

Power MIG 1800 Synergic



GeKaMac®



Power MIG 1800 Synergic

Users Manual

Please Read and Understand This Manual
Before Operating The Welding Machine

www.gedikwelding.com

This machine is for internal use only.

It complies with the WEEE Directive.

This machine has been designed in accordance with the EN 60974-1 and EN 60974-10 standards.

The machine is safe when installation, operation, and maintenance are performed in accordance with the user manual and regulations. The operator and machine owner are responsible for adhering to safety rules.

Gedik Kaynak San. Ve Tic. A.Ş. assumes no responsibility for safety or CE compliance if any modifications are made to the machine or if safety rules are not followed.



This Class A equipment is not suitable for use in homes and similar residential areas where the power supply is provided by the low-voltage public electricity network.



This machine is not household waste and cannot be disposed of in the trash.

When the machine reaches the end of its service life or becomes obsolete, it must be disposed of in accordance with regulations.

COMPLIES WITH THE WEEE DIRECTIVE.

Eco Design Statement

This machine has been designed and manufactured in accordance with the requirements of the 2009/125/EC Eco Design Directive concerning the environmentally friendly design of energy-related products.

Accordingly, machines with an idle mode are as follows.

	Idle Mode
MMA	X
MIG	√
TIG	√
Plazma	√
SAW	Out of Scope

Efficiency measurements should be conducted only on the power unit. The water cooling system should be disabled. For more information on measurements and machine settings, Gedik Kaynak Sanayi ve Ticaret A.Ş. should be consulted.

**AT UYGUNLUK BEYANI****EU DECLARATION OF CONFORMITY**

Bu uygunluk beyanı yalnızca imalatçının sorumluluğu altında düzenlenir.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

İstanbul, Turkey, 08.03.2024

İmalatçı / Manufacturer

GEDİK KAYNAK SANAYİ ve TİCARET A.Ş.

Ankara Cad. No.306 Seyhli Pendik İSTANBUL TÜRKİYE

Ürün / Product

ARC WELDING MACHINE

Marka-Model / Brand- Model

POWER MIG 1800

Yukarıda tanımlanan beyanın nesnesi ilgili uyumlaştırılmış AB mevzuatı ile uyumludur.

The object of the declaration described above, is in conformity with the relevant union harmonisation legislation.

Direktifler / Directives

2014/30/EU & 2014/35/EU & 2009/125/EC
EU/2019/1784

Uyumlaştırılmış standartlar ve uygunluğun deklare edilmesiyle ilişkili diğer referanslar.

References to the relevant harmonised standards used and references to the other technical specifications in relation to which conformity is declared.

EN IEC 60974-1
EN IEC 60974-10

Bu ekipman, talimatlara uygun kurulduğunda, bakımı yapıldığında ve kullanıldığında belirtilen standartlara uygundur. Makine üzerinde bir değişiklik yapıldığında veya yanlış kullanımda deklarasyon geçersiz olur.

The equipment is in compliance with pertinent legislation when installed, utilized, and maintained in accordance with the enclosed instructions. This declaration will be invalid under any modification or improper use.

İmalatçı Adına İmzalayan / Signed for and on behalf of:

Hatice Özel, Equipment Business Unit Director



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Introduction

Thank you for buying our product.

In order to get the best performance out of the equipment and ensure the maximum lifespan of its parts, the use and maintenance instructions contained in this manual must be read and strictly complied with, as well as **the safety instructions contained in the relevant folder**. If repairs to the equipment are required, we recommend that our clients contact our service centre workshops, as they have the necessary equipment and personnel that are specifically trained and constantly updated. All our machines and equipment are constantly developed and so changes may be made in terms of their construction and features.

Description

MULTI-FUNCTION INVERTER GENERATOR SUITABLE FOR SINGLE-PHASE POWER SUPPLIES FOR MIG-MAG, MMA, and TIG WELDING (with "Lift" type ignition)

POWER MIG 1800 synergic makes it possible to do high quality MIG-MAG welding on all materials, also guaranteeing excellent performance for TIG welding with "Lift" type ignition as well as (MMA) electrode welding.

Innovative, versatile, light-weight, easily portable, simple to use, **POWER MIG 1800 synergic** is a very high level product that is absolutely irreplaceable technologically for all internal and external maintenance works, vehicle bodyworks, agricultural and small light metalwork jobs.

The principal characteristics of welding units are:

- Multi-function generator with excellent welding characteristics for MIG-MAG, MMA, and TIG welding with "Lift" type ignition.
- Standard polarity inversion for welding with the most common core wires and without gas.
- Central Euro connection on torch.
- Innovative practical design.
- Supporting structure in metal with front panel in special shockproof material.
- Robust handle integrated into the chassis.
- Reduced weight and size, easy-to-carry.
- Professional 2-roller wire feeder that guarantees precise feeding of the wire.
- The double slot rollers can be replaced without using any tools.
- A graduated knob for precise adjustment of the wire pressure that stays unvaried when the arms open and close.
- Housing for coils of wire with max Ø 200 mm – 5 kg.
- Possibility of fitting coils of wire up to max Ø 300 mm - 15 kg thanks to the exclusive "retrofit kit adaptor" optional extra.
- Synergic digital control of all welding parameters, shown on the display, also featuring the following functions:
 - Allows less expert operators to regulate all welding parameters, choosing the type of program on the basis of the material, wire diameter, and gas used.
 - Innovative software for controlling all welding parameters.
 - Digital Voltmeter / Ammeter with HOLD function (saving of latest data on both displays).
 - "Energy Saving" function to operate the power source cooling fan only when necessary.
 - Auto-diagnostic feature for trouble shooting.
- MIG-MAG welding:
 - BURN BACK control. At the end of each weld, in any condition and with any material, the digital control ensures a perfect wire cut, prevents the typical "wire globule" from forming and ensures correct arc restriking.
 - WSC Wire start control. This arc striking control device prevents wire from sticking to the workpiece or torch nozzle and ensures precise and smooth arc striking, particularly when welding aluminium.
 - Welding parameters that are controlled digitally by a microprocessor, are monitored and modified in just a few seconds, maintaining a consistently precise and stable arc as the welding conditions continue to vary due to the movement of the torch and the irregularities of the parts to be welded.

- MMA welding:
 - "Arc Force" adjustable to select the best dynamic characteristics for the welding arc.
 - "Hot Start" adjustable to improve ignition with particularly difficult electrodes.
 - Anti-sticking function to avoid the electrodes sticking.
 - Vrd (Voltage Reduction Device), which makes it possible to use the machine in environments where the risk of electric shock or electrocution caused by arc welding is enormously increased by the presence of water, humidity, or heat, and particularly where the ambient temperature exceeds 32°C.
- TIG welding:
 - "Lift" type ignition, with TCS "Thermal Control Start" device to further reduce tungsten inclusions.
 - Exclusive SWS "Smart Welding Stop" system at the end of TIG welding. Lifting up the torch without switching off the arc will introduce a SLOPE DOWN and it will switch off automatically.





Technical data

The general technical data of the system are summarized in table 1.

Usage limits (IEC 60974-1)

The use of a welder is typically discontinuous, in that it is made up of effective work periods (welding) and rest periods (for the positioning of parts, the replacement of wire and underflushing operations etc. This welder is dimensioned to supply a I_2 max nominal current in complete safety for a period of work of X% of the total usage time. The regulations in force establish the total usage time to be 10 minutes. The work cycle is considered to be X% of this period of time. When the work cycle permitted is exceeded a trip switch trips, which protects the welding machine's internal components against dangerous overheating and prevents incorrect functioning of the machine (for further information see the TX control panel manual). After several minutes the overheat cut-off rearms automatically and the weld-

Table 1

Model	POWER MIG 1800 synergic			
	MIG-MAG	TIG	MMA	
Single-phase input 50/60 Hz	V	230 ± 15%		
Mains supply: Z_{max} (*)	Ω	0,21		
Power input @ I_2 Max	kVA	7,8	5,9	7,4
Delayed fuse (I_2 @ 60%)	A	16		
Power factor / cosφ		0,68 / 0,99	0,67 / 0,99	0,68 / 0,99
Efficiency degree	η	0,79	0,77	0,81
Voltage without load	V	59		
Current range	A	10 ÷ 175	5 ÷ 175	10 ÷ 150
Duty cycle @ 100% (40°C)	A	100	100	90
Duty cycle @ 60% (40°C)	A	115	115	110
Duty cycle @ X% (40°C)	A	175 (20%)	175 (20%)	150 (25%)
Wires diameter	mm	<ul style="list-style-type: none"> • 0,6/0,8/1,0 - Fe • 1,0 / 1,2 - Al • 0,8 / 1,0 - CrNi • 0,8 / 1,0 - Cu Si 3 • 0,9 - Flux Cored 	-	-
Spool Diameter / Weight	mm / kg	200 / 5 (300 / 15 optional)	-	-
N° rollers		2	-	-
Power output of feeder motor	W	40	-	-
Rated wire feeding speed	m/min	1 - 20	-	-
MMA electrodes	mm	-	-	1,6 - 3,2
TIG electrodes	mm	-	1,0 - 3,2	-
Protection gas		<ul style="list-style-type: none"> • Carbon dioxide • Pure Argon • Argon - Carbon dioxide - Oxygen • Argon and Carbon dioxide blends 	-	-
Standards		IEC 60974-1 - IEC 60974-5 - IEC 60974-10 - 		
Protection class		IP 23 S		
Insulation class		H		
Dimensions   	mm	500 - 425 - 220		
Weight	kg	16		

(*) Mains supply Z_{max} : maximum impedance value allowed for the grid according to the EN/IEC 61000-3-11 standard.

WARNING: This equipment does not comply with EN/IEC 61000-3-12. If it is connected to a public low voltage system, it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected.

er is ready for use again (Automatic reset error). This equipment is built to have a protection level of IP 23 S, which means:

- That it is protected against the penetration of solid foreign bodies with diameters in excess of Ø 12 mm.
- That it is protected against water spray hitting the surface with an angle of incidence up to 60°.
- That the equipment has been tested for withstanding harmful effects due to water getting in when the moving parts on the equipment are moving.

How to lift up the machine

The weld machine has a strong handle all in one with the frame, used for transporting the machine manually only.

NOTE: These hoisting and transportation devices conform to European standards. Do not use other hoisting and transportation systems.

Open the packaging

The system essentially consists of:

- Welding unit **POWER MIG 1800 synergic**
- Ground cable (3m long).
- MIG-MAG or TIG (optional) welding torches.
- Transport trolley (optional).
- Retrofit kit adaptor for Ø 300 mm - 15 kg coil of wire (optional).
- Coil cover in impact resistant material (optional).

Upon receiving the system:

- Remove the welding generator and all relevant accessories-components from their packaging.
- Check that the weld machine is in good condition, if not report any problems immediately to the seller-distributor.
- Make sure all ventilation grilles are open and that no foreign bodies are blocking the air circulation.

Installation and connections

The installation site for the system must be carefully chosen in order to ensure its satisfactory and safe use. The user is responsible for the installation and use of the system in accordance with the producer's instructions contained in this manual. Before installing the system the user must take into consideration the potential electromagnetic problems in the work area. In particular, we suggest that you should avoid installing the system close to:

- Signalling, control and telephone cables.
- Radio and television transmitters and receivers.
- Computers and control and measurement instruments.
- Security and protection instruments.

Persons fitted with pace-makers, hearing aids and similar equipment must consult their doctor before going near a machine in operation. The equipment's installation environment must comply to the protection level of the frame i.e. IP 23 S (IEC 60529 publication). The system is capable of working in environments where working conditions are particularly hard. This system is cooled by means of the forced circulation of air, and must therefore be placed in such a way that the air may be easily sucked in and expelled through the apertures made in the frame.

The equipment must be assembled as follows:

- Mount on the trolley (optional extra).
- Fit the kits ("Retrofit kit adaptor" - optional, etc.) on the welding unit.
- Fix the welding unit to the trolley.
- Connect the welding machine to the utility line.
- Connect up the welding cables.

Instructions for fitting the individual optional extras are contained in the relevant packaging.

Connecting the welding machine to the utility line

Connection of the machine to the user line (electrical current) must be performed by qualified personnel.

Before connecting the welding machine to the mains power supply, make sure that rated voltage and frequency correspond to those provided by the mains power supply and that the welding machine's power switch is turned to "O".

Connection to the power supply must be carried out using the tripolar cable supplied with the system, of which:

- 2 conducting wires are needed for connecting the machine to the supply.
- The third, which is YELLOW GREEN in colour is used for making the "GROUND" connection.

Connect a suitable load of normalised plug (2p + e) to the power cable and provide for an electrical socket complete with fuses or an automatic switch. The ground terminal must be connected to the ground conducting wire (YELLOW-GREEN) of the supply.

Table 2 shows the capacity values that are recommended for fuses in the line with delays.

NOTE: Any extensions to the power cable must be of a suitable diameter, and absolutely not of a smaller diameter than the special cable supplied with the machine.

Table 2

Model		POWER MIG 1800 synergic		
		MIG-MAG	TIG	MMA
Power input @ I ₂ Max	kVA	7,8	5,9	7,4
Delayed fuse (I ₂ @ 60%)	A		16	
Duty cycle @ X% (40°C)	A	175 (20%)	175 (20%)	150 (25%)
Mains cable				
Length	m		3	
Section	mm ²		2,5	
Ground cable				
Length	m		3	
Section	mm ²		16	

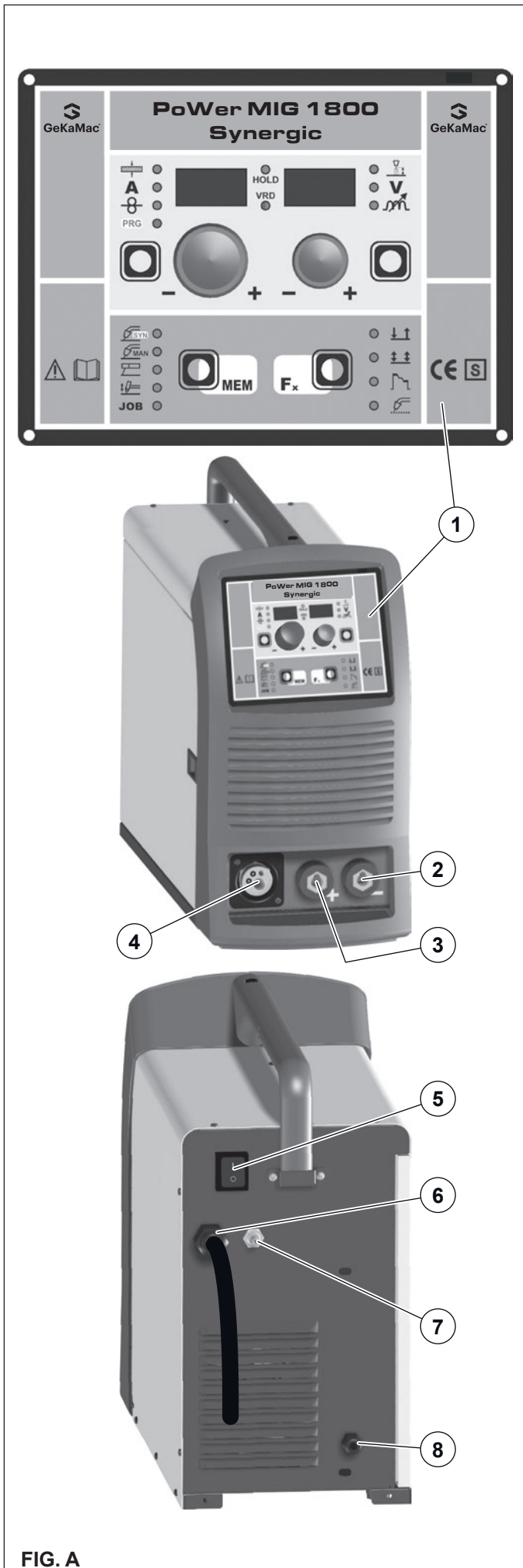


FIG. A

Command and control units (Fig. A)

- Pos. 1 "TX" control panel.
- Pos. 2 Fast coupling straight polarity.
- Pos. 3 Fast coupling reverse polarity.
- Pos. 4 Centralised MIG-MAG torch connection.
- Pos. 5 Power supply switch. In the "O" position the welder is off.
- Pos. 6 Mains cable.
- Pos. 7 Weld gas inlet coupling.
- Pos. 8 Cable clamp for the welding cable to pass (with the "Retrofit kit adaptor" fitted).

Loading wire

- Open the side panel on the left using the relevant Allen key and insert the coil (use coils with a MAX diameter of 200 mm and MAX weight of 5 kg) that suits the material to be welded on the relevant support so that the wire unwinds anticlockwise and aligning the protruding marker on the support with the relevant hole in the coil.
- Thread the end of the wire into the back guide (Pos. 7, Fig. B) on the drawing mechanism.
- Lift up the idle roller (Pos. 1, Fig. B) releasing the roller pressure mechanism (Pos. 6, Fig. B). Check that the drive roller (Pos. 4, Fig. B) has the diameter corresponding to the wire being used printed on the outer side.
- Thread the wire into the central wire guide and into the wire guide of the centralized attachment (Pos. 3, Fig. B) for a few centimetres. Lower the idle roll-holder arm making sure the wire goes into the slot of the drive roll. If necessary, adjust the pressure between the rollers with the screw provided (Pos. 5, Fig. B). The correct pressure is the minimum that does not allow the rollers to skid on the wire. Excessive pressure will cause deformation of the wire and tangling on the entrance of the sheath; insufficient pressure can cause irregular welding.

Assembly of drive roller

Follow instructions given below for mounting the drawing roller onto the mechanism:

- Unscrew the screw (Pos. 5, Fig. B).
- Lift up the idle roll-holder arm $\varnothing 26$ mm (Pos. 2, Fig. B).
- Each roller shows the type of wire and diameter on the two external sides.
- Mount the appropriate roller (Pos. 4, Fig. B) making sure the groove is in the right position for the diameter of the wire being used.
- Screw the screw (Pos. 5, Fig. B).

