

C-620NC

SNC-100 Programmable Automatic Mass Production 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 being advantaged in every possible way, please do take your time and read through this instruction manual.

Any comment or suggestion in making our service 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 any of the procedures.
- For technical support or parts purchase, please contact your nearest COSEN representative or our service center:

For US, Mexico, and Canada:

email: info@cosensaws.com. phone: +1-704-943-1030 toll free: +1-877-SAWING1

fax: +1-704-943-1031

For Europe:

email: europe@cosensaws.com phone: +31-77-7600280

fax: +31-77-7600288

For China:

email: service@cosensaws.cn phone: +86-152-50127815

For Taiwan and other countries:

email: info@cosen.com phone: +886-3-5332143 fax: +886-3-5348324

Instruction Manual: C-620NC

SNC-100 Programmable Automatic Mass Production Horizontal Bandsaw Ver.2 2016/12/5

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Safety rules

- Make sure your work area is cleared of uninvited people and obstacles every time before you start operating the machine.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Never step or stand on the roller table. Your foot may slip or trip on the rollers and you will fall.
- 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

SAFETY INSTRUCTIONS
SAFEGUARD DEVICES
EMERGENCY STOP
SAFETY LABELS
HEARING PROTECTION
CE COMPLIANCE
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 **DANGER**; hazards or unsafe practices that may result in **severe personal injury or death.**



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



This icon marks **CAUTION**; information that should be read before use to prevent 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.



Do not operate this machine unless it is completely assembled.



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



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



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



Wear proper apparel during operation and when servicing the machine.



Keep unauthorized personnel away.



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



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



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



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



All users must read it before performing any activity on the machine, such as replacing the saw band or doing regular maintenance.



Some personal protective equipment is required for the safe use of the machine, e.g. protection goggles.



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



Use recommended accessories. Improper accessories may be hazardous.



Keep your work area well illuminated at minimum 500 lumen.



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



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



Check for damaged parts. Before continuing using the machine, the damaged part should be checked and replaced.



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.



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



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



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



Do not force the band saw beyond its intended use. It is safer to operate with the cutting rate for which it was designed.

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)



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
- 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

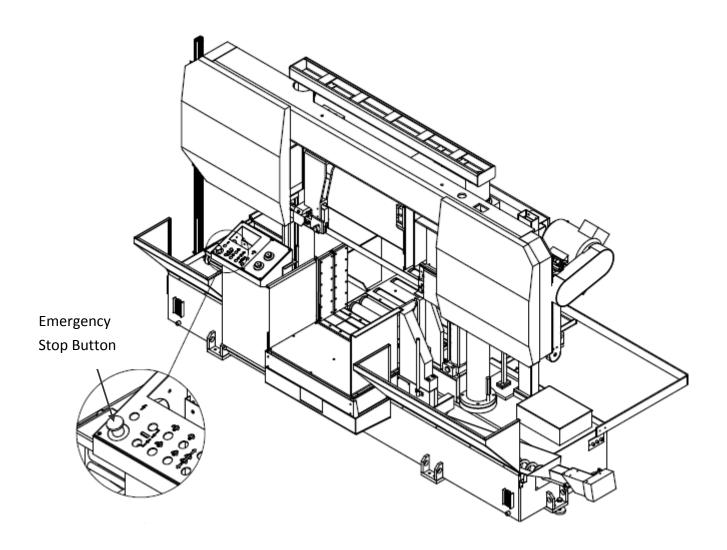
Designed to be easily accessible, the emergency stop button is located on the left bottom corner on the control panel and is made in red color and rubber material. For CE models, supplementary emergency stop button may be available at other area(s) of the machine depending on machine type. Please refer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

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

Safety-related labels mounted on the machine are categorized into the following four categories. Please read through and understand them before operating the machine. Refer to *Illustration: Safety Labels*.

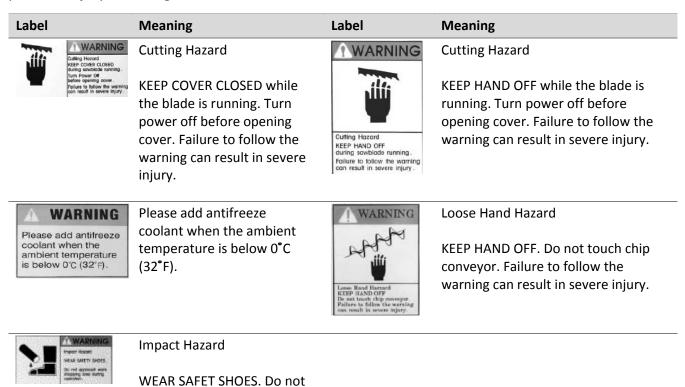
DANGER Labels

A red and white DANGER labels marks s hazards or unsafe practices that will result in severe personal injury or death.

| Label | Meaning | Label | Meaning |
|--|--|-------|--|
| ↑ DANGER | Hazardous Voltage | - | DANGER: Running Blade Blade runs through this area. Keep |
| 1 | TURN POWER OFF before servicing. Failure to | | your hands away from a running blade to avoid severe injury. The |
| Hozordous Voltage TURN POWER OFF before surviving . Failure to follow the warning can result in severe injury. | following the warning can result in severe injury. | | arrow indicates direction of the blade. |

WARNING Labels

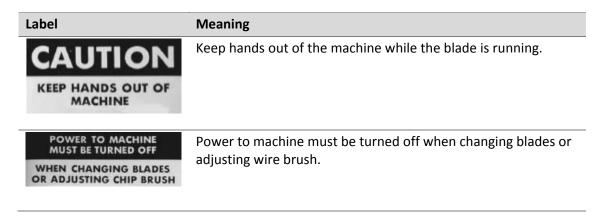
An orange and black WARNING label marks hazards or unsafe practices that can result in severe personal injury or damage to the machine.



approach dropping area during operation.

CAUTION Labels

Yellow and black CAUTION labels mark hazards or unsafe practices that can result in considerable personal injury.



NOTICE Labels

Blue and white NOTICE labels mean unsafe practices that could result in damage to products or property.

| Label | Meaning |
|--|--|
| NOTICE Replace the hydraulic oil every six months or every 1,200 hours of operation | Replace the hydraulic oil every six months or every 1,200 hours of operation. |
| oil specification: Shell: TELLUS 27 Mobil: DTE OIL LIGHT HYDRAULIC 28 | Oil specification: Shell TELLUS 27 or Mobil DTE OIL LIGHT / HYDRAULIC 28 |
| Always adjust the location of wire brush and use a new one instead of exhausted can extend the saw blade life. | To extend blade life, always adjust the location of wire brush so that it is properly touching the blade. Also replace a worn wire brush with a new one. |

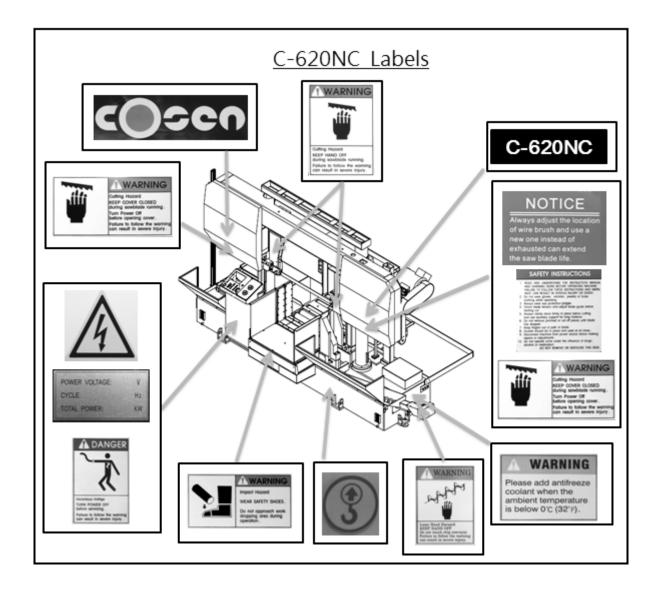
SAFETY INSTRUCTION Labels

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

SAFETY INSTRUCTIONS 1. READ AND UNDERSTAND THE INSTRUCTION MANUAL AND WARNING SIGNS BEFORE OPERATING MACHINE. FAILURE TO FOLLOW THESE INSTRUCTION MACHINE. FAILURE TO TOLLOW THESE INSTRUCTIONS AND WARNINGS CAN RESULT IN SERIOUS INJURY OR DEATH. 10. On 10 wear givens, neckless, jewelly of toose clothing white operating. 3. Alverys were rey profestion goggle. 4. Check bolde tension and adjust blade guide before continued to the control of the profession stock in the profession stock

Meaning

- 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.



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:

- Make sure all maintenance tasks have been performed following the prescribed maintenance 1. 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).

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 component 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.

Durability

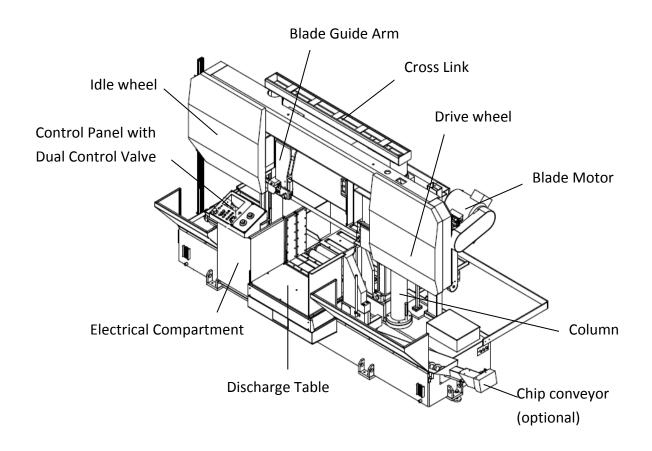
• The intended life-span of the machine is counted based on regular daily operation. It is calculated with the life expectancy of 10 years under normal operating condition and exact attention to the maintenance schedule.

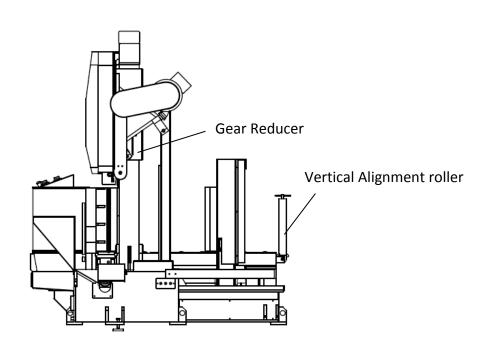
8 hours \times 5 days \times 52 weeks \times 10 years = 20,800 hours

SPECIFICATION

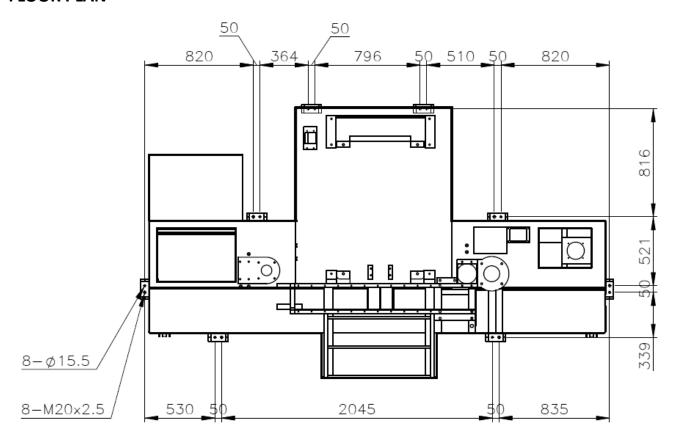
| Node Section C-62 ONC SNC-100 Programmable Automatic Mass Production Horizontal Bandsaw | | | | | |
|--|----------------|------------------------|---|--|--|
| Notice | N 4l - l | | C-620NC | | |
| Capacity Parameter Feeding Length Round 24.4" (620 mm) Capacity Parameter Feeding Length Rectangular (H x W) 24.4" x 30" (620 x 760 mm) Capacity Parameter P | Model | | | | |
| Capacity Square 24.4" (620 mm) Capacity Front top clamp Bundle Cutting Front top clamp H: 25.8" (655 mm) Bundle Cutting Front top clamp H: 25.8" (655 mm) Cutting Front top clamp H: 25.8" (655 mm) M: 30" (760 mm) H: 22" (560 mm) H: 25.8" (655 mm) Size (L x W x T) 283" x 2.1" x 0.06" (7,200 x 54 x 1.6 mm) Size (L x W x T) Hydraulic with automatic blade breakage detection Guide Interchangeable tungsten carbide Cleaning Steel wire brush with flexible drive shaft driven by main motor Steel wire brush with flexible drive shaft driven by main motor Steel wire brush with flexible drive shaft driven by main motor Ober 3 may Hydraulic 2 HP (1.5 kW) Cleaning Hydraulic with full stroke cylinder Workbed Height | | | | | |
| Rectary Rectary Rectary Rectary Reprint Ready | | Round | 24.4" (620 mm) | | |
| Capacity Bundle Cutting Front top clamp H: 25.8" (655 mm) W: 30" (760 mm) H: 25.8" (655 mm) Saw Blade Speed 66 ~ 328 fpm (20 ~ 100 m/min) Size (L x W x T) 283" x 2.1" x 0.06" (7,200 x 54 x 1.6 mm) Saw Blade Tension Hydraulic with automatic blade breakage detection Guide Interchangeable tungsten carbide Cleaning Steel wire brush with flexible drive shaft driven by main motor Motor Output Hydraulic 2 HP (1.5 kW) Coolant Pump 1/4 HP (0.19 kW) Tank Hydraulic 10.57 gal (40 L) Capacity Coolant 22.45 gal (85 L) Vise Control Method Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Feeding Length Mode Hydraulic, NC Automatic Workbed Height 23.5" (596 mm) Weright Net 10,582 lb (4,800 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104" F (5~40"C) | | Square | 24.4" (620 mm) | | |
| Bandle Cutting Front top clamp H: 25.8" (655 mm) Rear top clamp H: 22" (560 mm) Size (L x W x T) 283" x 2.1" x 0.06" (7,200 x 54 x 1.6 mm) Tension | Canacity | Rectangular (H x W) | 24.4" x 30" (620 x 760 mm) | | |
| H: 22" (560 mm) | Capacity | Bundle Front top clamp | · · · · · | | |
| Saw Blade Tension Hydraulic with automatic blade breakage detection Motor Output Saw Blade 10 HP (7.5 kW) Motor Output Mydraulic 2 HP (1.5 kW) Coolant Pump 1/4 HP (0.19 kW) Vise Control Wethod Hydraulic 22.45 gal (40 L) Vise Control Wethod Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Workbed Height 33.5" (596 mm) Workbed Height 23.5" (596 mm) Weight Net 10,582 lb (4,800 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104*F (5~40*C) | | Cutting Rear top clamp | | | |
| Saw Blade Tension Hydraulic with automatic blade breakage detection Guide Interchangeable tungsten carbide Cleaning Steel wire brush with flexible drive shaft driven by main motor Motor Output Motor Output Motor Coolant Pump Tank Capacity Coolant Pump Toolant Pum | | Speed | 66 ~ 328 fpm (20 ~ 100 m/min) | | |
| Feeding Length Mode Mode Hydraulic 19.7" (500 mm) Moter Single Stroke 19.7" (596 mm) Workbed Height Scross 11,904 lb (5,400 kg) Floor Space (W x D x H) Gleaning Steel wire brush with flexible drive shaft driven by main motor Steel wire brush with flexible drive shaft driven by main motor Steel wire brush with flexible drive shaft driven by main motor Steel wire brush with flexible drive shaft driven by main motor 10.57 kW) 10.4 HP (0.19 kW) 10.57 gal (40 L) 10.57 | | Size (L x W x T) | 283" x 2.1" x 0.06" (7,200 x 54 x 1.6 mm) | | |
| Cleaning Steel wire brush with flexible drive shaft driven by main motor Motor Output | Saw Blade | Tension | Hydraulic with automatic blade breakage detection | | |
| Motor Output Saw Blade 10 HP (7.5 kW) Hydraulic 2 HP (1.5 kW) Coolant Pump 1/4 HP (0.19 kW) Tank Capacity Hydraulic 10.57 gal (40 L) Vise Control Method Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Feeding Length Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Weight Net 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41"104"F (5"40"C) | | Guide | Interchangeable tungsten carbide | | |
| Motor Output Hydraulic 2 HP (1.5 kW) Coolant Pump 1/4 HP (0.19 kW) Tank Capacity Hydraulic 10.57 gal (40 L) Coolant 22.45 gal (85 L) Vise Control Method Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Weight Ret 10,582 lb (4,800 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104*F (5~40*C) | | Cleaning | Steel wire brush with flexible drive shaft driven by main motor | | |
| Output Hydraulic Z HP (1.5 kW) Tank Hydraulic 10.57 gal (40 L) Capacity Coolant 22.45 gal (85 L) Vise Control Method Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Weight Net 10,582 lb (4,800 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | | Saw Blade | 10 HP (7.5 kW) | | |
| Coolant Pump 1/4 HP (0.19 kW) Tank Capacity Hydraulic 10.57 gal (40 L) Vise Control Method Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Weight Ret 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | | Hydraulic | 2 HP (1.5 kW) | | |
| Capacity Coolant 22.45 gal (85 L) Vise Control Method Hydraulic with full stroke cylinder Feeding Length Mode Hydraulic, NC Automatic Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Weight Net 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | | Coolant Pump | 1/4 HP (0.19 kW) | | |
| Vise Control Method Hydraulic with full stroke cylinder Hydraulic, NC Automatic Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Net 10,582 lb (4,800 kg) Floor Space (W x D x H) Operating Temperature Hydraulic with full stroke cylinder Hydraulic, NC Automatic 29.7" (500 mm) 19.7" (500 mm) 19.7" (500 mm) 19.7" (500 mm) 10.582 lb (4,800 kg) 10.582 lb (4,800 kg) 10.582 lb (4,800 kg) 11.904 lb (5,400 kg) Temperature 41~104°F (5~40°C) | Tank | Hydraulic | 10.57 gal (40 L) | | |
| Mode | Capacity | Coolant | 22.45 gal (85 L) | | |
| Feeding Length Single Stroke 19.7" (500 mm) Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Net 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | Vise Control N | 1ethod | Hydraulic with full stroke cylinder | | |
| Length Single Stroke 19.7 (300 mm) Workbed Height 23.5" (596 mm) Weight Net 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | | Mode | Hydraulic, NC Automatic | | |
| Multi Stroke Max. 999" (99 meter) Workbed Height 23.5" (596 mm) Weight 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature Temperature | _ | Single Stroke | 19.7" (500 mm) | | |
| Weight Net 10,582 lb (4,800 kg) Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | | Multi Stroke | Max. 999" (99 meter) | | |
| Weight Temperature 11,904 lb (5,400 kg) 11,904 lb (5,400 kg) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) 41~104°F (5~40°C) | Workbed Height | | 23.5" (596 mm) | | |
| Gross 11,904 lb (5,400 kg) Floor Space (W x D x H) 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) Operating Temperature 41~104°F (5~40°C) | Weight | Net | 10,582 lb (4,800 kg) | | |
| Operating Temperature 41~104°F (5~40°C) | VVCIBIIL | Gross | 11,904 lb (5,400 kg) | | |
| Operating | Floor Space (V | V x D x H) | 160.5" x 82.4" x 94.1" (4,076 x 2,093.5 x 2,391 mm) | | |
| Environment Humidity 30% ~ 95% (without condensation) | Operating | Temperature | 41~104°F (5~40°C) | | |
| | Environment | Humidity | 30% ~ 95% (without condensation) | | |

