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PROGRAMMING MANUAL
POWER SOURCE
PS 204 / PS 254

JK/16/12/96/02

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PROGRAMMING MANUAL FOR POWER SOURCE PS 204 / PS 254

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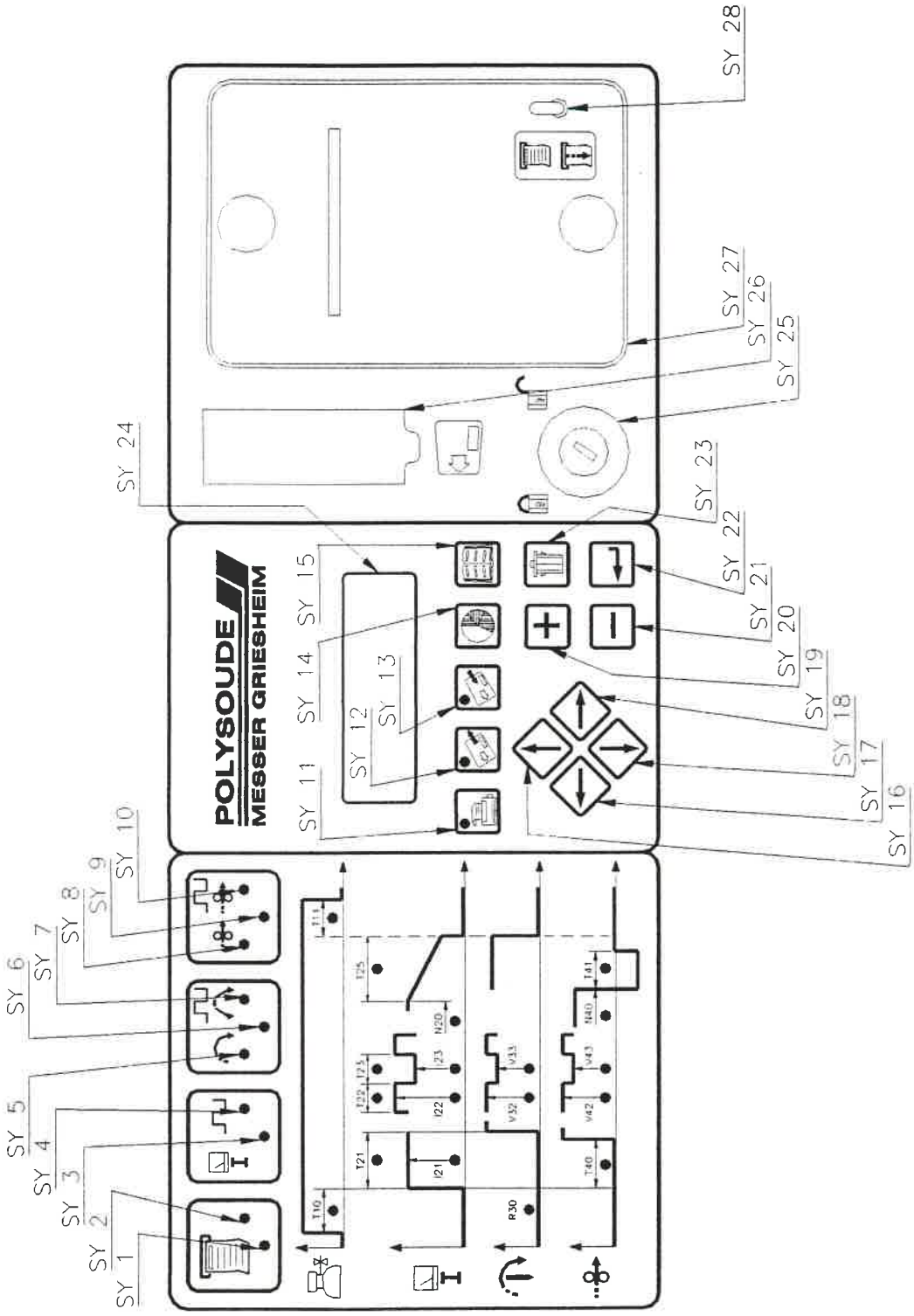
PROGRAMMING MANUAL FOR POWER SOURCE PS 204 / PS 254

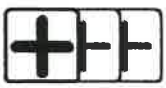
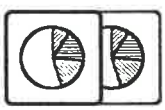
1 - CONTROLS AND COMPONENTS