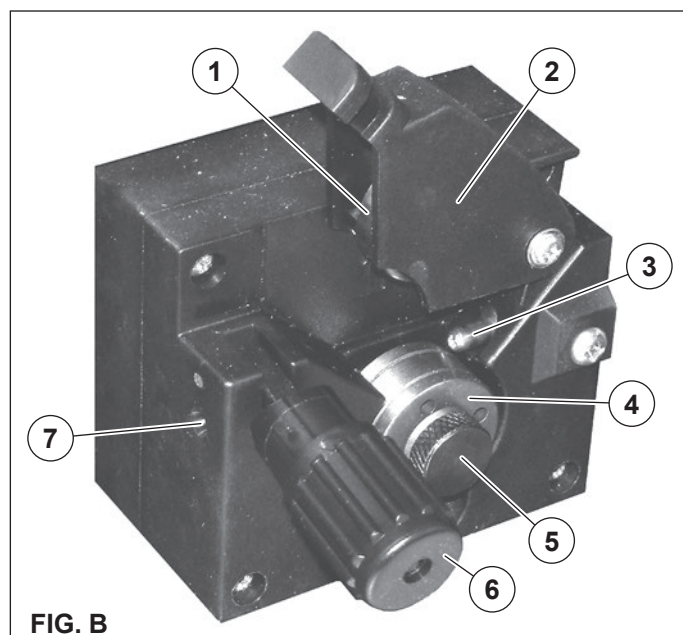


FIG. B

MIG-MAG welding with GAS

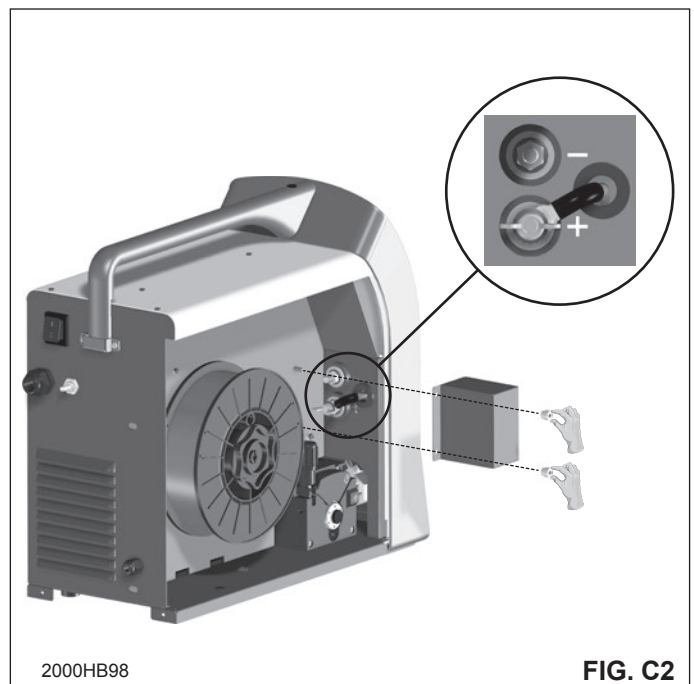
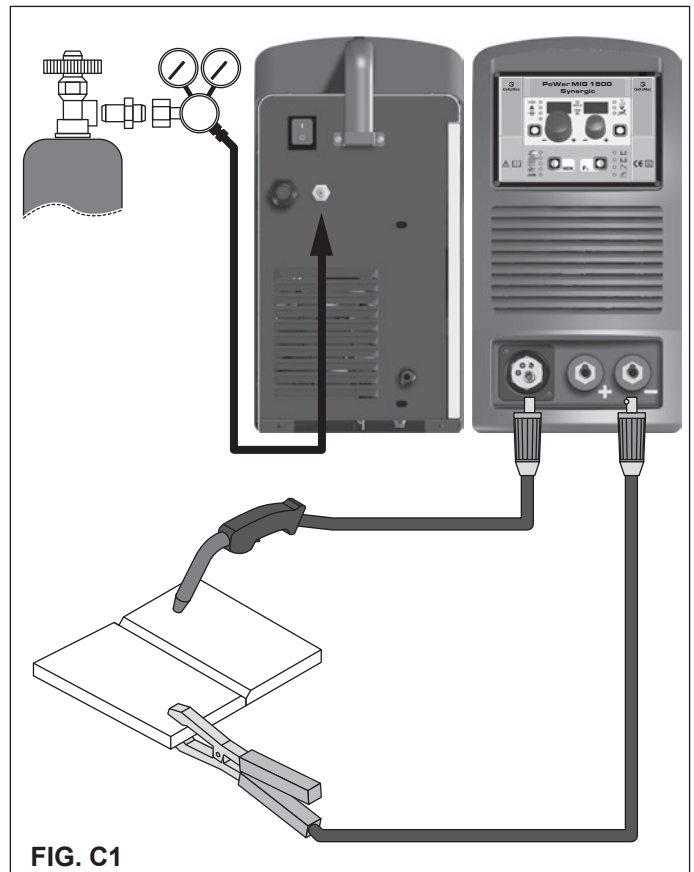
To begin MIG-MAG welding, carry out the following tasks (with the machine switched off):

1 - Connecting the cables (Fig. C1-C2)

- 1) Connect the gas hose to the pressure reducer fitted on the cylinder beforehand. Gas cylinders are supplied with a pressure reducer to adjust pressure of the gas used for welding.
- 2) Screw the torch to the centralised connection on the front panel of the welding machine (Pos. 4, Fig. A).
- 3) Connect up the earthing system cable to the rapid coupling marked by a - (negative) symbol and then the relevant ground clamps to the piece being welded or to its support in an area free from rust, paint and grease. Using particularly long earthing cables reduces the voltage and causes some problems from increased resistance and inductance of the cables that could cause faulty welding. Follow instructions to avoid these problems:
 - Use earthing and extension cables with appropriate section.
 - Lay out the cables as a flat as possible to prevent them from coiling up.
- 4) Open the moving cover, remove the protection box for changing polarity (see Fig. C2) and make sure that the change polarity cable is connected to the positive pole (+).

2 - Welding

- 1) Open the moving cover and fit the coil of wire.
- 2) Load the wire (see the "Loading the wire" paragraph).
- 3) Switch the welding machine on by moving the power supply switch to I (Pos. 5, Fig. A).
- 4) Carry out the following operations on the MIG-MAG torch:
 - Remove the gas-guide and wire-guide nozzles, allowing the wire to flow freely during loading. Remember that the contact tip must correspond to the wire diameter.
 - Push the torch push button or the motor check push button until the wire end comes out from the torch.
 - Tighten the contact tip on the torch.
 - Attach the correct gas-guide nozzle.
 - Protect the gas-guide nozzle and the wire-guide nozzle of the torch from sprays of solder.
- 5) Make the adjustments and select the parameters on the control panel (for further information see the TX control panel manual).
- 6) Open the tap on the cylinder slowly and adjust the reducer knob to obtain a pressure of about 1,0 to 1,5 bar, and regulate the flow to about 15 lit/min (to suit the current to used for welding).
- 7) The welding machine is ready for welding. To begin welding, approach the point to be welded and press the button on the torch.
- 8) When you have finished welding, remove the waste, turn off the machine and close the gas cylinder.



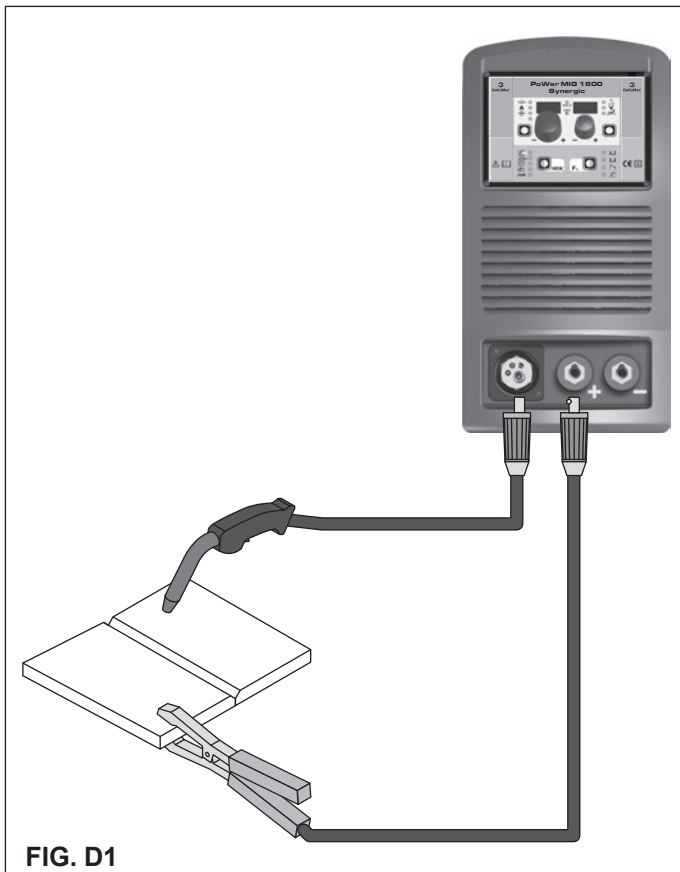


FIG. D1

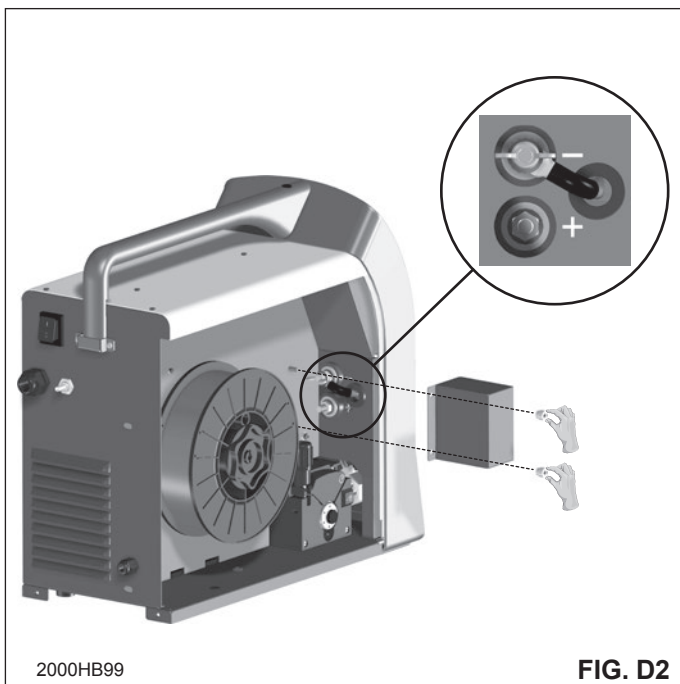


FIG. D2

MIG-MAG welding without GAS

To begin MIG-MAG welding without gas, carry out the following tasks (with the machine switched off):

1 - Connecting the cables (Fig. D1-D2)

- 1) Screw the torch to the centralised connection on the front panel of the welding machine (Pos. 4, Fig. A).
- 2) Connect up the earthing system cable to the rapid coupling marked by a + (positive) symbol and then the relevant ground clamps to the piece being welded or to its support in an area free from rust, paint and grease. Using particularly long earthing cables reduces the voltage and causes some problems from increased resistance and inductance of the cables that could cause faulty welding. Follow instructions to avoid these problems:
 - Use earthing and extension cables with appropriate section.
 - Lay out the cables as a flat as possible to prevent them from coiling up.
- 3) Open the moving cover, remove the protection box for changing polarity (see Fig. D2) and move the change polarity cable, connecting it to the negative pole (-).

2 - Welding

- 1) Open the moving cover and fit a coil of wire with a core for welding without using gas.
- 2) Load the wire (see the "Loading the wire" paragraph).
- 3) Switch the welding machine on by moving the power supply switch to I (Pos. 5, Fig. A).
- 4) Carry out the following operations on the MIG-MAG torch:
 - Remove the gas-guide and wire-guide nozzles, allowing the wire to flow freely during loading. Remember that the contact tip must correspond to the wire diameter.
 - Push the torch push button or the motor check push button until the wire end comes out from the torch.
 - Tighten the contact tip on the torch.
 - Attach the correct gas-guide nozzle.
 - Protect the gas-guide nozzle and the wire-guide nozzle of the torch from sprays of solder.
- 5) Make the adjustments and select the parameters on the control panel (for further information see the TX control panel manual). Make sure that you have selected a program that is suitable for wire with a core.
- 6) The welding machine is ready for welding. To begin welding, approach the point to be welded and press the button on the torch.
- 7) Once welding has been completed remove the slag and switch off the machine.

Spot welding

FIG. E



Welding can be done with or without gas. The substantial difference with MIG-MAG welding is essentially related to the torch and the adjustments that must be made on the TX control panel.

- Depending on the torch chosen and the work to be done, a gas guide nozzle can be fitted on the torch that is specifically for spot welding (see Fig. E).
- Use the control panel to select the spot-welding mode and, if necessary, make the changes to the related "Special functions - Fx" (for further information see the TX control panel manual), which allows the machine to do this specific type of welding.

To begin spot welding:

- Place the gas guiding nozzle perpendicular on the workpiece to be spot welded.
- Press the torch button to start the welding current and wire feed.
- When the spot welding time expires (SPOT WELD TIME), the wire feed stops automatically.
- When the torch button is pushed again a new welding cycle starts.
- Release the torch button.

Interval welding (Stitch)

The substantial differences with the spot welding mainly concern the adjustments that must be carried on the welding machine.

Use the control panel to select the interval welding mode and then make the changes to the related "Special functions - Fx" (for further information see the TX control panel manual), which allows the machine to do this specific type of welding.

To begin interval welding:

- Press the torch button to start the welding current and wire feed.
- At this point the welding machine automatically carries out a succession of welded portions (STITCH WELD TIME) followed by a pause (STITCH WELD PAUSE), according to the times entered previously. This procedure stops automatically only when the TORCH BUTTON is released.
- When the torch button is pushed again the torch begins a new interval welding cycle.

Aluminium welding

To weld with aluminum wire proceed as follows:

- Replace the drive roller with the appropriate for aluminum wire.
- Use a torch with a 3m cable and a carbon Teflon sheath.
- Set the pressure between the drive rollers at the minimum, by turning the screw provided.
- Use argon gas at a pressure of 1,3 - 1,7 bar.

TIG welding with "Lift"

In the TIG process welding is achieved by melting the two metal pieces to be joined, with the possible addition of material from the outside, using an arc ignited by a tungsten electrode. The "Lift" (TCS) type ignition used in TREQ equipments makes it

possible to reduce tungsten inclusions on ignition to a minimum. The molten bath and the electrode are protected by and inert gas (for example, Argon). This type of welding is used to weld thin sheet metal or when elevated quality is required.

- 1) Connecting the welding cables (Fig. F):
 - Connect one end of the gas hose to the gas connector on the TIG torch and the other end to the pressure reducer on the inert gas cylinder (Argon or similar).
 - With the machine switched off:
 - Connect the ground cable to the snap-on connector marked + (positive).
 - Connect the relative ground clamp to the workpiece or to the workpiece support in an area free of rust, paint, grease, etc..
 - Connect the TIG torch power cable to the snap-on connector marked - (negative).
- 2) Switch the welding machine on by moving the power supply switch to I (Pos. 5, Fig. A).
- 3) Make the adjustments and do the parameter settings on the control panel (for further information see the TX control panel manual).
- 4) Open the gas cylinder and regulate the flow by adjusting the valve on the TIG torch by hand.
- 5) Ignite the electric arc by contact, using a decisive, quick movement without dragging the tungsten electrode on the piece to be welded ("Lift" type ignition - Fig. G).
- 6) The welder has a SWS "Smart Welding Stop" system for the end of TIG welding. Lifting up the torch without switching off the arc will introduce a slope down and it will switch off automatically.
- 7) When you have finished welding remember to shut the valve on the gas cylinder.

Table 3 shows the currents to use with the respective electrodes for TIG DC welding. This input is not absolute but is for your guidance only; read the electrode manufacturers' instructions for a specific choice. The diameter of the electrode to use is directly proportional to the current being used for welding.

Table 3

Ø ELECTRODE (mm)	ELECTRODE TYPE Current adjustment field (A)	
	TIG DC	
	Tungsten Ce 1% Grey	Tungsten Rare ground 2% Turquoise
1	10-50	10-50
1,6	50-80	50-80
2,4	80-150	80-150
3,2	150-250	150-250

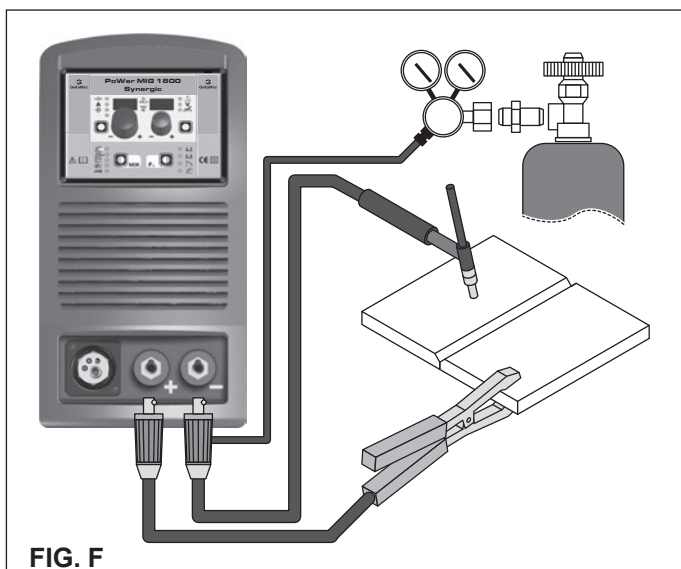


FIG. F

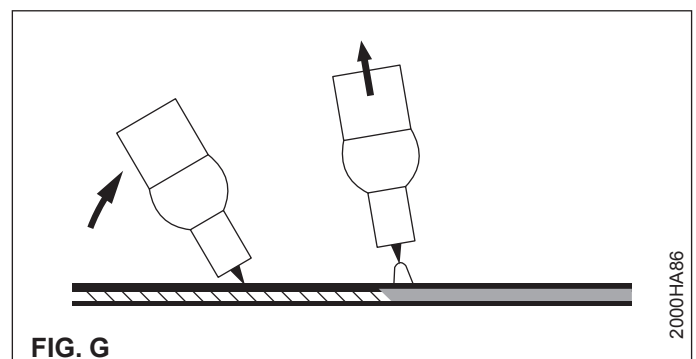


FIG. G

2000HA86

Electrode welding (MMA)

Electrode welding is used to weld most metals (different types of steel, etc.) using coated rutilic and basic electrodes with diameters ranging from Ø 1.6 mm to Ø 3,2 mm.

- 1) Connecting the welding cables (Fig. H):
Disconnect the machine from the mains power supply and connect the welding cables to the output terminals (Positive and Negative) of the welding machine, attaching them to the clamp and ground with the polarity specified for the type of electrode being used (Fig. H). Always follow the electrode manufacturer's instructions. The welding cables must be as short as possible, they must be near to one another, positioned at or near floor level. Do not touch the electrode clamp and the ground clamp simultaneously.
- 2) Switch the welding machine on by moving the power supply switch to I (Pos. 5, Fig. A).
- 3) Make the adjustments and select the parameters on the control panel (for further information see the TX control panel manual).
- 4) Carry out welding by moving the torch to the workpiece. Strike the arc (press the electrode quickly against the metal and then lift it) to melt the electrode, the coating of which forms a protective residue. Then continue welding by moving the electrode from left to right, inclining it by about 60° compared with the metal in relation to the direction of welding.

PART TO BE WELDED

The part to be welded must always be connected to ground in order to reduce electromagnetic emission. Much attention must be afforded so that the ground connection of the part to be welded does not increase the risk of accident to the user or the risk of damage to other electric equipment. When it is necessary to connect the part to be welded to ground, you should make a direct connection between the part and the ground shaft. In those countries in which such a connection is not allowed, connect the part to be welded to ground using suitable capacitors, in compliance with the national regulations.

WELDING PARAMETERS

Table 4 shows some general indications for the choice of electrode, based on the thickness of the parts to be welded. The values of current to use are shown in the table with the respective electrodes for the welding of common steels and low-grade alloys. These data have no absolute value and are indicative data only. For a precise choice follow the instructions provided by the electrode manufacturer.

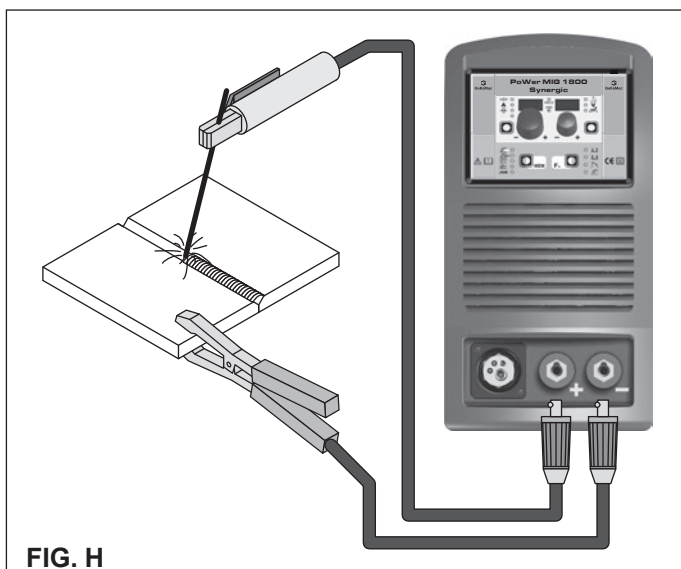


FIG. H

Table 4

WELDING THICKNESS (mm)	Ø ELECTRODE (mm)
1,2 ÷ 2	1,6
1,5 ÷ 3	2
3 ÷ 5	2,5
5 ÷ 12	3,2

The current to be used depends on the welding positions and the type of joint, and it increases according to the thickness and dimensions of the part.

The current intensity to be used for the different types of welding, within the field of regulation shown in table 5 is:

- High for plane, frontal plane and vertical upwards welding.
- Medium for overhead welding.
- Low for vertical downwards welding and for joining small pre-heated pieces.

Table 5

Ø ELECTRODE (mm)	CURRENT (A)
1,6	30 ÷ 60
2	40 ÷ 75
2,5	60 ÷ 110
3,2	95 ÷ 140

A fairly approximate indication of the average current to use in the welding of electrodes for ordinary steel is given by the following formula:

$$I = 50 \times (\varnothing e - 1)$$

Where:

I = intensity of the welding current

Øe = electrode diameter

Example:

For electrode diameter 4 mm

$$I = 50 \times (4 - 1) = 50 \times 3 = 150A$$

Maintenance

ATTENTION: Cut off the power supply to the equipment before effecting any internal inspection.

POWER MIG 1800 Synergic

IMPORTANT: Since the welding machines are fully electronic, removing the dust that is sucked into the machine by the fans, is of utmost importance.

In order to achieve correct functioning of the machine, proceed as described:

- Periodic removal of accumulations of dirt and dust inside the equipment using compressed air. Do not point the jet of air directly at the electrical parts as this could damage them.
- Periodical inspection for worn cables or loose connections that could cause overheating.
- Make sure the air circuit is completely free of any impurities and that the connections are tight and free of any leaks. In this connection, inspect the solenoid valve very carefully.
- Check the wire feeder rolls periodically and replace them when wear impairs the regular flow of the wire (slipping etc).

TORCH

The torch is subjected to high temperatures and is also stressed by traction and torsion. We recommend not to twist the wire and not to use the torch to pull the welder. As a result of the above the torch will require frequent maintenance such as:

- Cleaning welding splashes from the gas diffuser so that the gas flows freely.
- Substitution of the contact point when the hole is deformed.
- Cleaning of the wire guide liner using trichloroethylene or specific solvents.
- Check of the insulation and connections of the power cable; the connections must be in good electrical and mechanical condition.

