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Operation Manual

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1 Introduction

Machine Features:

1. Suitable for cutting various materials, from mild steel to stainless and copper.
2. Cutting length accuracy of $\pm 0.1\text{mm}$.
3. Cutting capacity up to OD 110mm.
4. Standard with speed inverter for speeds of 30~120 RPM.
5. Rigid and reliable clamping vise provides secure material holding and higher accuracy.
6. Error display on control panel for easy troubleshooting.
7. Digital readout and parts counter for automation and short setup.
8. Fully automatic hydraulic system. (Cutting + Feeding + Clamping)
9. Optional feeding lengths up to $1000\text{mm} \times 3$ strokes. (Standard 10mm~600mm)
10. Vertical sliding saw head ensures stable and precise cutting.
11. Backlash eliminating device prolongs the life of saw blade.
12. Counter balance system for maximum stability through the entire cut.
13. Patented floating feeding carriage for superior cutting length accuracy and smooth material handling.
14. Circulating cooling system results in smooth cutting surfaces and longer blade life.
15. Electronic saw blade protection system and cover for safety.
16. Built-in chips tray for convenient cleaning and maintenance.

2 Safety Precautions

2-1 Introduction

1. Machine operators must read the manual thoroughly, and fully understand the functions of the machine and its safety requirements before usage.
2. No one other than qualified operators should operate the machine.
3. This machine design has complied with safety requirements of your company. In case of any concern, check on the detail of each requirement as needed.
4. The operator should check to ensure that the machine is connected to proper power source before usage.
5. Depress emergency stop button and shut off power source if any unusual situation occurs during usage.
6. Un-plug power source while installing, dismantling, maintaining, or adjusting the machine
7. During the process of adjusting or testing the machine, if the electric power needs to be on, the operator should pay extra attention to the action of automatic mode to ensure people safety.
8. Keep the machine and its surrounding clean and bright to ensure operation safety.
9. Maintain the machine periodically to ensure normal functions of each part of the machine.
10. Do not operate the machine beyond its specifications.
11. Do not remove or alter any safety protection part of the machine, such as saw blade protection cover, operator safety cover, emergency power switch etc.
12. The operator must wear eye protective goggle while operating the machine.

2-2 Personal Protective Equipment

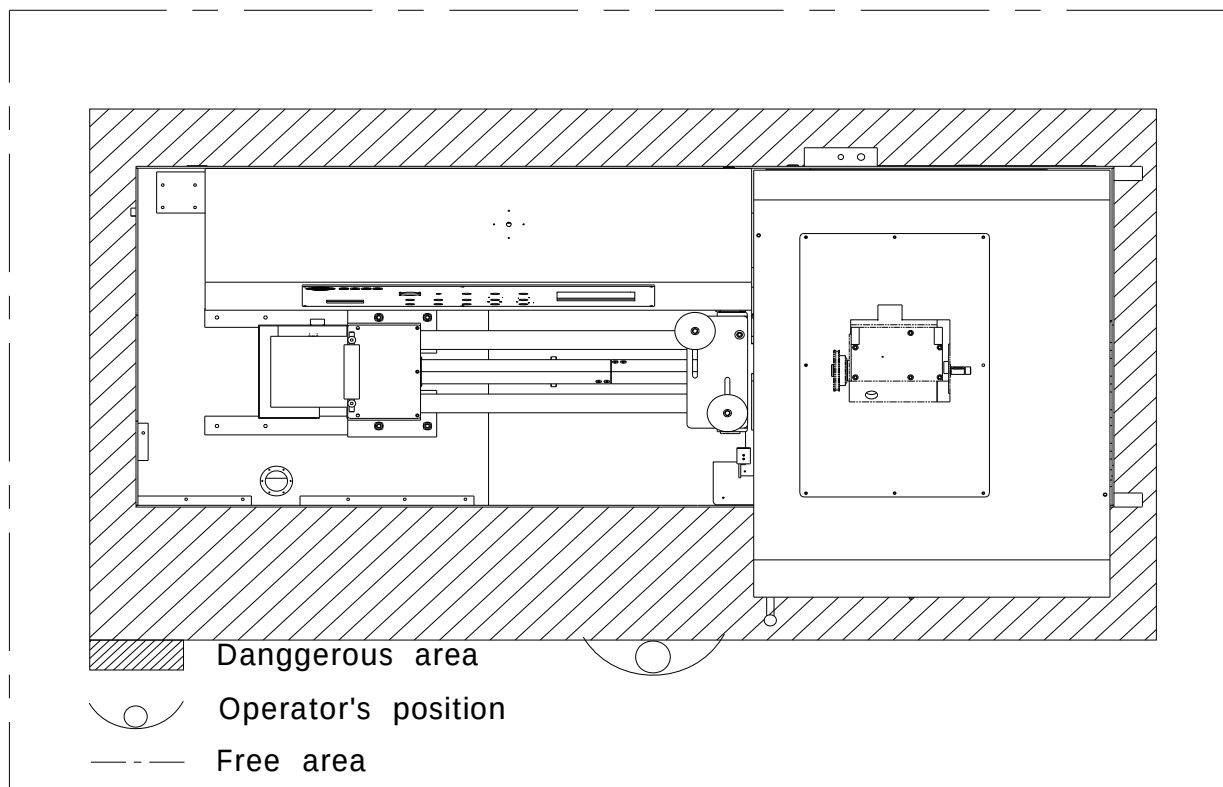
1. Operators and maintenance personnel carrying out various operations on the machine must used personal protection equipment, e.g. goggles, boots and gloves to eliminate the possible risks related to the various activities being carried out.
2. The clothing of machine operators and maintenance personnel must comply with the essential safety requirements specified in community Directives 89/656/EEC, 89/686/EEC and laws in force in the country where the machine is installed.
3. Do not wear accessories or jewelers, including bracelets, watches, rings or necklaces, when carrying out maintenance operations in which operation in unprotected area is required to avoid mechanical risks, such as dragging, entrapment or other.

4. Wear safety boots and protective gloves during all working phases and when changing the tools, filling the tubes, handling cut parts, setting the machine and carrying out maintenance operations.

2-3 Danger Zones-Workplace-Free Space Around The System

The operator's workplace and the necessary free space around the system to ensure regular activities related to the machine.

A free space of at least one meter around the entire perimeter of the machine is required to ensure safe operation.



2-4 Safety Installation Standard

1. Never approach the machine action area while the machine is under operation (machine power on).
 - Set up the action area before processing the machine installation.
 - Set up the action area is absolutely required to ensure the safety and proper maintenance.



2. It should stop the machine running to ensure the operator safety while operator approaching under the machine operating condition. Always remember to setup safety device according to the action area decided in item (1) before start to operate this machine.
3. Do not install safety devices inoperable machine.
4. Electric shock, fire, and malfunction could happen due to machine operation around environments of high temperature, multi temperature, irritating and corrosive gases, vibration, and shocking.
5. Never put wire leavings, cutting dust, workpiece and other foreign matter inside the machine that may cause fire, malfunction and machine fault.
6. Machine electric power consumption: Always set up the input power capacity more 20% higher than the rated power consumption value. Marginal or insufficient input power supply capacity may cause fire or machine fault.

2-5 Safety Devices

2-5-1 Emergency stop buttons

1. Red emergency stop mushroom buttons are arranged on the machine.
2. Press one of the mushroom buttons to stop the machine in an emergency. The buttons operate a safety circuit and block all movements.
3. Carry out the following procedure every 200 hours to test correct operation of the emergency stop circuit:
 - a. Start the machine.
 - b. Press an emergency stop button.
 - c. Reset the emergency stop button.

Repeat this procedure for all emergency stop buttons. You will not be able to restart the machine if the emergency circuit fails.



2-5-2 Limit Switch

Moveable guards are fitted on the machine to prevent access to dangerous areas. Each guard is equipped with a safety limit switch.