MACHINE PARTS IDENTIFICATION

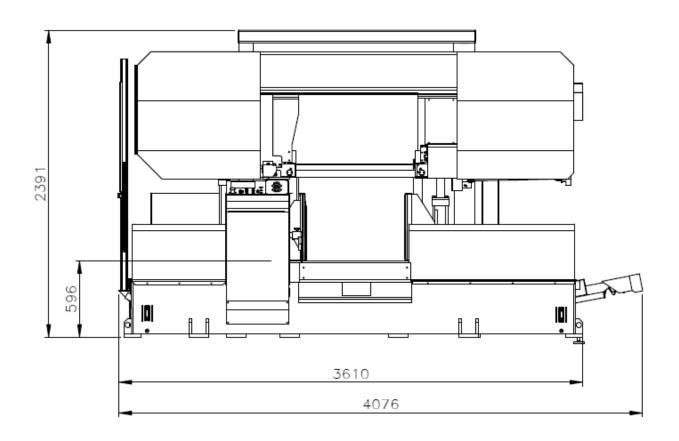




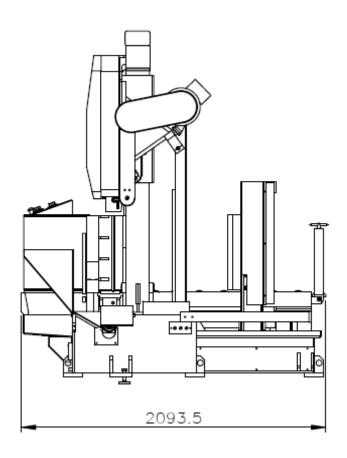
FLOOR PLAN



Machine top view



Machine front view



Machine side view

MOVING & INSTALLATION

LOCATION & ENVIRONMENT
UNPACKING & INSPECTING
LIFTING
REMOVING SHIPPING BRACKET
CLEANING
INSTALLING
RELOCATING

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* 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%~95%"(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. Use a crane

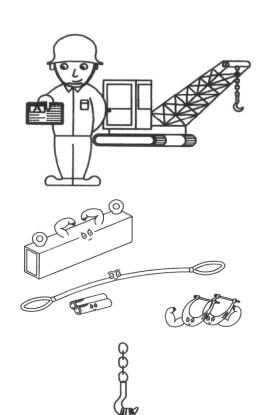
Move the machine to its location by using a crane and a wire rope sling that can fully withstand the weight of the machine (refer to machine specification under Section 2 General Information).

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



 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.



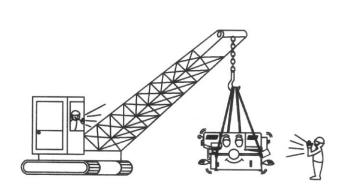
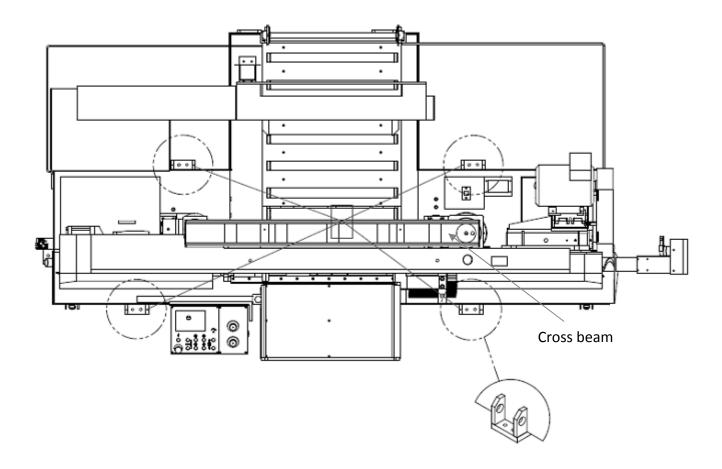


Illustration: Lifting Points

Remove cross beam and left/right splash shields before lifting the machine.



Minimum weight capacity for each wire rope: 5.5 ton

Total number of wire ropes required: 4

2. Use a forklift

Most users choose this method to move their machine because it is easy to set up. Make sure that the lifting rod can fully withstand the weight of the machine. (Refer to Section 2 – General Information for Specifications)

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



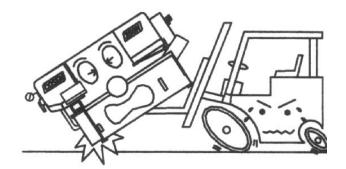
You must have a qualified forklift operator to perform the job.



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



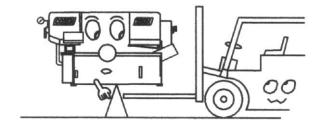
Make sure the forks are able to reach in at least 2/3 of the machine depth.



You must keep the machine balanced at all times.



Make sure the forks are centered before use.

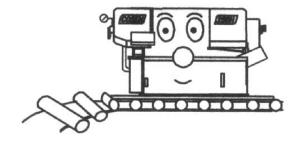


(Illustration only. Please follow user guide of your forklift.)

3. Use rolling cylinders

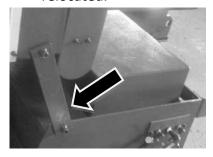
You can use rolling cylinders to move your machine in a small machine shop environment.

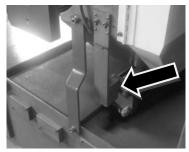
 You must use rolling cylinders made in material of proper compressive strength.



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

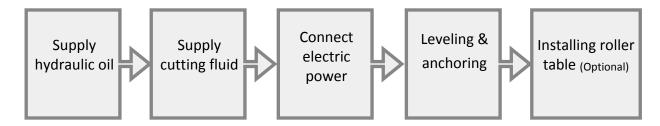
After the machine has been placed at the designated position, remove the rust-preventive grease with wiping cloth dampened with cleaning oil or kerosene. Apply machine oil to machine surfaces that are prone to rust.



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 2 for tank capacity.



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 2 *General Information* for tank capacity.



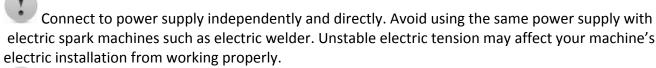
Consult your coolant supplier for bandsaw use regarding coolant type and mix ratio.



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.





Ground the machine with an independent grounding conductor.



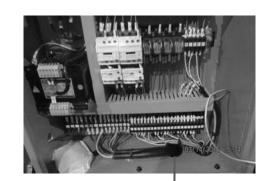
Supply voltage: 90% - 110 % of nominal supply voltage.



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

Refer to the specification chart under Section 2 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
- 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.



Power Supply Inlet

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.



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.

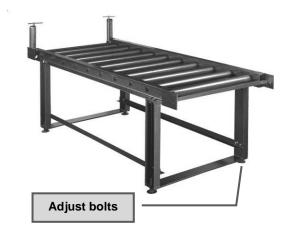
Shock absorption steel plates are provided and can be placed under each leveling bolt to prevent their sinking into the concrete floor.

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.

OPERATING INSTRUCTION

SAFETY PRECAUTIONS

BEFORE OPERATING

CONTROL PANEL

STANDARD ACCESSORIES

OPTIONAL ACCESSORIES

UNROLLING & INSTALLING THE BLADE

ADJUSTING WIRE BRUSH

ADJUSTING COOLANT FLOW

ADJUSTING SAW ARM

ADJUSTING BLADE SPEED

PLACING WORKPIECE ONTO WORKBED

POSITIONING WORKPIECE FOR CUTTING

BREAKING-IN THE BLADE

TEST-RUNNING THE MACHINE

CUTTING OPERATION

STARTING AN AUTOMATIC OPERATION

USING TOP CLAMP FOR BUNDLE CUTTING

TERMINATING A CUTTING OPERATION

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



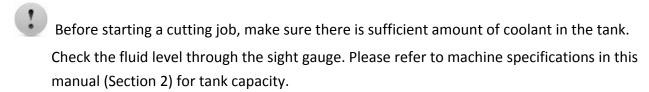
Never use water as your coolant.



Always add coolant into water for better mix result.

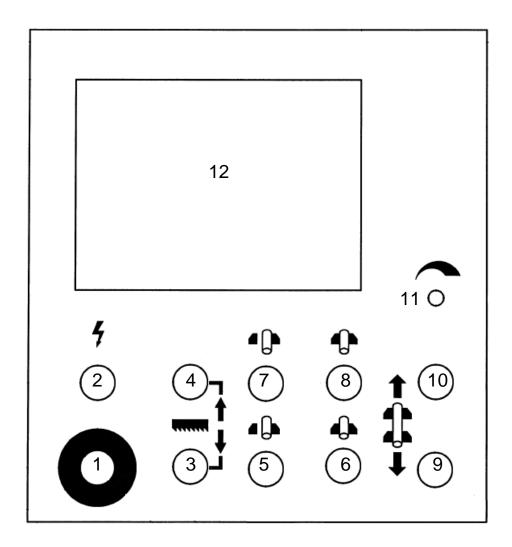


Consult your coolant supplier for bandsaw use regarding coolant type and mix ratio.



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 (moved to HMI) |
| 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.

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 touches the upper limit switch.

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 saw bow is not above the middle limit switch, the front vise can only be opened in small increments AND movable saw arm cannot move so as to prevent the vise from hitting the saw 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 "(")".

8. Rear vise clamp button

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

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 1. when either of the front and rear vises are unclamped 2. when the laser sensor is not detecting the material (if using laser quick approach) OR current blade height is above the preset material height (if using height encoder quick approach).



After the blade motor starts running, the function of rear vise 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 1. when either of the front and rear vises are unclamped 2. when the laser sensor is not detecting the material (if using laser quick approach) OR current blade height is above the preset material height (if using height encoder quick approach).



After the blade motor starts running, the function of rear vise is disabled due to safety concerns.

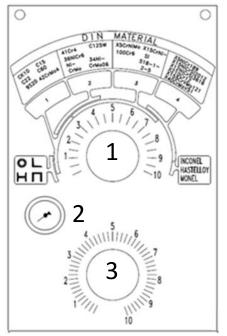
11. Blade speed control knob (moved to HMI)

12. HMI touch screen

Please refer to later section for detailed introduction.

Blade descend pressure and speed control panel

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. Cutting pressure gauge

• The gauge shows the current cutting pressure value, which appears upon a started blade.

3. 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 HITECH 5.7" are configured under the "manual" mode.

Please pay attention to the following environment conditions necessary for HITECH 5.7" HMI touch screen to properly operate:

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

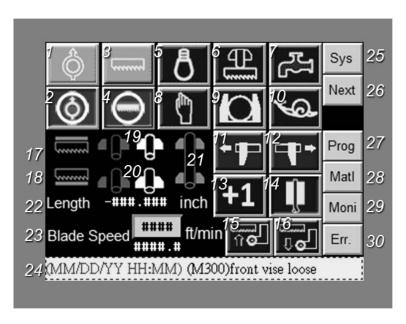


Startup Screen

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 | Ô | 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 | (a) | 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 | Θ | Blade stop | Press this button to stop the blade. |
| 5 | ð | 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. Press again to turn off the work light. |
| 6 | 4 | 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 <i>Material retract 2mm</i> mode has been turned on. |
| 7 | 2 | 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. Under automatic mode, if choosing to use laser quick approach, saw bow descend speed will become slow and coolant pump will not start until laser sensor senses material. After cutting, saw bow ascends and coolant pump automatically stops. Under automatic mode, if choosing to use height |

| No | Item | Function | Description |
|-----|------------|----------------------------|---|
| | | | encoder quick approach, saw bow descend speed will become slow and coolant pump will not start until saw bow enters slow descend speed height. After cutting, saw bow ascends and coolant pump automatically turns off. |
| 8 | TAUTO 1 | 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. |
| 9 | | 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. |
| 10 | Y | Slow material feeding | Used only when under Manual mode. |
| , 0 | | 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 | * F | Guide arm to the left | Press this icon to move the guide arm to the left. The saw bow must be above the middle limit switch AND carbide inserts selection switch must be turned to unclamped position to move the guide arm. |

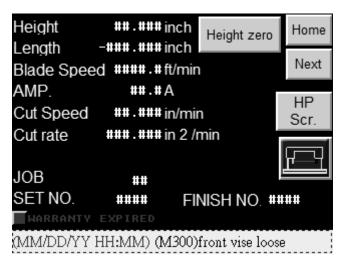
| No | Item | Function | Description |
|----|--------------|----------------------------------|---|
| | | | Be sure that the guide arm will not bump into the front vise, set the guide arm width according to the scale on top of the sliding board. |
| 12 | ~ | Guide arm to the right | Press this icon to move the guide arm to the right. The saw bow must be above the middle limit switch AND carbide inserts selection switch must be turned to unclamped position to move the guide arm. Be sure that the guide arm will not bump into the front vise, set the guide arm width according to the scale on top of the sliding board. |
| 13 | 40 +1 | 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. |
| 14 | | Carbide inserts clamp/unclamp | When under Manual mode, press this button to clamp carbide inserts. Press again to unclamp. The carbide inserts will automatically clamp the blade when the saw blade start button is pressed. This safety design is incorporated in the program to protect both the user and the blade during cutting. |
| 15 | ₩₩. | Wire brush up | Used only when under Manual mode. Press to test if the wire brush can be raised smoothly. |
| 16 | Û | Wire brush down | Used only when under Manual mode. Press to test if the wire brush can be lowered smoothly. |
| 17 | | Saw blade up indicator | Indicates that the saw blade is rising. When activated, the saw blade icon will turn solid white. |
| 18 | mm | 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 |

| No | Item | Function | Description |
|----|---------------------|------------------------------|--|
| | | | limit switch, the saw blade icon will turn solid white. |
| 19 | | 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. |
| 20 | | 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. |
| 21 | lack | Feeding movement indicator | When the feeding vise reaches the front limit, the vise set |
| | 4,6 | | icon will turn solid white. |
| 22 | Length | Feeding length display | Displays current feeding length while the material is being fed. |
| 23 | Blade Speed | Blade speed display & set up | Displays current blade speed. Press to key in blade speed. |
| | | | to key iii blade speed. |
| 24 | (yellow highlight) | Error display | Displays error messages in the order of occurrences; press the message for one second to clear the messages. |
| | (Jeneth inglingine) | | The message must be cleared for the machine to continue to operate normally. |
| 25 | Sys | 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 life, this function is protected with a set of password. |
| 26 | Next | 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. |

| No | Item | Function | Description |
|----|------|----------------------------|---|
| 27 | Prog | Cutting program setting | Press this button to directly enter the cutting job program setup page. |
| | | | A total of 100 cutting programs can be set. |
| 28 | Mtrl | Material cutting reference | This 2-page reference chart lists out the required blade speed and cutting rate for each different material. |
| 29 | Moni | PLC monitor | Shows current PLC signals. |
| 30 | Err. | Error report | Lists a historical report of the errors and the time of occurrence as well as provides troubleshooting support. 6 pages in total. |

Next Cutting status display & setup

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



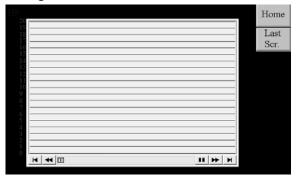
Page 1 – cutting status display

- This page shows the following information (from top to bottom):
 - Current blade height
 - Press Height zero for 1 second to reset the blade height to zero. Yellow blink icon indicates that reset to zero function has been turned on. Press saw bow down button and saw bow will quickly descend to lower limit position. When saw bow reaches the lower limit position, this icon will turn to grey, indicating blade height has reset to zero.

