

# 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 SHOCK** - May be fatal.



- Install and earth the welding machine according to the applicable regulations.
- Do not touch live electrical parts or electrodes with bare skin, gloves or wet clothing.
- Isolate yourselves from both the earth and the workpiece.
- Make sure your working position is safe.

**FUMES AND GASES** - May be hazardous to your health.



- Keep your head away from fumes.
- Work in the presence of adequate ventilation, and use ventilators around the arc to prevent gases from forming in the work area.

**ARC RAYS** - May injure the eyes and burn the skin.



- Protect your eyes with welding masks fitted with filtered lenses, and protect your body with appropriate safety garments.
- Protect others by installing adequate shields or curtains.

**RISK OF FIRE AND BURNS**



- Sparks (sprays) may cause fires and burn the skin; you should therefore make sure there are no flammable materials in the area, and wear appropriate protective garments.

**NOISE**



This machine does not directly produce noise exceeding 80dB. The plasma cutting/welding procedure may produce noise levels beyond said limit; users must therefore implement all precautions required by law.

**PACEMAKERS**

• The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.

**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 harmonized standard EN50199, and must be used solely for professional purposes in an industrial environment. There may be potential dif-

ficulties in ensuring electromagnetic compatibility in non-industrial environments.

IN CASE OF MALFUNCTIONS, REQUEST ASSISTANCE FROM QUALIFIED PERSONNEL.

## 2 GENERAL DESCRIPTIONS

The Sound MIG 5040/T Pulse machine is a multi-process system suitable for pulsed synergic MIG/MAG welding, non-pulsed synergic MIG/MAG, conventional MIG/MAG, TIG (DC) with scratch starting of the arc and MMA, developed using inverter technology.

The welding machine is supplied complete with WF4/P four roll wire feeder, and cooling unit GR52.

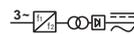
The equipment may be used only for the purposes described in the manual.

The equipment must not be used to defrost pipes.

### 2.1 POWER SOURCE

#### 2.1.1 EXPLANATION OF TECHNICAL SPECIFICATIONS

IEC 60974.1 The welding machine is manufactured according to these international standards EN 50199 N°. Serial number. Must be indicated on any type of request regarding the welding machine. Three-phase static frequency converter transformer-rectifier.



 MIG Suitable for MIG welding.

 MMA Suitable for welding with covered electro-des.

 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 run at a certain current without overheating.

may

I2. Welding current

U2. Secondary voltage with current I2

U1. Rated supply voltage

3~ 50/60Hz 50- or 60-Hz three-phase power supply

I<sub>1</sub> Max Max. absorbed current at the corresponding current I<sub>2</sub> and voltage U<sub>2</sub>.

I<sub>1</sub> 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.

IP23 C. Protection rating for the housing.

Grade 3 as the second digit means that this equipment is suitable for use outdoors in the rain. The additional letter C means that the equipment is protected against access to live parts of the power circuit by a tool (diameter 2.5 mm).

 Suitable for use in high-risk environments.

NOTE: The welding machine has also been designed for use in environments with a pollution rating of 3. (See IEC 664).

#### 2.1.2 Description of the power source (Fig. 1)

**BO - Socket:**

In MIG welding, connect the earth cable connector. For TIG

welding, connect the patch connector of the power source/wire feeder connection power cable

**BP - Connector:**

Connector type DB9 (RS 232) to be used to update the microprocessor programs.

**BR - Socket:**

In MIG welding, connect the patch connector of the power source/wire feeder connection power cable (pole +)

**BS - Connector**

In MIG welding, connect the patch connector of the power source/wire feeder connection power cable. For TIG welding, the earth cable connector must be connected.

**BU - Switch ON/OFF.**

**BV - Power cord.**

**2.2 WIRE FEEDER**

**2.2.1 Description of the wire feeder (Fig. 1)**

**BA - Central adapter:**

Connect the MIG or TIG welding torch

**BB - Connector:**

for connecting the remote controls.

A clean contact is available between pins 4 and 5 that closes when the arc is lit (Arc On).

Between pins 1 and 9 it is possible to command the welding start and stop.

