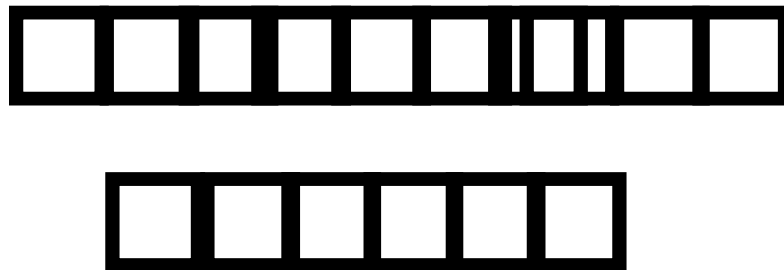


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# DIE CUTTING AND CREASING MACHINE



*\*Before operation, please study the manual carefully.*

## CONTENTS:

- I Brief Introduction
- II Main Technical Parameters
- III Main Structure and Working Principle
- IV Installation and Commissioning
- V Operation

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VI Troubles and Trouble-shooting

VII Care and Maintenance

Fig. 1 Main Structural Diagram of Eccentric Gear

Fig. 2 Adjusting Mechanism Diagram

Fig. 3 Gear and Mechanism Drawing

Fig. 4 Installation Foundation Plan and Control Panel Drawing

Fig. 5 Electric Schematic Diagram

Table 1 List of Electric Components

Table 2 Working Parts

Table 3 Electric Parts

Table 4 Packing List



The die-cutting and creasing machine is an equipment specially designed for creasing and cutting various of paper, ordinary cardboard, corrugated board, plastic and leather products. The machine is also suitable for creasing various advanced delicate

presswork in order to acquire a good-looking appearance and a three-dimensional effect.

Before operation, please read the operational manual carefully for proper operation and maintenance.



Model	ML1600	ML1800	ML2000	ML2500
Length	<50m	<62m	<65m	<67m
Size	1600*1250mm	1800*1300mm	2000*1400mm	2500*1500mm

Speed	13±2Strokes/mins	13±2Strokes/mins	12±2Strokes/mins	12±2Strokes/mins
Dimension	2500*2200*2000 mm	2800*2340*2000 mm	3000*2500*2000 mm	3200*2600*2100 mm
Weight	11500kg	14000kg	15500kg	18000kg
Power	11kw	11kw	15kw	15kw

Model	ML1300	ML1400	ML1500	ML1500A
Length	<35m	<45m	<47m	<48m
Size	1300*920mm	1400*1000mm	1500*1050mm	1500*1150mm
Speed	15±2Strokes/mins	15±2Strokes/mins	14±2Strokes/mins	14±2Strokes/mins
Dimension	1960*2160*1600 mm	2050*2450*1650 mm	2500*2200*1750 mm	2500*2200*1850 mm
Weight	5600kg	6200kg	7000kg	7300kg
Power	5.5kw	5.5kw	5.5kw	5.5kw

Model	ML1040	ML1100	ML1100A	ML1200
Length	<28m	<35m	<35m	<35m
Size	1040*720mm	1100*800mm	1100*800mm	1200*820mm
Speed	23±2Strokes/mins	20±2Strokes/mins	20±2Strokes/mins	20±2Strokes/mins
Dimension	1760*1740*1650 mm	1860*1760*1700 mm	1860*1760*1700 mm	1960*1860*1750 mm
Weight	3800kg	4000kg	4500kg	5000kg
Power	4kw	4kw	4kw	4kw

Model	ML750	ML930
Length	<15m	<25m
Size	750*520mm	930*670mm
Speed	25Strokes/mins	23±2Strokes/mins
Dimension	1300*1300*1300 mm	1720*1530*1600 mm
Weight	2000kg	3000kg
Power	2.2kw	4kw



This machine is mainly composed of the base, moveable platen, connection rod, magnetic clutch, the driven gear and electric control system, etc (see Fig. 1). The motor drives the flywheel by a V-belt pulley. In the working of magnetic clutch, the drive shaft rotates with the flywheel. The motion is then transmitted to sub gear to gear down, and further drives the crank installed on both ends of the main shaft to rotate at a low speed. Then it actuates the connecting rod to impart a rocking motion to the moveable platen to accomplish creasing and cutting.

#### 1. Movable platen (see Fig. 1)

The movable platen is a part used to finish the creasing and cutting, precision of which determines the quality of finished products.

