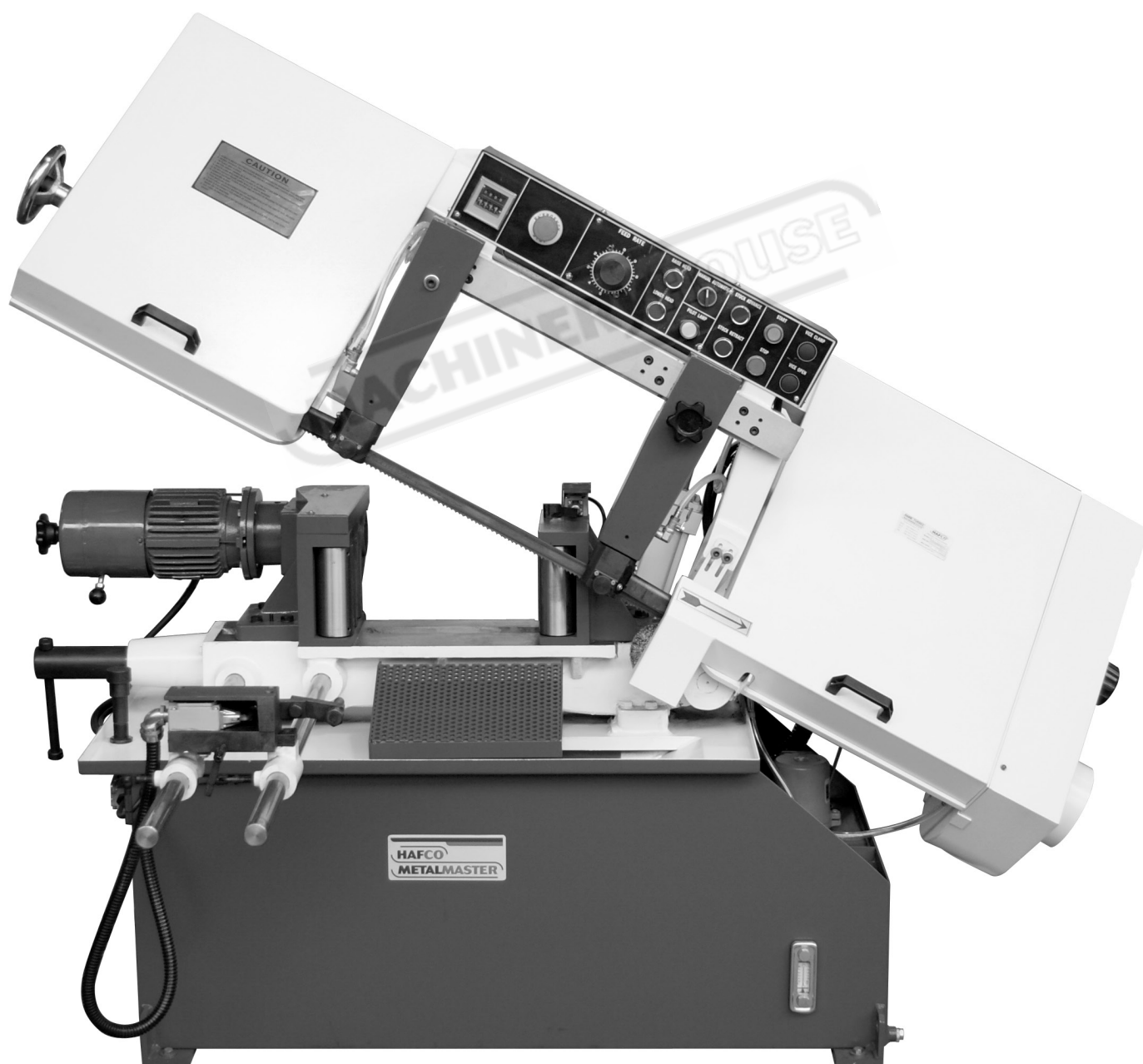


# INSTRUCTION MANUAL

## BS-12AF Automatic Roller Feed Metal Cutting Band Saw (415V) 330 x 200mm (W x H) Rectangle



**B037**

## ABOUT THIS MANUAL

Thanks again for buying SHEN JANG horizontal band saw! This manual contains all the information you need when transportation, installation, operation, and maintenance.

### ■ STANDARD WARRANTY

All SHEN JANG products are covered by our 1 year warranty. The warranty period starts from the date of purchase, which is substantiated by providing proof of purchase.

SHEN JANG warrants its products to be free from defects under normal use. Physical damage, misuse and natural disaster are not covered by the warranty.

---

\* **Delivery of warranty replacements are subject to stock availability.**  
Please contact us via [shen.jang@msa.hinet.net](mailto:shen.jang@msa.hinet.net) or at +886-4-24378856 for further information.

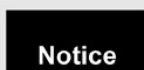
### ■ SIGNAGE

Please notice signs listed below and their meanings to make sure your operation safety and machine proper usage.



**Warning :**

Please be aware of your personal safety when doing jobs.



**Notice :**

Information to help you finish jobs.

### ■ WHERE TO FIND MORE PRODUCT INFORMATION

Please visit SHEN JANG website [http:// www.shenjang.com.tw](http://www.shenjang.com.tw) or contact your local agent for further information.

## SAFETY SUGGESTIONS

1. READ THE INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.
2. IF YOU ARE NOT THOROUGHLY FAMILIAR WITH THE OPERATION OF HORIZONTAL BAND SAWS, OBTAIN ABVICE FROM YOUR SUPERVISOR, INSTRUCTOR OR OTHER QUALIFIED PERSON.
3. REMOVE TIE, RINGS, WATCH AND OTHER FEWELRY, AND ROLL UP SLEEVES.
4. ALWAYS WEAR SAFETY GLASSES OR A FACE SHIELD.
5. MAKE SURE WIRING CODES AND RECOMMENDED ELECTRICAL CONNECTION INSTRUCTIONS ARE FOLLOWED AND THAT MACHINE IS PROPERLY GROUNDED.
6. MAKE ALL ADJUSTMENTS WITH THE POWER OFF.
7. ADJUST AND POSITION THE BLADE GUIDE BEFORE STARTING CUT.
8. MAKE SURE THAT BLADE TENSION IS PROPERLY ADJUSTED BEFORE STARTING CUT.
9. STOP THE BAND SAW BEFORE PUTTING A WORK PIECE IN THE VISE.
10. ALWAYS KEEP HANDS AND FINGERS AWAY FROM THE BLADE WHEN THE MACHINE IS RUNNING.
11. STOP THE MACHINE BEFORE REMOVING CHIPS.
12. ALWAYS HAVE STOCK FIRMLY CLAMPED IN VISE, BEFORE STARTING CUT.
13. DISCONNECT MACHINE FROM POWER SOURCE WHEN MAKING REPAIRS.
14. BEFORE LEAVING THE MACHINE, MAKE SURE THE WORK AREA IS CLEAN.