2 - LIST OF CONTROLS / ACTIONS; WELDING PARAMETERS

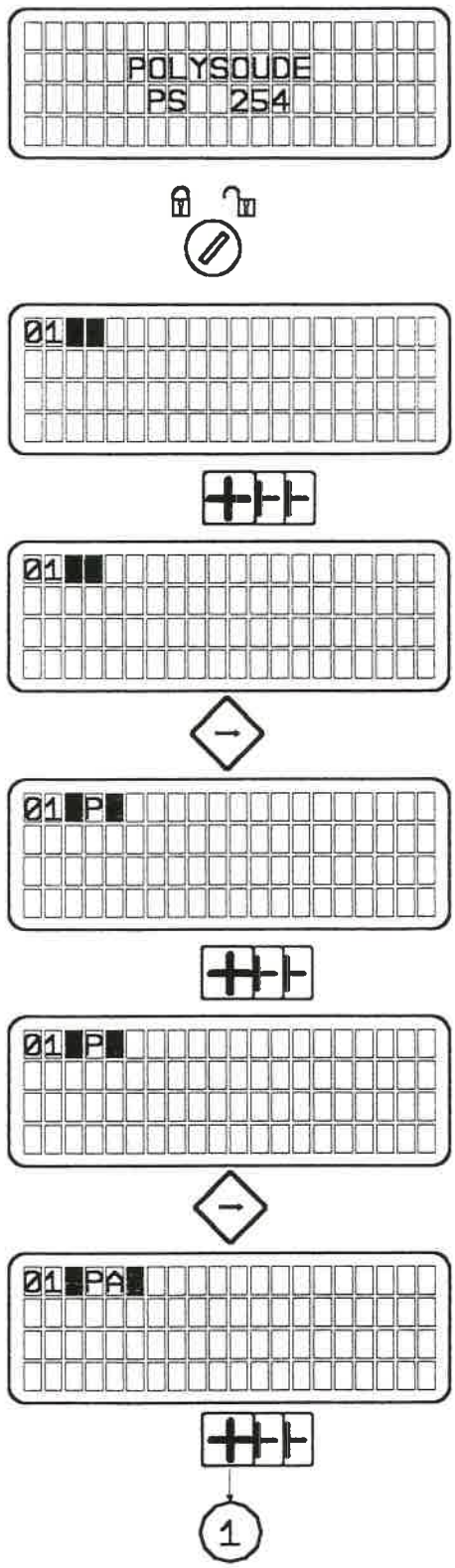
SY 1	Indicator "Printer mode"
SY 2	Indicator "Print report when weld cycle is finished"
SY 3	Indicator "Current mode"
SY 4	Indicator "With pulsed current"
SY 5	Indicator "Forward rotation"
SY 6	Indicator "Rotation mode"
SY 7	Indicator "Pulsed rotation speed"
SY 8	Indicator "With wire "
SY 9	Indicator "Wire pushing mode"
SY 10	Indicator "Pulsed wire speed"
SY 11	Print a program key and indicator "Printing in process"
SY 12	Loading a program from the memo card key and indicator "Loading in process"
SY 13	Saving a program on the memo card key and indicator "Saving in process"
SY 14	Key to program sector positioning or for entering the date and time
SY 15	Key to choose built-in programs from the machine memory
SY 16 to SY 19	Keys for moving inside the synoptic
SY 20	Key for increasing parameter values
SY 21	Key for decreasing parameter values
SY 22	Enter key
SY 23	Key for deleting programs or sectors (dust-bin)
SY 24	Screen
SY 25	Key operated switch "Modification permitted or not"
SY 26	Port for memo card
SY 27	Printer
SY 28	Paper advance / reprint weld cycle report
Reference	**Welding parameter**
T10	Pregas time (Purge time for shielding gas before arc starts)
T11	Postgas time (Time for shielding gas after arc stops)
T21	Time of prefusion (Arc is established to melt a puddle, no travel speed, no wire)
I21	Prefusion current
T22	Time of pulse current period
T23	Time of background current period
I22	Pulse current
I23	Background current
N20	Start of downslope (To avoid an end crater, the weld current is reduced continuously during the downslope until the arc stops).
T25	Time of downslope
R30	Weld-head reference No. See tables chapter 7.6 for values of R30
V32	Travel speed during pulse current period
V33	Travel speed during background current period
T40	Wire start
V42	Wire speed during pulse current period
V43	Wire speed during background current period
N40	Wire stop
T41	Wire retract (Time during wire is retracted)

3 - EXPLANATION OF SYMBOLS USED

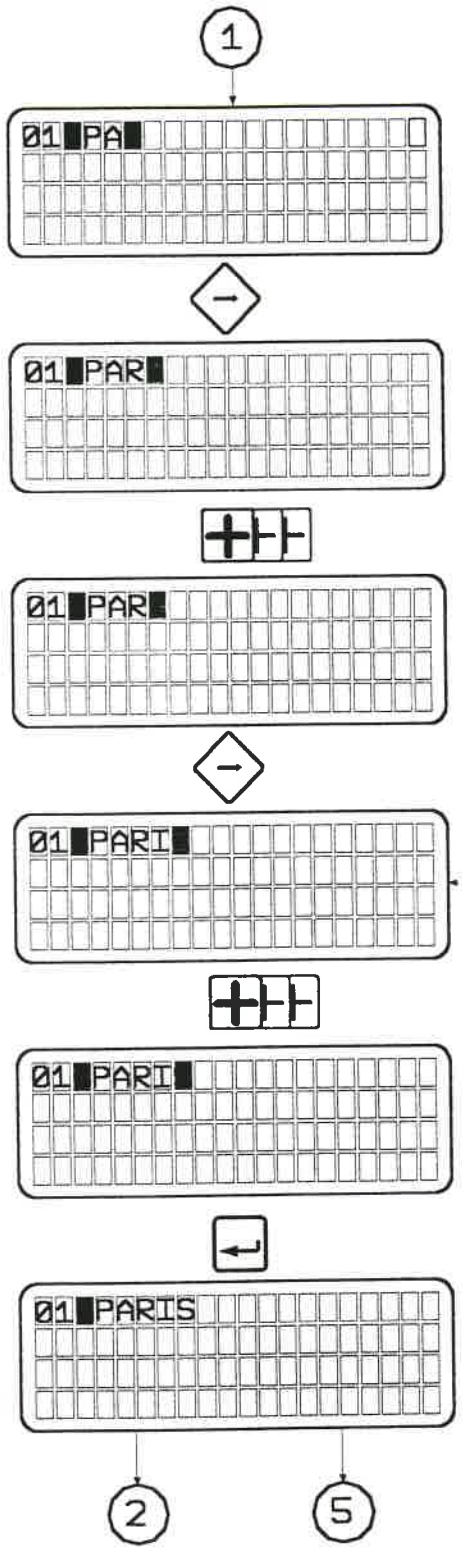
Symbol	Meaning
	Press once to increase
	Press and hold to increase
	Press once to decrease
	Press and hold to decrease
	Press once
>=2s 	Press and hold for at least 2 seconds
	Indicator not illuminated
	Indicator flashing
	Indicator alluminated

