CONTENTS

INSTRUCTION MANUAL FOR WIRE WELDING MACHINE

IMPORTANT: BEFORE STARTING THE EQUIPMENT, READ THE CONTENTS OF THIS MANUAL, WHICH MUST BE STORED IN A PLACE FAMILIAR TO ALL USERS FOR THE ENTIRE OPERATIVE LIFE-SPAN OF THE MACHINE.
THIS EQUIPMENT MUST BE USED SOLELY FOR WELDING OPERATIONS.

1 SAFETY PRECAUTIONS

WELDING AND ARC CUTTING CAN BE HARMFUL TO YOURSELF AND OTHERS. The user must therefore be educated against the hazards, summarized below, deriving from welding operations. For more detailed information, order the manual code 3.300.758

ELECTRIC AND MAGNETIC FIELDS - May be dangerous.

· Electric current following through any conductor causes localized Electric and Magnetic Fields (EMF). Welding/cutting current creates EMF fields around cables and power sources.
· The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) shall consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.
· Exposure to EMF fields in welding/cutting may have other health effects which are now not known.
· All operators should use the followingprocedures in order to minimize exposure to EMF fields from the welding/cutting circuit:
- Route the electrode and work cables together
- Secure them with tape when possible.
- Never coil the electrode/torch lead around your body.
- Do not place your body between the electrode/torch lead and work cables. If the electrode/torch lead cable is on your right side, the work cable should also be on your right side.
- Connect the work cable to the workpiece as close as possible to the area being welded/cut.
- Do not work next to welding/cutting power source.

EXPLOSIONS

· Do not weld in the vicinity of containers under pressure, or in the presence of explosive dust, gases or fumes. · All cylinders and pressure regulators used in welding operations should be handled with care.

ELECTROMAGNETIC COMPATIBILITY.
This machine is manufactured in compliance with the instructions contained in the standard IEC 60974-10 (CL. A), and must be used solely for professional purposes in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in non-industrial environments.

DISPOSAL OF ELECTRICAL AND ELECTRONIC EQUIPMENT.
Do not dispose of electrical equipment together with normal waste!In observance of European Directive 2002/96/EC 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!
IN CASE OF MALFUNCTIONS, REQUEST ASSISTANCE FROM QUALIFIED PERSONNEL.

1.1 WARNING LABEL

The following numbered text corresponds to the label numbered boxes.

B. Drive rolls can injure fingers.
C. Welding wire and drive parts are at welding voltage during operation — keep hands and metal objects away.
1 Electric shock from welding electrode or wiring can kill.
1.1 Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.
1.2 Protect yourself from electric shock by insulating yourself from work and ground.
1.3 Disconnect input plug or power before working on machine.
2 Breathing welding fumes can be hazardous to your health.
2.1 Keep your head out of fumes.
2.2 Use forced ventilation or local exhaust to remove fumes.
2.3 Use ventilating fan to remove fumes.
3 Welding sparks can cause explosion or fire.

3.1 Keep flammable materials away from welding.
3.2 Welding sparks can cause fires. Have a fire extinguisher nearby and have a watchperson ready to use it.
3.3 Do not weld on drums or any closed containers.
4 Arc rays can burn eyes and injure skin.
4.1 Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.
5 Become trained and read the instructions before working on the machine or welding.
6 Do not remove or paint over (cover) label.

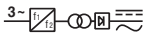
2 GENERAL DESCRIPTIONS

The equipment is a multi-process system suitable for MIG/MAG welding, TIG (DC) welding with scratch start and MMA welding (with the exception of cellulosic welding), developed with inverter technology. The equipment may be used only for the purposes described in this manual. The equipment must not be used to defrost pipes.

2.1 EXPLANATION OF TECHNICAL SPECIFICATIONS

This machine is manufactured according to the following international standards:
IEC 60974-1 / IEC 60974-5 / IEC 60974-10 (CL. A) / IEC 61000-3-11 / IEC 61000-3-12 (see note 2).

No. Serial number. Must be indicated on any request regarding the welding machine.


Three-phase static transformer-rectifier frequency converter.


MIG Suitable for MIG/MAG welding.


MMA Suitable for welding with covered electrodes.


TIG Suitable for TIG welding.

U0. Secondary open-circuit voltage.
X. Duty cycle percentage.
The duty cycle expresses the percentage of 10 minutes during which the welding machine may run at a certain current without overheating.
I2. Welding current
U2. Secondary voltage with I2 current
U1. Rated supply voltage.
In the “Multi Voltage” models the machine automatically adapts to the supply voltage of the unit it is connected to.
3~ 50/60Hz Three-phase 50 or 50 Hz power supply.
I1 Max Max. absorbed current at the corresponding I2 current and U2 voltage.
I1 eff This is the maximum value of the actual current absorbed, considering the duty cycle. This value usually corresponds to the capacity of the fuse (delayed type) to be used as a protection for the equipment.
IP23S Protection rating for the housing. Grade **3** as the second digit means that this machine may be stored, but it is not suitable for use outdoors in the rain, unless it is protected.
S Suitable for use in high-risk environments.

NOTES:
1- The equipment has also been designed for use in environments with a pollution rating of 3. (See IEC 60664).
2- This equipment complies with a IEC 61000-3-12 standard provided that the allowed maximum impedance Zmax of the unit is lower or equal to 0.090 (Art. 318 and 319)-0.051 (Art. 320) at the interface point between the user unit and the mains. The fitter or the unit user are responsible for connecting the unit to a power supply with a maximum allowed system impedance Zmax) lower or equal to 0.090 (Art. 318 and 319)-0.051 (Art. 320).

3 INSTALLATION AND ASSEMBLY.

3.1 LIFTING MECHANISM (FIG. 1).

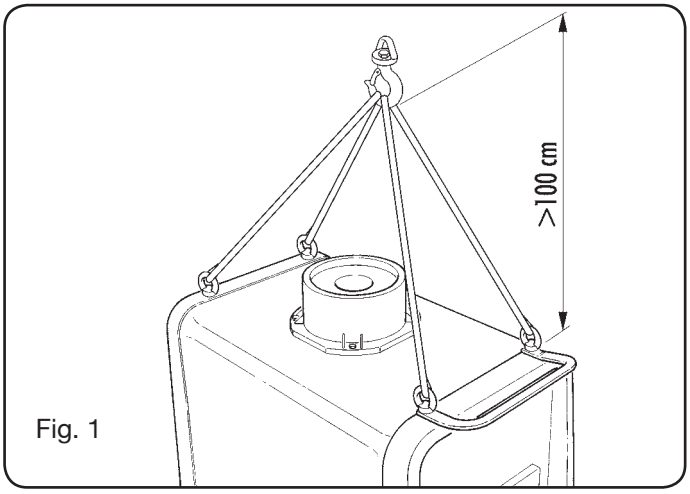


Fig. 1

3.2 ASSEMBLY

- All power sources must be fitted with axle and then rear wheels (fig. 2) .

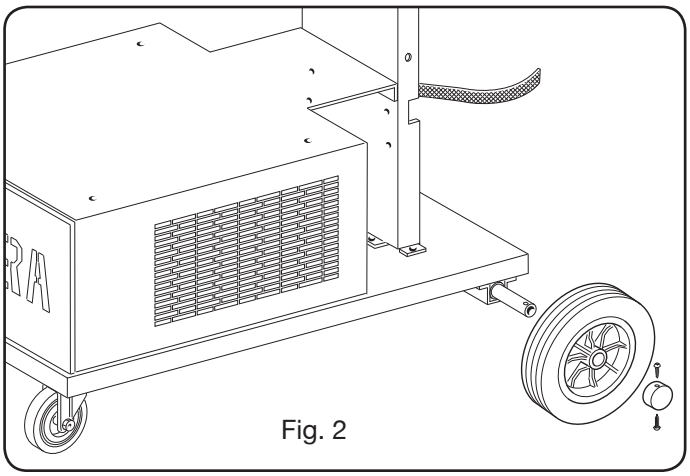


Fig. 2

- For machines with trolley, the pivoting system must be mounted both on the wire feeder trolleys and the power source; the small wheels provided together with the screws must be mounted at the bottom of the wire feeder trolley as well as the welding torch support, then place the trolley in its position. (see figure 3).

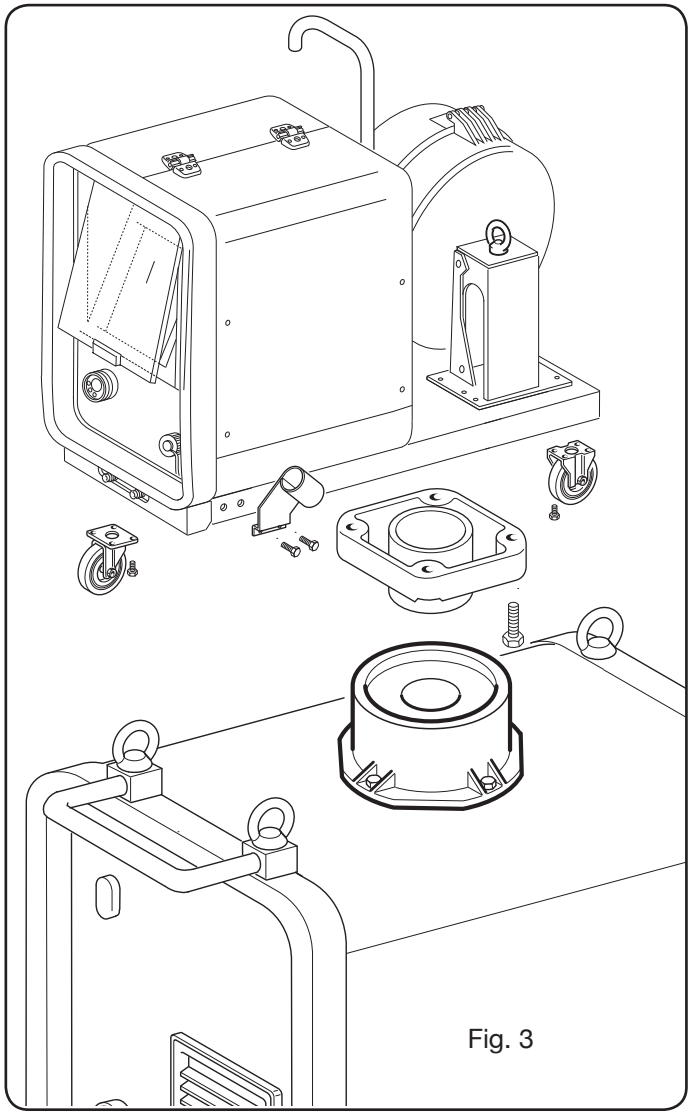


Fig. 3

3.3 EXTENSIONS CONNECTION

- Block one end of connection **BA**, by fixing the tip **BB** to the bottom of the machine as shown in fig. 4.

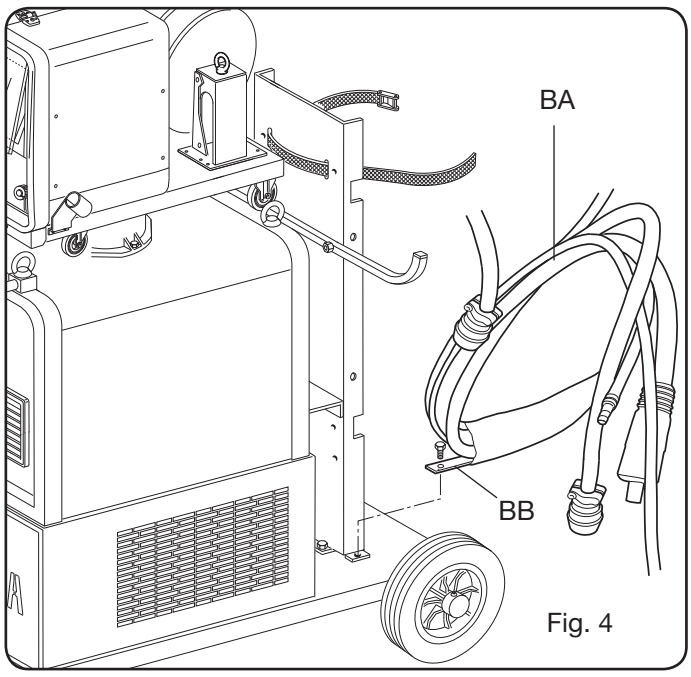


Fig. 4

- Connect all wiring on the back of the power source, as shown in fig. 5.

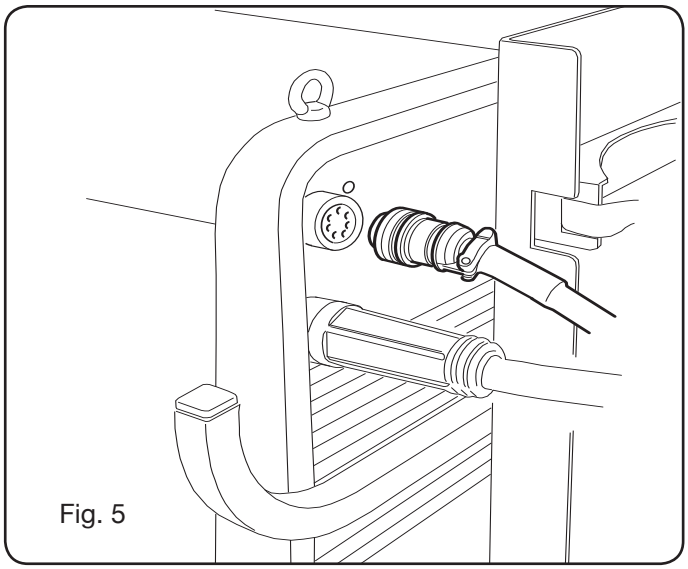


Fig. 5

- Avoid coiling the connection to reduce to a minimum the inductive effects that could affect welding results.
- Connect the other end of connection BA to the wire feeder trolley as shown in fig. 6.

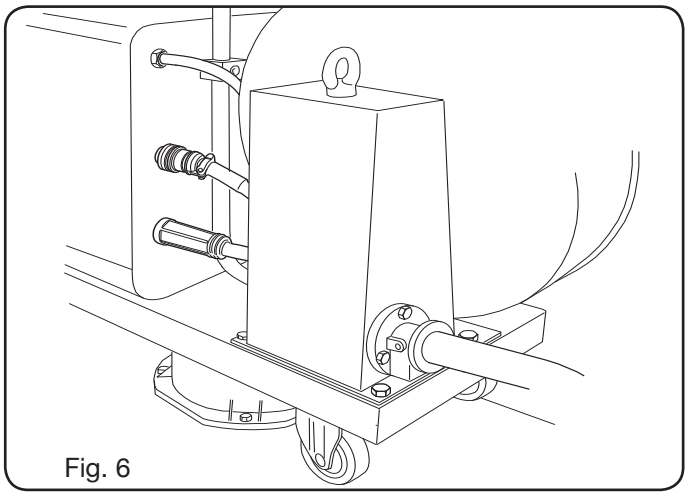


Fig. 6

- The coolant fluid hoses must be connected to the quick-fitting valves located below the lower part of the wire feeder trolley (see fig. 7), by matching the colours appearing on the trolley front side.

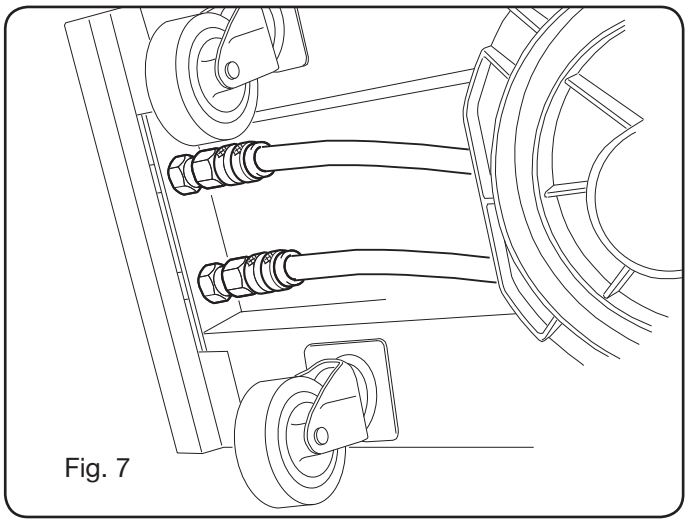


Fig. 7

3.4 WELDING TORCH CONNECTION.

- Connect the welding torch to the central adapter **F**.
- Mount the wire coil.
- Make sure that the groove of the rollers matches the wire diameter used. To replace, proceed as follows (Fig. 8):

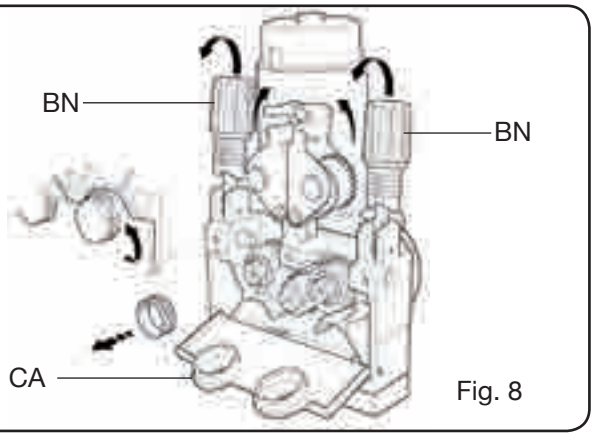


Fig. 8

Open the door of the wire feeder compartment
Remove the cover **CA** of the wire feeder unit.
Release the wire press rollers by means of the pressure adjusting knob **BN**.
Replace the rollers and put the cover **CA** back in place.
Insert the wire into the feeder and into the welding torch sheath.
Block the wire press rollers with the **knob** BN and adjust the pressure.
Connect the earth cable (provided) to the socket **D**.
Connect the gas hose to the fitting **G**.