Movements in the area which can be accessed when the guards are released and/or open cannot be started.

Carry out the following procedure every six months hours to test correct operation of the guard circuit:

1. Start the machine.
2. Open the guard.
3. Close the guard.
4. Start the cycle.
5. Stop the cycle.

You will not be able to start the cycle if the guard circuit is broken. Inspect to identify the failure.

2-5-3 Power switch

To disconnect main electric power when it is placed at ON position. For maintenance, you should turn it to OFF position then could open this electric box door.

2-6 Operating 、 Running

Please reading the manual in advance and operating this machine according to the manual instruction.

★ **We will not be responsible for any operating accident due to the customer unauthorized remodeling or adding any additional device.**

1. Operation, always arrange single operator to operate this machine. It is very dangerous to have multiple operators operating this machine in the same time. Please absolutely avoid doing it.
2. Never let hands or body near and inside the machine running partitions. It is very dangerous and please absolutely avoids doing it.
3. Always turn off electrical motor and confirm the machine stop before replacing die. It is very dangerous to do this without turning them off. Please absolutely avoid doing it.
4. Always confirm that there is no tools, fixtures, or any other unnecessary things inside the action area before operating this machine, otherwise machine failure or human injury may happen. Attention required, please.

2-7 Maintenance 、 Inspection

1. Never disassemble and remodel any component of this machine, otherwise it may result in fire, machine failure and malfunctions.
2. Never do directly welding on this machine; otherwise it may result in machine failure and malfunctions.
3. Always cutoff the power supply and wait for 5 minutes before loading/unloading and replacing any components, otherwise it may result in electrical shock or machine failure.
4. Always cutoff the power supply before performing daily inspection, otherwise it may result in electrical shock in the power on condition.
5. In order to avoid non duty person turning on the machine power during the machine maintenance and inspection periods, please paste a warning sign of “No Power On” or “Power On Forbidden” beside the machine primary power at the machine power control panel, otherwise it may result in electrical shock or human injury.
6. Never load or unload any wire, baseboard, and connectors while machine is power on, otherwise it may result in electrical shock, machine failure and malfunctions.
7. Please confirm that every bolts installation, applying tools collection and cover doors

of control panel and machine are all well arranged after maintenance and inspection work finished, otherwise it may result in electrical shock, fire, human injury or machine malfunctions.

2-8 Warning Plates and Warnings

The form and contents of warnings are described in the following.

No	DRAWING	EXPLANATION
1.		● Always wear earplug when operating machine.
2.		● Always wear goggle when operating machine.
3.		● This symbol indicates operators should aware of saw blade edge to prevent cutting injuries happening. When changing saw blade, make sure main power is turn off.
4.		● This symbol indicates there are high voltage electric facilities with potentially danger and may cause risk to the life and health of individuals. Do not remove this cover without disconnecting main power supply. Not observing these notes may result in injuries. ● Only opened by qualified electrician. Avoid electric shock.



3 Machine Specifications

Please consult appendices 10-2.



4 Installation

Please read the instruction carefully before installation.

If having any question please contact your dealer for prompt service.

4-1 Unpacking and Inspection

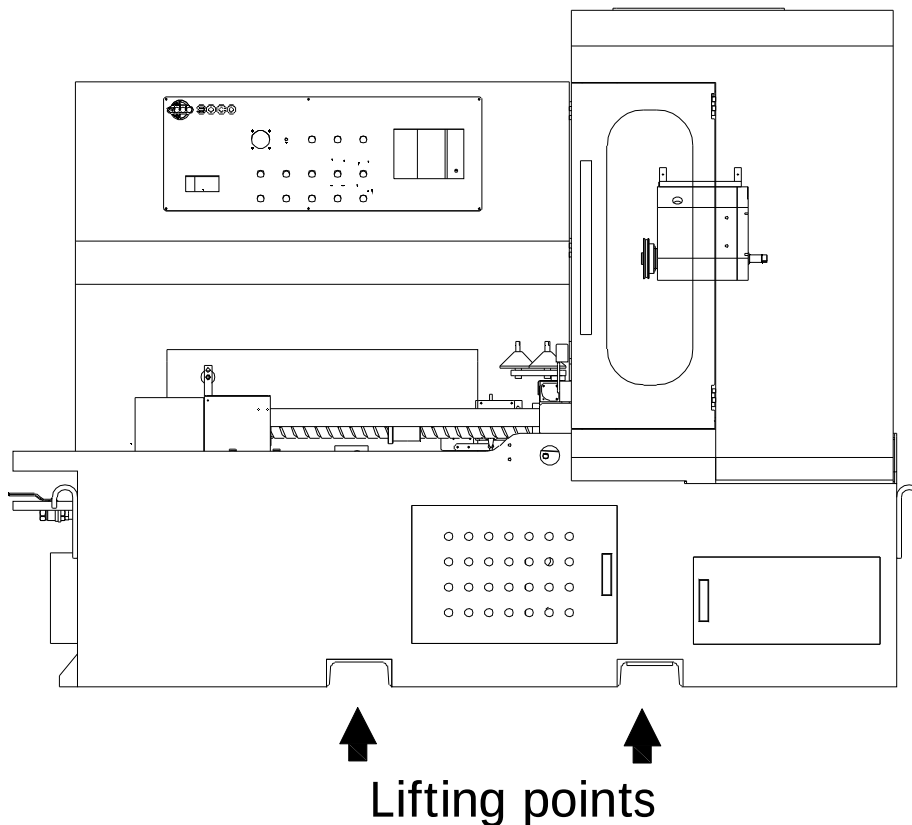
1. Check if there is any damage on the wooden case or the plastic bag that used to pack the machine. Should any damage be found on the machine, please claim for the damage against the delivery or insurance company.
2. Check the machine and accessories against the packing list. Should any shortage, please contact your dealer.

4-2 Handling, Lifting, Transporting and Unloading Procedure

4-2-1 Preliminary operations

Follow the preliminary lifting activities listed below before handling the machine:

1. Suitably lock all parts.
2. Remove all tools from the unit, where relevant.
3. Arrange the units so that they are balanced.
4. Fasten the keys of the power enclosure, the machine control panel with suitable adhesive tape.



4-2-2 Lifting the machine

The main component lifting points are show below.

Use a forklift to lift the machine. The operator must be qualified and capable of carrying out the task.

Lift the machine a few centimeters and check that the load is balanced.

Lift the machine after making sure that it is perfectly balanced.

The maximum component weight is of the parts of the machine for transport is shown in 10-2. Table of the Machine data. Make sure the forklift's capacity is enough to lift the machine.

The presence of at least two workers is recommended when loading and unloading the machine: one person will operate the forklift and the other will check the lifting making sure that the machine dos not collide with other objects.

Workers will keep a safety distance greater than 2 meters around the machine when it is lifted for higher than 50mm.