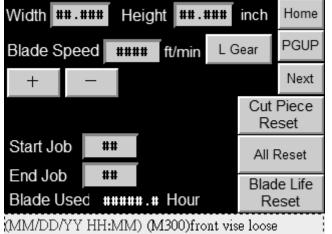
After machine is turned off, saw bow will descend while PLC and encoder are out of power. After machine is restarted, please reset the height to zero to have correct blade height reading.

- Feeding length (current feeding vise position)
- Blade speed
- Current in ampere (optional)
- Blade feed speed
- Cut rate
- Number of current cutting job/step in operation
- Preset quantity of current cutting job

- Number of cuts finished
- The green square light on the bottom left corner indicates the warranty status of the HMI touch screen. Warranty is one year and starts counting after 70 hours of operation after the machine is shipped. Warranty status light turning to red indicates the HMI touch screen has expired.
- Error messages (highlighted in yellow; can be cleared by pressing down for one second)
- Press Home to return to the main control menu.
- Press Next to go to the next setup page.
- Press HP Scr. to enter the V-Driver page (optional). HP Screen is displayed when cutting. V-Driver can increase cutting rates and decrease cutting vibration.



- When blade is not running, press to switch
 between laser quick approach and height
 encoder quick approach.
 - Laser quick approach: When cutting starts, saw bow descends and wire brush automatically goes down to avoid interfering laser sensor to detect the material top. After laser sensor detects the material top, wire brush will automatically goes up. Saw bow will descend according to preset cut speed.
 - Height encoder quick approach:
 The operator must set up correct material height, saw bow descend speed will become slow when saw bow height equals material height plus default distance (13mm, can be adjusted at system page). For example, if the operator sets up the material height as 500mm, saw bow descend speed will become slow at 513mm.



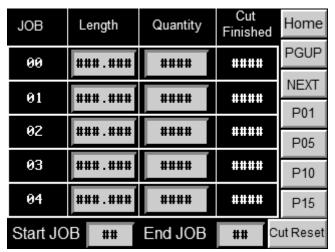
Page 2 – cutting status setup

The operator can setup cutting parameter in this page(from top to bottom):

- Width Set the material width, during cutting the system will calculate the cut rate based on the width of the material.
- Height Set material height so the system can automatically calculate the cut rate.
- Blade speed Key in the blade speed. Press + or to fine adjust blade speed.
- L Gear Press this button to switch between low and high gears for the drive belt.
- Start Job Key in the number of the job you wish to execute first under automatic mode.
- End Job Key in the number of the job you wish to execute last under automatic mode.
- Current blade life in hours
- Error message (bottom of page)
- Press Home to return to the main control menu.
- Press PGUP to go back to the previous setup page.
- Press Next to go to the next setup page.
- Cut Piece Reset Reset all Cuts Finished data by pressing this button for three seconds.

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 Starts Step and Ends Step by pressing this button for three seconds.
- Blade Life Reset Reset the blade life to zero



Page 3 – cutting program setup

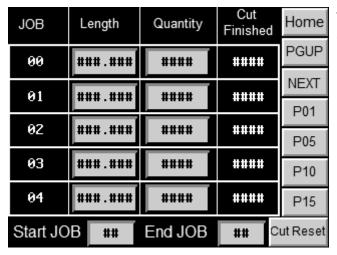
- In this page you can set your desired cutting length and quantity and see the number of finished cuts (Cut Finished).
- A total of 100 cutting jobs can be set and performed under the automatic mode.
- In "Start JOB" and the "End JOB" field, fill in the number of the cutting job you wish to start and 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 Quantity column, set each respective cutting quantity.
- Press Cut Reset 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.

- Press Home to return to the main control menu.
- Press PGUP to go back to the previous setup page.
- Press NEXT to go to the next cutting program setup page.
- Press P01, P05, P10, P15 to quickly jump between cutting programs (Step 00 ~ 99)

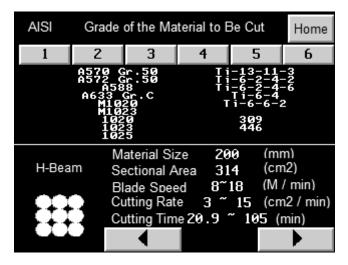
Prog Cutting program setup

When cutting is in operation, press to quickly access the cutting program setup page (the same as page 3 of the cutting status display and setup page)



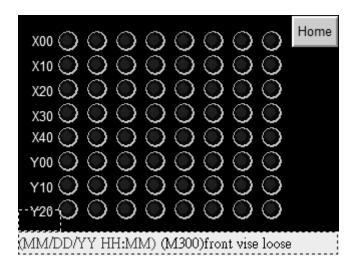
This setup page is the same as page 3 of the cutting status display and setup page.

Mttl Material cutting reference



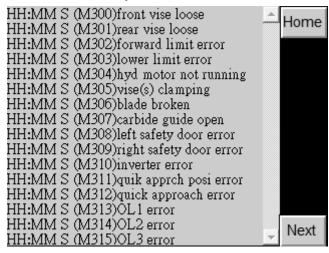
 This 2-page reference chart lists out the required blade speed and cutting rate for each different material.

Moni PLC Monitor



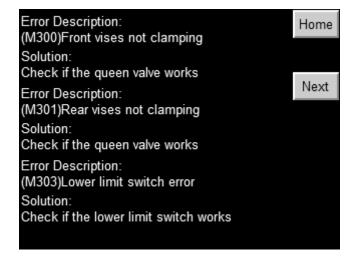
• Shows all signals of the PLC system.

Err. Error report



Page 1 – error report

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



Page 2 – troubleshooting

- Provides suggestions on troubleshooting. 6 pages in total.
- Also refer to below table for error codes, descriptions and solutions.
- Press Home to return to the main control menu.
- Press Next to go to the troubleshooting support 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 | Saw blade motor abnormal | Check if the blade motor overload relay has tripped |
| M314 | Hydraulic motor abnormal | Check if the hydraulic motor overload relay has tripped |
| M315 | Coolant pump abnormal | Check if the coolant pump motor overload relay has tripped |
| M316 | Saw bow upper limit abnormal | Check the upper limit switch works |
| M350 | Insufficient length – first cut | Material 100mm out of vise |
| M352 | Front vise clamping error | 1. Check if the vise queen valve works |
| | | 2.Check if the "no material parameter" is too small |
| M357 | Saw bow descending error | 1. Check the quick approach bar works |
| | | 2. Check if the quick approach bar limit switch works |
| M358 | Saw bow ascending error | 1. Check the quick approach bar works |
| | | 2. 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 small |
| M363 | PLC battery voltage too low | Replace PLC battery |

STANDARD ACCESSORIES

Blade tension device

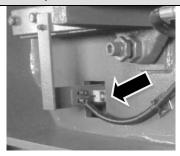


- This blade tension device equipped with hydraulic cylinder provides appropriate tension to the saw blade.
- To tighten the saw blade, turn the selector to ...
- Upon saw blade breakage, the safety device will activate and automatically stop all machine operation.
- To change the blade, turn the handle to to release saw blade tension.



Never adjust blade tension while the blade is running.

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.

Inverter



- This inverter is installed inside the machine base. 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:

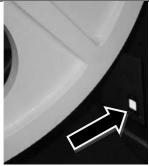
- 1. Make sure the terminal points are connected.
- 2. Make sure the ambient temperature is within acceptable range and keep the surroundings well ventilated.
- 3. Keep the inverter away from dust.
- 4. For repair or maintenance, please contact your local agent.

Coolant pump

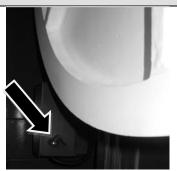


When the hydraulic system is turned on, the coolant pump can be operated individually from the control panel. Coolant can be used to wash off chips as well as providing cooling during cutting.

Laser quick approach device







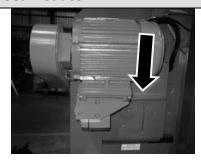
Laser sensor

This device allows the blade to quickly descend to just right above the material to save you operation time.

When cutting starts, saw bow descends and wire brush automatically goes down to avoid interfering laser sensor to detect the material top. After laser sensor detects the material top, wire brush will automatically goes up. Saw bow will descend according to preset cut speed.

When laser reflect piece is dirty, please wipe it with a clean cloth. Do not scratch the reflect piece.

Gear reducer

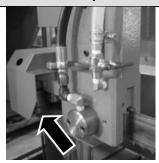


The specially designed gear reducer can work toward your preset blade speed and torque.



Please refer to Section 8 for information on maintenance.

Vibration damper

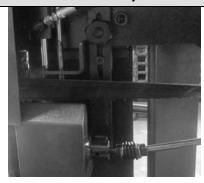


The vibration damper can be assembled to the left saw arm. This optional accessory is extremely useful in reducing the high-frequency noise produced when cutting large-sized material.



Installing vibration damper might cause cutting capacity diminish.

Wire brush assembly



The wire brush removes the metal chips on the saw blade teeth so that blade life can be extended.

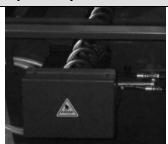
The wire brush will automatically move up/down during cutting.

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 the wire brush drive system.

OPTIONAL ACCESSORIES

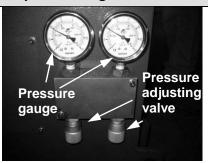
Chip conveyor



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.

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.



Vise pressure should never be lower than 8 kg/cm².

2M roller table



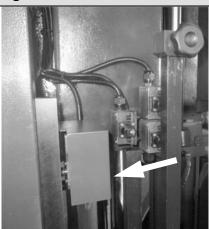
- The optional 2M roller table supports the work material and ensures the material be fed in smoothly.
- Refer to Section 9 for further information on adjusting the roller table.

Hydraulic top clamps



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

Height encoder



With this optional device, the operator can input work piece width via HMI touch panel. When cutting begins and the blade starts to descend, the panel will display the current blade height, the blade descend speed and the cutting rate calculated by the system.

The encoder is a high-precision electronic device. It has been factory-adjusted before shipment. Please do not make any random change to it.



Avoid high impact on the device.

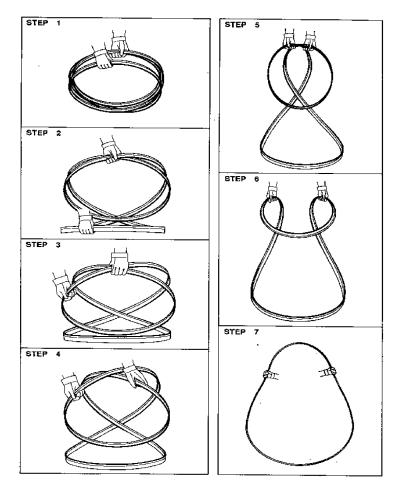
UNROLLING & INSTALLING THE BLADE



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 press the hydraulic start button.
- Step 3 Switch to manual () mode.
- Step 4 Press the *saw bow up* button and elevate the saw bow until the right guide arm is clear of the front fixed vise.
- Step 5 Turn the tension controller handle from "O" to "O" position to release tension. The idle wheel will then move slightly toward the direction of the drive wheel.

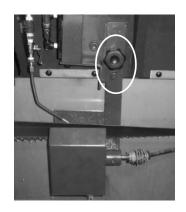


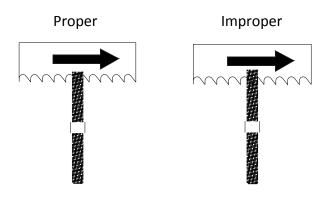
- Step 6 Open the idle and drive wheel covers.
- Step 7 Loosen the left and right carbide inserts by pressing the "carbide insert unclamp" button from the HMI touch screen.
- Step 8 Press wire brush down button to move the brush away from the blade.
- Step 9 Remove the old blade. If necessary, clean the carbide inserts before installing a new saw blade.
- Step 10 Place the new blade around the idle wheel and the drive wheel.
- Step 11 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 12 Place the blade to the drive wheel and press the back of the blade against the flange of the drive wheel.
- Step 13 Make sure the back of the blade is also pressed against the flange of the idle wheel.
- Step 14 Turn the tension controller handle to [OO] position to obtain blade tension.
- Step 15 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 pressing the "carbide insert clamp" button from the HMI touch screen.
- Step 16 Gently close the idle and drive wheel covers.
- Step 17 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 18 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 Loosen the wire brush knob screw.
- Step 2 Make brush move up / down until it makes proper contact with the saw blade (see below illustration).
- Step 3 Tighten the wire brush knob screw.





ADJUSTING COOLANT FLOW

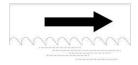
- Step 1 Press the saw blade start button to start the saw blade drive motor.
- Step 2 Press the saw bow down button to lower the saw bow.
- Step 3 Use the flow control valve (shown below) to adjust the amount of fluid flowing to the cutting



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.

ADJUSTING SAW ARM

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

- Step 1 Loosen the carbide inserts by pressing carbide inserts unclamp button on HMI touch screen.
- Step 2 Utilize the two buttons, guide arm to the left and guide arm to the right, to adjust guide arm positions.
- Step 3 After adjustment is made, clamp the inserts back by pressing carbide inserts clamp button on HMI touch screen.



The saw bow must be at the upper limit to move the guide arm.



Be sure that the guide arm will not bump into the front vise, set the guide arm width according to the scale on top of the sliding board.

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 Press the *blade speed button* to key in the blade speed. The blade speed should be adjusted based on the size and the material of the workpiece.

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 <i>rear vise clamp</i> 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 <i>feed forward</i> button until the rear vise touches the front limit switch. |
| front vises clamp material | 4 | Press the <i>front vise clamp</i> button until the workpiece is securely clamped. |
| rear vises retract to clamp | 5 | Press the <i>rear vise open</i> button. |
| material again | 6 | Press the <i>feed backward</i> button until the rear vises reach back limit switch. |
| _ | 7 | Press the <i>rear vise clamp</i> button until the workpiece is securely clamped again. |
| front vises open; prepare for precision position | 8 | Simultaneously press the <i>front vise open</i> button and the <i>rear</i> vise clamp button again to make sure the material is clamped. |
| confirm cutoff point | 9 | Press the <i>saw bow down</i> 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 <i>feed forward</i> button (and the <i>feed backward</i> 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 <i>front vise</i> clamp button so the workpiece is securely clamped. |

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 and 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 – 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 3 – Position your workpiece.

Step 4 – Clamp the workpiece.

Step 5 – Turn the cutting pressure control knob to adjust cutting pressure according to the material.

Step 6 – Adjust *blade descend speed control* knob to obtain a suitable blade descend speed for your material.

