

# **68E PAPER CUTTER**

double guide rail and slotless working table

# **SERVICE MANUAL**

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## SPECIAL WARNING

1. It is typically important for paper cutters to use the original fittings.
2. In this service manual, detailed directions are made for the use of the machine fittings user is concerned about, therefore, it is important for user to install and operate the machine correctly. Otherwise, the use of the machine will be effected, even body safety.
3. This machine is used for one person to operate, do not put hands under the knife and the clamping bar, otherwise, possible severe injury will occur.

## I . Brief Introduction

The paper pressing and cutting of machine is driven by hydraulic, it is good machine for cutting. It is used to cut small size paper, printed matters and other soft materials similar to paper, it is popular applied to office and light industry of printing.

Paper impeller is driven by the lead screw in the middle under the working table, transmitted by the two guides fixed under the working table in whose system the stiffness is strong, running process is easy. Vertical and parallel adjustment of paper impeller is achieved independently to make the accurate adjustment simple and workable.

The core part in the electrical control system adopts programmable logic controller (PLC) so that making the machine more stable and prolong its service life.

Photoelectric safety protector is adopted in this machine making the operation more safe.

In order to protect the working precision of the machine and prolong its service life, it is important for operators to read this service manual carefully.

## II . Main Technical Specification

1. Max. cutting width (mm) (in)	680mm 27"
2. Max. cutting length (mm) (in)	680mm 27"
3. Max. cutting height (mm) (in)	80mm 3-5/32"
4. Cutting speed (times/ min)	20time/min
5. Height from the floor to working table (mm) (in)	920mm 36-7/32"
6. Front extended length of working table (mm) (in)	530mm 20-55/64"
7. Max. Cutting pressure ( N )	10000N
8. Main motor	1.5Kw
9. Motor for paper feeding	0.4Kw
10. Total electric current	10A
11. Input Voltage	3Phases/220V
12. Dimension of package	1670×1370×1720mm 65-3/4" L × 54" W × 67-3/4" H
13. N. W. of machine	700KGS 1543 lbs

### III. Structure、operation and adjustment of machine

#### 1. Structure (diagram 1)

This machine is composed of electrical control cabinet、hydraulic control cabinet、main part and working table, and includes clamping bar system、cutting drive system、paper feeding system、safety system、digit-display system、hydraulic system and electrical control system etc.

