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Parti di ricambio e schema elettrico
Spare parts and electrical schematic
Ersatzteile und Schaltplan
Pièces détachées et schéma électrique
Partes de repuesto y esquema eléctrico
Partes sobressalentes e esquema eléctrico

Varaosat ja sähkökaavio
Reserve dele og elskema
Reserveonderdelen en elektrisch schema
Reservdelar och elschema
Ανταλλακτικά και ηλεκτρικό σχέ-
διάγραμμα


Pagg. Sid. σελ.: 72 ÷ 75



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 following procedures 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.

H.F FREQUENCY



· High frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment

- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.



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

This welding machine is a power source developed with inverter technology, suitable for MIG, TIG and MMA welding.

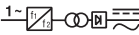
This welding machine must not be used to defrost pipes.


2.1 EXPLANATION OF TECHNICAL SPECIFICATIONS

This machine is manufactured according to the following international standards:

IEC 60974-1 / IEC 60974-10 (CL. A) / IEC 61000-3-11 / IEC 61000-3-12.

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

 Single-phase static transformer-rectifier frequency converter.

 MIG Suitable for MIG/MAG 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.

1~ 50/60Hz Single-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.

IP23S

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NOTE:

The equipment has also been designed for use in environments with a pollution rating of 3. (See IEC 60664).

This value usually corresponds to the capacity of the fuse (delayed type) to be used as a protection for the equipment.

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. Suitable for use in high-risk environments.

2.2 PROTECTION DEVICES

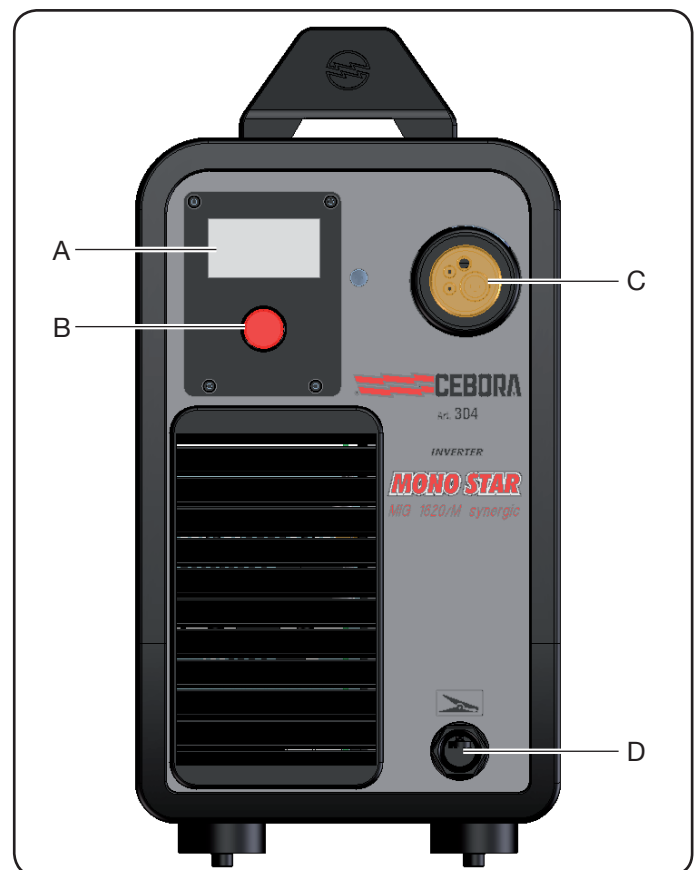
2.2.1 Bloch protection

In case of welding machine malfunction, the display screen **A** will show the message WARNING to identify the type of fault. If this message does not disappear when the machine is switched off and back on, contact the after-sales service.

2.2.2 Thermal cutout

This appliance is protected by a thermostat which prevents machine operation whenever acceptable temperatures are exceeded. In these conditions, the fan continues to operate and the display screen **A** shows the message WARNING tH in flashing mode.

3 CONTROLS LOCATED ON FRONT PANEL.



A – DISPLAY SCREEN.

