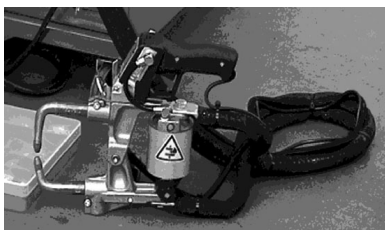


SISTEMA UNIVERSALE DI SALDATURA 8 kVA, PINZA PNEUMATICA
UNIVERSAL WELDING STATION 8 kVA, PNEUMATIC GUN
UNIVERSAL-SCHWEISSANLAGE MIT 8 kVA LEISTUNG UND
PNEUMATISCHER SCHWEISSZANGE
POSTE UNIVERSEL DE SOUDAGE 8 kVA, PINCE PNEUMATIQUE
SISTEMA UNIVERSAL DE SOLDADURA 8 kVA, PINZA NEUMATICA



SMARTGUN



MULTIFUNCTION GUN

CAR BODY REPAIR WELDING SYSTEM **INSTALLATION, USE, MAINTENANCE, SPARE PARTS**

- Introduction
- Symbols
- Art. 338672.S1 Pneumatic gun
- Standard accessories
- Selection of arms, electrodes and accessories
- Item S07687 Welding system
- Dimension and weight
- Unpacking
- Installation
- Electrical installation
- Pneumatic installation
- Safety rules
- Self contained welding system description

Welding control unit

- Main features
- Multifunction gun (Item 338075)
- Pneumatic gun (item 338672.S1)
- Work
- Welding examples
- Possible combinations for using the tools
- Welder set-up
- Ordinary maintenance
- General warnings
- Electrodes
- Pneumatic circuit
- Extraordinary maintenance
- Welder non-working
- Lowering of the performance
- Electric circuit
- Tables for performances and adjustments
- Faults - Causes – Diagnoses
- Wiring diagram
- Exploded view item S07687
- Spare parts list
- Exploded view item 338672.S1
- Spare part list
- Declaration of conformity

INTRODUCTION


CAREFULLY READ THIS MANUAL BEFORE INSTALLING AND OPERATING WELDER.




This manual is addressed to the factory responsible in charge that must release it to the personnel in charge of welder installation, use and maintenance. He/she must check that the information given in this manual and in the enclosed documents have been read and understood. The manual must be stored in a well-known place; easy to reach, and must be looked up each time even little doubts should arise.

These welders must be installed in industrial environments for professional use, only.

WARNING: Resistance welding equipment is not intended to be used on a low-voltage public network that supplies domestic premises: it may cause radio frequency interference.

 This welder has been designed for car body shop repairing work: resistance welding for sheet metal spots, dent pulling with spotter (nails or washers), localised heating (carbon electrode), screws and rivets welding, sheet metals spotting. The welder must not be used for other application, i.e. pieces heating, mechanical working carried out by using the (pneumatic) force. The welder has been designed to be used by an operator by means of the provided control devices.

 All modifications, even slight ones, are forbidden because they should invalidate the welder EC certification and its warranty.

The builder is not responsible for any damage to both people, animals, things and to the welder itself caused by either a wrong use or the lack or the superficial observance of the safety warnings stated on this manual, nor it is responsible for damages coming from even slight tampering or from the use of not-suitable spare parts, or of spare parts other than the original ones.

SYMBOLS ON BOTH WELDER AND MANUAL



WARNING! Danger of squashing.



WARNING! Important safety information enclosed in this paragraph.

SELECTIONS OF ARMS ELECTRODES AND ACCESSORIES

Specifications subject to change without notice

Item S07687-WELDING SYSTEM

S07687	Item	Description
●	338672.S1	Water cooled smart gun with large gap Ø 18
●	333873	Cable 2000 mm, 150 mm ²
●	338075	Multifunction gun with cable L=2000 mm
●	333469	Earth cable with clamp L = 2000 mm
●	337639	Consumable material for single spot gun
●	337638	Slide hammer
○	333696	Hand operated C type gun with cables L=1600mm

Arms Ø 18 with caps

○	335001	Pair of arms L=107 mm G=96 mm
○	335003	Pair of arms L=235 mm G=96 mm
○	335004	Pair of arms L=332 mm G=96 mm
○	335005	Pair of arms L=483 mm G=96 mm
○	335021	Pair of bent arms L=107 mm G=98 mm
○	335022	Pair of bent arms L=152 mm G=98 mm
○	335023	Pair of bent arms L=235 mm G=98 mm
○	335024	Pair of bent arms L=330 mm G=98 mm
○	335025	Pair of bent arms L=480 mm G=98 mm
○	335032	Pair of arms L=152 mm G=200 mm
○	335033	Pair of arms L=235 mm G=200 mm
○	335034	Pair of arms L=332 mm G=200 mm
○	335035	Pair of arms L=483 mm G=200 mm
○	335081	Pair of special arms L=107 mm
○	335082	Pair of special arms L=107 mm
○	335084	Pair of special arms L=230 G=98 mm
○	335085	Pair of special arms L=330 mm

● Standard ○ On request

UNPACKING



On receipt of the welder, verify the perfect integrity of the outer package; communicate to a responsible in charge

possible anomalies that should be noticed. Possible damages on the outer package should arise some doubts on the integrity of its content. Remove the package and visually verify the welder integrity. Check that the welder is equipped with all the standard components; immediately inform the manufacturer in case some components should lack. All the material forming the package must be removed according to the present environmental protection regulations.

INSTALLATION



The welder must be installed in a position fulfilling the following features:

- Indoor: the use of the welder out of doors is not foreseen.
- Room temperature between 0 and 40 °C; 1000 m. maximum altitudes.
- In a well-ventilated area, free from dust, steam, and acid fume.
- The working place must be free from inflammable materials because the working process can produce sparks of melted metal.
- In a place with a suitable lighting system in comparison with the work to be carried out.
- The place of installation must be flat and the ground must be without unevenness that can be dangerous when working.
- If the welder is used to carry out welding processes which can cause fumes, there must be installed a proper fume extractor.

ELECTRICAL INSTALLATION

First check that the machine is of the right class in comparison with the working environment.

Warning: resistance-welding equipment in this manual are not intended to be used on a low-voltage public network that supplies domestic premises. It may cause radio frequency interference.

Specialised personnel, aware of all safety rules must carry out installation. This unit can be supplied for different power supply versions. **Before connecting the unit to the power line, check if the voltage shown on the features plate corresponds to the one of your power supply.**

Consult the “technical features” table on the machine to determine the cables section to be used, according to their length. The fuses that must be placed on the welder supply input must be delayed types. In order to facilitate the maintenance, we recommend you supply the welder by means of a breaker switch. The welder has not been designed for multiple voltages supply. If a voltage change is necessary consult your supplier.

PNEUMATIC INSTALLATION

For a correct compressed air supply to the welder, it is necessary either a centralised system or a compressor capable of supplying dry air cooled within the pressure limits (3÷8 Bar).

In case the line is subject to great pressure variations, it is advisable to supply the welder by means of a tank of at least 25 litres equipped with a gauge-pressure supplied by means of a one-way valve.

The machine is equipped with a filter unit, the moisture of which must be discharged periodically.

SAFETY RULES



For a safe welder operation, specialised personnel following all the instructions stated on the «INSTALLATION» paragraph must carry out the installation.

Following all the safety instructions stated on the «MAINTENANCE» chapter must carefully carry out the welder maintenance. In particular, notice that the electrodes maintenance must be carried out with the welder switched off.

Only trained personnel should operate the welder; in any case, users operating the welder must be aware of the possible risks and must have both read and understood this manual.

Only authorised personnel can carry out the welder adjustments. The welder adjustments affect the operative safety so much so that only qualified personnel must carry them out.

Carefully follow the instruction stated on the “WORKING PROCESS” chapter.

It is forbidden to have more people working on the welder at the same time.

No admittance allowed to the working area to people other than the operator.



The welder main risk is the squashing of the hands caused by the moving of arms and electrodes, etc. For this reason, it is necessary to pay great attention and to follow all the instructions stated on this manual. In particular:

- Avoid working with the hands nearby the welder mobile components
- Use pliers or tools allowing the positioning of the pieces by keeping the hands far from the electrodes.

The supply of the pneumatic gun is performed by means of a normally closed solenoid valve. The mains switch, in order to avoid accidental risks due to lack of electricity, but not to lack of pneumatic supply controls it.



Notice that this type of machines generates strong magnetic fields attracting metals and damaging watches, magnetic cards and magnetic data storage media. Since these magnetic fields can affect pacemakers, the wearers must consult their doctor before approaching to the welding area. The personnel must wear both

safety glasses and gloves. Avoid wearing rings, metal watches and clothes with either metal accessories or components.

Protect the operator from possible spatters of melted material.

Keep the welder working area free from flammable materials. In case the material to be welded produces either smoke or fumes, install a proper fume extractor.

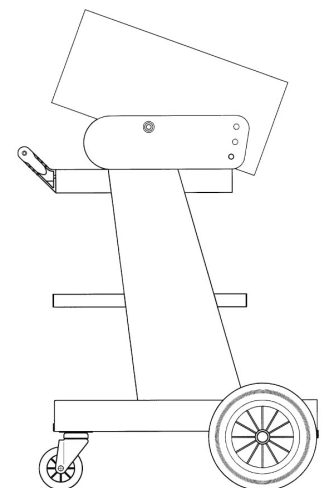


In addition to the information stated on this paragraph, always operate in accordance with all the relevant laws in force.

SELF CONTAINED WELDING SYSTEM DESCRIPTION

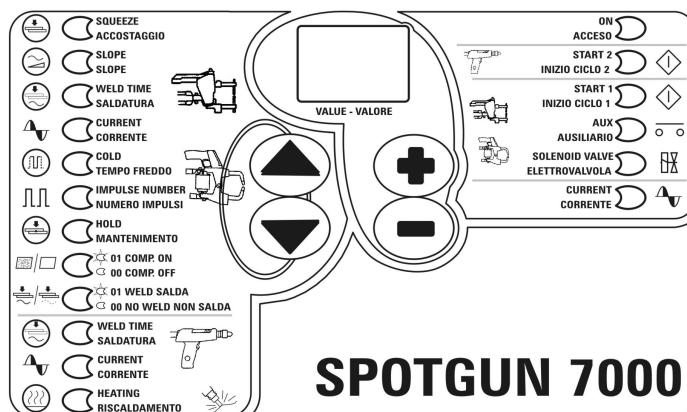
The welder has been designed for car body shop repairs and an operator working on a flat surface must use it. Pay attention to both electric cable and pneumatic air hose.