3.5 ASSEMBLY OF THE COOLING UNIT (ART. 1683 - OPTIONAL FOR ART. 318 AND 319) (Fig 9)

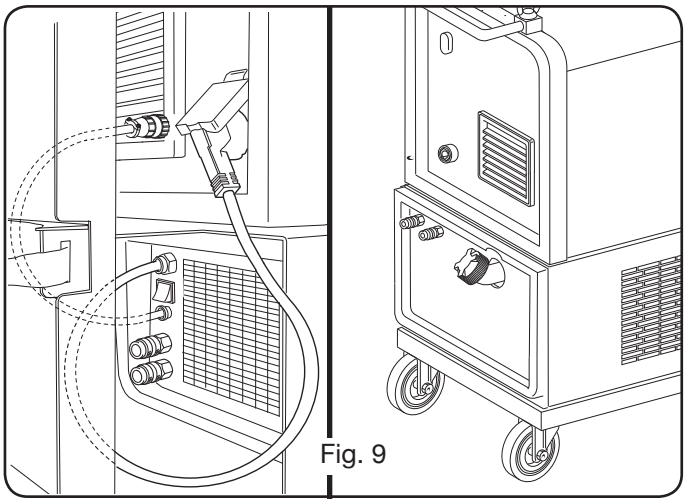


Fig. 9

If a cooling unit is used, proceed as follows:
- Remove the panel **M**
- Insert the cooling unit inside the compartment so that the fluid level inspecting slot can be seen from the front of the unit.
- Fasten it to the welding machine trolley by means of provided screws.

3.6 POSITIONING

Position the welding machine to allow for a free air circulation inside the machine and make sure to prevent introduction of metal powders or any other dust.

3.6.1 Sloping planes.
Since this welding machine is equipped with wheels without brake, do not position it on sloping planes, to prevent machine tilting or uncontrolled movement.

3.7 START-UP

- Only skilled personnel should install the machine.
- All connections must be carried out in compliance with current standards (IEC/CEI EN 60974-9) and in full observance of current safety laws.
- Mount the plug on the power cord, being especially carefully to connect the yellow/green conductor to the earth pole.
- Make sure that the supply voltage corresponds to the rated voltage of the welding machine.
- Size the protective fuses based on the data listed on the technical specifications plate.

4 POWER SOURCE DESCRIPTION (FIG. 10 = COMPACT VERSION) (FIG. 11 = VERSION WITH SEPARATE WIRE FEEDER)

A - CONTROL PANEL.
Lift the transparent flap to access the control panel.

B- Connector:
DB9 type (RS 232) connector to be used for updating the microprocessors programs.

C- Connector:
USB-type connector to be used for updating the microprocessors programs. Only on machines with separate wire feeder.

D- Connector:
Connector for connecting remote controls and the Push–Pull torch control cable.

E – Socket (+):
Socket where you must connect the earth cable connector in Tig welding, the electrode clamp in MMA welding.

F - Central adapter:
this is where the welding torch is to be connected.

G – Socket:
Socket where you must connect the earth cable connector in MIG/MAG and MMA welding.

H - Fitting:
this is where the gas hose from the TIG torch is to be connected.

I - Quick-fitting valves:
The hoses coming off the water cooled torch must be

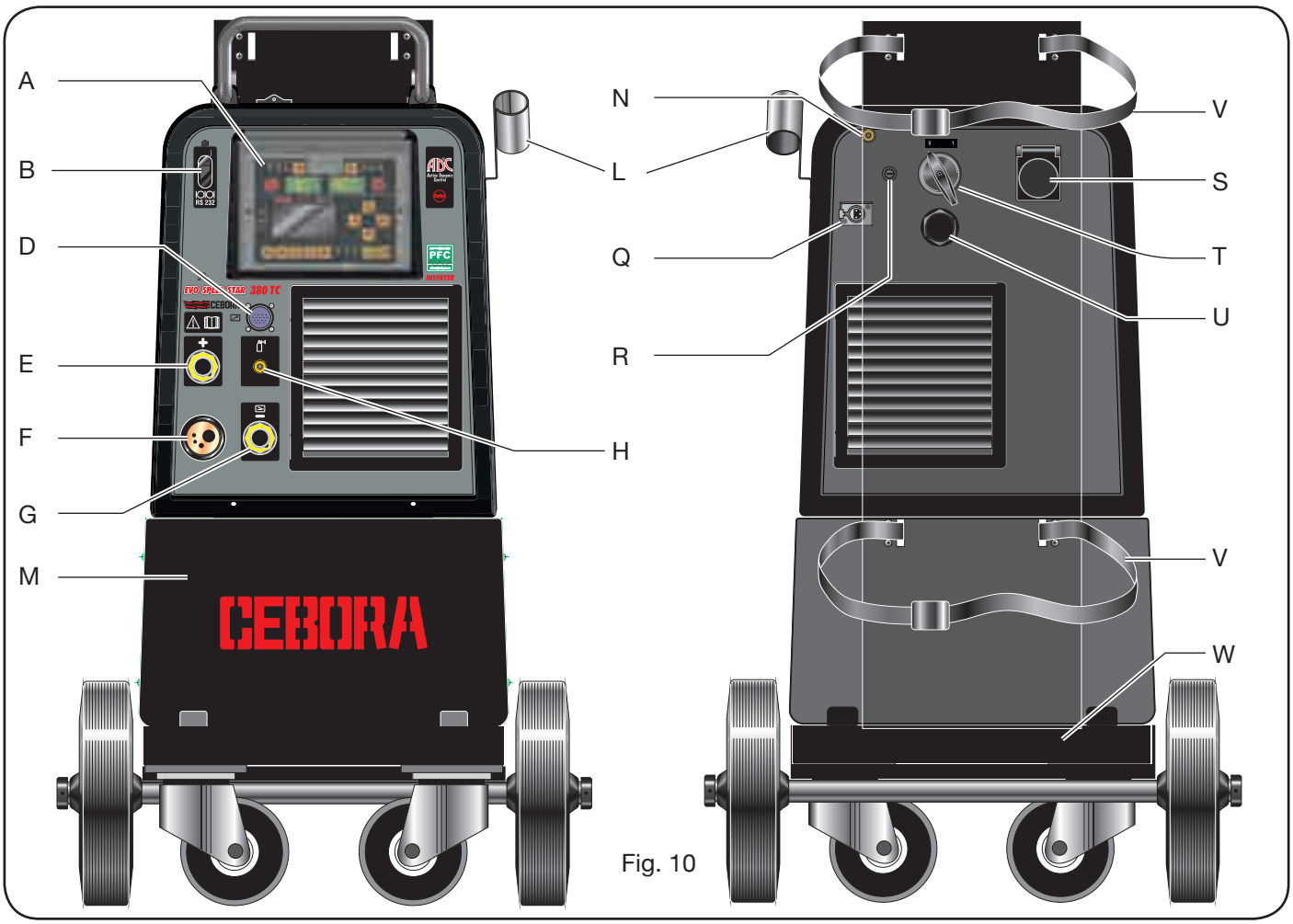


Fig. 10

connected to the quick-fitting valves. NB Match the hose and valve colors correctly. Only on machines with separate wire feeder

L - Support:
Welding torch support.

M - Panel:
Cooling unit compartment cover.

N – Gas hose.

P- Connector:
this is where the service cable connector of the power source/trolley connection is to be connected.

Q - Pressure switch socket:
it receives the cable from the pressure switch located inside the cooling unit (Art. 1683).

R – Fuse holder.

S – Socket:
it receives the cooling unit power cord Art. 1683 (optional).

T - ON/OFF switch.

U - Power cable.

V – Cylinder locking straps.

W – Cylinder support.

Z - Quick-fitting valves:
The red and blue hoses coming off the power source/trolley connection must be connected to these quick-fitting valves. Only on machines with separate wire feeder.
NOTE: The valves are located under the wire feeder trolley .Match the hose and the valve colors correctly.

X – Socket:
In MIG/MAG welding, this is where the power source cable (+ pole) fast-on connector of the power source/trolley connection is to be connected. Only on machines with separate wire feeder.

Y - Fitting:
this is where the gas hose from the power source/wire feeder extension connection is to be connected. Only on machines with separate wire feeder.

K - Plug:
this is where the power cable fast-on connector of the power source/wire feeder trolley connection is to be connected. Only on machines with separate wire feeder.

AA - Wire reel cover door

AB - Wire reel cover

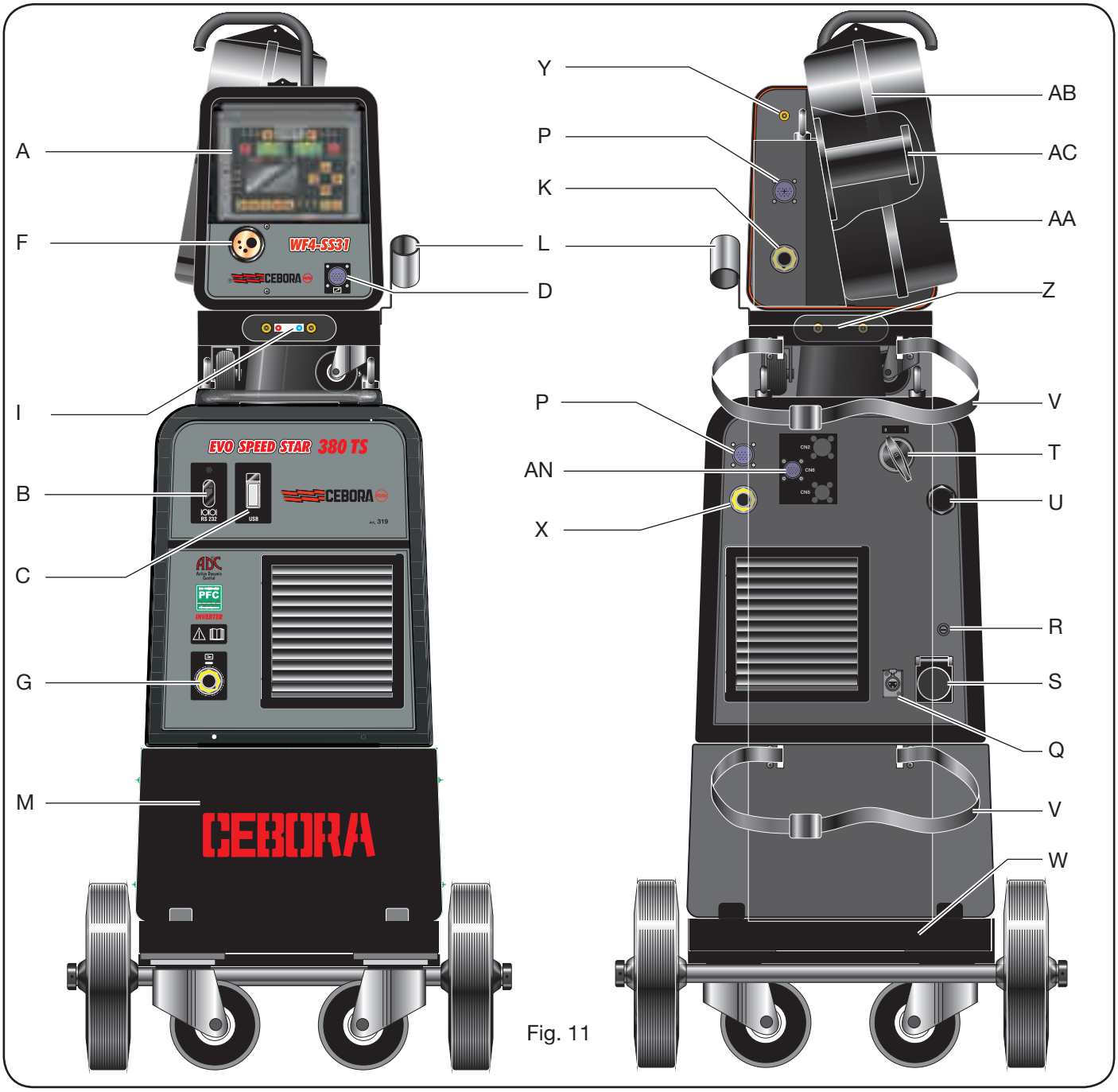


Fig. 11

AC - Reel support:
Suitable for standard reels up to Ø 300 mm, 16 Kg.

AN- Connector:
this is where the power cable fast-on connector of the Data Logger Art. 408 (Optional).

5 DESCRIPTION OF THE COOLING UNIT Art. 1683 (Fig. 12).

This cooling unit, **which is supplied on demand for Art. 318 and 319**, is designed to cool the torches used for welding and must be used exclusively with this power source.

AD- Slot:
Slot to inspect the coolant fluid level.

AE - Cap.

AF - Quick-fitting valves:
Connect the red and blue hose of the welding torch. NB Match the hose and valve colors correctly.

AG - Quick-fitting valves:
This is where the red and blue hoses coming off the power source/trolley connection must be connected in machines with separate wire feeder. NB Match the hose and valve colors correctly.

AH – Fuse holder.

AI - Connection.
For coolant pressure protection.

AL - ON/OFF switch.

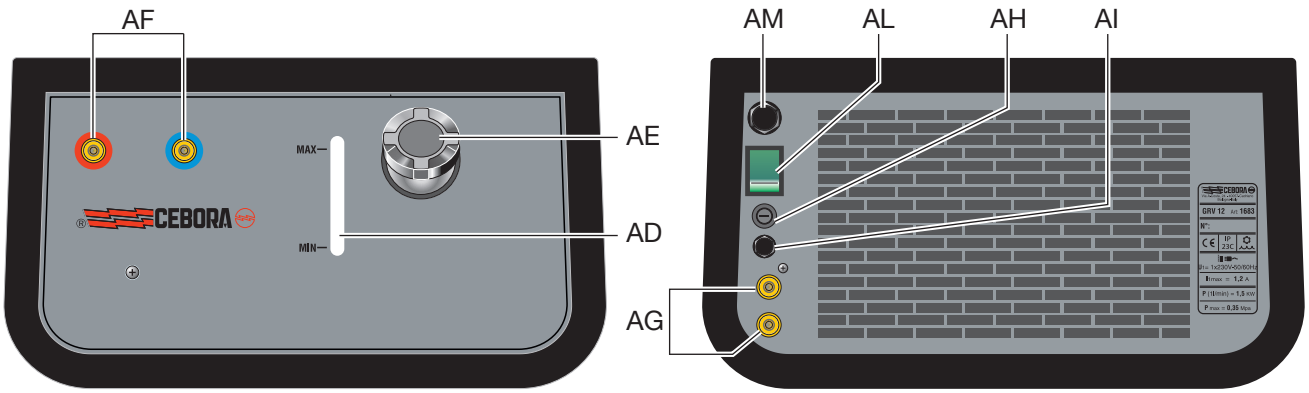


Fig. 12

AM - Power cable.

5.1 WIRING.

For the extensions and protection devices wiring follow the directions of the instruction manual provided with the cooling unit.

5.2 DESCRIPTION OF PROTECTION DEVICES .

5.2.1 Coolant pressure protection device.
This protection is achieved by means of a pressure switch, inserted in the fluid delivery circuit, which controls a microswitch. If the pressure is insufficient, the display **D1** shows the wording **H2O** flashing.

5.2.2 Fuse (T 2A/250V - Ø 5x20).
This fuse protects the motor pump, and is located in the fuse holder AH on the rear panel of the welding machine (Fig. 12).

5.3 START-UP.

Unscrew the cap **AU** and fill the tank (the equipment is supplied with approximately one liter of fluid).
It is important to periodically check, through the slot **AT**, that the fluid remains at the “max” level.

6 CONTROL PANEL DESCRIPTION (Fig. 13-14)

The control panel consists of a **control area** (Fig. 13) and a settings area (Fig. 14).

6.1 CONTROL PANEL (FIG. 13)**.**

Selection key T1
Every pressure of the key selects the size, adjustable via the **M1** knob. Available sizes, displayed by leds **L1**, **L2** and **L3**, relate to the selected welding process.

Led L1 Thickness
It indicates that the display **D1** shows the thickness in mm of the workpiece based on the current and wire speed set. Active in synergic MIG/MAG welding processes.

Led L2 Wire speed
It indicates that the display **D1** shows the welding wire speed in metres per minute. Active in all MIG/MAG welding processes

Led L3 Welding current
It indicates that the display **D1** shows the welding current in ampere.

Knob M1
The values selected through the key **T1** are adjusted according to the process type selected through this knob.

Display D1
Shows the value of sizes selected by means of key **T1** and adjusted by means of knob**M1**.

Selection key T2
Every **brief pressure of the key selects the size, adjustable via the M2 knob**. The sizes that can be selected, displayed by leds **L4**, **L5** and **L6**, are related to the selected welding process.

Led L4 Welding voltage
It indicates that the value shown on display **D2** is a value expressed in volts.
With arc off, in MIG/MAG welding processes, the value shown on display **D2** is a pre-set value or the “set point” (see paragraph 9.1 MIG/MAG welding.).
During the welding process, the value shown on display **D2** is always the voltage measured by the power source.

Led L5 Arc length
In synergic MIG/MAG welding processes (MIG HD excepted), it indicates that display **D2** shows the value of the lenght of welding arc correction.
The 0 (zero) value corresponds to the manufacturer preset arc length.
By means of knob **M2** it is possible to increase the arc (positive values) or reduce it (negative values) in a -9.9 ÷ +9.9. range

Led L6 Impedance
In MIG/MAG welding processes, it indicates that display **D2** shows the impedance value.

