



**Kalamazoo Saw**

***Bandsaw Specialist***

# **Instruction Manual**

**Model KC812W**

**Manual Horizontal Bandsaw  
Operations and Parts Manual**



**Clausing Industrial Since 1911**



## Clausing/Kalamazoo 8" (200mm) Wet Cutting Bandsaw

### Features:

- 1 Hp (.75kw) drive motor with magnetic starter and overload protection
- 4 speed step pulley with worm gear speed reducer, worm shaft is hardened and ground
- Totally enclosed transmission
- Heavy-duty hydraulic cylinder with precision ground hinge support
- Pan shaped base with built-in coolant & hydraulic system
- Cast iron bed
- Carbide blade guides with roller bearings
- Two additional bearings to support blade from the top
- Integral coolant system
- Blade brush
- Valve controlled hydraulic cylinder controls feed and can be adjusted for different types and sizes of material
- Adjustable stock stop
- Simplified control switches mounted on saw head
- Cast iron quick acting 0°- 45° vise with manual leadscrew clamping system
- Anti-slip hand wheel
- Easy blade change with front access at waist level
- 1" wide bi-metal saw blade
- Tool box, leveling pads and an additional wire brush
- Operation & parts manual
- Two (2) year limited warranty

### Accessories

- Stock Stand Assembly 21" - 30"
- Roller Table Assembly 10' x 18"
- Roller Table Assembly 5' x 18"
- Bandsaw Blade Tension Gauge
- SAWZIT 1 Gallon
- SAWZIT 5 Gallon

### Specifications

Model	KC812W
Type	Horizontal wet cut
Drive Motor	1 Hp (.75kw) 110v or 220v 1 Ph
Band Wheel Diameter	11.5" (292mm) Flanged, Cast Iron
Blade Size	1" x .035" x 8'-11" (27 x .9 x 2720mm)
Bed Height	24.8" (639mm)
Blade Speeds (4)	59, 96, 155, 260 fpm (18, 29, 47, 79 m/min)
90° Cutting Capacity	
Round	8" (190mm)
Square	7" (180mm)
Rectangular (H x W)	7" x 14" (180 x 355mm)
45° Cutting Capacity	
Round	7.5" (200mm)
Square	6" (152mm)
Rectangular (H x W)	6" x 9" (152 x 228mm)
Width	59" (1500mm)
Depth	24.6" (625mm)
Height (head-up)	63" (1600mm)
Height (head-down)	45" (1150mm)
Net Weight	484 lbs (220kg)
Shipping Weight	580 lbs (263kg)
Shipping Dim. (LxWxH)	58" x 30" x 48" (1475 x 762 x 1220mm)

*Design and specifications are subject to change without notice.*

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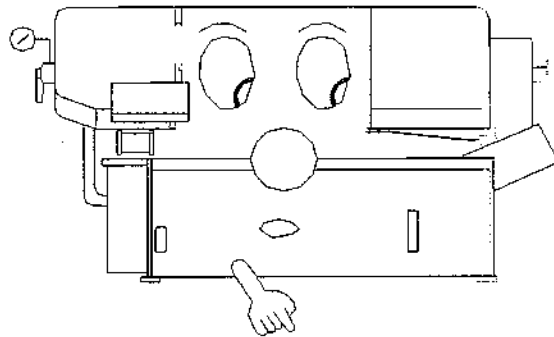
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**Section 1**

*SAFETY RULES*



**SECTION 1****SAFELY RULES****WARNING**

*READ THIS SIGN BEFORE OPERATION THIS MACHINE  
MISUSE OF MACHINE MAY RESULT IN SERIOUS BODILY INJURY.  
YOU MUST THEREFORE FOLLOW THESE SAFE OPERATION PROCEDURES.*

A safety signal word always accompanies the safety alert symbol. The safety signal words **DANGER, WARNING, CAUTION** and **NOTE** - identify the severity of a hazard.

- **DANGER** indicates a situation which, if not avoided, *will* result in serious injury or death.
- **WARNING** indicates a situation which, if not avoided, *could* result in serious injury or death.
- **CAUTION** indicates a situation which, if not avoided, *can* result in damage to the machine.
- **NOTE** indicates a situation which, if not avoided, *may* result in damage to the machine.

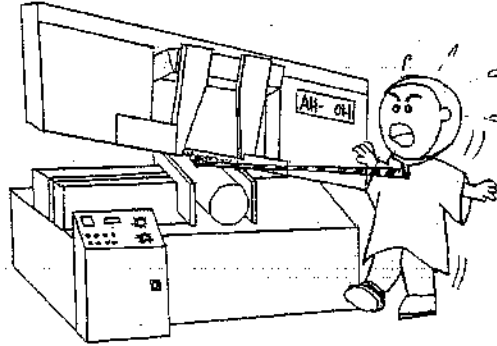
**SAFETY**

1. Know your band saw. Read the operator's manual carefully. Learn the operation, application and limitation. Realize the specific potential hazards peculiar to this band saw.
2. Use recommended accessories. Improper accessories may be hazardous.
3. Wear proper apparel.
4. Keep unnecessary people away. \* Do not overreach or stand on tool.
5. Avoid dangerous environment. Do not use band saw in damp or wet locations. Keep work area well illuminated.
6. Keep work area clean. Cluttered and slippery floors invite accidents.
7. Remove adjustments keys and wrenches from band saw before turning on power.
8. Avoid accidental starting. Make sure switch is off before plugging in power cord.
9. Do not force band saw. It is safer to operate with the cutting rate for which it was designed.
10. Never hand hold the material with saw in horizontal position. Always use the vise, and clamp securely.
11. Keep belt guard and wheel covers in place and in working order.
12. When a workpiece is too long or heavy, support it from the floor.
13. Always remember to switch off the machine when the work is completed.
14. Disconnect power cord before adjusting, servicing and changing blade.
15. Check damaged parts. Before further use of the tool, a guard or other parts that is damaged should be carefully checked. To assure that it will operate properly and perform its intended function.
16. Moving parts should keep in an alignment and binding. Check for breakage, mounting and any other conditions that may affect its operation. Any damaged part or guard should be properly repaired or replaced.
17. Use a sharp blade and keep tool clean for best and safest performance.
18. Safety is a combination of operator's common sense and alertness at all times when the saw is functioning
19. Maintaining the band saw in top condition is essential for safety.

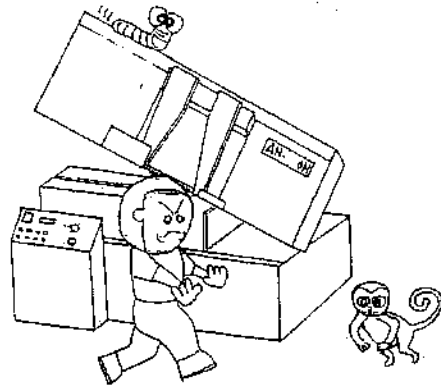
## SAFETY RULES

### Section 1

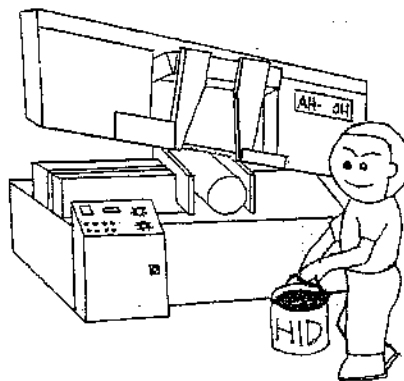
- Never wear gloves loose clothing when operating the machine. They may cause danger if they are caught in a running machine.



- Be sure to confirm that the area around the machine is cleared of people and obstacles every time before starting the machine or operation.



- Use a water-soluble cutting fluid on this machine. Oil-based cutting fluids may emit smoke or catch fire, depending on the condition of their use.

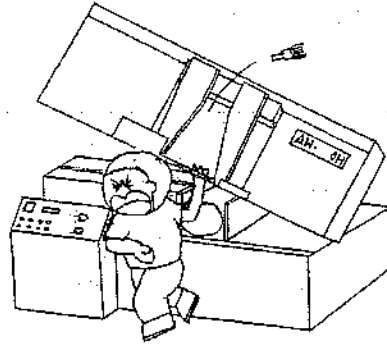




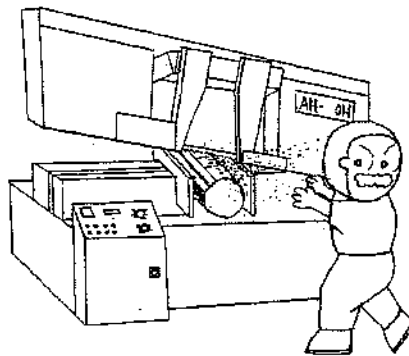
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### Section 1

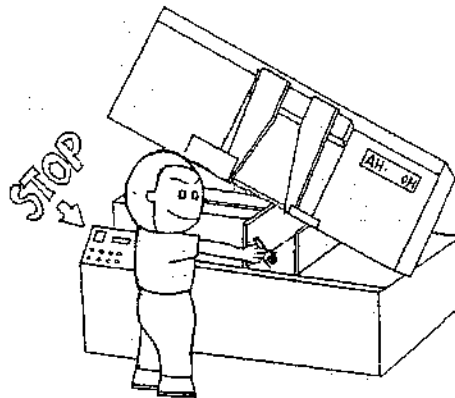
- Never try to adjust the wire brush on the saw blade or remove chips when the saw blade is running. It is dangerous if hands or clothing are caught by the running blade.



- Never cut carbon or any other material that produces and disperses explosive dust on this machine. Sparks from motors and other machine parts may ignite and explode the air-borne dust. The machine needs special measures for cutting explosive materials.



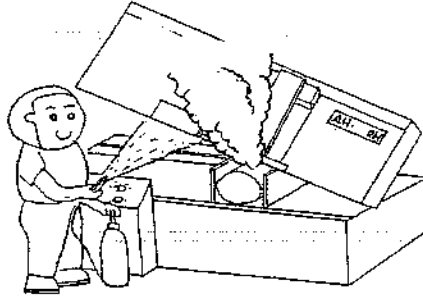
- Stop the saw blade before you clean the machine. It is dangerous if hands or clothing are caught by the running blade.



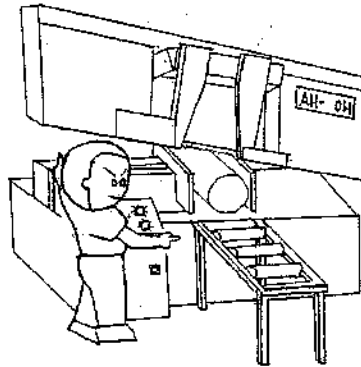
## SAFETY RULES

### Section 1

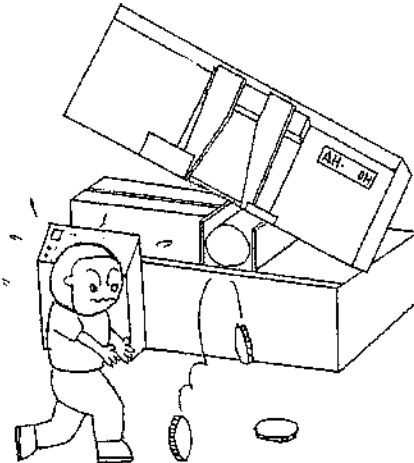
- Be sure to prohibit any use of fire in the shop, and install a fire extinguisher or other fire control device near the machine when cutting titanium, magnesium, or any other material that produces flammable chips. Never operate the machine unattended when cutting flammable materials.



- Use roller tables on forward and backward sides of the machine when cutting the long work. It is dangerous if the work falls off the machine when the roller tables are not used.



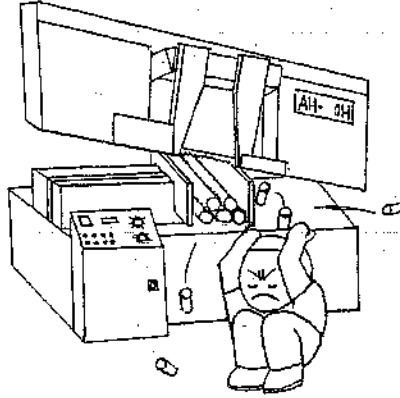
- Take preventive measures when cutting thin or short pieces from the work to keep them from falling. It is dangerous if the cut piece falls.



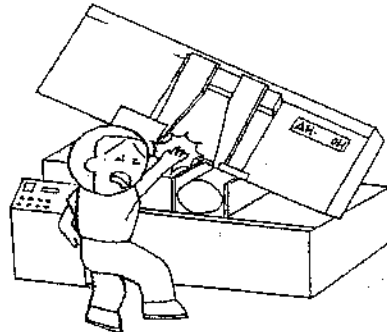
## SAFETY RULES

### Section 1

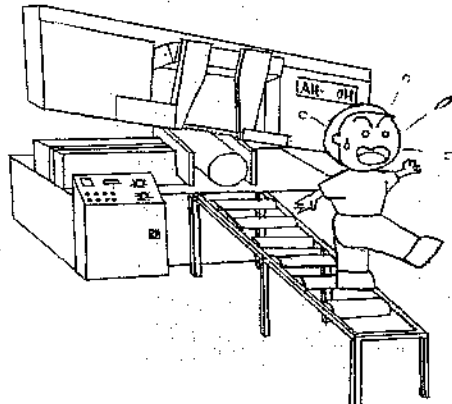
- Never start the saw blade unless it has been confirmed that the work is firmly clamped. If the work is not securely clamped with the vise, pieces will be forced out of the vise during cutting.



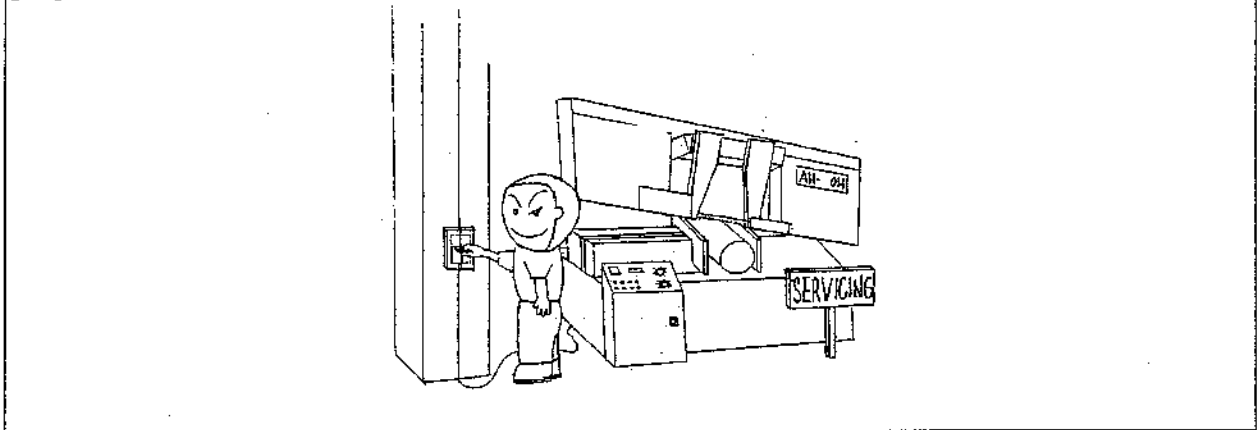
- Never touch the running saw blade. It is dangerous if your hands or clothing are caught by the running blade.



- Never step or stand on the roller table. It is dangerous if your foot slips on the rollers and you fall.



- Turn off the shop circuit breaker switch before servicing the machine. Then post a sign to inform people that the machine is under maintenance.

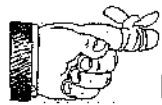


## 2. INTRODUCTION

In designing this machine, many safety measures have been taken to prevent personal injury. However, there are still some risks remaining despite all the measures adopted. We then put protective devices at those places. Other than the safety hardware mentioned above, we have also put warning labels on the machine as a reminder to the user and listed all these risks in the manual. We separate all these items into three categories, i.e. danger, warning, and cautions. Please read all **DANGERS** signs to prevent death or severe injury. Read all **WARNINGS** to prevent personal injury, and read all **CAUTIONS** to prevent equipment damage. This section covers general safety rules. We also provide some risk analysis and procedures. The specific precautions for each section are described at the beginning of each subsection in the later sections. We also provide figure 2.1 for your machine at the end of this section.