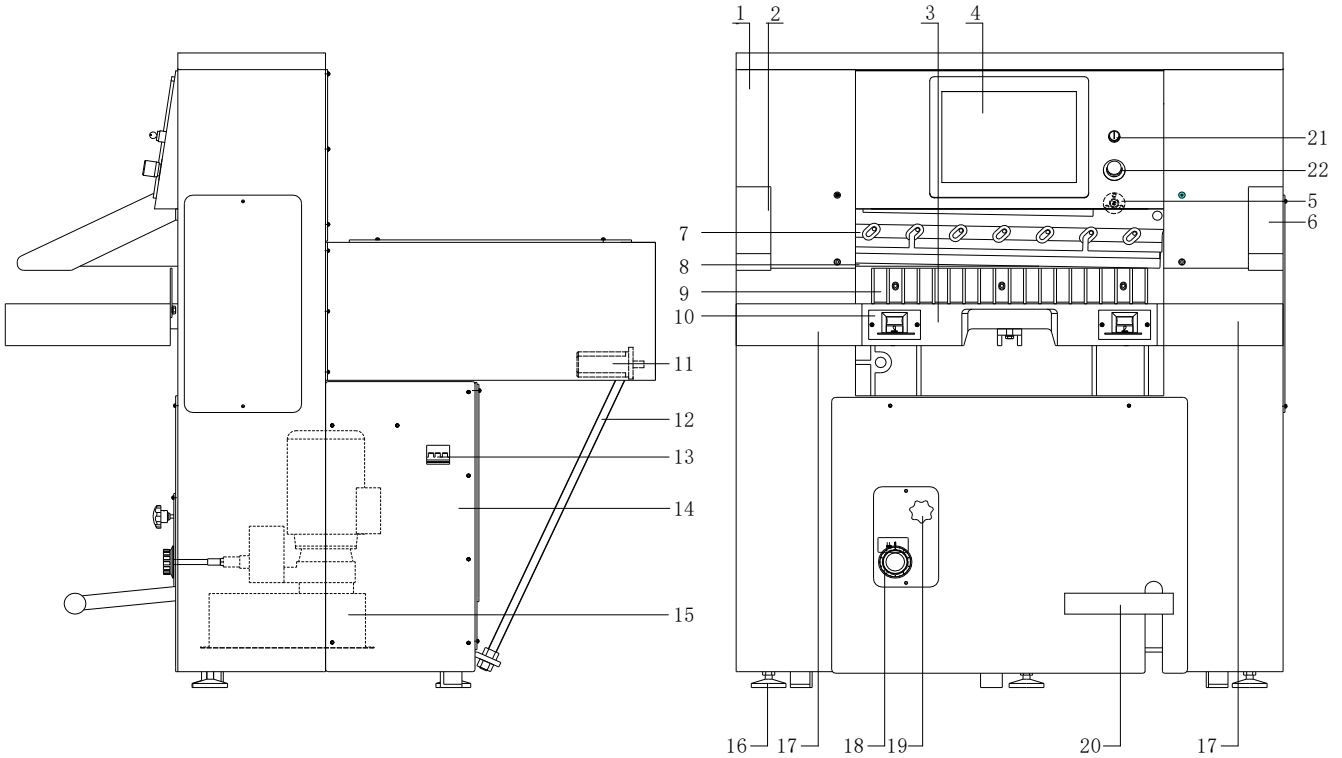


Diagram 1 schematics of paper cutter

- 1 machine body    2 photoelectric protective emission box    3 working table  
 4 full touch computer    5 eccentric shaft for adjusting knife    6 photoelectric protective receive box  
 7 knife bed    8 clamping bar    9 Paper impeller    10 cutting button    11 Servo motor  
 12 Support screw    13 Air switch    14 electrical box    15 hydraulic system  
 16 Foot support    17 side worktable    18 pressure hand wheel    19 Lock knife handle  
 20 foot pedal    21. power supply    22. Emergency stop

Eject rod of cutting stick

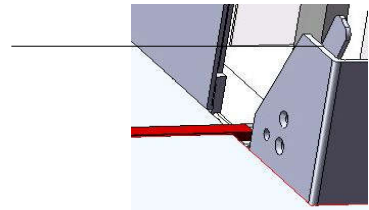


Diagram 2 Ejecting device of cutting stick

#### 2. Adjustment of Machine

##### 1). The adjustment of cutting stick

The cutting stick can be used in both sides for four times.

When the cutting stick is badly worn, you need to adjust the side of cutting stick or change it.

Using eject rod to push-out the cutting stick.(As shown in Picture 2)

After finished the replacement of knife, put the cutting stick into the groove from the front table. In that process the two ends of cutting stick should be put flat and then press cutting stick firmly into the groove.

##### 2). Knife adjustment

##### 1.1) Knife replacement (shown diagram 3)

Switch off the air(diagram 1.13), first dismantle the

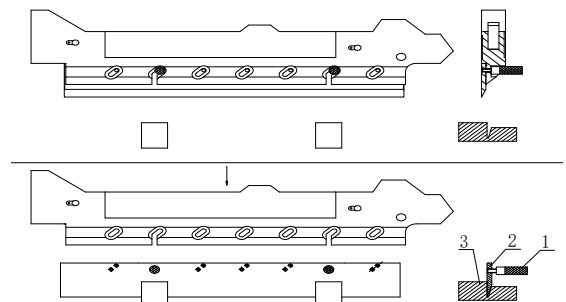


Diagram 3 schematics of knife disassembly

- 1.handle    2.knife    3.knife changer

second and forth screw,insert the handle (diagram 3.1) into the second and sixth hole and screw down,then dismantle other screws,then rotate the handle (diagram 3.1) anticlockwise, take down the knife, please note: buttress the knife to prevent hurting operator.

**1.2)Knife installation (shown in the diagram 4)**

Switch off the air,first wipe the grinded knife by the cloth, (if the knife edge is rolled up, please grind it by whetstone).Screw the handle into the second and sixth hole,then install the knife grinded well on the wood knife changer (provided by the factory), push the wood knife changer and the knife together to knife installation position in front of clamping bar, make sure that the hook hole of the knife is put onto the hook board, loosen the two handles on the knife, then rotate the wrench, insert the knife onto the knife bed and align with the screw hole, then install the screw and tighten. Take down the wood knife changer and wrench.