A guard baseplate (19) is attached to the massive plate of the movable platen, fixed

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by six M6 sunk screws, where the cardboard provided for processing is laid on for being located, and then creased and cut cardboard can be turned over so that the other side of which can be used instead.

The installed the circular sideway(3) inside the movable platen right and left while the curve ring(6) is installed on the middle of it. The circular slideways rolls on the front slideway(4) of base, and the curve ring runs in the roller stand of the base, which formed running trace of base needed.

The movable platen shaft crosses through the movable platen, on two ends of which there installed with eccentric sleeves right and left connected together by cross bar to form an idle handle(2). When working normally, the location pin of cross bar holds locates the cut on the locating block of the movable of platen. When creasing and cutting, if the cardboard is deviated, pulled down the idle handle to rotate the eccentric sleeves right and left to a certain angle, then the distance between movable platen and base platen will be increased, avoiding the cardboard being creased and cut. During the second cycle, the resetting ram lift(11) impacts the eccentric sleeve to reset the idle handle automatically. (see Fig. 2) The eccentric gears(4) are fixed between the holes of left and right connecting rods and eccentric sleeves(5) and the adjusting pinion(6) is fixed beside it. The method of adjustment (see Fig. 2 and Fig. 3)

## 2. Base(see Fig. 1)

There are a massive plate in the middle of the base, a left and right front slideways(4) within a roller support frame in front of the base, and a drive gear at the back of it.

The front slideways of base support the circular slideway(3) so that the movable platen could roll on it to and fro. What's more, the roller on base limits the movement of curve ring on the movable platen. Both of them control the movable platen to achieve the running trace required.

The chase(20) carrying the creasing and cutting blade or die plate laid on the massive plate of base, tightly fixed by feet(10) under the base, the clamping plate(21) and banging ring at upper of base.

The drive system of machine is installed at the back of base. The main shaft(12), intermediate shaft(11) and drive shaft(8) are directly mounted on it. The support of drive shaft is installed at the right side of base, on which there is installed with flywheel (1) and drive shaft magnetic clutch.

## 3. Drive gear and magnetic clutch(see Fig. 3)

The drive shaft(8) is installed on the support at the right side of base back. The flywheel (1) runs on it by two bearings. The magnetic yoke(2) of the magnetic clutch is fixed on the flywheel, the armature (1) of which connects with drive shaft by the spline. They can move freely along the shaft (the asbestos wearing pieces are fixed on both sides of armature which can be replaced fill wearing). When the clutch is switched on, the yoke produces electromagnetic force to attract the armature, and the flywheel actuates the drive shaft to run in synchronism. When it is switched off, the spring inside the clutch pushes the armature away from the flywheel and presses it against the brake ring(4) to brake the drive shaft.

The brake ring is installed on the brake bearing seat, adjusting its axial position

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by means of three adjusting screw sleeves to control the working stroke of clutch within 0.3~0.4mm, the clearance around should be a symmetrical and coincident. When the adjusting process is finished, tighten and fix the brake ring by the bolts crossing through the internal bore of screw sleeves. This machine is produced with a new structure such as the integration of bearing seat (15) and support of drive shaft (17) connected. Thus it has a high stiffness, improving the condition of driving the flywheel by cantilever of drive shaft, will reduce the vibration and prolong the operation life of the machine.

There is square head mechanism at the right side of the drive shaft. Insert the wrench into the square head for driving the machine manually when debugging or "jam" is happened. On the top of the back cover of machine, there is installed with limit switch will be actuated to cut off the motor circuit to ensure safety as well as to switch on the circuit of magnetic clutch to break drive system away from the brake state so as to drive manually.

The main shaft (12), intermediate shaft (11) and drive shaft (8) are directly installed on the split bearing seat at the back of base. The crank gears at both sides of main shaft are used to drive the movable platen to run through the connecting rod. The helical gears are completely used in the gearing down mechanism, while makes the machine drive smoothly with low noise and large drive torque.

#### 4. Electric control system

The electric control of the machine contains two modes: 1. Operation control of working functions. 2. Safety protection control.

The operation control buttons of working are centralized on the control box which is hung in front of the machine, the control panel is as known as Fig. 6. When the electrical source switch is rotated to the mark "ON", the red indicating lamping that showing the control circuit has been switched on.

Press the "MOTOR START" button then the motor has been actuated and will drive the flywheel to turn.