SPARE PARTS

Original spares have been specifically designed for our equipment. The use of spares that are not original may cause variations in the performance and reduce the safety level of the equipment. We are not liable for damage due to use of spare parts that are not original.



The pointing out of any difficulties and their elimination

The supply line is attributed with the cause of the most common difficulties. In the case of breakdown, proceed as follows:

- 1) Check the value of the supply voltage.
- 2) Check that the power cable is perfectly connected to the plug and the supply switch.
- 3) Check that the power fuses are not burned out or loose.
- 4) Check whether the following are defective:
 - The switch that supplies the machine.
 - The plug socket in the wall.
 - The generator switch.

NOTE: *Given the required technical skills necessary for the repair of the generator, in case of breakdown we advise you to contact skilled personnel or our technical service department.*



Replacing the digital interface PCB

Proceed as follows:

- Unscrew the 4 screws that fix the front rack panel.
- Remove both the adjustment knobs.
- Disconnect the electrical connectors for the board.
- Unscrew the support columns.
- Remove the electronic board by lifting it off its supports.
- To fit a new board, follow this procedure in reverse.

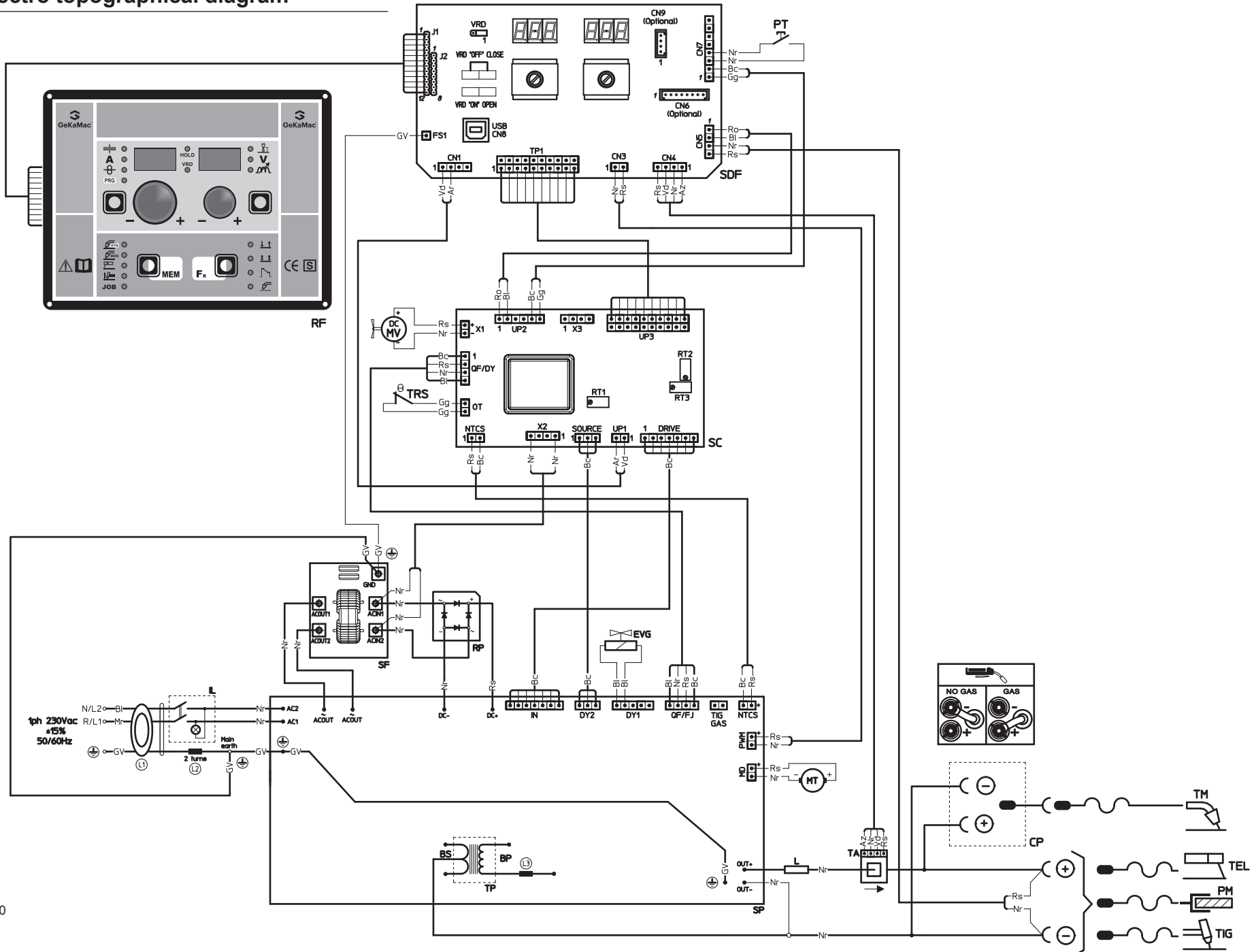
Troubleshooting table

WARNING: Any internal inspections or repairs are only to be done by qualified personnel!

IMPORTANT: Remember to disconnect the mains power supply and wait for the internal capacitors to discharge (about 2 minutes) before starting to check and repair the machine if necessary.

Defect	Solution
The welding machine does not switch on, TX control panel switched off.	<ul style="list-style-type: none"> • Check that the welding machine is installed correctly and that the mains supply has sufficient power to supply the welding machine. • Check the switch, cable and plug on the power supply line and replace them if necessary. • Check, and if necessary replace, the digital interface PCB or the control PCB.
Line fuses fused "instantaneously".	<ul style="list-style-type: none"> • Check that the welding machine is installed correctly. • Check and if necessary replace the motor, transformer, or rectifier.
Line fuses fused after a work period.	<ul style="list-style-type: none"> • Check that you have fitted line fuses of adequate absorption capacity.
Welding machine on, TX control panel on, fan stopped.	<ul style="list-style-type: none"> • Check the wiring that powers the fans. • Check that there are no mechanical impediments blocking the fans. • Check and if necessary replace the digital interface PCB.
Welding machine on, display does not show correct values.	<ul style="list-style-type: none"> • See the error codes and signals shown in the manual for the TX control panel. • Check the wiring that powers the various boards. • Check, and if necessary replace, the digital interface PCB or the control PCB.
No gas coming out of the torch.	<ul style="list-style-type: none"> • Check and if necessary replace the solenoid valve or gas hose. • Check the wiring that powers the gas solenoid valve. • Check, and if necessary replace, the digital interface PCB or the control PCB.
The wire feed motor does not work during MIG-MAG welding.	<ul style="list-style-type: none"> • Check the wiring that powers the wire feed motor. • Check that there are no mechanical impediments blocking the motor. • Check that the motor is working correctly and if necessary replace it. • Check and if necessary replace the digital interface PCB.
Welding current insufficient or not constant.	<ul style="list-style-type: none"> • Check the power supply line. • Check and if necessary replace the wires (section or length inadequate). • Check the line voltage using a voltmeter.
Arc ignition difficult, the arc switches off immediately after ignition during MIG-MAG welding.	<ul style="list-style-type: none"> • Use the TX control panel manual to make sure you have set the various welding parameters correctly. • Check compatibility of the torch and the wire used. • Check that the torch and all its components are working correctly and replace them if necessary (e.g. worn components). • Check and if necessary replace the digital interface PCB.
The wire sticks to the workpiece to be welded.	<ul style="list-style-type: none"> • Check that there are no mechanical impediments blocking correct unwinding of the wire. • Check that the motor is working correctly and if necessary replace it. • Check and if necessary replace the digital interface PCB.

Electro topographical diagram



2101AB10

•1 BP	•2 BS	•3 CP	•4 EVG	•5 IL	•6 L	•7 L1-2-3	•8 MT	•9 MV	•10 PM	•11 PT
•12 RF	•13 RP	•14 SC	•15 SDF	•16 SF	•17 TA	•18 TEL	•19 TIG	•20 TM	•21 TP	•22 TRS






Electro topographical diagram key






•1 Primary transformer coil •2 Secondary transformer coil •3 Polarity change terminal board •4 Gas solenoid valve •5 Mains switch •6 Secondary inductance •7 Toroidal ferrite •8 Drive motor •9 Fan motor •10 Earth terminal •11 Torch button •12 Rack panel •13 Primary rectifier •14 Control PCB •15 Digital interface PCB •16 EMC filter PCB •17 Hall effect transformer •18 MMA torch •19 TIG torch •20 MIG-MAG torch •21 Main transformer •22 Secondary diodes thermostat

Colour key

Ar Orange
Az Sky Blue
Bc White
Bl Blue
Gg Grey
Gl Yellow
GV Yellow-Green
Mr Brown
Nr Black
Ro Pink
Rs Red
Vd Green
VI Violet

Meaning of graphic symbols on machine

	System for use in environments with increased risk of electroshock
	Product suitable for free circulation in the European Community
	Dangerous voltage
	Grounding protection
	Positive pole snap-in connector

	Negative pole snap-in connector
	Warning!
	Before using the equipment you should carefully read the instructions included in this manual
	Danger! Parts moving
	It is forbidden to use gloves

POWER MIG 1800

Synergic

IT	<i>Lista ricambi</i>	LEGGERE ATTENTAMENTE
EN	<i>Spare parts list</i>	READ CAREFULLY
FR	<i>Liste pièce de rechange</i>	LIRE ATTENTIVEMENT
DE	<i>Ersatzteilliste</i>	SORGFÄLTIG LESEN
ES	<i>Lista repuestos</i>	LEER ATENTAMENTE
NL	<i>Onderdelenlijst</i>	EERST GOED DOORLEZEN
PT	<i>Lista de peças de substituição</i>	LER ATENTEMENTE
DA	<i>Liste over reservedele</i>	LÆS OMHYGGELIGT
SV	<i>Reservdelslista</i>	LÄS NOGAS
FI	<i>Varaosaluettelo</i>	LUE HUOLELLISESTI
N	<i>Reservedelliste</i>	LES NØYE
RU	<i>Список запасных частей</i>	ПЕРЕД НАЧАЛОМ РАБОТЫ ВНИМАТЕЛЬНО ПРОЧИТАЙТЕ ИНСТРУКЦИЮ



GeKaMac[®]

Gedik Welding Inc.

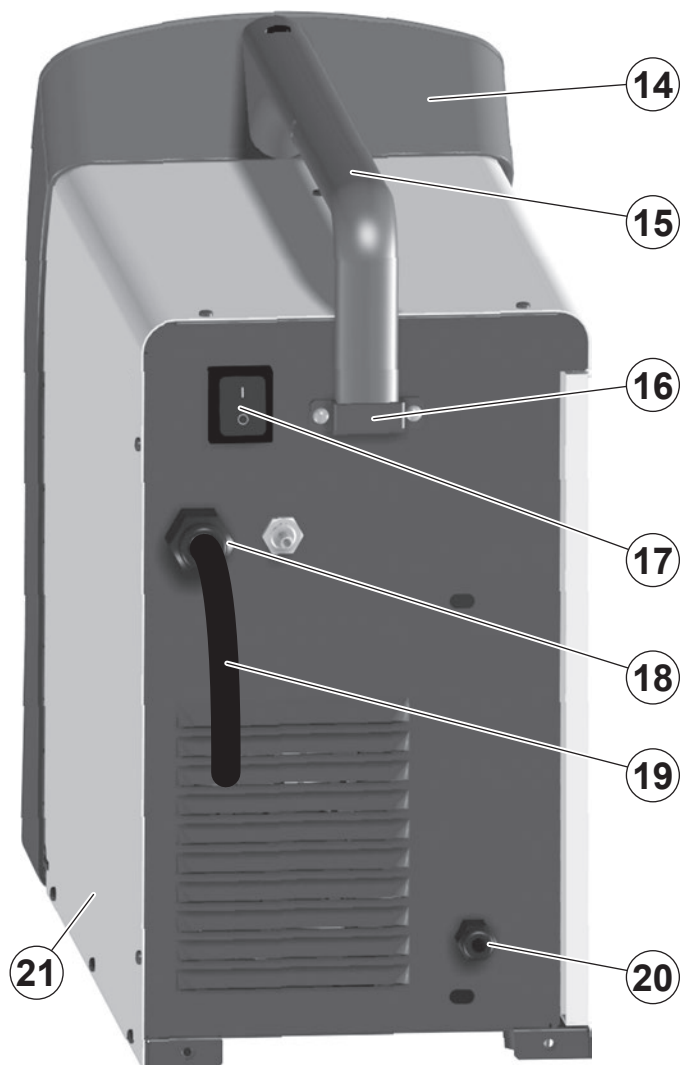
Ankara Caddesi No: 306 Şeyhli 34906 Pendik - İstanbul / Turkey

P. +90 216 378 50 00 • F. +90 216 378 20 44 / 79 36

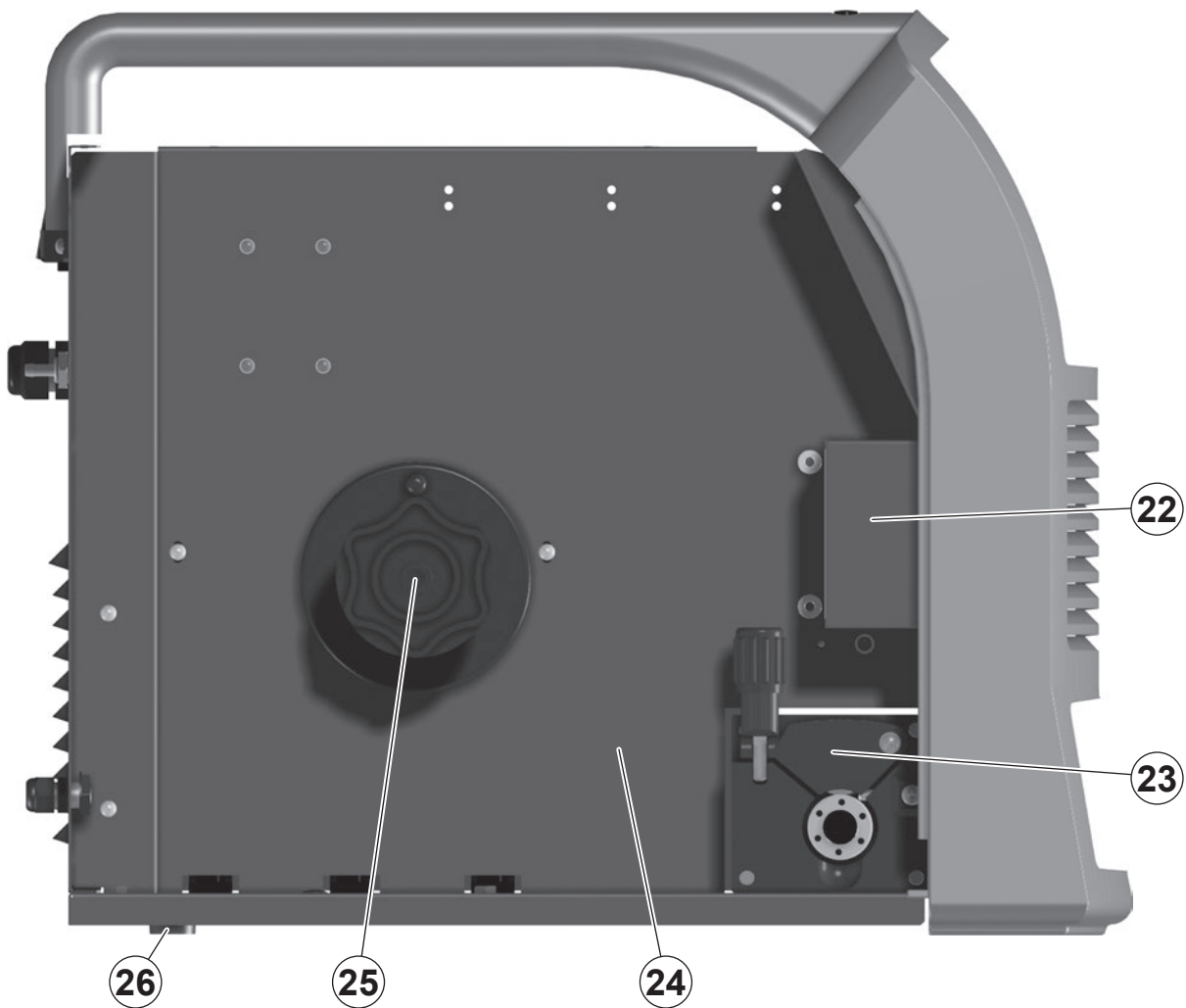
www.gedikwelding.com



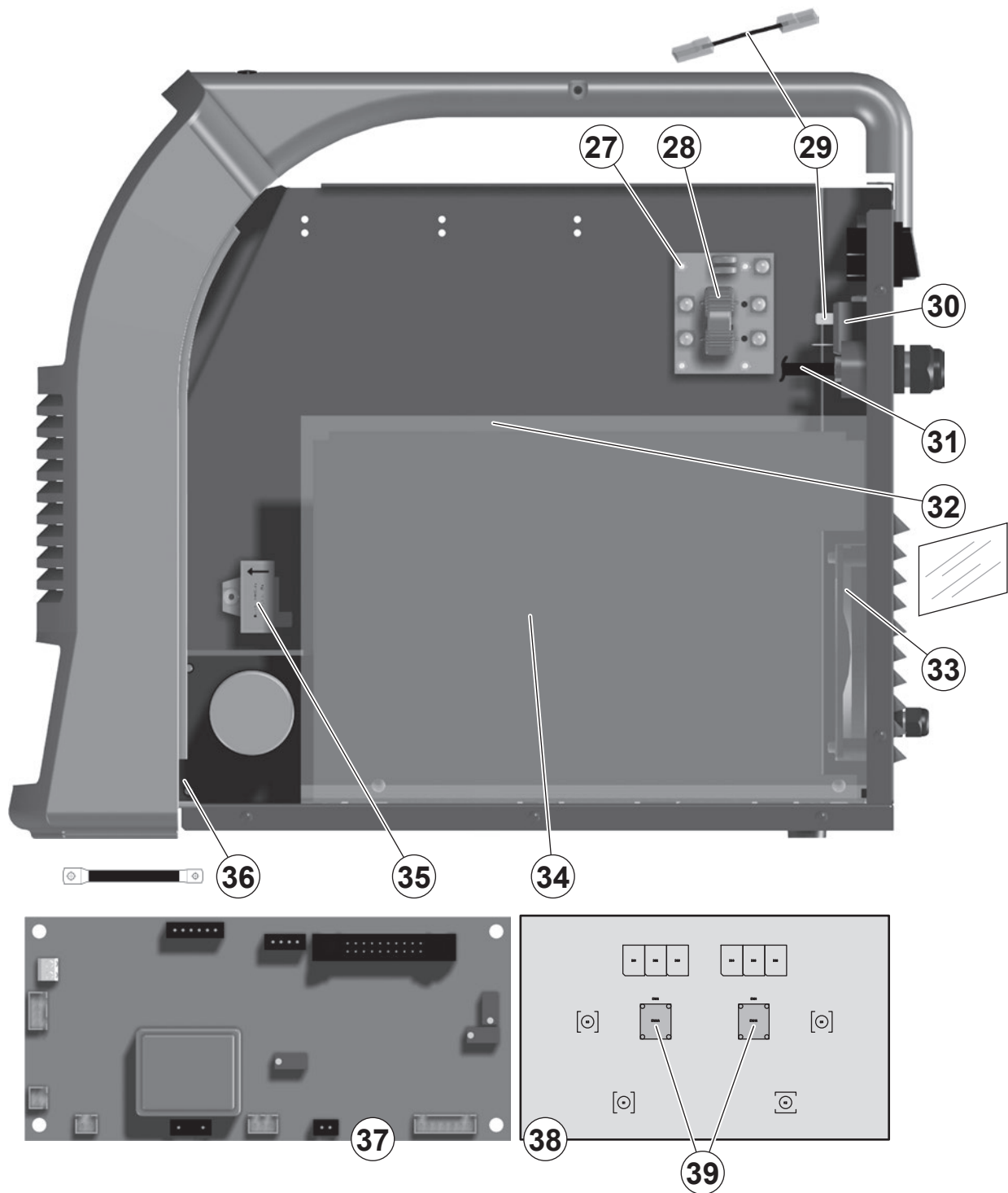
Pos.	POWER MIG 1800 Synergic	Descrizione	Description
1	352547	Pannello rack completo di tastiera a membrana TREO	Rack panel with TREO membrane keyboard
2	438849	Manopola senza indice Ø22mm	Ø22mm Knob without index
3	438888	Manopola senza indice Ø29mm	Ø29mm Knob without index
4	352415	Pannello frontale	Front panel
5	468185	Adesivo dinse	Dinse sticker
6	403611	Attacco rapido	Quick connection
7	239624	Cavo massa	Ground cable
8	428110	Flangia	Flange
9	434250	Tubetto guidafile 53mm	53mm Wire guide tube
10	236639	Attacco Euro con tubetto guidafile	Euro connection with wire guide tube
11	414326	Chiavistello	Lock
12	420574	Coperchio mobile senza adesivo logo CEA	Mobile cover without CEA logo sticker
13	468704	Adesivo logo CEA	CEA logo sticker