4 - ENTERING THE PROGRAM NAME

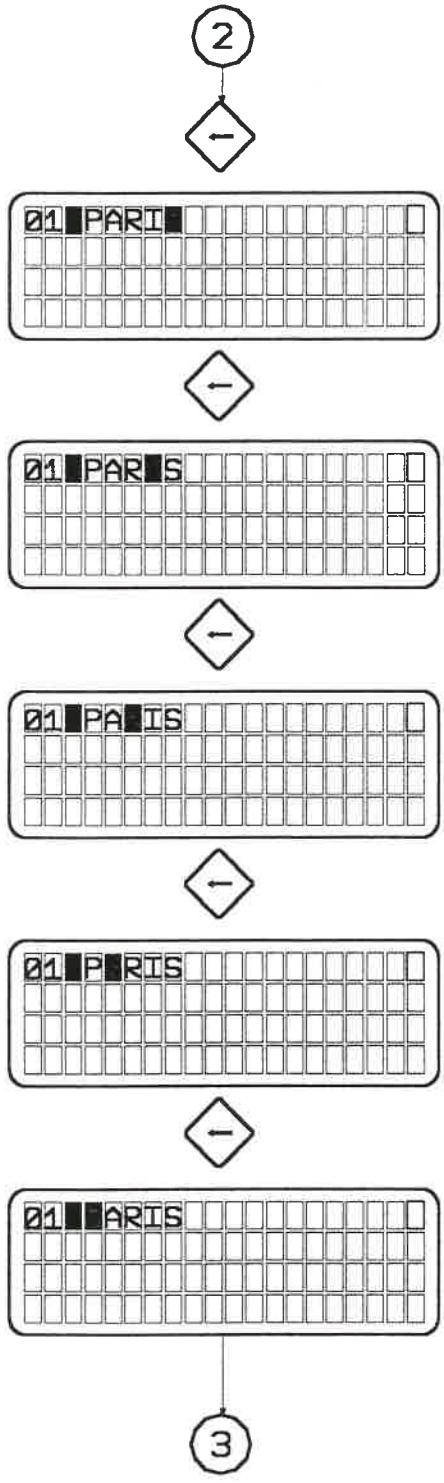
To choose the number of the program, the switch BT 4 on the remote control pendant has to be used