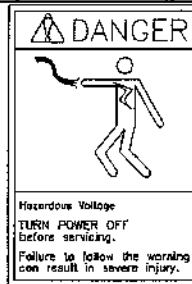
### 2.1 GENERAL "CE" SAFETY INSTRUCTIONS

Your band saw machine is designed to satisfy regulations of the Council Directive on the approximation of the laws of the Member States relating to machinery (89/392/EEC) - Annex I Essential health and safety requirements relating to the design and construction of machinery. This section will review the rules on the document, and check the current designs of band saw machines to be sure they adopt the requirements.



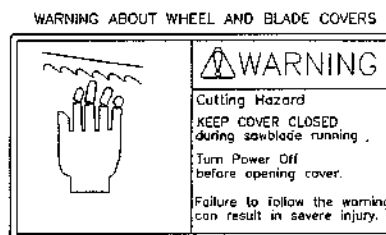
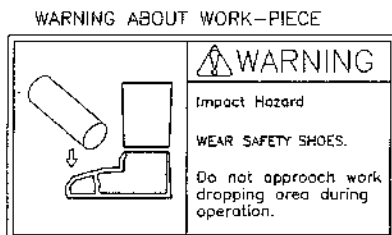
**PLACE READ EACH LABEL CAREFULLY AS FOLLOWING:**

**Read all *DANGERS* to prevent severe personal injury and death**

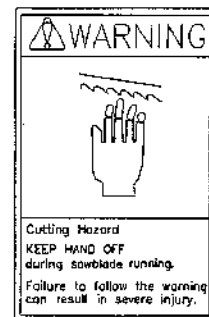


- ✓ Red and white *DANGER* labels mean immediate hazards that will result in severe personal injury or death.
  - DANGER:** Do not operate this machine unless it is completely assembled.
  - DANGER:** Before doing any electrical work, disconnect the electrical power with the Main Power Disconnect switch.
  - DANGER:** Before working near moving parts, disconnect the electrical power with the Main Power Disconnect switch.
  - DANGER:** Keep all guards and shields in place before installing or starting up the machine.
  - DANGER:** 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.
  - DANGER:** Do not use the machine to cut explosive material or high pressure vessels. Since it will generate high heat during the sawing process that will ignite an explosion.

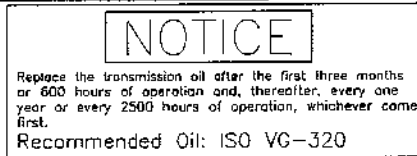
**Read all *WARNINGS* to prevent personal injury**



WARNING ABOUT BLADE RUNNING

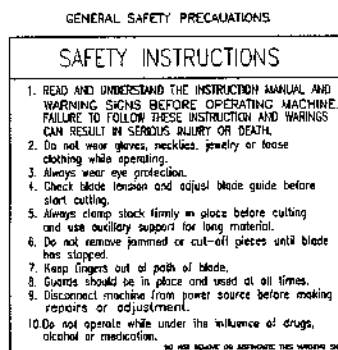


- ✓ Orange and black *WARNING* labels mean hazards or unsafe practices can result in severe personal injury or death.
  - WARNING:** This manual has important safety information. All users must read it before performing any activity on the machine, such as replacing the saw band or doing regular maintenance.
  - WARNING:** Some personal protective equipment is required for the safe use of the machine, e.g. protection goggles.

Read all *NOTICES* to prevent equipment damage

- ✓ Blue and White *NOTICE* labels mean unsafe practices that could result in damage to products or property.

**NOTICE:** The transmission fluid of the speed reducer needs to be replaced.

Read all *safety labels* on the machine

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



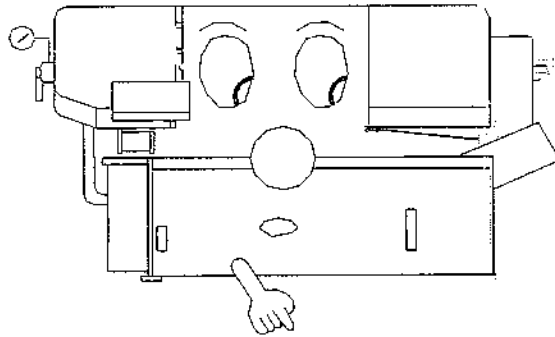
**Please do not make any decisions casually without first reading all safety instructions.**

**2.2 RISK ASSESSMENT**

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

**Section 2**

*GENERAL INFORMATION*



**SECTION 2****GENERAL INFORMATION****2.1 INTRODUCTION**

has manufactured bandsaw machines for more than two decades. is devoted to the research and development of advanced technology while improving the bandsaw production process. A Computer-Aided-Design system has been utilized by for many years. Also, A computer controlled Management System has been introduced to the Sales and Accounting Department. continues to hit the target with its Flexible Manufacturing System and expects their products to be the most efficient, convenient, and friendly in this field.

This automatic band saw is a model more popular than any other model as witnessed in many countries worldwide. This machine was developed by a group of R&D engineers over a considerable period of time assuring you of the highest efficiency and performance. This machine can automatically detect the conditions of material supply, cutting and quality control. Each component was developed by computer design and analysis. This machine is specifically designed to cut metal material. Your machine has the following advantages:

- Machinery and each component part can be handled safely.
- Machinery and each component part can be easily moved or operated by the user.
- Machinery and each component part has passed strict testing. (Council Directive on the approximation of the laws of the Member States relating to Machinery)

This manual contains shipping, handling, unpacking, initial checkout, operation, maintenance information, etc. It is divided into 10 sections. Each section covers a specific aspect of the machine. This section contains a general description of the machine and other available documentation. We are going to introduce this smart machine now.

**2.2 EQUIPMENT DESCRIPTION**

This automatic band saw machine is designed based on the guidelines of low cost and high performance. The fundamental design concept of this machine is based on three objectives, **MANIAL**, **EFFICIENT**, and **LOW COST**, therefore, you can find out that only a few hydraulic-controlled and electric-controlled components are used on this machine. However, under the limited cost condition this machine still has many features as follows:

**1. HYDRAULIC FEED**

Adjustable hydraulic feed and quick change tension adjustment provide an infinite ranger of cutting pressure.

**2. CARBIDE GUIDE**

Precision ball bearing combined with carbide faced guides for better square cutting accuracy and stability.

**3. QUICK SET UP VISE**

Specially designed vise adjustment for quick changes to suit different cutting degrees ranging from 90° to 45°.

**4. TRANSMISSION**

Equipped with the best worm gear speed reducer to ensure lasting performance. Worm shaft is hardened and ground. The four speed ranger guarantees trouble free drive.



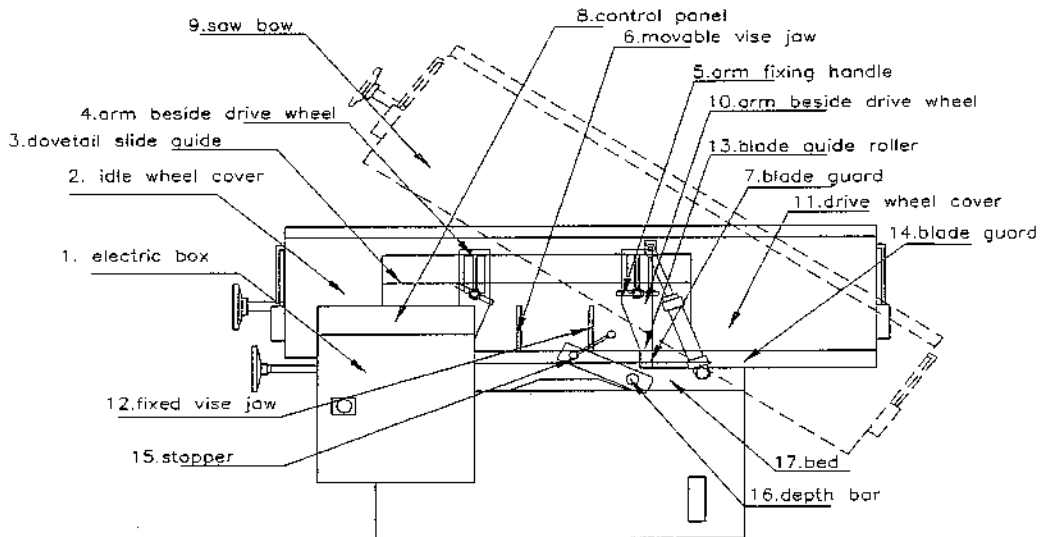
## GENERAL INFORMATION

### Section 2

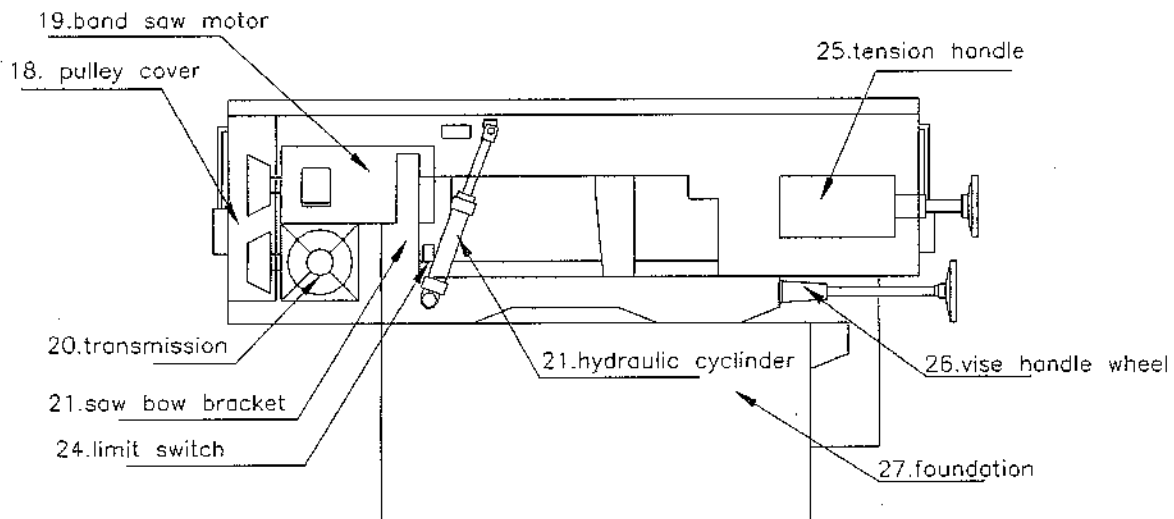
It is designed to cut various kinds of materials with the appropriate saw blade installed. The specific features of this band saw machine are as follows:

1. Concern for safety. This machine is designed to fully protect the operator from its moving elements while cutting.
2. When the saw blade is broken, the machine will stop automatically.
3. The machine will stop automatically when out of stock.
4. Dual valve system is designed to achieve optimal cutting performance with the simple setting of feed rate and perspective cutting pressure for different material.
5. 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.

$$8 \text{ hours} \times 5 \text{ days} \times 52 \text{ weeks} \times 10 \text{ years} = 20,800 \text{ hours}$$



**FIG 2-1 Front View Of Machine & Part Name**



**FIG 2-2 Back View Of Machine & Part Name**

**2.2.1 Specifications**

**Specification of The Machine**

<b>MODEL</b>		Semi-automatic Band Saw Machine	
		●	200mm(8")
		■ (W×H)	180 x 180mm ( 7" x 7")
		■ (W×H)	180 x 290mm ( 7" x 11.4")
<b>SAW BLADE</b>	<b>SPEED</b>	60 Hz	18, 29, 47, 79 m/min. (59, 96, 155, 260 fpm.)
		50 Hz	15, 24, 39, 66 m/min. (49, 83, 129, 217 fpm.)
	<b>SIZE (L×W×T)</b>	2720 × 20 × 0.85 mm (107" × 1" × 0.0335")	
	<b>TENSION</b>	MANUAL (Factory preset already)	
	<b>GUIDE</b>	CARBIDE, (Interchangeable)	
	<b>CLEANING</b>	Steel wire brush with flexible drive shaft driven by main motor.	
<b>MOTOR OUTPUT</b>		<b>HYDRAULIC</b>	-----
		<b>SAW BLADE</b>	0.75 kW (1 HP)
		<b>COOLANT PUMP</b>	0.1 kW (1/8 HP)
<b>COOLANT</b>	<b>CAPACITY</b>	20 L (5.28 gal.)	
<b>WISE CONTROL METHOD</b>	MANUAL CONTROLL		
<b>HEIGHT OF WORK BED</b>	630 mm (25")		
<b>NET WEIGHT</b>	220 kgs (484 lbs)		
<b>GROSS WEIGHT</b>	240 kgs (528 lbs)		
<b>FLOOR SPACE (L×W×H)</b>	1450 × 625 × 1145 mm (56"× 24.5" × 45")		
<b>SHIPPING SPACE (L×W×H)</b>	1816 × 1003 × 1168 mm (71.5" × 39.5" × 46")		

\* Design and specifications are subjected to change without notice.

**2.2.2 Noise Level**

Noise has a major effect on the quality of the environment at the work site. We refer you to testing data and information as follows:

- ◆ Excessive exposure to high levels of noise may cause impairment to hearing, but the vulnerability to hearing loss varies between individuals and must be taken into account in specifying an allowable limit for noise exposure.
- ◆ A level of 90 dBA is widely accepted as a criterion for 8 hour/day exposure to steady-state broad-band noise.
- ◆ The unprotected ear should not be exposed to noise levels higher than 120 dBA. A machine's noise come from the following:

1. Saw blade during cutting or material feed mechanism
2. Wire brush unit
3. Chip conveyor unit
4. Speed reducer
5. Hydraulic motor/pump
6. Belt transmissions variable speed motors
7. Blade motor

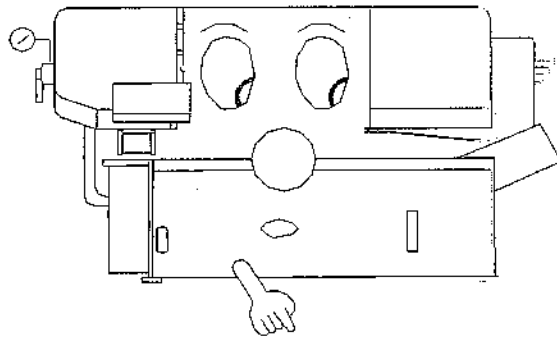
8. Coolant Pump
9. Drive wheel
10. Parts, machine not assembled tightly causing mechanical vibration

When your machine is running, noise will come out. This is a machine-electric interface problem that may make people feel uncomfortable. Our products pass noise testing under 78 dBA. If your machine produces an undesirable noise while it is running, you should:

1. Be sure maintenance schedule has been followed exactly.
2. If yes, follow section 10 in this manual for system troubleshooting procedures.

**Section 3**

***MOVING & INSTALLATION***



### SECTION 3

### MOVING AND INSTALLATION

#### 3.1 INTRODUCTION

Your machine is made of three main system components: Machine equipment, hydraulic system, and electrical control system. Please read the entire manual carefully to obtain a thorough knowledge of the machine. This section describes how to move and install the machine to prevent personal injuries and machine damage. Do not operate the machine by guesswork. Keep the manual at hand and refer to it whenever you are not sure of how to perform any of the procedures.

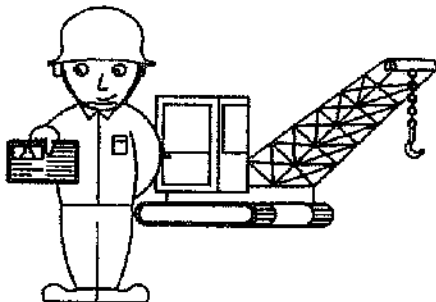
#### 3.2 MOVING THE MACHINE

When moving the machine, we strongly suggest that you follow the carrying and cleaning methods described to keep your machine in the best working condition. You can choose any one of the methods described below to move your machine:

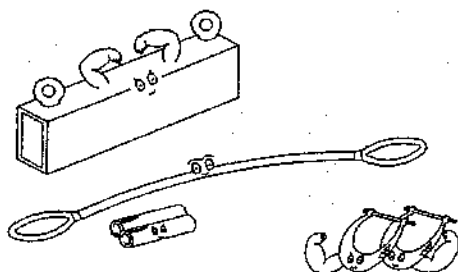
##### A. CARRYING:

##### 1. Use crane to place

Carry the machine to its location by using a crane and a wire rope sling that can fully withstand the weight of the machine (your machine weight about 8000 Kg). Apply the wire rope sling to the lifting hooks at the rear of the front vise slide and to the rear end of the machine. Slowly lift the machine while taking care so that the machine is not shocked and that the wire rope does not interfere with the saw-head.