When the required speed of motor is reached, press "CLUTCH-ON" button, it shows the magnetic clutch will be actuated and the movable platen will start running.

There are two creasing and cutting models for your selection. "RUN" is for continuous creasing and cutting press it that the movable platen will run continuously without intermittent "SINGLE" is for single creasing and cutting, press it that movable platen will stop automatically. It will start again when creasing and cutting is finished. "DELAY" is for starting delay working mode, press it to enter into delay working.

The safety protective mechanism is composed of the front protective frame (25), triangle swing link (26) and brake lever (5) (see Fig. 1)

- (1) The front protective mechanism frame (25) is installed on the end face of base, which is used to control the micro switches SQ2 as shown in the electric schematic diagram.
- (2) The triangle swing link (26) is installed on the end face of movable platen, which is used to control the limit switch SQ3 and SQ4 shown in the electric schematic diagram.

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- (3) The brake lever(5) is installed in front of the left side of base,which is used to control the limit switch SQ1 as shown in the electric schematic diagram.

When entering into the dangerous area in front of the closing position of movable platen,push the front protective frame,or press down the triangle swing link or brake lever,and then the movable platen will be stopped immediately and the machine will be emergency braked.

The electric box is fixed at the back guard shield of base.



1. The machine is whole packed in a wooden case.When unpacking it,don't strike it violently to avoid affecting the assembling precision of the machine.Check the contents including spare parts and documents according to the packing list after unpacking.
2. The installed foundation plan is as shown as Fig. 4.  
According to some users' suggestion,the foot screws may be unnecessary to install if the running is smooth.This is only for reference for new users.
- 3 Keep the machine at horizontal position when installation finished.
4. Set machine properly earthed for human safety.The bronze bolt used to earth is beside the electric box behind the machine.It is suitable to choose the wires with good electric capability and put it under the dank ground by 1m.



1. Pre-operational check-ups
  - (1) Clean the antirust grease and check the fasteners whether or not they are loosened.
  - (2) Fill oil pump and each oil hole of oil cups with lubricating oil and grease and then check the oil circuit whether or not it is smooth.
  - (3) Check the motor and electrical appliances to ensure they are dry with proper insulation.
  - (4) Check whether the external power accord with the power demands for electrical appliances.
  - (5) Switch on the power,turn on the power knob,move the square head of the drive shaft by wrench to rotate the movable platen for several times and check whether it is blocked.
2. Free-running testing
  - (1) Take down the wrench from square head of drive shaft.
  - (2) Press "START" button of motor to check the rotating direction of flywheel whether it is the same as shown in nameplate.
  - (3) After the flywheel runs for a certain time,press the button "RUN" to crease and cut continuously.When running observe and check whether it is smooth and ensure there is no abnormal noise.
  - (4) Push the front of protective frame,and press the triangle swing link or brake lever to check the brake for several times to see whether it is sensitive and

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reliable.

- (5) Check whether the two creasing and cutting methods are correct and coordinate.

### 3. Brief introduction for operation

- (1) Operation the machine after free running. If it works normally, creasing and cutting could be done.
- (2) Fix the chase carrying the creasing and cutting blades on the massive plate of base. When installing, correcting and distance adjusting, the power should be cut off so as to ensure safety.
- (3) The adjustable distance has been adjusted as 27mm when the machine is dispanched from the factory (including the thickness of chase and baseplate of table) The actual distance can be readjusted with 26-38mm according to the height of blade, the thickness of cardboard and the height of other die plates.
- (4) After correcting the position of cardboard, select the creasing and cutting model at "CONTINUOUS" position and then the machine will run continuously.
- (5) Under the continuous running state, if the operator can't finish feeding by hand in cycle of operation, select the working mode "DELAY". The machine will stop at the opening position for a certain time for every cycle, then start the next creasing and cutting. Set the opening delay by means of timer.
- (6) In operation if the paper is not in the right position or the finished products can't be taken out in time, and the movable platen has closed to the closing position, for not avoiding waste, pull down the idle handle or push the protective frame or press down the triangle swing link or brake lever immediately to stop the machine (any one of the three methods). Press "RUN" to run the machine again after laying the cardboard correctly or taking out the finished products.

### 4. Lubrication

- (1) The lubrication system of the machine is mainly centralized lubricated with thin oil. Press the hand oil pump for several times when oiling. This machine also adopts decentralized hand oiling so as to ensure fine lubrication.
- (2) Lubrication is very important to the running of machine. The user should check periodically whether each lubricating point and oil circuit are smooth.
- (3) Keep it clean when opening the oil system.



