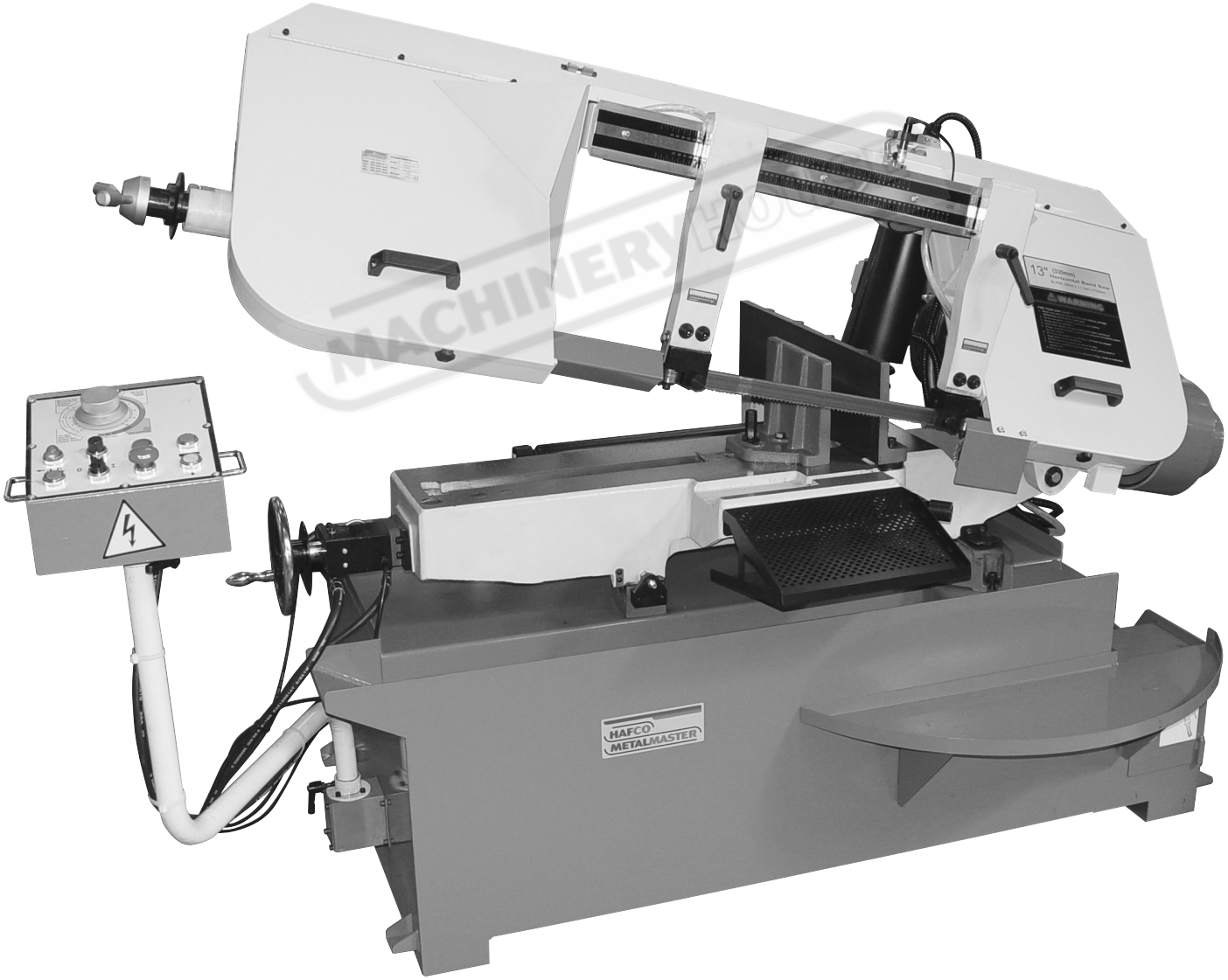
INSTRUCTION MANUAL

BS-13HS
Semi-Automatic Swivel Head Metal Cutting Band Saw (415V)
530 x 225mm (W x H) Rectangle



B033

⚠ WARNING

- Read and understand the entire instruction manual before attempting assembly or operation.
- All Bandsaws are designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a bandsaw, do not use until proper training and knowledge have been obtained.
- Always wear approved safety glasses/face shields while using this machine.
- Make certain the machine is properly grounded.
- Before operating the machine, remove tie, rings, watches, other jewelry, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. Do NOT wear gloves.
- Keep the floor around the machine clean and free of scrap material, oil and grease.
- Keep machine guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
- Do NOT over reach. Maintain a balanced stance at all times so that you do not fall or lean against blades or other moving parts.
- Make all machine adjustments or maintenance with the machine unplugged from the power source.
- Use the right tool. Don't force a tool or attachment to do a job which it was not designed for.
- Replace warning labels if they become obscured or removed.
- Make certain the motor switch is in the OFF position before connecting the machine to the power supply.
- Give your work undivided attention. Looking around, carrying on a conversation, and "horse-play" are careless acts that can result in serious injury.
- Keep visitors a safe distance from the work area.
- Use recommended accessories; improper accessories may be hazardous.
- Make a habit of checking to see that keys and adjusting wrenches are removed before turning on the machine.
- Always keep hands and fingers away from the blade when the machine is running.
- Never hand hold the material. Always use the vise and clamp it securely.
- Keep belt guard, blade guards, and wheel covers in place and in working order.
- Always provide adequate support for long and heavy material.
- Use a sharp blade and keep machine clean for best and safest performance.
- Failure to comply with all of these warnings may cause serious injury.

Table of Contents

Important Notice for CE.

About the safety of optional accessories.

There are two optional safety accessories. Please read in detail from this clause about the safety use of these devices as following.

1. Optional positive mode interlock for pulley cover: If your machine is equipped with this option, please disconnect power through this device for some situation. Otherwise, disconnect power according to the instruction in the clause of operation.

2. Optional handle operated power disconnection device : If your machine is equipped with this option, please disconnect power through this device for some situation. Otherwise, disconnect power according to the instruction in the clause of operation.

Environment Requirements for Installation.

1. Be sure to provide sufficient light for operation according to the codes or regulations published for local area. If you do not get the information about lighting, a light intensity of 300 Lux is the least value to be supplied.

2. The place where machine install must be flat and big enough for the operation.

Noise Level

1. The noise level of this machine is about 75 db (A) during operation.

2. While taking provisions for the risk of noise, the noise level of working environment should be taken into consideration also.

Handling & Transportation of Machine

1. The total weight of this machine must be ensured before handling.

2. This machine can not be handled without help of lifting tools.

Transportation Methods

⚠ WARNING

1. Always keep balance of the machine in transportation. Watch the gravity !

2. Drive forklift slowly and carefully.

ELECTRICAL CONNECTION/DISCONNECTION.

FOR 3 PHASE

1. Electrical connection:

1. A cable with four wires is equipped to connect your machine into the 3 phase power supply. Please connect your machine into the power supply with hand-operated disconnecting device, which is in compliance with subclause 5.3 of EN 6024, such as no fuse breaker or plug/socket combination, if your machine is not equipped with this optional device on the door of control box.

2. For the protection of control device, we recommend the operator to supply a fuse with appropriate current rating, and the total length between fuse and connection terminal shall not exceed 1.5 m.

3. The power supply system is TN system.

4. The exact power source voltage, frequency, and number of phase shall be checked according to the installation diagram and circuit diagram.

5. The correct direction of saw blade should be checked after connecting.

2. Electrical disconnection:

1. The disconnection is carried out by hand-operated disconnecting device, which is on the door of control box as an option or connected before the power source.

2. Be sure to disconnect this machine from power source, when you want to stop the job, maintenance, and adjustment.

3. Grounding.

The grounding of this model is carried out by connecting the yellow/green terminal of supply cable to the grounding terminal of power source. Be sure to ground your machine before connecting machine to power source in any situation.

WARNING!

Do not disconnect grounding terminal before disconnecting power source.

FOR SINGLE PHASE

1. If the power cable is not equipped with plug, please connect and disconnect your machine with power according to the same instruction of three phase. Otherwise, Please follow the following instruction (2~4).

2. The connection, disconnection, and grounding is carried out through the plug, equipped on the machine. For the safety reason, Do not change this plug into any other type in any situation.