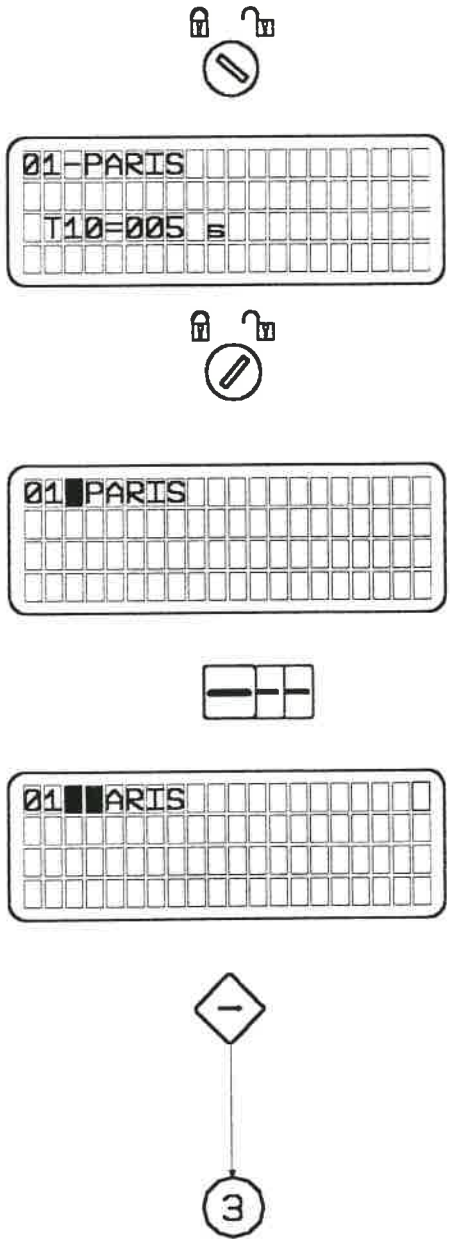
ENTERING THE PROGRAM NAME



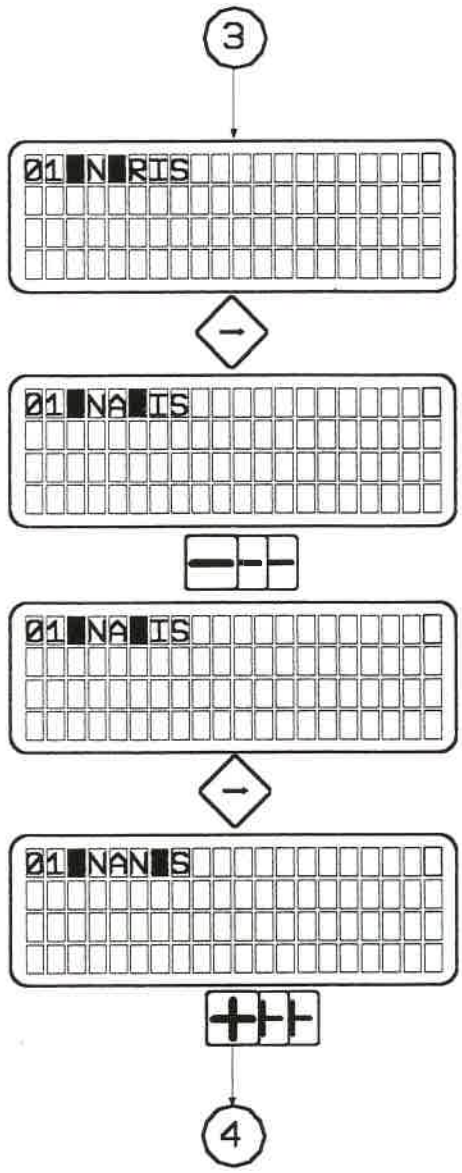
5 - MODIFYING THE PROGRAM NAME



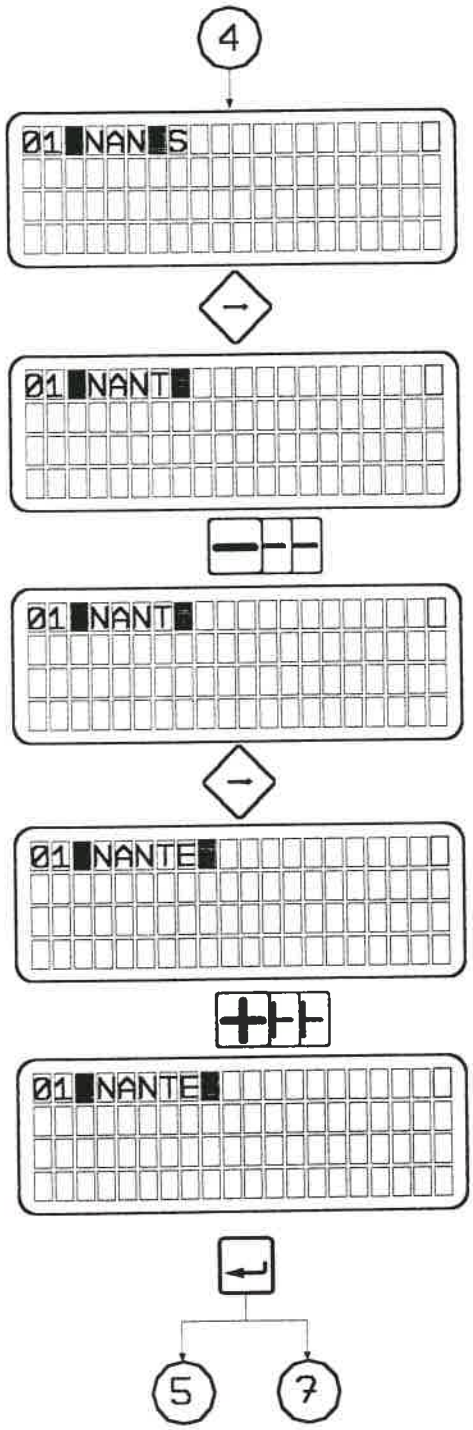
MODIFYING THE PROGRAM NAME



MODIFYING THE PROGRAM NAME



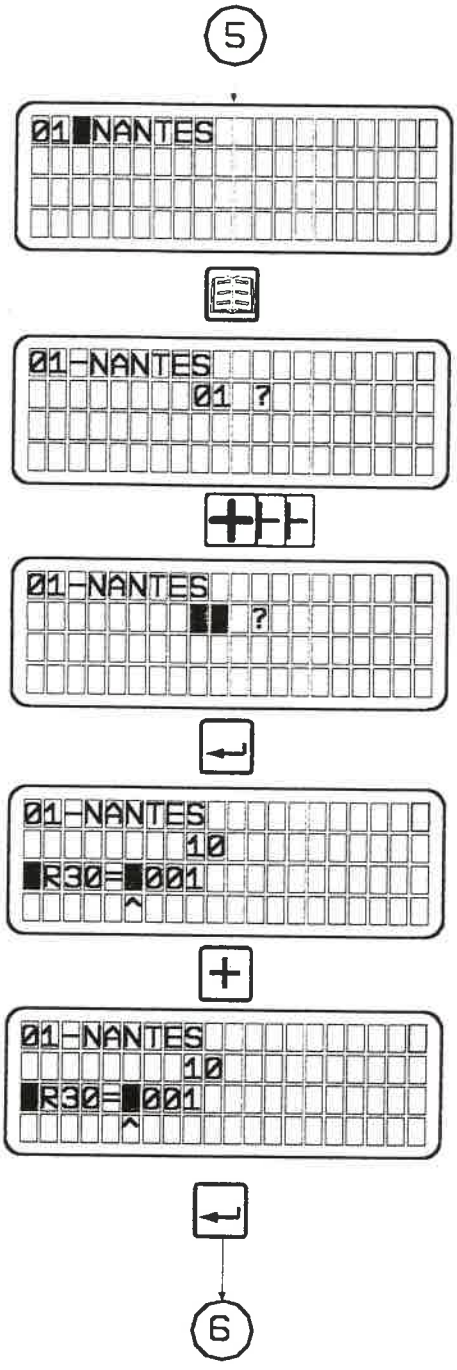
MODIFYING THE PROGRAM NAME



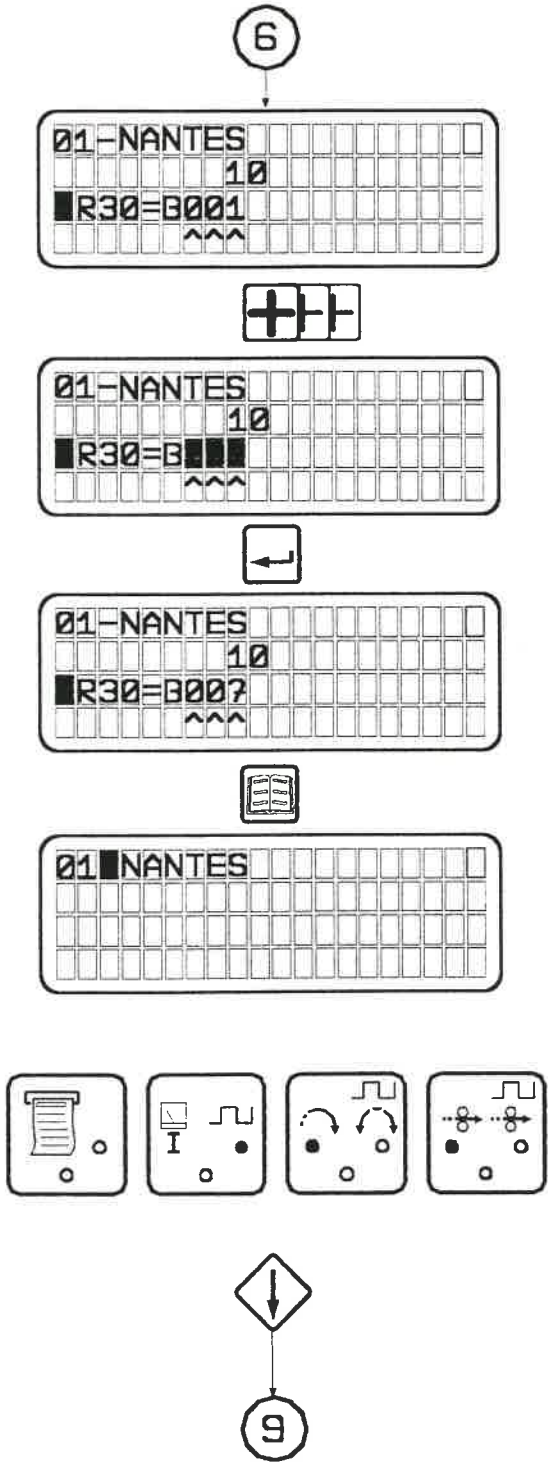
