INTRODUCTION
The panels DIGIBOX MIG P1 Art. 223 and DIGIBOX MIG P2 Art. 221 are designed to be connected to the wire feeder WF4/P. Below, DIGIBOX MIG P1 and DIGIBOX MIG P2 will be called P1 and P2, respectively.

1 PRECAUTIONS

All aspects relating to safety are described in the chapter on "SAFETY PRECAUTIONS" in the manual for the power source to which the panel is connected.

2 START-UP (Fig. 1)

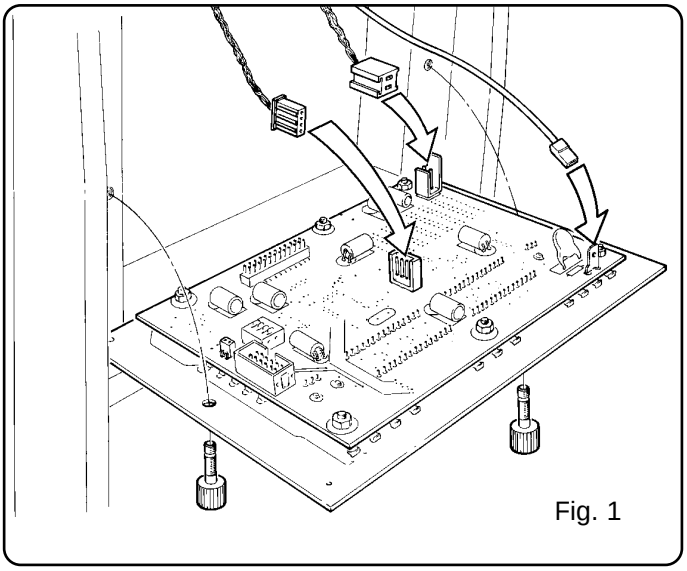


Fig. 1

a) remove the closing panel by unscrewing the two screws.
b) insert the two- and four-way connectors and faston from inside the wire feeder to the corresponding connectors on the panel circuit.
c) Insert the panel into the frame and fasten it with the two screws.

3 DESCRIPTION OF THE PANELS P1 and P2 (Fig. 2a/2b)

The panel commands are divided into 4 sectors, plus a menu of secondary functions, and are described in the following paragraphs:
3.1 Setting up the welding process
3.2 Accessory functions for the P1 panel
3.3 Displaying and adjusting the welding parameters
3.4 Service functions
3.5 Secondary functions menu

3.1 SETTING UP THE WELDING PROCESS

3.1.1 AI Button - Choosing the welding process.

Each time this button is pressed, the LED corresponding to the selection lights.

MIG **LED R1**
Pulsed synergic MIG/MAG welding.

MIG **LED R2**
Non-pulsed synergic MIG/MAG welding.

MIG **LED R3**
Conventional MIG/MAG welding.

TIG **LED R4**
TIG welding
The arc is started by means of a short-circuit. (only for P1)

MMA **LED R5**
MMA (Manual Metal Arc) welding (only for P1).