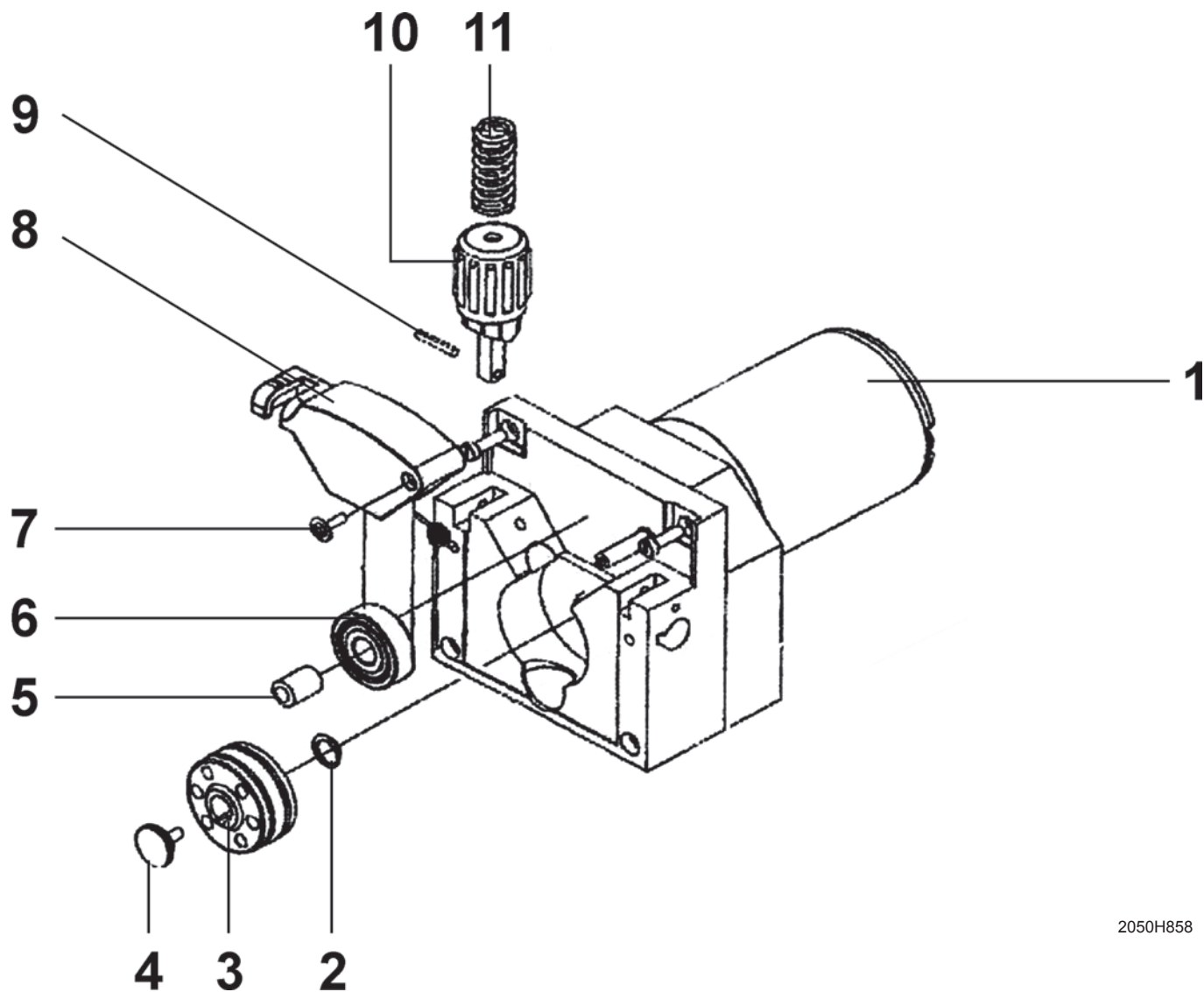
Pos.	POWER MIG 1800	Descrizione	Description
14	352419	Coperchio pannello frontale	Front panel cover
15	434664	Maniglia	Handle
16	465580	Staffa fissaggio maniglia	Fixing bracket handle
17	435364	Interruttore alimentazione	Mains switch
18	427895	Pressacavo completo di ghiera	Cable clamp with lock ring
19	235960	Cavo alimentazione	Mains cable
20	427866	Pressacavo completo di ghiera	Cable clamp with lock ring
21	420573	Coperchio lato fisso senza adesivo logo CEA	Fixed cover without CEA logo sticker



Pos.	POWER MIG 1800 Synergic	Descrizione	Description
22	450067	Scatola di protezione cambio polarità	Change polarity protection box
23	240561	Meccanismo di trascinamento con motoriduttore	Wire feed mechanism with motorgear
24	404913	Telaio metallico interno	Internal metallic chassis
25	241844	Mozzo bobina	Hub coil
26	431333	Piedino d'appoggio	Support foot



Pos.	POWER MIG 1800 Synergic	Descrizione	Description
27	424019	Distanziale scheda filtro EMC	EMC filter PCB spacer
28	377146	Scheda filtro EMC	EMC filter PCB
29	413471	Cablaggio ausiliario	Auxiliary wiring
30	425938	Elettrovalvola gas	Gas solenoid valve
31	485040	Tubo gas	Gas tube
32	353448	Isolamento laterale coperchio	Cover insulation
33	486386	Motore ventilatore	Fan motor
34	241266	Complessivo inverter di potenza	Power inverter assembly
35	481954	Trasformatore ad effetto di Hall	Hall effect transformer
36	235272	Cablaggio di potenza	Power cable wiring
37	377148	Scheda controllo	Control PCB
38	377147	Scheda interfaccia digitale	Digital Interface PCB
39	454150	Encoder	Encoder



2050H858

Pos.	Cod.	Descrizione	Description
1	444468	Motore 24V/40W	24V/40W Motor
2	602025	Seeger 10mm	Seeger 10mm
3	Tab. A	Rullo Ø 30 mm	Feed roll Ø 30 mm
4	487803	Vite di fissaggio	Fixing screw
5	487858	Perno supporto del dispositivo di pressione	Axle shaft pressure arm
6	422923	Rullo di pressione Ø 26 mm	Feed roll Ø 26 mm
7	487808	Vite di fissaggio M4x8	M4x8 Fixing screw
8	356956	Leva di pressione completa	Complete pressure arm
9	676510	Spina elastica	Pin pressure device
10	356973	Complessivo dispositivo di pressione rulli	Pressure device complete
11	441209	Molla di pressione Ø 1,5mm	Ø 1,5mm pressure spring

A

IT FILO EN WIRE	IT Diametro filo EN Wire diameter	IT Diametro rulli EN Rolls diameter	IT Rullo inferiore EN Lower roller
IT Acciaio EN Steel	0,6 ÷ 0,8 mm	Ø 30 mm	459170
	0,8 ÷ 1,0 mm	Ø 30 mm	459172
	0,9-1,0 ÷ 1,2 mm	Ø 30 mm	459175
	1,0 ÷ 1,2 mm	Ø 30 mm	459174
IT Alluminio EN aluminum	0,8 ÷ 1,0 mm	Ø 30 mm	459180
	1,0 ÷ 1,2 mm	Ø 30 mm	459182
IT Filo animato EN Cored wire	1,0 ÷ 1,2 mm	Ø 30 mm	459190

IT Ordinazione dei pezzi di ricambio

Per la richiesta di pezzi di ricambio indicare chiaramente:

- 1) Il numero di codice del particolare
- 2) Il tipo di impianto
- 3) La tensione e la frequenza che rileverete dalla targhetta dei dati posta sull'impianto
- 4) Il numero di matricola

ESEMPIO

N° 2 pezzi, codice n. 377184 - per l'impianto POWER MIG 1800 Synergic - 230 V - 50/60 Hz - Matricola n°

EN Ordering spare parts

To ask for spare parts clearly state:

- 1) The code number of the piece
- 2) The type of device
- 3) The voltage and frequency read on the rating plate
- 4) The serial number of the same

EXAMPLE

N. 2 pieces code n. 377184 - for POWER MIG 1800 Synergic 230 V - 50/60 Hz - Serial number

FR Commande des pièces de rechange

Pour commander des pièces de rechange indiquer clairement:

- 1) Le numéro de code de la pièce
- 2) Le type d'installation
- 3) La tension et la fréquence que vous trouverez sur la petite plaque de données placée sur l'installation
- 4) Le numéro de matricule de la même

EXEMPLE

N. 2 pièces code 377184 - pour l'installation POWER MIG 1800 Synergic - 230 V - 50/60 Hz - Matr. Numéro

DE Bestellung Ersatzteile

Für die Anforderung von Ersatzteilen geben Sie bitte deutlich an:

- 1) Die Artikelnummer des Teiles
- 2) Den Anlagentyp
- 3) Die Spannung und Frequenz, die Sie auf dem Datenschild der Anlage finden
- 4) Die Seriennummer der Schweißmaschine

BEISPIEL

2 Stück Artikelnummer 377184 - für Anlage POWER MIG 1800 Synergic - 230 V - 50/60 Hz - Seriennummer

ES Pedido de las piezas de repuesto

Para pedir piezas de repuesto indiquen claramente:

- 1) El número de código del particular
- 2) El tipo de instalación
- 3) La tensión y la frecuencia que se obtien de la chapa datos colocada sobre la instalación
- 4) El número de matrícula de la soldadora misma

EJEMPLO

N. 2 piezas código 377184 - para instalación POWER MIG 1800 Synergic - 230 V - 50/60 Hz - Matrícula N.

NL Bestelling van reserveonderdelen

Voor het bestellen van onderdelen duidelijk aangeven:

- 1) Het codenummer van het onderdeel
- 2) Soort apparaat
- 3) Spanning en frequentie op het gegevensplaatje te vinden
- 4) Het serienummer van het lasapparaat

VOORBEELD

N. 2 stuks code 377184 - voor apparaat POWER MIG 1800 Synergic 230 V - 50/60 Hz - Serie Nummer

PT Requisição de peças sobressalentes

Ao pedir as peças de substituição indique claramente:

- 1) O número de código da peça
- 2) O tipo de equipamento
- 3) A tensão e a frequência indicadas na la placa de dados do equipamento
- 4) O número de matrícula da própria máquina de soldar

EXEMPLO

N° 2 peças código n. 377184 - para o equipamento POWER MIG 1800 Synergic - 230 V - 50/60 Hz
Matrícula n.

DA Bestilling af reservedele

For at bestille reservedele skal man nøjagtigt angive:

- 1) Reservedelens kodenummer
- 2) Anlæggets type
- 3) Spænding og frekvens, som står på anlæggets typeskilt
- 4) Selve svejsemaskinens registreringsnummer

EKSEMPEL

2 stk. nummer 377184 - til anlæg model POWER MIG 1800 Synergic - 230 V - 50/60 Hz
Registreringsnummer Nr.

SV Beställning af reservdelar

Vid förfrågan av reservdelar ange tydligt:

- 1) Detaljens kodnummer
- 2) Typ av apparat
- 3) Spänning och frekvens - den står bland tekniska data på apparatens märkplåt
- 4) Svetsens serienummer

EXEMPEL

2 st. detaljer kod 377184 - för apparat POWER MIG 1800 Synergic - 230 V - 50/60 Hz - Serienummer

FI Varaosien tilaus

Tiedustellessanne varaosia, ilmoittakaa selvästi:

- 1) Osan koodinnumero
- 2) Laitteiston tyyppi
- 3) jännite ja taajuus, jotka on ilmoitettu laitteistolle sijoitetusta tietokyltistä
- 4) Hitsauskoneen sarjanumero

ESIMERKKI

2 osaa, koodi 377184 - laitteistoon POWER MIG 1800 synergic 230 V - 50/60 Hz - Sarjanumero

N Bestilling av reservedeler

Ved bestilling av reservedeler må du oppgi:

- 1) Delenes kodenummer
- 2) Type apparat
- 3) Apparatets spenning og frekvens som finnes på merkeplaten for data på apparatet
- 4) Sveiseapparatets serienummer

EKSEMPEL

2 stk. kode 377184 - for apparat POWER MIG1800 synergic 230 V - 50/60 Hz - Serienummer.....

RU Заказ запасных частей

Для запроса запасных частей укажите точно:

- 1) код запчасти,
- 2) модель машины,
- 3) напряжение и частоту, написанные на пластине,
- 4) ее серийный номер.

ПРИМЕР

2 шт., код № 438401
n - штук деталей, код 377184, для сварочной машины
POWER MIG 1800 Synergic - 230 В - 50/60 Hz
Серийный номер

TX 18

**GeKaMac[®]****Gedik Welding Inc.**

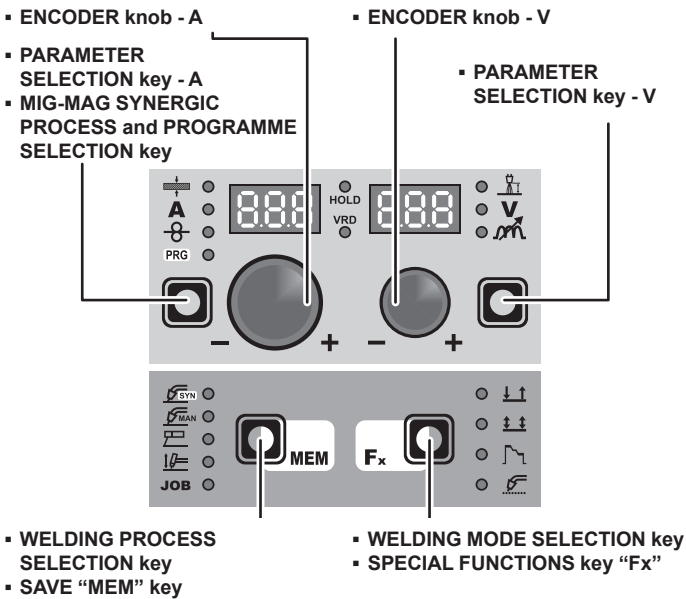
Ankara Caddesi No: 306 Şeyhli 34906 Pendik - İstanbul / Turkey

P. +90 216 378 50 00 • **F.** +90 216 378 20 44 / 79 36www.gedikwelding.com

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KEY AND KNOB COMMANDS	3	2 - SELECTION OF WELDING PROGRAM	14
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<input type="checkbox"/> Viewing the software version installed	4	5 - WELDING	14
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<input type="checkbox"/> Special functions "Fx"	5	7 - ACTIVATING THE VRD DEVICE	15
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2 - SELECTION OF WELDING PROGRAMME	9	1 - CREATING AND SAVING A JOB	17
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6 - WELDING	11	5 - HOLD	18
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1 - WELDING PROCESS SELECTION	11	<input type="checkbox"/> Error condition	18
2 - WELDING MODE SELECTION	11	<input type="checkbox"/> Introduction	
3 - SPECIAL FUNCTIONS "Fx" SELECTION	12	This manual describes the functions and the manner of utilisation of the TX 18 control panel mounted on the POWER MIG 1800 synergic welder.	
4 - PRE-SETTING	12		
5 - WELDING	13		
6 - HOLD	13		

Control panel

KEY AND KNOB COMMANDS



■ PARAMETER SELECTION key - A

This is used to select the following welding parameters (if activated) and each time the key is pushed the welding machine moves on to select the next parameter in the following order:

- THICKNESS OF WELDED ITEM (⚡).
- WELDING CURRENT (A).
- WIRE SPEED (⊖).

■ MIG-MAG SYNERGIC PROCESS and PROGRAMME SELECTION key

Allows:

- the selection of MIG-MAG synergic welding process;
- the selection of the individual welding PROGRAMME (in the processes in which the programmes are present), according to the welding process selected.

■ ENCODER knob - A

This is used to set and edit the PARAMETERS - A based on the corresponding LED switched on and the value highlighted on the DISPLAY PARAMETERS - A display, required for correct functioning of the machine.

■ WELDING PROCESS SELECTION key

This is used to select the following welding processes and each time the key is pushed the welding machine moves on to select the next welding process in the following order:

- MIG-MAG synergic (SYN).
- MIG-MAG manual (MAN).
- ELECTRODE (MMA) (E).
- TIG with "Lift" striking (L).
- JOB (JOB).

■ SAVE "MEM" key (T ≥ 2 s)

It allows the saving of the parameters in the JOB.

It also allows one to view / change the parameters previously saved in the JOB.

WARNING: No LED switches on when this key is activated!

■ PARAMETER SELECTION key - V

This is used to select the following welding parameters (if activated) and each time the key is pushed the welding machine moves on to select the next parameter in the following order:

- ARC LENGTH ADJUSTMENT (⚡).
- WELDING VOLTAGE (V).
- ELECTRONIC INDUCTANCE (M).

■ ENCODER knob - V

This is used to set and edit the PARAMETERS - V based on the corresponding LED switched on and the value highlighted on the DISPLAY PARAMETERS - V display, required for correct functioning of the machine.

■ WELDING MODE SELECTION key

This is used to select the following welding modes (only for MIG-MAG welding processes) and each time the key is pushed the welding machine moves on to select the next welding mode in the following order:

TWO STROKE (2T)

2T LED (⬇️⬆️) switched on

Pressing the TORCH TRIGGER starts the welding cycle, which will stop when it is released.

FOUR STROKE (4T)

4T LED (⬆️⬇️⬆️) switched on

- 1) Pressing and releasing the TORCH TRIGGER will start the welding cycle.
- 2) Pressing and releasing the TORCH TRIGGER will start the welding cycle.

CRATER 2T

2T LED (⬆️⬇️) switched on - CRATER LED (⌋) switched on

- 1) When the TORCH TRIGGER is pushed the arc ignites and the parameters assume the values for the "initial crater" for a time set by means of the CRATER START TIME (CSt) function. After that the parameter values become those for "welding" for a time defined by the SLOPE (SLo) function.
- 2) When the TORCH TRIGGER is released the parameters take on the "final crater" values for a time set by means of the CRATER END TIME (CEt) function, for a period of time set using the SLOPE (SLo) function.

CRATER 4T

4T LED (⬆️⬇️⬆️) switched on - CRATER LED (⌋) switched on

- 1) When the TORCH TRIGGER is pushed the arc ignites and the parameters assume the values for the "initial crater".
- 2) When the TORCH TRIGGER is released the parameters take on the "welding" values for a time set using the SLOPE (SLo) function.
- 3) When the TORCH TRIGGER is pushed again the parameters take on the "final crater" values for a time defined using the SLOPE (SLo) function.
- 4) Releasing the TORCH TRIGGER will end the welding cycle.

SPOT WELDING 2T

2T LED (⬆️⬇️) switched on - SPOT LED (⚡) switched on

This is used so that on pressing the TORCH TRIGGER spot welding is done for a time period set beforehand (in seconds), after which the arc switches off automatically.

STITCH WELDING 2T

2T LED (⬆️⬇️) switched on - SPOT LED (⚡) flashing

To begin stitch welding:

- 1) Press the TORCH TRIGGER to start the welding current and wire feed.
At this point the welder will perform automatically a succession of a welded tracts followed by a pause, respecting the times set in the functions STITCH WELD TIME (SAt) and STITCH WELD PAUSE (Srt).
This procedure stops automatically only when the TORCH TRIGGER is released.
- 2) When the TORCH TRIGGER is pushed again the torch begins a new interval welding cycle.

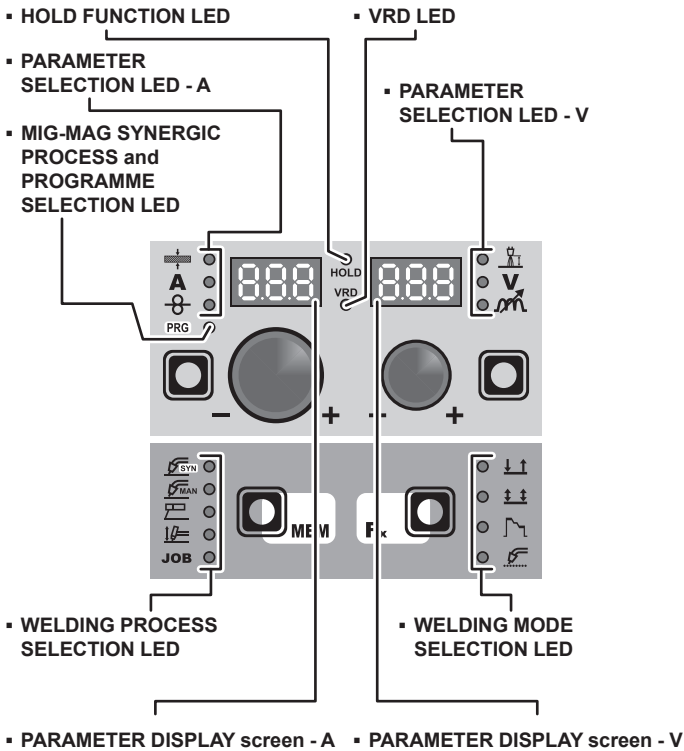
■ SPECIAL FUNCTIONS key "Fx" (T ≥ 3 s)

This key is used to display and edit some parameters that are necessary and fundamental for welding and that have already been set by the manufacturer in the factory.

