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1. Safety precautions

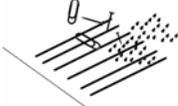
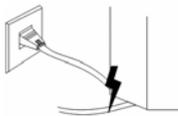
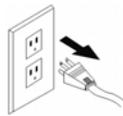
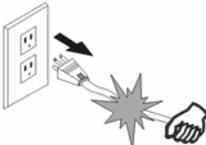
Definition of warning symbols:

	WARNING	Any improper operation possibly results in hazard of life or damage of equipment.
	CAUTION	Any improper operation possibly results in hazard of life or other objects.

Definition of sign symbols:

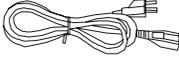
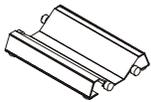
	The symbol is prepared to arouse operator's highly attention. The symbols in triangles specify the cases to be attentive. The symbol in the left warns you of electric shock.
	The symbol specifies the activities to be forbidden. The symbol in the circle specifies the acts to be forbidden. The symbol in the left tells you no detachment.

	WARNING
	Do not use the power source not meeting rating voltage, otherwise fire or electric shock may be resulted in.
	If the machine gives out smoke or unpleasing smell, or noise sounds please do not use it .in such cases, continuing using it may result in fire or electric shock.
	Do not put out the plug when the power is on to avoid damage to the machine.
	Make sure the machine grounded otherwise electric shock or mechanic default may be resulted in.
	Do not detach, repair or reconstruct the machine, otherwise fire, electric shock, hazard of life may be resulted in.

	<p>CAUTION</p>	
	<p>Do not leak any liquid or drop metal into the machine, such things may result in fire.</p>	
	<p>Do not touch the knife top with your finger to prevent injury or perspiration of knife head.</p>	
	<p>Do not damage or random replace the supplied power cable. Do not excessively bend, pull, bundle the power cable or place weight on it, otherwise the power source may be damaged even fire or electric shock is thus incurred.</p>	
	<p>If you are not going to use the machine for a long time, please unplug the power cable from the receptacle, otherwise fire possibly happens.</p>	
	<p>When operating the machine, do not place either of your hands on capstan to avoid injury.</p>	
	<p>Place the machine on a stable surface, otherwise the machine may fall therefore get damaged.</p>	
	<p>To unplug the power cable from receptacle, please hold the plug instead of the cable, strongly pulling of the cable possibly results in electric shock or fire.</p>	
	<p>Any operation is forbidden in case of storm or lighting to prevent damage of the machine.</p>	
		

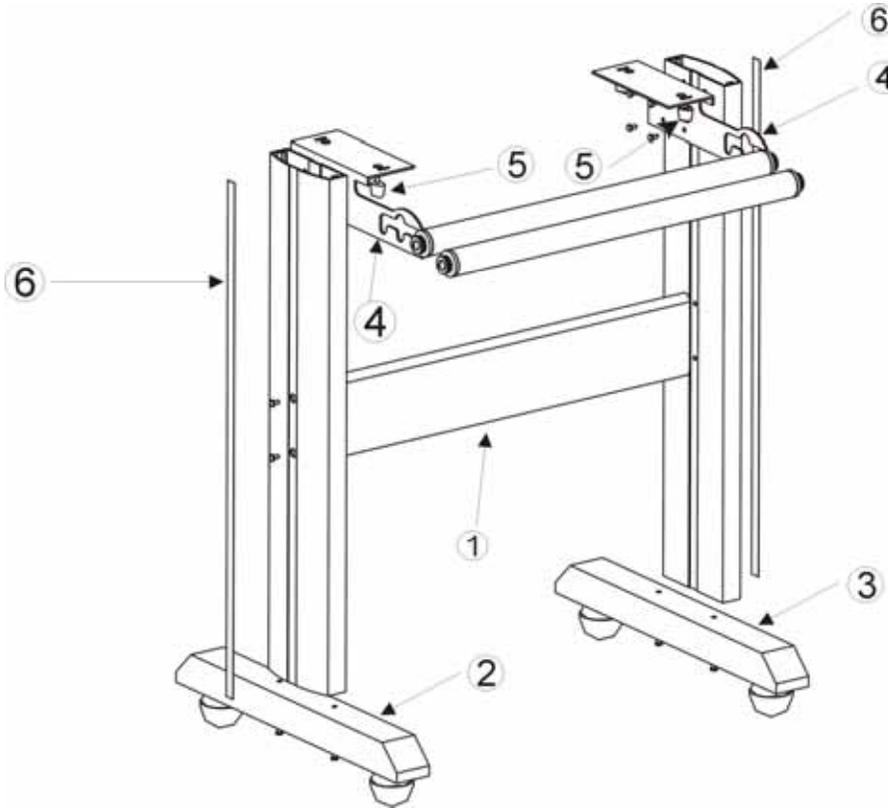
2. Standard accessories

Please first check following accessories after unpacking, please contact the seller or our company if you find anything missing.