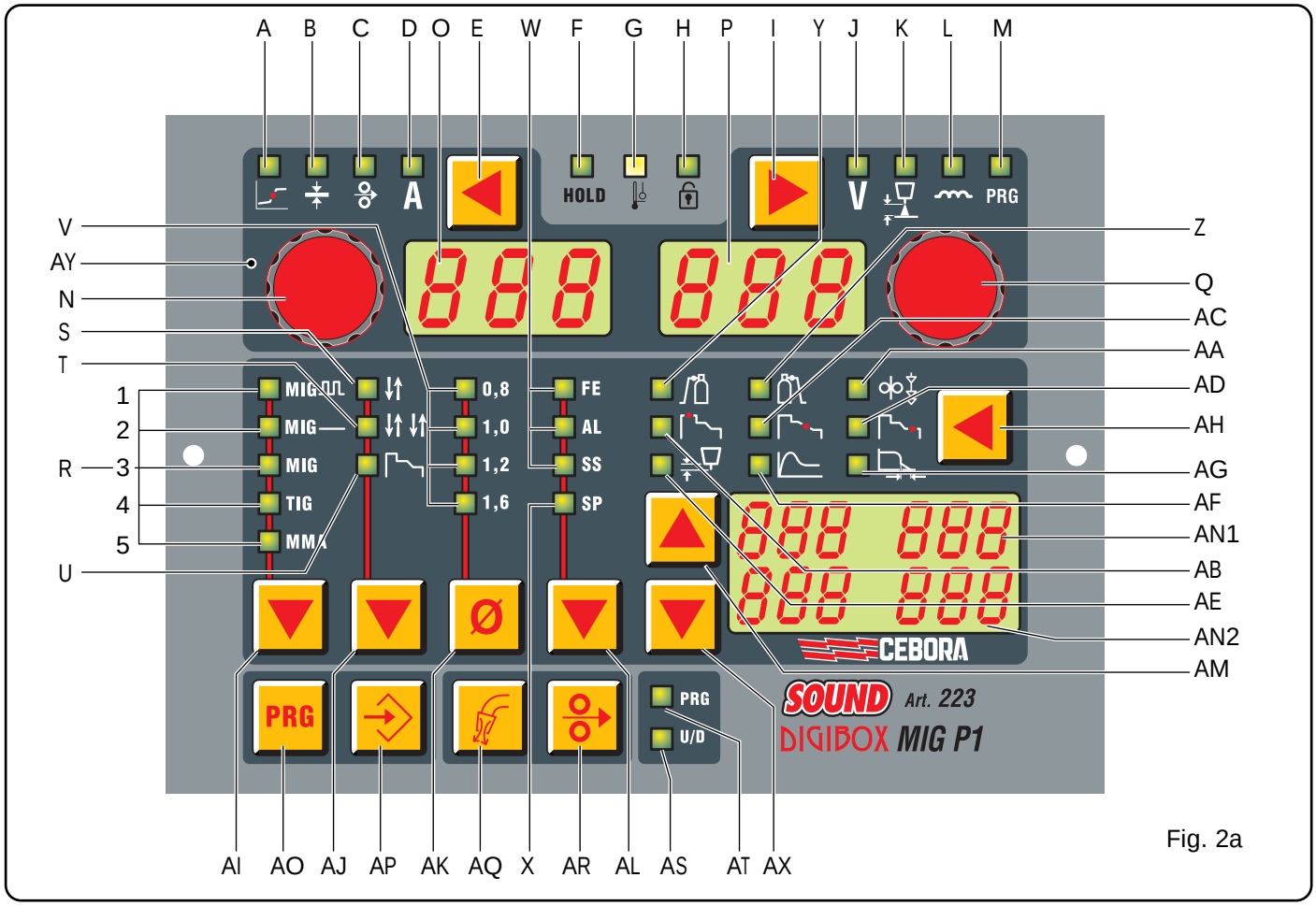
3.1.2 AJ Button Selecting the operating mode.

Each time this button is pressed, the LED corresponding to the selection lights.

LED S-Two-stage
The machine begins welding when the torch trigger is pressed, and stops when released.
NOTE: This mode is active in all MIG and TIG processes.

LED T-Four-stage
To begin welding press and release the torch trigger; to interrupt, you must press and release it again.
NOTE: This mode is active in all MIG and TIG processes.