This machine has simple structure and easy operation. But the trouble also will occur owing to improper care and maintenance.

1. This common trouble is "jam", it means when creasing and cutting at the closing position, the movable platen stops suddenly, the belt may creep or the motor may stop running, which is caused by:
  - a. The platen distance is not adjusted correctly, as it is too small.
  - b. Though the platen distance is correct, the thickness of feeding cardboard exceeds the fixed quantity.



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c. The area of knife and line back is overload.

Whenever the “jam” happens, cut off power by pressing the button “stop” on the brake handle first, and then drive the worm to the market “DEBUGGING” by wrench to forcibly open the movable platen. Then check the platen distance and just readjust it. If that is due to feeding too much cardboard, so decrease the paper feeding. If that is due to overloading area of knife line back, reduce the load of machine.

2. “Creep Plate”, means the movable platens’ deviating when the machine is working, cause the creasing and cutting line rough and dirty, even sometimes ghosting of two lines happened.

In most cases, it attributes to the excessive deviation from the center of printing plate’s cutting line, which cause the movable platen deviating to one side, resulting in heating during creasing and cutting. Therefore, the cutting line should be located according to the symmetrical position of platen as far as possible.

3. The magnetic clutch slips. The cause and the troubleshooting are as follows:
- The sheet asbestos on armature is worn or stained with oil, which causes friction of armature reduced. User could replace the wearing pieces
  - The electric brush is worn or in poor connection on its circuit. User could replace the electric brush in line.
4. The brake affects slowly, and the movable platen deviates obviously after emergency stopping. The causes and troubleshooting are as follows:
- The working clearance of clutch is so big as to decrease the elastic force of spring. Users could adjust the brake ring to control the clearance clutch within 0.3~0.4mm.
  - The spring inside the clutch does not work and then the brake pressure is not enough. In this solution, users could remove the armature and then check whether or not the spring is all right.
5. The bearings become hot, which is due to lack of lubricating oil. User should check the hot bearings and oil circuit first, and then clean oil circuit and refill it with oil.
6. The malfunction of electrical control circuit, which is usually caused by poor connection in circuits or inefficient components. Users could check it with the help of electrician, and then adjust the contactors or replace the electrical components



1. Comply with every rule and word in the operating instructions
2. Oil the lubricating parts with thin oil no less than two times every shift.
3. Check the working status of machine regularly. If there is something abnormal, stop the machine and repair it in time to avoid grave accident.
4. Keep the machine clean and fine.
5. Completely overhaul the machine and renew the grease of rolling bearings

once a year.

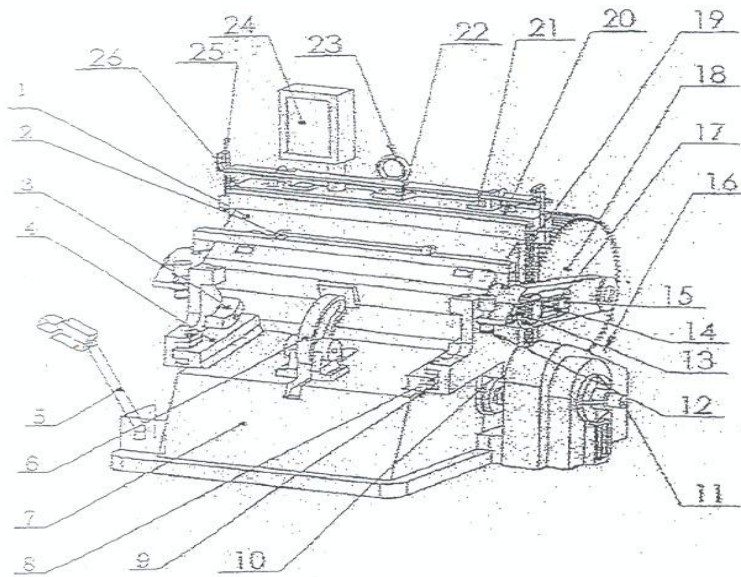


Fig.1 Structural Diagram

- 1.Movable platen 2.Idling handle 3.Circular slideway 4.Front slideway  
5.Brake lever 6.Curve ring 7.Base 8.Upper block 9.Lower block 10.Foot  
11.Drive shaft(first shaft) 12Automatic reset mechanism 13.Adjusting  
pinion 14.Front toothed bar 15.Back head plate 16.Motor 17.Connecting rod  
18.Crank gear 19.Baseplate 20.Platten frame 21.Clamping plate 22.Platten  
handle 23.Hanging ring 24.Control box 25.Front protective frame  
26.Triangle swing link