This machine has not been designed for manufacturing works.



WELDING CONTROL UNIT

RELEASE SOFTWARE 95-07



The welding control unit is used to control the welder attachments and, in particular, the thyristor regulating the welding current. The welding control unit is a microprocessor designed for cable resistance welders for car body shops.

Differently from a standard control unit the welding control unit shown in this manual carries out two different working cycles for gun and multifunction gun; moreover, the multifunction gun working cycle is equipped with the sheet metal heating function. The welding control unit can be used for welders with both pneumatic and hand-operated gun.

MAIN FEATURES

- Synchronous thyristor drive with phase shift control for welding current adjustment.
- Simplified programming by means of four buttons.
- Regulation of first phase shift delay to obtain the best balance of machine line current.
- Control of solenoid valve 24 Vdc 7,2 W Max with protected output against any short circuit.
- Separate working cycles for gun and multifunction gun

GUN WORKING CYCLE

- Slope and pulse functions.
- Secondary current compensation function enabling the welding of oxidised metals and rods.
- **Possibility to activate the auto-retain on pneumatic welders by means of a solenoid valve.**

MULTIFUNCTION GUN WORKING CYCLE

- Welding time and welding current adjustment independent from the gun adjustment.
- Sheet metal heating function.

TECHNICAL DATA

Mains voltage of electronic circuit: 24 Vac + 10% / -20% 50/60 Hz

Consumption: 7 VA at rest; 21VA during welding

Operative temperature: 0 ÷40 °C

PROGRAMMING THE WELDING CONTROL UNIT

Immediately after the control unit turns on the display shows the program version and after some seconds the welding control unit equipment is set in a waiting condition enabling the operator either to perform the programming or to carry out any welding process. The control unit is programmed through the adjustment of all parameters describing the welding cycle; select the parameters and set the desired values one by one. See the relevant paragraph to better understand the meaning of each parameter.

The parameter is marked with an international mark and is listed on the left side of the control unit. Each parameter is combined with a pilot lamp. Select the parameters by means of buttons \blacktriangle and \blacktriangledown , the pilot lamp corresponding to the parameter selected lights up and its value is shown on the display.

Change the welding parameters value by means of button + and -, by increasing or decreasing the value shown on the display. The minimum and maximum values of each parameter are described in the following table.

PARAMETER	RANGE VALUE
Gun	
Squeeze	1 - 50 cycles
Slope	0 - 29 cycles
Welding time*	1 - 65 cycles
Current	1 - 99%
Cold time	1 - 50 cycles
Impulse number	0 - 9
Hold	1 - 50 cycles
Compensation	01 / 00
Weld/no weld	01 / 00
Multifunction gun - "C" type gun	
Welding time	1 - 50 cycles
Current	1 - 99%
Heating	01
Current	1 - 60

*When the pulse function is used (IMPULSE NUMBER is different from 0) the welding time should not exceed 25 periods. If this condition is not observed, an error E2 is shown (see the error list).

In this way all the parameters are set to the desired value. It is not necessary to press a button to confirm the value is set, as it is automatically stored after the adjustment.

When this programming step is over, it is possible to use the welder without confirming the set or stored data.

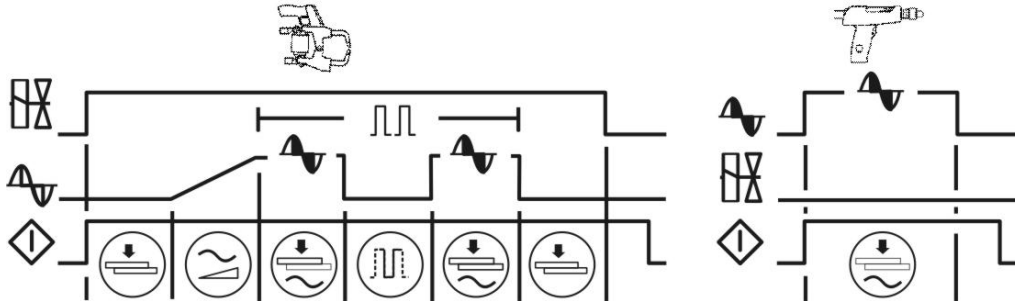
Use the WELD / NO WELD function to carry out any test cycle without welding current.

During the welding cycle the control unit shall display the current function and the relevant value.

DESCRIPTION OF THE WORKING CYCLE

The welding control unit gun Working cycle carried out by means of the START 1 input is different from the multifunction gun working cycle carried out by means of START 2 input. The Working cycle is determined by the user through the adjustment of the different programming parameters, different for both gun and multifunction gun. These parameters indicate the operating times and the current regulations characterising the working cycles whenever performed consecutively. The following drawings show the execution order of the programmed functions for the two different working cycles.

The symbols refer to the programming parameters described in the following paragraph.



Due to safety reasons, the microprocessor does not start the welding cycle when the cycle start signal is enabled during the welder connection; in this case disable the control device and activate it again. Any micro-interrupts or excessive voltage drop blocks the control rather than altering the operation; turn the machine off for 1" and then turn it on again.

DESCRIPTION OF PARAMETERS

All the following parameters indicating a period of time are expressed in mains cycles, also called periods. The main frequency defines the duration of a cycle:

Mains frequency of 50 Hz, 1 period = 20 ms

Mains frequency of 60 Hz, 1 period = 16,6 ms.

PARAMETERS CONCERNING THE GUN WORKING CYCLE (WHITE COLOUR)



SQUEEZE

The SQUEEZE time is used with the pneumatic gun only. It is the time interval between the beginning of the electrodes closing and the beginning of the welding cycle. The set value should be long enough to allow the electrodes to reach the correct tightening force before the beginning of the welding cycle. Insufficient squeeze time causes the formation of flashes between the electrodes and the metal at the beginning of the welding cycle; this inconvenience could lead to an inconsistent quality level. Should the cycle start signal be disabled during the squeeze time, then the sequence is interrupted.

When using a hand-operated gun, set this parameter to 01 to obtain the fastest working cycle.



SLOPE

The SLOPE parameter describes the time during which the programmed value of welding power is reached. The starting value of this slope always corresponds to the minimum power, while the final value corresponds to the value of power being programmed in parameter CURRENT. The slope speed is automatically calculated by the microprocessor according to the programmed values.



WELDING TIME

The WELDING TIME parameter indicates the current flow duration. It will be carried out with the same value of power indicated in parameter CURRENT. When the pulse operation is on, this parameter signals the duration of each pulse and it could reach a maximum value of 25 periods.



CURRENT

The value expressed in CURRENT indicates the welding operating power.



COLD TIME

The COLD TIME parameter is used in the pulse operation and indicates the time elapsing between one welding pulse and the next one.



IMPULSE NUMBER

The IMPULSE NUMBER parameter indicates the number of impulse used for the welding process. When the parameter is set to 0, the pulse operation is shut off. The duration of each impulse corresponds to the time set in the WELDING TIME parameter

HOLD

The HOLD parameter is used with the pneumatic gun only. It describes the time elapsing between the end of the welding process and the opening of the electrode .it enables a shorter cooling of the welding spot and avoids its stress before a proper cooling. When using a hand-operated gun, set this parameters to 01, even though it is correct to wait 0,2÷1” since the end of the welding process before opening the electrodes in order to enable the spot to consolidate

COMPENSATION (COMP.ON / COMP. OFF)

By setting this parameter to 01 the secondary current compensation function is turned on. By setting the parameters to 00 the function is shut off. When working, the relevant led shows that this function is activated.

PARAMETERS CONCERNING THE MULTIFUNCTION GUN WORKING CYCLE (YELLOW COLOUR)

WELDING TIME

The WELDING TIME parameter indicates the current flow duration. It will be carried out with the same value of power indicated in parameter CURRENT.

CURRENT

The value expressed in CURRENT indicates the welding operating power.

HEATING

By setting this parameter to 01 the heating function is turned on. When this function is operating, the welder supplies current according to the value set in the CURRENT parameter as long as the start cycle device is an activated. Because of safety reasons, a maximum limit of 4 seconds has been set; If this time is not enough for carrying out the desired heating, first release and than depress once again the start cycles trigger. When working the relevant led shows that this function is activated.

WELD / NO WELD

For both working cycles (gun and multifunction gun), the function WELD / NO WELD is always activated. This function enables to carry out test welding cycles without current flow. With the parameter set to 01 the control unit will carry out standards welding cycles. When it is set to 00 the control unit will carry out complete test cycles without welding current even through all the welding time parameters are kept enabled. When working, the relevant led shows that the function is set to WELD.







SECONDARY CURRENT COMPENSATION FUNCTION

The compensation function of secondary current is available only for the gun and it is used to facilitate the welding process of oxidised metal and rods.

Oxidation blocks the current flow during the first welding phase, limiting, in a different way depending from the welding process, the real time of current flow.

The compensation function controls the welding current by means of a coil located inside the secondary circuit. Until the welding current does not exceed a limit of about 1500÷. 2000A, the welding time is automatically extended up to a limit of 99 cycles. In this way it is possible to carry out welding processes with an always-constant real time of current flow. If, after having reached the 99 welding periods limit, the current limit has not been exceeded, **the control unit will indicate that displaying the E4 error has not correctly carried out the welding process, and will block the welder functioning.** To reset the functioning, press any key.