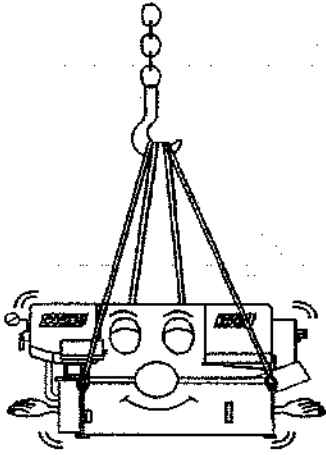
- ☐ You must have a qualification license to crane is necessary to move your machine.



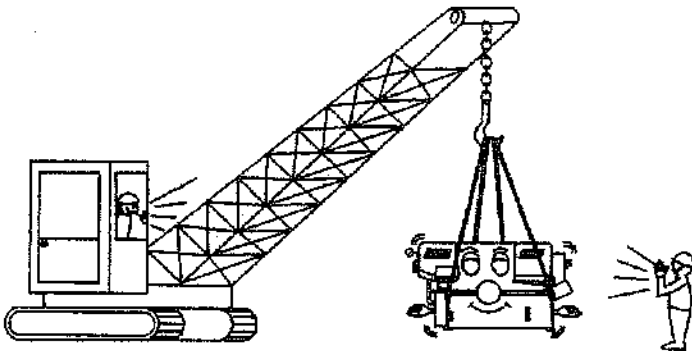
- You must use tools and equipment with the proper tensile strength and use proper method when moving your machine.

## MOVING AND INSTALLATION

### Section 3



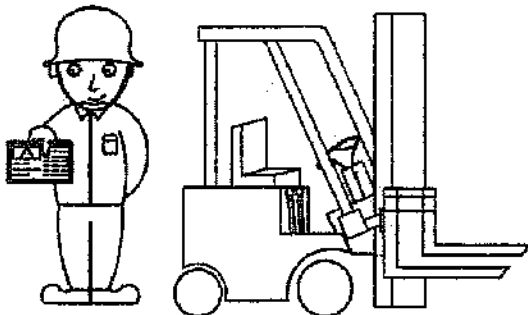
- Apply the wire rope sling to the lifting hole at rear of the front vise slide and to the rear end of the machine. Please keep the machine balanced rear-front and left-right side when you are lifting up the machine.



- ☐ • When you work together with more than two people, it is best to keep contact with each other by voice for safety.

#### 2. Use forklift to place

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.

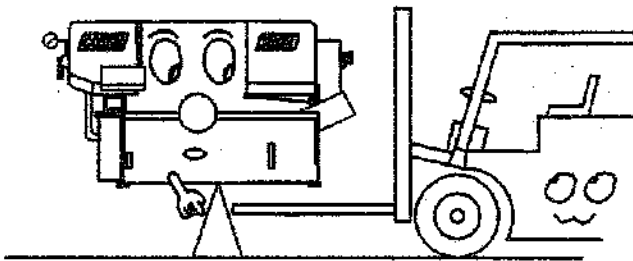
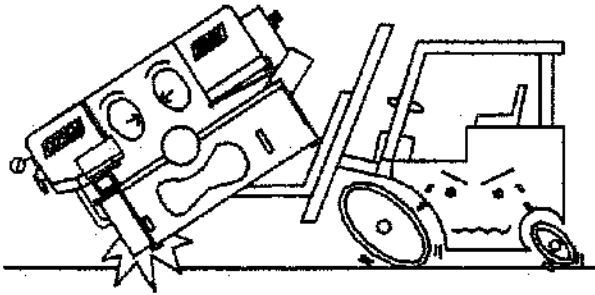


- You must have a qualification license to operate forklift for moving your machine.

## MOVING AND INSTALLATION

### Section 3

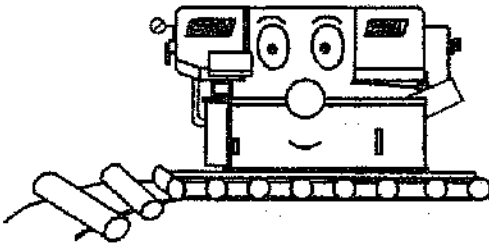
- You must apply proper forklift technique to avoid damage to the machine.



- You also have to keep the machine balanced at all times.

### 3 Use rolling cylinder to place

You can use this method to move your machine when it is in the small machine shop .



- You have to use adaptable stand wood material of proper compressive strength.
- You have to use adaptable rolling cylinder material of proper compressive strength.

## CLEANING

After the machine has been spotted on the designated position, remove the rust-preventive grease with wiping cloth dampened with cleaning oil or kerosene. Apply machine oil to the machine surfaces that are susceptible to rusting.

**NOTE:** *Do not remove the rust-preventive grease with a scraper or the like. Do not wipe the painted surfaces with solvent.*

### 3.3 INSTALLATION OF THE MACHINE

This band saw machine has been designed and manufactured in accordance with the latest technical standard on safety regulations. Naturally, such a machine tool has a few potentially hazardous locations. So, we strongly suggest following the general rules and regulation on safety precautions and particularly those, given below:

**3.3.1 Safety Precautions**



Read the operating manual thoroughly to avoid improper operations.

Environment:

- Avoid exposing machine to direct sunlight.
- Keep the room temperature between 5°C to 40°C.
- Keep the humidity of your machine at 30%-95% (without condensation) to avoid dew on electric installation and machine.
- Keep machine away from vibration of other machines.
- Please avoid uneven ground.
- Please avoid wet through water or heavy dust from other machines.

Power supply:

- Supply voltage: 90% - 110 % of nominal supply voltage.
- Source frequency: 99% - 101 % of nominal frequency.
- Please avoid using same power supply with electric spark machining, electric welder. Because of unstable electric tension, it may prevent your machine electric installation from working properly.
- Please connect with power supply independently and directly.
- Please use correct electric capability, electric tension, 50/60 Mz.

**NOTE: ① Supply electric power to the machine from a source different from those for welding or other machines that produce electric noise. Ground the machine with an independent grounding conductor.**

**② Limit the supply voltage variations to within  $\pm 10\%$  .**

- Have to connect to earth to ground machine.

**3.3.2 Initial Inspection**

1. You have to confirm that your machine is the correct type ordered.
2. Check machine surface and equipment furnished.

If you find any problem, please contact dealer. ☎

**3.3.3 Space Required**

Leave enough space around the machine for loading work and unloading cut-off pieces as well as for maintaining and inspecting the machine.

The table and illustrations are as follows:

NO.	MAIN SECTION	NO.	MAIN SECTION
1	Machine Body	5	Hydraulic Unit
2	Electrical Control Box	6	Hydraulic Hose
3	Work Tray	7	Roller table (option)
4	Speed Change Device	8	



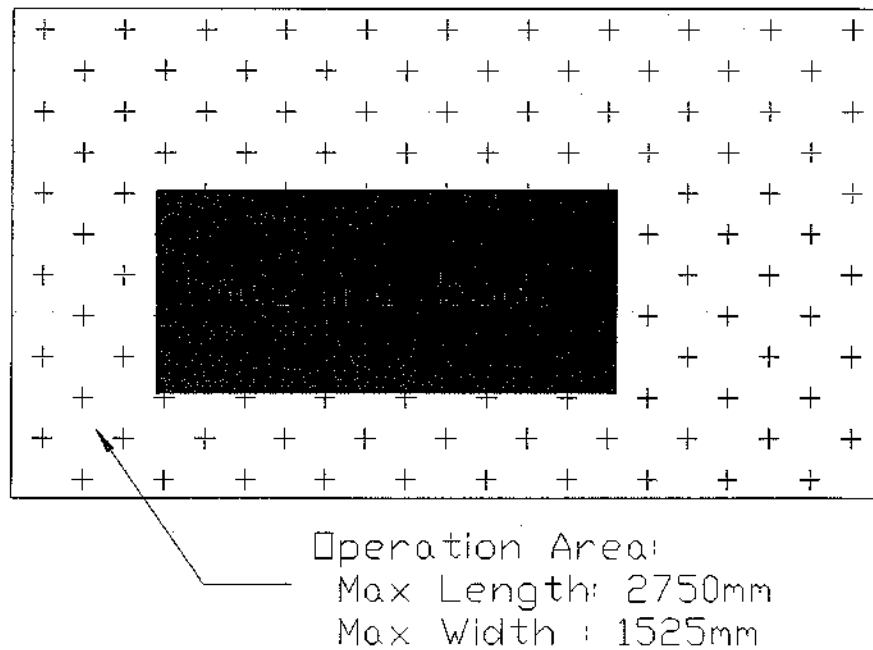


Fig 3-1 Required Floor Space

### 3.3.4 Unpacking

- After the machine has been properly positioned, remove the shipping bracket.
- Unpack your machine carefully. Do not damage the machine surface paint.
- Remember to remove the bracket used to lock the saw frame and the saw bed.
- Be sure to retain this bracket so that it can be used again in the event that your machine must be relocated.



Bracket

### 3.3.5 Installation Procedure

Your machine has a set of tools to maintain machine to keep it running. Cutting ease and efficiency can be maintained with proper care. We list the standard accessories and illustration as follows :

- |                                                  |       |
|--------------------------------------------------|-------|
| 1. Tool box                                      | 1 pc  |
| 2. Grease gun                                    | 1 pc  |
| 3. Screw drive (+, -)                            | 2 pcs |
| 4. Open end spanner                              | 3 pcs |
| 5. Hexagon wrench                                | 1 set |
| 6. Chip filings spade (only manual type machine) | 1 pcs |

7. Operation manual

1 pcs

**3.3.6 Installation Procedure**

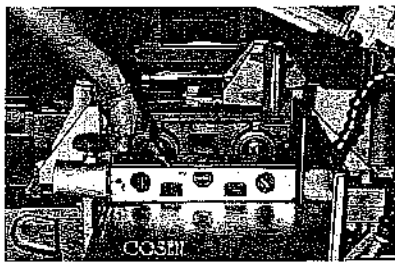
Your machine is easier to install than other brand type. Following this manual, you can do it yourself step by step. The major machine function setting up is as follows: six major steps are Fixing the machine on the floor, Machine leveling, Installation of feed roller, Cutting fluid supply, Hydraulic oil supply, and Electrical connection .

**◎ Fixing the machine on the floor**

1. For best performance, the band saw has to be placed on a solid and level foundation. The floor is recommended to have a carrying capacity of approximately 15 tons (including both machine and material weight).
2. It also has to be bolted to the floor, and it has to have shock absorption pads on the floor for level regulating.
3. You have to leave sufficient space for operator and large material supplies. It will ensure safety.
4. If a crane is used to lift the machine, make sure that the lifting cable is properly attached to the machine as shown below:

**NOTE:** Be careful to protect the machine from impact or shock during this procedure. Also watch out for your fingers and feet.

5. Other machinery may cause vibration or dust for your machine. It will prevent machine from working effectively. You have to avoid this kind of situation.

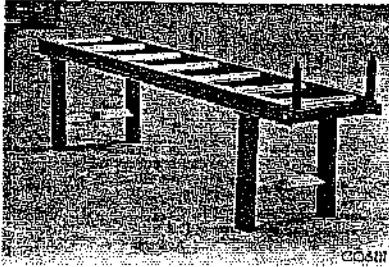
**◎ Machine leveling**

- Place spirit levels on the vise slide plates and the work feed table, and adjust the left-and-right and fore-and-aft level of the machine with leveling bolts.
- The fore-and-aft level should be adjusted correctly. The level of the rear of the machine is approximately 20 mm higher than the level of the front end. This will allow the proper return of the cutting fluid for working. The illustration is as follows:

**NOTE:** 1. Be sure to ascertain that all leveling bolts evenly support the weight of the machine.

2. Use a level gauge to make sure that the platform is flat and even at all angles.

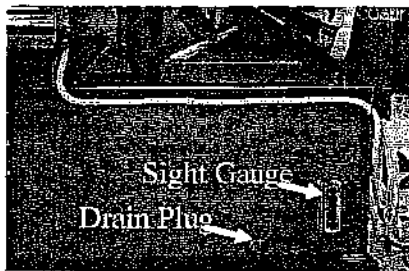
### ◎ Installation of feed roller



If you plan to cut long work pieces, please arrange the roller table and roller stand behind the machine:

**NOTE: The roller table and roller stand should be level with the machine itself.**

### ◎ Cutting fluid supply



Fill the cutting fluid tank with the proper cutting fluid mixture. If Shell Dromus BS or Shell Lubricool Yellow Cutting Fluid is used, the ratio of cutting fluid to water should be approximately 1:15~1:20.

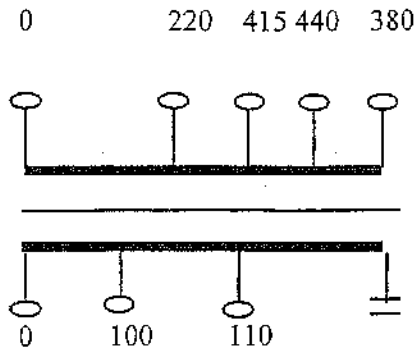
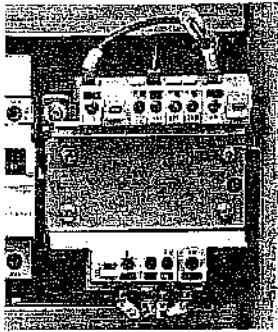
### ◎ Hydraulic oil supply



Open the filler cap. Please fill the hydraulic oil tank with the hydraulic oil furnished with the machine. Check the sight gauge to ascertain the oil level in the tank. (Oil tank should be full already if it is a new machine)(If operation new machine, the oil tank should be fill hydraulic oil to full level. )

### ◎ Electrical Connections (Power Requirement)

- Open the electrical enclosure door and connect the power supply cable to the circuit breaker (N.F.B.) terminals that are indicated by the arrow in the illustration below :
- Be sure to connect the ground cable to the ground terminal. The power supply to your machine should agree with the wiring voltage that is indicated on the label attached to the electrical enclosure.
- If the power line voltage is changed, change the wiring of the transformer and motors, and reset or replace the thermal relays shown as follows:



**NOTE: 220V~50HZ / 415V~50HZ / 380V~50HZ / 440V~50HZ**

**WARNING:** Before start up machine user should be inspection of power supply wiring must connected ground connection avoid event of electric stock

#### ⊙ Installing Fire Control Device

Install a fire extinguisher or other fire control device in the shop to provide safety.

### 2.4 WORKING CONDITIONS



For safety in operating working, we recommend the following:

- ◇ A well lighted work site.
- ◇ To prevent operator from slipping, keep floor dry.
- ◇ Keep dust from other machines away from electrical control facilities.
- ◇ Except operator, please do not anyone or anything near your machine for safety.

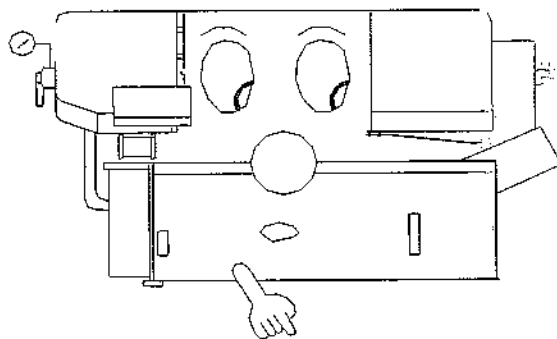
### 2.5 RESHIPMENT PROCEDURE

We recommend you do the procedures as follows:

1. Turn off the power.
2. Fix the saw head.
3. Pack machine with plastic bag or soft paper to protecting it from dust.
4. Pack your machine (with bracket) carefully, and 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 reship with equipment furnished, shock absorption pads and operating book.

**Section 4**

*OPERATION INSTRUCTION*



**SECTION 4****OPERATING INSTRUCTION****4.1 SAFETY PRECAUTIONS**

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

- ✓ • The machine can only be used its designated purpose.
- ✓ • Do not wear gloves, neckties, jewelry, long hair or loose clothing.
- ✓ • For eye protection always wear protective safety glasses.
- ✓ • Check blade tension and adjust blade guides before starting out.
- ✓ • Always clamp stock firmly in place before cutting and use auxiliary support for long material.
- ✓ • Do not remove jammed or cut-off pieces until blade has stopped.
- ✓ • Keep fingers out of path of blade.
- ✓ • Guards should be in place and used at all times.
- ✓ • Disconnect machine from power source before making repairs or adjustments.
- ✓ • Protective gloves should be worn for band saw changes.
- ✓ • Do not operate while under the influence of drugs, alcohol or medication.
- ✓ • Please do not leave the machine with eyes in any operating.
- ✓ • Please put utility cart or the warning signal to stop people coming up.

