COSEN SAWS

F-F-31
9MCX-C510MNC
S21

C-510MNC

SNC-100 Programmable Automatic
Hinge-Type Miter-Cutting Horizontal Bandsaw

Instruction Manual

The Pinnacle of Cutting Performance

Cosen Mechatronics Co., Ltd.

FROM THE MANUFACTURER

Thank you for your purchase of COSEN's bandsaw machine and your trust in the COSEN brand.

We are excited to have you as our valued customer and look forward as much as you do to the accelerated productivity, long-lasting endurance and superb cost-effectiveness this machine is about to bring to you.

To ensure you are fully utilizing our machine and taking advantage of it in every possible way, please take your time to read through this instruction manual.

Any comments or suggestions in making our services better, please do not hesitate to let us know. Thank you again!

NOTE:

- Read this instruction manual carefully to familiarize yourself with the installation, operation and maintenance of your COSEN bandsaw machine.
- Operate the machine following the procedures described in the manual to prevent personal injuries or machine damage.
- Keep this manual handy and refer to it whenever you are uncertain of how to perform procedures.

- For technical support or parts purchase, please contact your nearest COSEN representative or our service center:

For Europe:
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Instruction Manual: **C-510MNC**
SNC-100 Programmable Automatic Hinge-Type Miter-Cutting Horizontal Bandsaw
Ver.20 2022/4/29

Printed in Taiwan

Safety rules

- **It's essential to power on your bandsaw machine for at least one hour every two years, if you seldomly use the machine.**
  (This period of power-on must be without proceeding with other operation) Otherwise the machine program may disappear due to not strictly follow this safety rule.

****The restoration-service fee for improper use will be extra charge. Please note.****

- Make sure your work area is cleared of uninvited people and obstacles every time before you start operating the machine.

- Never step or stand on the roller table. Your foot may slip or trip on the rollers and you will fall.

- Never wear gloves or loose clothing when operating the machine. It may lead to serious injury if they are caught in the running machine. Wrap or cover long hair.

- Never touch the running saw blade with gloves or not. It is dangerous if your hands, clothing or gloves are caught by the running blade.

- Make sure any use of fire is prohibited in the shop and install a fire extinguisher or other fire control device near the machine when cutting titanium, magnesium, or any other material that produces flammable chips. Never leave the machine unattended when cutting flammable materials.

- Use a water-soluble cutting fluid on this machine. Oil-based cutting fluids may emit smoke or catch fire, depending on how they are used.

Safety rules

- Never cut carbon or any other material that may produce and disperse explosive dust. It is possible that sparks from motors and other machine parts will ignite and explode the air-borne dust.

- Never adjust the wire brush or remove chips while the saw blade is still running. It is extremely dangerous if hands or clothing are caught by the running blade.

- Stop the saw blade before you clean the machine. It is dangerous if hands or clothing are caught by the running blade.

- Never start the saw blade unless the workpiece has been clamped firmly. If the workpiece is not securely clamped, it will be forced out of the vise during cutting.

- Take preventive measures when cutting thin or short pieces from the work to keep them from falling. It is dangerous if the cut pieces fall.

- Use roller tables at the front and rear sides of the machine when cutting long work. It is dangerous if the work piece falls off the machine.

- Turn off the shop circuit breaker switch before performing maintenance on the machine. Post a sign indicating the machine is under maintenance.

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SAFETY INFORMATION

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RISK ASSESSMENT

Safety is a combination of a well-designed machine, operator's knowledge about the machine and alertness at all times. COSEN's band machine has incorporated many safety measures during the design process and used protective devices to prevent personal injuries and potential risks. Warning labels also serve as a reminder to the operator.

Throughout this manual, you will also see various safety-related symbols indicating important information that you should take note of prior to use of the machine or part of its functions. These important safety instructions do not cover all possible situations that might occur. It is your responsibility to take caution and follow procedures stated in this manual when installing, maintaining and operating your machine. Cosen will not be liable for damages resulting from improper use.

SAFETY INSTRUCTIONS

What the icons and signs in this user manual mean:

This icon marks **WARNING**; hazards or unsafe practices that may result in **personal injury or damage to the machine.**

Supplementary information to the procedures described in this manual.

Call your local agent or our service center for help.

This manual has important safety information. Read through it carefully before operating this machine to prevent personal injury or machine damage. Learn the operation, limitation and the specific potential hazards peculiar to this band saw. All users must read it before performing any activity on the machine, such as replacing the saw band or doing regular maintenance.

Disconnect the power cord before making adjustment, maintenance or blade changes.

Do not operate this machine unless it is completely assembled.

Make sure the power switch is off before plugging in power cord.

Always remember to switch off the machine when the work is completed.

Use recommended accessories. Improper accessories may be hazardous.

Never hold the material by hand for cutting. Always use the vise and make sure the material is clamped securely before cutting.

When a workpiece is too long or heavy, make sure it is supported with a roller table (recommended).

Keep your work area well illuminated at minimum 500 lumen.

Work area defines as full machine capacity area

Remove adjusting keys, wrenches or any loose parts or items from the machine before turning on power.

Use a sharp saw blade and keep the machine in its best and safest performance by following a periodical maintenance schedule.

Wear proper apparel during operation and when servicing the machine. Some personal protective equipment is required for the safe use of the machine, e.g. protection goggles.

Moving parts should be kept in proper alignment and connection with the machine. Check for breakage, mounting and any other conditions that may affect its operation. Any damaged part or guard should be properly repaired or replaced.

It is dangerous to operate the machine when the floor is slippery. Keep the floor clean and dry. Check for ice, moisture, or grease before entering.

Do not use the machine to cut explosive material or high pressure vessels as it will generate great amount of heat during the sawing process and may ignite an explosion.

Keep your work area clean. Cluttered and slippery floors invite accidents.

Keep blade protection cover and wheel covers in place and in working order.

Never operate while under the influence of drugs, alcohol or medication.

Do not reach over or stand on any part of the machine.

Keep the work environment safe. Do not use band saw in a damp or wet location.

Keep all guards and shields in place before installing or starting up the machine.

Keep unauthorized personnel away.

SAFEGUARD DEVICES

The safeguard devices incorporated in this machine include the following two main parts:

1. Protection covers & guards
2. Safety-related switches

Protection Covers & Guards

1. Idle wheel housing cover
2. Drive wheel housing cover
3. Gear reducer cover
4. Wire brush belt cover
5. Blade guard cover (left & right)
6. Safety fence (left & right)(CE model only, as shown in Illustration: *Safety Fence*)
7. Chip conveyor cover (CE model only)


The protection devices should always be mounted on the machine whenever the machine is running.


Do not remove any of these safeguard devices under any circumstances except when servicing the machine. Even skilled service technicians should still take cautions when performing repairs or service on the machine with any of these protectors removed. It is the responsibility of the user to make sure all these elements are not lost and damaged.


Take note of the following main moving parts on the machine prior to and during machine operation:

- Saw bow assembly
- Drive and idle wheels
- Blade guide arm
- Saw blade guide rollers
- Quick approach device (optional)
- Wire brush
- Chip conveyor (optional)
- Workpiece clamping vises
- Shuttle vises and workbed rollers
- Top clamps (optional)
- Gear reducer

Safety Related Switches

To protect the operator, the following safety related switches on the machine are actuated when the machine is in operation.

Wheel motion detector	This is a proximity sensor used to detect the motion of the drive wheel. Once the saw blade is broken or as soon as it starts slipping, the sensor will detect and stop the drive wheel and the machine.
Power switch	Located on the cover of electrical cabinet, the power switch controls the main power of the machine. Up to your company's internal rules, this power switch can be locked with a padlock or a luggage lock to protect the operator and the machine.
Emergency stop button	Located on the control panel, the button when pressed will stop the machine completely.
Vise clamp switch	This switch assures firm clamping of the workpiece. If the workpiece is not clamped properly, the saw blade is not allowed to run.
Wheel cover interlock switches (CE model only)	Located on the two wheel housings, these switches are used to assure that the machine will stop whenever the wheel covers are open. This device is to protect users from being cut by the running saw blades.

Among all these safety switches, some of them are used to protect the users and some of them are used to prevent damage to saw blades, the workpiece and the machine itself, etc. We have taken every precaution to prevent injury or damage and to provide safe and economical operation of the machine.

EMERGENCY STOP

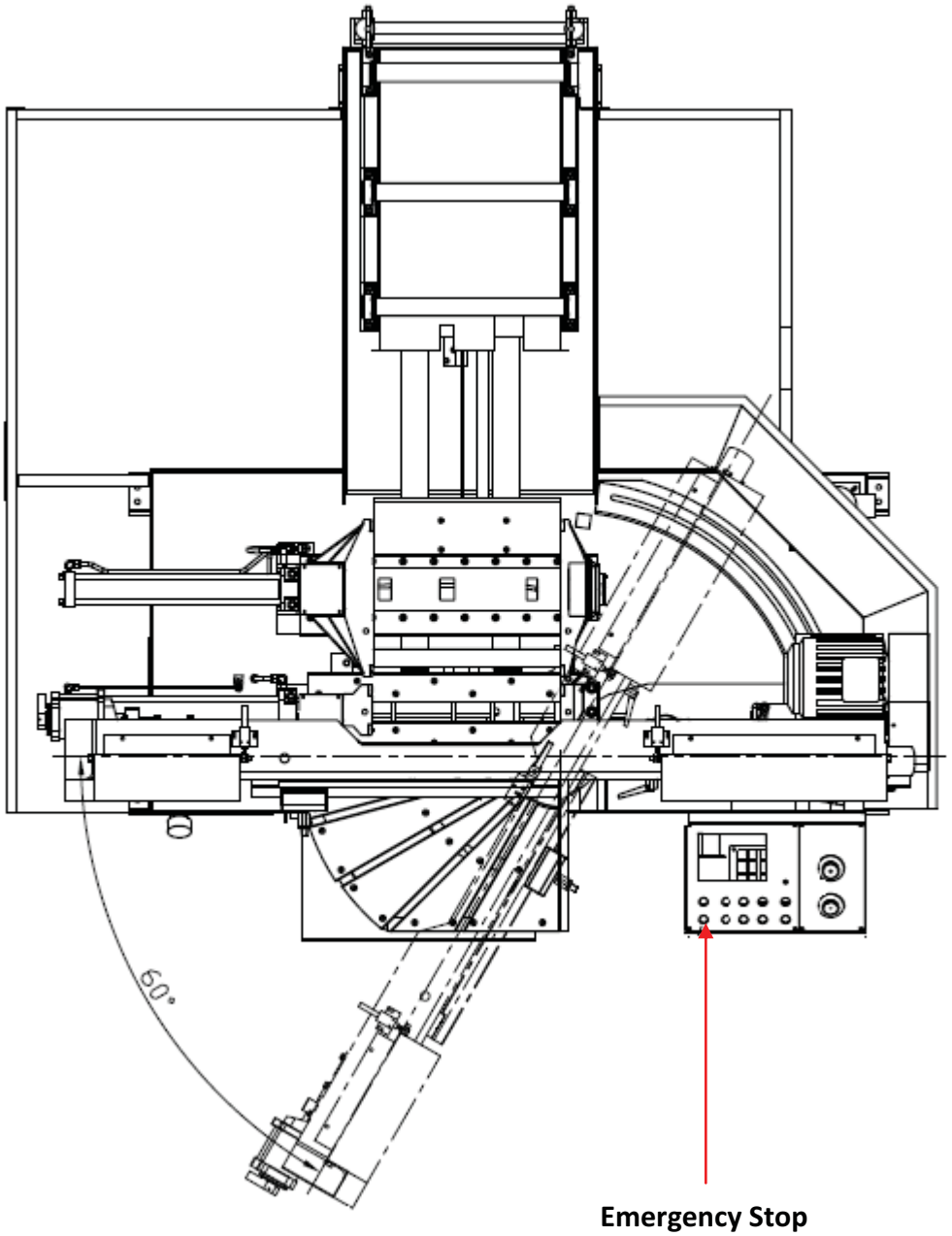
Designed to be easily accessible, the emergency stop button is located on the left bottom corner on the control panel and is made in red color and rubber material. For CE models, supplementary emergency stop button may be available at other area(s) of the machine depending on machine type. Please refer to *Illustration: Emergency Stop.*

When you press the button, the machine will immediately come to a full stop to avoid injury or damage when an accident occurs. The button will be locked when you press it. To unlock it, turn the button clockwise.

You should press it immediately without any hesitation when observing:

- An emergency situation that would cause any injury or damage
- An abnormal situation or problem such as fire, smoke, abnormal noise and etc.

Illustration: Emergency Stop



SAFETY LABELS

Please read through and understand these safety labels before operating the machine. Refer to *Illustration: Safety Labels.*

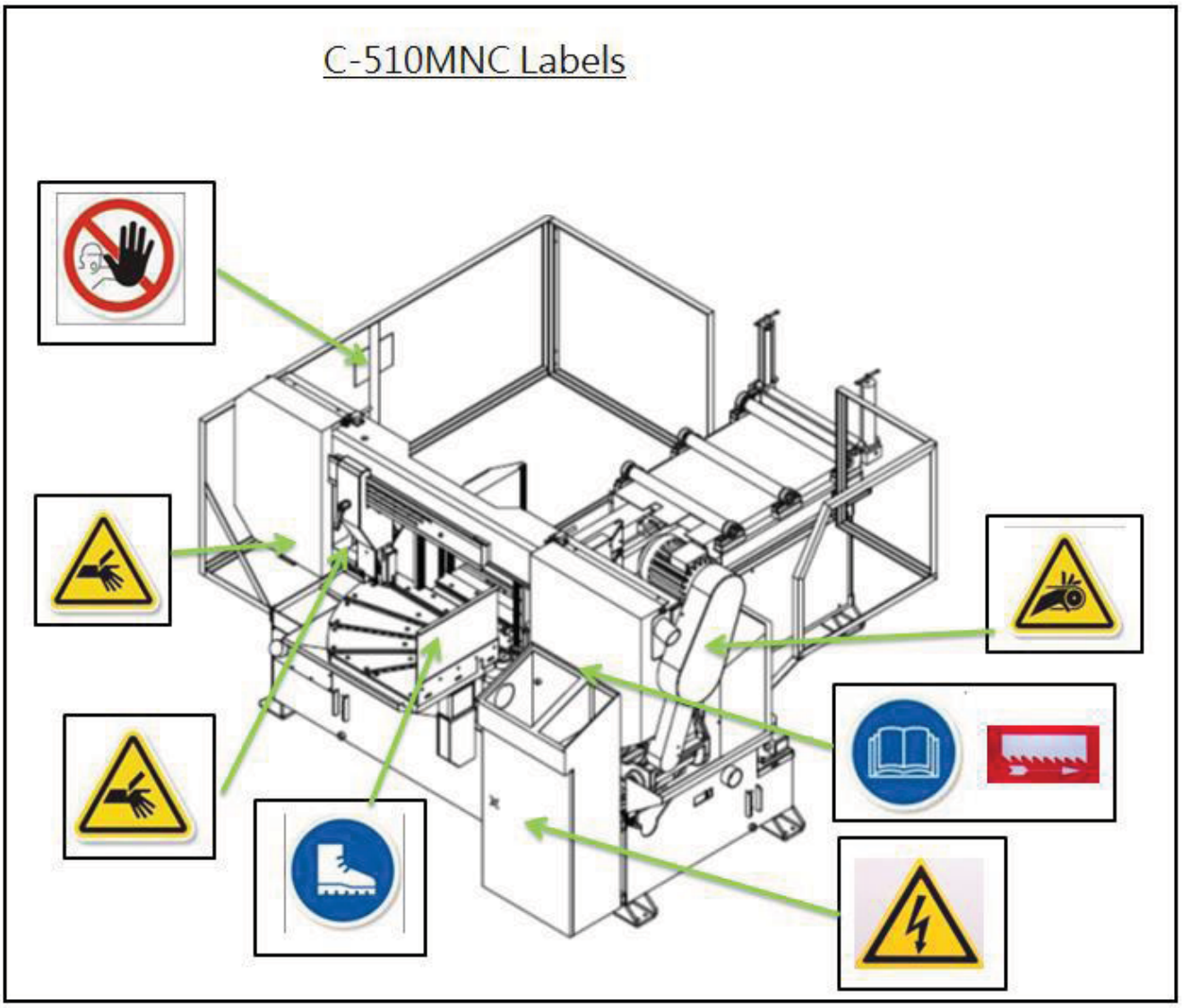
Label	Meaning	Label	Meaning
	Impact Hazard WEAR SAFETY SHOES. Do not approach dropping area during operation.		Read Operator's Manual This manual has important safety information. Read through it carefully before operating this machine to prevent personal injury or machine damage.
	Keep Unauthorized Personnel Away		Do not step. Do not stand on the machine or on the accessories!
	DANGER: Running Blade Blade runs through full machine capacity area. Keep your hands away from the full machine capacity area to avoid severe injury. The arrow indicates direction of the blade.		Cutting Hazard KEEP COVER CLOSED / KEEP HAND OFF while the blade is running. Turn power off before opening cover. Failure to follow the warning can result in severe injury.
	Hazardous Voltage TURN POWER OFF before servicing. Failure to following the warning can result in severe injury.		Burn Hazard/Hot Surface
	Hand Crush/Force from Above		Crush hazard by vise
	Loose Hand Hazard KEEP HAND OFF. Do not touch chip conveyor. Failure to follow the warning can result in severe injury.		Pinch Point/Hand Entanglement
	CAUTION : Class I invisible Laser Radiation Present. Avoid direct exposure to beam.		

SAFETY INSTRUCTION Labels

Green and white SAFETY INSTRUCTIONS are important reminders that should be read before operating the machine.

Label	Meaning
	1. Read and understand the instruction manual and warning signs before operating machine. Failure to follow these instructions and warnings can result in serious injury or death. 2. Do not wear gloves, neckties, jewelry or loose clothing while operating the machine. 3. Always wear eye protection goggles. 4. Check blade tension and adjust blade guide before starting to cut. 5. Always clamp stock firmly in place before cutting. 6. Do not remove jammed or cut-off pieces until blade has stopped. 7. Keep fingers out of path of blade. 8. Blade guards should be in place and used at all times. 9. Disconnect machine from power source before marking repairs or adjustments. 10. Do not operate while under the influence of drugs, alcohol or medication.

Illustration: Safety Labels



HEARING PROTECTION


Always use ear protection!

When your machine is running, noise generated by the machine may come from the following:

- Saw blade during cutting or material feed mechanism
- Wire brush unit
- Chip conveyor unit
- Speed reducer
- Hydraulic motor/pump
- Belt transmissions variable speed motors
- Blade motor
- Coolant pump
- Drive wheel
- Parts not assembled tightly causing mechanical vibration

Our products pass noise testing less than 78 dBA. Noise level vary according to working conditions and we recommend ear plugs or other hearing protection at all time. If your machine produces an undesirable noise while it is running, you should:

1. Make sure all maintenance tasks have been performed following the prescribed maintenance schedule (Refer to Section 8).
2. If maintenance does not seem to solve the problem, follow the troubleshooting procedures under Section 9.

CE COMPLIANCE

Cosen's CE model is designed to satisfy regulations of the Council Directive on the approximation of the laws of the Member States relating to machinery (2006/42/EC) - Annex I Essential health and safety requirements relating to the design and construction of machinery.

RISK ASSESSMENT

Risk assessment generally takes account of intended use and foreseeable misuse, including process control and maintenance requirements. We made every effort to avoid any personal injury or equipment damage during the machine design stage. However, the operator (or other people) still needs to take precautions when handling any part of the machine that is unfamiliar and anywhere on the machine that has potential hazards (e.g. the electrical control box).

Section 2

GENERAL INFORMATION

SPECIFICATION

MACHINE PARTS IDENTIFICATION

FLOOR PLAN

This band saw machine is designed by Cosen's R&D engineers to provide you the following features and advantages:

Safety

- This machine is designed to fully protect the operator from its moving parts during cutting operation.
- The machine and each compoment has passed strict testing (Council Directive on the approximation of the laws of the Member States relating to Machinery).
- The machine will shut off automatically when the saw blade is broken, protecting both the operator and the machine.

Convenience & High-Performance

- The machine is designed in the way that the operation and adjustment can be easily performed.
- The machine will stop automatically when out of stock.
- Dual valve system is designed to achieve optimal cutting performance with the simple setting of feed rate and perspective cutting pressure for different material.

SPECIFICATION

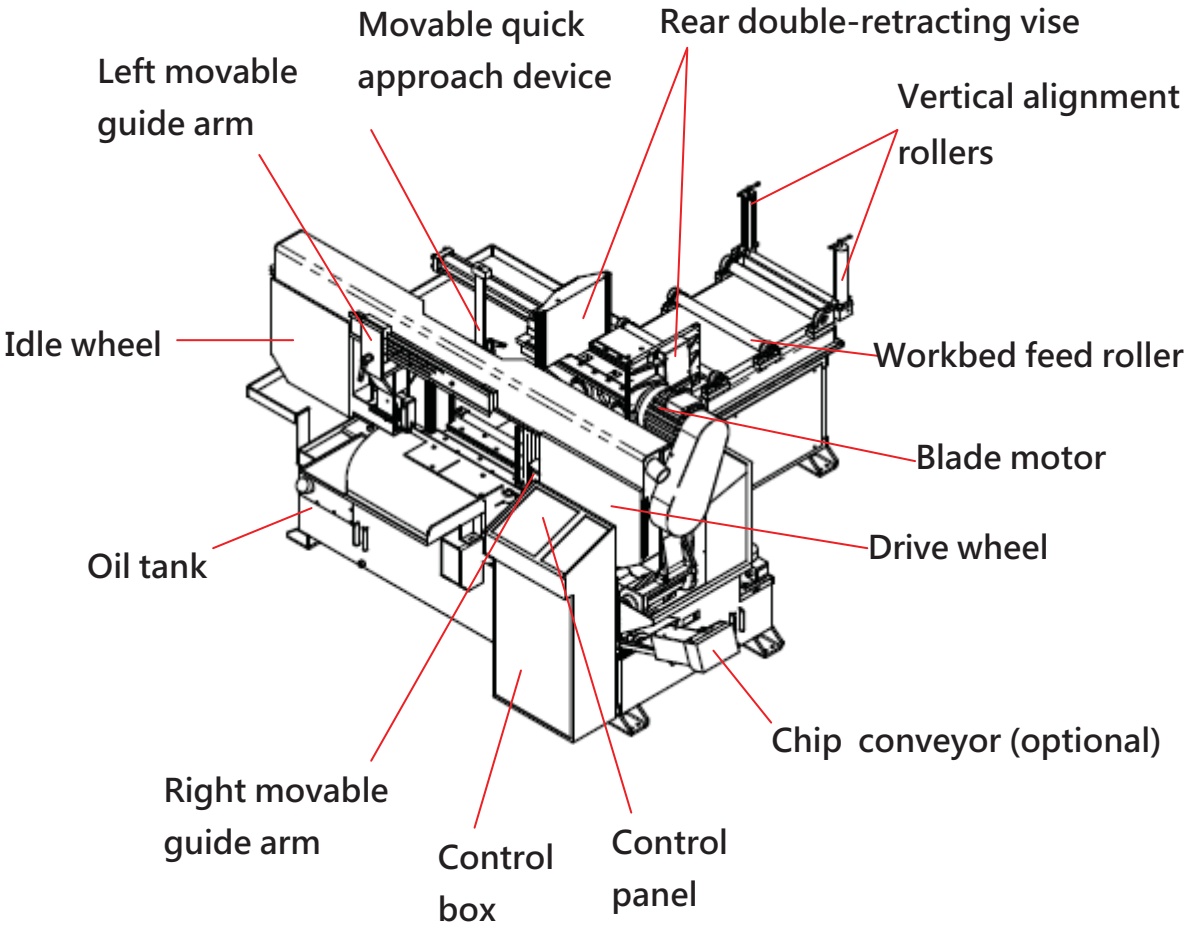
Model / Name of Equipment			C-510MNC SNC-100 Programmable Automatic Hinge-Type Miter-Cutting Horizontal Bandsaw		
Max. Cutting Capacity	Angel		0°	45°	60°
	Round		360 mm (14”)	330 mm (13”)	230 mm (9.1”)
	Square		330 x 330 mm (13 x 13 in)	-	-
	Rectangle (H x W)		330 x 510 mm (13” x 20”)	330 x 330 mm (13” x 13”)	230 x 230 mm (9.1” x 9.1”)
Top Clamp Capacity	Bundle Cutting		W: 175 ~ 450 mm (6.9” ~ 17.7”) H: 130 ~ 240 mm (8.5” ~ 9.4”)		
Saw Blade	Speed		15~100 m/min (49~328 ft/min)		
	Size (L x W x T)		4,900 x 34 x 1.1 mm (193” x 1.3” x 0.04”)		
	Pressure		30~34kgs / cm2 (Tolerance: +1~+2 kgs / cm²)		
	Tension		Hydraulic with automatic blade breakage detection 2200~2300kgs / cm2 (Tolerance: +100~+150 kgs / cm²)		
	Guide		Interchangeable tungsten carbide		
	Cleaning		Steel wire brush with flexible drive shaft driven by main motor		
Main Electricity Output *	Saw Blade		5 HP (3.75 kW)		
	Hydraulic		1 HP (0.75 kW)		
	Coolant Pump		1/8 HP (0.1 kW)		
Tank Capacity	Hydraulic		36 L (9.5 gal)		
	Coolant		61 L (16.1 gal)		
Vise Clamping	Control Method		Hydraulic with full stroke cylinder		
	Min. Clamping Capacity		0 mm		
Remnant Length			----------		
Feeding	Control Method		----------		
	Vise-Clamping Material Pull Weight		----------		
	Speed		----------		
	Length	Single Stroke	505 mm (19.9 in.)		
		Multi Stroke	----------		
Workbed	Height		800 mm (31.4 in)		
Weight	Net		1,980 kg (4,365 lb)		
	Gross		2,135 kg (4,707 lb)		
Floor Space (L x W x H)			2,583 x 2,646 x 1,660 mm (103” x 105” x 66”)		
Operating Environment	Temperature (° C)		5~40 ° C (41~104 ° F)		
	Humidity (%)		30~85% (without condensation)		

*Please refer to the formula "Watt/Voltage = Amperage" with the information above.

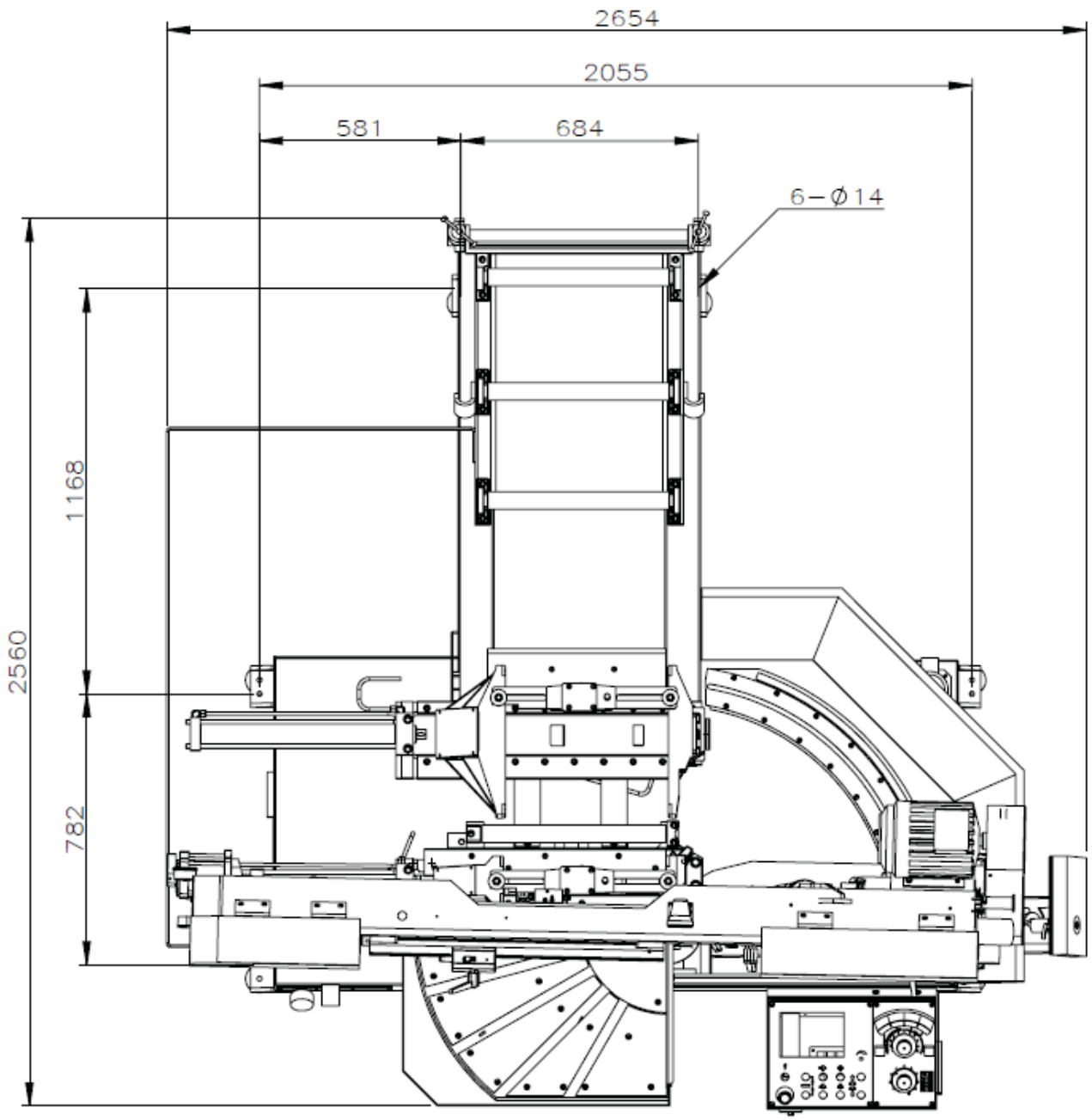
*Design and specification are subjected to change without notice.

*The saw blade pressure and tension standard above are the general values. For special saw blade, please contact to the saw blade manufacturer for the applicable values.

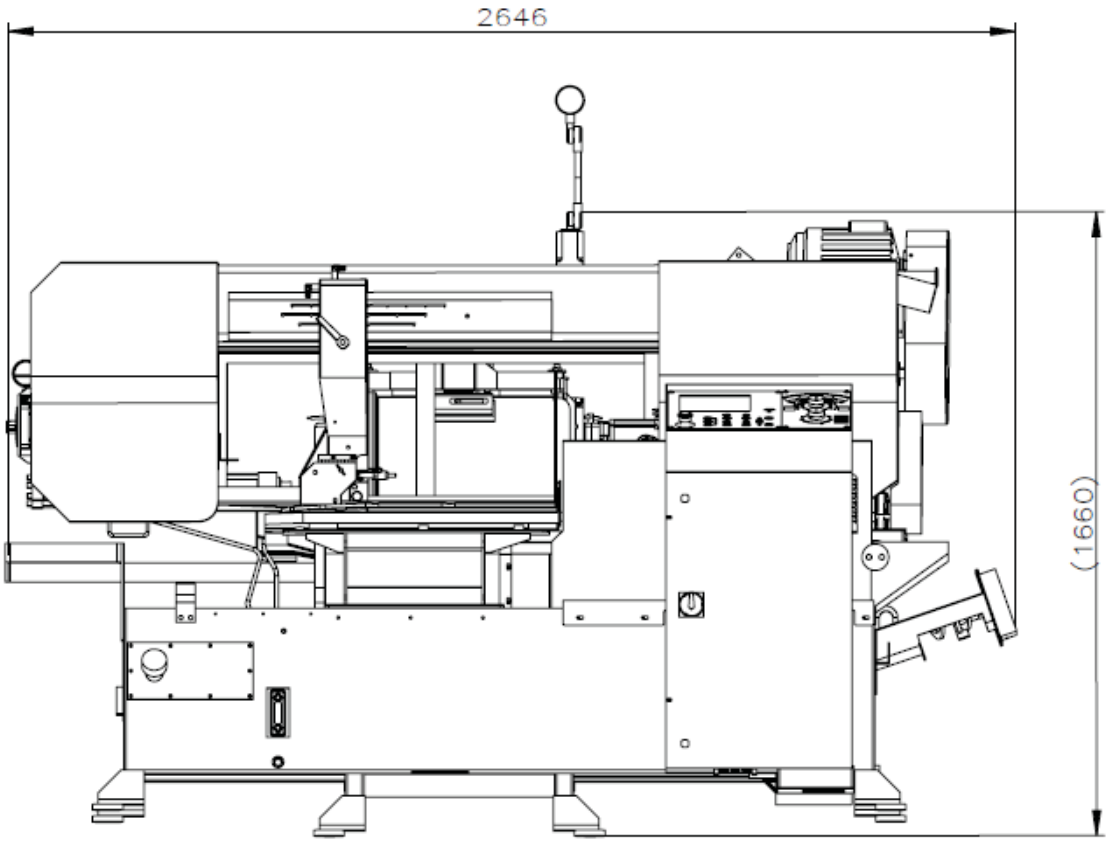
MACHINE PARTS IDENTIFICATION



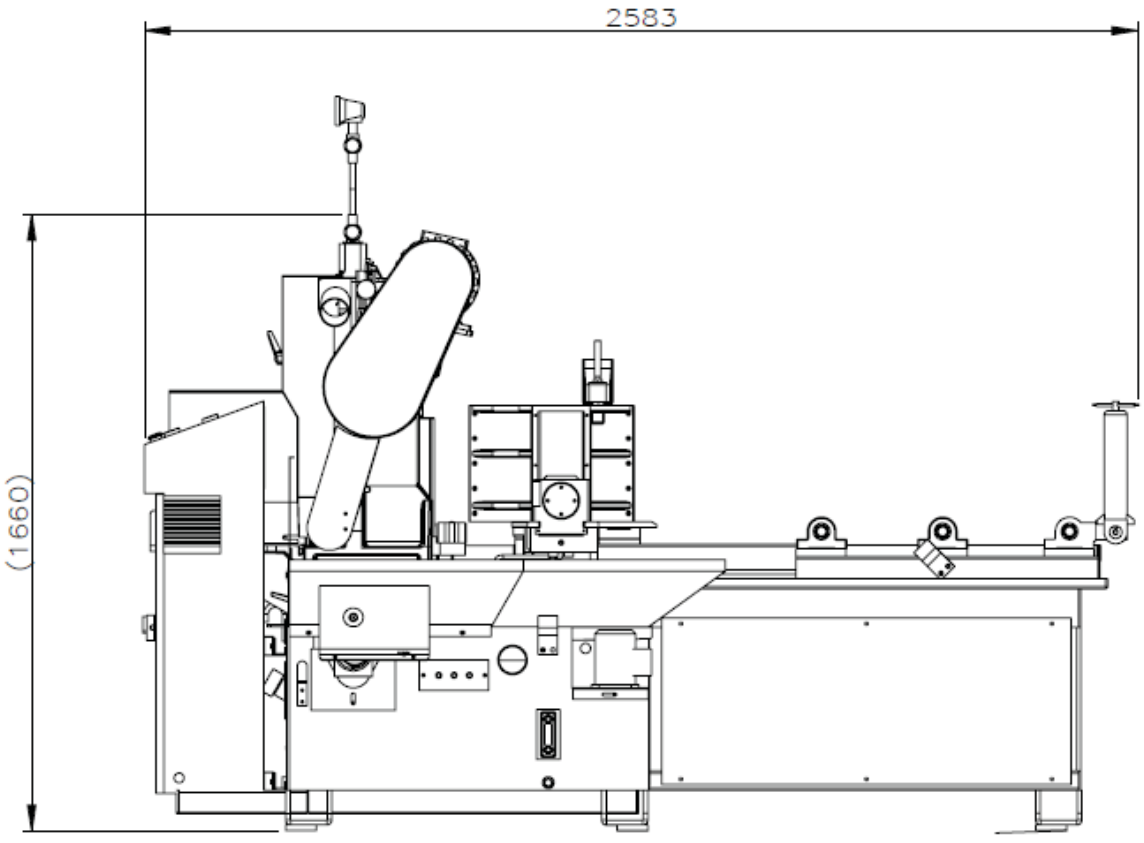
FLOOR PLAN



Machine top view



Machine front view



Machine side view

Section 3

MOVING & INSTALLATION

LOCATION & ENVIRONMENT

For your safety, please read all information regarding installation before proceeding. Install your machine in a place satisfying all of the following conditions:

Space:

- Leave enough free space around the machine for loading work and unloading cut-off pieces as well as for maintenance and inspection. Refer to *Section 2 General Information - Specification* for machine dimensions and floor space.

Environment:

- Well lighted (500 lumen at minimum).
- Floor kept dry at all times in order to prevent operators from slipping.
- Away from direct exposure to the sunlight
- Room temperature between 5˚C to 40˚C.
- Humidity level kept at 30%~85%“(without condensation) to avoid dew on electric installation and machine.
- Away from vibration of other machines
- Away from powders or dusts emitted from other machines
- Avoid uneven ground. Choose a solid level concrete floor which can sustain weight of both machine and material.
- Limit the operation area of the machine to staff only.

UNPACKING & INSPECTING

- Unpack your machine carefully to avoid damage to machine parts or surfaces.
- Upon arrival of your new band saw, please confirm that your machine is the correct model and it comes in the same specification you ordered by checking the model plate on the machine base.
- It is also imperative that a thorough inspection be undertaken to check for any damage that could have occurred during shipping. Pay special attention to machine surface, equipments furnished and the electrical and hydraulic systems for damaged cords, hoses and fluid leaks.
- In the event of damage caused during shipping, please contact your dealer and consult about filing a damage claim with the carrier.
- Your machine comes in with a set of tools for you to maintain the machine. The accessories furnished are as follows:

1.	Tool box	1 pc
2.	Grease gun	1 pc
3.	Screwdriver (+, -)	2 pcs
4.	Open-ended spanner	3 pcs
5.	Hexagon wrench	1 set
6.	Chip spade (only for manual models)	1 pc
7.	Operation manual	1 pc

Should you find any missing accessories, please contact your local agent immediately.

LIFTING

When moving the machine, we strongly suggest you choose any one of the methods described below to move your machine.

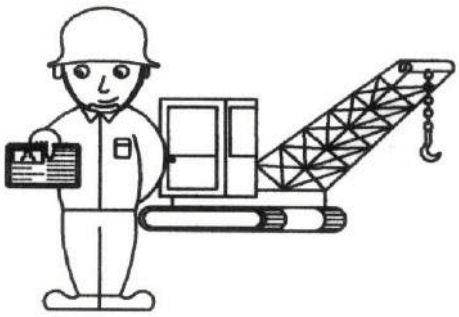
1. (Only applies to the machine with the design of the hanging point.)

Move the machine to its location by using a crane and a wire rope sling that can fully withstand the weight of the machine (refer to machine specification under Section 2 *General Information*).

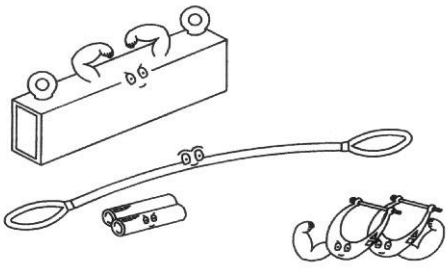
Machine hanging with a crane should be done strictly according to the hanging points designated by the original manufacturer. If there is any doubt on missing hanging points on your machine, please consult with the original manufacturer or its qualified agent before hanging the machine.

- Machine lifting is likely to damage the machine if not performed properly.

***Warning*:** You must have a qualified crane operator to perform the job.



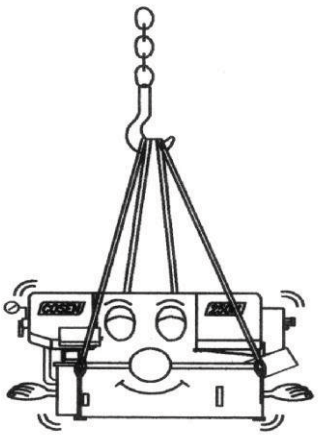
- You must use tools and equipment with the proper tensile strength and use proper method when moving your machine.



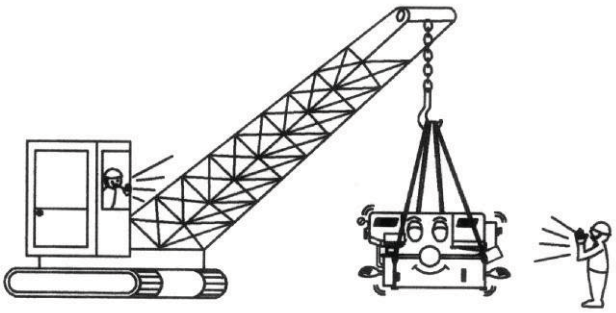
- Apply the wire rope sling to the lifting hooks on the four ends of the machine. Refer to *Illustration: Lifting Points* for exact locations.

- Slowly lift the machine. Be sure to protect the machine from impact or shock during this procedure. Also watch out your own fingers and feet to avoid injuries.

- Keep the machine well balanced during lifting process and make sure the wire rope does not interfere with the saw frame.



- When you work together with more than two people, it is best to keep constant verbal communication with each other.



2. Use a forklift (Only applies to the machine with the design of the lifting point.)

Make sure that the lifting rod can fully withstand the weight of the machine. (Refer to *Section 2 – General Information for Specifications.)*

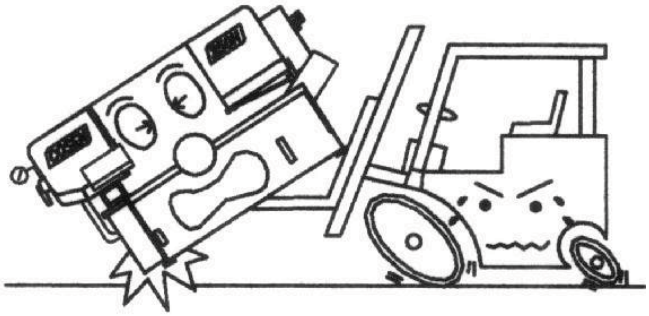
Machine lifting with a forklift should be done strictly according to the lifting points designated by the original manufacturer. If there is any doubt on missing lifting points on your machine, please consult with the original manufacturer or its qualified agent before lifting the machine.