CONTROL PANEL PILOT LIGHTS

ON		It indicates that the control unit is on
START 2		It indicates that the start cycle device coming from the multifunction gun is activated
START 1		It indicates that the start cycle device coming from the gun is activated
AUX		It indicates that the block control with pressure only is on. This input is activated by the “pressure only” device of the pneumatic gun
SOLENOID VALVE		It indicates that the solenoid valve is activated
CURRENT		It indicates that the control unit is generating the control impulse for SCR

ERROR LIST

MESSAGES

E1 CAUSE

The value of one of the stored parameters exceeds the pre-set limits. This could be caused by a loss of data due to any interference or malfunctioning.

REMEDY

Check all the values set in the parameters and correct them if necessary. Contact to the aftersale service if the trouble occurs frequently.

E2 CAUSE

During the pulse operation the WELDING TIME is set to a value higher than 25. This parameter cannot be higher than 25 in the pulse mode operation.

REMEDY

Set the welding time to a value lower or equal to 25 cycles.

E3 CAUSE

During the pulse operation the total welding time (WELDING TIME x IMPULSE NUMBER) is higher than the limit of 150 cycles. Do not exceed this value so as not to overheat the machine.

REMEDY

Decrease the welding time or the impulse number so that their product is lower or equal to 150 cycles. The welding times in car body shop repair are very short ones (see table no. 2 Page 12). With longer times it is necessary to limit the number of spots in order to avoid over heating.

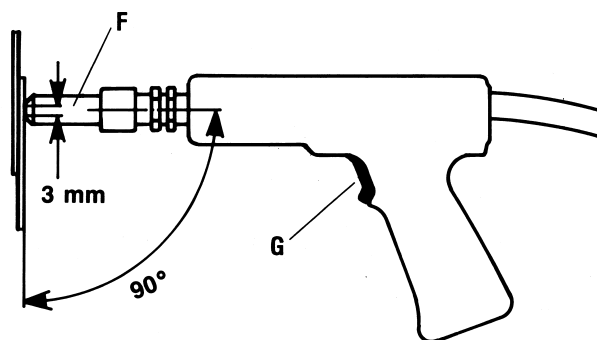
E4 CAUSE

The compensation function is enabled and the control unit has extended the welding time up to the maximum limit of 99 periods. The set welding time has not been carried out with a welding current higher than the limit.

REMEDY

Press a key to cancel the error. Before restarting the welding processor check the welding conditions. If the pieces are too oxidised they must be cleaned.

MULTIFUNCTION GUN ITEM 338075



Connect both gun item 338075 and ground cable item 333469 to clamps (5). The ground cable must be connected to the car body metal nearby the weld area. (Variations of such a distance can require a different welding control unit adjustment; **the farther the ground is from the area to weld the higher the welding current and time should be.**)

This gun enables to carry out the following functions:

● **Single side welding.** Max. thickness of sheets on electrode side is to be 0,8 mm; higher thickness of the counter side sheet. Always work on perfectly clean and touching sheets.

The best results with the multifunction gun can be reached by maintaining electrode (F) in good conditions and with a max. diameter of 3,5 mm.

Handle the gun keeping the electrode perfectly perpendicular to the surface to be welded, press strongly by means of electrode (F) and operate trigger (G). Welding examples A, page 15.

● **Straightening of car body panels heavy deformations.**

There are two possible procedures:

1. Welding nails (or washers) and consequent pulling by means of the slide hammer (Fig. B, page 15).

2. Use of the 3 point's star. Welding example C, page 15.

● **Localised heating** for small denaturing deformations or for eliminating oil conning dent pulling are carried out by means of the carbon electrode. Example D, page 15.

ITEM 338672.S1 PNEUMATIC GUN (see page 16)

- A - ELECTRODES
- B - ARMS
- C - ARMS LOCKING SCREW
- D - SPEED ADJUSTMENT
- E - TRIGGER
 - E1 - REST
 - E2 - PRESSURE ONLY
 - E3 - WELDING
- F - LOCKING SCREWS FOR CABLES
- G - CONTROL CABLE
- H - CONNECTOR
- L - AIR HOSE
- M - WELDING CABLES
- N - STROKE ADJUSTMENT
- O - ADDITIONAL HANDLE
- P - COUPLING LARGE GAP ARMS


PNEUMATIC GUN - ADJUSTMENT SMARTGUN

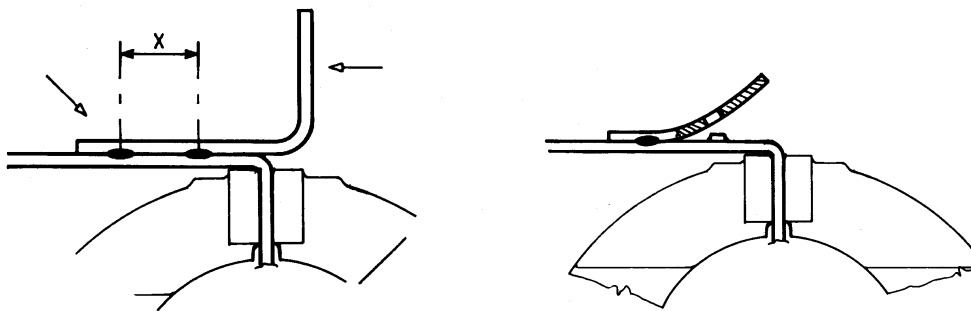
The gun 338672.S1 has a patented, very important, and innovative feature: that is to say, an easy-to-use trigger (E) with double stroke. In the first part of its stroke (E2), the electrodes exert a clamping force only, thus allowing a gradual closing or the re-opening of the arms. The trigger at the end of its stroke carries out the welding, only if the clamping force is the correct one. This is due to a differential pressure switch that automatically adjusts the start of welding in the range from 3 to 8 bars.

WORK


Connect to the welder the equipment with both arms and electrodes necessary for the work to carry out.

Adjust the welding parameters on the basis of both personal experience, table n° 2 at page 12, and welding examples (page 15 of this manual).

 Moreover, before starting the welding process, check the welding conditions (time, current, force, electrode "ø", etc.). Use two off-cuts of the sheet to weld, carry out two spots at the same distance used during the production, then remove the first and check the second: **the spot is correct when the pulling test causes the coming out of the weld nugget with the hole of a sheet, and the twist test shows a pure area without porosity or causes the coming out of the nugget.**




TRACTION - X = SAME DISTANCE OF SPOTS IN PRODUCTION

 During the working it is advisable to monitor those parameters which can alter the working conditions and thus the welds quality. If you are operating spot welding, always monitor the electrodes that must always be clean, without any deformation and must have the proper diameter according to the work to be carried out. When using a pneumatic gun, check that there are not strong changes in the welder supply pressure as they could modify the force on the electrodes and thus the welding quality.

To facilitate the electrode removal and to prevent from cone seizure, use high conductivity grease similar to the standard one.

Electrodes must not be used to force the clamping of the pieces to weld.

ORDINARY MAINTENANCE

 This chapter states the necessary maintenance operations to be carried out for:

- 1) Keeping the welding unit operating safety and preserving its efficiency;
- 2) Avoiding the most common causes of wrong working worsening the welding quality.

GENERAL WARNINGS



Always disconnect both electrical and pneumatic supply before carrying out the following maintenance operations.

- Always keep the screws of arms, electrode holder, plates and rigid/flexible connections well tightened.
- Remove possible oxidation from secondary circuit with fine sandpaper.
- Periodically lubricate (at least every 6 months) with some drops of oil both pins and axis
- Keep welder clean free of dirt and metal filing attracted by magnetic field generated by the welder when working.
- Neither washing the welding unit with jets of water which could enter it, nor use strong solvents, thinner, nor benzene that could damage either painting or the machine plastic components.

ELECTRODES



Electrodes maintenance must be carried out with the welder switched off and with the compressed air supply disconnected.

- When operating, the electrodes must be kept clean and their diameter must be kept suitable for the work to be carried out. Too worn electrodes must be replaced.

PNEUMATIC CIRCUIT



Pneumatic circuit maintenance must be carried out only by specialised personnel trained to accomplish it under safety conditions. When possible, maintenance must be carried out with the welder switched off and disconnected from the pneumatic supply, with the circuit free from left air.

- In case of air leakage, immediately stop operating and remove it.
- Periodically drain the moisture from the filter group placed on the welder supply input. We recommend the use of an air filter.
- Check pressure gauges calibration

EXTRAORDINARY MAINTENANCE

This chapter states the maintenance operations to be carried out in case of:

- 1) Welder non-working.
- 2) Lowering of the welder performances.
- 3) Welder faulty operating.
- 4) Welding faults.

WELDER NON-WORKING

If the welding control unit does not light up, check the fuse # (30) continuity if the printed circuit connector (14) is connected.

LOWERING OF THE WELDING UNIT PERFORMANCES




Extraordinary maintenance must be carried out only by specialised personnel equipped with the proper instruments and trained to accomplish it under safety conditions. When possible, the welder must be disconnected from both pneumatic and electric supply.

