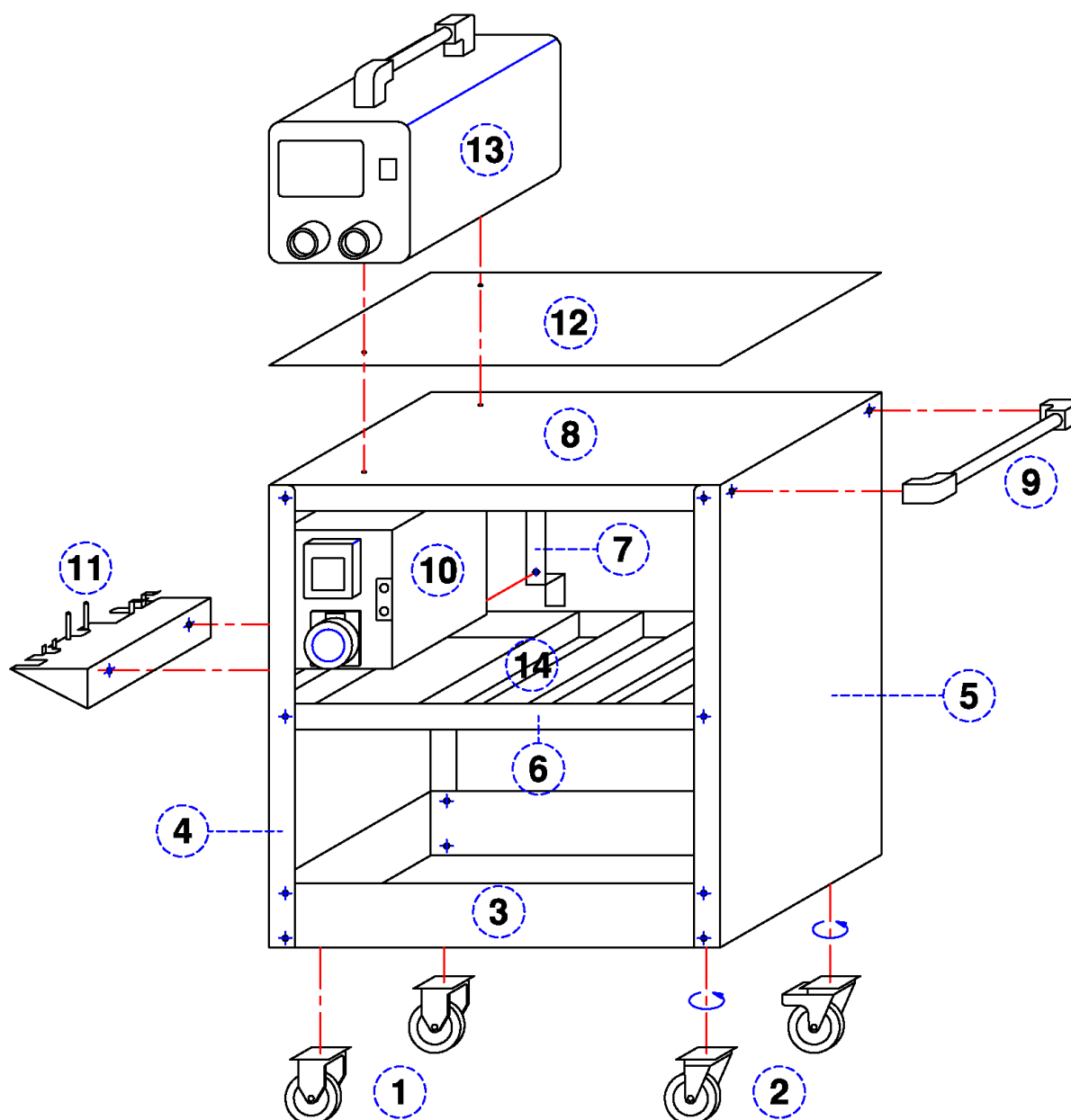
TROUBLESHOOTING

Below there is a list of possible problems and malfunctions that may occur and steps to be taken to remedy them.