*\* Request for service and spare parts should be made to :*

***Shen Jang INDUSTRIAL CO., LTD.***

---

**Address:** No.172-1, Lane 2, Sec. 1, Jungong Rd., Beitun District., Taichung City 406, Taiwan (R.O.C.)

**Tel:** 886 - 4 - 24378856 • 24378867

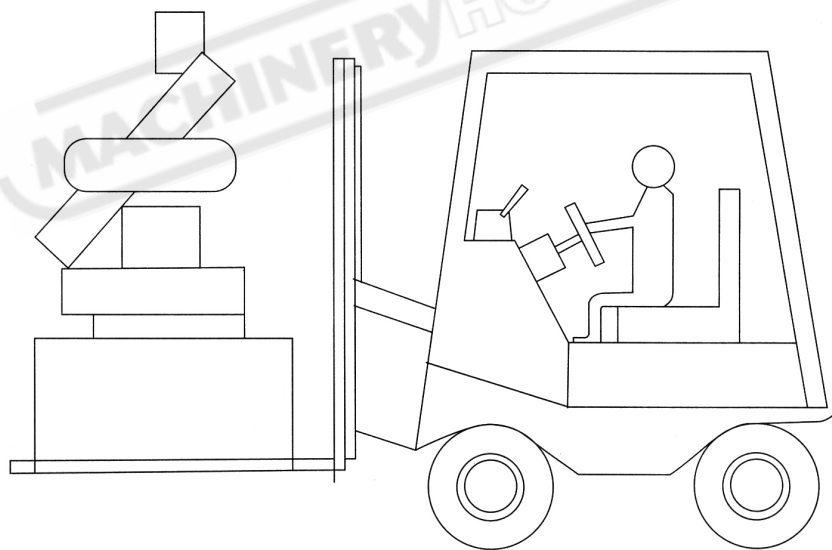
**Fax:** 886 - 4 - 24378897

**Website:** [www.shenjang.com.tw](http://www.shenjang.com.tw)

**E-mail:** [shen.jang@msa.hinet.net](mailto:shen.jang@msa.hinet.net)

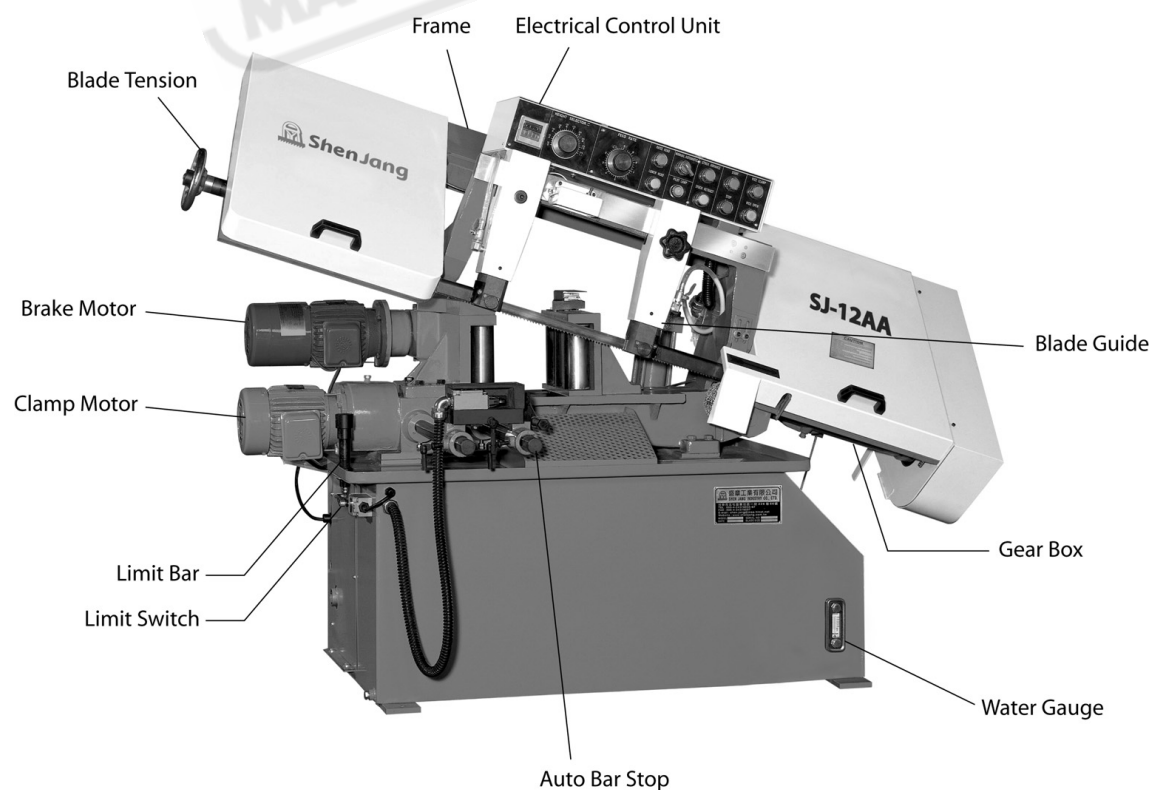
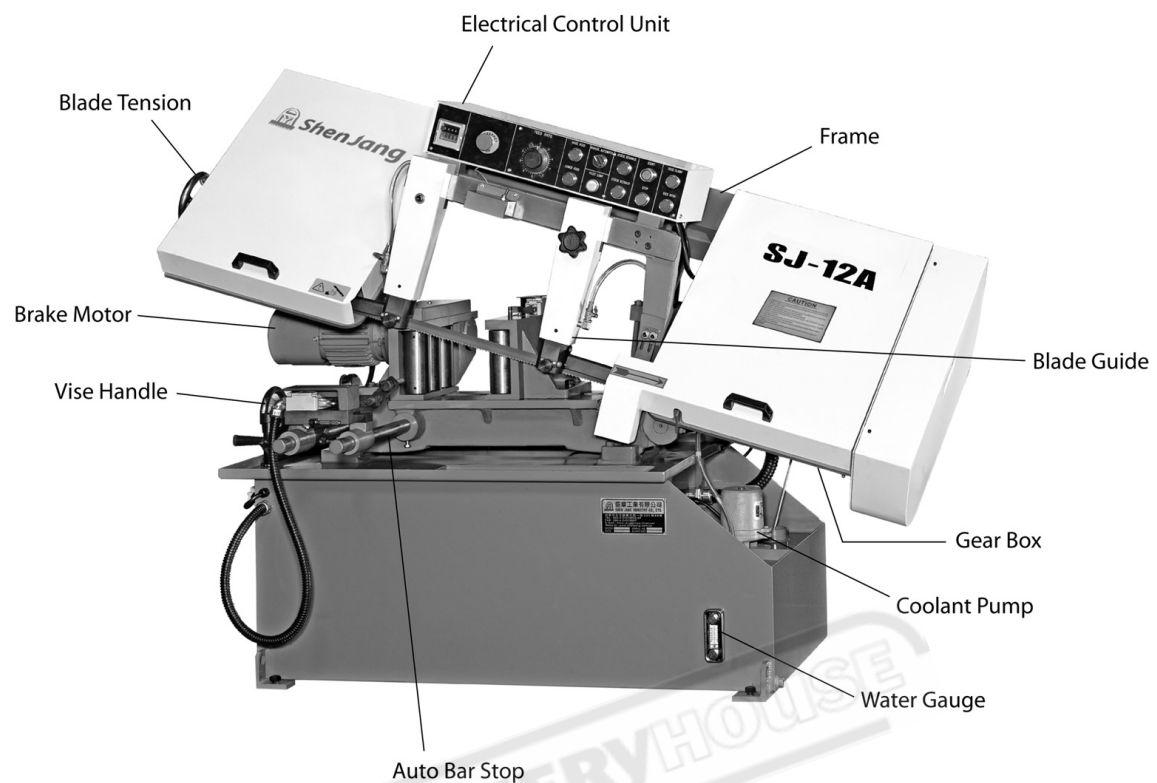
## TRANSPORTATION METHODS

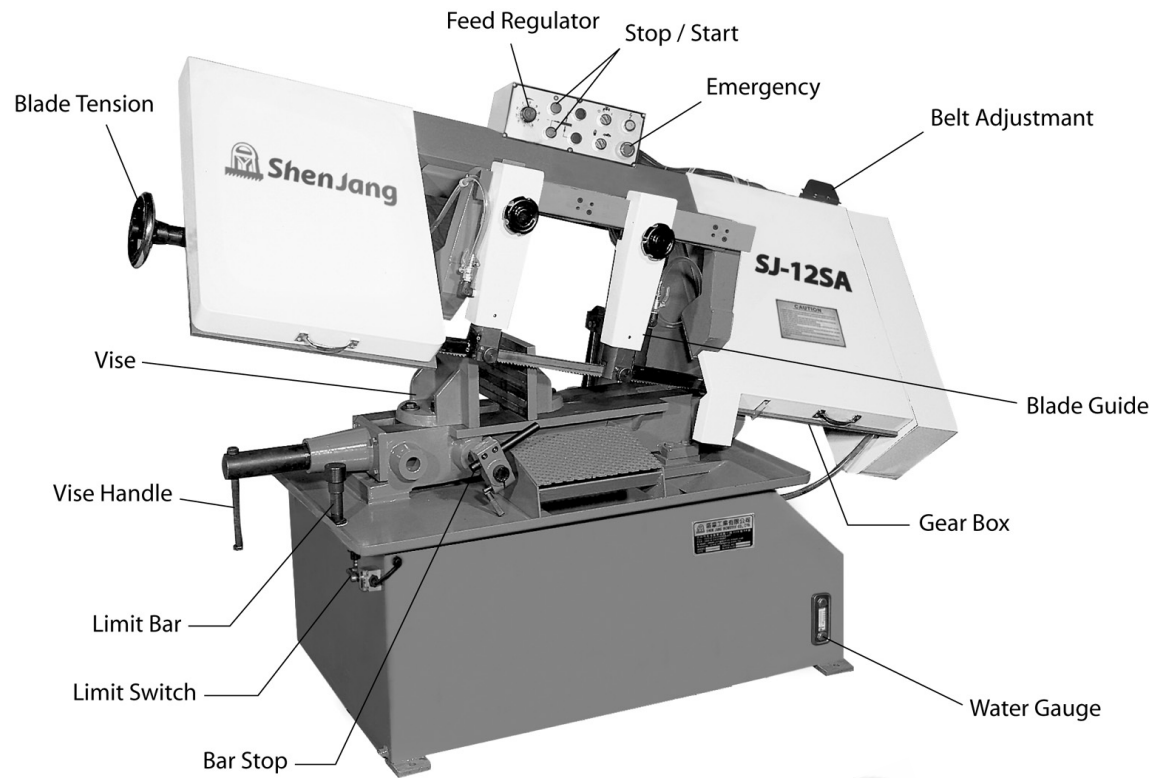
1. ALWAYS KEEP BALANCE WHILE THE MACHINE IS IN TRANSPORTATION.
2. DRIVE FORKLIFT SLOWLY AND CAREFULLY.



## BANDSAW AUTOMATIC TYPE

SJ-10A, 12A, 15A & SJ-10AA, 12AA, 15AA & SJ-10SA, 12SA, 15SA





### **SHEN JANG BANDSAWS TYPES. SJ-10 A / AA / SA 12 A / AA / SA 15 A / AA / SA**

Always quote the Serial Number of your machine when ordering spare parts or in correspondence relating to the machine.

The type SJ-10SA, SJ-12SA and SJ-15SA machine are semi - automatic model and referred to in these notes as “Standard” machines.

The type SJ-10A /AA, SJ-12A /AA and SJ-15A /AA machine are fully automatic model and referred to in these notes as “Automatic” machines.