The parameters vary depending on the welding process and mode used, and are saved in the memory for each automatic welding point (JOB).

WARNING: No LED switches on when this key is activated!

DISPLAY AND LED INDICATIONS



PARAMETER SELECTION LED - A

When one of these LEDs is on it means that the corresponding welding parameter has been selected.

MIG-MAG SYNERGIC PROCESS and PROGRAMME SELECTION LED

This LED will be lit only when the operator selects a welding process (in which there welding programmes present) and the relative associated programme.

PARAMETER DISPLAY screen - A

This Display shows the values / numbers (set or measured) of the following parameters (if active):

- THICKNESS OF WELDED ITEM (≡).
- WELDING CURRENT (A).
- WIRE SPEED (-S-).
- WELDING PROGRAM (PRG).

HOLD FUNCTION LED

Flashing, it indicates that the values of the parameters views on the PARAMETER DISPLAY - A and V are respectively the values that are set or measured at the conclusion of the last welding. The LED flashes for **15** seconds consecutively before turning itself off or until the moment that the operator varies any parameter by means of the use of the handles.

WELDING PROCESS SELECTION LED

When one of these LEDs is on it means that the corresponding welding process has been selected.

PARAMETER SELECTION LED - V

When one of these LEDs is on it means that the corresponding welding parameter has been selected.

PARAMETER DISPLAY screen - V

This Display shows the values / numbers (set or measured) of the following parameters (if active):

- ARC LENGTH ADJUSTMENT (⚡).
- WELDING VOLTAGE (V).
- ELECTRONIC INDUCTANCE (m).

VRD LED

The Voltage Reduction Device (VRD) is a safety device that reduces voltage. It prevents voltages forming on the output terminals that may pose a danger to people.

Two-tone LED (off - red - green) indicates enabling of the VRD. In the welding process:

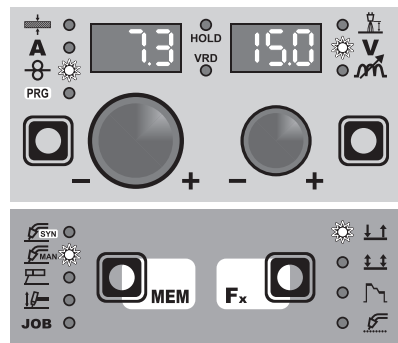
- MIG MAG (Synergic and Manual) / JOB: the VRD device is not managed and therefore the LED always will be off.
- MMA: the operator can decide whether or not to activate the VRD device (to activate the VRD device see the corresponding paragraph) based on its necessities and therefore the LED will be lit and will indicate the activation of the device.
- TIG Lift: the VRD device is always inserted, independently from the state of the JUMPER and therefore the LED always will be lit.

WELDING MODE SELECTION LED

When one or a combination of these LED is lit, it means that the corresponding manner of welding has been selected.

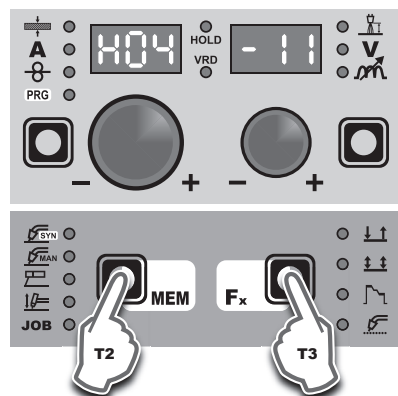
Switching on the welding machine and initial screen

At the switching on of the welder (press the switch, located on the back panel, at the position I), the control performs a short operation of MACHINE CHECK (all of the LED light themselves simultaneously so as to verify their actual operation), and the panel display the INITIAL SCREEN (see the demonstrative figure), after which the operator can begin to work.



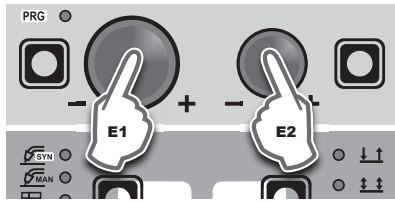
Viewing the software version installed

- 1) When the welding machine is working hold down the WELDING PROCESS SELECTION key (T2) and WELDING MODE SELECTION key (T3) together for about 2 consecutive seconds.

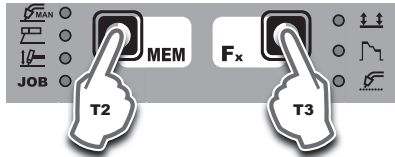


- 2) On both displays appears a running string (see indicative example shown in Fig. A) that indicates the VERSION OF THE SOFTWARE installed on the welder where:
 - H04-11.00 indicates the version of HARDWARE installed.
 - F07-01.10 indicates the version of FIRMWARE installed.
 - C03-01.02 indicates the version of WELDING CURVES installed.
 - POWER MIG 1800 indicates the NAME of the welder.

The rotation of one of the two ENCODER Knobs - A (E1) or V (E2) by the operator during the display of the string version software provokes the block (for 1 second), on both the displays, of the movement of the string itself.



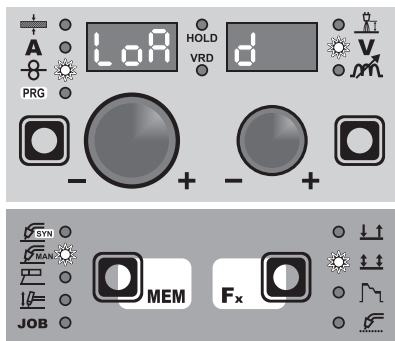
- 3) Ending viewing of the software version on the TX control panel can come about in 2 different ways:
- Automatically: by waiting for the display time to elapse (about 20 seconds).
 - Manually: By holding down the WELDING PROCESS SELECTION key (T2) and WELDING MODE SELECTION key (T3) together for about 2 consecutive seconds.



Loading of the wire

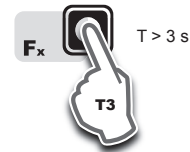
In the MIG-MAG (synergistic and manual) welding processes, with the welder in operation, it is possible to load the wire inside the torch, following this simple procedure:

- Keep the torch button held down.
- After a time of about 2 seconds, the wire begins to load itself at a constant speed.
- The operation is indicated also by the presence, on both the displays, of the writing "LoAd" (see figure).
- To finish the loading of the wire release the torch button.



Special functions "Fx"

To access the SPECIAL FUNCTIONS "Fx" menu, hold the SPECIAL FUNCTIONS "Fx" key (T3) down for at least 3 consecutive seconds.



The special functions allow the operator to regulate further parameters, calibrations, partial resetting, or complete resetting of the welding machine and are operative, in different ways, within each welding process.

The SPECIAL FUNCTIONS "Fx" that can be edited are broken down into a **2-level menu** where:

- The **FIRST LEVEL MENU** contains the parameters normally used for set process functionality (described in specific paragraphs). Then there is an independent parameter, **SPECIAL FUNCTIONS MENU (SPC Fnc)**, that provides access to the **SECOND LEVEL MENU**.
- The **SECOND LEVEL MENU** allows the access to a series of operations, suitable to an expert operator, some connected to the welding process, some to the welding procedures and others connected directly to the welding machine.

Table 1 shows the special functions available. Details of the meaning of the columns are as follows:

- **FUNCTION** column: name of the special function.
- **DISPLAY** column: symbol for the special function (message shown in the PARAMETERS DISPLAY - A screen).
- **FACTORY** column: Factory setting for the special function (message shown in the PARAMETERS DISPLAY - V screen).
- **RANGE** column: regulation field for the special function.
- The last two groups of columns, **WELDING PROCESS** and **MIG-MAG WELDING MODE** indicate the welding process and mode in which the special function can be selected. Example: the SPOT WELD TIME function can be selected only when one is welding in synergistic MIG-MAG or manual SPOT 2T mode.

- 1) Within the **FIRST LEVEL MENU**:
 - Rotate the ENCODER - A knob (E1) to select the SPECIAL FUNCTION required.
 - Rotate the ENCODER - V knob (E2) to edit the VALUE for the special function selected.

WARNING: Changes to values are immediately activated (no further confirmation is required and they will be displayed immediately) or, at least they will become active the next time welding is done. The operator can edit the functions (not the wire speed and other parameters) when welding is underway and continue welding without having to exit the SPECIAL FUNCTIONS "Fx" menu.

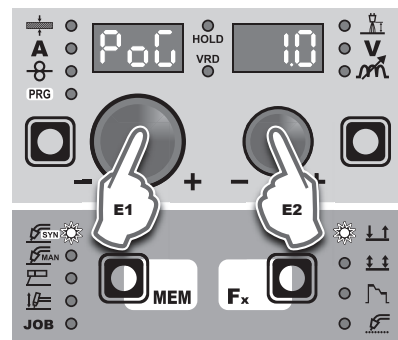
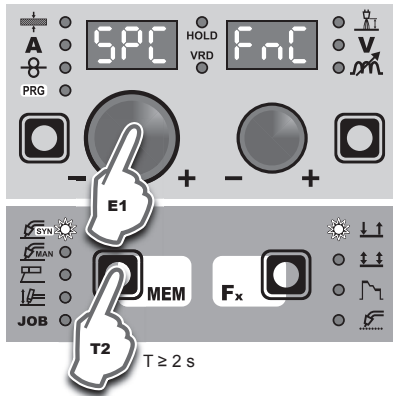


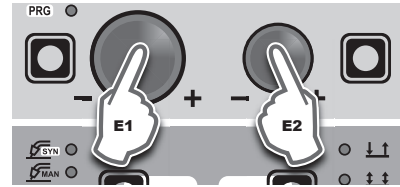
FIG. A

- 2) You can access the SECOND LEVEL MENU (except for when the JOB process is active) only via the **SPECIAL FUNCTIONS MENU (SPC FnC)** parameter, as follows:
- Within the FIRST LEVEL MENU, rotating the ENCODER Knob - A (E1) until there appears on both the displays the **SPC FnC** parameter and subsequently keeping pressed down the SAVE "MEM" Key (T2) for a duration of at least 2 seconds (see figure).



Within the SECOND LEVEL MENU:

- Rotate the ENCODER - A knob (E1) to select the special function required.
- Rotate the ENCODER - V knob (E2) to edit the setting for the special function selected.
- It is not possible to begin welding again or to continue welding.



To go back to the FIRST LEVEL MENU press and release the SPECIAL FUNCTIONS "Fx" key (T3).

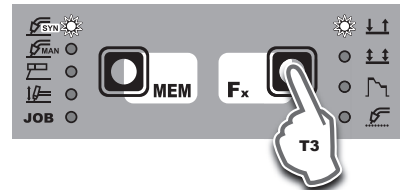


Table 1

ADJUSTABLE FUNCTIONS "Fx"													
FUNCTION	DISPLAY	SETTINGS RANGE		WELDING PROCESS				MIG-MAG WELDING MODE					
		FACTORY	RANGE	MIG MAG SYN	MIG MAG MAN	TIG	MMA	2T	4T	CRA 2T	CRA 4T	SPOT 2T	STITCH 2T
FIRST LEVEL MENU													
MIG-MAG process													
PRE GAS	PrG	0.1s	(0.0 ÷ 2.0)s	•	•			•	•	•	•	•	•
STARTING SPEED	Sts	0	-30 ÷ +30	•	•			•	•	•	•	•	•
HOT START	Hot	0	-30 ÷ +30	•	•			•	•	•	•	•	•
CRATER													
INITIAL CRATER													
CRATER START CURRENT	CSC	20%	(-50 ÷ +100)%	•						•	•		
CRATER START SPEED	CSS	5.0m/min	(0.6 ÷ MAX)m/min		•					•	•		
CRATER START VOLTAGE	CSu	15.0V	(min ÷ MAX)V		•					•	•		
CRATER START TIME	CSt	1.0s	(0.0 ÷ 5.0)s	•	•					•	•		
SLOPE	SLo	1.0s	(0.0 ÷ 8.0)s	•	•					•	•		
FINAL CRATER													
CRATER END CURRENT	CEC	-30	(-99 ÷ +50)%	•						•	•		
CRATER END SPEED	CES	5.0m/min	(0.6 ÷ MAX)m/min		•					•	•		
CRATER END VOLTAGE	CEu	15.0V	(min ÷ MAX)V		•					•	•		
CRATER END TIME	CEt	0.0s	(0.0 ÷ 5.0)s	•	•					•	•		
SPOT WELD TIME	SPt	3.0s	(0.1 ÷ 20.0)s	•	•								•
STITCH WELD													
STITCH WELD TIME	SAt	1.0s	(0.1 ÷ 8.0)s	•	•								•
STITCH WELD PAUSE	Srt	1.0s	(0.1 ÷ 8.0)s	•	•								•
BURN BACK	bub	0	-30 ÷ +30	•	•			•	•	•	•	•	•
POST GAS	PoG	1.0s	(0.0 ÷ 10.0)s	•	•			•	•	•	•	•	•
TIG process													
UP SLOPE	uP	0.0s	(0.0 ÷ 5.0)s			•							
DOWN SLOPE	don	2.0s	(0.0 ÷ 8.0)s			•							
SWS VOLTAGE LIMIT	SuL	0	-30 ÷ +30			•							
MMA process													
HOT START	Hot	50	0 ÷ 100				•						
ARC FORCE	Arc	50	0 ÷ 100				•						
SECOND LEVEL MENU													
SPECIAL FUNCTIONS MENU	SPC FnC												
PROCESS DEFAULT	dEF	no	no - YES	•	•	•	•	•	•	•	•	•	•
FACTORY DEFAULT	FAC	no	no - YES	•	•	•	•	•	•	•	•	•	•
SAFETY CALIBRATION CODE	SCC	7	0 ÷ 100	•	•			•	•	•	•	•	•
MOTOR CALIBRATION	CAL			•	•			•	•	•	•	•	•

- 3) To exit from the SPECIAL FUNCTIONS “Fx” menu:
 - Press and release once the SPECIAL FUNCTIONS “Fx” Key (T3) if you are on the FIRST LEVEL MENU.
 - Press and release twice the SPECIAL FUNCTIONS “Fx” Key (T3) if you are on the SECOND LEVEL MENU.

WARNING: The functions that can be selected depend on the welding process activated. For this reason details of each function are given on the next pages, along with a description of the welding processes.

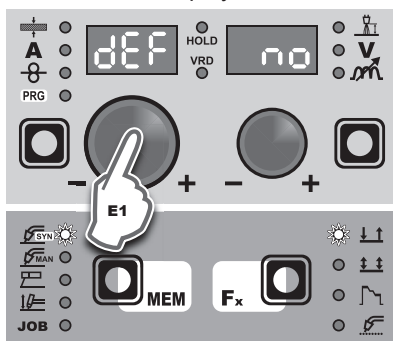
Special Functions Menu (SPC FnC)

PROCESS DEFAULT (dEF)

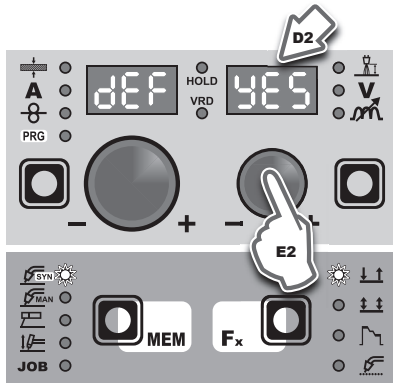
WARNING: This operation, if performed, brings about the partial restoration of all of the modifiable parameters to the settings already defined in the factory (excluding deletion of JOBS).

To carry out the reset of the settings / parameters, proceed in the following manner:

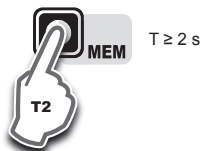
- 1) Within the SECOND LEVEL MENU rotate the ENCODER - A (E1) knob until both the displays read **dEF no** (see figure).



- 2) Rotate the ENCODER - V knob (E2) until the PARAMETERS DISPLAY - V screen (D2) reads **YES**.



- 3) Hold the SAVE “MEM” key (T2) down for at least 2 consecutive seconds.



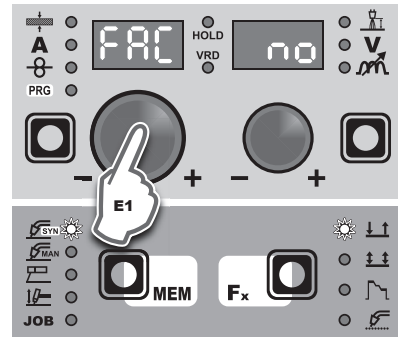
- 4) At this stage the **partial reset** or **process default** procedure has been completed successfully (the parameters have been taken back to the factory values, while any JOBS saved remain unaltered).

FACTORY DEFAULT (FAC)

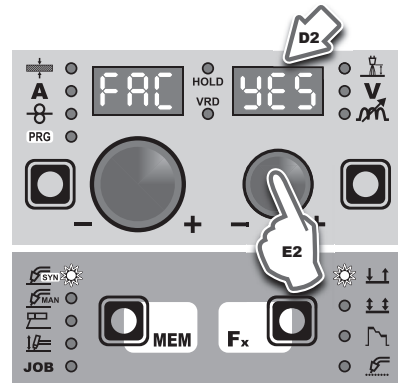
WARNING: This operation, if performed, brings about the total restoration of all of the modifiable parameters to the settings already defined in the factory (including deletion of JOBS).

To carry out the reset of the settings / parameters, proceed in the following manner:

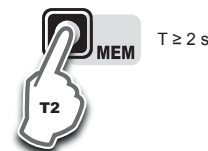
- 1) Within the SECOND LEVEL MENU rotate the ENCODER - A (E1) knob until both the displays read **FAC no** (see figure).



- 2) Rotate the ENCODER - V knob (E2) until the PARAMETERS DISPLAY - V screen (D2) reads **YES**.



- 3) Hold the SAVE “MEM” key (T2) down for at least 2 consecutive seconds.



- 4) At this stage the **total reset** or **factory default** procedure has been completed successfully (the parameters have been taken back to the factory values and any JOBS saved have been deleted). To confirmation the above, the control panel of the welder performs a short operation of MACHINE CHECK (all of the LED stay lit simultaneously so as to verify their actual operation), the generator itself starts, having memorised the new settings and is again ready to weld.

SAFETY CALIBRATION CODE (SCC)

ATTENTION: This operation, if carried on, optimizes the efficiency of the welding circuit (only in MIG welding processes).

To set the length of the welding circuit (adjustable from 1 to 100 m) follow this procedure:

- Within the SECOND LEVEL MENU, rotate the ENCODER knob - A (E1) until obtaining on the PARAMETER DISPLAY screen - A (D1) and the writing **SCC**.
- Rotate the ENCODER knob - V (E2) until obtaining on the PARAMETER DISPLAY screen - V (D2) the desired number.

CAUTION: The operation does not require confirmation!

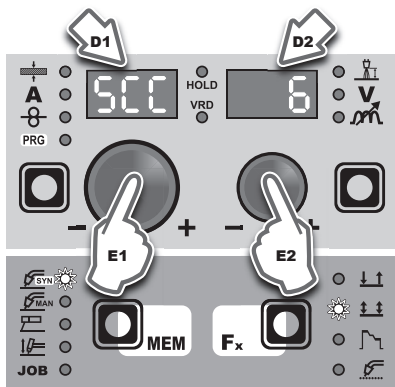
CAUTION: The data inserted is valid for all the MIG welding processes.

Example:

Length of cable mass 3 m.

Length of welding torch cable 3 m.

The overall length of the welding circuit is 6 m (6 is the number that will therefore be inserted).

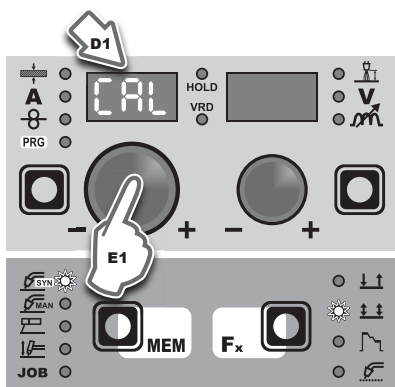


MOTOR CALIBRATION (CAL)

ATTENTION: This procedure allows you to calibrate the wire speed (only in MIG welding processes).

Proceed as follows:

- Within the SECOND LEVEL MENU rotate the ENCODER - A (E1) knob until the PARAMETER DISPLAY - A (D1) screen reads **CAL**.



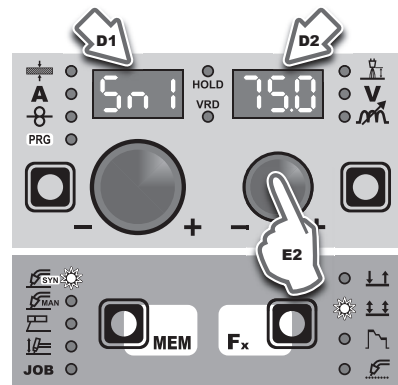
- To access the CALIBRATION MENU hold the SAVE "MEM" key (T2) down for at least 2 consecutive seconds.



