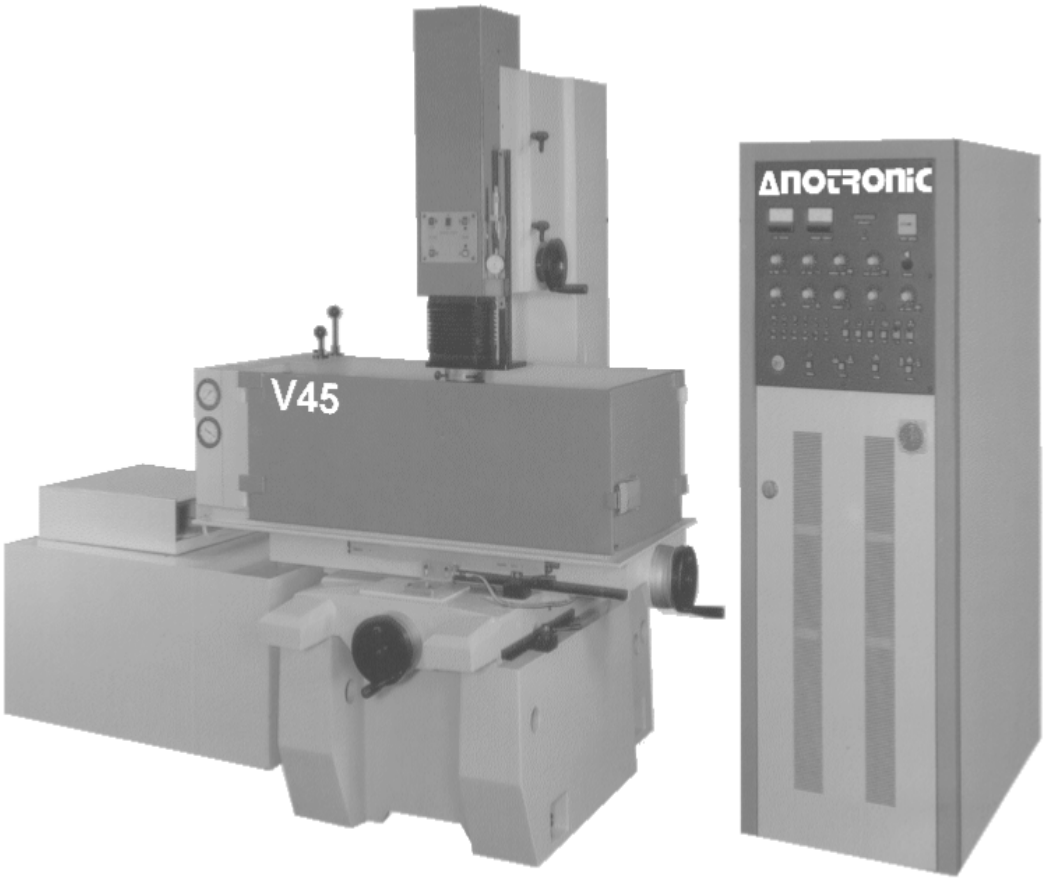
ANOTRONIC™ Maximart®

operation manual

E50 - E75



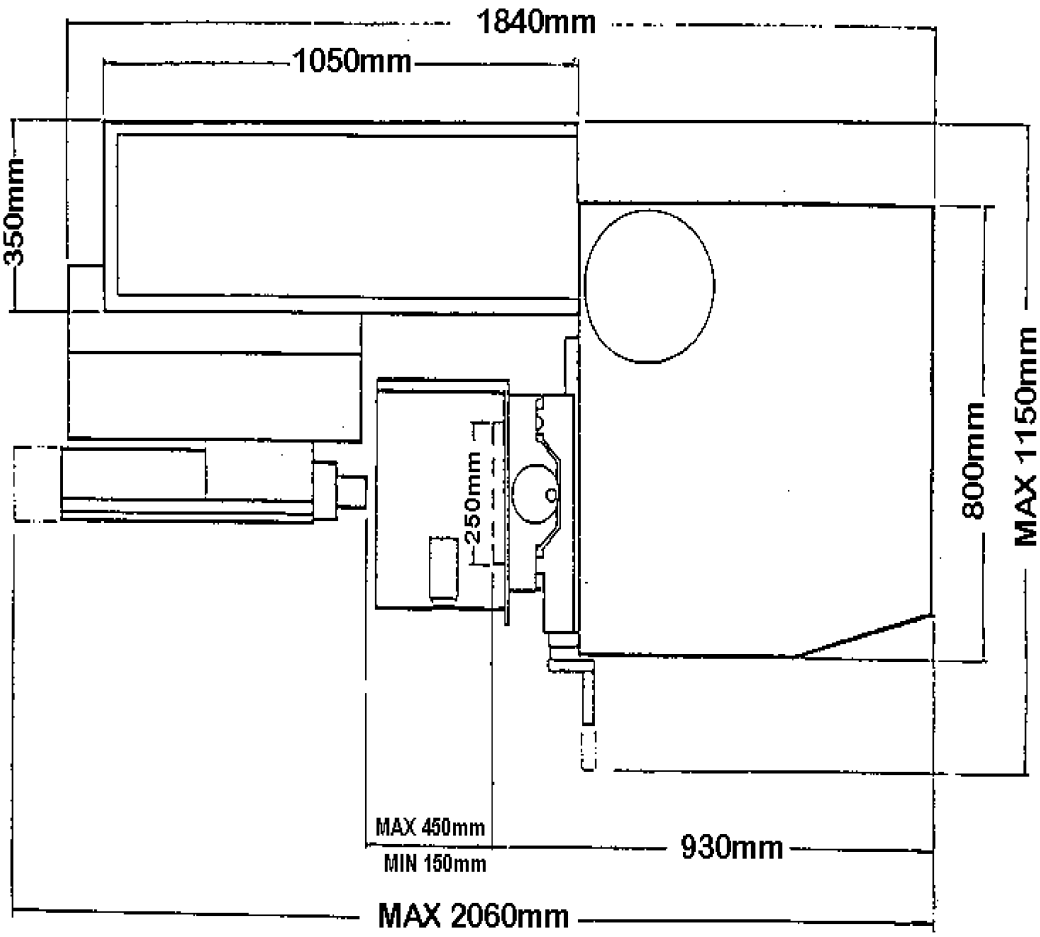
ECONOMIC SYSTEM

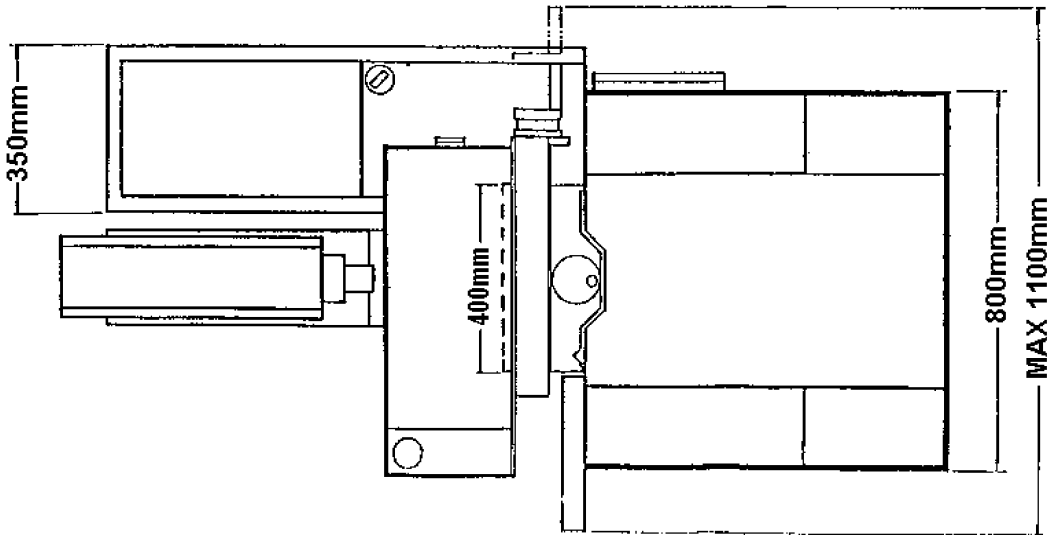
CONTENTS

SPECIFICATION	1
UNPACKING	3
LIFTING	4
TRANSPORTATION	5
INSTALLATION	6
GENERATOR CONTROL PANEL	7
OPERATION	15
DISCHARGE DATA SHEETS	