3. For the protection of control device, we recommend the operator to supply a fuse with appropriate current rating, and the total length between fuse and connection terminal shall not exceed 1.5 m.

4. The exact power source voltage, frequency, and number of phase shall be checked according to the installation diagram and circuit diagram.

Uncrating and Clean up

Note: Read and understand the entire manual before attempting setup or operation.

1. Finish uncrating the saw and inspect for damage. If any damage has occurred, contact your local distributor.

2. Remove all bolts attaching machine to shipping base.

3. Leave packing material between vise clamps and saw head intact until bandsaw has been lifted to its final position.

4. Clean all rust protected surfaces with kerosene or diesel oil to remove protective coating. Do not use gasoline, paint thinner, mineral spirits, eta. These may damage painted surfaces.

5. Lubricate all slideways with SAE 10W oil.

Installation

For best performance, the bandsaw should be located on a solid and level foundation. allow room for servicing and for moving large stock around the bandsaw when deciding a location for the machine.

1. Using lifting straps that are isolated from the bandsaw's finished surfaces, lift machine and place in desired location. See Figure 1, for strap placement.

2. Install four leveling bolts with lock nuts on both sides of the base.

3. Place a level on the table surface and check side to side and front to back.

4. Adjust leveling screws until machine is level in both directions and tighten locking nuts.

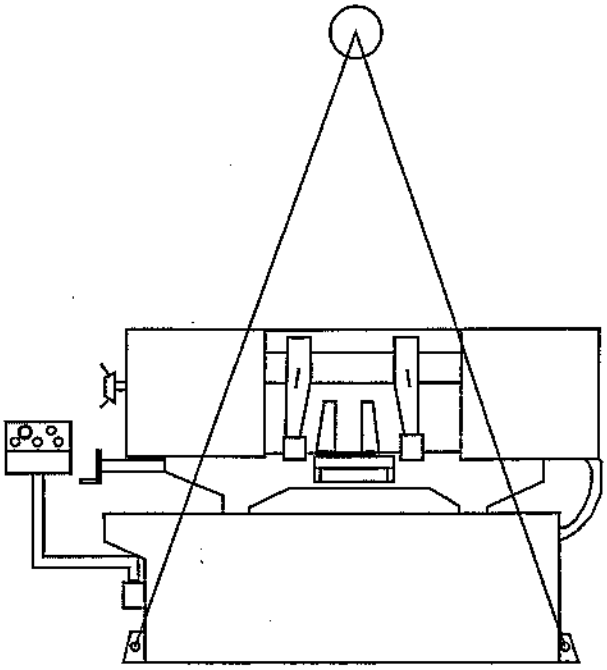


Fig. 1

Assembly

1. Insert stop bar into the work table, below the vise. Place work stop bracket onto stop rod and tighten lock handle. Attach stop screw to stop bracket with lock handle and tighten.

2. Fasten chip grate with 2 provided set screws to the work table.

Electrical Connections

⚠ WARNING

All electrical connections must be done by a qualified electrician! Failure to comply may result in serious injury

⚠ WARNING

Disconnect machine from the power source before changing any voltage components! Failure to comply may cause serious injury!

The 330SSA bandsaw is rated at 230/460V, 3Ph. and is prewired 230 volt from the factory. Confirm that the power available to the saw is the same as what the saw is wired for. To switch the 330SSA from 230V to 460V the following items will have to be changed:

- **Main Motor** - follow diagram inside junction box cover.
- **Coolant pump** - remove the access panel and follow diagram inside junction box cover.
- **Control transformer** - Open electrical panel on rear of base and switch primary wire on transformer from 230V to 460V.
- **Hydraulic Pump** - Remove access panel and follow diagram inside junction box cover.

Machine must always be correctly grounded.

Note: The power cord end will have to be changed to one that is rated 460V when changing to the higher voltage.

Controls - figure 2

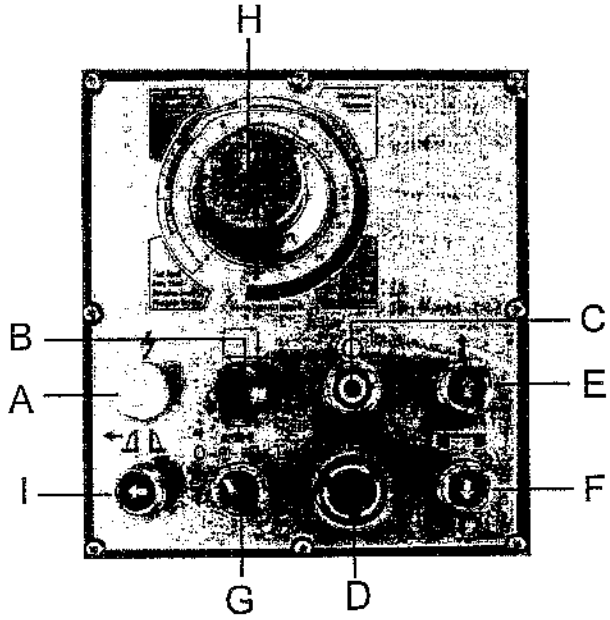


Fig. 2

A. **Power Indicator Light** (A) - lit whenever machine is running.

B. **Start Button** (B) - press to start bandsaw.

C. **Stop switch** (C) - press to stop bandsaw.

D. **Emergency Stop Button** (D) - press to immediately stop all machine functions.

E. **Bow-up Switch** (E) - press to raise bow.

F. **Bow-down Switch** (F) - press to lower bow.

G. **Coolant Switch** (G) - Turn arrow to "I" to turn on flow of coolant. Turn arrow to "O" to stop flow of coolant.

H. **Cutting Pressure Control** (H) - turn clockwise to decrease cutting pressure. Turn counter-clockwise to increase cutting pressure.

I. **Rapid Reverse Button** (I)

Materials and Speeds - figure 3

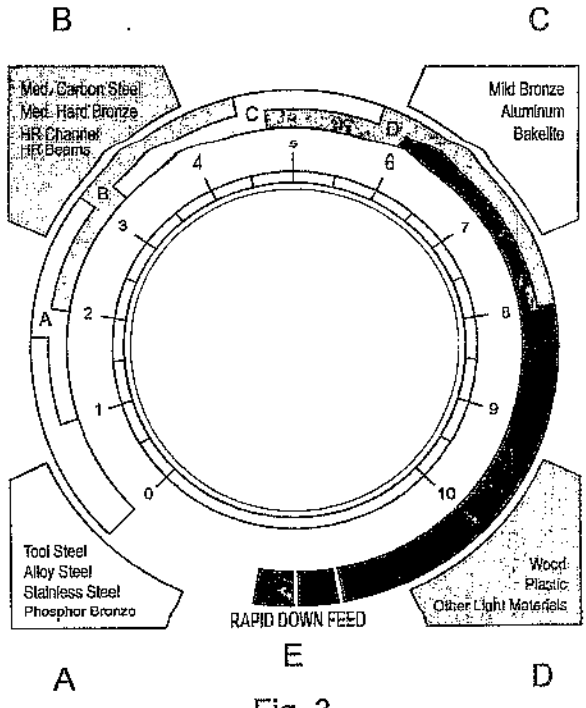


Fig. 3

A. (Light blue) - Hard Metals
Tool Steel, Alloy Steel, Stainless Steel, and Phosphor Bronze.

B.. (Green) - Medium Hard Metals
Medium Carbon Steel, Medium Hard Bronze, HR Channel, and HR Beams.

C. (Yellow) - Soft Metals
Mild Bronze, Aluminum, and Bakelite.

D. (Orange) - Soft Materials
Wood, Plastic, and other Light Materials.

D. (Blue-Red) - Rapid Down Feed

Prior to Operation

1. Check blade tooth direction matches diagram on blade guides.

2. Check to see that blade is properly seated on wheels after applying correct tension (approximately 2000kgs(25,000lbs)).