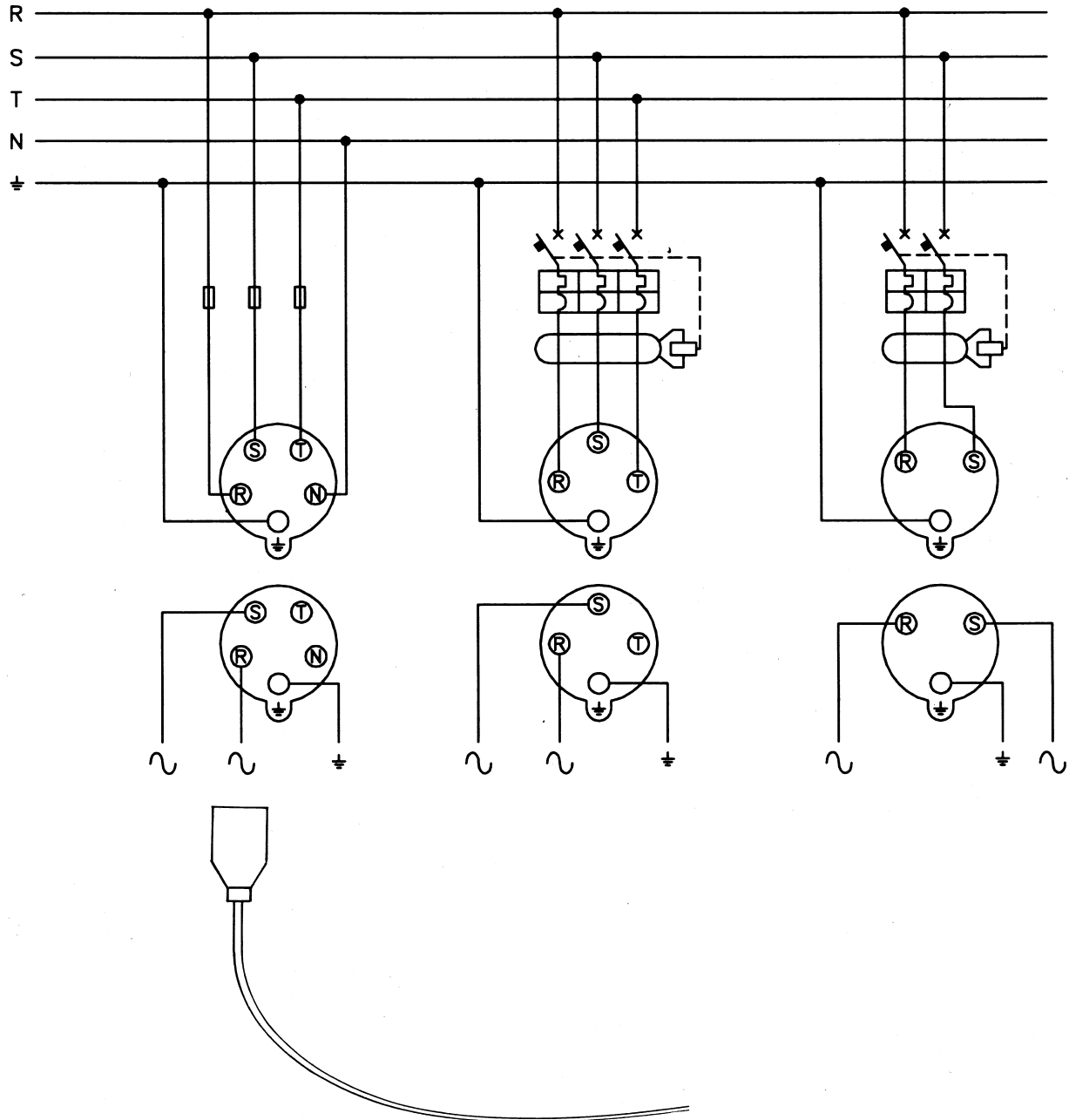
If performances are lower than expected, check :

- that, when welding, line voltage drop is less than 15%;
- that the supply cables cross section is adequate;
- that the electrodes diameter is appropriate for the work to be carried out;
- that welding or working pressure is adequate for the work in process

ELECTRIC CIRCUIT

 Only specialised personnel trained to accomplish it under safety conditions must carry out electric circuit maintenance. Disconnect the electric mains before carrying out the following instructions, as discharges coming from the supply can be lethal.

- Periodically check ground efficiency.
- Periodically check the control device efficiency: micro-switches, cable.
- Often check both the status and the proper working order of the control devices and of the corresponding connecting cables, as well as of the welder inner/outer connectors.



USEFUL TABLES FOR THE SPOT GUN PERFORMANCES



Force on electrodes for arms L= 107-150-235-330-480 mm

GUN 338672.S1					
L=107mm	L=150 mm	L=235 mm	L=330 mm	L=480 mm	Bar
150 daN	112 daN	76 daN	52 daN	36 daN	8
140 daN	105 daN	70 daN	48 daN	33 daN	7,5
130 daN	100 daN	65 daN	44 daN	31 daN	7
120 daN	91 daN	58 daN	40 daN	29 daN	6,5
105 daN	84 daN	54 daN	36 daN	28 daN	6
90 daN	68 daN	43 daN	30 daN	-	5
75 daN	60 daN	38 daN	28 daN	-	4,5
60 daN	53 daN	33 daN	-	-	4
45 daN	37 daN	-	-	-	3

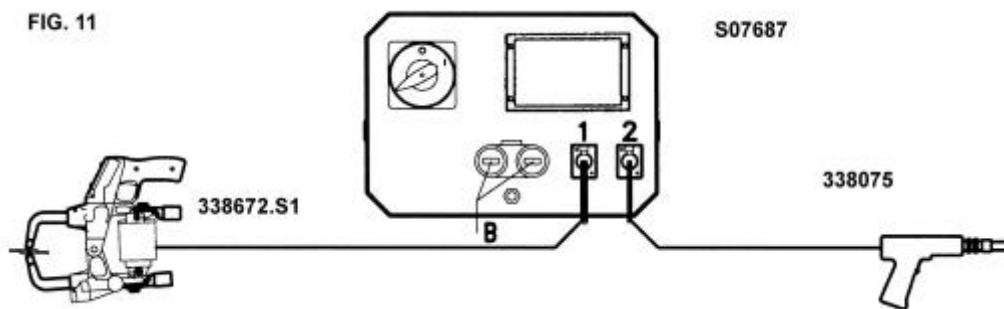
Tab.2 Adjustment examples

				*Arm depth	*Welding time	*Current adjustment	*Electrodes force	Stated values on E scale	Values stated on ammeter	Spots/h
4 mm	0,6 mm	0,6 mm	4 mm	107 mm	3 ÷ 6/5	45 ÷ 50	60 daN	60	4 bar	950
4,5 mm	0,8 mm	0,8 mm	4,5 mm	107 mm	5 ÷ 10	50 ÷ 60	75 daN	75	4,5 bar	500
5 mm	1 mm	1 mm	5 mm	107 mm	8 ÷ 16	50 ÷ 80	90 daN	90	5 bar	350
5,5 mm	1,2 mm	1,2 mm	5,5 mm	107 mm	20 ÷ 25	80 ÷ 85	100 daN	100	5,5 bar	250
6 mm	1,5 mm	1,5 mm	6 mm	107 mm	20 ÷ 30	80 ÷ 99	105 daN	105	6 bar	100
6,5 mm	1,8 mm	1,8 mm	6,5 mm	107 mm	35 ÷ 45	80 ÷ 99	120 daN	120	6,5 bar	100
4,5 mm	0,8 mm	0,8 mm	4,5 mm	235 mm	10 ÷ 15	80 ÷ 85	60 daN	105	6,5 bar	500
5 mm	1 mm	1 mm	5 mm	235 mm	10 ÷ 15	85 ÷ 99	70 daN	120	6 bar	400
5 mm	1 mm	1 mm	5 mm	330 mm	18 ÷ 25	85 ÷ 99	55 daN	120	6 bar	300
5 mm	1 mm	1 mm	5 mm	330 mm	20 ÷ 30	80 ÷ 99	50 daN	120	7,5 bar	300
5 mm	1 mm	1 mm	5 mm	480 mm	30 ÷ 35	80 ÷ 99	38 daN	120	8 bar	300
10 ÷ 12 mm	Ø 5	Ø 5	10 ÷ 12 mm	107 mm	15 ÷ 20	99	75 daN	75	4,5 bar	400
10 ÷ 12 mm	Ø 6	Ø 6	10 ÷ 12 mm	107 mm	20 ÷ 25	99	95 daN	95	7,5 bar	220

*Higher forces require higher currents and/or longer times

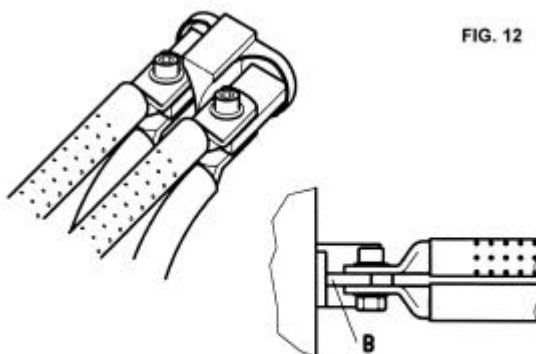
FAULT	POSSIBLE CAUSES	POSSIBLE REMEDIES
Weak Welding	Low welding current	Increase it
	Low welding time	Increase it
	Too high electrodes force	Reduce pressure
	Lacking electrodes maintenance or too	Clean and line up the electrodes,
	Insufficient contact with metal	Increase the electrodes force
Spatters of melted materials	Paint or dirt among pieces	Clean the pieces
	Insufficient contact between pieces or	Increase the electrodes force by
	Too high welding current	Reduce it
	Too high welding time	Reduce it
	Too small electrodes diameter	Adjust diameter on the value shown on
	Inadequate welding force	Increase pressure
	Electrodes faulty clamping of the pieces	Check stroke and line up
Burned welds or welds showing either craters or fissures	Too high welding current	Reduce it
	Inadequate welding force	Increase welding pressure
	Surface oxidation	Clean them by means of emery paper
	Insufficient contact between parts or	Increase electrodes force
	Faulty pieces line up	Correct it
	Electrodes tips deformation	Restore them to the correct size
Pieces stuck weld on the electrode	Too high welding current	Reduce it
	Inadequate electrodes diameter	Restore it to correct size
	Inadequate welding force	Increase the welding pressure
Welder electrodes and cables overheating	Too high working rate	Reduce it
	Too high welding current or welding	Reduce them
	Welder designed for both maintenance	Choose a water cooled model for
Electrodes and connections	Under-sized electrode in comparison	Check both size and contact diameter
Secondary connection reduced life and oxidation	Overheating caused by an inadequate	Carefully tighten the clamping screws
	Too heating caused by a too high	Reduce it

