

ALIC-1 DT-168

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PREFACE

This Operational Manual is intended for providing you the adequate ways of how to operate Hsiu Fong Electric Discharge Machines , also giving the advices and assistances to solve various problems possibly occurs.

With foundation in 1974 , Hsiu Fong has been specialising in the development and manufacture of general purpose electric discharg machines. And as an expert in this field , we do from the beginning offer technical consultations and intensive job trainings thoroughly.

By the accumulation of experience , we are aware of that operational skill being a critical point influences a great deal of working efficiency.

Therefore , the close association from customers with us is a rather important and essential factor for operating comprehension. As the phenomenon of working condition could be low due to very small negligence happend around. In this respect , we are at all times in the position to assist and provide best after-sales-service.

Detailed principles , operation...ect. are specified in this manual. Plese read further with carefulness.

Hsiu Fong EDM will be a closest partner in your business future , also a tool leading you to the success.

Thank you!!!

HSIU FONG MACHINERY CO., LTD.

PRINCIPLES OF ELECTRIC DISCHARGE

While the dielectric fluid, i.e., kerosene oil or equivalent, acting as an insulator in the gap between electrode and workpiece, is connected with electric voltage, the free ions within will form a thin bridge creating an electric field.

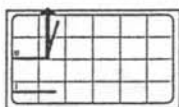
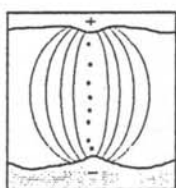
Then the spark will jump across the dielectric fluid when gap reaches a very small size. The heat at very high temperature from $8,000^{\circ}\text{C}$ to $12,000^{\circ}\text{C}$ is converted from the current which was conducted by channel of conductive particles will melt the metal surface and evaporate explosively.

In order to describe further above invisible phenomena of discharge, the figures following will provide a good picture.

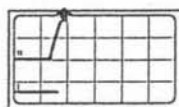
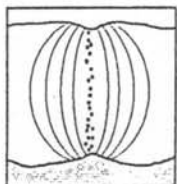
PRINCIPLES OF ELECTRIC DISCHARGE

U =Voltage

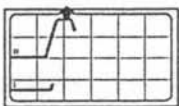
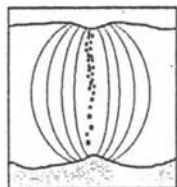
I =Current



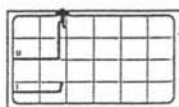
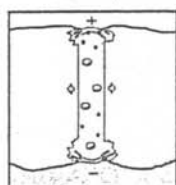
1. Build-Up of an electric field.



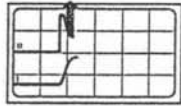
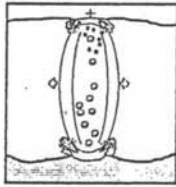
2. Formation of conductive particles in dielectric fluid into a bridge.



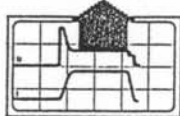
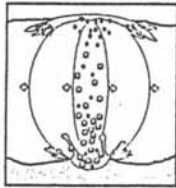
3. Following to the formation of bridge the negative particles are emitted which begins the discharge.



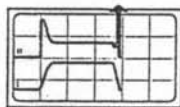
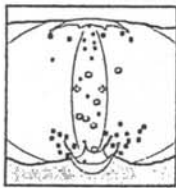
4. Current flows by the movement of negatively and positively charged particles.



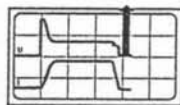
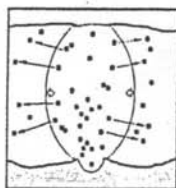
5. A discharge channel is developed due to a rise in temperature and pressure.



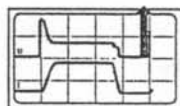
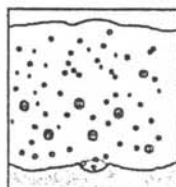
6. Vapour bubble forms (the bubble contains the gases produced in the breakdown of dielectric fluid by the electric arc, with high percentage of acetylene which is very flammable).



7. Heat input reduces once the current is interrupted, at same time remove material explosively by vaporization and fusion.



8. Vapour bubble collapses.



9. Residues : Metal particles, carbon and gases etc.

3.1 Unpacking and checking:

There are following items as shown fig.3-1 after unpacking the wooden case, but it is an optional item which mark with.

Remarks: Net weight of Dielectric fluid tank unit: 60kgs

Net weight of Power supply unit :60kgs

Net weight of Working head, Three axes slide assembly and Fluid returnable plate: 60kgs

Gross weight: 260kgs

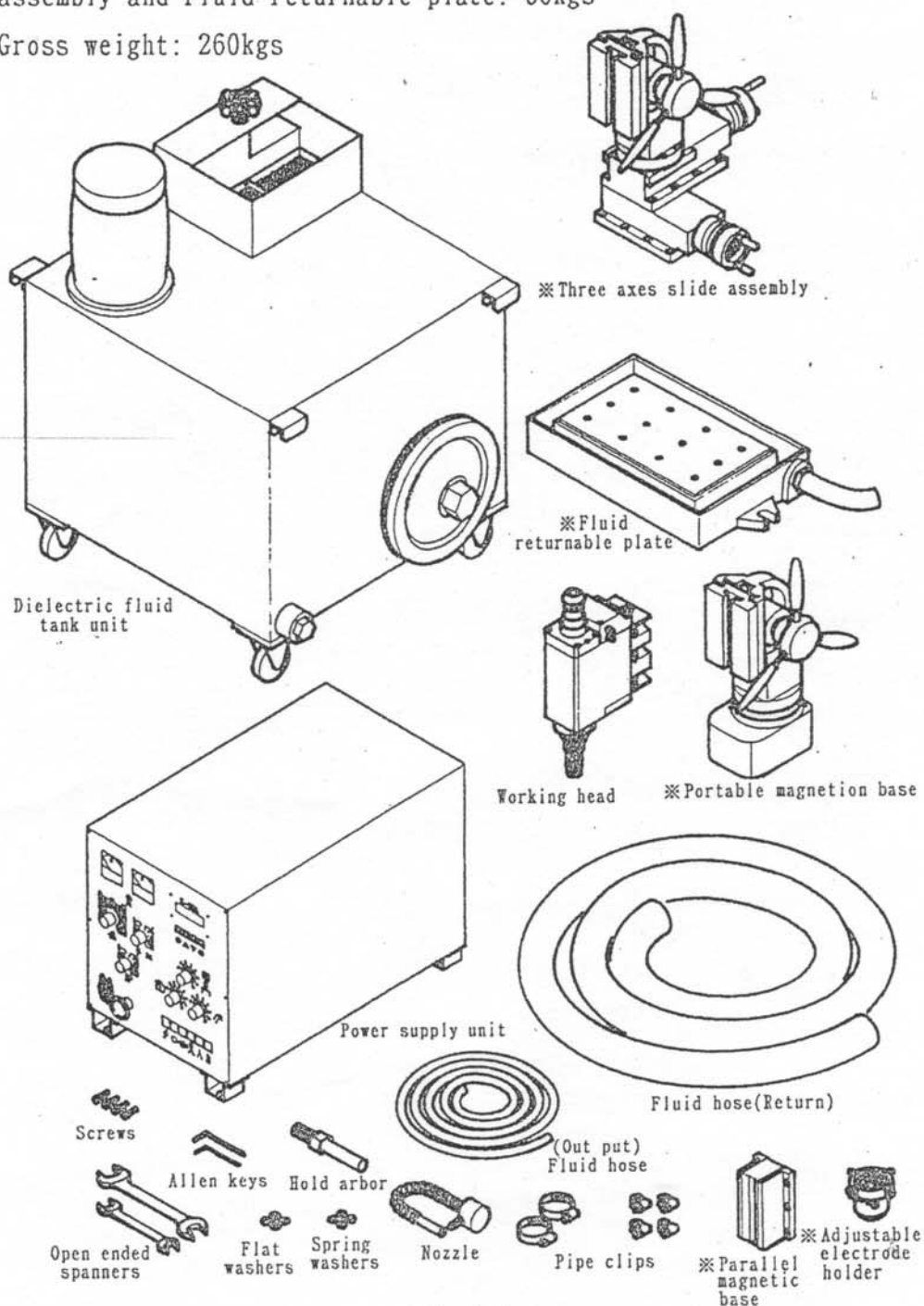


Fig.3-1

3.2 Environment request:

- ▲ Temperature range: From 10°C to 32°C (50°F to 90.5°F)
- ▲ Humidity range: From 20% to 80% RH
- ▲ It would be a big harm if machine to be located in a area not free of cutting fragments or dust.
- ▲ Good ventilation or vent device should be provided since gases will be produced during the working process
- ▲ Please ensure that the machine is earthed, while operating the machine, it is advisable for the operator to stand on an anti-slip rubber or wodden plate if possible.

3.3 Space request:

The min. space request as shown fig.3-2

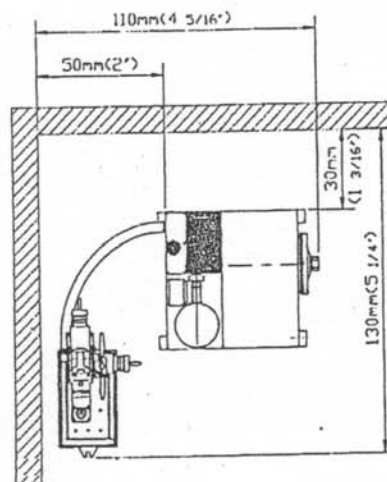


Fig.3-2

Top views of each unit as shown fig.3-3

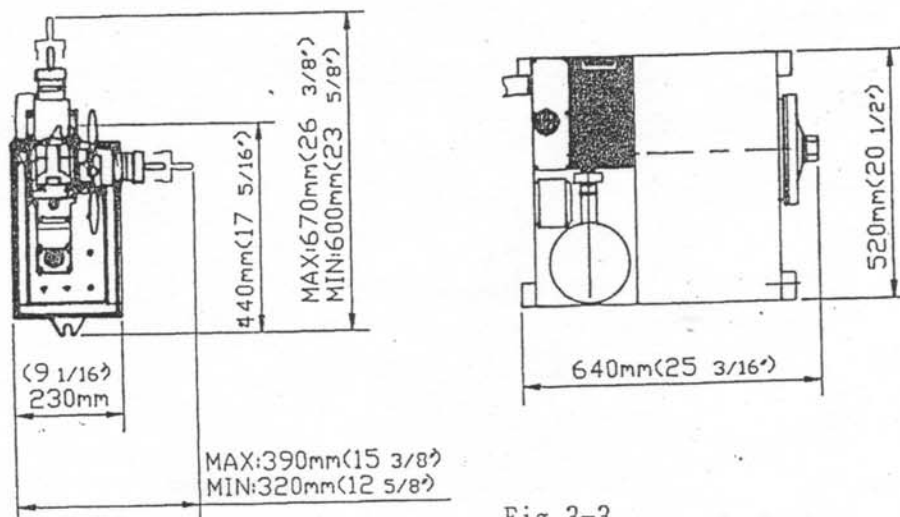
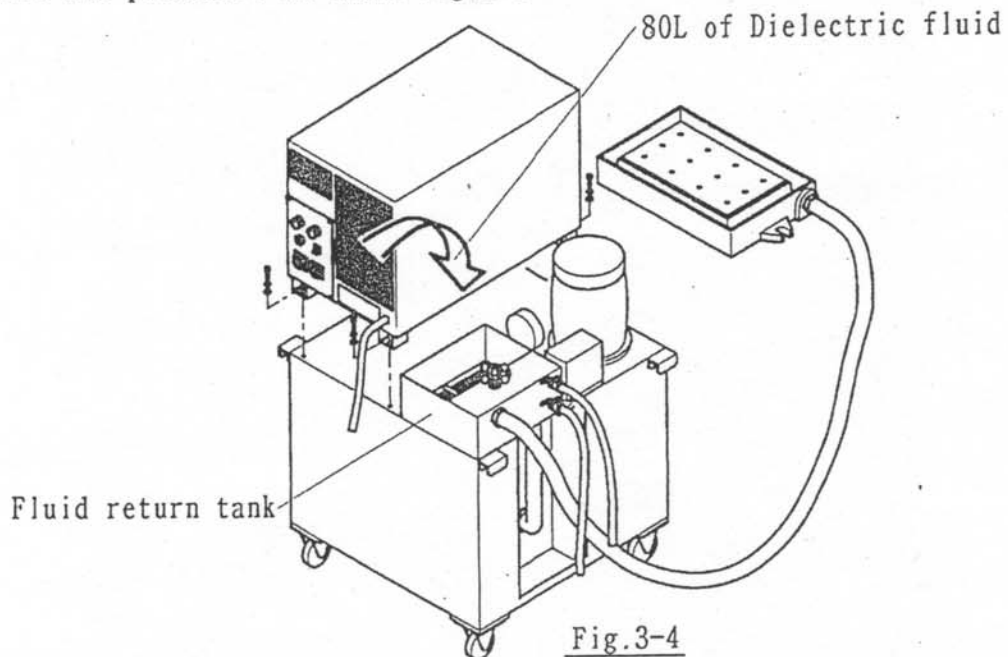


Fig.3-3

3.4 Piping instruction:

Installing the fluid return hose between the dielectric fluid tank and the work table, put the fluid outlet hose onto the outlet valves, fix the power supply unit by means of the screws with flat/spring washers, finally. pour in 80 liters of dielectric fluid through the fluid return tank. The procedure as shown fig.3-4



※Function of dielectric fluid: a. Medium for the spark or arc.
b. Particles flushing from the gap.
c. Electrode cooling etc.