Serial No	Item	Quantity	Icon
1	Power cable	1	
2	Signal cable	1	
3	USB Cable	1	
4	Plotting Pen	1	
5	Rotational blade holder	1	
6	High-speed tungsten steel blade	3	
7	Paper roll holder (standard with desktop machine)	1	
8	CD(Include operation menu and USB plug drive)	1	

Appendix: Vertical Foot Stool and Installation Sketch Map
 (Only used for the above 900 cutting plotters)

This image for your reference, please see the real stand.



- Assemble Carefully • Tighten All Screws Assembly Order
- Middle Cross Beam (Round Head Screw)
 - Caster Leg (Round Head Screw/Lock Washer/Flat Washer)
 - Caster Leg (Round Head Screw/Lock Washer/Flat Washer)
 - Brackets (Round Head Screw)
 - Baseboard Washer (Match With The Screw Of Baseboard)
 - Decoration Strip (After The Caster Leg Had Been Assembled Paste It In The Side Groove Of The Caster Leg)

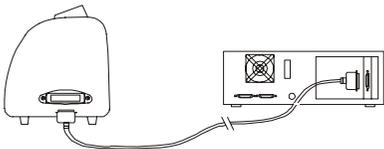
3. Basic operation

3.1 Installation and connections

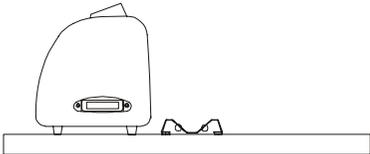
	WARNING	
	Make sure this machine is grounded, otherwise electric shock or mechanic default is possibly resulted in.	
	Do not use the power source not meeting rating voltage. Using the wrong power source may result in fire or electric shock.	
	Do not put out the plug when the power is on to avoid damage to the machine.	
	Place the machine on a stable surface, otherwise the machine may fall therefore get damaged.	

3.1.1 Place the cutter in a plane and roomy place.

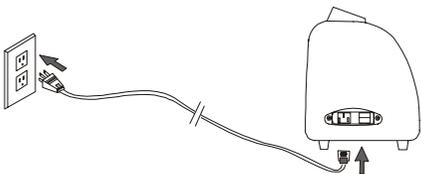
3.1.2 Connect the cutting plotter to the computer host by USB or RS232 single cable.



3.1.3 Place the bracket behind the host and ensure it is parallel to the host.



3.1.4 Check voltage of the power source and whether it is grounded, do not connect to power until all are in a good condition.



3.2 Installation of tool

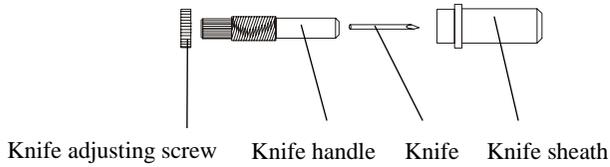
	<p>CAUTION</p>	
	<p>Do not touch the knife top with your finger to prevent injury or passivity of knife head.</p>	

3.2.1 Fit cutter into rotary tool, the knife and tool are as shown in following drawings:

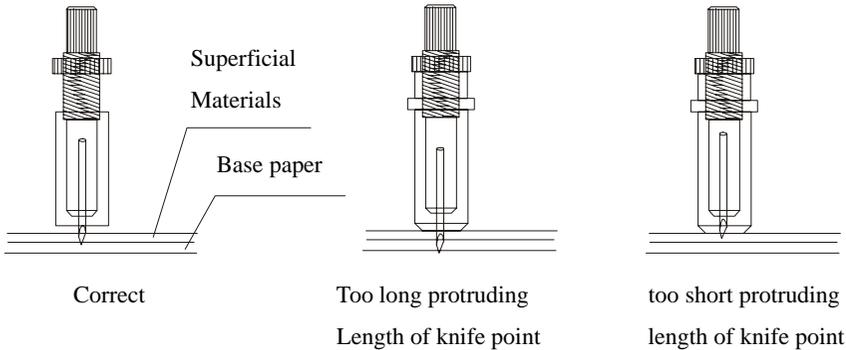
(Outside drawing)



(Exploded view)



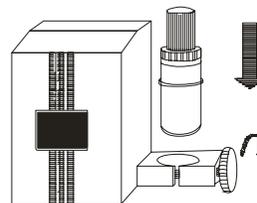
3.2.2 Adjust the protruding length of the knife top as required for specific cutting media.