FIG. 11

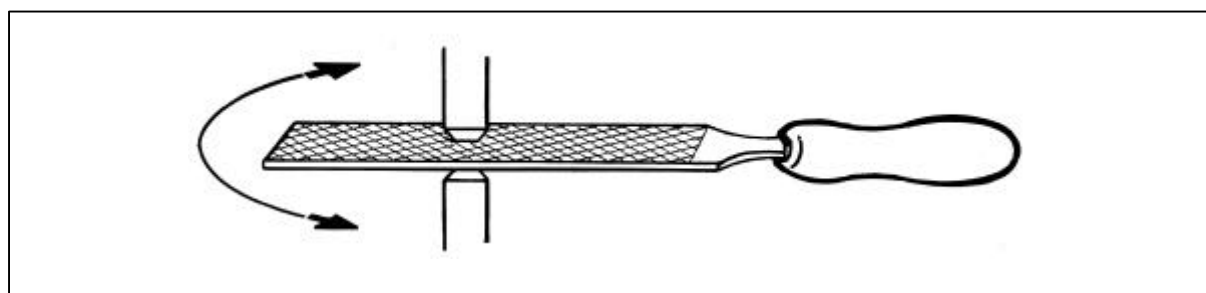
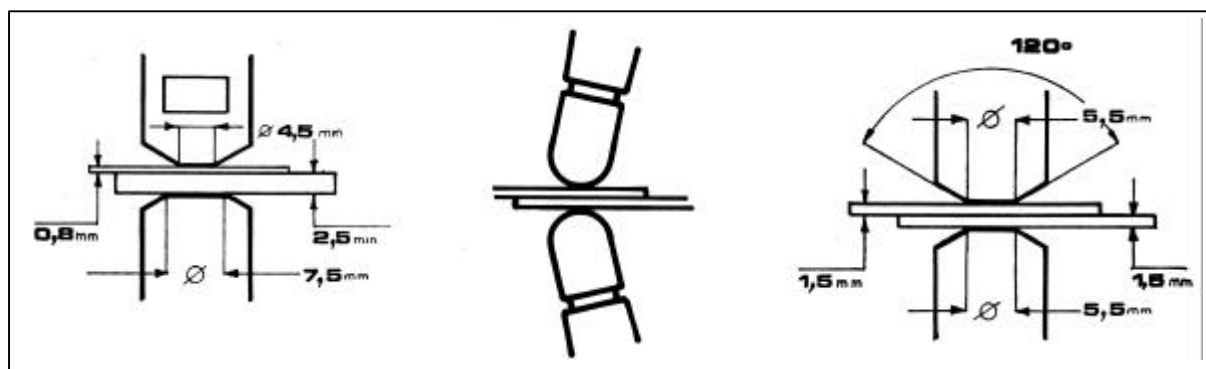


MONTAGGIO DELLE ATTREZZATURE SELEZIONATE. ASSEMBLING OF THE SELECTED EQUIPMENTS. MONTAGE DES ACCESSOIRES CHOISIS. MONTAJE DE LOS UTENSILIOS SELECCIONADOS. MONTAGEM DOS APARELHOS SECCIONADOS. MONTAGE DER GAWÄHLTEN WERKZEUGE
SERRARE BENE! TIGHTEN WELL! BIEN SERRER! APRETAR BIEN! APERTAR BEM! FEST EINSpannen!

FIG. 12



MESSA A PUNTO – WELDER SET UP – REGLAGE DE LA PINCE – PUESTA A PUNTO DE LA PINZA – REGULAÇÃO DA MÁQUINA – EINSTELLUNG DER ZANGE



ESEMPI DI SALDATURA / WELDING EXAMPLES / EXEMPLES DE SOUDAGE / EJEMPLOS DE SOLDADURA
SCHWEISSBEISPIELE

04-07	<input type="checkbox"/>	<input type="checkbox"/>	WELD TIME SALDATURA
90	<input type="checkbox"/>	<input type="checkbox"/>	CURRENT CORRENTE
00	<input type="checkbox"/>	<input type="checkbox"/>	HEATING RISCALDAMENTO

Saldature monopunto 0.6-0.8 mm - Cadenza massima 2000 punti/h
Single spot welding 0.6-0.8 mm 2000 spots/h max
Soudures monopointe 0.6-0.8 - Cadence maximum 2000 points/h
Soldadura monopunto 0.6-0.8 - Cadencia máxima 2000 puntos/h

03-06	<input type="checkbox"/>	<input type="checkbox"/>	WELD TIME SALDATURA
30-60	<input type="checkbox"/>	<input type="checkbox"/>	CURRENT CORRENTE
00	<input type="checkbox"/>	<input type="checkbox"/>	HEATING RISCALDAMENTO

Saldature rondelle art. 7614 - viti M4 art. 7670 - numero massimo 2500/h
Weldings of washers item 7614 - M4 screws item 7670, max number 2500/h
Soudage de rondelles art. 7614 - vis M4 art. 7670 - nombre maximum 2500/h
Soldadura arendelas art. 7614 - tornillos M4 art. 7670 - número máximo 2550/h

01÷04	<input type="checkbox"/>	<input type="checkbox"/>	WELD TIME SALDATURA
30÷50	<input type="checkbox"/>	<input type="checkbox"/>	CURRENT CORRENTE
00	<input type="checkbox"/>	<input type="checkbox"/>	HEATING RISCALDAMENTO

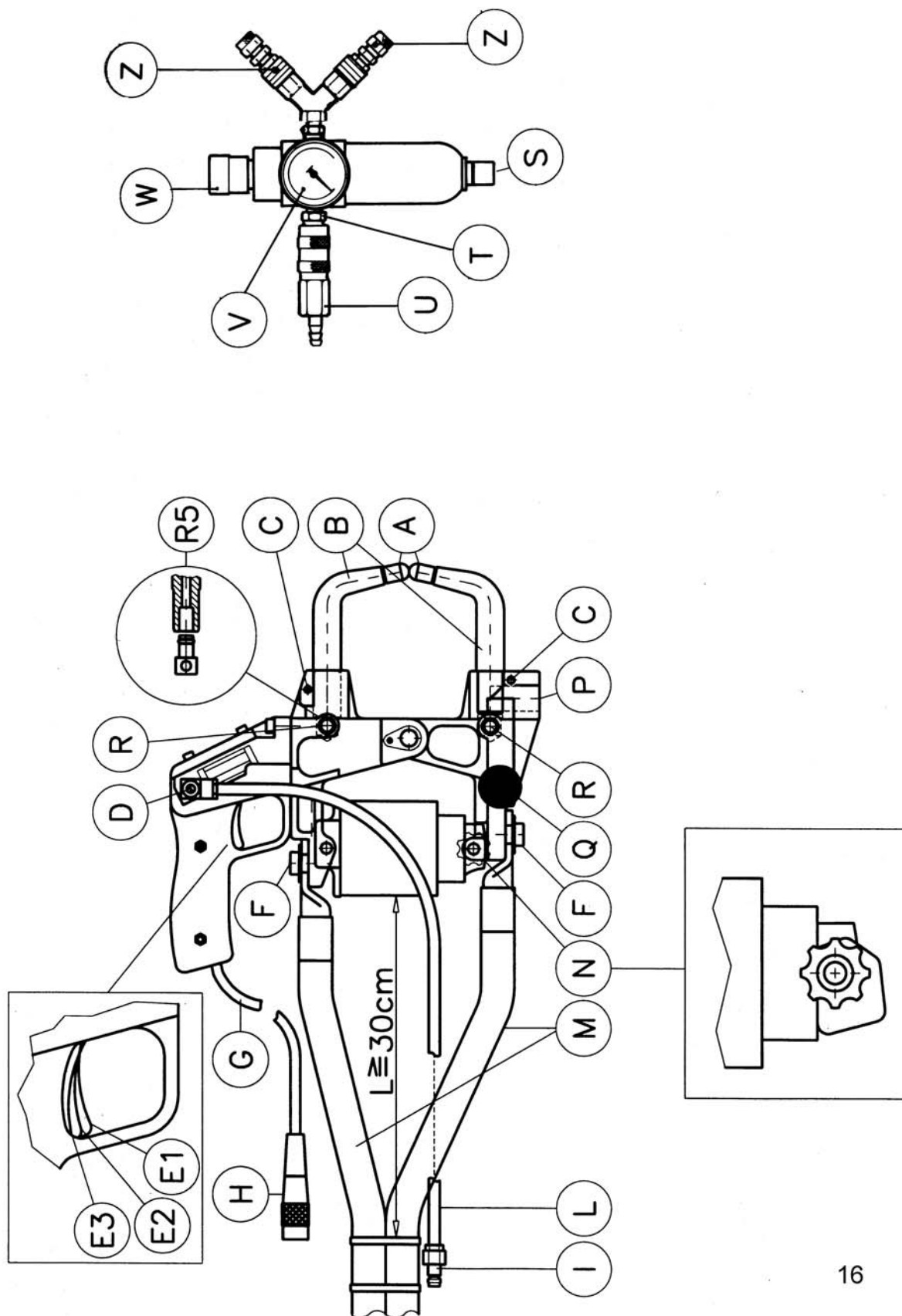
40÷60	<input type="checkbox"/>	<input type="checkbox"/>	WELD TIME SALDATURA
01	<input type="checkbox"/>	<input type="checkbox"/>	HEATING RISCALDAMENTO