6 - CHOICE OF A BUILT-IN PROGRAM

The choice of a built-in program is only possible after a program name is entered.

After a built-in program is chosen, the reference number of a weld head must be entered to allow the machine to calculate the travel speed.



CHOICE OF A BUILT-IN PROGRAM



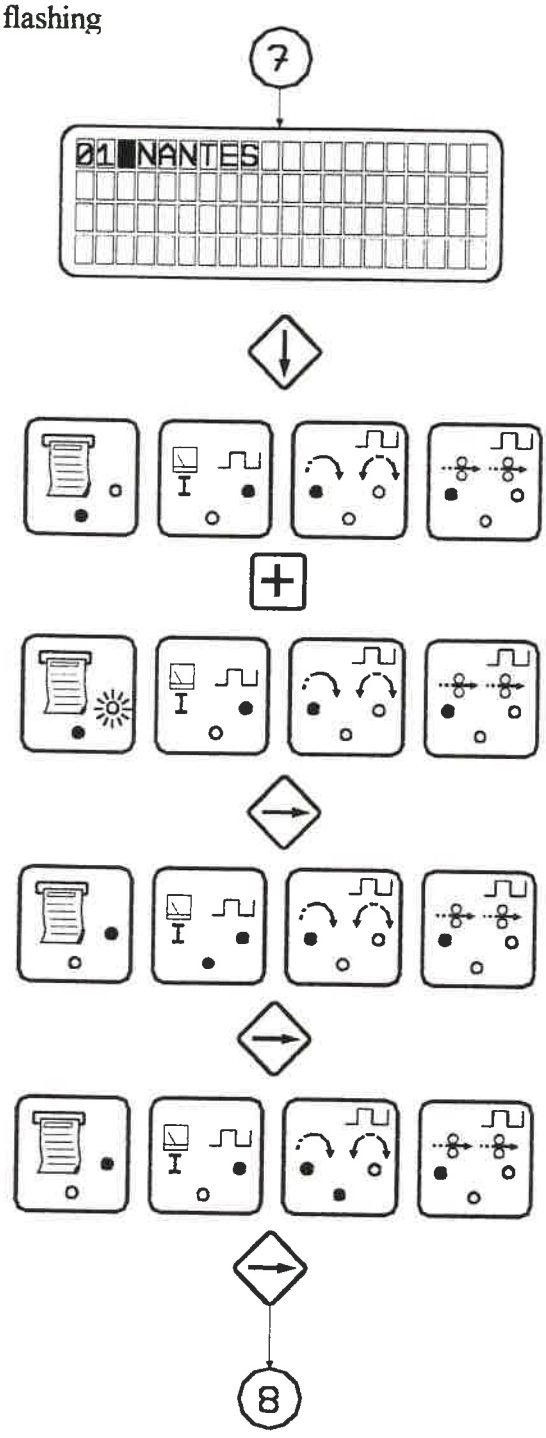
7 - PROGRAMMING AND MODIFYING THE WELDING PARAMETERS