Step 7 – Start running the blade.

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

Step 8 – While the blade descends, adjust the blade speed if necessary. You can do so by pressing the blade speed acceleration and deceleration buttons on HMI screen. The blade speed is displayed in the HMI touch screen.

Step 9 – Select the proper cutting condition according to different material.

Step 10 – After the entire cutting job is completed, elevate the saw bow to the top and open the vises to remove the workpiece.

Step 11 – Clean the workbed by removing chips and cutting fluids.

Step 12 – 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 to the upper limit position. Key in the material width and height on HMI screen. If using quick approach device control mode, adjust the quick approach bar until it 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

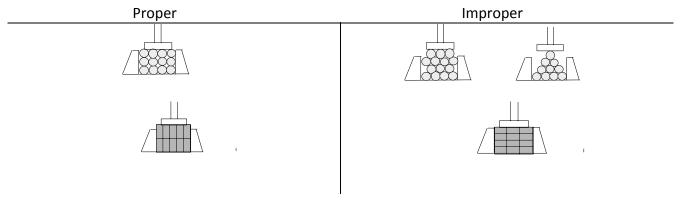
To perform bundle cutting, use the top clamps and follow below procedures.



Step 1 – 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



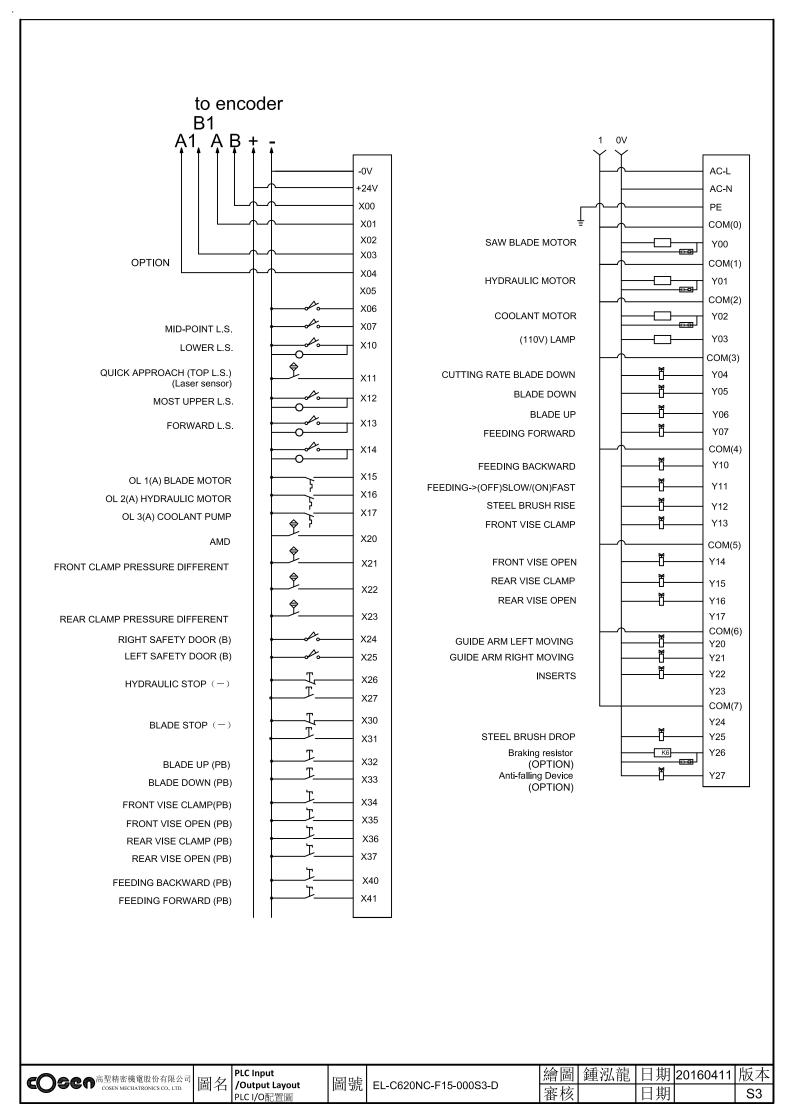
- Step 2 Align the top clamp cylinders with the center of the workpiece and tighten the lock nuts.
- Step 3 Set the top clamp descending speed by adjuting flow control valve (shown in above picture).
- Step 4 Install the bundle-cutting fence to the work tray. The fence is designed to prevent cut pieces from scattering across the work tray. Adjust the width of the fence to be slightly larger than the width of the bundle.
- Step 5 Press Single/Bundle cutting mode button and switch to bundle cutting mode.
- Step 6 For subsequent cutting procedures, refer to the instructions under manual operation and automatic operation.

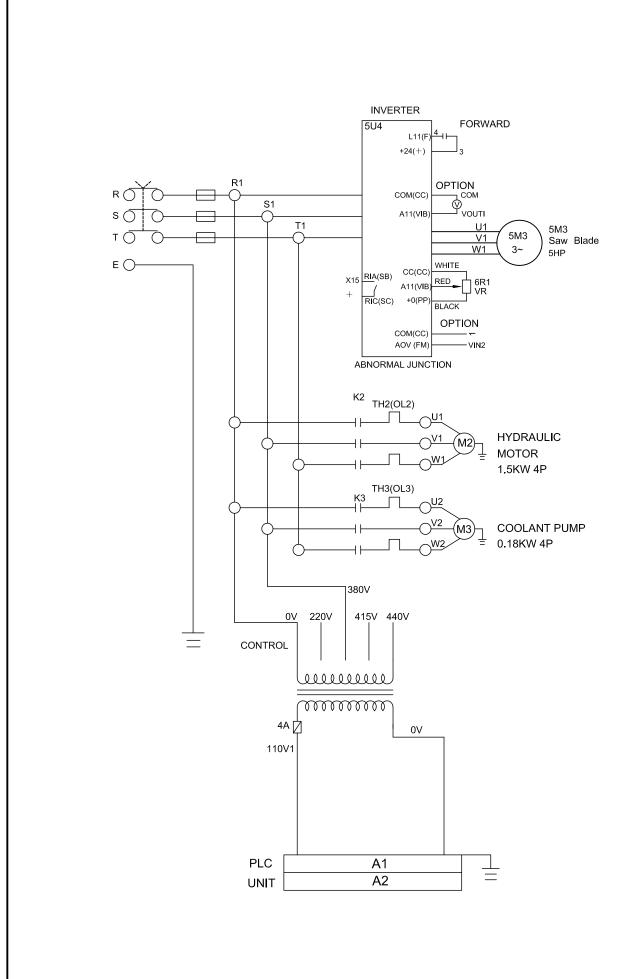
TERMINATING A CUTTING OPERATION

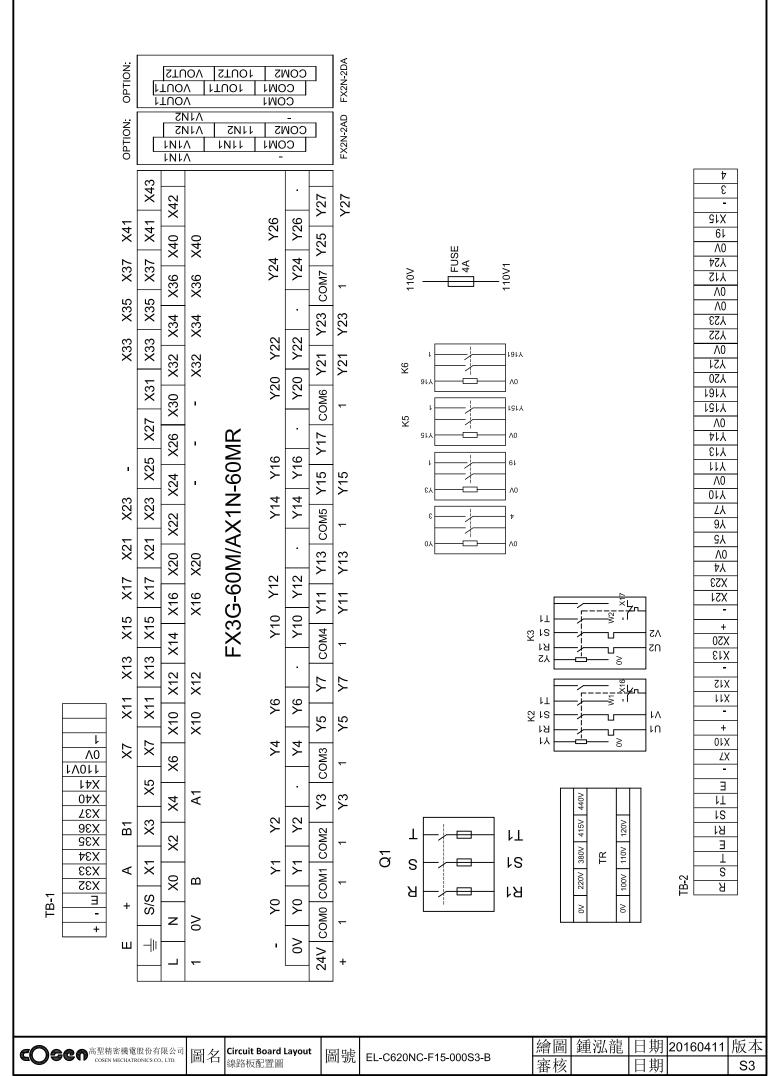
- To terminate a cutting operation, press either the saw bow up button or the emergency stop button.
- The saw blade will stop running when the saw bow up button is pressed.
- Both the saw blade and hydraulic pump motors will stop running when the emergency stop button is pressed.
- The machine will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

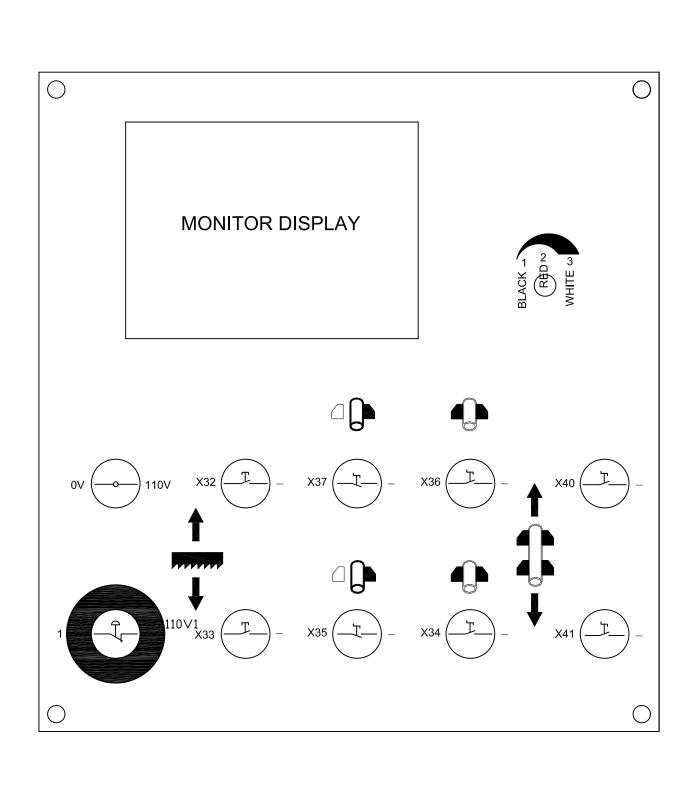
ELECTRICAL SYSTEM

ELECTRICAL CIRCUIT DIAGRAMS



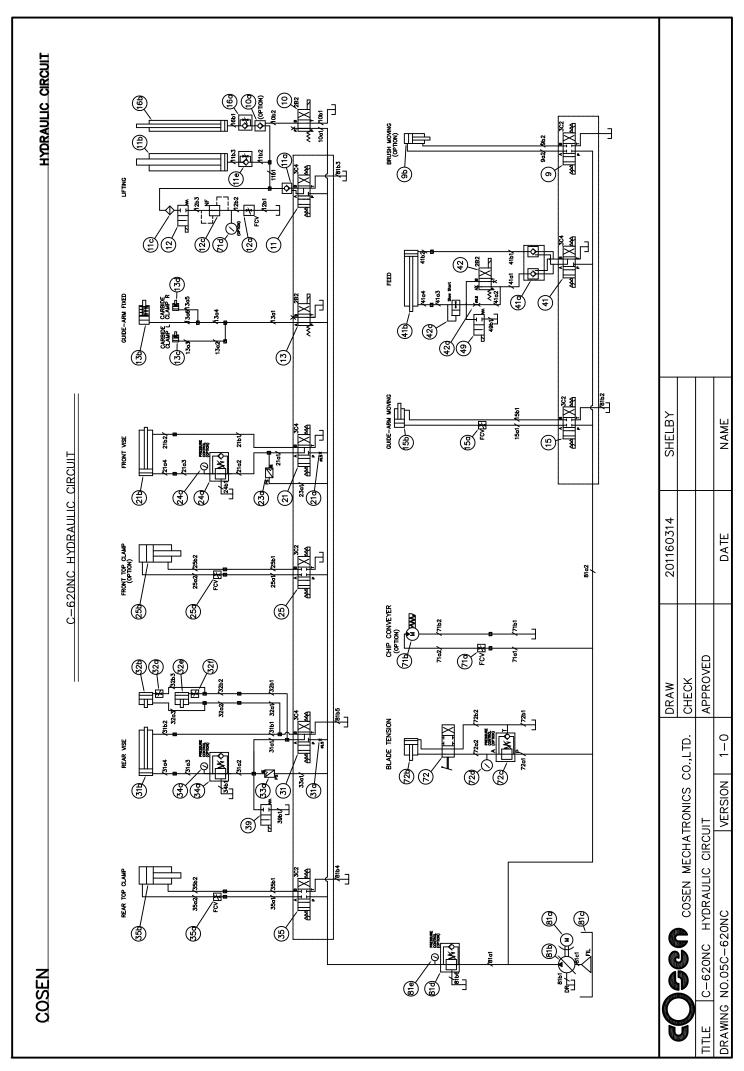






HYDRAULIC SYSTEM

HYDRAULIC CIRCUIT DIAGRAM



BANDSAW CUTTING: A PRACTICAL GUIDE

INTRODUCTION
SAW BLADE SELECTION
SOME SAWING PRACTICES
CUTTING CONDITIONS SETTING

INTRODUCTION

Our bandsaw machines are designed to be installed with high quality using high speed saw blades for maximizing productivity. To be able to use this kind of high performance bandsaw blade, the machine has to be of rugged design, has high quality saw blade guides, has sufficient motor horse power for high saw band speeds, and has to be able to apply necessary tension to the saw bands. Your machine has all these features to provide a better service for you.

The saw blade is guided through the cutting area by roller guides to keep it straight as it comes off the driving wheels. The precision carbide inserted guides then hold the blade securely and accurately throughout the sawing process. The tension of the saw blade is adjusted through the tensioning device on the strong saw bow. The cutting feed and down feed pressure of the blade is regulated automatically by hydraulic regulation.

SAW BLADE SELECTION

The factors affecting cutting performance are:

- Type of material
- Material size and shape
- Guide spacing
- Blade selection
- Blade speed and feed
- Tooth form and spacing
- Blade tension
- Blade vibration
- Coolant



Fig. 7.1 Description of Band

- Depending on the hardness of the material the cutting rate will increase or decrease. For example, it takes more time to cut stainless steel than to cut cast iron.
- 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:

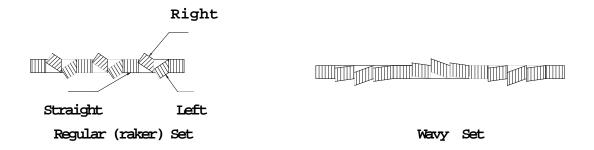


Fig. 7.2 The Saw Set

Material size and shape

The optimum material width for a band saw blade is 1 inch wide by 0.35 inch thick and is about 5 inches long. Below this width tooth loading may become excessive and the cutting rate must be reduced. Above this width blade control begins to be lost, as discussed below. Since the blade "sees" only that material it is cutting, the shape of the stock being cut will also affect cutting speeds, particularly if the piece is excessively wide or if it varies in the dimensions being cut.

Guide spacing

The rigidity of the blade is a function of guide spacing, with rigidity being reduced to the third power as the distance between the guides increases. For example, with guides spaced 2 inches apart, blade deflection might be approximately 0.2. Under the same conditions, but with the guides spaced at 4 inches apart, blade deflection would be approximately 0.8.