3.2.3 (1) Loosen the screw of tool carrier.

(2) Assembly the tool with knife into the tool carrier.

(3) When the tool is in appropriate position screw it and fix the screw.



4. Features of interface

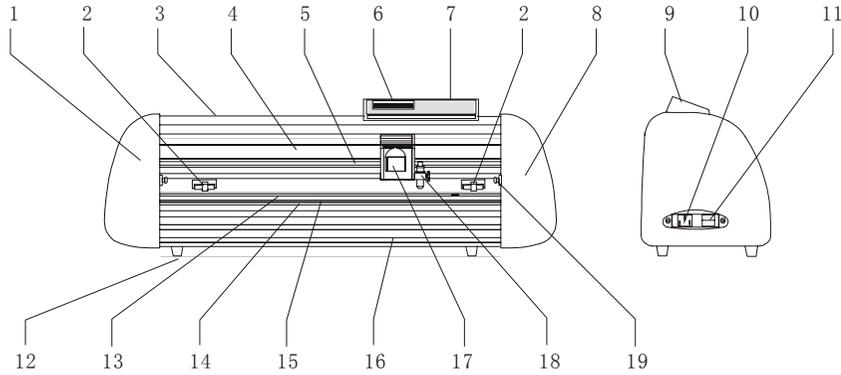
Cutting plotter provides an input interface, serial RS-232 interface or transfer USB to RS-232 interface, which is connectable with a wide range of computers.

Properly connect signal cable of the interface will enable the cutter accurately respond to plotting and engraving command from computer. Improper connection of the cable may result in trouble even lock up of the machine.

5. Cutting plotter operating instructions

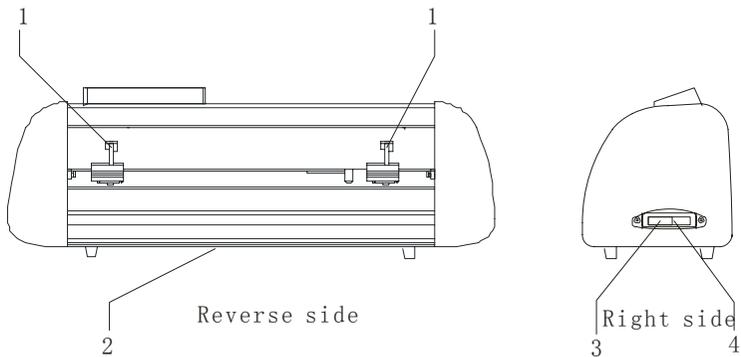
5.1 Names and functions of parts

5.1.1 Frontal view



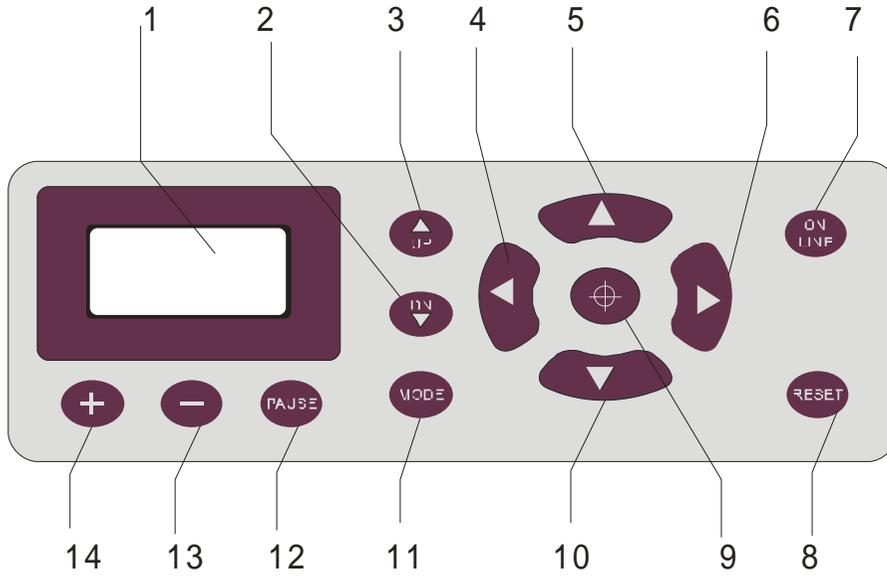
- | | |
|------------------------------------|--------------------------|
| 1. Left cabinet | 11. Power on/off |
| 2. Paperweight wheel | 12. Foot cushion |
| 3. Upper cover | 13. Y Transmission Shaft |
| 4. Beam | 14. Scale |
| 5. Tooth profile transmission belt | 15. Strip cushion |
| 6. LCD (Liquid Crystal Display) | 16. Trimming groove |
| 7. Control keyboard | 17. Slider |
| 8. Right cabinet | 18. Knife clip |
| 9. Keyboard base | 19. Reset |