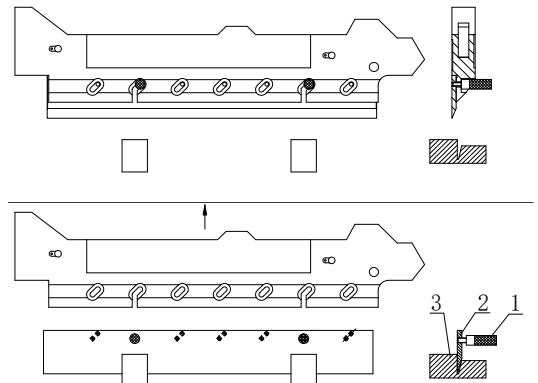


Diagram 4 schematics of knife installation  
1.handle 2.knife 3.knife changer

**Note:Do not put your arms under knife bed and clamping bar.**

**1.3)Knife adjustment**

Every time install the new knife, or old knife grinded, adjust the height of knife bed by manual in order to adjust the cutting depth of the knife. To avoid the new knife replaced causing accidents because of deep cut due to big height.

To determine the depth of cutting: Lock knife handle (Diagram 19). The clockwise rotation to the end, press the two hands cutting button,and stop the knife bed in the lowest position after one circle of cutting , Then observe if the cutting depth is normal(the normal cutting depth is about 0.5~1mm) ( 0-1/64"~0-3/64" ) . If the blade and the blade end contact, only can be adjusted through the eccentric shaft end knife in front of the machine bed outside hexagonal (Diagram 1. 5) solution; If can not meet the requirement

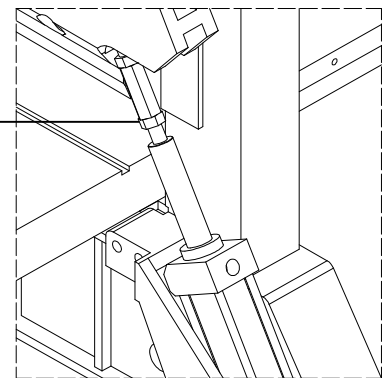


Diagram 5

**Knife adjustment**

of the cutting blade wear later, should loosen the install knife screw straight long hole direction along the blade knife bed down, until completely cut off the paper.

When the blade wears about 12 to 15 mm (0-15/32" to 0-19/32"), you should use the second row of screws hole in the blade. If the blade is worn and unusable after using the second row of screw hole , the blade should be changed. When changing the new blade, **Install new blade should be adjusting nut (Diagram 5) transferred to the largest position.**

**Note :**After adjusting the knife, the knife locking handle should be adjusted to the original position.

**3).Adjustment of paper impeller (shown in the diagram 6)**

The adjustment of the verticality between the paper push side and working table surface is achieved by adjusting the screw(**diagram 6.3**).Before adjusting, please little loosen the bolt (6) and screw (8), then rotate the screw clockwise to lift the end of paper impeller, the angle between the paper push side and working table surface reduces; anti-clockwise rotates,the angle expands.After adjustment, you should hold the screw first and fix the bolt (6) firmly, and then lock the two screws (8).

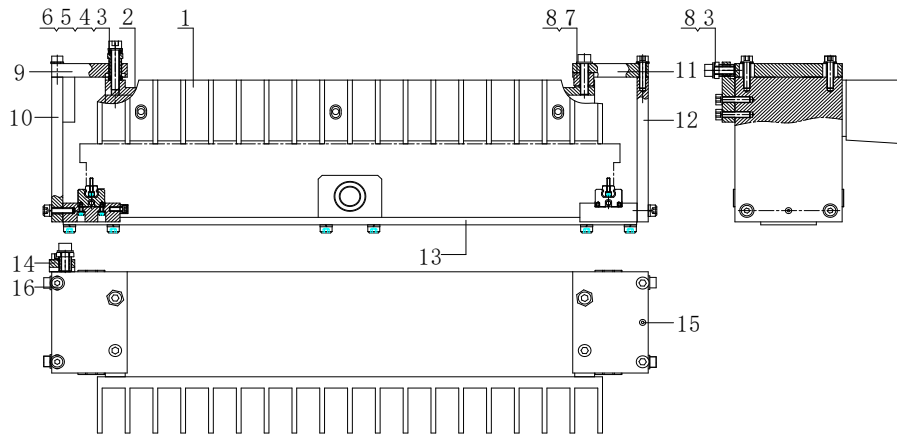


Diagram 6 Structure of paper impeller

- 1.Paper impeller 2.Paper shelf 3.screw for adjustment 4.conic gasket  
 5.ball gasket 6.Screw M10\*60 7.Support shaft 8.Screw M10\*40 9.Adjust block (left)  
 10. left support of paper impeller 11.adjust block (right) 12. right support of paper impeller  
 13 bottom frame plate 14.baffle 15.Cylindrical pin 16.Screw M8\*35

Regulation on paper and blade parallelism is by adjusting the adjusting screw (Diagram 6 side view 3), before the adjustment should be slightly loosen the screw (8) and two screws (16), then adjust the adjusting screw (Diagram 6 side view 3), and test paper with blade parallelism is qualified. After adjusted the need to hold the screw (8) and will tighten up the two screws (16).