- Machine lifting is likely to damage the machine if not performed properly.

You must have a qualified forklift operator to perform the job.

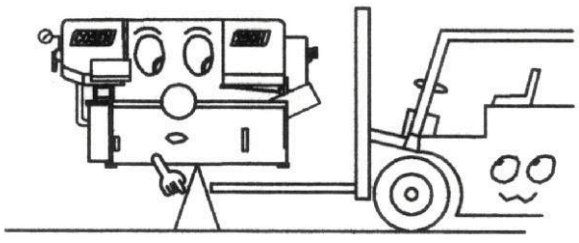
- You must apply proper forklift technique to avoid damage to the machine.

Make sure the forks are able to reach in at least 2/3 of the machine depth.



- You must keep the machine balanced at all times.

Make sure the forks are centered before use.

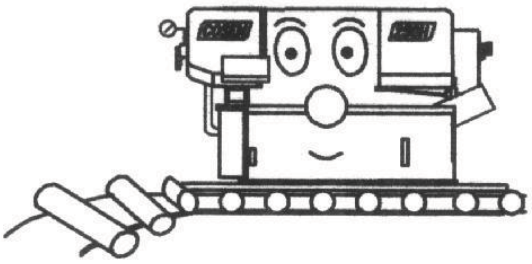


(Illustration only. Please follow user guide of your forklift.)

3. Use rolling cylinders

You can use rolling cylinders to move your machine in a small machine shop environment.

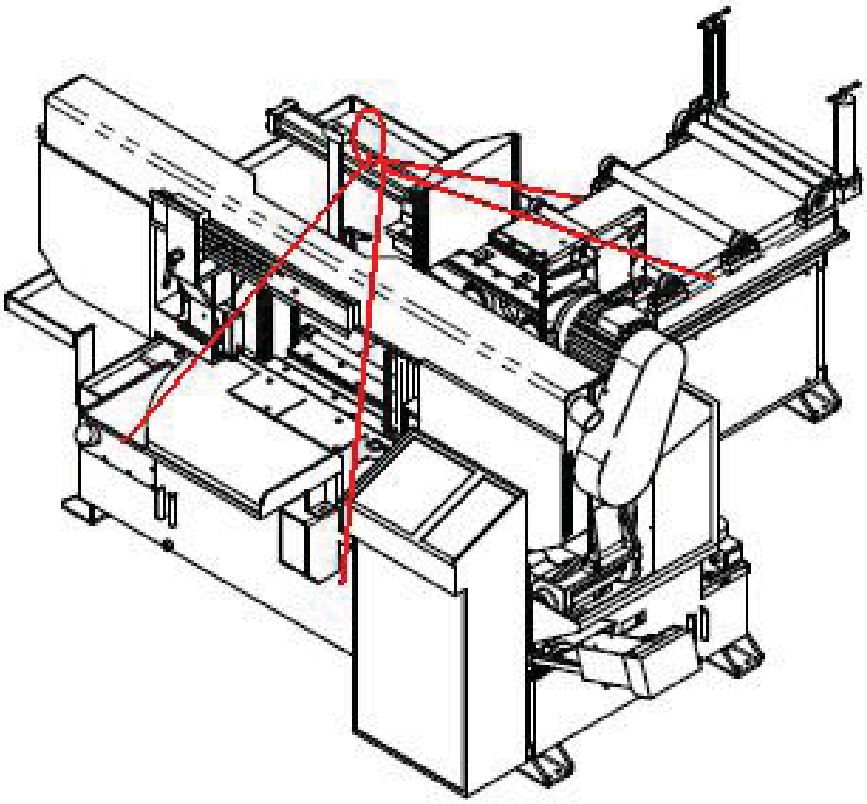
- You must use rolling cylinders made in material of proper compressive strength.



4. Other ways to move

If the machine does not have  or  stickers, please contact your local agent immediately.

Illustration: Lifting Points

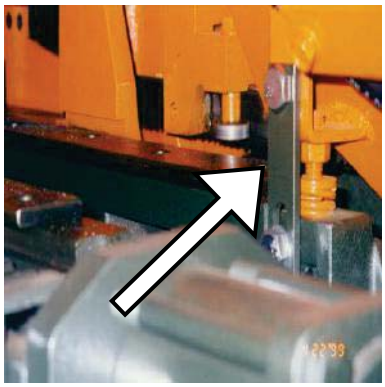


Minimum weight capacity for each wire rope: **2.5 ton**

Total number of wire ropes required: **4**

REMOVING SHIPPING BRACKET

- After the machine has been properly positioned, remove the shipping bracket that is used to lock the saw frame and the saw bed.
- Retain this bracket so that it can be used again in the event that your machine must be relocated.



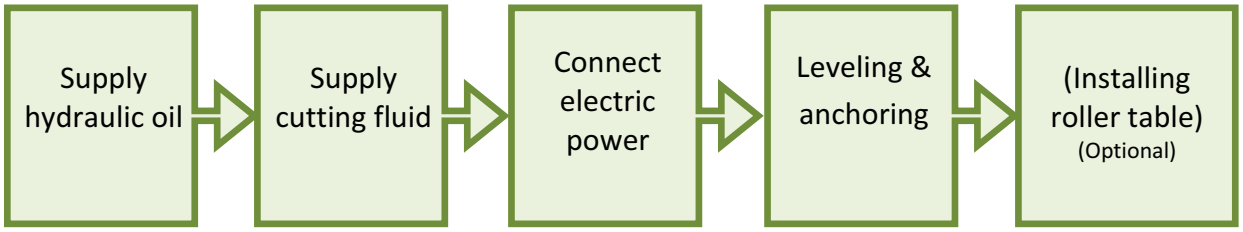
CLEANING

After the machine has been placed at the designated position, remove the rust-preventive grease with wiping cloth dampened with cleaning oil or kerosene. Apply machine oil to machine surfaces that are prone to rust.

Do not remove the rust-preventive grease with a metal scraper and do not wipe the painted surfaces with solvent as doing so would damage surface paint.

INSTALLING

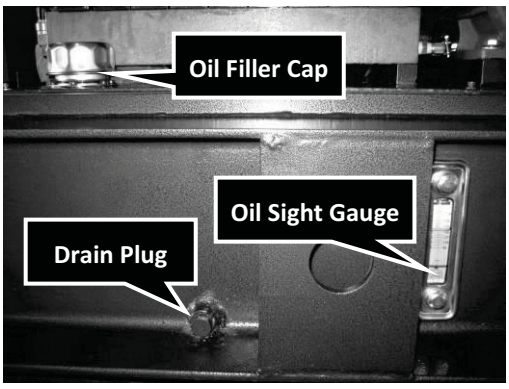
Cosen's bandsaw machine is relatively easy to install. Follow these six easy steps to install your machine.



Supplying hydraulic oil

Open the filler cap and fill the hydraulic oil tank to above 2/3 or full level.

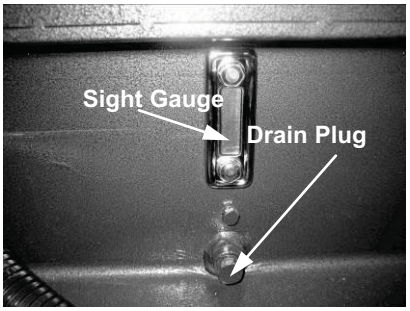
Check the sight gauge to make sure the oil level in the tank.



Refer to specification chart under Section 1 for tank capacity.

Oil tank should be full already if it is a new machine that operates for the first time.

Supplying coolant



Fill the coolant tank to the middle level of the sight gauge by pouring the coolant from above the chip conveyor.

Use the sight gauge to check the coolant level remaining in the tank.

Always check the coolant supply before starting the machine. If the coolant pump is started without enough coolant supply in the tank, the pump and its drive motor may be damaged.

Refer to specification chart under Section 1 *Description* for tank capacity.

Consult your coolant supplier for bandsaw use regarding coolant type and mix ratio.

Connecting electric power

Have a qualified electrician make the electrical connections.

If the power supply voltage is different from the transformer and motor connection voltage shown on the label attached to the electrical compartment of the machine, contact COSEN or your agent immediately.

Connect to power supply independently and directly. Avoid using the same power supply with electric spark machines such as electric welder. Unstable electric tension may affect your machine's electric installation from working properly.

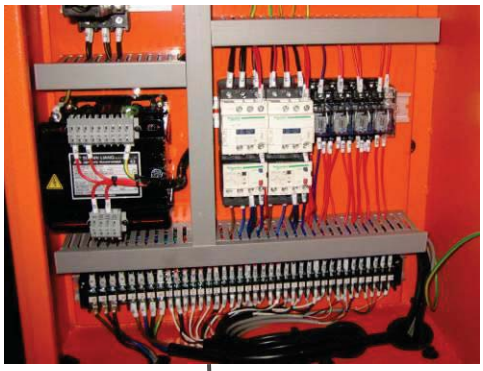
Ground the machine with an independent grounding conductor.

Supply voltage: 90% - 110 % of nominal supply voltage.

Source frequency: 99% - 101 % of nominal frequency.

Refer to the specification chart under Section 1 for total electric power consumption of the motors and make sure your shop circuit breaker is capable of this consumption amount. Also use a power supply cable of proper size to suit the power supply voltage.

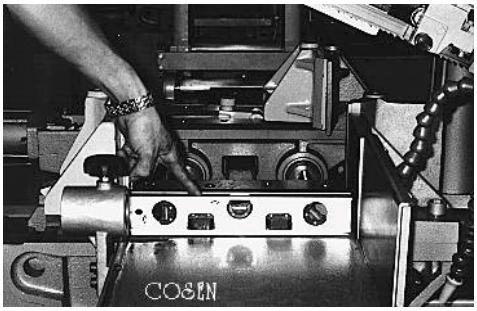
1. Turn off the shop circuit breaker.
2. Make sure the machine circuit breaker switch on the electrical compartment door is turned to OFF.
3. Remove the screw securing the electrical compartment and then open the door.
4. Pull the power supply cable and grounding conductor through the power supply inlet into the electrical compartment. (Shown right)
5. Connect the power supply cable to the circuit breaker (N.F.B.) to the R, S and T terminals, and connect the ground cable to the E terminal.
6. Close the compartment door and fasten the screw back.
7. Turn on the shop circuit breaker and then turn the machine circuit breaker switch to ON. The *Power Indicator* on the control panel will come on.
8. Pull to unlock the *Emergency Stop* button and press the *hydraulic ON* button to start the hydraulic motor.
9. Make sure the sawing area is clear of any objects. Start the blade and check the blade rotation. If the electrical connections are made correctly, the blade should run in a counterclockwise direction. If not, shut the hydraulics off, turn off the machine as well as the shop circuit breaker. Then swap the power the power cable conductors connected to R and T terminals.
10. Repeat step 6 to 9 to ensure the electrical connections are in the right order.



Leveling

Place spirit level on the vise slide plates and the work feed table.

Level the machine in both directions i.e. along and across the machine. Adjust the level of the machine by turning the leveling bolts.



Make sure all leveling bolts evenly support the machine weight.

In some cases, leveling the machine with a slight slope toward the front of the machine is recommended as it would prevent coolant from running down cutting material especially tubes or bundles. To do so, make the rear end of the machine approximately 10 mm higher than the level of the front end.

Anchoring the machine

Normally there is no need to anchor the machine. If the machine is likely to vibrate, fix the machine to the floor with anchor bolts.

Shock absorption steel plates are provided and can be placed under each leveling bolt to prevent their sinking into the concrete floor.

Installing roller table (optional)

The roller table is used to support long material at the rear and/or the front of the machine.

If you have ordered the optional roller table for cutting long material, position it before or behind the machine.

Level the roller table and the stand with the machine by adjusting the leveling bolts.

Installing Fire Control Device

Install a fire extinguisher or any other fire control device in the shop in case a fire breaks out.

RELOCATING

We recommend you follow these procedures when relocating or shipping your machine to other place:

1. Descend the saw frame to its lowest position then turn off the power.
2. Fix the saw frame using the shipping bracket that originally came with the machine.
3. If you are shipping the machine, pack the machine carefully with industrial plastic wraps to protect it from dust.
4. Use a crane or forklift to raise it. If a crane is used to lift the machine, ensure that the lifting cable is properly attached to the machine.
5. Do not forget to include the equipments originally furnished including the shock absorption steel plates and the instruction manual.

Section 4

OPERATING INSTRUCTION

SAFETY PRECAUTIONS

For your safety, please read and understand the instruction manual before you operate the machine.
The operator should always follow these safety guidelines:

- The machine should only be used for its designated purpose.
- Do not wear gloves, neckties, jewelry or loose clothing/hair while operating the machine.

- For eye protection, always wear protective safety glasses.

- Check the blade tension and adjust blade guides before starting the machine.
- Use auxiliary clamping or supporting devices to fix material in place before cutting long workpieces. Always make sure the material is clamped firmly in place before starting to cut.
- Do not remove jammed or cut-off pieces until the blade has come to a full stop.
- Keep fingers away from the path of the blade.

- Protection devices should be in place at all times. For your own safety, never remove these devices.
- Disconnect machine from the power source before making repairs or adjustments.

- Wear protection gloves only when changing the blade.

- Do not operate the machine while under the influence of drugs, alcohol or medication.

- Do not take your eyes off the machine while in operation.
- Do place warning signs to mark out machine work zone and restrict entry to be staff-only.

BEFORE OPERATING

Choosing an appropriate saw blade and using the right cutting method is essential to your cutting efficiency and safety. Select a suitable saw blade and cutting method based on your work material and job requirements e.g. cutting accuracy, cutting speed, economic concern, and safety control.

Wet cutting

If you choose dry cutting or low-speed cutting, the chips may accumulate in machine parts and may cause operation failure or insulation malfunction. We suggest you choose wet cutting to avoid machine damage.

Cutting unknown materials

Before cutting an unknown material, consult the material supplier, burn a small amount of chips from the material in a safe place, or follow any other procedure to check if the material is flammable.

 Never take your eyes off the machine while in operation.

Cutting fluid

For cooling and lubrication purpose, we recommend you use water-soluble cutting fluids. The following table lists out its pros and cons for your reference.

Pro	Con
• Have a high cooling effect • Not flammable • Economical • Does not require cleaning of the cut products	• Remove machine paint • Lose its rust protection effect if deteriorated • Tend to create foam • Subject to decay • Decline in performance, depending on the quality of the water used for dilution

 Never use water as your coolant.

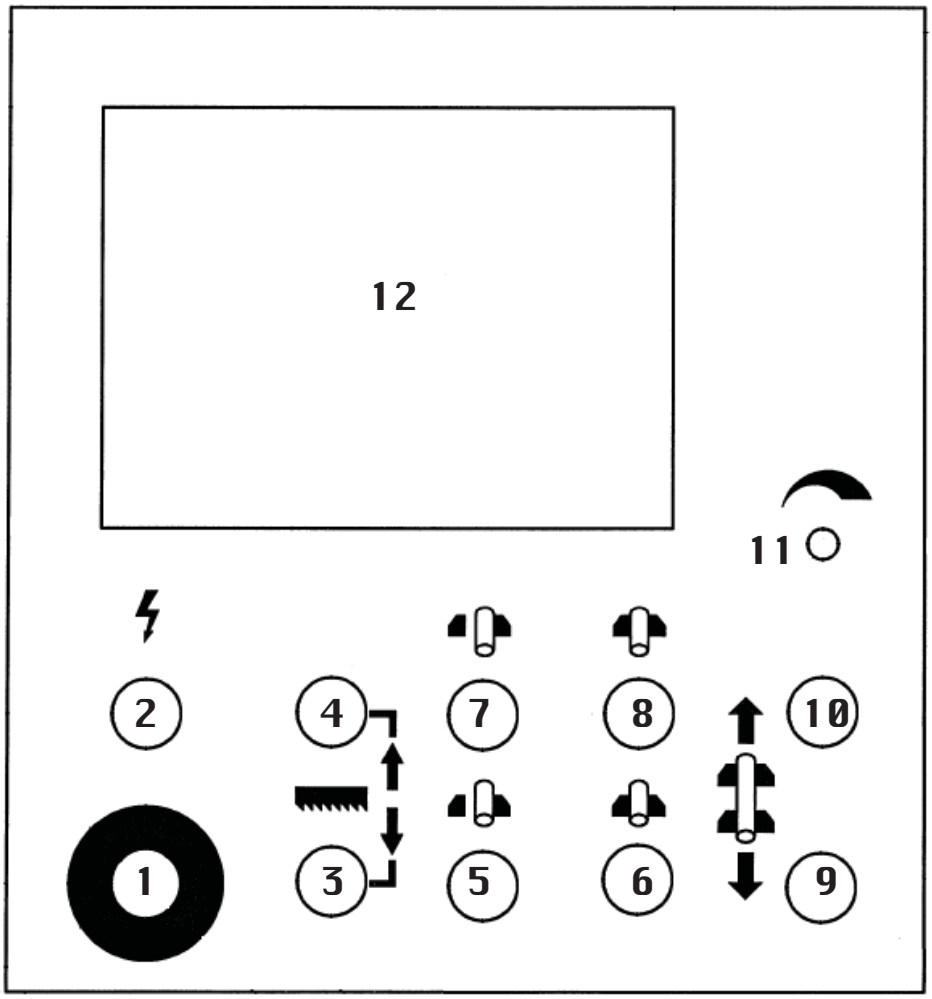
 Always add coolant into water for better mix result.

 Consult your coolant supplier for bandsaw use regarding coolant type and mix ratio.

 Before starting a cutting job, make sure there is sufficient amount of coolant in the tank. Check the fluid level through the sight gauge. Please refer to machine specifications in this manual (Section 2) for tank capacity.

CONTROL PANEL

The control panel is located on the top of the electrical box. It includes the following function: power system, hydraulic system, cooling system and the human-machine–interface (HMI). The operator must fully understand the function of each switch and button before operating the machine.



No.	Name	No.	Name
1	Emergency stop button	7	Rear vise open button
2	Power indicator lamp	8	Rear vise clamp button
3	Saw bow down button	9	Feed forward button
4	Saw bow up button	10	Feed backward button
5	Front vise open button	11	Blade speed control knob
6	Front vise clamp button	12	HMI touch screen

Control Buttons

1. Emergency stop button

Press this button to stop the machine in an emergency. When the button is pressed, it brings the machine to a full stop. The button locks when pressed. In order to unlock it, please turn the button clockwise.

2. Power indicator lamp

When the lamp is on, it indicates the power to the machine is turned on.

3. Saw bow down button

When this button is pressed, the saw bow descends.

 Quick approach bar has to touch the upper limit switch to trigger the quick approach function. Please refer to Quick Approach device in Standard Accessories Section for detailed introduction.

 Before lowering the saw bow, the guide arm must be positioned outside the vise in order to avoid hitting the vise and causing damages.

4. Saw bow up button

When this button is pressed, the saw bow rises until the operator lets go of the button or until the saw bow reaches the highest position.

 While pressing the saw bow up button can stop the running blade, please still make use of the emergency stop button in an emergency.

5. Front vise open button

This button only works when the machine is switched to manual mode “”.

 If the quick approach bar is not touching the upper limit switch, the front vise can only be opened in small increments, so as to prevent the vise from hitting the guide arm.

6. Front vise clamp button

This button only works when the machine is switched to manual mode “”.

7. Rear vise open button

This button only works when the machine is switched to manual mode “”.

Rear vise is double-retracting. Fixed vise moves in ahead of movable vise to avoid material dropping or collision during cutting.

8. Rear vise clamp button

This button only works when the machine is switched to manual mode "".

Rear vise is double-retracting. Fixed vise moves in ahead of movable vise to avoid material dropping or collision during cutting.

9. Feed forward button

- When this button is pressed, the feeding workbed will move forward. Press and hold the button to feed forward. As soon as the button is released, the feeding workbed will stop moving forward.
- This button only works when the machine is switched to manual mode "".
- This button is only in function when the quick approach bar is touching the upper limit switch AND when either of the front and rear vises are unclamped.

After the blade motor starts running, this function is disabled due to safety concerns.

10. Feed backward button

- When this button is pressed, the feeding workbed will move backward. Press and hold the button to feed backward. As soon as the button is released, the feeding workbed will stop moving backward.
- This button only works when the machine is switched to manual mode "".
- This button is only in function when the quick approach bar is touching the upper limit switch AND when either of the front and rear vises are unclamped.

After the blade motor starts running, this function is disabled due to safety concerns.

11. Blade speed control knob

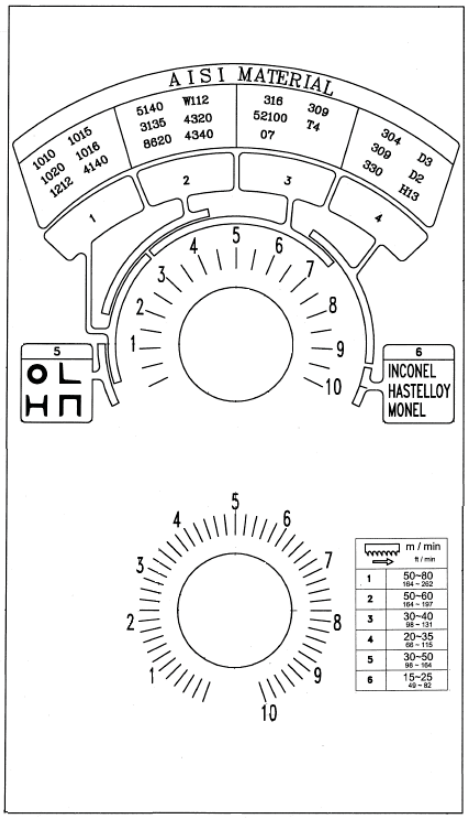
Blade speed is controlled by the inverter located in the control box. Turning the knob clockwise increases the blade speed.

12. HMI touch screen

Please refer to later section for detailed introduction.

Blade Descend Pressure and Speed

The part of control panel is where cutting pressure and saw bow descend speed can be adjusted.



Cutting pressure and speed control panel

1. Cutting pressure control knob

- This pressure control knob is used to adjust the cutting pressure of the blade.
- Turning the knob clockwise increases the cutting pressure.
- To obtain a good cutting result, choose the right cutting pressure by turning the knob until it points to your material on the color chart.

2. Blade descend speed control knob

- This knob is used to adjust the descend speed of the saw blade.
- Turning the knob clockwise increases the blade descend speed.
- Blade descend speed is a determining factor to a good cutting time and quality cutoff surface.
- Set the blade descend speed in accordance with the *cutting pressure control* knob.
- Also commonly known as the *flow control valve*

Human-Machine-Interface (HMI) Touch Screen

This HMI touch screen displays operation messages so that the operator is able to understand the system condition. It also provides different operating modes and selections for the operator to work with. During a cutting job, the operator can still enter the system and make changes to the cutting operation as needed.

Do not wipe or clean the screen with volatile solvents.

Do not overexert pressure on the screen. The touch screen is very sensitive; all buttons on the screen just need a slight touch to operate.

All range parameters in HMI are configured under the “manual” mode.

Please pay attention to the following environment conditions necessary for the HMI touch screen to properly operate:

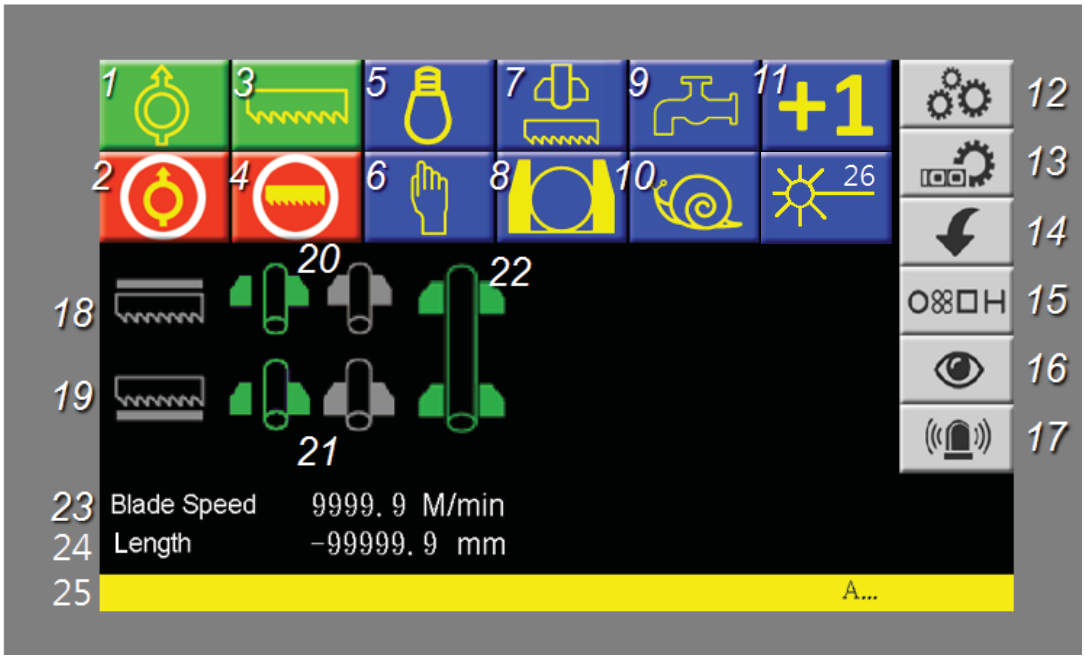
Item	Range
Ambient temperature	5℃ ~ 50℃
Temperature for safe operation	-10℃ ~ 60℃
Ambient humidity	30%~85% RH (No condensation)
Connection	RS422 MMI port
Environment	No condensation and rust

Startup Screen

After the power is turned on, Cosen's logo will appear as the startup screen, followed by the main operation menu..

Main control menu

The main control menu includes some operating button that were used on the control panel of the earlier machines. Some convenient functions are added to the page for the operator to better understand the features of the machine. Setting the parameters shown on the screen requires a gentle touch of the finger. You can also look up the parameters or make changes while in the middle of a cut.



Refer to the table below for descriptions of each function.

No	Item	Function	Description
1		Hydraulic start	When the power is turned on, press this button to start the hydraulic motor. A solid yellow icon indicates the hydraulic system has been turned on. 
2		Hydraulic stop	Press this button to turn off the hydraulic motor immediately.  When the blade is running, the *hydraulic stop* button is temporarily disabled. You need to press the *saw blade stop* or the *saw bow up* button to stop the blade first.
3		Blade start	When the work piece is clamped properly, press this button to start cutting. A solid yellow blade icon indicates the blade has been started. 
4		Blade stop	Press this button to stop the blade.
5		Work light ON/OFF	Press this button to turn on the work light. The light bulb showing a solid yellow icon indicates the worklight has been turned on. 
6	 	AUTO / Manual mode	Use this button to switch between automatic and manual mode. ● **AUTO mode:** used to automatically perform continuous cutting jobs. When switched to this mode, the machine will automatically operate according to the preset parameters. ● **Manual mode:** used to perform individual cutting job. When switched to the Manual mode, you can execute each individual function.  *Trim Cut* - When the machine is switched from the Manual mode to the AUTO mode, the first cut (trim cut) will not be counted into finished cuts and the machine will continue to operate according to the preset parameter. This function allows the machine to finish the trim cut and directly proceed into automatic cutting till the last cutting job.  If you switch to manual mode while cutting is already in action under AUTO mode, the machine will stop after the individual cut is finished. Switching to manual mode at any time other than cutting, the machine will proceed with the next cut until it is finished.

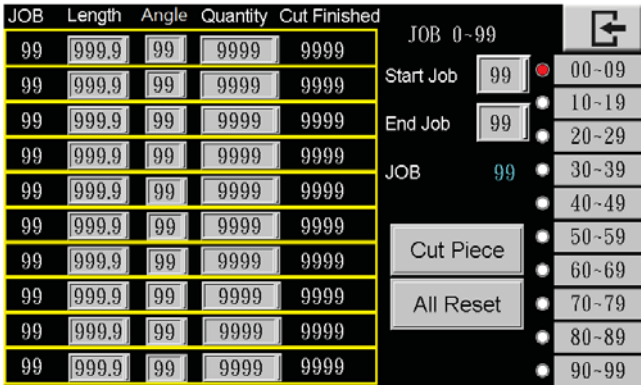
No	Item	Function	Description
7		Material retract 2mm ON/OFF	When this function is turned on, the machine will retract the material for 2mm after completing each cut before the blade rises from its lowest position. A solid yellow icon indicates the *Material retract 2mm* mode has been turned on. 
8		Single/Bundle cutting mode	This button is used to switch between single or bundle cutting mode. ● Switch to single cutting model () to cut a single work piece. ● Switch to bundle cutting mode () to cut a stack of work pieces.  When under bundle cutting mode, the feeding vise must be touching the front limit switch for the blade to be able to start.
9		Coolant ON/OFF	Press this button to turn on the coolant pump. A solid yellow faucet icon indicates the coolant pump has been turned on.  Press again to turn off the coolant pump.
10		Slow material feeding mode	Used only when under Manual mode. When the slow material feeding mode is turned on, the material feeding speed will dramatically reduce to help you position the work piece precisely.
11		Trim cut ON/OFF	This selection button works with the AUTO mode. When under AUTO mode and before proceeding with your automatic cutting jobs, select +0 if you wish the first cut to be “trim cut” i.e. trimming the edge of your material without the cut being counted into the “finished cuts.” In the other hand, select +1 if you do not need to trim cut the material. The first cut will then be counted as the first cut of your programmed jobs.  After the first cut begins, you may still change your selection before the saw bow has descended to its lowest point.
12		System parameter setting	Press this button to set up system parameters. Password is required.  All parameters have been set up by the manufacturer. In order to prevent random change from being made to these parameters and affect cutting precision and machine

No	Item	Function	Description
			life, this function is protected with a set of password.
13		Cutting program setting	Press this button to directly enter the cutting job program setup page. A total of 100 cutting programs can be set.
14		Cutting parameter setting	Press this button to display cutting-related information e.g. total number of cuts completed and feeding length OR to set parameters e.g. cutting lengths and quantity. (A total of 100 cutting programs can be set.) Blade deviation detector (optional) can be also configured in this setup page. Refer to Cutting Display & Setup in the following page.
15		Material cutting reference	This reference chart lists out the required blade speed and cutting rate for each different material.
16		PLC monitor	Shows current PLC signals.
17		Error report	Lists a historical report of the errors and the time of occurrence as well as provides troubleshooting support.
18		Saw blade up indicator	Indicates that the saw blade is rising. When activated, the saw blade icon will turn solid white. 
19		Saw blade down indicator	Indicates that a cut is completed and the saw blade is at its lowest position. When the blade completes each cut and triggers the lower limit switch, the saw blade icon will turn solid white. 
20		Rear vise status indicator	Indicates if the **rear** vises have clamped and secured the workpiece. When the rear vises have secured the workpiece, the clamping vise icon on the right will turn solid white. 
21		Front vise status indicator	Indicates if the **front** vises have clamped and secured the workpiece. When the front vises have secured the workpiece, the clamping vise icon on the right will turn solid white. 

No	Item	Function	Description
22		Feeding movement indicator	When the feeding vise reaches the front limit, the vise set icon will turn solid white. 
23		Blade speed display	Displays current blade speed
24		Feeding length display	Displays current feeding length while the material is being fed
25	(yellow highlight)	Error display	Displays error messages in the order of occurrences; press the message for one second to clear the messages.  **The message must be cleared for the machine to continue to operate normally.**
26	 (optional)	Laser light ON/OFF	Press this button to turn on the laser light. A beam of light will be projected on the work piece for alignment. A solid yellow light bulb icon indicates the lamp has been turned on.  The laser light automatically turns off in 90 seconds to prolong light bulb lifetime.

Cutting program setup

When cutting is in operation, press  to quickly access the cutting program setup page.



- In this page you can set your desired cutting length and quantity and see the number of finished cuts (*Cut Finished*) and number of current cutting job in operation
- A total of 100 cutting jobs can be set and performed under the automatic mode.
- In “start job” and the “end job” field, fill in the number of the cutting job you wish to start and end with. The machine will automatically perform cutting jobs within this range.
- In *Length* column, set each respective cutting length in mm or inch.
- In *Angle* column, set each respective cutting angle.

  (you have to swivel angle manually)
- In *Quantity* column, set each respective cutting quantity.
- Press Cut Piece button for 3 seconds to reset the cutoff quantity.

  If you start a new set of program without clearing cutoff data from previous job, the first cut (trim cut) will be skipped as the second program is deemed as the succeeding part of the previous program.
- All Reset - Reset all preset cutting data within *Start Job* and *End Job* by pressing this button for three seconds.
- Press  to return to the main control menu.
- Press 00~09, 10~19, 20~29, 30~39 to quickly jump between cutting programs (Job 00 ~ 99)

Notice:

1. 100 cutting jobs (job 00~99) is the Max Amount for the system to save; more than 100 jobs setting will start to cover the jobs from the first job of the HMI.(EX: If you set-up the 101th job, your first job(job 00) will be rewritten by the 101th job.)

2. The memory can keep 7 days without electric supply.

 *Cutting status display & setup*

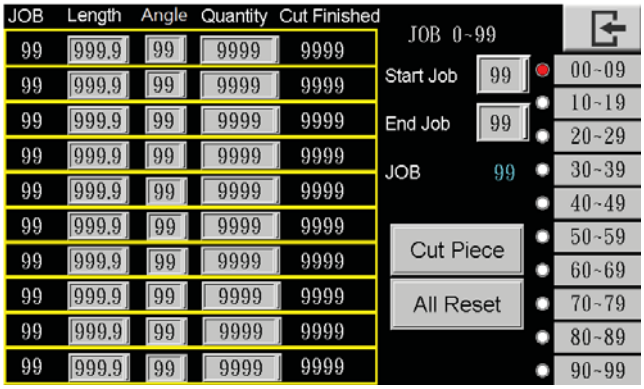
When cutting is in operation, press  to enter cutting status display and setup page.

Page 1 – cutting status display & setup

- This page shows the following information (from top to bottom):
  - Blade brand, blade type, blade TPI, blade model, and cutting material are displayed only if installed CPC. Press  to enter material setup page (available only if installed CPC). Please refer CPC manual for description.
  - Feeding length (current feeding vise position)
  - Blade speed
  - Number of current cutting job in operation
  - Set quantity
  - Number of cuts finished
  - Error messages (highlighted in yellow; can be cleared by pressing down for one second)
- Press  to return to the main control menu.
- Press  to go to the next page.

Page 2 – cutting status setup

- Blade ID, accumulative cutting area, accumulative cutting time and accumulative tension time are displayed (optional).
- Press  to open the blade management page shown below (optional). Please refer to blade management for detailed information.
- Remaining pieces
- Remaining time
- Est. Time per Cut
- Est. Total cutting time
- Error message (bottom of page)
- Press  to return to the main control menu.
- Press  to go back to the previous page.
- Press  to go to the next page.



Page 3 – cutting program setup

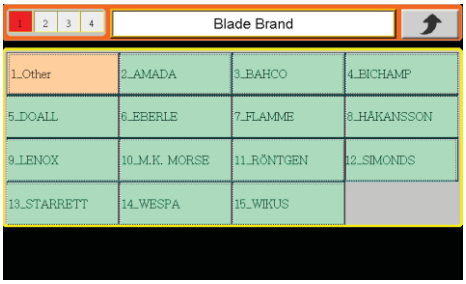
- This setup page is the same as the cutting program setup page.

Blade management Page

Blade Management

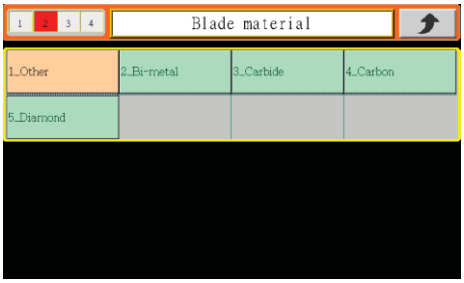
Tap  to edit blade brand, blade type, blade model and blade TPI as shown below.

Tap  to return last page.



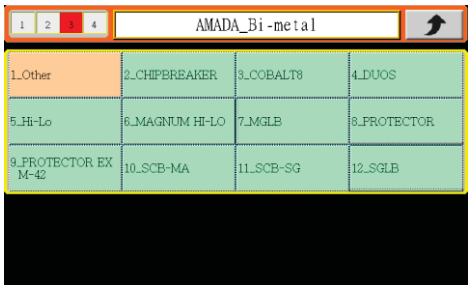
Blade brands

There are total 15 blade brands. Choose the blade brand and it will go to blade material type page automatically.



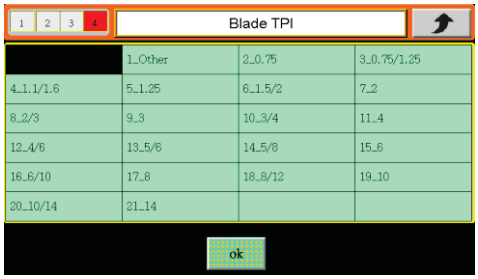
Blade material types

There are total 5 blade material types. Choose the blade material type and it will go to blade model page automatically.



Blade models

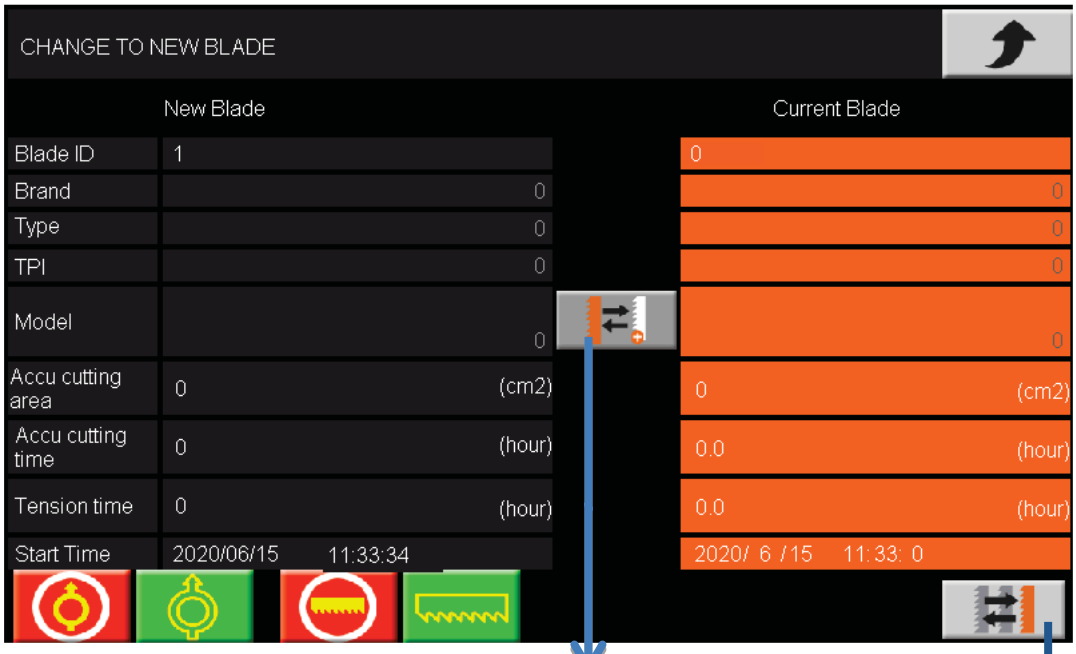
After choosing the blade brand and blade material type, the corresponding blade models will appear. Choose the blade model and it will go to blade TPI page automatically.



Blade TPI

Choose the blade TPI. Tap ok to finish setup.

CHANGE TO NEW BLADE



Tap for 3 seconds to copy new blade information from information of current blade.

Tap this button to Use spare blades

	Hydraulic start	When the power is turned on, Tap this button to start the hydraulic motor. A solid yellow icon indicates the hydraulic system has been turned on. 
	Hydraulic stop	Tap this button to turn off the hydraulic motor immediately.  When the blade is running, the Hydraulic Stop button is temporarily disabled. You need to Tap the *saw blade stop* or the *saw bow up* button to stop the blade first.
	Blade start	When the work piece is clamped properly, Tap this button to start cutting. A solid yellow blade icon indicates the blade has been started. 
	Blade stop	Tap this button to stop the blade.

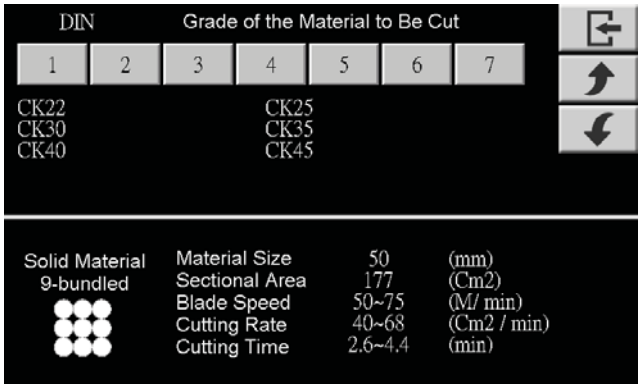
 **Use spare blades :** Chose blade ID from the list.

Tap  to change to assign  .