5.1.2 Back view



- | | |
|--|---------------------|
| 1. Handle of paperweight wheel | 3. RS232 Receptacle |
| 2. Baseboard (containing main board, power source) | 4. USB Cable |

5.1.3 Control panel



- | | |
|----------------------------|--------------------------------------|
| 1. LCD Display | 8.Host reset |
| 2. Knife-dropping button | 9.Origin setting button |
| 3. Knife-raising button | 10.Paper-feeding button |
| 4. Leftward button | 11.Systemic parameter setting button |
| 5. Paper-withdrawal button | 12.Pause |
| 6. Rightward button | 13.Value + |
| 7. Online/offline button | 14.Value - |

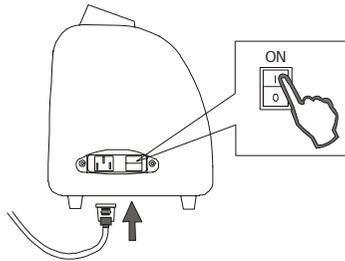
5.2 Basic Operation

	<p>CAUTION</p>
	<p>When switching on the power, make sure your hands and other articles are out of reach of such running parts as Main shaft and slider to prevent injury.</p> 

5.2.1 Turn on the machine

5.2.1.1 Check whether the power is in OFF position.

5.2.1.2 Plug the cable into the receptacle of the host power source, press the power on/off on the left.



5.2.1.3 LCD in the control panel is ON and displays the initializing process of the host and shows following information:

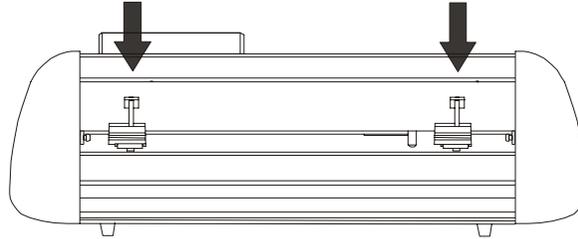


5.2.1.4 When the initializing is over, the machine is in online state and connectable with the computer to be operable.

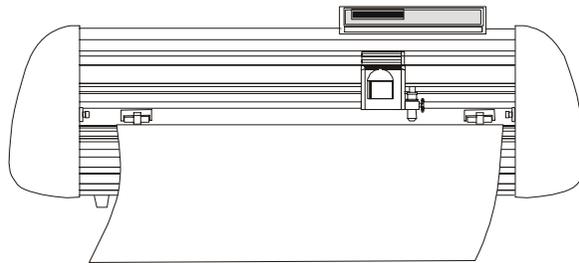
5.2.2 Installation of cutting media

This machine is suitable not only for single-sheet media, but also a roll of media.

- 5.2.2.1 Press down the handle of paperweight wheel behind the machine to raise the paperweight wheel.

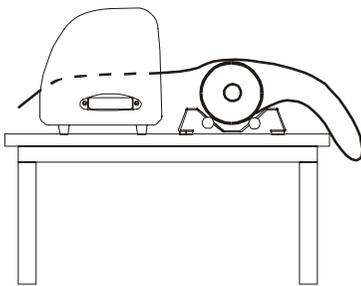


- 5.2.2.2 Insert the media into the space between paperweight wheel and main shaft, and pull out the media to appropriate length from the front of the host.



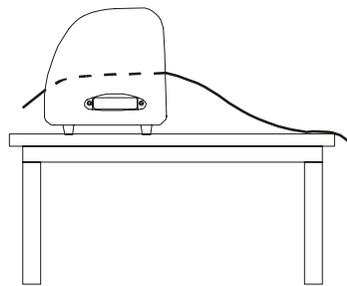
Using roll of media

Pulling it out to required length

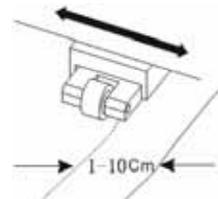


Using single sheet of media

Cutting required length from paper roll



- 5.2.2.3 Adjust horizontal position of paperweight wheel according to width of paper. a distance of minimum 1-10cm is set between paperweight wheel and paper edge to ensure good running of paper.



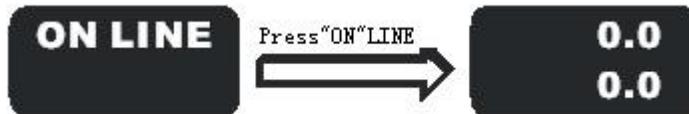
- 5.2.2.4 Raise two handles of paperweight wheel, to make paperweight wheel down to press paper.