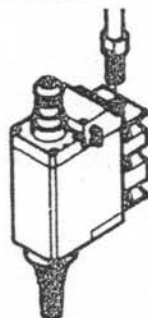
Consideration of selection: a. Working efficiency b. Economy efficiency
c. Safety requirement

Recommended dielectric fluid:

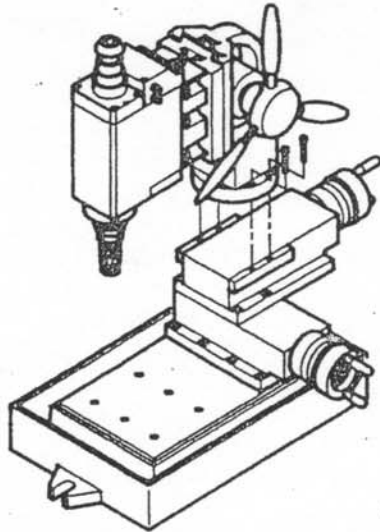
Brand	Mark No.
ESSO	MENTOR-28
CASTROL	HONIL0-401
CHEVRON	EDM71

3.5 Machine installation:

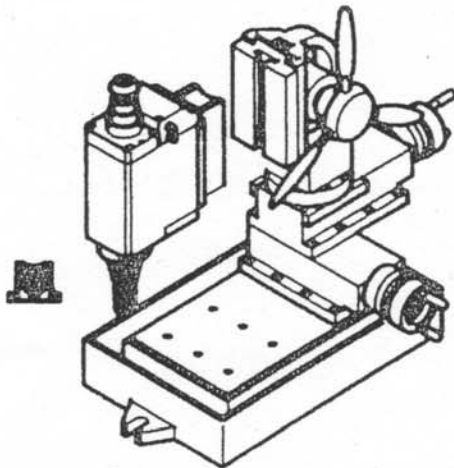
There are several kinds of assembly as shown the following figures for reference.



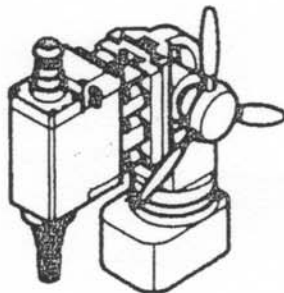
Working head + Hold arbor



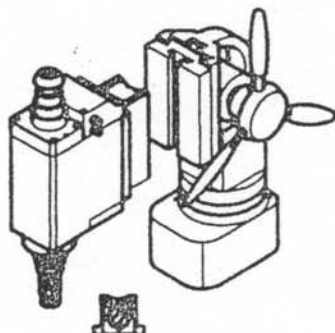
Working head + Three axes slide
assl'y + Fluid returnable plate



Working head + Parallel magnetic
base + Three axes slide assl'y +
Fluid returnable plate

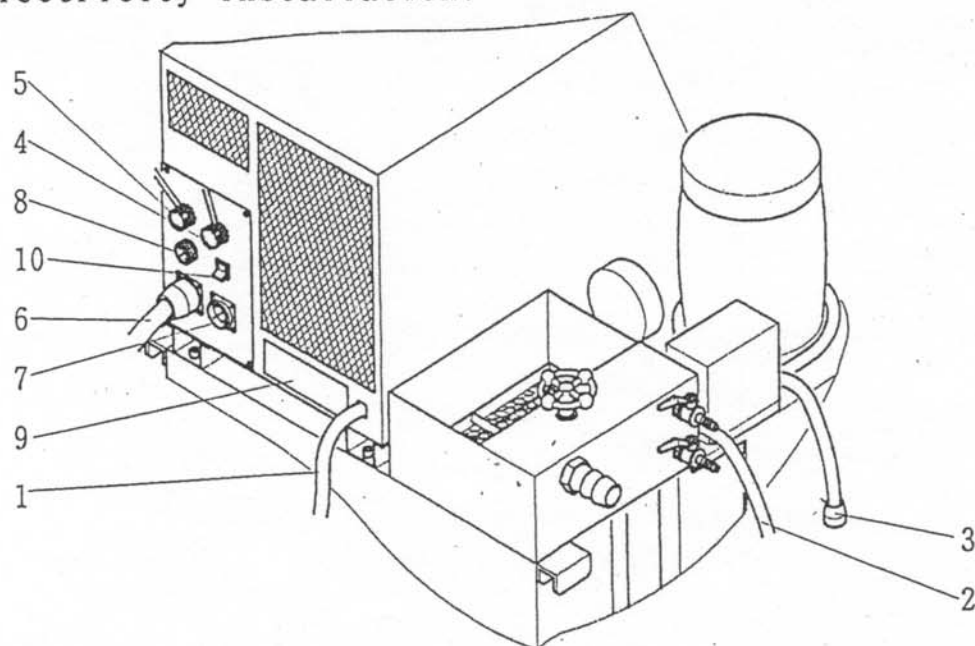


Working head + Portable magnetic base



Working head + Parallel magnetic
base + Portable magnetic base

3.6 Electricity installation:



- | | |
|---|--|
| (1) AC Input cable of power supply unit | (2) AC Input cable of Pump |
| (3) Pump control cable | (4) Electrode wire(+) |
| (5) Electrode wire(-) | (6) Control cable w/ plug for working head |
| (7) Preparatory socket for fire proof | (8) Input socket for pump control cable |
| (9) Manufacturing name plate | (10) Main power switch (w/ over load protection) |

The actual wiring of complete installation as show 3-6

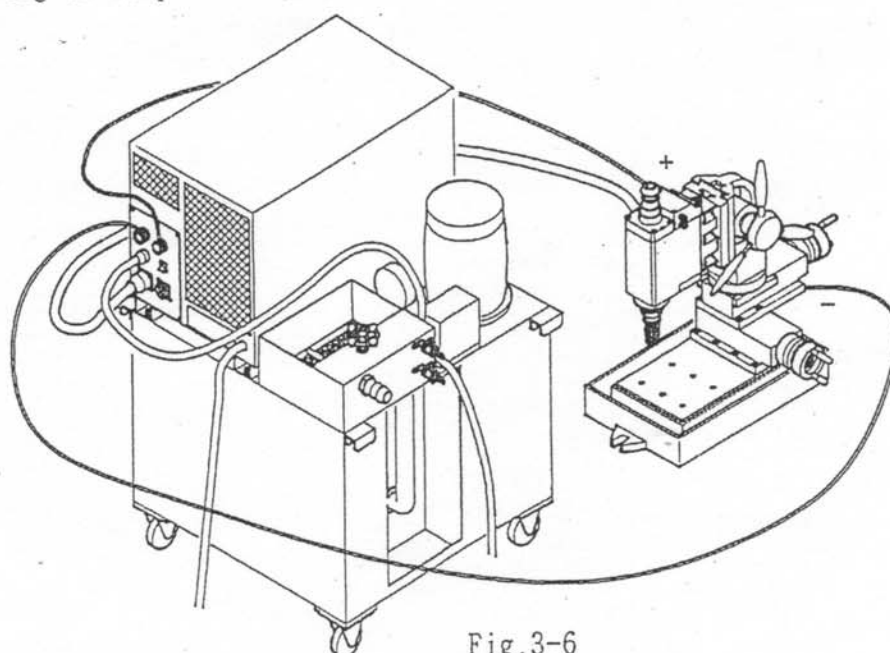
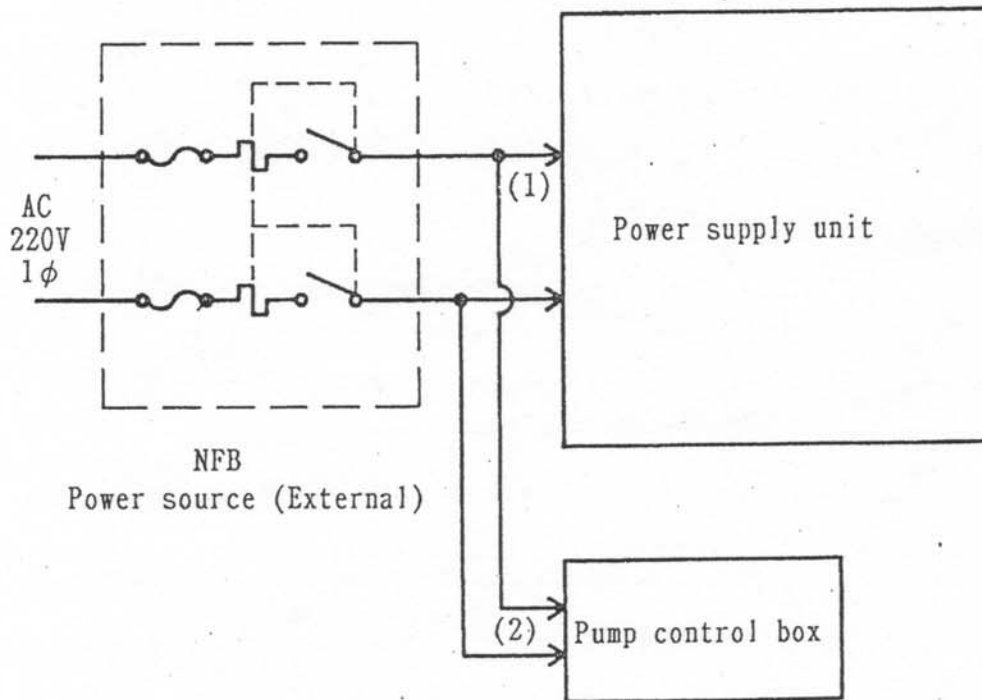


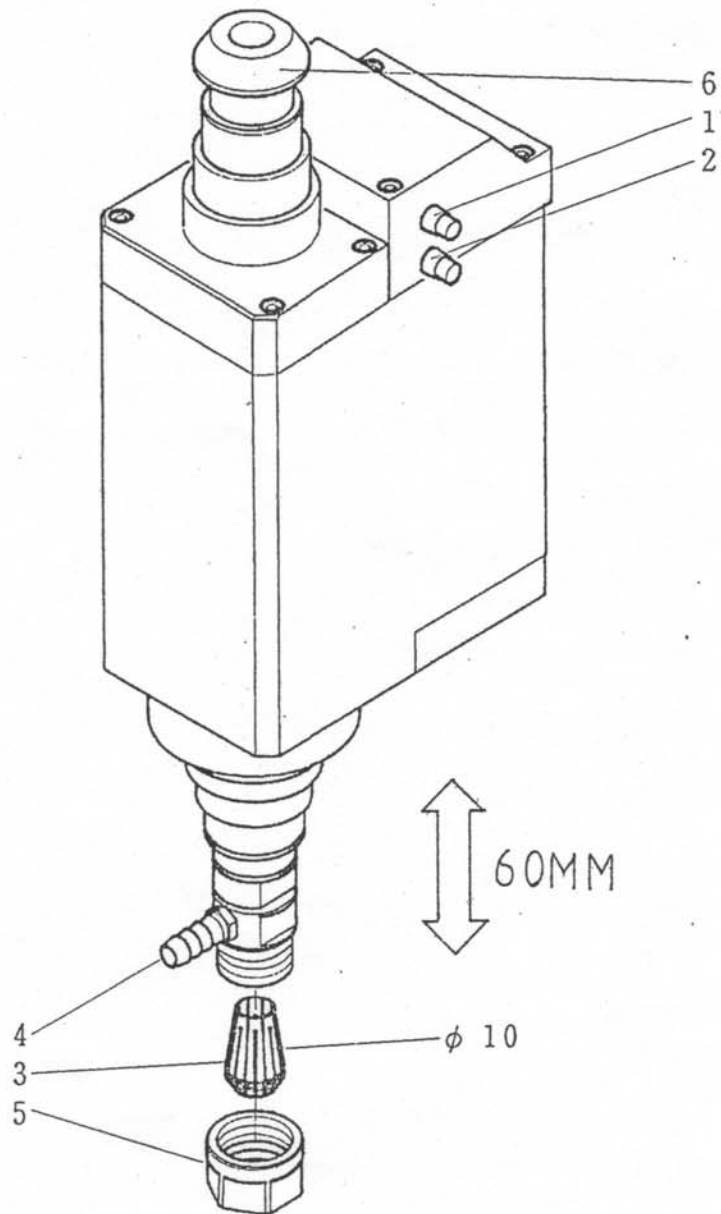
Fig.3-6

Conneting the No.2 AC Input cable of pump together w/ the
No1.AC Input cable of power supply unit to a external power
source (AC 220V 10A) as per the diagram below:



MECHANISM INSTRUCTION

4-1 Working head



1.Quill upward button

2.Quill downward button

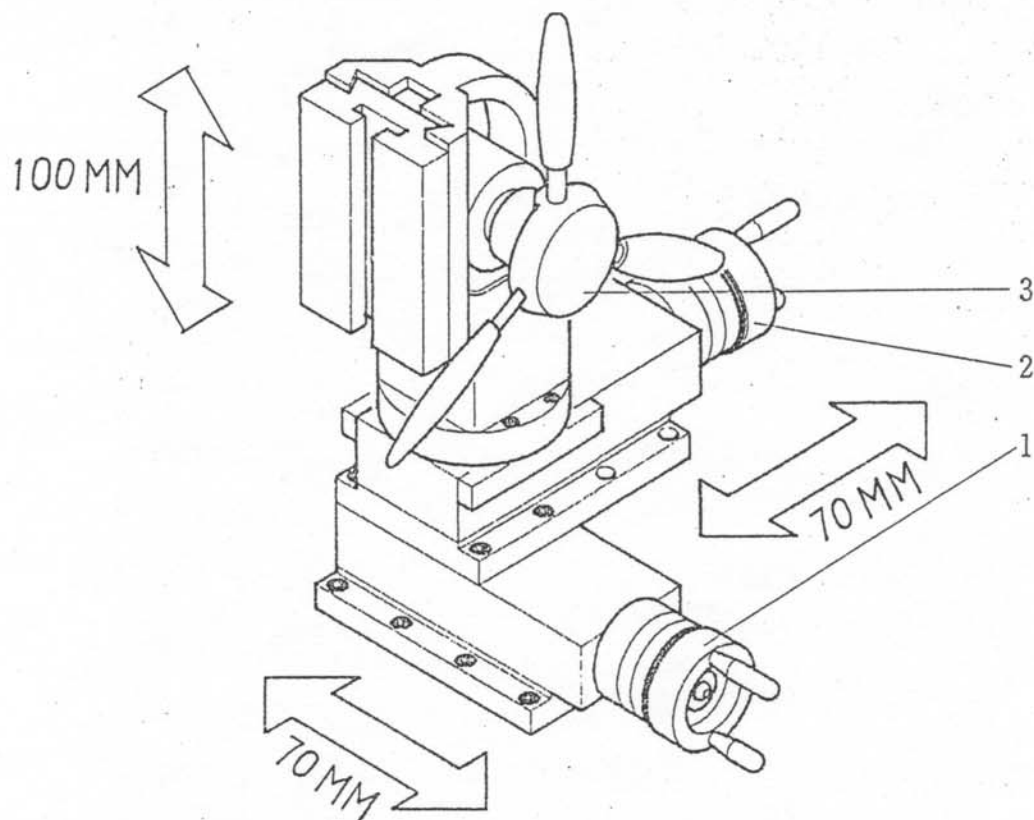
3.ER Spring collet (ER 16)

4.Inlet of dielectric fluid (ER TYPE)

5.Locking nut

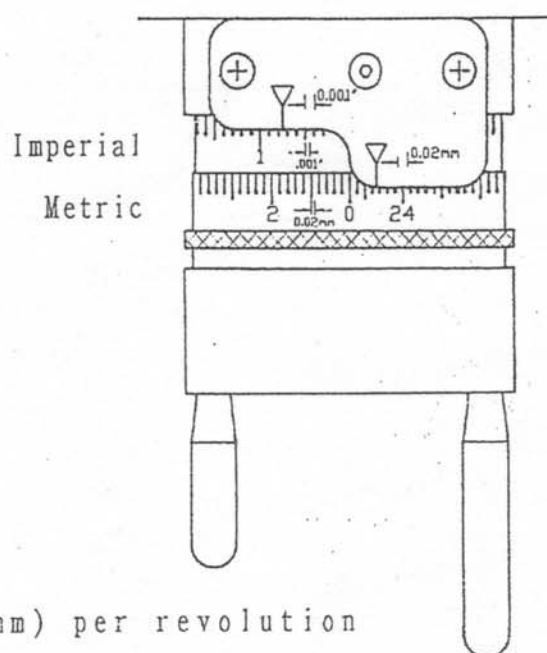
6.Electrode wire fixing seat

4.2 X.Y.W Three axes slide assembly



1. Hand wheel for X Axis Movement
2. Hand wheel for Y Axis movement
3. Hand wheel for W Axis movement

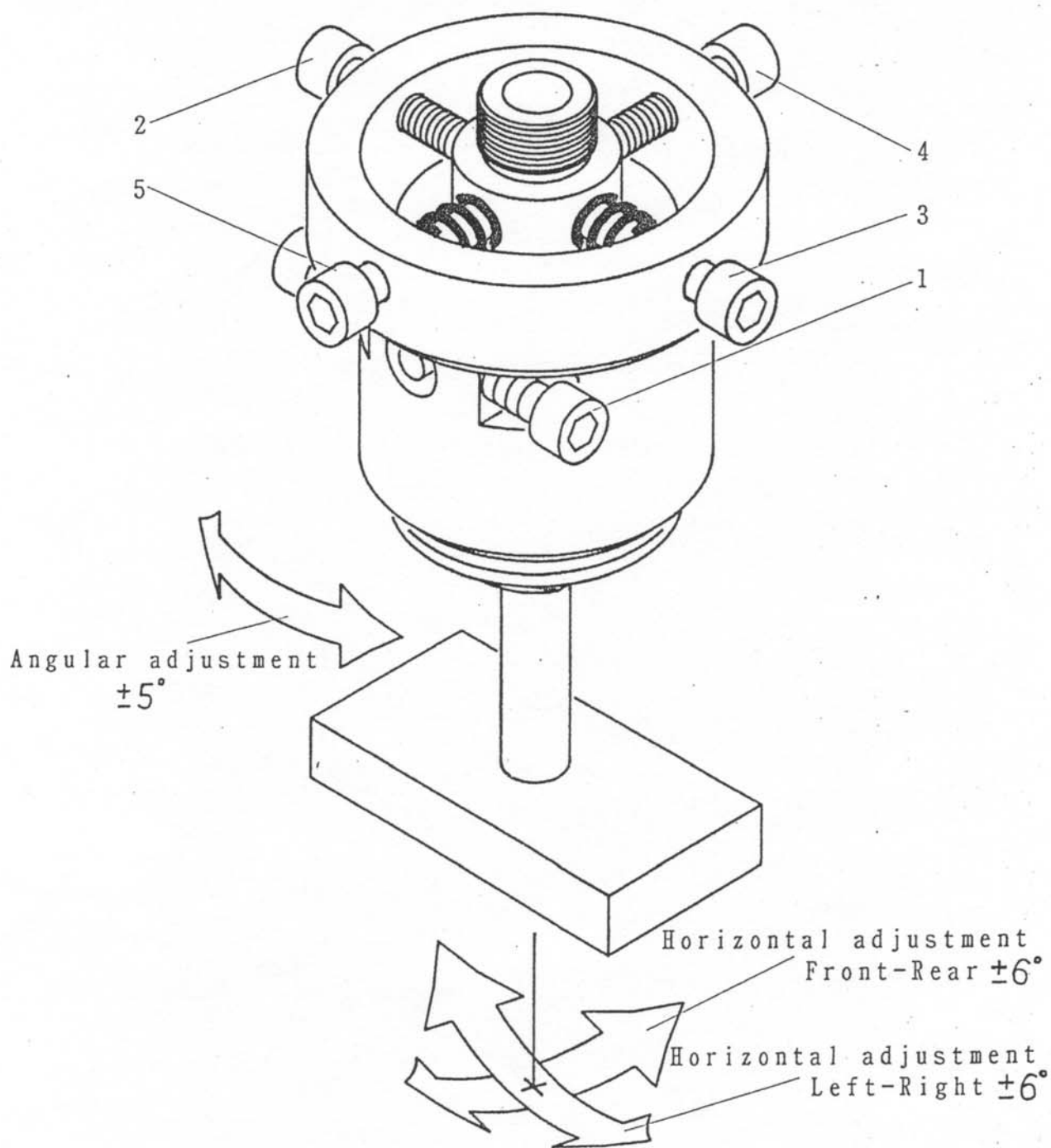
Graduation dials



0.001" per division
0.02 mm per division

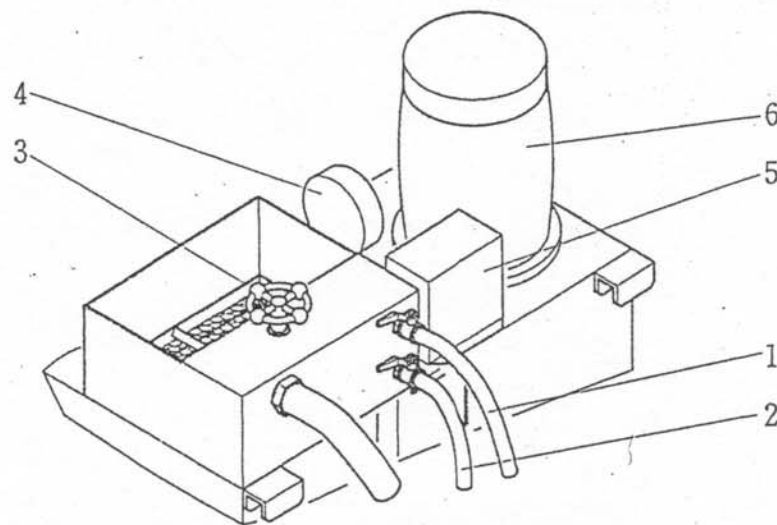
0.1" (2.54mm) per revolution

4.3 Adjustable electrode holder



1. Angular adjusting screw
2. Horizontal adjusting screw (L-R)
3. Horizontal adjustment locking screw (L-R)
 ※ Remark: It must be loosened before horizontal adjustment
4. Horizontal adjusting screw (F-R)
5. Horizontal adjustment locking screw (F-R)
 ※ Remark: It must be loosened before horizontal adjustment

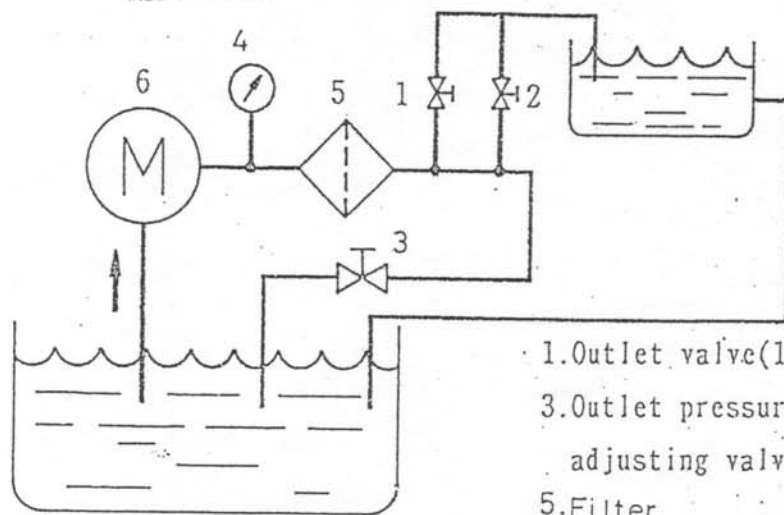
5. Operation of dielectric fluid tank unit:



- | | |
|--------------------------------------|-------------------|
| 1.Outlet valve(1) | 2.Outlet valve(2) |
| 3.Outlet pressure
adjusting valve | 4.Pressure gauge |
| 5.Pump control box | 6.Fluid pump |

Machining the suitable flow between the pressure adjusting valve and the outlet valves 1&2 before starting work to provide a good working environment between workpiece and electrode.

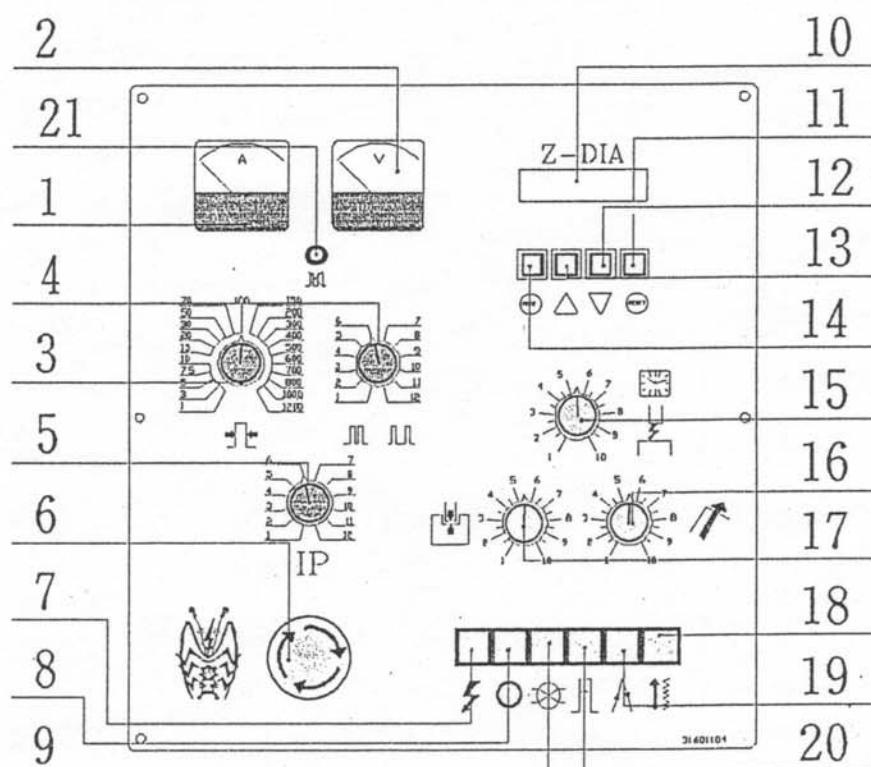
Replacing the fluid filter while the fluid flow is getting reduction and forcing the machine can not be processed.