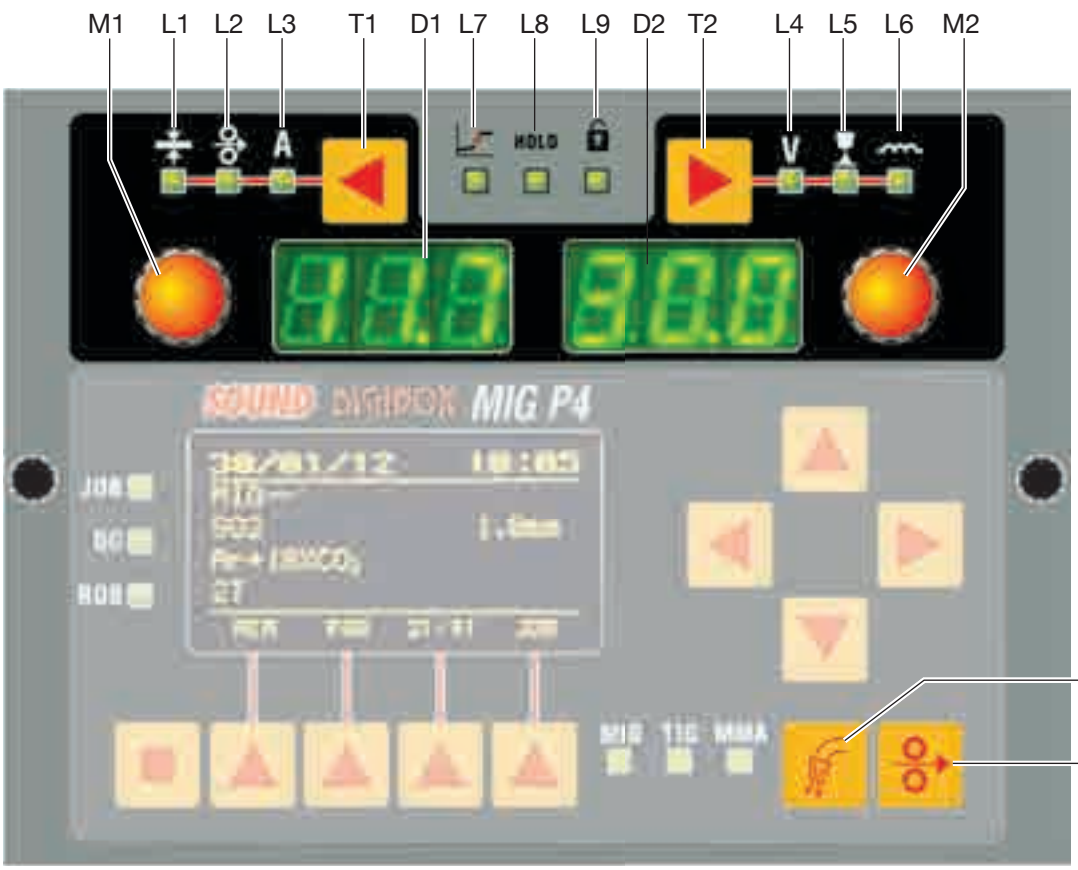


Fig. 13

The 0 (zero) value corresponds to the manufacturer preset impedance.
By means of knob **M2** it is possible to increase (positive values) or reduce (negative values) it in a -9.9 ÷ +9.9 range.

Knob M2

The values selected through key **T2** are adjusted according to the process type selected by means of this knob
In synergic MIG/MAG welding processes, when led **L4** is on (welding voltage), via this knob the selection switches automatically to led **L5** (arc length).

Display D2

In all welding processes, it numerically displays the selections made via the selection key **T2** and adjusted via the knob **M2**.

Led L7 Globular position

In MIG/MAG synergic processes, this signals that the pair of current and voltage values chosen for welding may give unstable arcs and splatters.

Led L8 Hold

It lights automatically at the end of the welding process to indicate that displays **D1** and **D2** show the two most recent current and voltage measured values.

Led L9 Safety

Signals the lock function for some keys. The operator may adjust only the welding parameters included in the control panel. To activate the function, press the **T5** key first then, while holding it down, briefly press the **T2** key.
The led **L9** lights to indicate that the function is active. To exit, press similarly keys **T5** and **T2**.

Key T4 Wire test

It allows the progressive wire feed up to 8m/min with no voltage present in the torch and no gas flow.

Key T3 Test gas

When this key is pressed, the gas flows out for 30 seconds. If pressed again the flow stops.

6.2 SETTINGS PANEL (FIG. 14)**.**

Allows a quick access to the welding machine menu and to the additional functions that are displayed and immediately available. It consists of a matrix display **D3** that shows all information required to program the surfing keys (**T10**, **T11**, **T12** and **T13**) used to surf inside the menu; it also consists of function keys (**T5**, **T6**, **T7**, **T8** and **T9**) that allow access to the different menus that make up the firmware and a series of leds that signal the type of process in operation (**L10**, **L11** and **L12**) and a few additional functions (**L13L14** and **L15**).

When the welding machine starts, the display **D3** shows for about 5s, a few information about machine status (see par. 7.4 Information menu) including the firmware version.

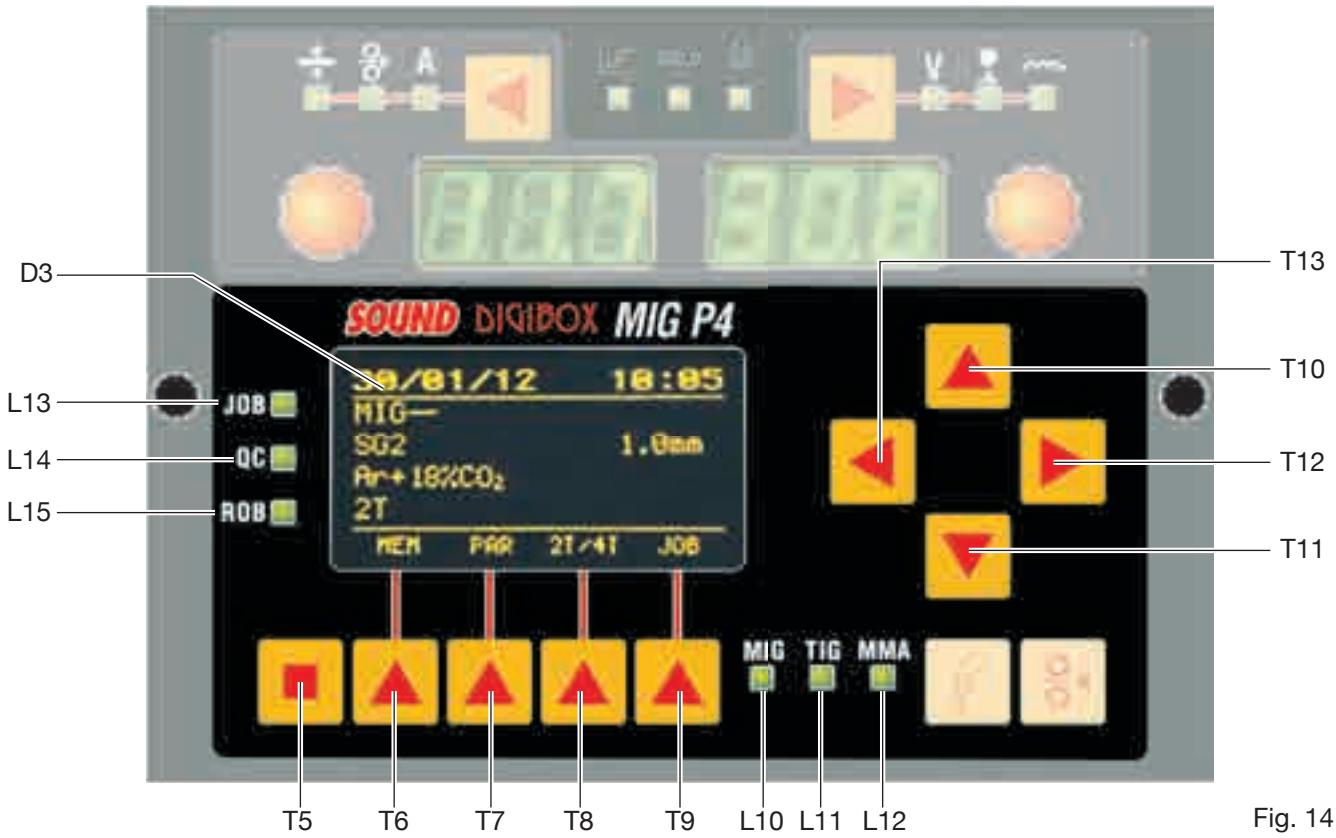


Fig. 14

Immediately after it shows the values preset by the welding machine manufacturer:

- Date (day/month/year) and time (hour and minutes).
- Synergic MIG Process . (Led **L10** on).
- Welding wire type SG2 ø 1.0 mm.
- Gas Ar/18% CO2.
- 2 stages Start-up mode 2T.

The lower portion of the display shows (MEM, PAR, 2T/4T and JOB) that can be selected by means of the function keys **T6, T7, T8, T9** (see par. 8).

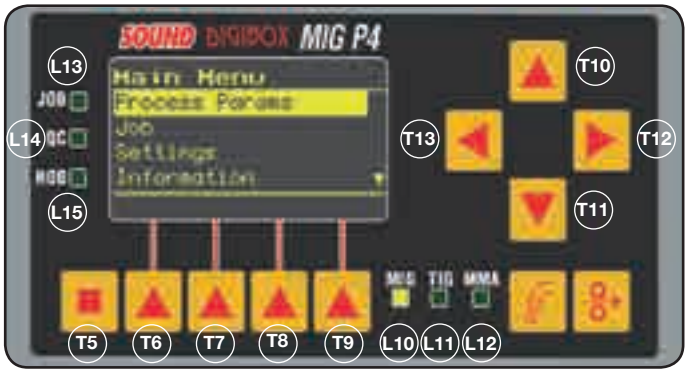
6.3 ALARM DISPLAY

When the machine detects a temporary alarm, displays **D1** and **D2** show a flashing wording related to the alarm cause. FOR example: if the wire feeder door is opened, the wording "**OPn**"

6.4 ERROR DISPLAY

When the machine detects a serious alarm, displays **D1** and **D2** show a wording "**Err**" followed by the relevant error code.
In this case, switch off the machine and contact technical service (see par. 10).

7 MACHINE PROGRAMMING
"Main Menu" -



Programming is made in the *"Main Menu"* . To access, press key **T5** and then key **T6 (MENU)** or through the quick access menu described under paragraph 8.
In the *" Main Menu "*, via keys **T10** and **T11**, it is possible to select one of the list items highlighted by the yellow band. With key **T12** enter the submenu, while with key **T13** return to the previous menu and save, at the same time, the selection made.
A downward arrow indicates that there are additional items not shown on the screen.
This surfing mode applies to all machine menus.
The available items *in the "main menu "* are:

- *"Process Parameters"* (See par. 7.1)
- "*Jobs"* (See par. 7.2)
- *"Settings"* - (See par. 7.3)
- *"Information"* (See par. 7.4)

7.1 *"PROCESS PARAMETERS"* MENU.

Submenu *"Process Parameters"* is accessed through the*" Main Menu"* or directly by means of key **T7** (PAR). Here are listed all the parameters that the operator may modify according to the selected welding process (leds **L10, L11, L12**).
In the "*Process Parameters"* you may save directly by pressing key **T6** (MEM)(see par. 7.2.1).

7.1.1 *"Process"*.

The first parameter is the welding process. By pressing key **T12** you enter the Process Selection page.
By means of keys **T10** and **T11,** you select the item highlighted by the yellow band but you also scroll all available processes.
The welding that can be selected are:

MIG ⎍⎍⎍ Pulse synergic MIG/MAG welding (upon request art. 231).
MIG ▬▬ Synergic MIG/MAG welding.
MIG HD High deposit synergic MIG/MAG welding.
MIG Root Synergic MIG/MAG welding for drooping vertical welding
MIG Man Traditional MIG/MAG welding.
TIG Welding process with non-meltable electrode suited for all types of metals; aluminium, magnesium and brass excluded. The arc strikes by contact without high frequency.
MMA Welding process with coated, meltable electrode.

7.1.2 ***"Material"*** (only in synergic MIG/MAG processes).
With this item you select the type of welding wire material.

7.1.3 ***"Diameter"*** (only in synergic MIG/MAG processes).
The welding wire diameters are related to the selected material.

7.1.4 ***"Gas"*** (in MIG/MAG processes).
Gas types that can be used are related to the selected material.

7.1.5 ***"Arc Length Corr"*** *-Arc length correction.*
(Available in synergic MIG/MAG, MIG Root).

It allows to correct the Volt Arc length by means of keys **T10** and **T11** or knob**M2**.

	MIN	MAX	DEF.
Arc length corr.	-9.9V	9.9V	0.0V

WARNING:
the adjusting page, **which is similar for all parameters with an adjusting range** , shows:
- The parameter name being corrected.
- The value and the unit.
- The adjusting range.
- The abbreviations:

MIN = minimum adjustment. Key **T5**.
MAX = maximum adjustment. Key **T7**.
DEF = preset value. Key **T6**.

7.1.6 ***"Inductance Corr"*** *- Impedance value correction.*
(available in all MIG/MAG synergic welding processes, MIG HD excepted)
Allows correction of the impedance value.

	MIN	MAX	DEF.
Impedance value corr	-9.9	9.9	0.0

7.1.7 ***"Start Mode"*** -selecting the welding start mode.
2T (active in MIG/MAG and TIG processes).
The machine begins welding when the torch trigger is pressed, and stops when released.
4T (active in MIG/MAG and TIG processes).
To begin welding press and release the torch trigger; to stop welding press and release it again.
3L (active in synergic MIG/MAG processes).
Welding starts when the torch trigger is pressed; the welding current set by means of *"Start current"* will be used. This current will be kept as long as the torch trigger is held down; when it is released the current returns to the preset value in the time set as *"Slope time"* and it is kept until the torch trigger is pressed again. When the torch trigger is pressed again, the welding current will connect to the third current (*"Crater- filler current-"*) set with parameter *"Crater Current"* according to the time set by *"Slope time"* and it will be maintained until the torch trigger is released. When the torch trigger is released welding stops.

3L adjustments	MIN	MAX	DEF.
Start current	10%	200%	135%
Slope time	0.1 s	10 s	0.5 s
Crater Current	10%	200%	60%

7.1.8 ***"Spot"***.
(only in MIG/MAG 2T or 4T processes).
OFF (preset)
ON
The following adjustments are available when "ON" is selected:

	MIN	MAX	DEF.
Spot time	0.3 s	25 s	1.0 s
Pause time	OFF	5 s	OFF

7.1.9 ***"HSA"*** *"Automatic Hot Start"*.
(only in MIG/MAG synergic 2T or 4T processes).
This function is blocked when function 3L is activated and works only with synergic processes.
Specially well suited for "hot" start when welding aluminum.
OFF (preset).
ON.

The following adjustments are available when “ON” is selected:

	MIN	MAX	DEF.
Start current	10%	200%	135%
Starting current time	0.1 s	10 s	0.5 s
Slope time	0.1 s	10 s	0.5 s

The welding process starts with the *“Start Current”*.The time duration of this first current is controlled by the “*starting current time”*. After this stage the current connects to the welding current according to *”Slope Time”*.

7.1.10*”CRA”* *“Final crater filler”*.
(only in synergic MIG 2T or 4T processes).
OFF (preset)
ON
The following adjustments are available when “ON” is selected:

	MIN	MAX	DEF.
Slope time	0.1 s	10 s	0.5 s
Crater Current	10%	200%	60%
Crater Current Time	0.1 s	10 s	0.5 s

7.1.11 *“Soft Start”* .
(only in MIG/MAG processes)
It is the wire speed, expressed as a percentage of the speed set for the welding, before the wire touches the workpiece.

	MIN	MAX	DEF.
Soft Start	1%	100%	Auto.

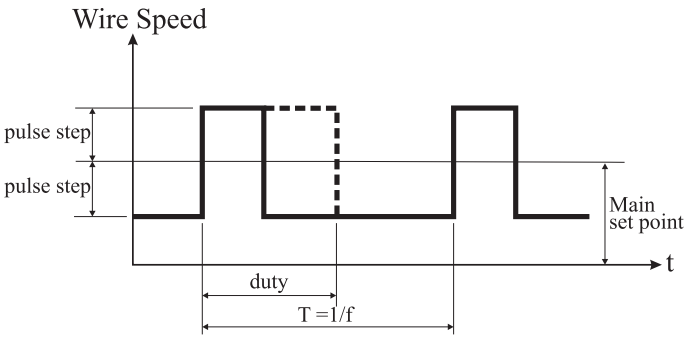
7.1.12 *“Burnback”*.
(only in MIG/MAG processes)
Serves to adjust the length of the wire leaving the contact tip after welding.

	MIN	MAX	DEF.
Reg Burnback	4 ms	250 ms	Auto.

7.1.13 *“Double Level”* Art. 233 (optional) (only in synergic MIG/MAG processes).
This type of welding varies the intensity between two levels.
Before setting the double level welding, it is necessary to make a short bead to determine the wire speed and the current to obtain the penetration and the bead width closest to the type of welding to be made.
The wire feed speed is thus determined (and the corresponding current); the meters per minute that will be set will be alternatively added to and subtracted from this value.
Before start working you should not forget that for a correct bead, the minimum overlapping between two “meshes” must be 50%.

OFF (preset)
ON.
The following adjustments are available when “ON” is selected:

	MIN	MAX	PRED.
Frequency	0.1 Hz	5 Hz	1.5 Hz
Pulse step	0.1 m	3 m	1 m
Duty cycle	25%	75%	50%
Arc correction	-9.9	9.9	0



7.1.13.1 *“Frequency”* of double level.
The Herz frequency is the number of periods per second. Period means the speed alternating from the higher to the lower values.
The lower value, that does not penetrate, is used by the operator to change from one mesh to the next one; the higher speed, corresponding to the maximum current, is the penetrating speed; the operator will stop to make the mesh.