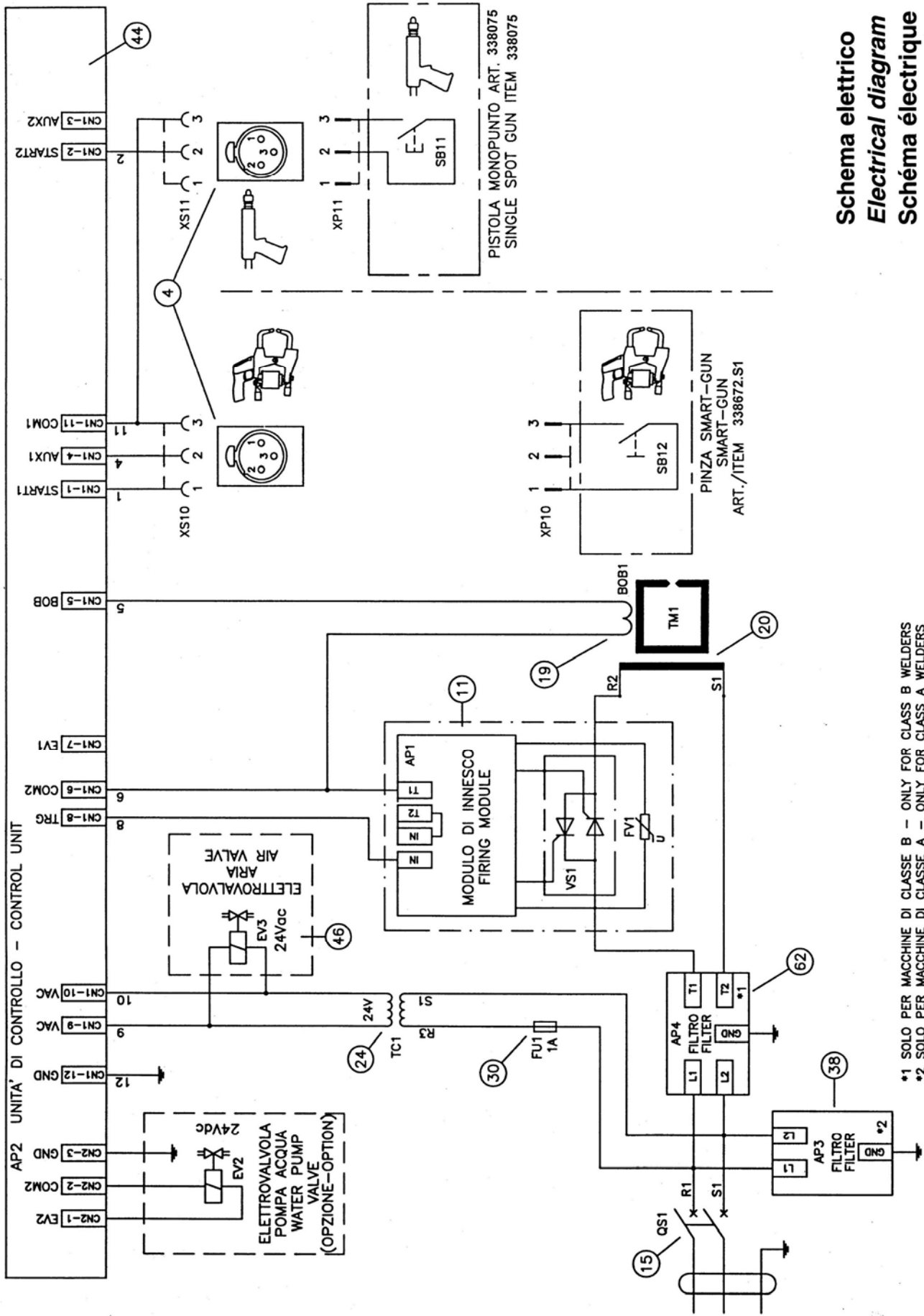
Riscaldamento lamiera con elettrodo carbone
Heating with carbon electrode
Chauffage de tôle avec électrode en charbon
Calentamiento chapa con electrodo de carbón

01-05	<input type="checkbox"/>	<input type="checkbox"/>	SQUEEZE ACOSTAGGIO
00	<input type="checkbox"/>	<input type="checkbox"/>	SLOPE SLOPE
8-14	<input type="checkbox"/>	<input type="checkbox"/>	WELD TIME SALDATURA
50-90	<input type="checkbox"/>	<input type="checkbox"/>	CURRENT CORRENTE
01	<input type="checkbox"/>	<input type="checkbox"/>	COLD TEMPO FREDDO
00	<input type="checkbox"/>	<input type="checkbox"/>	IMPULSE NUMBER NUMERO IMPULSI
10	<input type="checkbox"/>	<input type="checkbox"/>	HOLD MANTENIMENTO
00-01	<input type="checkbox"/>	<input type="checkbox"/>	COMP. ON COMP. OFF
01	<input type="checkbox"/>	<input type="checkbox"/>	01 WELD SALDA 00 WELD NON SALDA

1 + 1 mm bracci L 105 mm - 6 bar - 350 punti/h
1 + 1 mm arms L 105 mm - 6 bar - 350 spots/h
1 + 1 mm. lacets L 105 mm - 6 bar - 350 puntos/h
1 + 1 mm brazos L 105 mm - 6 bar - 350 puntos/h

338672 S1 - PINZA - GUN - PINCE - PINZA - ZANGE





Schema elettrico
Electrical diagram
Schéma électrique
Esquema eléctrico
Elektrischer Schaltplan

*1 SOLO PER MACCHINE DI CLASSE B - ONLY FOR CLASS B WELDERS
 *2 SOLO PER MACCHINE DI CLASSE A - ONLY FOR CLASS A WELDERS

(I)

SELEZIONE DI BRACCI,
ELETTRODI ED ACCESSORI

(GB)

SELECTION OF ARMS,
ELECTRODES, ACCESSORIES

(F)

SELECTION DE BRAS,
ELECTRODES,
ACCESSOIRES

(E)

SELECCION DE BRAZOS,
ELECTRODOS,
ACCESORIOS

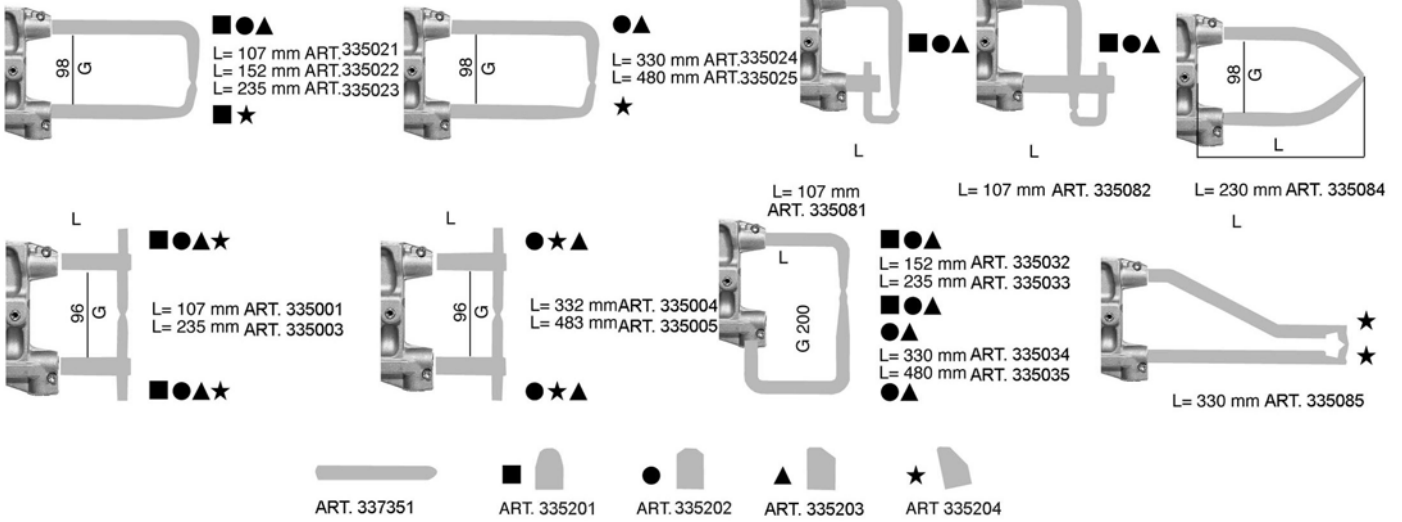
(P)

SELECCÃO DE BRAÇOS,
ELECTRODOS E ACESSÓRIOS

(D)

ARMPAARE, ELEKTRODEN
UND ZUBEHOER

∅ 18 mm - Raffreddati ad aria / Air cooled / Refroidis à l'air / Refrigerados por aire / Ø 18mm - Arrefecidos por ar



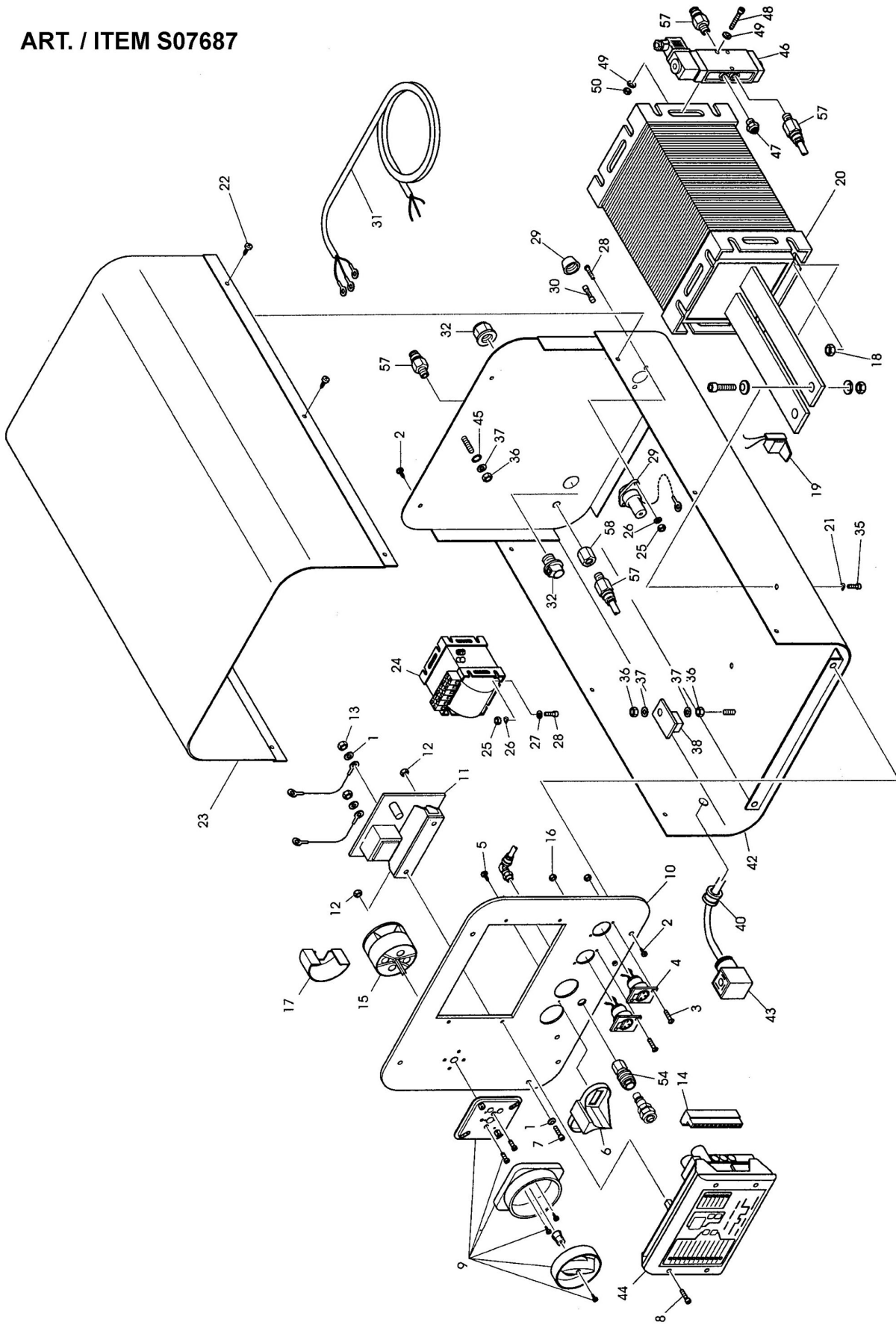
Il costruttore può variare, senza preavviso alcuno, i prodotti.
Specifications subject to change without notice.
Le producteur se réserve le droit d'effectuer des changements sans préavis.