**4.2 PREPARATION FOR USE**

The selection of an appropriate saw blade and cutting method is important for cutting, work safety and efficiency. Select an appropriate saw blade and cutting method by fully considering the work to be cut and the requirements of your job (such as cutting accuracy, cutting speed, economy, and safety control).

**Cutting method:**

If you choose dry cutting and low speed of saw blade, the chips may accumulate in machine parts and may cause the operation or insulation failure of the machine. We suggest you choose wet cutting to avoid machine damage. You can refer to section 7.2 for experience data..

**Cutting unknown materials:**

Before cutting an unknown material, consult the supplier of the material, burn a small amount of chips from the material in a safe place, or follow any other procedure to check to see if the material is flammable or not.

**CAUTION:** *Never take eyes away from machine during cutting operation.*

**Cutting oil:**

If economics are not of critical concern, you can try oil-based cutting fluids. We always suggest you to use water-soluble cutting fluids. The comparison table for it is as follows:

# OPERATING INSTRUCTION

## Section 4

Advantage	Disadvantage
Have high cooling effect	Remove paint
Not flammable	Lose rust protection effect when deteriorated
Economical	Foam
Does not require cleaning of cut products (especially when soluble)	Putrefy
	Decline in performance, depending on quality of water used for dilution

**NOTE:** Never work with pure water only.

If Shell Dromus BS or Shell Lubricool Yellow Cutting Fluid is used, the ratio of cutting fluid to water should be approximately 1liter:15liter ~ 1liter:20liter. Check the sight gauge to ascertain the fluid level in the tank.. Tank maximum capacity: 38 liters(10 gal.)

### 4.3 CONTROLS DESCRIPTION AND OPERATION

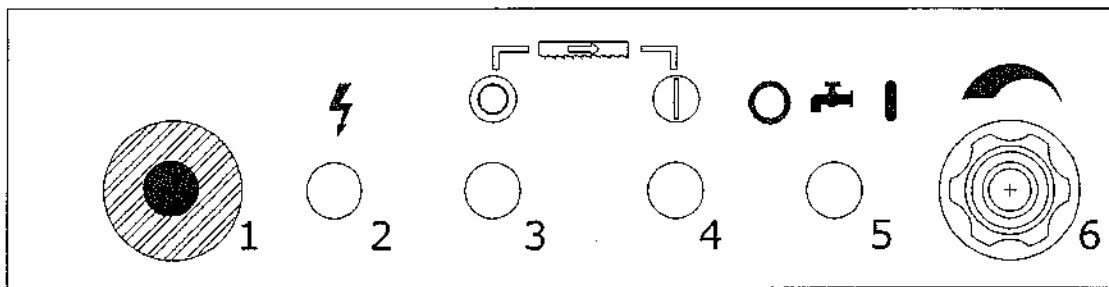
Here we briefly describe the control panel, manual mode, automatic mode and identification of failure condition.

#### 4.3.1 Control console

##### Control Console Illustration

The control console is setting on top of electrical box. In figure 4-1 is show all of switch or/and botton position, therefore operator must understand each switch or/and botton function before starring machine.

The illustration of the control console is shown in the following figure and there are 6 functional gears on this control panel.



MH-81PLC-05

Fig 4-1 : Control panel Console (CE)

No.	NAME OF ITEM	No.	NAME OF ITEM
01	EMERGENCY STOP BUTTON	04	BLADE SAW MOTOR ON BUTTON
02	POWER "ON" INDICATOR LIGHT	05	COOLANT PUMP SELECTOR SWITCH
03	BLADE SAW MOTOR OFF BUTTON	06	HYDRAULIC FLOW CONTROL VALVE

#### 1. EMERGENCY STOP button

When this button is depressed, all of the machine operations stop immediately. The button locks when pressed and must be turned to unlocked it.

# OPERATING INSTRUCTION

## Section 4

**2. POWER indicator light**

Indicates that the power of band saw machine is turned on. Light comes on when you turn on machine circuit breaker switch on the electrical enclosure for machine. This lamp indicates preparation for start-up

**3. BLADE SAW MOTOR OFF button**

When this button is depressed, the saw blade motor stops immediately.

**4. BLADE SAW MOTOR ON button**

When this button is depressed, the saw blade motor starts immediately.

**5. COOLANT SUPPLY select switch**

This select switch is used to control the coolant supplying to the cutting area.

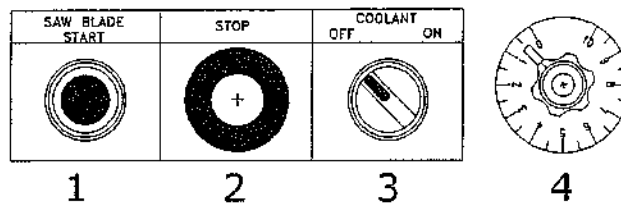
"ON" mode	Turned to this mode, the coolant will be supplied to the cutting area. The coolant pump operates and the coolant supply begins.
○ "OFF" mode	Turned to this mode, the coolant will not be supplied. The coolant pump halts and the coolant supply stops.

*ATTENTION: The lower part of the base serves as coolant tank. The cutting fluid is supplied to the saw guides and should be mixed in accordance with the recommendations of the supplier. It should not contain too much grease to avoid slipping of the saw blade on the wheel. Never work with pure water only.*

**6. HYDRAULIC FLOW CONTROL VALVE**

When this control knob is turned counterclockwise (CCW), the cutting force of the saw blade increases, when this knob is turned clockwise (CW), the cutting force decreases.

Control Console Illustration (non CE)



MH-812LC

Fig 4-1 : Control panel Console (non CE)

No.	NAME OF ITEM	No.	NAME OF ITEM
01	BLADE SAW MOTOR OFF BUTTON	03	COOLANT PUMP SELECTOR SWITCH
02	EMERGENCY STOP BUTTON	04	HYDRAULIC FLOW CONTROL VALVE

**1. OPERATION button:**

When the button is depressed, the saw blade motor operates



## OPERATING INSTRUCTION

### Section 4

#### 2. EMERGENCY STOP button

Press to stop the machine in an emergency. When you press it, it brings the machine to a total stop. The button locks when pressed and must be turned to unlocked it.

#### 3. COOLANT SUPPLY select switch

This select switch is used to control the coolant supplying to the cutting area.

"ON" mode	Turned to this mode, the coolant will be supplied to the cutting area The coolant pump operates and the coolant supply begins.
"OFF" mode	Turned to this mode, the coolant will not be supplied. The coolant pump halts and the coolant supply stops.

**ATTENTION:** *The lower part of the base serves as coolant tank. The cutting fluid is supplied to the saw guides and should be mixed in accordance with the recommendations of the supplier. It should not contain too much grease to avoid slipping of the saw blade on the wheel. Never work with pure water only*

#### 4. HYDRAULIC FLOW CONTROL VALVE

When this control knob is turned counterclockwise (CCW), the cutting force of the saw blade increases, when this knob is turned clockwise (CW), the cutting force decreases.

**NOTE:** *The saw will stop automatically when the material has been cut through.*

#### Coolant System

This system, if used properly, will prevent the running blade from overheating. This coolant tank has max. capacity of 25.2 liter (6.55 US. gal., 5.54 British gal.) For details regarding operation, please refer to Sec 4.3.1: (5) COOLANT SUPPLY select switch.

#### Checklist Before Operating

1. Make sure the teeth are pointing in the right direction.
2. Band should be properly seated on the wheels after applying the correct tension
3. Set blade holder guides for approximate 0.003 to 0.005 inch clearance between the guides and blade.
4. Check for slight clearance between back up rollers and back of blade.
5. Move guides to the operator's position as closely as possible.
6. Select proper speed and feed.
7. Material should be securely held in vise.
8. Coolant should be turned on, if required.
9. Do not start cut on a sharp edge.
10. Keep machine lubricated.

#### WARNING:

1. **ALWAYS DISCONNECT POWER CORD WHEN MAKING ANY ADJUSTMENTS**
2. **WHEN READY TO CUT, MAKE SURE "SWITCH" IS OFF BEFORE PLUGGING IN "POWER CORD".**
3. **DO NOT APPLY EXTRA FORCE TO THE SAWHEAD DURING CUTTING PERIOD**
4. **DO NOT CONNECT POWER CORD TO POWER SOURCE UNTIL THE FOLLOWING INSTRUCTIONS ARE CLEARLY UNDERSTOOD.**

## OPERATING INSTRUCTION

### Section 4

5. WHEN CUTTING HORIZONTALLY, ALWAYS USE THE VISE TO HOLD THE WORKPIECE. DO NOT HOLD THE WORKPIECE BY HANDS.

#### 4.4 OPERATING INSTRUCTION

##### WARNING:

1. WHEN READY TO CUT, MAKE SURE "SWITCH" IS OFF BEFORE PLUGGING IN "POWER CORD".
2. DO NOT APPLY EXTRA FORCE TO THE SAWHEAD DURING CUTTING PERIOD.
3. DO NOT CONNECT POWER CORD TO POWER SOURCE UNTIL THE FOLLOWING INSTRUCTIONS ARE CLEARLY UNDERSTOOD.

##### 4.4.1 OPERATING INSTRUCTION

Blade speed selection should be determined according to the material to be cut. The following chart is for general reference only.

Material	Speed		Pulley Used Groove	
	50 Hz	60 Hz	Motor Pulley	Saw Pulley
High speed alloy, stainless and heavy cross section material	57	68	smallest	large
Tool, Stainless Steel, Alloy Steel and Bearing Bronze	100	120	small	medium
Case Iron, Mild Steel, Hard Brass and Bronze	164	196	medium	small
Plastic, Copper, Soft Brass, Aluminum and other Light Materials	277	330	large	smallest

Some materials due to manufacturing processes, such as certain types of cast iron pipe or materials containing certain types of welding, can not be cut on this machine.

##### NOTE:

A GENERAL RULE TO FOLLOW IS, "IF THE MATERIAL CAN BE CUT WITH A FILE, IT CAN BE CUT ON THIS BANDSAW".

##### 4.4.2 SPEED SWAP

The general procedures of speed swap are shown in the following steps:

1. Remove the pulley cover.
2. Loosen the lock handle under the motor. (Shown in Fig. 4-2)
3. Position belt in proper groove according to the speed selection chart attached on the pulley cover. (See above photo)
4. Apply tension to belt and tighten lock handle.
5. Replace pulley cover

NOTE: THE PROPER TENSION IS, 1/2 INCH DEFLECTION OF BELT WHEN APPLYING MODERATE PRESSURE ON THE BELT BETWEEN THE PULLEYS.

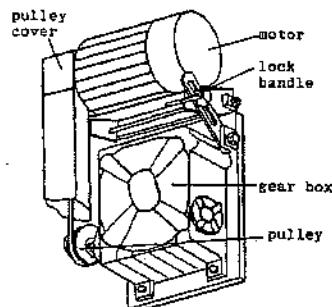


Fig. 4-2 : Speed Swap Configuration

SPEED ADJUSTMENT

BLADE SPEED	
FEET /METER PER MINUTE	
50HZ	60HZ
78/24	95/29
124/38	150/46
173/53	213/65
265/81	321/98

Fig .4-3 : Blade Speed Configuration

**4.4.3 BLADE SELECTION**

For best result, the correct number of teeth on the workpiece is of importance. The 3-6-12-24 rule can be applied to the mild materials while the 6-12-24-48 rule can be applied to the hard materials. At least two teeth must be kept in cutting area during cutting period, as shown in Fig 4-4. The finer tooth blade should be used when cutting thin sections and harder materials while the coarse teeth should be used when cutting large work and tough gummy materials.

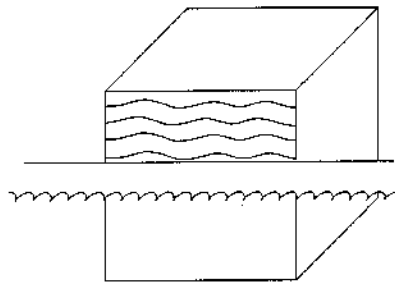


Fig .4-4 Two Teeth on the cutting material

**4.4.4 CUTTING FEED ADJUSTMENT**

The *Flow Control Valve* of the hydraulic cylinder can be adjusted to obtain the correct cutting feed rate for any desired feed pressure while forcing the blade downward into the material.

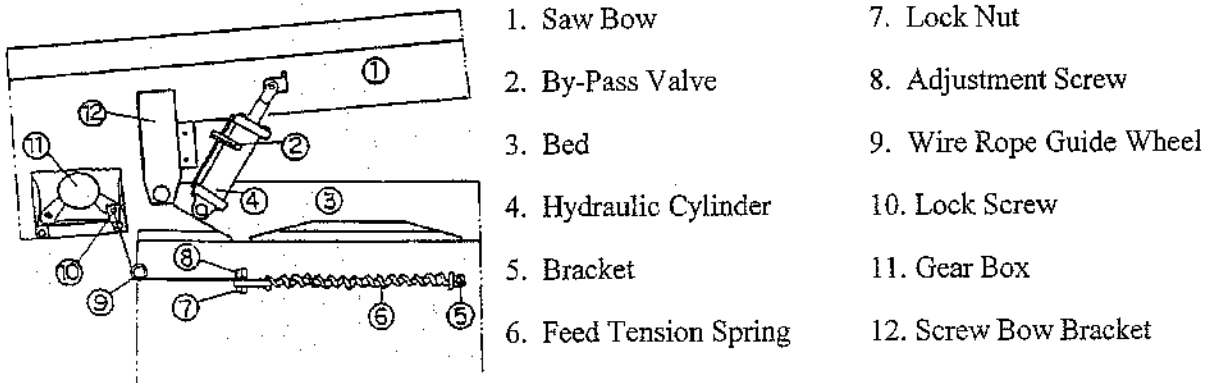


Fig. 4-5 Cutting Feed Adjustment Mechanism  
(Tension Spring Mechanism isn't used on Automatic Models)

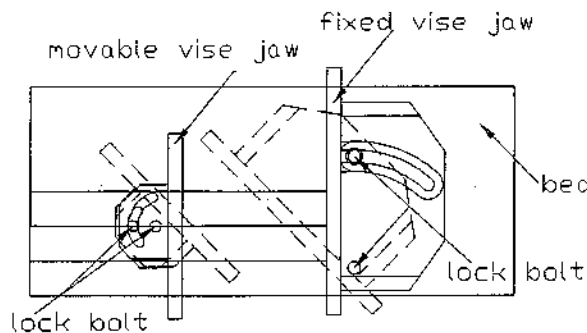
**NOTE** *Rate of Cutting Feed*

- Proper rate of cutting feed is important. Excessive pressure can break the blade or stall the saw. On the contrary, insufficient pressure rapidly dulls the blade. The hydraulic cylinder regulates the rate at which the blade is lowered into the material being cut. By adjusting the "Flow Control Valve," you have an infinite choice for rate of cutting feed.
- If the workpiece thickness is smaller than 2 mm, please turn the knob of the flow control valve to 1-2; if the workpiece thickness is bigger than 3 mm, set the knob to 4-4.
- If the sawhead is forced downward by manually extra force while doing the adjusting or setting up work. The hydraulic cylinder will be damaged due to its internal By-Pass Over-Ride feature.( CAUTION:By-Pass Valve has been properly adjusted before shipping out and please DO NOT reset it).
- While settling the cutting material, the sawhead can be held at the middle position of the whole rising distance by turning the flow control valve to the zero position.

**CAUTION :** *If the sawhead is forced downward by external force, the hydraulic cylinder will be damaged. By-Pass Valve has been properly adjusted in factory, please DO NOT reset it.*

**4.4.5 VISE ADJUSTMENT**

**WARNING:***WHEN CUTTING HORIZONTALLY. ALWAYS USE THE VISE TO HOLD THE WORKPIECE. DO NOT HOLD THE WORKPIECE BY HANDS.*



Clamp material securely by turning vise hand wheel clockwise (CW). The vise allows great flexibility in cutting when set at the No.1 position in Fig 4-6, the cutting at any degree is possible by adjusting the vise as whole. The vise can be moved up to 45°, which is the No.2 position in Fig 4-6.