3. Set blade holder guides for approximately .08mm to .013mm clearance between the guides and blade.

4. Check for slight clearance between back up rollers and back of blade.

5. Position blade guides as close to work piece as possible.

6. Select proper speed and feed rate for material being cut.

7. Material to be cut must be securely held in vise.

8. Check for slight clearance between back up rollers and back of blade.

9. Do not start cut on a sharp edge.

10 Keep machine lubricated. See "Lubrication" section.

Changing Blade Speeds

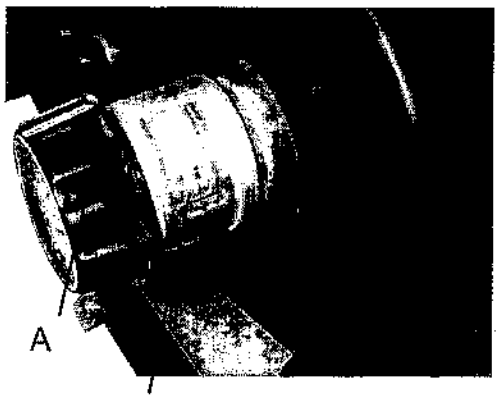


Fig. 4

Adjust the blade speed while the machine is running. The dial sticking out of the motor cover (right side) controls the variable speeds between 66FPM to 264FPM (20-80MPM). Figure 4. Rotate the governor (A - Fig. 4) by following the level (B - Fig.4) in the scale to get desired speed for cutting the work piece.

Adjusting Feed Rate

Rate of feed is adjusted by turning the cutting pressure control knob on the control panel. Rate of feed is important to bandsaw performance; excessive pressure may break the blade or stall the saw. Insufficient pressure rapidly dulls the blade.

Material chips or shaving are the best indicator of proper speed and pressure. The ideal chip is thin, tightly curled, and warm to the touch. Chips that range from golden brown to black indicated excessive force. Blue chips indicate extreme heat from to high a band speed which will shorten blade life. Thin or powdered chips indicate insufficient feed pressure.

Broken-blade Shut-off Switch

This machine is equipped with automatic power shut-off safety device to prevent any further damage when a blade has broken.

After replacing a new blade, the safety

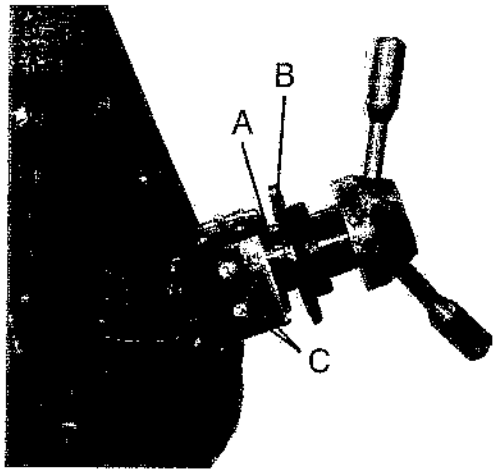


Fig. 5

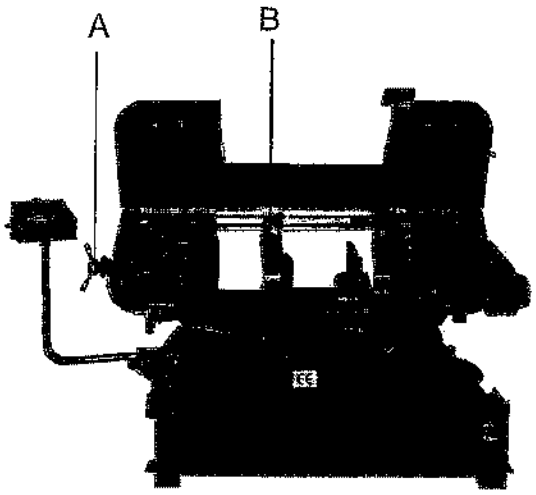


Fig. 6

device may need to be readjusted. If the power indicator light (A - Fig. 2) is not on, the shut-off switch has not been properly set. To adjust, follow these steps:

1. **Disconnect the machine from the power source.**

2. Loosen the two set screws (C - Fig. 5) to release the limit switch.

3. Move the limit switch toward the block plate (B - Fig. 5) and make sure the trigger button (A - Fig. 5) of the limit switch is near the block plate.

4. Press the start button to see whether the power indicator light (A - Fig. 2) turns on. If not, readjust again.

Changing Blades

> **⚠ WARNING**
>
> Disconnect machine from the power source before making any adjustments or repairs! Failure to comply may result in serious injury!

1. Raise the saw arm approximately 150mm(6"). press the emergency stop to hold the arm in place.

2. **Disconnect machine from power source.**

3. Open the blade cover, locking it securely blade cover latch (Fig. 7), and clean chips out of both wheel housings. Loosen lock knobs and remove upper and lower blade guard. Remove wire brush assembly.

Fig. 7

4. Release blade tension by turning blade tensioning hand wheel (A - Fig. 6) counter-clockwise until blade is free.

5. Loosen lock knob and slide left blade guide arm (B- Fig. 6) to the right as far as possible.

6. Remove old blade from both wheels and out of each blade guide.

!Caution!: Even dull blades are sharp to the skin! Use extra caution handling bandsaw blades!

7. Install new blade making sure teeth are pointed downward in the proper cutting direction. If necessary, turn blade inside out.

8. Position blade on band wheels and tighten just enough to hold blade on wheels. Make sure back of blade rests lightly against the wheel flange of both wheels. Twist blade slightly to allow to slip into guides.

9. Tension blade to approximately (2,000kgs(25,000lbs)). Blade tension is indicated on the tension wheel shaft housing (left side).

10 Attach wire brush to the wire brush post with screw and washer. Adjust wire brush post so that brush just comes into contact with blade teeth.

11. Close the cover and guards then fastened securely. Connect machine to power and run unloaded for approximately two minutes.

12. Turn power off and recheck blade tension and wire brush adjustment. If further adjustment is necessary, **disconnect saw from power source**, make adjustments, and reconnect to power.

Blade Tracking Adjustment

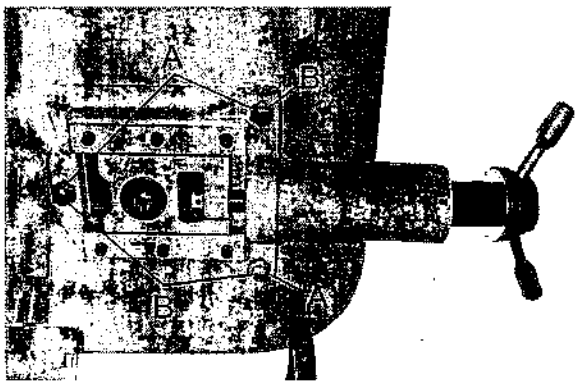


Fig. 8

Blade tracking has been set at the factory and should require no adjustment. If a tracking problem occurs, adjust the machine as follows:

⚠ WARNING

Tracking adjustment is done with the wheel cover open to observe the blade. Use extreme caution so as not to come into contact with the blade

Since tracking can only be adjusted while machine is running, it is suggested that this adjustment be accomplished by qualified personnel that are familiar with this type of adjustment and the dangers associated with it.

1. **Disconnect machine from the power source.**

2. Raise saw arm to its highest position.

3. Locate tracking adjustment plate on the back side of the idle wheel.

4. Loosen the three bolts (A - Fig. 8) located on the top of the tacking nuts.

5. Tracking adjustment is accomplished by either loosening or tightening three adjusting nuts (B - Fig. 8).

6. Tracking is set properly when the back of the blade lightly touches the wheel flange. **Note**: over-tracking (allowing blade back to rub hard against wheel flange) will damage the blade wheels and blade.

7. Tighten locking bolts (A - Fig. 8) once proper tracking is completed.

8. Connect machine to the power source.

Chip Brush

The chip brush may need periodic adjustment due to normal everyday wear.

1. **Disconnect machine from the power source**

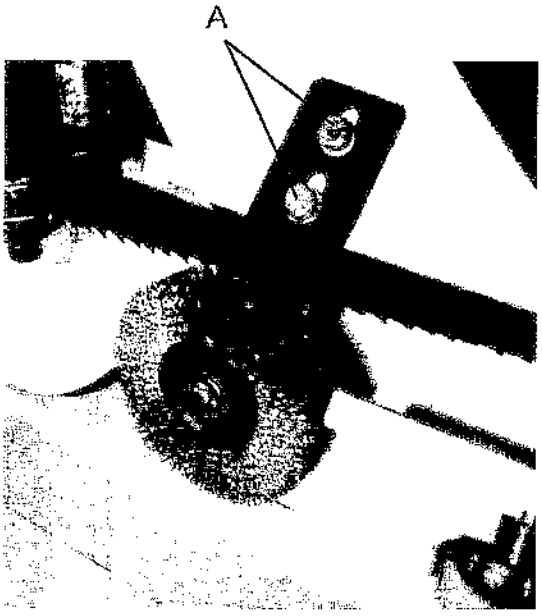


Fig. 9

2. Open the right side wheel cover.

3. Loosen bolts (A - Fig. 9).

4. Raise the chip brush so that it touches the blade.

5. Tighten bolts (A - Fig. 9).

6. Close wheel cover.

7. Connect machine to power source.

Note: If the brush becomes to small to reach the blade a replacement is necessary.