## SPECIFICATIONS

	SJ-10 A / AA/ SA		SJ- 12 A / AA/ SA		SJ- 15 A / AA/ SA	
Capacity at 90 °	●	10"( 260 mm)	●	12"( 300mm)	●	15"( 380mm)
	■	9"( 230 mm)	■	10"( 260mm)	■	11"( 280mm)
	■	7 1/2"x 14"	■	8"x 13"	■	9"x 16"
		( 190 x 360 mm)		( 200 x 330mm)		( 230 x 410mm)
Capacity at 45 °	●	8"( 200mm)	●	9"( 230mm)	●	11"( 280mm)
	■	6 3/4"( 170 mm)	■	7 1/2"( 190mm)	■	9"( 230mm)
	■	5 1/2"x 8 1/2"	■	6"x 9"	■	7"x 11"
		( 140 x 215 mm)		( 150 x 230mm)		( 180 x 280mm)
Blade size	1" x 150 3/8" (27mmx 0.9mmx 3820mm)		1" x 150 3/8" (27mmx 0.9mmx 3820mm)		1" x 168" (27mmx 0.9mmx 4265mm)	
Motor HP	2HP ( 1.5 KW)		3HP ( 2.25 KW)		3HP ( 2.25 KW)	
Speed range	73,130,180,220 FPM ( 23,40,55,67 MPM )		45,75,90,120,150,240 FPM ( 14,23,27,36,46,73 MPM )		47,80,95,127,158,250 FPM ( 14,24,29,38,48,76 MPM )	
Packing size	82" x 37" x 52" (209cm x 95.5cm x 132cm)		82" x 37" x 52" (209cm x 95.5cm x 132cm)		90" x 37" x 58" (228cm x 95.5cm x 148.5cm)	
Net weight	SA	600 Kgs ( 1330ibs )	SA	800 Kgs ( 1760ibs )	SA	1000 Kgs ( 2200ibs )
	A.AA	700 Kgs ( 1550ibs )	A.AA	900 Kgs ( 1980ibs )	A.AA	1100 Kgs ( 2420ibs )
Gross weight	SA	700 Kgs ( 1550ibs )	SA	900 Kgs ( 1980ibs )	SA	1100 Kgs ( 2420ibs )
	A.AA	800 Kgs ( 1760ibs )	A.AA	1000 Kgs ( 2200ibs )	A.AA	1200 Kgs ( 2665ibs )

## DESCRIPTION OF MACHINE UNITS

### STANDARD MACHINE

The electrical equipment on this machine consists of a motor, remote push button station and a limit switch (L. S. I.).

In Manual mode, the saw frame is raised by the pressed raise button to the working position. Clamping tight the work piece in the jaw, pressing the start button starts the saw motor which continues to run until the limit switch is depressed by the saw frame at the end of the cut. The Stop button will stop the motor at any time. In Auto mode, the saw frame is raised to the height set by the height selector after cutting finish. Pressing the start button again starts a new cutting cycle.

### AUTOMATIC MACHINE

#### 1. THE CONTROLS

All electrical controls for this type of machine are mounted in a console on the top of the frame. For setting purposes the selector switch should be turned to the Manual position. The raise

lower and bar feed controls will work independently when the selector switch is in this position. Before changing into Auto mode, make sure the setting quantity, height select, and index cutting length.

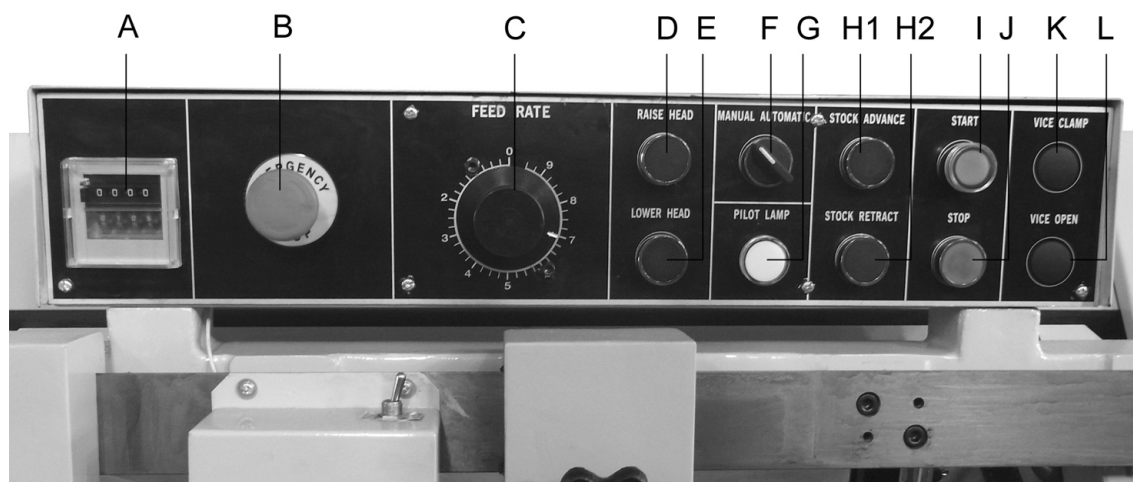


Fig. 1

#### A. Counting Device\*

The Counter adds from Zero up to the pre-set number. When this number is reached stops the machine. When setting the counting device ensures that the frame is in the raised position.

##### Pre-setting

- (1) When the front cover is shifted down while pushing the black color reset button, the setting wheel is revealed.
- (2) Make the desired setting by turning the wheel upward or downward (Fig 2)
- (3) Shift the front cover up to the original position while pushing the reset button again. Then presetting is completed.

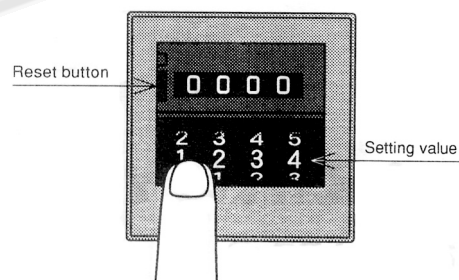


Fig. 2

#### **Note.**

- (1) If the front cover is not completely sifted up or dept open, the output will not be obtained at the set-point.
- (2) To enable machine operation, the pre-set number has to be higher than Zero when switch change from Auto mode to Manual mode.

***\*Not for Standard machines.***

#### B. Emergency stop switch

#### C. Feed Valve

This control simply regulates the flow of oil from under the cylinder and therefore determines the speed at which the saw frame down, and the blade will feed through the work.



#### D. The Raise Push Button

If this button is pressed when the machine is in Manual or Auto the frame will raise.

#### E. The Lower Push Button

Open the feed valve on the console on top of the machine before using the Lower Push Button. This can be used for setting purposes. The machine will lower only while the button is pressed. Upon release the machine will stop lowering.

#### F. Selecting switch for auto or manual

#### G. Power indication light

#### H. Bar Feed Push Button\*( H1. Feed forward switch / H2. Feed reverse switch)

In Manual mode, the control can only be operated when the frame is raised higher than the work piece. It will feed or inch feed the bar until contact with the bar stop is achieved, or until the button is released.

***\*Not for Standard machines.***

#### I. Start Push Button

Pressing this button starts the automatic sawing cycle. (The Selector Switch must be in the "Auto" position). If the Selector Switch is in the material and then switch off upon completion of cut, leaving the head in the "Up" position. In the "Manual" mode, the head in the "Down" position after cutting finish.

#### J. Stop Push Button

Pressing this button stops the complete machine under any conditions.

#### K. Electrical vice clamping switch

***\*Note: only AA Type***

#### L. Electrical vice open switch

***\*Note: only AA Type***

#### M. The Work Height Selector Switch

The Height Selector Switch is a limit switch with scale, positioning the machine rear and top of the hydraulic cylinder. By hand to set the work height selector stops the rise of the saw head after each cut. It is designed so that the head rises within the small tolerance variation to the same position.

## 2. HYDRAULIC SYSTEM

The system consists of motor, cylinder, pump, feed valve, relief valve and solenoid valve. The saw frame is raised and as this is done oil passes from the solenoid valve, feed valve to the hydraulic box. The restricted flow is regulated by the feed control dial and governs the frame down speed at a pre – determined rate.

The hydraulic pump used on this system is of the gear type and the complete pump is submerged in the hydraulic tank which is housed in the leg of the machine. Access to the pump and tank is gained by removing the panels at the left of the machine base. A filler plug is provided on the tank and an oil level indicator is plainly visible at the side of the machine. The pump operates only when the frame is being raised. A solenoid valve in series with the feed valve gives the lower requirements. The feed regulator is adjustable from the front of the machine to give the rate of feed required. The circuit is protected by a relief valve.

## 3. DRIVE UNIT

The machine is provided with a range of four or six speeds depending on models. Speeds are selected by slackening the belt pulley centers and transferring the belt from one set of pulleys to the desired set of pulleys. The gearbox is of the worm and wheel type and is mounted on the back of the saw frame. An oil filler plug and an oil drain plug are provided. The oil level in the gearbox is obtained by filling to maximum while the machine is in the resting position with the frame down.

## 4. AUTOMATIC ROLLER VICE

This is the self – contained and consists of a rear roller vice jaw and a motorized front vice jaw. The rear jaw rollers are free to turn. In between the second and third rollers is a flap which controls the limits switch situated on top of the jaw. The purpose of this limit switch is to stop the machine when the end of the bar being cut presses the flap. The front jaw consists of a worm and wheel reduction unit which transmits the drive from the motor to the four drive rollers. The drive to the rollers is by roller chains which are situated under the metal guard on top of the vice jaw. The worm and wheel run in an enclosed oil bath, and an oil drain plug is provided.

The automatic roller vice is controlled by the automatic electrical cycle. When the height selection setting is reached the rollers operate. They are stopped when the bar being fed through strikes the limit switch mounted on the bar stop.

The front vice jaw mounting the bar feed motor is a permanent fixture. The rear vice clamps and unclamps on to the bar stock by means of a spring controlled hand heel. This spring allows for automatic adjustment if stock is crooked. When 'manual'/'auto' switch is on "auto" the vice will continue to feed the bar stock through the machine to a position determined by the bar stop and will continue to do so until the appropriate number of blanks set on the centering device has been reached, or until the length of the bar stock becomes too short for rigid holding. Unlock the clutch by pushing the handle under the motor and turn the knob by hand for micro feed of work piece.