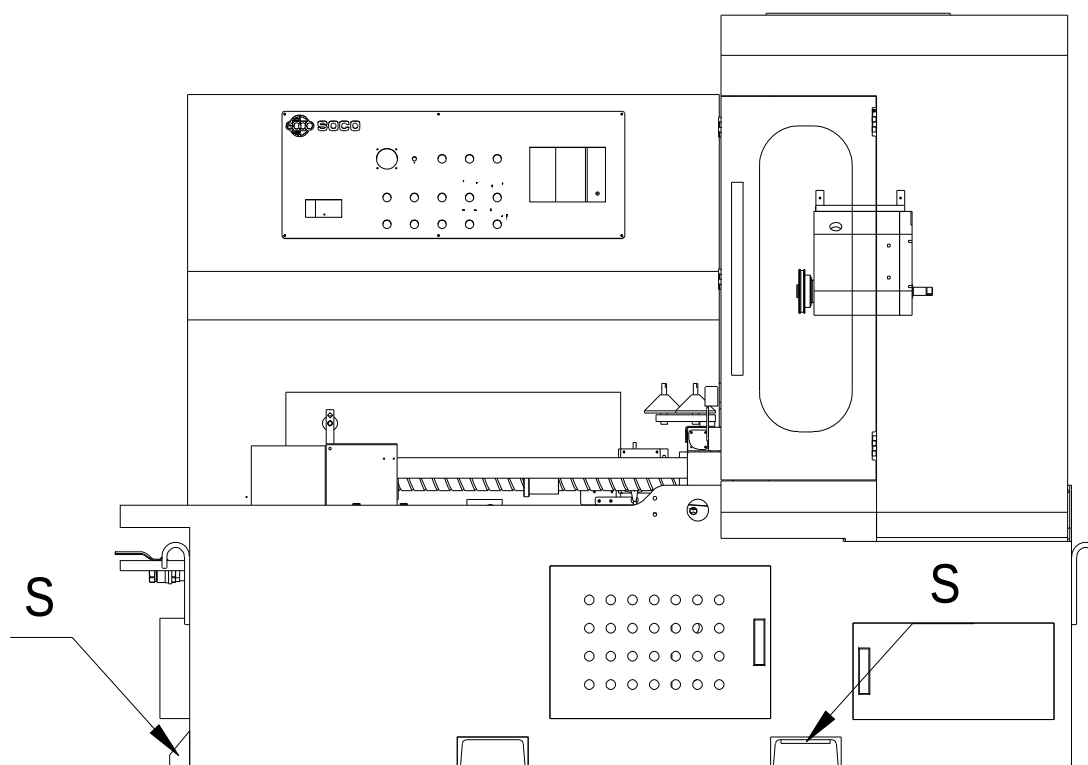
Pay the utmost care when carrying out these operations.

4-3 Installation

The machine installation area must be sufficiently wide to house the machine and provide space to move around it for carrying out the various intervention related to machine operation.

Follow the procedure to install the machine:

1. Level the machine by means of the adjustment screws.
2. Connect the delivery and return tubes of the hydraulic unit to the machine.
Check that the unit connection plate corresponds to the machine system connection plate.
3. Pour in oil to reach level of 100 liters.
4. Check that all hydraulic connections to the various distributors are correctly made.



S=Levelling points adjustment screws

4-4 Filling Hydraulic Oil

1. Prepare one of following or equivalent hydraulic oil.
 - VISCONTY ISO VG46
 - MITSUBISHI DIAMOND HYD46



- SHELL TERAS OIL C46
- SHOWA SHOSEKI JH46
- CHINA PETROLEUM AW46

2. Check the oil level gauge. The oil level shall be in the middle height of the gauge.

4-5 Filling Coolant

1. Pour the diluted sawing oil coolant onto the table of the machine. The solution will flow into the coolant tank.
2. The dilute ratio (water: oil) is 5:1 for hard or high alloy steel and 10:1 for mild steel.

4-6 Connecting Electric Power

Note: Only the qualified electrician is allowed to perform this work.

Do not install saw blade on the main shaft before checking the rotational direction of the main shaft.

1. Assure the main power switch is at "OFF" position and the saw blade motor speed select switch is at "OFF" position before connecting the machine to electric power source.
2. The voltage, amperage and protection capacity of the power source shall meet the requirement of the machine and the local regulation.
3. Connect the main power supply cable the check the correctness of the connection by following steps:
 - a. Turn on the main power switch on the back of the control panel.
 - b. Turn on the saw blade motor switch on the control panel.
 - c. Check the spindle rotating direction. The spindle rotating direction should be same as the mark on the saw blade safety cover.
 - d. If the direction is not correct, turn off power; exchange two of the three power leads. Check again.

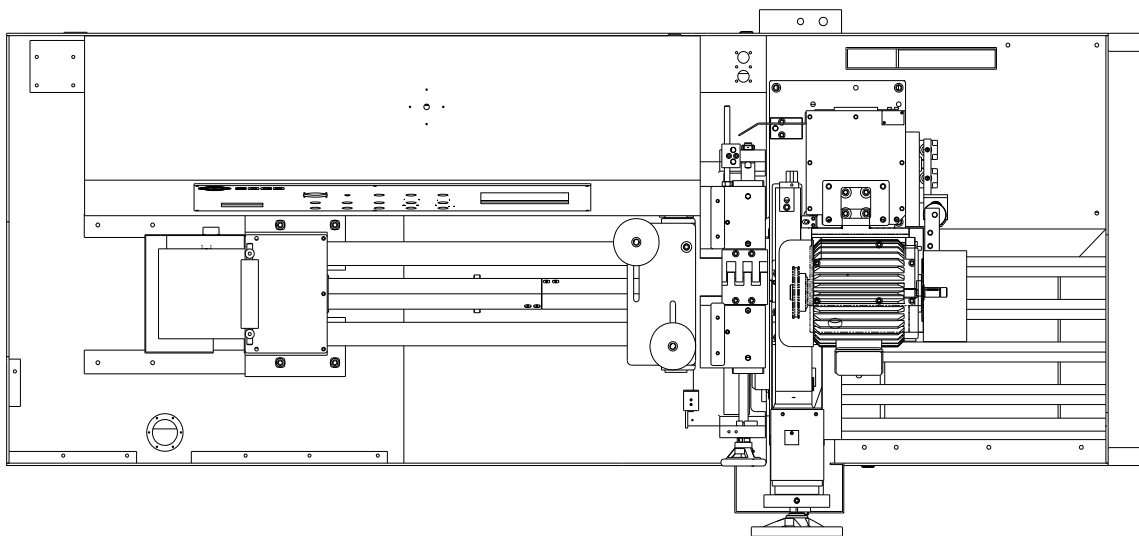
To install this machine safely and effectively, one needs to read the manual thoroughly. Contact the dealer of SOCO Machinery right away whenever questions/problems occurs.