5.2.3 Trial run (adjusting knife press and tool)

	<p>CAUTION</p>
<p>Do not touch the knife top with your finger to prevent injury.</p>	

Quality of knife immediately relates to cutting precision and life of machine. To better your work, please use the standard knives we confirm, but not those with poor quality.

5.2.3.1 Press “ON LINE” button to make the machine in off-line state.



5.2.3.2 While in off-line state, press “PAUSE” twice, the machine will automatically cut a small square from the media.

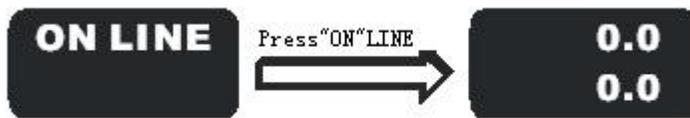
5.2.3.3 Take off the square, if you fail, the square need to be further cut, because the press is low or the protruding length of knife top is too short; If the base paper is pierced through, it signifies that the protruding length of knife top is too long and the press is too big. Adjust the protruding length of knife top and knife press according to result of trial run and the description of tool installation.

5.2.3.4 Press “+” or “-” to adjust knife press, for common materials the knife press value ranges from 100 to 120.

13 **5.3 Operating instructions**

5.3.1 On-line / off-line

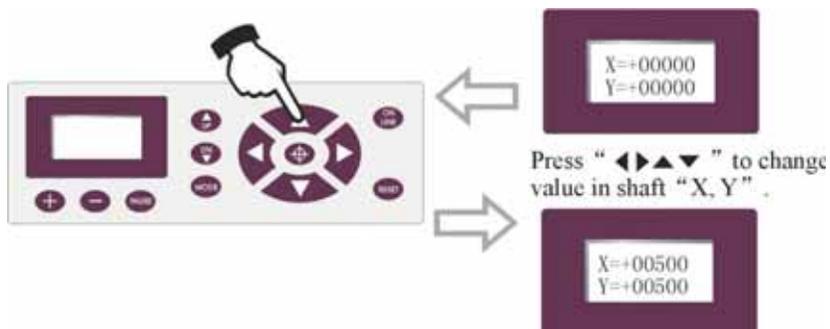
When the cutter starts reset, it becomes in online state. Press “ON LINE” to switch between online and off-line state. When computer transmits information to the cutting plotter, the cutting plotter must be in online state. However, when setting parameters for the machine or operating it by hand, you should set it in off-line state. The LCD will display the following information.



5.3.2 Moving knife top

While in off-line state, press “◀▶” buttons to move the slider leftward or rightward.

When pressing “▲▼” buttons the main shaft will rotate forward or backward, and the step value of “X, Y” in the LCD will change accordingly.



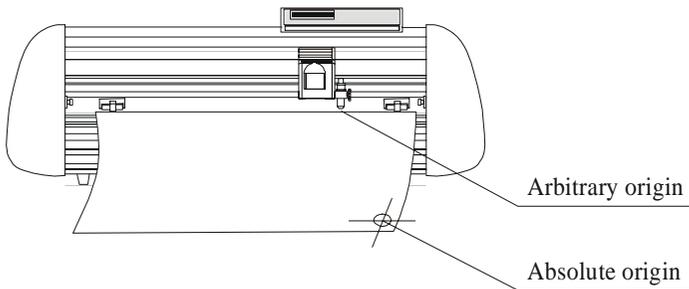
5.3.3 Setting origin of plotting

When move the knife top to the starting position, press the origin setting button “⊕”, the values of “X, Y” will be set as “0”, the setting of new origin is completed. The machine will start plotting from the new origin. To save the present origin please refer to chapter “saving and using relative origin”.

Setting arbitrary origin

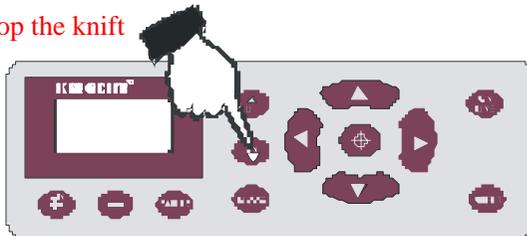


Relational map between absolute origin and arbitrary relative origin.