This displays both the welding parameters and all the welding functions.

B - KNOB

Selects and adjusts both the welding functions and parameters.

C – CENTRALIZED COUPLING

To which the welding torch must be connected.

D – EARTH LEAD

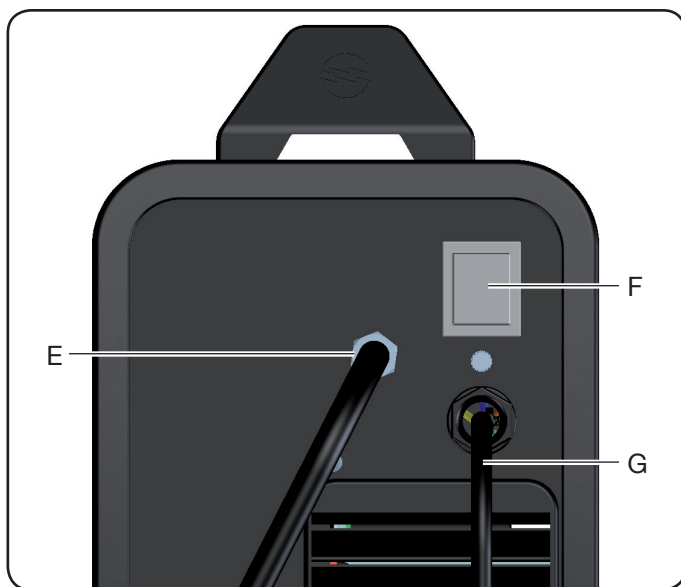
4 CONTROLS LOCATED ON REAR PANEL.

E – GAS PIPE CONNECTION.

F – SWITCH.

Starts and stops the machine

G – MAINS CABLE



5 INSTALLATION AND START-UP FOR MIG WELDING WITH GAS

Position the welding machine so as to allow the free circulation of air inside and, as much as possible, prevent metal or other dusts from penetrating.

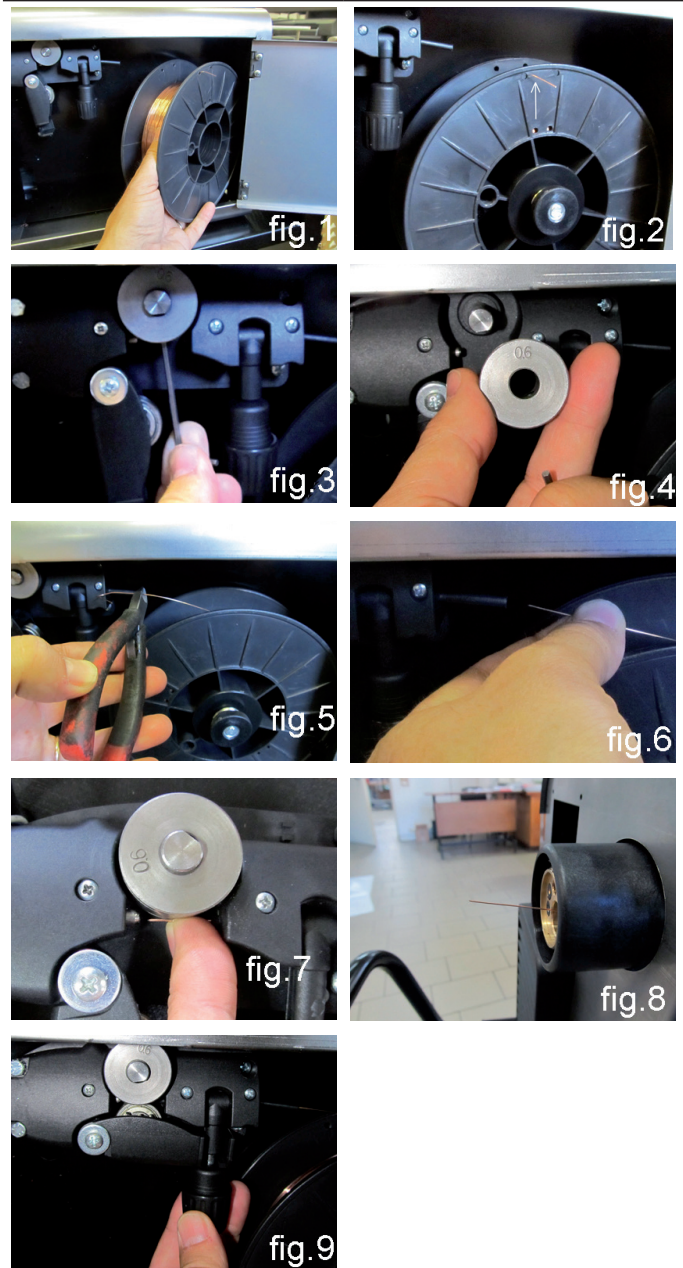
- The machine must be installed by professional personnel.
- All the connections must be performed in compliance with applicable standards (IEC/CEI EN 60974-9) and with accident-prevention laws.
- Make sure the power supply voltage corresponds to the welding machine rating.
- The protection fuses must be sized according to the details shown on the technical data plate.