5 Machine Outline

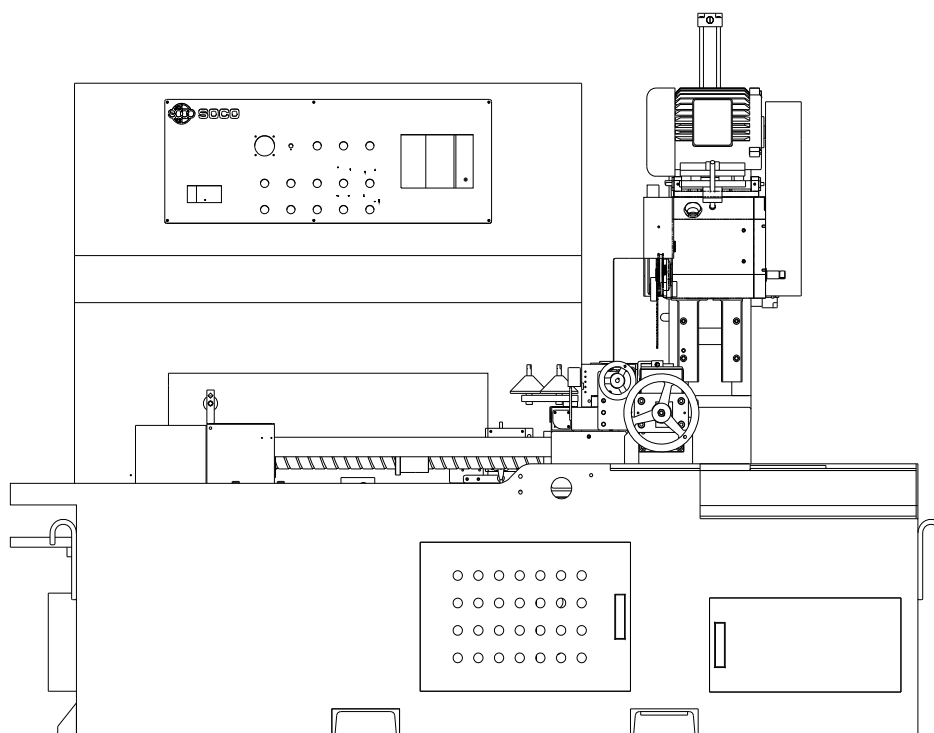


5-1 Machine Outline

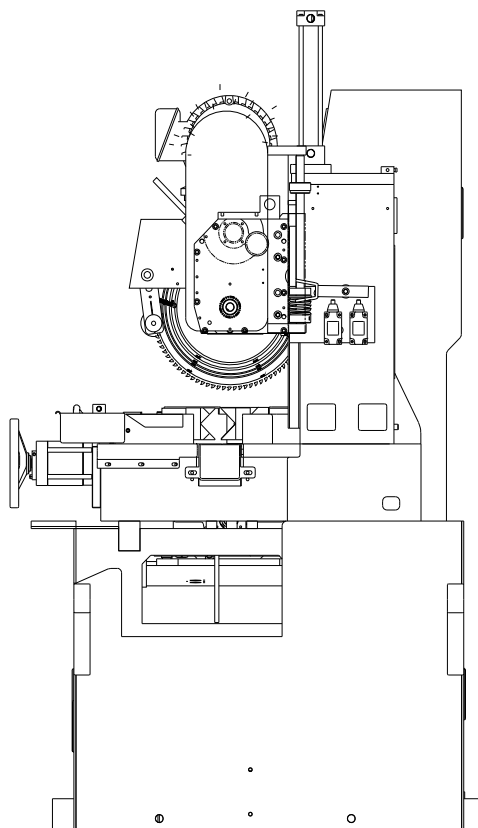
5-1-1 Section view



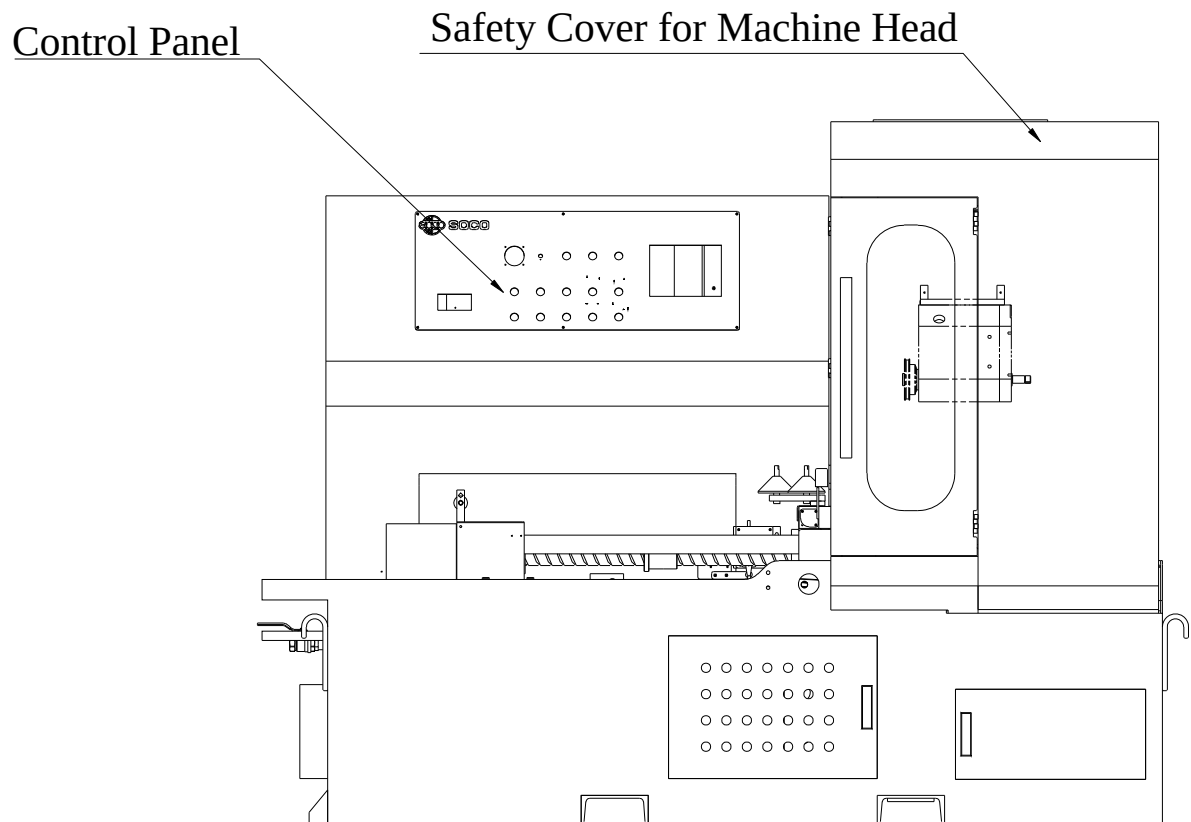
5-1-2 Front view



5-1-3 Side view

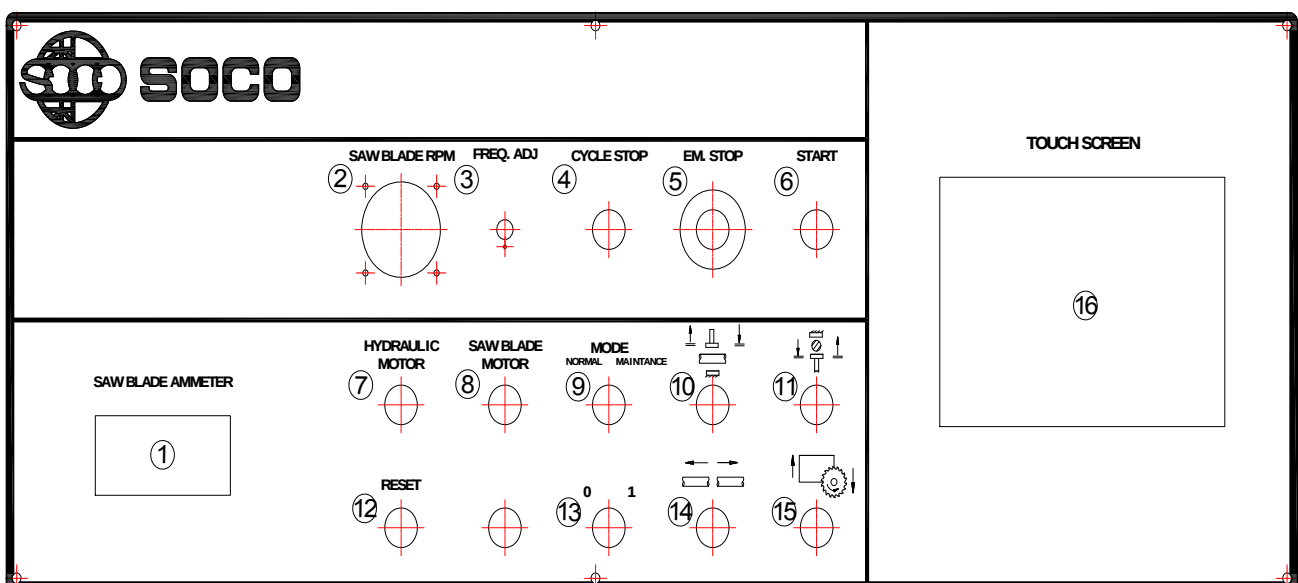


5-1-4 Front view(with cover)



5-2 Control Panel

5-2-1 Control panel



1	Blade Motor Current Meter and Max Saw Current Setting
2	Saw Blade Rotation Speed
3	Saw Blade Speed Adjusting
4	Cycle Stop
5	Emergency Stop Switch
6	Start
7	Hydraulic Pump Start
8	Blade Motor Start
9	Safety key
10	Manual Feeding Vise Open or Clamp Switch
11	Manual Main Vise Open or Clamp Switch
12	Reset
13	Manual mode special switch : 0 to turn off , 1 to turn on ;
14	Manual Feeding Forward or Return Switch
15	Cutting Head Up or Down Selection Switch
16	Touch screen

5-2-2 Error message lights

This is a Two-position key switch. Please refer to the diagram below.