LED U-Welding with three levels of current.
NOTE: this mode is active in synergic MIG processes in TIG mode (only for P1).
Especially recommended for MIG welding of aluminium. Three currents are available, which may be called up during welding using the torch start button. The "slope" current may be set as described in paragraph 3.2 "accessory functions": LEDs **AB**, **AC**, **AD**.
- **Operation in MIG mode:**
Welding begins when the torch button is pressed. The welding current used will be the one set with the LED **AB** (StC for P2). This current will be kept for as long as the torch trigger is held down; when released, the first current changes to the welding current, set with the knob **N**, within the time established by the LED **AC** (Slo for P2), and will be kept until the torch trigger is pressed again. The next time the torch button is pressed, the welding current will switch to the third current or "crater-filler" current, set with the LED **AD** (CrC for P2), in the time established by the LED **AC** (Slo for P2), and will be maintained for as long as the torch trigger is held down. Welding stops when the button is released.
- **Operation in TIG mode** (only for P1):
To start the arc, briefly press and release (< 0.7 sec.) the torch trigger, and within three seconds create a brief short-circuit between the tungsten electrode and the workpiece. The arc lights and the welding current will be the one set with the LED **AB**. This current will be maintained until the torch trigger is pressed briefly and released. At this commands the first current switches to the welding current, set with the knob **N**, in the time established by the LED **AC** and will be maintained until the torch trigger is once again briefly pressed and released. At this point the welding current will switch to the third current, or "crater-filler" current, set with the LED **AD**, in the time established by the LED **AC**. To shut off the arc, briefly press and release the button.
At any time during welding, pressing the torch button for more than 0.7 seconds will shut off the arc.
NOTE: moving the reference current, thus the one set with knob **N**, automatically changes to percentages the


A B C D O E W F G H P I Y J K L M
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PRG
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MIG
MIG
TIG
MMA
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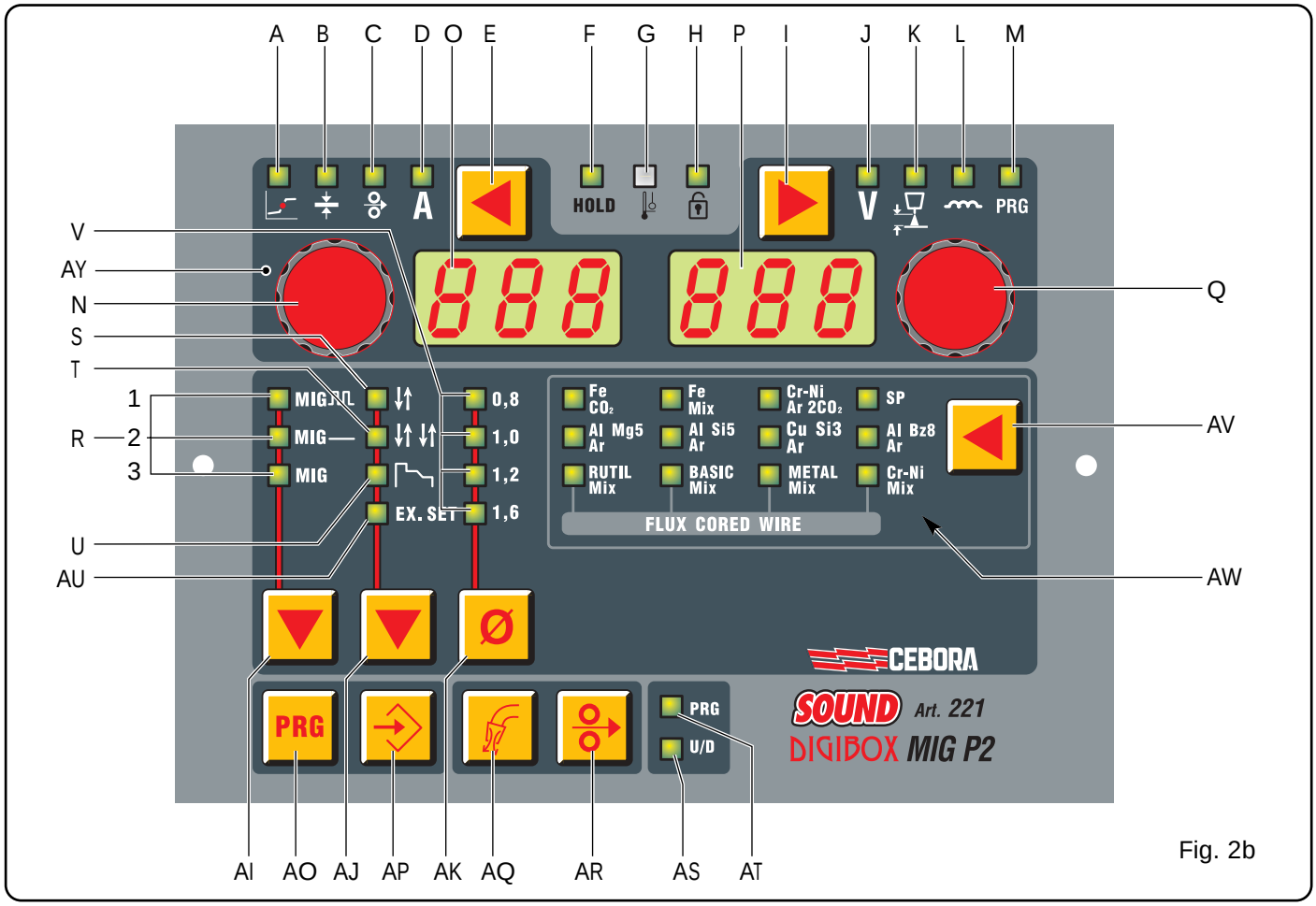
SS
SP
PRG
U/D
CEBORA
SOUND Art. 223
DIGIBOX MIG P1