Make sure the earth lead D, inside the reel compartment, is connected to the negative pole coming out of the dividing wall.

Alongside the 2 terminals, the polarity is printed in relief. The positive pole + is that at the top, nearest to the wire feed motor. The negative pole – is the one lower down, nearest to the earth lead exit.

Connect the earth lead clamp **D** to the piece to be welded. Open the side door. Fit the wire reel according to the instructions provided below.

REEL FITTING SEQUENCE



NOTE. During the fitting sequence, the welding machine must be switched off to prevent the moving motor roller representing a risk for the operator.

- Fit the reel on the support inside the compartment as shown in fig. 1.
- The reel must be fitted on the support so the wire unwinds in an anticlockwise direction. It is important for the wire to be stopped on the reel on the visible side, see fig. 2. Block the reel on the support, as shown in the illustration.
- Make sure the drive roller is correctly positioned according to the diameter and type of wire used. To remove the roller, align the flat part of the roller-bearing pin at the bottom, so the key can be fitted inside the retention screw. Loosen the screw, remove the roller, fit the roller back on so the race corresponds to the wire used, see figures 3 and 4.

- Cut the wire with a well-sharpened tool, keeping it between your fingers so that it cannot unwind, insert it inside the plastic pipe exiting from the gear motor and, with the aid of a finger, also insert it inside the steel tube until it comes out of the brass adapter, see figures 5-6-7-8.
- Close the drive arm, being careful of the wire, which must be aligned with the roller race, see fig. 9.
- Fit the welding torch.

After fitting the reel and torch, switch on the machine, select the suitable synergic curve, following the instructions given in the service functions (**PROCESS PARAMS**) paragraph. Remove the gas nozzle and unscrew the current nozzle of the torch. Press the torch button until the wire comes out. **BE CAREFUL to keep your face away from the end lance while the wire is coming out**, screw up the current nozzle and fit the gas nozzle.

Open the canister adapter and adjust the gas flow to 8 – 10 l/min.

During welding, the display screen **A** displays the actual work current and voltage. The displayed values may be slightly different to those set. This can depend on numerous different factors - type of torch, thickness different to nominal thickness, distance between current nozzle and the material being welded, and the welding speed. After welding, the current and voltage values remain stored on the display **A**. To display the set values, the handle **B** will have to be moved slightly, while, by pushing the torch button without welding, the display screen **A** shows the empty voltage value and a current value of 0.

6 INSTALLATION AND START UP FOR WELDING WITHOUT GAS.

The operations for preparing the machine for welding are the same as those previously described, but for this type of welding, proceed as follows:

Fit a reel of flux cored wire for welding without gas and select the adequate synergic curve (**E71TGS 0.9mm**), following the instructions described in the “service functions (**PROCESS PARAMS**)” paragraph.

Fit a suitable torch to the flux cored wire; because this wire has no gaseous protection it heats up the end lance much more.