- Position NORMAL ,standard and full operating mode. Touch screen can be accessed, and all functions can be carried out from the touch screen. Cover's limit switches are function.
- Position MAINTACE, For manual mode and emergency protection only. Touch screen must be at manual mode page, the movable controller is function. All functions on the manual mode screen can be operated except vertical vise, horizontal vise, saw head feeding (they can be controlled now from the movable controller) and the blade motor. The blade motor is prohibited to start at position MAINTACE. Be aware that before switch to position MAINTACE, make sure the touch screen is at manual mode page or the machine will emergency stop. Cover's limit switches will not be function, suitable for adjusting machine.

If any abnormal conditions occurred, and the emergency button has been pressed, accord to the following sequence to remove the problems:

Release the emergency button→ press the reset button→ switch to position NORMAL→ change the touch screen to manual mode→ switch to position MAINTACE→ remove the problem.

6 Operation Mode

6-1 Adjustment of the Main Clamping Vise

6-1-1 Adjustment of the rear main vise

1. Turn the main power switch OFF.
(No saw blade is installed at this moment)
(Cutting head shall be at upper position)
(Clamping vise shall be at open position)
2. Unlock the rear main vise fixing screws.
3. Adjust the rear vise position so that the saw blade may cut the work piece at a light cutting load.
4. Lock the rear main vise fixing screws.

6-1-2 Adjustment of the front main vise

1. Turn the main power switch ON.
(Cutting head shall be at upper position)
(Clamping vise shall be at open position)
2. Turn the hand wheel of main clamping vise counter-clockwise to open the vise.
3. Put a work piece into the clamping area of vises.
4. Turn the hand wheel of main clamping vise clockwise to close the vise just to touch the work piece.
5. Turn the hand wheel of main clamping vise 1/2 (half) turn counter-clockwise.
6. Turn the auto or manual selection switch to manual position.
7. Turn the manual main clamping vise open or close selection switch to close position.
8. Check the work piece is firmly held by the main clamping vise.

NOTE:

1. If the work piece is deformed by the clamping action of the main vise, turn the hand wheel 1/4 turn counter-clockwise at a time and check it again.
2. If the work piece is not tightly enough, turn the hand wheel 1/4 turn clockwise at a time and check it again.
3. Don't set switch at auto position, and don't press auto start button. Avoid the cutting head going down.

6-2 Adjustment of the Feeding Clamping Vise

6-2-1 Adjustment of the rear feeding vise

1. Refer to Section 6-1, take a work piece to be clamped by the main vise.
2. Unlock the rear feeding vise fixing screws.
3. Adjust the rear feeding vise just against the work piece.
4. Lock the rear feeding vise fixing screws.

6-2-2 Adjustment of the front feeding vise

1. Refer to Section 6-1, take a work piece to be clamped by the main vise.
2. Unlock the front feeding vise fixing screws.
3. Manual Feeding Vise Clamp.
4. Make Feeding Vise work piece.
5. Manual Feeding Vise open.
6. Hold Floating base and push front feeding vise about 1~2 mm.
7. Lock the front feeding vise fixing screws.
8. Manual Feeding Vise Clamp.
9. Check the work piece is firmly held by the feeding vise.

NOTE:

1. If the work piece is not tightly enough, adjust pressure of feeding vise and check it again.
2. If the work piece is deformed by the clamping action of the feeding vise, to reduce push distance at a time and check it again.

6-2-3 Adjustment of no pipe sensor

1. Turn the run or test run selection switch to run position.
2. Put a work piece into the feeding vise.
3. Manual feeding vise clamp, light of no pipe sensor should turn off. If light of no pipe sensor is turn on, adjust the screw for sensing material until the light turn off.
4. Then turn the screw one more then fix.
5. Manual feeding vise open, take out work piece.
6. Manual feeding vise clamp, check light of no pipe sensor should turn on.

6-3 Installation of the Saw Blade

1. Turn the adjusting nut of uppermost limit to the highest position.
2. Turn ON main power switch.



3. Turn Cutting Head Up switch. (Cutting head goes up to the highest position)
4. Turn OFF main power switch.
5. Open saw blade safety covers.
6. Remove the clamping flange from the saw arbor.
7. Clean the clamping surfaces of flange and arbor free from any dirt or chips.
8. Clean the clamping area of the saw blade.
9. Mount saw blade on the arbor. Align the pinholes of saw blade and arbor. Put the clamping flange on the saw blade, and tighten the center bolt.
Note: The rotation of saw blade shall be counter-clockwise while looking at the mounting surface. There is a directional mark labeled on the protection cover.
10. When lock the center bolt, keep the front part of saw blade downward to eliminate the gap between pin and pinhole.
11. Adjust the chip remover to the location that it is able to knock down chops.
12. Close the saw blade safety covers.

6-4 Adjustment of the Cutting Head (Saw Blade) Sliding Stroke

1. Turn the cutting head sliding speed control valve knob clockwise to closed position.
2. Turn the saw blade motor switch to OFF position.
3. Turn the main power switch to ON position.
4. Turn the auto or manual selecting switch to auto position.
5. Press the semi-auto start button.
6. Open the cutting head sliding speed control valve a little to let the saw head slide downward slowly.
7. Entirely close the cutting head sliding speed control valve as the lower edge of the saw blade exceeds the lowest point of the workpiece. (work piece can just be cut off).
8. Adjust the low limit adjustment nut to such a position that it can actuate the low limit switch, which can stop the downward movement of cutting head.
9. Open the cutting head sliding speed control valve a little to let the saw head slide rises slowly.
10. Entirely close the cutting head sliding speed control valve as the lower edge of the saw blade rises to 20~25mm from the highest point of the workpiece.
11. Adjust the up limit adjustment nut to the up limit switch can be actuated at that position.

NOTE: Please repeat the above steps when replace saw blade or change different



size of material.

6-5 Adjust Saw Blade RPM

1. Select the RPM as per specification suggestion.
2. Under MANUAL MODE, turn on saw blade motor.
3. Adjust RPM.

Attention!

For security, machine should be totally turned off, while adjusting pulley.

6-6 Adjustment of the Cutting Head (Saw Blade) Sliding Speed

Turn the cutting head (saw blade) sliding speed control valve knob clockwise or counter-clockwise.

If the cutting head (saw blade) sliding speed is too fast, the teeth of saw blade may be broken.

If the cutting head (saw blade) sliding speed is too slow, the teeth of saw blade may be worn out quickly.

For example, the cutting time to cut off a 25 mm diameter mild steel rod is about 5~8 sec. The cutting head (saw blade) sliding speed may be varied depending on the teeth condition.

6-7 Adjustment of the Feeding Length

1. Unlock the carriage stopper fixing screws.
2. Rotate the carriage moving hand wheel.
3. When the displayed cutting length is exactly what we want, stop rotate the hand wheel.
4. Lock the carriage stopper fixing screws.
5. Switch to auto mode, and make some trial cuts to verify the length of work pieces. If error is found, repeat above steps to correct it.

Note: Feeding length $\approx$ Work piece length + Saw blade thickness + 0.2 mm.

6-8 Attention During Operation

1. Hydraulic Motor and Saw Blade Motor are functional only under manual mode.
2. Cycle Stop Button works after machine head moving downwards.
3. For any abnormal condition and press the emergency stop. For restart operation, must release error condition first.



Release Error condition: Release Emergency stop button ➔ Press Reset ➔ Finish

7 Operations

7-1 Home Page

1. When the machine is turned on, the name of SOCO company, its address, machine model, and optional language will be displayed on the screen.
2. The following operating menu will be in English when press English. Otherwise, the operating menu will be in Chinese when press Chinese. After either language has been chosen, the next menu will pop up on the screen.