Chip Hole

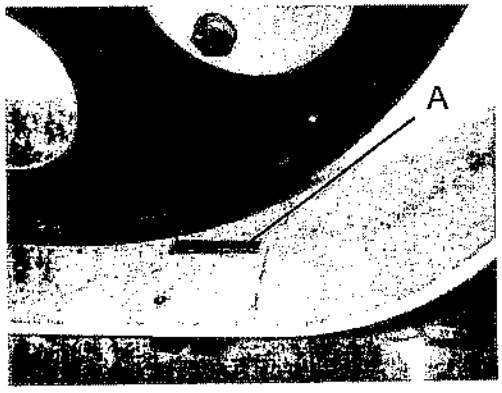


Fig. 10

The chip hole (Fig. 10) allows chips to flow out of the wheel box. This may require periodic cleaning if the hole is clogged with debris.

Chip Grate

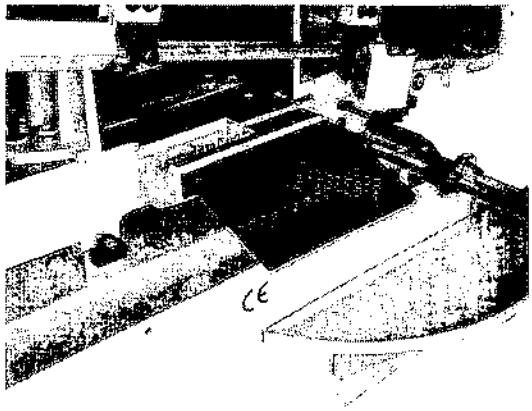


Fig. 11

the chip grate helps to control the flow of chips and coolant from spraying everywhere. It may require periodic cleaning of debris.

Application and Adjustment of the stock cutting limit switches.

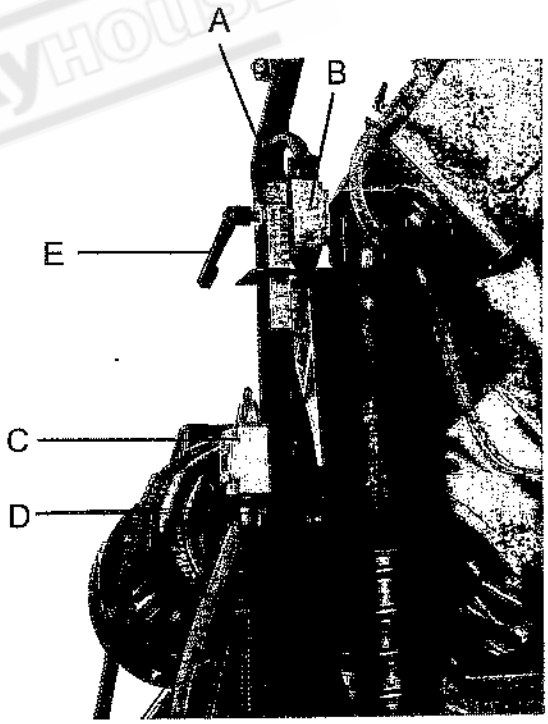


Fig. 12

When making multiple cuts of the same size stock, the band saw can be made to cut more efficiently by setting the saw arm's return height to that which is necessary for the stock to be cut.. For Example, cutting 4" thick work pieces, the saw arm can be preset to be raising to only 5" in height before

making the next cut.

1. Place the saw arm to the horizontal position.

2. Release the limit switch (B - Fig. 12) by loosening the handle (E - Fig. 12).

3. According to the scale (A - Fig. 12) to set the desired measurement of the saw arm raising position.

4. Tighten the handle (E - Fig. 12).

5. If the saw does not stop automatically after a complete cut, the micro switch (C - Fig. 12) needs to be adjusted. Please refer to the section of by loosening the two screws (D - Fig.12) *Automatic Shut-off* Adjustment.

6. To release the set position, the procedure is the same but move the limit switch to maximum level.

Work Stop-Bar adjustment

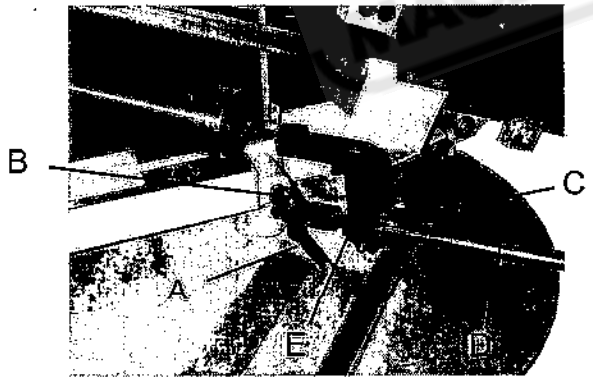


Fig. 13

The stop bar can be adjusted during angle cutting, and the procedure is as follows:

1. Unfasten the handle (A - Fig. 13), and use a hex wrench (allen wrench) to loosen the hex socket set screw (B - Fig.13)

2. Push the bar gradually to the right side to get the desired angle and then tighten the set screw (B - Fig. 13) and handle (A - Fig. 11).

Note: There are four presets. They are at 0°,15°,30°, and 45° angles.

3. Loosen the handle (C - Fig. 13), and according to the scale (D - Fig. 13) to adjust the length by moving the stop bracket (E - Fig. 13)

4. Retighten the handle (C - Fig.13)

Down-Bow Dampener

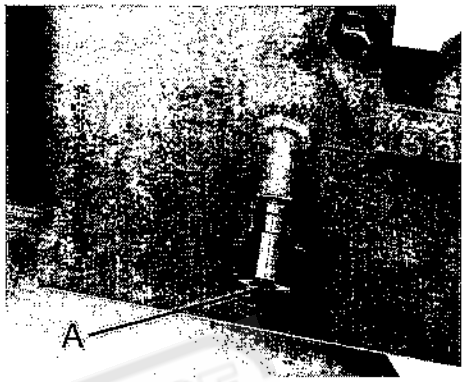


Fig. 14

The dampener (fig. 14) functions to produce a finer cut by reducing the rate of down-bow when blade nears the table. The width of measurements of the blades between inch size and mm size are slightly different. This saw is equipped with inch size blade at the factory, if the user did not get the inch type but instead got a mm size blade, it is necessary to adjust the dampener by turning the cap screw (A - Fig. 14) clockwise about 1/4 revolution, and also adjust the limit switch (C-Fig. 12). Otherwise, the saw bow will not automatically rise up after completing the cut.

Automatic Shut-Off

The blade will stop after the material has been cut and the bow reaches its lowest position. The bow will then automatically raised to its preset height.

Note: If the bow or blade fails to stop, the limit switch (C - Fig. 12) must be raised.

1. Loosen 2 screws (D - Fig. 12).
2. Lift limit switch to desire height.
3. Tighten 2 screws (D - Fig.12).

Thrust Roller Adjustment

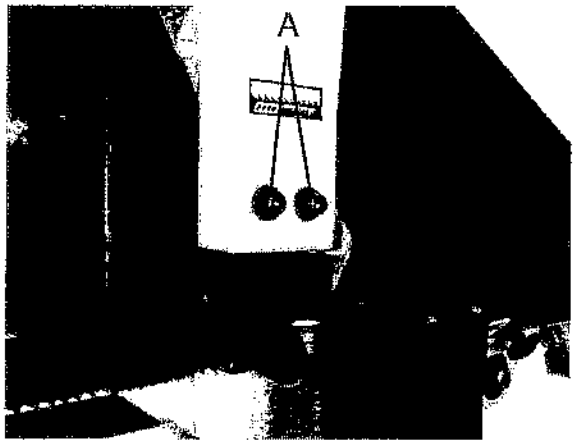


Fig. 15

1. **Disconnect machine from the power source.**
2. Loosen two hex socket cap screws (A - Fig. 15)
3. Move guide seat (Fig. 16) up or down until a clearance of .08mm to .013mm between back of blade and thrust roller is obtained.
4. Tighten two hex socket cap screws (A - Fig. 15).
5. Repeat for other blade guide assembly.
6. Connect machine to the power source.