**BC - Support :**

Support for the welding torch

**BD - Connector:**

Connect the connector of the power source/wire feeder connection service cable

**BE - Gas hose fitting:**

Connect the gas hose of the power source/wire feeder connection

**BF - Socket:**

Connect the patch connector of the power source/wire feeder connection power cable

**BG - Opening :**

Slot for cooling hoses

**BH - Quick-fitting sockets :**

Connect the red and blue tubes of the wire feeder/ power source connection. NOTE: Match the hose and socket colours correctly

**BI - Quick-fitting sockets:**

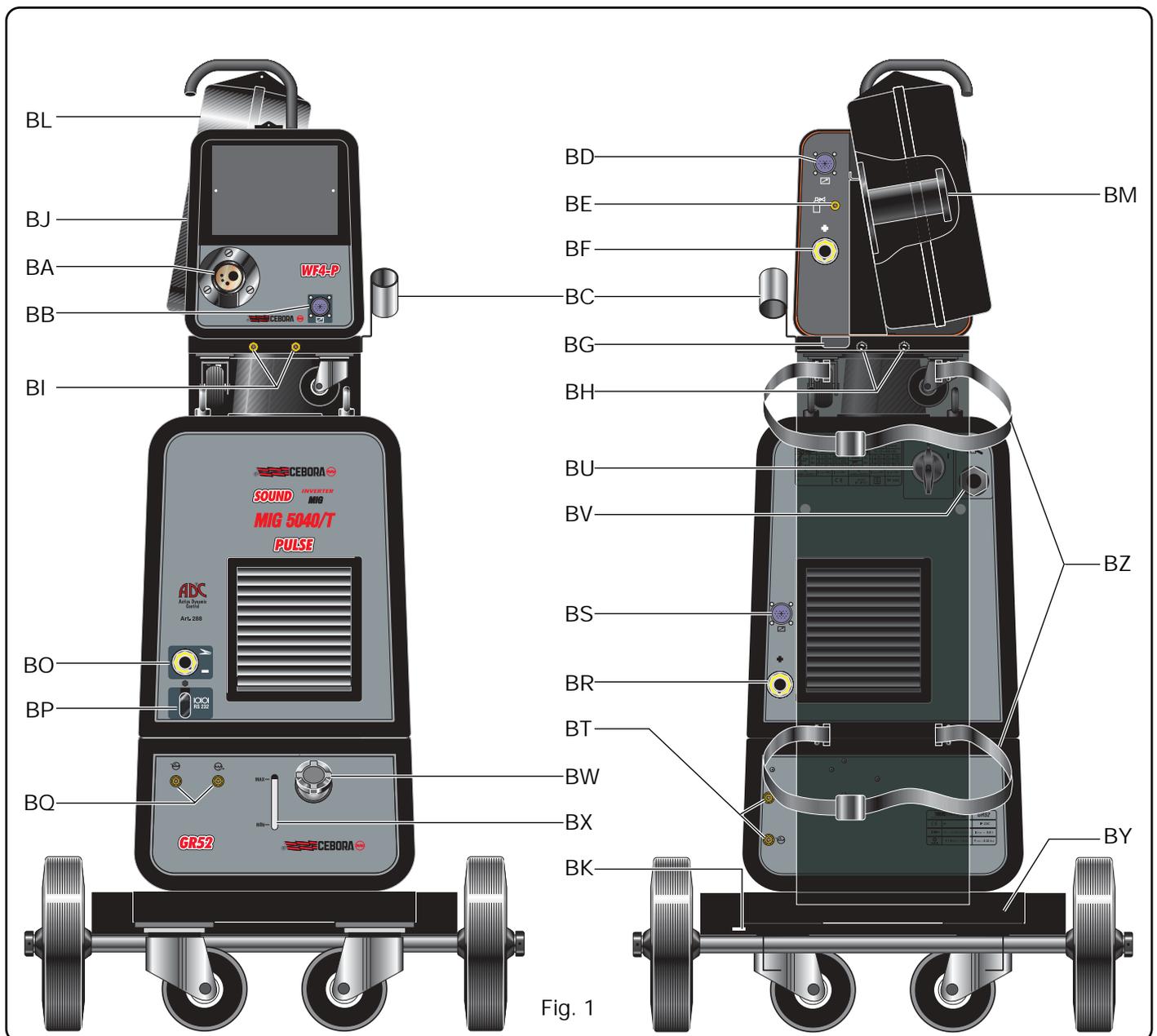


Fig. 1

Connect any hoses leaving a water-cooled torch.  
NOTE: Match the hose and socket colours correctly

**BJ - Door.**

**BL - Wire coil cover.**

**BM - Coil support:**

Suitable for standard coils up to  $\text{Æ}$  300 mm, 16 Kg.

**BN - Adjustment knob:**

Use this knob to adjust the pressure of the wire feeder rollers on the welding electrode. NOTE: set to minimum values when welding aluminum.

### 2.3 COOLING UNIT

This cooling unit has been designed to cool the torches used for TIG and MIG/MAG welding.

Must be used exclusively with this power source.

#### 2.3.1 Explanation of technical specifications

U1	Rated supply voltage
1x400V	Single-phase power supply
50/60 Hz	Frequency
I1max	Maximum absorbed current
Pmax	Maximum pressure
P (l/min)	Refrigerant power measured at 1L/min

#### 2.3.2 DESCRIPTION OF PROTECTIONS

##### 2.3.2.1 Coolant pressure protection

This protection is achieved by means of a pressure switch, inserted in the fluid delivery circuit, which controls a microswitch.