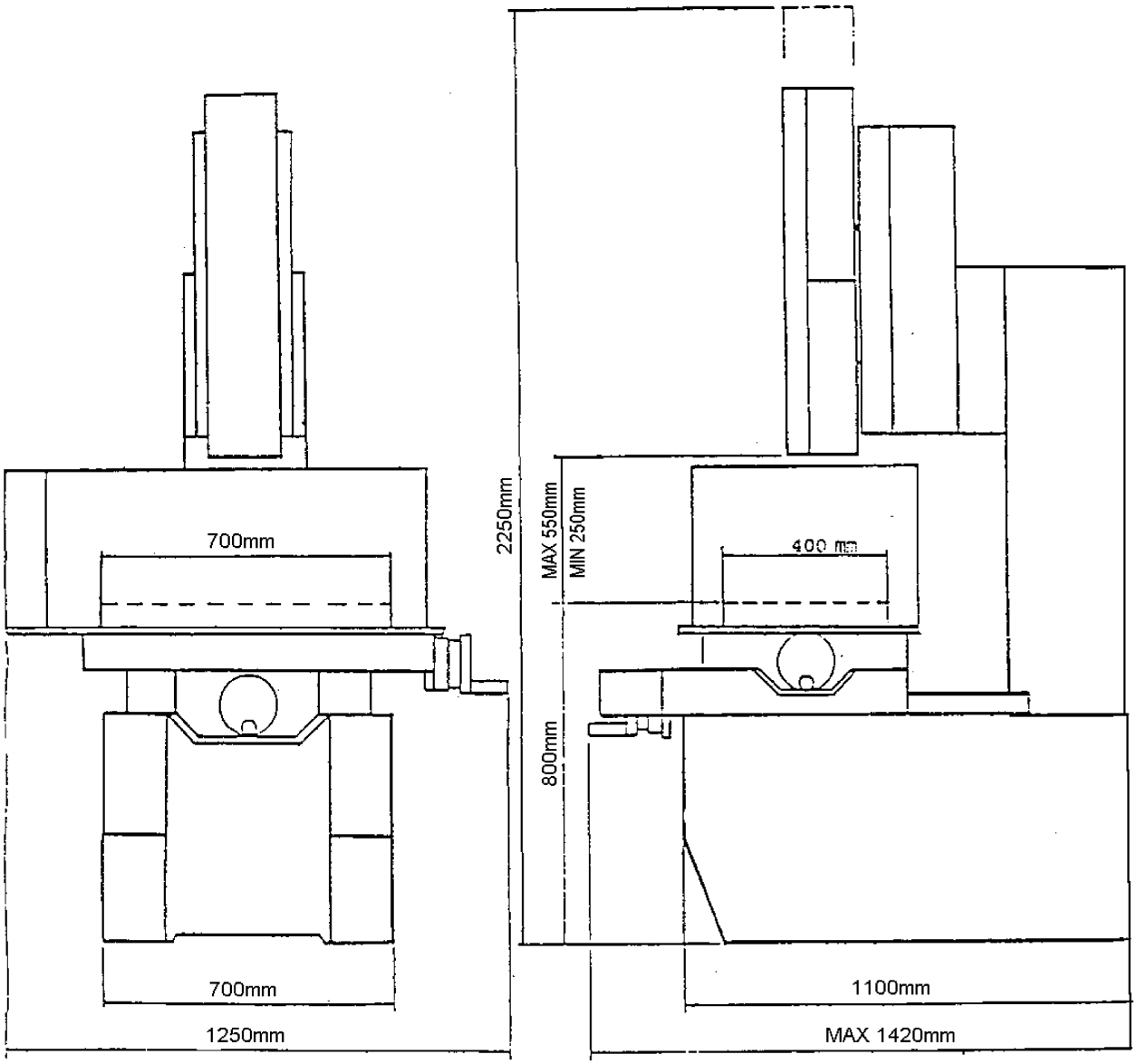
ANOTRONIC LTD.™

Unit 3, Hollingdon Depot, Stewkley Road, Soulbury,
Nr. Leighton Buzzard, Beds., LU7 0DF. England.
Telephone +44 (01525) 270261 Fax +44 (01525) 270235
E-Mail sales@anotronic.com
Internet http://www.anotronic.com