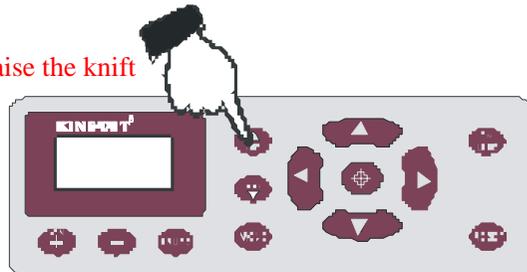


5.3.4 Raising knife, dropping knife

Press "⬇️" to drop the knife

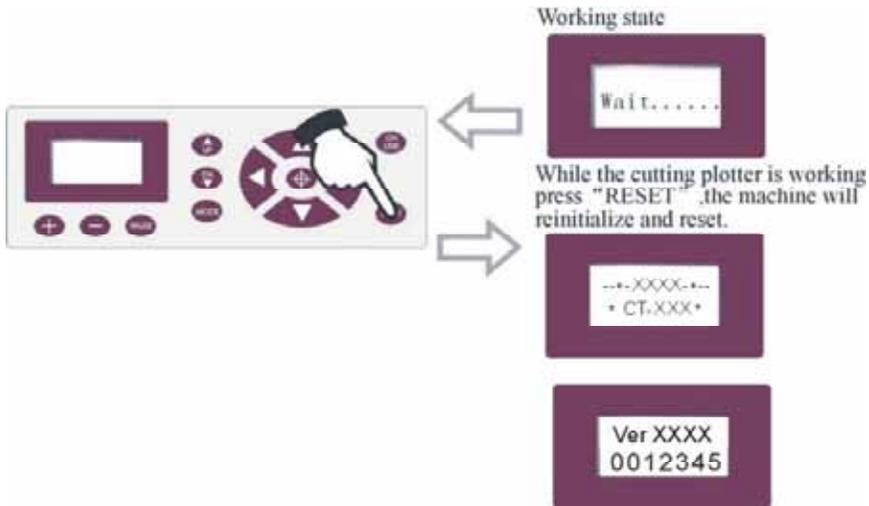


Press "⬆️" to raise the knife



5.3.5 RESET

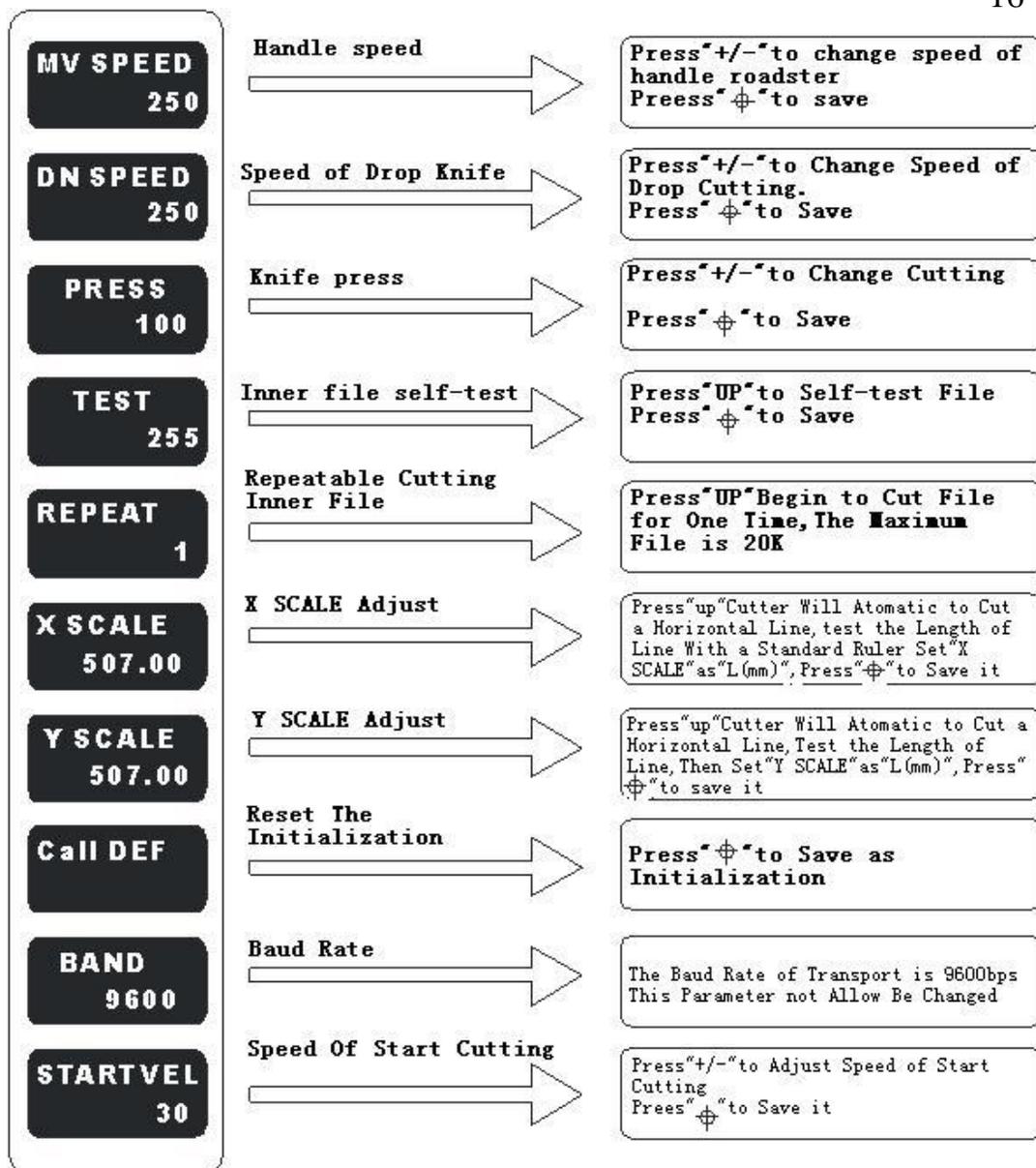
Press “ RESET” button, the machine will reinitialize, the present position of knife top will be set as new starting origin, all data in buffer memory will be cleared.