##### 2.3.2.2 Fuse (T 1.6A/400V- $\text{Æ}$ 6.3x32)

This fuse was inserted to protect the pump, and is located on the control circuit inside the unit.

#### 2.3.3 DESCRIPTION OF THE COOLING UNIT (Fig. 1)

**BX - Slot:**

Slot to inspect the coolant fluid level

**BQ - Quick-fitting sockets:**

Use only for TIG welding systems.

NOTE: they must not be linked together.

**BW - Cap.**

**BT - Quick-fitting valves:**

Connect the red and blue lines of the wire feeder/machine connection.

NOTE: Match the hose and socket colours correctly.

#### 2.3.4 INSTALLATION

Unscrew the cap **BW** and fill the tank (the equipment is supplied with approximately one liter of fluid).

It is important to periodically check, through the slot **BX**, that the fluid remains at the "max" level.

As a coolant, use water (preferably deionized) mixed with alcohol in percentages defined according to the following table:

temperature	water/alcohol
0°C up to -5°C	4L/1L
-5°C up to -10°C	3.8L/1.2L

NOTE If the pump turns with no coolant present, you must remove all air from the tubes.

If so, turn off the power source, fill the tank, disconnect the fitting of the power source/wire feeder connection from the fitting **BT** (🔌) and connect a hose. Insert the other end of the hose in the tank. Start the power source for approximately 10/15 seconds, then connect the hoses of the power source/wire feeder connection.

### 2.4 TROLLEY (Fig. 1)

**BY - Cylinder support.**

**BZ - Cylinder holding straps.**

**BK - Hole:**

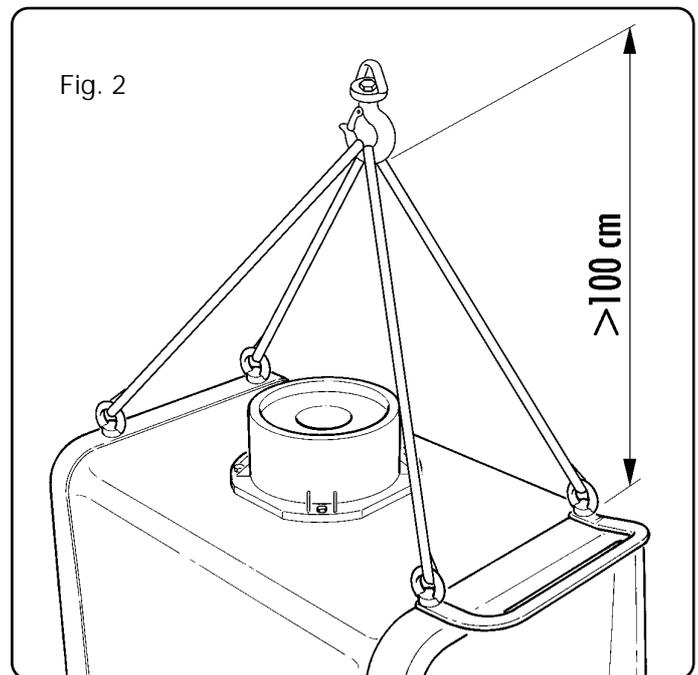
Fasten the plate connected to the wire feeder/ power source connection.

## 3 INSTALLATION

The welding machine must be installed by skilled personnel. All connections must be made in full compliance with current safety laws.

### 3.1 PLACEMENT

The weight of the welding machine is 108 Kg, thus for lifting see Fig. 2



Position the equipment in an area that ensures good stability, efficient ventilation so as to prevent metal dust (i.e., from grinding) from entering.

### 3.2 SETUP

Position the wire feeder WF4-P on the power source.

Connect the wire feeder to the power source via the connection art. 1197 or 1197-20, using the plate provided to fasten it to the point **BK** on the trolley shelf.

NOTE: avoid coiling the connection to reduce to a minimum the inductive effects that could affect the results in pulsed MIG/MAG welding.

Assemble the DIGIBOX panel.

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.

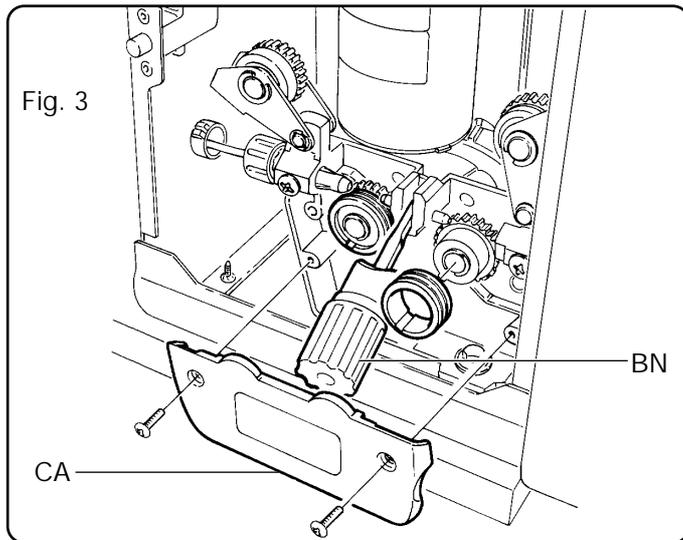
Size the protective fuses based on the data listed on the technical specifications plate.