- | | |
|--------------------------------------|-------------------|
| 1.Outlet valve(1) | 2.Outlet valve(2) |
| 3.Outlet pressure
adjusting valve | 4.Pressure gauge |
| 5.Filter | 6.Fluid pump |

Layout of fluid tank w/ piping

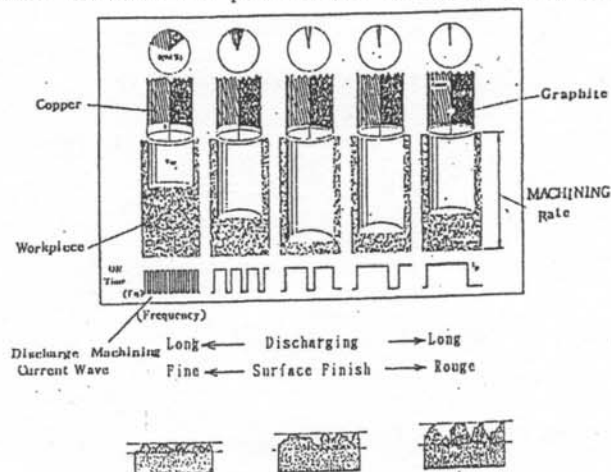
Operation panel of Power supply Unit



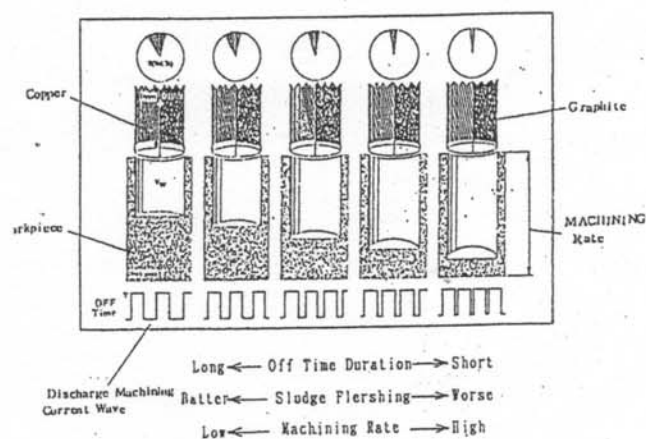
- | | |
|--|--|
| 1. Average current indicator | 12. Quill downward(-) setting /ABS position |
| 2. Gap voltage indicator | 13. Quill upward(+). setting /Depth machined |
| 3. ON Time | 14. Display mode selector |
| 4. OFF Time | 15. Working time selector |
| 5. Ampere selection | 16. Servo speed selector |
| 6. Main power supply/
Emergency stop switch | 17. Gap voltage selector |
| 7. Current on/off switch | 18. Ram rapid traverse on |
| 8. Power and dielectric off
switch | 19. Ram cycler on/off |
| 9. Dielectric on switch | 20. High voltage current on
/off switch |
| 10. Z Axis display in adress | 21. A R C indicator |
| 11. Display reset | |

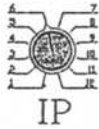
A diagram showing a cross-section of a dome. A vertical line is drawn from the base to the apex. A 'V' symbol is placed near the apex.

When machining, the ON TIME duration, volume have close relationship with processed surface finish electrode wear ratio and machining volume. Please refer to the following illustration. It will help you comprehend the match of discharging duration and current will be the imperative factors of processed surface finish.



During the discharging period, the OFF TIME duration has closed connection with discharging speed and efficiency after discharging. Please refer to the following

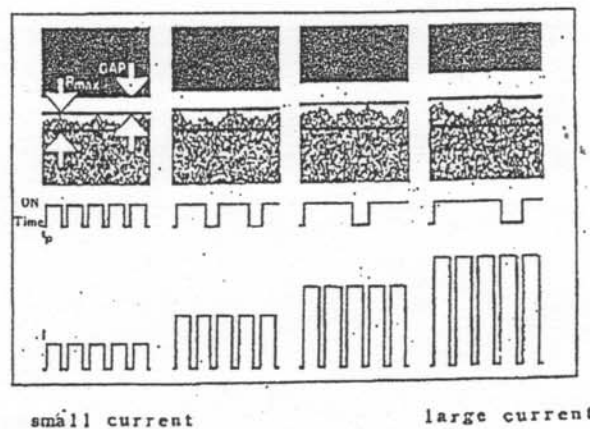
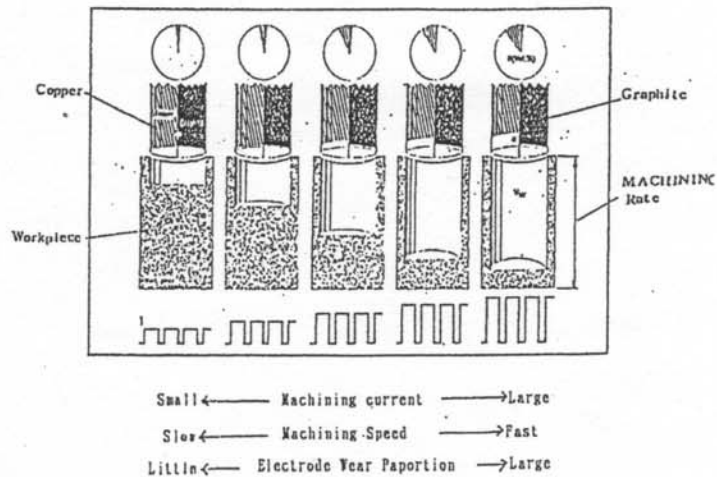




** When in operation, the quill moves unstably or noisily. It probably is too short on OFF-TIME and results in sludge flushing and low machining rate. The OFF TIME duration should be lengthened timely.

5. Ampere selection

The volume of discharging current can affect the machining speed of workpiece, surface roughness and electrode wear as below:



There are 12 divisions for current control, the average current shown as below.

1	2	3	4	5	6	7	8	9	10	11	12
1	1.3	3	3.5	5	6	9	10	11	11.5	13	15

(Setting condition, ON Time 200, OFF Time on division 1, GAP keeps at 40V)

6. Main power supply/ Emergency stop switch

Used as main power switch and emergency stop switch. Depress main power switch, the current will be off. It is necessary to resume operation by turning the switch clock wise like arrow direction.





7. Current on/ off switch

Depress the switch to turn on current switch.



8. Power and dielectric off switch

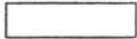
Depress the switch, power and dielectric will be off.



9. Dielectrive on switch

Depress the switch to start dielectric pump.

Z-DIA



10. Z axis display in address

Match keyboard 11.12.13.14 can form three kinds of data display, four kinds of setting mode and two kinds of Zero return display.



11. Display reset

Under the setting mode, depress this switch to make zero return.



12. Quill downward (-) setting/ ABS position

A. Under set mode, depress this push button, the value of display will decrease. If depress this push button continuously (when value of off set is over 1.00mm), the set value change will fasten automatically to match operation.

B. In normal condition of display, depress this push button, display will alter FNL value into ABS value



13. Quill upward (+) setting/ Depth machined

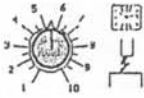
A. Under set mode, depress this push button, the value of display will increase. If depress this push button continuously (when value of off set is over 1.00 mm), the set value change can fasten to match operation.

B. In normal condition of display, depress this push button, display will alter FNL value into ZER value, this value means the deepest position at present.



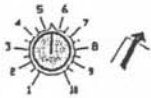
14. Display mode selector

4 kinds of set mode change-over (based on the series of DEPTH SET. JUMP SET. REALLY SET. ABS-DISTANCE).



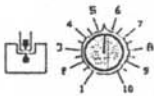
15. Working time selector

Match sludge flushing control keyboard and jump to fullfil the flushing functions. The auto time jumping can be chosen at one's will to help flushing particles . When machining cavity mold, mold with bottom and fitting process, the flushing function will be harder. Simultaneously, it results in low machining efficiency and poor mold quality. Accordingly, it is necessary to clear off partiles by using this device and flushing.



16. Servo speed selector

The use of servo sensitivity adjustment can maintain discharge sparking stability. Please notice stable value in the display is proper. Strong servo sensitivity will result in unstability . Weak servo sensitivity can cause ARCING.



17. Gap voltage selector

The consistence of discharge sparking gap will maintain proper discharging efficiency.



18. Ram rapid traverse on

Depress button switch (light on) -- speedly Normal (light off)--Low speed and can be adjusted Servo speed selector(16).
The change over of high low speed provides the uses of electrode calibration and setting machining depth basic point. .



19. Ram cycler on/off

This button switch is used to enhance sludge flushing and adjust "JUMPING" value, Working time selector(15).



20. High voltage current on/off switch

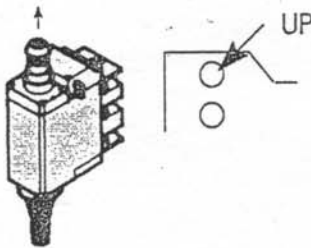
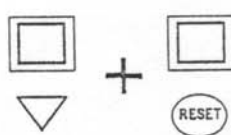
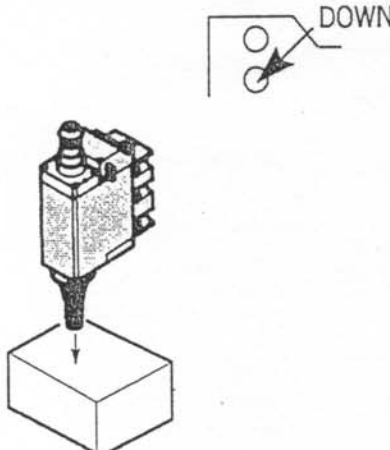
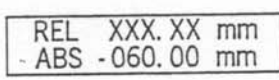
Aid the servo stability when machining special metal process. High gap voltage (17) is needed when start this funtion.



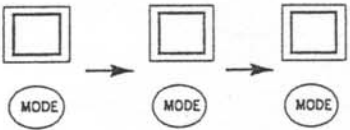
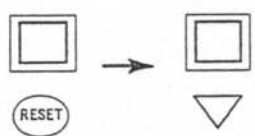
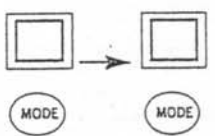
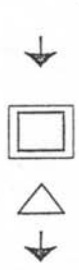
21. ARC indicator

Display discharging condition: The effect is the best if the light is off or winks.
If the light winks continuously, it implies unstability . Under such circumstances, discharge gap voltage needs to be adjusted higher (17) or working time(15) duration be shortened.

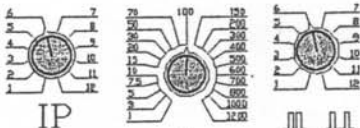
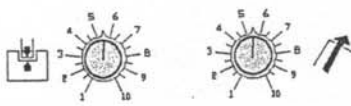
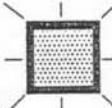
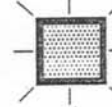
Flow Chart for Operation

Procedure	Result	Description
POWER ON ↓  ↓  ↓  ↓  ↓	Main Power ON   Quill moves up to the top  Quill moves down to workpiece. The buzzer sounds simultaneously.	(at the back of generator) Discharge and Dielectric fluid stop switch and display lights The speed should be lowered when approaching to top Return ABS to zero as mechanical travel reference The speed needs to slow down when approaching to workpiece

Remark: The REL Value will be changed in accordance with the Quill up or down move ment.

Procedure	Result	Description
	REALLY SET XXX.XX mm	Depress 3 times sequentially
	REALLY SET 000.00 mm	Move machining surface to zero
	REL 000.00 mm FNL -060.00 mm	Return to main screen
	DEPTH SET -060.00 mm	Display of quill depth setting
	DEPTH SET -012.34 mm	Down direction is negative for depth setting
	REL XXX.XX mm FNL -012.34 mm	Depth setting of return main screen shown in FNL
	JUMP SET 000.31 mm	Depress twice sequentially (Default 000.31mm)
	JUMP SET 001.50 mm	Setting jumping height 1.5mm

Remark: The REL Value will be changed in accordance with the Quill up or down movement.

Procedvre	Result	Description
                      	REL XXX.XX mm FNL -012.34 mm REL XXX.XX mm ZER -000.00 mm REL XXX.XX mm FNL -012.34 mm       	Return to main screen Return the bottom position to Zero where quill moves to Return to main screen and start machining Chose the sequented machining current ON TIME, OFF TIME The lamp of dielectric pump on The lamp of stop switch indicator off EDM machine start to discharge Sludge flushing button switch Adjust proper gap voltage and quill sensitivity (Judgement of voltmeter stability)

Remark: The above adjusting modes can be altered during machining and please return back to the main screen after each setting is ready.