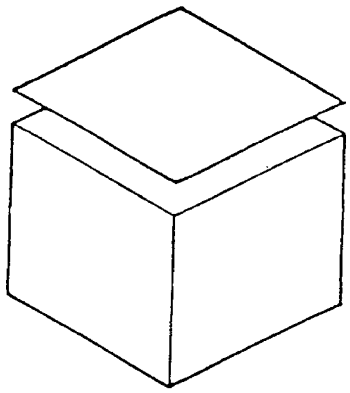


ANOTRONIC ***EDM***

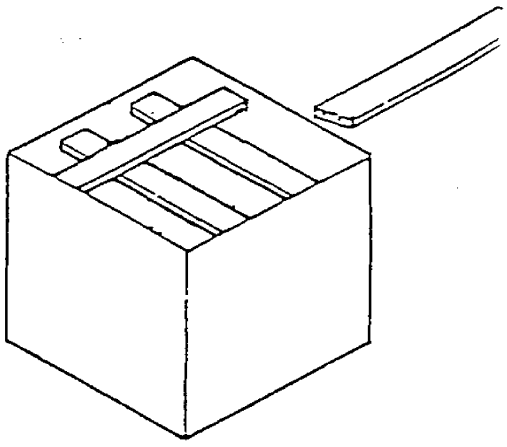

700mm
2250mm
MAX 550mm
MIN 250mm
400 mm
800mm
700mm
1250mm
1100mm
MAX 1420mm

UNPACKING

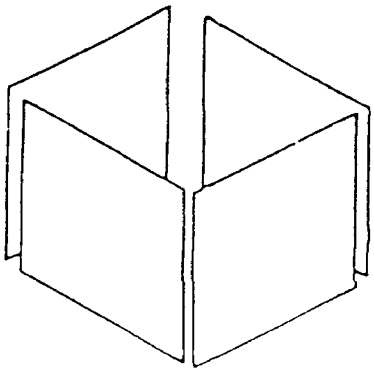
REMOVE THE TOP COVER



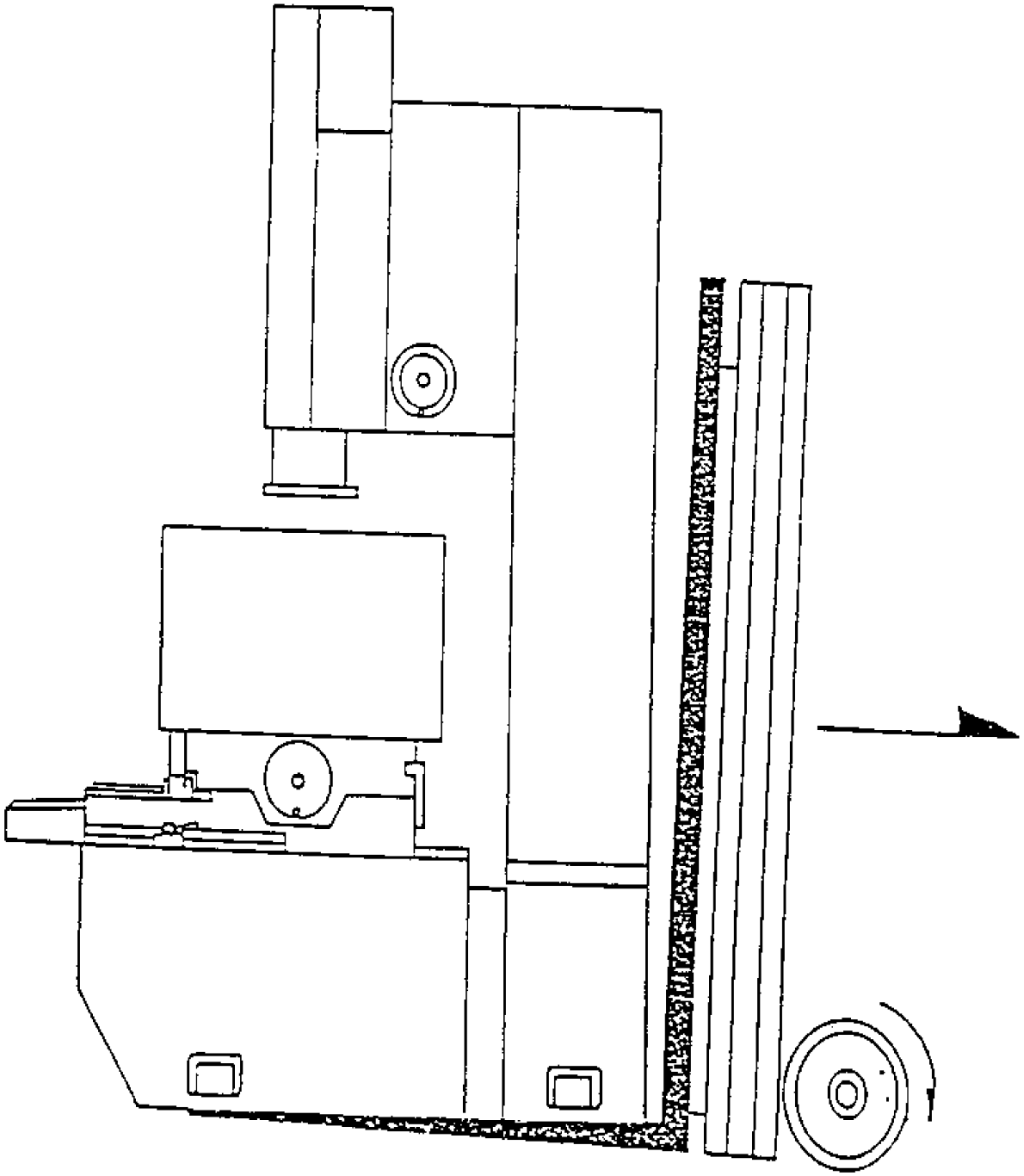
REMOVE THE WOODEN BEAMS



REMOVE THE FOUR SIDES OF THE CASE



LIFTING



TRANSPORTATION

When moving the packing cases, make sure that they are kept upright.

1. The correct way to move the Machine

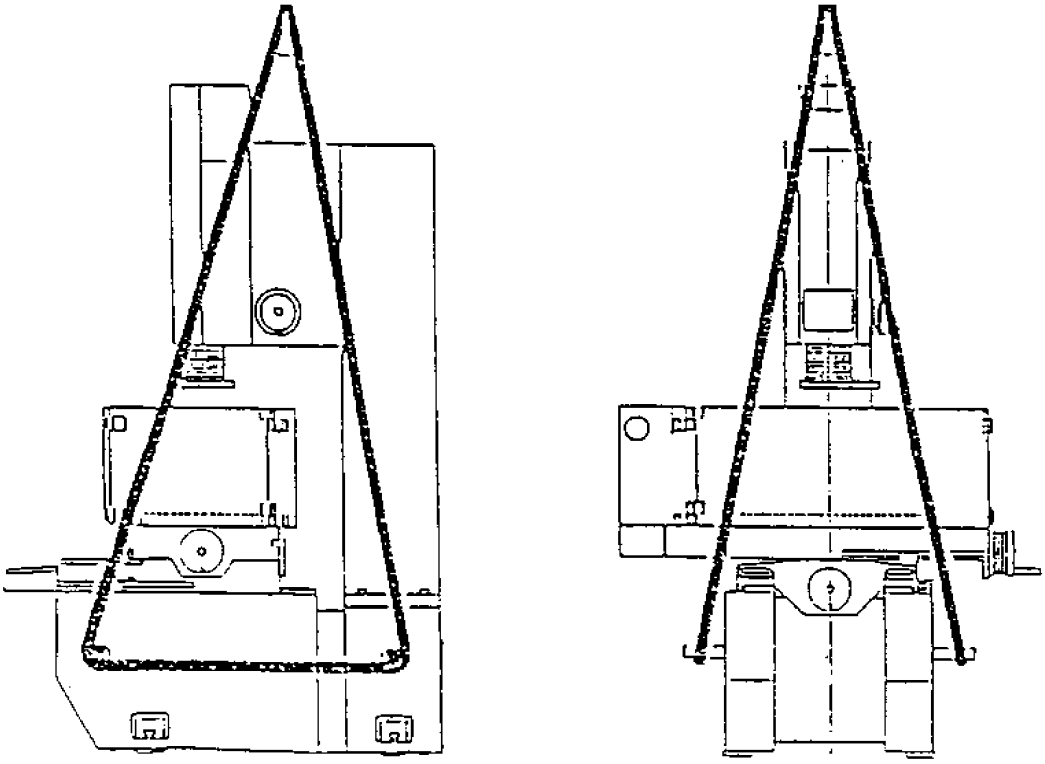
A. There are two holes through the machine base to insert steel bars. Place slings around the bars and lift using a crane.
B. Using the four leveling bolts provided, raise the machine and move by fork lift.

CAUTION :- DO NOT ALLOW ANY PRESSURE ON THE WORK TABLE OR SADDLE.

2. Moving the Power Unit.

A. Hoist by fastening a rope through the eye bolts on top of the unit.
B. Manualy on the four built-in castors.

3. Moving the Oil Tank
Either by fork lift or on the four built-in castors.



INSTALATION

1. Enviroment.
To obtain the best working conditions for the Machine :-

A. A cool ventilated, clean room, well protected from dust and dirt will prolong the life of the machine.
B. Placing the machine on a stable concrete foundation will reduce vibration which can seriously affect precision.
C. For easier operation and maintenance the machine should be positioned with at least 1 metre all-round clearance.