7.1 - Configuration

○ Indicator not illuminated

● Indicator illuminated

☼ Indicator flashing

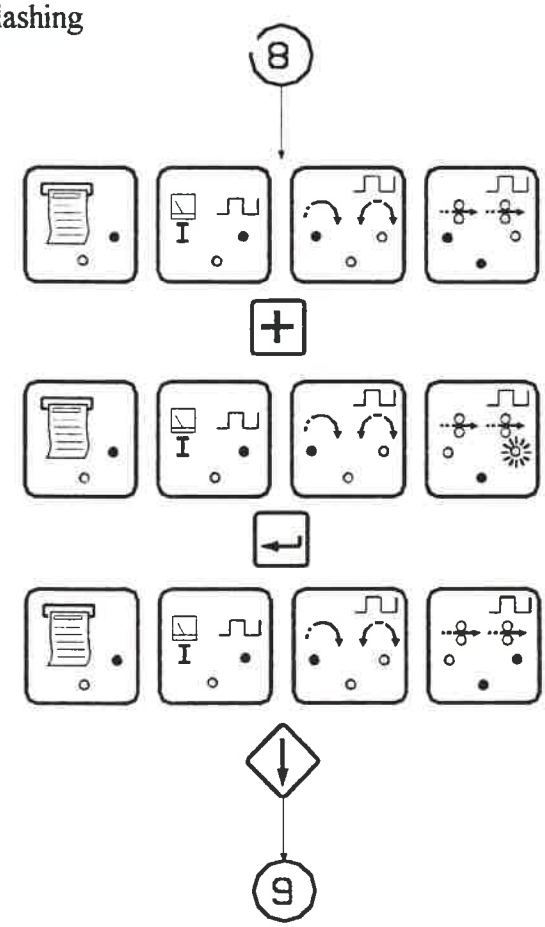


PROGRAMMING AND MODIFYING THE WELDING PARAMETERS

○ Indicator not illuminated

● Indicator illuminated

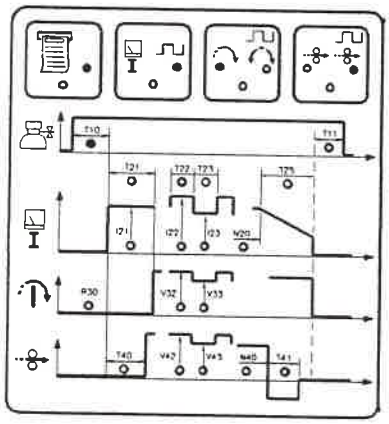
☼ Indicator flashing

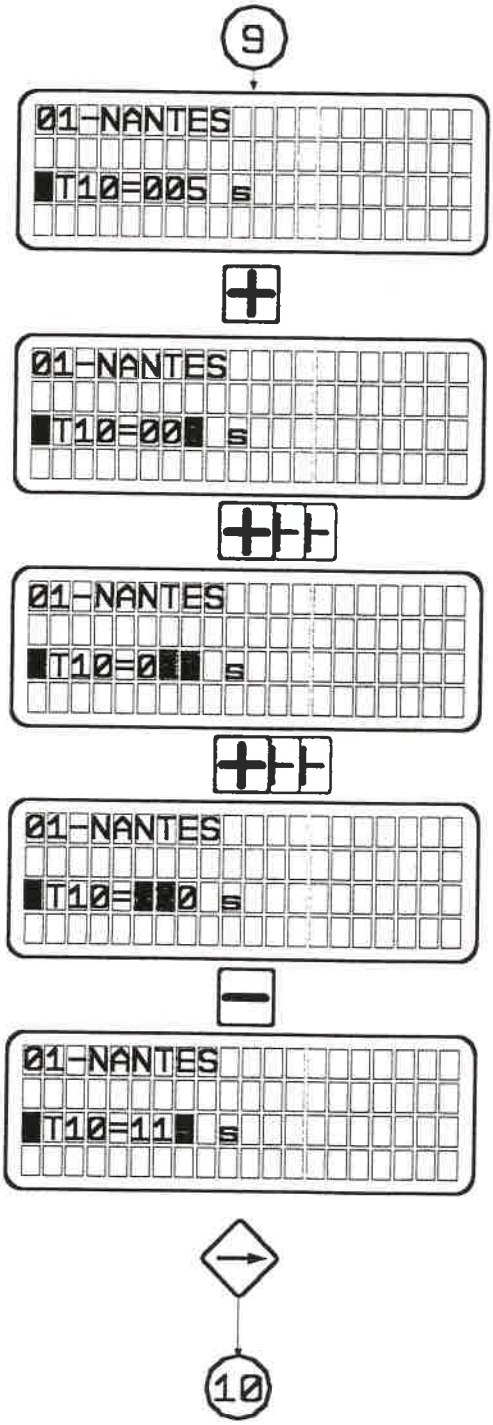


PROGRAMMING AND MODIFYING THE WELDING PARAMETERS

7.2 -Gas

T10 = pregas time



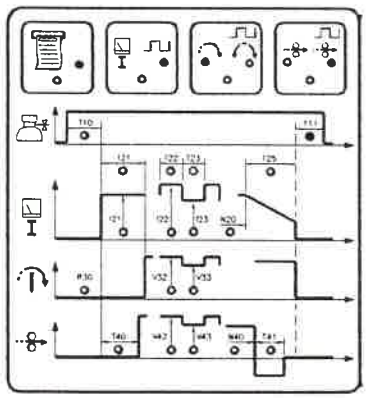


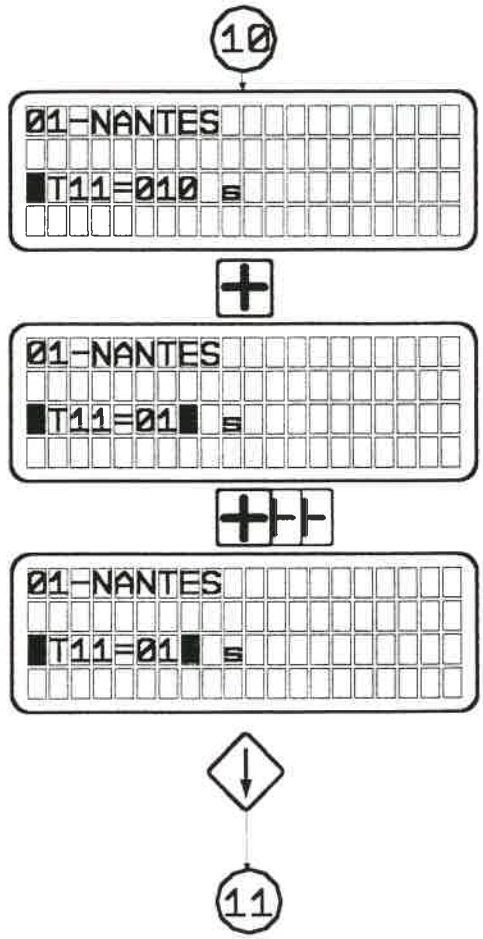
A short press of the key (less than one second) increases the value of a parameter by one increment.

A maintained press of the key increases the value of a parameter by one increment, then after one second the value continues to rise automatically until the key is released. The value rises by one increment until the value 9 is reached, at which point it begins to rise in units of ten.