PROBLEM	CAUSE	REMEDY
The spot welder does not turn on.	Incorrect electrical connection. Open electrical panel switch. Blown fuse	Check electrical connection, check electrical panel and check fuse.
Execution of spot welds with projection of melted material. Appearance of holes and craters on sheet metal.	Excessive welding current or welding time. Insufficient electrode pressure. Electrode tips with metal residue deposits.	Decrease welding current or welding time. Clean the electrodes. Increase the pressure. Make a correct contact electrode-metal sheet.

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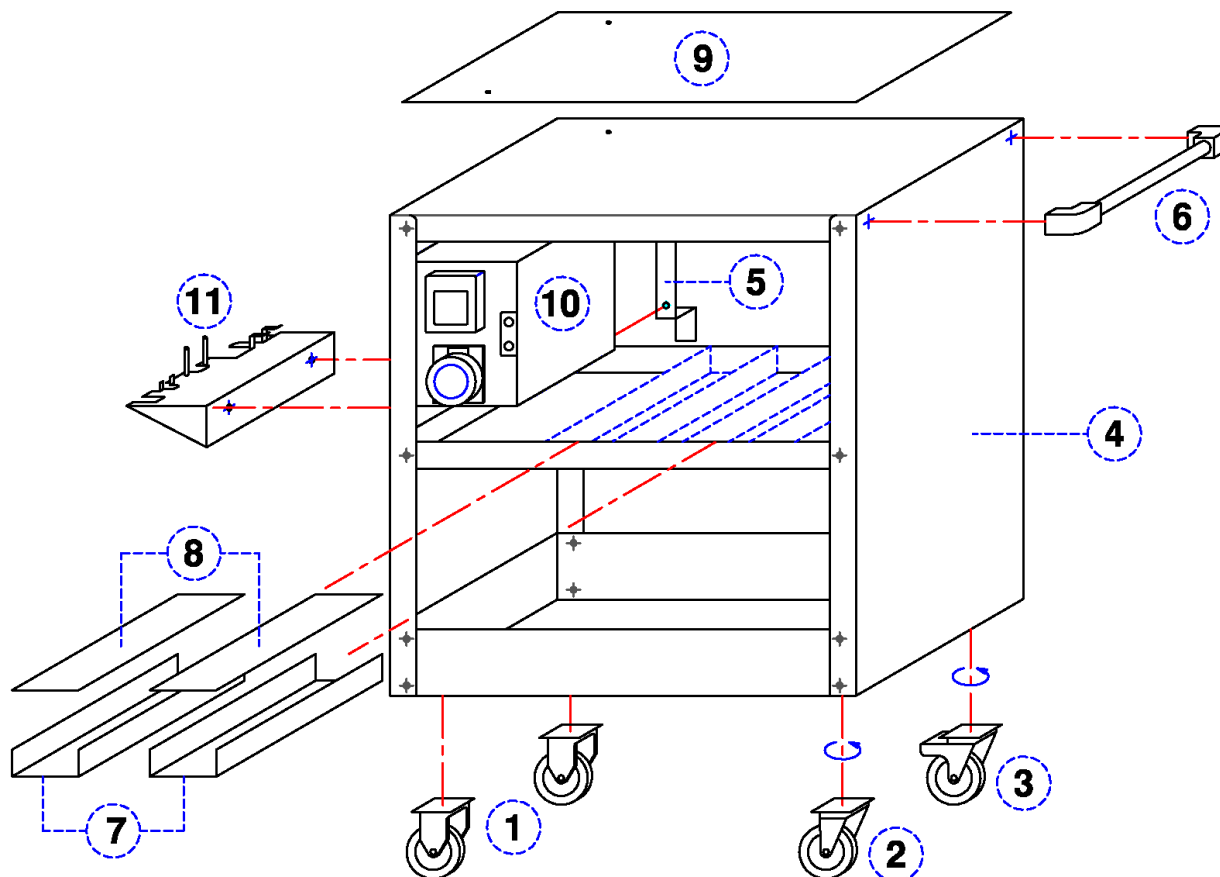
CAR 3: ASSEMBLY SEQUENCE