Tap  to Blade Managment page

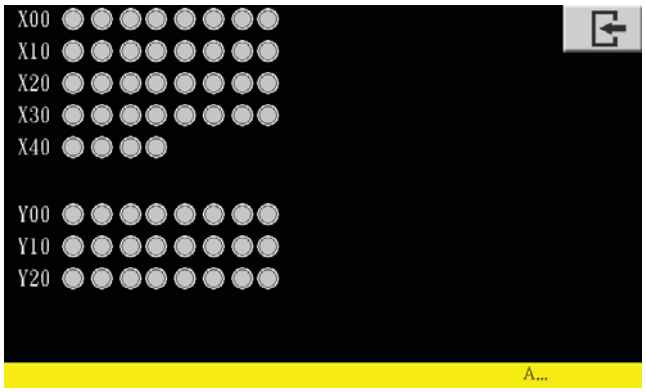
Tap  to Change to new blade page

Material cutting reference



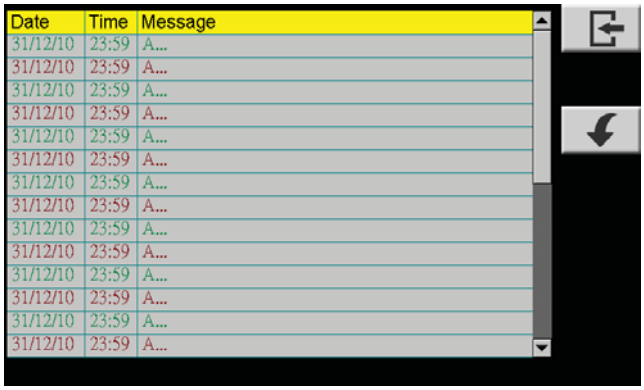
- This reference chart lists out the required blade speed and cutting rate for each different material.
- Press to return to the main control menu.
- Press to go back to the previous page.
- Press to go to the next page.

PLC Monitor



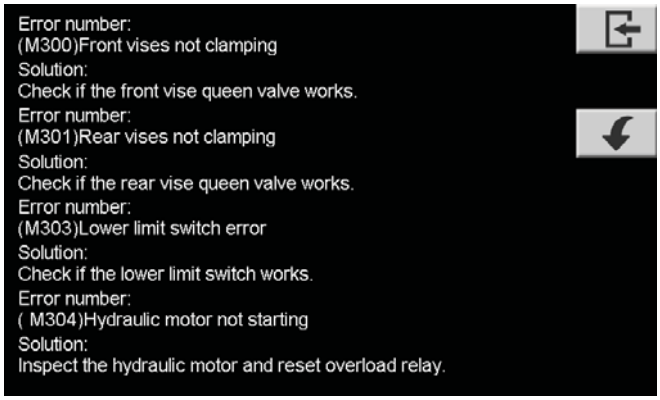
- Shows all signals of the PLC system.
- Press to return to the main control menu.

Error report



Page 1 – error report

- Lists a historical report of the errors and the time of occurrence.
- Press to return to the main control menu.
- Press to go to the troubleshooting support page.



Page 2 – troubleshooting

- Provides suggestions on troubleshooting.
- Also refer to the below Table for error codes, descriptions and solutions.
- Press  to return to the main control menu.
- Press  to go to the next page.

Error Code	Error Description	Solution
M300	Front vises not clamping	Check if the queen valve works
M301	Rear vises not clamping	Check if the queen valve works
M303	Lower limit switch error	Check if the lower limit switch works
M304	Hydraulic motor not starting	Check if the hydraulic motor works
M306	Broken blade detected	1. Check if the speed switch works 2. Check if the blade is broken
M308	Left safety door abnormal	1. Check if the left safety door is shut properly 2. Check if the left safety door limit switch works
M309	Right safety door abnormal	1. Check if the right safety door is hut properly 2. Check if the right safety door limit switch works
M312	Quick approach bar abnormal	Check if the quick approach limit switch works
M313	OL1 abnormal	Check if the blade motor overload relay has tripped
M314	OL2 abnormal	Check if the hydraulic motor overload relay has tripped
M315	OL3 abnormal	Check if the coolant pump motor overload relay has tripped
M316	Saw bow upper limit abnormal	Check the upper limit switch works
M352	Front vise clamping error	1. Place new material 2. Check if the vise queen valve works 3.Check if the “no material parameter” is too low
M357	Saw bow descending error	1. Check if the descend solenoid valve is stuck 2. Check the quick approach bar works 3. Check if the quick approach bar limit switch works
M358	Saw bow ascending error	1. Check if the ascend solenoid valve is stuck 2. Check the quick approach bar works 3. Check the quick approach bar limit switch works
M361	No material	1. Place new material 2. Check if the vise queen valve works 3.Check if the “no material parameter” is too low
M363	PLC battery voltage too low	Replace PLC battery

STANDARD ACCESSORIES

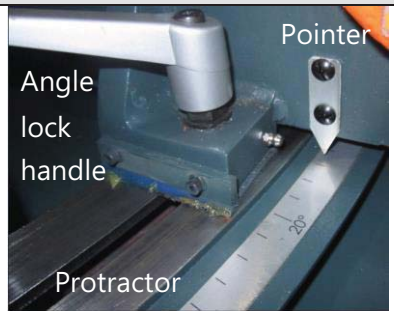
Blade tension device

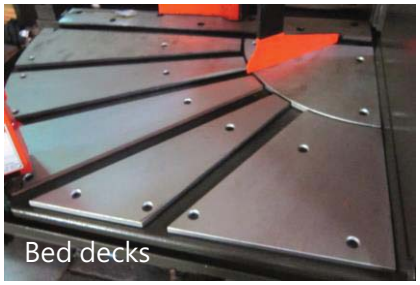
- This blade tension device equipped with hydraulic cylinder provides appropriate tension to the saw blade.
- To tighten the saw blade, turn the selector to  .
- Upon saw blade breakage, the safety device will activate and automatically stop all machine operation.
- The limit switch of the safety device can be reset by turning the blade tension selector to  .
- To change the blade, turn the handle to  to release saw blade tension.

Blade speed/motion detector

- Besides detecting the blade speed, the speed/motion detector also functions as a safety device.
- The speed/motion detector protects operators and the machine by preventing blade overloads and consequent damages if a saw blade breaks or skids.
- Once blade breakage or slippage is detected, the drive wheel will stop in 10 seconds.

Miter cut angle scale & bed deck





The swivel sawhead allows the user to cut at any angle between 0° (straight cut) and 60° (miter cut). The angles have been accurately configured before machine shipment.

There are decks on the workbed. Each bed deck is 15° apart. For your miter-cutting jobs that are not multiple of 15°, please remove the bed decks before cutting so the blade and blade cover can pass without interfering. Swivel the saw bow until the pointer points to your desired angle and lock the saw bow via angle lock handle.

Gear reducer

The specially designed gear reducer can work toward your preset blade speed and torque.

Please refer to Section 6 for information on maintenance.

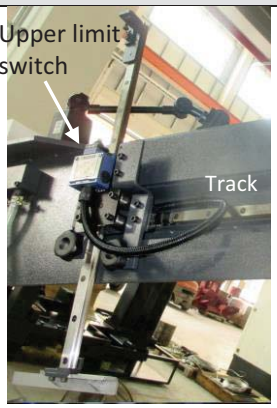
Inverter

- This inverter is installed inside the electrical compartment. It is used to control and stabilize the saw blade speed during cutting.
- To adjust blade speed, use the *blade speed control knob* on the control panel.

Note:

1. Make sure the terminal points are connected.
2. Make sure the ambient temperature is within acceptable range and keep the surroundings well ventilated.
3. Keep the inverter away from dust.
4. For repair or maintenance, please contact your local agent.

Quick approach device



Quick approach bar

This device allows the blade to quickly descend to just right above the material to save you operation time. When the blade descends for cutting, one end of the quick approach bar will touch the material and another end will no longer touch the upper limit switch. At this time, the blade will descend at the speed of the preset blade descend speed control knob.

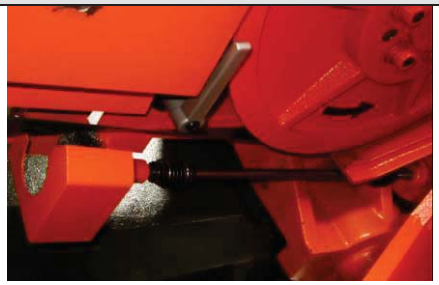
Before cutting, loose the knob and adjust the position of the quick approach device just right above the center of the material.

Pay extra attention with miter-cutting to avoid collision.

Coolant pump

When the hydraulic system is turned on, the coolant pump can be operated individually from the control panel. Coolant can be used to wash off chips as well as providing cooling during cutting.

Hydraulic powered wire brush



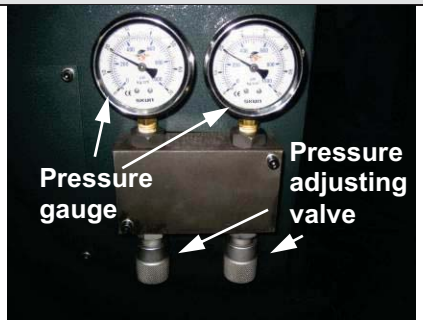
The wire brush is hydraulically driven to rotate at the same speed as the blade motor. It removes the metal chips on the saw blade teeth to so that blade life can be extended.

Keep hands away from the transmission shaft and the brush while the wire brush is running

Turn off the hydraulic motor or the main power switch before performing maintenance or cleaning on the wire brush drive system.

OPTIONAL ACCESSORIES

Vise pressure regulator

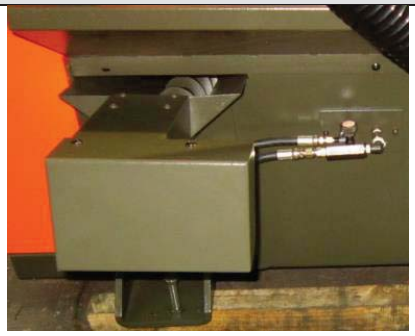


- This adjustment valve is used to control vise pressure.
- Adjust vise pressure based on the material of your workpiece.
- When cutting pipes or soft materials, reduce vise pressure to prevent exerted pressure from damaging the workpiece shape or exterior.

Do not adjust vise pressure at any time during cutting.

Vise pressure should never be lower than 8 kg/cm^2.

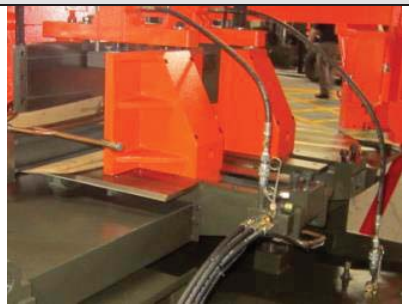
Chip conveyor



Chip conveyor is a spiral device to bring chips out during cutting.

As a regular maintenance, remove the chip conveyor and clean all chip deposits inside.

Hydraulic top clamps



- The top clamp device composed of two clamps is installed on top of the front and rear vises before executing bundle cutting.
- Refer to *Using Top Clamp for Bundle Cutting* for operating procedure on bundle cutting.

Blade Deviation Detector & Calibration Procedure

Blade Deviation Detector

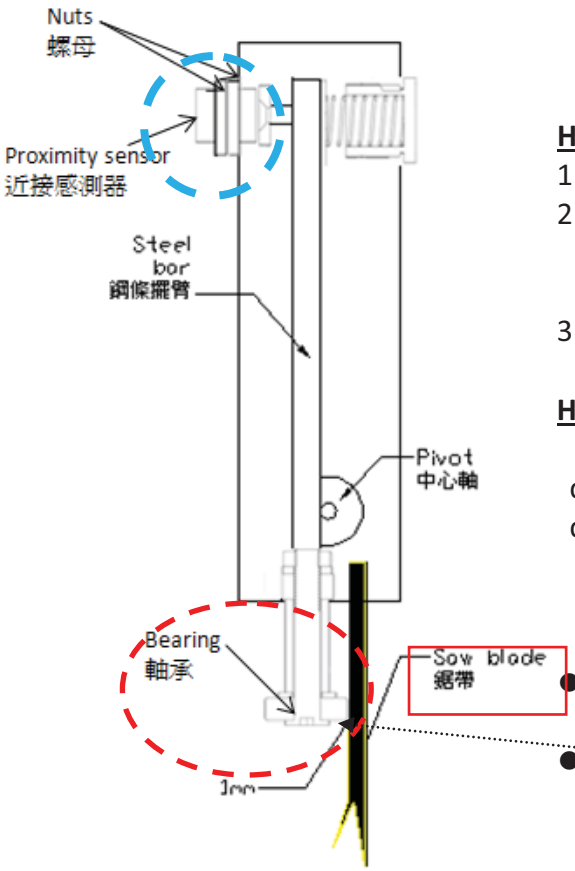
This device detects blade deviation. If the blade deviates out of the tolerance range, the machine will stop automatically.

※ [Remark] When this device is installed, the cutting width will be reduced.

The blade deviation detected value and present values are displayed on the HMI screen.

Before cutting, please make sure if the deviation value is "Zero". If not, please calibrate the deviation detector before proceeding to cutting.

***Deviation Detector Tolerance (Recommended):**
±0.1~0.5 mm (±0.004"~0.02 ") 。
＊Set up according to the tolerance range the users need.



Deviation Dectector Side Section

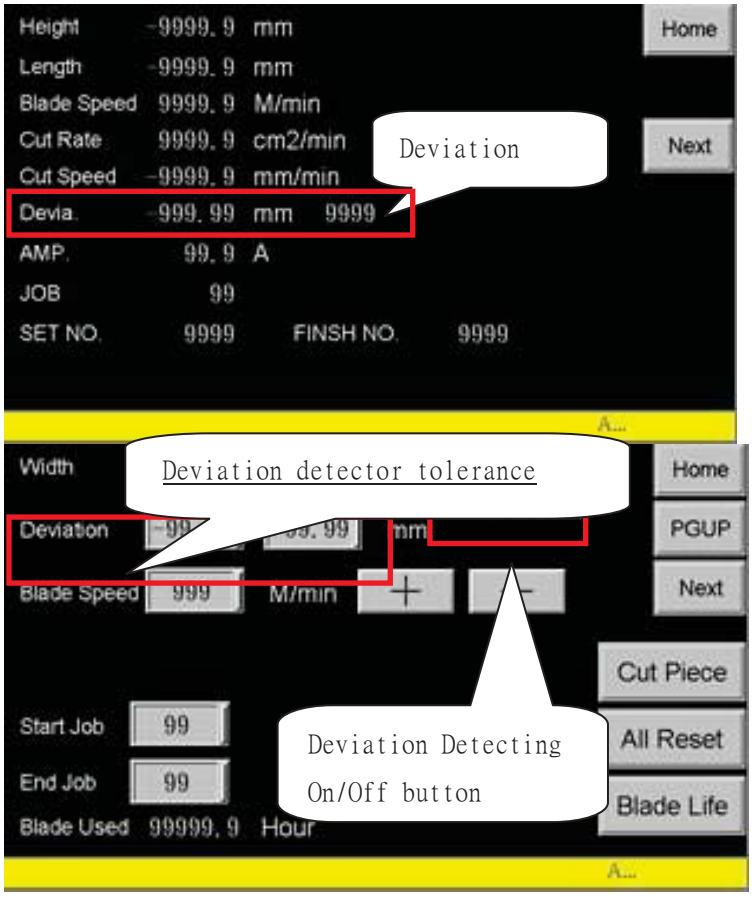
How to Adjust

1. Loosen the nuts.
2. Adjust the proximity sensor until the blade deviation value shown the display returns to zero.
   (Please refer to the next page.)
3. Tighten the nuts.

How to Check

Put a thick ruler (0.1mm) between saw blade and deviation roller for measurement. Also, check the deviation tilt value; it should be 0.1mm.

- Adjust the proximity sensor until the blade deviation displayed on the control panel is zero.
- If the deviation value not changed when adjusting the proximity sensor or **bearing**, it means the deviation detector with malfunction. Need to replace a new one.
- Please clean the internal shell of deviation detector sometimes for keeping dry and clean.



Picture B : Deviation calibration Value Display

- Make the proximity sensor connect with power & adjust the proximity sensor until the blade deviation displayed on the control panel is 0 mm。
- Tolerance: ±0.03 mm (0.0012”)。

Picture C:
Deviation detector tolerance Set-Up & On/Off button

- Deviation Value Set-Up:
  - Set up the tolerance of deviation value; if the value out of range when blading for 15 seconds, the machine will be automatically full stopped with alarm message.
- Deviation Detecting On/Off button:
  - Turn On/Off the deviation detecting function.

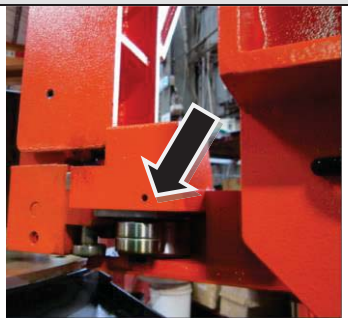
***Deviation Detector Tolerance (Recommended):**

±0.1~0.5 mm (±0.004”~0.02 ”)。

[NOTE]

The information shown on HMI display: The format of HMI interface will be different from the difference of model and software design.

Vibration damper



The vibration damper can be assembled to the left saw arm. This optional accessory is extremely useful in reducing the high-frequency noise produced when cutting large-sized material.

2M roller table

- The optional 2M roller table supports the work material and ensures the material be fed in smoothly.
- Refer to Section 7 for further information on adjusting the roller table.

Cosen Predictive Computing

Cosen Predictive Computing MechaLogix is a cloud based system that revolutionizes the metal-working and fabrication industry. MechaLogix utilizes innovative technology that not only includes blade life monitoring, but also predicts blade failure. This technology will decrease cost and maximize tool usage.

Q-Cut

Q-CUT™ POWERED BY MECHALOGIX

You can input work orders conveniently from your desk. The work order can be easier inputted from our online platform, it will allow you input more information to decrease operator mistakes. It is an easy, quick, and accurate way of Inputting the correct data before you start cutting.

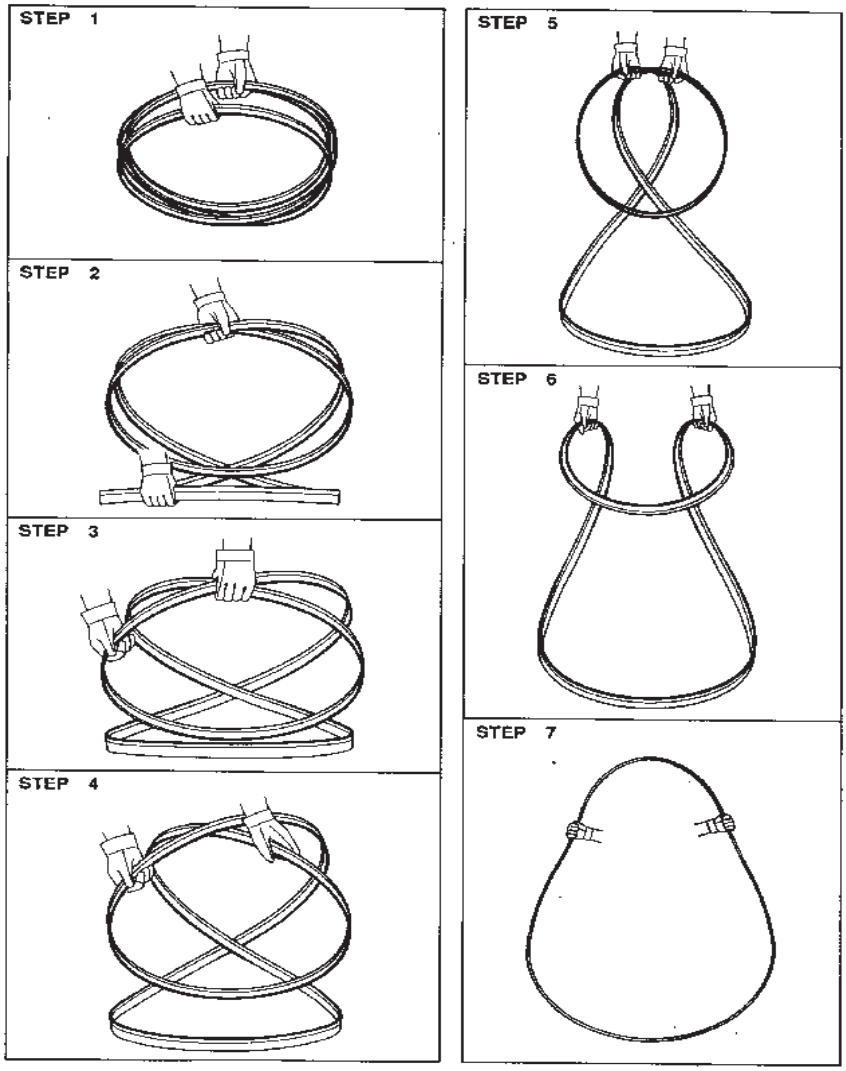
***Please refer to the appendix for more details about Q-Cut operation**

UNROLLING & INSTALLING THE BLADE

Always wear leather gloves and protection glasses when handling a blade.

Unrolling the blade

Please follow the procedures illustrated below.



Unroll and roll the blade

Installing a new blade

Step 1 - Select the most suitable saw blade for your workpiece considering the size, shape and material.

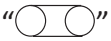
Step 2 - Turn on the machine power by switching to *ON* and turn on the hydraulic system.

Step 3 - Switch to *manual* ( ) mode.

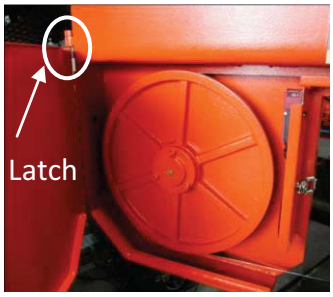
Step 4 - Press the *saw bow up* button and elevate the saw bow to an appropriate height.

Step 5 - Loosen the angle lock handle. Swivel the saw bow until the pointer points to about 45° and

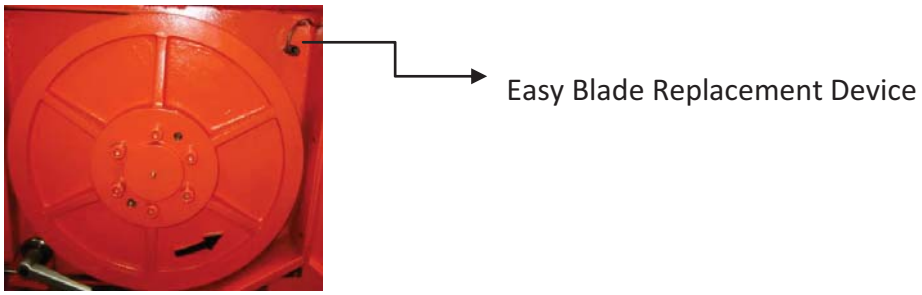
lock the saw bow via angle lock handle so the drive wheel cover can be opened easily.

Step 6 - Turn the tension controller handle from "  " to "  " position to release tension. The idle wheel will then move slightly toward the direction of the drive wheel.

Step 7 - Open the idle and drive wheel covers. Use the latch to hold the idle wheel cover in its open position.

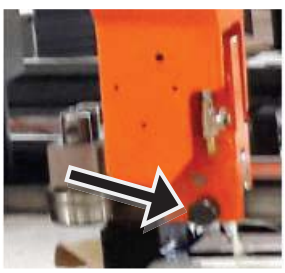


Step 8 - Press the *Blade Clip* device to hold onto the blade. This device makes blade changing easy and feasible even with only one operator available.



Step 9 - Loosen the lock lever and lower the wire brush.

Step 10 - Loosen the left and right carbide inserts by loosening the "lock nut" shown below.



Step 11 - Take out the blade. If necessary, clean the carbide inserts before installing a new saw blade.

Step 12 - Place the new blade around the idle wheel and the drive wheel.

Step 13 - Insert the blade into the left and right tungsten carbide inserts. The back and the sides of the blade need to be touching the inserts as well as the adjacent rollers.

Step 14 - Place the blade to the drive wheel and press the back of the blade against the flange of the drive wheel. Use the *Blade Clip* device to tightly hold the blade from falling out of the drive wheel.

When saw blade begins to rotate, the blade holder will automatically release the blade and fall back to its original position.

Step 15 - Make sure the back of the blade is also pressed against the flange of the idle wheel.

Step 16 - Turn the tension controller handle to [ ] position to obtain blade tension.

Step 17 - Make sure the sides of the blade are in close contact with the carbide inserts and then tighten the left and right carbide inserts by tightening the "lock nut."

Step 18 - Gently close the idle and drive wheel covers.

Step 19 - Press the *saw blade start* button to start the blade. Allow the blade to run for a few rotations then press the *saw bow up* button to elevate the saw bow. Open the wheel covers and make sure the blade has not fallen off the drive and idle wheels. If the blade has shifted, follow the same procedure to reinstall the blade again.

Step 20 - Adjust wire brush to a proper position. Refer to *Adjusting Wire Brush* in this section.

ADJUSTING WIRE BRUSH

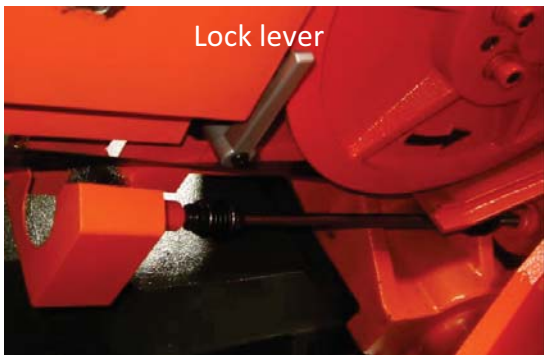
Follow these steps to adjust wire brush to appropriate position:

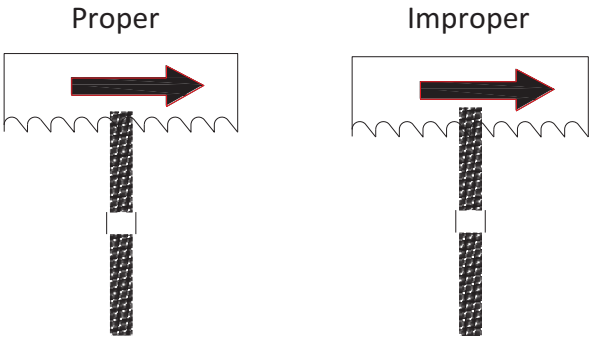
Step 1 - Open the drive wheel cover.

Step 2 - Loosen the lock lever.

Step 3 - Make brush move up / down until it makes proper contact with the saw blade (see below illustration).

Step 4 - Tighten the lock lever.





ADJUSTING SAW ARM

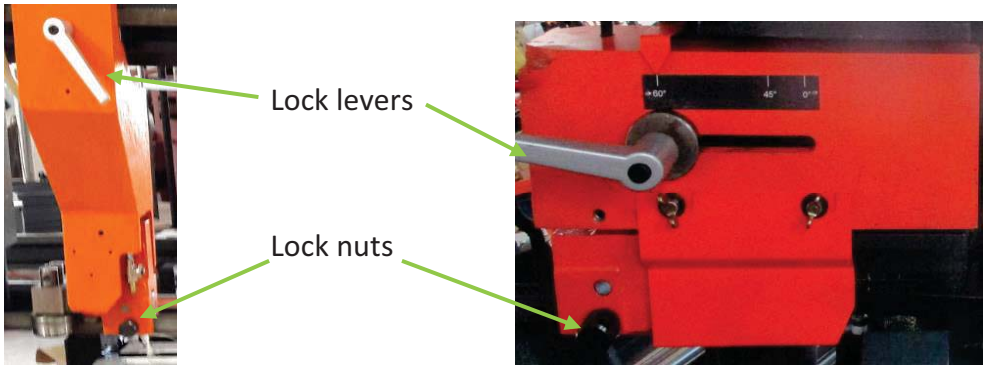
Adjust the blade guide (guide arm) position based on the size of your workpiece:

Step 1 – Loosen the inserts by unlocking the lock nuts.

Step 2 – Loosen the blade guide lock levers. Then adjust the left guide arm to a position suitable for your workpiece size. For miter-cutting, move the right guide arm according to the scale. Be sure that the right guide arm will not bump into the rear fixed vise.

Step 3 – After adjustment is made, tighten the blade guide lock levers.

Step 4 – Clamp the inserts back by tightening the lock nuts.

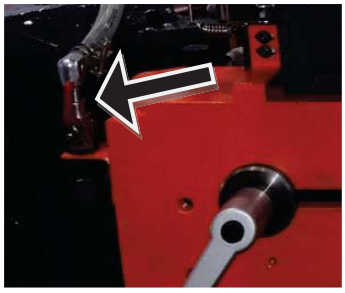


ADJUSTING COOLANT FLOW

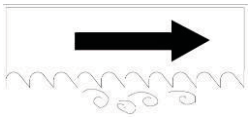
Step 1 – Press the *saw blade start* button to start the saw blade drive motor.

Step 2 – Press the *saw bow down* button to lower the saw bow.

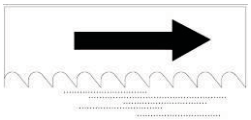
Step 3 – Use the flow control valve (shown below) to adjust the amount of fluid flowing to the cutting area.



Adjust the flow amount if you observe the following changes to the chips generated from cutting.



If the chips are sharp and curved, increase the coolant flow amount.



If the chips are granulated, decrease the coolant flow amount.

PLACING WORKPIECE ONTO WORKBED

Step 1 – Press the *saw bow up* button and elevate the saw bow until it reaches to its highest point.
Step 2 – Press the *front vise open* and *rear vise open* buttons to open vises.
Step 3 – Loosen the vertical roller lock handles and fully open the vertical rollers.
Step 4 – Carefully place the workpiece onto the work feed table to where it extends approximately 30mm(1.2 inch) beyond the rear vise toward the front vise.

POSITIONING WORKPIECE FOR CUTTING

Follow these steps to position your workpiece:

Step		Action
rear vises clamp material	*1*	Press the *rear vise clamp* button until the workpiece is securely clamped.
align vertical rollers	*2*	Move the vertical alignment rollers toward workpiece until it stands against the workpiece. Lock the vertical alignment rollers by tightening the lock handles
feed material forward	*3*	Press the *feed forward* button until the rear vise touches the front limit switch.
front vises clamp material	*4*	Press the *front vise clamp* button until the workpiece is securely clamped.
rear vises retract to clamp material again	*5*	Press the *rear vise open* button.
	6	Press the *feed backward* button until the rear vises reach back limit switch.
	7	Press the *rear vise clamp* button until the workpiece is securely clamped again.
front vises open; prepare for precision position	*8*	Simultaneously press the *front vise open* button and the *rear vise clamp* button again to make sure the material is clamped.
confirm cutoff point	*9*	Press the *saw bow down* button to lower the saw bow until the quick approach bar descends to just about 10mm (0.4 inch)

		above the workpiece.  Under no circumstances should the quick approach bar be lowered below the height of the workpiece.
precision position	*10*	Press the *feed forward* button (and the *feed backward* button if necessary) until the cutoff point on the workpiece aligns with the blade line.
front vises clamp material; ready to cut	*11*	After the workpiece is correctly positioned, press the *front vise clamp* button so the workpiece is securely clamped.

ADJUSTING BLADE SPEED

Step 1 – Set the flow control to “0” position.
Step 2 – Press the *saw blade start* button to start the blade.
Step 3 – Turn the *blade speed control knob* to adjust the blade speed. The blade speed should be adjusted based on the size and the material of the workpiece.

BREAKING-IN THE BLADE

When a new saw blade is used, be sure to first break in the blade before using it for actual, extended operation. Failure to break in the blade will result in less than optimum efficiency. To perform this break-in operation, the following instructions should be followed:

Step 1 - Reduce the blade speed to one-half of its normal setting.
Step 2 - Lengthen the cutting time to 2-3 times of what is normally required.
Step 3 - Start the break-in operation.
Step 4 - After the break-in operation is completed, set all parameters back to normal settings.

TEST-RUNNING THE MACHINE

Test-running this machine can ensure good machine performance in the future. We suggest you run the following tests on the machine before first use:

Testing machine performance:
Turn on the power and run a basic performance test after you finish installing the machine. Follow these steps to test machine performance:
Step 1 – Disassemble shipping brackets and bolts.
Step 2 – Install roller table (optional).
Step 3 – Turn on the relay switch in the control box.

Step 4 – Elevate the saw bow. (If your coolant pump is in reverse and the machine cannot run, please change the electrical phase.)

Step 5 – After the saw bow ascends, extend the quick approach device.

Step 6 – Remove the rust-prevention grease with cleaning oil or kerosene.

Step 7 – Start the coolant pump.

Step 8 – Test these functions under manual mode:

- vise clamping/unclamping
- saw bow ascending/descending
- feeding forward/backward

CUTTING OPERATION

Step 1 – Check before you cut

- **Power:** Check the voltage and frequency of your power source.
- **Coolant:** Check if you have sufficient coolant in the tank.
- **Hydraulic:** Check if you have sufficient (at least two-thirds or higher) hydraulic oil.
- **Workbed:** Check if there is any object on the feeding bed that may cause interference.
- **Blade:** Check the blade teeth and make sure there is no worn out teeth along the blade.
- **Light:** Check the work lamp or laser light (optional) and make sure there is sufficient lighting.
- **Roller:** Check all the rollers on the front and rear workbed can roll smoothly.
- **Saw bow:** Check the saw bow to see if it can be elevated and lowered smoothly.

Step 2 – **If your mitering angle is not the multiple of 15, please remove the bed deck before cutting so the blade and blade cover can pass without interfering.** Swivel the saw bow until the pointer points to your desired angle and lock the saw bow via angle lock handle. Please refer miter cut angle scale and bed deck pictures in Standard Accessories section.

Step 3 – Place your workpiece onto the workbed manually or by using a lifting tool e.g. a crane.

 Before loading, make sure the vises are opened to at least wider than the width of the workpiece.

Step 4 – Position your workpiece.

Step 5 – Clamp the workpiece.

Step 6 – Turn the *cutting pressure control* knob to adjust cutting pressure according to the material.

Step 7 – Adjust *blade descend speed control* knob to obtain a suitable blade descend speed for your material.

Step 8 – Start running the blade.

 Before you start cutting, check again that there is no other object in the cutting area.

Step 9 – While the blade descends, adjust the blade speed if necessary. You can do so by turning the *blade speed control* knob, clockwise to speed up and counterclockwise to slow down. The blade speed is displayed in the HMI touch screen.

Step 10 – Select the proper cutting condition according to different material.

Step 11 – After the entire cutting job is completed, elevate the saw bow to the top and open the vises to remove the workpiece.
Step 12 – Clean the workbed by removing chips and cutting fluids.
Step 13 – Lower the saw bow to a proper position then turn off the power.

STARTING AN AUTOMATIC OPERATION

Step 1 – Use manual mode and cut the edge of the workpiece by using the same procedures as those described under manual operation.
Step 2 – After the trim cut is completed and the saw blade has stopped at the lower limit position, press the *saw blade up* button to raise the saw bow until the quick approach bar is approximately 10mm (0.4inch) above the workpiece.
Step 3 – Turn the *Auto / manual* switch to manual.
Step 4 – Set your desired cutting length and quantity via the HMI touch screen. A total of 100 sets of cutting data can be programmed.
Step 5 – Turn the *Auto / manual* switch to Auto.
Step 6 – Press the *saw blade start* button and press the *saw bow down* button to start automatic cutting.

USING TOP CLAMP FOR BUNDLE CUTTING

 **Before Cutting , Make sure that the bundle is properly tightly clamped but not being distorted by clamp force.**

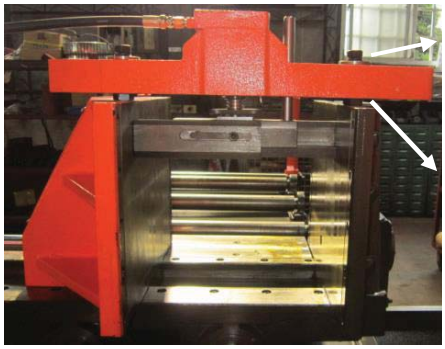
Any improper bundle cutting can cause damage to the blade, reduce the blade life.

Notice: There are several factors to makes bundle cutting more difficult and unstable, such as vibration, wide guide spacing, coolant getting to the teeth and cutting through work hardened chips.

1. Each bar of the bundle is suggested to be the same size for being firmly clamped in the bundle.
2. Make sure that the bundle is properly placed (before cutting) to refrain from vibration, spinning and changing length position during cutting.

Installing top clamp
To perform bundle cutting, use the top clamps and take the following installation procedures.

Step 1 – Install stud bolts on the front and rear vises and position the top clamp.

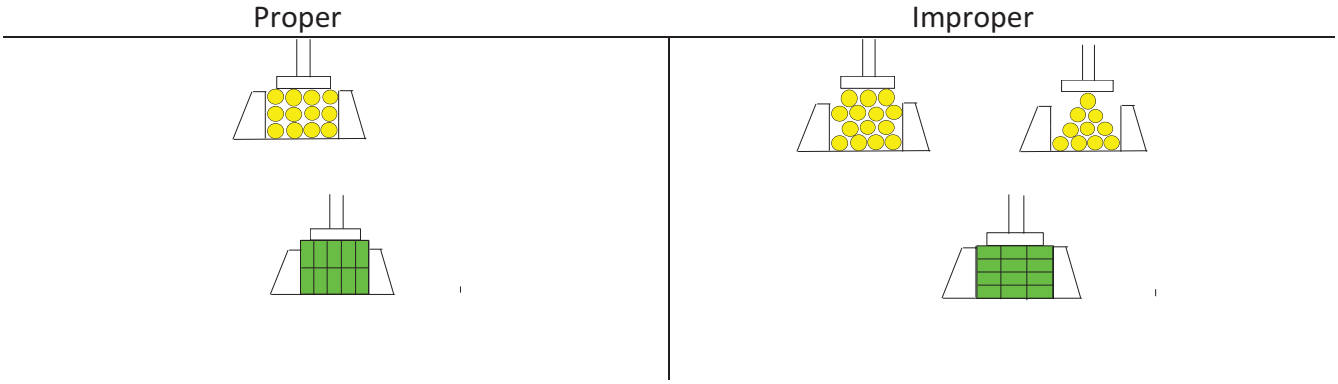


Step 2 – Connect the top clamp hoses to the pressure joints on the vise hydraulic cylinders.

Step 3 – Position the workpiece for bundle cutting.

Note the allowable clamping width and height. (Refer to *Section 2 – General Information, Specifications*)

Proper and improper stacking of workpieces



Step 4 – Align the top clamp cylinders with the center of the workpiece and tighten the lock nuts.

Step 5 – Turn the top clamp handles so that the clearance between the top clamp jaw and the top of the bundled workpiece is within 5 to 10 mm (0.2” ~ 0.4”).

Step 6 – Install the bundle-cutting fence to the work tray. The fence is designed to prevent cut pieces from scattering across the work tray. Adjust the width of the fence to be slightly larger than the width of the bundle.

Step 7 – Press *Single/Bundle cutting mode* button and switch to bundle cutting mode.

Step 8 – For subsequent cutting procedures, refer to the instructions under manual operation and automatic operation.

Uninstalling top clamp

Follow these steps to uninstall top clamp for cutting single material:

Step 1 – Disconnect the top clamp hoses.

Step 2 – Loosen the lock nuts and remove the top clamp.

Step 3 – Remove the stud bolts.

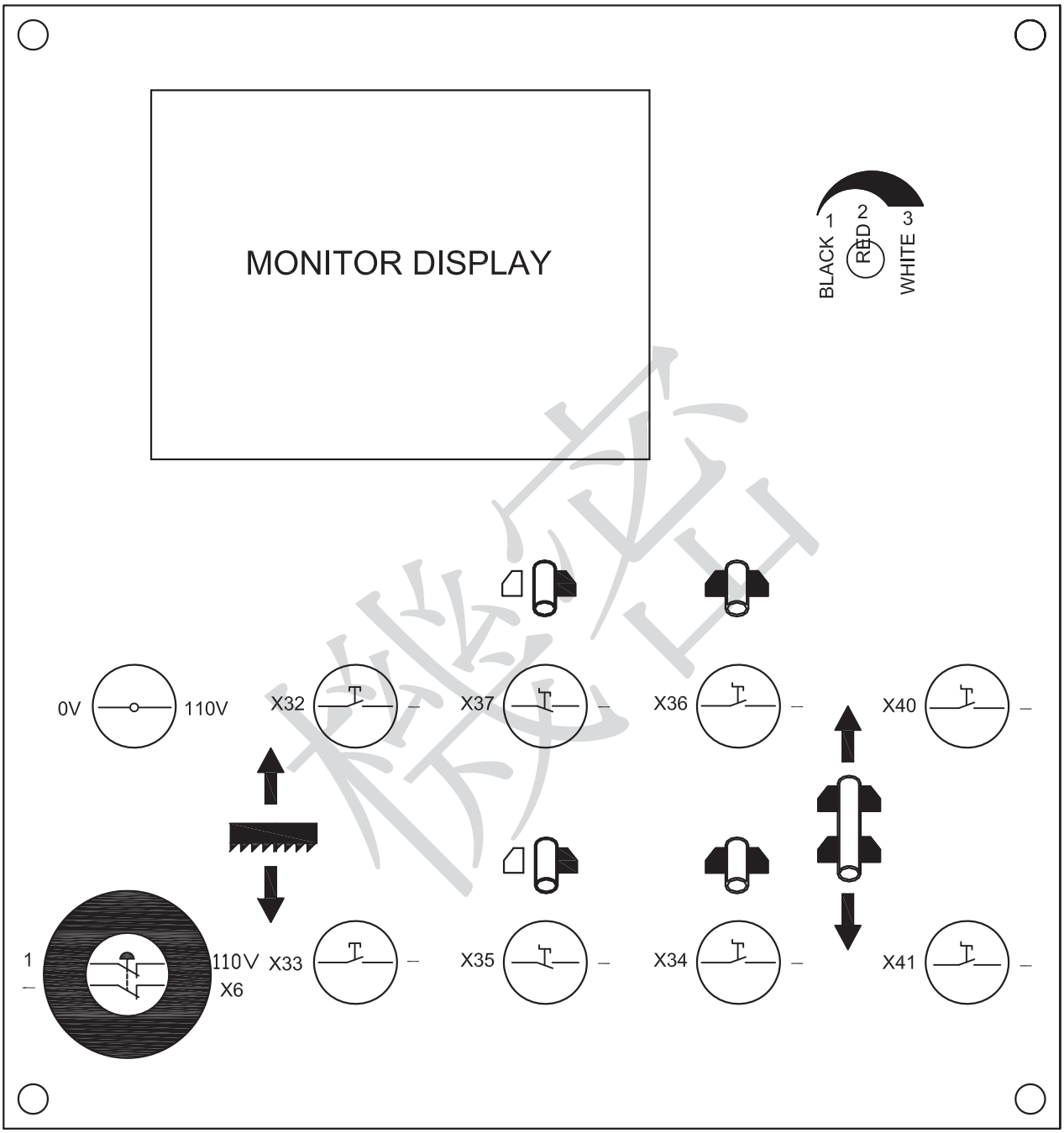
TERMINATING A CUTTING OPERATION 

- To terminate a cutting operation, press either the *saw bow up* button or the *emergency stop* button.
- The saw blade will stop running when the *saw bow up* button is pressed.
- Both the saw blade and hydraulic pump motors will stop running when the *emergency stop* button is pressed.
- The machine will stop automatically when an error occurs. The error message will be shown on the screen.