- The procedure of calibration is carried out in 3 different phases:

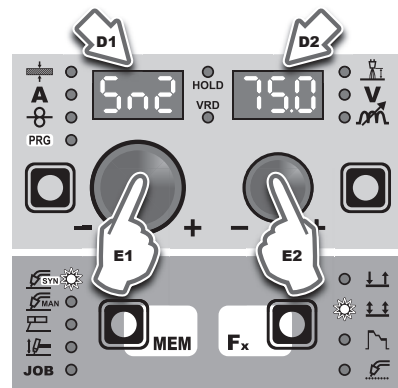
1. Calibration parameter SM1 (MINIMUM SPEED)

Press and release the torch button, then wait for the automatic arrest of the wire. Measure (in cm) the dangling wire and insert the value shown, in the software of the welder, by means of the rotation of the ENCODER knob - V (E2) appearing on the PARAMETER DISPLAY screen - V (D2) is the desired value.



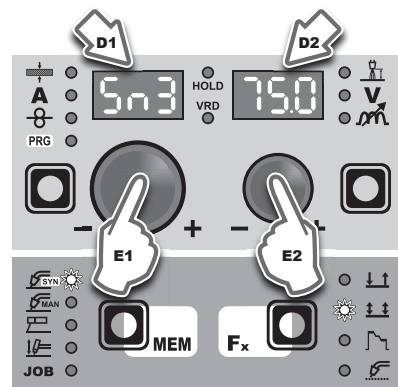
2. Calibration parameter SM2 (MEDIUM SPEED)

Then turn the ENCODER - A knob (E1) until the PARAMETER DISPLAY - A screen (D1) shows the **SM2** parameter. Press and release the torch button, then wait for the automatic arrest of the wire. Measure (in cm) the dangling wire and insert the value shown, in the software of the welder, by means of the rotation of the ENCODER knob - V (E2) appearing on the PARAMETER DISPLAY screen - V (D2) is the desired value.



3. Calibration parameter SM3 (MAXIMUM SPEED)

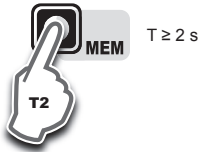
Then turn the ENCODER - A knob (E1) until the PARAMETER DISPLAY - A screen (D1) shows the **SM3** parameter. Press and release the torch button, then wait for the automatic arrest of the wire. Measure (in cm) the dangling wire and insert the value shown, in the software of the welder, by means of the rotation of the ENCODER knob - V (E2) appearing on the PARAMETER DISPLAY screen - V (D2) is the desired value.



- At the end of the procedure, the software present in the welder will immediately re-calculate the characteristic curve of the engine, rendering it suitable to use.

WARNING: The motor **CANNOT** be stopped during the measuring time!

- To exit from the CALIBRATION menu, press and release the SAVE "MEM" key (T2).



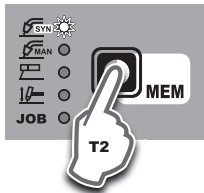
MIG-MAG synergic

Start the welder by pressing the switch, located on the back panel, at the position I.

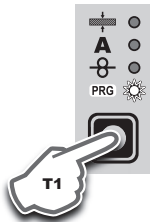
1 - WELDING PROCESS SELECTION

Select the MIG welding PROCESS this way:

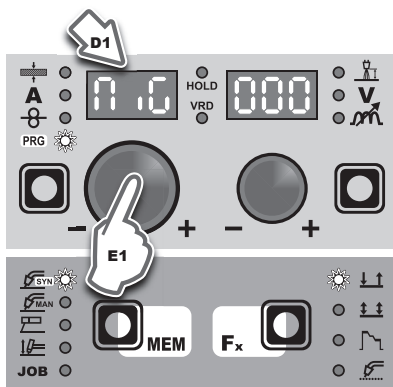
- Pressing and releasing, even various times if necessary, the WELDING PROCESS SELECTION key (T2) until the corresponding LED lights up.



- Pressing and releasing, even various times if necessary, the MIG WELDING PROCESS and PROGRAMME SELECTION key (T2) until the corresponding LED lights up.



- Rotating the ENCODER knob - A (E1) until obtaining on the PARAMETER DISPLAY screen - A (D1) and the writing **MiG**.



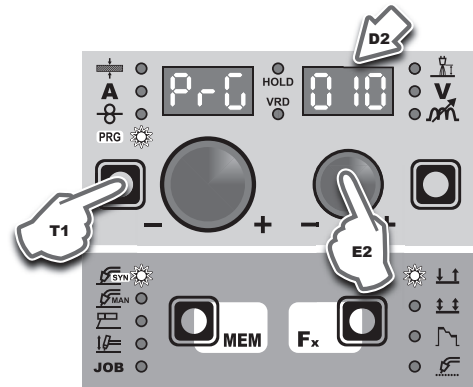
2 - SELECTION OF WELDING PROGRAMME

PROGRAM TABLE (*)						
MIG-MAG PROCESS						
PROGRAM NUMBER	MATERIAL		WIRE Ø (mm)	GAS	DISPLAYS	
	TYPE	CLASS				
000	Fe	G3 Si-1	0.6	CO ₂	MiG	000
001	Fe	G3 Si-1	0.8	CO ₂	MiG	001
002	Fe	G3 Si-1	1.0	CO ₂	MiG	002
010	Fe	G3 Si-1	0.6	Ar/16-20%CO ₂	MiG	010
011	Fe	G3 Si-1	0.8	Ar/16-20%CO ₂	MiG	011
012	Fe	G3 Si-1	1.0	Ar/16-20%CO ₂	MiG	012
015	Fe	G3 Si-1	0.9	Ar/16-20%CO ₂	MiG	015
195	Fe-rutil flux-cored	E71T-GS	0.9	(**)	MiG	195
231	CrNi 308	G 19 9 LSI	0.8	Ar/2-3%CO ₂	MiG	231
232	CrNi 308	G 19 9 LSI	1.0	Ar/2-3%CO ₂	MiG	232
402	Al 99.9	S Al 1050	1.0	Ar	MiG	402
403	Al 99.9	S Al 1050	1.2	Ar	MiG	403
412	Al Mg 5	S Al 5356	1.0	Ar	MiG	412
413	Al Mg 5	S Al 5356	1.2	Ar	MiG	413
422	Al Si 5	S Al 4043A	1.0	Ar	MiG	422
423	Al Si 5	S Al 4043A	1.2	Ar	MiG	423
511	Cu Si 3	S CuSi3	0.8	Ar	MiG	511
512	Cu Si 3	S CuSi3	1.0	Ar	MiG	512

(*) THE programmes of welding can be updated and broadened. Refer to the table on the welder to have the correct list of the available programmes.

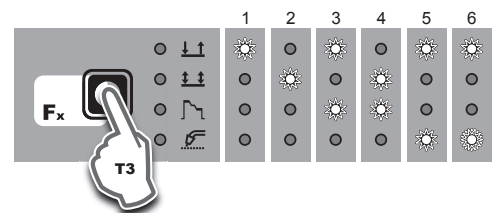
(**) When one utilises this wire, remember to mechanically invert the poles (see section "MIG-MAG welding without GAS" on the manual).

Select the PROGRAM of synergic MIG-MAG welding by pressing and releasing, even several times if necessary, the PROGRAM SELECTION key (T1) until the corresponding LED is lit and after that rotating the ENCODER knob - V (E2) until obtaining on the PARAMETER DISPLAY screen - V (D2) the number of the programme desired.



3 - WELDING MODE SELECTION

Select the MODE of welding, pressing and releasing, even various times if necessary, the WELDING MODE SELECTION key (T3) until the corresponding LED lights up.



- TWO STROKE (2T)
- FOUR STROKE (4T)
- CRATER 2T
- CRATER 4T
- SPOT WELDING 2T
- STITCH WELDING 2T

4 - SPECIAL FUNCTIONS “Fx” SELECTION

The SPECIAL FUNCTIONS “Fx” that are only available in the MIG-MAG synergic welding process are shown below. For all the other explanations regarding this menu make reference to the relative paragraph.

■ FIRST LEVEL MENU

- **PRE GAS (PrG)** - Provides an additional quantity of gas for a defined time, before welding starts.
- **STARTING SPEED (StS)** - Regulates the speed at which the wire approaches the workpiece. The value indicated is a percentage variation in relation to the factory setting value.
- **HOT START (Hot)** - Regulates the current intensity for igniting the welding arc. The value indicated is a percentage variation in relation to the factory setting value.
- **CRATER START CURRENT (CSC)** - Sets the initial starting current of the crater.
- **CRATER START TIME (CSt)** - This function defines the time in which the current remains at the value of CRATER START CURRENT.
- **SLOPE (SLo)** - The time lapse for passing from the CRATER START CURRENT level to the welding current level and to pass from the latter to the CRATER END CURRENT.
- **CRATER END CURRENT (CEC)** - Sets the final welding current of the crater.
- **CRATER END TIME (CEt)** - This function defines the time in which the current remains at the value of CRATER END CURRENT.
- **SPOT WELD TIME (SPt)** - The time during which spot welding takes place after the arc is ignited, after which the arc is extinguished automatically.
- **STITCH WELD TIME (SAt)** - Time in which the welding in tracts is performed after the ignition of the arch, after which the arch switches off automatically.
- **STITCH WELD PAUSE (Srt)** - Time of pause between one welding in tracts and another.
- **BURN BACK (bub)** - Regulates the length of the wire after welding. The value indicated is a percentage variation in relation to the factory setting value. Higher numbers correspond to more burning of the wire.
- **POST GAS (PoG)** - Provides an additional quantity of gas for a defined time, after welding ends.

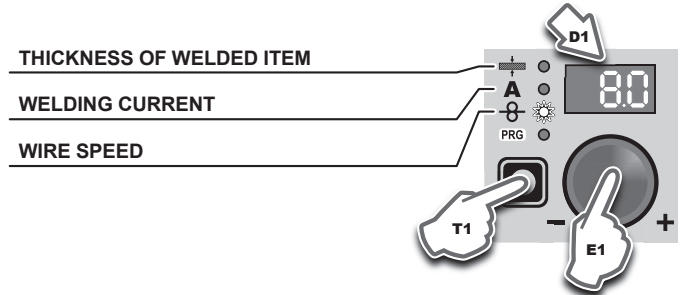
Then there is an independent parameter, **SPECIAL FUNCTIONS MENU (SPC FnC)**, that provides access to the **SECOND LEVEL MENU**.

■ SECOND LEVEL MENU

See the “Special Functions Menu (SPC FnC)” paragraph.

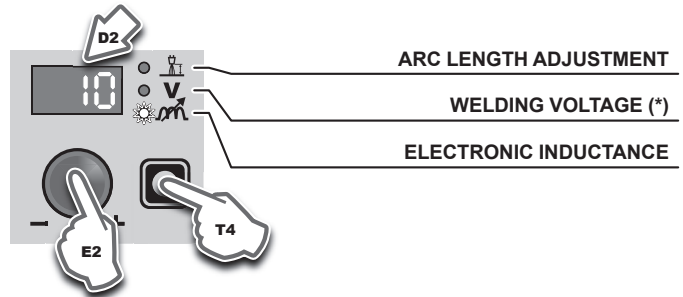
5 - PRE-SETTING

Before welding it is possible to set the following parameters:



Example: WIRE SPEED

Press the PARAMETER SELECTION - A key (T1) until the LED that corresponds to the WIRE SPEED switches on. Turn the ENCODER - A knob (E1) to change the value shown on the PARAMETER DISPLAY - A screen (D1).



(*) The parameter is pre-set by means of synergy and can be changed by varying the ARC LENGTH ADJUSTMENT parameter.

ADJUSTABLE FUNCTIONS “Fx”									
FUNCTION	DISPLAY	SETTINGS RANGE		MIG-MAG WELDING MODE					
		FACTORY	RANGE	2T	4T	CRA 2T	CRA 4T	SPOT 2T	STITCH 2T
FIRST LEVEL MENU									
MIG-MAG process									
PRE GAS	PrG	0.1s	(0.0 ÷ 2.0)s	•	•	•	•	•	•
STARTING SPEED	Sts	0	-30 ÷ +30	•	•	•	•	•	•
HOT START	Hot	0	-30 ÷ +30	•	•	•	•	•	•
CRATER									
INITIAL CRATER									
CRATER START CURRENT	CSC	20%	(-50 ÷ +100)%			•	•		
CRATER START TIME	CSt	1.0s	(0.0 ÷ 5.0)s			•			
SLOPE	SLo	1.0s	(0.0 ÷ 8.0)s			•	•		
FINAL CRATER									
CRATER END CURRENT	CEC	-30	(-99 ÷ +50)%			•	•		
CRATER END TIME	CEt	0.0s	(0.0 ÷ 5.0)s			•			
SPOT WELD TIME	SPt	3.0s	(0.1 ÷ 20.0)s					•	
STITCH WELD									
STITCH WELD TIME	SAt	1.0s	(0.1 ÷ 8.0)s						•
STITCH WELD PAUSE	Srt	1.0s	(0.1 ÷ 8.0)s						•
BURN BACK	bub	0	-30 ÷ +30	•	•	•	•	•	•
POST GAS	PoG	1.0s	(0.0 ÷ 10.0)s	•	•	•	•	•	•
SECOND LEVEL MENU									
SPECIAL FUNCTIONS MENU	SPC FnC								
PROCESS DEFAULT	dEF	no	no - YES	•	•	•	•	•	•
FACTORY DEFAULT	FAC	no	no - YES	•	•	•	•	•	•
SAFETY CALIBRATION CODE	SCC	7	0 ÷ 100	•	•	•	•	•	•
MOTOR CALIBRATION	CAL			•	•	•	•	•	•

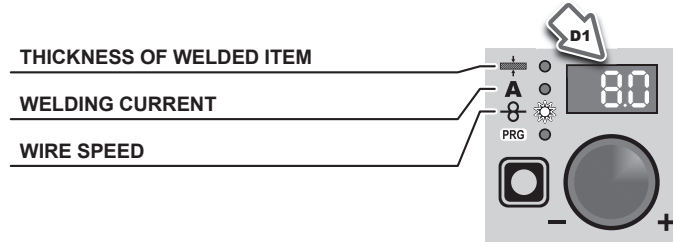
Example: ELECTRONIC INDUCTANCE

Press the PARAMETER SELECTION - V key (T4) until the LED that corresponds to the ELECTRONIC INDUCTANCE switches on. Turn the ENCODER - V knob (E2) to change the value shown on the PARAMETER DISPLAY - V screen (D2).

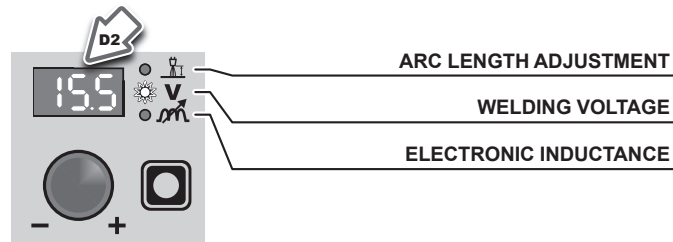
6 - WELDING

During the welding the display shows:

- PARAMETER DISPLAY screen - A (D1)



- THICKNESS OF WELDED ITEM (⚡): the value previously set.
- WELDING CURRENT (A): the measured value of the current of what is being welded.
- WIRE SPEED (-8): the value previously set.



- ARC LENGTH ADJUSTMENT (⚡): the value previously set.
- WELDING VOLTAGE (V): the measured value of the voltage of what is being welded.
- ELECTRONIC INDUCTANCE (m): the value previously set.

During the welding the operator can change the following parameters:

- THICKNESS OF WELDED ITEM (⚡).
- WELDING CURRENT (A).
- WIRE SPEED (-8).
- ARC LENGTH ADJUSTMENT (⚡).
- ELECTRONIC INDUCTANCE (m).
- SPECIAL FUNCTIONS "Fx" - FIRST LEVEL MENU.

WARNING: Remember that this process of welding is synergic and for this reason the alteration of an individual parameter synergically also influences other parameters according to the pre-defined settings that are not modifiable!

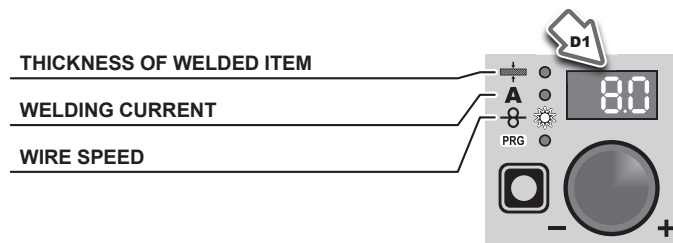
7 - HOLD

This function automatically starts itself at the conclusion of every welding operation and it is indicated to the operator by means of a flashing light of the HOLD FUNCTION LED for a specific amount of time.

Once the welding has been terminated, for about 15 seconds, both the DISPLAYS should show the same values of the parameters during the welding.

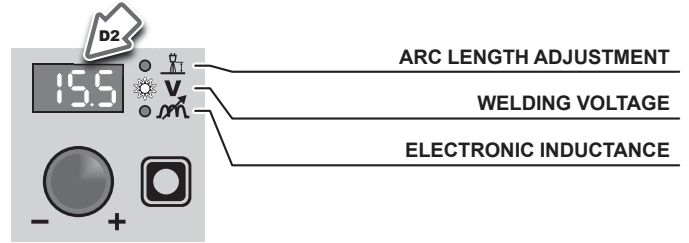
In this phase the displays show:

- PARAMETER DISPLAY screen - A (D1)

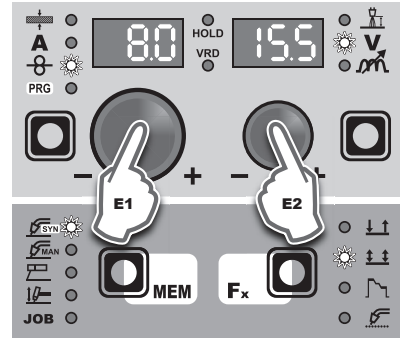


- THICKNESS OF WELDED ITEM (⚡): the value previously set.
- WELDING CURRENT (A): the last current value measured.
- WIRE SPEED (-8): the value previously set.

- PARAMETER DISPLAY screen - V (D2)



- ARC LENGTH ADJUSTMENT (⚡): the value previously set.
 - WELDING VOLTAGE (V): the last voltage value measured.
 - ELECTRONIC INDUCTANCE (m): the value previously set.
- To interrupt the HOLD function and go back to the PRESETTING phase before 15 seconds have passed, simply turn one of the two ENCODER knobs (E1-E2).



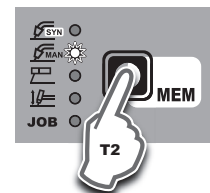
The HOLD function can be terminated ahead of time even while once again starting the welding. Once 15 seconds have passed (HOLD FUNCTION) the TX 18 control panel goes back to the PRESETTING phase.

MIG-MAG manual

Start the welder by pressing the switch, located on the back panel, at the position I.

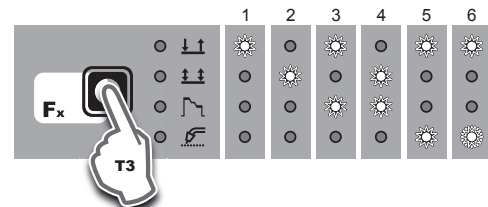
1 - WELDING PROCESS SELECTION

Select the MIG-MAG manual PROCESS of welding, pressing and releasing, even various times if necessary, the WELDING PROCESS SELECTION key (T2) until the corresponding LED lights up.



2 - WELDING MODE SELECTION

Select the MODE of welding, pressing and releasing, even various times if necessary, the WELDING MODE SELECTION key (T3) until the corresponding LED lights up.



- TWO STROKE (2T)
- FOUR STROKE (4T)
- CRATER 2T
- CRATER 4T
- SPOT WELDING 2T
- STITCH WELDING 2T

3 - SPECIAL FUNCTIONS “Fx” SELECTION

The SPECIAL FUNCTIONS “Fx” that are only available in the MIG-MAG manual welding process are shown below. For all the other explanations regarding this menu make reference to the relative paragraph.