5.3.6 System setting and storage

While in off-line state, press “MODE” button to set system parameters, the LCD will display the options of system parameters.press “▲▼”can circulate among the potion, press “ +” or “ -” to change the parameter value of selected option. When the setting is completed, press “(+)” to save the setting value.

For example, in speed setting state:



"+" and "-" to change the parameters of system. "(+)" to save the setting value., press "MODE" button to escape setting mode in off-line state, When switching on machine next time, it will automatically call in the parameters which were set last time as default for starting up.

5.4 Technical features

Type	CT 24	CT36	CT48	CT 60
Maximum paper feed width	730mm	1000mm	1300mm	1625mm
Maximum cutting width	630mm	900mm	1200mm	1525mm
Backer and paper feeding mode	Table-type M paper feeding mode	Vertical feed paper foot stool		
Main board	16-bit CPU, 1Mb High-speed CACHE memory			
Control panel	Over-head,2*8Liquid Crystal Display,13-button touch thin-film keyboard			
Drive	Main shaft double high torsional motor, micro-step and subdivision driving			
Positioning mode	Bounded system, arbitrary origin setting,10 Couple origin saving and transfer			
Maximum cutting speed	260mm/s			
Maximum cutting thickness	1mm			
Knife press	0-500gf (digital adjustment)			
Mechanism precision	0.025mm			
Repeatable precision	$< \pm 0.2\text{mm}$ (3m)			
Type of tool	Sweden sandvik hard alloy steel knife			
Type of plot pen	Atom plot pen and poster pen with a diameter of 11.4mm, watery or oily			
Plotting instruction	DM-PL			
Interface	Standard RS232 (serial) / USB			
Power source	(AC220V~110V) $\pm 10\%$, 50Hz~60Hz			
Power consumption	$< 100\text{VA}$		$< 120\text{VA}$	
Operating environment	Temperature: $+5^{\circ}\text{C}$ ~ $+35^{\circ}\text{C}$, relative temperature30%-70%			
Package size	1030x375x380mm	1292x375x451mm	1590x375x451mm	1980x415x520mm
Transporting weight	17.8kg	32kg	38kg	65kg

No further notification will be given if any of the above parameters changes.

6. Troubleshooting

6.1 Question: why can not the knife in the knife seat be pulled out sometimes?

Answer: as the knife sheath is made of accurate size, fineness of handle and conical degree

of knife tail are important factors to guarantee flexible rotating of the knife. Use of the knives other than we have confirmed possibly result in permanent damage of precise parts in the sheath. When encountering such problems, please consult the designative seller or maintenance center.

6.2 Question: will the characters below 1CM be deformed?

Answer: when graving small characters, please set sharp-angle compensation in the software, for example, in Wentai plotting software:

- (1). Click "plotting output" once, a plotting output picture will pop up.
- (2). Click "set" once, a picture of setting plotter will pop up.
- (3). Click "compensation setting", a dialog box will pop up.
- (4). Select "sharp-angle compensation", adjust the value to required level.

The compensation ranges within 0.1 0.7, more often we set it to be 0.25. in addition, the plotting speed of the cutter shall be set below 20.