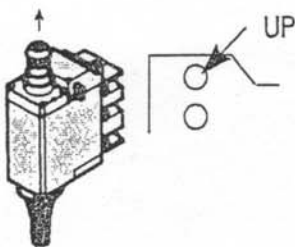
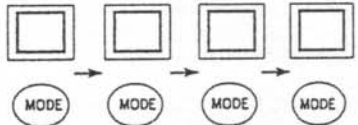
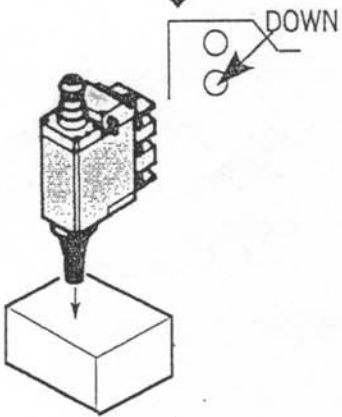
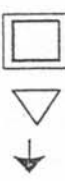
How to observe the present machining depth during machining

Procedure	Result	Description
   	REL 007.08 mm FNL -012.34 mm REL 007.08 mm ZER -007.15 mm REL 007.08 mm FNL -012.34 mm	Normal display screen The machined depth is -007.15mm Return to main screen

General inspection procedures (method 1)

Procedure	Result	Description
   	REL 008.00 mm FNL -012.34 mm REL 008.08 mm ABS -030.00 mm REL 008.08 mm FNL -012.34 mm	Showing the distance from mechanical 0 point to the present position For example: Quill travel is 60mm the mold machining can be : 60mm-30mm=30mm Return to main screen

General inspection procedures (Method 2)

Procedure	Result	Description
	Quill moves up	Quill moves up to the top
	ABS SET 038.76 mm	Depress four times Keyboard mode sequently
	ABS SET 055.00 mm	Setting 55.00mm shows quill travel 55mm
	REL 008.08 mm FNL -012.34 mm	Return to main screen
	REL XXX.XX mm FNL -012.34 mm	Quill moves down to contact mold
 Depress	REL XXX.XX mm ABS 030.00 mm	There are 30mm to machine mold
	REL XXX.XX mm FNL -012.34 mm	Return to main screen

7. Working condition selection before discharging

1. Ensure the polarity conversion for the concerning electrode material, refer to table 7-1.
2. Calculate the working area, decide the NO. of current adjustment.

Recommendation:

Electrode	Work piece
Copper-Steel	4.5-7.5A/cm ²
Copper-Tungsten	4.5-7.5
Graphite-Steel	3.0-4.5
Tungsten copper-Steel	3.0-4.5
Tungsten copper-Tungsten	4.5-7.5

Table 7-2

There are 12 divisions for current control, the average current shown as below.

1	2	3	4	5	6	7	8	9	10	11	12
1	1.3	3	3.5	5	6	9	10	11	11.5	13	15

(Setting condition, ON Time 200, OFF Time on division 1, GAM keeps at 40V).

Table 7-3

For example: condition for electrode: copper(Cu) Working area: 2cm²

Work piece: steel(St)

Refer to the table 7-2, find out the data of 4.5-7.5A/cm²A and times the value of area to get the Ampere of 9-15A, then set up the No. between 7-12 in accordance with the mechanical controlled Nos.c (Table 7-3).

3. Select the suitable No. of ON Time after setting up the desired surface finish and the relationship between wear rate and working speed.

For example: Following the above condition of current Nos between 7-12, please refer to the data and find out the max. working speed is 0.129g/min, wear rate 1.32%, surface finish 56.8 Rmax, if the current Nos. to be set at 12 and ON Time at 800. Low down the ON Time setting if the surface finish was too rough, and low down the current Nos. be low 12 if the finish was still too rough.

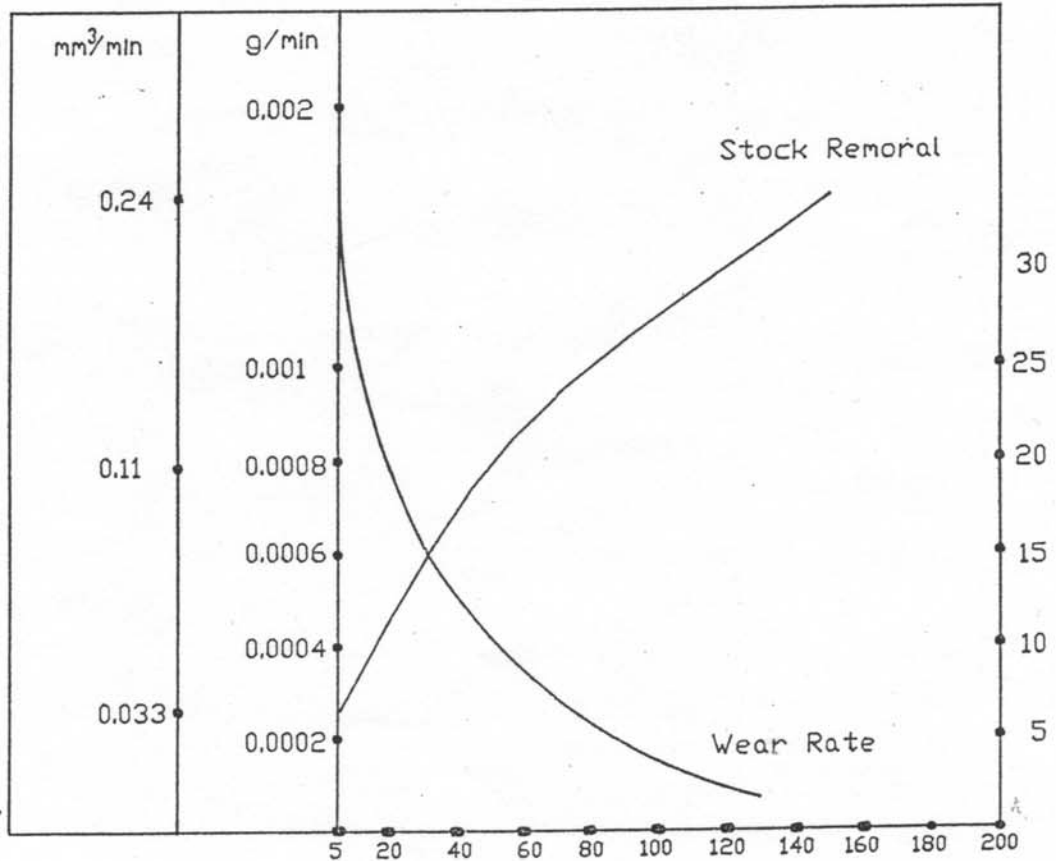
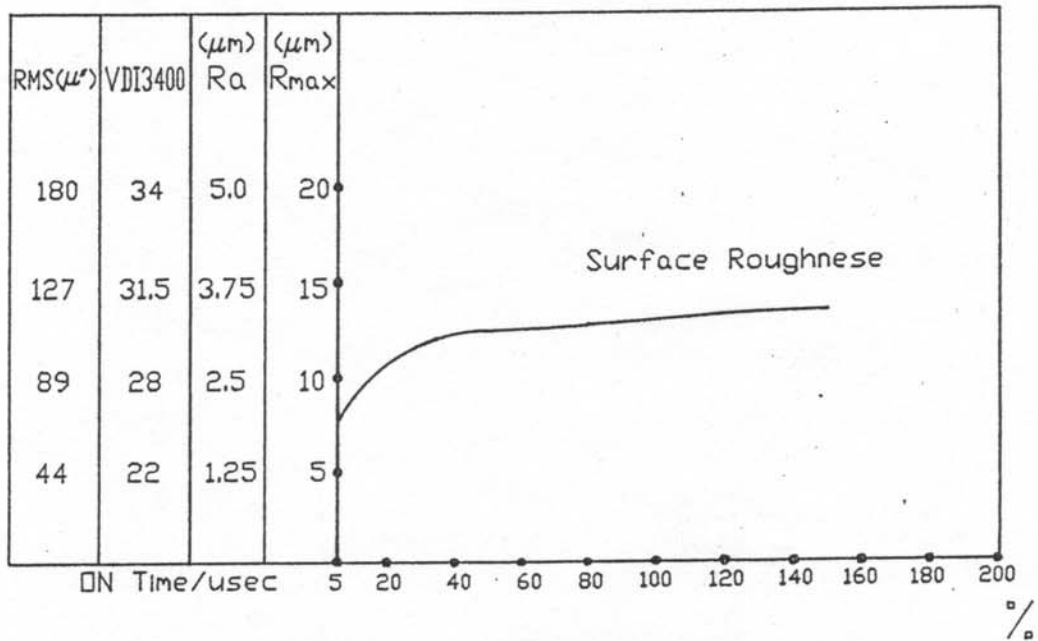
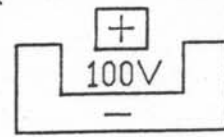
Electrode	Workpiece	Wear rate (end wear)	Polarity of electrode
Graphite	Steel	1% less	⊕
Graphite	Steel	30%	⊖
Graphite	Aluminum	1% less	⊕
Graphite	Aluminum	15%	⊖
Graphite	Copper	40%	⊖
Graphite	Tungsten carbide	150%	⊖
Copper	Steel	1%	⊕
Copper	Steel	200%	⊖
Copper	Tungsten carbide	50%	⊖
Copper	Copper	40%	⊖
Copper	Aluminum	1% less	⊕
Tungsten copper	Steel	5%	⊕
Tungsten copper	Tungsten carbide	40%	⊖
Tungsten copper	Tungsten	75%	⊖
Tungsten copper	Copper	35%	⊖
Tungsten copper	Tungsten copper	50%	⊖
Tungsten copper	Graphite	40%	⊖
Tungsten copper	Graphite	20%	⊕
Aluminum	Steel	700%	⊕
Brass	Steel	100%	⊖
Brass	Steel	100%	⊕
Brass	Tungsten carbide	500%	⊖
Brass	Brass	50%	⊖
Brass	Tungsten	100%	⊖
Tungsten silver	Steel	20%	⊖
Tungsten carbide	Tungsten carbide	150%	⊖
Tungsten carbide	Tungsten carbide	100%	⊕
Zinc	Steel	500%	⊖

Table 7-1 Combination of electrode and workpiece

APPENDIX A

TEST DATA

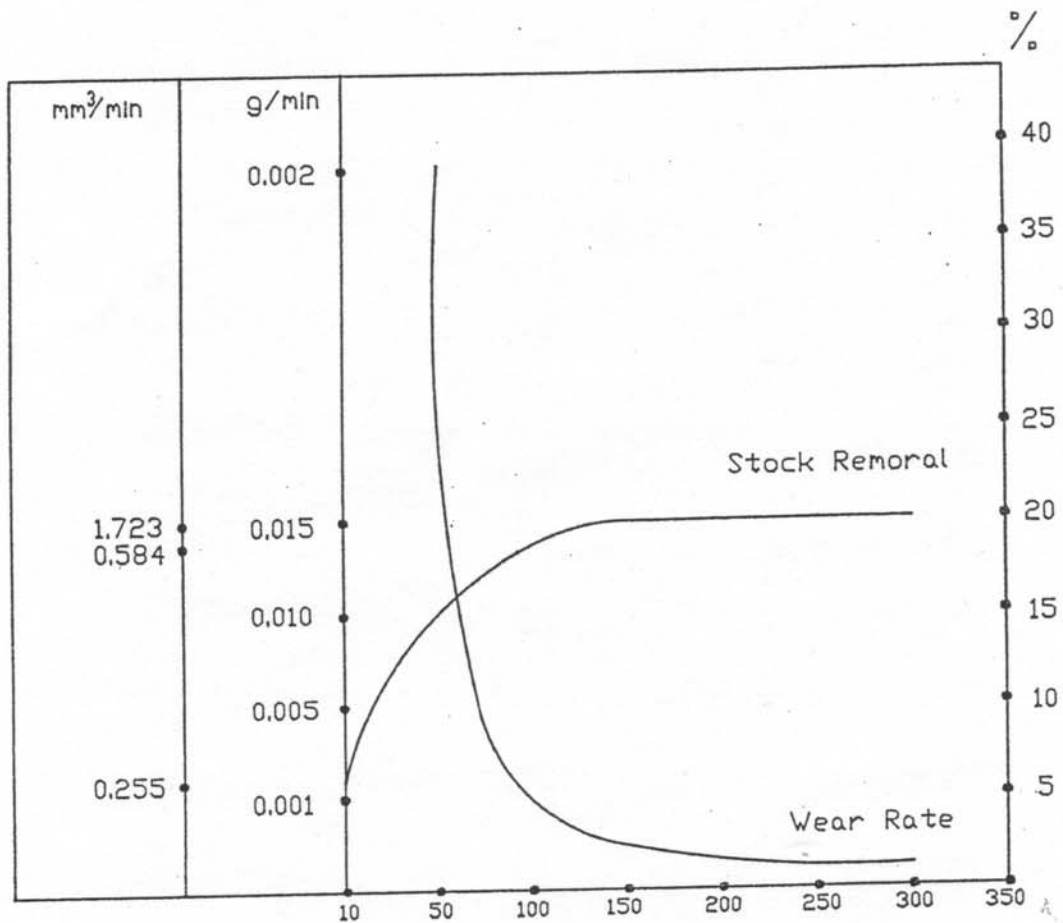
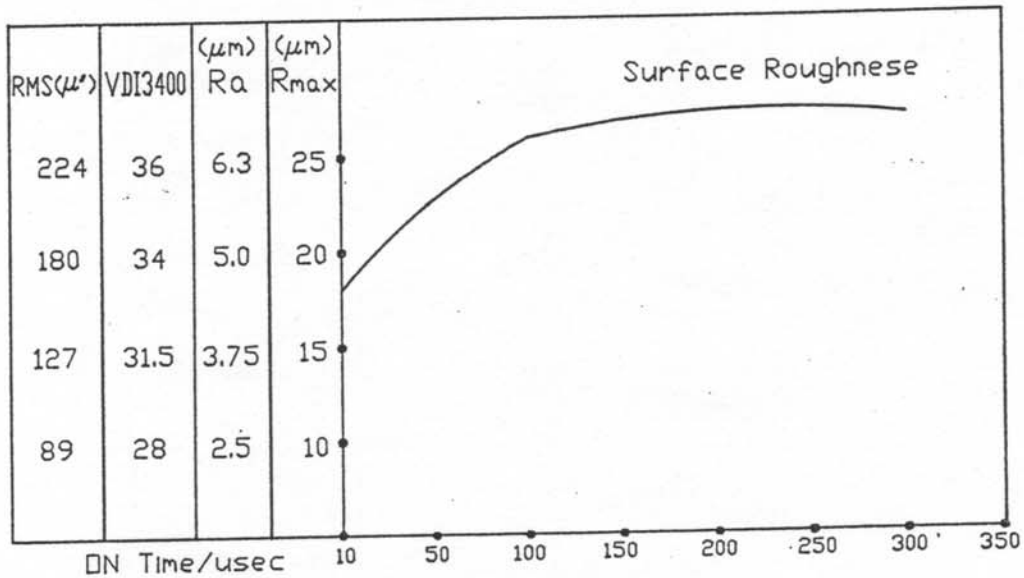
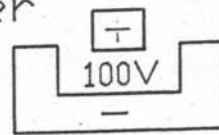
Electrode Material : Copper
 Workpiece Material : Steel
 Current Division : 2