7.1.13.2 *“Pulse Step“*: it is the amplitude of the speed change in/min.
The speed change determines the sum and the the subtraction of m/min from the reference speed described above. Parameters being the same, when the number increases the mesh is wider and penetration is deeper.

7.1.13.3 *“Duty cycle”*: double level time.
Expressed as a percentage, this is the higher speed/current time as compared to period duration. Parameters being the same, it determines the mesh diameter and therefore the penetration.

7.1.13.4 *“Arc Length Cor”*.
Sets arc length of the higher speed/current.
Warning: make sure that the arc length is the same for both currents.

7.1.14 "*Double Pulse*".
It starts automatically when the two Art. 231 and Art. 233 are purchased.
See paragraph 7.1.13 for operation.

7.1.15 *“Preflow”*.
(In all processes except MMA).

	MIN	MAX	DEF.
Pre Gas	0 s	10 s	0.1 s

7.1.16 *“Postflow”*.
(In all processes except MMA).

	MIN	MAX	DEF.
Postflow	0 s	10 s	3 s

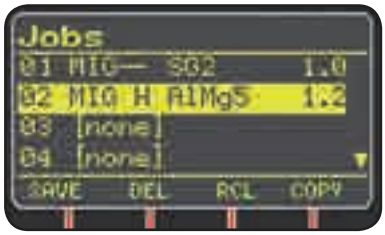
7.1.17 *"Speed Corr"*.
(only in MIG HD processes).
Allows the percentage correction of the wire speed as compared to the preset speed.

	MIN	MAX	DEF.
Speed Correction	-9.9%	9.9%	0.0%

7.2 *"JOB"* MENU.

In this section you can save, modify, restore, copy or cancel the working programs.
From the *" Main Menu "*, with key **T11,** highlight the "Jobs" item and enter the submenu by means of key **T12**.

7.2.1 Saving of a *"JOB" program*.
Once the adjustments and the settings described above have been made, with keys **T10** and **T11** select a position in the memory and press key **T6** (SAVE) to save.



The "Job" program number, the welding process and the wire diameter are shown on the display.
When a "Job" has been saved, the lower display shows the abbreviations corresponding to keys **T6, T7, T8** and **T9**:
- **DEL**: cancels the selected "Job".
- **RCL**: restores the selected "Job" to modify it.
- **COPY**: copies the selected "Job" and saves it in a different position.

7.3 MENU *"Settings"*.

In this section you can set or modify the welding machine main settings.

From the *"Main Menu"* (see par. 7), select menu *"Settings"* via key **T10** and display it with key **T11.**

Here are listed all the parameters that the operator may modify:
- Welding
- Machine
- Factory Setup
- Languages

Via key **T12** enter the submenu related to the selected parameter.

7.3.1 Menu *"Welding"*.
This submenu includes a list of welding parameters that can be modified:
- H2O MIG/TIG This function allows the setting of the cooling unit start-up.
Range: ON-OFF-Auto (DEF OFF).
If "Auto" is selected, when the machine starts, the unit is running. If the torch trigger is not pressed after 30 seconds, it shuts off. When the torch trigger is pressed, the unit starts operating and shuts off 3 minutes after the torch trigger is released.

- *"Quality Control"*
  ON - OFF Setting (DEF OFF) (Available on demand).

- *"Max inching"*
  The purpose is to stop the welding machine if the wire flows for the preset length in cm after starting with no passage of current.
  OFF Setting - 50 cm (DEF OFF).

- *"Push-Pull Force"*
  If the welding torch Push-Pull Art. 2008 is assembled, the operations of the cooling unit and the PPF (Push Pull Force) function are enabled. This function adjusts the drive torque of the push-pull motor in order to make the wire feed linear.

7.3.2 *"Machine"* Menu - *" Machine Settings".*
Here are available the following submenus:
- "Clock Setup" .

7.3.3 *"Factory Setup"* Menu - *"Resetting of preset values ".*
This item allows return to the factory preset values.
Three resetting modes are possible:
- All Complete resetting.
- Jobs only Resets only "Job" working programs
- Exclude jobs Resets all but saves "Job" working programs.

7.3.4 *"Languages"* Menu - *"Language setup".*
In this section you can select the language of the messages displayed.

7.4 INFORMATION MENU.

Data concerning the power source software are displayed in this section.

8 QUICK START-UP.

In the **D3** display lower side, a few controls appear for the quick access to the most common functions, related to the various pages.

8.1 *"MEM"* - *"SAVING" (see par. 7.2.1).*

If you wish to save a welding program, press key **T6**, select keys **T10** and **T11**, the *"Job" number* and then press key **T6** again to save the welding condition.

8.2 *"PAR"* - *"PROCESS PARAMETERS" (see par. 7.1)*

8.3 *"2T/4T"* - *"TWO STAGES/ FOUR STAGES" (see par. 7.1.7).*

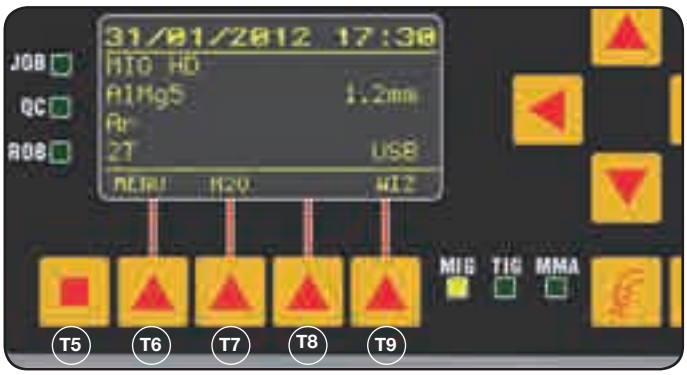
8.4 *"JOB"* - *"WORKING JOBS".*

If you wish to use a previously saved working program, press key **T9** (JOB).
In order to see all the program settings, save the selection with key **T9** (OK), then press key **T7** (PAR).

8.5 *"H2O"*. *(see par. 7.3.1).*

8.6 *"WIZ"* WIZARD.

The *"wizard"* is a guided process that helps the operator to make quick selections according to the desired welding process.



To access, press key **T5** and then key **T9** (WIZ).
The first offered selection is the welding process.
The process selection is obtained by means of keys **T10** and **T11.**
By pressing key **T9** (NEXT) you enter directly the material selection page.
You may return to the previous page with key **T6** (PREV).
As an alternative to keys **T9** and **T6** you may use keys **T12 and T13**.
The next page is diameter page, then gas page, and then again "Start Mode" page. Press "END" to finish

9 WELDING

- Prepare the welding machine by following the instructions described under paragraph 3 "Start-up".
- Follow the instructions previously described in menu *"Wizard"* Par. 8.1 or Par. 7.1.

9.1 MIG/MAG WELDING.

- Follow the instructions previously described in menu *"Wizard"* Par. 8.1 or Par. 7.1.

In menu *"Process Parameters"* the items that may be set in this process are listed:
This welding machine offers a wide selection of MIG/MAG welding processes that are listed below:

9.1.1 MIG —— Synergic MIG/MAG welding.
The feature of this type of welding process is the SINERGY, meaning a Factory presetting of the relation between wire speed (current), voltage and impedance that are required to obtain a good welding operation. To do so proceed as follows:

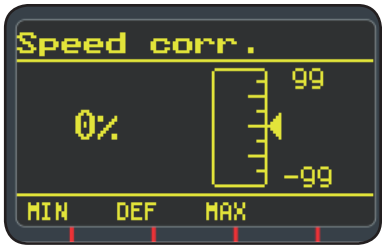
- By means of key **T1** select the thickness led.
- Set the thickness being used by turning knob **M1**.
- Carry out the welding operation.
- If the arc length is not correct, modify it by means of knob **M2**.

9.1.2 MIG Man. Traditional MIG/MAG welding.
Select wire type and diameter, and type of gas protection device.
In this welding process wire speed, voltage and impedance value mut be set by the operator.

9.1.3 MIG HD. Synergic MIG/MAG welding - high deposit.
The feature of this type of process is the possibility of increasing the wire speed, the welding voltage being the same, and this reduces weld execution time and distortion, with higher productivity.
This is a synergic process but it differs from the other processes as far as the setting mode is concerned: To scroll along the synergic curve, use knob M2 which changes the welding voltage and then with knob M1 you can modify the wire speed (welding current).

An example:
Select this process as previously described.
By means of key **T1** select led **L2** wire speed.
By means of key **T1** select led **L2** of wire speed and with key **T2** the voltage led **L4**.
the display **D1** shows the wire speed while the display **D2** shows the voltage.

Rotate knob **M2**to modify voltage and wire speed values by following the factory set synergic curve.



Rotate by one step knob **M1:** display **D3** will show the page corresponding to the wire speed correction.

If you continue rotating knob **M1** you will see the percentage deviation from zero which corresponds to the factory preset speed, while display **D1** shows the new speed.
When the correction value causes the synergic curve to reach the minimum or the maximum speed, display **D3** shows the message "*Speed limit*".
By correcting the wire speed, you do not modify neither the thickness values that are recommended for the welding nor the current value, but it is possible to increase the wire speed. The wire speed modification by means of knob M1 does not change the previously set welding voltage.
After a welding operation with led **L8** "Hold" ON, the display **D1** shows the welding current corresponding to the modified wire speed.

9.1.4 MIG Root Synergic MIG/MAG welding.
This process is designed for "root" welding of descent vertical "butt" welds. Suitable for iron and stainless steel.

9.1.5 MIG ⎍⎍ Pulse synergic MIG/MAG welding (upon request Art. 231).
In this welding process the filler material is transferred with

an impulsive controlled energy waveform with a resulting constant detachment of melted material drops that reach the workpiece without splatters. The welding cord is thus well connected with any material type or thickness.
The welding parameter settings are the same as those described for the synergic MIG/MAG welding.

9.2 MMA WELDING

For compact machines, connect the electrode clamp cable connector to connector **E** and the earth cable connector to connector **G** (observing the polarity stated by the electrode manufacturer)
In case of machines with separate wire feeder the trolley must remain connected to the power source.
Connect the electrode clamp cable connector to connector **X** and the earth cable clamp to connector **G** (observing the polarity stated by the electrode manufacturer.
When this process is selected, after 5 seconds the power source is ready to generate current.
In order to prepare the machine for MMA welding, follow the instructions previously described in menu *"Wizard" Par. 8.6 or "Par" 7.1*.
In menu *"Process Parameters"* the items that may be set in this process are listed:

• Hot Start.
It is the overvoltage supplied at the arc ignition time.

	MIN	MAX	DEF.
Hot Start	0%	100%	50%

• Arc Force.
It is the adjustment of the arc dynamic characteristic.

	MIN	MAX	DEF.
Arc Force	0%	100%	30%

Display **D2** shows the arc voltage measured during welding.
Display **D1** shows:
- before welding, the current value set by means of **MI**;
- during welding, the measured welding current.
- When welding operation is completed, it shows the most recent detected current value. (Led **L8** "HOLD" on).

9.3 TIG WELDING

9.3.1. Only on machines with separate wire feeder.
Connect the earth cable to the positive pole **X** and the power cable adaptor of the trolley/power source to the negative pole **G**.
Connect the welding torch to the euro adapter **F**.
For this type of welding machines, the most suited welding torch is art.1259.

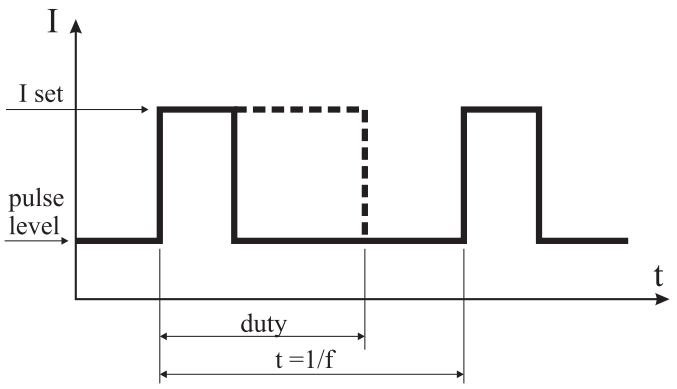
9.3.2 Compact machines.
Connect the earth cable to the positive pole **E** and the torch to the negative pole **G**.
Connect the gas hose to the socket **H**

In order to prepare the machine for TIG welding, follow the instructions previously described in menu *"Wizard" Par. 8.6 or "Par" 7.1*.

In menu *"Process Parameters"* the items that may be set in this process are listed:
• Start Mode.
See paragraph 7.1.7.
• Final Slope (only in 2T or 4T).
It's the time in seconds during which current slopes down from welding to arc shutdown.

	MIN	MAX	DEF
Final Slope	0.0 s	10 s	0.5 s

• Pulse Art. 234 (optional)
Pulsed TIG welding.
In this type of welding, current intensity varies between two levels; this variation occurs at a given frequency.



• Pulse level
This item allows the setting of the lower current between the two currents that are required for this welding process; the percentage of this current is displayed according to the main current set before entering the submenu.

	MIN	MAX	DEF
Pulse level	1%	100%	50%

• Frequency
It is the pulse frequency.

	MIN	MAX	DEF
Frequency	0.1 Hz	500 Hz	1.1 Hz

• Duty
This is the duration of the highest current, expressed in percentage, compared to frequency time.

	MIN	MAX	DEF
Duty	10%	90%	50%

10 ERROR CODES

DISPLAY	ERROR DESCRIPTION
TRG flashing	Start button pushed at machine start-up or on closing the wire feeder door
Err 54	Short circuit on secundary circuit
Err 56	Anomalous condition while welding
Err 57	Excessive current in the wire feed unit motor (check the wire feeder rollers, the wire inside the sheath and the wire motor)
Err 58	Error of alignment between the firmware versions or error during the auto-upgrade phase (repeat the upgrade procedure)
Err 61	Low supply voltage
Err 62	High supply voltage
TH 0	Output diodes overtemperature
TH 1	IGBT overtemperature
H2O flashing followed by Err 75	Cooling pump problem (pressure switch)
H2O nc	Cooling pump problem (not connected)
OPN	Wire feeder door open
ITO	See section 7.3.1 Menu "Welding" - Maximum inching
In the case of an error code different from those listed please contact technical service	

11 MAINTENANCE

All maintenance must be carried out by skilled personnel in compliance with CEI 26-29 (IEC 60974-4) standard .

11.1 MAINTENANCE. POWER SOURCE

If the equipment requires maintenance, make sure that switch **T** is positioned on “O” and the power cable is disconnected from the mains.
Furthermore, from time to time, remove any metal dust inside the equipment, using a jet of compressed air.

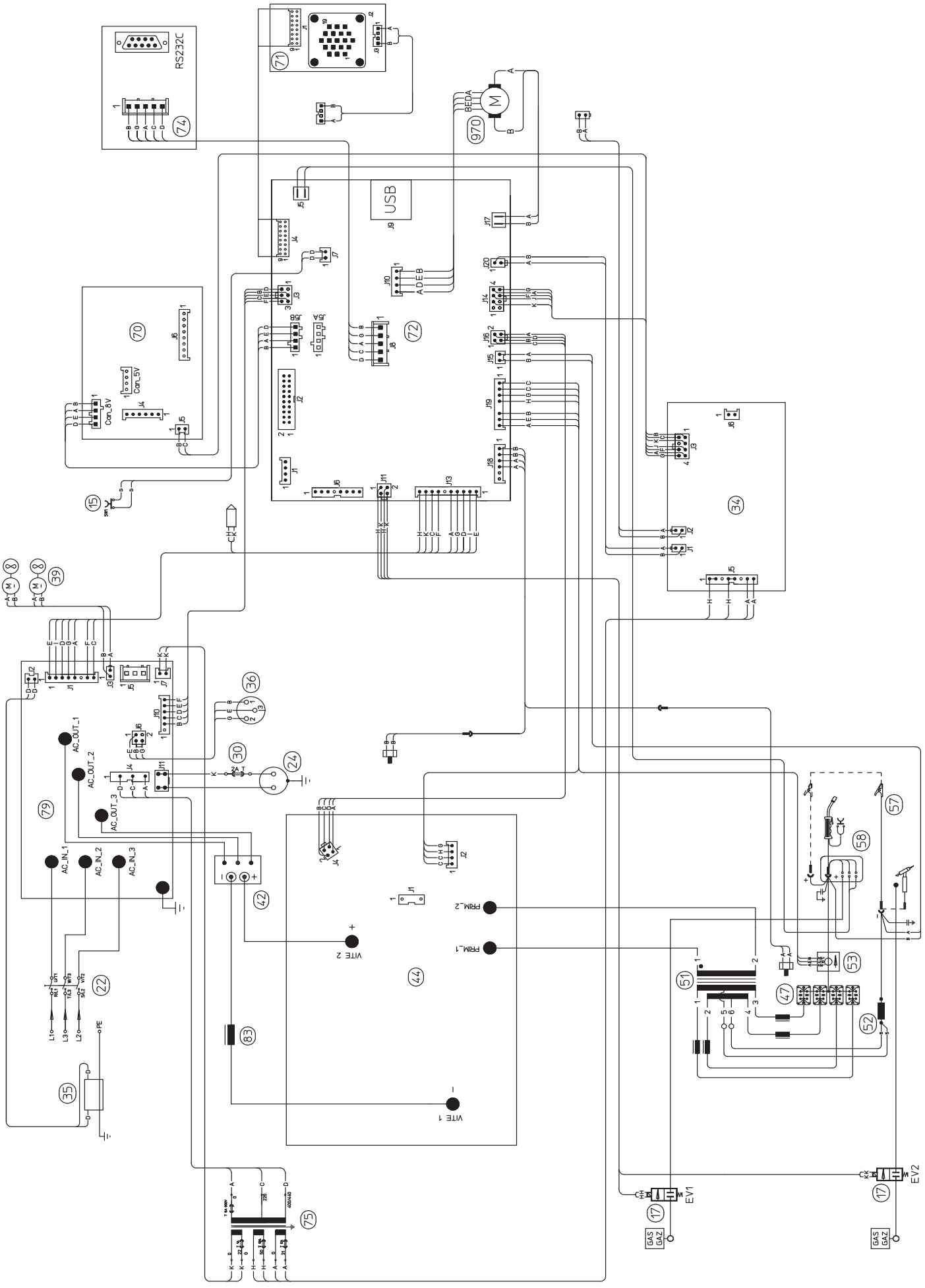
11.2 THINGS TO DO AFTER ANY REPAIR.