Guide Roller Adjustment

Note: Only bearing (A - Fig. 17) is adjustable. Bearing (B - Fig. 17) is fixed.

1. **Disconnect machine from the power source.**
2. Loosen blade guides by loosening

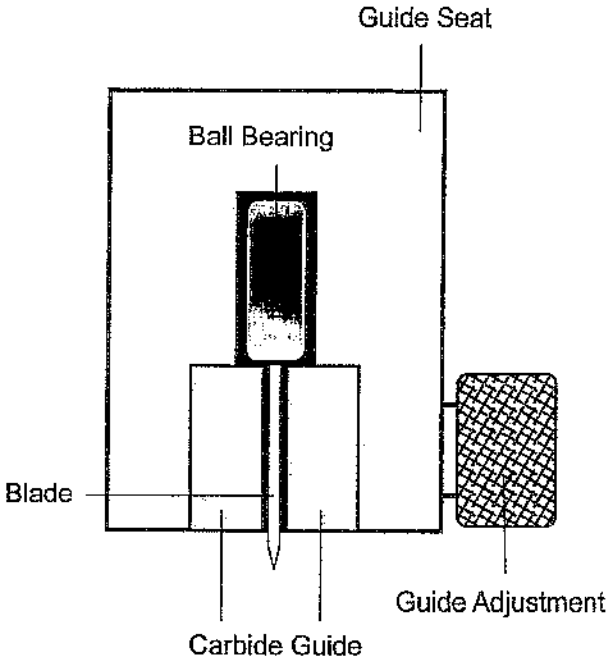


Fig.16

guide adjustment screw (Fig. 17) and hex socket cap screw (A - Fig. 18). Slide blade guides away from blade.

3. Loosen locking screws (A - Fig. 17) by using a hex wrench.
4. Adjust the eccentric bushings with a combination wrench until the ball bearings are snug to the blade (A - Fig. 17) Note: blade should travel freely up and down between the ball bearings. Do not pinch the blade.
5. Tighten locking screws (A - Fig. 17).

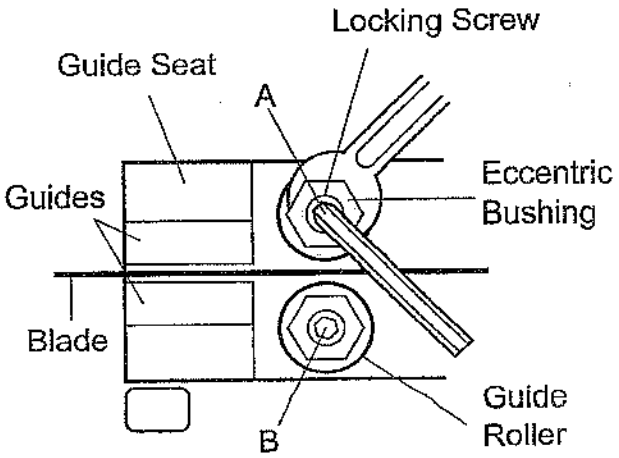


Fig. 17

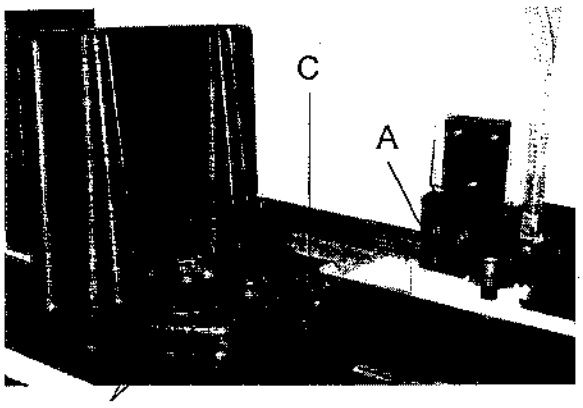


Fig.18

6. Slide blade guides back into contact with blade and tighten thumb screw (Fig. 17) and hex socket cap screw (A - Fig. 18).

7. Connect machine to the power source.

Hydraulic System

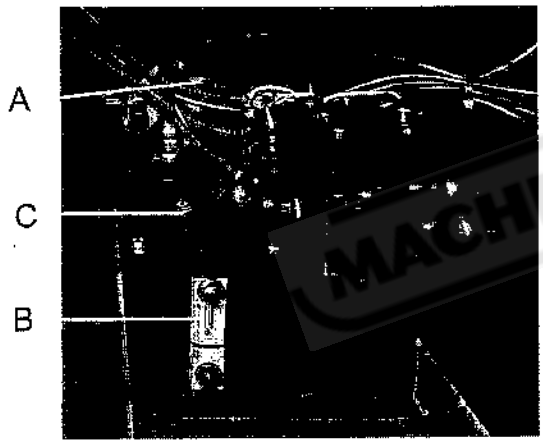


Fig. 19

The hydraulic system controls saw arm descending. If the magnetic valve (A - Fig. 19) contains sediment, the saw are may not go down regularly. to solve this problem keep the net filter clean.

To clean, open magnetic valve, take the net filter out, and remove sediment carefully. Then replace them.

To refill oil, open oil inlet (C - Fig. 19) and fill oil (Mobile I405 or Hydran LG 10) until level reaches the middle of the oil gauge (B - Fig.19) Replace oil inlet.

Hydraulic Vice System

For safety reasons this vise system is equipped with a saw arm descending control switch. If the vise is unloaded or the work piece is not properly clamped. the saw arm will not go down. To start operations proceed as follows:

1. Connect the machine to the power source.

2. Depress the bow up button (E - Fig. 2) to raise the saw arm up.

   If the saw arm fails to rise, the three phases are misconnected. Open the motor junction box cover and interchange any two leads inside.

3. Use one hand to lift up the rack block (C - Fig. 18) and slide back the movable vise jaw.

4. Load the work piece. Having it rest slightly against the fixed vise jaw.

5. Slide the movable vise jaw next to the work piece.

6. Depress the start button to begin cutting.

If the saw arm fails to descend, the work piece is not properly clamped. Proceed as follows:

1. Push the movable vise jaw forward.

2. Press the vise's rapid reverse button (I - Fig. 2) to open rack.

4. Depress the start button (B- Fig. 2) to descend the saw arm to start cutting.

5. If the saw arm fails go down. repeat the steps 1 and 2.

Hydraulic Vise Clamping Pressure Adjustment

The pressure is preset to 25 kgs in the

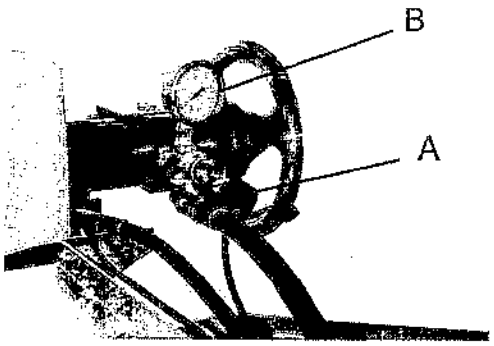


Fig. 20
factory for cutting solid steel bar.

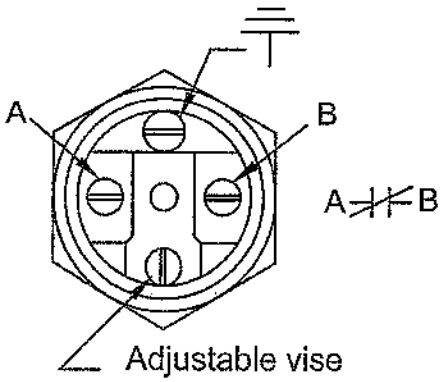


Fig. 21

If cutting a pipe with a thin wall, the pressure should be adjusted to 15 kgs (even thought the pressure gauge (B - Fig. 20) reads from 0 to 100kgs, the general usable range is from 15-30 kgs.) The adjustment proceeds as follows:

1. **Disconnect the machine from the power source.**

2. Open the cover (A - Fig. 20) of the electronic pressure control by using a screw driver.

3. Reduce the pressure by using a screw driver to turn the screw (B - Fig. 21) counter clockwise a little bit.

4. Connect machine to the power source.

5. Load a solid steel bar between the vise jaws and use one hand to push the movable vise toward the work piece against the fixed jaw.