A	1+2+3	(M6x12)
B	4+5	(M8x10)
C	6+7	(M8x10)
D	8	(M8x10)
E	9	(M8x25)
F	10+11	(M8x10)
G	12	(3 pcs)
H	13	(M5x25)
I	14	(2 pcs)

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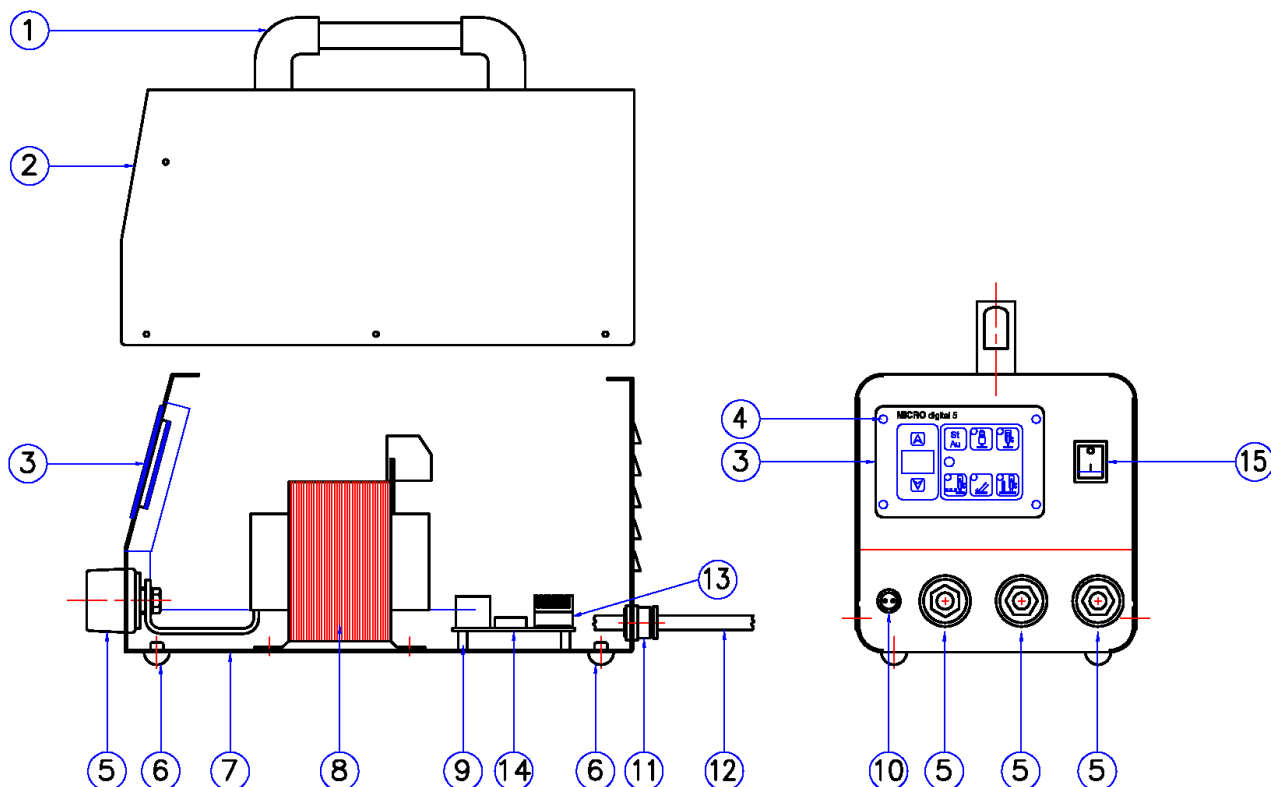
CAR 3: SPARE PARTS