The back limit of paper impeller is controlled by limit switch, front limit is controlled by PLC.

#### 4). Adjustment of main motor

When adjusting the tension of synchronization belt on working table, first loose the  $M8 \times 25$ , move the bottom board of motor right, the synchronization belt will tighten, otherwise, it will loose. when adjust to the position needed, tighten the  $M8 \times 25$ .

#### 5). The adjustment of the compression spring

This machine consists of three location with compression spring, Adjust the compression spring after easing tight degree directly affect the reset of knife bed and paper weight; Adjust the tight, Reset the better, Machine load is heavier (Should be properly adjusted).

**Note: the compression spring can adjust the minimal size (If beyond the limit of size, the machine will directly damage)**

- A) knife on the left side of the bed, compression spring on both ends of the smallest distance is not less than 160 mm (6-19/64")
- B) knife on the right side of bed, compression spring on both ends of the smallest distance is not less than 230 mm (9-1/16")
- C) paper weight, compression spring on both ends of the smallest distance is not less than 270 mm (10-5/8")

#### 3. The use of the machine

Encls computer manual

## IV. Electrical control principle

### 1. Power directions

The power supply is three-phase three-wiring 220V, 60HZ. Electrical current 10A, the voltage of electromagnetic clutch is DC 24V, photoelectric protective voltage is AC 15V.

### 2. Working principle of program controller

The machine adopts advanced alternating digit servo control technology, liquid crystal display screen, data resolution factor 0.01mm(0"), with self disturbance-diagnosis and running pattern display, dynamic cutting display, running situation, dynamic follow-up, and memory.

### 3. IR photoelectric protection device

The minimum distance between light beams in photoelectric protection device: 38mm(1-1/2")

Resolution factor of photoelectric protection device: 50mm(1-31/32")

In front of paper cutter installed IR photoelectric protection device, there are two photoelectric boxes, the left one sends out light beams to the right one which senses the left light beam, cutting control system runs normally. If the light beam is stopped, the power for control system will be cut off, the electromagnetic clutch switches off, worm brakes to stop the knife base running.



**Note: photoelectric protector is installed in the box where there are not parts available for user checking, so please do not dismantle or adjust it.**



**Warning: before running the machine and knife replace or after knife replacement in every shift, the efficiency of the photoelectric protector must be checked and make a report for that at a regular time.**

## V. Lubrication、Maintenance and care

**Be careful:** In order to ensure the paper cutter run well, keep the working precision and prolong its service life, you should lubricate it and clean it very often, this is very important.

### 1. Lubrication of paper cutter

Each lubricating position and method refer to attached diagram 7、8

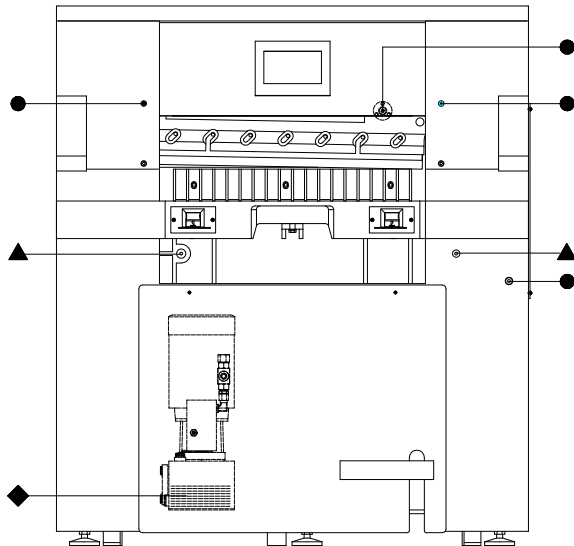


Diagram 7  
schematics of lubrication (front view)