This is a much simplified version of the formula, because it does not consider band tension or guide design. It is important to recognize, for example that rollers are considered as a pivotal contact. Whereas carbide faces could be considered as anchored supports. A more complete deviation, including band tension and guide design, is included in Roark's handbook, "Formula for stress and strain".

Blade selection

There are different types of blades available. Please contact a bandsaw blade manufacturer for advice.

Blade speed and feed

Blade speed is generally limited by vibration and the ability to keep the blade sufficiently cool to avoid dulling the teeth. A blade which is running fast and taking a very light cut will dull quickly because the tips of the teeth will overheat from the rubbing action. If, however, we force the blade teeth deeper into the material, the blade will be less sensitive to heat, because the teeth are cutting more and rubbing less.

Tooth form and spacing

The selection of a tooth form generally is determined by the material to be cut. There are three general factors to consider: tooth form, style or shape of the teeth; tooth spacing, the number of teeth to the inch; and tooth set, which provides clearance for the body of the blade. Three styles of tooth are shown in Fig. 7.3 below:

O° RAKE STANDARD TOOTH O° RAKE SKIP TOOTH

/ 10° RAKE EDIT TOOTH

Fig. 7.3 Three Styles of Tooth

SOME SAWING PRACTICES

Saw Pitch Selection

Sawing "Rules of Thumb":

- 1. The thinner the stock, the finer the saw pitch.
- 2. The thicker the stock, the coarser the saw pitch.
- 3. The more difficult the stock, the finer the saw pitch.
- 4. The softer the material, the coarser the saw pitch.

Always have at least three teeth in contact with the material being cut.

Material Size and Saw Pitch

Anytime during the cutting operation, at least three teeth must be in contact with the material being cut. Figure 7.4 shows some sawing practices:

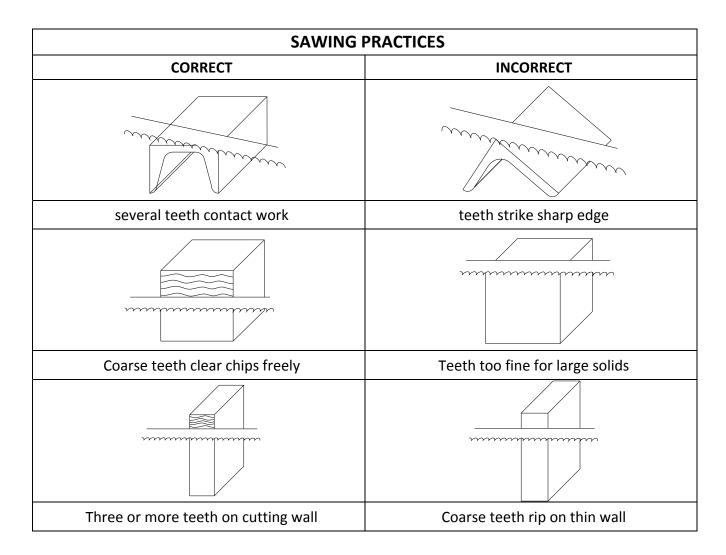


Fig. 7.4 Some sawing practices

Solid Stock:

| _ | = | | |
|-------|------------------------------|-----------------|-------------------|
| STYLE | up to 25 mm (1") | 25-100mm (1-4") | 100-250mm (4-10") |
| | | | |
| | 8-10 TPI (Teeth per inch) | 6-8 TPI | 3-4 TPI |
| | | | |

Structurals:

| STYLE | up to 10 mm (3/8") | 10-20mm (3/8-3/4") | above 20mm (3/4") |
|-------|--------------------|--------------------|-------------------|
| | | | |
| | 10-8 TPI | 8-10 TPI | 6-8 TPI |
| | | | |

Solid Bundle:

| STYLE | up to 20 mm (3/4") | 20-80mm (3/4–3 1/4") | above 80mm (3 1/4") |
|-------|--------------------|----------------------|---------------------|
| | | | |
| | 8 - 10 TPI | 2 - 8 TPI | 4 - 6 TPI |
| | | | |

MAINTENANCE & SERVICE

INTRODUCTION

BASIC MAINTENANCE

MAINTENANCE SCHEDULE

BEFORE BEGINNING A DAY'S WORK

AFTER ENDING A DAY'S WORK

EVERY MONTH

EVERY THREE MONTHS

EVERY SIX MONTHS

STORAGE CONDITIONS

TERMINATING THE USE OF MACHINE

OIL RECOMMENDATION FOR MAINTENANCE

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. The recommended schedule includes three periods, 1.Daily maintenance. 2.Monthly maintenance. 3. Six months maintenance.

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 month

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

Every three months

Replace the transmission oil after operating for three months (or 600 hours).

Recommended Grease:

- Shell Alvania EP Grease 2
- Mobil Mobilplex 48 (600W Cylinder oil)

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

- Shell Tellus 27
- Mobil DTE OIL light Hydraulic28

STORAGE CONDITIONS

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

- (1) Turn off the power.
- (2) Ambient temperature: 5° C ~ 40° C
- (3) Relative humidity: 30%~95% (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 leak out the oil from machine body. Please storage the oil in safe place with bottom. 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 g | uide | Keep grease covered. Antirust. | Daily | Shell R2 |
| Roller bea | ring | Sweep clean and oil with lubricant. | Daily | SEA #10 |
| Bed roller | / surface | Sweep clean and oil with lubricant. | Daily | SEA #10 |
| Nipples of | bearing | Use grease gun, but not excess. | Monthly | Shell R2 |
| Blade tens | ion device | Use grease gun, but not excess. | Monthly | Shell R2 |
| 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 |
| | Inserts | Oil with lubricant, but not excess. | Daily | |
| | Band wheel | Oil with lubricant, but not excess. | Weekly | C |
| Bearing | Cylinder | Oil with lubricant, but not excess. | 6 Monthly | Shell R2 |
| | 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.

TROUBLESHOOTING

INTRODUCTION
PRECAUTIONS
GENERAL TROUBLES & SOLUTIONS
MINOR TROUBLES & SOLUTIONS
MOTOR TROUBLES & SOLUTIONS
BLADE TROUBLES & SOLUTIONS
SAWING PROBLEMS & SOLUTIONS
RE-ADJUSTING THE ROLLER TABLE

INTRODUCTION

All the machines manufactured by COSEN pass a 72 hours continuously running test before shipping out and COSEN is 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.

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

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

9-1

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 |
|------------------------|---|---|
| | 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.) |
| Motor stalls | 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". |
| | Dull blade | Replace blade. |
| Connect make | Guide rollers not adjusted properly | Refer to Adjustments. |
| Cannot make square cut | 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." |
| | Dull blade | Replace blade |
| Increased cutting time | Insufficient head pressure | Increase head pressure. Refer to Operating Instructions "Adjusting Feed." |
| | Reduce blade speed | Refer to Operating Instructions "Speed Selection." |
| | Motor running in wrong direction | Reverse rotation of motor. (Motor rotation C.C.W. pulley end.) |
| Will not cut | 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 | Overload relay activated | Reset |
| even though blade drive button | Saw blade is not at forward | Press SAW FRAME |
| is pressed. | limit position. | FORWARD button |
| | | |

MOTOR TROUBLES & SOLUTIONS

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



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

| TROUBLE | PROBABLE CAUSE | SUGGESTED REMEDY | |
|------------|---------------------------------------|---|--|
| | Too few teeth per inch | Use finer tooth blade | |
| Teeth | Loading of gullets | Use coarse tooth blade or cutting lubricant. | |
| strippage | Excessive feed | Decrease feed | |
| | Work not secured in vise | Clamp material securely | |
| | Teeth too coarse | Use a finer tooth blade | |
| | Misalignment of guides | Adjust saw guides | |
| | Dry cutting | Use cutting lubricant | |
| Blade | Excessive speed | Lower speed. See Operating Instructions "Speed selection." | |
| breakage | 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 | |
| | Guides out of line | For a straight and true cut, realign guides, check bearings for wear. | |
| Blade line | Excessive pressure | Conservative pressure assures long blade life and clean straight cuts. | |
| Run-out or | Support of blade insufficient | Move saw guides as close to work as possible. | |
| Run-in | Material not properly secured in vise | Clamp material in vise, level and securely. | |
| | Blade tension improper | Loosen or tighten tension on blade. | |
| Blade | Blade not in line with guide bearings | Check bearings for wear and alignment. | |
| twisting | Excessive blade pressure | Decrease pressure and blade tension | |
| | Blade binding in cut | Decrease feed pressure | |
| | Dry cutting | Use lubricant on all materials, except cast iron | |
| Premature | Blade too coarse | Use finer tooth blade | |
| tooth wear | 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 | | | | | | | | |
|--------------|--------------------------|--------------|--------------|--------------|---|-------------------------------------|--|--|--|
| | _ | Failu | re to | cut | | | | | |
| | | ⊢S | hort | life (| of saw blade | | | | |
| | | | | | | | | | |
| | Curved cutting | | | | | | | | |
| | <u> </u> | <u> </u> | <u> </u> | Ų [| Broken blade | | | | |
| ✓ | ✓ | ✓ | ✓ | ✓ | Use of blade with incorrect pitch | Use blade with correct pitch suited | | | |
| | | | | | | to workpiece width | | | |
| ✓ | \checkmark | \checkmark | \checkmark | \checkmark | Failure to break-in saw blade | Perform break-in operation | | | |
| \checkmark | \checkmark | \checkmark | | | Excessive saw blade speed | Reduce speed | | | |
| | | | \checkmark | ✓ | Insufficient saw blade speed | Increase speed | | | |
| ✓ | | ✓ | ✓ | ✓ | Excessive saw head descending speed | Reduce speed | | | |
| ✓ | | \checkmark | ✓ | | 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 | | | |
| √ | | ✓ | | 1 | Broken back-up roller | Replace | | | |
| ✓ | √ | ✓ | √ | √ | Use of non-specified saw blade | Replace | | | |
| ✓ | 1 | ✓ | ✓ | 1 | Fluctuation of line voltage | Stabilize | | | |
| ✓ | · | ✓ | ✓ | , | Adjustable blade guide too far from | Bring blade guide close to | | | |
| • | | • | • | | workpiece | workpiece | | | |
| ✓ | | 1 | 1 | 1 | Loose blade guide | Tighten | | | |
| * | | · | • | 1 | Blue or purple saw chips | Reduce cutting rate | | | |
| 1 | | ./ | | ./ | Accumulation of chips at inserts | Clean | | | |
| * | ./ | • | | • | Reverse positioning of blade on machine | | | | |
| ./ | • | ./ | | | | Re-bundle | | | |
| · | | ∨ | • | √ | Workpieces are not bundled properly | | | | |
| V | | • | | V | Back edge of blade touching wheel | Adjust wheel to obtain clearance | | | |
| 1 | _ | | | | flange | Hen other modeling suited for | | | |
| V | • | √ | | | Workpiece of insufficient diameter | Use other machine, suited for | | | |
| | | | 1 | | | diameter of workpiece Replace | | | |
| | ✓ | ✓ | ✓ | | Saw blade teeth worn | Replace | | | |

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.

PARTS

SPARE PARTS RECOMMENDATIONS

PART LIST

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 asbestos | Duster seal |
| Rubber washer | Oil seal |
| O-ring | Snap ring |
| Drive wheel | Idle wheel |

MACHINE BODY&FRONT VISE ASSEMBLY C-620NC PART-A

C-620NC PART-A

MACHINE BODY & FRONT VISE ASSEMBLY

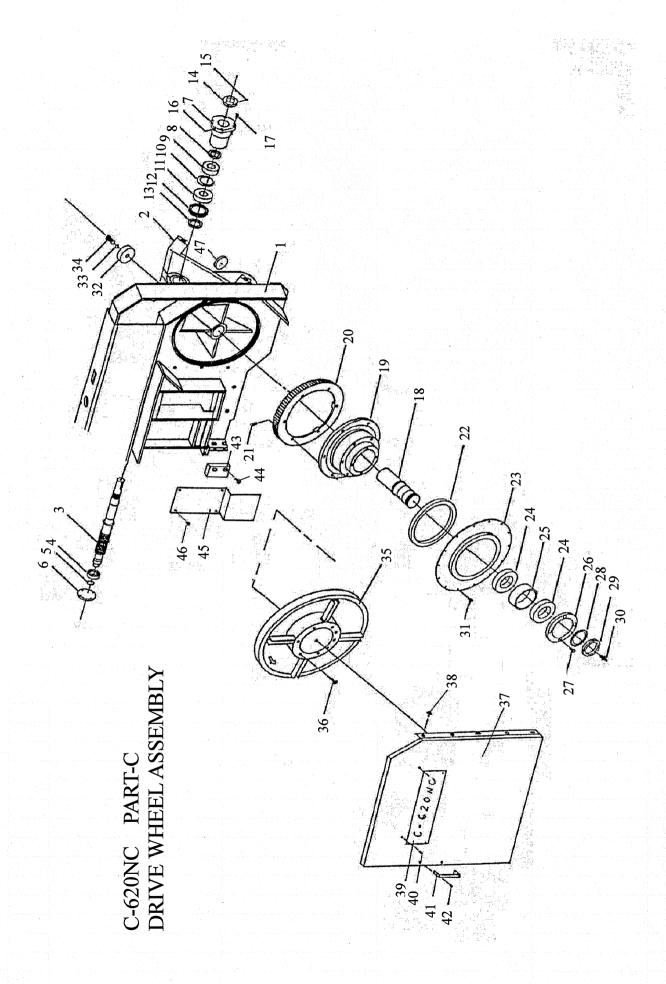
| | T | A FRONT VISE AS | | DADE CREC | Tours : |
|-----|-----------|--------------------------|----------------------|--|---------------|
| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
| 1 | CGK-1001C | base | 底座 | | 1 |
| 2 | CGK-2010 | movable vise | 活動虎鉗 | | 1 |
| 3 | CGK-2009 | fix vise (A) | 固定虎鉗(一) | | 1 |
| 4 | CGK-2008A | fix vise (B) | 固定虎鉗(二) | | 1 |
| 5 | CGK-2011 | vise plate | 虎鉗鋼板 | | 4 |
| 6 | PBA-6-30 | bolt | 內六角螺絲 *** | M6x30L | 48 |
| 7 | CGK-1024 | | 電氣箱固定座 | | 1 |
| 8 | | | | | |
| 9 | AGB-70202 | pin | 銷螺絲 | | 2 |
| 10 | AHB-0202 | pin | 銷螺絲 | | 2 |
| 11 | SGK-1011 | plate | 床面鋼板 | | 2 |
| 12 | PBA-8-25 | bolt | 內六角螺絲 | M8x25L | 22 |
| 13 | PP-43460 | cylinder | 油壓缸 | | 1 |
| 14 | SGK-1015 | cylinder holder | 虎鉗油缸轉座 | the state of the s | 2 |
| 15 | PBA-12-60 | bolt | 內六角螺絲 | M12x60L | 2 |
| -16 | CGK-2222 | hydraulic tank cover | 輔助油箱護蓋 | | 1 |
| 17 | CGK-1023 | adjusting rod with fence | | | 1 |
| 18 | PP-53010 | wing screw | 梅花螺絲 | M8x20L | 1 |
| | M3L-7-20A | bracket | 共用托架 | | 1 |
| 20 | PBA-8-30 | bolt | 內六角螺絲 | M8x30L | 2 |
| 21 | CGK-1016 | left splash shield | 左防濺板 | | 1 |
| | PBA-6-20 | bolt | 內六角螺絲 | M6x20L | 8 |
| 23 | CGK-1010 | water collecting plate | 托架集水板 | | 1 |
| | PHC-5-12 | bolt | 螺絲 | M5x12L | 4 |
| 25 | CGK-1018 | cable duct | 護管接管 | | 1 |
| | PP-57091B | caterpilar | 金屬軟管 | Ⅲ xKR100x1300LxNO.5 | 1 |
| 27 | SGN-1047B | work height selector | 高度設定桿 | marticiouxi300Exito.5 | 1 |
| | SGB-71083 | ruller | 上限高度尺 | | 1 |
| | NDE-1054 | up slide | 上限滑板 | | 1 |
| | PP-53021 | wing screw | 梅花螺絲 | | $\frac{1}{1}$ |
| 31 | CGK-2210A | roller bracket | 滾輪架(強力型) | | 1 |
| | PP-14294 | bearing | 軸承 | 6306VV | 16 |
| 33 | 11-14294 | locaring | 中山/手 | 0300 V V | 10 |
| 34 | CGK-2211 | roller | 济龄(每人) | | 8 |
| 35 | OPR-5011G | left side roller braket | 滚輪(實心) | | |
| | PPA-12 | flat washer | 左側滾輪座 | M12 | 1 |
| | | | 平面華司(公) | | 2 |
| | PLA-12-30 | hexagon head bolt | 外六角螺絲 | M12x30L | 2 |
| 38 | OPR-5012C | guide bar | 側滾輪滑軸 | | 1 |
| 39 | OPR-5012G | right side roller braket | 右側滾輪座 | | 1 |
| 40 | OPR-5014G | side roller | 側滾輪 | | 2 |
| 41 | OPR-5014G | shaft | 側滾輪軸及把手 | 1/4170 0707 | 2 |
| | PP-32143 | coolant pump | 浸水泵浦 | 1/4HP x 270L | 1 |
| 43 | AGB-70132 | filter | 浸水泵浦濾網 | | 1 |
| 44 | CGK-1015 | pump cover | 水幫護蓋 | | 1 |
| 45 | PP-21030 | gauge | 油面計(內含水面計) | | 2 |
| 46 | AHC-0153 | leveling bolt | 底座調整螺桿 | | 8 |
| 47 | CGK-1013 | splash shield | 防濺板 | | 1 |