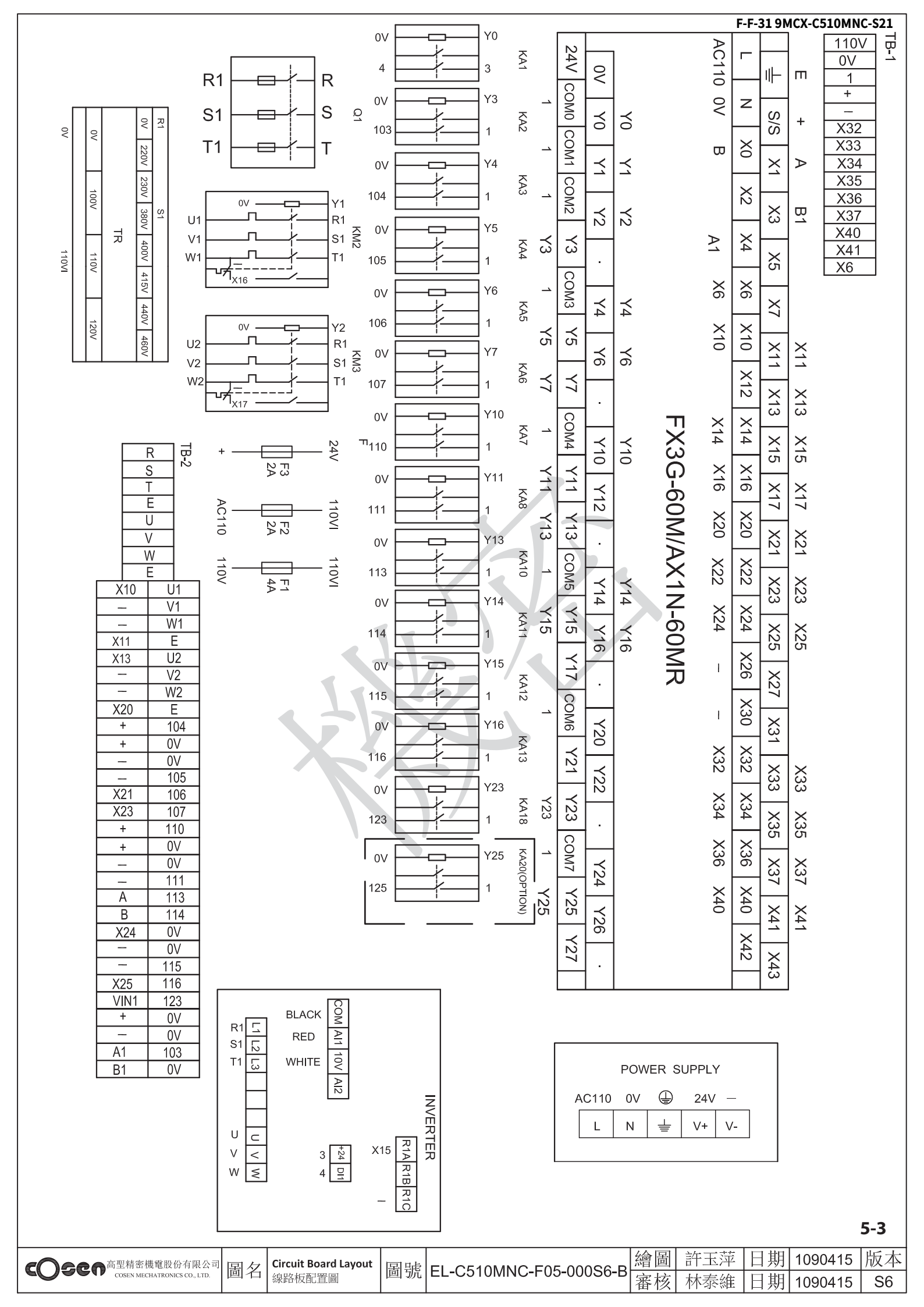
Section 5

ELECTRICAL SYSTEM

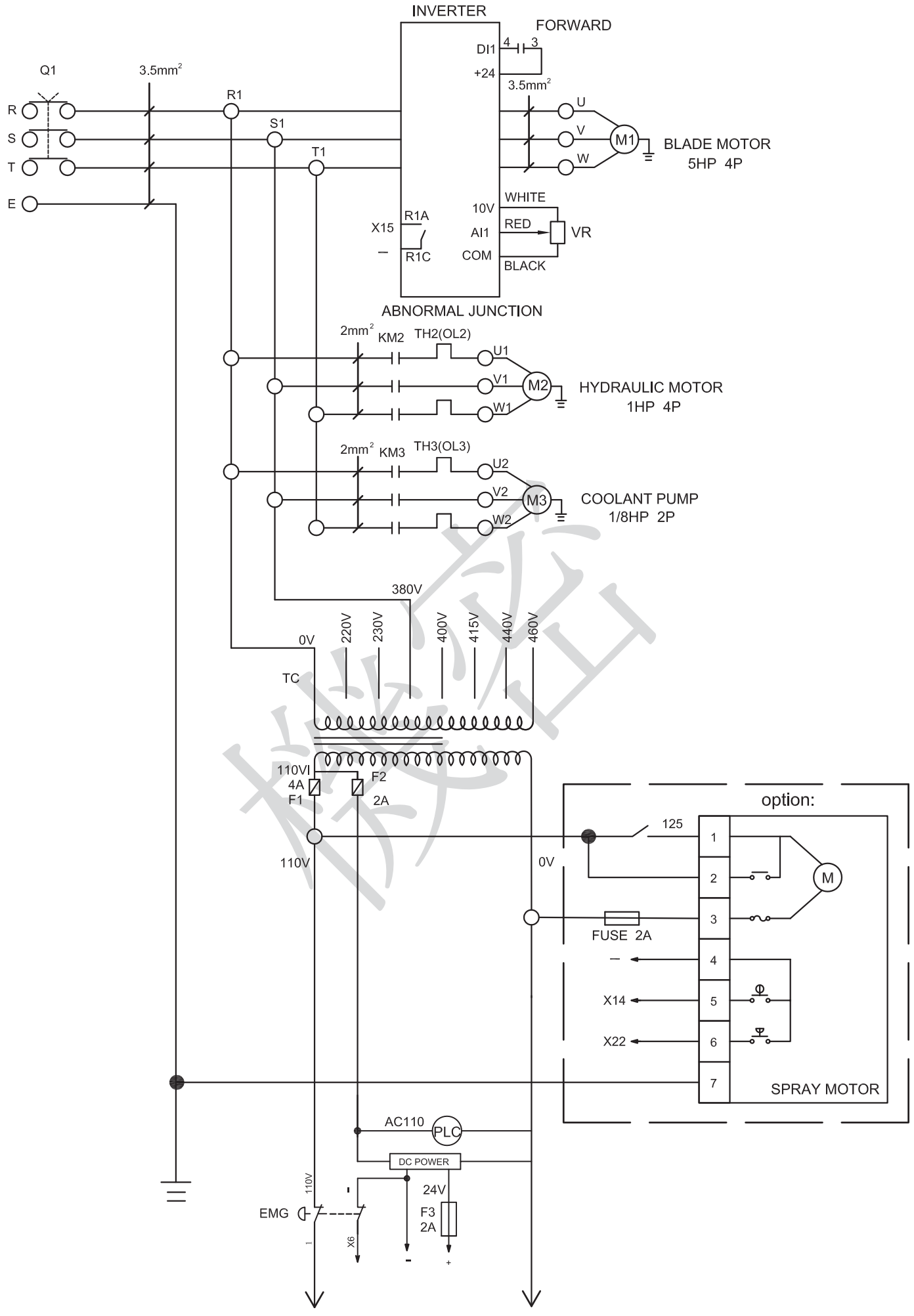
ELECTRICAL CIRCUIT DIAGRAMS



高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	Control Panel Layout 面板配置圖	圖號	EL-C510MNC-F05-000S6-A	繪圖	許玉萍	日期	1090415	版本
					審核	林泰維	日期	1090415	S6

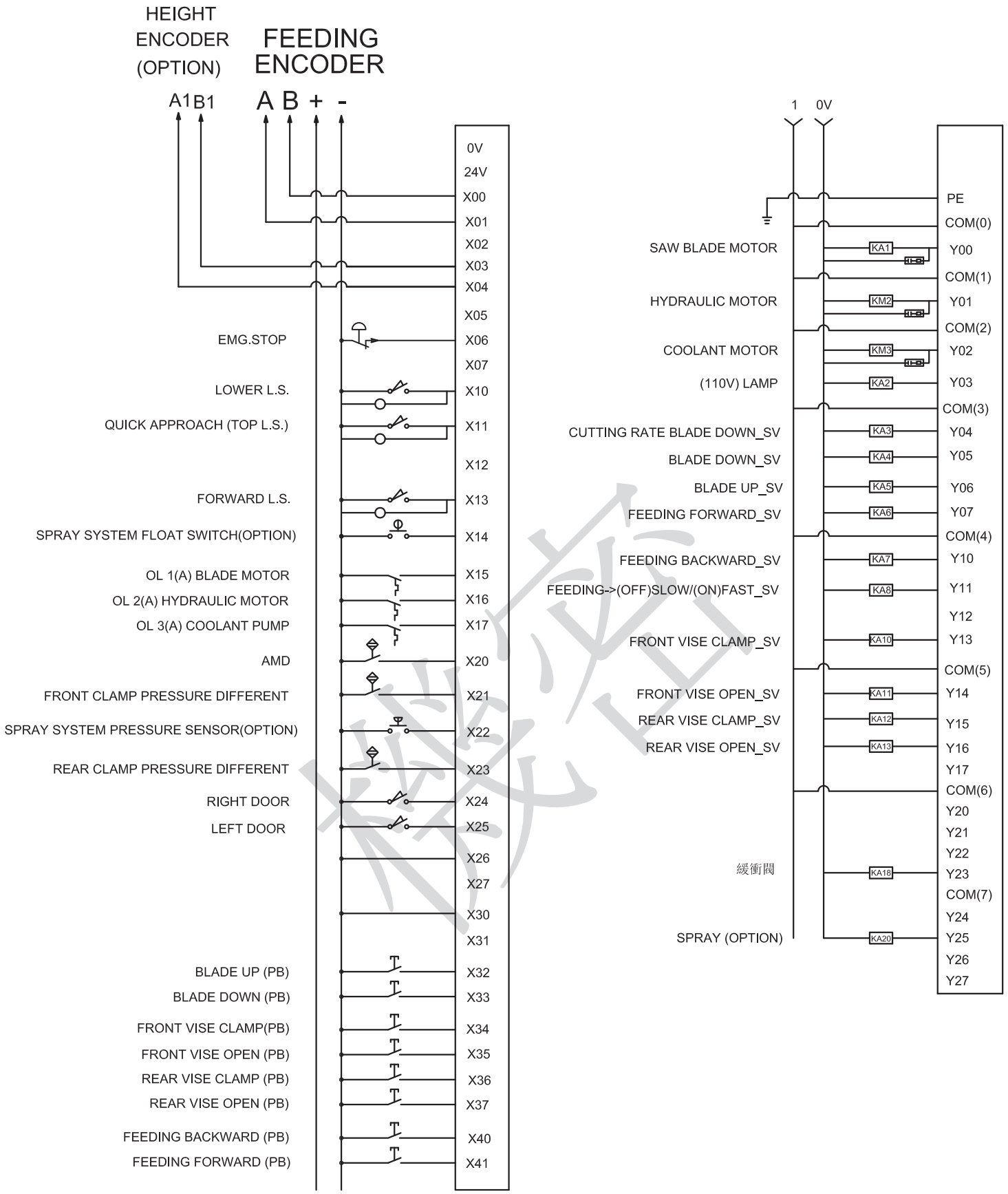


COSEN 高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	Circuit Board Layout 線路板配置圖	圖號	EL-C510MNC-F05-000S6-B	繪圖	許玉萍	日期	1090415	版本
					審核	林泰維	日期	1090415	S6

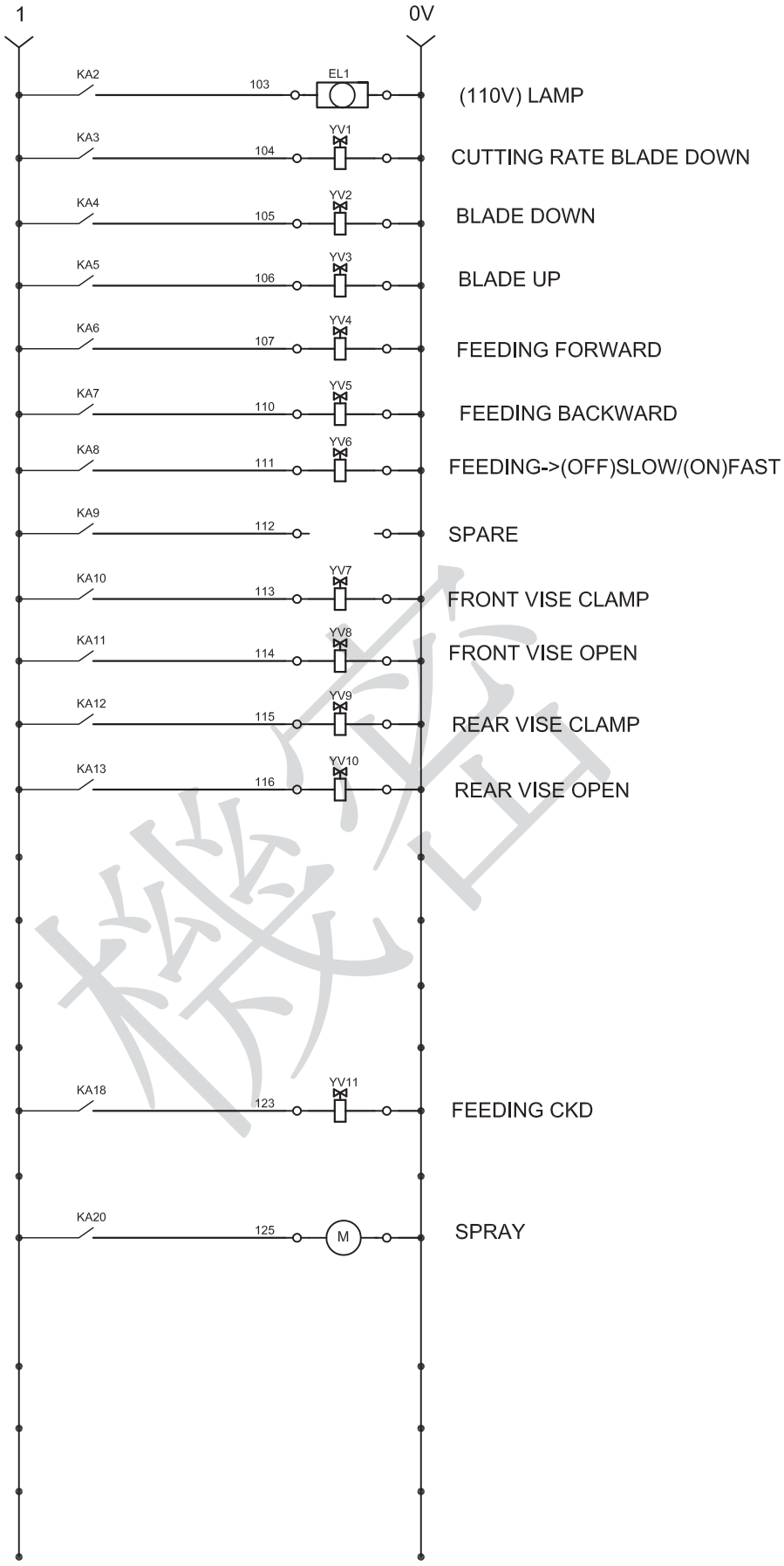


5-4

COSEN 高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	Power Supply Layout 動力配置圖	圖號	EL-C510MNC-F05-000S6-C	繪圖	許玉萍	日期	1090415	版本
					審核	林泰維	日期	1090415	S6



高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	PLC Input /Output Layout PLC I/O配置圖	圖號	EL-C510MNC-F05-000S6-D	繪圖	許玉萍	日期	1090415	版本
					審核	林泰維	日期	1090415	S6



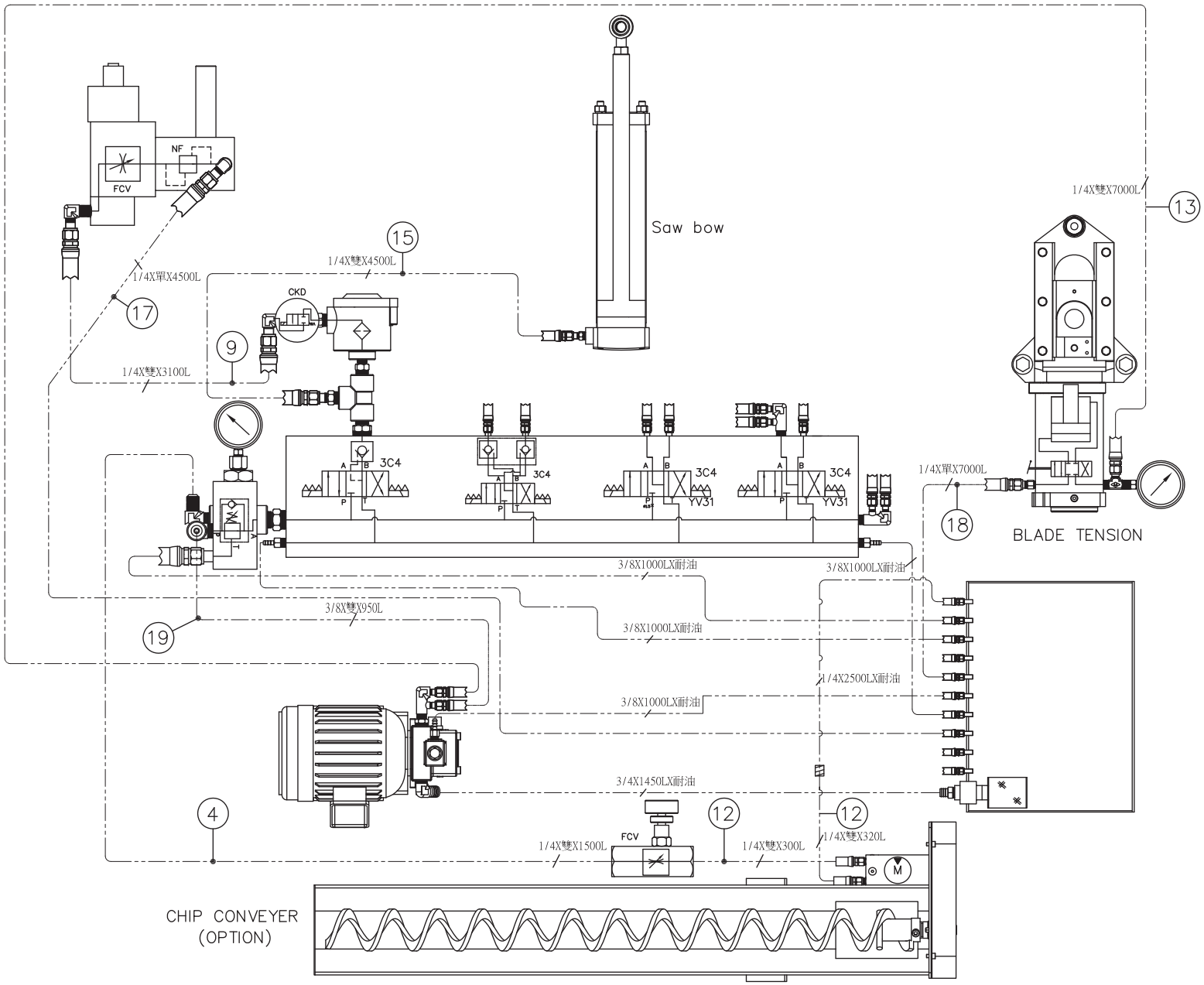
高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	PLC Input /Output Layout PLC I/O配置圖	圖號	EL-C510MNC-F05-000S6-E	繪圖	許玉萍	日期	1090415	版本
					審核	林泰維	日期	1090415	S6

Section 6

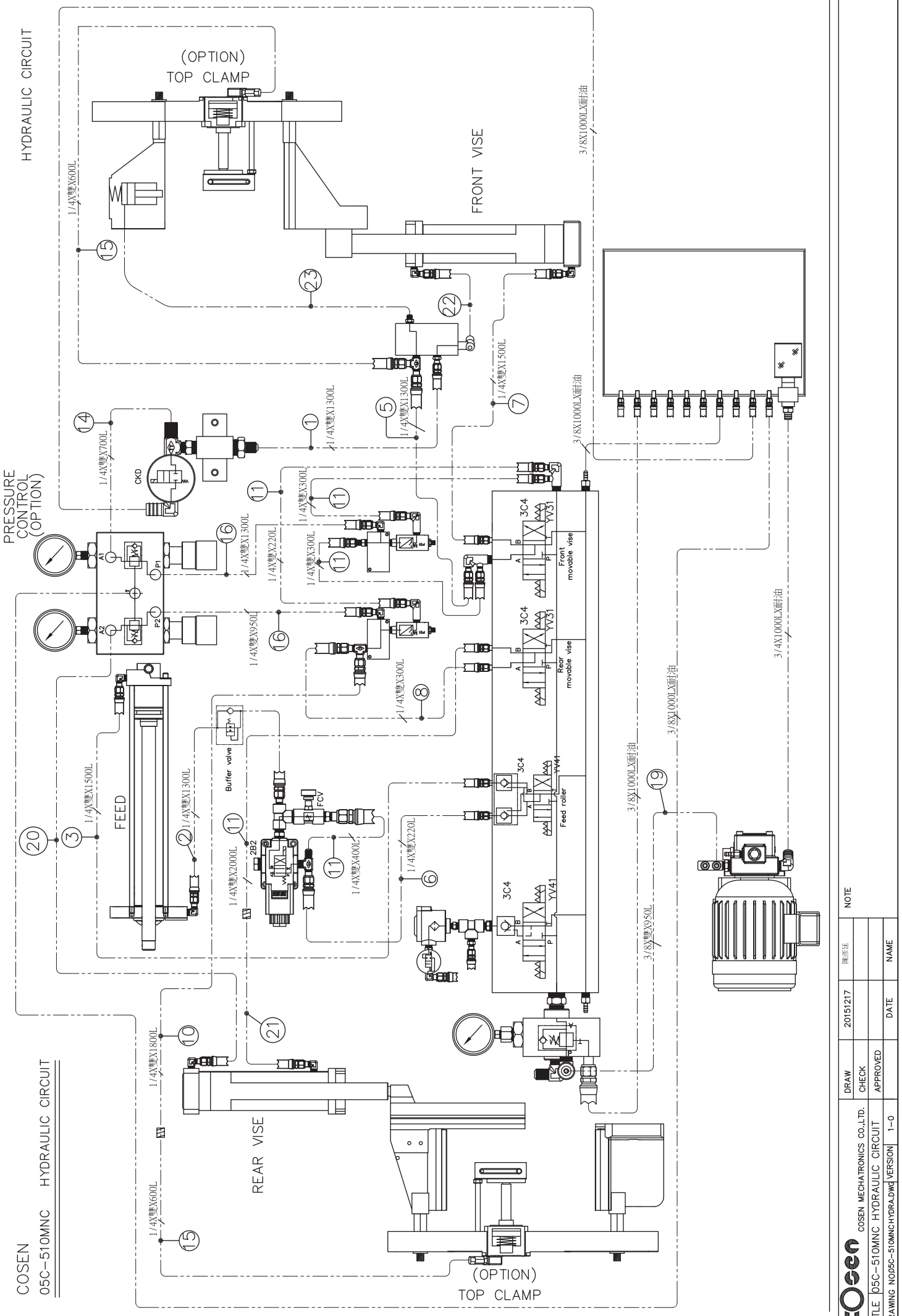
HYDRAULIC SYSTEM

HYDRAULIC CIRCUIT DIAGRAM

05C-510MNC HYDRAULIC CIRCUIT



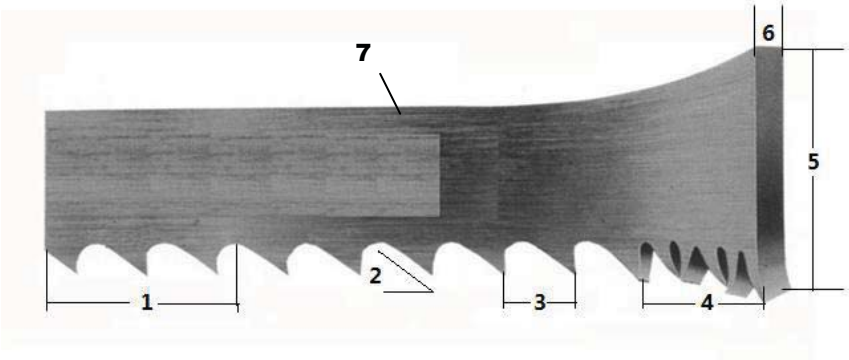
COSEN MECHATRONICS CO.,LTD.	DRAW	20151217	陳彥廷	NOTE
TITLE 05C-510MNC HYDRAULIC CIRCUIT	CHECK			
DRAWING NO.05C-510MNCHYDRA.DWG VERSION 1-0	APPROVED			
		DATE	NAME	


HYDRAULIC CIRCUIT
(OPTION)
TOP CLAMP
FRONT VISE
PRESSURE CONTROL (OPTION)
CKD
FEED
Buffer valve
FCV
REAR VISE
(OPTION)
TOP CLAMP
Front movable vise
Rear movable vise
Feed roller
3C4
YV31
YV41
1/4X雙X600L
1/4X雙X700L
1/4X雙X1300L
1/4X雙X1500L
1/4X雙X300L
1/4X雙X220L
1/4X雙X950L
1/4X雙X2000L
1/4X雙X400L
1/4X雙X1800L
3/8X1000LX耐油
3/4X1000LX耐油
3/8X雙X950L
COSEN
05C-510MNC HYDRAULIC CIRCUIT
COSEN MECHATRONICS CO.,LTD.
TITLE 05C-510MNC HYDRAULIC CIRCUIT
DRAWING NO.05C-510MNC HYDRA.DWG VERSION 1-0
DRAW
CHECK
APPROVED
DATE
NAME
NOTE
20151217
陳彥廷

Section 7

BANDSAW CUTTING: A PRACTICAL GUIDE

INTRODUCTION



1. TPI: The number of teeth per inch as measured from gullet to gullet.

2. Tooth Rake Angle: The angle of the tooth face measured with respect to a line perpendicular to the cutting direction of the saw.

3.Tooth Pitch: Tooth pitch refers to the number of teeth per inch (tpi). 1 inch equates to 25.4 mm.

A distinction is made between constant tooth pitches with a uniform tooth distance, 2 tpi for example, and variable tooth pitches with different tooth distances within one toothing interval.

Variable tooth pitches, for instance 2-3 tpi, can be characterized by two measures: 2 tpi stands for the maximum tooth distance and 3 tpi stands for the minimum tooth distance in the toothing interval.

Constant **Variable**

4. Set: The bending of teeth to right or left to allow clearance of the back of the blade through the cut.

5. Width: The nominal dimension of a saw blade as measured from the tip of the tooth to the back of the band.

6. Thickness: The dimension from side to side on the blade.

7. Gullet: The curved area at the base of the tooth. The tooth tip to the bottom of the gullet is the gullet depth.

SAW BLADE SELECTION

1. Band length

The dimensions of the band will depend on the band saw machine that has been installed.

Please refer to Section 2 – General Information

2. Band width

Band width: the wider the band saw blade, the more stability it will have.

3. Cutting edge material

The machinability of the material to be cut determines what cutting material you should choose.

4. Tooth pitch

The main factor here is the contact length of the blade in the workpiece.

If it is 4P, 25.4 ÷ 4 P = 6.35 mm, that is, one tooth is 6.35 mm.

If it is 3P, 25.4 ÷ 3 P = 8.46 mm If the number is small, it means that the tooth is large.

What is written as 3/4 is that it is a variable pitch of large (3) / small (4).

The saw blade must contact the cutting material at least two pitches. In the case of a thickness of 15 mm, 4P = OK, 3P = NG.

- The surface conditions will also affect the cutting rate. If there are places on the surface on the material which are hard, a slower blade speed will be required or blade damage may result.
- It will be slower to cut tubing than to cut solids, because the blade must enter the material twice, and because coolant will not follow the blade as well.
- Tough or abrasive materials are much harder to cut than their machinability rating would indicate.
- Tooth spacing is determined by the hardness of the material and its thickness in cross section.
- Tooth set prevents the blade from binding in the cut. It may be either a "regular set" (also called a "raker set") or a "wavy set".
- The regular or raker set is most common and consists of a pattern of one tooth to the left, one tooth to the right, and one which is straight, or unset. This type of set is generally used where the material to be cut is uniform in size and for contour cutting.
- Wavy set has groups of teeth set alternately to right and left, forming a wave-like pattern. This reduces the stress on each individual tooth, making it suitable for cutting thin material or a variety of materials where blade changing is impractical. Wavy set is often used where tooth breakage is a problem. This is shown in Fig. 7.2 as follows:

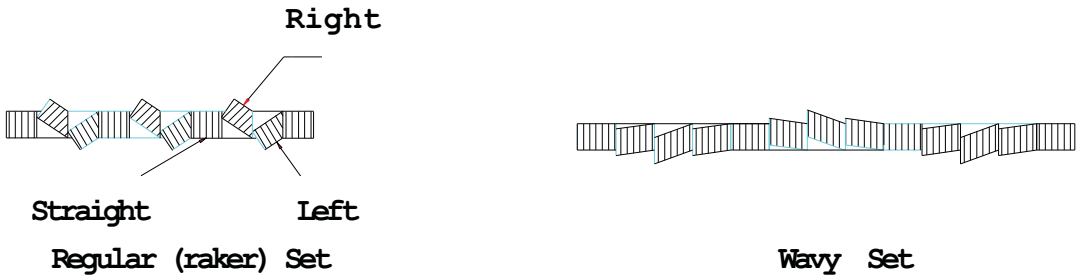


Fig. 7.2 The Saw Set

VISE LOADING

The position in which material is placed in the vise can have a significant impact on the cost per cut.

Often, loading smaller bundles can mean greater sawing efficiency.

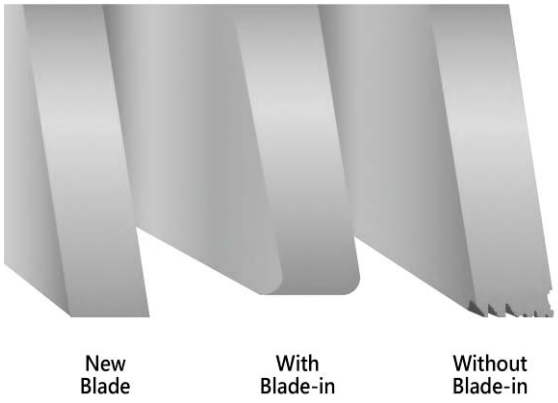
When it comes to cutting odd-shaped material, such as angles, I-beams, channel, and tubing, the main point is to arrange the materials in such a way that the blade cuts through as uniform a width as possible throughout the entire distance of cut.

The following diagrams suggest some costeffective ways of loading and fixturing. Be sure, regardless of the arrangement selected, that the work can be firmly secured to avoid damage to the machine or injury to the operator.

BladeBreak -In

Completing a proper break-in on a new band saw blade will dramatically increase its life.

1. Select the proper band speed for the material to be cut.



2. Reduce the feed force/rate to achieve a cutting rate 20% to 50% of normal (soft materials require a larger feed rate reduction than harder materials).

3.Begin the first cut at the reduced rate. Make sure the teeth are forming a chip. Small adjustments to the band speed may be made in the event of excessive noise/vibration. During the first cut, **increase feed rate/force** slightly once the blade fully enters the workpiece.With each following cut, **gradually increase feed rate/force** until normal cutting rate is reached.

Section 8

MAINTENANCE & SERVICE

INTRODUCTION

For the best performance and longer life of the band saw machine, a maintenance schedule is necessary. Some of the daily maintenance usually takes just a little time but will give remarkable results for the efficient and proper operation of cutting.

BASIC MAINTENANCE

It is always easy and takes just a little effort to do the basic maintenance. But it always turns out to be a very essential process to assure the long life and efficient operation of the machine. Most of the basic maintenance requires the operator to perform it regularly.

MAINTENANCE SCHEDULE

We suggest you do the maintenance on schedule.

Before beginning a day's work

1. Please check the hydraulic oil level. If oil level volume is below 1/2, please add oil as necessary.(Filling up to 2/3 level is better for system operation.)
2. Please check the cutting fluid level, adding fluid as necessary. If the fluid appears contaminated or deteriorated, drain and replace it.
3. Please check the saw blade to ensure that it is properly positioned on both the drive and idle wheels.
4. Please make sure that the saw blade is properly clamped by the left and right inserts.
5. Please check the wire brush for proper contact with the saw blade. Replace the wire brush if it is worn out.

After ending a day's work

Please remove saw chips and clean the machine with discharging the cutting fluid when work has been completed.

 Do not discharge cutting fluid while the saw blade is operating because it will cause severe injury on operator's hand.

 Be sure the saw blade is fully stop, it will be performed after working inspection.

Every 2 weeks

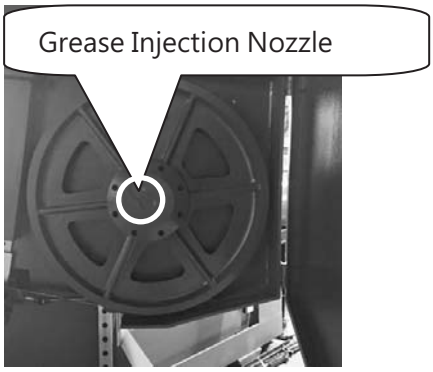
Please apply Grease to the following points:
1. Idle wheel
2. Drive wheel
3. Blade tension device

Recommended Grease:
- Shell Alvania EP Grease 2
- Mobil Mobilplex 48

Please apply lubricating oil to the following points: (if applicable)
Main shaft (double column)

Recommended Lubricating Oil:
- CPC Circluation oil R68

Grease Injection Hole:

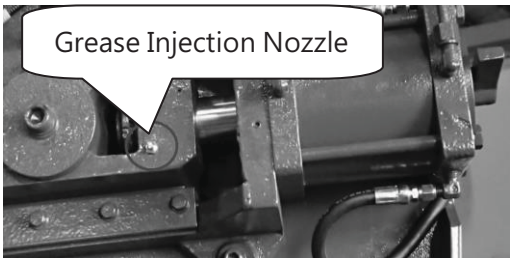


1. Grease Injection Nozzles at the middle of drive wheel and idle wheel;

   (You need to rotate the wheel until you ssee the Grease injection nozzle.)


: The position of injection indicating.

2. Please inject the grease into the Nozzle.

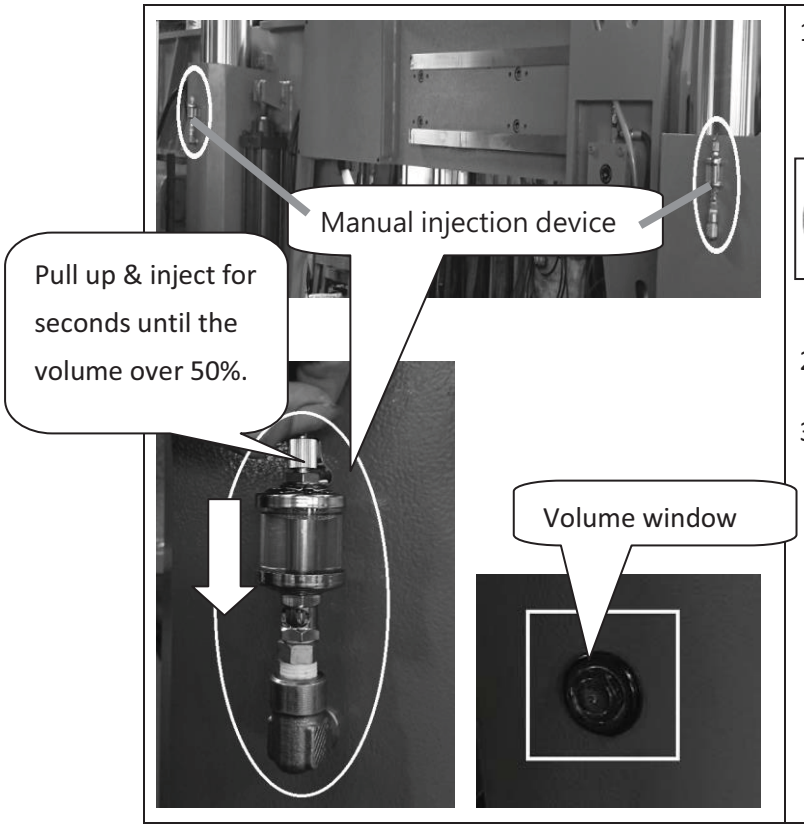


1. Grease Injection Nozzle on the blade tension device.

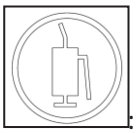

: The position of injection indicating.

3. Please inject the grease into the Nozzle.

Lubricating Oil Injection for Main shaft (double column) (if applicable):



1. Two manual injection device for two main shafts (double column)


: The position of injection indicating.

2. Pull up & inject lubricating oil for seconds
3. Recommend always keeping the volume over 50% inside the vessel of volume window. ◦

Manual Lubrication Injection Device: (if applicable)

Lubrication volume indicator.
Recommend keeping the volume over 50% inside the vessel.

Please take down this vessel cap to replenish the lubrication.

For the prevention of working environment pollution, **DO NOT** replenish too much volume of lubrication while supplying the lubrication into the vessel.

Under the circumstances of normal operation, replenish the lubrication once every three days.

It may be adjusted the schedule of replenishing whenever the user needs.

The main function is to lubricate the **slide rail and block**.

(The **liner guideway for saw bow**).

First 600hrs for new machine,then every 1200hrs for routine change

Replace the transmission oil after operating for first 600hrs for new machine,then every 1200hrs

Recommended gear oil
- Shell Omala oil HD220
- Mobil gear 630

Recommended hydraulic oil
- ShellTellus 32
- Mobil DTE Oil Light Hydraulic 24

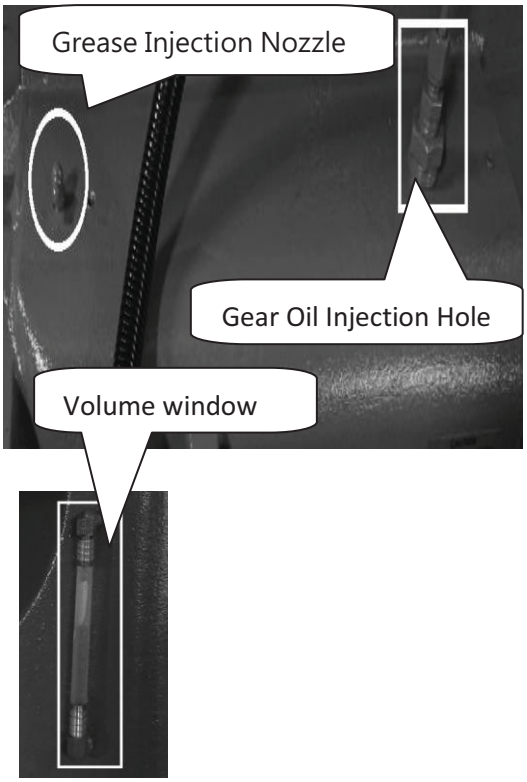
Every six months

1.Clean the filter of the cutting fluid.
2.Replace the transmission oil for every half of a year(or 1200 hours).
Check the sight gauge to ascertain the transmission level.

Recommended TRANSMISSION OIL
- Omala oil HD220
- Mobil comp 632 600W Cylinder oil

3.Replace the hydraulic oil.
Recommended HYDRAULIC OIL
- ShellTellus 32
- Mobil DTE Oil Light Hydraulic 24

Gear Oil & Grease Injection Hole:

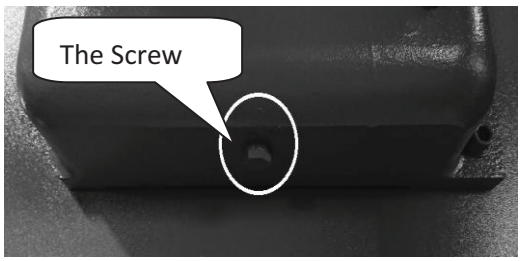


1. A grease injection hole and a gear oil injection hole on the top of gear reducer.

: The position of injection indicating.

2. Recommend keeping the volume over 50% inside the vessel of volume window. °

To unload the waste fluid:



Bottom of Gear reducer

1. Put the waste oil container in the bottom of the reducer for unloading waste fluid

.

2. Use the wrench to open the screw for unloading the waste fluid.

3. Make sure the screw bolted tightly after unloading completed,

STORAGE CONDITIONS

Generally, this machine will be stored on the following conditions in future:

(1) Turn off the power.

(2) Ambient temperature: 5℃ ~ 40℃

(3) Relative humidity: 30%~85% (without condensation)

(4) Atmosphere: use a plastic canvas to cover machine to avoid excessive dust, acid fume, corrosive gases and salt.

(5) Avoid exposing to direct sunlight or heat rays which can change the environmental temperature.

(6) Avoid exposing to abnormal vibration.