Fig. 4-6 Vise Adjustment for 45° Miter Cutting

**A. 45° Miter Cutting**

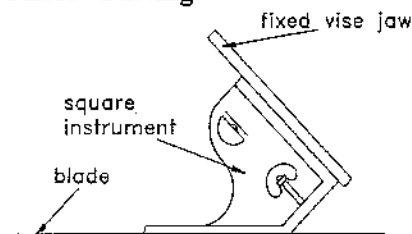


Fig. 4-7 45° Miter Cutting

1. Move right guide arm to end of dovetail guide.
2. lift the saw bow up to the maximum vertical position.
3. loosen the two lock bolts (Fig 4-6 No.2 and No.3) of the fixed vise jaw, then adjust the fixed vise jaw 45° against saw blade by an accurate square instrument (Fig 4-7). Tighten the two lock bolts.
4. Clamp the cutting material by the movable vise jaw

**B. 90° Miter Cutting**

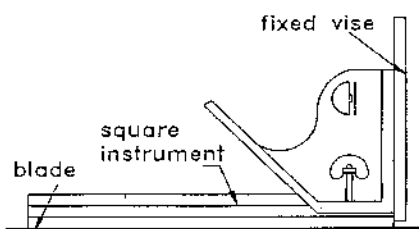


Fig. 4-8 90° Vise Repositioning

When repositioning the vise for 90° cutting, check squareness by placing an accurate square instrument against the fixed vise jaw and alongside the saw blades, as shown in Fig 4-8

**4.4.6 IRREGULAR CROSS SECTION**

If the cross section of the cutting material is irregular, make sure that the cutting edge is a surface but not a sharp corner, in other words, arrange the workpiece at the position that the teeth on the cutting edge are as many as possible, as shown in Fig

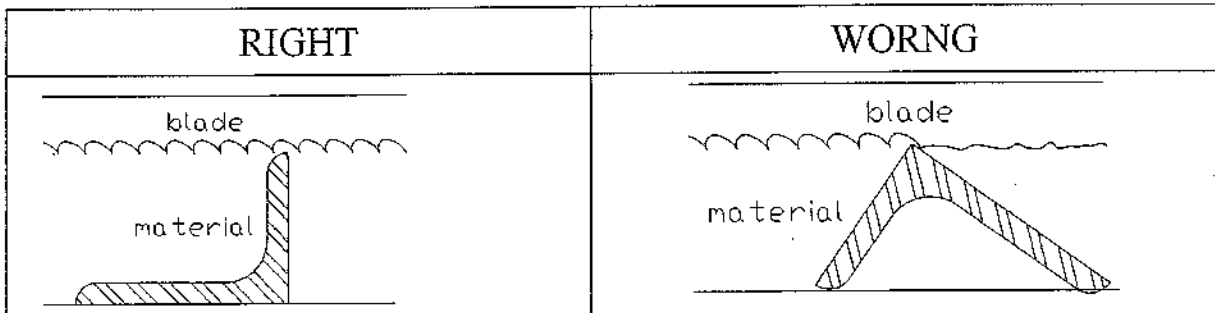
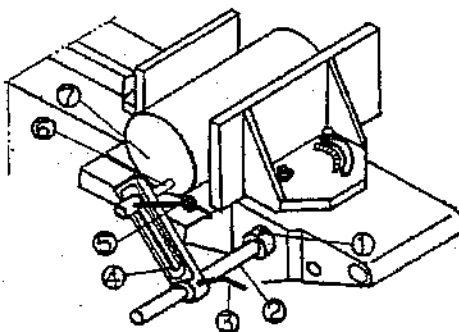


Fig. 4-9 Cutting of the Irregular cross Section

**4.4.7 MATERIAL STOP BRACKET**

1. Set up the depth bar and tighten the saw screw, as shown in Fig 4-10 .(Originally the depth bar is not installed on the machine for the safety consideration of shipping).
2. Lift the saw and clamp the material, then lower down saw bow to the position that the clearance between the saw blade teeth edge and the material top point is about 1 mm.
3. Measure the desired cutting length.
4. Loosen the Fastening Bolt (No.3 in Fig 4-10 ).
5. Set the stopper (No.6 in Fig.4-10) to a position that the end of the stopper is in front of the end of the material.
6. Tighten the stopper in the bracket (No.4 in Fig 4-10) by using the stopper handle (No.5 in Fig 4-10 )
7. Move the stopper bracket toward the material and touch the end surface, then tighten the fastening bolt.



No.	Part name	Remark
01	Set screw	
02	Depth bar	
03	Fastening bolt	
04	Stopper bracket	
05	Stopper handle	
06	Stopper	
07	Front end of the material	

Fig. 4-10 Material Stop Bracket Mechanism

**4.4.8 BLADE TENSION ADJUSTMENT**

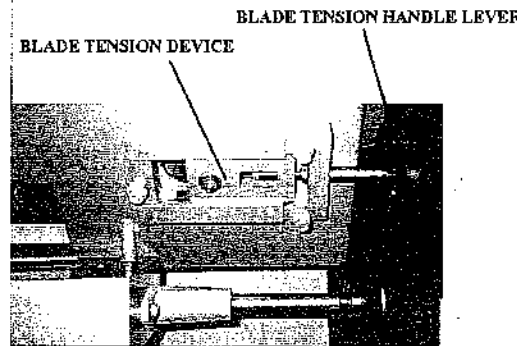
1. Turn the handle lever of the blade tension device **CLOCKWISE** to **TIGHTEN** the blade and then the blade tension is increased.
2. Turn the handle lever of the blade tension device **COUNTERCLOCKWISE** to **SLACKEN** the blade and then the blade tension is decreased.

# OPERATING INSTRUCTION

## Section 4

3. Blade tension should be adjusted so that the blade will not slip on the bandwheels during the cutting period. Do not apply excessive tension to the blade to prevent breaking.

**NOTE:** As you turn the saw blade tension handle clockwise until bottom of handle meets the stopper, line up the two grooves. (This level of tension is factory adjusted.)



Some of the uncommon problems may be encountered in band saw are described here with recommendation for correcting them.

### 1. vibration on saw bow

A. Cause (1): Dull blade or strippe blade.

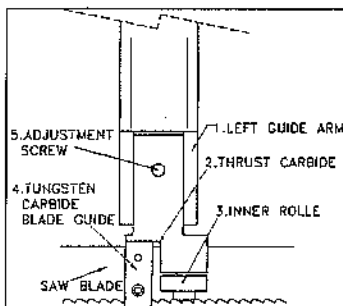
Remedy: Replace a new saw blade.

B. Cause (2): Too large clearance between saw blade and thrust roller (Fig 11-1-(2)).

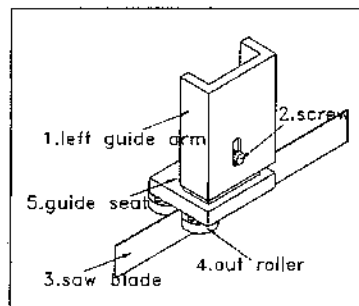
Remedy: a. Loosen the two screws (Fig 11-2-(2)).

b. Move guide seat (Fig 11-2-(5)) downward to adjust the clearance of 0.03~0.05mm between thrust roller (Fig 11-1-2) and saw blade.

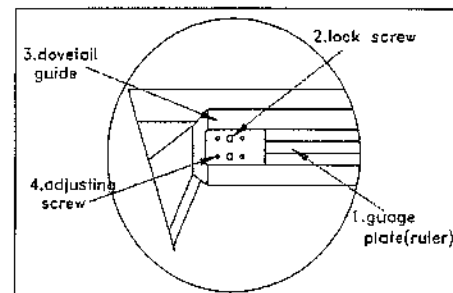
c. Re-fasten the two screw (Fig 11-2-(2)).



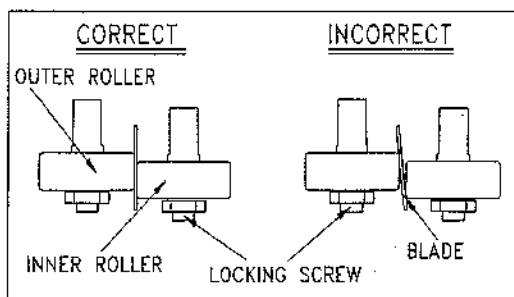
(Fig 11-1)



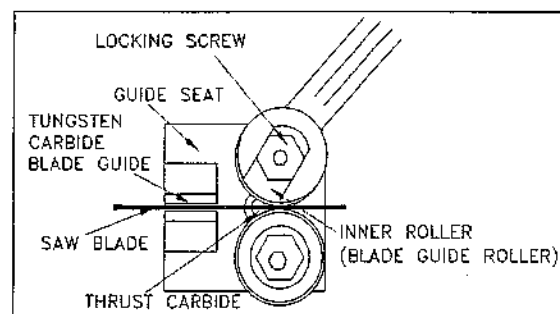
(Fig 11-2)



(Fig 11-5)

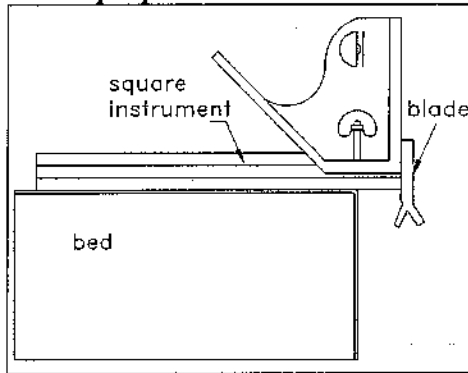


(Fig 11-3)



(Fig 11-4)

**2. An impropo slant downward Y axis (Fig 11) cut-off work**



(Fig 12)

- A. Cause (1): Improper blade tension.  
Remedy: Consult blade tension.
- B. Cause (2): Incorrect alignment between rollers (outer, inner) and saw blade (Fig 11-3 left).
- C. Remedy: a. Loosen the tungsten carbide blade guide (Fig 11-1-(4)).  
b. Loosen locking screws (Fig 11-4) by Hex. wrench.  
c. Adjust eccentric bushing (Fig 11-4) by a spanner to make saw blade 90° against bed surface (Fig 12)

D. After finishing the adjustment, tighten the locking screw (Fig 11-4), and make sure the face of tungsten carbide blade guide contacts completely against alongside the saw blade (Fig 11-1-(4)).

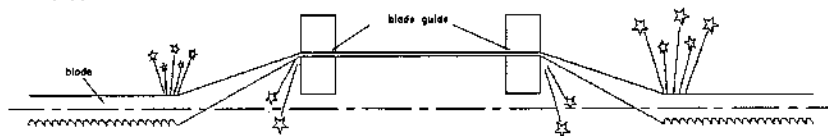


Fig 13 INCORRECT

**CAUTION:** The adjusting screw (Fig 11-1-(5)) is factory fixed. Please do not try to adjust it unless the machine is seriously impacted by an accident as to lost the accuracy.

**NOTE:** After finishing all the adjustment, be sure to double check the saw blade must not be in twisted condition. (Fig 13)

**3. An impropo tilt inward or toward X axis (Fig 11) cut-off work**

Cause: Incorrect alignment between fixed vise jaw and saw blade.  
Remedy: Adjust the vise 90° against saw blade. (consult Fig 4-8).

**4. Guide arm slide. (Fig 11-5)**

The dovetail guide is factory accurately fixed. Please do not try to adjust it unless the machine is seriously impacted by an accident. If adjustment is necessary, please follow the procedures

- (1). Take off the arm guides.
- (2). Take off the guage plate (which is ahered to dovetail with glue), you will find there 4 adjusting screws on each end of left and right side.
- (3). Replace the arm guides.
- (4). Make fine adjustment on these adjusting screws.

**4.4.9 LEVELLING OF SAW BLADE AND BED HORIZONTAL AT LINE**

1. Place a level on the bed (No. 4) to obtain the leveling, as shown in Figure 4-6 below.
2. Loosen the lock nut (No. 3) and lower down the saw bow, then place the level on the top of saw blade (Fig. 4-7) to obtain leveling of the bed horizontal line by adjusting the screw (No. 2).
3. Tighten the lock nut when leveling is obtained.

**NOTE** If the saw blade top line is not leveled with the bed horizontal line, the workpiece can not be fully cut through.

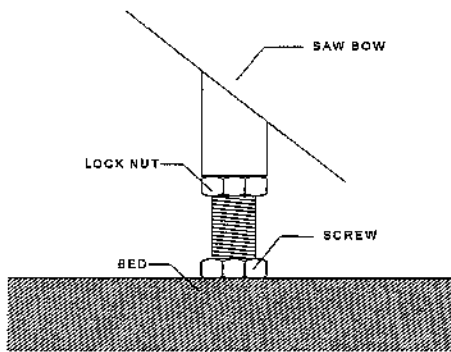


FIG 4-14 ADJUST BOLT SET

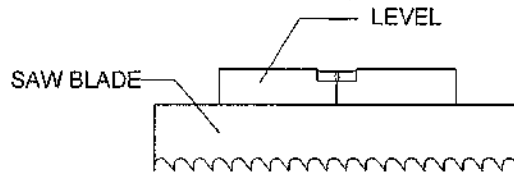


FIG 4-15 SAW BLADE LEVEL

The saw bow should stop simultaneously or slightly before the screw in the above figure hits the bed. This automatic stop is activated by the lower limit switch. These two stopping mechanism are both pre-adjusted. Please do not re-adjust unless necessary.

#### 4.4.10 AUTOMATIC SHUT-OFF

The motor should shut-off immediately after the blade has cut through the material and just before the sawhead becomes resting on the horizontal stop screw. Please refer to 4.4.9

1. check the adjustment of horizontal stop screw.
2. Raise the sawhead and push the band saw motor on button.
3. Lower down the sawhead slowly and observe the actuation of the switch mechanism.

#### 4.4.11 Break-in Operation

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:

1. Reduce the blade speed to one-half of its normal setting.
2. Lengthen the time required for cutting 2-3 times that of normal.
3. The break-in operation can be considered sufficient if all the unusual noises or metallic sounds have been eliminated. For instance, to completely break in the blade, a minimum of five complete cuts of a 200 mm (7.9 in.) diameter workpiece will be required
4. After completion of the break-in operation, return the blade speed and descending speed of the saw head to their normal settings.

#### 4.4.12 HOW TO SELECT AND REPLACE THE SAW BLADE

##### Unfolding saw blade:

When you decide to unfold saw blade in order to change a new one, you can follow the method as illustrated below:

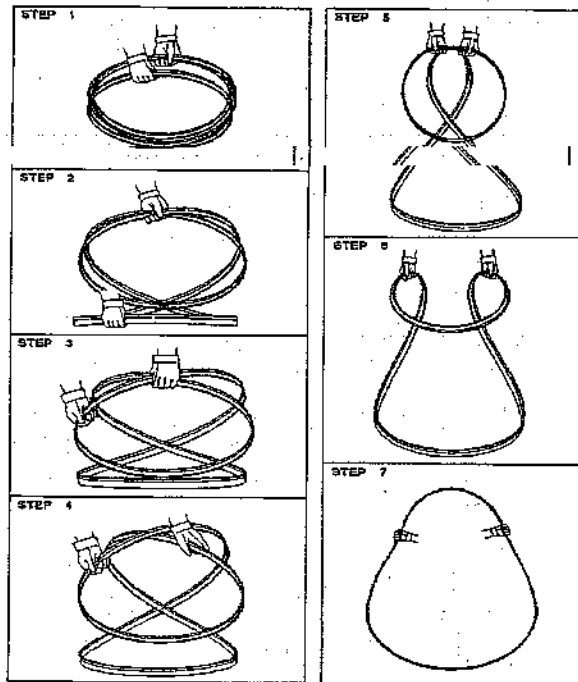
##### Blade Selection

Please refer to Section 7: "Band Saw Cutting - A Practical Guide," there are lots of important information related to your cutting needs and your new blades and saws.

**CAUTION: Please wear leather gloves and protective goggles in those procedures. You can refer Section 4.2.2. manual model to operation.**



### Installing saw blade:



1. Turn on power to move saw head upward until the wheel covers can freely open and close.
  2. Please disconnect power by depressing button (10) on the control panel to turn the machine off and disconnect power from the machine.
  3. Remove blade guards.
  4. Open the wheel covers fully and make sure they remain in a steady position.
  5. Loosen the tension on the blade by turning the saw blade tension handle to move the driven wheel closer to the drive wheel.
  6. Push down the saw blade from where it inserts the rollers. (**Caution:** make sure no one will accidentally put power back on the machine, then wear leather gloves to handle the blade.)
  7. Loosen the wire brush lock lever, and lower the wire brush.
  8. Clean the saw band guides before installing a new saw blade.
  9. Install the saw blade on the drive and driven wheels with the cutting edge facing down.
  10. Put the saw blade into the left-hand and right-hand saw blade inserts until the back of the blade is slightly touching the backup rollers (thrust rollers) in each saw blade insert.
  11. Press the back of the saw blade against the flange of the drive wheel.
  12. Press the back of the saw blade against the flange of the driven wheel, and turn the saw blade tension handle clockwise until bottom of handle meets the stopper, then line up the two grooves. (This level of tension is factory adjusted.)
  13. Please gently close the wheel cover.
  14. Reconnect the power to the machine, and turn the machine back on.
  15. Press the blade drive "ON" button to start the saw blade running for a few seconds, then stop the blade by pressing blade drive "OFF."
  16. Open the wheel cover and check to see that the saw blade is not off the drive and driven wheels and is correctly located in the blade guides.
  17. Check and adjust if the brush is allowing the brush tips running free through the bottom of the teeth.
  18. Please close the wheel cover.
  19. Your saw blade installation is complete.
- Thank you for following the instructions. If there is any advice or comments, please send the "Return Envelop" on the back of this manual along with feedback form to us. Your suggestions will help us understand and meet your needs.