2. Degreasing the Machine.
To protect the machine against corrosion during delivery, all unpainted areas, slideways, handles, etc. are coated with grease.

A. Degrease using paraffin, dielectric fluid or a suitable solvent cleaner.
B. The slideways should be then lightly oiled.

3. Levelling the Machine.
After positioning the machine the worktable should be levelled.

A. There are four levelling bolts at the base of the machine.
B. Level the machine using a spirit level on the worktable.
C. Tighten the lock nuts after adjustment.

4. Inspection Before Operation

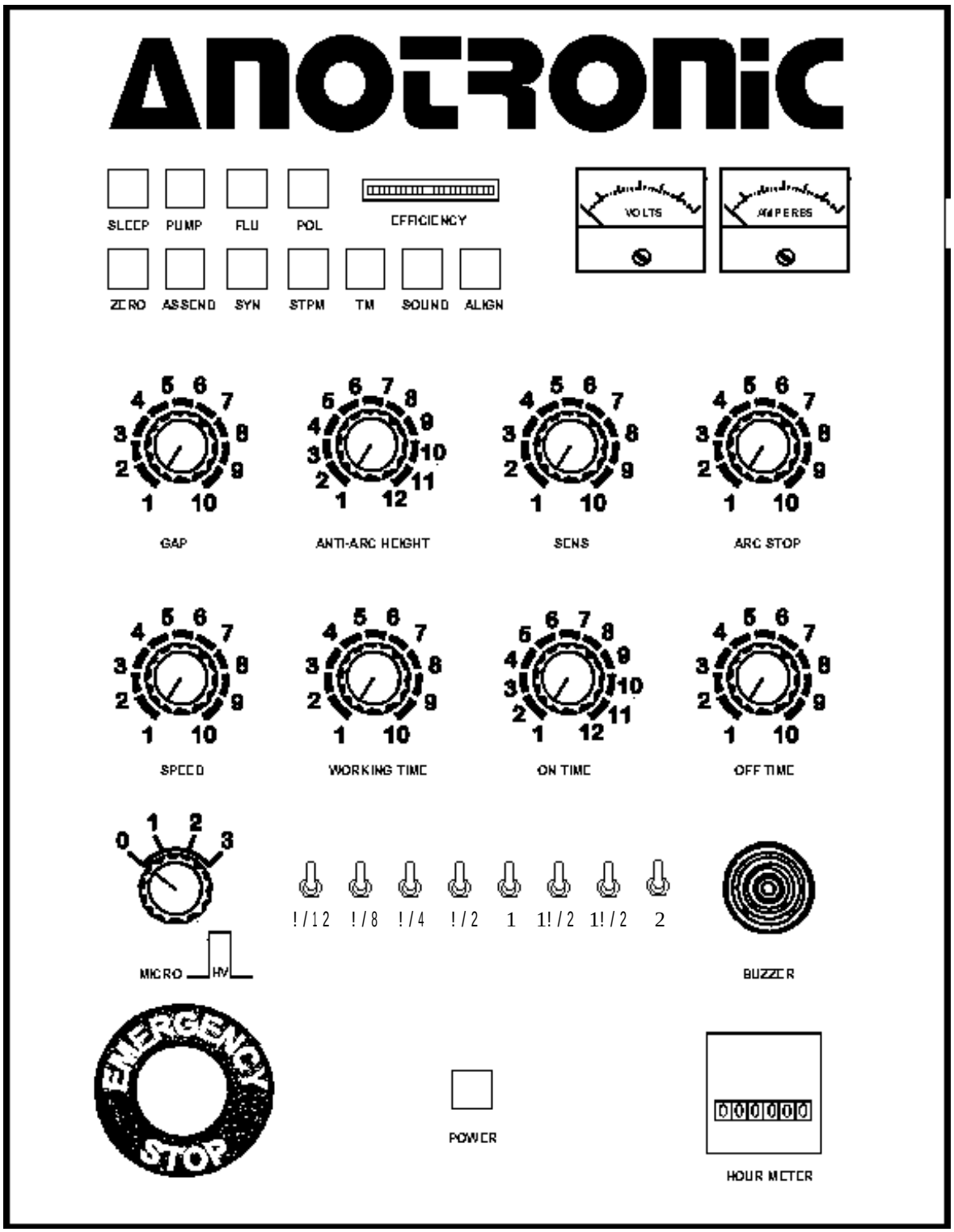
A. Power Supply.
Connect the machine tool and the dielectric unit to the control cabinet using the cables supplied.
Connect the control cabinet to a three phase supply, suitably fused and earthed.

NOTE:- THIS SHOULD ONLY BE CARRIED OUT BY A COMPETENT ELECTRICIAN.

B. Dielectric System.
a. Check and fill the dielectric tank. This should be filled to at least 80% of capacity.
b. Check the flow and drainage of dielectric fluid to the work tank.
c. Check the rotation direction of the dielectric pump.