After making a repair, be careful to arrange the wiring in such a way as to ensure safe insulation between the primary side and the secondary side of the machine.
Do not allow wires to come into contact with moving parts or those that heat up during operation. Mount the clamps as on the original equipment to prevent the primary and secondary welding circuits to come into contact if a conductor accidentally breaks or becomes disconnected.
Fit the screws back with the notched washers as on the original equipment.

QUESTA PARTE È DESTINATA ESCLUSIVAMENTE AL PERSONALE QUALIFICATO.
THIS PART IS INTENDED SOLELY FOR QUALIFIED PERSONNEL.
DIESER TEIL IST AUSSCHLIEßLICH FÜR DAS FACHPERSONAL BESTIMMT.
CETTE PARTIE EST DESTINEE EXCLUSIVEMENT AU PERSONNEL QUALIFIE.
ESTA PARTE ESTÁ DESTINADA EXCLUSIVAMENTE AL PERSONAL CUALIFICADO.
ESTA PARTE È DEDICADA EXCLUSIVAMENTE AO PESSOAL QUALIFICADO.
TÄMÄ OSA ON TARKOITETTU AINOASTAAN AMMATTITAITOISELLE HENKILÖKUNNALLE.
DETTE AFSNIT HENVENDER SIG UDELUKKENDE TIL KVALIFICERET PERSONALE.
DIT DEEL IS UITSLUITEND BESTEMD VOOR BEVOEGD PERSONEEL.
DENNA DEL ÄR ENDAST AVSEDD FÖR KVALIFICERAD PERSONAL.
ΑΥΤΌ ΤΟ ΤΜΉΜΑ ΠΡΟΟΡΙΖΕΤΑΙ ΑΠΟΚΛΕΙΣΤΙΚΆ ΓΙΑ ΤΟ ΕΙΔΙΚΕΥΜΈΝΟ ΠΡΟΣΩΠΙΚΌ.

CODIFICA COLORI CABLAGGIO ELETTRICO		**WIRING DIAGRAM COLOUR CODE**
A	NERO	BLACK
B	ROSSO	RED
C	GRIGIO	GREY
D	BIANCO	WHITE
E	VERDE	GREEN
F	VIOLA	PURPLE
G	GIALLO	YELLOW
H	BLU	BLUE
K	MARRONE	BROWN
J	ARANCIO	ORANGE
I	ROSA	PINK

CODIFICA COLORI CABLAGGIO ELETTRICO		**WIRING DIAGRAM COLOUR CODE**
L	NROSA-NERO	PINK-BLACK
M	GRIGIO-VIOLA	GREY-PURPLE
N	BIANCO-VIOLA	WHITE-PURPLE
O	BIANCO-NERO	WHITE-BLACK
P	GRIGIO-BLU	GREY-BLUE
Q	BIANCO-ROSSO	WHITE-RED
R	GRIGIO-ROSSO	GREY-RED
S	BIANCO-BLU	WHITE-BLUE
T	NERO-BLU	BLACK-BLUE
U	GIALLO-VERDE	YELLOW-GREEN
V	AZZURRO	BLUE


RS232C
USB
Con_8V
Con_5V
AC_OUT_1
AC_OUT_2
AC_OUT_3
AC_IN_1
AC_IN_2
AC_IN_3
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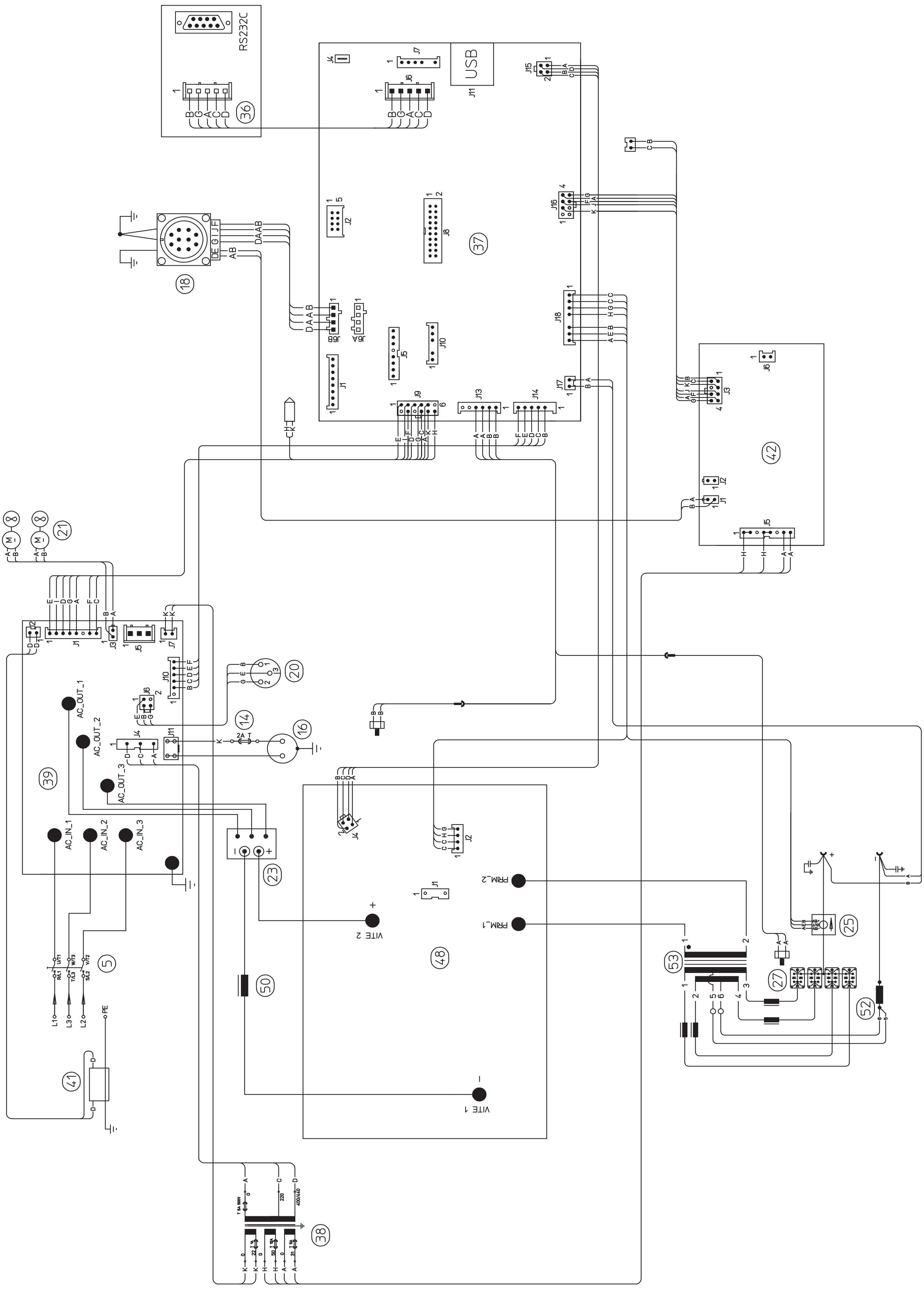
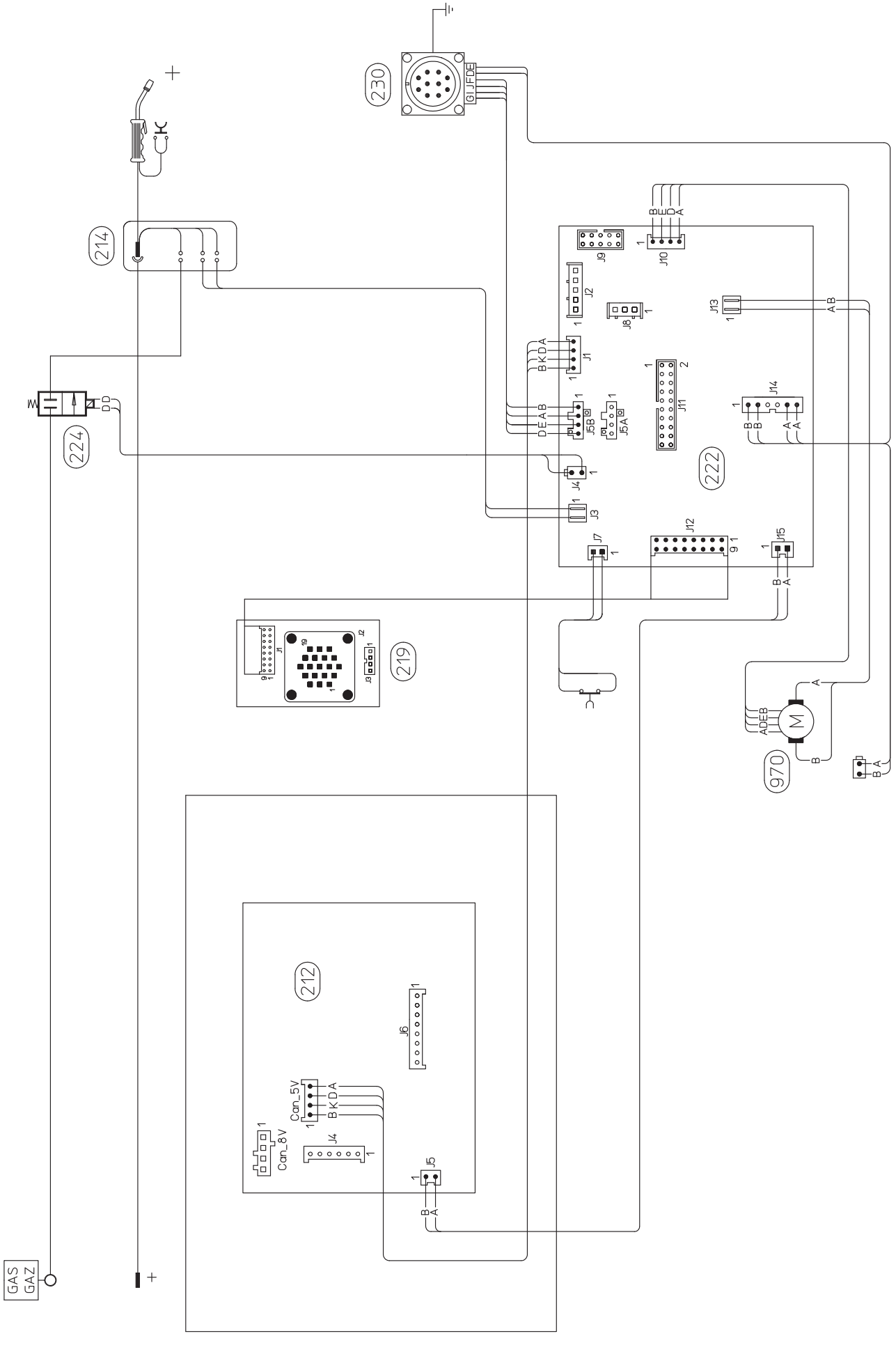
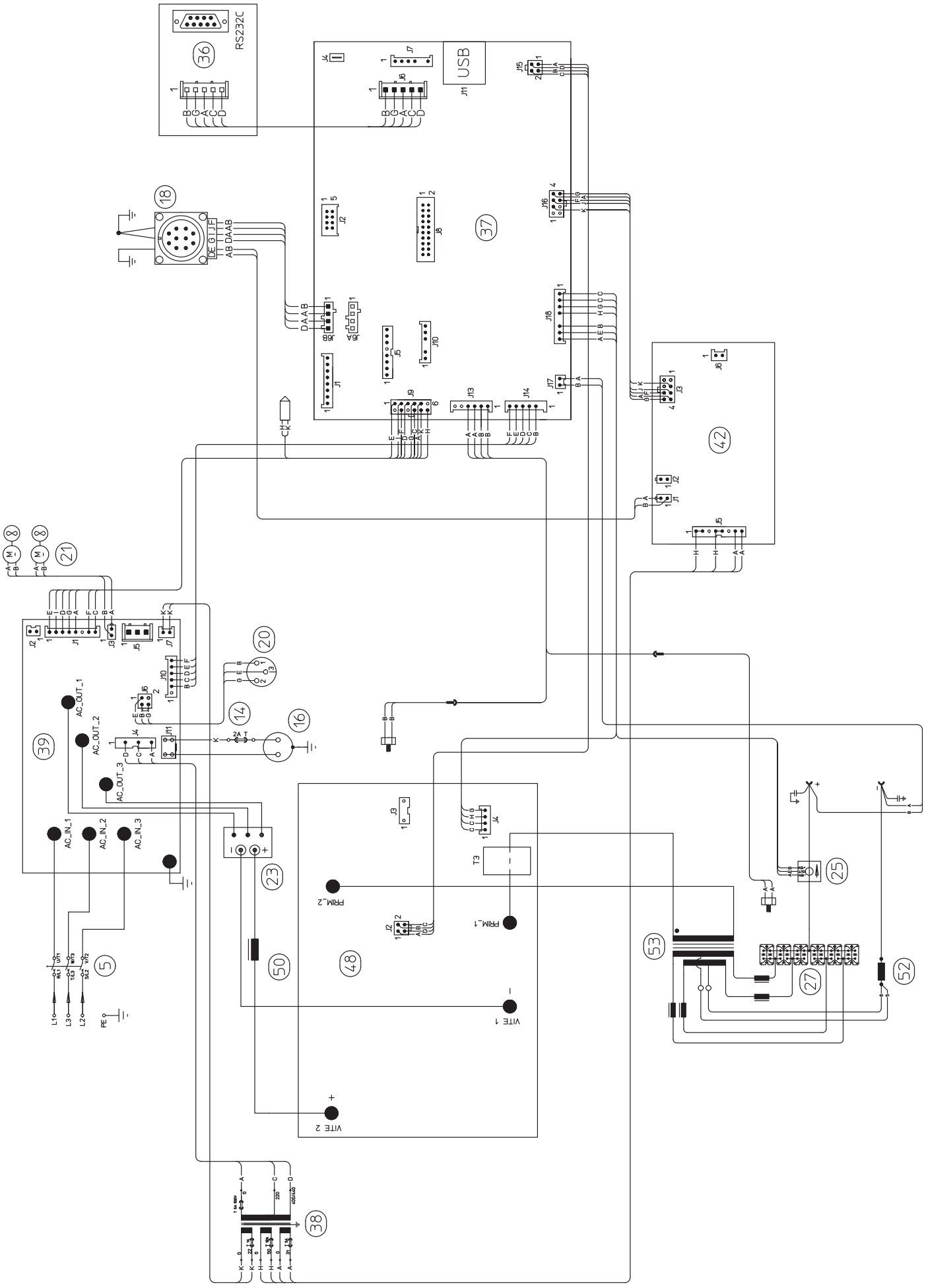
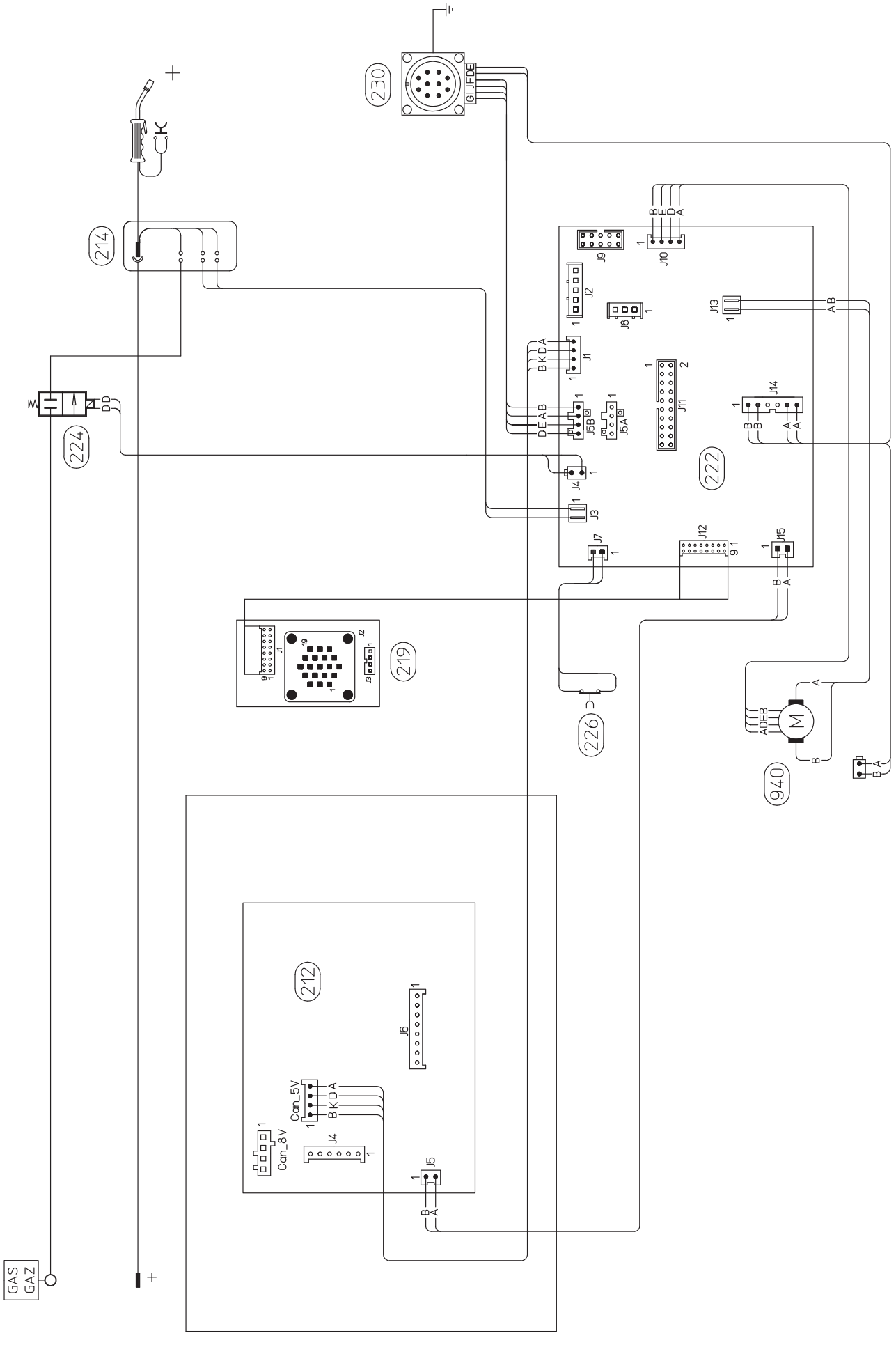
PRIM_1
VITE 2
VITE 1
EV1
EV2
GAS
GAZ
PE