Fig. 2a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Fe CO2
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SP
Al Mg5 Ar
Al Si5 Ar
Cu Si3 Ar
Al Bz8 Ar
RUTIL Mix
BASIC Mix
METAL Mix
Cr-Ni Mix
FLUX CORED WIRE
PRG
U/D
CEBORA
SOUND Art. 221
DIGIBOX MIG P2

Fig. 2b

current set with the LEDs **AB** and **AD**.

LED AU EX.SET (only for P2) - Accessory functions

Turn the knob **N** to choose the various functions, whose abbreviations are listed below, shown on the display **O**. Use the knob **Q** to adjust the value of the chosen size, whose value is shown on the display **P**.

PrF - Pre gas
Adjustment 0 - 10 sec.

PoF - Post-gas
Adjustment 0 - 30 sec.

bb - Burn - back
Adjustment 0 - 500 msec
Serves to adjust the length of the wire leaving the contact tip after welding
The higher the number, the more the wire burns

Acc - Soft Start
0 - 100% Adjustment
Active in all MIG processes.
It is the wire speed, expressed as a percentage of the speed set for the welding, before the wire touches the workpiece.
NOTE: this adjustment it is important in order to always achieve good starts.

- **StC "Hot start" current**
  Adjustment 1 - 200% of the welding current.
  Active in synergic MIG programs.
- **CrC "Crater filler" current**
  Adjustment 1 - 200% of the welding current.
  Active in synergic MIG programs.
- **Slo Slope**
  Adjustment 1 - 10 seconds
  Active in synergic MIG programs.
  Pressing the key **AJ** again saves the set and displayed values.

3.1.3 Button AK Choice of the wire diameter.

Every time this button is pressed, it lights the LED (**V1, V2, V3, V4**) corresponding to the wire diameter that the machine is set to weld.
NOTE: This selection is active only with synergic MIG proceses.

3.1.4 Button AL Choice of filler material

(only for P1).
With each press, the LED corresponding to the choice will light.

LED W1 for iron,

LED W2 for aluminium,

LED W3 for stainless steel.

The **LED X** displays the choice of other special types of wires.

As a result of the choices made using the above buttons:

The display **AN1**
displays the welding programs that exist for the various types of material, specifically:

if selected FE	SG2, SG3
if selected AL	AlSi 5, AlMg 5, Al 99,5
if selected SS	308L, 316L
if selected SP	Al Bz8, CuSi 3, Rutile, Basic, Metal, CrNi

The materials may be chosen using the button AM.
NOTE: This selection is active only with MIG processes.

The display AN2
displays the welding programs that exist for the gas types associated with the types of material, specifically:

if FE is selected	CO2, Ar 20CO2, Ar 18CO2
if Al is selected	Ar
if SS is selected	Ar 2CO2, Ar 2O2
if SP is selected	Ar, Ar 30He, Ar 18CO2

The gas may be chosen using the torch trigger AX.
NOTE: This selection is active only with MIG processes.