(7) Must be connected to earth.

TERMINATING THE USE OF THE MACHINE

Waste disposal:

When your machine can not work anymore, you should drain the oil from machine body. Please store the oil in safe place with bottom tray. Ask a environment specialist to handle the oil. It can avoid soil pollution. The oil list in machine:

- Hydraulic oil
- Cutting fluid
- Drive wheel gear oil

OIL RECOMMENDATION FOR MAINTENANCE

Item		Method	Revolution	Suggest oil
Dovetail guide		Keep grease covered. Antirust.	Daily	Shell R2
Roller bearing		Sweep clean and oil with lubricant.	Daily	SAE #10
Bed roller / surface		Sweep clean and oil with lubricant.	Daily	SEA #10
Nipples of bearing		Use grease gun, but not excess.	Monthly	SAE #10
Blade tension device		Use grease gun, but not excess.	Monthly	Shell Alvania EP Grease 2, Mobil Mobilplex 48
Reducer		Inspect once a week. Change oil of 600 hours of using. Change it every year.	Regularly	Omala oil HD220 Mobil Gear 630
Hydraulic system		Inspect half a year. Change oil every year.	Regularly	Shell Tellus 32 Mobil DTE oil Light Hydraulic 24
Bearing	Inserts	Oil with lubricant, but not excess.	Daily	Shell R2
	Band wheel	Oil with lubricant, but not excess.	Weekly	
	Cylinder	Oil with lubricant, but not excess.	6 Monthly	
	Wire brush	Oil with lubricant, but not excess.	6 Monthly	

1. Turn off the stop circuit breaker switch before servicing the machine.

2. Then post a sign to inform people that the machine is under maintenance.

3. Drain all of the cutting fluid and oil off and carefully treat them to avoid pollution.

4. The machine must be either LOCKED OUT OR TAGGED OUT while under maintenance.

Section 9

TROUBLESHOOTING

INTRODUCTION

All the machines manufactured by us pass a 48 hours continuously running test before shipping out and we are responsible for the after sales service problems during the warranty period if the machines are used normally. However, there still exist the some unpredictable problems which may disable the machine from operating.

Generally speaking, the system troubles in this machine model can be classified into three types, namely GENERAL TROUBLES, MOTOR TROUBLES and BLADE TROUBLES. Although you may have other troubles which can not be recognized in advance, such as malfunctions due to the limited life-span of mechanical, electric or hydraulic parts of the machine.

We have accumulated enough experiences and technical data to handle all of the regular system troubles. Meanwhile, our engineering department had been continuously improving the machines to prevent all possible troubles.

It is hoped that you will give us your maintenance experience and ideas so that both sides can achieve the best performance.

PRECAUTIONS

When an abnormality occurs in the machine during operation, you can do it yourself safely. If you have to stop machine motion immediately for parts exchanging, you should do so according to the following procedures:

- Press HYDRAULIC MOTOR OFF button or EMERGENCY STOP button.
- Open the electrical enclosure door.
- Turn off breaker.

BEFORE ANY ADJUSTMENT OR MAINTENANCE OF THE MACHINE, PLEASE MAKE SURE TO TURN OFF THE MACHINE AND DISCONNECT THE POWER SUPPLY.

GENERAL TROUBLES AND SOLUTIONS

DISCONNECT POWER CORD TO MOTOR BEFORE ATTEMPTING ANY REPAIR OR INSPECTION.

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Motor stalls	Excessive belt tension	Adjust belt tension so that belt does not slip on drive pulley while cutting (1/2“ Min. deflection of belt under moderate pressure.)
	Excessive head pressure	Reduce head pressure. Refer to Operating Instructions “Adjusting Feed”.
	Excessive blade speed	Refer to Operating Instructions “Speed Selection”.
	Improper blade selection	Refer to Operating Instructions “Blade Selection”.
Cannot make square cut	Dull blade	Replace blade.
	Guide rollers not adjusted properly	Refer to Adjustments.
	Rear vise jaw not adjusted properly	Set fixed vise jaw 90° to blade.
	Excessive head pressure	Reduce head pressure. Refer to operating instructions “Adjusting Feed.”
Increased cutting time	Dull blade	Replace blade
	Insufficient head pressure	Increase head pressure. Refer to Operating Instructions “Adjusting Feed.”
	Reduce blade speed	Refer to Operating Instructions “Speed Selection.”
Will not cut	Motor running in wrong direction	Reverse rotation of motor. (Motor rotation C.C.W. pulley end.)
	Blade teeth pointing in wrong direction	Remove blade, turn blade inside out. Re-install blade. (Teeth must point in direction of travel.)
	Hardened material	Use special alloy blades. (Consult your industrial distributor for recommendation on type of blade required.)

MINOR TROUBLES & SOLUTIONS

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Saw blade motor does not run even though blade drive button is pressed.	Overload relay activated	Reset
	Saw blade is not at forward limit position.	Press SAW FRAME FORWARD button

MOTOR TROUBLES & SOLUTIONS

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Motor will not start	Magnetic switch open, or protector open.	Reset protector by pushing red button (inside electric box.)
	Low voltage	Check power line for proper voltage.
	Open circuit in motor or loose connections.	Inspect all lead terminations on motor for loose or open connections.
Motor will not start, fuse or circuit breakers “blow”.	Short circuit in line, cord or plug.	Inspect line, cord and plug for damaged insulation and shorted wire.
	Short circuit in motor or loose connections	Inspect all lead terminations on motor for loose or shorted terminals or worn insulation on wires.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses or circuit breakers.
Motor fail to develop full power. (Power output of motor decreases rapidly with decrease in voltage at motor terminals.)	Power line overloaded with lights, appliances and other motors.	Reduce the load on the power line.
	Undersize wires or circuit too long.	Increase wire sizes, or reduce length of wiring
	General overloading of power company‘s facilities.	Request a voltage check from the power company
Motor overheat	Motor overloaded.	Reduce load on motor
	Air circulation through the motor restricted.	Clean out motor to provide normal air circulation through motor.
Motor stalls (Resulting in blown fuses or tripped circuit breakers)	Short circuit in motor or loose connections.	Inspect terminals in motor for loose or shorted terminals or worn insulation on lead wires.
	Low voltage	Correct the low line voltage conditions.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses circuit breakers.
	Motor overloaded	Reduce motor load.
Frequent opening of fuses or circuit breakers.	Motor overloaded	Reduce motor load
	Incorrect fuses or circuit breakers.	Install correct fuses or circuit breakers.

BLADE TROUBLES AND SOLUTIONS

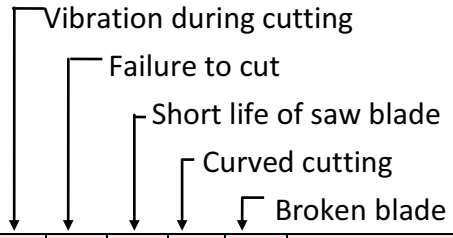
DISCONNECT POWER CORD TO MOTOR BEFORE ATTEMPTING ANY REPAIR OR INSPECTION.

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Teeth strippage	Too few teeth per inch	Use finer tooth blade
	Loading of gullets	Use coarse tooth blade or cutting lubricant.
	Excessive feed	Decrease feed
	Work not secured in vise	Clamp material securely
Blade breakage	Teeth too coarse	Use a finer tooth blade
	Misalignment of guides	Adjust saw guides
	Dry cutting	Use cutting lubricant
	Excessive speed	Lower speed. See Operating Instructions “Speed selection.”
	Excessive speed	Reduce feed pressure. Refer to Operating Instructions “Adjusting Feed.”
	Excessive tension	Tension blade to prevent slippage on drive wheel while cutting.
	Wheels out of line	Adjust wheels
Blade line Run-out or Run-in	Guides out of line	For a straight and true cut, realign guides, check bearings for wear.
	Excessive pressure	Conservative pressure assures long blade life and clean straight cuts.
	Support of blade insufficient	Move saw guides as close to work as possible.
	Material not properly secured in vise	Clamp material in vise, level and securely.
	Blade tension improper	Loosen or tighten tension on blade.
Blade twisting	Blade not in line with guide bearings	Check bearings for wear and alignment.
	Excessive blade pressure	Decrease pressure and blade tension
	Blade binding in cut	Decrease feed pressure
Premature tooth wear	Dry cutting	Use lubricant on all materials, except cast iron
	Blade too coarse	Use finer tooth blade
	Not enough feed	Increase feed so that blade does not ride in cut
	Excessive speed	Decrease speed

SAWING PROBLEMS AND SOLUTIONS

Other than this manual, the manufacturer also provides some related technical documents listed as follows:

Sawing Problems and Solutions



Vibration during cutting	Failure to cut	Short life of saw blade	Curved cutting	Broken blade		
✓	✓	✓	✓	✓	**Use of blade with incorrect pitch**	**Use blade with correct pitch suited to workpiece width**
✓	✓	✓	✓	✓	**Failure to break-in saw blade**	**Perform break-in operation**
✓	✓	✓			**Excessive saw blade speed**	**Reduce speed**
			✓	✓	**Insufficient saw blade speed**	**Increase speed**
✓		✓	✓	✓	**Excessive saw head descending speed**	**Reduce speed**
✓		✓	✓		**Insufficient saw head descending speed**	**Increase speed**
		✓	✓		**Insufficient saw blade tension**	**Increase tension**
✓		✓	✓	✓	**Wire brush improperly positioned**	**Relocate**
✓		✓	✓		**Blade improperly clamped by insert**	**Check and correct**
✓	✓	✓	✓	✓	**Improperly clamped workpiece**	**Check and correct**
	✓	✓	✓		**Excessively hard material surface**	**Soften material surface**
		✓	✓	✓	**Excessive cutting rate**	**Reduce cutting rate**
	✓	✓			**Non-annealed workpiece**	**Replace with suitable workpiece**
✓		✓	✓	✓	**Insufficient or lean cutting fluid**	**Add fluid or replace**
✓		✓	✓	✓	**Vibration near machine**	**Relocate machine**
		✓	✓		**Non-water soluble cutting fluid used**	**Replace**
✓		✓	✓		**Air in cylinder**	**Bleed air**
✓		✓		✓	**Broken back-up roller**	**Replace**
✓	✓	✓	✓	✓	**Use of non-specified saw blade**	**Replace**
✓	✓	✓	✓	✓	**Fluctuation of line voltage**	**Stabilize**
✓		✓	✓		**Adjustable blade guide too far from workpiece**	**Bring blade guide close to workpiece**
✓		✓	✓	✓	**Loose blade guide**	**Tighten**
		✓		✓	**Blue or purple saw chips**	**Reduce cutting rate**
✓		✓		✓	**Accumulation of chips at inserts**	**Clean**
	✓				**Reverse positioning of blade on machine**	**Reinstall**
✓		✓	✓		**Workpieces are not bundled properly**	**Re-bundle**
✓		✓		✓	**Back edge of blade touching wheel flange**	**Adjust wheel to obtain clearance**
✓	✓	✓			**Workpiece of insufficient diameter**	**Use other machine, suited for diameter of workpiece Replace**
	✓	✓	✓		**Saw blade teeth worn**	**Replace**

SOLUTIONS TO SAWING PROBLEMS

Table Of Contents

#1. Heavy Even Wear On Tips and Corners Of Teeth

Probable Cause :

A. Improper break-in procedure.

B. Excessive band speed for the type of material being cut. This generates a high tooth tip temperature resulting in accelerated tooth wear.

C. Low feed rate causes teeth to rub instead of penetrate. This is most common on work hardened materials such as stainless and toolsteels.

D. Hard materials being cut such as "Flame Cut Edge" or abrasive materials such as " Fiber Reinforced Composites".

E. Insufficient sawing fluid due to inadequate supply, improper ratio, and/or improper application

#2. Wear On Both Sides Of Teeth

Probable Cause :

A. Broken, worn or missing back-up guides allowing teeth to contact side guides.

B. Improper side guides for band width.

C. Backing the band out of an incomplete cut.

#3. Wear On One Side Of Teeth

Probable Cause :

A. Worn wheel flange, allowing side of teeth to contact wheel surface or improper tracking on flangeless wheel.

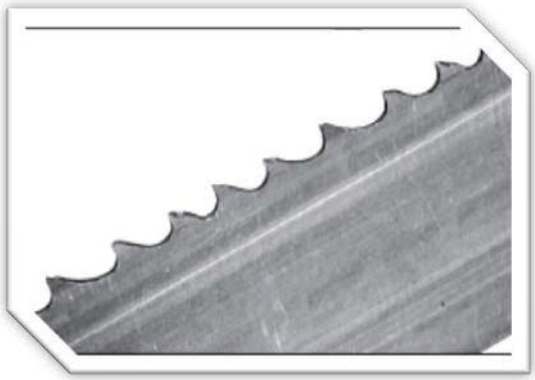
B. Loose or improperly positioned side guides.

C. Blade not perpendicular to cut.

D. Blade rubbing against cut surface on return stroke of machine head.

E. The teeth rubbing against a part of machine such as chip brush assembly, guards, etc.

#4. Chipped Or Broken Teeth



Probable Cause :

A. Improper break-in procedure.

B. Improper blade selection for application.

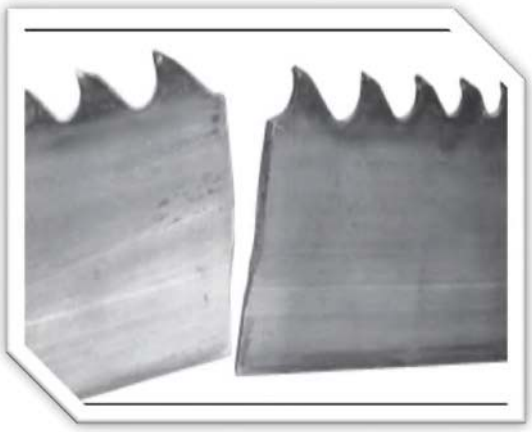
C. Handling damage due to improper opening of folded band.

D. Improper positioning or clamping of material.

E. Excessive feeding rate or feed pressure.

F. Hitting hard spots or hard scale in material

#5. Body Breakage Or Cracks From Back Edge



Probable Cause :

A. Excessive back-up guide "preload" will cause back edge to work harden which results in cracking.

B. Excessive feed rate.

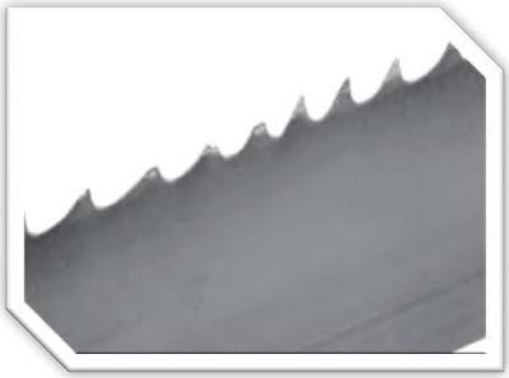
C. Improper band tracking – back edge rubbing heavy on wheel flange.

D. Worn or defective back-up guides.

E. Improper band tension.

F. Notches in back edge from handling damage

#6. Tooth Strippage



Probable Cause :

A. Improper or lack of break-in procedure.

B. Worn, missing or improperly positioned chip brush.

C. Excessive feeding rate or feed pressure.

D. Movement or vibration of material being cut.

E. Improper tooth pitch for cross sectional size of material being cut.

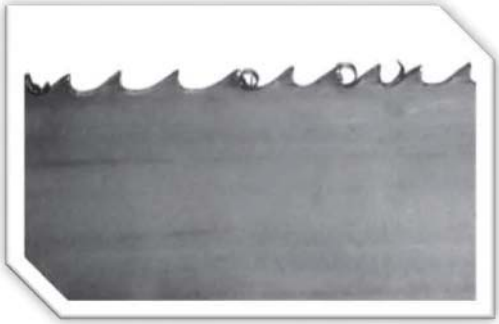
F. Improper positioning of material being cut.

G. Insufficient sawing fluid due to inadequate supply,improper ratio and/or improper application.

H. Hard spots in material being cut.

I. Band speed too slow for grade of material being cut.

#7. Chips Welded To Tooth Tips



Probable Cause :

A. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

B. Worn, missing or improperly positioned chip brush.

C. Improper band speed.

D. Improper feeding rate.

#8. Gullets Loading Up With Material

Probable Cause :

A. Too fine of a tooth pitch – insufficient gullet capacity.

B. Excessive feeding rate producing too large of a chip.

C. Worn, missing or improperly positioned chip brush.

D. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

#9. Discolored Tips Of Teeth Due To Excessive Frictional Heat

Probable Cause :

A. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

B. Excessive band speed.

C. Improper feeding rate.

D. Band installed backwards.

10. Heavy Wear On Both Sides Of Band

Probable Cause :

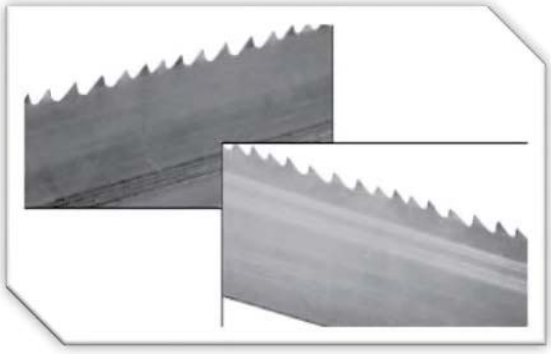
A. Chipped or broken side guides.

B. Side guide adjustment may be too tight.

C. Insufficient flow of sawing fluid through the side guides.

D. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

#11. Uneven Wear Or Scoring On The Sides Of Band



Probable Cause :

A. Loose side guides.

B. Chipped, worn or defective side guides.

C. Band is rubbing on part of the machine.

D. Guide arms spread to maximum capacity.

E. Accumulation of chips in side guides.

#12. Heavy Wear And/Or Swagging On Back Edge

Probable Cause :

A. Excessive feed rate.

B. Excessive back-up guide "preload".

C. Improper band tracking – back edge rubbing heavy on wheel flange.

D. Worn or defective back-up guides.

#13. Butt Weld Breakage

Probable Cause :

A. Any of the factors that cause body breaks can also cause butt weld breaks.

(See Observations #5, #15 and #16)

#14. Heavy Wear In Only The Smallest Gullets

Probable Cause :

A. Excessive feeding rate.

B. Too slow of band speed.

C. Using too fine of a tooth pitch for the size of material being cut.

#15. Body Breaking – Fracture Traveling In An Angular Direction

Probable Cause :

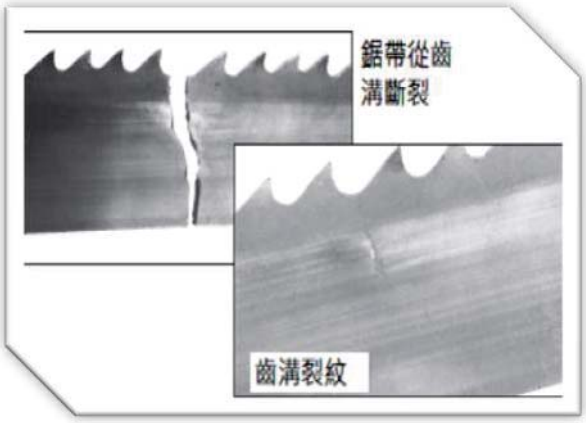
A. An excessive twist type of stress existed.

B. Guide arms spread to capacity causing excessive twist from band wheel to guides.

C. Guide arms spread too wide while cutting small cross sections.

D. Excessive back-up guide "preload".

#16. Body Breakage Or Cracks From Gullets



Probable Cause :

A. Excessive back-up guide "preload".

B. Improper band tension.

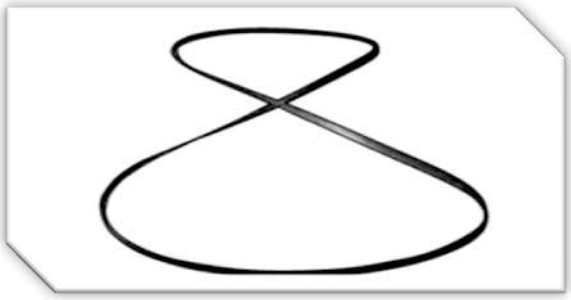
C. Guide arms spread to maximum capacity.

D. Improper beam bar alignment.

E. Side guide adjustment is too tight.

F. Excessively worn teeth.

#17. Band is Twisted Into A Figure "8" Configuration



Probable Cause :

A. Excessive band tension.

B. Any of the band conditions which cause the band to be long (#18) or short (#19) on tooth edge.

C. Cutting a tight radius.

#18. Used Band Is "Long" On The Tooth Edge

Probable Cause :

A. Side guides are too tight – rubbing near gullets.

B. Excessive "preload" – band riding heavily against back-up guides.

C. Worn band wheels causing uneven tension.

D. Excessive feeding rate.

E. Guide arms are spread to maximum capacity.

F. Improper band tracking – back edge rubbing heavy on wheel flange.

#19. Used Band Is "Short" On The Tooth Edge

Probable Cause :

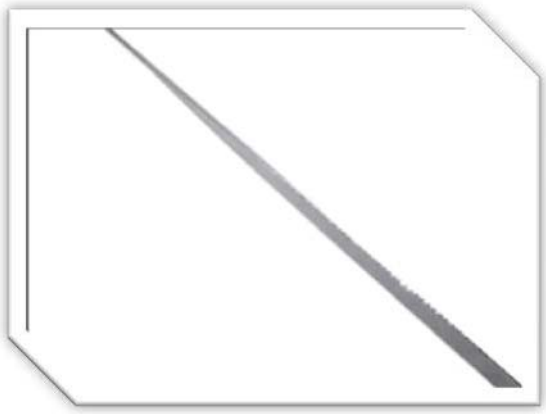
A. Side guides are too tight – rubbing near back edge.

B. Worn band wheels causing uneven tension.

C. Guide arms are spread too far apart.

D. Excessive feeding rate.

#20. Broken Band Shows A Twist In Band Length



Probable Cause :

A. Excessive band tension

B. Any of the band conditions which cause the band to be long (#18) or short (#19) on tooth edge.

C. Cutting a tight radius.

RE-ADJUSTING THE ROLLER TABLE

If the feeding table suffers the huge stroke and the alignment is effected, follow the below procedure to adjust.

TOOL, measuring

Measurement, Horizontal balance

Procedure

1. Screw or loosen the adjusting bolt to attain the horizontal balance (leveling) between the roller table and the machine frame.
2. Ensure that the machine frame is not struck by the loaded material on the feeding table.
3. Check the leveling by the measuring tool.
4. After finished the adjusting, fix the roller table.

If the feeding table and the machine frame are not positioned under the horizontal balance, the loaded material may be going up gradually and affect the cutting effect.

Section 10

PARTS

SPARE PARTS RECOMMENDATIONS

SPARE PARTS RECOMMENDATIONS

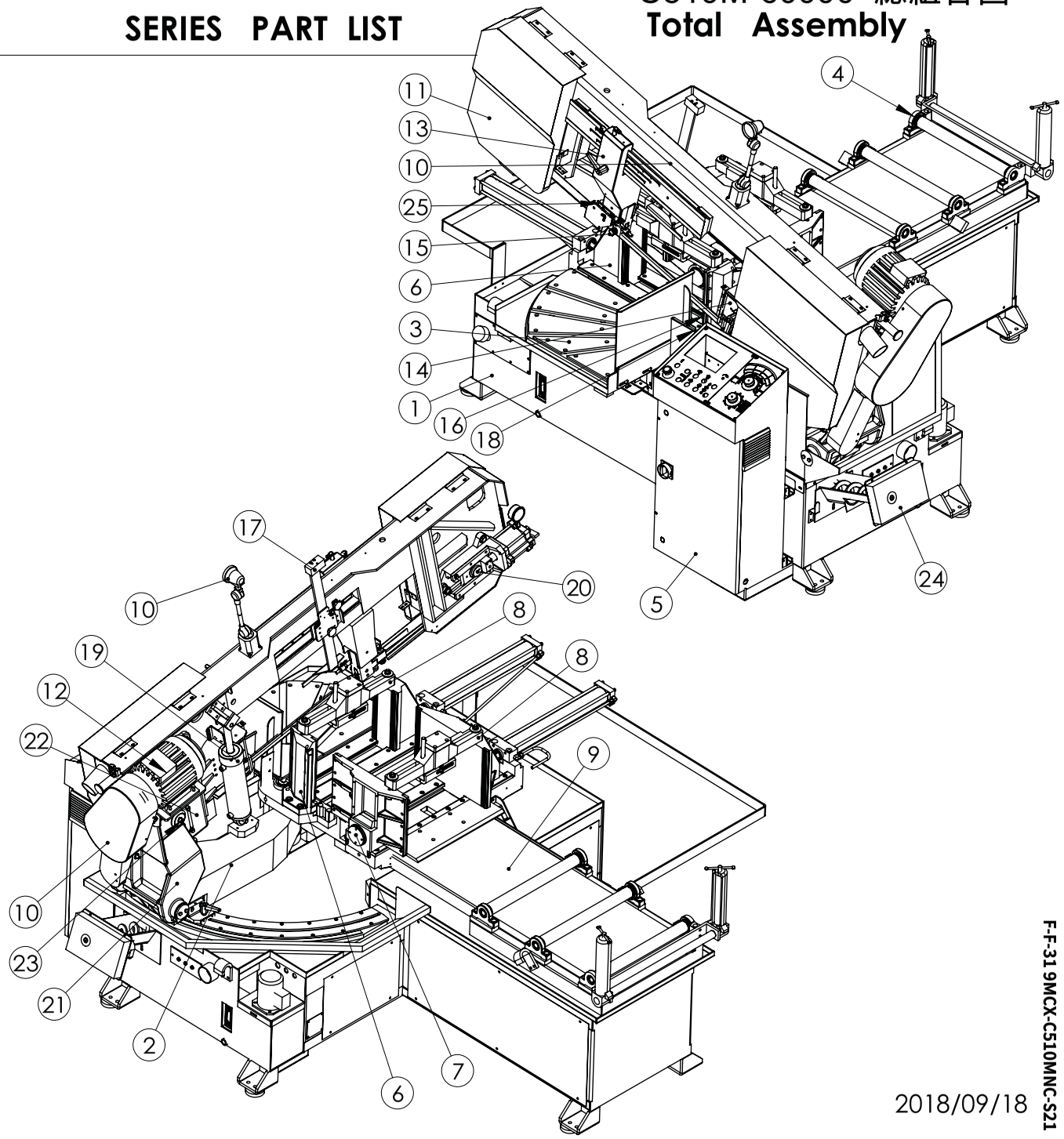
The following table lists the common spare parts we suggest you purchase in advance:

Part Name	Part Name
Saw blade	Coolant tank filter
Wire brush	Steel plates
Carbide inserts	Rollers
Bearings	Belt
Hydraulic tank leak-proof gasket	Duster seal
Rubber washer	Oil seal
O-ring	Snap ring
Drive wheel	Idle wheel

05C-510MNC-G SERIES PART LIST

C510M-60000 總組合圖
Total Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-10000	Base assembly	底座組	1
2	G510M-11500	Joint seat assembly	旋轉關節座組	1
3	G510M-12000	Tray assembly	托架組	1
4	G510M-12500	Feed roller assembly	送料滾輪組	1
5	G510M-13000	Control box assembly	控制箱組	1
6	G510M-20000	Base assembly	床面組	1
7	G510M-20110	Feeding bed assembly	送料床面組	1
8	C510M-24000	Top clamp assembly (Optional assembly)	下壓裝置組 (選配)	2
9	G510M-25700	Feed encoder assembly	送料譯碼器組	1
10	G510M-30000	Saw bow assembly	鋸弓組	1
11	C325H-30300	Idle wheel assembly	上輪組	1
12	C510M-30600	Driver motor assembly	主動馬達組	1
13	G510M-31000-A	Guide arm assembly-A	鋸臂組-A	1
14	G510M-31000-B	Guide arm assembly-B	固定鋸臂組-B	1
15	G510M-31300	Left guide roller assembly	左導輪座組	1
16	G510M-31600	Right guide roller assembly	右導輪座組	1
17	G510M-32000B	Quick approach assembly	急降桿組	1
18	G510M-32200	Wire brush assembly	鋼刷組	1
19	G510M-32500	Saw bow cylinder assembly	鋸弓油壓缸組	1
20	C510M-33000	Tensioner sliding plate assembly	張力滑座滑板油缸組	1
21	C510M-33500	Gear reducer assembly	減速機組	1
22	C510M-33530	Worm shaft assembly	蝸桿組	1
23	C510M-33550	Worm gear assembly	蝸輪組	1
24	G510M-40000B	Automatic chip cinveyor (Optional assembly)	自動除屑裝置(選配)	1
25	C510M-42000A	Vibration damper (Optional assembly)	防震滾輪組(選配)	1



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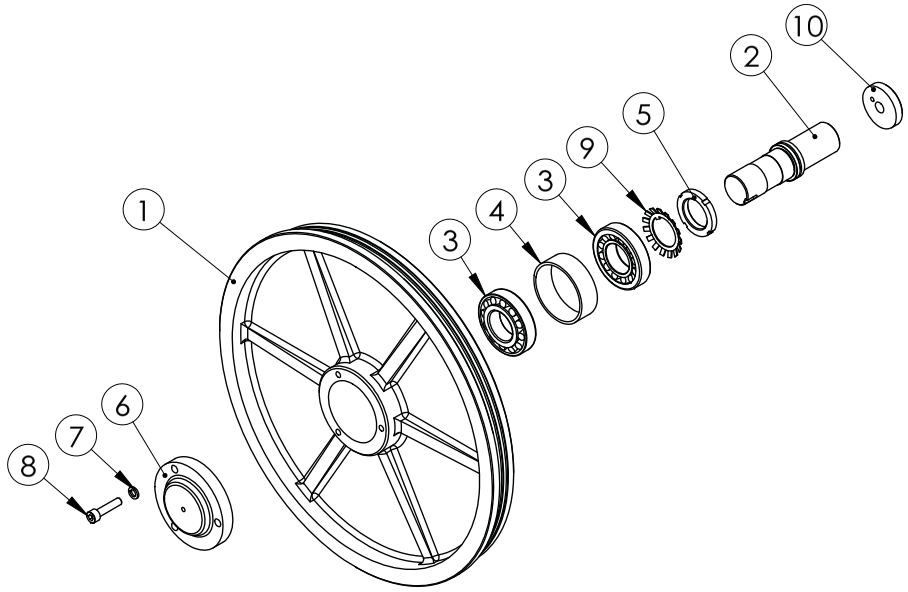
C325H-30300 上輪組
Idle Wheel Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-3031	Idle wheel	上輪	1
2	C250H-3033	Idle wheel shaft	上輪軸	1
3	PP-14613	Ball bearing	滾錐軸承30207	2
4	AHA-0637	Idle wheel bearing washer	上輪軸承墊圈	1
5	PP-14907	Fixed nut	固定螺母AN07	1
6	C250H-3037	Idle wheel shaft cover	上輪軸蓋	1
7	PQA-8A	Spring washer	彈簧華司	3
8	PBA-8-35	Screw	螺絲	3
9	PP-14957	Stop ring	止動環AW07	1
10	C250H-3045	Fixed washer	上輪軸固定華司	1



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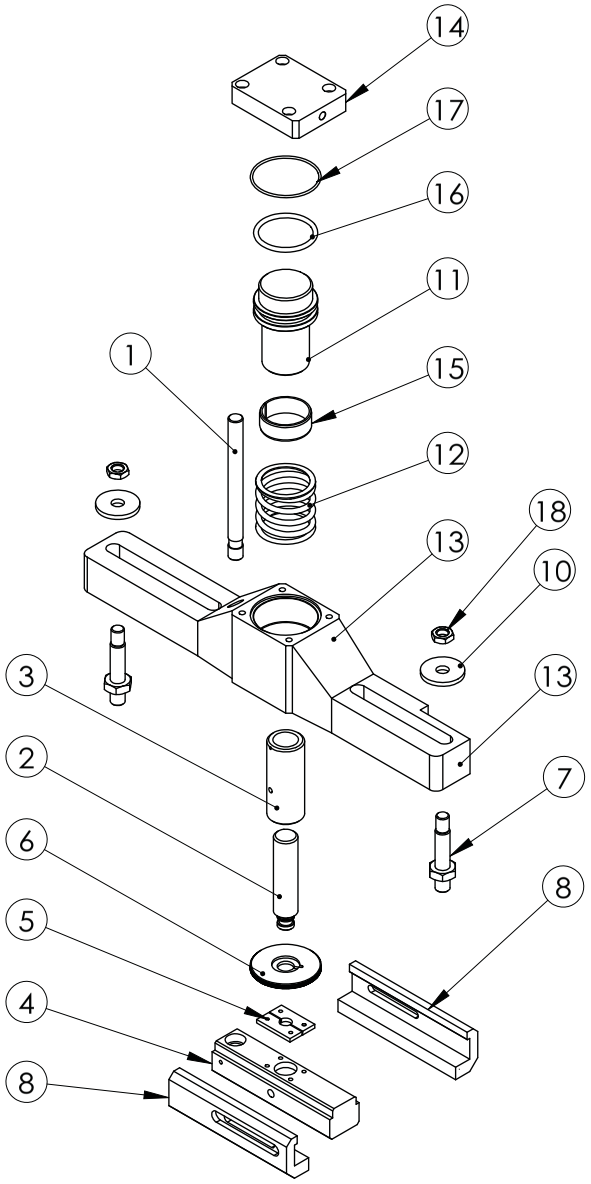
C510M-24000 下壓裝置組(選配)
Top clamp Assembly (Optional assembly)

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	AHN-2601	Rod	下壓定位桿	1
2	AHN-2604	Adjusting bolt	下壓調整螺桿	1
3	AHN-2607	Extension rod	伸縮桿	1
4	AHN-2608	Press plate	壓板	1
5	AHN-2611	Position plate for bolt	螺桿定位板	2
6	AHN-2612	Top clamp adjusting handwheel	下壓調整手輪	1
7	C510M-2431	Top clamp fixed bolt	下壓固定螺栓	2
8	AHB-1923	Duster seal	下壓伸縮板	2
9	PP-52089	Snap ring	扣環S17	1
10	C510M-4141	Top clamp fixed block	下壓固定塊	2
11	AHN-2603	Piston	活塞	1
12	AHN-2605	Spring	彈簧	1
13	AHN-2606	Top clamp hydraulic cylinder body	下壓油壓缸本體	1
14	AHN-2602	Cylinder rear cover	油缸後蓋	1
15	PP-13240	Du bushing	乾式軸承(5020)	1
16	PP-59158	O-ring	O型環 NOK-P-58	1
17	PP-59585	O-ring	O型環 G-70	1
18	POA-14	Nut	螺帽 M14	2



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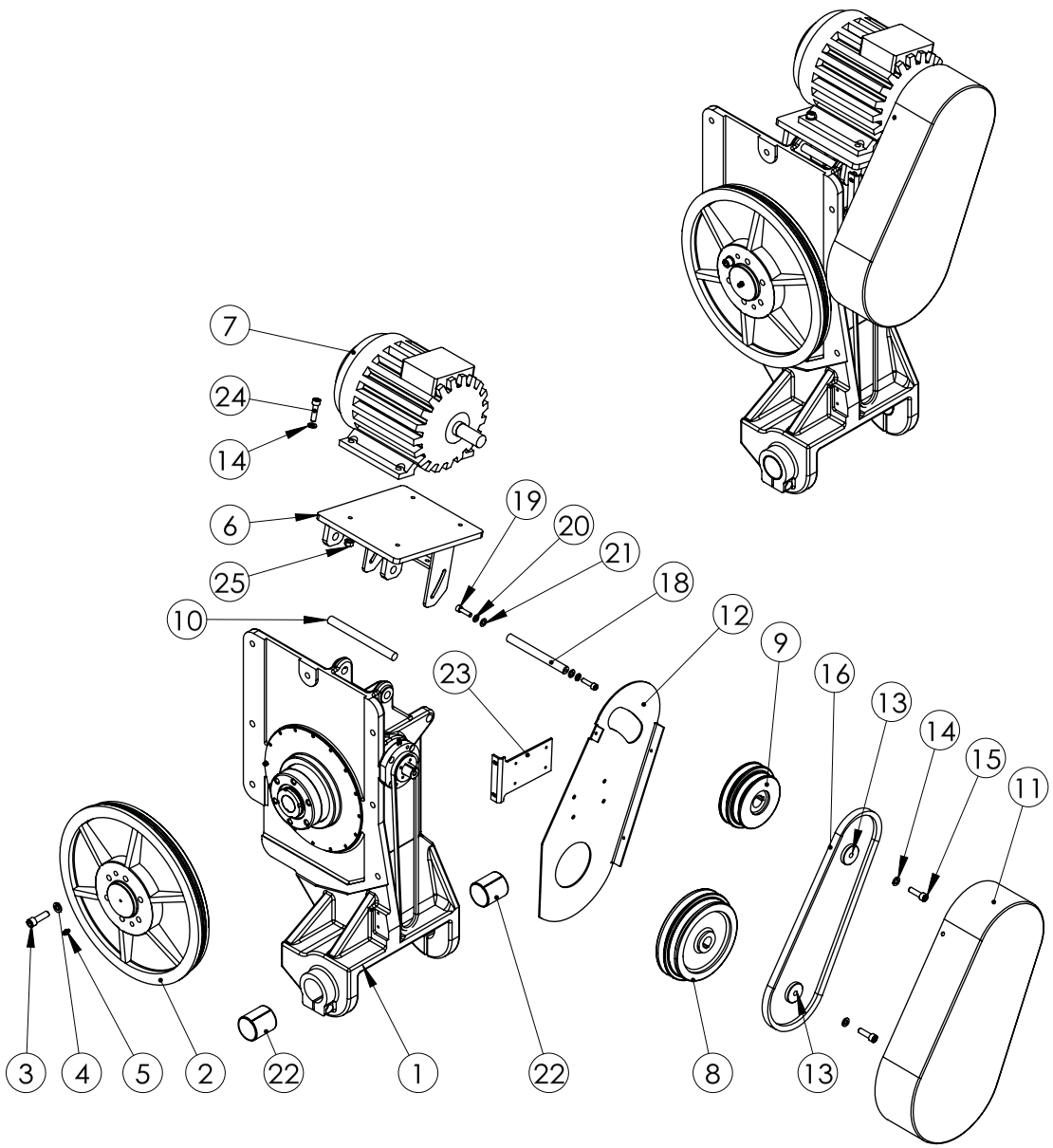
05C-510MNC-G
05C-510MNC-GCE

SERIES PART LIST

C510M-30600 主動馬達組
Driver motor Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C510M-33500	Gear reducer	減速機整組	1
2	C250H-3041	Drive wheel	下輪	1
3	PBA-12-40	Balt	有頭內六角螺絲	6
4	PQA-12	Spring washer	彈簧華司	6
5	PUC-007	Grease nipple	油嘴 M6xP1.0	1
6	C510M-3081A	Saw bow motor seat	鋸弓馬達底板	1
7	PBH5-C427-P	Motor	馬達5HP 3Φ 4P 50HZ	1
8	AHA-0514G	Transmission pulley	減速機皮帶輪(無段)	1
9	AHA-0538G	Motor belt wheel	馬達皮帶輪(無段)	1
10	S710D-3085	Motor position shaft	馬達定位軸	1
11	C510M-3071	Pulley cover	普利護蓋	1
12	C510M-3073	Pulley cover base plate	普利護蓋底板	1
13	AHA-0525	Washer	墊圈	2
14	PQA-10	Spring washer	彈簧華司	6
15	PBA-10-35	Hexagon socket head cap screw	內六角螺絲	2
16	PP-56287	Belt	皮帶 B-44	1
17	PP-56510	Belt	皮帶 M-37	1
18	C250H-3085	Motor position shaft	馬達定位軸	1
19	PBA-8-30	Hexagon socket head cap screw	內六角螺絲	2
20	PQA-8	Spring washer	彈簧華司	2
21	PPA-8	flat washer	平面華司	2
22	PP-13250	DU bushing	乾式軸承 5060	2
23	G510M-3077	Pulley cover fixed ear	普利護蓋固定耳	1
24	PBA-10-40	Hexagon socket head cap screw	內六角螺絲	4
25	POA-10	nut	螺帽	4