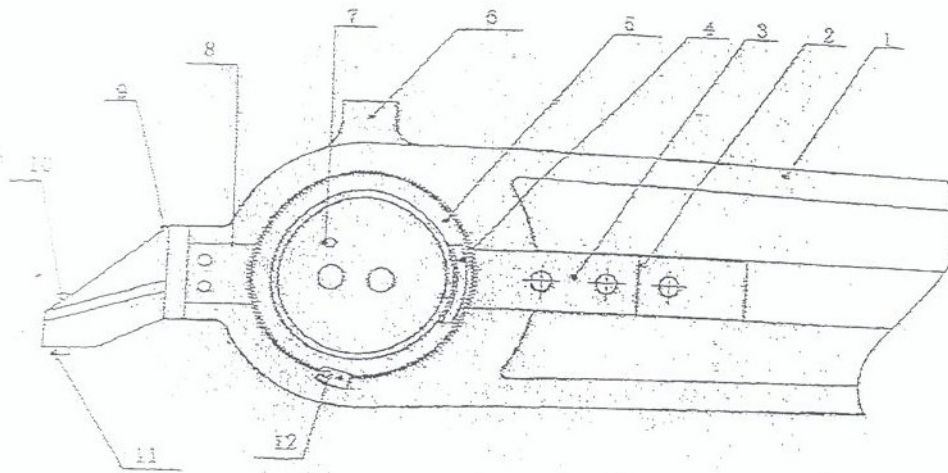


Fig.2 Eccentric Gear Adjustment

1. The adjustment of pressure(left and right).See Fig.2
  - a. Loose the screw of plate(2,3),move back the plate.Remove the top plate from eccentric gear part,and then loose the small tooth gear(8).User wrench adjust the small gear(6):on the graduation table, upper, means pressured lighter,adown means pressure heavier.
  - b. After adjustment do setup what have been removed just now.
  - c. After setup,hand handle one round to check the distance between screw and eccentric part.If too big of eccentric can not reach the normal place,please do adjust the distance of screw.Then powered again.

(left and right is the same as a,b,c)

2. The Method od adjustment of pressured of up and down.

Firstly turn the press plate to the top:

- a. Up light and down heavy loose (7),then tie two inner hexagonal screw(5).Then micro-move(4).Then micro-loose the inner hexagonal screws(1).Then tie(2)Move a little down(6).Same as left or right.Please be notice that.Keep the (8) can run.Can choose the ruler can fit it the up and

down of (8), then it is ok. Or you can use hand to touch (8) and feel it can run as normally, then it is OK.

b. Up light and down heavy loose (2), then tie two inner hexagonal screw (1). Then micro-move (6). Then micro-loose the inner hexagonal screws (5). Then tie (7). Move a little down (4). Same as left or right. Please be notice that. Keep the (8) can run. Can choose the ruler can fit it the up and down of (8), then it is ok. Or you can use hand to touch (8) and feel it can run as normally, then it is OK.

c. Normally we use putting something into or grinding (9) to adjust (8). (If has eccentric part, we can adjust it)

Notice: When adjusting, do keep the distance of (4) and (6). In order to avoid breaking (9) guide and (3)