NOTE: If, after setting your choices, there is no program to weld the wire diameter selected, the displays **O** and **P** will display the message **NO-PRG**.

3.1.5 Button AV Choice of the combination

of material to be laid down and welding gas (only for P2).
NOTE: This selection is active only with synergic MIG processes.
With each pressure, the LED corresponding to the choice will light.

LED Fe/CO2 Steel wires with CO2 gas (only synergic MIG and conventional MIG).

LED Fe/Mix
Steel wires with blend of 82%Ar+18% CO2.

LED Cr-Ni/Ar 2CO2
Stainless steel wires type 308L with gas 98% Ar + 2% CO2.

LED SP (Special)
This LED is not normally active.
This LED may be associated with a program developed on specific request.

Led Al Mg5/Ar
Aluminum/Magnesium wires (Al-Mg 5) with Argon gas.

Led Al Si5/Ar
Aluminum/Silicon wires (Al-Si 5) with Argon gas.

LED Cu Si3/Ar
Copper/Silicon wires (Cu-Si 3) with Argon gas. Used for MIG brazing.

LED Al Bz 8/Ar
Bronze wires with 8% Aluminium with Argon gas. Used for MIG brazing.

LED RUTIL/Mix (CORED)
Rutile flux-cored wires with blend of 82%Ar

+18% CO2.

LED BASIC/Mix (CORED)
Basic flux-cored wires with blend of 82%Ar +18% CO2.

LED METAL/Mix (CORED)
Flux-cored wires filled with metal dust (metal) with blend of 82%Ar +18% CO2.

LED Cr-Ni/Mix (CORED)
Flux-cored wires in stainless steel type 308L with blend of 82%Ar +18% CO2.

3.2 ACCESSORY FUNCTIONS

3.2.1 AH Button (only for P1)

When this button is pressed the display **AN2** shuts off and the display **AN1** numerically displays the value of the size selected.
This is signaled by the corresponding LED, which lights, and is adjustable via the buttons **AM** and **AX.**
If the numerical value is not changed within 5 seconds, the displays **AN2** and **AN1** return to the previous configuration.
NOTE: the last values shown on the display **AN1** are saved.

LED Y Pre-gas
Adjustment Auto - 10 sec.
Active in all MIG processes and in TIG mode.

LED Z Post-gas
Adjustment 0 - 30 sec.
Active in all MIG processes and in TIG mode.

LED AA Soft Start
Adjustment 0 - 100%
Active in all MIG processes.
It is the wire speed, expressed as a percentage of the speed set for the welding, before the wire touches the workpiece.
NOTE: This adjustment it is important in order to always achieve good starts.
Manufacturer setting "**auto**" automatic.

LED AB "Hot start" current
Adjustment 1 - 200% of the welding current (adjusted with the knob **N**)
Active in synergic MIG programs and in TIG mode when the three-level welding mode has been selected (LED**U**).
Active with "**AHS-ON**" see 3.5.2.

LED AC Slope
adjustment 1 - 10 sec.
Defines the time for switching between the first "Hot start" current and the second "welding" current, and from the second to the third "crater filler" current.
Active in synergic MIG programs and in TIG mode. when the three-level welding mode has been selected (LED **U**).
Active with "**AHS-ON**" see 3.5.2.

LED AD "Crater filler" current
Adjustment 1 - 200% of the welding current (adjusted with the knob **N**)
Active in synergic MIG programs and in TIG mode only when three-level welding mode has been selected (LED **U**).
Active with "**AHS-ON**" see 3.5.2.

LED AE Burn - back
Adjustment 0 - 200 ms)
Serves to adjust the length of the wire leaving the contact tip after welding.
Active in all MIG processes.
The higher the number, the more the wire burns
Manufacturer setting "**auto**" automatic.

LED AF Hot - start for MMA
Adjustment 0 - 100%
Overcurrent output when the arc is first struck.
Active in MMA.

LED AG Arc - force
Adjustment 0 - 100%
This is the adjustment of the dynamic characteristic of the pilot arc.
Active in MMA.