6.3 Question: why do the paper deviate when it runs by a large margin?

Answer: the paper feed bracket containing paper roll shall be completely parallel to paperweight wheel, for big roll of materials, loosen it prior graving to prevent excessive obstruction when plotting or graving. For the machines with four paperweight wheels, when plotting big image or characters back and forth, use the two paperweight wheels at sides instead of press the four down simultaneously. Unequal abrasion of the two wheels also may

result in deviation of the paper; in worse case replacing wheels is needed.

6.4 Question: why does lock up happen in plotting output?

Answer: (1). Exterior input voltage is too low, the plotter will restart thus lock up happen.

(2). When disturbance of exterior input voltage is too high, lock up may happen, to resolve it you can use purified regulated power source.

6.5 Question: Why does the machine feel tingle?

Answer: the machine might be improperly grounded, make sure central line of the power source grounded.

6.6 Question: why does the job feel not smooth with sharp-angle raised when plotting?

Answer: (1). The protruding length of knife top is too long, please adjust it as required.

(2). The knife is abraded, replace it.

6.7 Question: why does the plotter first scratch a line before plotting?

Answer: because the machine illegally escape last time, there is still knife-dropping instruction existing in the memory of plotter. To resolve it power off the machine and turn it on again.

6.8 Question: No LCD display or a black row of blocks are displayed?

Answer: (1). In case of no display, check whether the power work well.

(2). If black blocks are displayed, check whether voltage is at required level. If troubles remain after the above operation, please contact maintenance center.

6.9 Question: why can not some characters close in strokes when it is plotting?

Answer: because the knife of the plotter is eccentric knife with a eccentric value, to resolve it, set "closing compensation" in the software. For example: in Wentai software:

(1). Click "plotting output" once, a plotting output picture will pop up.

(2). Click "set" once, a picture of setting plotter will pop up.

(3). Click "compensation setting" a dialog box will pop up.

(4). Select closing compensation, adjust the value to required level, generally the value is set to be 0.5.

6.10 Question: Why the machines have missed some pave of letter when cutting?

Answer: (1). Check the machine if it presses enough.

(2). Reinstall the software.

(3). Chook the head of the knife.

(4). If the problem is still in existence, please contact with repair center.

6.11 Question: why do some nicks deep, while some shallow when cutting?

Answer: as CT employs upscale soft PVC materials as knife strip cushion to protect knife. But long period using it may produce a trace therefore roughing the stripe cushion, so some nicks become deep, while some become shallow. To resolve it replace a stripe cushion. If is not so worse, adjust knife as described in section 3.2.B, increase knife press (some 120 -150).

6.12 Question: why can not the plotter run when it is outputting?

Answer: (1). Check whether the plotter is properly connected with computer. CT is connected with COM1 or COM2 of computer; check whether the set ports are conformed to those connected.

(2). Check whether the plotter is in online state, namely whether the LCD displays "ON LINE".

(3). Check whether the encryption card of software is properly. If not please turn off the power and reinstall it. Check driving program of the plotter is for CT series.

6.13 Question: why can not the instant-glue be taken off?

Answer:(1). Perform trial run prior output, adjust press to appropriate level.

(2). Check whether the knife is used too long, or whether the knife top is broken. For new ones the nick is thin in the instant-glue, while for old ones the nick is thick and impressive. To resolve it replace it with a new knife.

6.14 Question: what is attentive when cutting big characters?

Answer: (1). When cutting big characters, the system can automatically How to setup page, you can cut a big character in several pages, but it is notable that the setting of output width shall be conformed to the width of instant-glue in addition, when cutting big characters and output it, you should widen pages or set seaming distance.

(2). When you use the special wide machine to cut the big characters, especially the long big characters Before cutting input, you shall instead the paper first look careful the paper if the paper deviates then deviate the big characters into some pouts to input, it can make sure it won't deviate and waste paper.

6.15 Question: how do we maintain the plotter?

Answer: CT series plotter all employ upscale oil bearing from Japan, no oil is needed even it works for a long time.

After operation everyday, clean the dust with soft brush. The glue remaining in engine base can be cleaned with alcohol. If frequently operated in

dusty environment above two years, please have maintenance technicians clean the dust in machine. If plotting precision degrades, the maintenance of running parts are desirable (firming and replacing the abraded parts).

6.16 Question: Why does the plotter is out of our control sometimes?

Answer: maybe while transporting or using it, the signal line is improperly connected, open the machine properly plug all lines. If the problem still fails to be solved after the above operation, please contact local agent or maintenance center.

6.17 Question: Why does the plotter come to halt?

Answer: because it encounters vibrate for a long period, or has been used for a long period, or is affected by temperature, so dielectric displacement happen to the servo driving board, therefore resulting in halt, please contact local agent or customer maintenance center.