Electrode Material : Copper

Workpiece Material : Steel

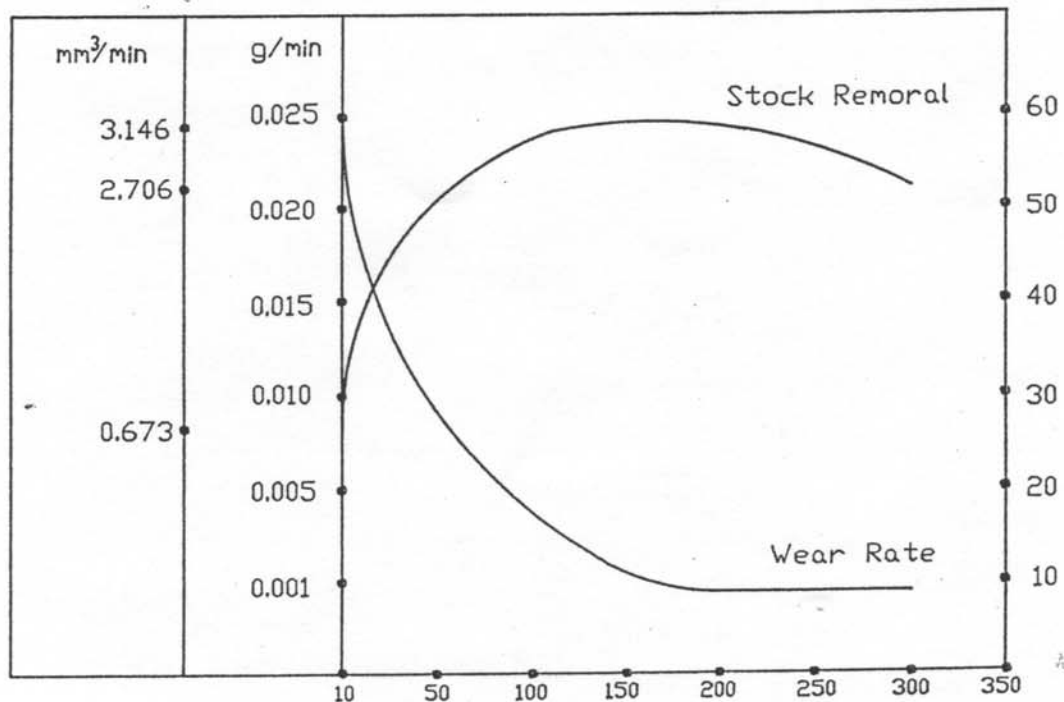
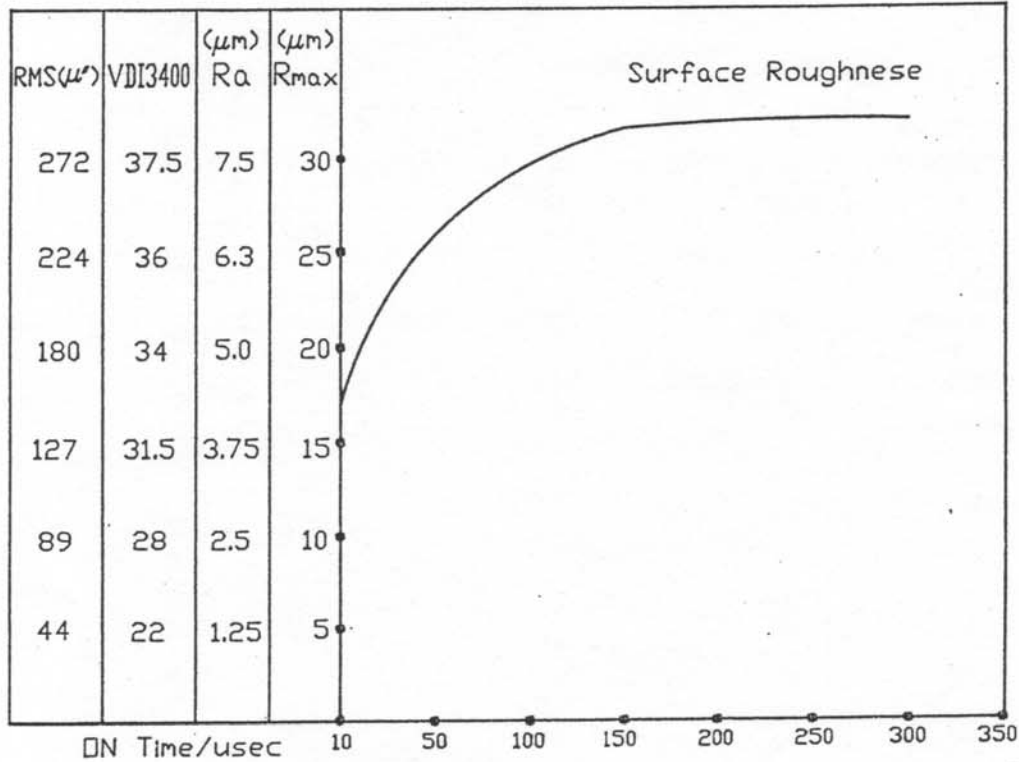
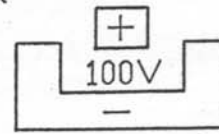
Current Division : 4



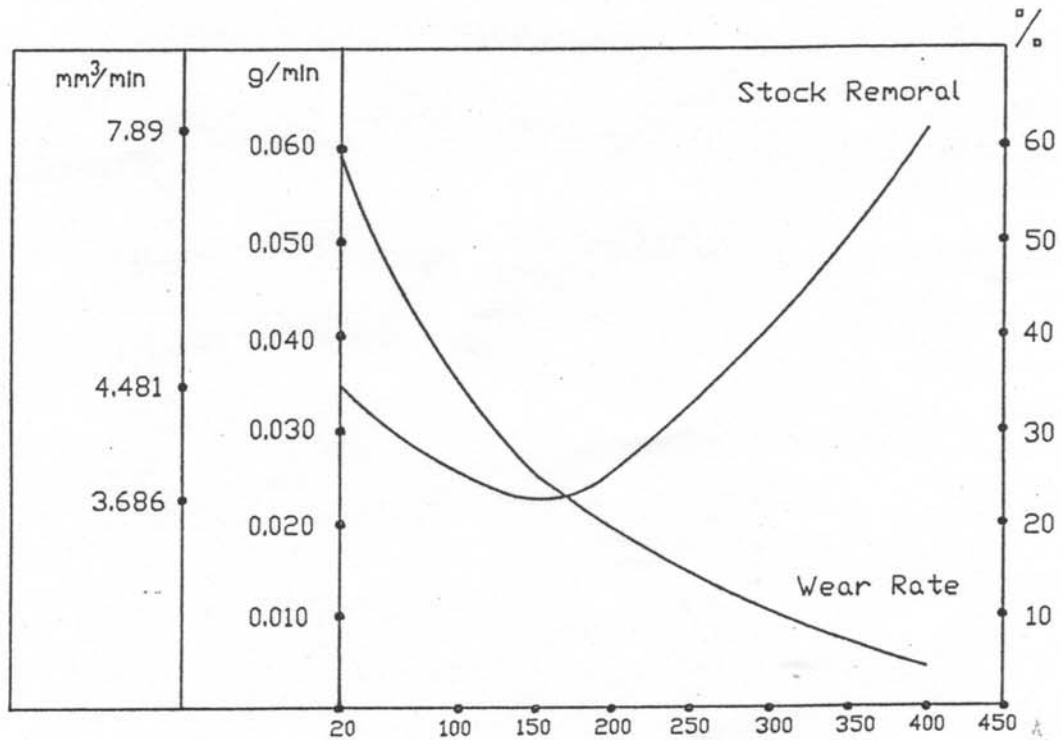
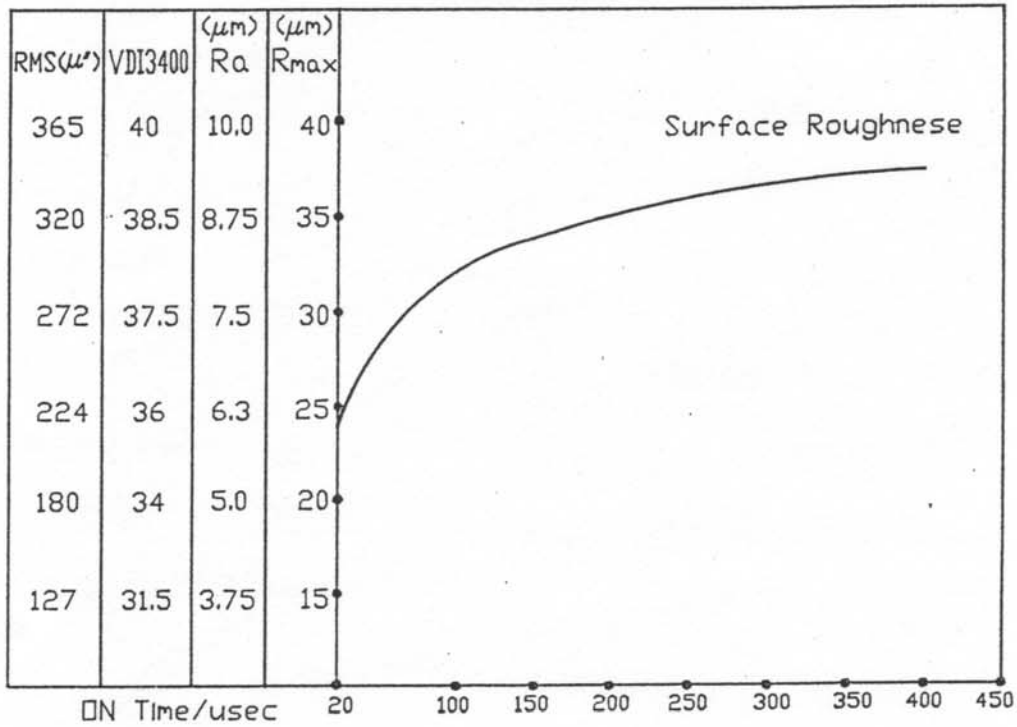
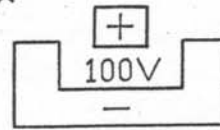
Electrode Material : Copper