C. Work Tank
Lock the work tank door, slowly fill the tank and check for leaks.

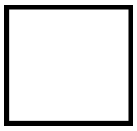
D. Machine Head
Check the Auto / Manual up and down movements of the electrode (Quill)


ANOTRONIC
SLEEP
PUMP
FLU
POL
EFFICIENCY
VOLTS
AMPERES
ZERO
ASSEND
SYN
STPM
TM
SOUND
ALIGN
GAP
ANTI-ARC HEIGHT
SENS
ARC STOP
SPEED
WORKING TIME
ON TIME
OFF TIME
0 1 2 3
! / 1 2
! / 8
! / 4
! / 2
1
1! / 2
1! / 2
2
MICRO
HV
BUZZER
EMERGENCY STOP
POWER
HOUR METER

GENERATOR CONTROL PANEL

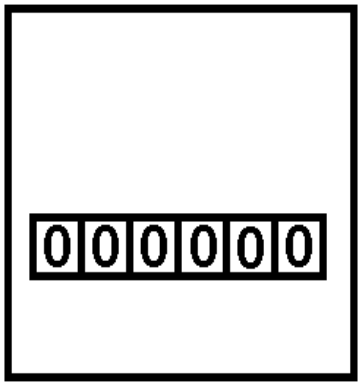
Push hard on this button to switch off the power supply completely.

Turn in the arrowed direction to reset.



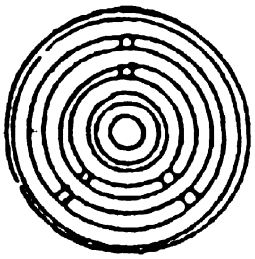
POWER

This controls the main power supply.



HOUR METER

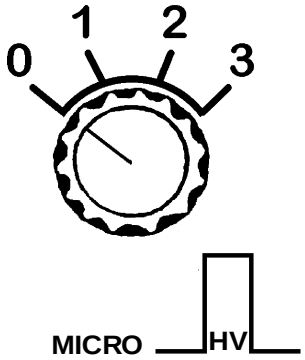
Records the total machine working hours.



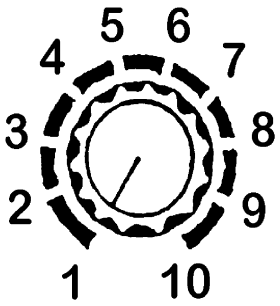
BUZZER

The BUZZER will sound as an alarm in conjunction with the SOUND switch.
The BUZZER will also sound when the electrode touches the workpiece giving the edge detect function.

The discharge current required depends on the workpiece dimensions. A general rule of thumb is not to exceed 6 Amps cm^2. Choose a high current for roughing, lower for finishing.
See the appropriate EDM Discharge Data sheet for the equivalent current / switch settings.

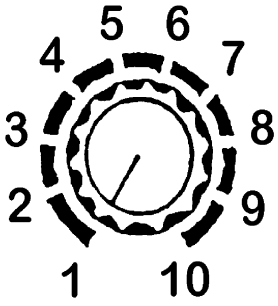


High voltage current / Micro spark current.
For micro fine finishing



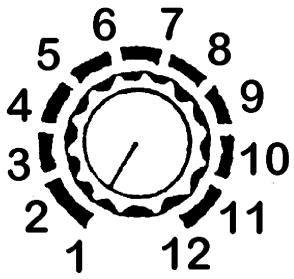
SPEED

The Servo speed control should be set so that the quill returns to the sparking position after lifting, as quickly and steadily as possible. Too slow will waste time, while too fast could cause vibration when discharging and lower working efficiency.



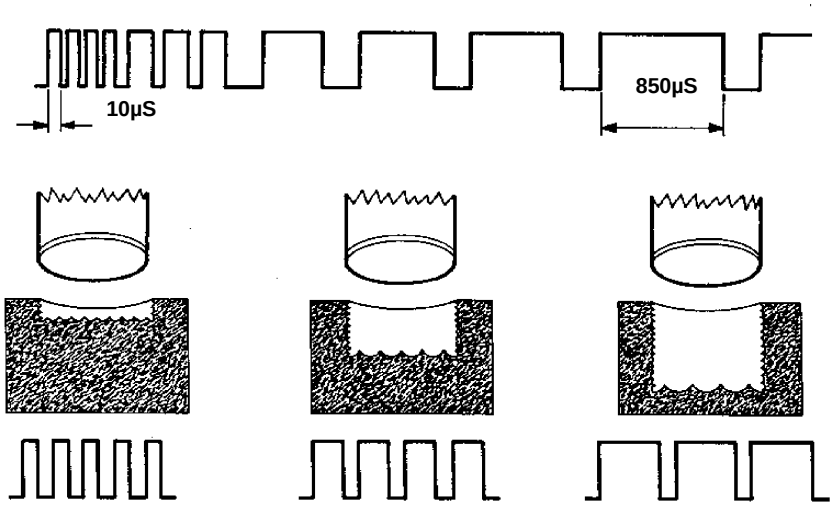
WORKING TIME

The discharge time between lifts. Used in conjunction with ANTI ARC HEIGHT.

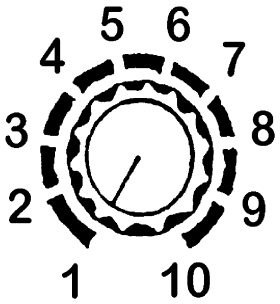


ON TIME

1 = 10µS	**5 = 60µS**	**9 = 350µS**
2 = 15µS	**6 = 100µS**	**10 = 500µS**
3 = 25µS	**7 = 150µS**	**11 = 650µS**
4 = 40µS	**8 = 250µS**	**12 = 850µS**



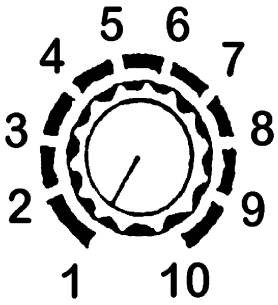
The ON TIME is the pulse duration or the length of the spark measured in microseconds.
1 - 4 for fine and micro finishing.
5 - 8 for semi rough cutting.
9 - 12 for rough cutting.