O construtor pode modificar sem nenhum pré-aviso os produtos.
Technische Aenderungen ohne Ankuendigung moeglich

ART./ ITEM S07687

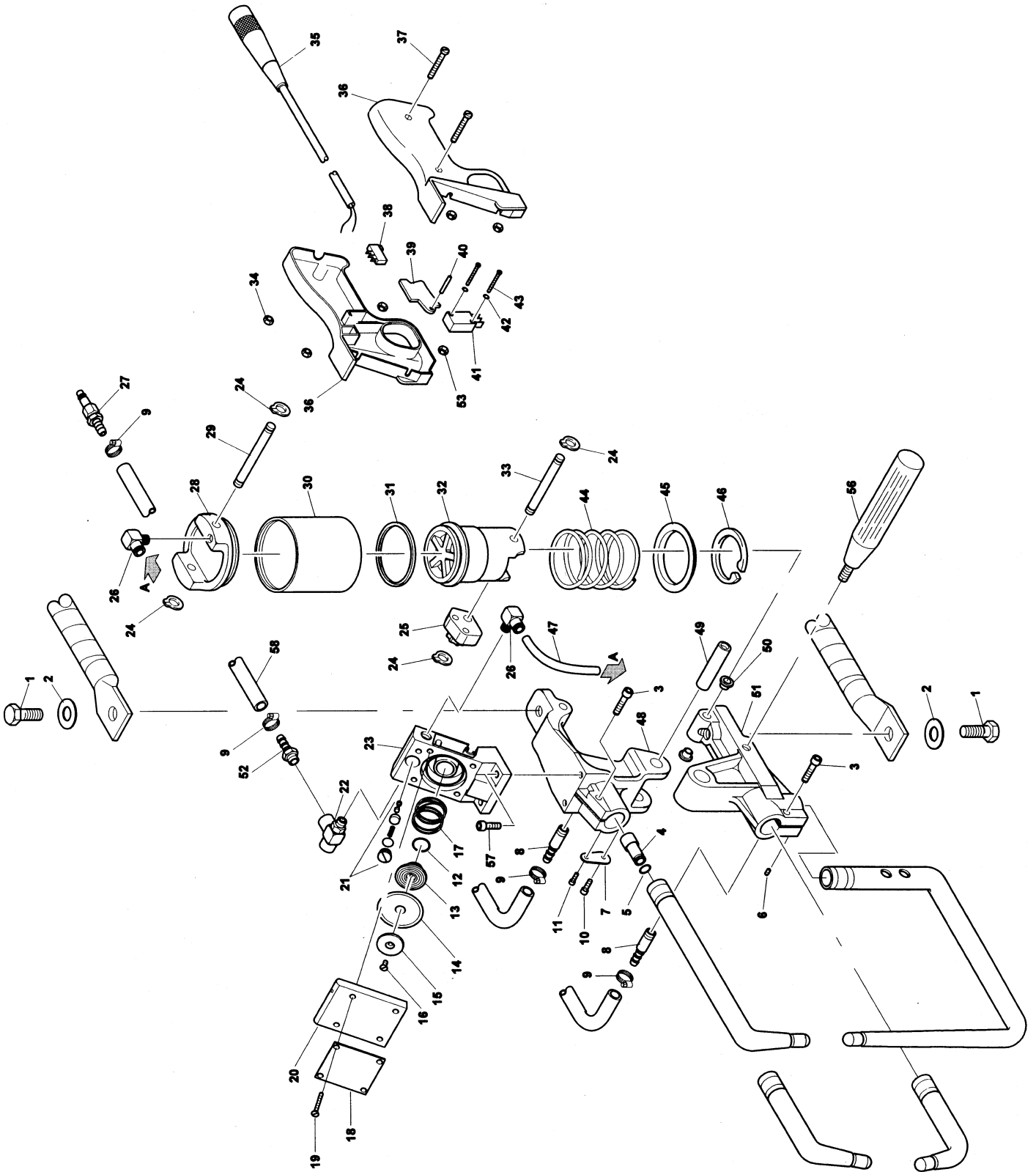
POS.	QT.	DENOMINAZIONE	DESCRIPTION	DESIGNATION	DENOMINACION	DESIGNATION
1	5	Molla a tazza	Belleville washer	Belleville rondelle	Resorte de platillo	Anilha Belleville
2	6	Vite	Screw	Vis	Tornillon	Parafuso
3	4	Vite	Screw	Vis	Tornillon	Parafuso
4	2	Connettore	Connector	Connecteur	Conector	Conector
5	1	Vite	Screw	Vis	Tornillon	Parafuso
6	1	Isolante	Insulator	Isolant	Aislante	Isolante
7	2	Vite	Screw	Vis	Tornillon	Parafuso
8	4	Vite	Screw	Vis	Tornillon	Parafuso
9	1	Manopola	Handle	Poignée	Empuñadura	Manilha
10	1	Pannello ant.	Front panel	Panneau antérieur	Panel delantero	Painel de frente
11	1	Modulo innesco	Firing module	Carte de déclenchement	Modulo de encendido	Módulo de escorvamento
12	2	Dado	Nut	Ecrou	Tuerca	Porca
13	2	Dado	Nut	Ecrou	Tuerca	Porca
14	1	Connettore	Connector	Connecteur	Conector	Conector
15	1	Interruttore	Switch	Interrupteur	Interruptor	Interruptor
16	4	Dado	Nut	Ecrou	Tuerca	Porca
17	0,5	Protezione	Protection	Protection	Protección	Proteção
18	4	Dado	Nut	Ecrou	Tuerca	Porca
19	1	Bobina	Coil	Bobine	Bobina	Bobina
20	1	Trasformatore	Transformer	Transformateur	Trasformador	Transformador
21	4	Disco elastico	Washer	Rondelle	Arandela	Anilha elástica
22	6	Vite	Screw	Vis	Tornillon	Parafuso
23	1	Coperchio	Cover	Couvercle	Cobertura	Tampa
24	1	Trasformatore	Transformer	Transformateur	Trasformador	Transformador
25	6	Dado	Nut	Ecrou	Tuerca	Porca
26	6	Rondella	Washer	Rondelle	Arandela	Anilha
27	6	Molla a tazza	Belleville washer	Belleville rondelle	Resorte de platillo	Anilha Belleville
28	6	Vite	Screw	Vis	Tornillon	Parafuso
29	1	Porta-fusibile	Fuse-holder	Fuse-holder	Porte-fusible	Porta fusível
30	1	Fusibile	Fuse	Fusible	Fusible	Fusível
31	1	Cavo alimentazione	Cable	Câble	Cable	Cabo de alimentação
32	1	Passacavo	Cable-guide	Guide de câble	Pasabornes	Guía do cabo
33	2	Vite	Screw	Vis	Tornillon	Parafuso
34	4	Molla a tazza	Belleville washer	Belleville rondelle	Resorte de platillo	Anilha Belleville
35	4	Vite	Screw	Vis	Tornillon	Parafuso
36	6	Dado	Nut	Ecrou	Tuerca	Porca
37	3	Molla a tazza	Belleville washer	Belleville rondelle	Resorte de platillo	Anilha Belleville
38	1	Scheda filtro	Board filter	Carte filtre	Carta filtro	Placa de filtro
40	1	Passacavo	Cable-guide	Guide de câble	Pasabornes	Guía do cabo
42	1	Base	Base	Base	Base	Base
43	2	Gruppo connettore	Connector	Connecteur	Conector	Grupo conector
44	1	Scheda timer	Board	Carte	Ficna	Cartão timer
46	1	Elettrovalvola	Solenoid valve	Electrovanne	Electroválvula	Electroválvula
47	1	Silenziatore	Silencer	Silencieux	Silenciador	Silenciador
48	2	Vite	Screw	Vis	Tornillon	Parafuso
50	2	Dado	Nut	Ecrou	Tuerca	Porca
54	1	Rubinetto	Tap	Robinet	Grifo	Torneira
57	4	Raccordo	Coupling	Raccord	Racordo	Junta
58	1	Manicotto	Coupling	Raccord	Racordo	Recordo
60	2	Dado	Nut	Ecrou	Tuerca	Porca
61	1	Raccordo	Coupling	Raccord	Racordo	Junta