PROGRAMMING AND MODIFYING THE WELDING PARAMETERS

T11 = postgas time



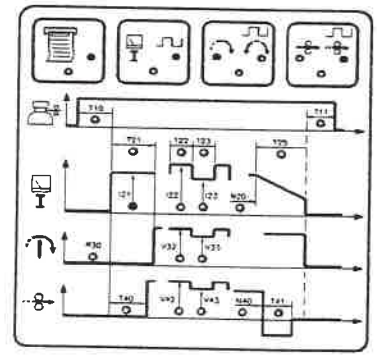


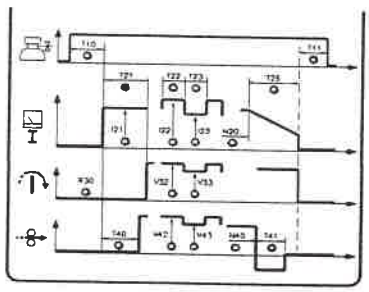
PROGRAMMING AND MODIFYING THE WELDING PARAMETERS

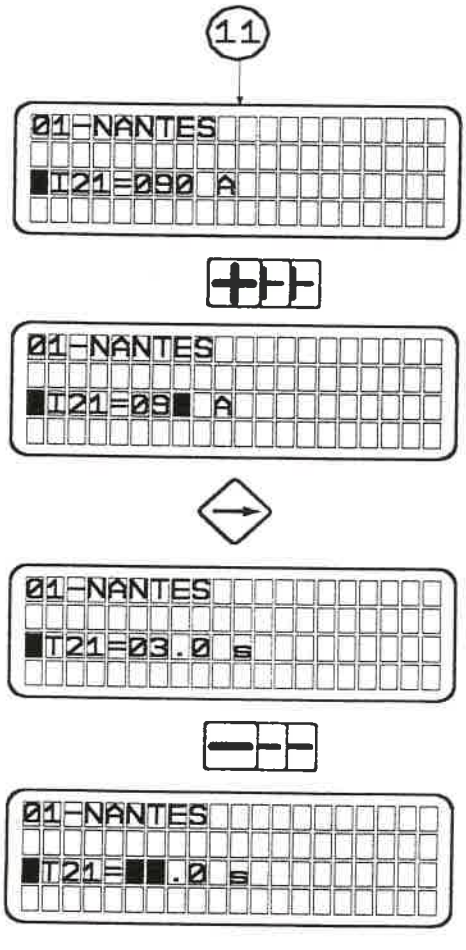
7.3 - Prefusion

During prefusion, a suitable amount of metal shall be molten. Prefusion takes place before travel speed and wire is starting.

I21 = prefusion current
T21 = time of prefusion







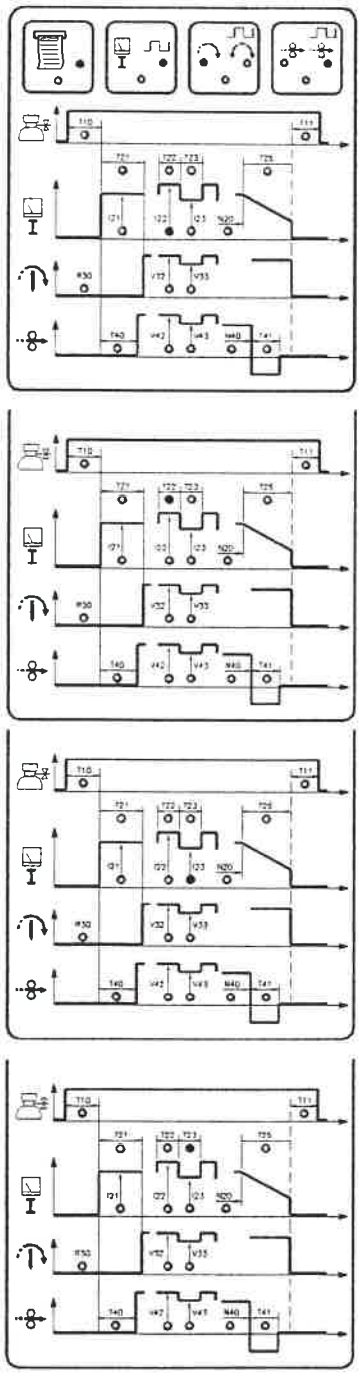
A maintained press of the key increases the value of a parameter by one increment, then after one second the value continues to rise automatically until the key is released. The value rises by one increment until the value 9 is reached, at which point it begins to rise in units of ten.