6. Press the start button, and check that the gauge reads the desired clamping pressure.

7. If not, readjust the pressure by following the step 3 to 5 again till the proper pressure is obtained.

Adjusting Vise Square to the Blade

1. **Disconnect the machine from the power source.**

2. Place a machinist's square on the table against the blade and the vise (fixed). The Square should lie along the entire length of the vise and blade without any gaps.

3. If adjustment is necessary, loosen bolts holding the vise and adjust vise so that the square lines up properly. Tighten bolts.

4. Connect machine to the power source.

Vise and Angle Cutting Adjustment

To position the saw arm to cut at 45° angle.

1. **Disconnect the machine from the power source.**

2. Push the handle (A - Fig. 22) towards the hand wheel, and push the short handle (not shown) beneath the gearbox, towards the motor end of the saw to release the upper assembly.

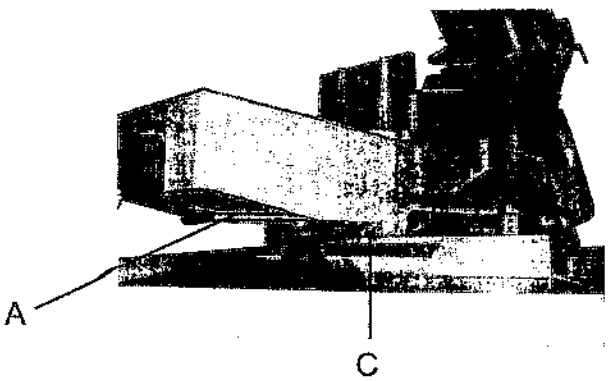


Fig.. 22

3. Rotate the upper assembly using both hands as shown in picture (Fig. 23) to the desired angle by following the index on the scale (C - Fig. 22).

4. Pull the handle (A - Fig. 22) towards the motor end of the saw and the short handle towards the hand wheel to lock the upper assembly.

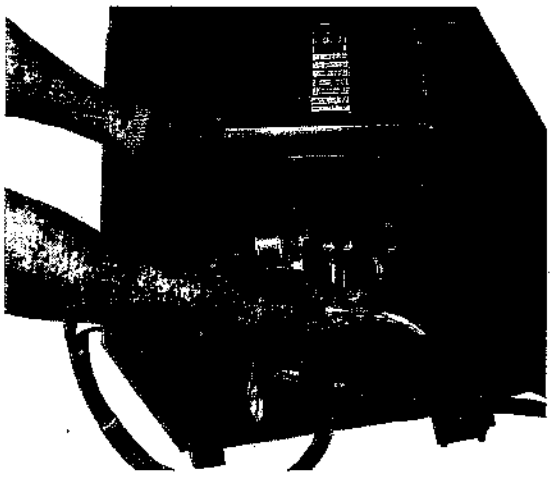


Fig. 23

5. Properly load the work piece and start operation.

To adjust the angle of the vise jaw:

1. Loosen bolts (C - Fig. 24)

2. Adjust the smaller movable vise jaw by rotating it.

3. Slide vise jaw (B - Fig. 24) flush to fixed vise (A - Fig. 24) to match parallelly.

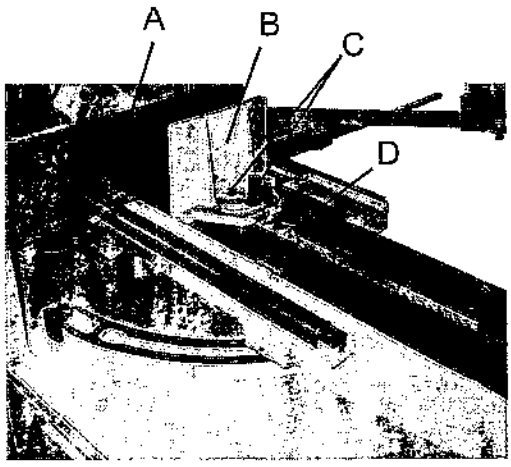


Fig. 24

4. Once parallel tighten bolts (C - Fig. 24), then set position.

Setting the position of the vise jaw

1. Pull up on the rack block (D - Fig. 24).

2. Move vise to desired location by sliding along table.

Water Gun Operation

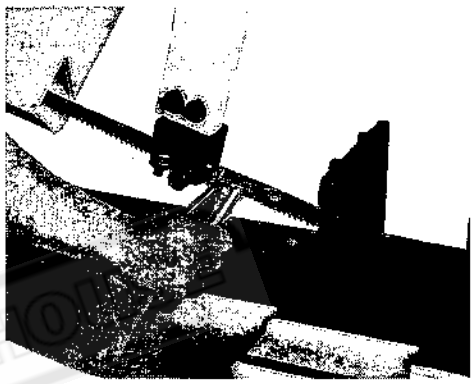


Fig. 25

Water gun is designed for washing off the chips and debris in or on the work table, as well as, being used during machine operation.

1. Press the start button (B - Fig. 2) to start machine.

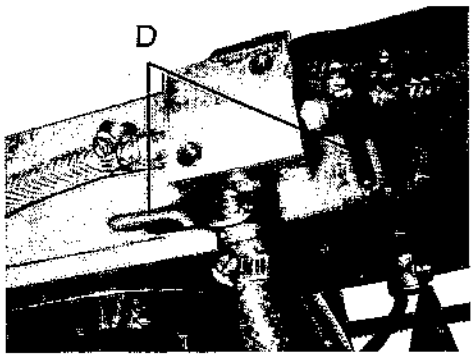


Fig. 26

2. Turn off the hydraulic flow control switch (H - Fig. 2) by turning it clockwise to the end.

3. Start the pump by turning the switch (G - Fig. 2) to "I" position.

4. Lock the two handles (D - Fig. 26) on the saw arm by either turning it 90 counter-clockwise or clockwise against the hose.

5. Release the handle (E - Fig. 26) by turning it clockwise all the way to the end.

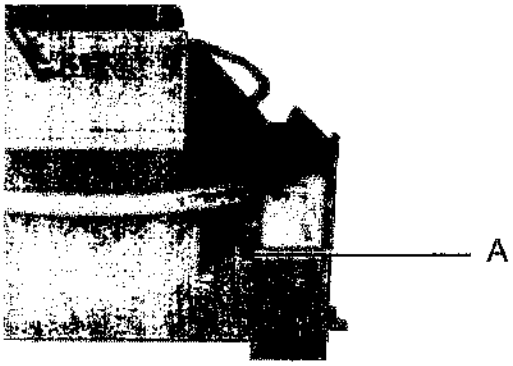


Fig. 27

6. Press down the red spot (A - Fig. 27) on the lock plate of the spray gun locker to open the door.

7. Take out the water gun to use.

Replacing the Coolant

1. **Disconnect the machine from the power source.**

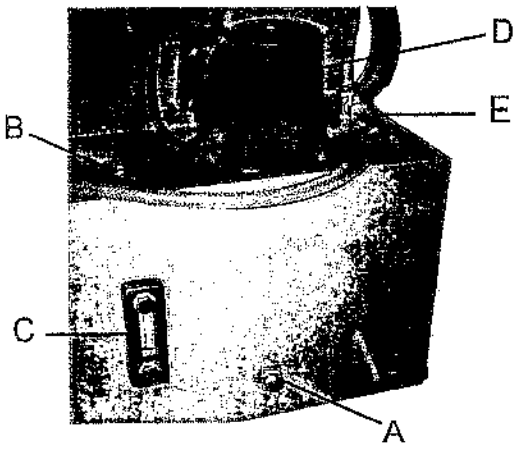


Fig. 28

2. Remove the drain plug (A - Fig. 28 with a hex wrench, and allow coolant to drain completely,

3. Remove the hex cap bolt (B - Fig. 28), and move the pump unit (D - Fig. 28) away.

4. Vacuum out the chips and debris from the tank.

5. Replace the drain plug (A - Fig. 28).

6. Add coolant to the highest level of the coolant meter (C - Fig. 28).

7. Replace the pump unit (D - Fig. 28), and fasten the bolt (B - Fig. 28).

Lubrication

All ball bearings are permanently lubricated and sealed. They require no further lubrication.

