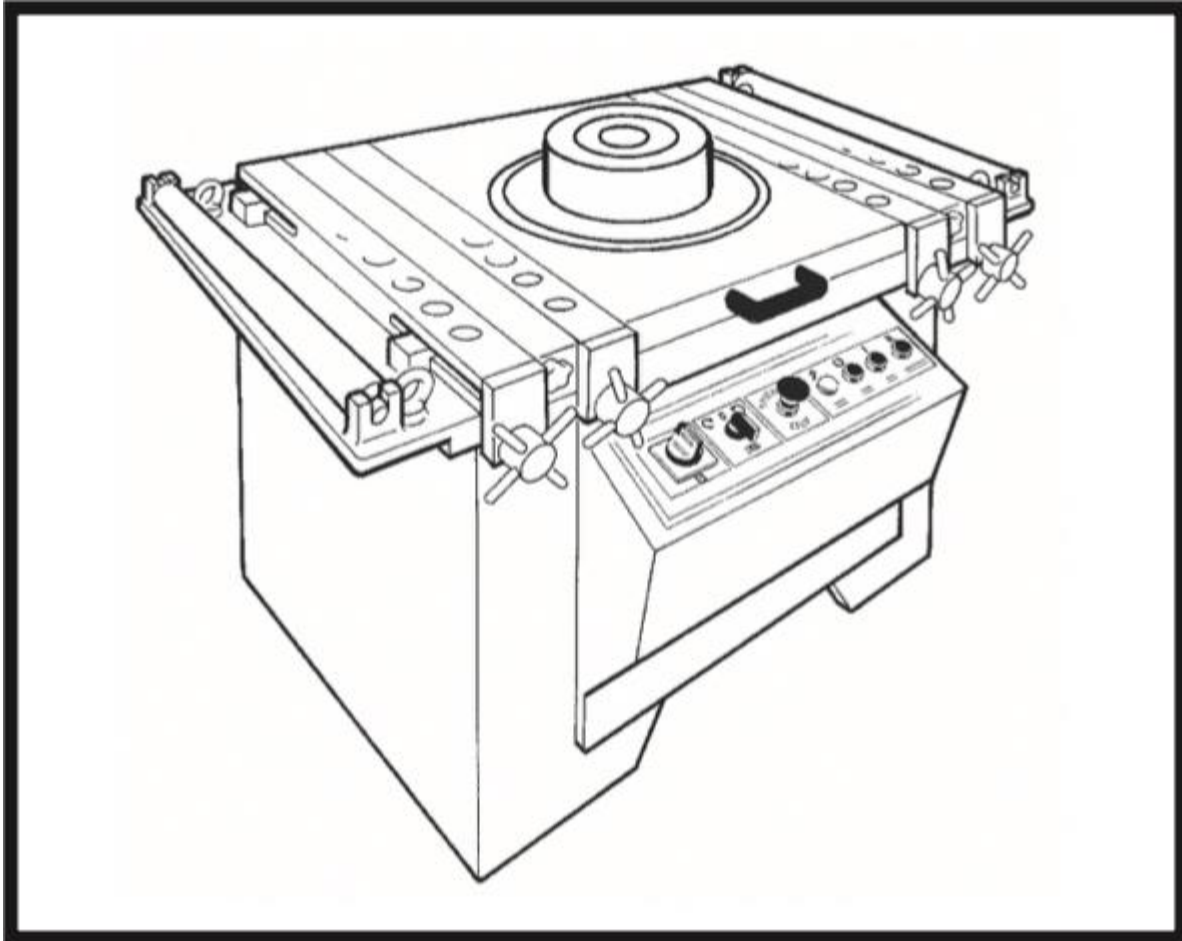


MAINTENANCE / OPERATION MANUAL

BAR BENDING - COMBINED MACHINES



INSTRUCTION FOR USE AND MAINTENANCE OF AUTOMATIC BENDING AND COMBINES MACHINES

Installation

A functional position of the machine means above all, less fatigue and consequently a better efficiency form the operator.