Art. 319.00 - 319.55




230
GIJFDE
214
224
DD
222
J1
J2
J3
J4
J5A
J5B
J6
J7
J8
J9
J10
J11
J12
J13
J14
J15
BKDA
DEAB
B E D A
A B
219
970
M
ADEB
212
Can_5V
Can_8V
GAS
GAZ


RS232C
USB
AC_OUT_1
AC_OUT_2
AC_OUT_3
AC_IN_1
AC_IN_2
AC_IN_3
PRM_2
PRM_1
VITE 1
VITE 2
L1
L3
L2
PE

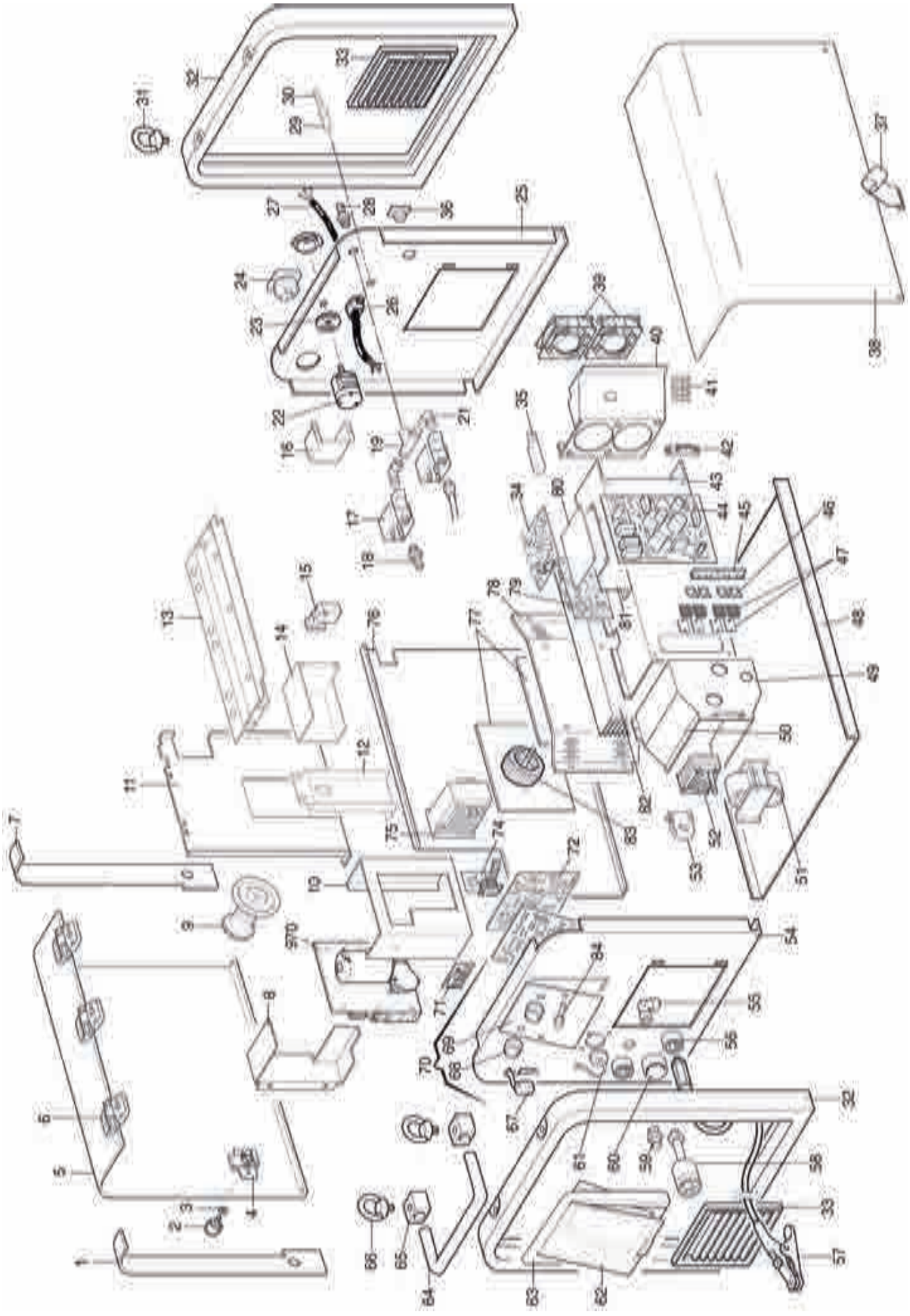

230
214
224
222
219
226
940
212
GAS
GAZ
Can_5V
Can_8V
BKDA
DEAB
ADEB
M

POS	DESCRIZIONE	DESCRIPTION
01	LATERALE FISSO SINISTRO ANTERIORE.	FRONT FIXED LEFT SIDE PANEL
02	BLOCCAGGIO	LOCKING DEVICE
03	ROSETTA	WASHER
04	CHIUSURA	CLOSING
05	LATERALE MOBILE	HINGED SIDE PANEL
06	CERNIERA	HINGE
07	LATERALE FISSO SINISTRO POSTERIORE.	BACK FIXED LEFT SIDE PANEL
08	PROTEZIONE	PROTECTION
09	PORTA BOBINA	COIL SUPPORT
10	PROTEZIONE MOTORE	MOTOR PROTECTION
11	PANNELLO INTERNO	INSIDE PANEL
12	SUPPORTO BOBINA	COIL SUPPORT
13	COPERCHIO	COVER
14	PROTEZIONE	PROTECTION
15	PULSANTE DI SICUREZZA	SECURITY SWITCH
16	PROTEZIONE	PROTECTION
17	ELETTROVALVOLA	SOLENOID VALVE
18	RACCORDO	FITTING
19	RACCORDO A TRE VIE	T-FITTING
21	RACCORDO A GOMITO	UNION ELBOW
22	INTERRUTTORE	SWITCH
23	PROTEZIONE	PROTECTION
24	PRESA	SOCKET
25	PANNELLO POSTERIORE	REAR PANEL
26	PRESSACAVO	STRAIN RELIEF
27	CAVO RETE	POWER CORD
28	RACCORDO	FITTING
29	PORTAFUSIBILE	FUSE HOLDER
30	FUSIBILE	FUSE
31	GOLFARA	EYEBOLT
32	CORNICE	FRAME
33	PANNELLO ALETTATO	FINNED PANEL
34	CIRCUITO DI ALIMENTAZIONE	SUPPLY CIRCUIT
35	GRUPPO SENSORE	SENSOR UNIT
36	CONNESSIONE	CONNECTION
37	SUPPORTO TORCIA	TORCH SUPPORT
38	LATERALE FISSO	FIXED PANEL
39	KIT MOTORI CON VENTOLE	MOTOR WITH FAN KIT
40	SUPPORTO VENTOLE	FANS SUPPORT
41	MORSETTIERA	TERMINAL BOARD
42	RADDRIZZATORE	RECTIFIER
43	TUNNEL	TUNNEL

POS	DESCRIZIONE	DESCRIPTION
44	CIRCUITO DI POTENZA	POWER CIRCUIT
45	CAVALLOTTO	JUMPER
46	CAVALLOTTO	JUMPER
47	KIT DIODO + ISOLAMENTO	DIODE KIT + INSULATION
48	FONDO	BOTTOM
49	CONVOGLIATORE ARIA	AIR CONVEYOR
50	SUPPORTO CONVOGLIATORE	CONVEYOR SUPPORT
51	TRASFORMATORE DI POTENZA	POWER TRANSFORMER
52	IMPEDENZA SECONDARIO	SECONDARY IMPEDANCE
53	TRASDUTTORE	TRANSDUCER
54	PANNELLO ANTERIORE	FRONT PANEL
55	RACCORDO A GOMITO	UNION ELBOW
56	PRESA GIFAS	GIFAS SOCKET
57	MASSA + CAVO	CABLE
58	CORPO ADATTATORE	ADAPTOR BODY
59	RACCORDO	FITTING
60	GHIERA ADATTATORE	RING NUT
61	TAPPO	CAP
62	PANNELLO CHIUSURA	CLOSING PANEL
63	CORNICE	FRAME
64	MANICO	HANDLE
65	SUPPORTO MANICO	HANDLE SUPPORT
66	GOLFARA	EYEBOLT
67	PROTEZIONE	PROTECTION
68	MANOPOLA	KNOB
69	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPOR
70	CIRCUITO PANNELLO	PANEL CIRCUIT
71	CIRCUITO CONNETTORE	CONNECTOR CIRCUIT
72	CIRCUITO DI CONTROLLO	CONTROL CIRCUIT
74	CIRCUITO SERIALE	SERIAL CIRCUIT
75	TRASFORMATORE DI SERVIZIO	AUXILIARY TRANSFORMER
76	PIANO INTERMEDIO	INSIDE BAFFLE
77	ISOLAMENTO	INSULATION
78	CONVOGLIATORE ARIA	AIR CONVEYOR
79	CIRCUITO FILTRO	FILTER CIRCUIT
80	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPORT
81	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPORT
82	DISSIPATORE	RADIATOR
83	IMPEDENZA PRIMARIO	PRIMARY IMPEDANCE
84	POMELLO	KNOB
970	MOTORIDUTTORE	WIRE FEED MOTOR

La richiesta di pezzi di ricambio deve indicare sempre: numero di articolo, matricola e data di acquisto della macchina, posizione e quantità del ricambio.

When ordering spare parts please always state the machine item and serial number and its purchase data, the spare part position and the quantity.



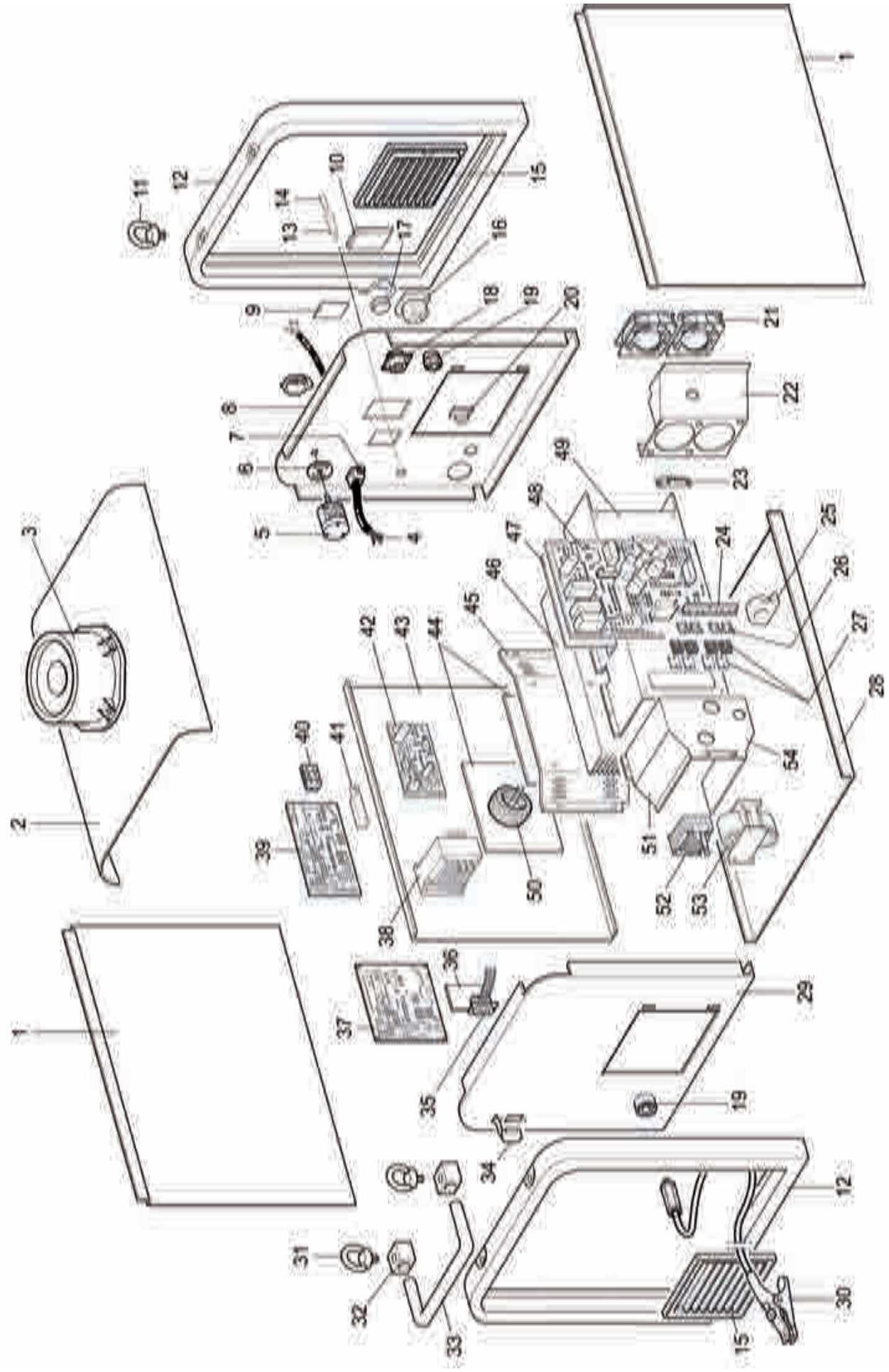
Art. 319.00 - 319.55

POS	DESCRIZIONE	DESCRIPTION
01	LATERALE FISSO	FIXED SIDE PANEL
02	COPERCHIO	COVER
03	SUPPORTO GIREVOLE INFERIORE	LOWER SWIVELLING SUPPORT
04	CAVO RETE	POWER CORD
05	INTERRUTTORE	SWITCH
06	PROTEZIONE	PROTECTION
07	PRESSACAVO	STRAIN RELIEF
08	PANNELLO POSTERIORE	REAR PANEL
09	CHIUSURA	CLOSING
10	PANNELLO CHIUSURA	CLOSING PANEL
11	GOLFARA	EYEBOLT
12	CORNICE	FRAME
13	PORTA FUSIBILE	FUSE HOLDER
14	FUSIBILE	FUSE
15	PANNELLO ALETTATO	FINNED PANEL
16	PRESA	SOCKET
17	TAPPO	CAP
18	CONNESSIONE	CONNECTION
19	PRESA GIFAS	GIFAS SOCKET
20	CONNESSIONE PRESSOSTATO	PRESSURE SWITCH CONNECTION
21	KIT MOTORI CON VENTOLE	MOTOR WITH FAN KIT
22	SUPPORTO VENTOLE	FANS SUPPORT
23	RADDRIZZATORE	RECTIFIER
24	CAVALLOTTO	JUMPER
25	TRASDUTTORE	TRANSDUCER
26	CAVALLOTTO	JUMPER
27	KIT DIODO + ISOLAMENTO	DIODE KIT + INSULATION

POS	DESCRIZIONE	DESCRIPTION
28	FONDO	BOTTOM
29	PANNELLO ANTERIORE	FRONT PANEL
30	MASSA + CAVO	CABLE
31	GOLFARA	EYEBOLT
32	SUPPORTO MANICO	HANDLE SUPPORT
33	MANICO	HANDLE
34	PROTEZIONE	PROTECTION
35	CONNESSIONE SERIALE	SERIAL CONNECTION
36	CIRCUITO SERIALE	SERIAL CIRCUIT
37	CIRCUITO DI CONTROLLO	CONTROL CIRCUIT
38	TRASFORMATORE DI SERVIZIO	AUXILIARY TRANSFORMER
39	CIRCUITO FILTRO	FILTER CIRCUIT
40	MORSETTIERA	TERMINAL BOARD
41	GRUPPO SENSORE	SENSOR UNIT
42	CIRCUITO DI ALIMENTAZIONE	SUPPLY CIRCUIT
43	PIANO INTERMEDIO	INSIDE BAFFLE
44	ISOLAMENTO	INSULATION
45	CONVOGLIATORE ARIA	AIR CONVEYOR
46	DISSIPATORE	RADIATOR
47	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPORT
48	CIRCUITO DI POTENZA	POWER CIRCUIT
49	TUNNEL	TUNNEL
50	IMPEDENZA PRIMARIO	PRIMARY IMPEDANCE
51	SUPPORTO CONVOGLIATORE	CONVEYOR SUPPORT
52	IMPEDENZA SECONDARIO	SECONDARY IMPEDANCE
53	TRASFORMATORE DI POTENZA	POWER TRANSFORMER
54	CONVOGLIATORE ARIA	AIR CONVEYOR

La richiesta di pezzi di ricambio deve indicare sempre: numero di articolo, matricola e data di acquisto della macchina, posizione e quantità del ricambio.