■ FIRST LEVEL MENU

- **PRE GAS (PrG)** - Provides an additional quantity of gas for a defined time, before welding starts.
- **STARTING SPEED (Sts)** - Regulates the speed at which the wire approaches the workpiece. The value indicated is a percentage variation in relation to the factory setting value.
- **HOT START (HoT)** - Regulates the current intensity for igniting the welding arc. The value indicated is a percentage variation in relation to the factory setting value.
- **CRATER START SPEED (CSS)** - Sets the initial speed of the welding wire for the crater.
- **CRATER START VOLTAGE (CSu)** - Sets the initial welding voltage for the crater.
- **CRATER START TIME (CSt)** - This function defines the time in which the current remains at the value of CRATER START SPEED or CRATER START VOLTAGE.
- **SLOPE (SLo)** - Time necessary to pass from the level of CRATER START SPEED or CRATER START VOLTAGE to the level of welding current and to arrive from this level to the CRATER END SPEED or CRATER END VOLTAGE level.
- **CRATER END SPEED (CES)** - Sets the final speed of the welding wire for the crater.
- **CRATER END VOLTAGE (CEu)** - Sets the final welding voltage for the crater
- **CRATER END TIME (CEt)** - This function defines the time in which the current remains at the value of CRATER END SPEED or CRATER END VOLTAGE.
- **SPOT WELD TIME (SPt)** - The time during which spot welding takes place after the arc is ignited, after which the arc is extinguished automatically.
- **STITCH WELD TIME (SAt)** - Time in which the welding in tracts is performed after the ignition of the arch, after which the arch switches off automatically.

- **STITCH WELD PAUSE (Srt)** - Time of pause between one welding in tracts and another.
- **BURN BACK (bub)** - Regulates the length of the wire after welding. The value indicated is a percentage variation in relation to the factory setting value. Higher numbers correspond to more burning of the wire.
- **POST GAS (PoG)** - Provides an additional quantity of gas for a defined time, after welding ends.

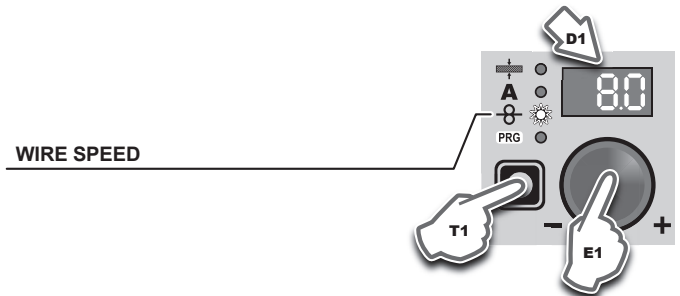
Then there is an independent parameter, **SPECIAL FUNCTIONS MENU (SPC FnC)**, that provides access to the SECOND LEVEL MENU.

■ SECOND LEVEL MENU

See the “Special Functions Menu (SPC FnC)” paragraph.

4 - PRE-SETTING

Before welding it is possible to set the following parameters:

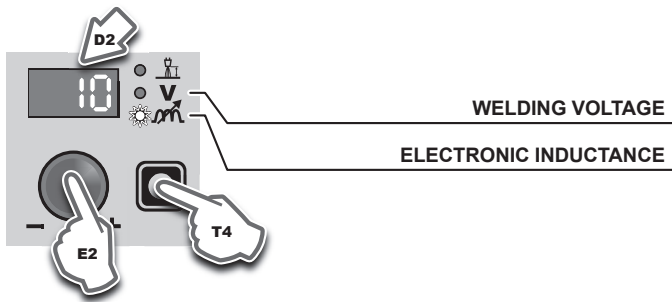


Example: WIRE SPEED

Press the PARAMETER SELECTION - A key (T1) until the LED that corresponds to the WIRE SPEED switches on. Turn the ENCODER - A knob (E1) to change the value shown on the PARAMETER DISPLAY - A screen (D1).

ADJUSTABLE FUNCTIONS “Fx”

FUNCTION	DISPLAY	SETTINGS RANGE		MIG-MAG WELDING MODE					
		FACTORY	RANGE	2T	4T	CRA 2T	CRA 4T	SPOT 2T	STITCH 2T
FIRST LEVEL MENU									
MIG-MAG process									
PRE GAS	PrG	0.1s	(0.0 ÷ 2.0)s	•	•	•	•	•	•
STARTING SPEED	Sts	0	-30 ÷ +30	•	•	•	•	•	•
HOT START	Hot	0	-30 ÷ +30	•	•	•	•	•	•
CRATER									
INITIAL CRATER									
CRATER START SPEED	CSS	5.0m/min	(0.6 ÷ MAX)m/min			•	•		
CRATER START VOLTAGE	CSu	15.0V	(min ÷ MAX)V			•	•		
CRATER START TIME	CSt	1.0s	(0.0 ÷ 5.0)s			•			
SLOPE	SLo	1.0s	(0.0 ÷ 8.0)s			•	•		
FINAL CRATER									
CRATER END SPEED	CES	5.0m/min	(0.6 ÷ MAX)m/min			•	•		
CRATER END VOLTAGE	CEu	15.0V	(min ÷ MAX)V			•	•		
CRATER END TIME	CEt	0.0s	(0.0 ÷ 5.0)s			•			
SPOT WELD TIME	SPt	3.0s	(0.1 ÷ 20.0)s					•	
STITCH WELD									
STITCH WELD TIME	SAt	1.0s	(0.1 ÷ 8.0)s						•
STITCH WELD PAUSE	Srt	1.0s	(0.1 ÷ 8.0)s						•
BURN BACK	bub	0	-30 ÷ +30	•	•	•	•	•	•
POST GAS	PoG	1.0s	(0.0 ÷ 10.0)s	•	•	•	•	•	•
SECOND LEVEL MENU									
SPECIAL FUNCTIONS MENU									
PROCESS DEFAULT	dEF	no	no - YES	•	•	•	•	•	•
FACTORY DEFAULT	FAC	no	no - YES	•	•	•	•	•	•
SAFETY CALIBRATION CODE	SCC	7	0 ÷ 100	•	•	•	•	•	•
MOTOR CALIBRATION	CAL			•	•	•	•	•	•

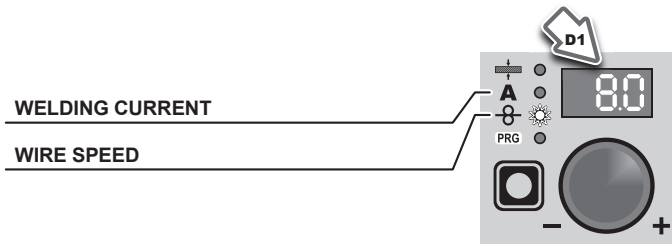


Example: ELECTRONIC INDUCTANCE
 Press the PARAMETER SELECTION - V key (T4) until the LED that corresponds to the ELECTRONIC INDUCTANCE switches on. Turn the ENCODER - V knob (E2) to change the value shown on the PARAMETER DISPLAY - V screen (D2).

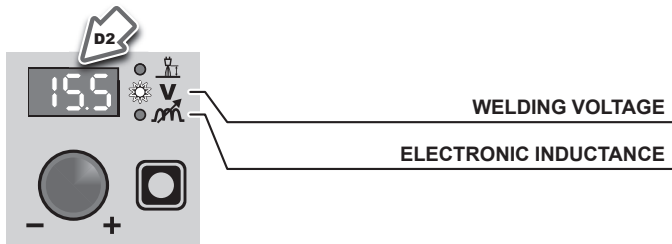
5 - WELDING

During the welding the display shows:

- PARAMETER DISPLAY screen - A (D1)



- WELDING CURRENT (A): the measured value of the current of what is being welded.
- WIRE SPEED (8): the value previously set.
- PARAMETER DISPLAY screen - V (D2)



- WELDING VOLTAGE (V): the measured value of the voltage of what is being welded.
- ELECTRONIC INDUCTANCE (m): the value previously set.

During the welding the operator can change the following parameters:

- WIRE SPEED (8).
- WELDING VOLTAGE (V).
- ELECTRONIC INDUCTANCE (m).
- SPECIAL FUNCTIONS "Fx" - FIRST LEVEL MENU.

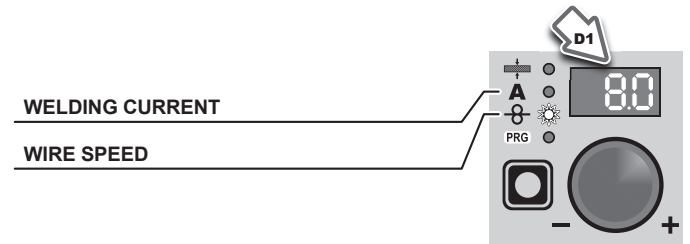
6 - HOLD

This function automatically starts itself at the conclusion of every welding operation and it is indicated to the operator by means of a flashing light of the HOLD FUNCTION LED for a specific amount of time.

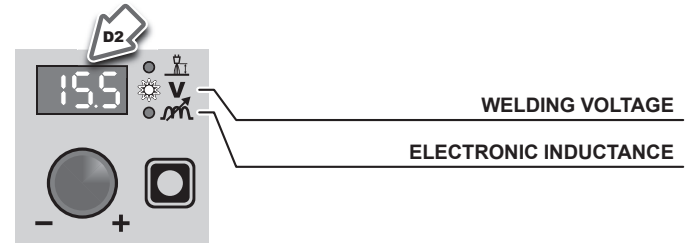
Once the welding has been terminated, for about 15 seconds, both the DISPLAYS should show the same values of the parameters during the welding.

In this phase the displays show:

- PARAMETER DISPLAY screen - A (D1)

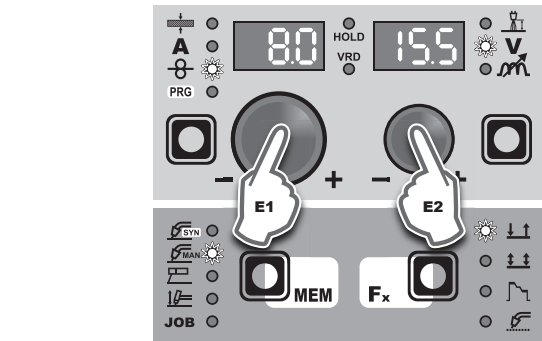


- WELDING CURRENT (A): the last current value measured.
- WIRE SPEED (8): the value previously set.
- PARAMETER DISPLAY screen - V (D2)



- WELDING VOLTAGE (V): the last voltage value measured.
- ELECTRONIC INDUCTANCE (m): the value previously set.

To interrupt the HOLD function and go back to the PRESETTING phase before 15 seconds have passed, simply turn one of the two ENCODER knobs (E1-E2).



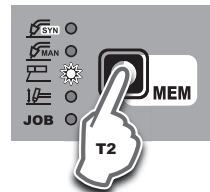
The HOLD function can be terminated ahead of time even while once again starting the welding. Once 15 seconds have passed (HOLD FUNCTION) the TX control panel goes back to the PRESETTING phase.

Electrode (MMA)

Start the welder by pressing the switch, located on the back panel, at the position I.

1 - WELDING PROCESS SELECTION

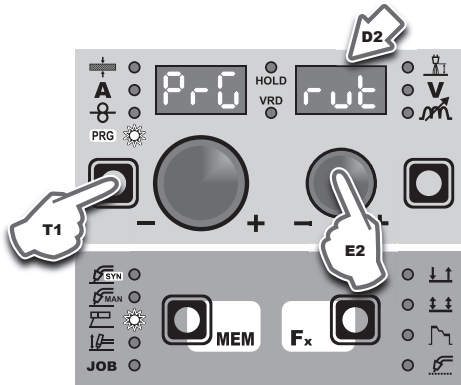
Select the ELECTRODE PROCESS of welding (for welding with "HOT START" and "ARC FORCE" devices, programmable by the user) pressing and releasing, even various times if necessary, the WELDING PROCESS SELECTION key (T2) until the corresponding LED lights up.



2 - SELECTION OF WELDING PROGRAM

PROGRAM TABLE			
MMA PROCESS			
MATERIAL		DISPLAY	
TYPE	CLASS		
Basic	E7018	MMA	bAS
Rutil	E6013	MMA	rut
Cr-Ni	E316L	MMA	Crn

Select the PROGRAMME of welding by pressing and releasing, even several times if necessary, the PROGRAM SELECTION key (T1) until the corresponding LED is lit and after that rotating the ENCODER knob - V (E2) until obtaining on the PARAMETER DISPLAY screen - V (D2) the number of the programme desired, chosen on the basis of the type of electrode to use (basic, rutile, Chrome-Nichel).



3 - SPECIAL FUNCTIONS "Fx" SELECTION

ADJUSTABLE FUNCTIONS "Fx"			
FUNCTION	DISPLAY	SETTINGS RANGE	
		FACTORY	RANGE
FIRST LEVEL MENU			
HOT START	Hot	50	0 + 100
ARC FORCE	Arc	50	0 + 100
SECOND LEVEL MENU			
SPECIAL FUNCTIONS MENU	SPC FnC		
PROCESS DEFAULT	dEF	no	no - YES
FACTORY DEFAULT	FAC	no	no - YES

The SPECIAL FUNCTIONS "Fx" that are only available in the MMA welding process are shown below. For all the other explanations regarding this menu make reference to the relative paragraph.

■ FIRST LEVEL MENU

- **HOT START (Hot)** - At the start of the welding process it increases the current, adjustable in percentage, reducing in such a way the risk of low function at the start of the connection.
- **ARC FORCE (Arc)** - During the welding process, it increases the current in percentage, reducing in such a way the risk of fusing the electrode to the piece.

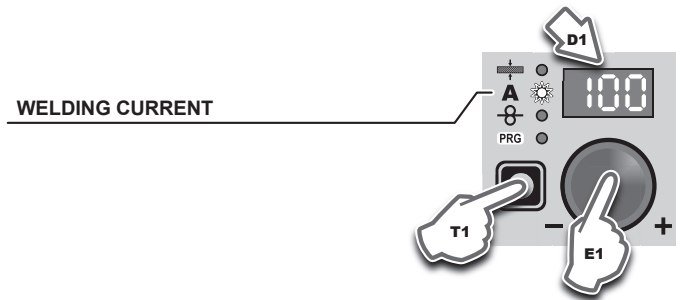
Then there is an independent parameter, **SPECIAL FUNCTIONS MENU (SPC FnC)**, that provides access to the SECOND LEVEL MENU.

■ SECOND LEVEL MENU

See the "Special Functions Menu (SPC FnC)" paragraph.

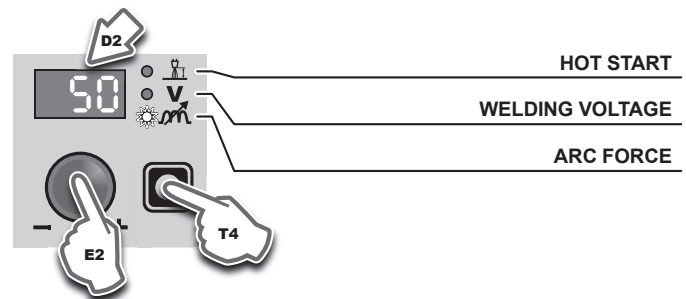
4 - PRE-SETTING

Before welding it is possible to set the following parameters:



Example: WELDING CURRENT

Press the PARAMETER SELECTION - A key (T1) until the LED that corresponds to the WELDING CURRENT switches on. Turn the ENCODER - A knob (E1) to change the value shown on the PARAMETER DISPLAY - A screen (D1).



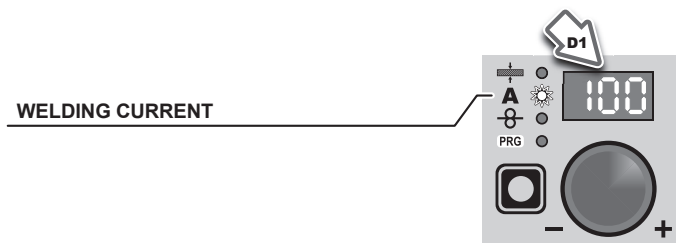
Example: ARC FORCE

Press the PARAMETER SELECTION - V key (T4) until the LED that corresponds to the ARC FORCE switches on. Turn the ENCODER - V knob (E2) to change the value shown on the PARAMETER DISPLAY - V screen (D2).

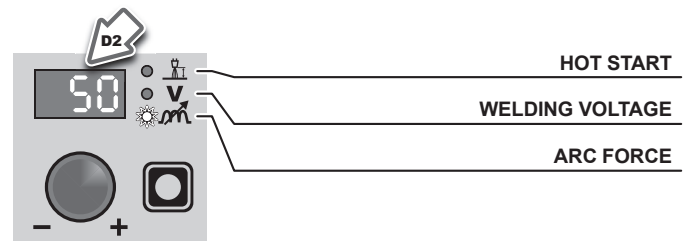
5 - WELDING

During the welding the display shows:

- PARAMETER DISPLAY screen - A (D1)



- WELDING CURRENT (A): the measured value of the current of what is being welded.
- PARAMETER DISPLAY screen - V (D2)



- HOT START (H): the value previously set.
- WELDING VOLTAGE (V): the measured value of the voltage of what is being welded.
- ARC FORCE (A): the value previously set.

During the welding the operator can change the following parameters:

- WELDING CURRENT (**A**).
- HOT START ($\frac{V}{I}$).
- ARC FORCE (m).
- SPECIAL FUNCTIONS "Fx" - FIRST LEVEL MENU.

6 - HOLD

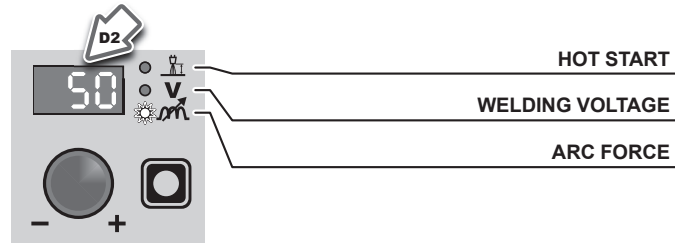
This function automatically starts itself at the conclusion of every welding operation and it is indicated to the operator by means of a flashing light of the HOLD FUNCTION LED for a specific amount of time. Once the welding has been terminated, for about **15** seconds, both the DISPLAYS should show the same values of the parameters during the welding.

In this phase the displays show:

- PARAMETER DISPLAY screen - A (D1)

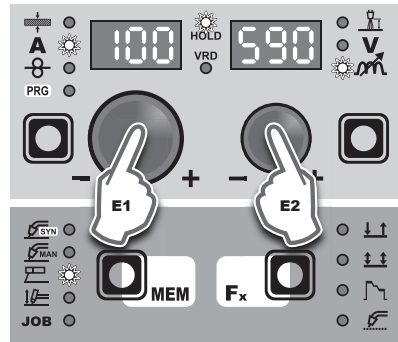


- WELDING CURRENT (**A**): the last current value measured.
- PARAMETER DISPLAY screen - V (D2)



- HOT START ($\frac{V}{I}$): the value previously set.
- WELDING VOLTAGE (**V**): the measured value of the last voltage of what is being previously welded.
- ARC FORCE (m): the value previously set.

To interrupt the HOLD function and go back to the PRESETTING phase before **15** seconds have passed, simply turn one of the two ENCODER (E1-E2) knobs.



The HOLD function can be terminated ahead of time even once again starting the welding.

Once **15** seconds have passed (HOLD FUNCTION) the TX control panel goes back to the PRESETTING phase.

7 - ACTIVATING THE VRD DEVICE

The Voltage Reduction Device (VRD) is a safety device that reduces voltage. It prevents voltages forming on the output terminals that may pose a danger to people. The factory settings do NOT set out an active welding device during electrode welding.

If the operator wishes to weld in MMA using the VRD device (which must be done with the welding machine switched off), they must:

- 1) Use a suitable screwdriver to unscrew the 4 screws that fix the TX control panel to the welding machine.
- 2) Remove the "VRD" JUMPER on the DIGITAL INTERFACE PCB (Fig. B).
- 3) Use a suitable screwdriver to tighten the 4 screws that fix the TX control panel to the welding machine.
- 4) Start the welder by pressing the switch, located on the back panel, at the position I.

After switching on, but with the machine at rest, the TX control panel will show the VRD LED on in the colour GREEN and this means that the device is active.

During the welding phase, this LED becomes RED, which however does not indicate a malfunctioning of the welder but the fact that the VRD device is in function and, at the conclusion of the welding operation, the tension will be reduced within a maximum greatest time of **0.3 seconds**.