1	90019035	BACK WHEEL
2	90019059	TURNING WHEEL
3	90019085	TURNING WHEEL WITH STOP
4	50010401	TROLLEY
5	9260109	CABLE HOLDER
6	90019362	HANDLE
7	50010402	MOVABLE CONTAINER
8	50010407	PROTECTION CARPET
9	50010406	PLAIN PROTECTION CARPET
10	50010408	ELECTROPNEUMATIC BOX
11	50010425	PRIMAPULLER SUPPORT

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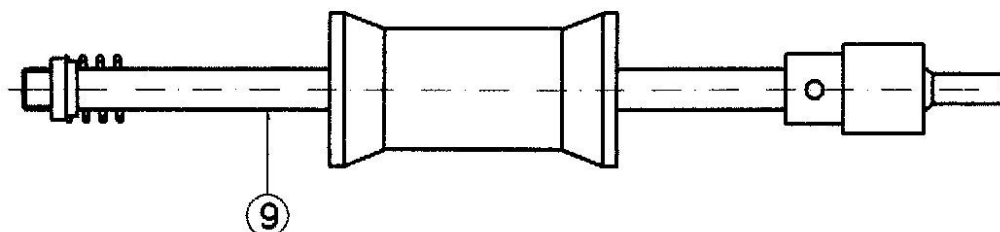
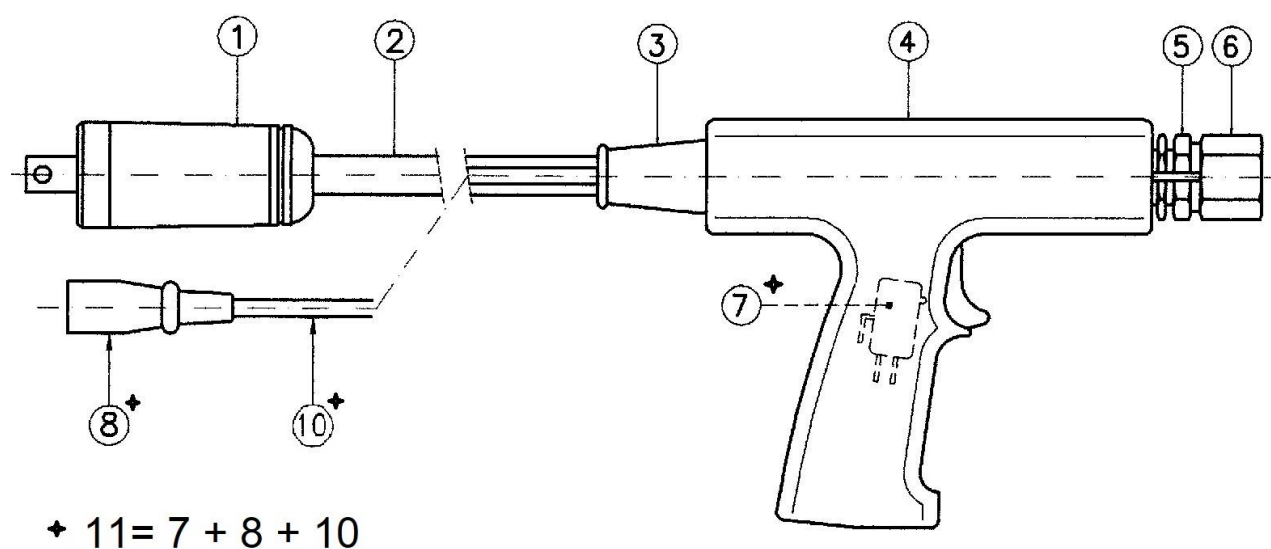
TOP CAR 30 (SPOTTER): SPARE PARTS.