Workpiece Material : Steel

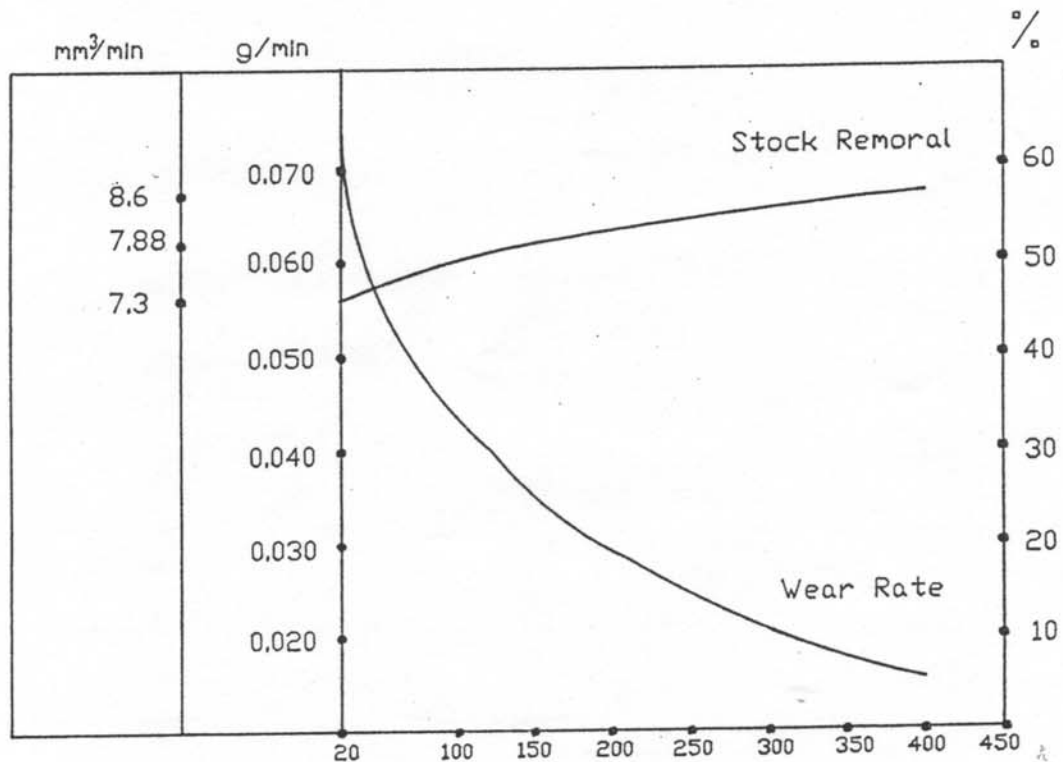
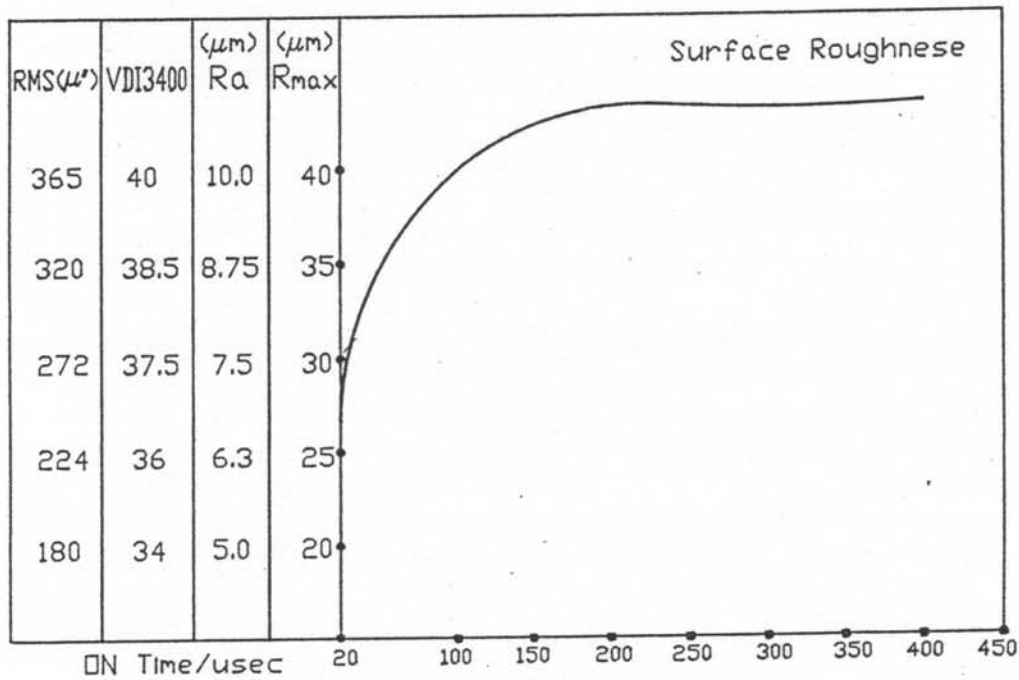
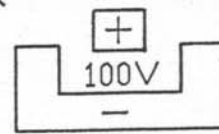
Current Division : 6



Electrode Material : Copper
 Workpiece Material : Steel
 Current Division : 8



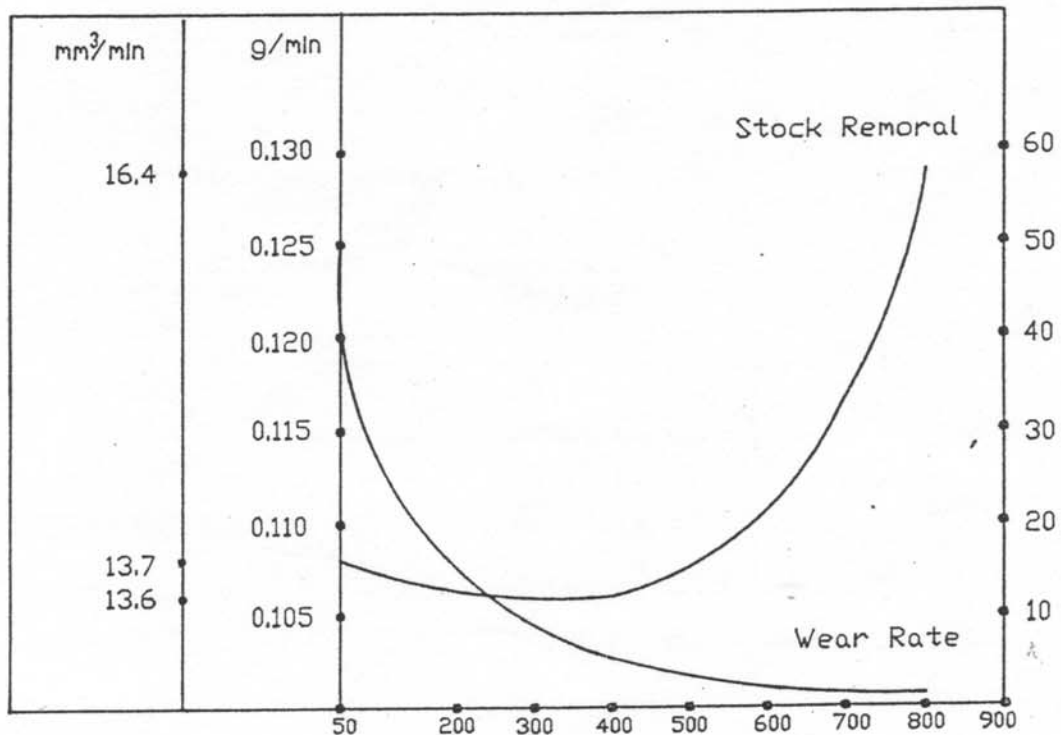
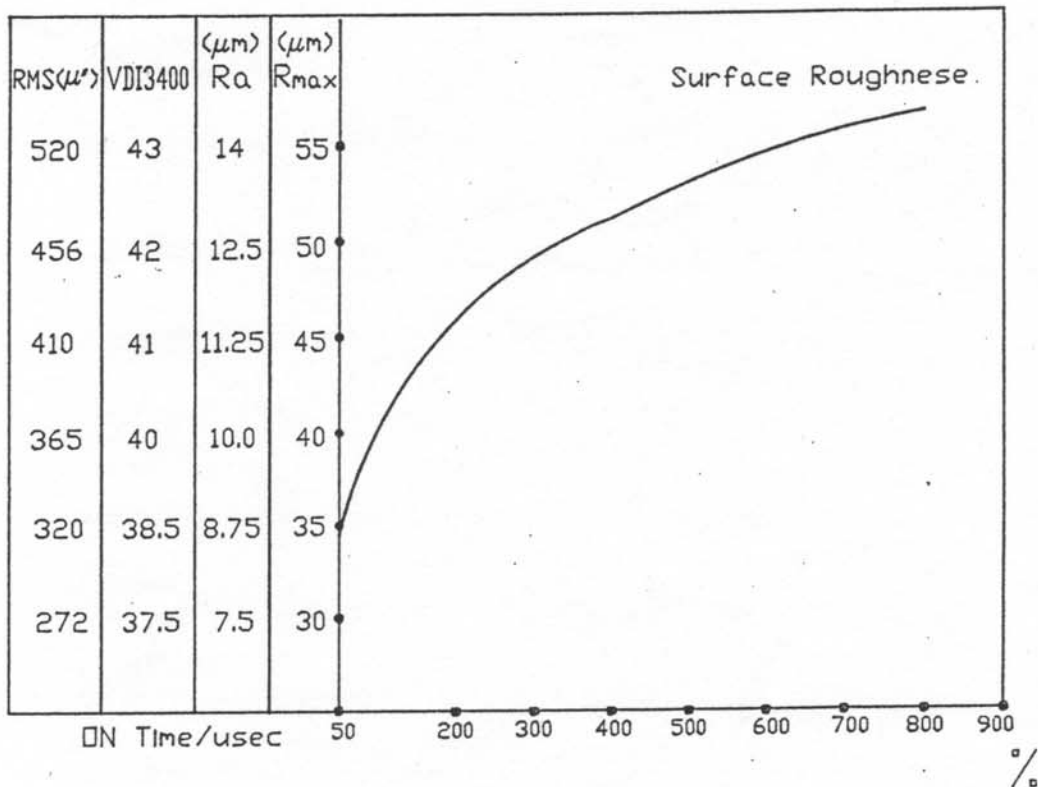
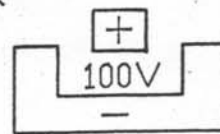
Electrode Material : Copper
 Workpiece Material : Steel
 Current Division : 10



Electrode Material : Copper

Workpiece Material : Steel

Current Division : 12



CAUTION AND SAFETY:

1. This machining device is a kind of electronic machine and processing by a pulse electricity, there fore, please DO NOT touch the electrode during working to prevent the electric induction happening.
2. Please DO NOT locate this machining device at a humid place or washing by water.
3. Please CUT OFF the external power source if there are something needed to inspect or repair, and have a electrical specialist to open the cover of power supply unit for further inspection or repairment.
4. Good ventilation or vent device should be provided, since a little gases will be produced during the working process.

A Manufacturing name plate can be found at the rear side of power supply unit, the numbers as show below.

For the purpose of further reference or preventing steal, please always keep this manual together with the purchasing documents to regard as a purchasing record.

MODEL: DT-168(ALIC-1)

S/N: _____

MFG.DATE: _____

ALIC-1 DT-168

9600155B



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E-Mail sales@anotronic.com
Internet <http://www.anotronic.com>