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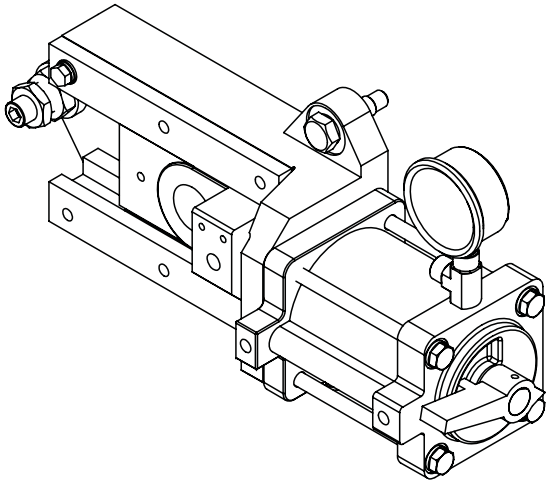
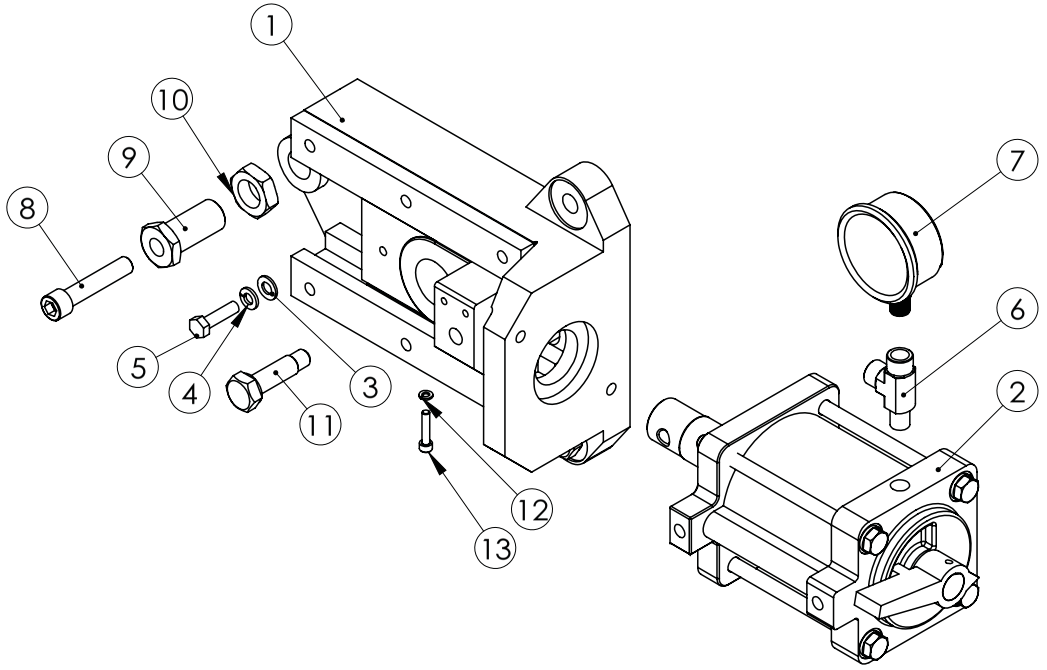
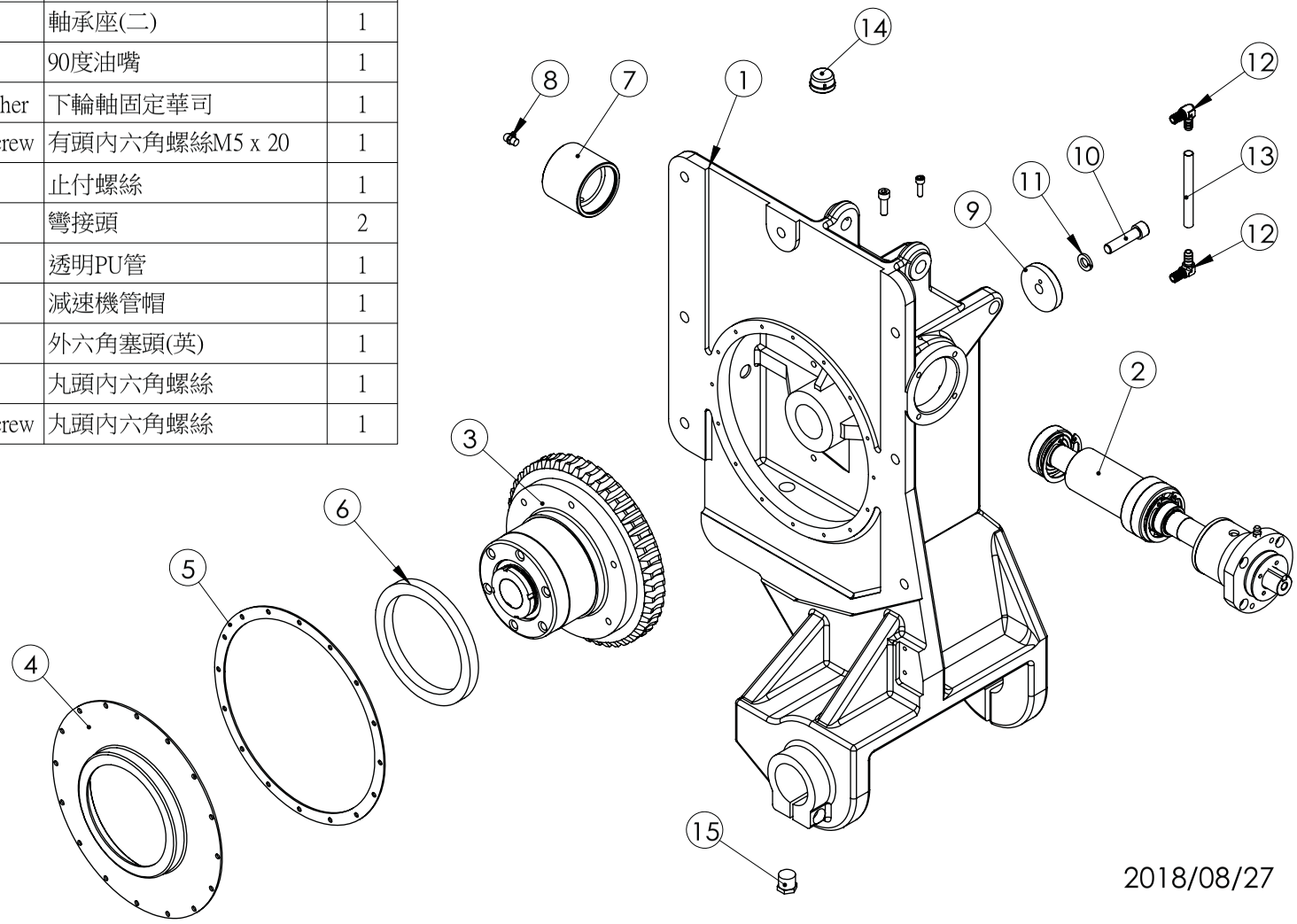


ITEM	PART NO	PART NAME	PART NAME IN CHINESE	QTY
1	C250H-33000	Tensioner sliding plate seat	張力滑座滑板組	1
2	C250H-33200-1	Tensioner cylinder assembly	張力油缸組	1
3	PPA-8	flat washer	平面華司	6
4	PQA-8	Spring washer	彈簧華司	6
5	PLA-8-30	Hexagon bolt	外六角頭螺絲	6
6	PUK-020-020-020-10	3-WAT Bushing	三通接頭	1
7	PP-43311A	Pressure gauge	壓力表(直立式)	1
8	PBA-12-60	Hexagon socket head cap screw	內六角螺絲M12x60L	1
9	AHA-0610A		調整螺絲	1
10	AHA-0611	Adjusting nut	調整螺母	1
11	C250H-3315	Pisition bolt	定位螺絲	2
12	PQA-5	Spring washer	彈簧華司	2
13	PBA-5-25	Hexagon socket head cap screw	內六角螺絲	2



C510M-33500 減速機組
Gear reducer Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C510M-3351	Bearbox body	減速機本體	1
2	C510M-33530	Worm Shaft assembly	蝸桿組	1
3	C510M-33550	Worm gear assembly	蝸輪組	1
4	AHA-0433A	Oil fixed plate	油封固定盤	1
5	C250H-3369	Gear reducer	減速機整組	1
6	PP-51090B	O-ring	油封	1
7	BAAHA-0326A	Bearing seat	軸承座(二)	1
8	PUC-008	Grease nipple	90度油嘴	1
9	C250H-3046	Drive wheel shaft fixed washer	下輪軸固定華司	1
10	PBA-12-50	Hexagon socket head cap screw	有頭內六角螺絲M5 x 20	1
11	PQA-12	Set screw	止付螺絲	1
12	PUJ-010-025-01	Curved Fitting	彎接頭	2
13	PU-10-105	Tube	透明PU管	1
14	AHA-0335	Plug	減速機管帽	1
15	PED-040P-01	Hexagon plug	外六角塞頭(英)	1
16	PBA-8-25	Ball Hexagon bolt	丸頭內六角螺絲	1
17	PBA-6-20	Hexagon socket head cap screw	丸頭內六角螺絲	1

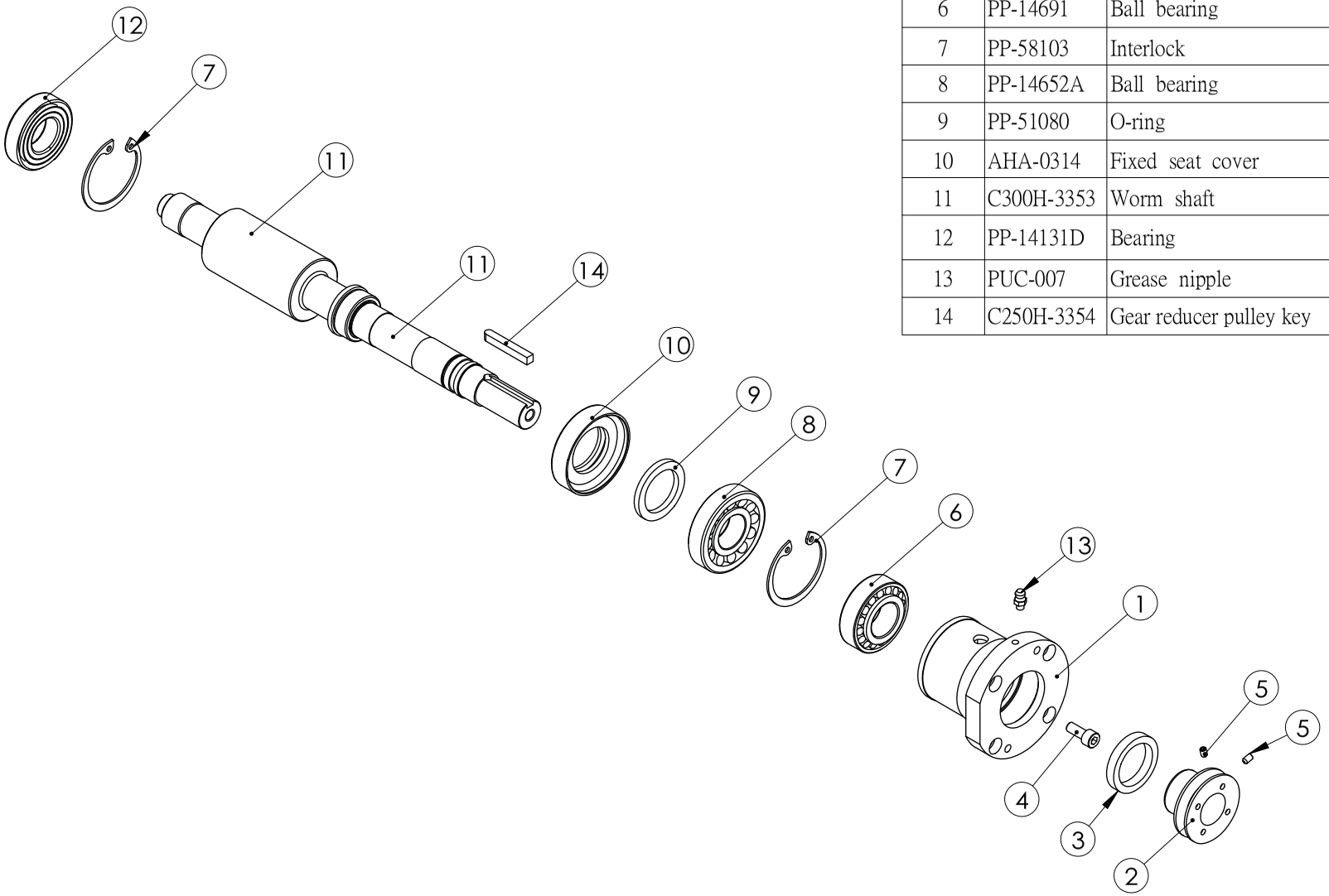


2018/08/27

SERIES PART LIST

C510M-33530 蝸桿組
Worm Shaft Assembly

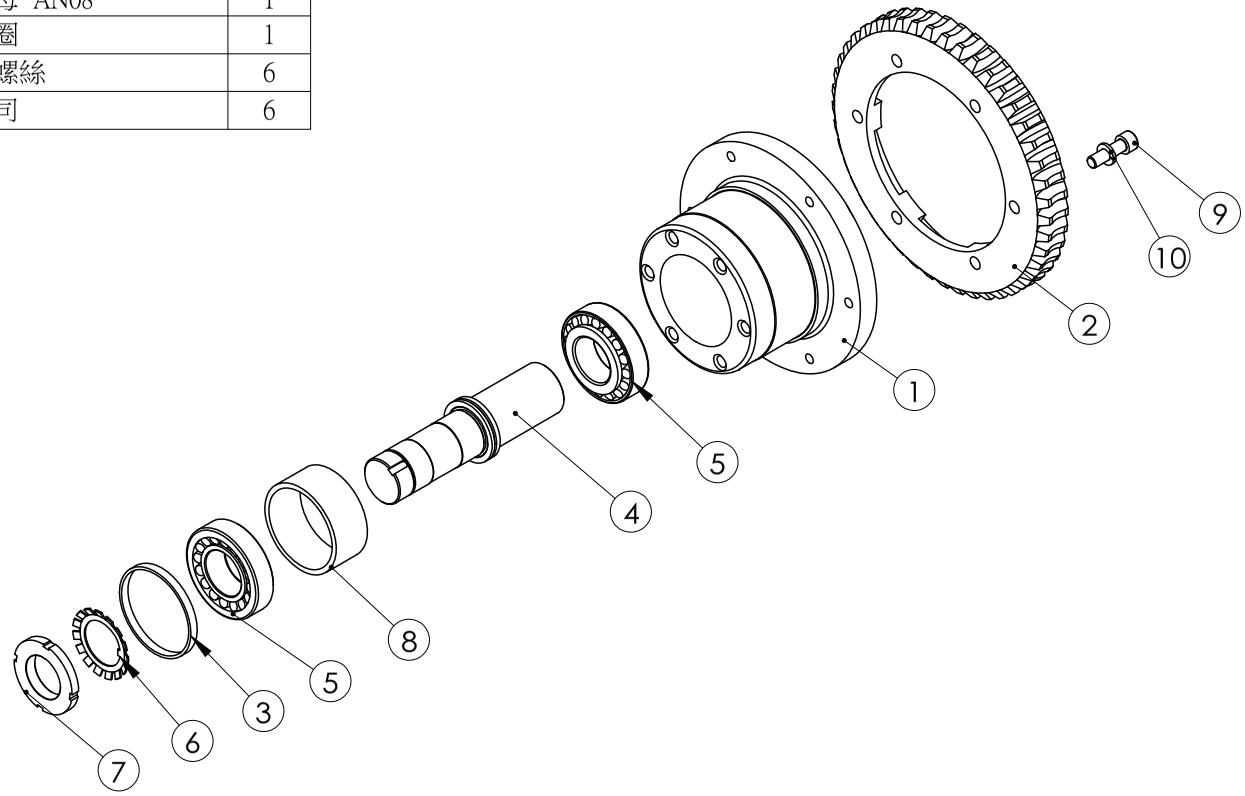
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	AHA-0319	Fixed seat (1)	固定座(一)	1
2	C510M-3235	Wire brush Pulley	鋼刷普利	1
3	PP-51070	Oil seal	油封TC 38x50x8 Nok	1
4	PBA-8-20	Hexagon socket head cap screw	內六角螺絲	1
5	PAA-5-8	Set screw	止付螺絲 M5*8L	2
6	PP-14691	Ball bearing	滾錐軸承 32206 NSK	1
7	PP-58103	Interlock	扣環 R62	2
8	PP-14652A	Ball bearing	滾錐軸承 30306D	1
9	PP-51080	O-ring	油封 38x52x5	1
10	AHA-0314	Fixed seat cover	固定座蓋	1
11	C300H-3353	Worm shaft	蝸桿	1
12	PP-14131D	Bearing	軸承 6206Z KOYO	1
13	PUC-007	Grease nipple	油嘴 M6xP1.0 (直)	1
14	C250H-3354	Gear reducer pulley key	減速機普利方鍵 7x7x50L	1



2018/08/27

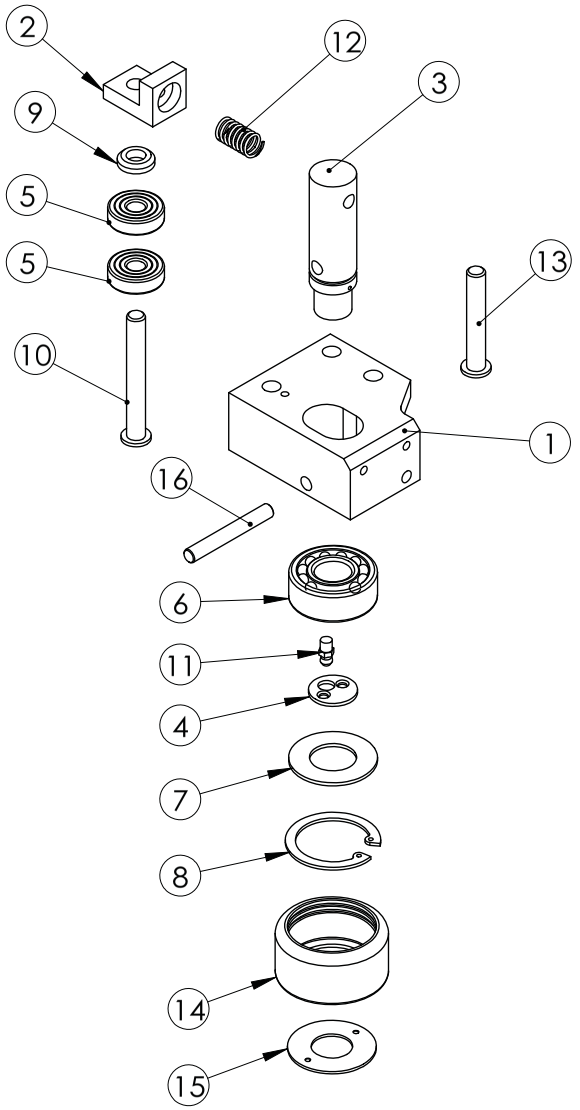
C510M-33550 蝸輪組
Worm gear Assembly

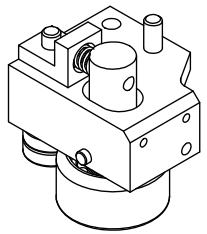
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-3365	Housing	蝸輪固定座	1
2	C300H-3355	Worm gear	蝸輪	1
3	AHA-0429	Adjusting ring	調整環	1
4	AHA-0407	Drive wheel shaft	下輪軸	1
5	PP-14693B	Ball bearing	滾錐軸承 32208 KOYO	2
6	PP-14958	Ball bearing	止動環 AW08	1
7	PP-14908	Fixed nut	固定螺母 AN08	1
8	AHA-0431B	Bearing washer	軸承墊圈	1
9	PBA-10-35	Hexagon socket head cap screw	內六角螺絲	6
10	PQA-10	Spring washer	彈簧華司	6



C510M-42000A 防震導輪組(選配)
Vibration damper (Optional assembly)

ITEM	PART NO	PART NAME	品名	Q'TY
1	C320G-4221	Vibration damper seat	防震座	1
2	C320G-4225	Spring holder	防震彈簧座	1
3	C510M-4231A	roller shaft	防震導輪軸	1
4	C460H-4206	Bearing washer	軸承墊圈	1
5	PP-14270B	Bearing	軸承6200DDU	2
6	PP-14507	Bearing	調心軸承2204	1
7	AGB-3307A	Grease cover	牛油擋	1
8	PP-58111	Snap ring	扣環R47	1
9	C320G-4222	Bearing washer	軸承墊圈	1
10	C320G-3143A	Guide roller shaft	導輪軸(二)	1
11	PUC-020	Grease nipple	油嘴1/4"-28UNF	1
12	PP-57403	Spring	彈簧	1
13	C320G-3143	Guide roller shaft (2)	導輪軸(二)	1
14	AHA-3301	Vibration damper roller	防震導輪	1
15	AGB-3308	Rubber ring	遮水橡皮	1
16	PRD-8-60	Pin	平行銷∅6x60L	1





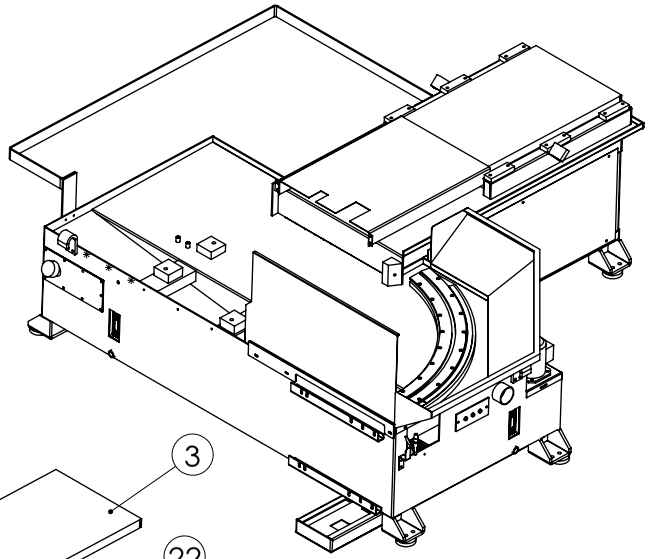
2018/09/17

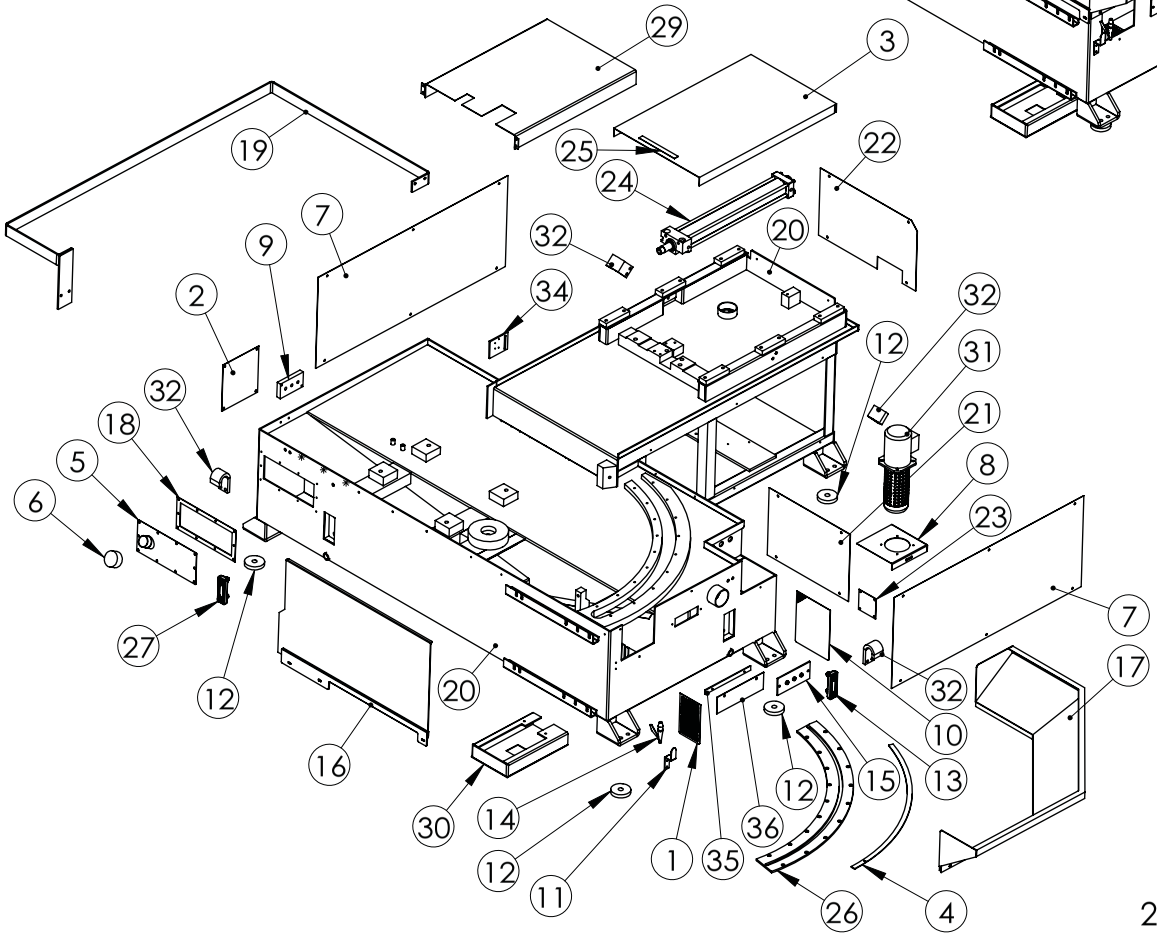
05C-510MNC-G SERIES PART LIST

G510M-10000 底座組
Base Assembly

ITEM	PART NAME	PART NAME	PART NAME IN CHINESE	Q'TY
1	AHA-0139	Filter	水箱通管濾網(小)	1
2	C500M-1056	Cover	開孔蓋	1
3	C510M-1070	Feeding cylinder cover	送料油缸護蓋	1
4	C510M-1181	Angle scale	角度銘板	1
5	AHA-0102	Oil tank cover	油箱蓋	1
6	PP-90857	Hydraulics tank cover nut	油箱蓋螺帽	1
7	C510M-1069	Cover	後右後蓋	2
8	C510M-1036	Coolant pump fixed seat cover	水泵固定座蓋	1
9	AGB-70736	Reserved fixed seat	減壓閥預留固定座	1
10	AHA-0138	Filter	水箱通管濾網	1
11	AHA-1309-S2	Hose bracket	軟管架	1
12	AHR-1055	Table stand pad	底座墊塊	6
13	PP-21030A	Water gauge	水面計(不含刻度表)	1
14	PP-58003	Spray gun	水槍	1
15	AHE-1016	Fitting seat	水管接頭座	1
16	G510M-1044	Base splash shield	底座遮水板	1
17	C510M-1025	Right splash shield	右防濺板	1
18	C250H-1006	Oil tank gasket	油箱蓋防漏橡膠	1
19	C510M-1031	Left fence	左護欄	1
20	G510M-1001	Base	底座	1
21	G510M-1060	Cover	右後左蓋	1
22	G510M-1061	Left rear cover	左後蓋	1
23	G510M-1062	Right rear cover	右後遮板	1
24	C510M-26500	Feeding cylinder sssembly	送料油壓缸組(有緩衝)	1
25	C250H-1290	Plastic plate	塑膠墊	1
26	G510M-1183	Rotation fixed plate	旋轉固定板	1
27	PP-21030	oil gauge	油面計(含刻度表)	1
28	AGB-70220	Water pipe fixed bracket	冷卻水管固定板	1

ITEM	PART NAME	PART NAME	PART NAME IN CHINESE	Q'TY
29	G510M-1283	Feeding shaft cover	送料軸蓋板	1
30	G510M-1303	Control box base	控制箱底座	1
31	PP-32012	Pump	浸水幫浦(過濾式)(CE)	1
32	AHC-0160	Lifting ear (3)	吊耳(三)	4
33	AHA-1605	Bushing cap nut	襯套螺帽	1
34	G510M-1016	Front L.S. fixed plate	前限動固定板	1
35	G510M-1026	Press down plate	壓板	1
36	G510M-1028	Water shield rubber	擋水橡膠	1



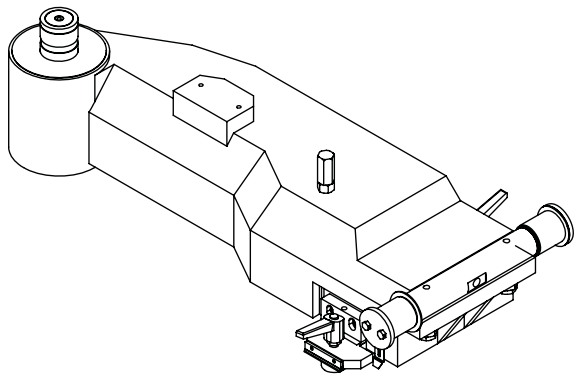


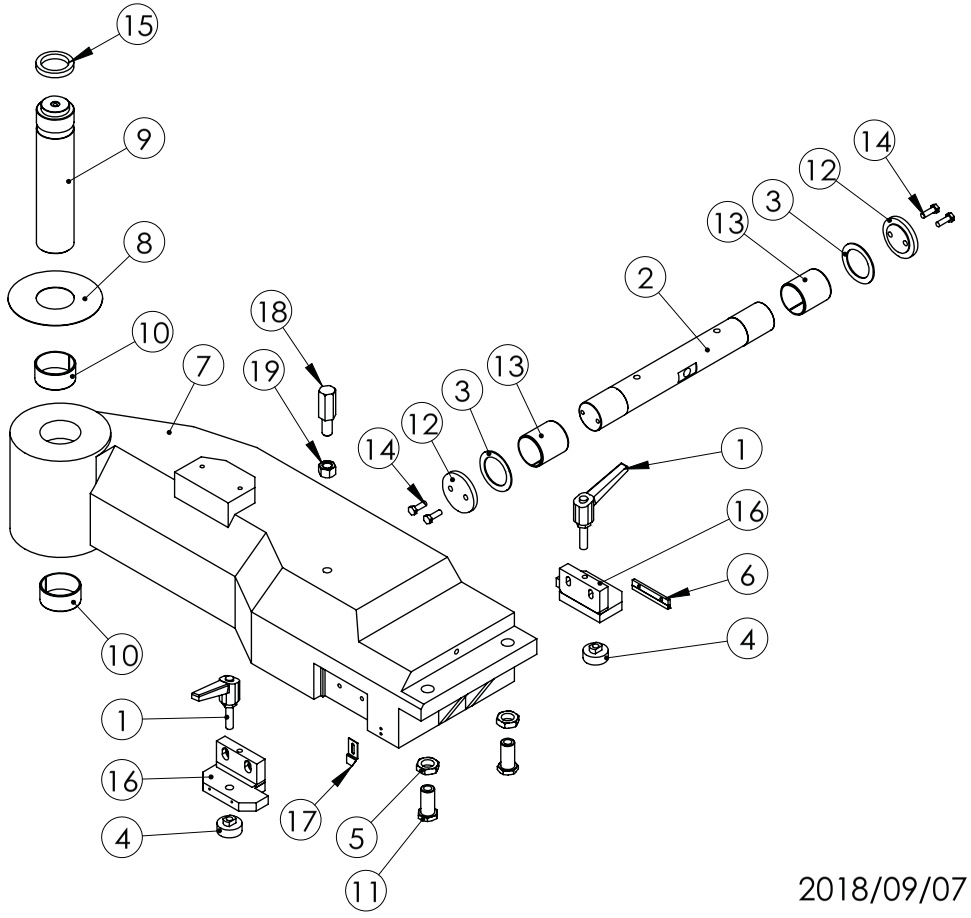
F-F-31 9MCX-C510MNC-S21

2018/09/11

G510M-11500 關節座組
Joint Seat Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	PP-52111F	Handle	鋸臂把手	2
2	G510M-1173	Joint shaft	關節軸	1
3	AHA-0324	Teflon washer	鐵弗龍墊圈	2
4	SEE-1053	track fixed block	軌道固定塊	2
5	AHA-0611	Adjusting nut	調整螺母	2
6	SGB-71144A	way wiper	刮刷片	2
7	G510M-1171A	Rotary Joint Block	旋轉關節座	1
8	C510M-1172A	Rotary joint block washer	旋轉關節座墊片	1
9	C510M-1175	Rotation shaft	旋轉軸	1
10	PP-13225	DU bushing	乾式軸承	2
11	AHA-0610	Adjusting screw	調整螺絲	2
12	AHA-0311	Joint shaft cover	關節軸蓋	2
13	PP-13250	DU bushing	乾式軸承(5060)	2
14	C250H-1167	Fixed bolt	固定螺絲	4
15	PP-51081A	Oil Seal	油封TC-45.60.9	1
16	G510M-1184	Rotary fixed seat	旋轉固定座	2
17	G510M-1182	Pointer	指針	1
18	G510M-1111	Lower limit positioning rod	下限定位支桿	1
19	POA-16	Nut	螺帽 (公) (染黑)	1





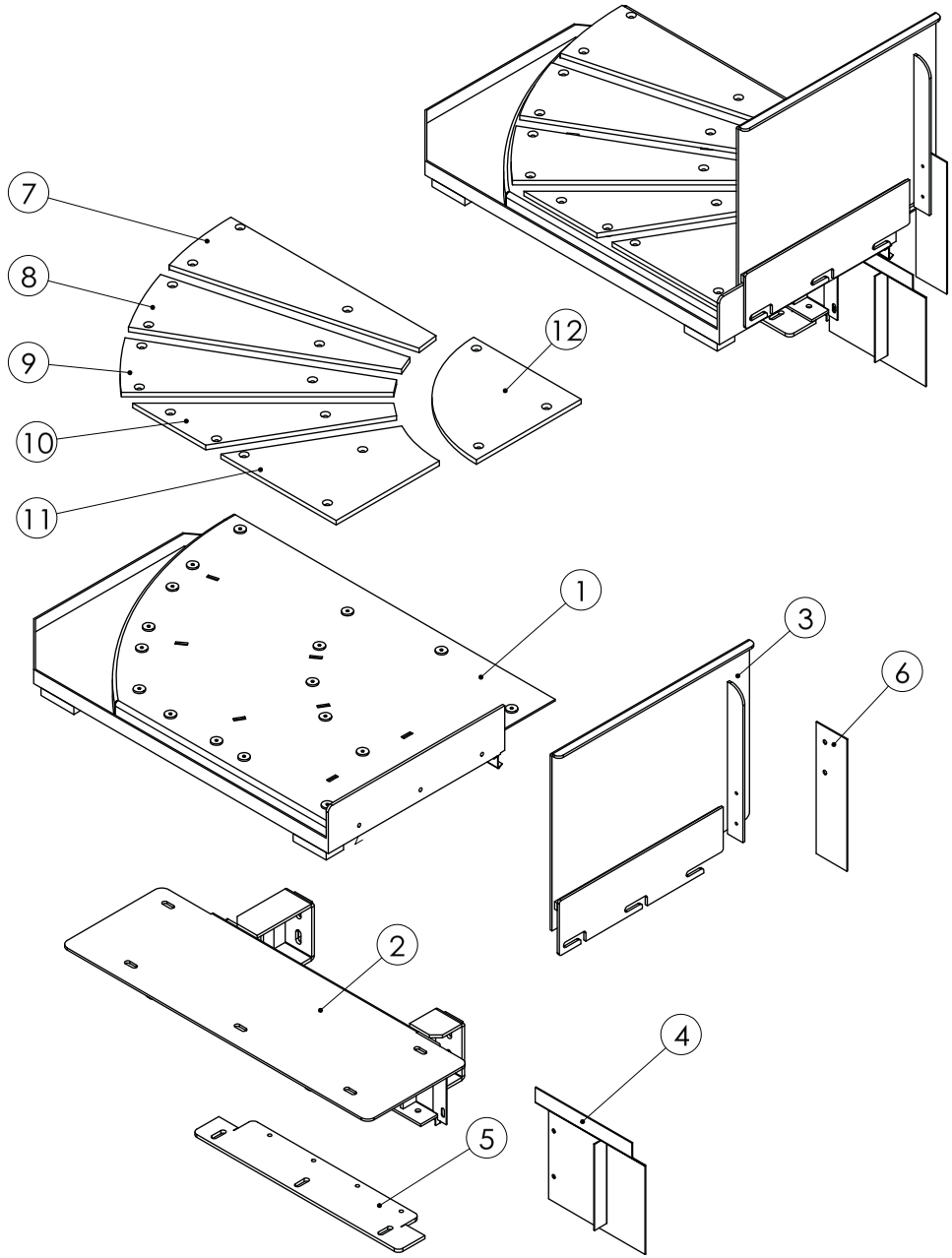
2018/09/07

05C-510MNC-G
05C-510MNC-GCE

SERIES PART LIST

G510M-12000 托架組
Tray Assembly

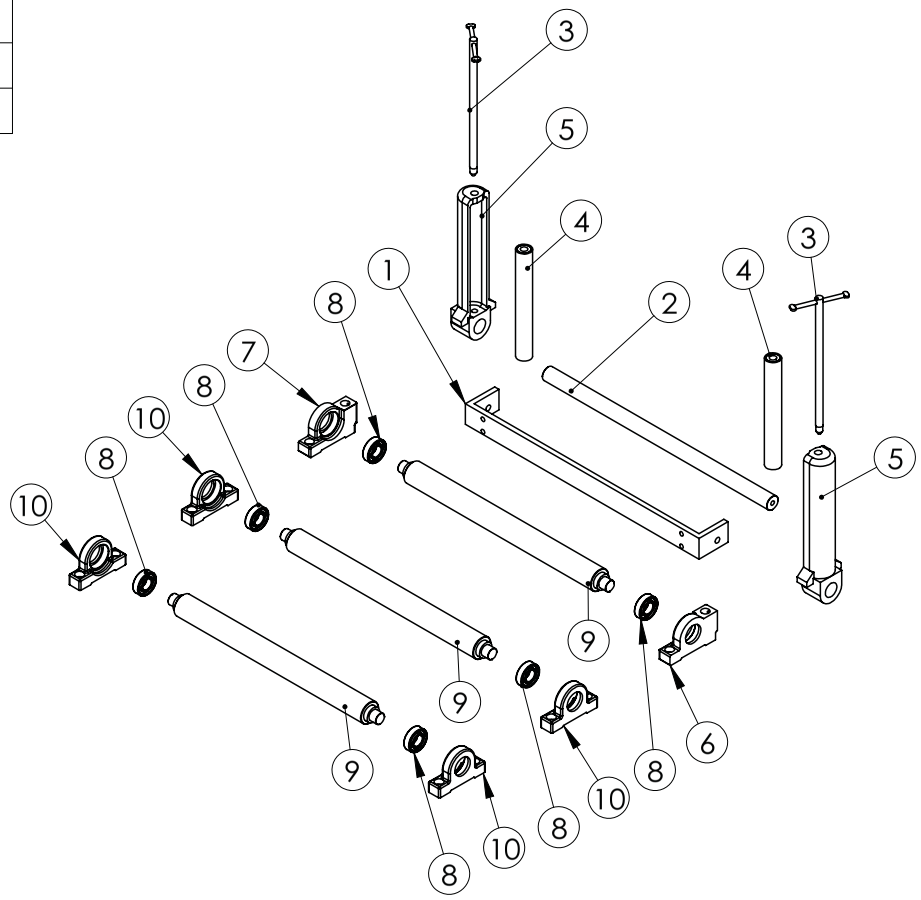
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-1201	Braket	托架	1
2	G510M-1202	Supporter	托架支撐板	1
3	G510M-1209	Braket fixed side fence	托架固定側板	1
4	G510M-1217A	Tray cover	托架遮板	1
5	G510M-1203	Lock adjusting plate	鎖附調整板	1
6	G510M-1208	Water shield rubber (1)	擋水橡膠(一)	1
7	C510M-2010B-1	Bed deck (1)	床面承板(一)	1
8	C510M-2010B-2	Bed deck (2)	床面承板(二)	1
9	C510M-2010B-3	Bed deck (3)	床面承板(三)	1
10	C510M-2010B-4	Bed deck (4)	床面承板(四)	1
11	C510M-2010B-5	Bed deck (5)	床面承板(五)	1
12	C510M-2010B-6	Bed deck (6)	床面承板(六)	1



2018/09/07

G510M-12500 送料滾輪組
Feed roller Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	AER-1064	Vertical roller stopper	側滾輪檔板 (500MNC)	1
2	AER-1065	Vertical roller sliding shaft	側滾輪滑軸 (500MNC)	1
3	OPR-5014D	Vertical roller shaft and handle	側滾輪軸及把手	2
4	OPR-5013D	Vertical roller	側滾輪（簡易）	2
5	BAOPR-5015D	Vertical roller seat	側滾輪座	2
6	C325H-1253	Roller fixed seat (Right)	滾輪固定座(右)	1
7	C325H-1255	Roller fixed seat (Left)	滾輪固定座(左)	1
8	PP-14275	Bearing	軸承6205ZZ	6
9	AGF-2018	Roller	滾輪(一)	3
10	C325H-1253	Fixed bed assembly	滾輪固定座	4