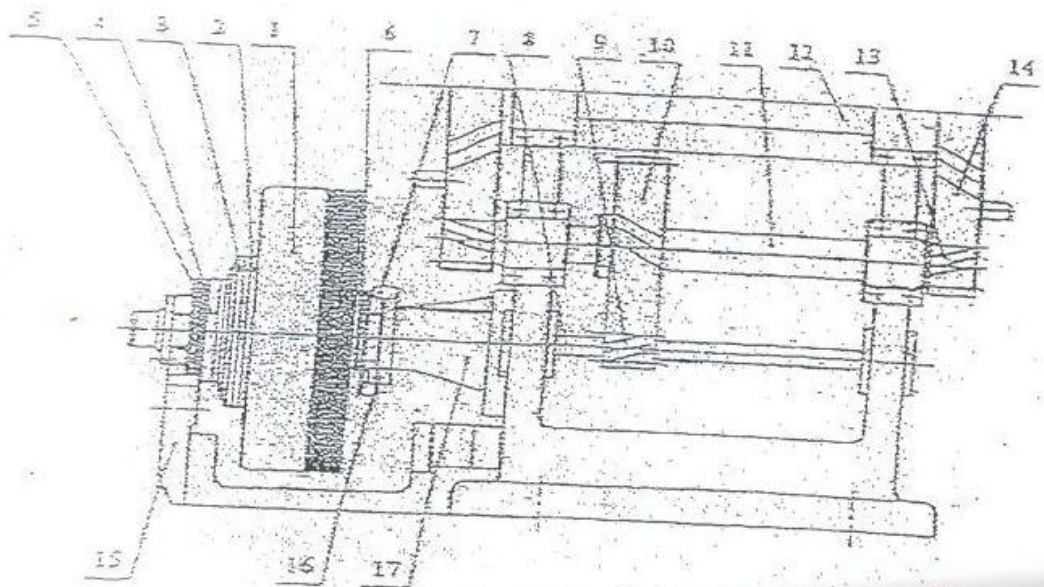


Fig. 3 Gear Drive Mechanism Drawing

- |                                |                              |                        |
|--------------------------------|------------------------------|------------------------|
| 1. Flywheel                    | 2. Magnetic                  | 3. Armature            |
| 4. Brake ring                  | 5. Adjusting screw sleeve    | 6. Electric brush      |
| 7. Brush ring                  | 8. Drive shaft (First shaft) | 9. Gear of drive shaft |
| 10. Gear of intermediate shaft | 11. Intermediate shaft       | 12. Main shaft         |