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POS	QT.	DENOMINAZIONE	DESCRIPTION	DESIGNATION	DENOMINACIÓN	DESCRIÇÃO
1	2	Vite	Screw	Vis	Tornillo	Parafuso
2	2	Rondella	Washer	Rondelle	Arandela	Anilha
3	2	Vite	Screw	Vis	Tornillo	Parafuso
7	1	Piastra	Plate	Plaque	Placa	Placa
9	2	Fascette	Clamps	Collier de serrage	Abrazaderas	Colar
10	1	Vite	Screw	Vis	Tornillo	Parafuso
11	1	Vite	Screw	Vis	Tornillo	Parafuso
12	1	Guarnizione OR	OR ring	Garniture OR	Guarnición OR	Anilha OR
13	1	Pressostato	Pressure switch	Pressostat	Presostato	Pressóstato
14	1	Membrana	Membrane	Membrane	Membrana	Membrana
15	1	Rondella	Washer	Rondelle	Arandela	Anilha
16	1	Vite	Screw	Vis	Tornillo	Parafuso
17	1	Molla	Spring	Ressort	Resorte	Mola
18	1	Targa	Plate	Plaque	Placa	Placa
19	4	Vite	Screw	Vis	Tornillo	Parafuso
20	1	Coperchio	Cover	Couvercle	Cobertura	Tampa
21	1	Kit comandi	Kit controls	Kit commande	Kit mandros	Kit comandos
22	1	Regolatore	Regulator	Régulateur	Regulador	Afinador
23	1	Blocco interruttore	Switch assembly	Groupe interrupteur	Grupo interruptor	Bloqueio interruptor
24	4	Anello di fermo	Circlip	Bague d'arrêt	Anaillo elastico	Anel de paragem
25	1	Regolatore di corsa	Stroke regulator	Réglage course	Regulador carrera	Regulador di curso
26	2	Raccordo	Fitting	Raccord	Juntura	Junta
27	1	Innesto	Fitting	Raccord	Juntura	Travamento
28	1	Testata	Head	Tête	Cabezera	Extremidade
29	1	Perno	Pin	Pivot	Clavija	Perno
30	1	Cilindro	Cylinder	Cylindre	Cilindro	Cilindro
31	1	Guarnizione	Seal	Garniture	Guarnición	Vedante
32	1	Pistone	Piston	Piston	Pistón	Pistão
33	1	Asse	Pin	Axe	Eje	Eixo
34	2	Dadi	Nut	Ecrous	Tuerca	Porcas
35	1	Cavetto controllo	Control cable	Câble de contrôle	Cable de control	Lingueta de controlo
36	1	Impugnatura	Handle	Poignée	Empuñadura	Empunhadura
37	2	Viti	Screws	Vis	Tornillos	Parafusos
38	1	Micro-interruttore	Micro-switch	Microinterrupteur	Microinterruptor	Microinterruptor
39	1	Grilletto	Trigger	Gachette	Gatillo	Gatilho
40	1	Spina	Pin	Goupille	Clavija	Ficha
41	1	Micro-interruttore	Micro-switch	Microinterrupteur	Microinterruptor	Microinterruptor
42	2	Rondelle	Washers	Rondelles	Arandelas	Anilhas
43	2	Viti	Screws	Vis	Tornillos	Parafusos
44	1	Molla	Spring	Ressort	Resorte	Mola
45	1	Anello	Ring	Bague	Anillo	Anilha
46	1	Anello di fermo	Circlip	Bague d'arrêt	Anillo elastico	Anel de paragem
47	m 0.2	Tubo aria	Air hose	Tuyau air	Tubo aire	Tubo de ar
48	1	Leva	Lever	Levier	Leva	Manete
49	1	Asse	Pin	Axe	Eje	Eixo
50	2	Boccole	Bushings	Boîtes	Casquillo	Casquilhos
52	1	Resca	Fitting	Joint	Inserto	Junta
53	4	Dadi	Nuts	Ecrous	Tuerca	Porcas
56	1	Impugnatura	Handle	Poignée	Empuñadura	Empunhadura
57	2	Viti	Screws	Vis	Tornillos	Parafusos
58	m 3	Tubo aria	Air hose	Tuyau air	Tubo aire	Tubo de ar



GB**DISPOSAL OF ELECTRICAL AND ELECTRONIC EQUIPMENT**

Do not dispose of electrical equipment together with normal waste! In observance of European Directive 2012/19/UE on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative. By applying this European Directive you will improve the environment and human health!

IT**SMALTIMENTO APPARECCHIATURE ELETTRICHE ED ELETTRONICHE**

Non smaltire le apparecchiature elettriche assieme ai rifiuti normali!
In ottemperanza alla Direttiva Europea 2012/19/UE sui rifiuti da apparecchiature elettriche ed elettroniche e relativa attuazione nell'ambito della legislazione nazionale, le apparecchiature elettriche giunte a fine vita devono essere raccolte separatamente e conferite ad un impianto di riciclo ecocompatibile. In qualità di proprietario delle apparecchiature dovrà informarsi presso il nostro rappresentante in loco sui sistemi di raccolta approvati. Dando applicazione a questa Direttiva Europea migliorerà la situazione ambientale e la salute umana!

DE**ENTSORGUNG DER ELEKTRO- UND ELEKTRONIKGERÄTE**

Elektrogeräte dürfen niemals gemeinsam mit gewöhnlichen Abfällen entsorgt werden!
In Übereinstimmung mit der Europäischen Richtlinie 2012/19/UE über Elektro- und Elektronik-Altgeräte und der jeweiligen Umsetzung in nationales Recht sind nicht mehr verwendete Elektrogeräte gesondert zu sammeln und einer Anlage für umweltgerechtes Recycling zuzuführen. Als Eigentümer der Geräte müssen Sie sich bei unserem örtlichen Vertreter über die zugelassenen Sammlungssysteme informieren. Die Umsetzung genannter Europäischer Richtlinie wird Umwelt und menschlicher Gesundheit zugute kommen!

FR**ÉLIMINATION D'ÉQUIPEMENTS ÉLECTRIQUES ET ÉLECTRONIQUES**

Ne pas éliminer les déchets d'équipements électriques et électroniques avec les ordures ménagères! Conformément à la Directive Européenne 2012/19/UE sur les déchets d'équipements électriques et électroniques et à son introduction dans le cadre des législations nationales, une fois leur cycle de vie terminé, les équipements électriques et électroniques doivent être collectés séparément et conférés à une usine de recyclage. Nous recommandons aux propriétaires des équipements de s'informer auprès de notre représentant local au sujet des systèmes de collecte agréés. En vous conformant à cette Directive Européenne, vous contribuez à la protection de l'environnement et de la santé!

ES**RECOGIDA Y GESTIÓN DE LOS RESIDUOS DE APARATOS ELÉCTRICOS Y ELECTRÓNICOS**

¡No está permitido eliminar los aparatos eléctricos junto con los residuos sólidos urbanos! Según lo establecido por la Directiva Europea 2012/19/UE sobre residuos de aparatos eléctricos y electrónicos y su aplicación en el ámbito de la legislación nacional, los aparatos eléctricos que han concluido su vida útil deben ser recogidos por separado y entregados a una instalación de reciclado eco-compatible. En calidad de propietario de los aparatos, usted deberá solicitar a nuestro representante local las informaciones sobre los sistemas aprobados de recogida de estos residuos. ¡Aplicando lo establecido por esta Directiva Europea se contribuye a mejorar la situación ambiental y salvaguardar la salud humana!

PT**ELIMINAÇÃO DE APARELHAGENS ELÉTRICAS E ELECTRÓNICAS**

Não eliminar as aparelhagens elétricas juntamente ao lixo normal! De acordo com a Directiva Europeia 2012/19/UE sobre os lixos de aparelhagens eléctricas e electrónicas e respectiva execução no âmbito da legislação nacional, as aparelhagens eléctricas que tenham terminado a sua vida útil devem ser separadas e entregues a um empresa de reciclagem eco-compatible. Na qualidade de proprietário das aparelhagens, deverá informar-se junto do nosso representante no local sobre os sistemas de recolha diferenciada aprovados. Dando aplicação desta Directiva Europeia, melhorará a situação ambiental e a saúde humana!

SF**ELEKTRONIIKKA JÄTE JA ELEKTRONIIKKA ROMU**

Älä laita käytöstä poistettuja elektroniikkalaitteita normaalin jätteen sekaan EU:n jätedirektiivin 2012/19/UE mukaan, kansalliset lait huomioiden, on sähkö- ja elektroniikkalaitteet sekä niihin liittyvät välineet, lajiteltava ja toimitettava johonkin hyväksytyyn kierrätyskeskuksen elektroniikkaromuun vastaanottopisteeseen. Paikalliselta laite- edustajalta voi tiedustella lähimmän kierrätyskeskuksen vastaanottopisteen sijaintia. Noudattamalla EU direktiiviä parannat ympäristöntilaa ja edistät ihmisten terveyttä.

NL**VERWIJDERING VAN ELEKTRISCHE EN ELEKTRONISCHE UITRUSTING**

Behandel elektrische apparatuur niet als gewoon afval!
Overeenkomstig de Europese richtlijn 2012/19/UE betreffende de verwerking van elektrisch en elektronisch afval en de toepassing van deze richtlijn conform de nationale wetgeving, moet elektrische apparatuur die het einde van zijn levensduur heeft bereikt gescheiden worden ingezameld en ingeleverd bij een recyclingbedrijf dat zich houdt aan de milieuvorschriften. Als eigenaar van de apparatuur dient u zich bij onze lokale vertegenwoordiger te informeren over goedgekeurde inzamelingsmethoden. Door het toepassen van deze Europese richtlijn draagt u bij aan een schoner milieu en een betere volksgezondheid!

SV**KASSERING AV ELEKTRISKA OCH ELEKTRONISKA PRODUKTER**

Kassera inte elektriska produkter tillsammans med normalt hushållsavfall!
I enlighet med direktiv 2012/19/UE om avfall som utgörs av elektriska och elektroniska produkter och dess tillämpning i överensstämmelse med landets gällande lagstiftning, ska elektriska produkter vid slutet av sitt liv samlas in separat och lämnas till en återvinningscentral. Du ska i egenskap av ägare till produkterna informera dig om godkända återvinningsystem via närmaste återförsäljare. Hjälp till att värna om miljön och människors hälsa genom att tillämpa detta EU-direktiv!