OFF TIME

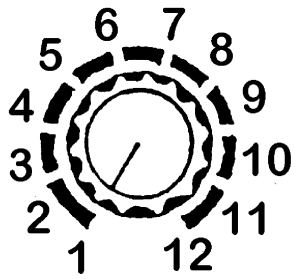
1 = 20µS	**5 = 350µS**	**9 = 750µS**
2 = 30µS	**6 = 450µS**	**10 = 800µS**
3 = 150µS	**7 = 550µS**	
4 = 250µS	**8 = 650µS**	

The OFF TIME or interval is the time between sparks measured in microseconds. Used in conjunction with the ON TIME control to give the correct discharge efficiency ratio.
1 - Gives high erosion efficiency but bad flushing.
10 - Gives low erosion efficiency but good flushing.



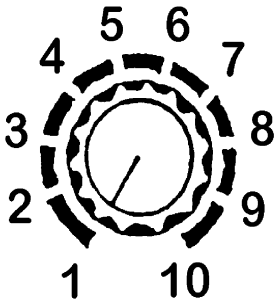
GAP

For adjusting the discharge voltage.
30 - 50V for high efficiency.
50 - 100V for a difficult workpiece.
100 - 200V for micro finish or a difficult work-piece.



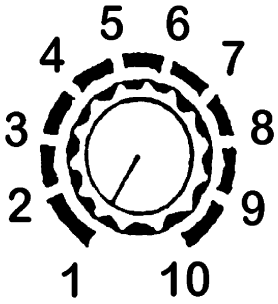
ANTI-ARC HEIGHT

The lift time between discharge periods. Used in conjunction with WORKING TIME



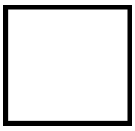
SENS

Fine adjustment to the anti-arc sensitivity to debris in the work gap which may cause arcing.
10 is more sensitive.



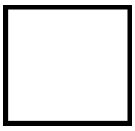
ARC STOP

To adjust the stopping time of the anti arc when a build up of debris is detected in the work gap.
1 is fastest.



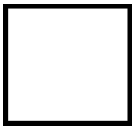
ZERO

The quill will descend slowly until the electrode touches the workpiece. The operator can then accurately set the working depth.
To stop press STOP on the remote control.



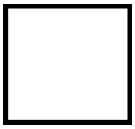
ASSEND

When the pre-set depth is reached, the quill will lift 10 - 30mm from the workpiece.
When used in conjunction with SOUND the quill will lift to the top and the BUZZER will sound continuously.



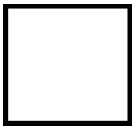
SYN

Synchronised flushing. Then the quill lifts with ANTI-ARC HEIGHT flushing is delivered through the synchronised flushing nozzle. During discharge flushing is stooped.
Note. Not fitted on all Machines.



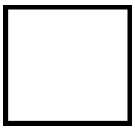
STPM

Stops the quill servo motor.
Used in conjunction with orbiting devices.



TM

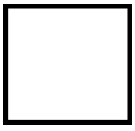
Turns the timers, WORKING TIME and ANTI-ARC HEIGHT off.



SOUND

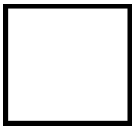
With *SOUND OFF* a short alarm will sound to alert the operator.

With *SOUND ON* this is latched on.



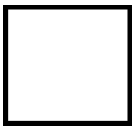
ALIGN

Turns off the reference voltage between the electrode and workpiece.
Used when clocking electrodes.
Note. With this on the electrode can hit the workpiece causing damage !.



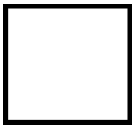
SLEEP

When the pre-set depth is reached, the machine stops and the main power is turned off.



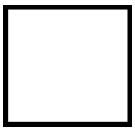
PUMP

Turns the dielectric pump on and off.



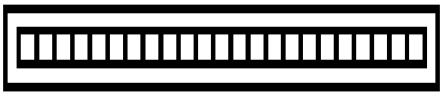
FLU

Synchronises the dielectric pump on and off with discharge power.



POL

Normally the electrode is positive and the work-piece is negative. This reverses the polarity.