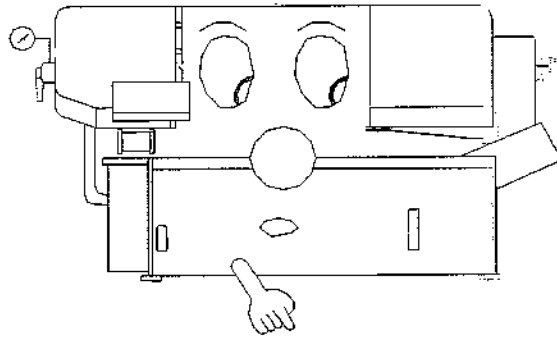
### 4.9 PROHIBITED MEASURES ON THE MACHINE

You can operate your machine easily and comfortably if you follow the instruction in this manual to operate your machine. We also list possible situations to avoid hazards in the danger zone. Please refer to section 2.3 for detail.



**Section 5**

*ELECTRICAL SYSTEM*



**SECTION 5**  
**ELECTRICAL SYSTEM**

**5.1 INTRODUCTION**

The electrical circuit diagram is discussed in this section. It is simple and easy to understand the diagram for machine maintenance in the future. Here, the electrical component layout on the machine and the component inside the electric cabinet will be described in FIG 5-1 & 5-2. The circuit symbol explanation and the circuit diagram will be described in FIG 5-3.

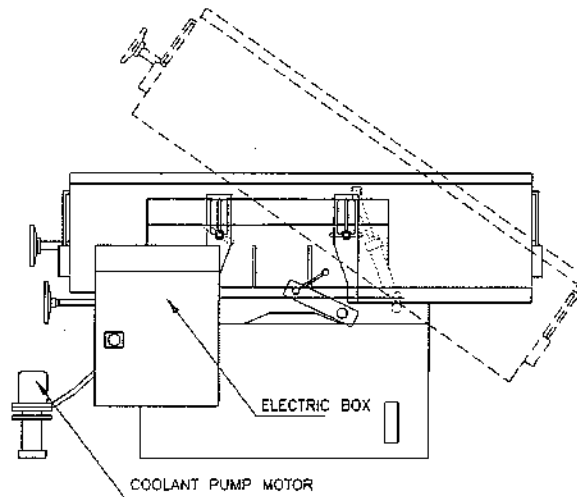


FIG 5-1 FRONT VIEW OF ELECTRIC COMPONENT LAYOUT

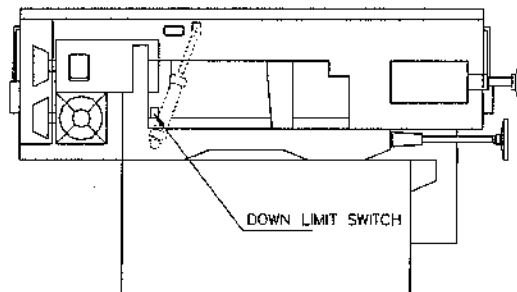
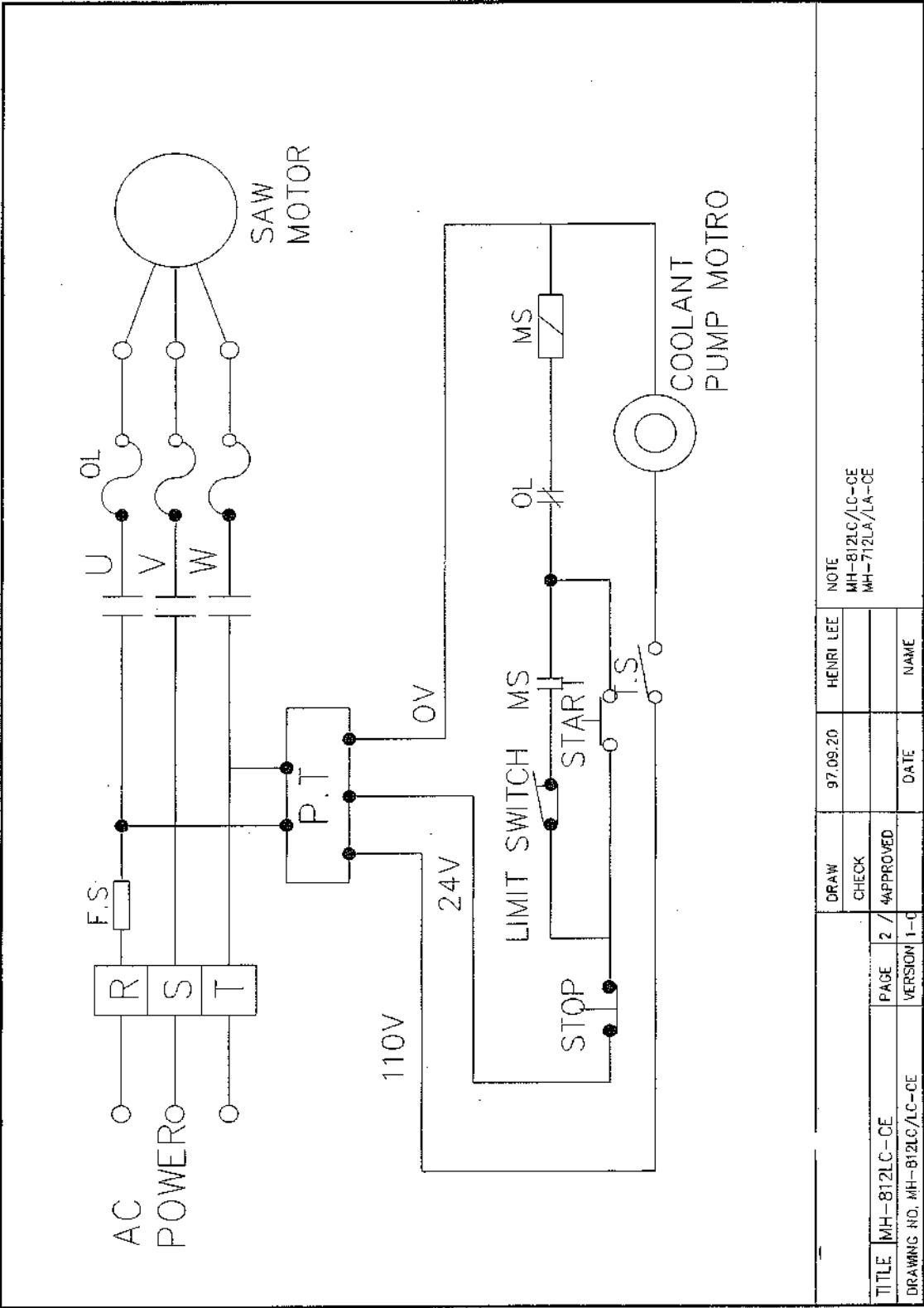


FIG 5-2 BACK VIEW OF ELECTRIC COMPONENT LAYOUT

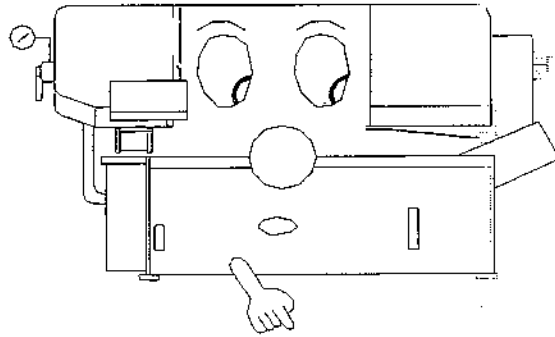


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Fig.5-3 POWER SUPPLY SYSTEM DIAGRAM

**Section 6**

*HYDRAULIC SYSTEM*



**SECTION 6****HYDRAULIC SYSTEM****6.1 INTRODUCTION**

The band saw model for your device is a hydraulic driven automatic machine. Most of the movement of the machine elements are powered by the hydraulic system. For example, the lifting of the saw head is driven by a hydraulic cylinder located between the machine base and saw head. The tension of the saw blade is also adjusted through a hydraulic cylinder mounted on the back of left saw wheel housing. The feed of the stock is also driven by a long stroke hydraulic cylinder which moves back and forth on the rear material support frame. The clamping of the workpiece is also done by the power of two hydraulic cylinders. Even for the multi-vise used in the occasion of bundle cutting, there are small hydraulic cylinders built inside.

**CAUTION**

**During installation or other handling of Teflon hoses do not bend hose to smaller than specified minimum bend radius. Installed Teflon hoses removed for other maintenance assessibility should be reinstalled in same location. These hoses develop a permanent set and straightening action could cause damage to the inner liner. Any sharp bends or bumps could cause liner to collapse and result in system leakage.**

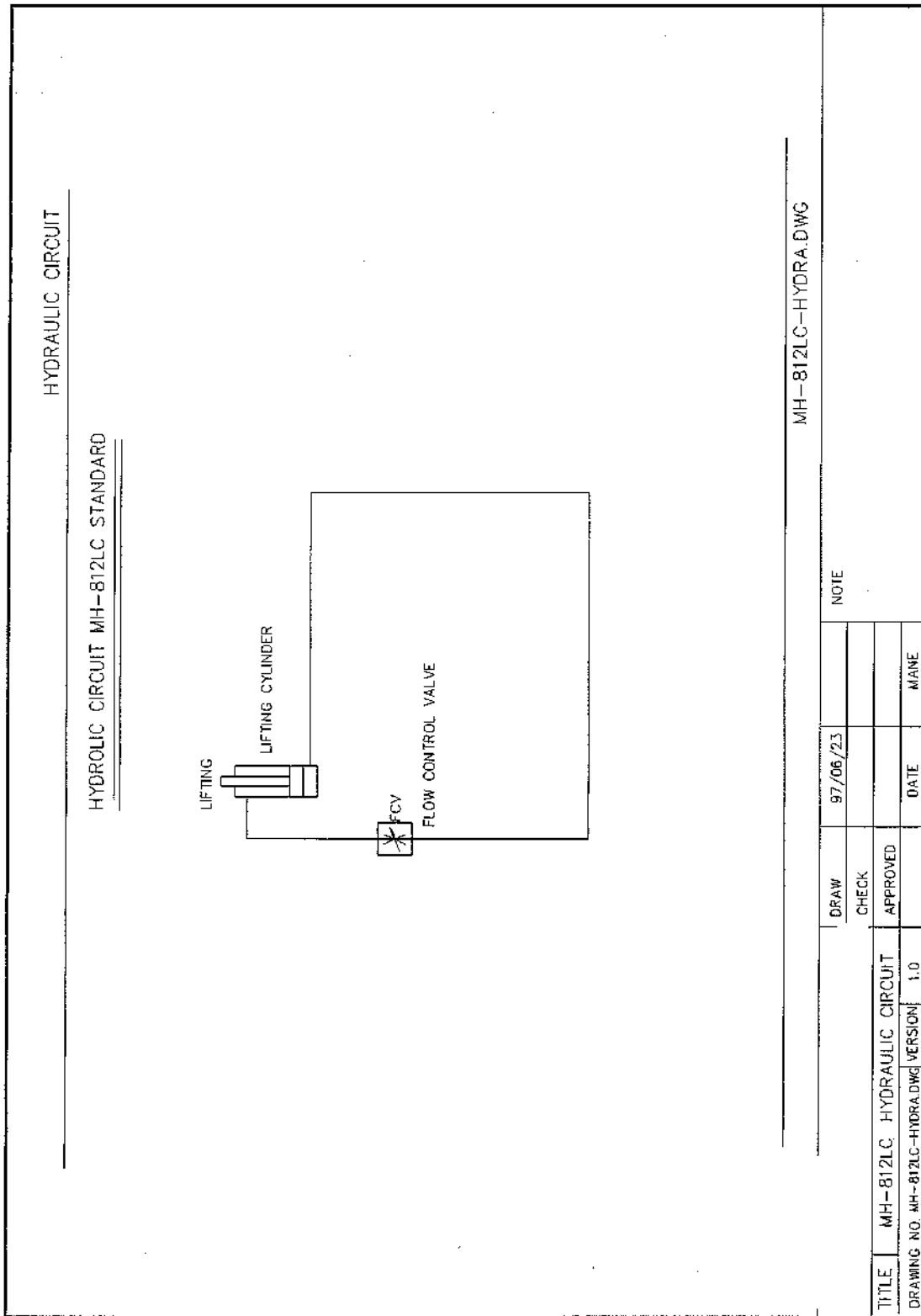
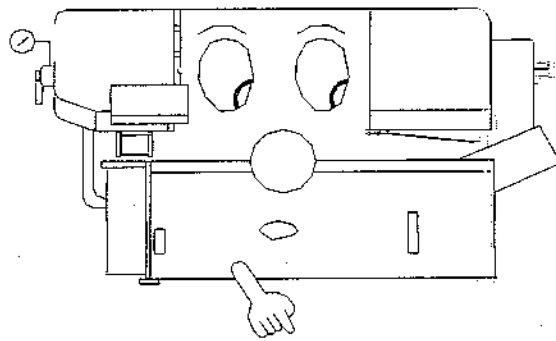


Fig 6-1 HYDRAULIC CIRCUIT

**Section 7**

*BAND SAW CUTTING  
A PRACTICAL GUIDE*





**SECTION 7****BAND SAW CUTTING - A PRACTICAL GUIDE****7.1 INTRODUCTION**

band saw 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 band saw blade, the machine has to be of rugged design, have high quality saw blade guides, have 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 holds 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.

**7.2 BAND SAW BLADE SELECTION**

The factors affecting cutting performance are:

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

Material and its relation to the cutting rate:

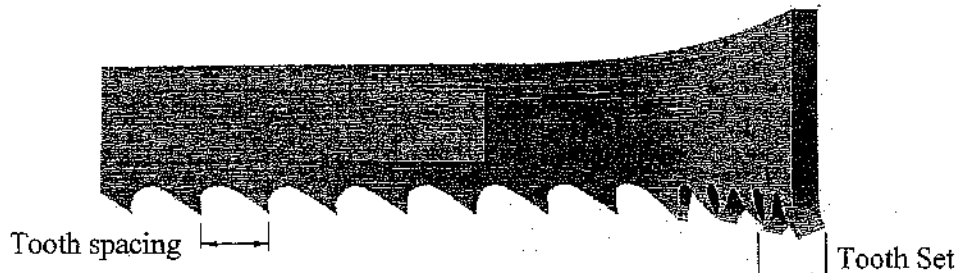


Fig. 7.1 Description of Band

- 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, set to the right, to the left 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. 7.1 as follows:

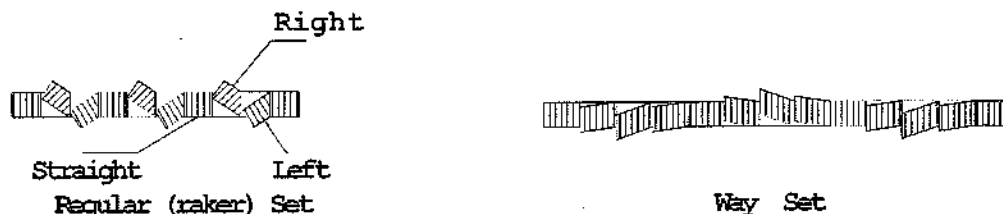


Fig. 7.2 The saw set

#### 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.

#### Blade selection:

There are five types of blade material generally used:

- Hard-back carbon
- Semi-high speed
- High speed
- Carbon
- Electron-welded blade

In most high speed production cutting either the semi-high speed or the electron-welded band are used. Electron welded blade is the best blade. But it is also the most expensive. To construct the electron-welded blade, M-2 tool steel is welded to the blade back. Therefore the blade is capable of very high surface speed. The semi-high speed blade is used more in structural because it is capable of taking a great deal more abuse. The hard-back carbon blade's teeth does not have red-hardness but if the blade is run slowly it can be very economical. We do not recommend carbon blades because the back of the blade is not sufficiently strong to stand adequate tension and because it has poor resistance to heat and abrasion. Usually, the coarse hook tooth blade will give better results, but accurate feed control is a must with a coarse tooth blade.