1	50010709	HANDLE
2	1217060005	SPOTTER COVER
3	90014028	WELDING CONTROL MICRODIGITAL 5
4	90019075	SCREW LOCK
5	90019359	CONNECTING PLUG
6	90019310	FEET
7	121706001	SPOTTER BASIS
8	20010105	WELDING TRANSFORMER PBTMAG9
9	90019659	BOARD HOLDER
10	90019737	GUN CONNECTOR
11	90019037	CABLE HOLDER PG16
12	90019819	CABLE (3x4)
13	90018002	DIODE SCR 27/12
14	90014052	ELECTRONICS BOARD MICRO DIGITAL 5
15	90019368	ON-OFF SWITCH

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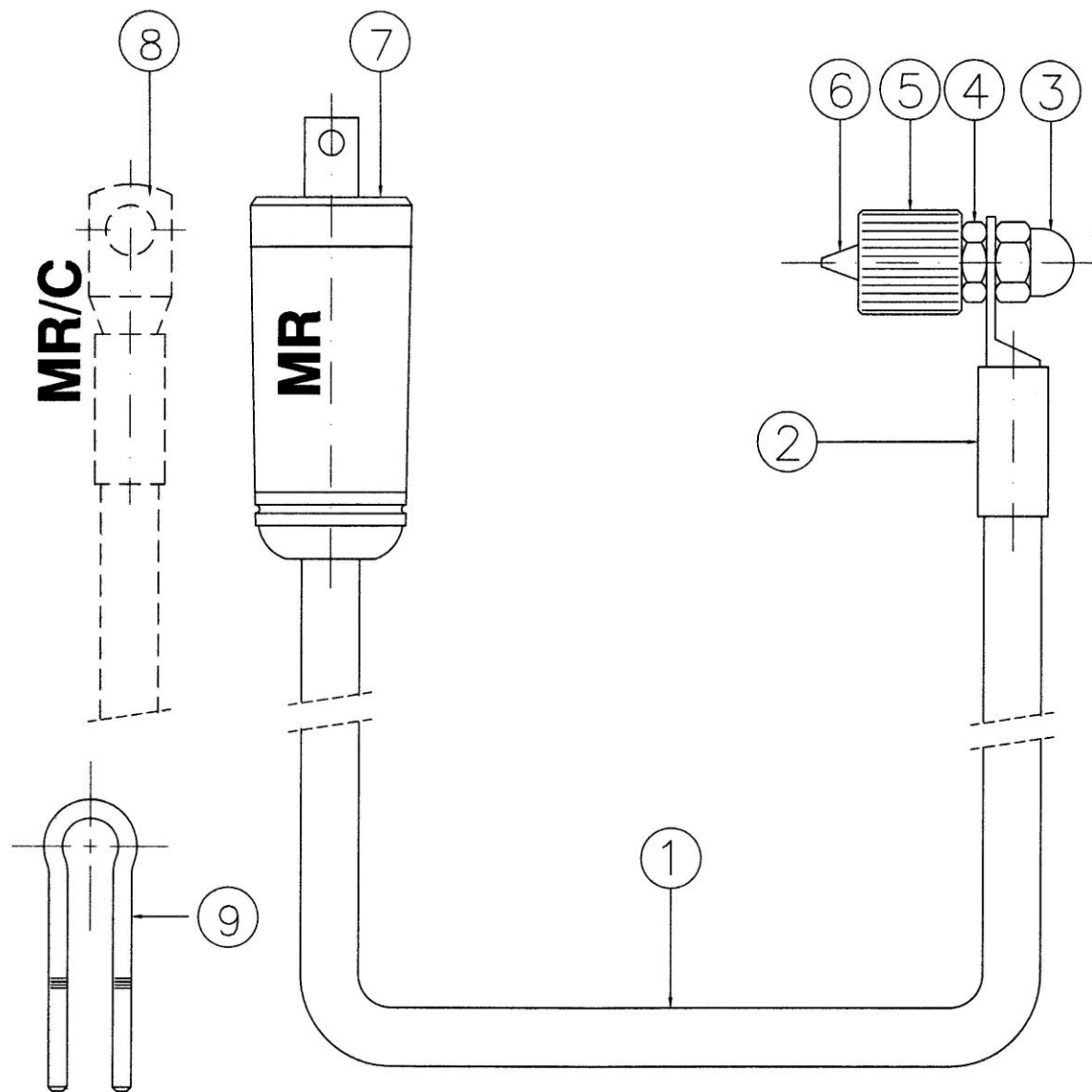
“KSP” SINGLE POINT: SPARE PARTS.