The gear box lubricant should be changed after the first 3 months of operation. Change lubricant from then on every year. To change gear box lubricant:

1. **Disconnect machine from the power source.**

2. Open drain plug and allow lubricant to drain completely. Drain plug may be found on lower front of gear case under right wheel cover. Remove drain plug with hex wrench.

3. Replace drain plug.

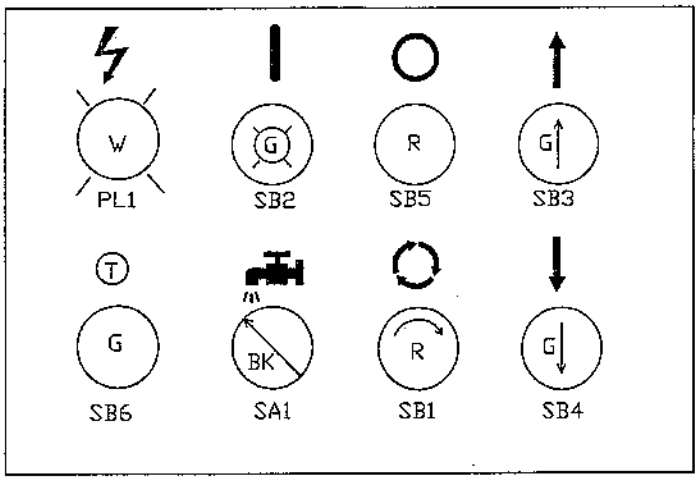
4. Remove filler cap and fill gear box with 50 weight gear oil until level reaches dot in middle of sight glass.

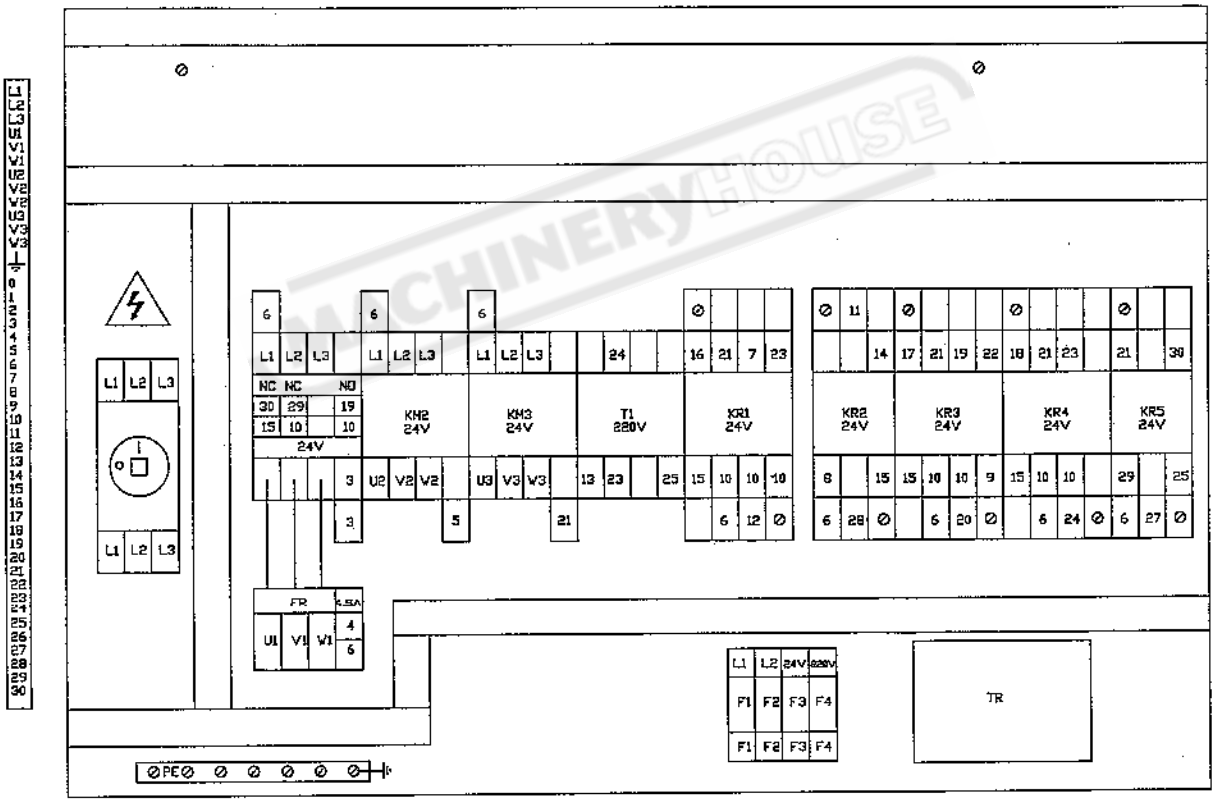
5. Replace filler cap.

6. Connect machine to the power source.

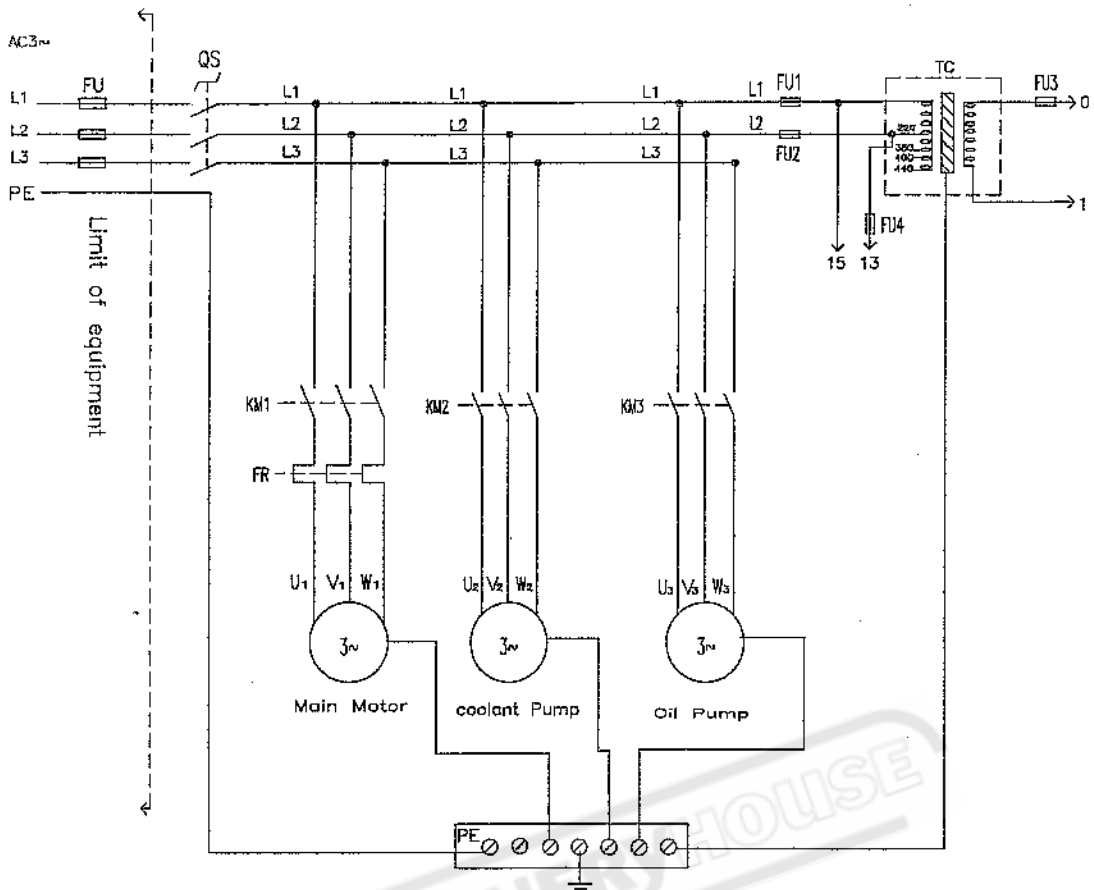
7. Use a light machine oil to lubricate all other moving parts as needed.