EFFICIENCY

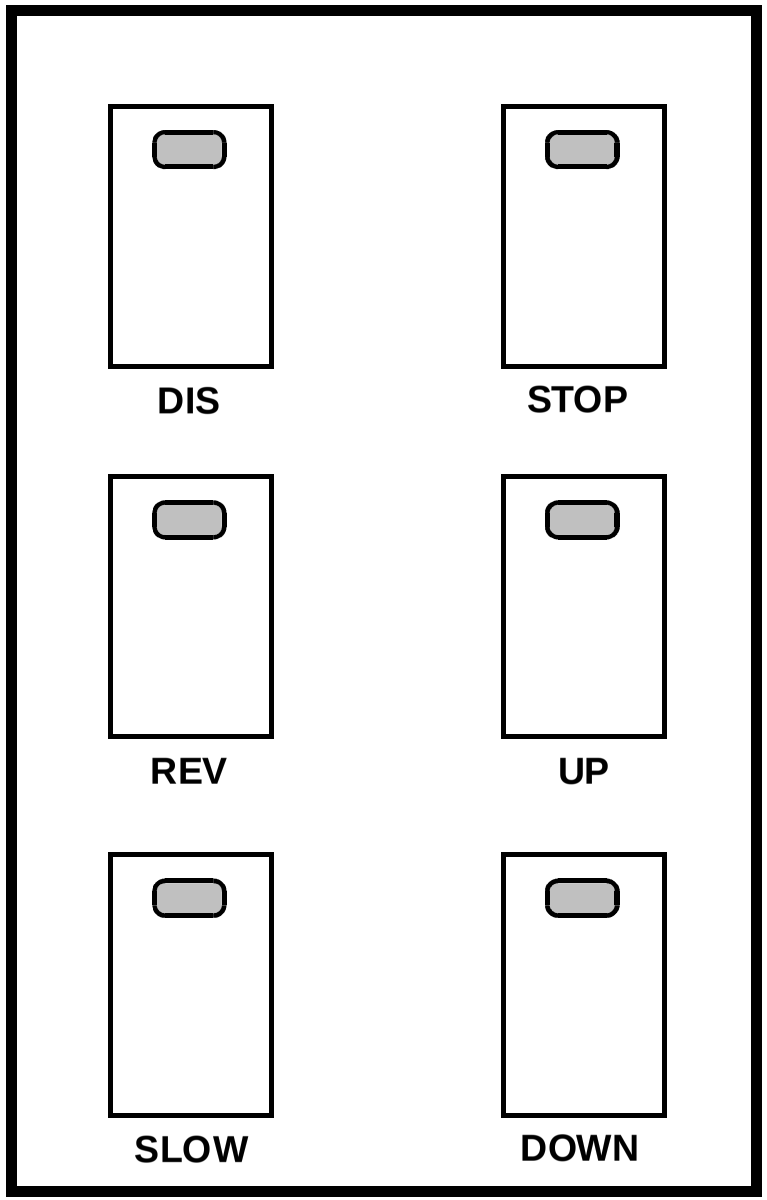
Indicates the discharge efficiency during eroding. The larger the GAP between the electrode and work-piece, the more lights displayed.

REMOTE CONTROL PANEL

Discharge start button.
Press to start machining.

Reverse Sparking Button.
Press to spark upwards.
Do not use UP or DOWN buttons during reverse sparking.
***Note. Optional Extra*.**

Manual servo speed.
Press for slow speed.



Discharge Stop Button.
Press to stop machining.

If the LED is not on, oil level low, oil hot or the quill at top limit etc., discharging will not start.

Quill up button.
Press to manualy move the quill up.

Quill down button.
Press to manualy move the quill down.

OPERATION

1. Machine Head and Quill Up and Down Movement

Raise or lower the machine head by using the Z Axis manual travel handwheel. On larger machines with this function is motorised, use the up and down buttons on the side of the column.
This is not available on V20 size machines.

Raise or lower the quill by using the up and down buttons on the remote control.

2. X and Y Axis Movement.

Engage the locking pin into the handwheel to enable movement of the table or saddle.

3. Fastening the Workpiece.

Fasten the workpiece to the table , clocking the datum edge square, using the clamps provided.

4. Mounting Electrodes.

Whatever electrode holder is used, securely fasten the electrode, clocking vertical and square.

5. Edge Locating.

When the electrode touches the workpiece the BUZZER will sound (Make sure that ALIGN is not on). This can be used to position the electrode in the X and Y axis using the appropriate datum of the workpiece.
Make sure that the electrode and workpiece are clean and free from burrs .
Repeat this several times to be sure of an accurate touch position.

6. Depth Setting.

Bring the electrode down close to the workpiece using the DOWN button on the remote control. Use 0 amps set ont the current control and press the discharge button, the quill will move slowly down and spark lightly.
Set the required depth using the micrometer.

Note. **Be sure that the fire detection sensor is clean at all times.**
It is very important to guard against fire.

Consistent flushing is essential. It has a direct effect on machining speed and efficiency.

Suction can be used in certain applications and is very effective when machining large or deep cavities.

Anotronic-SKM EDMs
Manual, ZNC, CNC

Anotronic-Ocean
EDM Drilling Machines
Manual, ZNC, CNC

CNC Wire EDM Sub-Contract
On The Latest Technology
Machines

Anotronic Electrochemical
Deburring Machines (ECD)

Perhaps You Did Not Realise How Much ANOTRONIC™ Has To Offer!

Multi axis CNC Turning

- Full High capacity Machine Shop including fully Automated 5axis cnc Milling,Multi axis CNC Turning,Grinding etc.
- Laser Part marking
- CNC CMM inspection
- Sale of Standard Electric Discharge Machines (Manual, ZNC & CNC) to take components up to 2500mm x 1200mm x 700mm.
- Design, Manufacture & Sale of Electrochemical Deburring Machines (ECM)
- Comprehensive After Sales Service.
- Design, Manufacture & Sales of EDM & ECM Tooling and Electrodes.
- Multi axis CNC EDM & ECM Sub-Contract Service.
- ECM Sub-Contract Service.
- Wire EDM Sub-Contract Service with cutting areas up to 500mm x 320mm x 420mm HIGH.
- EDM small hole drilling Machines and Sub-Contract Service.
- EDM/ECM Consultancy Service.

CNC CMM inspection

Fully Automated 5axis cnc Milling

5axis cnc Milling

ANOTRONIC LTD.™
Unit 3, Hollingdon Depot, Stewkley Road, Soulbury,
Nr. Leighton Buzzard, Beds., LU7 0DF. England.
Telephone +44 (01525) 270261 Fax +44 (01525) 270235
E-Mail sales@anotronic.com Internet http://www.anotronic.com