Fit the wire roller suitable to the 0.9 mm diameter flux cored wire and the current nozzle on the welding torch.

Connect the terminal of the earth lead, inside the reel compartment, to the positive pole, while the lead coming out of the dividing wall must be connected to the negative pole.

Connect the earth lead clamp to the piece to be welded.

7 DESCRIPTION OF FUNCTIONS SHOWN ON THE DISPLAY SCREEN A.

Information

Machine	304
Version	001
Build	Sep 3 2012
Table	001

When the machine is switched on, for a few moments the display screen **A** displays: the article number of the machine, the version and development date of the software, and the

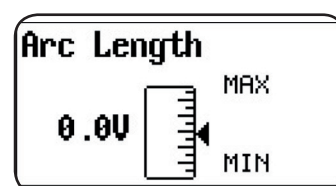
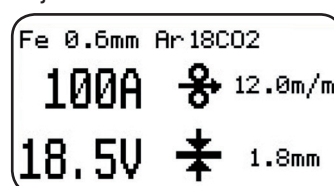
release number of the synergic curves.

Immediately after switch-on, the display screen **A** shows: The synergic curve used, the welding current, the speed of the welding wire in metres/min, the welding voltage and the recommended thickness in mm.

To increase or decrease the welding parameters, simply adjust by means of knob **B**. The values all change together in a **synergic** way.

To change the welding voltage **V**, simply press the knob **B** for less than 2 seconds. The display screen will show (**Arc Length**) an adjustment bar with central 0. The value can be changed by means of the knob **B** from -9.9 to 9.9. To exit from the function, briefly press the knob **B**.

By changing the value, once having exited the sub-menu, alongside the voltage **V**, an arrow will appear turned upwards to indicate a higher adjustment of the set value, while the arrow turned downwards will indicate a lower adjustment.



7.1 SERVICE FUNCTIONS (PROCESS PARAMS) SHOWN ON THE DISPLAY SCREEN A.

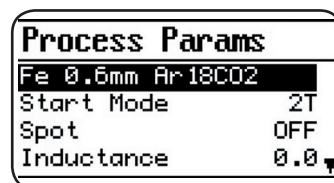
To access these functions, we must start from the main display page and press the knob **B** for at least 2 seconds. To enter the function, simply select it by means of the knob **B** and press it for less than 2 seconds. To return to the main display page, press the knob **B** for at least 2 seconds.

The functions which can be selected are:

- **Synergic curve (Wire Selection).**

To choose the synergic curve, by means of the knob **B**, it is necessary to select and press on the curve presented by the display screen **A**. Simply select the curve of interest and confirm the choice by pressing the knob **B** for less than 2 seconds.

After pressing the knob **B** return is made to the previous display page (**PROCESS PARAMS**). Inside the menu (**Wire Selection**) are a number of curves which cannot be used, shown by an asterisk. To release these, see the (**Options**) function.



- **Welding mode (Start Mode).**

Mode **2T**, the machine starts welding when the torch button is pressed and stops when this is released.

Mode **4T**, to start welding, press and release the torch button. To complete welding, press and release again.

To choose the welding start mode **2T** or **4T**, select one of the 2 modes by means of the knob **B** and press the knob **B** for less than 2 seconds to confirm the choice.

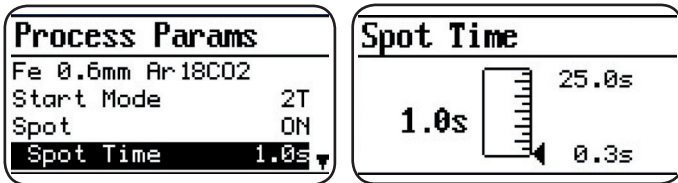
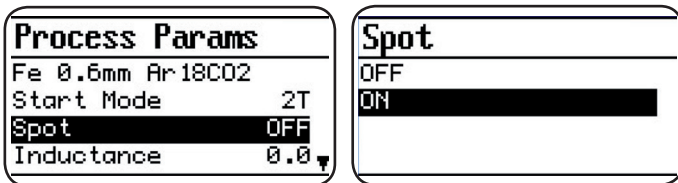
This operation always returns us to the previous display page (**PROCESS PARAMS**).