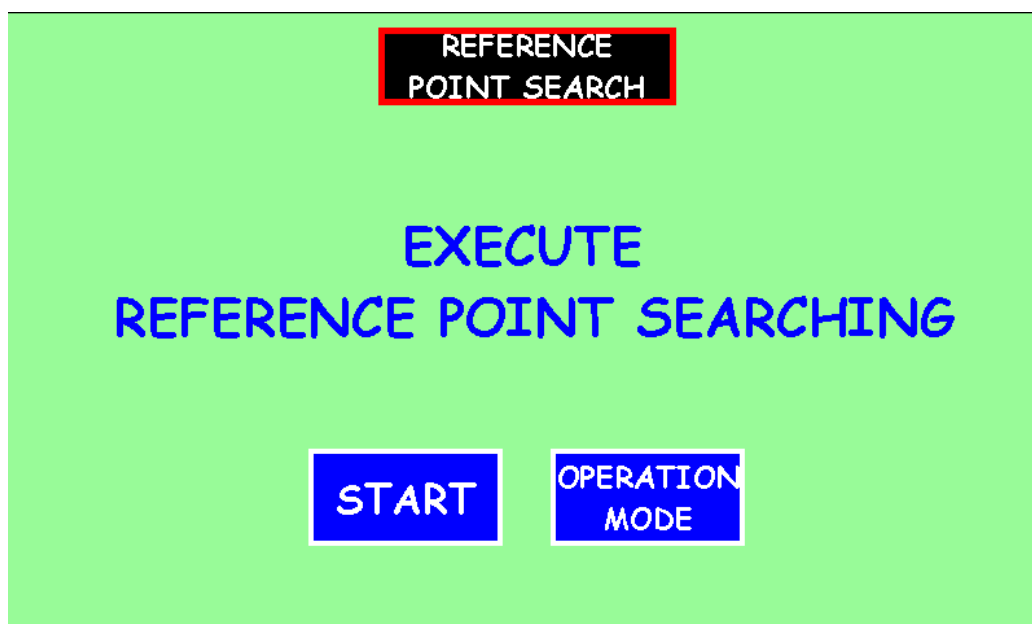


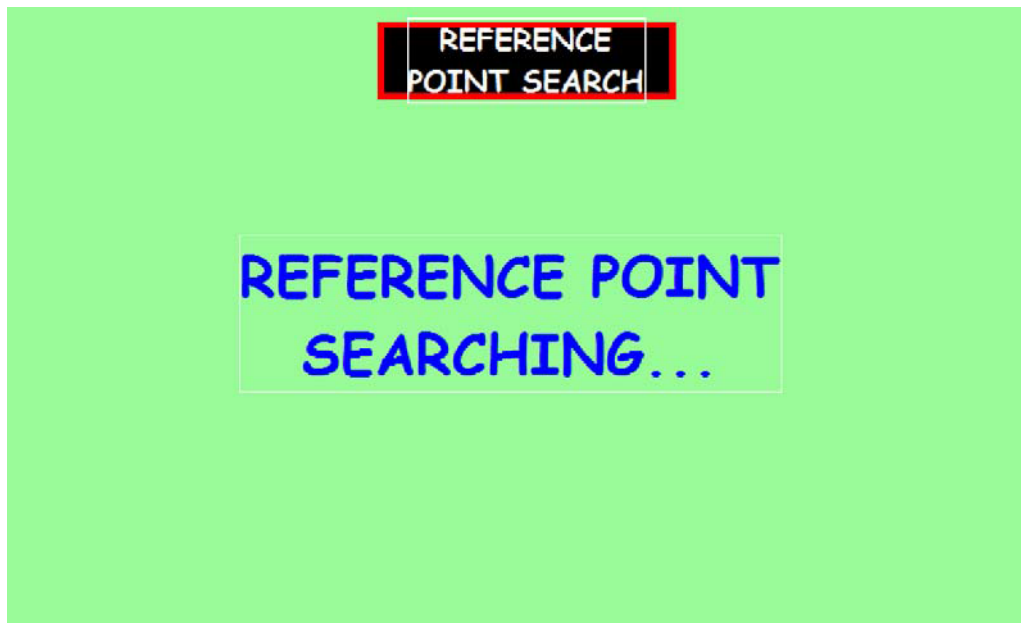
3. Select unit



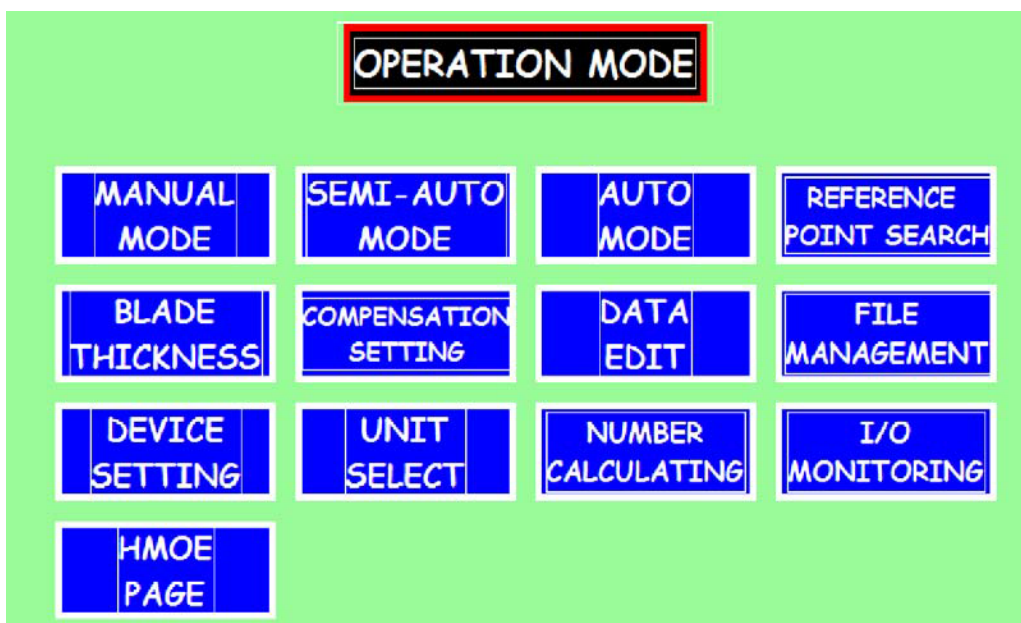
7-2 Reference Point

1. Origin is the base point from which the feed clamp calculates the feeding material length.
2. The feed clamp will open automatically and then return to origin when press START. Meanwhile, the back-to-origin operating menu will be displayed (refer to the figure below).





3. This page will be displayed on the screen after completion of back-to-origin (refer to the figure below).

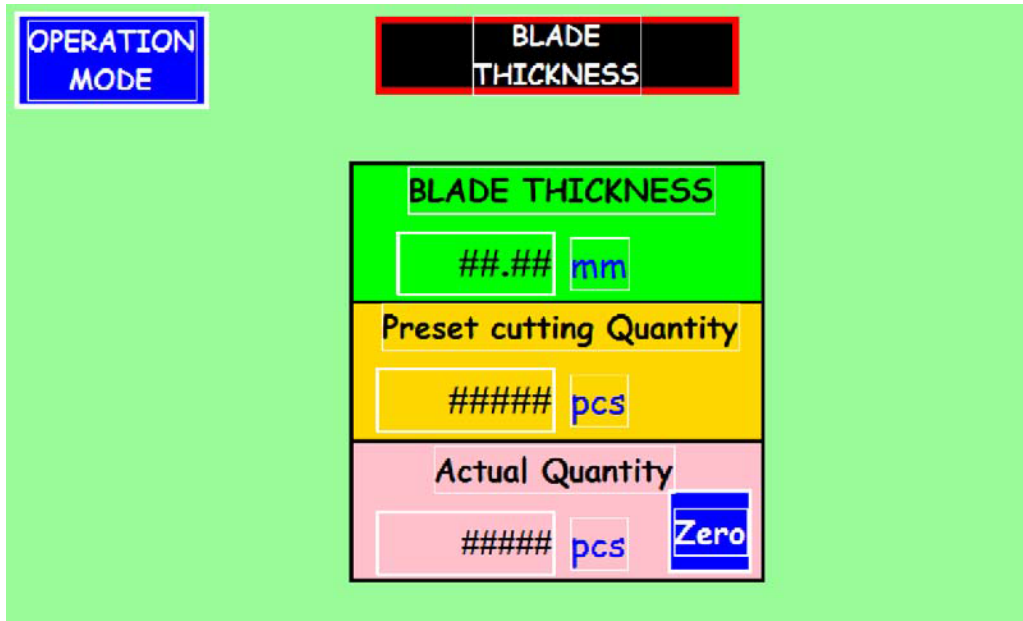


7-3 The Basic Operation Settings

After reference point searching, it will go to "Operation Mode" page. There are three operation modes of the machine: Manual Mode、Semi-Auto Mode and Auto Mode. We suggest the users understand all settings of the machine before operating.