It is therefore necessary to place the machine very close to the stock of bars to work, in the open air, or even better under a protecting roof.

We also suggest to put the machine side by side with two working tables, whose length should be the same as the maximum length of shaped irons to be worked.

In this way, the operator has the opportunity to work all the material without turning the bars.

Installing the machine make sure that:

- the machine plan is perfectly horizontal; and ground on which the machine lays is not too smooth
- Both working tables must be perfectly horizontal and at the same level of machine.

Electrical earthing

This operation has to be done as follows:

- Connect one end of a bare copper wire (section 16mm²) to the suitable earthing connection on the machine.
- Connect the other end of the copper wire to the site earthing system.

Electric connection

The machine is supplied with electric device provided for the required tension (voltage); it is anyway advisable to check, before starting the machine, whether the motor is set at the current rate supplied at the yard.

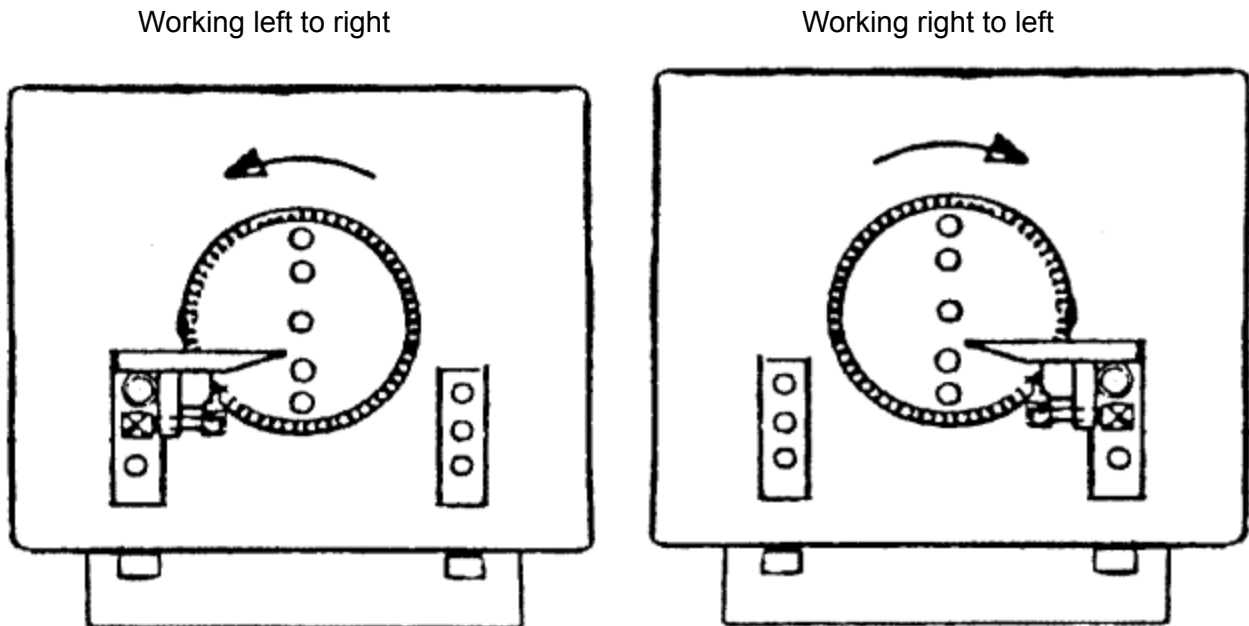
For the network connection, connect the socket with a rubberized cable (Min. section 4mm²) to the feeding net, then connect it to the plug.

After that make sure the plate turns in the desired direction otherwise change the supply phasing.