Position the cylinder on the support **BY**, fasten it with the straps **BZ** and connect the gas hose to the pressure regulator output.

Assemble the torch.

Make sure that the groove of the rollers matches the wire diameter used.

To replace:



Open the door **BJ**, remove the cover **CA**, release the wire press rollers using the pressure setting knob **BN**, replace the rollers and remount the cover **CA**.

Mount the wire coil and slip the wire into the feeder and torch sheath.

Block the wire press rollers with the knob **BN** and adjust the pressure.

Turn on the machine.

Adjust the gas using the key **AQ**, then move the wire forward using the key **AR**.

The machine is supplied with the cooling unit set to OFF. If a water-cooled torch is used, set the operation of the cooling unit as described in paragraph 3.5.1 of the control panel manual.

## 4 WELDING

### 4.1 SYNERGIC PULSED MIG (LED R1) OR SYNERGIC NON-PULSED MIG WELDING (LED R2)

Select this process via the button **AI**.

Then choose the mode, wire diameter, type and quality of the material and the type of gas.

Adjust the accessory functions according to the instructions in paragraph 3.2 of the control panel manual.

Adjust the welding parameters using the knobs **N** and **Q**.

### 4.2 CONVENTIONAL MIG WELDING (LED R3)

Select this process via the button **AI**.

Then choose the mode, wire diameter, type and quality of the material and the type of gas.

Adjust the accessory functions following the instructions in paragraph 3.2 of the control panel manual.

Adjust the wire speed and the welding voltage, respectively, using the knobs **N** and **Q**.

### 4.3 TIG WELDING (LED R4) ONLY FOR PANEL P1

Connect the earth cable to the positive pole **BR** and the connector of the trolley/power source connection power cable to the negative pole **BO**.

Connect the TIG torch to the connector **BA**.

Select this process via the button **AI**.

Then choose the mode via the button **AJ**.

Adjust the accessory functions following the instructions in paragraph 3.2 of the control panel manual.

## 4.4 MMA WELDING (LED R5) ONLY FOR PANEL P1

NOTE: the wire feeder must remain connected to the power source.

Connect the connectors of the electrode holder and earth cable to the connectors **BO** and **BR**, observing the polarity stated by the electrode manufacturer.

## 5 ACCESSORIES

### 5.1 CONTROL BOX TO REGULATE CURRENT ART. 187 (POTENTIOMETER) + EXTENSION CORD (M5) ART. 1192 + ADAPTER CABLE ART. 1191

Possible settings in the various welding processes:

**MMA** Adjusts the current from the minimum (10A) to the current set with the knob **N** on the panel.

**TIG** The control box carries out the same function as MMA.

### 5.2 FOOT CONTROL ART. 193 + ADAPTER CORD ART. 1191

Use with TIG welding process.

The current is adjusted using this accessory, while the start command is given by means of the torch trigger.

It is possible to adjust the current from the minimum up to the maximum of the value set with the knob **N** on the panel.

### 5.3 TIG TORCH ART 1265

TIG torch type SR 26 uncooled 4m

### 5.4 MIG TORCH ART 1243

MIG Torch type CEBORA PW 500 water-cooled 3.5 m

### 5.5 MIG TORCH ART. 1245 (with dual U/D command)

MIG Torch type CEBORA PW 500 U/D water-cooled 3.5 m

The left U/D command:

- in synergic programs, adjusts the welding parameters along the synergic curve.

- in conventional MIG, adjusts the wire speed.

- within saved programs, selects them numerically.

If you intend to save with the U/D torch inserted (LED **AT** lit), you may choose the program number via the U/D button.

The right U/D command:

- in synergic programs, adjusts the arc length.

- in conventional MIG, adjusts the voltage

- not active within saved programs

When the U/D torch connector is inserted, the LED **AS** lights to indicate that the torch has been recognized.

## 6 MAINTENANCE

Periodically make sure that the welding machine and all connections are in good condition to ensure operator safety.

After making a repair, be careful to arrange the wiring in such a way that there the parts connected to the power supply are safely insulated from the parts connected to the welding circuit.

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 machine to prevent, if a conductor accidentally breaks or becomes disconnected, a connection from occurring between power supply and the welding circuits.