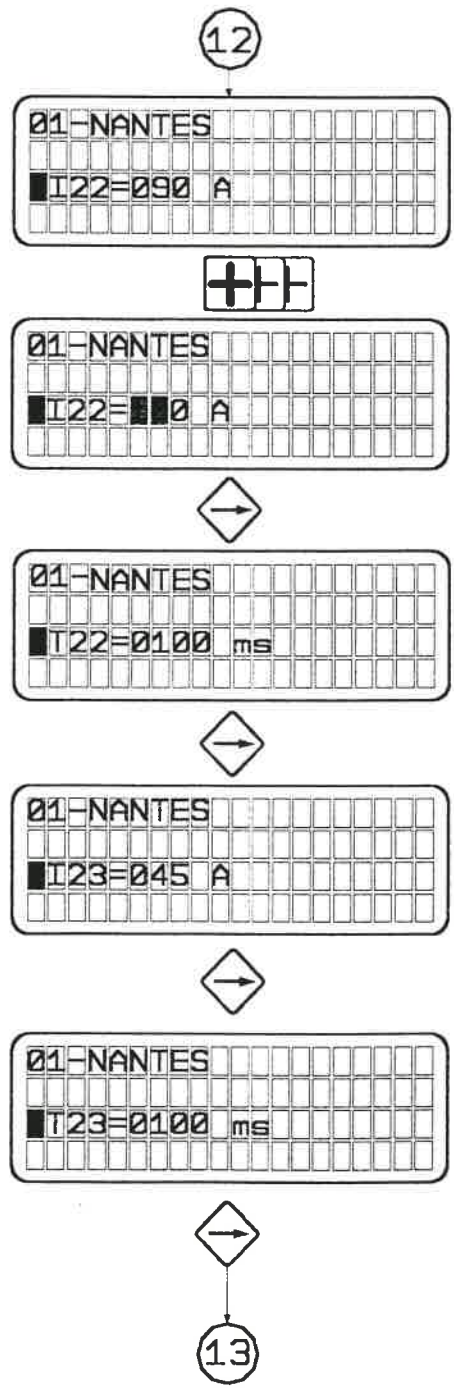
PROGRAMMING AND MODIFICATION OF THE WELDING PARAMETERS

7.4 - Current

I22 = pulse current
T22 = time of pulse current

I23 = background current
T23 = time of background current



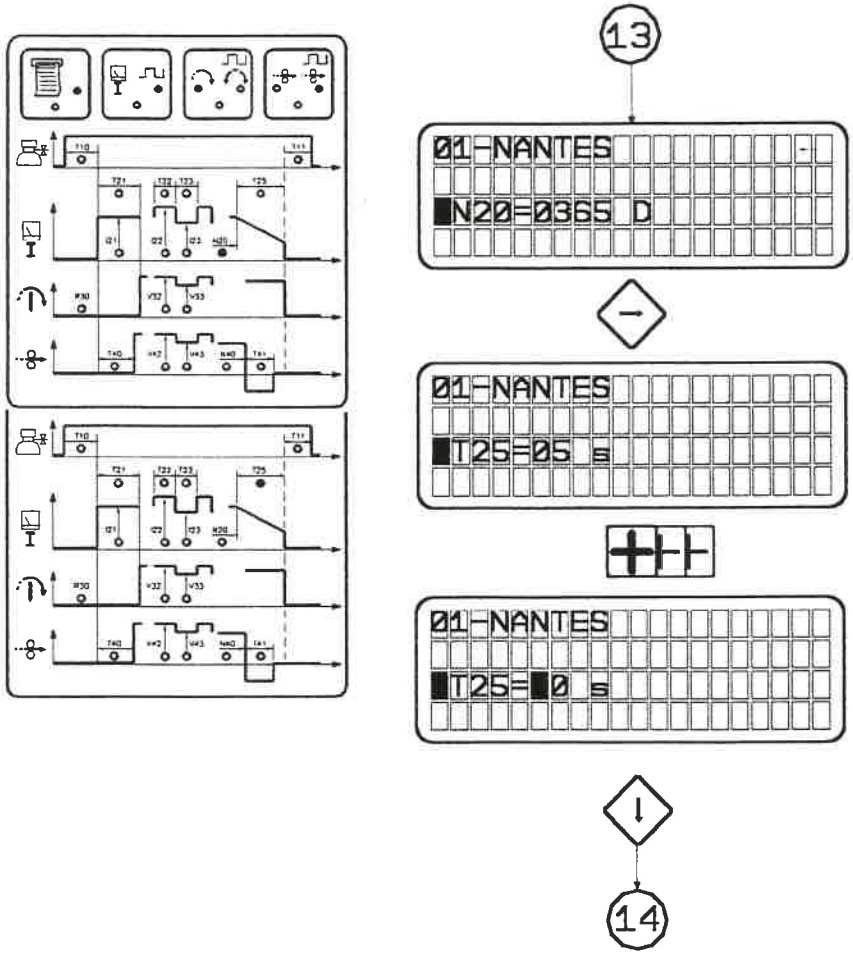


PROGRAMMING AND MODIFICATION OF THE WELDING PARAMETERS

7.5 - Downslope

To avoid an end crater, the weld current is reduced continuously during the downslope until the arc stops.

N20 = start of downslope
T25 = time of downslope



PROGRAMMING AND MODIFICATION OF THE WELDING PARAMETERS

7.6 - Rotation; weld head reference numbers and calculation of travel speed V32 and V33

Remark

The tables give a reference number R30 for the identification of every standard weld head. The reference number contains a letter and a three digit number. It has to be correctly introduced during programming to assure the proper functioning of the movements.

In order to get a required linear travel speed VL for a tube diameter D, the value to program VP (V32 for single travel speed, V33 for step pulse travel speed) has to be calculated with the formula:
VP = C*VL/D where C is a factor due to every type of weld head and given in the last column of the tables.

Example: Weld head MW 1250 → C = 30 (see table in the operating and maintenance manual of the power source); required linear travel speed VL = 152.5 mm/min; tube OD D = 25.4 mm (1")

VP = 30*152.5 mm/min : 25.4 mm
VP = 180

Open weld heads MU III

Weld head type	Minimum diameter inch (mm)	Maximum diameter inch (mm)	Reference (R30)	Number of impulses per revolution	Factor C VP=C*VL/D
MU III 16	.157 (4)	.63 (16)	A014	357	24
MU III 25	.315 (8)	1.04 (26)	A028	357	48
MU III 34	.79 (20)	1.3 (34)	A033	364	58
MU III 8/34	.315 (8)	1.3 (34)	A033	364	58
MU III 51	1.0 (25)	2.0 (51)	A086	361	150
MU III 20/80	.79 (20)	3.1 (80)	A073	360	127
MU III 80	1.25 (32)	3.1 (80)	A073	360	127
MU III S 80	1.25 (32)	3.1 (80)	A073	360	127
MU III 114	2.75 (70)	4.5 (114)	A100	360	174
MU III 30/114	1.18 (30)	4.5 (114)	A100	360	174
MU III S 115	.67 (17)	4.5 (114)	A100	360	174
MU III 170	3.0 (76)	6.7 (170)	A183	359	317
MU III S 170	2.36 (60)	6.7 (170)	A183	359	317
MU III 220	4.0 (102)	8.7 (220)	A322	360	559
MU III 370	5.9 (150)	14.6 (370)	A360	360	625