***\*Not for Standard machines.***

## PRE-SETTING

Blade tension has been preset in factory; therefore, before operating machine, tighten the screw (A), (B) Fig.4 clockwise till the blade is in 90° position and the brush to suitable height. Tension the blade by turning the hand wheel (A) Fig.5 clockwise until the slipping clutch slips consecutively. Please also check **[CHANGING SAW BLADE]** for more details. Be sure to finish above pre-setting before first use, or saw blade is not able to be sensed by the proximity switch, and electric circuit cannot be built.

## SETTING UP THE AUTOMATIC MACHINE

When setting up to work on the automatic machine, do so with the selector switch in hand position. Place the work in the vice and close the vice sufficiently to close the limit switch. Press the raise push button until the saw frame clears the work. Next set the height selector, make the setting from 1/2" to 1" higher than the height of the work piece. (Always cut the first piece in Manual mode and make sure that the saw blade clears the work). The 1/2" clearance is considered ideal as it provided adequate safety. If the work piece is crooked allow 1" clearance. Inch the work through the vice until the desired length to be cut protrudes beyond the saw blade and clamp the vice up tight. Push the auto bar stop up to the end of the work and lock up tight with the three handles provided. Next position the saw guide arms-these are adjusted by loosening the hand clamping knob and moving the arm on the slide. The left hand arm should be positioned permanently to clear the bar stock in the vice jaws. Adjust the right hand saw guide arm clamping knobs tight at all times.

### **CAUTION**

***Use hand pressure only to tighten the clamping knobs as excess clamping force may cause damage.***

For best sawing results keep the right hand saw guide near the work piece. Press the start button on the control panel and set the feed control dial to give the desired rate of cut. If the selector switch is left in the hand position the machine will stop when the work has been sawn through, but if the selector switch is turned to the auto position the machine will continue to cut pieces of the same length until the end of the bar enters the vice. The machine will then stop. If a long bar is to be cut the overhanging portion must be adequately supported on a roller support and care must be taken that it is set to the exact height of the machine vice way.

Always remember the following checks when using the machine on auto cycle :

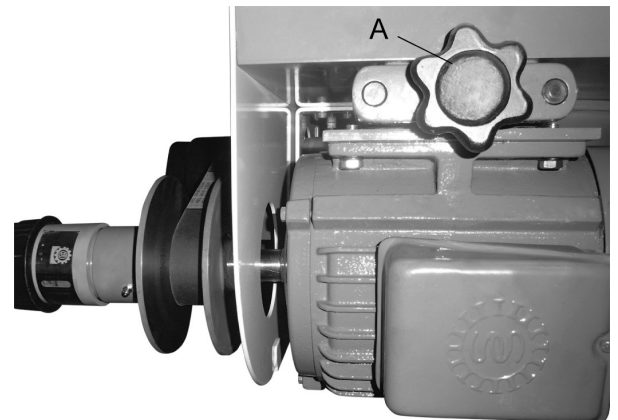
- (1) The blade must be installed correctly and the inserts correctly adjusted.
- (2) Saw guide arms and vice must be adjusted correctly for stock size.

- (3) Work height selector should be adjusted for size.
- (4) Selector switch on head control panel should be set at “auto”.
- (5) Index cut – off length should be set correctly.
- (6) The head should be in the raised position.
- (7) The stock should be clamped into the vice and positioned for the first cut.
- (8) Blade speed and feed rate and coolant flow should be set correctly.
- (9) Press the drive “start” button and the head will lower and begin the first cut.
- (10) Observe sawing progress carefully and adjust coolant flow, blade speed and blade feed, if necessary.
- (11) When the cut is completed the head will automatically raise and the stock will be indexed forward for the next cut. The automatic cycle will continue until the stock is too short to be clamped by the vice, or the pre-set cutting quantity is reached at this time the limit switch on the front vice will be tripped and the machine will stop. If blade is broken during cutting process, the machine operation will also stop.
- (12) Always keep the work area clear of swarf. Stop the machine to clear swarf from around the blade wheels and cutting area.
- (13) Adjust the swarf brush so that it cleans all the swarf from the blade tooth gullets without actually contacting the gullet bottom.

## CHANGING SPEEDS

To change speeds, proceed as follows:

1. Disconnect the machine from the power source.
2. Loosen wing nut and open the pulley guard.
3. Release tension on the belt by turning the tension lock knob (A) Fig. 3 counterclockwise.
4. Shift the belt to the desired grooves on the pulleys and tighten tension lock knob (A) by turning the knob clockwise. Close the belt and pulley guard.



*\* Picture shown includes optional variable speed device.*

Fig. 3.

## CHANGING SAW BLADE

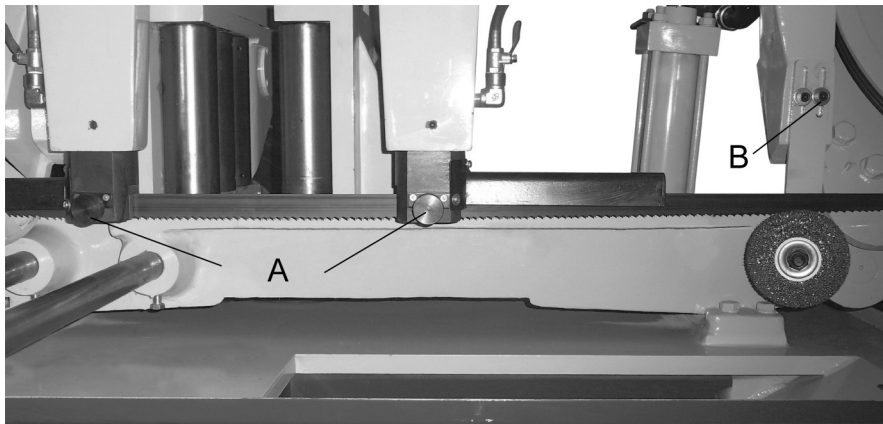


Fig. 4

Remove the saw covers for each side. Clean away all swarf from around the wheels and the blade guides. Release brush, the tension hand wheel and the screw (A), (B) Fig.4 by turning counterclockwise to slacken the blade guide carbides and remove the old blade. Position the new blade over the blade wheels ensuring that the teeth are cutting in the correct direction, i. e., towards the right hand end of the machine. Make sure that the back of the saw blade is against the wheel flanges and thread the blade into the carbide guides. Tighten the screw (A), (B) clockwise till the blade is in 90° position and the brush back to suitable height. Tension the blade by turning the hand wheel (A) Fig.5 clockwise until the slipping clutch slips at least twice consecutively.

## ADJUST BLADE TENSION & BLADE TRACKING ADJUSTMENT

Blade tension has been preset in factory; therefore, by turning hand wheel (A) in Fig. 5 clockwise till (B) portion slip then tension for the blade is reach. Please kindly note that one does not to press the hand wheel, simply turn it will do. For blade tracking, if the back of the blade is not against the wheel flange properly,

- Loosen the screw (C) in Fig.5
- Adjust screw (D) in Fig.5 until the blade is tracking properly.
- Tighten the screw (C).5

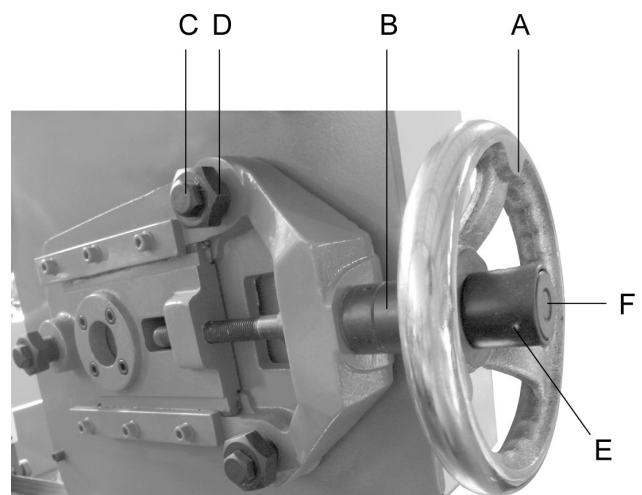


Fig. 5

If the blade tension is less than required, ( E ) screw can be loosened and rotate (F) nut clockwise for the proper blade tension. Then tighten (E) screw will do.

## INCHING FEED

For inching feed, please disengage the clutch (A) Fig. 6 right under the feed motor , and push it to the left. Rotate the knob ( B ) to feed material to the desired cutting length, and engage the clutch again.

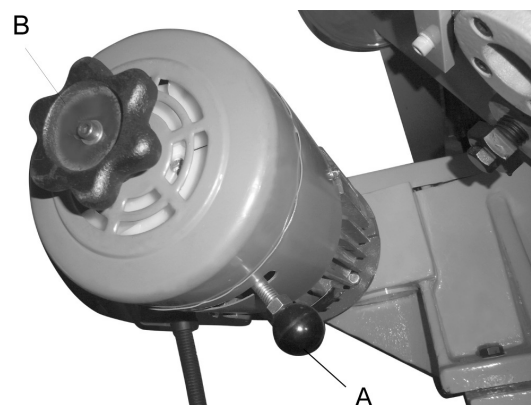


Fig. 6

## SMALL SECTION MATERIAL

It is not possible to accommodate small section work in the roller vice without using the height block. (There's no height block shipped with the machine.) To cut work less than 15mm height, the work has to be raised to put into the vice rollers. When these are used the extension piece on the front limit switch must be fitted and the work height selection switch adjusted to compensate for the increased height of the height blocks.