• **Spot and pause time (Spot).**

If we select the **spot ON** time, the **Spot Time** function appears on the display screen. If we select this, we can adjust it from 0.3 to 25 seconds by means of the adjustment bar. Besides this function, the display screen also shows **Pause Time**. If we select this, by means of the adjustment bar, we can regulate the pause time between one welding point or section and another. The pause time varies between 0 (OFF) and 5 seconds.

To access the **Spot Time** and **Pause Time** functions, press the knob **B** for less than 2 seconds. Adjustment is always made by means of the knob **B**. To confirm, simply press it for less than 2 seconds. Once the choice has been confirmed, return is always made to the display page (**PROCESS PARAMS**).



• **Inductance**

Adjustment can vary from -9.9 to +9.9. Factory setting is zero. If the figure is negative, the impedance drops and the arc becomes harder, while if it increases, the arc is softer.

To access this function, simply highlight it using the knob **B** and press it for less than 2 seconds. The display screen **A** shows the adjustment bar. The figure can be changed and confirmed by pressing the knob **B** for less than 2 seconds.



• **AUTO burnback**

The adjustment can vary from -9.9 to +9.9. Its purpose is to adjust the length of the wire coming out of the gas nozzle after welding. A positive figure corresponds to greater wire burning.

Default is Auto.

To access this function, simply highlight it using the knob **B** and press it for less than 2 seconds. The display screen **A** shows the adjustment bar. The figure can be changed and confirmed by pressing the knob **B** for less than 2 seconds.



• **Soft Start AUTO**

Adjustment can vary from 0 to 100%. This is the wire speed expressed in percentage of the speed set for welding, before the wire touches the piece to be welded.

This adjustment is important to always obtain good starts.

Default is Auto.

To access this function, simply highlight it using the knob **B** and press it for less than 2 seconds. The display screen **A** shows the adjustment bar. The figure can be changed and confirmed by pressing the knob **B** for less than 2 seconds.



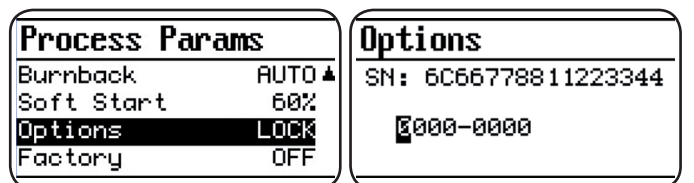
• **Options LOCK**

To access this function, simply highlight it using the knob **B** and press it for less than 2 seconds. The display screen **A** will show a serial number **SN** and **8 zeros**.

The purpose of this function is to unlock the blocked synergic curves.

To unlock the curves, instead of the zeros, an alphanumeric code must be entered. This must be requested from your dealer, after indicating the serial number **SN**.

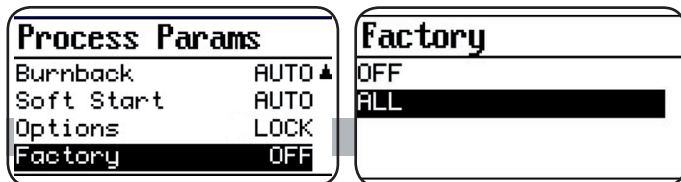
Once the code has been obtained, simply enter it in place of the zeros, Each letter or figure entered must be confirmed by briefly pressing the knob **B**. After entering the code, by pressing the knob **B** for more than 2 seconds, all the curves are unlocked and the display screen **A** shows **UNLOCK** alongside the Options function.



- **Factory OFF**

The purpose is to return the welding machine to the original default settings.

To access the function, simply highlight it using the knob **B**. By pressing this for less than 2 seconds, the display screen **A** shows the words **OFF** and **ALL**. By highlighting the word **ALL** and briefly pressing the knob **B** reset is made and the display screen **A** shows **Factory Done!!** This indicates the reset has been successful. To return to the previous display page, simply press the knob **B** for more than 2 seconds.