Use of the bending machine

Prepare the machine for operation as follows:

- a) Place the checking block in the saddle's holes (see drawing)



- b) Place in the rotating plated center hole and in the selected hole the required pins and bushes. Make sure that between the pin placed in the hole eccentric to it, there is a clearance more than the size of the bar to be bent of at least 2mm.
- c) Place at the desired position the inversion pin in the peripheral hole of the rotating plate.
- d) Place the bar between the two bushes start the machine pushing the push button (83) and check of obtained angle is the required one. For eventual angle correction move the pin placed in the peripheral hole forward if the angle is too wide backward if too narrow.
- e) In case of wrong operation press the red push button (82)

Warning

It is suggested to use the checking block only to bend bars up to 25mm diameter. For higher diameter use the pin and bush.

When using the bush on pin positioned in the central hole of the rotating plate (making bends of small radius) we recommend to select a bush with exterior diameter 3-5 times larger than the diameter of the bar to be bent. To obtain stirrups place in the center hole of the rotating plate the proper pin (100).

Note:

This machinery is to be used by trained experienced operators only Personal injury or extensive damage to the equipment may result if this machinery is not set up and used correctly, if you are unsure of the operational procedures please contact us prior to commencing.

Use of the combined machine

For bending operations refer to the a.m. instructions.

For cutting operations remove all the pins - bushes etc. from the rotating plate and saddles, place the bar on the shearing unit and press the push button to start the machine.

Maintenance

At the end of the working day, switch off the machine and disconnect from the main board.

In case the machine is not in a covered place, it is necessary to cover it with a water-proof sheet.

Every week it is necessary to eliminate the metal residual fouled inside the machine.

Periodically it is necessary to give the machine, in addition to usual cleaning, also a special cleaning of every visible part with mineral naphtha.

ROUTINE DEFECTS FINDING TABLE

FAULTS	CURE
Drop of capacity in the bending-cutting operations.	Check the belt tension. If loose, screw out the locking bolts of the motor, stretch the belts and lock the bolts.
The rotating plate turns and stops after having touched the return micro-switch.	Check the stop micro-switch and find out if the contacts punts are well tight if not this cause a drop in the input voltage.
The pilot lamp does not light.	Check the site electric network and input. Check the low and high tension fuses located in the panel of the machine. Check the cable connection.
The pilot lamp is on but the machine does not operate	The machine is connected to one phase only. Check the high tension fuses in the panel of the machine, and after on the site main board. Check the connection of the cables to the terminal board on the plug, and socket.
Machine connected at 220 V. The current feed is regular but the machine power is low.	Check the voltage if lower than 220V, there is not enough current for low tension. Suggest a voltage stabilizer.
Oil leaking from the lower part of the reduction gear.	The oil seal of the pinion of the pulley got worn out, remove the pulley and flange (62). Change the oil seal and reassemble applying some sealant paste.

BAR BENDERS WITH TIMER

Attention

1. Make sure the connecting voltage is correct; and the cartridge are properly tightened.
2. In case of electricity cutoff while the machine is operating, never touch the switch S1 (see wiring diagram). After the reset of the electricity supply, operate on the red pushbutton - PA- (see wiring diagram) to make the machine return to the starting position, then operate on the black pushbutton -PA- (see wiring diagram) to start again the bending operation.
3. In case the operator realised a mistake has been done in setting the angle for the bend of the round bar, never operate on the switch -S1- (see wiring diagram). Only operate on red pushbutton -PA- to return to starting position.
4. Before installing the pins, bushes and checking block make sure the direction of rotation is the one you have selected, only after that, you can place the pins, bushes and checking block.