## BLADE SELECTION

The selection of the correct blade for any one type and size of material being sawn is largely depend upon trial and error until the desired conditions are fulfilled, I. e. finish cutting time blade life, etc. However, the following notes are offered for the guidance of users so that these conditions may be obtained. Your blade supplier or factory application engineer should be your most reliable source of correct information for operational details of saw blades and their use.

## PITCH SELECTIONS

### Solids

5/16" ~ 9/16" round	8 ~ 12 T. P. I.
9/16" ~ 1 1/4" round or rectangular	6 ~ 10 T. P. I.
1 1/4" ~ 4" round or rectangular	4 ~ 6 T. P. I.
Over 4" round or rectangular	3 ~ 4 T. P. I.

## Structural Steels

Up to 3 /8" section	10 T. P. I.
3/8" ~ 3 /4" section	8 T. P. I.
Over 3 /4" section	6 T. P. I.

## Tubing

Up to 1/4" wall thickness	12 T. P. I.
1/4"~ 1/2" wall thickness	10 T. P. I.
1/2"~ 3/4" wall thickness	8 T. P. I.
Over 3/4" wall thickness	6 T. P. I.

## Blade Speed

Material	Blade Speed Ft / Min.
Free cutting, mild and low	
Carbon steels	150 ~ 240
Structural steel, malleable iron	120 ~ 180
Alloy steels, tool steels	120 ~ 180
Nickel chrome steels	90 ~ 150
Cast iron	150 ~ 240
Copper, bronze	150 ~ 240
Aluminum, plastics	150 ~ 240

## ACCESSORIES

### Counter Assembly\*

The counter accessory located on the control panel is a great convenience when it is necessary to make a large number of identical cuts. The unit can be set for any number of pieces up to 9,999. The counter automatically stops the machine at the present number of pieces.

***\*Not for Standard machines.***

### 5ft. Roller Input Conveyor

The conveyor enables quicker loading times, giving greater control and stability when the stock to be cut is of a large size or length. The conveyor can be extended to cover any length of stock to be cut.

### Low Voltage Lighting

The Lo – Vo – Lite system can be fitted when a customer requires additional lighting on the machine. It is wired integral with the machine. Therefore, no additional wiring points are required. It is useful for inspection of work and also for inspection of blade when operating in work piece.

## LUBRICATION CHART

Electric Motor, Bearings, ball	Grease packed	Mobilux Grease No.3
Drive Gearbox, Worm and Spurgears	Oil bath	Mobil Vactra Oil AA.
Tension Blade wheel Bearings, Timken	Grease packed	Mobilux Grease No.3
Needle Roller Pivot Bearings, Torrington	Grease gun	Mobilux Grease No.3
Hydraulic System Auto Vice Assembly	Fluid medium	Mobil DTE Oil Light
Electric Motor, Bearings	Grease packed	Mobilux Grease No.3
Worm Gear	Oil bath	Mobil Vactra Oil AA.
Roller Chains, 4 off	Hand Oiled	Mobil Vactra Oil AA.
Bar Rollers, 8 off Bearings Fischer	Grease packed for life	
All sideways and Adjusting screws	Hand Oiled	Mobil Vactra Oil AA.
Bar Stop Plunger	Hand Oiled	Mobil Vactra Oil AA.

## LUBRICATION

INTERVAL	Location-How Serviced	Lubricant
Monthly	Angle bracket	Mobilux Grease No.3
Monthly	Blade tension screw	Mobil Vactra Oil AA
Monthly	Blade tension slide	Mobil Vactra Oil AA
Monthly	Blade guide arm screw	Mobil Vactra Oil AA
Monthly	Blade guide arm bar	Mobil Vactra Oil AA
Monthly	Swarf brush pivot	Mobil Vactra Oil AA
Monthly	Hydraulic cylinder pivots	Mobil Vactra Oil AA
Monthly	Bar stop sideways	Mobil Vactra Oil AA
Monthly	Bar stop plunger	Mobil Vactra Oil AA
Monthly	Vice Screw	Mobil Vactra Oil AA
Monthly	Tension wheel blade bearing	Mobilux Grease No.3
Monthly	Vice screw thrust bearing	Mobilux Grease No.3
Monthly	Check (auto vice) oil level	Mobil Vactra Oil AA
Monthly	Roller chains (auto vice)	Mobil Vactra Oil AA
Annually	Main drive gearbox	Mobil Vactra Oil AA
Annually	Main Drive motor bearings	Mobilux Grease No.3
Annually	Auto Vice Motor	Mobilux Grease No.3
Annually	Change hydraulic oil	Mobil DTE Oil Light
Annually	Coolant tank change when necessary	Mobil Solvac 531



## DAILY CHECK LIST

1. Check Coolant : Low coolant level can cause foaming and high blade temperatures. Dirty or weak coolant can clog pump, cause rusting and affect sawing.
2. Check Hydraulic System : Low fluid level can affect machine functions.
3. Check Saw Guide Inserts : Inspect inserts and back-up bearing for chipped carbide. Check insert adjustment, loose inserts can affect sawing accuracy. Keep saw guides clean. Check occasionally for flattened spring washers by comparing with new ones.
4. Check Chip brush : Check to see if brush is cleaning chips from blade. Replace worn brush.
5. Clean away chips : from filter plate and cut – off shut.
6. Keep Vice Slides Clean and Oiled.
7. Clean Chips from Blade Wheels and Areas Around Wheels.
8. Saw Guide Arms : Keep saw guide arms clamps tight. Loose arms will affect sawing accuracy. Keep saw blades close to work.
9. Saw Blade : Is saw blade sharp?
10. Blade Speed and Feed Force : Are blade speed and feed force set correctly for work piece material and shape?
11. Drive Belt Tension Adjustment : A small hand wheel attached to the motor base plate provides the belt tension. Check this adjustment periodically as the belt stretches and wears.
12. Check Blade Tension : Particularly after initial cuts with a new blade.

## TROUBLE SHOOTING

The following is a partial list of troubles that may arise in the operation of your machine. With each potential problem are listed several possible causes, in their order of probability, and the proper corrective action to take, if it is not immediately evident. Items suffixed " A " refer to automatic machine only.

### **MACHINE WILL NOT RUN WHEN START BUTTON IS DEPRESSED**

1. Ensure that all contactors and relays function correctly.
2. A Check bar stock switch mounted on auto vice. If amount of stock in vice jaws is not sufficient to afford rigid clamping, then the LS will make the machine inoperable.
3. Check "head down" limit switch.
4. A Check the counting device, the machine will not operate if the pre – selected number has been counted.
5. A Check that counting device, the pre-set number has to be higher than "0".

6. A Check that the bar stock blank has fallen clear allowing the bar stop limit switch to function.

## **SAW BLADE VIBRATION ( WHILE SAWING )**

1. Incorrect blade speed for material.
2. Incorrect choice of saw blade T. P. I.
3. Incorrect choice of coolant or coolant mixture is too weak.
4. Incorrect feed pressure.
5. Work piece not firmly clamped on vice.
6. Worn if improperly adjusted saw guide inserts.

## **PREMATURE DULLING OF SAW BLADE TEETH**

1. Cutting rate too high.
2. Blade speed too high.
3. Faulty material
4. Material analysis incorrect, resulting in wrong cutting recommendations.
5. Coolant not covering saw blade.
6. Saw blade vibration.
7. Chipped tooth lodged in cut.
8. Chip welding.
9. Wrong blade selection.
10. Wrong coolant.
11. Coolant too weak.

## **HEAD WILL NOT LOWER**

1. A Ensure that all contactors function correctly.
2. Ensure that the machine is clear of obstruction.
3. Feed rate set too low.
4. Check solenoid valve for correct operation, ensuring that the valve is not stocking and that solenoid is not damaged.
5. Check for Pinched Hydraulic Hose.

## **HEAD RISES SLOWLY**

1. A Ensure that all contactors and relays function correctly.
2. Check the hydraulic system and ensure full pressure is available.
3. Check for pinched hoses or restrictions applied to hoses.
4. Check relief valve.
5. Check hydraulic system for full pressure, ensure no hydraulic failure.
6. Check hydraulic circuit for functioning correctly.
7. Check oil in system for contamination by air or dirt.

## **HEAD LOWERS ERRATICALLY**

1. Inspect for contamination in hydraulic system.
2. Inspect check valve.

## **HEAD WILL NOT STOP IN RAISED POSITION**

1. Ensure Feed valve is closed.
2. Ensure limit switch of frame "Up" functions correctly.

## **SAW BLADE TEETH STRIPPING**

1. Feed pressure too high.
2. Chipped tooth lodged in cut.
3. Chip welding.
4. Faulty material such as hard spots.
5. Saw blade pitch too coarse for thin work section.

## **PREMATURE SAW BLADE BREAKAGE**

1. Poor welding of blade.
2. Operator error such as dropping blade into work.
3. Too high feed force.
4. Inserts incorrectly set clamping blade too tightly.
5. Excessive high speed blade operation without actually cutting resulting in metal fatigue.

## **INACCURATE CUT – OFF**

1. Worn teeth, such as unevenly worn set.
2. Hard spot in material being cut.
3. Damaged blade.
4. Chip brush not cleaning blade teeth properly.
5. Excessive feed force.
6. Dirty coolant.
7. Carbide guide in wrong direction and blade is not in 90 degree position.