NOTE. For all the functions adjusted by means of the adjustment bar, the initial default value can be reset.

This operation be performed by pressing the knob **B** for more than 2 seconds only once the adjustment bar appears on the display screen **A**.

(Arc Length - Spot Time - Pause Time - Inductance, Burnback – Soft Start).

8 MAINTENANCE

All maintenance jobs must be performed by professional personnel according to the CEI 26-29 (IEC 60974-4) standard.

8.1 GENERATOR MAINTENANCE

In case of maintenance inside the appliance, make sure the switch **F** is in “O” position and that the power supply cable is disconnected from the mains.

Periodically, also clean the inside of the appliance and remove any metal dust using compressed air.

8.2 HOW TO PROCEED AFTER MAKING REPAIRS.

After making repairs, always ensure the wires are fully insulated between the primary side and the secondary side of the machine. Avoid the wires coming into contact with moving parts or parts that heat up during operation. Fit all the clamps back as on the original machine so as to avoid any contact between the primary and secondary in case of accidental lead breakage or disconnection.

Also fit the screws back on with the toothed washers as on the original machine.

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.

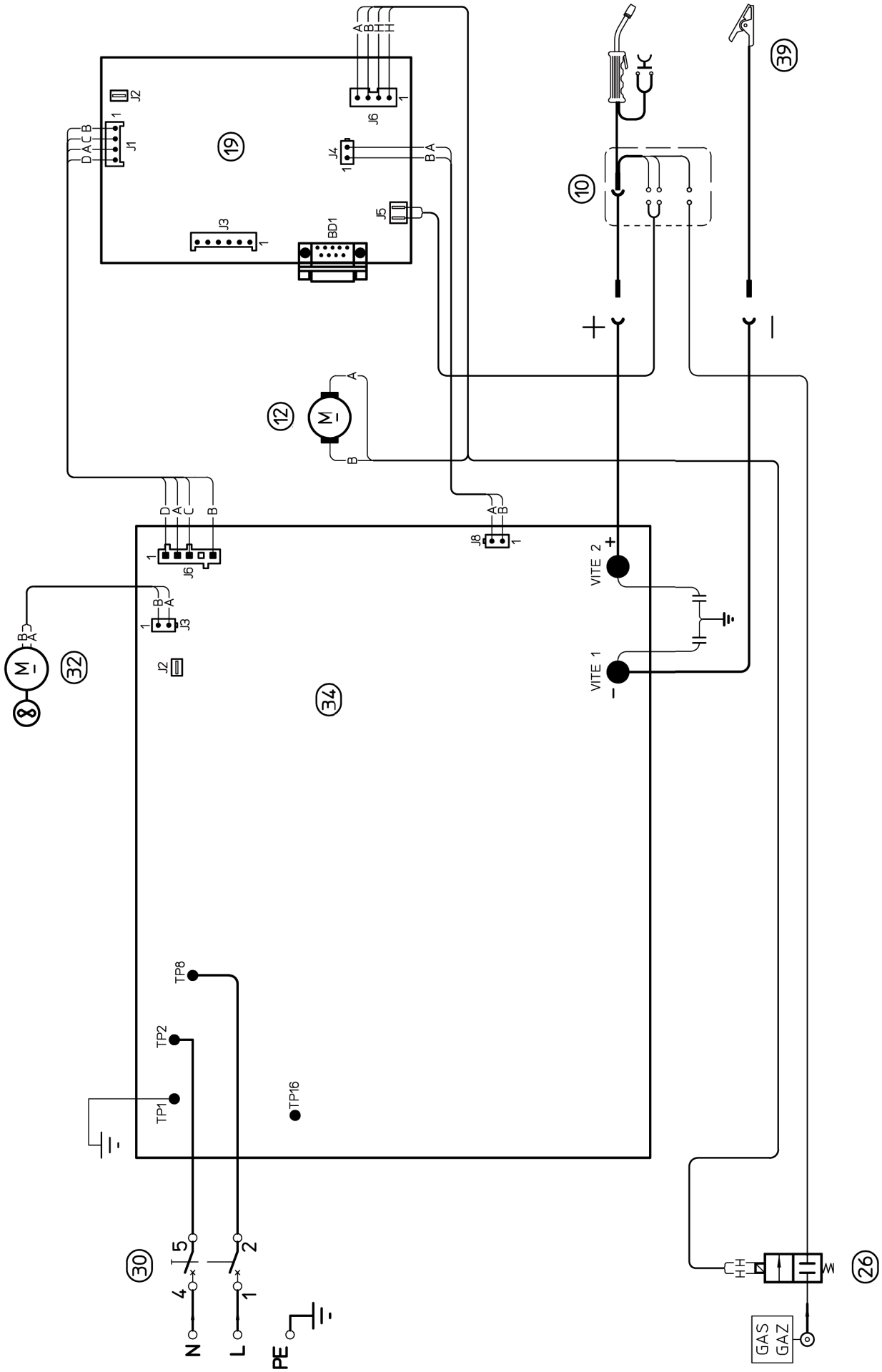
DIT DEEL IS UITSLUITEND BESTEMD VOOR BEVOEGD PERSONEEL.