BAR BENDERS WITH MANUAL DRIVE CONTROL

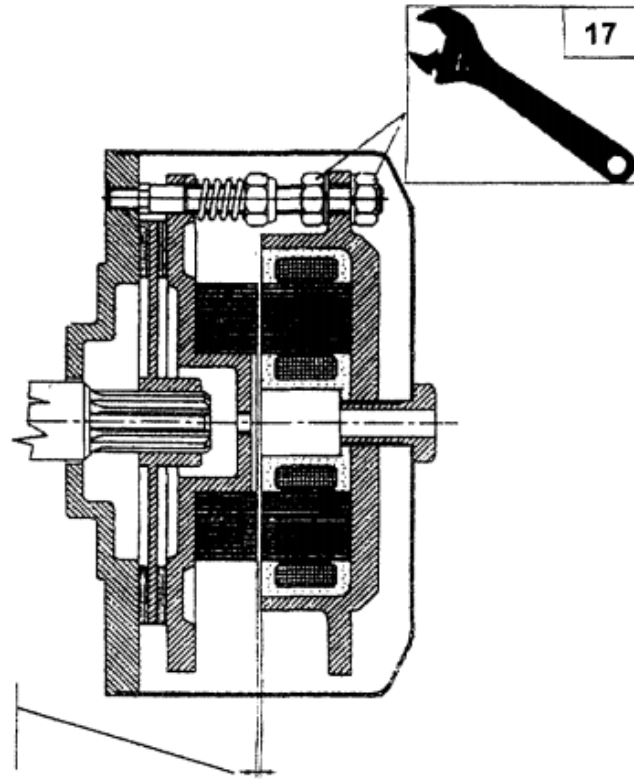
Fault Finding

If operating on the black pushbutton -PM- or on the remote control pedal -FcP- the machine does not work, check the following:

1. The limit switch FcS could be in the wrong position.
The contactors must be one open and one closed (see wiring diagram).
2. Make sure the electricity 3 Phase reach the electromagnetic switches CAV e CIN.
In the case one phase is out check the fuses - F1-35A- (see wiring diagram).
3. If the red pilot lamp on control board does not light after operating the deviator - S1- check the lamp and replace if out order or check the fuses F2 and F3 and replace if not working.









Regulation of the Electromagnetic Brake

Because of the wear of the friction brake shoe, the distance between electromagnet and movable keeper - named "Air Gap" - tends to augment with time. Use the nuts to regulate a distance of 0.4mm at least (4 tenths of millimetre)




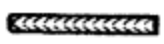


Machine Model		Make	Oil denomination
P26	Kg. 2	ROL ESSO MOBIL SHELL AGIP	ARM 220 SPARTAN EP 220 COMPOUND DD OMALA 320 REP 187
P30 CP22/26 CP24/28	Kg. 5		
P32 - P36 - CP25/30 CP30/35 CP26/32	Kg. 8		
P42 - P52 - P55 P55 Special CP38/45	Kg. 13		

COMBINED MACHINE

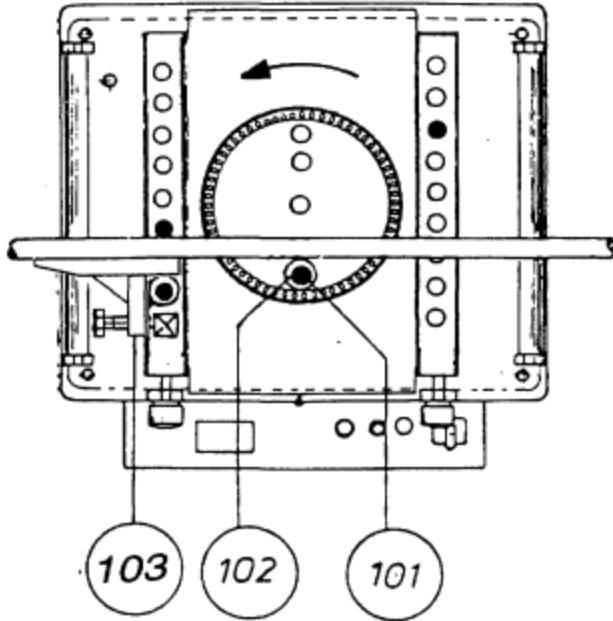
				65 kg / mm ²			80 kg / mm ²			Dimensions	Weight	Grease
		HP	KW	1 Ø	2 Ø	3 Ø	1 Ø	2 Ø	3 Ø			
CP 22/26 1/3 phase		10	1.5	20	14	10	18	12	8	75 x100 x85	370	5
				24	18	14	22	14	12			
CP 24/28 1/3 phase		10	2.2	22	16	12	20	14	11	82 x105x 85	390	5
				26	18	14	24	16	12			
CP 26/32 3 phase		9	2.2	24	18	12	22	16	10	84 x106x 85	440	8
				28	22	18	26	20	16			
CP 30/35 3 phase		9	3	26	20	16	24	18	14	90 x 110 x 85	460	8
				30	24	18	28	22	16			
CP 38/45 3 phase		9	4	30	22	20	28	26	14	104x 122x 89	802	13
				40	28	24	36	26	22			