## **SURFACE FINISH ON CUT – OFF PIECE TOO ROUGH**

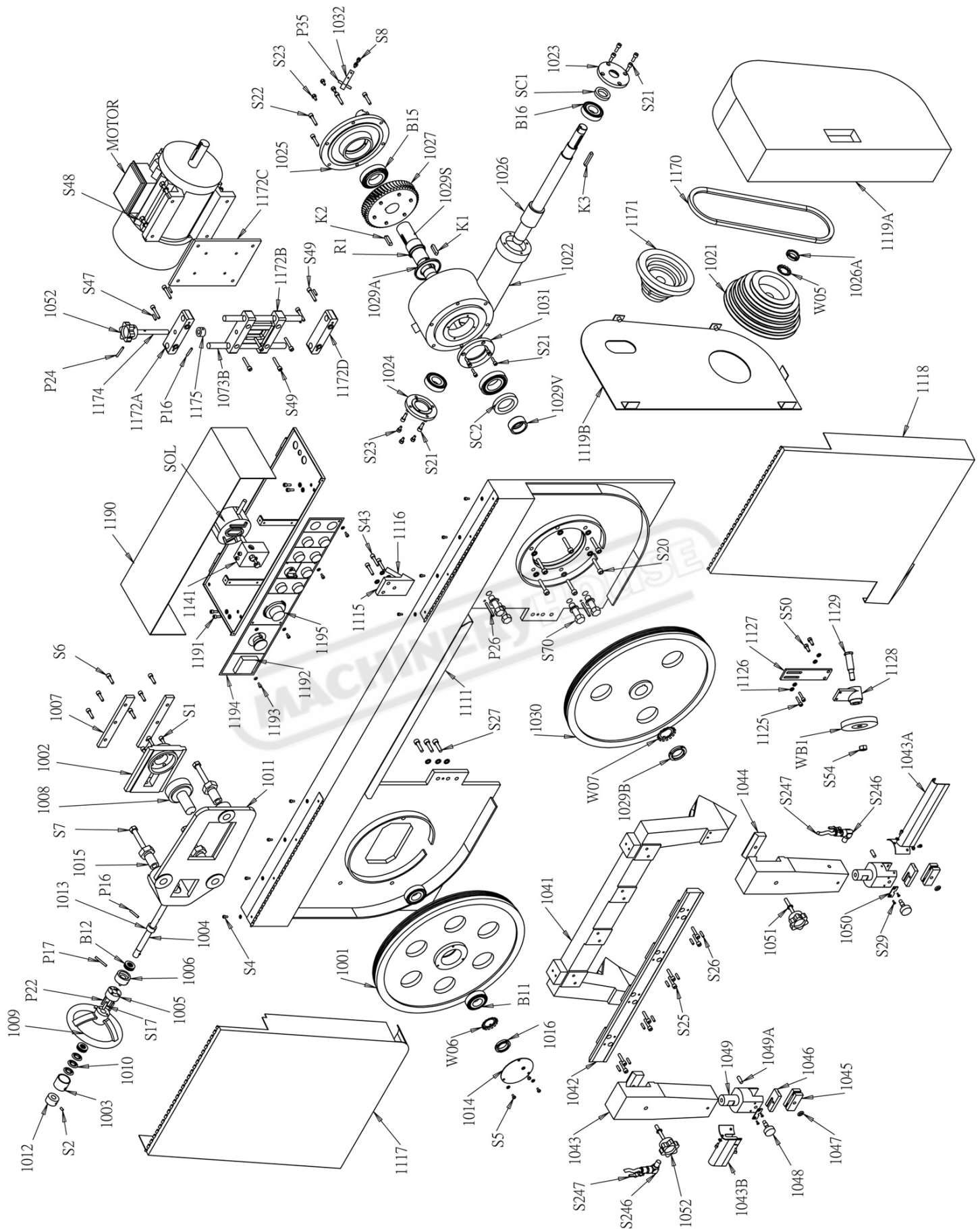
1. Vibration.
2. Damaged blade.
3. Wrong cutting fluid.
4. Wrong blade selection.
5. Wrong coolant.
6. Wrong cutting speed.

## **HEAD WILL NOT RAISE**

1. A      Ensure that all contactors and relays function correctly.
2. A      Check for hydraulic pump running correctly.
3. A      Check the limit switch of frame "Up"..



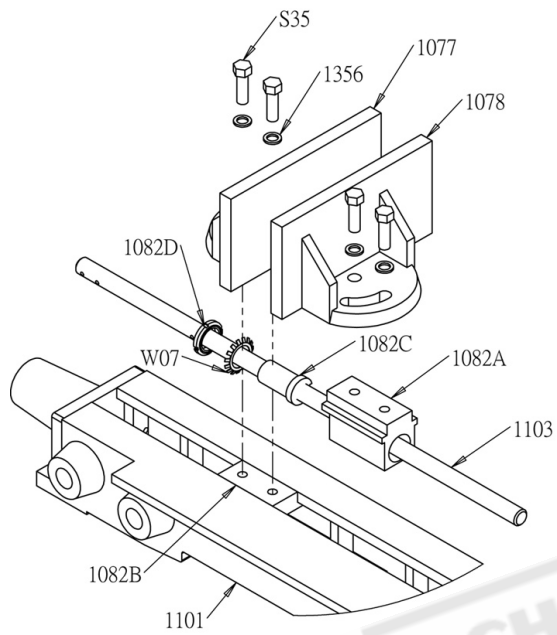
## PARTS LIST & EXPLOSION DRAWINGS



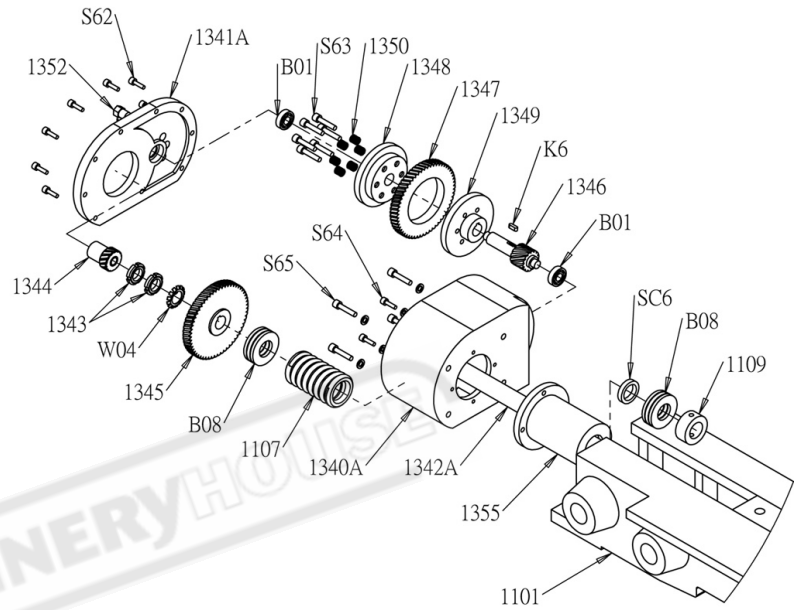
## REPLACEMENT PARTS

Ref. #	Q'ty	Description	Ref. #	Q'ty	Description
1001	1	Front blade wheel	1046	2	Top Carbide Guide
1002	1	Tension Block	1047	8	Disc Spring
1003	1	Shroud	1048	2	Carbide Guide Adjusting Screw
1004	1	Tension Screw	1049	2	Guide Adjusting Boss
1005	1	Driven Dog	1049 A	2	Pin 8 ¢ x 50L
1006	1	Thrust Bearing Housing	1050	2	Retaining Plate
1007	2	Guide Bar	1051	2	Studs
1008	1	Front Spindle	1052	2	Hand Wheel
1009	1	Hand Wheel	1111	1	Tension Frame
1010	6	Disc Spring	1115	1	Pivot Bracket
1011	1	Slide Seat	1116	1	Pin 12 ¢
1012	1	Lock Nut	1117	1	Left Blade Wheel Cover
1013	1	Lock Ring	1118	1	Right Blade Wheel Cover
1014	1	Spindle Cap	1119A	1	Wheel Cover
1015	3	Adjusting Screw	1119B	1	Pulley Cover
1016	1	Lock Nut (AN06)	1125	2	1/4"x20NLx1" Screw
1021	1	Input Pulley	1126	2	1/4" Washer
1022	1	Gear Box	1127	1	Bushes
1023	1	End Cap ( Right)	1128	1	Brush Housing
1024	1	End Cap ( Left )	1129	1	Brush Spindle
1025	1	Lower Cap	1141	1	Valve
1026	1	Worm	1170	1	Belt
1026 A	1	Lock Nut (AN05)	1171	1	Motor Pulley
1027	1	Worm Gear	1172A	1	Motor Seat
1029 A	1	Special Washer	1172B	1	Motor Base
1029 B	1	Nut ( AN07 )	1172C	1	Motor Base Plate
1029 S	1	Worm Shaft	1172D	1	Motor Seat
1029 V	1	Collar	1173B	2	Motor Base Sliding Linkage
1030	1	Rear Blade wheel	1174	1	Motor Base Adjusting Shaft
1031	1	Upper Cap	1175	1	Collar
1032	1	Plate	1190	1	Electrical Control Case
1041	1	Saw Frame	1191	4	1/4"x20NLx5/8" Screw
1042	1	Slide Way	1192	1	Counter
1043	2	Blade Guide Arm	1193	6	3/16"x24NLx3/8" Screw
1043A	1	Protective Cover	1194	1	Control Panel
1043 B	1	Protective Cover	1195	1	Feed Knob
1044	2	Locking Pieces	Motor	1	Motor 3Hp
1045	4	Carbide Guide	SOL	1	Solenoid Valve