DENNA DEL ÄR ENDAST AVSEDD FÖR KVALIFICERAD PERSONAL.

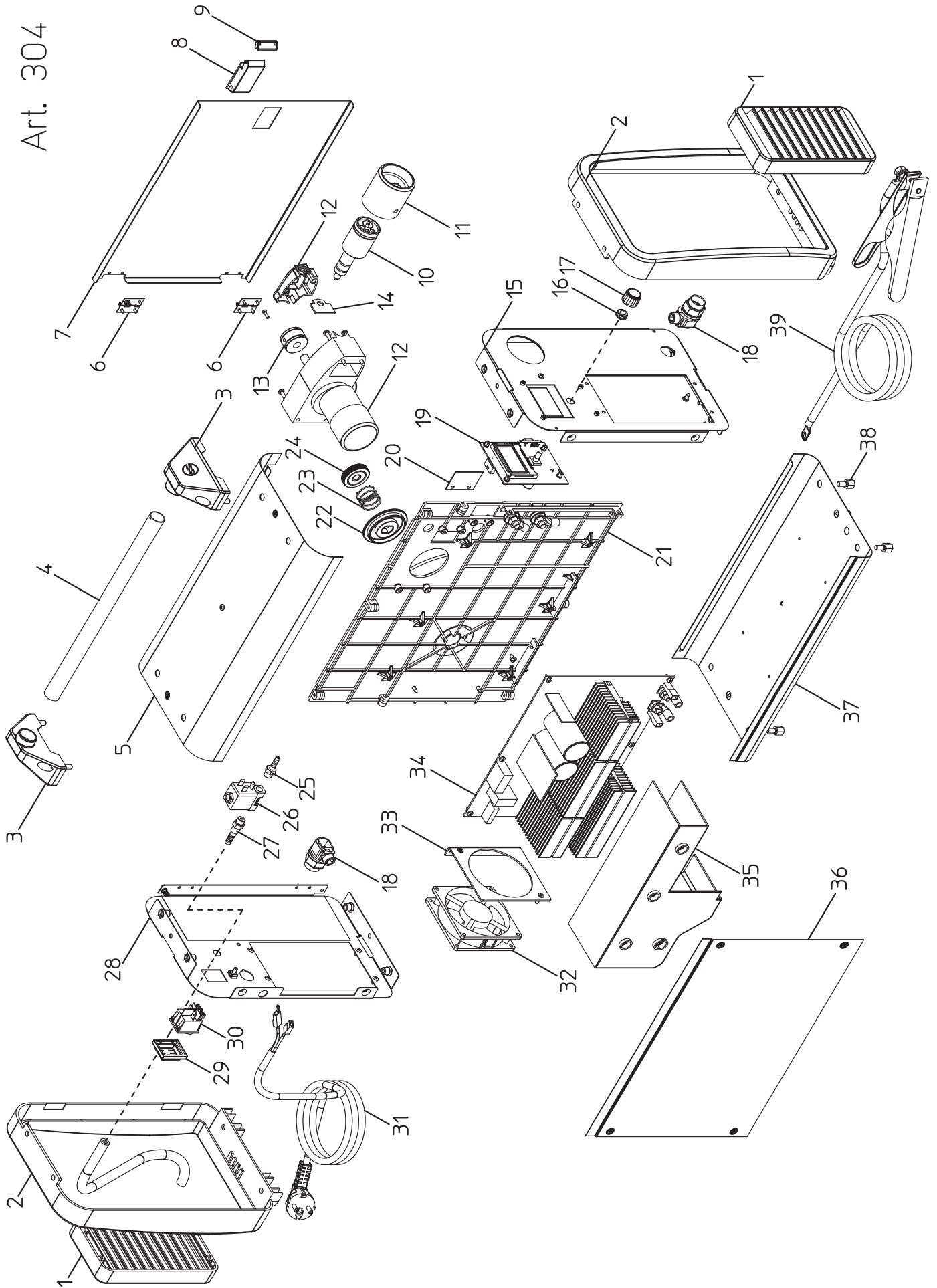
ΑΥΤΟ ΤΟ ΤΜΗΜΑ ΠΡΟΟΡΙΖΕΤΑΙ ΑΠΟΚΛΕΙΣΤΙΚΑ ΓΙΑ ΤΟ ΕΙΔΙΚΕΥΜΕΝΟ ΠΡΟΣΩΠΙΚΟ.