BENDING MACHINE

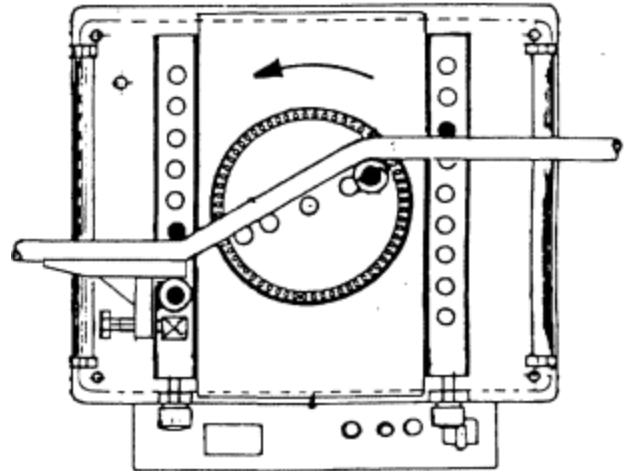
										Dimensions	Weight	Grease
		HP	KW	65 kg / mm2			80 kg / mm2					
				1 Ø	2 Ø	3 Ø	1 Ø	2 Ø	3 Ø	cm	kg	ks
P30 1 Phase	10	2	1.5	26	20	16	24	18	14	82x90x85	308	5
P30 3 Phase	10	2	1.5	26	20	16	24	18	14	85x90x85	308	5
P32 E 3 Phase	9	3	2.2	28	22	18	26	20	16	86x90x85	350	8
P36 3 Phase	9	4	3	32	24	18	30	22	16	86x90x85	362	8
P42 3 Phase	6	4	3	36	28	24	34	26	22	105x95x89	600	13
P46 3 Phase			3	42	30	30				100 90x89	520	
P52 3 Phase	6	5.5	4	42	34	26	38	32	24	105x95x89	630	13
P55SP 3 Phase	5.5/11	5.5	4	45	-	-	40	-	-	140x95x93	800	13
P70 3 Phase	5	10	7.5	60	-	-	50	-	-	160x115x95	170	25
ST 16 Euro	21	2	1.5	18	12	10	16	12	10	80x70x96	155	-