C-620NC PART-B
BACK VISE AND FEEDING CYLINDER ASSEMBLY 19 20

C-620NC PART-B

BACK VISE AND FEEDING CYLINDER ASSEMBLY

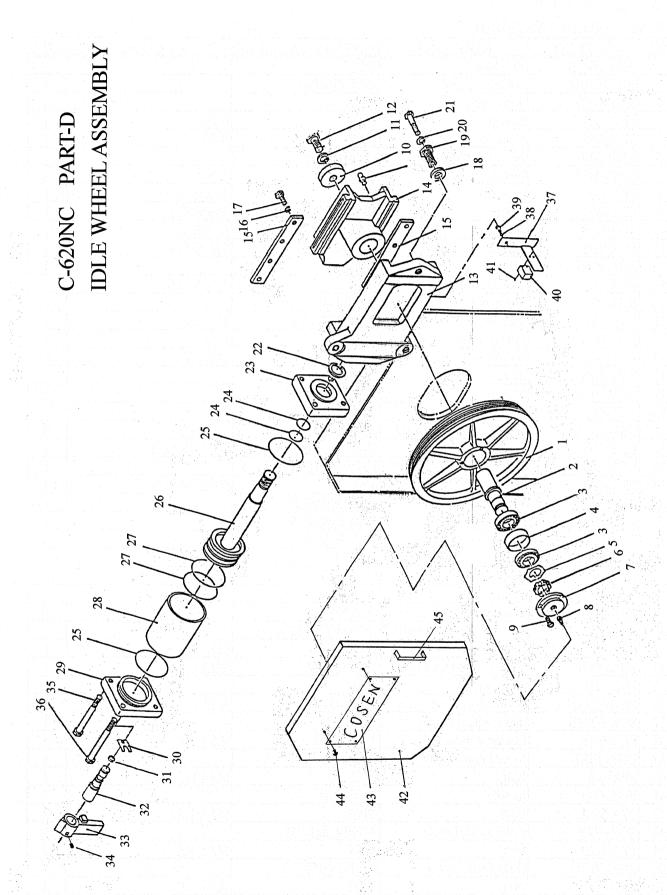
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| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
| 1 | CGK-2201A | feed vise bed | 送料座 | | 1 |
| 2 | CGK-2206 | vise plate | 送料虎鉗(鋼板) 鋼板製 | | 2 |
| 3 | PP-13260 | du bushing | 乾式軸承 | | 4 |
| 4 | CGK-2207 | feed vise slide rod | 送料虎鉗滑軸 | | 2 |
| 5 | PP-43421E | cylinder | 油壓缸 | FA-φ80 x 780L | 1 |
| 6 | CGK-2221 | movable vise cylinder cover | 送料活動油缸護蓋 | | 1 |
| 7 | PBA-12-40 | hexagon socket head bolt | 內六角螺絲 | M12 x 40L | 4 |
| 8 | PBA-6-15 | hexagon socket head bolt | 內六角螺絲 | M6 x 15L | 4 |
| 9 | PP-91313 | countersunk bolt | 等高螺絲 | MSB16- 40 | 4 |
| 10 | PBA-14-40 | hexagon socket head bolt | 內六角螺絲 | M14 x 40L | 2 |
| 11 | PP-43472 | cylinder | 油壓缸 | HJ-φ80b x 10L | 2 |
| 12 | PP-13261 | du bushing | 乾式軸承 | 7030 | 2 |
| $\frac{12}{13}$ | CGK-2203 | feed fix vise slide rod | 送料固定虎鉗導桿 | 1030 and 103 | $\frac{2}{1}$ |
| 14 | PBA-14-85 | hexagon socket head bolt | | M14 x 85L | 8 |
| 15 | | | 內六角螺絲 ※W图字:地紅蓋 | W114 X 63L | |
| | CGK-2220 | fix vise cylinder cover | 送料固定油缸護蓋 | M5 10T | 1 |
| 16 | PLA-5-12 | hexagon head bolt | 外六角螺絲 | M5 x 12L | 4 |
| 17 | PP-51196 | dust seal | 防塵套 | 80 x 94 x 6/8 | 4 |
| 18 | PP-13281 | du bushing | 乾式軸承 | 8050 | 4 |
| 19 | CGK-2202 | feed shaft | 送料軸 | | 2 |
| 20 | PBA-16-50 | hexagon socket head bolt | 內六角螺絲 | M16 x 50L | 4 |
| 21 | PP-43469 | feed cylinder | 送料油缸 | | 1 |
| 22 | SGK-1015 | cylinder holder | 虎鉗油缸轉座 | | 2 |
| 23 | PBA-12-55 | hexagon socket head bolt | 內六角螺絲 | M12 x 55L | 4 |
| 24 | AHA-1605 | bush bolt | 襯套螺帽 | | 1 |
| 25 | PBA-18-55 | hexagon socket head bolt | 內六角螺絲 | M18 x 55L | 1 |
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C-620NC PART-C

DRIVE WHEEL ASSEMBLY

| NO. | PART NO. | PART NAME | PART NAME IN CHINE | SE PART SPEC. | Q'TY |
|-----|-----------|----------------------------------|--------------------|--|------|
| 1. | SGK-3001B | saw bow | 鋸弓 | | 1 |
| 2 | AHG-0401A | reducer frame | 減速機本體 | | 1 |
| 3 | AHB-0422 | worm shaft | 蝸桿 | | 1 |
| 4 | PP-14131 | bearing | 軸承 | 6206Z | 1 |
| 5 | PP-52095 | snap ring | 扣環 | S-30 | 1 |
| .6 | AHB-0437 | bearing holder cover | 蝸桿軸承蓋 | | 1 |
| 7 | AHB-0432 | bearing holder | 軸承座 | | 1 |
| 8 | PP-51101 | oil seal | 油封 | 48 x 65 x 9 | 1 |
| 9 | PP-14654 | bearing | 軸承 | 30308 SKF | 1 |
| 10 | PP-58116 | snap ring | 扣環 | R- 80 | 1 |
| 11 | PP-14693 | taper roller bearing | 滾錐軸承 | 32208 SKF | 1 |
| 12 | SGA-2060 | oil seal holder | 油封座 | t | 1 |
| 13 | PP-51105 | oil seal | 油封 | 50 x 67 x 9 | 1 |
| 14 | SGA-2061 | brush pulley | 鋼刷普利 | | 1 |
| 15 | PAA-5-6 | set screw | 止付螺絲(公) | M5 x 6L | 1 |
| 16 | PUC-005 | grease nipple | 油嘴 | 1/16 | 1 |
| 17 | PBA-8-30 | hexagon socket head screw | 內六角螺絲 | M8 x 30L | 4 |
| 18 | AHB-0408 | drive wheel shaft | 下輪軸 | | . 1 |
| 19 | AHB-0405 | housing | 蝸輪固定座 | | 1 |
| 20 | AHB-0406 | worm wheel | 蝸輪 | | 1 |
| 21 | PBA-12-40 | hexagon socket head screw | 內六角螺絲 | M12x40L | 6 |
| 22 | PP-51135 | oil seal | 油封 | 240 x 280 x 20 | 1 |
| 23 | AHB-0418 | holder for output shaft oil seal | 油封固定盤 | | . 1 |
| 24 | PP-14625 | bearing | 軸承 | 30215 SKF | 2 |
| 25 | AHB-0410 | bearing collar | 下輪軸承墊圈 | | 1 |
| 26 | AHB-0413 | pressing ring | 下輪軸鎖固定圈 | | 1 |
| 27 | PBA-12-30 | hexagon socket head screw | 內六角螺絲 | M12 x 30L | 4 |
| 28 | PP-14965 | toothed washer | 止動環 | AW15 | 1 |
| 29 | PP-14915 | toothed nut | 固定螺母 | AN15 | 1 |
| 30 | PUC-020 | grease nipple | 油嘴 | 1/4 | 1 |
| 31 | PBA-6-25 | hexagon socket head screw | 內六角螺絲 | M6 x 25L | 14 |
| 32 | AHB-0416 | lock washer for drive wheel shaf | 下輪軸鎖緊墊圈 | | 1 |
| 33 | PPA-20 | flat washer | 平面華司 | M20 | 1 |
| 34 | PBA-20-50 | hexagon socket head screw | 內六角螺絲 | M20 x 50L | 1 |
| 35 | SGK-3026 | drive wheel | 下輪 | | 1 |
| 36 | PBA-12-90 | hexagon socket head screw | 內六角螺絲 | M12 x 90L | 6 |
| | SGK-3003B | drive wheel cover | 下輪箱蓋 | | 1 |
| | PLA-6-16 | hexagon head bolt | 外六角螺絲 | M6 x 16L | 5 |
| 39 | CGK-1050 | model name plate | 機型銘牌 | | 1 |
| 40 | PFA-4-8 | bolt | 螺絲 | M4 x 8L | 4 |
| 41 | PP-52080 | handle | 輪箱把手 | | 1 |
| 42 | PFA-5-12 | bolt | 螺絲 | M5 x 12L | 2 |
| 43 | SGK-3005 | right guide bracket | 右鋸臂 鐵板製 | A STATE OF THE STA | 1 |
| 44 | PFA-8-20 | bolt | 螺絲 | M8 x 20L | 2 |
| | SGK-3018 | right blade cover | 右鋸片護蓋 | | 1 |
| | PFA-5-12 | bolt | 螺絲 | M5 x 12L | 4 |
| 47 | CGK-3013 | plug | 關節軸孔塞 | | 2 |

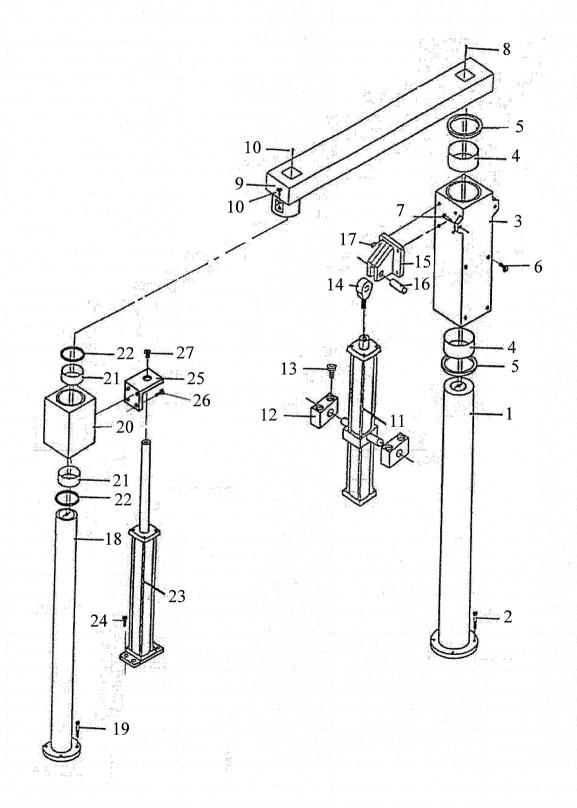


C-620NC PART-D

IDLE WHEEL ASSEMBLY

| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|-----|------------|--------------------------|----------------------|-------------|------|
| 1 | AGI-3121C | idle wheel | 上輪 | | 1 |
| 2 | CGK-3002 | idle wheel shaft | 上輪軸 | | 1 |
| 3 | PP-14705 | bearing | 軸承 | | 2 |
| 4 | SDM-1019 | bearing collar | 上輪軸承墊圈 | | 1 |
| 5 | PP-14963 | toothed washer | 止動環 | AW13 | 1 |
| 6 | PP-14913 | toothed nut | 有槽螺母 | AN13 | 1 |
| 7 | SDM-1037B | bearing cap | 上輪軸承蓋 | ·. | 1 |
| 8 | PUC-020 | grease nipple | 油嘴 | 1/4 | 1 |
| 9 | PFA-8-35 | bolt | 螺絲 | M8x35L | 3 |
| 10 | AHB-0613 | lock washer | 上輪鎖緊墊圈 | | 1 |
| 11 | PQA-16 | spring washer | 彈簧華司 | M16 | 1 |
| 12 | PBA-16-50 | hexagon socket head bolt | 內六角螺絲 | M16x50L | 1 |
| 13 | AGB-70358A | tension body | 張力滑座(油壓) | | 1 |
| 14 | AGB-70359A | slide piece | 張力滑板(油壓) | | 1 |
| 15 | AGB-70360 | guide plate | 壓板 | | 2 |
| 16 | PQA-10 | spring washer | 彈簧華可 | M10 | 6 |
| 17 | PLA-10-30 | hexagon head bolt | 外六角螺絲 | M10x30L | 6 |
| 18 | AHA-0611 | adjusting nut | 調整螺母 | | 3 |
| 19 | AHA-0610 | adjusting bolt | 調整螺絲 | | 3 |
| 20 | PQA-12 | spring washer | 彈簧華司 | M12 | 3 |
| 21 | PBA-12-75 | hexagon socket head bolt | 內六角螺絲 | M12 x 75L | 3 |
| 22 | PP-51104 | oil seal | 油封 | 45 x 60 x 7 | 1 |
| 23 | AGB-70720A | cylinder cap (front) | 張力油缸前蓋 | | 1 |
| 24 | PP-59135 | o-ring | O形環 | P- 42 | 2 |
| 25 | PP-59636 | o-ring | O形環 | G- 125 | 2 |
| 26 | AGB-70723A | piston | 活塞及桿(張力油缸) | | 1 |
| 27 | PP-59186 | o-ring | O形環 | P-120 | 2 |
| 28 | AGB-70722A | cylinder | 張力油壓缸管 | | 1 |
| 29 | AGB-70721A | cylinder cap (rear) | 張力油缸後蓋 | | 1 |
| 30 | AHB-0655 | plate | 閥針定位板 | | 1 |
| 31 | PP-59050 | o-ring | O形環 | P-11 | 1 |
| 32 | AHB-0651 | needle rod | 切換閥針 | | 1 |
| 33 | AHB-0653 | valve lever | 切換把手 | | 1 |
| 34 | PAA-6-8 | set screw | 止付螺絲 | M6 x 8L | 2 |
| 35 | PP-90859 | hexagon head bolt | 外六角螺栓 | M12 x 165L | 2 |
| | PP-90860 | hexagon head bolt | 外六角螺栓 | M12 x 190L | 2 |
| 37 | CGK-3009 | sensor sole plate | 感應器底板座 | | 1 |
| | PQA-6 | spring washer | 彈簧華司 | M6 | 1 |
| | PBA-6-20 | hexagon socket head bolt | 內六角螺絲 | M6 x 20L | 1 |
| | PP-90594 | approaching switch | 近接開關 NBN5-F7-E0 | | 1 |
| | PBA-3-20 | hexagon socket head bolt | 內六角螺絲 | M3 x 20L | 4 |
| | SGK-3002B | idle wheel cover | 上輪箱蓋 | | 1 |
| | AGE-2063 | company name plate | 公司銘板 CS-258 | | 1 |
| | PBA-4-8 | hexagon socket head bolt | 內六角螺絲 | M4 x 8L | 4 |
| | PP-52080 | handle | 輪箱把手 | | 1 |
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C-620NC PART-E
MAIN SHAFT AND SUB SHAFT ASSEMBLY