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



Art. 304



POS	DESCRIZIONE	DESCRIPTION
01	PANNELLO ALETTATO	FINNED PANEL
02	CORNICE	FRAME
03	SUPPORTO MANICO	HANDLE SUPPORT
04	MANICO	HANDLE
05	COPERCHIO	COVER
06	CERNIERA	HINGE
07	LATERALE MOBILE	HINGED SIDE PANEL
08	BLOCCAGGIO LATERALE	SIDE LOCKING
09	APPOGGIO	REST
10	CORPO ADATTATORE	ADAPTOR BODY
11	GHIERA ADATTATORE	ADAPTOR RING NUT
12	MOTORIDUTTORE	WIRE FEED MOTOR
13	RULLO TRAINAFILO	WIRE FEED ROLLER
14	RINFORZO	REINFORCEMENT
15	PANNELLO ANTERIORE	FRONT PANEL
16	PROTEZIONE IN GOMMA	RUBBER PROTECTION
17	MANOPOLA	KNOB
18	PRESSACAPO	STRAIN RELIEF
19	CIRCUITO PANNELLO	PANEL CIRCUIT
20	PANNELLO CHIUSURA	CLOSING PANEL

POS	DESCRIZIONE	DESCRIPTION
21	PIANO INTERMEDIO	INSIDE BAFFLE
22	DISTANZIALE SUPPORTO BOBINA	SPACER COIL SUPPORT
23	MOLLA	SPRING
24	ANELLO	RING
25	RACCORDO	FITTING
26	ELETTROVALVOLA	SOLENOID VALVE
27	RACCORDO	FITTING
28	PANNELLO POSTERIORE	BACK PANEL
29	COPERTURA	COVER
30	INTERRUTTORE	SWITCH
31	CAVO RETE	POWER CORD
32	MOTORE CON VENTOLA	MOTOR WITH FAN
33	SUPPORTO	SUPPORT
34	CIRCUITO DI POTENZA	POWER CIRCUIT
35	COPERTURA	COVER
36	LATERALE FISSO	FIXED SIDE PANEL
37	FONDO	BOTTOM
38	DISTANZIALE	SPACER
39	CAVO MASSA	EARTH CABLE

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.



CEBORA S.p.A - Via Andrea Costa, 24 - 40057 Cadriano di Granarolo - BOLOGNA - Italy
Tel. +39.051.765.000 - Fax. +39.051.765.222
www.cebora.it - e-mail: cebora@cebora.it