7-3-1 Saw Blade Data Settings

1. BLADE THICKNESS: Enter the thickness of saw blade here.
2. PRESET Q'TY: If set number equal machine will stop for change saw blade.
3. ACTUAL Q'TY: The actual cutting number is calculated by computer, and displayed here.
4. ZERO: Clear the actual cutting number to reset the counter.



7-3-2 Compensation Settings

When the cutting dimension is not accurate, this setting can be used to compensate to a correct value during cutting.

** Measuring length + compensating value = expected length**

e.g.:

When the actual cut measures 100.5mm in stead of 100mm of the desired length, the compensation should be set to -0.5.

$$100.5 + (-0.5) = 100$$

By this way, the actual cutting length will be corrected from 100.5 to 100mm

OPERATION
MODE

COMPENSATION
SETTING

COMPENSATION VALUE

#####.## mm

7-3-3 Data Edit

1. Meaning of program files

Required operating parameter in auto mode needs to be entered via the program files page to trigger machine automation.

OPERATION
MODE

DATA EDIT

Unit: mm

FILE No. ###

Job	No.	Cutting Length	Preset Quantity	Actual Quantity	Edit
☐	1	#####.##	#####	#####	Set
☐	2	#####.##	#####	#####	Set
☐	3	#####.##	#####	#####	Set
☐	4	#####.##	#####	#####	Set
☐	5	#####.##	#####	#####	Set

2. Buttons for setting parameters

a. CUTTING LENGTH Press the key to input the cutting length.

- b. PRESET Q'TY Press the key to preset the number of cutting.
- c. RECYCLE MODE: pre-set quantity and material length.
- d. ZERO Press the key to clear the actual number of cutting to zero.

LAST
PAGE

DATA SETTING

Unit: mm

FILE No. ####

Cutting Length
####.## mm
Preset cutting Quantity
pcs
Actual Quantity
pcs Zero

7-3-4 Device Setting

- 1. Select clamp type.
- 2. Other settings are adjusted according to customer needs.

OPERATION
MODE

DEVICE SETTING

CLAMP TYPE

☒ CROSS-CLAMP
☐ OTHER CLAMP

	MAIN VISE		FEEDING VISE		COOLANT PUMP	
	RELEASE	CLAMP	RELEASE	CLAMP	SEMI-AUTO	AUTO MODE
JOB FINISH:	☒	☐	☒	☐	☒ ON	☒ ON
NO MATERIAL:	☒	☐	☒	☐	☐ OFF	☐ OFF
STOP:	☒	☐	☒	☐	FEEDING SPEED(mm/Sec) ☒ 800 ☐ 400 ☐ 100 ☐ 600 ☐ 200	
SAW BLADE LIFE RUNOUT:	☒	☐	☒	☐		

7-3-5 File Management

Open or delete old files



7-4 Manual Mode

To inspect the action of each component to ensure the normal function, take the vice as an example,

1. The clamping and releasing of the vice can be inspected in manual mode to ensure its hydraulic cylinder functions normally.
2. The functioning of the electro-magnetic valve and its circuitry can be checked, controlling the hydraulic cylinder.
3. Each independently operating component can be manually tested to ensure its normal function.
4. When a component does not function, the cause can be found out and eliminated.
5. A detection sensor can be directly activated, and by whether the PLC input indicator lights up or not, one can determine whether the sensor is functioning or not.
6. If errors happen in the process of automatic mode, such as overloading the motor and causing the machine to stop, then the manual mode can be employed to withdraw the machine head to its upper limit, so that the material or the saw blade can be checked.

Caution!

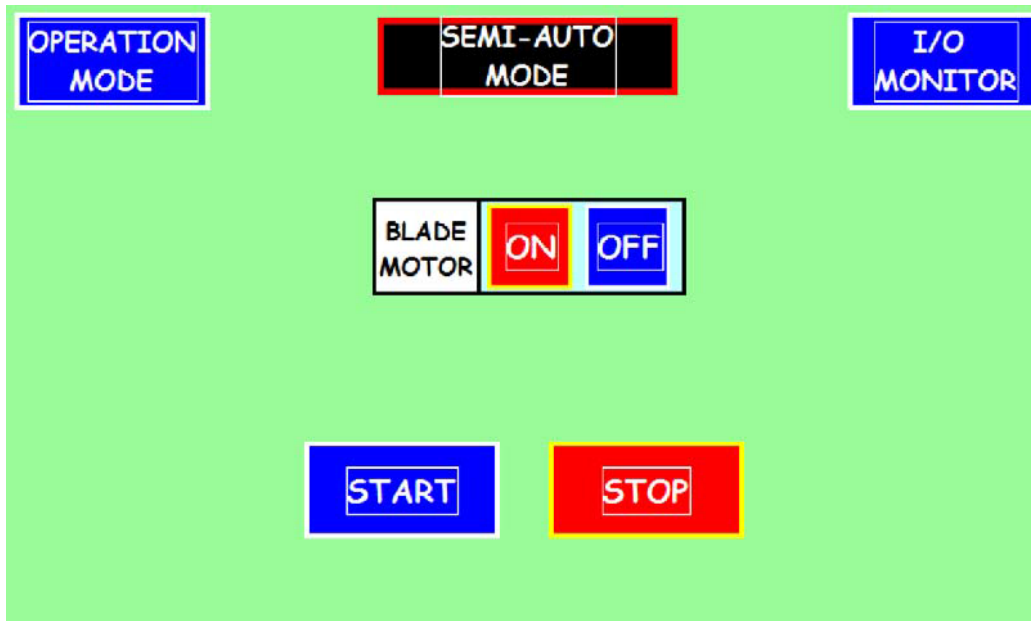
The major usage in manual mode has been described above. Operator should not use the manual mode to cut the material because it is absolutely not the purpose of

why the manual mode is provided. Furthermore, danger or unexpected damage may occur if manual mode is misused.