When ordering spare parts please always state the machine item and serial number and its purchase data, the spare part position and the quantity.

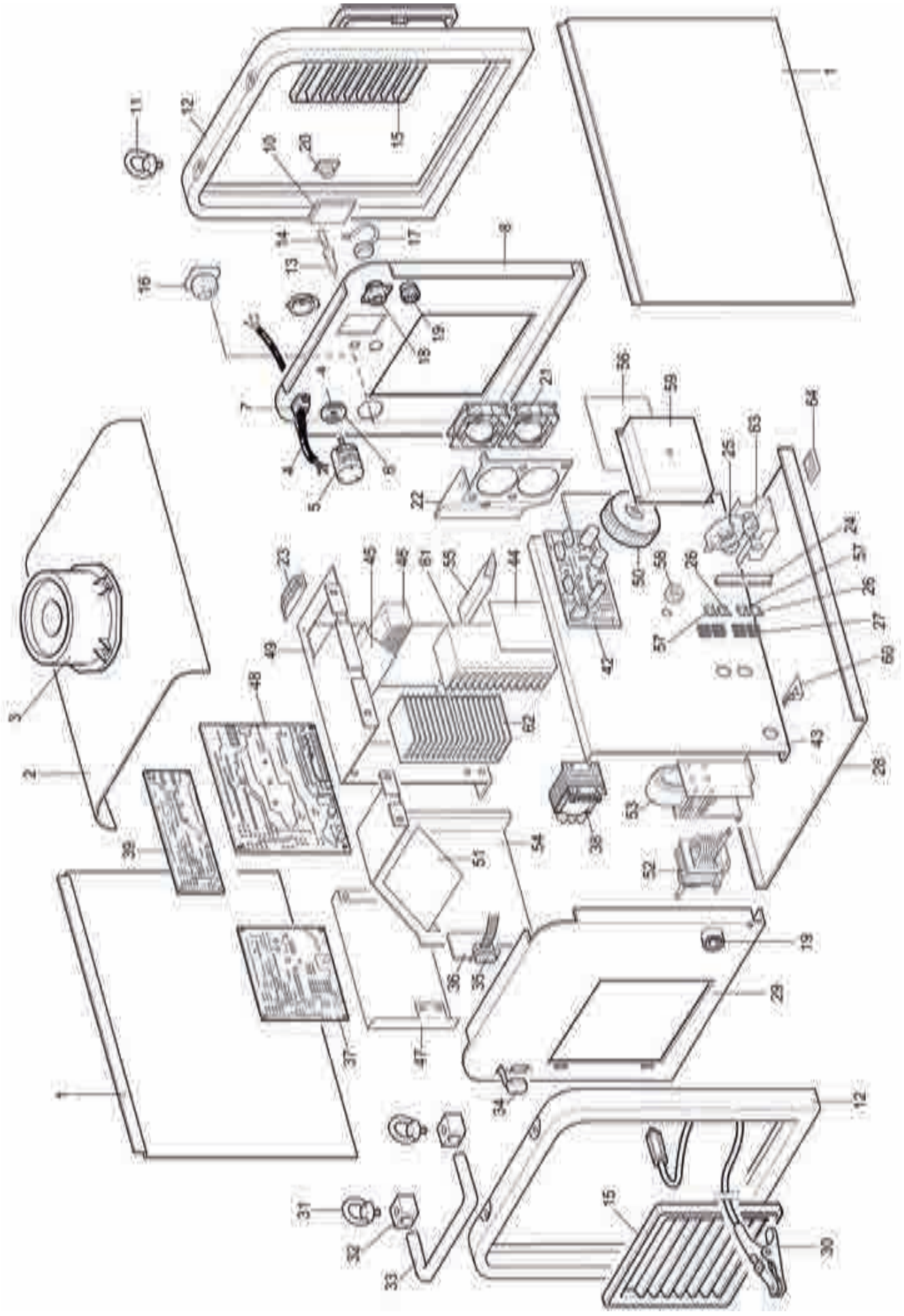


POS	DESCRIZIONE	DESCRIPTION
01	LATERALE FISSO	FIXED SIDE PANEL
02	COPERCHIO	COVER
03	SUPPORTO GIREVOLE INFERIORE	LOWER SWIVELLING SUPPORT
04	CAVO RETE	POWER CORD
05	INTERRUTTORE	SWITCH
06	PROTEZIONE	PROTECTION
07	PRESSACAVO	STRAIN RELIEF
08	PANNELLO POSTERIORE	REAR PANEL
10	PANNELLO CHIUSURA	CLOSING PANEL
11	GOLFARA	EYEBOLT
12	CORNICE	FRAME
13	PORTA FUSIBILE	FUSE HOLDER
14	FUSIBILE	FUSE
15	PANNELLO ALETTATO	FINNED PANEL
16	PRESA	SOCKET
17	TAPPO	CAP
18	CONNESSIONE	CONNECTION
19	PRESA GIFAS	GIFAS SOCKET
20	CONNESSIONE PRESSOSTATO	PRESSURE SWITCH CONNECTION
21	KIT MOTORI CON VENTOLE	MOTOR WITH FAN KIT
22	SUPPORTO VENTOLE	FANS SUPPORT
23	RADDRIZZATORE	RECTIFIER
24	CAVALLOTTO	JUMPER
25	TRASDUTTORE	TRANSDUCER
26	CAVALLOTTO	JUMPER
27	KIT DIODO + ISOLAMENTO	DIODE KIT + INSULATION
28	FONDO	BOTTOM
29	PANNELLO ANTERIORE	FRONT PANEL
30	MASSA + CAVO	CABLE
31	GOLFARA	EYEBOLT
32	SUPPORTO MANICO	HANDLE SUPPORT

POS	DESCRIZIONE	DESCRIPTION
33	MANICO	HANDLE
34	PROTEZIONE	PROTECTION
35	CONNESSIONE SERIALE	SERIAL CONNECTION
36	CIRCUITO SERIALE	SERIAL CIRCUIT
37	CIRCUITO DI CONTROLLO	CONTROL CIRCUIT
38	TRASFORMATORE DI SERVIZIO	AUXILIARY TRANSFORMER
39	CIRCUITO FILTRO	FILTER CIRCUIT
42	CIRCUITO DI ALIMENTAZIONE	SUPPLY CIRCUIT
43	PIANO INTERMEDIO	INSIDE BAFFLE
44	ISOLAMENTO	INSULATION
45	CONVOGLIATORE ARIA	AIR CONVEYOR
46	DISSIPATORE	RADIATOR
47	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPORT
48	CIRCUITO DI POTENZA	POWER CIRCUIT
49	TUNNEL	TUNNEL
50	IMPEDENZA PRIMARIO	PRIMARY IMPEDANCE
51	SUPPORTO CONVOGLIATORE	CONVEYOR SUPPORT
52	IMPEDENZA SECONDARIO	SECONDARY IMPEDANCE
53	TRASFORMATORE DI POTENZA	POWER TRANSFORMER
54	CONVOGLIATORE ARIA	AIR CONVEYOR
55	CONVOGLIATORE ARIA	AIR CONVEYOR
56	ISOLAMENTO	INSULATION
57	CAVALLOTTO	JUMPER
58	BOCCOLA ISOLANTE	INSULATING BUSH
59	SUPPORTO	SUPPORT
60	CAVALLOTTO	JUMPER
61	DISSIPATORE DIODI	DIODES RADIATOR
62	DISSIPATORE IGBT	IGBT RADIATOR
63	SUPPORTO	SUPPORT
64	APPOGGIO	REST

La richiesta di pezzi di ricambio deve indicare sempre: numero di articolo, matricola e data di acquisto della macchina, posizione e quantità del ricambio.

When ordering spare parts please always state the machine item and serial number and its purchase data, the spare part position and the quantity.

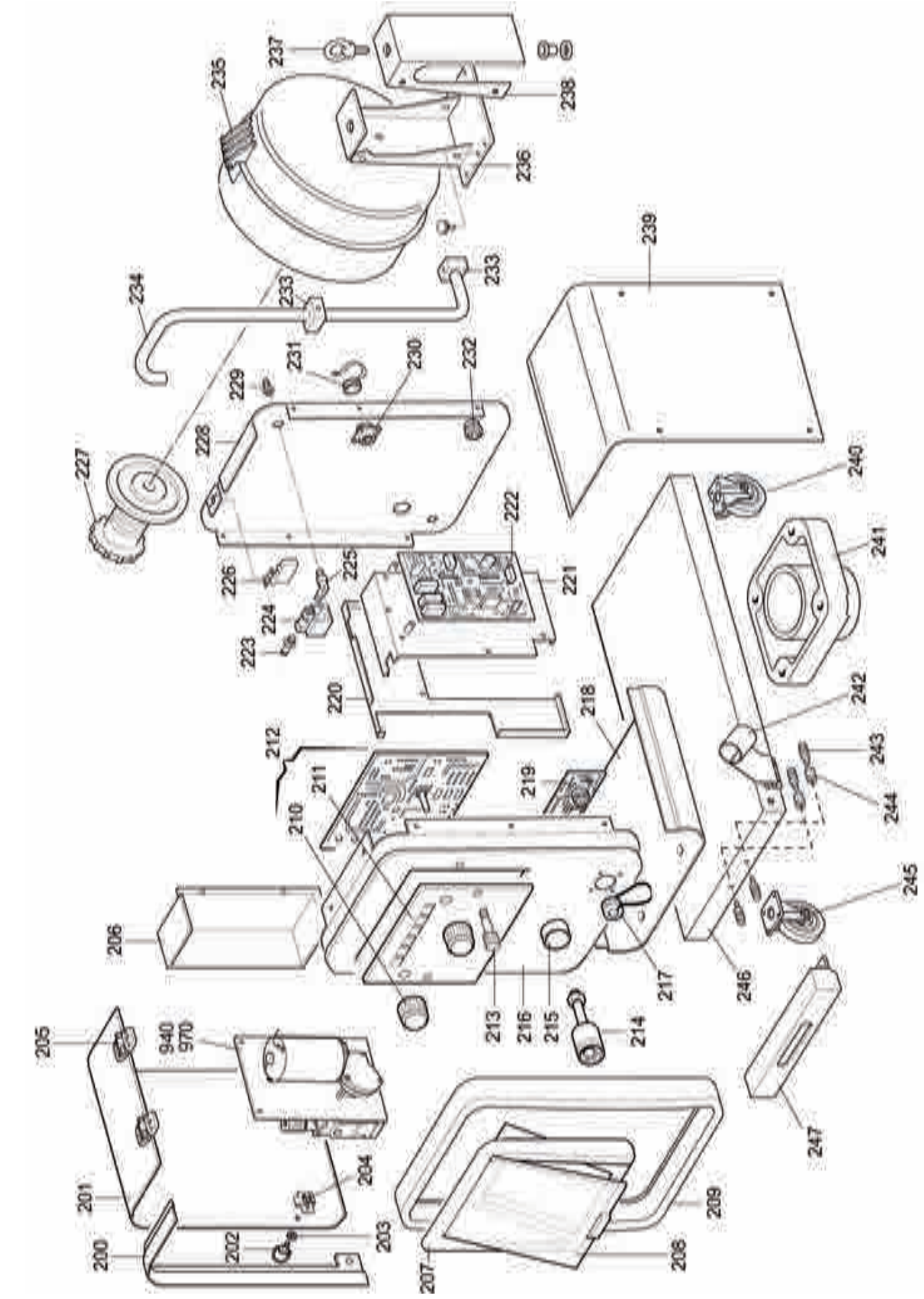


POS	DESCRIZIONE	DESCRIPTION
200	LATERALE FISSO	FIXED SIDE PANEL
201	LATERALE MOBILE	FIXED SIDE PANEL
202	BLOCCAGGIO	LOCKING DEVICE
203	ROSETTA	WASHER
204	CHIUSURA	CLOSING
205	CERNIERA	HINGE
206	PROTEZIONE	PROTECTION
207	CORNICE	FRAME
208	PANNELLO CHIUSURA	CLOSING PANEL
209	CORNICE	FRAME
210	MANOPOLA	KNOB
211	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPORT
212	CIRCUITO PANNELLO	PANEL CIRCUIT
213	POMELLO	KNOB
214	CORPO ADATTATORE	ADAPTOR BODY
215	GHIERA ADATTATORE	RING NUT
216	PANNELLO ANTERIORE	FRONT PANEL
217	TAPPO	CAP
218	FONDO	BOTTOM
219	CIRCUITO CONNETTORE	CONNECTOR CIRCUIT
220	PIANO INTERMEDIO	INSIDE BAFFLE
221	SUPPORTO CIRCUITO	CIRCUIT BOARD SUPPORT
222	CIRCUITO DI CONTROLLO	CONTROL CIRCUIT
223	RACCORDO	FITTING
224	ELETTROVALVOLA	SOLENOID VALVE
225	RACCORDO A GOMITO	UNION ELBOW

POS	DESCRIZIONE	DESCRIPTION
226	PULSANTE DI SICUREZZA	SECURITY SWITCH
227	SUPPORTO BOBINA	COIL SUPPORT
228	PANNELLO POSTERIORE	REAR PANEL
229	RACCORDO	FITTING
230	CONNESSIONE	CONNECTION
231	TAPPO	CAP
232	SPINA VOLANTE	WANDER PLUG
233	BLOCCAGGIO	LOCKING DEVICE
234	MANICO	HANDLE
235	COPERTURA BOBINA	COIL COVER
236	PORTA BOBINA	COIL SUPPORT
237	GOLFARA	EYEBOLT
238	RINFORZO	REINFORCEMENT
239	LATERALE DESTRO	RIGHT SIDE PANEL
240	RUOTA FISSA	FIXED WHEEL
241	SUPPORTO GIREVOLE SUPERIORE	UPPER SWIVELLING SUPPORT
242	SUPPORTO TORCIA	TORCH SUPPORT
243	RACCORDO	FITTING
244	RACCORDO	FITTING
245	RUOTA PIROETTANTE	SWIVELING CASTOR
246	FONDO	BOTTOM
247	PROTEZIONE	PROTECTION
940	MOTORIDUTTORE (PER ART. 320.00 E 320.55)	WIRE FEED MOTOR (FOR ART. 320.00 AND 320.55)
970	MOTORIDUTTORE (PER ART. 319.00 E 319.55)	WIRE FEED MOTOR (FOR ART. 319.00 AND 319.55)

La richiesta di pezzi di ricambio deve indicare sempre: numero di articolo, matricola e data di acquisto della macchina, posizione e quantità del ricambio.