DOUBLE BEND INSTRUCTIONS

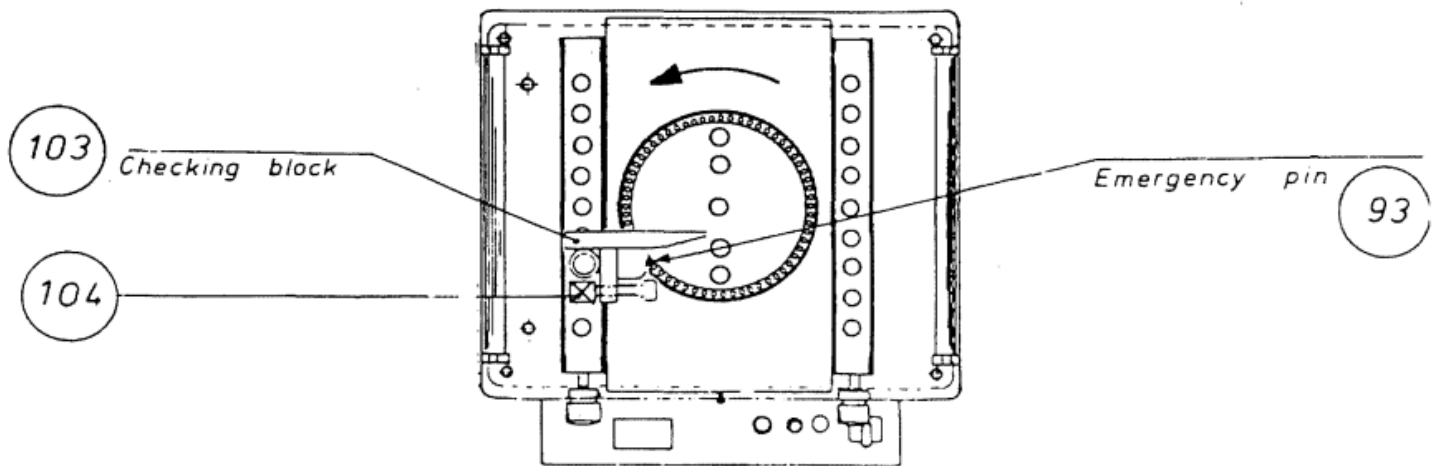
FIRST OPERATION



SECOND OPERATION



EMERGENCY PIN SETTINGS



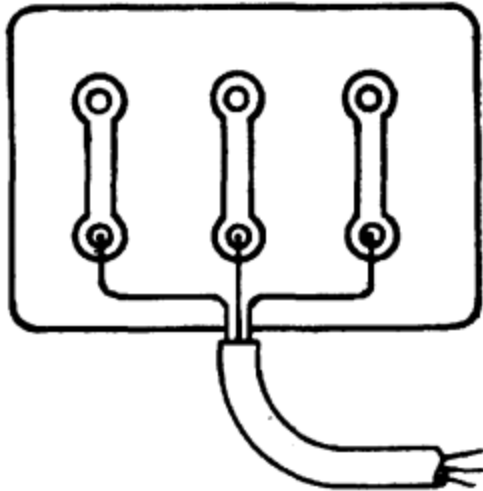
CAUTION!

After setting the checking block place in the emergency pin to avoid that the bush hit the checking block during the bending operation

TERMINAL BOARD

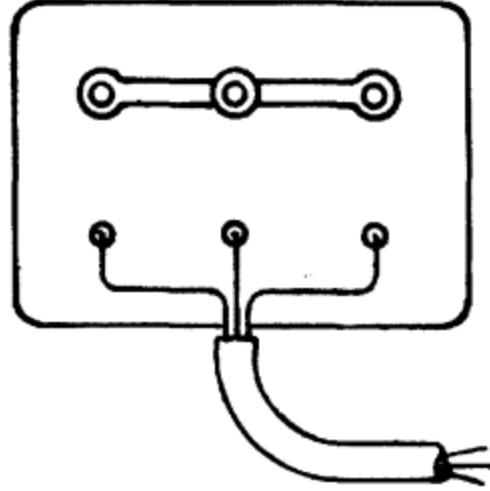
WIRED TO

220 VOLT

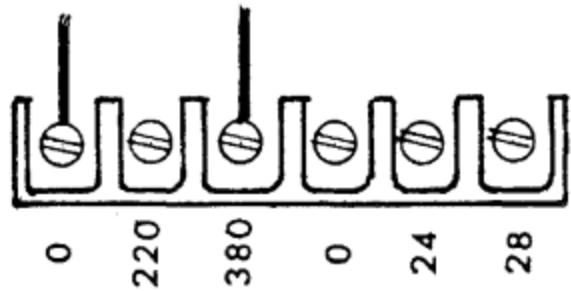
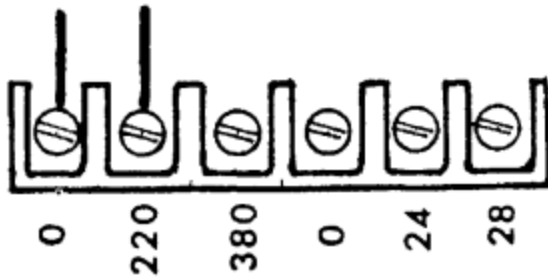