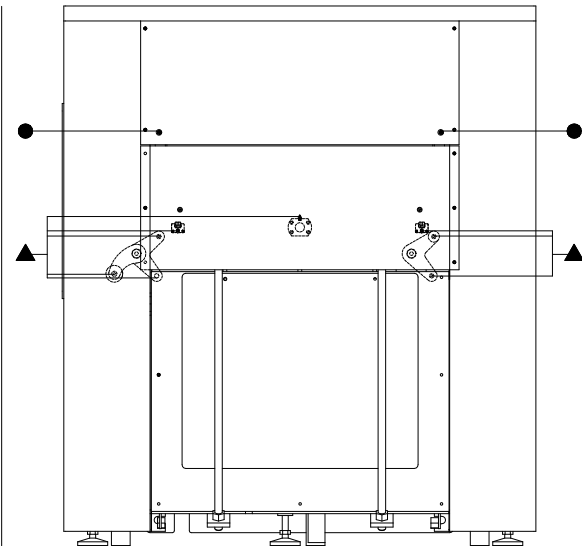


Diagram 8  
schematics of lubrication (back)

- add 3# lithium lubrication twice time everyday
- ▲ add 3# lithium lubrication one time each week
- ◆ add N32# hydraulic oil to oil scale level, replace each year

- 1) adopt N46 mechanical oil in oil lubricating points
- 2) 3# lithium grease for grease lubricating points



## **2. Maintenance and care**

1) before every shift (shift change or stop in midway then go on working), main parts in paper cutter should be checked and lubricated.

2) after every shift, do some cleaning to the machine, wipe its friction surface and lubricate them.

3) normally, complete cleaning and check should be made every two weeks.

4) if the paper cutter is not used for a long time, bright surfaces must be wiped clean, use some rusty oil, cover the machine with plastic cover

5) if the paper cutter is not used for more than three months, the rusty oil should be covered by moisture-proof paper.

6) when dismantling the paper cutter for checking and repairing, forbid to adopt unsuitable tools and operating methods.

## **3. Choice of hydraulic oil**

1) suitable working temperature for this machine: 5~35°C (41~95°F) , adopt L-HM46 abrasion-proof hydraulic oil.

2) oil temperature: 10~65°C (50~149°F)

if conditions do not meet the requirements, hydraulic oil used in hydraulic box is varied by the surrounding temperature and hydraulic oil of different viscosity is chosen. The volume of hydraulic box is 8 L, hydraulic oil should be changed regularly, at the first time, it should be changed after 200 hours, in future it is changed every half a year. When pouring oil, the oil tank and hydraulic components in it should be cleaned, the oil must be clean.

Remarks: because of continuous improvement on this machine, all the technical parameters are subject to change without any additional notice.

# Safety check routine after everyday shift and knife replacement

Date: year month day

Machine and its model		Serial No.	
Manufacturer's name			
User's name			
User's address			
Safety establishments	Checking information and measures to be taken		
Photo-electric protective device			
Cutting brake clutch device			
Cutting device operated by double hands			
Safety cover			
Single acted protective function			

Operator:

managed by

Note: 1. The qualified operator who should be trained before can do this work.

2. If in the above safety check any of one establishment can not obtain the requirement, the operator must report it to the person who is in charge and stop using this machine immediately.

3. The operator must finish safety check after everyday shift and knife replacement to keep the machine be a good state and avoid it damaged when it is working.

4. The above list must be signed by the person who is in charge for this work in order to monitor the working done successfully.

P.S: The two lists are drafted for your reference, and they can be designed by yourselves for your file.

## Safety check record after a quarter or half a year for paper cutter

Date: year    month    day

Machine and its model		Serial No.	
Manufacturer's name			
User's name			
User's address			
Safety establishments	Checking information and measures to be taken		
Photo-electric protective device			
Cutting, clutch, brake and driving device			
Safety device of knife bed and testing switches			
Cutting device operated by double hands			
The pressure of pressing paper (including Max or Min.)			
Time-relay knife replacement			
Single-run protection			
Other mechanical, pneumatic and hydraulic parts			
Other electrical parts			

Checked by the engineer: mechanical:

Electrical:

functionary in facility

department:

Note: 1. The engineer for this paper cutter should be qualified, who play an vital important role in using the machine checked. So his check and test must be serious-minded and strict. He must prevent there is any defect causing danger.

2. After the engineer who is in charge of this machine check it in the round, except he fills in the record, and makes a detailed written report to all the possible defects. He should urge to settle the problem and draw a conclude and keep the safety record.

3. The recorder should be signed and confirmed by the person who is in charge for the machine.