**\* SA Type only**



**\* AA Type only**



## REPLACEMENT PARTS

Ref. #	Q'ty	Description	Ref. #	Q'ty	Description
1061A	1	Front Auto - Vice Bracket	1113	1	Pivot Shaft
1062	1	Worm Shaft Front Cap	1114	1	Angle Bracket Spacer
1063	2	Worm Shaft End Cap	1120	1	Base
1064	1	Worm Wheel Cap	1120A	1	Base Cover
1066	1	Worm Drive	1120B	1	Cylinder Cover
1066A	1	Pin 7 $\phi$ x40L	1120C	1	Base Cover
1067	1	Worm Wheel	1124	1	Compensation Spring
1069	1	Worm Wheel Spacer	1124A	1	Ring
1070A	1	Worm Wheel Shaft	1124B	1	1/2" Adjustment Nut
1071	1	Roller Chain	1124C	1	1/2" Adjustment Screw
1073	4	Plate Wheel	1125	1	1-1/4"x20NLx5/8" Screw
1073A	4	Idler Seat	1126	1	1/4" Washer
1074A	3	Front Auto -Vice Roller Shaft	1131	2	Bar Guide Shaft
1074B	3	Front Auto - Vice Roller	1132	2	Auto Bar Stop Boss
1075	3	Plate Wheel Cover	1133	1	Boss Link Bar
1076	3	Driving Sleeve	1134	1	Auto Bar Stop Body
1077	1	Front Vice Bracket	1135	1	Stop Block
1078	1	Rear Vice Bracket	1136	1	Extension Bar
1081A	1	Rear Auto - Vice Bracket	1137	1	Trip Arm Adjuster
1081B	3	Limit Switch Cover	1138	3	Small Clamp Screw
1082 A	1	Vice Screw Housing	1140	1	Plate
1082 B	1	Vice Seat	1148	1	Stopper Seat
1082 C	1	Lead Screw Nut	1148 A	1	Stopper
1082 D	1	Lock Nut (AN07)	1149	1	Screw 5/16"x1 1/2"
1083 A	3	Rear Auto -Vice Roller Shaft	1161	1	Cap
1083 B	3	Rear Auto - Vice Roller	1162	1	Plunger
1086 A	1	Feed trip Lever Spindle	1163	2	Lock Nut (AN05)
1087A	1	Limit Switch Shield	1164	1	Special Adjusting Screw
1101	1	Viceway	1165	1	Spring
1102	1	Shaft Seat	1167	2	1/4 PT Filling Plug
1103	1	Vice Screw	1198	1	Trip Arm Pivot Pin
1104	1	Vice Screw Extension	1198A	1	Switch Stopper
1105	1	Handle Shaft	1198B	1	3/8" Nut
1106	2	Handle Retainer	1202A	1	Stop Block
1107	1	Spring	1204	1	Cylinder Base
1109	1	Vice Screw Collar	1204A	1	Pin 12 $\phi$ x50L
1112	1	Angle Bracket	1204B	2	5/16"x18NLx1" Screw

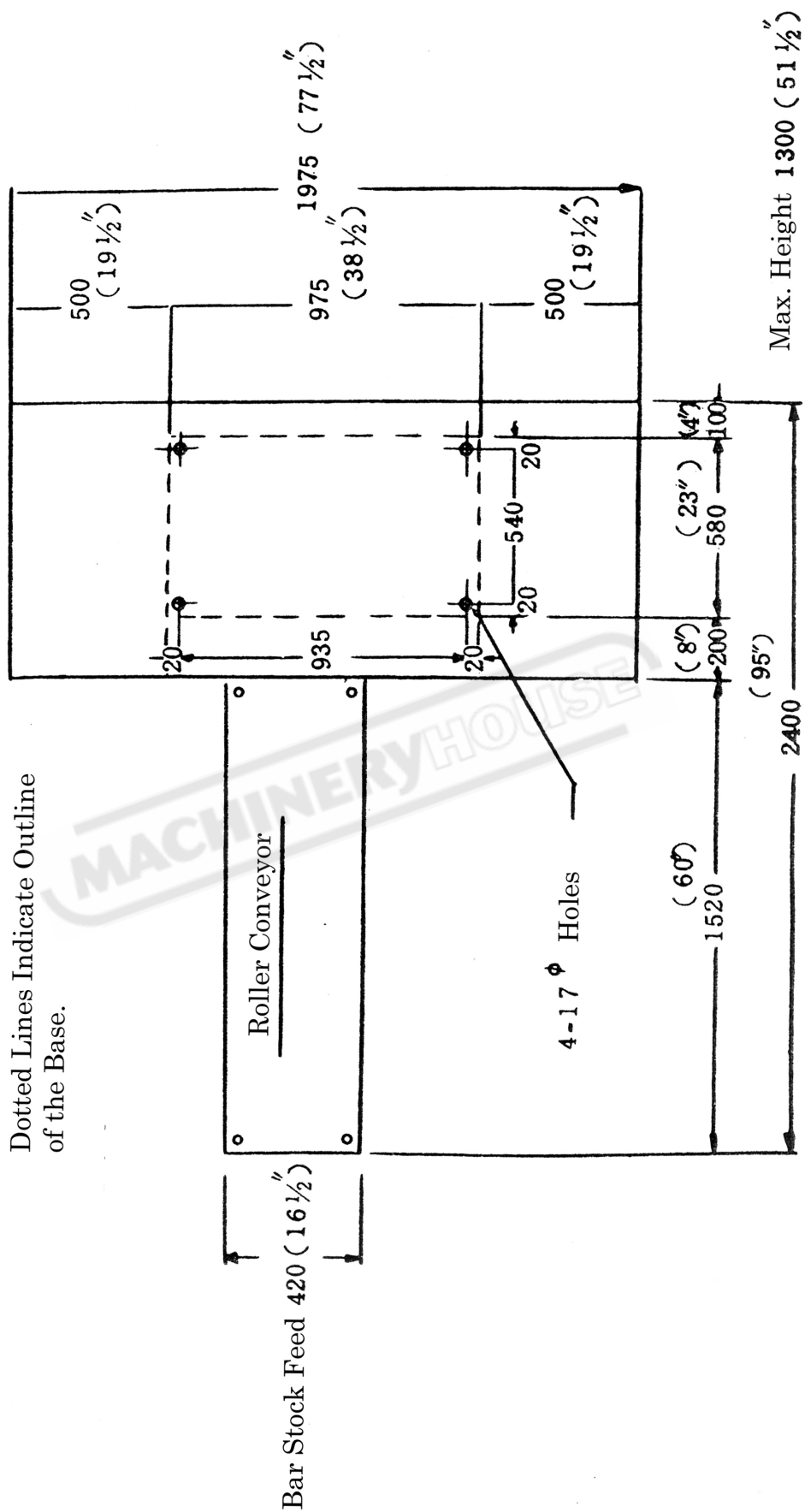
## REPLACEMENT PARTS

Ref. #	Q'ty	Description	Ref. #	Q'ty	Description
1206	1	Roller	1347	1	Clutch Gear
1206C	1	Roller Base	1348	1	Clutch Plate ( moveable)
1206D	1	Cable Wire	1349	1	Clutch Plate ( fixed )
1206G	1	Roller Shaft	1350	1	Clutch Spring
1215	1	Cylinder	1352	1	Cap Screw
1340A	1	Gear Box	1355	1	Spring Sleeve
1341A	1	Gear Box Cap	1356	4	Washer
1342A	1	Vice Lead Screw	WB1	1	Wire Brush
1343	1	Gear Setting Nut	Pump	1	Coolant Pump
1344	1	Motor Gear	Motor	1	Feed Motor
1345	1	Leadscrew Gear	HYD	1	HYD UNIT
1346	1	Middle Gear			