When ordering spare parts please always state the machine item and serial number and its purchase data, the spare part position and the quantity.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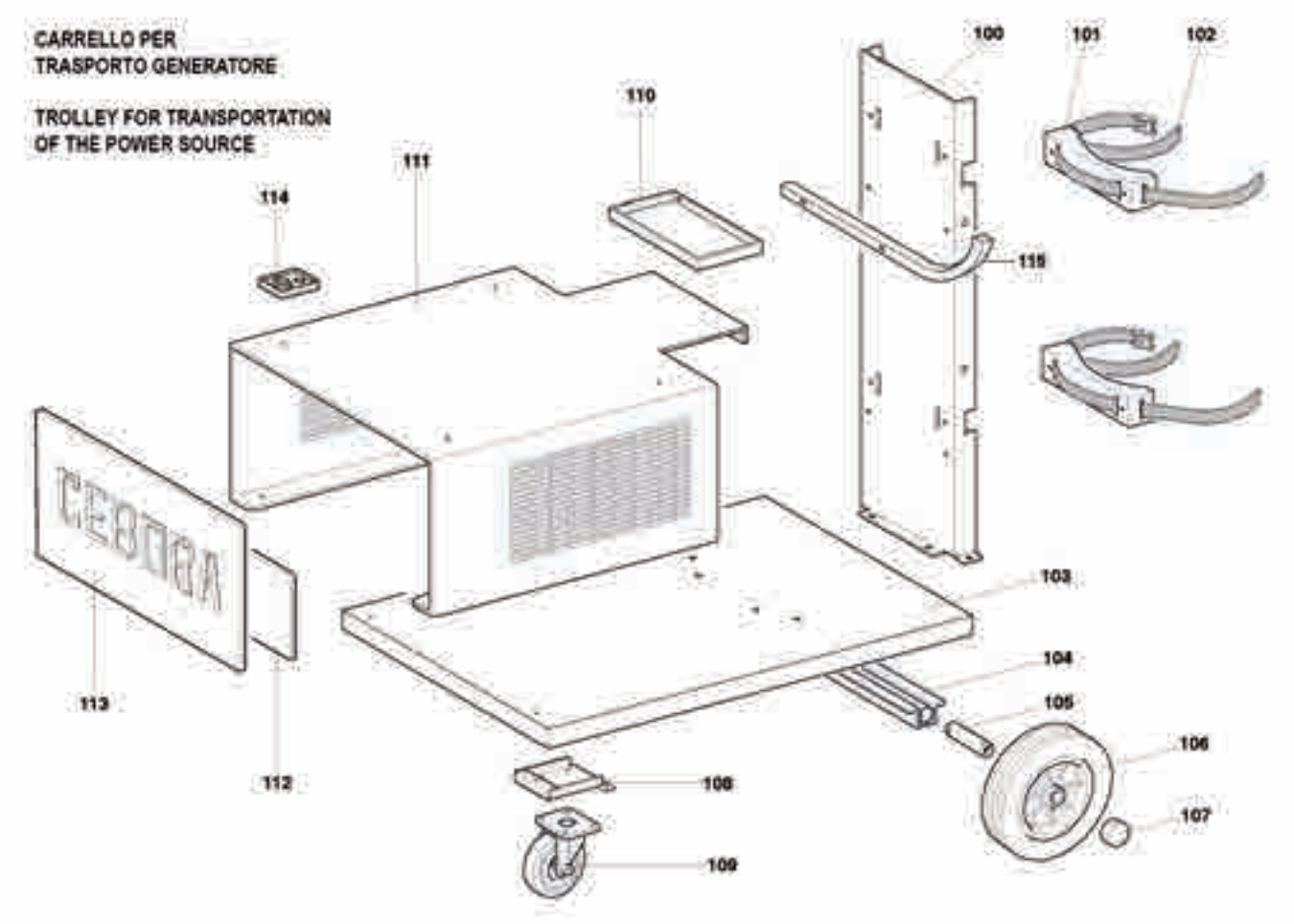
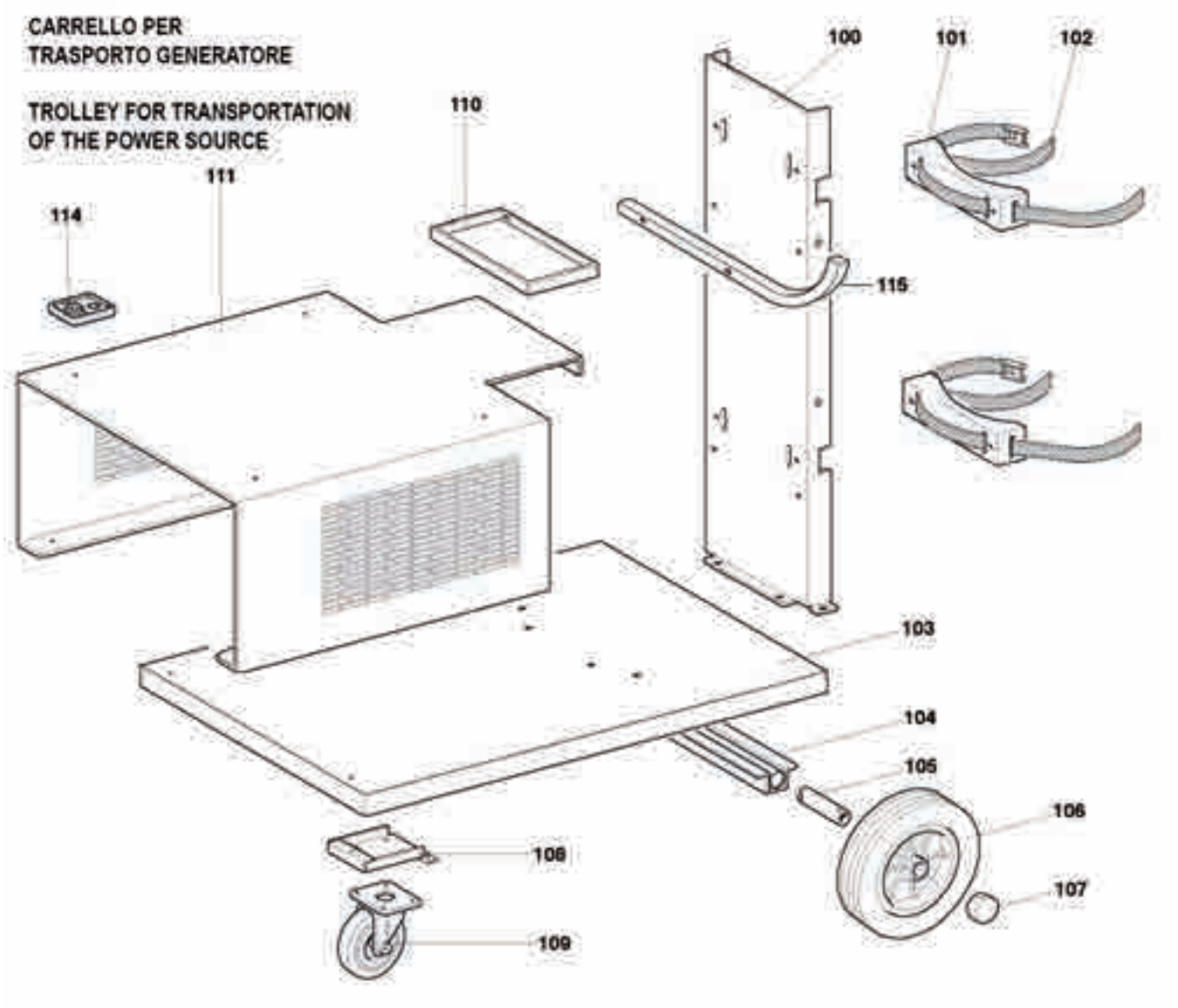
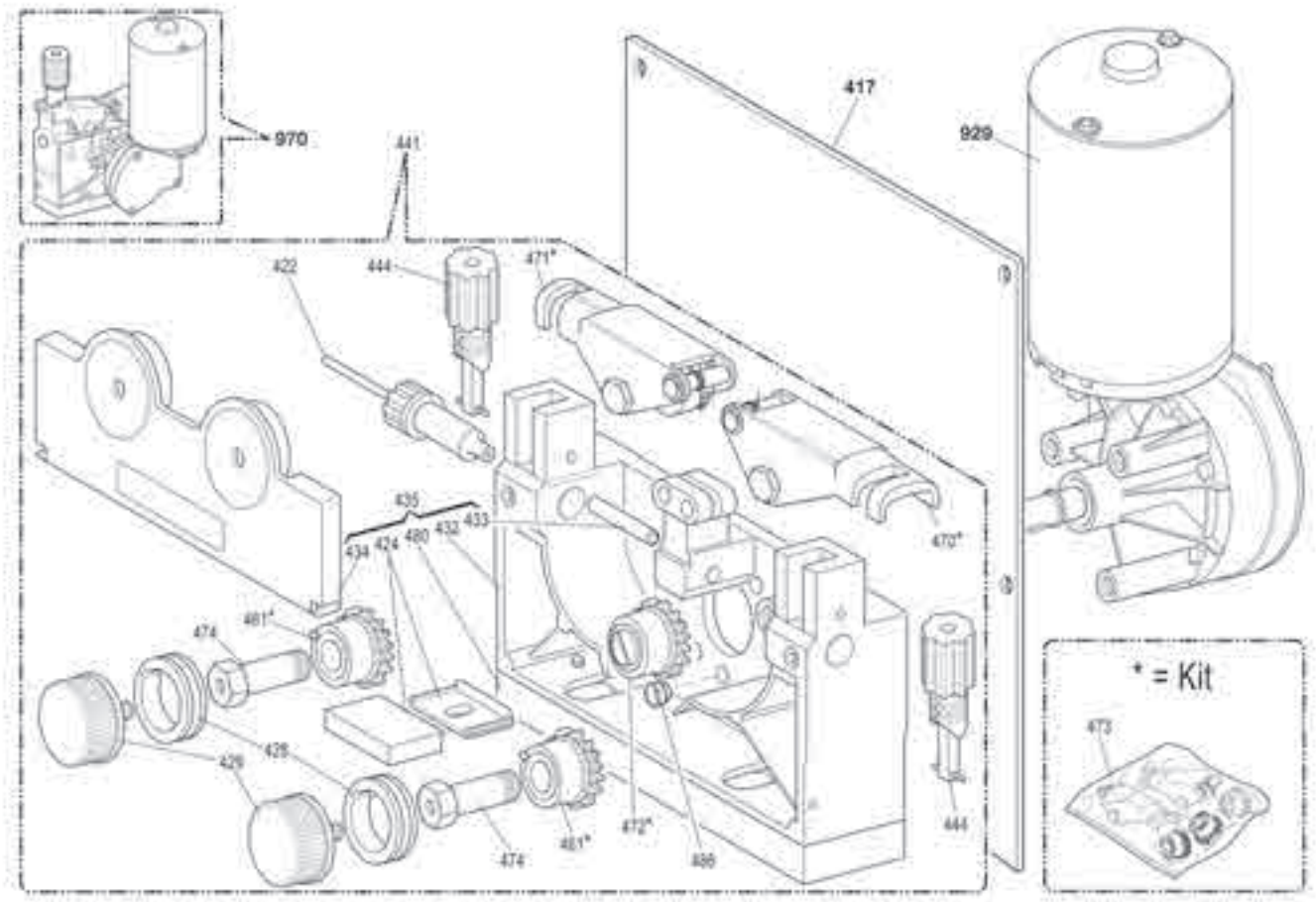


POS	DESCRIZIONE	DESCRIPTION
100	SUPPORTO BOMBOLA	GAS CYLINDER SUPPORT
101	APPOGGIO BOMBOLA	GAS CYLINDER SUPPORT
102	CINGHIA	BELT
103	FONDO CARRELLO	TROLLEY BOTTOM
104	SUPPORTO ASSALE	AXLE SUPPORT
105	ASSALE	AXLE
106	RUOTA FISSA	FIXED WHEEL
107	TAPPO	CAP
108	SUPPORTO RUOTE	WHEELS BRACKET
109	RUOTA PIROETTANTE	SWIVELING WHEEL
110	SUPPORTO MONTANTE	PILLAR BRACKET
111	SUPPORTO GENERATORE	POWER SOURCE SUPPORT
112	CARTER INTERNO	INSIDE CASE
113	PANNELLO CHIUSURA	LID
114	APPOGGIO	REST
115	SUPPORTO CAVI solo per Art. 319.00 e 319.55	CABLES SUPPORT for Art. 319.00 and 319.55 only



POS	DESCRIZIONE	DESCRIPTION
100	SUPPORTO BOMBOLA	GAS CYLINDER SUPPORT
101	APPOGGIO BOMBOLA	GAS CYLINDER SUPPORT
102	CINGHIA	BELT
103	FONDO CARRELLO	TROLLEY BOTTOM
104	SUPPORTO ASSALE	AXLE SUPPORT
105	ASSALE	AXLE
106	RUOTA FISSA	FIXED WHEEL
107	TAPPO	CAP
108	SUPPORTO RUOTE	WHEELS BRACKET
109	RUOTA PIROETTANTE	SWIVELING WHEEL
110	SUPPORTO MONTANTE	PILLAR BRACKET
111	SUPPORTO GENERATORE	POWER SOURCE SUPPORT
114	APPOGGIO	REST
115	SUPPORTO CAVI	CABLES SUPPORT

Art. 318.00 - 318.55 - 319.00 - 319.55



POS	DESCRIZIONE	DESCRIPTION
970	TRAINAFILO COMPLETO DI MOTORIDUTTORE	COMPLETE WIRE FEED WITH WIRE FEED MOTOR
929	MOTORIDUTTORE	WIRE FEED MOTOR
422	GUIDAFILO	WIRE DRIVE PIPE ASSY
424	ISOLANTE COMPLETO	INSULATION ASSY
428	RULLO TRAINAFILO	WIRE FEED ROLLER
429	POMELLO	KNOB
432	CORPO TRAINAFILO	WIRE FEED BODY
433	CANNETTA GUIDAFILO	WIRE INLET GUIDE
434	PROTEZIONE	PROTECTION
435	GRUPPO TRAINAFILO	WIRE FEED UNIT
441	TRAINAFILO COMPLETO	COMPLETE WIRE FEED

POS	DESCRIZIONE	DESCRIPTION
444	BLOCCAGGIO GRADUATO	ADJUSTMENT KNOB
461	INGRANAGGIO	GEAR
470	SUPPORTO PREMIRULLO DESTRO	RIGTH ROLLER PRESSER SUPPORT
471	SUPPORTO PREMIRULLO SINISTRO	LEFT ROLLER PRESSER SUPPORT
472	INGRANAGGIO CENTRALE	CENTRAL GEAR
473	KIT TRAINAFILO	WIRE FEED KIT
474	PERNO	PIN
480	DISTANZIALE	SPACER
417	ISOLAMENTO	INSULATION
486	DISTANZIALE	SPACER

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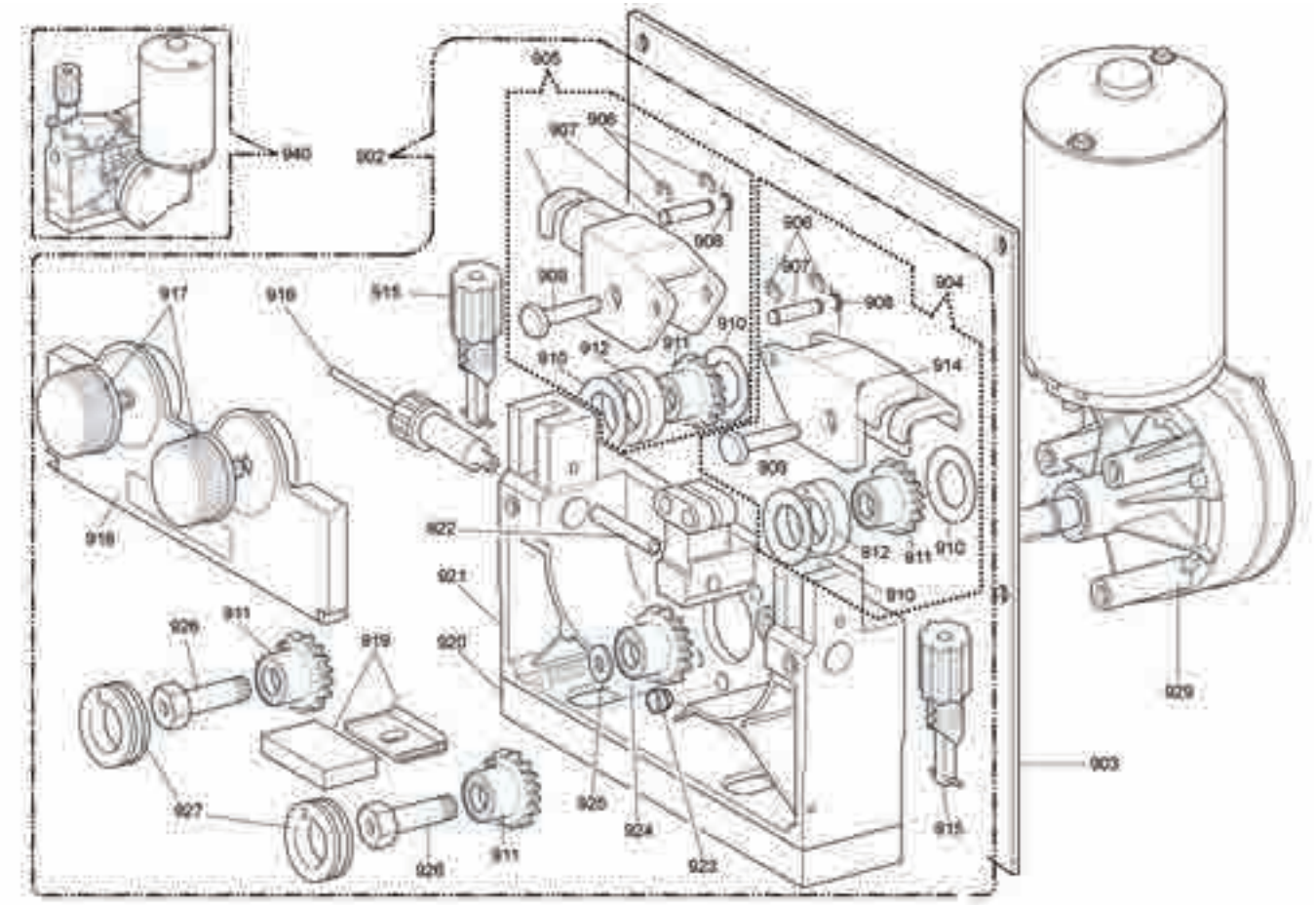

POS	DESCRIZIONE	DESCRIPTION
940	TRAINAFILO COMPLETO DI MOTORIDUTTORE	COMPLETE WIRE FEED WITH WIRE FEED MOTOR
929	MOTORIDUTTORE	WIRE FEED MOTOR
902	TRAINAFILO COMPLETO	COMPLETE WIRE FEED
903	ISOLAMENTO	INSULATION
904	PREMIRULLO DESTRO COMPLETO	COMPLETE RIGHT ROLLER PRESSER
905	PREMIRULLO SINISTRO COMPLETO	COMPLETE LEFT ROLLER PRESSER
906	ANELLO ELASTICO	SNAP RING
907	PERNO	PIN
908	MOLLA	SPRING
909	PERNO PREMIRULLO	DRIVE ROLL PIN
910	RASAMENTO	SHIM
911	INGRANAGGIO	GEAR
912	RULLO PREMIFILO	WIRE PRESSING ROLLER
913	SUPPORTO PREMIRULLO SINISTRO	LEFT ROLLER PRESSER SUPPORT

POS	DESCRIZIONE	DESCRIPTION
914	SUPPORTO PREMIRULLO DESTRO	RIGTH ROLLER PRESSER SUPPORT
915	BLOCCAGGIO GRADUATO	ADJUSTMENT KNOB
916	GUIDAFILO	WIRE DRIVE PIPE ASSY
917	POMELLO	KNOB
918	PROTEZIONE	PROTECTION
919	ISOLANTE COMPLETO	INSULATION ASSY
920	DISTANZIALE	SPACER
921	CORPO TRAINAFILO	WIRE FEED BODY
922	CANNETTA GUIDAFILO	WIRE INLET GUIDE
923	DISTANZIALE	SPACER
924	INGRANAGGIO	GEAR
925	BLOCCAGGIO	LOCKING DEVICE
926	PERNO	PIN
927	RULLO TRAINAFILO	WIRE FEED ROLLER

La richiesta di pezzi di ricambio deve indicare sempre: numero di articolo, matricola e data di acquisto della macchina, posizione e quantità del ricambio.

When ordering spare parts please always state the machine item and serial number and its purchase data, the spare part position and the quantity.

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