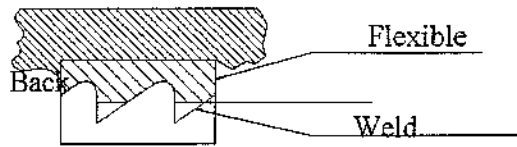


Fig. 7.3 Electron Welded Blade

A particular blade may have teeth which are too hard at the tips, causing them to break off in the material. This is most likely to happen as a result of chips wedging together in the cut. A broken tooth in the material can easily cause dulling on one side of the entire blade before it is dislodged from the cut.

**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:

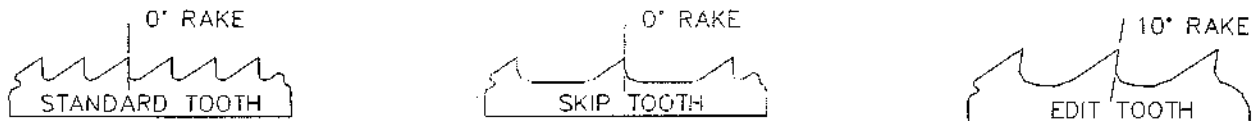


Fig. 7.4 Three styles of tooth

**Material Size and Shape:**

The optimum material width for a band saw blade is 1 inch wide by 0.35 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".

**7.3 Some Sawing Practices**

**7.3.1. Selection of Saw Pitch**

**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.

7.3.2. 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:

Sawing Practices:

Correct

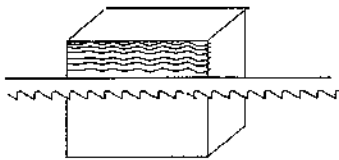


Several teeth contact work

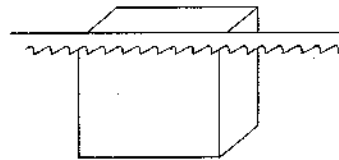
Incorrect



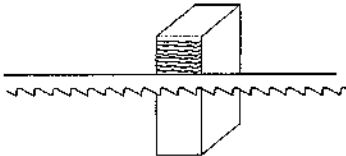
Teeth strike sharp edge



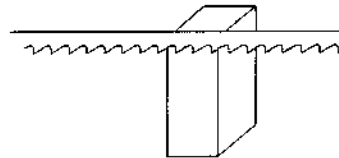
Coarse teeth clear chips freely



Teeth too fine for large solids



Three or more teeth on cutting wall



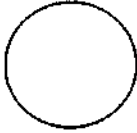
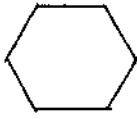

Coarse teeth rip on thin wall

Fig. 7.4 Some sawing practices


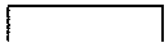

# BAND SAW CUTTING - A PRACTICAL GUIDE

## Section 7

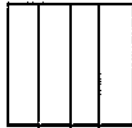
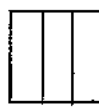

### Solid Stock:

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

### Structurals:

				
up to 10 mm	- 3/8"	10-8 TPI		
10-20mm	- 3/8-3/4"	8-10 TPI		
above 20mm	- 3/4"	6-8 TPI		

### Solid:

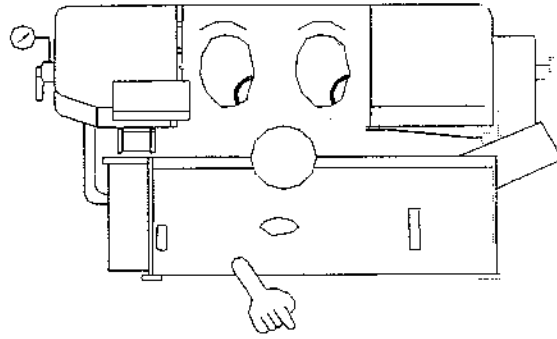
				
up to 20mm	- 3/4"	8-10 TPI		
20-80mm	- 3/4-3.1/4"	2- 8 TPI		
above 80 mm	- 3.1/4"	4- 6 TPI		

You can refer to the feed and speed chart (Metric Table) as follows:



**Section 8**

*MAINTENANCE & SERVICE*



**SECTION 8****MAINTENANCE & SERVICE****8.1 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.

**8.2 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.

**8.3 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 of work each day**

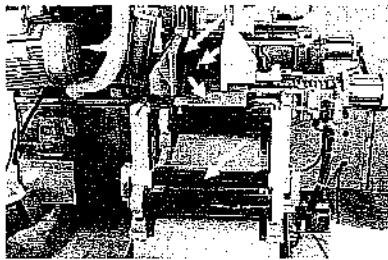
- ✓ 1. Please check the hydraulic oil level. If oil level volume below 1/2 please adding oil as necessary. (Filling up to 1/3 level is better for system operation.)
- ✓ 2. Please check the cutting fluid level, adding fluid as necessary. If the fluid appears contaminated or deteriorated, drain and replace 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 work each day**

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

**WARNING**

- ⊙ Do not discharged cutting fluid while the saw blade is operating. Because, it will cause severe injury operator hand.
  - ⊙ Be sure the saw blade is fully stop, it will be performed after working inspection.
- ✓ 2. Lubricate the following points:
- Front vise slide plates
  - Rear vise slide plates
  - Feed cylinder guide shafts
  - Rear vise guide bars



Every monthly maintenance.

Please apply grease to the following points:

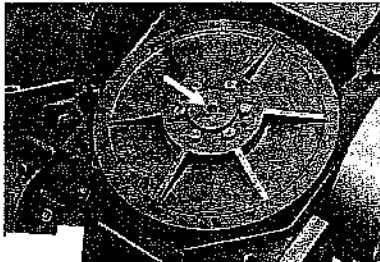
- ✓ 1. Idle wheel
- ✓ 2. Driven wheel
- ✓ 3. Blade tension device
- ✓ 4. Worm shaft

Recommended Grease:

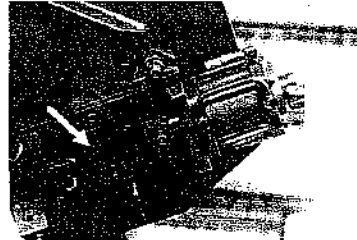
Shell Alvania EP Grease 2

Mobil Mobilplex 48

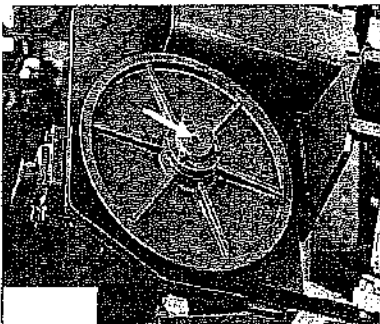
1.



3.



2.



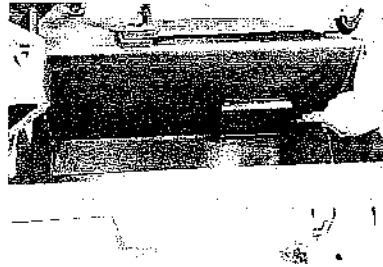
4.





### Every six months maintenance.

- ✓ 1. Please clean the filters in the cutting fluid tank. (First, please remove the chip conveyor screw cover)



- ✓ 2. Please replace the transmission oil after the first three months (or 600 hours of operation). Thereafter, every six months (or every 1200 hours of operation), whichever occurs first, check the sight gauge to ascertain the transmission oil level. Lubricant oil must have a viscosity sufficient to reduce friction of the worm and worm gear. So that the gear reducer can operate smoothly under high load and impact.

#### Recommended Oil:

- SHELL Omala Oil 220 (Cold area use. eg: Korea, Russia. ....)
- Mobil Gear 630



- ✓ 3. Replace the hydraulic oil.

#### Recommended Oil:

Shell Tellus 32

Mobil DTE Oil Light Hydraulic 24

### 8.4 STORAGE CONDITION OF THE MACHINE

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% of (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.

**8.5 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

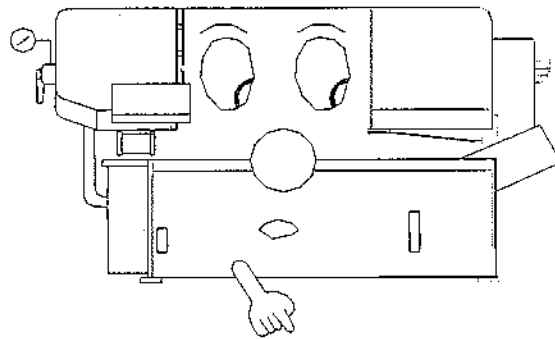
**8.6 OIL RECOMMENDATION FOR MAINTENANCE**

Item		Method	Revolution	Suggest oil
Dovetail guide		Keep grease covered. Antirust.	Daily	Shell R2
Roller bearing		Sweep clean and oil with lubricant.	Daily	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 tension device		Use grease gun, but not excess.	Monthly	Shell R2
Reducer		Inspect once a week. Change oil of 600hrs of using. Change it every year.	Regularly	Omala oil R220 Mobil Gear 630
Hydraulic system		Inspect half a year. Change oil every year.	Regularly	Shell Telhus 32 Mobil DTE oil Light Hydraulic 24
Bearing	Inserts	Oil with lubricant, but not excess.	Daily	Shell R2
	Band wheel	Oil with lubricant, but not excess.	Weekly	
	Cylinder	Oil with lubricant, but not excess.	6 Monthly	
	Wire brush	Oil with lubricant, but not excess.	6 Monthly	

**NOTE: Turn off the stop circuit breaker switch before servicing the machine. Then post a sign to inform people that the machine is under maintenance**

**Section 9**

*SYSTEM TROUBLE  
SHOOTING*



## SECTION 9

### SYSTEM TROUBLE SHOOTING

#### 9.1 INTRODUCTION

All the machines being manufactured by \_\_\_\_\_ pass a 72 hours continuously running test before shipping out and \_\_\_\_\_ is responsible for the after sales service problems during the warranty period if the machine 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.

As a twenty year old company, \_\_\_\_\_ has accumulated enough experiences and technical data to handle all of the regular system troubles. Meanwhile, the engineering department of \_\_\_\_\_ had been continuously improving the machines to prevent all possible troubles.

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

#### 9.2 PRECAUTION

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.

# SYSTEMS TROUBLE SHOOTING

Section 9

## 9.3 GENERAL TROUBLES AND SOLUTIONS

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

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

# SYSTEMS TROUBLE SHOOTING

Section 9

## 9.4 MOTOR TROUBLES AND SOLUTIONS

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

# SYSTEMS TROUBLE SHOOTING

Section 9

## 9.5 BLADE TROUBLES AND SOLUTIONS

**WARNING**      **DISCONNECT POWER CORD TO MOTOR BEFORE ATTEMPTING ANY REPAIR OR INSPECTION**

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

# SYSTEMS TROUBLE SHOOTING

Section 9

## 9.6 SAWING PROBLEMS AND SOLUTIONS

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

### Sawing Problems and Solutions

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



# SYSTEMS TROUBLE SHOOTING

## 9.7 MINOR TROUBLE SHOOTING

Item	Symptom	Probable Cause	Corrective Action
1	Saw blade motor does not run even though blade drive button is depressed.	a. Overload relay activated	Reset
		b. Vise clamp selectswitch turned to " " (with diagram)	Turn it to " " (with diagram)
		c. Saw blade is at lower limit position	Depress BLADE UP button
2	Rear vise does not move forward even though its selector in main-manipulated	a. Auto-manual selectswitch turned to " " (with diagram)	Turn it to " " (with diagram)
		b. Saw blade motor is in operation	Depress BLADE UP button
		c. Saw head not at its up limit position.	Raise saw head to its up limit position
3	Rear vise does not move backward even though its selector is main-manipulated	a. Auto-manual selectswitch turned to " " (with diagram)	Turn it to " " (with diagram)
		b. Saw blade motor is in operation	Depress BLADE UP button
4	Vise does not open or close even though vise clamp selectswitch is manipulated	a. Auto-manual selectswitch turned to " " (with diagram)	Turn it to " " (with diagram)
		b. Saw blade motor is in operation	Depress BLADE UP button

For problem not indicated on the above chart, please refer to the electrical circuit and hydraulic circuit diagrams provided on section 4, 5 of this manual.

**NOTE:**

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

## 9.8 THE ADJUSTMENT OF THE FEEDING 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.

## SYSTEMS TROUBLE SHOOTING

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Section 9

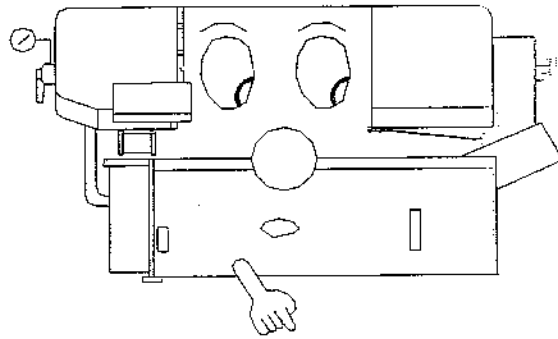
4. After finished the adjusting, fix the roller table.