3.3 DISPLAYING AND ADJUSTING THE WELDING PARAMETERS.

Knob N
In relation to the type of process selected, this knob is used to adjust the following values:
· synergic pulsed MIG and synergic MIG:
thickness (**LED B**),
wire speed (**LED C**),
Current (**LED D**).
· conventional MIG:
wire speed (**LED C**)
· TIG and MMA :
current (**LED D**)
In the service functions select the functions indicated by the abbreviations: H2O, CAL.
NOTE: in synergic programs, adjusting one size will also vary the others consequently.

Button E
Each press selects the value adjustable via the knob **N**. The values that may be selected are in relation to the type of welding process selected.

LED B Thickness
The display **O** shows the recommended thickness based on the current and wire speed set.
Active in synergic MIG welding.

LED C Wire speed
Indicates that the display **O** shows the welding wire speed. Active in all MIG welding operations.

LED D Current
Indicates that the display **O** shows the preset welding current or, in combination with the lighting of the LED **F**, the actual welding current. Active in all welding processes.

Knob Q
In relation to the type of process selected, this knob is used to adjust the following values:
· **synergic pulsed MIG and synergic MIG:**
length of the arc (**K**)

Impedance (**L**)

· **conventional MIG:**
welding voltage (**J**)

Impedance (**L**)

· Within the saved programs select the desired program number.
All of these values are shown on the display (**P**) and are selected by the button **I**.
In the service functions select the abbreviations: OFF, OnC, OnA.

Button I
Each pressure selects the value adjustable via the Knob **Q**.
The values that may be selected are in relation to the type of welding process selected.

LED J Voltage
In all MIG welding processes, indicates that the display **P** shows the preset voltage or, in combination with the lighting of LED **F**, the actual welding voltage.
in TIG and MMA modes it always remains lit, and may not be selected. IIndicates that the Display **P** displays the open-circuit voltage or welding voltage or, in combination with LED **F** lit, the actual welding voltage.

LED K Arc length
In all synergic MIG programs the display **P** shows a number. Zero is the manufacturer setting; if the number is set to negative, the arc length diminishes, if set to positive it extends.

LED L Impedance
In all MIG programs the display **P** shows a number. Zero is the manufacturer setting, if the number is set to negative impedance it decreases, and the arc becomes harder; if it increases, the arc becomes softer.

LED A globular position
May not be selected. Active in non-pulsed synergic MIG mode. When this occurs, it signals that the pair of values selected for welding may create unstable, spattering arcs.

LED F Hold
May not be selected. Activated in MIG, TIG, and MMA welding and signals that the values shown on the displays **O** and **P** (normally Ampere and Volt) are those used in welding. Activated at the end of each welding session.

LED G Thermostat
It lights to signal that the overload cut-out has been tripped.

LED H Safety
Signals that all buttons are locked. The operator may adjust only the welding parameters in the **AY** section.
To activate the function, first press the button **AO** and, holding it down, briefly press the button I. The LED **H** lights and displays that the function is active. To exit, press the buttons **AO** and I again in the same way.

LED M Programs saved
This LED lights when you press the key **AO** (PRG). See paragraph 3.4.1.

Display O
In all welding processes, it numerically displays the selections made via the button **E** and adjusted via the knob **N**.
For the welding current (LED **D**) it displays the Amperes
For the wire speed (LED **C**) it displays the meters per minute
For the thickness (LED **B**) it displays the millimeters.
If no program exists within the selected settings, it displays **NO** (abbreviation NO-PRG).
While preparing for operation of the cooling unit, it displays the abbreviation H2O.
It flashes the message "OPn" if the wire feeder door is open.
In error messages it displays the abbreviation "Err".
In service functions it displays the abbreviations: H2O, HSA.