13. Pinion of intermediate shaft      14. Crank gear
15. Bearings seat      16. Earthing brush      17. Drive shaft

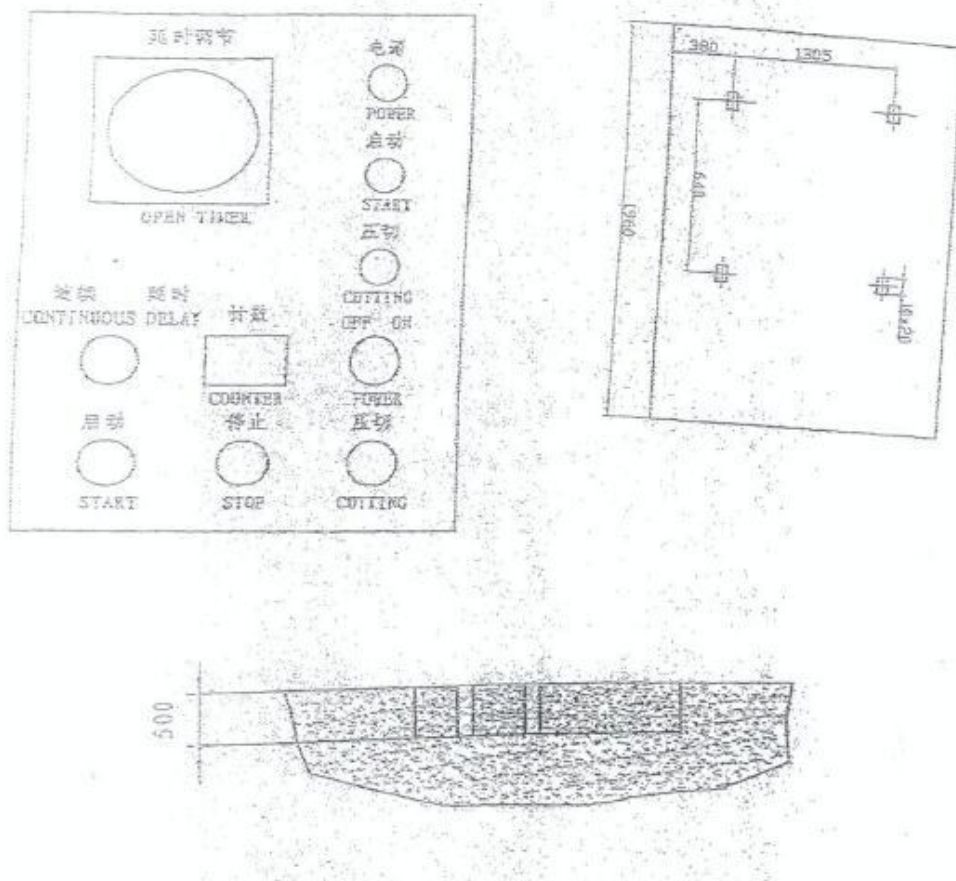


Fig.4 Drawing of Installation

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Ser.No	Code No	Name	Model and Spec
1	QF1	Circuit breaker	C45-3SP 25A
2	QF2	Circuit breaker	C45-1SP 10A
3	QF3	Circuit breaker	C45-3SP 16A
4	T	Transformer	JBK3-400
5	KM1,KM3	Contactor	3TB44,3TB43/36V
6	SA	Switch	3A
7	SQ1	Micro switch	LX19-001
8	SQ2	Micro switch	D4MC-5020
9	SQ3,SQ4	Limit switch	LXP2-20S/B
10	SA1	Rotate switch	LAY37-20X/21
11	SA2	Rotate switch	LAY37-11X/21
12	K <sub>A</sub>	Middle relay	3TH80-40-36V
13	SQ6,SQ2	Limited switch	LXK3-20S/B
14	KT	Time replay	JS11SX-36V
15	SB1,SB2,SB3	Push button	AN24
16	SB1,AB2,SB6	Push button	LAY37-20BN
17	VC	Commute bridge	25A
18	YC	Electromagnetic Clutch	
19	PC	Counter	JDM11-SH36V
20	HL1,HL2,HL4	Light	AD11-16/20

Table 2 Working Parts

Malfunction Status	Checking Method	Solve Method
1.The main motor is Ok,but machine not running	1.Checking LX19-001 2.XCKN2110P20C 3.Checking D4MC05020 4.Checking the electric line of these limited switch	1-3Remove the electric line of these two limited switch.Then connect it one by one,connect one pushthe button once.When you found which one is working,this one is broken.
2.The main motor is OK,but machine not running(when push button,but useless.Turn to “Testing”,the switch and clutch is OK)	Checking AN24 push button	Let 05—07 short circuit,if it is OK.Can decide the button is broken.Use the multimeter check AN24.
3. The main motor is OK,but machine not running	Check 3TB41	Use multimeter checking the voltage of the AC



when push button and turn to “Testing” but useless.Under this status,the middle reply can work,use hand push clutch and AC contactor,the clutch working		contactor
4. The main motor is Ok,but machine not running(Once push the button,the middle and AC REPLY can work,but the clutch not working	1.Checking C45-ip-16A 2. Checking silicon 3.Checking electric brush 4.Checking the clutch	
5.C45-IP-16A Circuit Breaker not working when electric connected(standby)	1.Checking silicon 2. Checking resistance of electric brush to earthed 3. Checking clutch	change

Table 3 Electric Parts

Malfunction Status	Checking Method	Slove Method
1.The light is dark,main motor not working	1.Checking the connection to the power 2.Checking C45-3P-25A	1.Use multimeter checking
2. The light is Ok,the main motor not working,But turn to “Testing””Running”,the clutch is OK	1.Checking “Stop ””Start” on the control panel 2.Check the switch of “Testing””Running” 3.Checking 3TB41AC contactor	1.Use multimeter checking or change. 2.Use multimeter checking or short circuit the”0”and “15” 3.Pushing “Start”,then check the voltage of the two sides of AC contactor

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3. The light is Ok,but the nachine can not working,	Checking C45-1P-16A	1.Use multimeter checking
4.Malfunction of counter	1.Checking the counter 2.Checking the limited switch of counter 3.Checking the point of earthed	

Table 4 Packing List

Box No:\_\_\_\_\_ Overall Dimensions (L\*W\*H):\_\_\_\_\_

Packing Mode:\_\_\_\_\_ Grass Weight:\_\_\_\_\_

Ser.No	Description	Spec	Qty	Remarks
1	Creasing and cutting machine		1	
2	Platen distance adjusting wrench		1	
3	Socket wrench		1	
4	“-”Screw Driver	6”	1	
5	“+” Screw Driver	6”	1	
6	Adjustable wrench	10”	1	
7	Inner hexagonal wrench	5mm	1	
8	Inner hexagonal wrench	6mm	1	
9	Inner hexagonal wrench	8mm	1	
10	Inner hexagonal wrench	10mm	1	
11	Electric brush		2	
12	Oil boat		1	
13	Wrench	17-19	1	

Packing Inspector:

Date:

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