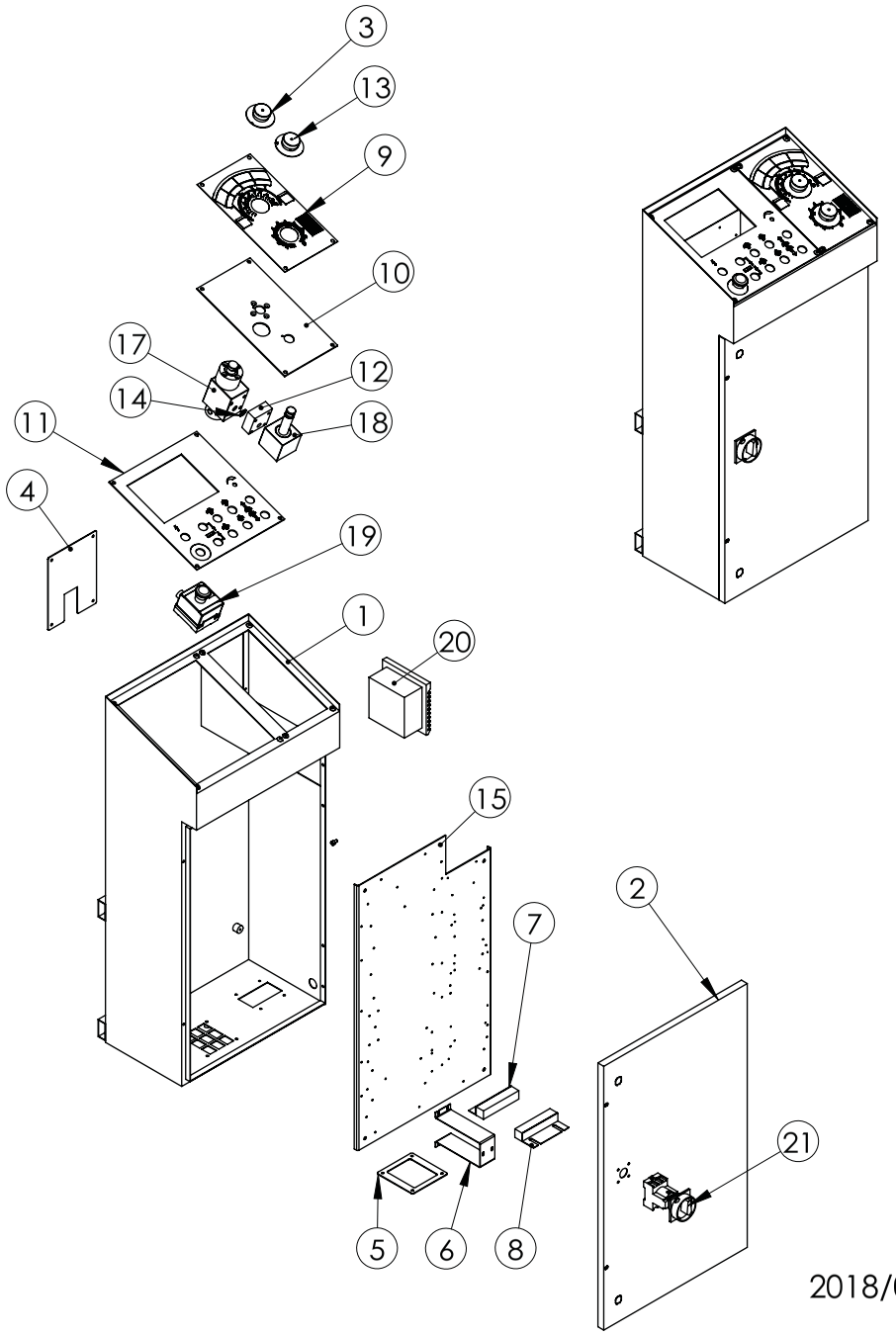


2018/09/10

05C-510MNC-G SERIES PART LIST

G510M-13000 控制箱組
Control Box Assembly

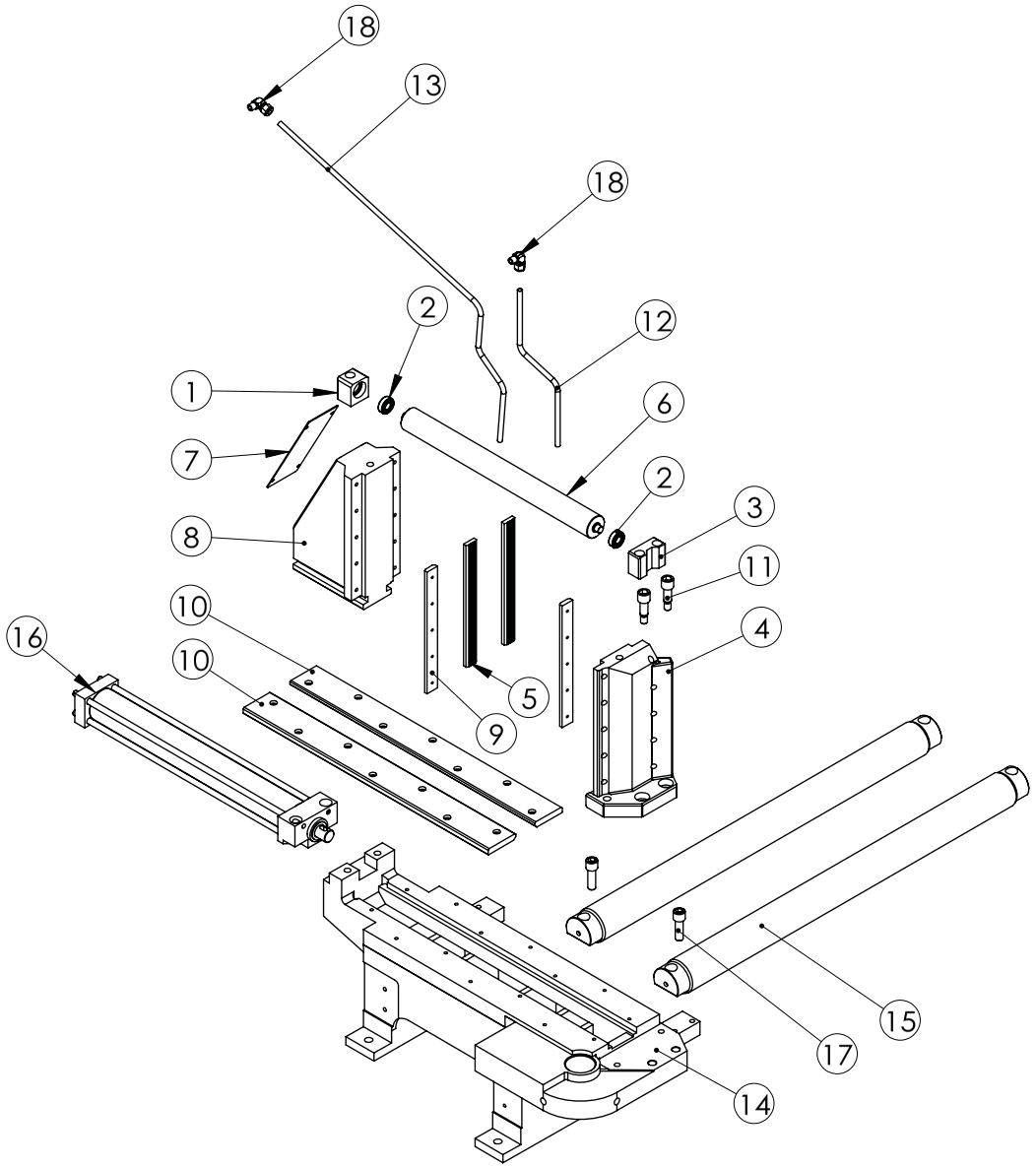
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-1301	Control box	控制箱	1
2	C250H-1310	Control box door	控制箱門	1
3	AHA-1806	Control knob	流量閥旋鈕	1
4	C250H-1308	Control box rear cover	控制箱後蓋	1
5	C250H-1312	Control box gasket	控制箱防塵壓板	1
6	C250H-1317	Supporting seat	門式開關支撐座	1
7	C250H-1320	Wire fixed Board	電線固定板1	1
8	C250H-1322	Wire fixed Board	電線固定板2	1
9	C250H-1325	Flow Valve control plate	流量控制面板(AISI)	1
10	C250H-1328	Flow Valve control plate	流量控制底板	1
11	C460H-1321	Control plate	控制面板(5.7吋)-全行程用	1
12	C250H-1807	Manifold block	油路塊	1
13	C250H-1806	Flow valve control knob	流量閥旋鈕	1
14	PP-59072	O-ring	O形環 NOK-P-16	1
15	C250H-1305-CE	Circuit board	線路板	1
16	PHA-6-12	round head screw	大扁丸頭螺絲	8
17	PP-43154	Flow control valve	減壓閥	1
18	PP-43155	Flow valve	流量閥	1
19	EP-90763A	Emergency stop button	急停開關	1
20	EP-90641-8	fan	百葉式風扇濾網組	1
21	EP-90282	Door type switch	門式開關 PI-32/V/SVB	1



2018/09/10

G510M-20000 床面組
Base Assembly

ITEM	PART NO	PART NAME	PART NO IN CHINESE	Q'TY
1	AHN-4581	Bearing seat	固定座	1
2	PP-14003	Bearing	軸承	2
3	C510M-2007	Bed roller holder	床面滾輪座	1
4	C510M-2203A	Front fixed vise	前固定虎鉗	1
5	C510M-2243A	Vise plate(2)	虎鉗鋼板(二)	2
6	AGF-2019	Roller	滾輪	1
7	C510M-2214A	Front movable vise cover	前活動虎鉗護蓋	1
8	C510M-2207A	Front movable vise	前活動虎鉗	1
9	C510M-2241A	Vise plate(1)	虎鉗鋼板(一)	2
10	C510M-2003	Bed steel plate	床面鋼板	2
11	C320G-1154	Fixed hex soc bolt	內六角固定螺栓	2
12	G510M-2863	Fixed bed steel tube (1)	固定床面鋼管(一)	1
13	G510M-2865	Fixed vise steel tube (2)	固定虎鉗鋼管(二)	1
14	G510M-2001	Bed	床面	1
15	AHB-1601	Feeding shaft	送料軸	2
16	G510M-23000-1	Vise hydrauly cylinder	虎鉗油缸組	1
17	AHB-0202	Pin screw (front vise)	銷螺絲(前VISE)	2
18	PUG-020-10A	Elbow joint	彎接頭	2



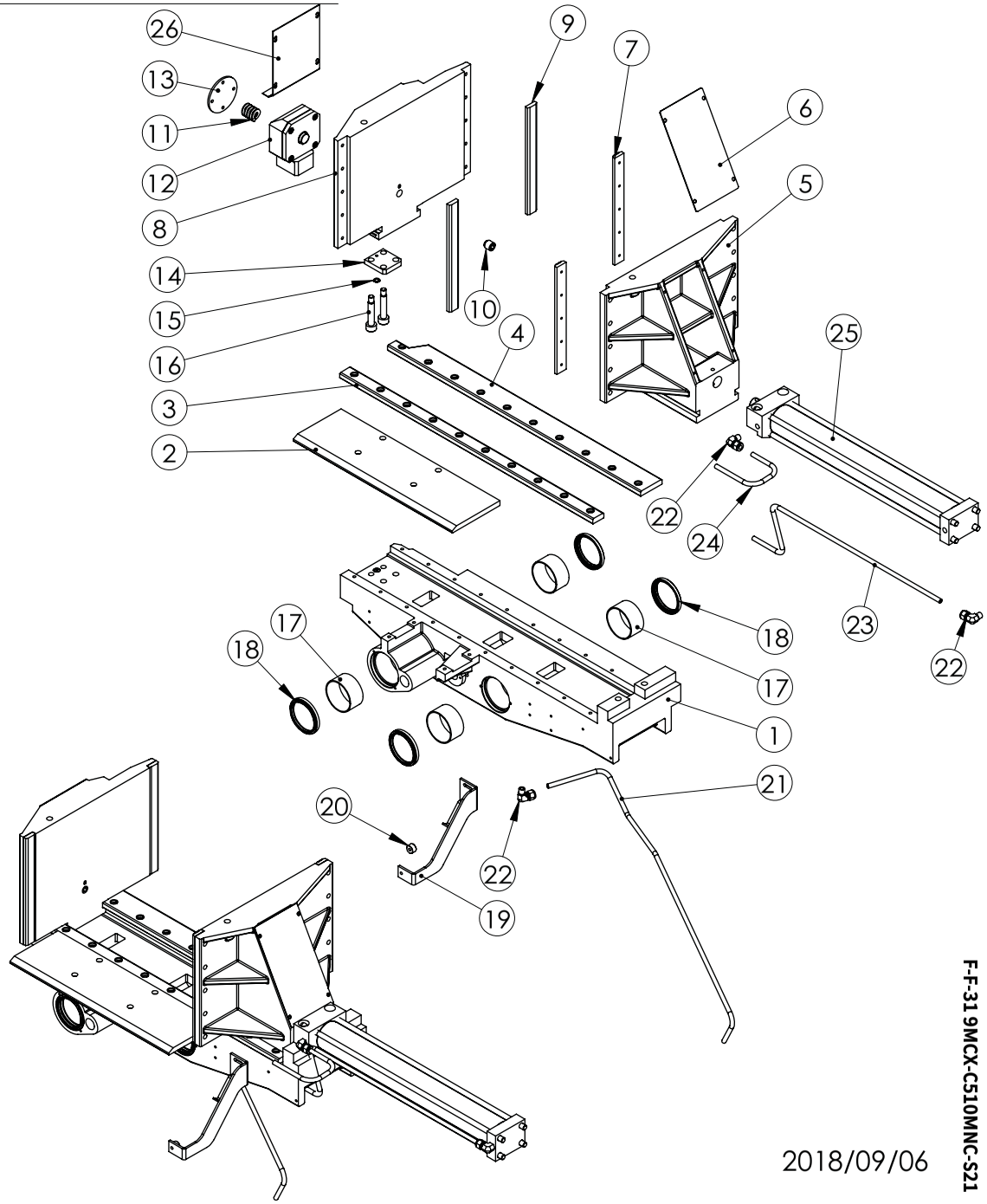
2018/09/07

05C-510MNC-G
05C-510MNC-GCE

SERIES PART LIST

G510M-20110 送料床面組
Feeding Bed Assembly

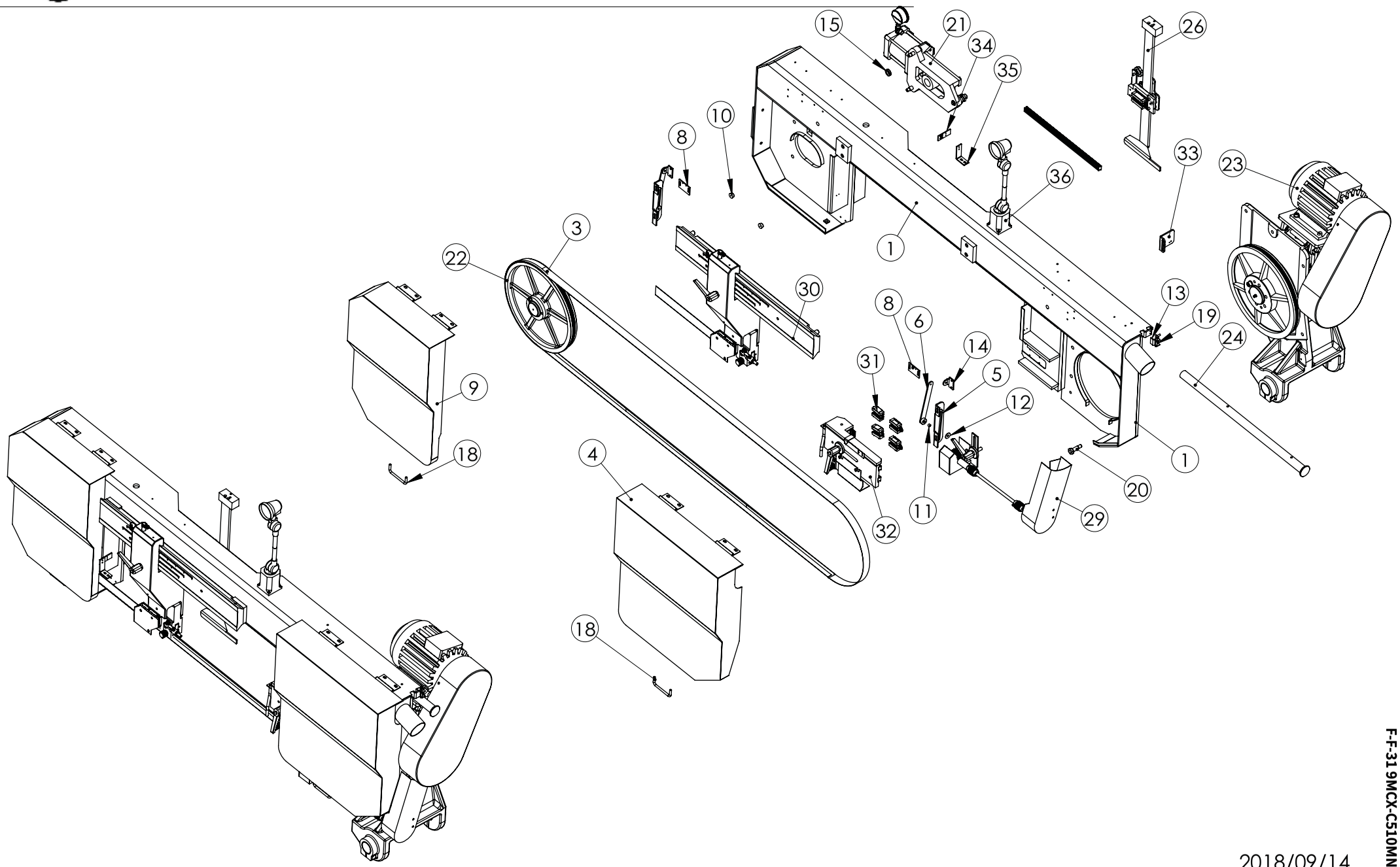
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-2011	Feeding bed	送料床面	1
2	C510M-2017	Feeding bed bracket	送料床面托板	1
3	C510M-2013	Feeding bed plate 1	送料床面鋼板(一)	1
4	C510M-2015	Feeding bed plate 2	送料床面鋼板(二)	1
5	C510M-2223A	Rear movable vise	後活動虎鉗	1
6	C510M-2271	Feeding movable vise cover	送料活動虎鉗護蓋	1
7	C510M-2243A	Vise plate(2)	虎鉗鋼板(二)	2
8	G510M-2221A	Feeding fixed vise	送料固定虎鉗	1
9	C510M-2241A	Vise plate(1)	虎鉗鋼板(一)	2
10	C250H-2811	Stop screw	止動螺絲(後固定虎鉗)	1
11	PP-57412-1	Square spring	方型彈簧	1
12	C250H-28000	Rear fixed vise cylinder	雙動虎鉗油缸組	1
13	C510M-2809	Spring shield	彈簧擋板	1
14	C510M-2802	Double retracting vise hydraulic cylinder pad	雙動虎鉗油缸墊塊	1
15	PP-59040A	O-ring	O型環P-10A	2
16	C510M-2807	Vise hydraulic cylinder position pin	雙動虎鉗油缸定位銷	2
17	PP-13270	DU bushing	乾式軸承 7540	4
18	PP-51147	duster seal	防塵套 75.89.8/11	4
19	G510M-2881	Feeding front L.S. fixed plate	送料前限固定板	1
20	AHA-1539	Screw (sensor)	感應器螺桿M8	1
21	G510M-2871	Feeding bed steel tube (3)	送料床面鋼管(三)	1
22	PUG-020-10A	Elbow joint	彎接頭	3
23	G510M-2869	Feeding bed steel tube (2)	送料床面鋼管(二)	1
24	G510M-2867	Feeding bed steel tube (1)	送料床面鋼管(一)	1
25	G510M-23000	Vise hydrauly cylinder	虎鉗油缸組	1
26	G510M-2220	Feeding double retracting vise cover	送料雙動虎鉗護蓋	1



2018/09/06

G510M-25700 送料譯碼器組
Feed encoder assembly

ITEM	PART NO	PART NAME	品名	Q'TY
1	AHA-1560	Gear	定寸齒輪	1
2	AHA-1562	Movable plate	譯碼器活動板	1
3	AHA-1563	Encoder seat	譯碼器固定座	1
4	AHA-1564	Motor gear reducer assembly	齒排固定座(二)	1
5	AHA-1561-2	Tooth bar	定寸齒條	1
6	M3L-9-10	Spring	微動彈簧	1
7	PP-13020	Breaing	軸承乾式MB1012	2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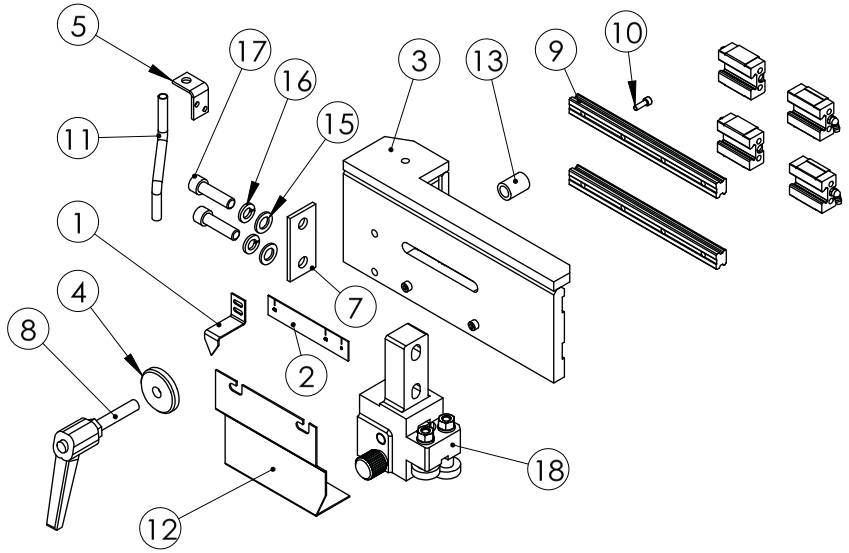
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-3001	Saw bow	鋸弓	1
2	C250H-3002	Saw bow washer	鋸弓平面墊圈	6
3	PP-18254-1	Saw blade	鋸帶	1
4	G510M-3005	Drive wheel cover	下輪箱蓋	1
5	G510M-3004	Wheel cover door stopper	輪箱蓋門擋	2
6	G510M-3006	Wheel cover door stopper	輪箱蓋門檔桿	1
8	C250H-3453	Wheel limit switch seat	限動開關固定板-CE	2
9	G510M-3003	Idle wheel cover	上輪箱蓋	1
10	AHA-0434	Rubber washer	橡皮墊圈(圓中華司)	3
11	C510M-3012	Door stopper movable ring	輪箱蓋門檔活動圈	2
12	C510M-3011	Teflon washer	鐵氟龍墊圈	2
13	PP-54004-L	Hinge with spring (left)	彈簧丁雙固定板	1
14	C510M-3010	Door stopper fixed plate	輪箱蓋門擋固定板	2
15	C250H-3002E	Saw bow washer	鋸弓平面墊圈	2
16	PP-52081A	U-shaped handle	U型把手	1
17	C250H-3009	Blade fixed plate	鋸帶固定片	1
18	PP-52124	Handle	輪箱把手	2
19	PP-54004-L	Hinge with spring (left)	彈簧丁雙(左)	1
20	AHA-0309	Fixed bolt (2)	固定螺絲(二)	2

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
21	C510M-33000	Tensioner sliding plate assembly	張力滑座滑板油缸組	1
22	C325H-30300	Idle wheel Assembly	上輪組	1
23	C510M-30600	Driver motor assembly	主動馬達組	1
24	G510M-3093	Saw bow swivel handle	鋸弓旋轉把手	1
25	G510M-3094	Swivel handle accessory	旋轉把手附件	1
26	G510M-32000B	Quick approach assembly	急降桿組	1
27	PP-92008C	Linear guide and sliding block	滑軌滑塊 (MSB-20S)	1
29	G510M-32200	Wire brush assembly	鋼刷組	1
30	G510M-31000	Guide arm assembly	鋸臂組-A	1
31	PP-92008A	Linear guide and sliding block	滑軌滑塊	4
32	G510M-31000	Guide arm assembly	固定鋸臂組-B	1
33	G510M-2983	Saw bow lower L.S. plate	鋸弓下限開關擋板	1
34	AHA-0672A	Sensor base plate	感應器底板	1
35	C250H-0670A	Sensor seat	感應器底板座	1
36	PP-91804C	Work light	工作燈GT-M65A-110V-12V-20W	1

G510M-31000 固定鋸臂組-B
Guide Arm Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-3124	Guide arm scale pointer	鋸臂刻度指針	1
2	C510M-3126	Guide arm scale	鋸臂刻度尺	1
3	G510M-3105	Fixed guide arm	固定鋸臂	1
4	AHA-0403	Washer	下輪鎖緊墊圈	1
5	MJA-2041	Faucet base plate	水龍頭座板	1
6	G510M-1119	Fixed guide arm cover	左鋸帶護蓋	1
7	AHA-0719	Spacer	導輪座墊板	1
8	PP-52111K	Handle	鋸臂把手	1
9	PP-92008A	Linear guide and sliding block	滑軌2+滑塊4	2
10	PBA-5-16	Hexagon socket head cap screw	內六角螺絲 M5x16L	8
11	G510M-3183A	Spray nozzle	冷卻水噴嘴	1
12	G510M-1119	Fixed guide arm cover	固定鋸臂護蓋	1
13	G510M-3107	Lock supporting block	鎖附支撐塊	1
14	PBA-6-12	Hexagon socket head cap screw	內六角螺絲 M6*12L	2
15	PPA-12	Flat washer	平面華司	2
16	PQA-12	Spring washer	彈簧華司	2
17	C250H-3167	Position pin	導輪座定位銷	2
18	G510M-31600	Right guide roller assembly	右導輪座組	1



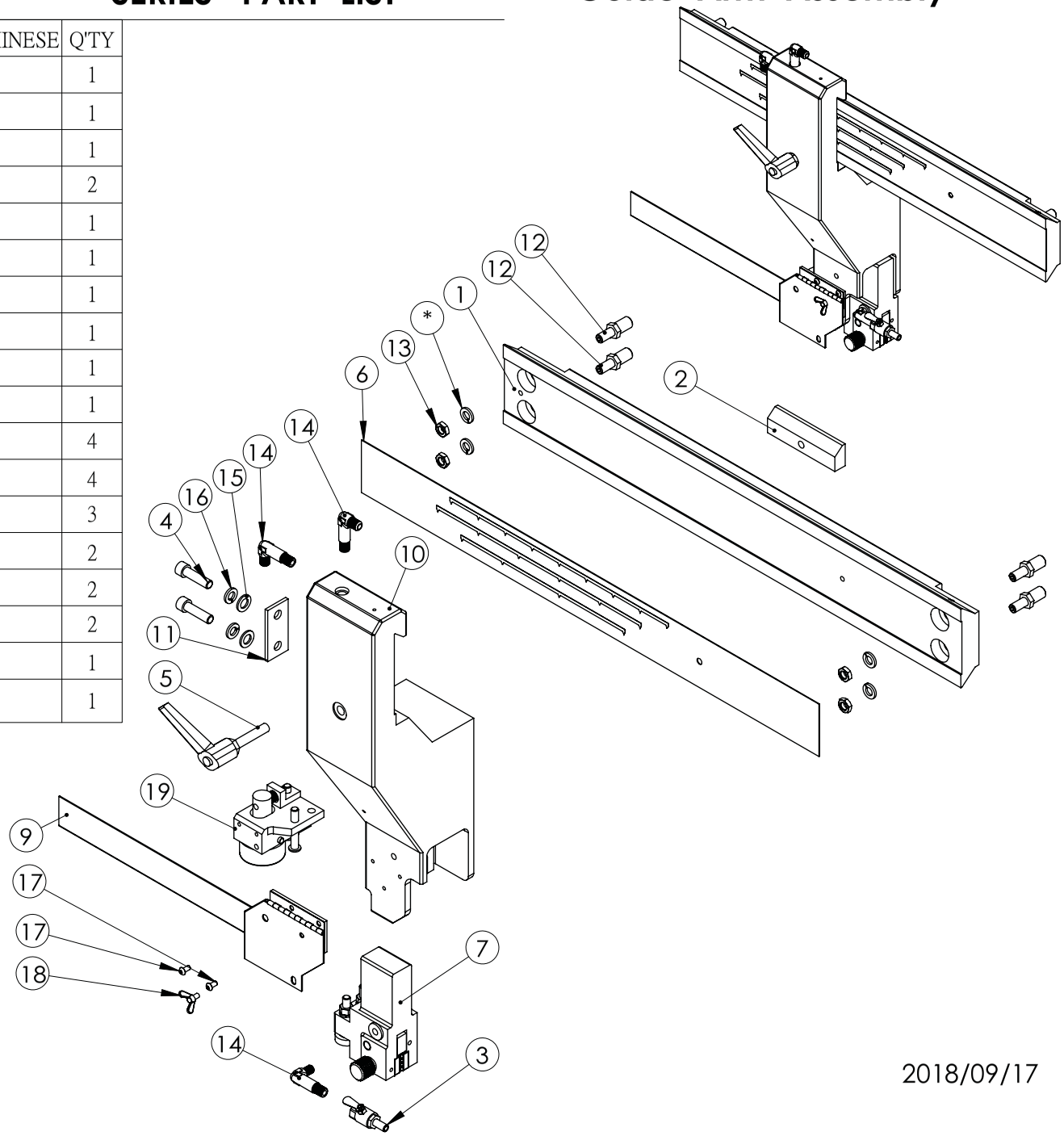
2018/09/14

05C-510MNC-G
05C-510MNC-GCE

SERIES PART LIST

G510M-31000 鋸臂組-A
Guide Arm Assembly

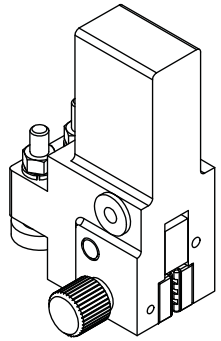
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-3101	Guide arm sliding plate	鋸臂滑板	1
2	C510M-3107	Guide arm fixed block	鋸臂固定塊	1
3	PP-43132	On/off valve	開關閥(無頭)1/8"	1
4	C250H-3167	Position pin	導輪座定位銷	2
5	PP-52111K	Handle	鋸臂把手	1
6	C510M-3111	Saw arm sliding board plate	鋸臂滑板銘牌	1
7	G510M-31300	Left guide roller assembly	左導輪座組	1
9	G510M-3013	Left saw blade cover	左鋸帶護蓋	1
10	C510M-3103A	Movable guide arm	活動鋸臂	1
11	AHA-0719	Spacer	導輪座墊板	1
12	G510M-3109	Sliding plate adjusting bolt	滑板調整螺絲	4
13	POA-12	Nut	螺帽	4
14	PUJ-020-020-02	Connecting rod bearing	彎接頭	3
15	PPA-12	Flat washer	平面華司	2
16	PQA-12	Set screw	止付螺絲	2
17	PGC-6-12	Cup head screw	半圓頭螺絲	2
18	PXA-6-10	Thumb screw	翼型螺絲	1
19	C510M-42000A	Vibration damper (Optional assembly)	防震導輪組 (選配)	1

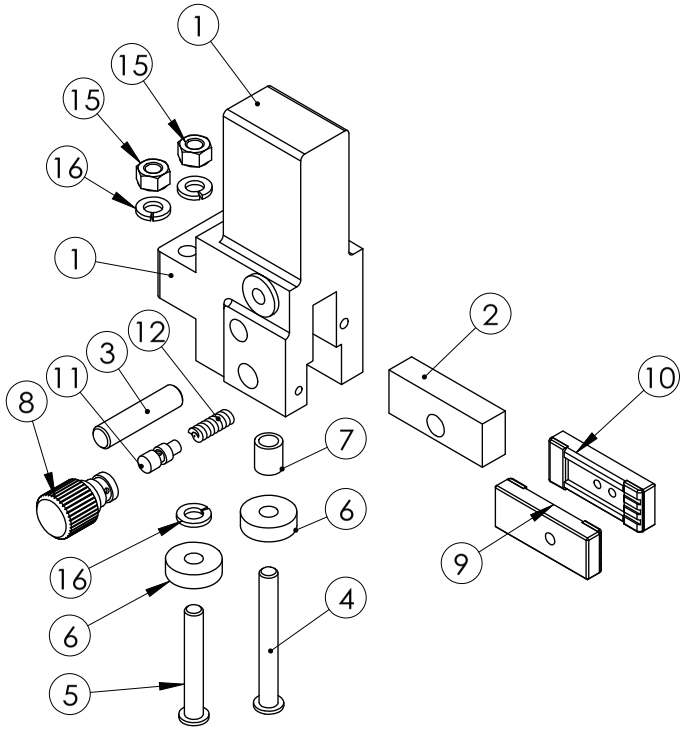


2018/09/17

G510M-31300 左導輪座組
Left guide roller Assembly

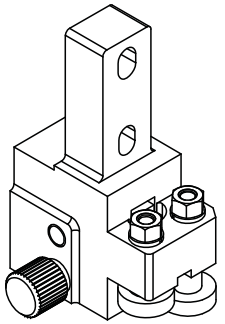
ITEM	PART NO	PART NAME	品名	Q'TY
1	C510M-3131	Left guide roller seat	左導輪座	1
2	AHA-0704A	Pressure block	下壓座(EU79用)	1
3	AHA-0713-1	Fixed shaft	軸承座固定軸	1
4	C320G-3141	Guide roller shaft (1)	導輪軸(一)	1
5	C320G-3141A	Guide roller shaft (2)	導輪軸(二)	1
6	PP-14270B	bearing	軸承	2
7	AHA-0708B	Washer	導輪墊圈	1
8	AHA-0711A	Left adjusting screw	左調整螺絲	1
9	C510M-3135	Left movable insert	左活動鎢鋼片	1
10	C510M-3133	Left Fixed Insert	左固定鎢鋼片	1
11	AHA-0709	Left Spring plug	左簧塞	1
12	AHA-0710	Carbide insert spring	鎢鋼片彈簧	1
15	POA-10A	Nut	螺帽 M10	2
16	PQA-10	Spring washer	彈簧華司	3

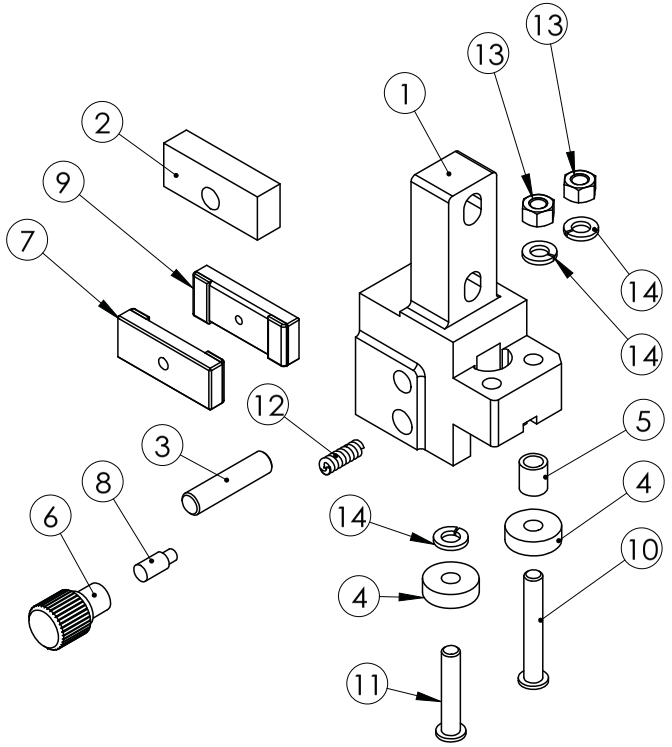




G510M-31600 右導輪座組
Right guide roller Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-3161	Right guide roller seat	右導輪座	1
2	AHA-0704A	Pressure block	下壓座(EU79用)	1
3	AHA-0713-1	Fixed shaft	軸承座固定軸	1
4	PP-14270B	bearing	軸承	2
5	AHA-0708B	Washer	導輪墊圈	1
6	AHA-0742A	Set screw	止付螺絲	1
7	C510M-3165	Right Movable Insert	右活動鎢鋼片	1
8	AHA-0741	Right spring plug	右簧塞	1
9	C510M-3163	Right Fixed Insert	右固定鎢鋼片	1
10	C250H-3141A	Guide roller shaft(1)	導輪軸(一)	1
11	C250H-3143A	Guide roller shaft(2)	導輪軸(二)	1
12	AHA-0710	Carbide insert spring	鎢鋼片彈簧	1
13	POA-10	nut	螺帽	2
14	PQA-10	Spring washer	彈簧華司	3

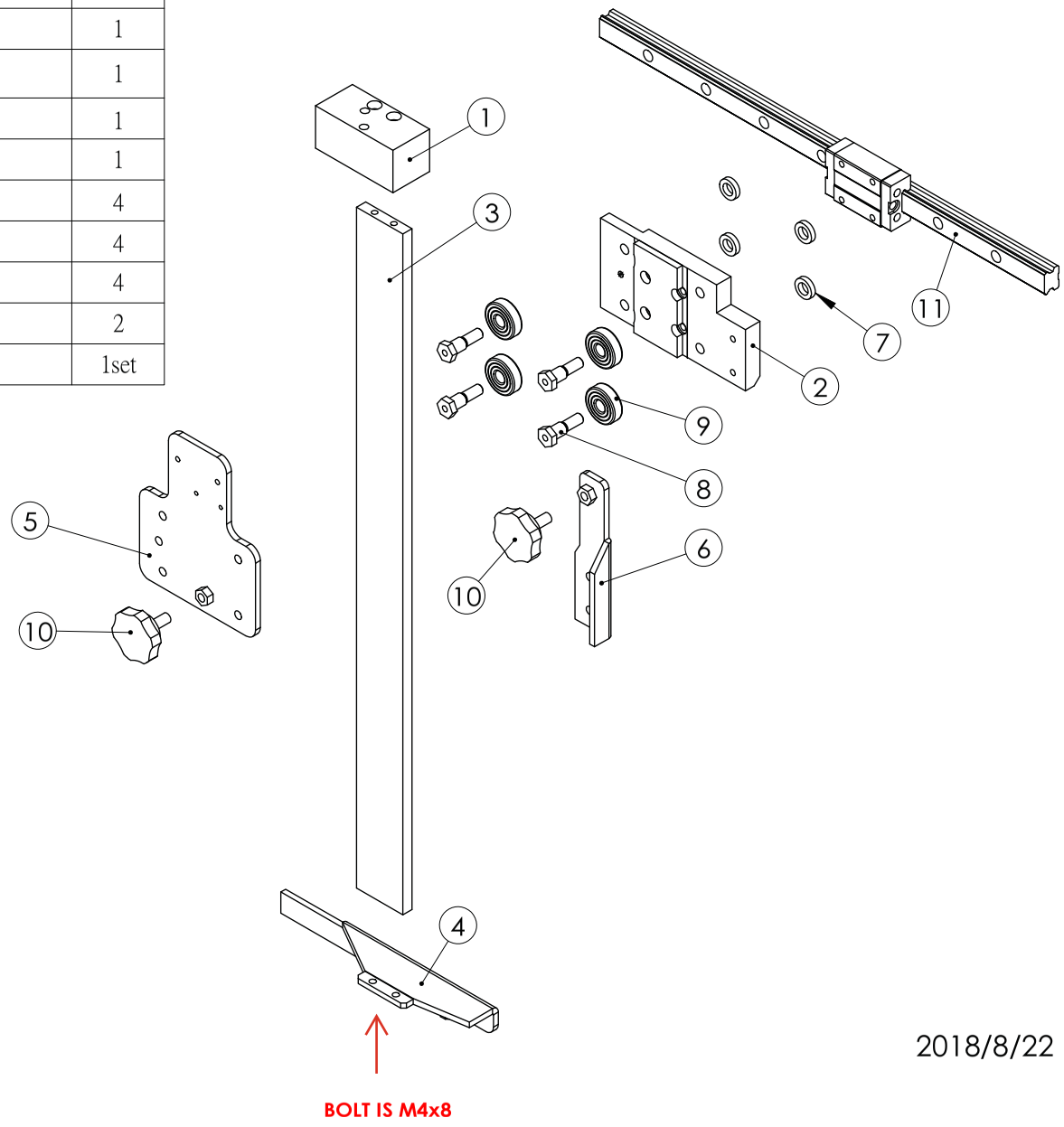




05C-510MNC-G
05C-510MNC-GCE SERIES PART LIST

G510M-32000B 急降桿組
Quick Approach Assembly

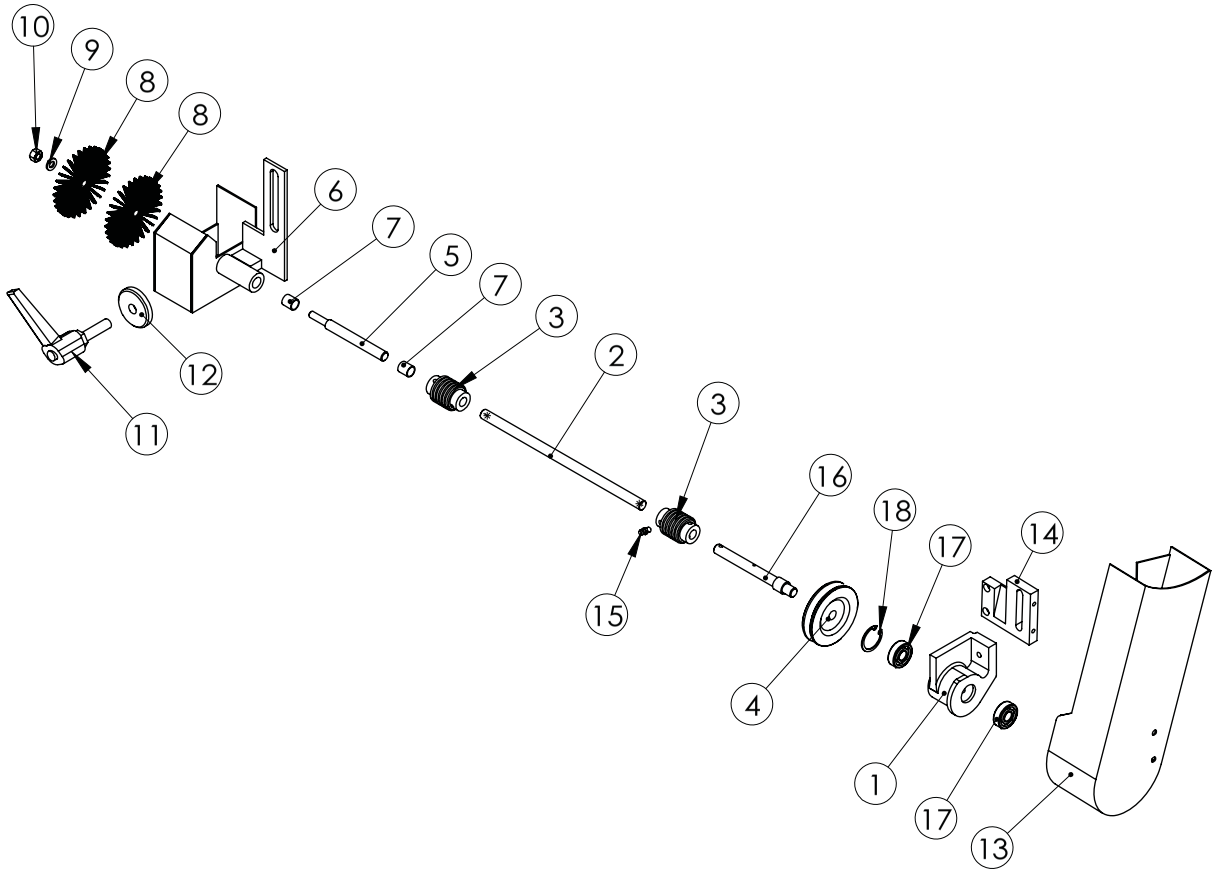
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	AHA-1756	Limit switch seat	限動開關座	1
2	G510M-3205B	Sliding seat fixed plate	急降桿滑座固定板	1
3	G510M-3201C	Quick approach bar	急降桿	1
4	G510M-3203A	Quick approach stopper	急降桿檔板	1
5	G510M-3208A	Front Cover	前蓋	1
6	G510M-3215C	Adjusting fixed plate	調整固定板	1
7	G510M-3217	Washer	墊片	4
8	G510M-3219B	Shaft	滾輪心軸	4
9	PP-14270B	Bearing	軸承6200DDU	4
10	PP-53010	Spring washer	彈簧華司	2
11	PP-92008C	Linear guide and sliding block	滑軌+滑塊MSB-20S	1set