Display P
In all welding processes, it numerically displays the selections made via the button I and adjusted via the knob **Q**.
For the welding voltage (LED **J**) it displays the Volts
For the arc length (LED **K**) it displays a number between -9.9 and +9.9; zero is the recommended setting.
For impedance (LED **L**) it displays a number between -9.9 and +9.9, zero is the recommended setting.
Within the memories it displays the program number selected.
While preparing for operation of the cooling unit, it displays the message OFF, On-C (continuous operation), On-A (automatic operation).
If no program exists in the selected settings, it displays PRG (abbreviation NO-PRG).
In error messages it displays the error number.
In service functions it displays the abbreviations: OFF, OnC, OnA. (H2O).
In "AHS" function displays the indication OFF / On.

3.4 SERVICE FUNCTIONS

Button AR Wire test


It allows it to move forward at 8 m/min without voltage and gas.

Button AQ Gas test


When this key is pressed, gas begins to flow out; press it again to stop the output. If it is not pressed again, the gas output stops after 30 sec..

3.4.1 Saving and calling up saved programs.

Button AP Saving


To save, you must weld a small section using the parameters you wish to save, thus:
Press the key **AP**, the LED **M** lights along with **AT** if the torch with U/D command is inserted.
The display **O** displays the abbreviation STO, and the display **P** indicates the number (flashing if free, steady if occupied).
The first free program number is displayed; use the knob **Q** to select the desired program number, then press the key **AP** for more than 3 sec. When saving is complete, the program number will stop flashing and remain steady. Release the **AP** button to exit saving; the LED **M** shuts off. Should you intend to overwrite a program, when the button **AP** is held down for longer than 3 sec, the number starts flashing, then returns to steady mode to signal overwriting.
Saving must take place within the time in which the display **P** shows the program number (5 sec).
Note: The program n° may be selected both by turning the knob **Q** or, if the torch with the U/D button is inserted, by pressing the left U/D key on the handle.
If you briefly press the **AP** button to display the memories and do not intend to use or change them, briefly press the button **AO** to exit.

Button AO Calling up saved programs

To call up a saved program, briefly press the button **AO**. The display **O** shows the abbreviation PRG and the display **P** indicates the number of the last program used or, if they have never been used, the last program saved. The LED **M** lights, use the knob **Q** or the left button of the U/D torch to select the program number. Five seconds after choosing the displays **O** and **P** show the values saved, and the machine is ready to weld.
When the LEDs **M** and **AT** (if the UD torch is inserted) are lit, all adjustments are forbidden.
NOTE:You may display, but not edit, the values shown by the LEDs **J** - **K** - **L** and **B** - **C** - **D**.
The remote controls will be inhibited.
To exit the saved programs press the button **AO** (twice if the program number has disappeared), the LEDs **M** and **AT** (if the torch UD is inserted) will shut off, and the machine displays the last setting before the PRG button was pressed.
NOTE: with the U/D button of the torch you may change the program even while welding, and call up all of the saved programs in sequence.

3.5 SERVICE FUNCTIONS MENU

3.5.1 Managing the cooling unit

Press the button **AO** and, holding it down, press the button **E** to enter in a submenu.
Use the knob **N** to make your choice: H2O
Turn the knob **Q** to select the operating mode:
· OFF = off.
· On C = always lit
· On A = automatic start-up. When the machine starts, the unit is running. If the torch trigger is not pressed, it shuts off after 15 seconds. When the torch button is pressed, the unit begins operating, and shuts off 3 minutes after the button itself is released.
Press the keys **AO** and **E** again to exit.
If the coolant pressure is too low, the power source delivers no current and the message H2O will appear, flashing, on the display **O**.

3.5.2 Automatic Hot Start. (AHS).

Press the button **AO** and, while holding it down, press the button **E** to enter a submenu.
Turn the knob **N** to select: AHS.
Turn the knob **Q** to select the type of operation:
OFF = Off
On = Active
The function is active in synergic MIG programs when welding with three levels of current is selected (LED **U** on).
This function essentially changes the welding mode, switching it from automatic to manual.
The operator may adjust:

1. The level of the "hot-start" current LED **AB** (Panel P1) StC (Panel P2).
2. Its duration, LED **AD** (Panel P1) CrC (Panel P2) setting 0.1¸10 seconds.
3. The time to switch between the "hot-start" current and welding current, LED **AC** (panel P1) Slo (panel P2).