WIRED TO

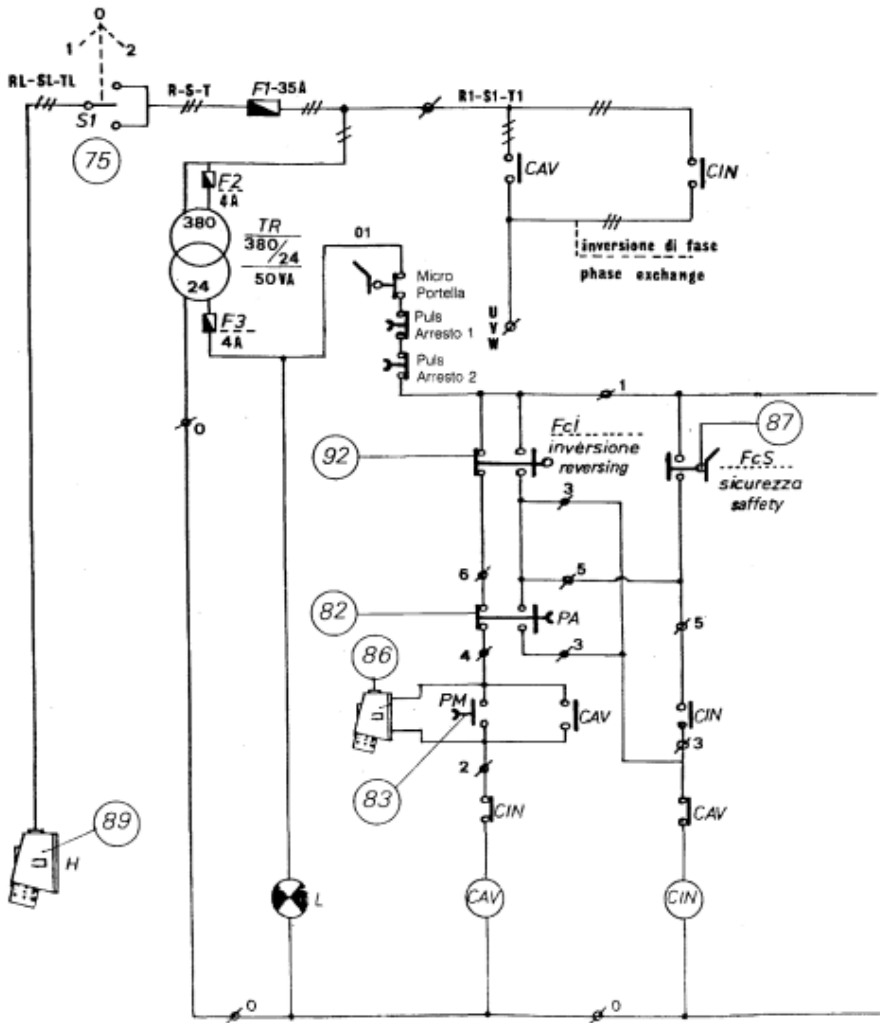
380 VOLT



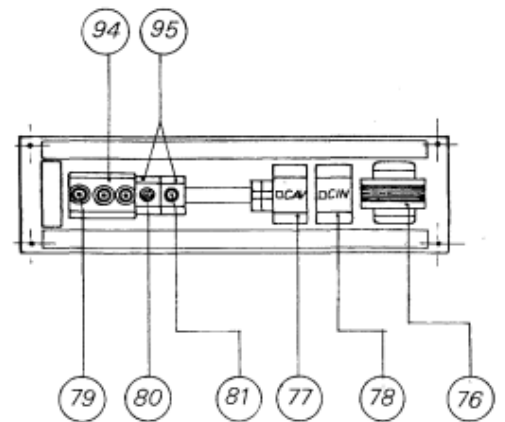
TRANSFORMER TERMINAL - 400 -



ELECTRIC DIAGRAM WITH DRIVE CONTROL FOR THE BENDING ANGLE



FILO N.	COLORE
0	BLU
1	NERO
2	AZZURRO
3	MARRONE
4	GRIGIO
5	BIANCO
6	ROSSO



Common Australian Bar Grades

Grade 250 - 250MPa = 25.5 Kg/mm²

Grade 300 - 300MPa = 30.6 Kg/mm²

Grade 500 - 500MPa = 51.0 Kg/mm²

Model	Motor Drive kw	Bending Capacity			Weight kg	Machine Dimensions cm
		Grade 500 - 500MPa = 51.0Kg/mm ² Bars per Bend				
		1 x Ø	2 x Ø	3 x Ø		
P26	1.85	24	16	12	350	68X61X83
P26	2.2	26	20	16	350	76X70X83
P36	3	32	24	18	365	86X90X85
P42	3	36	28	22	500	100X90X89
P46	3	42	30	30	520	100X90X89
P52	4	44	34	26	590	110X91X89
P55	5.5	46	36	28	620	110X100X89
P62	5.5	54	40	30	1000	150X100X100
P70	7.5	70	42	35	1200	160X115X90

All the tests were carried out using iron bars coming from all over the world. The iron bars we used all followed these standards: DIN488, BS4449/2005, BS4449/97, ASTM/A706/A706M-00, ASTM (A615M-2000, UNE 36068, LNEC E450, NEN6008 (NL), NF A 35080-1, SD490 with different GRADE and toughness.

OPERATION GV148 "BENDING DRIVE" – SW REV.01

This board fed 24VAC, manages the working and the check of the limit switches of the machine, moreover through a simple function allows the read in of three times, maximum, to realize bending sequence.

Operation and reports:

Bending times settings:

After the ignition and the machine in 0 position, select by the selector (0-1-2-3) the bending to be memorized, the relative lamp blinks as the running machine lamp. Put in the pin for the desired measure and by the start button made the plate turning till the