**WARNING:**

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

**Section 10**

*PART LIST*



**PART LIST**

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Section 10

# PART LIST

## Section 10

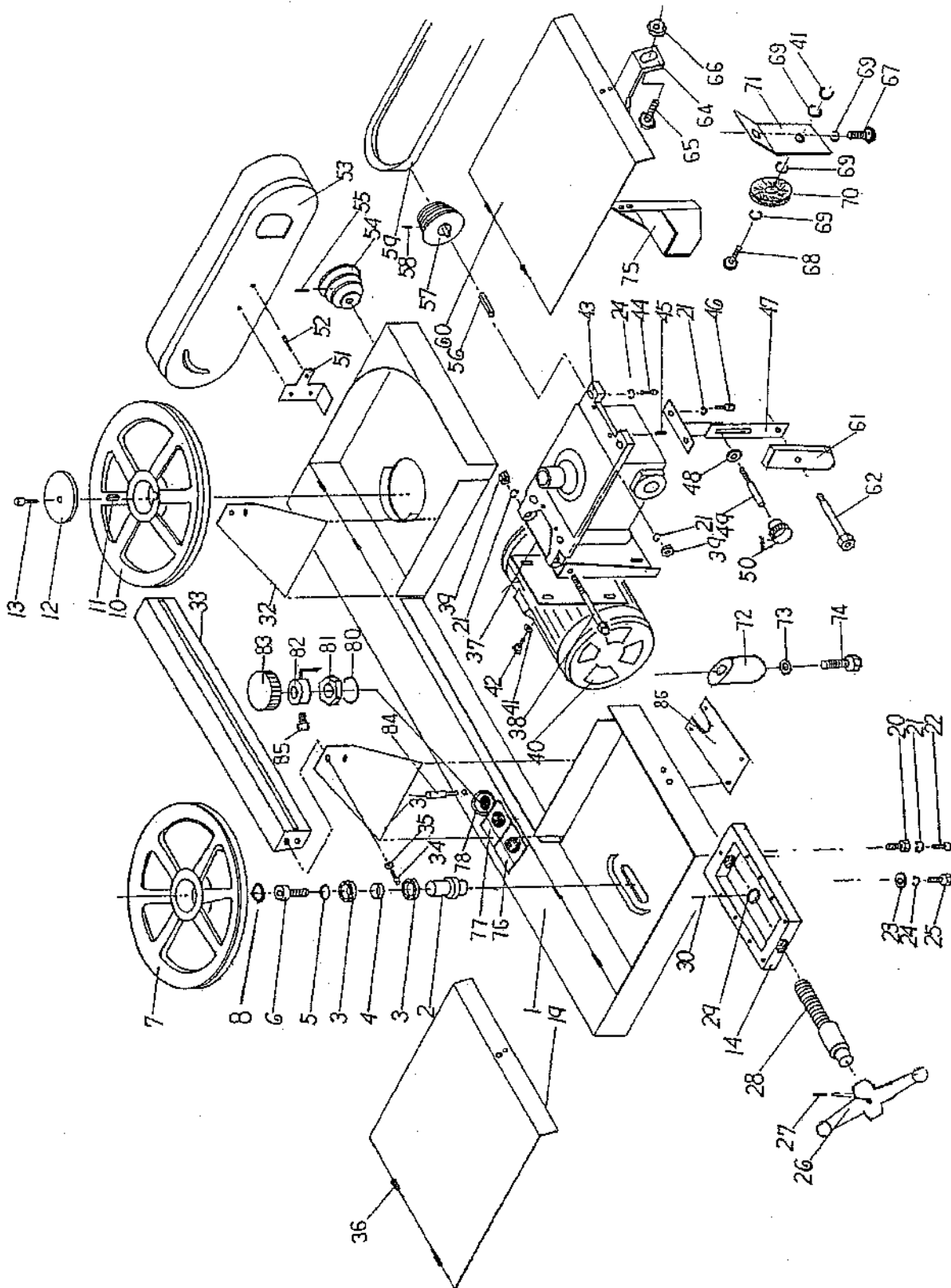


Fig 1 SAW BOW ASSEMBLY

**PART LIST**

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NO.	PART NO.	PART NAME	PART NAME	PART SPEC.	QTY
1-1	MLA-2001	saw bow			11
1-2	MAL-2004	idle wheel shaft			2
1-3	PP-14130	bearing		6205Z	1
1-4	MAE-2025	bearing washer			1
1-5		washer		1/2"	1
1-6		bolt		1/2" x 3/4"	1
1-7	MLA-2003	idle wheel			2
1-8		snap ring		RS2	
1-9					1
1-10	MLA-2002	drive wheel			1
1-11		key		7 x 8 x 20L	1
1-12	MAE-2014	washer			1
1-13		screw		5/16 x 1/2"	1
1-14	MLA-20059	tension plate assembly			1
1-15					
1-16					
1-17					
1-18					
1-19	MLC-3012	wheel cover(left)			1
1-20	MLA-2019	adjusting bolt			3
1-21		spring washer		5/16"	12
1-22		screw		5/16-18UNC x 1/2"	3
1-23		washer		1/2"	1
1-24		spring washer		1/2"	5
1-25	MAE-1010A	bolt (oil)		1/2" x 3/4"	1
1-26	SJY-1103	blade tensioning handle			1
1-27		set screw		M6 x 12L	1
1-28	MJA-2023	blade tensioning screw			1
1-29	MJA-2024	collar			1
1-30		spring pin		φ3 x 25L	1
1-31	MLC-3002A	left bracket			1
1-32	MLC-3002B	right bracket			1
1-33	MLB-3003	guide bar			1
1-34		screw		5/16-18UNC x 1/2"	4
1-35		spring washer		5/16"	4
1-36	MJA-1004	pin			4
1-37	MAE-2028A	motor mounting plate			1
1-38	MAE-2045	lock screw			1
1-39		nut		5/16-18UNC	6
1-40	PP-31023	motor			1
1-41		spring washer		5/16"	5
1-42		screw		5/16-18UNC x 1"	4
1-43	PP-16012	gear box			1
1-44		bolt		1/2W-12 x 3/4"	4
1-45		set screw		5/16-18UNC x 3/4"	5
1-46		screw		5/16-18UNC x 1"	4

Fig 1 SAW BOW ASSEMBLY

**PART LIST**

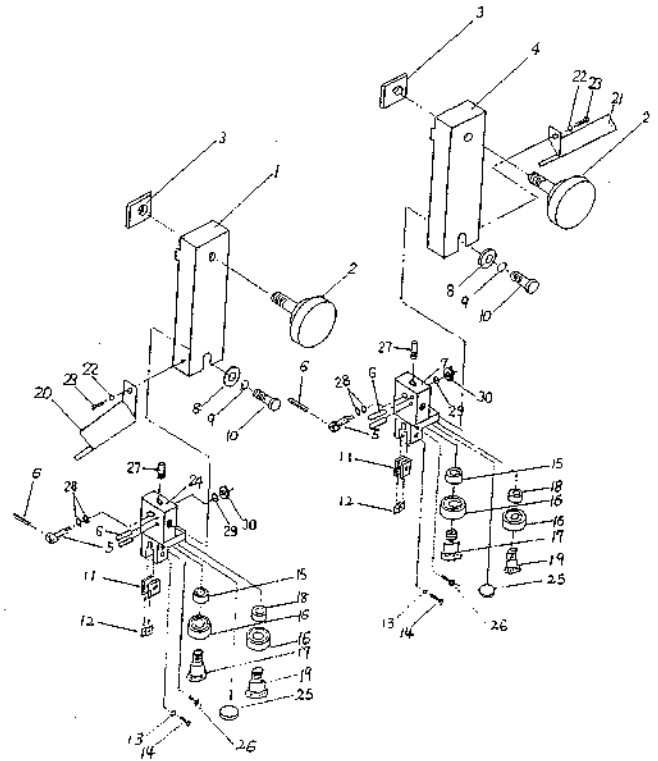
Section 10

NO.	PART NO.	PART NAME	PART NAME	PART SPEC.	QTY
1-47	MJA-2068	adjusting plate			1
1-48	MJA-2047	fixed nut			1
1-49	MJA-2046	fixed shaft			1
1-50	PP-52040	knurled nut		3/8"	1
1-51	MLA-2015	breit guard bracket			1
1-52		screw		1/4-20UNC x 3/8"	2
1-53	MAE-2012	pulley cover			1
1-54	MAE-2010B	transmission pulley(M)			1
1-55		set screw		5/16-18UNC x 1/2"	1
1-56		key		7 x 7 x 20L	1
1-57	MAE-2011	transmission pulley (GB)			1
1-58		set screw		5/16-18UNC x 1/2"	1
1-59	PP-56060	V belt		A-32	1
1-60	MLC-3012B	wheel cover (right)			1
1-61	MJA-2070	motor adjusting plate			1
1-62	MJA-2073	motor adjusting nut			1
1-63		pin		5/32 x 1 1/4"	1
1-64	MJP-3004	spring plate			2
1-65		screw		3/16 x 1/2"	4
1-66		nut		3/16"	4
1-67		screw		5/16 x 1/2"	1
1-68		screw		5/16 x 1 1/4"	1
1-69		washer		5/16"	6
1-70	PP-58002	wire brush		90 x 8mm	1
1-71	MJA-2040	brush bracket			1
1-72	MJA-2036	saw bracket			1
1-73		nut		3/8"	1
1-74		screw		3/8" x 1"	1
1-75	MLC-3030	brush cover			1
1-76	KM-1031	plate			1
1-77	KM-1032	plate			1
1-78	PP-61005	plate			1
1-79		nipple		1/16"	1
1-80		washer		φ16	1
1-81	MAJ-4010	nut			1
1-82	MAJ-4007	pointer & bracket			1
1-83	PP-21010	knob		RN-99V	1
1-84	MAJ-4008	pointer rod			1
1-85		screw		3/16 x 3/8"	1
1-86	MLA-2015	saw rear cover			1
1-87					
1-88					
1-89					
1-90					
1-91					
1-92					

Fig 1 SAW BOW ASSEMBLY

**PART LIST**

Section 10



**Fig 2 BLAE GUIDE ARMS ASSEMBLY**

# PART LIST

## Section 10

NO.	PART NO.	PART NAME	PART NAME	PART SPEC.	QTY
2-1	MLC-3015	guide arm (left)			1
2-2	PP-53050	bolt		3/8 x 2 1/2"	2
2-3	MLB-3011	clamping block			2
2-4	MLC-3015	right guide arm			1
2-5	MJS-9012	needle valve			2
2-6		spring pin		φ3 x 20l	6
2-7	MJS-9012	right guide seat			1
2-8		washer		M10	2
2-9		spring washer		M10	2
2-10		screw		M10 X40L	2
2-11	MJS-9009	tungsten carbide blade guide			4
2-12	MJS-9010	washer			4
2-13		spring washer		M4	4
2-14		screw		M4 x 12L	4
2-15	MJS-9011	collar			2
2-16	PP-14270	guide bearing		SKF-6200VV	4
2-17	MJS-9013	roller pin			2
2-18		collar		M10	2
2-19	MJS-9014	roller pin			2
2-20	MLC-3019	left blade guard			1
2-21	MLC-3020	right blade guard			1
2-22		washer		1/4"	2
2-23		screw		1/4 x 1/2"	2
2-24	MJS-9006	left guide seat			1
2-25	MJS-9008	tungsten carbide blade guide			2
2-26		screw		1/4" x1"	2
2-27	MAB-6014	connect			2
2-28		O - ring		P5	4
2-29		spring washer		3/16"	2
2-30		nut		3/16"	2
2-31					
2-32					
2-33					
2-34					
2-35					
2-36					
2-37					
2-38					
2-39					
2-40					
2-41					
2-42					
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2-45					
2-46					

Fig 2 BLAE GUIDE ARMS ASSEMBLY



# PART LIST

## Section 10

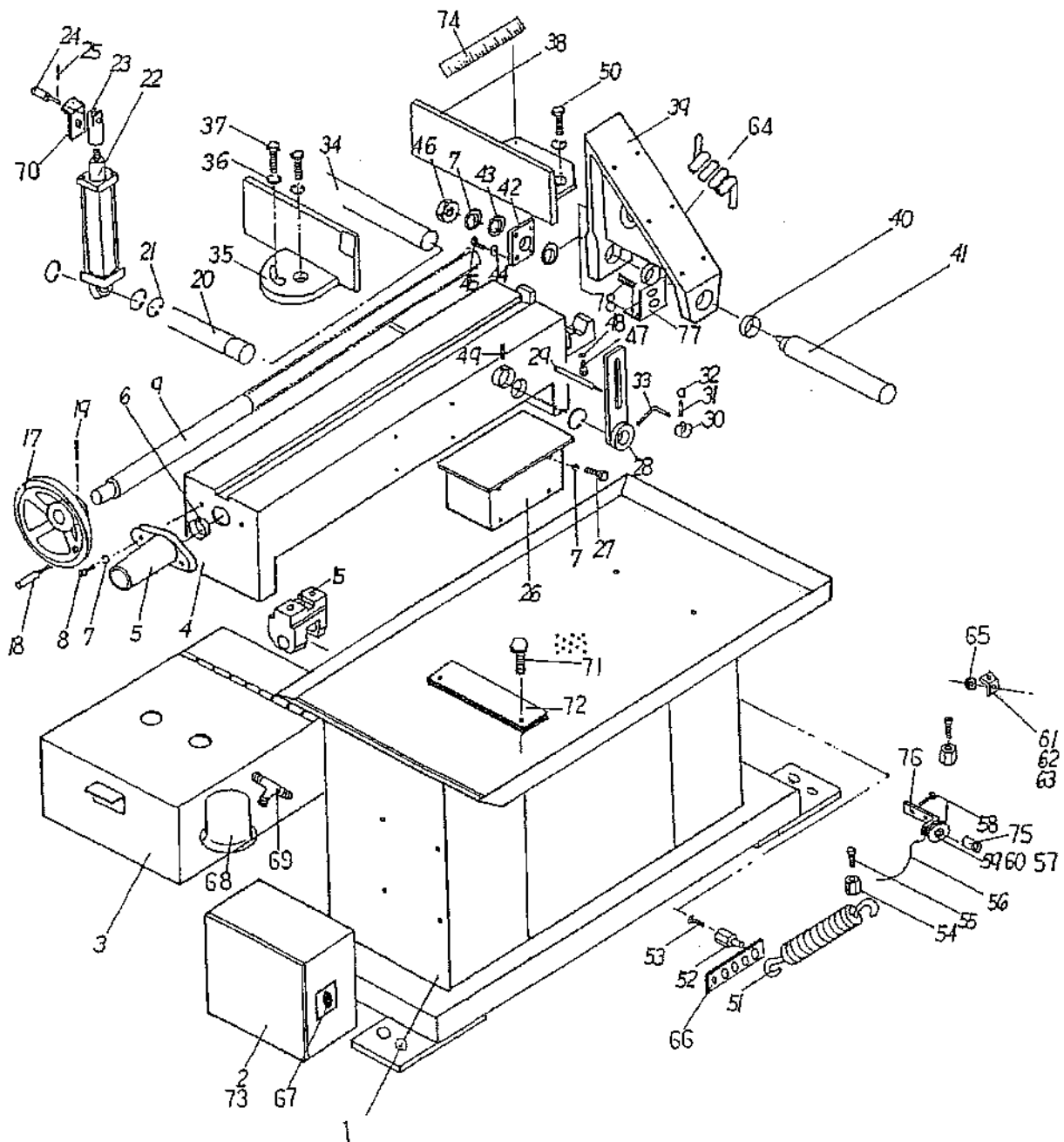


Fig 3 FOUNDATION AND BED ASSEMBLY

PART LIST

Section 10

NO.	PART NO.	PART NAME	PART NAME	PART SPEC.	Q'TY
3-1	MLS-3016	base			1
3-2	MLS-3026	electric box			1
3-3	PP-57050	coolant tank			1
3-4	MLA-1001	bed			1
3-5	MJA-1012	lead screw seat			1
3-6	MJA-1013	collar			1
3-7		spring washer			9
3-8		screw		3/8"	2
3-9	MLS-3022	vise lead screw		3/8-16UNC x 1"	1
3-10					
3-11					
3-12					
3-13					
3-14					
3-15	MLA-1007	lead screw nut			1
3-16					
3-17	PP-52020	handle wheel		6"	1
3-18	PP-52030	handle		3/8"	1
3-19		screw		5/16 x 1/2"	1
3-20	MLA-1008	cylinder pivot			1
3-21		snap ring		A25	4
3-22	MLA-1014	cylinder			1
3-23					1
3-24	MAE-1032	hinge shaft			1
3-25		pin		5/32 x 1 1/4"	1
3-26	MLA-1012	work support			1
3-27		screw		3/8 -16UNC x 5/8"	4
3-28	MJA-1031	stopper plate			1
3-29	MJA-1023	stopper			1
3-30	MJA-1025	lock nut			1
3-31	MJA-1026	stoper handle			1
3-32	PP-52040	plastic ball		3/8"	1
3-33	MAE-2007	fastening bolt			1
3-34	MJA-1024	depth bar			1
3-35	MLC-3027	movable vise jaw			1
3-36		spring washer		1/2"	4
3-37		bolt		1/2W-12 x 1 1/2"	2
3-38	MLC-3026	fixed vise jaw			1
3-39	MLC-1004	saw bow bracket			1
3-40	PP-13170	bushing		2820	2
3-41	MLA-1004	pivot			1
3-42	MLA-1009	pivot plate			1
3-43	MLA-1010	T.F. washer			2
3-44		spring washer		1/4"	3
3-45		screw		1/4-20UNC x 3/4"	3
3-46	MLA-1011	nut			1

Fig 3 FOUNDATION AND BED ASSEMBLY

PART LIST

Section 10

NO.	PART NO.	PART NAME	PART NAME	PART SPEC.	Q'TY
3-47		screw		5/16-18UNC x 2"	2
3-48		spring washer		5/16"	2
3-49		set screw		1/4-18UNC X1/2"	1
3-50		bolt		1/2W-12 x 1 1/2"	2
3-51	MLS-3018	spring			1
3-52	MLS-3027	bracket			1
3-53		screw		5/16-18UNC x 3/4"	1
3-54	MJA-1019	wire bracket			2
3-55		screw		1/4-18UNC x 1/2"	2
3-56		wire rope		4 x 900mm	1
3-57	MJA-1020	wire rope guide wheel			1
3-58		screw		5/16-18UNC X1"	3
3-59		nut		5/16-18UNC	2
3-60		spring washer		5/16"	2
3-61	MJA-1022	bracket			1
3-62		screw		5/16-18UNCx1"	1
3-63		spring washer		5/16"	1
3-64	MLC-3031	spring			1
3-65	PP-14210	beraing		607ZZ	1
3-66	MAE-1033	adjusting holder			1
3-67	KM-1034	plate			1
3-68	PP-32000	pump		CK-101-110V-1P	1
3-69	PP-20911	connect			1
3-70	MLC-2031	cylinder upper ear			1
3-71		screw		3/8" x 2"	4
3-72	MLA-2028	plate			2
3-73	MLS-3028	plate			1
3-74	MJA-1029	angle plate			1
3-75	MJA-1033	support			1
3-76	MJA-1021	bracket			1
3-77	MLC-1006	L.S bracket			1
3-78	PP-90010	limit switch			1
3-79					
3-80					
3-81					
3-82					
3-83					
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3-88					
3-89					
3-90					
3-91					
3-92					

Fig 3 FOUNDATION AND BED ASSEMBLY

## NOTES

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