1	90019364	CONNECTOR 50mmq
2	90019240	CABLE EXTRAFLEXIBILE (1 X 50mmq x 3000mm)
3	90014312	RUBBER PASSCABLE
4	90017006	HANDLE SPOTTER
5	90016021	SPINDLE
6	90016020	NUT FOR SPINDLE
7	90019288	MICROSWITCH
8	90019736	GUN CONNECTOR
9	90016024	SLIDE HAMMER
10	90019241	CABLE
11	90020201	MICROSWITCH(7) + GUN CONNECTOR(8) + CABLE(10)

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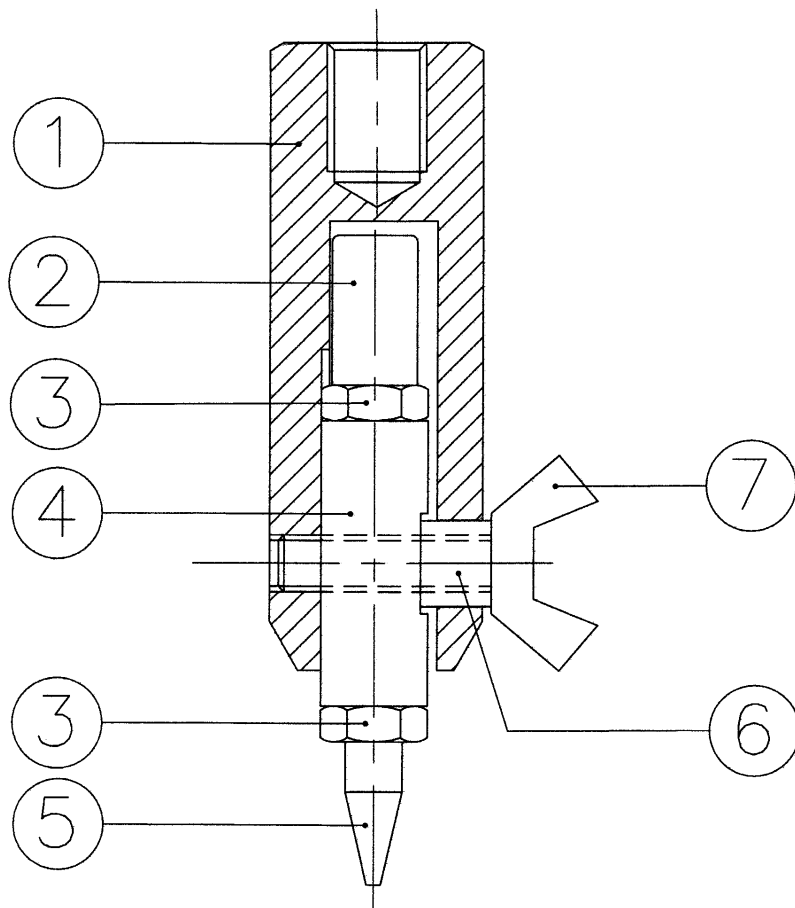
“MR” GROUND CABLE: SPARE PARTS.



1	90019240	CABLE (1x50)
2	90019369	ELECTRIC TERMINAL ANE12-M10
3	90019354	M10 CAP NUT
4	90019400	M10 NUT
5	50010302	SLEEVE
6	50010301	"P 10" ELECTRODE
7	90019364	CONNECTOR
8	90019282	ELECTRIC TERMINAL ANE 12-M12
9	50010303	SPRING

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“MULTIPOINT”: SPARE PARTS.



1	60010303	HEAD FOR ELECTRODES HOLDER
2	60010306	"E 30" ELECTRODE
3	90019350	M8 LEFT NUT
4	60010304	ELECTRODES HOLDER
5	60010305	"P 8" ELECTRODE
6	90019349	GUSSET
7	90013011	M8x30 SPECIAL SCREW