stop point indicated by the pin then bring back the plate to the 0 position by the return button. Now pressing the start button is possible to memorize the time of the angle done, the fast blinking of the lamp that signal the bending points the read in registered.

Go on in this way for the following bending if necessary. If you do not want to save the operation done bring back the selector to the 0 position.

To zero a bending time previously memorized choose the pertinent bending and hold pressed the return button for 4, the zero setting of the measure is signalized by a quick ignition of the three lamps that point out the bending times.

The memorized bending times are reset switching off the machine.

When at least one time is memorized bringing back the bending selector to the 0 position the machine do the bending in sequence, this function is indicated by the times bending lamps in this way:

-blinking lamp= bending time you are doing
-fixed lighted lamp= present bending time
in this operation also the start machine lamp is blinking.

Various warning signals:

Warning signals managed by the board are pointed out by a blinking code, pauses on the warning lamp in the following way:

Alarm 1 – fixed ignition= carter limit switch or cutter intervening
Alarm 2 – non-stop blinking= warning machine not on zero position
Alarm 3 – 1 blink, 1 pause= warning breakdown zero limit switch
Alarm 4 – 2 blinks, 1 pause= warning breakdown reversal limit switch
Alarm 5 – 3 blinks, 1 pause= warning timeout ignition command contactor
Alarm 6 – 4 blinks, 1 pause= warning breakdown command contactor
Alarm 7 – 5 blinks, 1 pause= warning breakdown reversal or zero limit switch