MACHINE PARTS LISTING

MODE:DT-168

=====	
1. BASE ASSEMBLY	1
2. THREE AXES SLIDE ASSEMBLY	3
3. WORK HEAD ASSEMBLY	5

P/L NO 9021000116

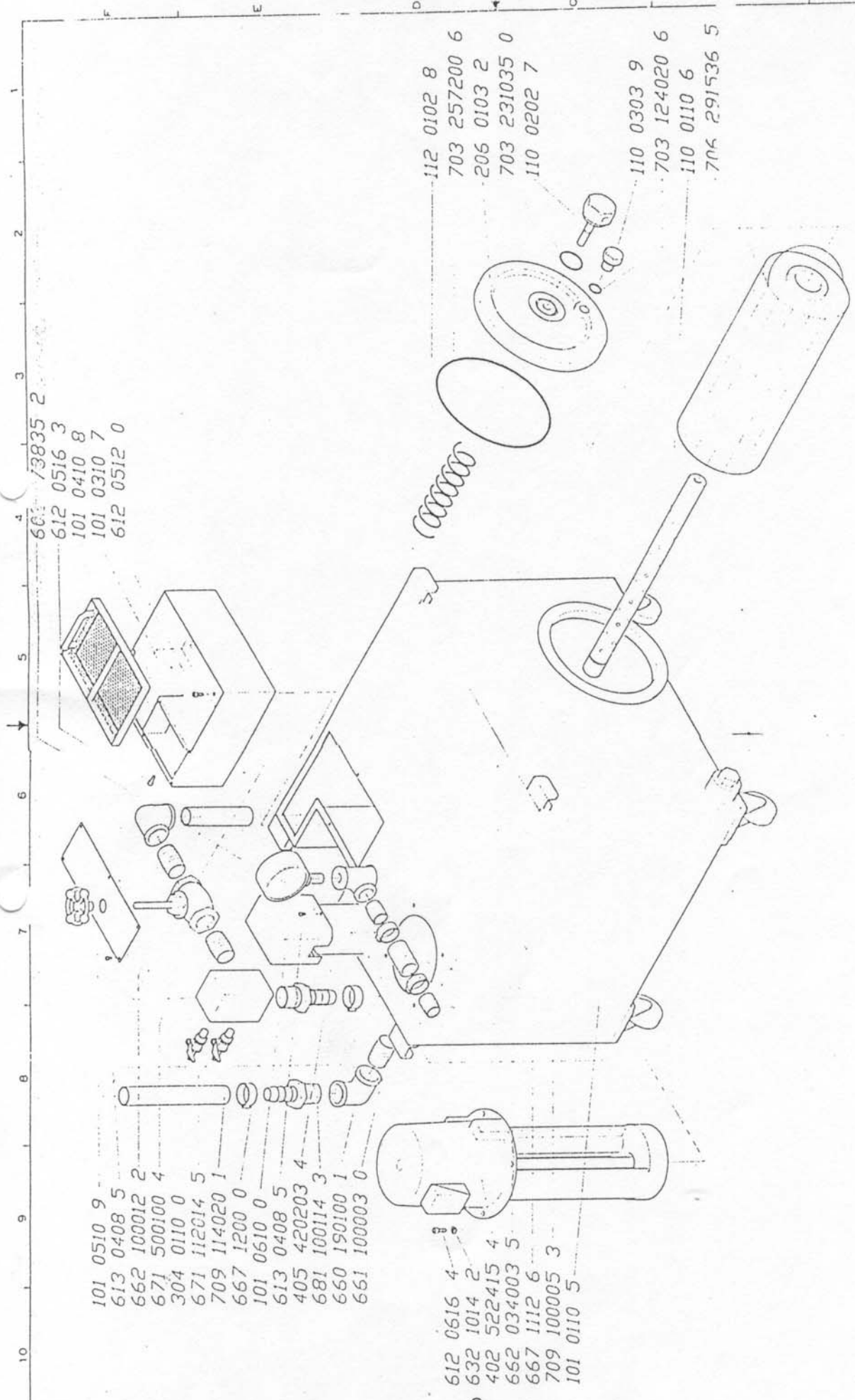
PARTS LIST

DATE:03/19/1992

*** BASE ASSEMBLY ***

Page 1/1

No	Parts No	Description	Q.T.Y.	Remark
1	10101105	Dielectric Tank	1	
2	10103107	Drain Tank	1	
3	10104108	Strainer	1	
4	10105109	Drain Tank Cover	1	
5	10106100	Drain Tank Cover	1	
6	11001106	Strainer	1	
7	11002027	Screw	1	
8	11003039	Screw	1	
9	11201028	Spring	1	
10	20601032	Cover	1	
11	30401101	Bracket	1	
12	4025224154	Hose Clip 60HZ,1ø,220V,1/4"HP,3/4"PT	1	
13	4054202034	Magnetic contactore RAB-12T,AC24V	1	
14	6021738352	Pressure Gauge FTB3/8",3.5KG,75	1	
15	61205120	Hexagon Socket Head Screw M5*12mm*0.8P	2	
16	61205163	Hexagon Socket Head Screw M5*16mm*0.8P	2	
17	61206164	Hexagon Socket Head Screw M6*16mm*1.0P	4	
18	61304085	Hexagon Socket Round Head Screw M4*8mm*0.75P	8	
19	63210142	Spring Washer 1/4"	4	
20	6601901001	Elbow 1"	2	
21	6611000030	Nipple 1"*30mm	3	
22	6620340035	Nipple 3/4"*30mm	2	
23	6621000122	Nipple 1"*120mm	1	
24	66711126	Hose Clip 1-1/2"	2	
25	66712000	Hose Clip 2"	2	
26	6711120145	Check Valve 1/4"	2	
27	6715001004	Check Valve 1"	1	
28	6811001143	Connector 1",1-1/4"	2	
29	7031240206	"O" ring P20,2.4*20	1	
30	7032310350	"O" ring G35,3.1*35	1	
31	7032572006	"O" ring G200,5.7*200	1	
32	7062915365	Filter Elements SM950,29*150	1	
33	7091000053	Hose 1"*50mm	1	
34	7091140201	Hose 1-1/4"*200mm	1	



DESIGN BY	DATE	DWG NO	BASE ASSEMBLY
CHECKED BY	3.5.94	901.10001.4	MODEL
APPROVED BY			SHEET 01
hsio fong MACHINERY CO., LTD.			

REV	EC BY	REVISION DESCRIPTION	DATE	APPROVAL
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2				
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P/L NO:9021000218

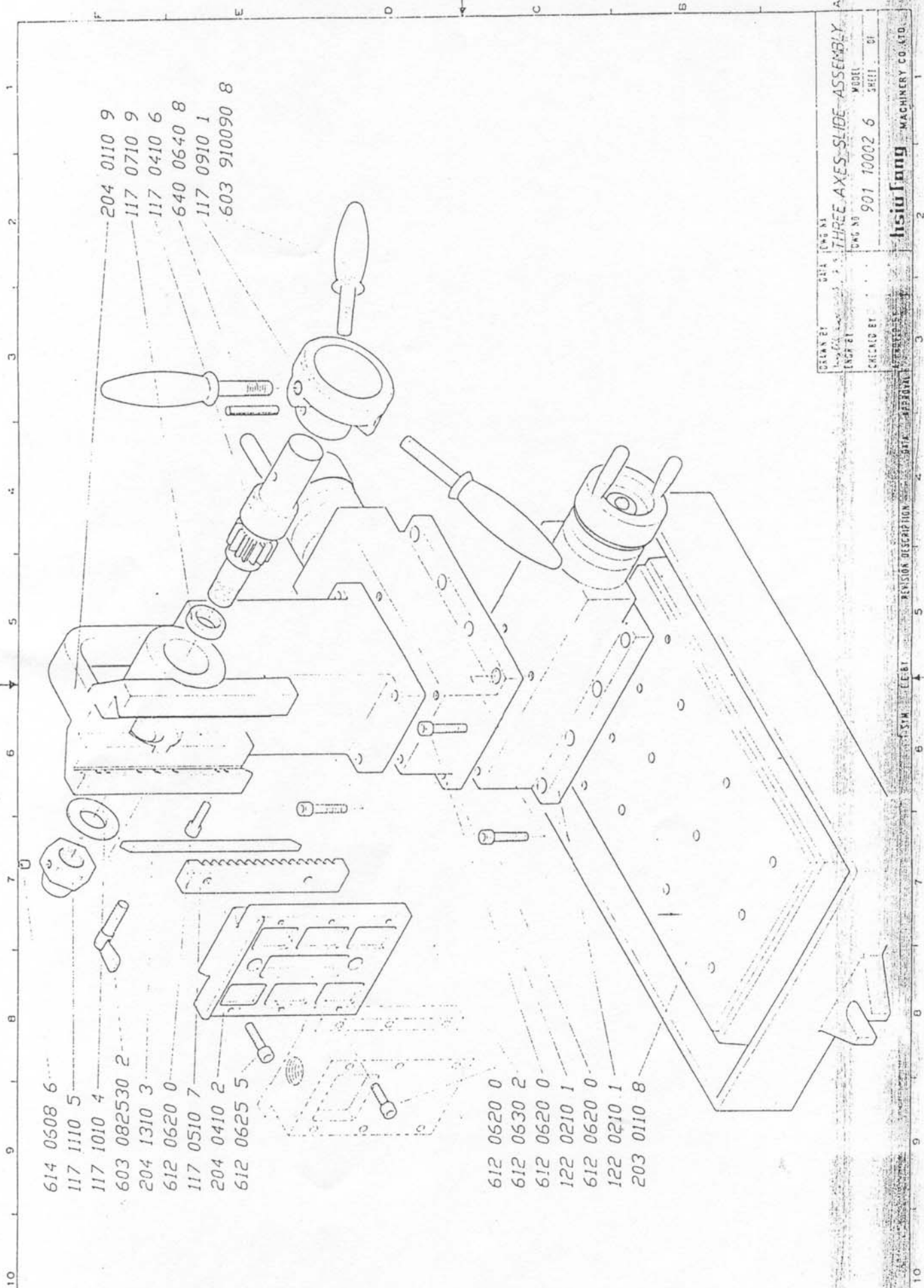
PARTS LIST

DATE:03/19/1992

*** THREE AXES SLIDE ASSEMBLY ***

Page 1/1

NO	Parts No	Description	Q.T.Y.	Remark
1	11704106	Pinion shaft	1	
2	11705107	Rack	1	
3	11707109	Sleeve	1	
4	11709101	Handle seat	1	
5	11710104	Washer	1	
6	11711105	Nut	1	
7	12202101	Base	2	
8	20301108	Work table	1	
9	20401109	Column	1	
10	20404102	Bracket	1	
11	20413103	Wedge	1	
12	6030825302	Screw	1	
13	6039100908	Handles	3	
14	61206200	Hexagon Socket Head Screw M6*20mm*1.0P	24	
15	61206255	Hexagon Socket Head Screw M6*25mm*1.0P	2	
16	61206302	Hexagon socket head screw M6*30mm*1.0P	4	
17	61406086	Hexagon socket round head screw M6*8mm*1.0P	1	
18	64006408	Spring pin 6*40L	1	



DESIGNED BY	DATE	FIG. NO.	REV.
DRIVEN BY	DATE	FIG. NO.	REV.
CHECKED BY	DATE	FIG. NO.	REV.
THREE AXES SLIDE ASSEMBLY		MODEL	SHEET
901 10002 6		MODEL	BT
hsiu fang MACHINERY CO. LTD.			

P/L NO:9021000310

PARTS LIST

DATE:03/19/1992

*** WORK HEAD ASSEMBLY ***

Page 1/1

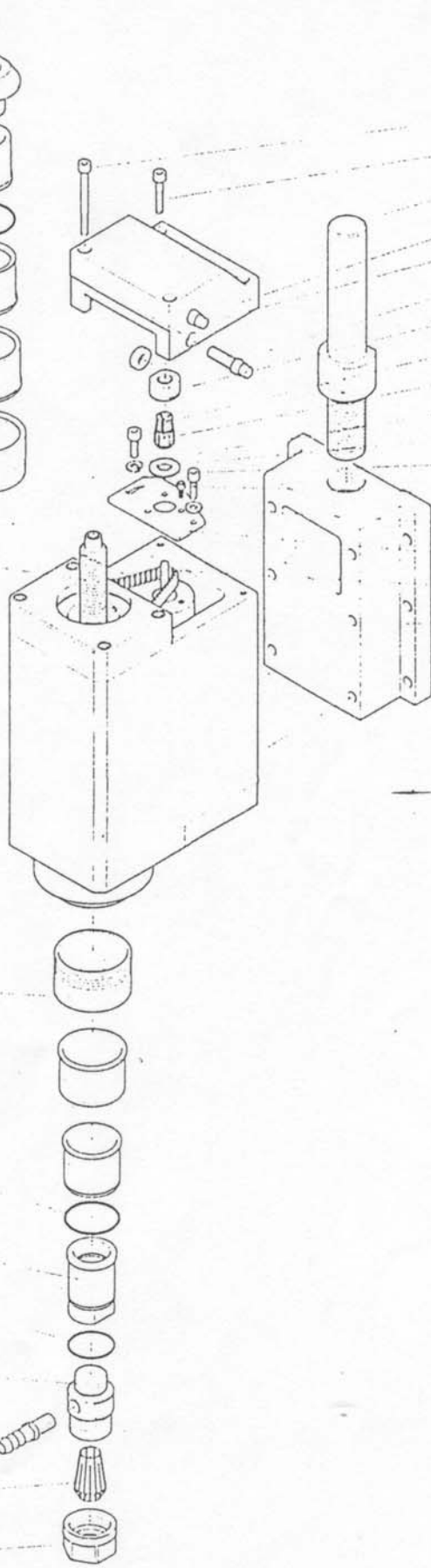
NO	Parts No	Description	Q.T.Y.	Remark
1	10624107	Lead Screw	1	
2	10801102	Holding arbor	1	
3	10802103	Collet holder	1	
4	10803104	Locking seat	2	
5	10804105	Sleeve	2	
6	10805106	Sleeve	2	
7	10806107	Sleeve	2	
8	10812105	Cover	1	
9	10813106	Flange	1	
10	11301109	Timing belt pulley	1	
11	11701103	Bush	1	
12	11702102	Bush	1	
13	11703105	Plate	1	
14	12203102	Clamping nut	1	
15	30501101	Work head	1	
16	30502102	Bracket	1	
17	30505105	Cover	1	
18	4034205068	D.C. Servo Motor EN_1200RPM,5kg-cm,60w	1	
19	4421220240	Lighted pushbutton switch eao 19-043-035,YL	1	
20	4421220262	Lighted pushbutton switch eao 19-043-035,BL	1	
21	6071062102	HTD Type Timing Belt HTD-210-3M-6	1	
22	61203081	Hexagon Socket Head Screw M3*8mm*0.5P	3	
23	61204128	Hexagon Socket Head Screw M4*12mm*0.7P	2	
24	61204208	Hexagon Socket Head Screw M4*20mm*0.7P	2	
25	61204402	Hexagon Socket Head Screw M4*40mm*0.7P	2	
26	61206120	Hexagon Socket Head Screw M6*12mm*1.0P	1	
27	61206200	Hexagon Socket Head Screw M6*20mm*1.0P	6	
28	63000046	Plain washer m4	1	
29	63200048	Spring washer m4	1	
30	6493100179	ER collet ER16 $\varnothing$ 10	1	
31	6810180080	Connector 1/8"PT	1	
32	7031300243	"O" Ring P24,3.5*24	1	
33	7031340285	"O" Ring P28,3.5*28	2	

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31W I.C. ST. DIVISION DESCRIPTION D.T.A. APPROVAL

DESIGN ET	DATE	CHKD BY	DATE
INSTR ET	3.1.1.1	CHKD BY	3.1.1.1
APPROVED BY		APPROVED BY	
Isiu Fong WORK HEAD ASSEMBLY 901 10003 8 MACHINERY CO., LTD.		MSJL 01	

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- 108 1210 5
- 703 134028 5
- 108 0410 5
- 108 0510 6
- 108 0610 7
- 607 106210 2
- 106 2410 7



- 612 0440 2
- 612 0420 8
- 108 0110 2
- 305 0510 5
- 442 122026 2
- 442 122024 0
- 117 0110 3
- 113 0110 9
- 612 0412 8
- 632 0004 8
- 117 0210 4
- 612 0412 8
- 612 0308 1
- 630 1004 8
- 117 0310 5
- 403 420506 8
- 305 0210 2
- 612 0620 0



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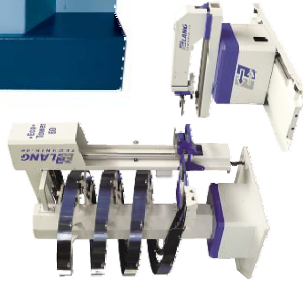
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