2018/8/22

G510M-32200 鋼刷組
Wire brush Assembly

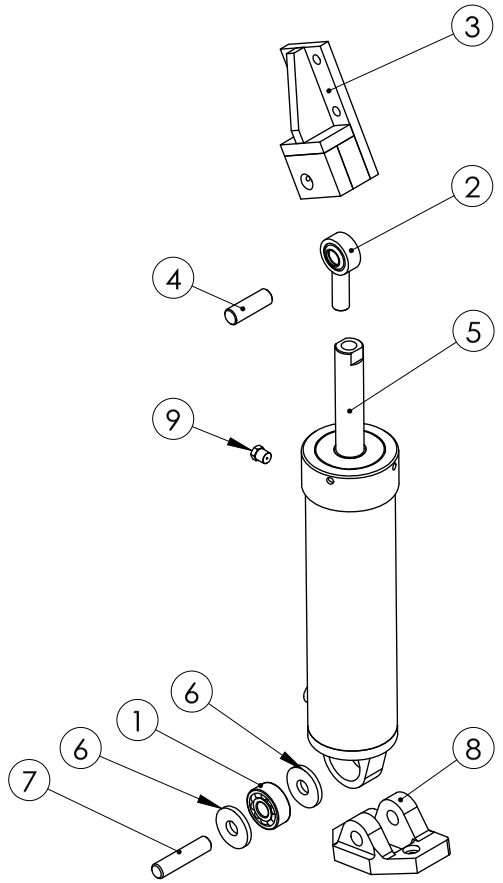
ITEM	PART NO	PART NAME	品名	Q'TY
1	AHA-1211A	Bearing seat	軸承座	1
2	C510M-3226	Connecting rod	鋼刷連桿	1
3	PP-15010	Universal joint	萬向接頭	2
4	AHA-1202	Belt wheel	鋼刷皮帶輪	1
5	AHB-0519	Wire brush shaft	鋼刷軸	1
6	C510M-3229	Wire brush cover	鋼刷護蓋	1
7	PP-13025	DU bushing	乾式軸承	2
8	PP-58002	Wire Brush	鋼刷	2
9	PQA-8	Spring washer	彈簧華司	1
10	POA-8	Nut	螺帽	1
11	PP-52111F	Handle	鋸臂把手	1
12	AHA-0403	Washer	下輪鎖緊墊圈	1
13	C510M-3236B	Pulley cover	鋼刷普利護蓋	1
14	G510M-3241	Wire brush fixed plate	鋼刷固定板	1
15	PUC-020-1	Grease nipple	油嘴	1
16	C510M-3233	Pulley shaft	皮帶輪軸	1
17	PP-14271A	Bearing	軸承6201DDU	2
18	PP-58109	Snap ring	扣環	1



2018/08/27

G510M-32500 鋸弓油壓缸組
Saw Bow Cylinder Assembly

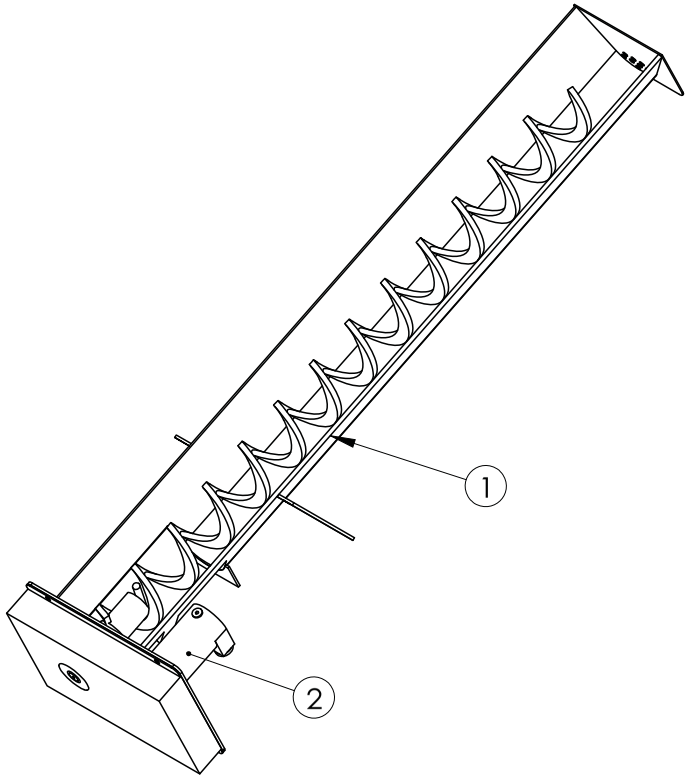
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	PP-14510	Bearing	軸承	1
2	PP-14480	Connecting rod bearing	連桿軸承 POS18	1
3	G510M-3275	Hydraulic cylinder upper fixed seat	油缸上固定座	1
4	C510M-3277	Pin	油缸上耳插銷	1
5	C510M-3250-1	Saw bow cylinder	鋸弓油壓缸	1
6	AHA-1105	Rubber washer	橡膠墊圈	2
7	AGB-70304B	Pin	下插梢	1
8	G510M-3271	Cylinder seat	油壓缸固定座	1
9	G510M-3277	Plug	透氣塞頭	1

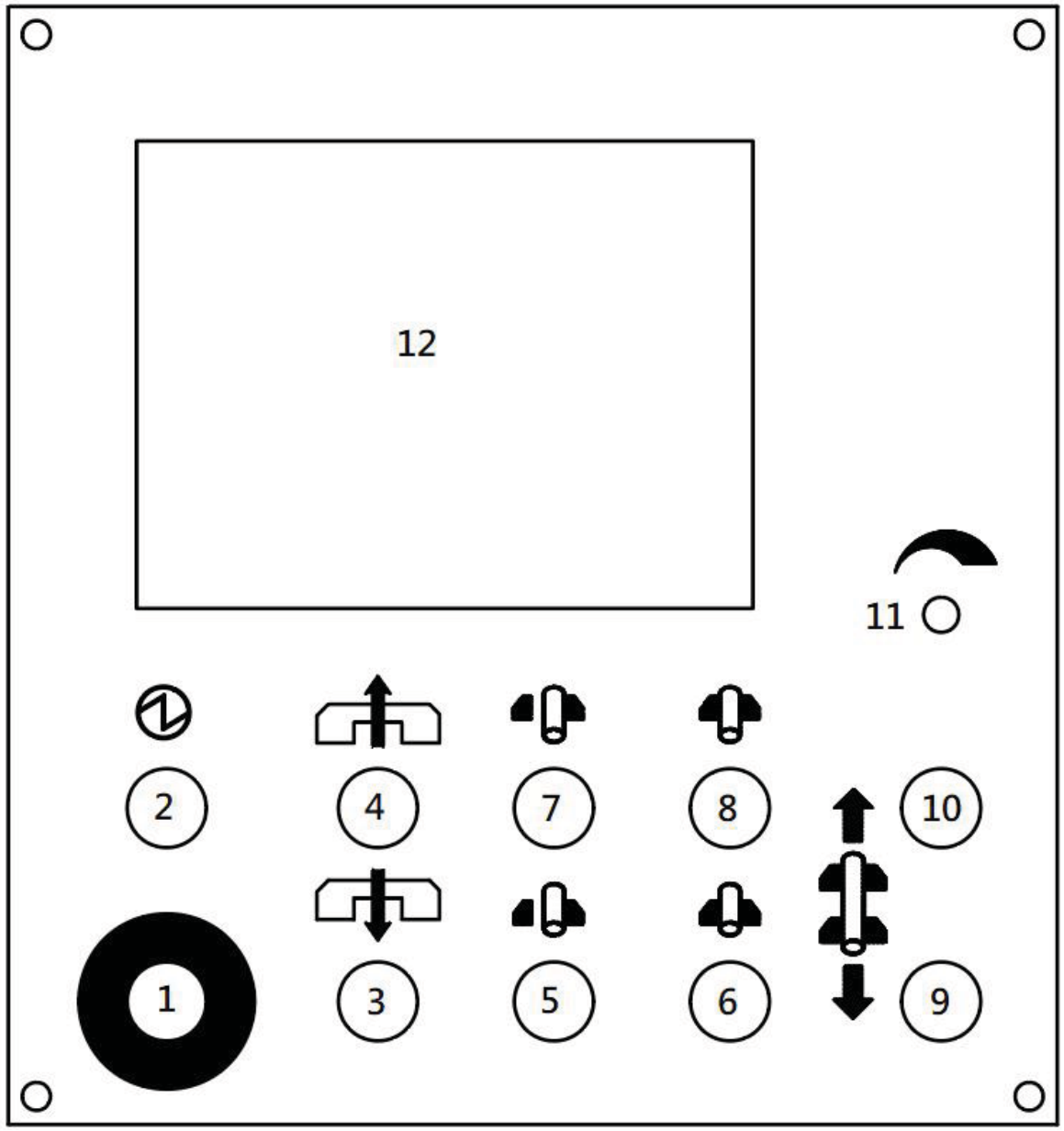


2018/09/06

G510M-40000B 除屑機組(選配)
Chip Cinveyor Assembly (Optional assembly)

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	G510M-40000B-1	Chip cinveyor assembly	自動除屑裝機(整組採購)	1
2	PP-31640-8	Hydraulic motor	油壓馬達 MS-32C	1

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No.	PART NUMBER	PART Name IN ENG.	PART Name IN CHI.	Q'TY
1	EP-90763A & EP-90760	Emergency stop button	緊急停止按鈕	1
2	EP-90755-1	Power indicator lamp	電源指示燈	1
3	EP-90758 & EP-90759	Saw bow down button	鋸弓下降按鈕	1
4	EP-90758 & EP-90759	Saw bow up button	鋸弓上升按鈕	1
5	EP-90758 & EP-90759	Front vise open button	前虎鉗釋放鈕	1
6	EP-90758 & EP-90759	Front vise clamp button	前虎鉗夾持鈕	1
7	EP-90758 & EP-90759	Rear vise open button	後虎鉗釋放鈕	1
8	EP-90758 & EP-90759	Rear vise clamp button	後虎鉗夾持鈕	1
9	EP-90758 & EP-90759	Feed forward button	鋸材往前按鈕	1
10	EP-90758 & EP-90759	Feed backward button	鋸材退後按鈕	1
11	EP-90769	Blade speed control knob	鋸刀切硝速度控制旋鈕	1
12	EP-90981D-1	HMI touch screen	HMI 觸控螢幕	1

APPENDIX

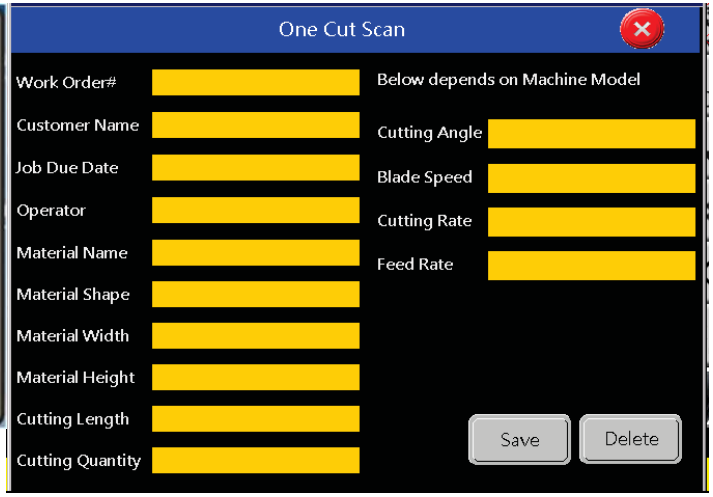
Q-CUT introduction

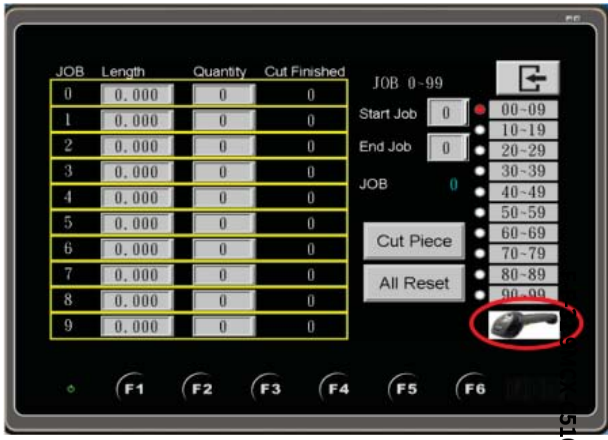
Cosen Machine
-Equipped with QR Scanner

F-F-31 9MCX-C510MNC-S21

Cosen Machine – One Cut & Job List Scanner Input

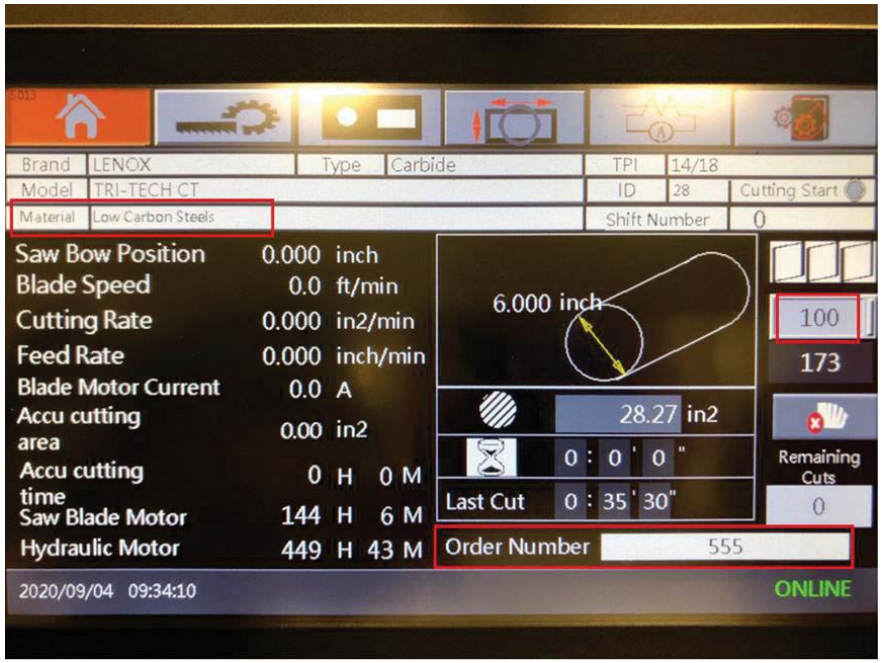
(*The HMI contents may be different depends on different model of machine or different request)

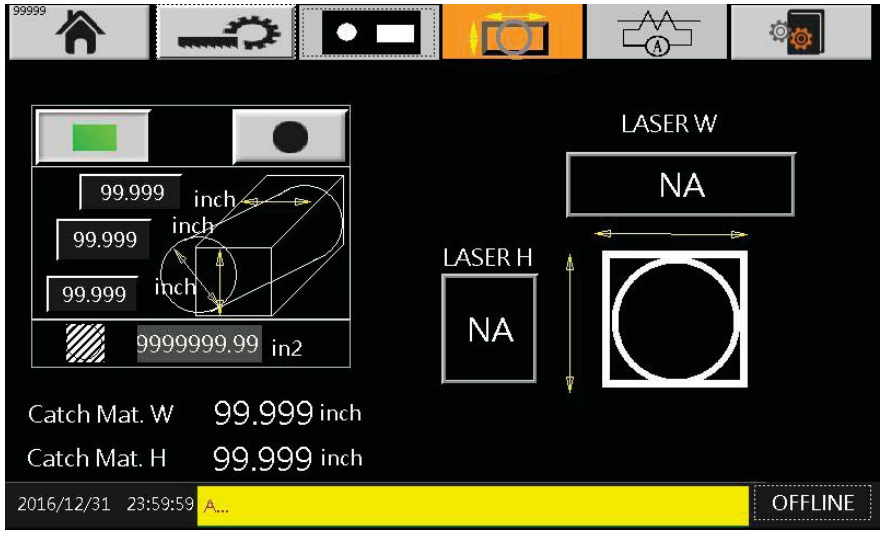




Cosen CPC-Connect -Equipped with QR Scanner

CPC-Connect Device can install on Any Band Saw Machine





Smart Scanner Solutions:

- **QR Code Generator and Scan in info**
- **Scanner Query SQL Server by LAN (Intranet)**
- **Scanner Query SQL Server by API Cloud**

QR Code Generator and Scan in

Friendly Put work order from office

Work order can be friendly put in rich information from office software, which designed by Cosen, allow you put more information to assist and inform operator to attempt right actions. No more rush, and no more error.

Easy Generate QR Code work order

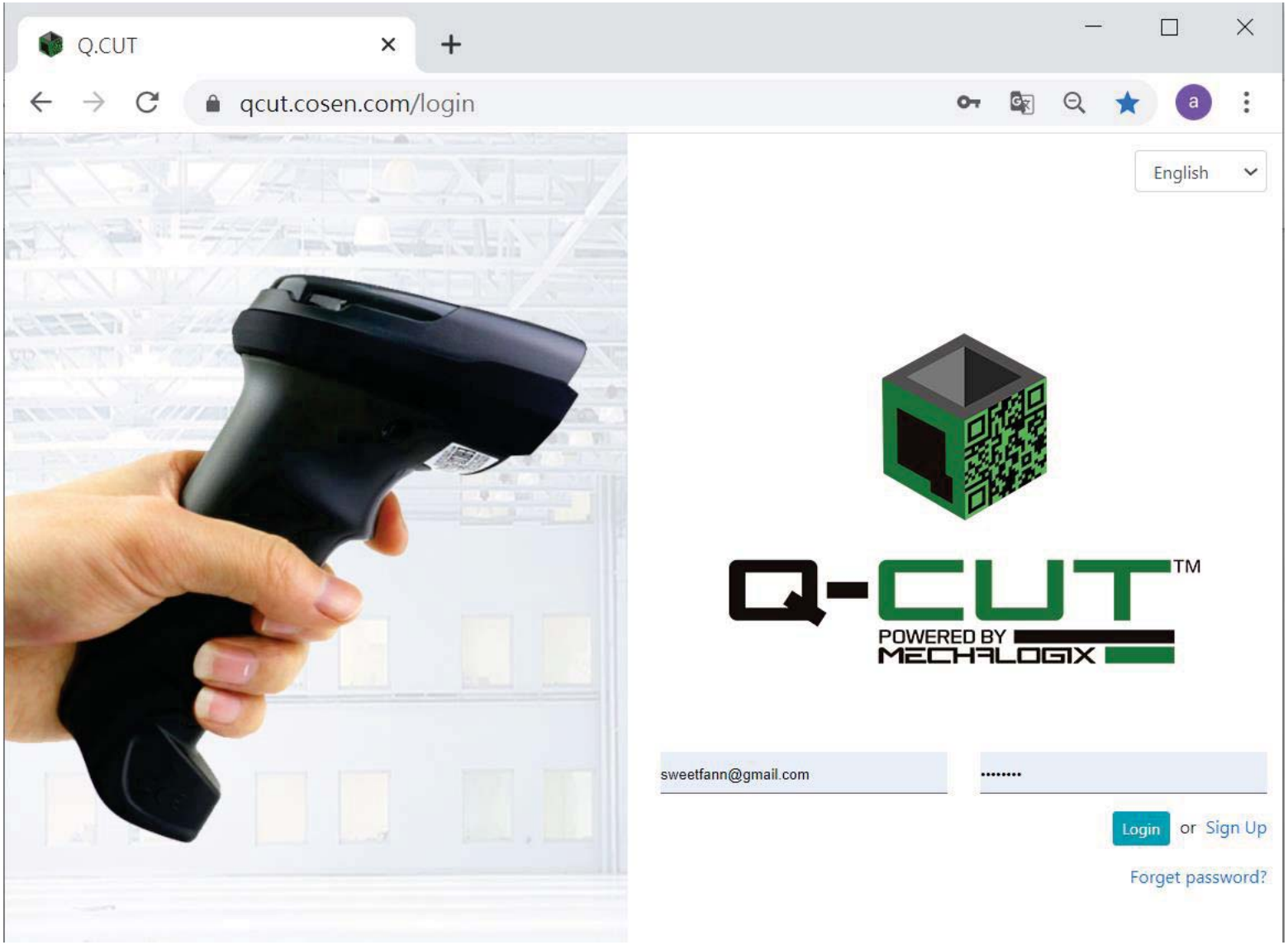
After putting more useful information, and get right cutting parameter, all you need is one click to generate your own QR code and print it. It reduces the risk of reading failure or hand writing failure with rich information.

Scan input to HMI

One Beep, work order and parameter information precisely go into HMI. No more hard reading and finger put in many pages on screens. And useful information on HMI will help operator on site save more time to double check the materials and orders.

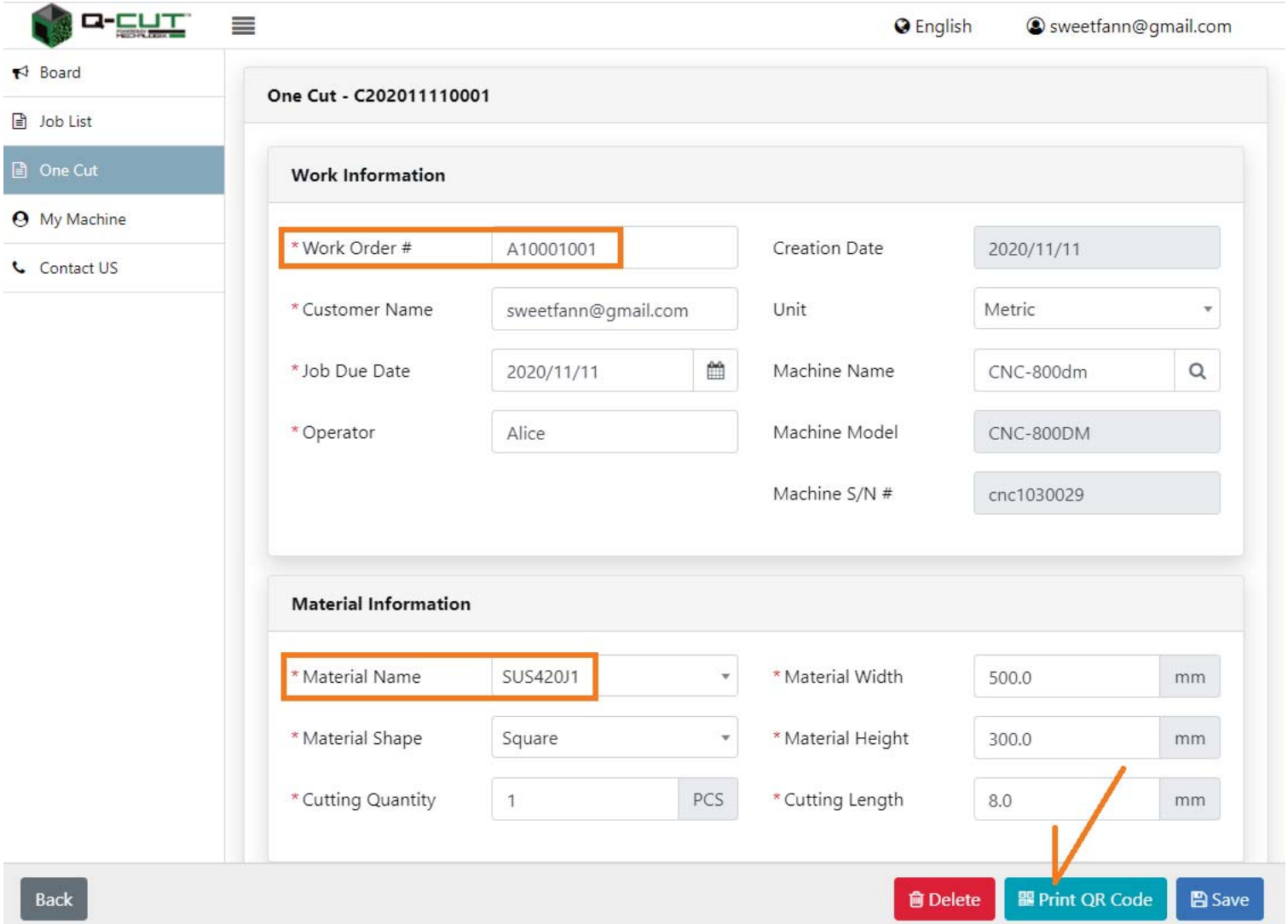
QR Code Generator: Qcut.cosen.com

Start Q-Cut



QR Code Generator: Qcut.cosen.com

Work Order# , Material Name, Dimensions, …



Easy Generate QR Code and Sheet, Ready for Scan!

Q-CUT™ One Cut

*Work Order #: A10001001
*Customer Name: sweetfann@gmail.com
*Job Due Date: 20201111
*Operator: Alice

Blade Length: 0.0 mm
Blade Width: 0.0 mm
Blade Thickness: 0.0 mm

Note:

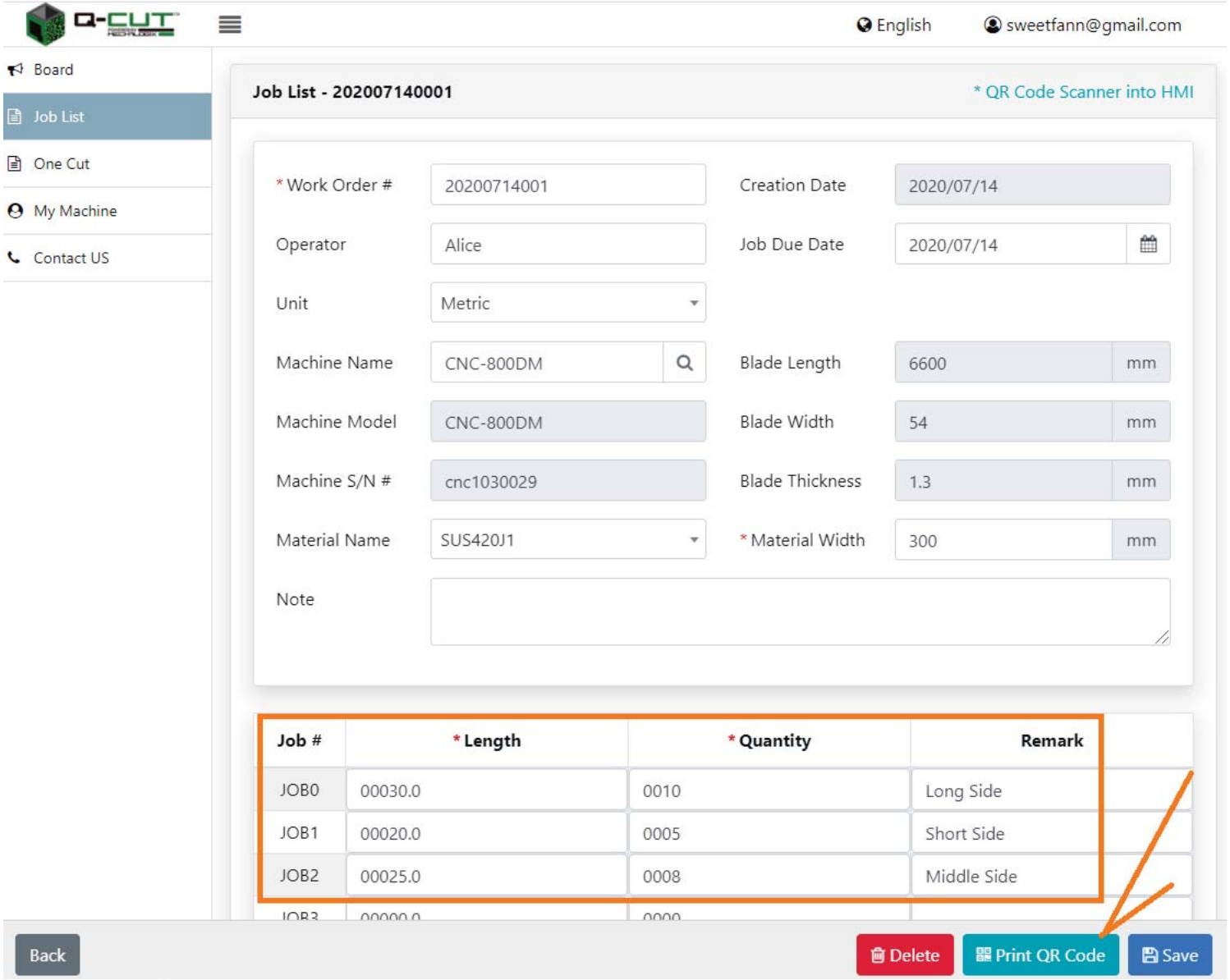
Machine Name: cnc-800dm
Machine Model:
Machine S/N #:

---

*Material Name: SUS420J1
*Material Shape: Square
*Material Width: 500.0 mm
*Material Height: 300.0 mm
*Cutting Length: 8.0 mm
*Cutting Quantity: 1 PCS

(Below function depends on Machine Model)
*Blade Speed: 0.0 m/min
*Feed Rate: 0.0 mm/min
*Cutting Rate: 0.0 cm²/min
*Cutting Angle: 0°

Job List input



Easy Generate QR Code and Sheet, Ready for Scan!

Q-CUT™ Job List

*QR Code Scanner into HMI

Work Order #: 20200714001
Creation Date: 20200714
Operator: Alice
Machine Name: CNC-800DM

Job Due Date: 20200714
Unit: mm
Machine Model: CNC-800DM
Machine S/N #: cnc1030029

Material Name
SUS420J1
Material Width
00300.0 mm

Blade Length
06600.0 mm
Blade Width
00054.0 mm
Blade Thickness
00001.3 mm

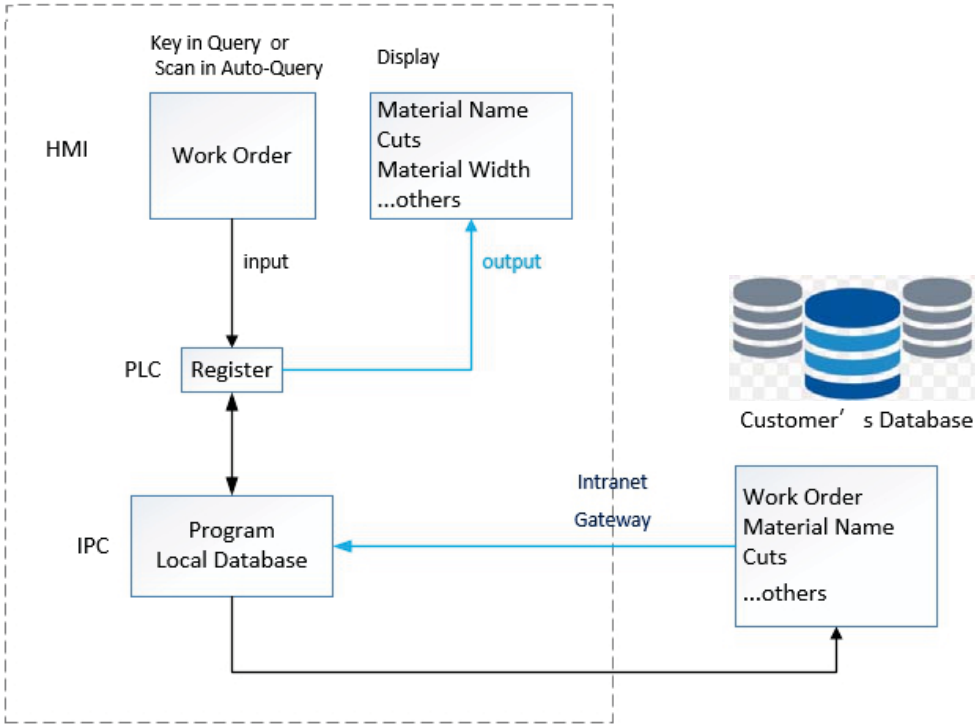
Note

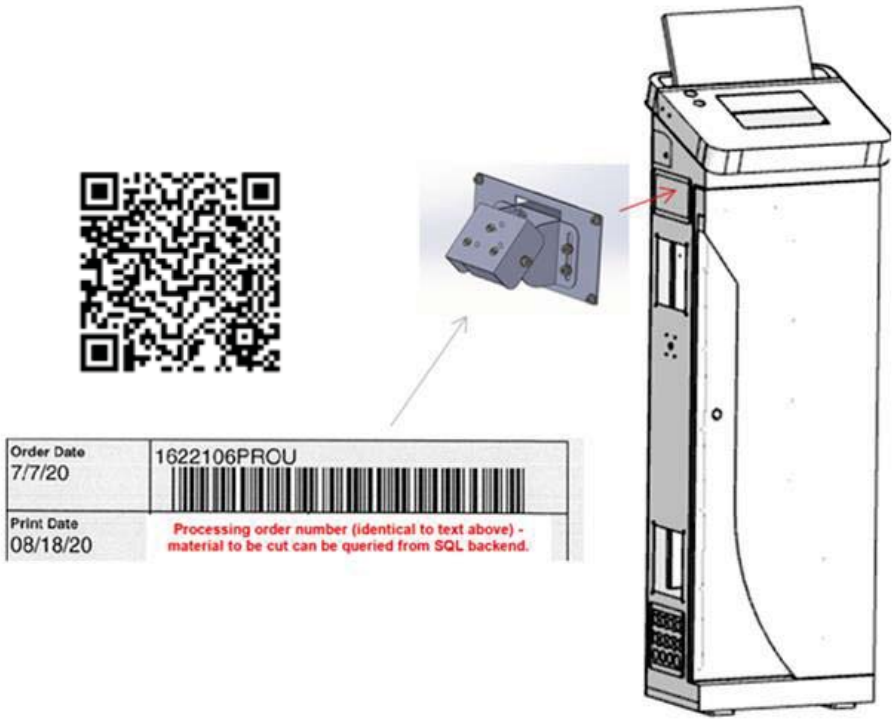
Job #	*Length	*Quantity	Remark
JOB0	00030.0	0010	Long Side
JOB1	00020.0	0005	Short Side
JOB2	00025.0	0008	Middle Side
JOB3	00000.0	0000	
JOB4	00000.0	0000	
JOB5	00000.0	0000	
JOB6	00000.0	0000	
JOB7	00000.0	0000	
JOB8	00000.0	0000	
JOB9	00000.0	0000	
JOB10	00000.0	0000	
JOB11	00000.0	0000	
JOB12	00000.0	0000	
JOB13	00000.0	0000	
JOB14	00000.0	0000	

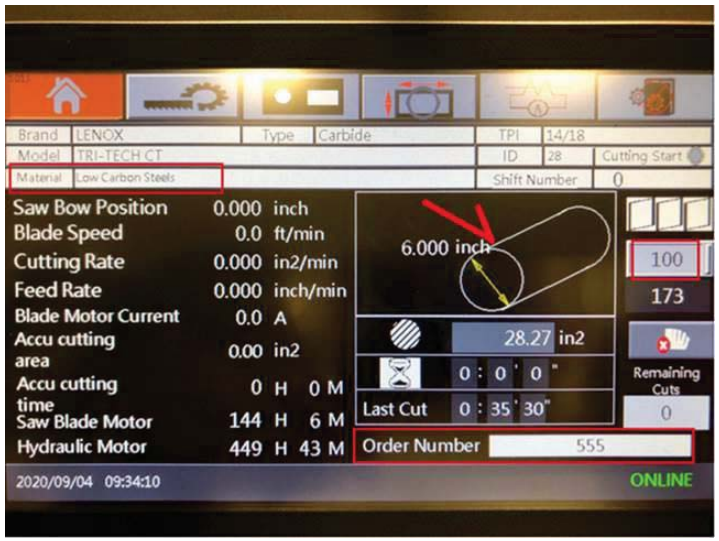
Scanner Query SQL Server by Lan

Use Scanner as trigger the “Searching Criteria” executing SQL Server Query to pull out information through intranet and show on HMI.

Customer’s Server on intranet.



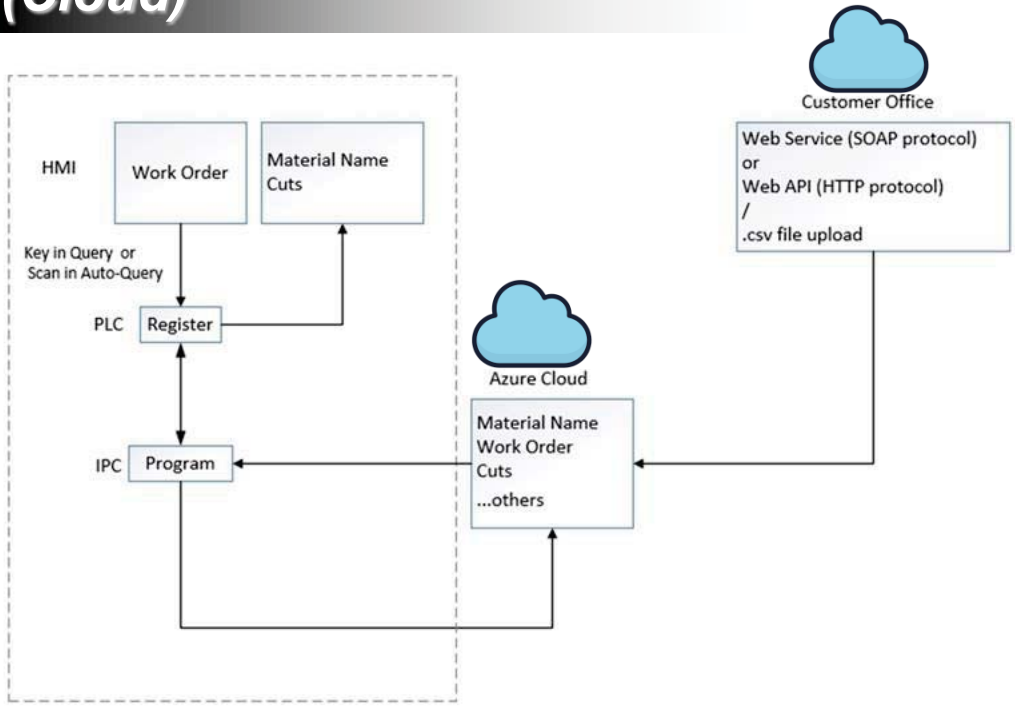


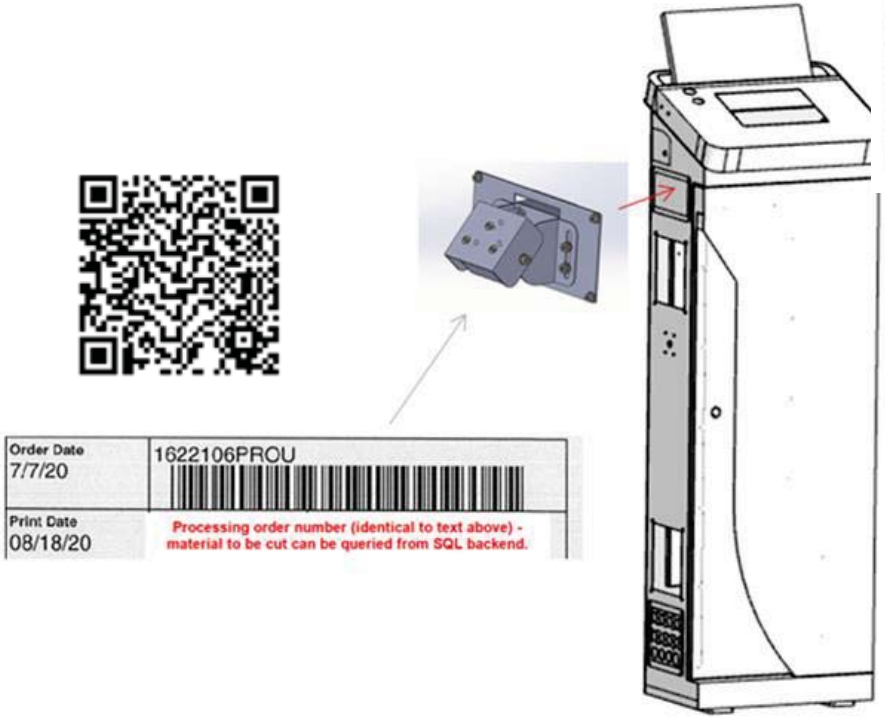


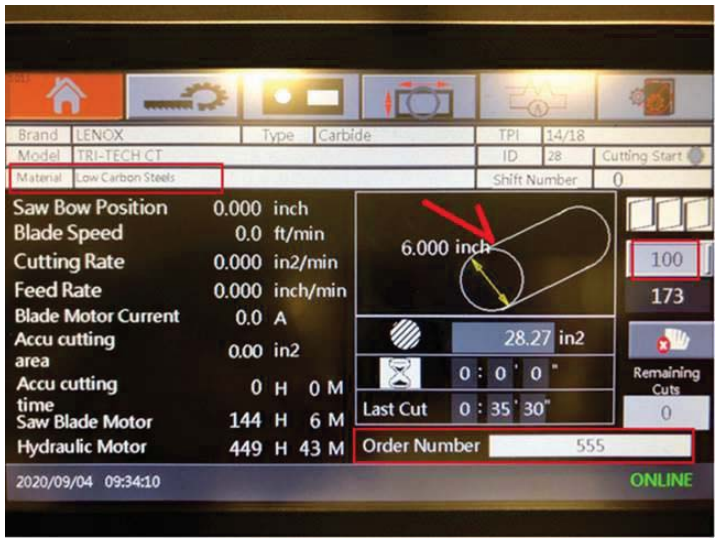
Scanner Query SQL Server by API (Cloud)

Use Scanner as trigger the “Searching Criteria” executing SQL Server Query to pull out information through Cloud API and show on HMI.

Customer’s system on Cloud.







More Link!

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Data Collector

#4

Customer's Database

MechaLogix Box

#3

Mobile Device

#2

ERP/O.E.E. / MES

Data

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Q-Cut Code Generator

Scanner

#1

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