C-620NC PART-E

MAIN SHAFT AND SUB SHAFT ASSEMBLY

| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|-----|-------------|--------------------------|--|--|--|
| , 1 | SGK-1010 | main shaft | 大主軸 | | 1 |
| 2 | PBA-16-50 | hexagon socket head bolt | 內六角螺絲 | M16x50L | 4 |
| 3 | SGK-3010 | main shaft sleeve | 大軸套 | | 1 |
| 4 | PP-13360 | du bushing | 乾式軸承 | 160 x 80 | 2 |
| 5 | PP-51130 | oil seal | 油封 | 160 x 190 x 15 | 2 |
| 6 | PBA-16-45 | hexagon socket head bolt | 內六角螺絲 | M16 x 45L | 5 |
| 7 | PBA-16-55 | hexagon socket head bolt | 內六角螺絲 | M16 x 55L | 1 |
| 8 | PBA-16-40 | hexagon socket head bolt | 內六角螺絲 | M16 x 40L | 1 |
| 9 | SGK-3006B | cross link | 主軸樑 | | 1 |
| 10 | PBA-10-35 | hexagon socket head bolt | 內六角螺絲 | M10 x 35L | 2 |
| 11 | PP-43459 | cylinder | 油壓缸 | | 1 |
| 12 | SGK-1014 | cylinder holder | 大油缸轉座 | | 2 |
| 13 | PBA-14-60 | hexagon socket head bolt | 內六角螺絲 | M14 x 60L | 4 |
| 14 | PP-14480 | link bearing | 連桿軸承 | POS18 | 1 |
| 15 | AGB-70303B | cylinder upper ear | 鋸弓油缸上耳 | | 1 |
| 16 | AGB-70304A | pin | 上鋸弓油缸插梢 | | 1 |
| 17 | PBA-12-45 | hexagon socket head bolt | 內六角螺絲 | M12 x 45L | 4 |
| 18 | SGK-1009 | sub. shaft | 小主軸 | | 1 |
| 19 | PBA-12-60 | hexagon socket head bolt | 內六角螺絲 | M12 x 60L | 4 |
| 20 | AHP-1801A | main shaft sleeve | 大軸套 (三合一) | | 1 |
| 21 | PP-13310 | du bushing | 乾式軸承 | 110 x 50 | 2 |
| 22 | PP-51140 | dust seal | 防塵套 | 110 x 126 x 9/12 | 2 |
| 23 | PP-43444E | cylinder | | FB ∮ 63X650L | 1 |
| 24 | PBA-10-40 | hexagon socket head bolt | 內六角螺絲 | M10 x 40L | 4 |
| 25 | SGK-3003 | drive wheel cover | 下輪箱蓋 | | 1 |
| 26 | PBA-12-30 | hexagon socket head bolt | 內六角螺絲 | M12 x 30L | 4 |
| 27 | PBA-12-50 | hexagon socket head bolt | 內六角螺絲 | M12 x 50L | 1 |
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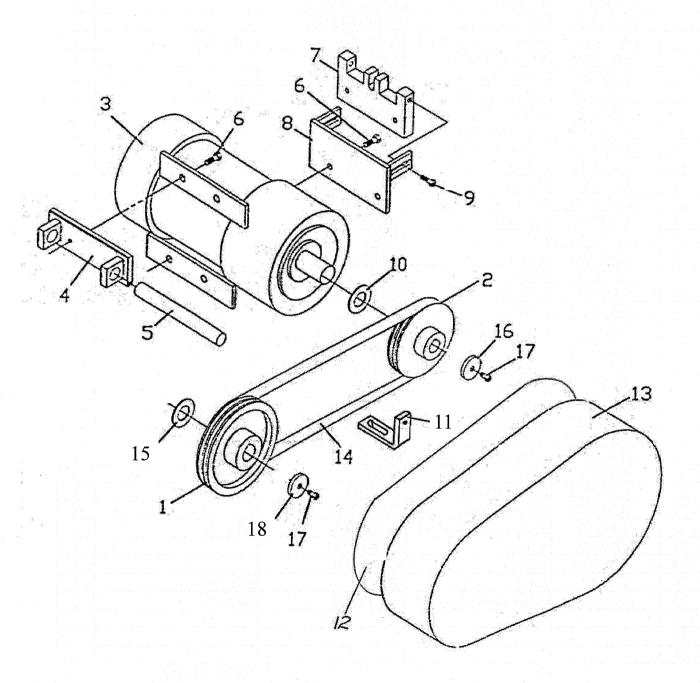
C-620NC PART-F GUIDE BRACKET ASSEMBLY

C-620NC PART-F GUIDE BRACKET ASSEMBLY

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|-----|------------|--------------------------|----------------------|------------|------|
| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
| 1 | SGB-71093 | guide bar | 鋸臂滑板 | | 1 |
| 2 | NDE-3007 | slide tip | 鋸臂固定塊 | | 1 |
| 3 | SDM-10230 | cylinder | 鋸臂油壓缸組 | | 1 |
| | *SDM-1023 | cylinder cap (front) | 油缸前蓋(鋸臂) | | 1 |
| | *SDM-1024 | cylinder cap (rear) | 油缸後蓋(鋸臂) | | 1 |
| | *AGE-2015 | piston stem | 鋸臂固定油缸活塞桿 | | 1 |
| | *AGE-2016 | piston | 鋸臂固定油缸活塞 | | 1 |
| | *AGE-2017 | cylinder | 鋸臂固定油缸管 | | 1 |
| | *AGE-2019 | pressure spring | 壓縮彈簧(鋸臂) | | 1 |
| 4 | PBA-16-155 | hexagon socket head bolt | 內六角螺栓 | M16 x 155L | 1 |
| 5 | SGK-3004B | left guide bracket | 左鋸臂 | | 1 |
| 6 | AGB-70407 | plain washer | 導輪座鎖緊墊板 | | 2 |
| 7 | PBA-12-60 | hexagon socket head bolt | 內六角螺絲 | M12 x 60L | 4 |
| 8 | SDM-1029 | left insert holder | 左導輪座 | | 1 |
| 9 | SDM-1032 | right fixed insert | 右固定鎢鋼片 | | 1 |
| 10 | SDM-1033 | right movable insert | 右活動鎢鋼片 | | 1 |
| 11 | AGB-70415 | conduit | 鎢鋼片冷卻導管 | | 1 |
| 12 | SDM-1031A | left fixed insert | 左固定鎢鋼片 | | 1 |
| 13 | SDM-1030A | left movable insert | 左活動鎢鋼片 | | 1 |
| 14 | AHA-0704A | top insert | 下壓座(EU79用) | | 2 |
| 15 | AGB-70410A | pin | 下壓軸承座銷 | | 2 |
| 16 | SDM-1035 | washer | 導輪墊圈 | | 2 |
| 17 | PP-14270 | bearing | 軸承 | 6200VV | 8 |
| 18 | SDM-1034 | roller pin | 導輪軸(長) | | 2 |
| 19 | AHA-0707C | roller pin | 導輪軸(三) | | 2 |
| 20 | PBA-6-35 | hexagon socket head bolt | 內六角螺絲 | M6 x 35L | 2 |
| 21 | AGB-70416 | spring | 鎢鋼片(回程)彈簧 | | 2 |
| 22 | AGB-70716 | piston | 鎢鋼片鎖緊活塞 | | 2 |
| 23 | PP-59070 | o-ring | | P-14 | 2 |
| 24 | AGB-70715 | cylinder | 鵭鋼片油缸 | | 2 |
| 25 | PBA-5-45 | hexagon socket head bolt | 內六角螺絲 | M5 x 45L | 4 |
| 26 | AGB-70425B | coolant nozzle | 冷卻水噴嘴(有牙) | | 1 |
| 27 | PBA-5-12 | hexagon socket head bolt | 內六角螺絲 | M5 x 12L | 1 |
| 28 | POA-10 | nut | 螺母 | M10 | 4 |
| 29 | SDM-1028 | right insert holder | 右導輪座 | | 1 |
| 30 | AGB-70772 | left blade cover | 左鋸片護蓋 | | 1 |
| 31 | PBA-6-12] | hexagon socket head bolt | 內六角螺絲 | M6 x 12L | 2 |
| 32 | PP-43471 | cylinder | 油壓缸(鋸臂) | | 1 |
| 33 | CGK-3005 | bracket | 鋸臂活動耳 | | 1 |
| 34 | POA-18 | nut | 螺母 | M18 x 1.5 | 1 |
| 35 | PBA-8-30 | hexagon socket head bolt | 內六角螺絲 | M8 x 30L | 2 |
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*表示內部零件 *Means inner Sections C-620NC

C-620NC PART-G DRIVE MOTOR ASSEMBLY



C-620NC PART-G

DRIVE MOTOR ASSEMBLY

| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|---------------|-----------|--------------------------|----------------------|--------------------|---------------|
| 1 | AHB-0310B | reducer pulley | 減速機普利 | | 1 |
| 2 | AHB-0309B | motor pulley | 馬達普利 | | 1 |
| 3 | PP-31164 | motor pulley | 馬達 | 10HP | 1 |
| 4 | AHB-0303 | motor base | 馬達活動板\$ | | $\frac{1}{1}$ |
| 5 | AHB-0304 | hinge shaft | 馬達活動軸 | | 1 |
| 6 | PLA-10-30 | hexagon head bolt | 外六角螺絲 | M10 x 30L | 6 |
| $\frac{0}{7}$ | AHB-0305 | motor base | 馬達定位板 | 2.210 N 30D | 1 |
| 8 | AHB-0306 | adjusting plate | 馬達調整板 | | 1 |
| 9 | PLA-10-25 | hexagon head bolt | | M10 x 25L | 2 |
| 10 | AHB-0435 | back-up plate | 墊片 | ALLO IL HOLI | 1 |
| 11 | SJM-4032 | dead plate | 普利護蓋固定板 | | 1 |
| 12 | SGK-3014 | pulley cover | 普利護蓋二件合一 | | 1 |
| 13 | SGK-30142 | pulley cover | 普利護蓋二件合一 | | 1 |
| 14 | PP-56293 | belt | | B- 47 | 1 |
| 15 | CGK-3017 | lock washer | 普利鎖墊圈(二) | ∠ ,∓1 | 1 |
| 16 | AHA-0525 | packing ring | 墊圈 | | 1 |
| | PBA-10-45 | hexagon socket head bolt | | M10 x 45L | 2 |
| 18 | CGK-3016 | lock washer | 普利鎖緊墊圈(一) | TATTA V A'T' | 1 |
| 19 | COIX-3010 | lock washer | 日刊與系至個() | | 1 |
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C-620NC PART-H

WIRE BRUSH ASSEMBLY

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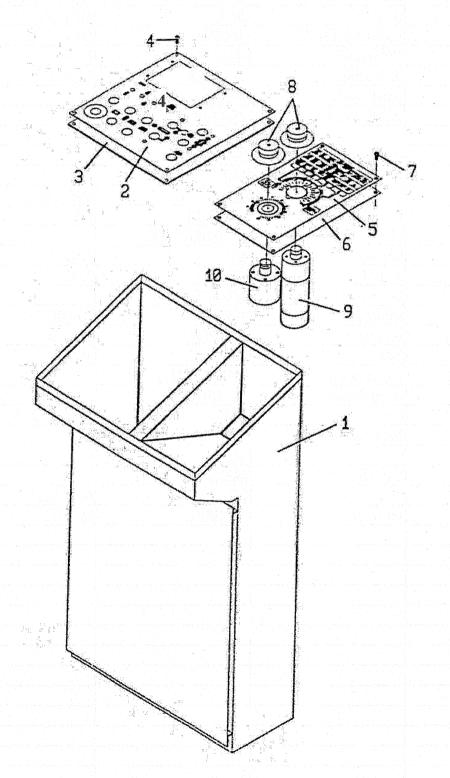
C-620NC PART-H

WIRE BRUSH ASSEMBLY

| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|-----|-----------|--------------------------|--|---------------------|---------------|
| 1 | AGB-70763 | brush cover | 鋼刷護蓋(2") | | 1 |
| 2 | CGK-3008 | brush cover fix plate | 鋼刷護蓋固定板 | | 1 |
| 3 | PFA-8-20 | bolt | 螺絲 | M8 x 20L | 1 |
| 4 | PQA-8 | spring washer | 彈簧華司 | M8 | 1 |
| 5 | POA-8 | nut | 螺母 | M8 | 1 |
| 6 | PFA-8-16 | bolt | 螺絲 | M8 x 16L | 2 |
| 7 | PQA-8 | spring washer | 彈簧華司 | M8 | 2 |
| 8 | PPA-8 | flat washer | 平面華司 | M8 | 2 |
| 9 | PP-13025 | du bushing | 乾式軸承 | 1215 | 2 |
| 10 | AHB-0519 | brush shaft | 鋼刷軸 | | 1 |
| 11 | PP-15010 | universal joint | 萬向接頭 | | 2 |
| 12 | | | 1.31.33 | | |
| 13 | AHG-0516A | shaft | 鋼刷連桿 | | 1 |
| 14 | AHA-1211 | bearing bracket | 軸承座 | | 1 |
| 15 | PFA-8-20 | bolt | 螺絲 | M8 x 20L | 2 |
| | PPA-8 | flat washer | 平面華司 | M8 | 2 |
| 17 | AHA-1207 | pulley shaft | 皮帶輪軸(鋼刷) | | 1 |
| | PP-14272 | bearing | 軸承 | 6201V | 2 |
| | PP-58109 | snap ring | 扣環 | R-32 | $\frac{1}{1}$ |
| 20 | AHA-1202 | brush pulley | 鋼刷皮帶輪(二) | | 1 |
| | PRA-3-20 | spring pin | 彈簧銷 | 3 x 20L | 1 |
| | PAA-6-8 | set screw | 止付螺絲 | M6 x 8L | 1 |
| | PP-56523 | belt | 皮帶 | M-52 | 1 |
| 24 | CGK-3007 | pulley cover | 鋼刷普利護蓋 | | 1 |
| | PBA-6-30 | hexagon socket head bolt | | M6 x 30L | 2 |
| | PP-58002 | wire brush | 鋼刷 | 90m/m x 8m/m x #0.3 | 1 |
| 27 | PPA-8 | flat washer | | M8 | 2 |
| 28 | POA-8 | nut | | M8 | 1 |
| | AHA-1217 | lock lever | 鋼刷調整桿 | | 1 |
| | PFA-8-30 | bolt | 螺絲 | M8 x 30L | 1 |
| 31 | PAA-5-8 | set screw | 止付螺絲 | M5 x 8L | 2 |
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C-620NC PART-I