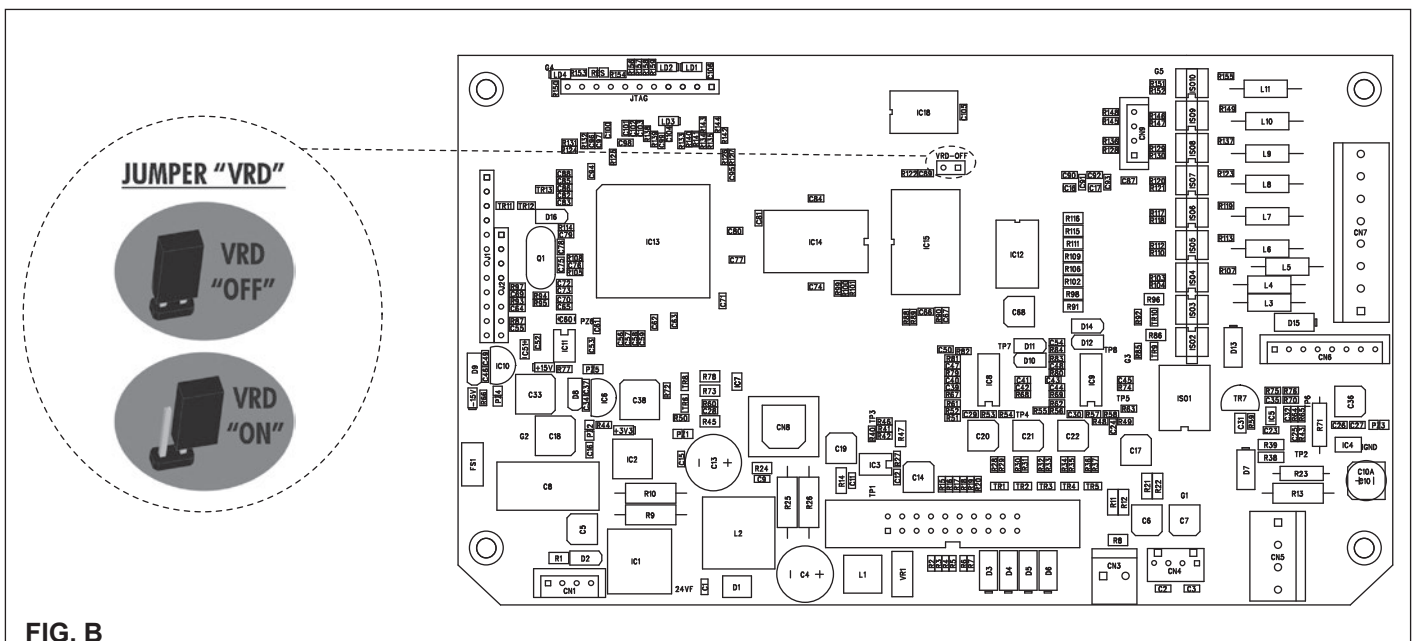


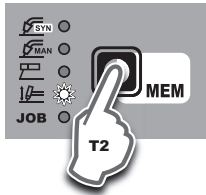
FIG. B

TIG with "Lift" striking

Start the welder by pressing the switch, located on the back panel, at the position I.

1 - WELDING PROCESS SELECTION

Select the TIG PROCESS of welding with "Lift" type starter for welding without high frequency, pressing and releasing, also more times if necessary, the WELDING PROCESS SELECTION key (T2) until the corresponding LED lights.



2 - SPECIAL FUNCTIONS "Fx" SELECTION

ADJUSTABLE FUNCTIONS "Fx"			
FUNCTION	DISPLAY	SETTINGS RANGE	
		FACTORY	RANGE
FIRST LEVEL MENU			
TIG process			
UP SLOPE	uP	0.0s	(0.0 ÷ 5.0)s
DOWN SLOPE	don	2.0s	(0.0 ÷ 8.0)s
SWS VOLTAGE LIMIT	SuL	0	-30 ÷ +30
SECOND LEVEL MENU			
SPECIAL FUNCTIONS MENU		SPC FnC	
PROCESS DEFAULT	dEF	no	no - YES
FACTORY DEFAULT	FAC	no	no - YES

The SPECIAL FUNCTIONS "Fx" that are only available in the TIG Lift welding process are shown below. For all the other explanations regarding this menu make reference to the relative paragraph.

■ FIRST LEVEL MENU

- **UP SLOPE (uP)** - Allows the joining of the WELDING CURRENT to the INITIAL CURRENT.
- **DOWN SLOPE (don)** - Allows the joining of the WELDING CURRENT to the FINAL CURRENT.
- **SWS VOLTAGE LIMIT (SuL)** - Regulates the voltage level for automatic automatic extinguishing.

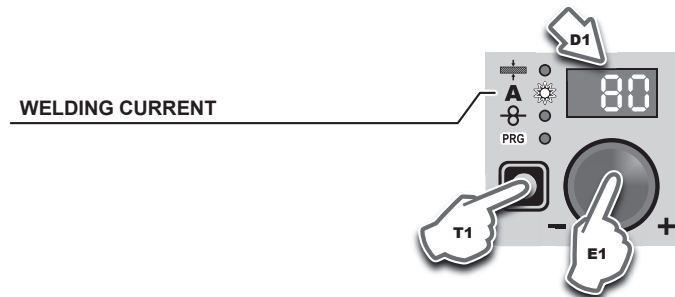
Then there is an independent parameter, **SPECIAL FUNCTIONS MENU (SPC FnC)**, that provides access to the SECOND LEVEL MENU.

■ SECOND LEVEL MENU

See the "Special Functions Menu (SPC FnC)" paragraph.

3 - PRE-SETTING

Before welding it is possible to set the following parameters:



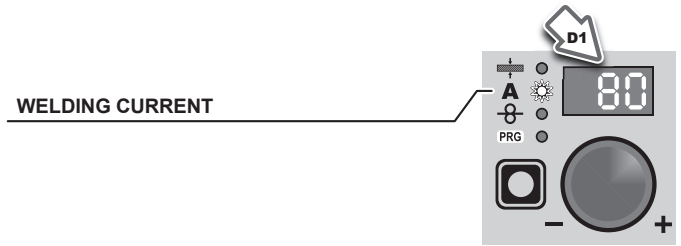
Example: WELDING CURRENT

Press the PARAMETER SELECTION - A key (T1) until the LED that corresponds to the WELDING CURRENT switches on. Turn the ENCODER - A knob (E1) to change the value shown on the PARAMETER DISPLAY - A screen (D1).

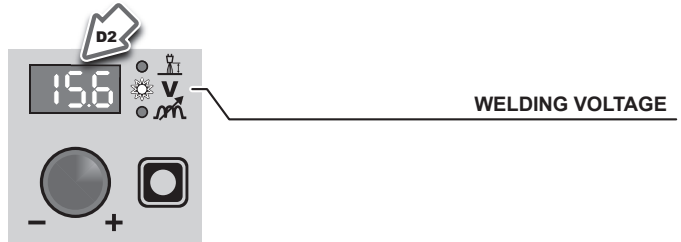
4 - WELDING

During the welding the display shows:

- PARAMETER DISPLAY screen - A (D1)



- WELDING CURRENT (**A**): the measured value of the current of what is being welded.
- PARAMETER DISPLAY screen - V (D2)



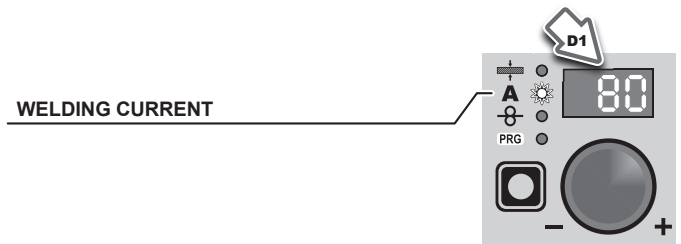
- WELDING VOLTAGE (**V**): the measured value of the voltage of what is being welded.

5 - HOLD

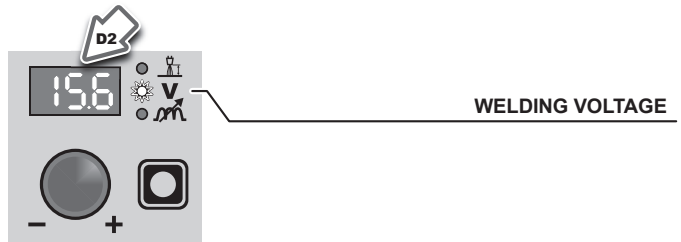
This function automatically starts itself at the conclusion of every welding operation and it is indicated to the operator by means of a flashing light of the HOLD FUNCTION LED for a specific amount of time. Once the welding has been terminated, for about **15** seconds, both the DISPLAYS should show the same values of the parameters during the welding.

In this phase the displays show:

- PARAMETER DISPLAY screen - A (D1)

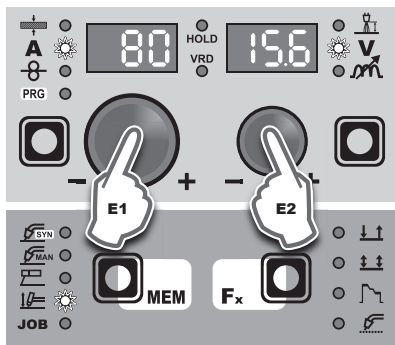


- WELDING CURRENT (**A**): the last current value measured.
- PARAMETER DISPLAY screen - V (D2)



- WELDING VOLTAGE (**V**): the measured value of the last voltage of what is being previously welded.

To interrupt the HOLD function and go back to the PRESETTING phase before 15 seconds have passed, simply turn one of the two ENCODER (E1-E2) knobs.

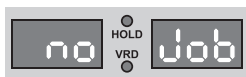


The HOLD function can be terminated ahead of time even once again starting the welding. Once 15 seconds have passed (HOLD FUNCTION) the TX control panel goes back to the PRESETTING phase.

JOB

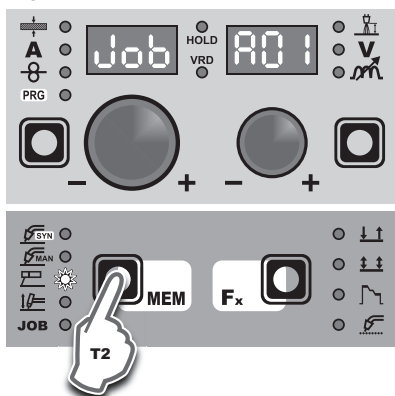
1 - CREATING AND SAVING A JOB

This operation makes it possible (during MIG-MAG, MMA, and TIG welding processes) to create and save welding settings (points) that can be called up by the operator at any time. The TX control panel provides the possibility of saving a total of 99 JOBS spread over all the welding processes. There are not limits to the quantity or position of the points that can be saved for each process! When it leaves the factory the welding machine does not have any JOBS saved in it and so the operator will find the TX control panel in this condition:

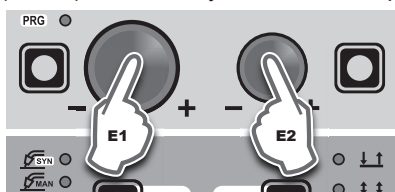


Having defined the parameters the operator needs to do their work correctly, they can be saved by creating an AUTOMATIC WELDING POINT (JOB), proceeding as follows:

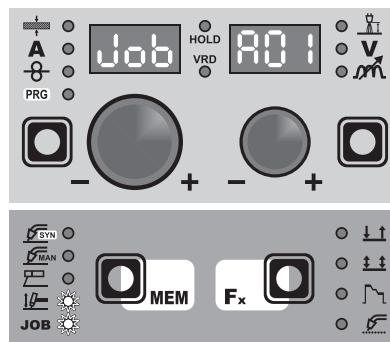
- 1) Hold the SAVE "MEM" key (T2) down for at least 3 consecutive seconds until both displays show the flashing wording that represent the first AUTOMATIC WELDING POINT (JOB) free and/or available to the operator that can be used for saving the data (e.g.: A01).



To be able to choose another automatic welding point (JOB) that is free for saving the data, simply turn one of the two ENCODER (E1-E2) knobs until you reach the required point.



WARNING: If all the automatic welding points (JOBS) are occupied, the check automatically goes to the first automatic welding point (JOB A01) as shown in the figure below).

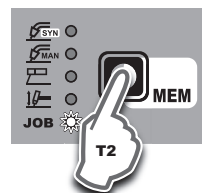


- 3) Keeping pressed, for at least 3 consecutive seconds, the SAVE "MEM" Key (T2), the JOB is memorised and the TX panel loaded, automatically, the settings / parameters (special functions included) of the JOB just saved.
- 4) To exit the JOB, press and release the WELDING PROCESS SELECTION key (T2).



2 - JOB SELECTION

Select the JOB, pressing and releasing, even various times if necessary, the WELDING PROCESS SELECTION key (T2) until the corresponding LED lights up.

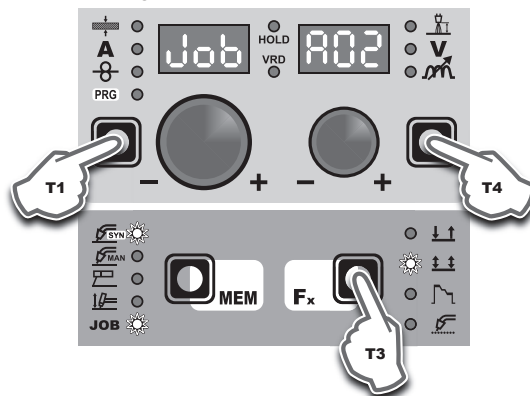


3 - PRE-SETTING / VIEWING MEMORISED JOB DATA

Since the parameters are memorised, within each JOB, viewable but not modifiable, the pre-setting phase does not exist, but the operator can see and verify the settings, previously saved and memorised, pressing and releasing the PARAMETER SELECTION key - A (T1) or in alternative the PARAMETER SELECTION key - V (T4).

The SPECIAL FUNCTIONS "Fx" Key (T3) of "first level" contained within each individual JOB can be viewed (but not modified) by simply keeping the SPECIAL FUNCTIONS "Fx" key (T3) pressed for a duration of about 3 seconds.

The display of the parameters (special functions included) lasts only a few seconds, then the panel shows, in an automatic way, the previous working condition.



4 - WELDING

During the welding the display shows the values, if possible measured, of the active parameters, based on the type of welding process, memorised within the selected JOB.

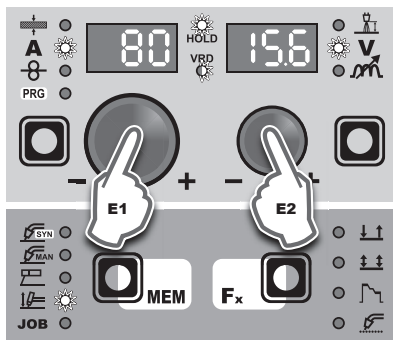
As already indicated, the parameters can be viewed by pressing and releasing the PARAMETER SELECTION key - A (T1) or in alternative the PARAMETER SELECTION key - V (T4), while the SPECIAL FUNCTIONS "Fx" key (T3) of "first level" contained within each individual JOB can be viewed (but not modified) by simply keeping the SPECIAL FUNCTIONS "Fx" key (T3) pressed for a duration of about 3 seconds.

5 - HOLD

This function automatically starts itself at the conclusion of every welding operation and it is indicated to the operator by means of a flashing light of the HOLD FUNCTION LED for a specific amount of time.

Once the welding has been terminated, for about 15 seconds, both the DISPLAYS should show the same values of the parameters during the welding.

To interrupt the HOLD function and go back to the PRESETTING phase before 15 seconds have passed, simply turn one of the two ENCODER (E1-E2) knobs.



The HOLD function can be terminated ahead of time even once again starting the welding.

Once 15 seconds have passed (HOLD FUNCTION) the TX control panel goes back to the PRESETTING phase.

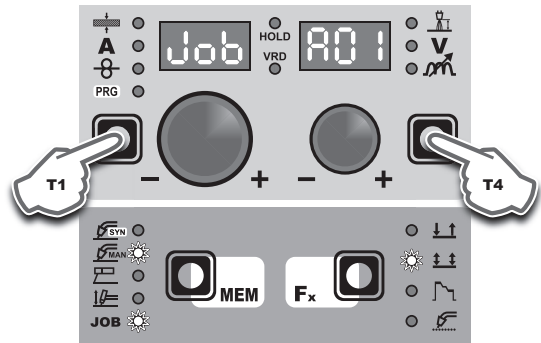
6 - MODIFICATION AND OVERWRITING OF A MEMORISED JOB

To edit and overwrite a JOB proceed as follows:

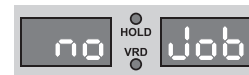
- 1) Select JOB, pressing and releasing, even various times if necessary, the WELDING PROCESS SELECTION key (T2) until the corresponding LED lights up.
- 2) Select the individual JOB to modify and overwrite rotating the ENCODER knob - V (E2).
- 3) Bring up and activate the JOB, loading its settings in the welding process it comes from, keeping the SAVE "MEM" key (T2) pressed for a duration of about 3 seconds.
- 4) Acquire the parameters necessary for editing the JOB.
- 5) Hold the SAVE "MEM" key (T2) down for at least 3 consecutive seconds until both displays show the flashing wording that represent the first AUTOMATIC WELDING POINT (JOB) free and/or available to the operator that can be used for saving the data.
- 6) Rotate the ENCODER knob - V (E2) until identifying the individual JOB that will be overwritten.
- 7) Keep pressed, for at least 3 consecutive seconds, the SAVE "MEM" key (T2) to confirm and make the operation effective.

7 - DELETING A JOB SAVED

In JOB mode, holding down the PARAMETER SELECTION - A (T1) and PARAMETER SELECTION - V (T4) keys down simultaneously for about 5 seconds deletes the current automatic welding point.



The control panel automatically goes to the first JOB saved or reads "no JOB" if no JOBS have been saved.

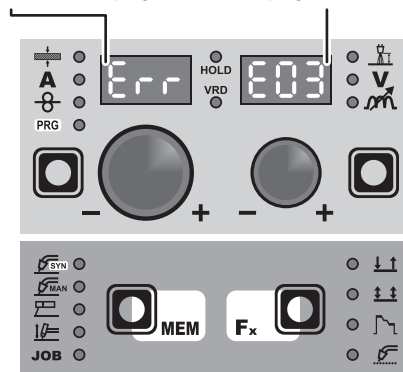


Error condition

This paragraph describes the error conditions that may arise on the welding machine, the codes and messages shown on both TX operator interface displays, and the diagnoses for attempting to correct and resolve them.

In an "error condition" the operator's interface uses both displays to display:

- ERROR CONDITION display
- ERROR DESCRIPTION display



Error condition	Error code	Error description and possible diagnosis
Err	E0.0	POWER SUPPLY FAILURE NON automatic reset error. This error can only arise when switching on and not when the welding equipment is working normally.
Err	E0.1	OVER AND UNDER VOLTAGE Automatic reset error.
Err	E0.2	OVER VOLTAGE Automatic reset error.
Err	E0.3	UNDER VOLTAGE Automatic reset error.
Err	E0.4	OVER CURRENT Automatic reset error.
Err	E1.0	ONFIG. FILE MISSING NON automatic reset error. Immediately contact technical assistance dept.

(continued)

Error condition	Error code	Error description and possible diagnosis
Err	E1.1	USER FILE MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E1.3	CALIBRATION FILE MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E1.6	MMA DEFAULTS MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E1.7	TIG DEFAULTS MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E1.8	MIG DEFAULTS MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E1.9	WELDER DEFAULTS MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E2.0	FILE SYSTEM ERROR NON automatic reset error. Immediately contact technical assistance dept.
Err	E3.2	STICKING This error is displayed when a shortcircuit has been formed between the machine's output terminals for more than 1.2 seconds. NON automatic reset error. To remove the error state, eliminate the short circuit so that the voltage on the torch goes above the threshold value again. At this stage the error condition disappears and the welding machine goes back to the mode prior to the sticking. If the torch trigger is still pushed, it must be released and pressed again to begin welding again.
Err	E4.0	LAST SETUP NOT VALID NON automatic reset error. Immediately contact technical assistance dept.
Err	E4.1	JOBS WRONG NON automatic reset error. Immediately contact technical assistance dept.
Err	E4.2	MIG SYN SPECIAL FUNCTION "Fx" WRONG NON automatic reset error. Immediately contact technical assistance dept.
Err	E4.3	MIG MAN SPECIAL FUNCTION "Fx" WRONG NON automatic reset error. Immediately contact technical assistance dept.
Err	E5.0	MIG PROGRAMS MISSING NON automatic reset error. Immediately contact technical assistance dept.
Err	E5.3	MMA PROGRAMS MISSING NON automatic reset error. Immediately contact technical assistance dept.

(continued)

Error condition	Error code	Error description and possible diagnosis
AUT	ADJ	POWER LIMITATION This alarm appears if the power limit is exceeded. The alarm alternates with the standard display every 1.5 seconds, despite which the machine continues to weld, supplying limited power, but complying with the values shown on the data plate.

The table includes 2 types of errors:

- **Automatic reset error:** Once the alarm condition has been resolved the welding machine starts working again and the operator can weld again!
- **NON automatic reset error:** To remove the alarm status and reinstate correct operation of the machine, the welding equipment must be switched off. The machine will then be working again and the operator can weld again!

PLEASE NOTE: If, when switching on, the error status presents itself again, immediately contact the Technical Assistance Department.

This is necessary so that our technical assistance dept (that must be contacted each time the error messages appear on the welding machine's operator interface) is able to resolve the problems more easily and as quickly as possible, thanks to the reports by the user, and also because, in the meantime the welding machine does not allow the operator to do their work.

Power MIG 1800 Synergic



GeKaMac®



Gedik Welding Inc.

Ankara Caddesi No: 306 Şeyhli 34906 Pendik - İstanbul / Turkey

P. +90 216 378 50 00 • **F.** +90 216 378 20 44

www.gedikwelding.com