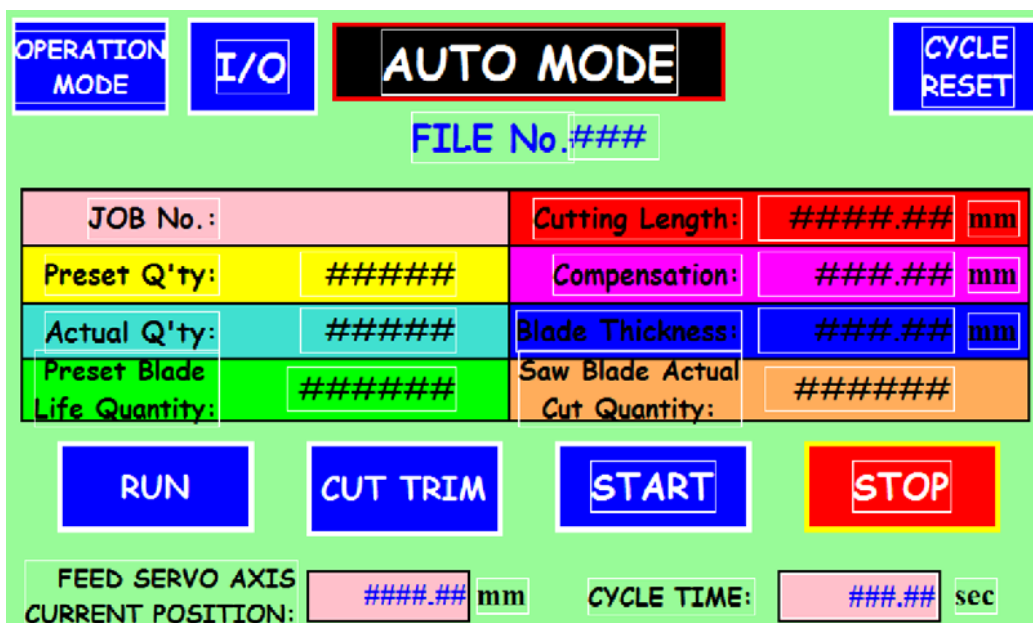
OPERATION MODE		MANUAL MODE		I/O MONITOR	
MANUAL FUNCTION SELECT				OPERATION ZONE	
☐ CUTTING FOR./REV.	☐ MAIN VISE				
☐ MATERIAL VISE	☐ CUTTING HEAD LOCK				
☐ CUTTING HEAD MOVEMENT	☐ COOLANT PUMP	STATUS			
☐ FEEDING AXIS		☐ HYDRAULIC PUMP ☐ SAW BLADE MOTOR			
		FEEDING SERVO CURRENT POSITION: 0.00 mm			

7-5 Semi-Auto Mode

1. Press the manual feeding forward button to move the carriage to the right end position.
2. Put a work piece into the main vise and the feeding vise.
3. Extend the front end of work piece about 15 mm over the saw blade.
4. Turn the to auto position
5. Press the semi-auto start button. The machine executes one cutting cycle to cut off the first crop.



7-6 Auto Mode



The auto mode is assigned for production purpose. After all the preparation works specified in Section 5, such as installing the saw blade, adjusting clamping vises, adjusting cutting speed, and testing with semi-auto mode, have completed, and all results are verified in good condition to perform the specific job, the auto mode can be used for mass production.

There are two running modes, Material detect “yes” or “on”, can be selected

under this mode.

1. Material detect (yes): Only if material supply is enough, the machine will cut off material automatically according to pre-set edit page. If material is exhaust, the machine will stop. If the pre-set cutting quantity obtains, the machine also stops.
2. Material detect (no): The automatic stop function of no material is overridden in this mode. No material is required to run the auto functions, such as, carriage feeds material, cutting head cuts material, and machine stops when pre-set quantity obtains. Therefore, this mode can use to check all functions of auto mode.

7-7 Execution of Auto Mode

1. Select the Material detect “yes”
2. Refer to Section 6.2.1 to cut off the first crop.
3. Press the “start” button. The machine executes continuous cutting cycle to cut off work pieces until the pre-set quantity has reached.

The machine will stop automatically, if the length of material on the carriage is not long enough compared with the pre-set length.

7-8 I/O Monitor

To display the present I/O conditions for identifying the problem location.

When the machine has fault, please notify the repairman which lights were on.

OPERATION MODE		I/O MONITORING 1				TO I/O PAGE 2									
☐	X0	☐	X10	☐	X20	☐	X30								
☐	X1	☐	X11	☐	X21	☐	X31								
☐	X2	☐	X12	☐	X22	☐	X32								
☐	X3	☐	X13	☐	X23	☐	X33								
☐	X4	☐	X14	☐	X24	☐	X34								
☐	X5	☐	X15	☐	X25	☐	X35								
☐	X6	☐	X16	☐	X26	☐	X36								
☐	X7	☐	X17	☐	X27	☐	X37								
<table border="1"> <thead> <tr> <th>STEP</th> </tr> </thead> <tbody> <tr><td>S###</td></tr> <tr><td>S###</td></tr> <tr><td>S###</td></tr> <tr><td>S###</td></tr> <tr><td>S###</td></tr> <tr><td>S###</td></tr> <tr><td>S###</td></tr> </tbody> </table>								STEP	S###	S###	S###	S###	S###	S###	S###
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LAST PAGE															



7-9 Saw Blade Over Load Protection

On the control panel, there are two meters, the saw blade motor current meter, the maximum saw blade motor current setting meter, and one knob, the maximum saw blade motor current setting knob.

Use the maximum saw blade motor current setting knob to set the maximum saw blade motor current to equal to 1.3~1.5 times of the current that appears on the saw blade motor current meter when a new saw blade is cutting.

The current indicating on the saw blade motor current meter will become higher as the saw blade is getting dull. When the saw blade motor current has reached the pre-set maximum current, the machine stops automatically.

8 Maintenance

1. Remove Chip

Remove all chips around the cutting head after finishing daily work.

2. Fill Lube Oil

Fill lube oil (SAE 50) into the auto-lubricator when the oil level is low.

3. Add Grease

Add grease for main vise, feeding vise and carriage every two months.

4. Replace Gear Box Oil

After 30 hours operation of the new machine, replace the cutting head gear box oil (SAE140).

Then, replace the cutting head gear box oil (SAE140) every 6 months.

5. Replace Hydraulic Oil

Replace the hydraulic oil every year.

- CHINA PETROLEUM RECIRCULATING OIL AW46
- VISCONTY ISO VG46
- MITSUBISHI DIAMOND HYD46
- SHELL TERAS OIL C46
- SHOWA SHOSEKI JH46

9 Troubleshooting

1. No function of machine

Possible Cause	Action
Outside power is not good.	Check outside power.
Main power switch is off.	Set main power switch at ON position.
Emergency stop switch is in pressed position.	Turn emergency stop switch clockwise to release its stop position.
Pre-set cutting quantity has reached.	Re-enter cutting quantity.
Pre-set maximum saw blade motor current has reached.	Replace a new saw blade. Re-set a suitable maximum current.

2. Noise in saw blade motor but spindle no rotation

Possible Cause	Action
One phase of power is lost.	Check power connection. Check fuse.
Motor relay function is not correct.	Replace motor relay.

3. No coolant spray out

Possible Cause	Action
Low coolant level.	Fill coolant to sight glass level.
Check valve is blocked.	Remove obstacle or replace a new valve.
Coolant pump is out of function.	Replace a new pump.
Coolant pump rotates in wrong direction.	Exchange two phases of connecting power leads.

4. Machine vibrating and noising

Possible Cause	Action
Machine is not installed on flat floor.	Re-install machine on flat floor. Recommend use anchor bolts.
Work piece is not clamped firmly.	Rotate vise hand wheel 1/4 turn clockwise.
Clamping vise is loosened.	Tight up vise fixing screws.
Saw blade is dull.	Replace a new blade.
Selection of saw blade is not correct.	Replace a correct saw blade.

5. Cutting head trembling when sliding

Possible Cause	Action
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Auto lubricator lacks oil.	Re-fill lube oil.
The fitness between sliding guide and sliding key is not properly adjusted.	Re-adjust the sliding key carefully.
Cylinder is worn.	Replace a new cylinder.
Hydraulic oil contains air bubbles.	Adjust the Saw head Traveling Stroke to the full stroke and let air bubbles separate from oil.

Note: Should any problem fail to be solved, Please don't operate the machine to avoid risk of danger. Please contact SOCO or SOCO's agent. Our personnel would be glade to provide any service.



10 Appendix

10-1 Machine Operates Range Pictures



10-2 Machine Specifications

10-3 Hydraulic Circuit Diagram and Air Circuit Diagram

10-4 Electrical Circuit Diagram



10-5 Parts Lists and Drawings