ELECTRICAL ASSEMBLY



C-620NC PART-I

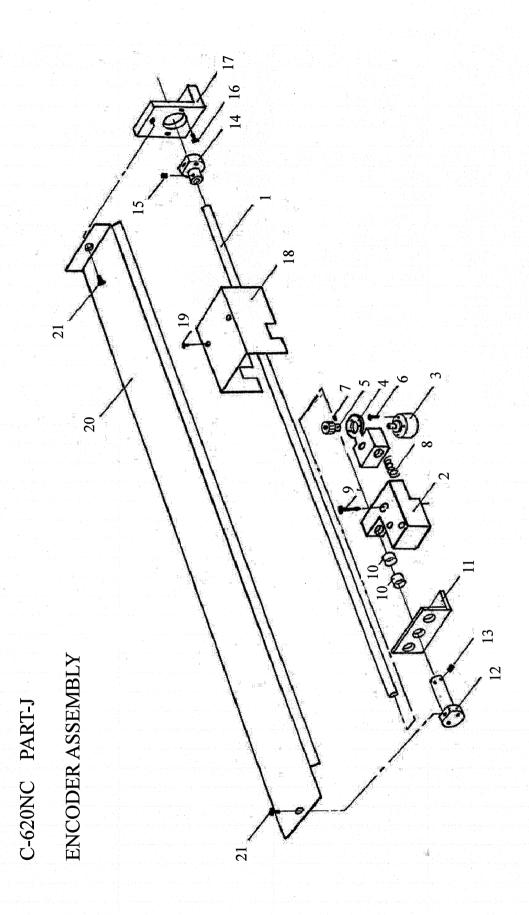
ELECTRICAL ASSEMBLY

| 1 AHC-0131-CE control box | NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|--|-----|-------------|---------------------------------------|----------------------|-------------|--------------|
| AGC-1041A Control panel 控制的版全行程用 | | | | | | 1 |
| AGC-1041A Control plate 控制底板 全行程用 1 | | | | | | |
| 4 PFA-5-12 bolt 螺絲 M5 x 12 4 5 AHC-0134-CE control panel (flow valve) 流量関控側面板 1 6 AHC-0135-CE control panel (flow valve) 流量関控側面板 1 7 PFA-5-12 bolt 螺絲 M5 x 12 4 8 AHA-1806 vernier dial 流量関旋針 2 9 AHA-10289 regulator set 温壓関整组 1 0 AHA-6100 flow control valve set 温壓関整组 1 1 AHA-1039 flow control valve set 温壓関 1 *AHA-1041 spring washer 弹簧 | | | | | | |
| S | | | | | M5 x 12 | |
| 6 AHC-013S-CE control plate (二) 面板底板(二) | | | | | 1110 A 12 | |
| PFA-5-12 bolt 螺絲 M5 x 12 4 | | | | | | |
| 8 AHA-1806 vernier dial 流量関旋鈕 1 9 AHA-10289 regulator set 調壓関整組 1 10 AHA-6100 flow control valve set 满量短額 | | | · · · · · · · · · · · · · · · · · · · | | M5 x 12 | |
| 9 AHA-10289 regulator set 調壓閥整組 1 10 AHA-6100 flow control valve set * 清量閱組 1 *AHA-1039 flow control valve seat * 清量閱組 1 *AHA-1040 | | | | | 1120 12 120 | |
| The first content of the control valve set | | | | | | |
| *AHA-1039 flow control valve seat 関座(流量関) 1 *AHA-1040 針閥(流量関) 1 *AHA-1041 spring washer 事養墊圈 1 *AHA-1042 spring 彈簧 1 *AHA-1043 needle valve 針閱套筒 1 *PP-59071 o-ring O形環 P-15 1 *PP-59075 o-ring O型環 P-19 1 11 | | | | | | |
| *AHA-1040 | 10 | | | | | |
| *AHA-1041 spring washer 野簧整圈 1 *AHA-1042 spring 彈簧 1 *AHA-1043 needle valve 針閱套筒 1 *PP-59071 o-ring O形環 P-15 1 *PP-59075 o-ring O型環 P-19 1 **II | | | 23 TO COMMON TORY O SOUL | | | |
| *AHA-1042 spring 彈簧 1 *AHA-1043 needle valve 針閱套筒 1 *PP-59071 o-ring O形環 P-15 1 1*PP-59075 o-ring O型環 P-19 1 11 12 13 14 15 16 17 18 19 20 21 21 22 23 3 | | | spring washer | | | |
| *AHA-1043 needle valve 針陽套筒 1 *PP-59071 o-ring O形環 P-15 1 *PP-59075 o-ring O型環 P-19 1 11 | | | | | | |
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^{*}表示內部零件

C-620NC

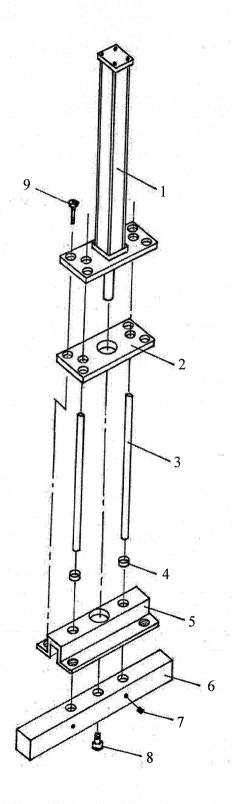
^{*}Means inner Sections



C-620NC PART-J ENCODER ASSEMBLY

| NO. | ODER ASSEM PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|---------------|---------------------|--------------------------|----------------------|------------------|---------------|
| 1 | AHA-1561-3 | stop rack | 定寸齒條 | I AKI SI EC. | 1 |
| 2 | AGB-70535 | encoder bracket | 譯碼器固定座(一) | | 1 |
| $\frac{2}{3}$ | PP-90492 | encoder | 譯碼器(附聯軸器) | LBT - 002 - 2000 | 1 |
| 4 | AGB-70536 | encoder bracket | 譯碼器固定座(二) | ED1 - 002 - 2000 | $\frac{1}{1}$ |
| 5 | AHA-1560 | stop gear | 定寸齒輪 | | 1 |
| 6 | PBA-3-6 | hexagon socket head bolt | 內六角螺絲 | M3 x 6L | 3 |
| 7 | PAA-4-6 | set screw | 止付螺絲 | M4 x 6L | 1 |
| 8 | AHA-1565 | compression spring | 壓縮彈簧 | | 1 |
| 9 | PBA-8-55 | hexagon socket head bolt | 內六角螺絲 | M8 x 55L | 1 |
| 10 | PP-13020 | du bushing | 乾式軸承 | 1012 | 2 |
| 11 | AGB-70539 | encoder sole plate | 譯碼器底板 | | 1 |
| 12 | CGK-1029 | rack holder | 齒排定位座(一) | | 1 |
| 13 | PAA-5-10 | set screw | 止付螺絲 | M5 x 10L | 2 |
| 14 | CGK-1030 | rack holder | 齒排定位座(二) | | 1 |
| 15 | PAA-5-10 | set screw | 止付螺絲 | M5 x 10L | 1 |
| 16 | PBA-6-20 | hexagon socket head bolt | 內六角螺絲 | M6 x 20L | 2 |
| 17 | CGK-1013 | splash shield | 防濺板 | | 1 |
| 18 | AGB-70538 | encoder cover | 譯碼器護蓋 | | 1 |
| 19 | PFA-4-8 | crosshead bolt | 十字螺絲 | M4 x 8L | 2 |
| 20 | CGK-1006 | encoder cover | 譯碼器護蓋 | | 1 |
| 21 | PBA-6-16 | hexagon socket head bolt | 內六角螺絲 | M6 x 16L | 2 |
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C-620NC PART-L
MULTI-VISE (OPTIONAL)



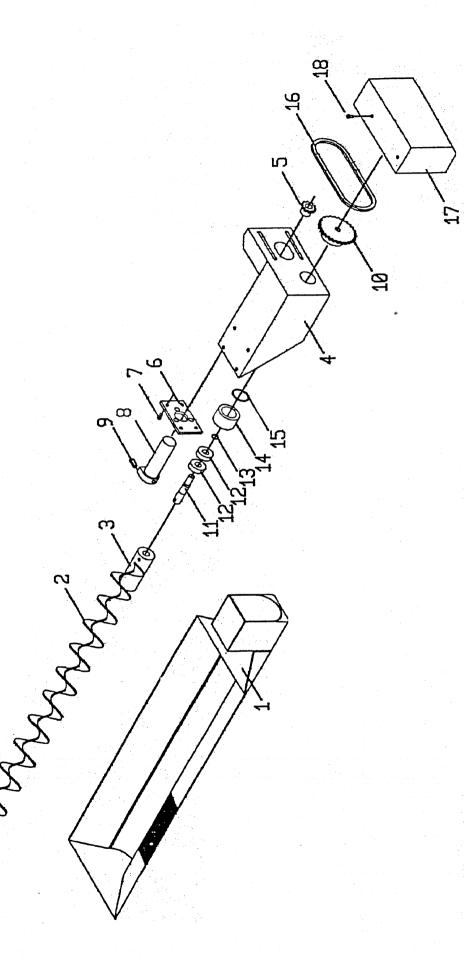
C-620NC PART-L

MULTI-VISE (OPTIONAL)

| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|-----|-----------|--------------------------|---------------------------------------|---------------------------------------|----------|
| 1 | PP-43473 | cylinder | 油壓缸 (CGK後下壓用) | FAφ50 x 620L | 1 |
| 2 | CGK-2233 | fixed plate | 下壓油缸固定板 | · · · · · · · · · · · · · · · · · · · | 1 |
| 3 | CGK-2234 | sliding rod | 導桿 鍍鉻棒 | φ16 x 750L | 2 |
| 4 | PP-13061 | du bushing | 乾式軸承 | 1610 | 2 |
| 5 | CGK-2231 | cylinder holder | 油缸滑動固定座 | | 1 |
| 6 | CGK-2232 | nesting plate | 下壓塊 | | 1 |
| 7 | PAA-6-8 | set screw | 止付螺絲 | M6 x 8L | 2 |
| 8 | PBA-12-50 | hexagon socket head bolt | 內六角螺絲 | M12 x 50L | 1 |
| 9 | PBA-10-75 | hexagon socket head bolt | 內六角螺絲 | M10 x 75L | 4 |
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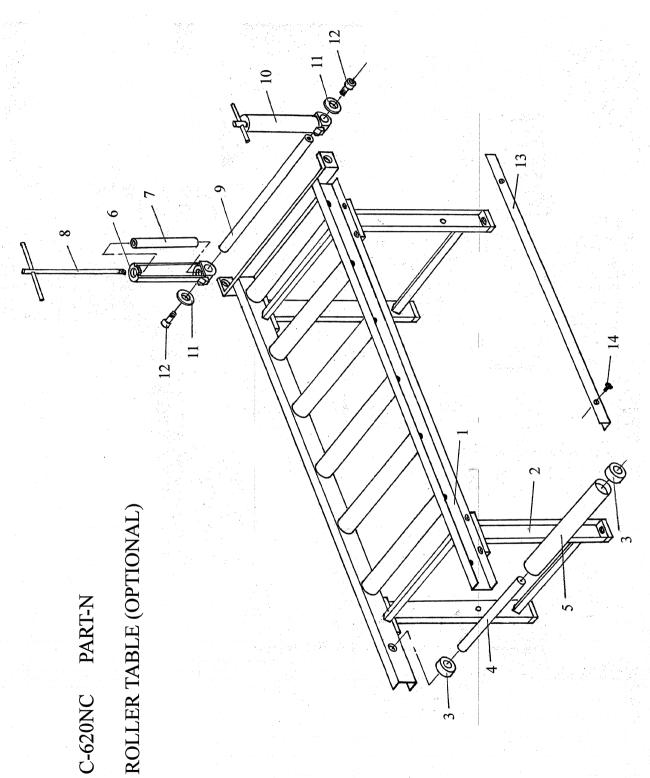
CHIP CONVEYOR ASSEMBLY (OPTIONAL)



C-620NC PART-M

CHIP CONVEYOR ASSEMBLY (OPTIONAL)

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|-----|-------------|--------------------------|----------------------|------------|---------------|
| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
| 1 | SGK-1045 | chip conveyor frame | 除屑機本體 | | 1 |
| 2 | NDE-1046 | leader screw | 除屑螺旋 | | 1 |
| 3 | AHA-2022B | rod | 除屑螺旋軸 | | 1 |
| .4 | AGC-1060 | motor seat | 除屑馬達座 | | 1 |
| 5 | AHB-2019B | chain wheel | 傳動鍊輪(小) | | 1 |
| 6 | AHB-2026 | connecting plate | 泵連接板 | | 1 |
| 7 | PBA-6-20 | hexagon socket head bolt | 內六角螺絲 | M6 x 20L | 4 |
| 8 | PP-31640-1 | hydraulic motor | 油壓馬達(除屑機) | | 1 |
| 9 | PP-43117 | flow control valve | 流量閥 1/4 六角簡易型 | | 1 |
| 10 | AHB-2019A | cahin wheel | 傳動鏈輪(大) | | 1 |
| 11 | AHB-2023A | chain wheel shaft | 鏈輪軸 | | 1 |
| 12 | PP-14003 | bearing | 軸承 | 6202VV | 2 |
| 13 | PP-52097 | snap ring | 扣環 | S15 | 1 |
| 14 | AHB-2020B | bearing seat | 軸承座 | | 1 |
| 15 | PP-58106 | snap ring | | R35 | 1 |
| 16 | PP-19061 | chain | 鏈條 | RS 35 | 1 |
| 17 | AGC-1061 | motor cover | 除屑馬達蓋 | | 1 |
| 18 | PBA-6-12 | hexagon head bolt | | M6 x 12L | $\frac{1}{2}$ |
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C-620NC PART-N

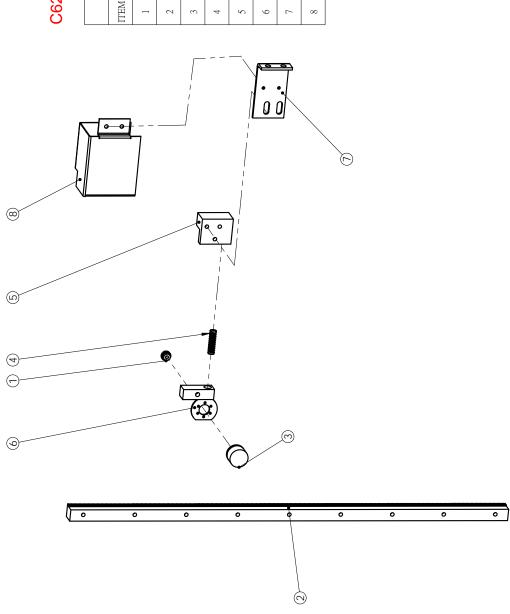
ROLLER TABLE (OPTIONAL)

| NO. | PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | Q'TY |
|-----|------------|--------------------------|----------------------|------------|------|
| 1 | OPR-5002D | roller table | 滾輪料架 | | 1 |
| 2 | OPR-5003DA | table support | 料架腳 | | 2 |
| 3 | PP-14280 | bearing | 軸承 | 6305ZZ | 14 |
| 4 | OPR-5009D | roller shaft | 滾輪軸 | | 7 |
| 5 | OPR-5001D | roller | 滾輪 | | 7 |
| 6 | OPR-5012G | right side roller seat | 右側滾輪座 | | 1 |
| 7 | OPR-5013G | side roller | 側滾輪 | | 2 |
| 8 | OPR-5014G | shaft | 側滾輪軸及把手 | + 1 + | 2 |
| 9 | OPR-5008D | guide bar | 側滾輪滑軸 | | 1 |
| 10 | OPR-5011G | left side roller seat | 左側滾輪座 | | 1 |
| 11 | PPA-12 | flat washer | 平面華司 | M12 | 2 |
| 12 | PBA-12-35 | hexagon socket head bolt | 內六角螺絲 | M12 x 35L | 2 |
| 13 | OPR-5004 | link plate | 料架腳連桿 | · | 2 |
| 14 | PLA-10-25 | hexagon head bolt | 外六角螺絲 | M10 x 25L | 4 |
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C620H-21000A HEIGHT ENCODER ASSEMBLY 2014.12.09

| | C620H-21000A | C620H-21000A 高度譯碼器組 | | |
|--------------|----------------------|----------------------|------------|-----|
| TEM PART NO. | PART NAME | PART NAME IN CHINESE | PART SPEC. | QTY |
| 1 C560L-2105 | Gear | 定寸齒輪 | | - |
| C800H-2109 | Tooth bar | 定寸齒條 | | 1 |
| EP-90491F | Encoder | TS譯頜器 | | 1 |
| M3L-9-10 | Spring | 微動彈簧 | | _ |
| C-320G-2103 | Encoder movable seat | 譯碼器活動座 | | _ |
| C320G-70536 | Encoder fixed seat | 譯碼器固定座 | | - |
| C620H-2110 | Encoder fixed plate | 譯碼器固定板 | | 1 |
| C620H-2104 | Encoder cover | 譯碼器護蓋 | | - |



Warranty

Warranty

New machines are warranted to be free from defects in workmanship and material for a period of one (1) year from the date of shipment by Seller. The warranty period is based on normal usage of two thousand eighty hours (2080) per year and is reduced proportionately for any excess usage. Products, which under normal operating conditions in Buyer's plant are defective in workmanship or material, will be repaired or replaced at the option of Seller.

This warranty does not cover shipping freight charges for either the return of the defective part or for the shipping of the replacement or repaired part.

Seller will have no obligation to repair or replace perishable parts, or materials or parts damaged by misuse, negligence or failure of Buyer to provide appropriate maintenance and service as stated in the operator's manual or industry standard and normally acceptable practices.

This warranty does not apply if the machine has been altered or modified without our prior written consent.

In the case of components or units purchased by Seller including work holding devices, tool holders, motors and controls, the warranty shall not exceed that received by Seller from the supplier of such components or units.

Seller will not assume responsibility for products or components returned to Seller without prior consent or for unauthorized repairs to its products, even though defective.

Electrical Equipment: The warranty available for all electrical components to the Buyer will be voided if the voltage supplied to the machine is found to be outside the stated voltage of the machine by +/-10% and/or grounded at machine.

Accessories Supplied with Manufacturer's Equipment: The warranties available to the Buyer are those extended by the accessory manufacturer, if any, to the extent they are in force and effect. The ACCESSORY MANUFACTURER'S WARRANTY, if any, is exclusive and is in lieu of all other warranties whether written, oral or implied.

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Vertical Plate Saws
Horizontal Billet Saws
NC/CNC Band Saws
Structural Miter-Cutting Saws
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