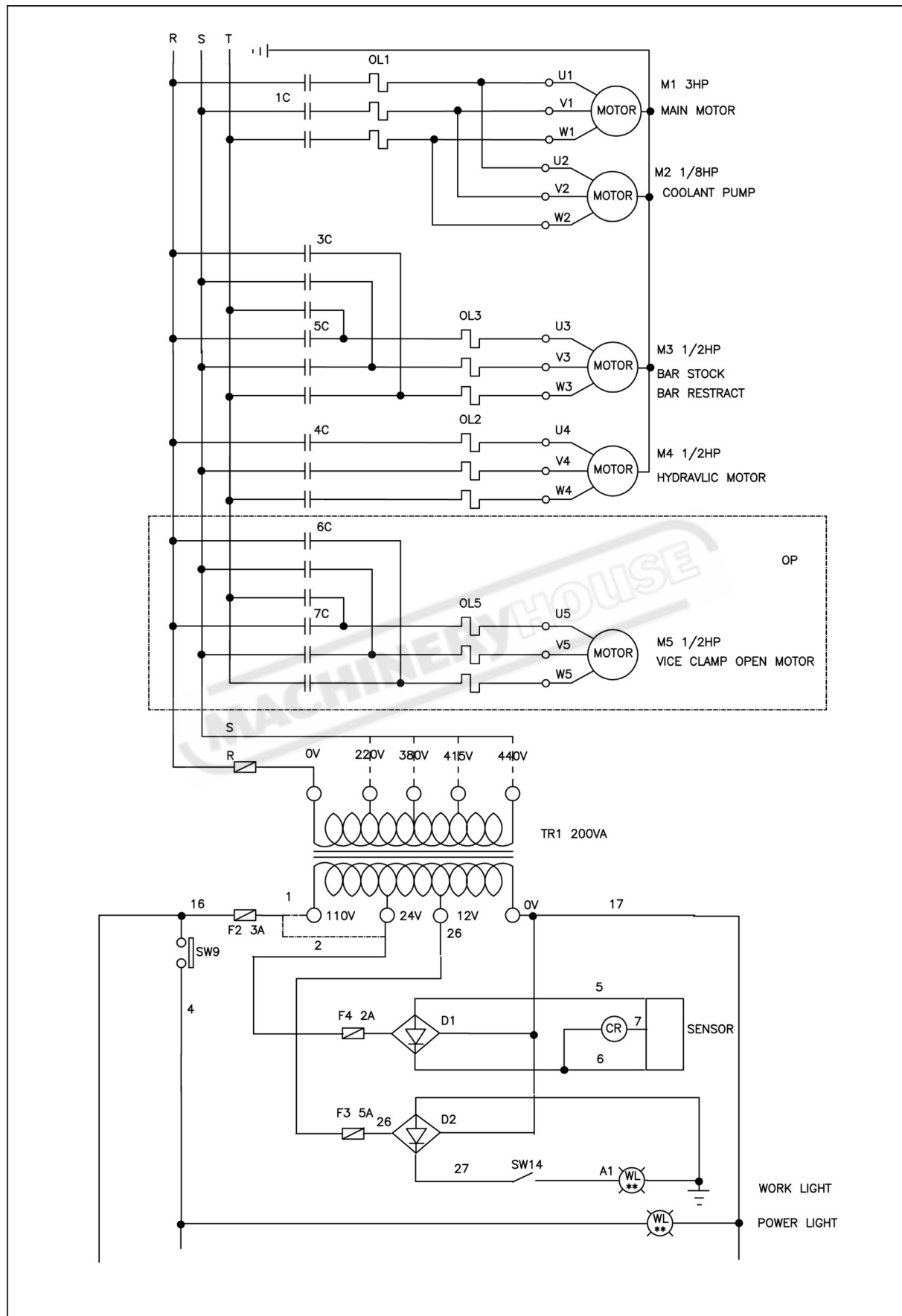
MACHINERYHOUSE

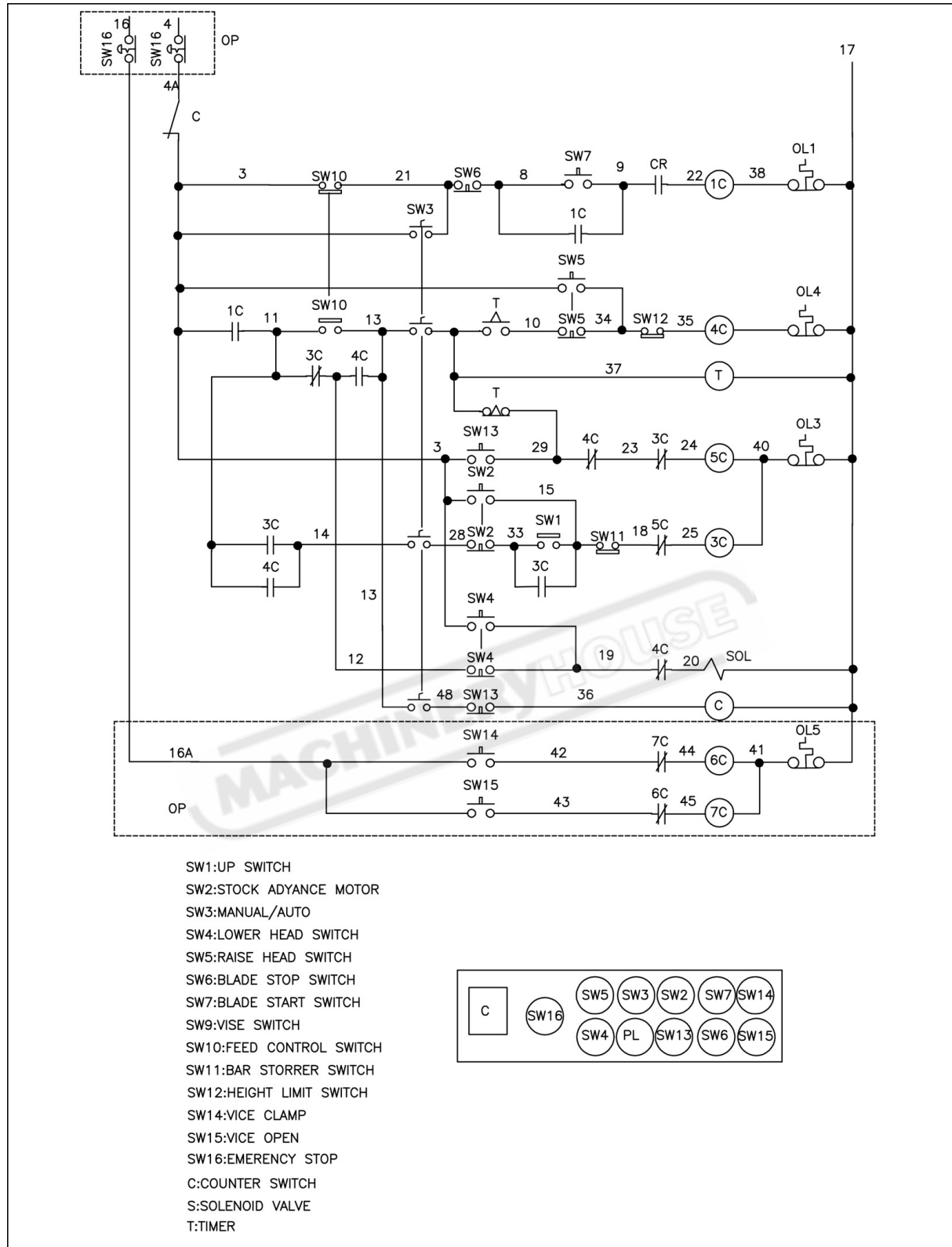
## REPLACEMENT PARTS

Ref. #	Q'ty	Description	Ref. #	Q'ty	Description
B01	2	Bearing 6001	S 27	6	Screw 3/8" x 1 1/4"
B06	2	Bearing Ball 1/4"	S 28	2	Screw 5/16" x 5/8"
B08	1	Trust Bearing 2905	S 29	4	Screw 5/32" x 3/8"
B11	2	Taper Bearing 30206	S 31	4	Screw 1/2" x 1 1/2"
B12	2	Thrust Bearing	S 32	4	3/8"x16NLx1-1/4" Screw
B15	2	Bearing 30208	S 33	2	Screw 5/16" x 1 1/4"
B16	2	Bearing 30206	S 34	1	Screw 5/16" x 5/8"
B18	4	Ball Bearing 6004	S 35	4	Screw 5/8" x 4"
B19	6	Ball Bearing 6003	S 39	12	1/4"x20NLx5/8" Screw
B20	6	Needle Roller Bearing TA2020	S 43	3	5/16"x18NLx1-1/4" Screw
B21	4	Needle Roller Bearing TA3520	S 47	2	1/4"x20x3/8" Screw
K 1	1	Key 8 x 8 x 35L	S 48	4	Screw 3/8" x 1"
K 2	1	Key 8 x 8 x 35L	S 49	4	Screw 5/16" x 1 1/2"
K 3	1	Key 7 x 7 x 50L	S 50	6	1/4"x20NLx5/8" Screw
K 6	1	Key 5 x 5 x 15L	S 51	2	3/16"x24NLx1-1/2" Screw
P 16	1	Spring Pin 5 ¢ x 30L	S 52	2	5/32"x32NLx3/8" Screw
P 17	1	Spring Pin 5 ¢ x 40L	S 53	1	Screw 1/4" x 1 1/4"
P 22	2	Spring Pin 5 ¢ x 40L	S 54	2	1/2" Lock Nuts
P 24	2	Spring Pin 5 ¢ x 30L	S 55	3	Screw
P 26	2	Spring Pin 6 ¢ x 40L	S 57	3	Screw 5/16" x 1 1/2"
P 32	1	Spring Pin 6 ¢ x 55L	S 58	2	Screw 5/16" x 1"
P 35	6	Spring Pin 6 ¢ x 40L	S 59	1	Screw 1/2" x 1"
R 1	1	Retaining Ring	S 62	6	Screw 1/4" x 3/4"
S 1	4	Screw 5/16" x 1"	S 63	6	Screw 5/16" x 1 1/4"
S 2	1	Screw 1/4" x 3/4"	S 64	4	Screw 1/4" x 5/8"
S 4	8	3/16"x24NLx3/8" Screw	S 65	4	Screw 5/16" x 1-1/4"
S 5	5	3/16"x24NLx3/8" Screw	S 70	4	5/8"x11NLx2" Screw
S 6	6	Screw 5/16" x 3/4"	S 246	2	Elbow
S 7	3	Screw 1/2" x 3 1/2"	S 247	2	Coolant Flow Switch
S 8	1	1/4" x 5/8" Screw	W 04	1	Check Washer
S 17	2	Screw 5/16" x 5/8"	W 05	1	Check Washer
S 20	6	Screw 3/8" x 1 3/4"	W 06	1	Check Washer
S 21	6	Screw 1/4" x 5/8"	W 07	1	Check Washer
S 22	6	Screw 5/16" x 1"	SC1	1	OIL SEAL TC 30 x 45 x 8
S 23	6	Screw 1/4" x 3/4"	SC2	1	OIL SEAL TC 50 x 72 x 12
S 25	8	Screw 5/16" x 1 1/2"	SC5	1	Oil Seal 20.35.7
S 26	6	Screw 1/4" x 3/4"	SC6	1	OIL SEAL TC 25 x 35 x 8



## 10.12.15 A / AA SERIES CIRCUIT DIAGRAM





## 10.12.15 SA SERIES CIRCUIT DIAGRAM