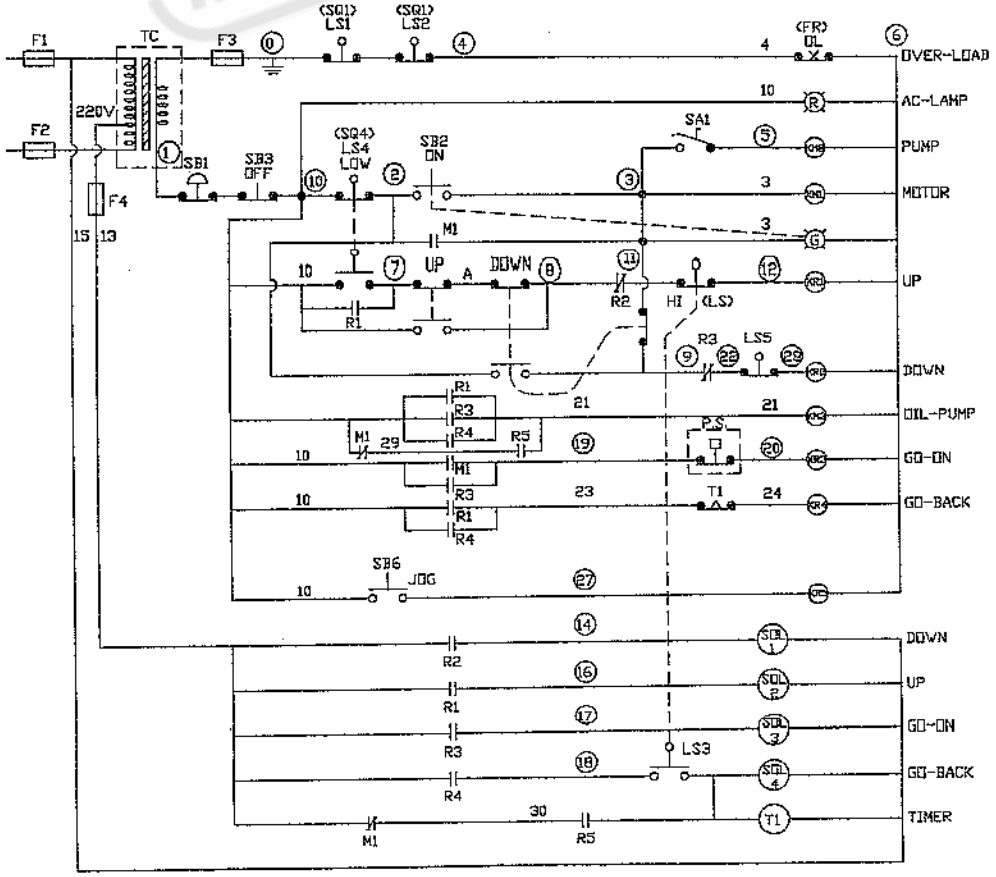
Electrical Panel Layout





Electrical Schematic





Schedule of Electrical Components

Item designation	Description and function	Technical data	Quantity	Remarks
QS	MAIN POWER & FUSE SWITCH	AC 21 16 A 500 V	1	VDE 0660 IEC 408 BS 5419
FU1 FU2 FU3 FU4	AC FUSE TO TRANSFORMER AC LOW VOLTAGE TO TRANSFORMER AC-SOL	AC 600V 30 mm 2A AC 600V 30 mm 3A	1 1 1 1	UL 198 G CSA C22.2 N0. 59.2
KM1 KM2 KM3	CONTACTORS	SPLA Ri=660 V Rt=25 A AC 3 220 V 2.2 KW 380 V 4.0 KW	1 1 1	 IEC 158-1 BS 5424-1 VDE 0660 JIS 8325
FR	OVERLOAD RELAY	5~8 6.5 A Ui=600 V Ith=10 A	1	IEC 292 VDE 0660 JIS 8325 BS 5424-1
TC	TRANSFORMER	AC 0-220-440 V 24V 72VA	1	IEC 76-5 EN 60742 IP 2X
SQ1 SQ2	SAFE-DOOR LIMIT SWITCH	AC 500V 5A	1 1	IEC 947 EN 60947 IP 65
SQ4	CUT-LIMIT SWITCH	AC 600V 10A 125, 250V 0.1A 600VDC	1	UL-66C7 IP 54
SB1	EMERGENCY STOP	AC 600V 10A	1	SEC14.4 IP65
SB2 SB3 SB4 SB5	START-ON SAW -UP SAW –DOWN STOP-OFF	AC 250V 10A 380V 7.5A - 1 NO+1 NC	1 1 1 1	IP 65 IEC 144
SB6	OPEN-TOOL CUT-OFF	16ϕ 1 NO+1 NC	1	CE
TB	CASSET~DOUBLE TERMINAL BLOCK	TD-015 AC 600V 15 A	22	UL 9987 IP 2X
PL1 PL2	DIRECT SUPPLY	22 AC 24V 1.2W	1 1	IEC 144 IP 65
SA1	PUMP-SWITCH	INO, AC250V 10A 380V 7.5A	1	IEC 144 IP 65
TIMER	VISE OPEN SETTING TIMER	AC 220V	1	CE
KR2 KR5	CONTROL RELAY CONTROL RELAY RM2SU	COIL AC 24V 240V 5A DC 30V 5A	1 1	CE IEC 255-1 IEC 255-0-20 CSA 35144
KR1 KR3 KR4	CONTROL-RELAY CONTROL-RELAY CONTROL-RELAY RY4S-U	COIL AC 24V 240V 5A DC 30V 5A	1 1 1	CE IEC 255-1 IEC 255-0-20 CSA 35144

PART LIST

Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
1	Base		1	35	Supporting Seat		1
2	Hex. Cap Bolt	M12×65	4	36	Pivot Support Shaft		1
3	Nut	M12	4	36-1	C-Ring	S22	1
4	Coolant Pump	1/6HP	1	37	Motor	3HP, 3PH	1
4-1	Round Head Screw	M6×16	2	37-1	Key	8×7×50	1
4-3	Flat Washer	M6	2	38	Flat Washer	M6	2
5	Set Screw	M8×16	2	39	Hex. Cap Bolt	M10×55	4
6-1	Round Head Screw	M6×16	1	39-1	Flat Washer	M10	4
6-2	Spring Washer	M6	1	39-2	Spring Washer	M10	4
6-3	Washer	M6	1	39-3	Nut	M10	4
6-4	Coolant Tank Cover		1	40	Hex. Cap Bolt	M12×50	3
7	Bed		1	40-1	Spring Washer	M12	3
7-3	Indicator		1	40-2	Washer	M12	3
7-4	Hex. Socket Cap Screw	M5×8	2	41	Switch Mounting Plate		1
8	Connector		1	42	Spring Washer	M6	2
8-1	Hose Fitting		1	43	Hex. Cap Bolt	M6×12	2
8-2	Hose Clamp		3	44	Round Head Screw	M5×35	4
8-3	Hose	3/8″ ×1200	1	44-1	Spring Washer	M5	4
8-4	On/Off Valve		1	44-2	Round Head Screw	5/32×1/4	4
8-5	Hose	3/8″ ×2800	1	44-3	Spring Washer	5/32	4
8-6	Hose Fitting		1	45	Limit Switch	5101	1
8-7	Water Gun		1	45-1	Roller limit Switch	5102	1
8-8	Connector		1	46	Adjusting Bracket		1
9	Coolant Gauge		1	46-1	Scale		1
9-1	Pan Head Screw	M10×30	2	46-2	Rivet		2
9-2	Washer	M10	2	47	Cylinder Supporting Rod		1
9-3	Nut	M10	2	47-1	C-Ring	S32	2
10	Drain Plug		1	47-2	C-Ring	S28	1
11	Plate		1	48	Cylinder Cover		1
11-1	Cover Lock		1	49	Spring		1
12	Hinge		2	50	Pin		1
13	Plate		1	51	Cylinder Assembly		1
13-1	Hex. Socket Cap Screw	M6×8	4	51-1	Holder		1
14	Electrical Box Door		1	52	Lock Pin		1
14-2	Hinges		2	53	Top Mounting Plate		1
14-4	Round Head Screw	M6×30	1	54	Hex. Cap Bolt	M12×35	2
14-5	Spring Washer	M6	1	55	Spring Washer	M12	2
14-6	Washer	M6	1	56	Plate		1
14-7	Nut	M6	1	56-1	Hex. Cap Bolt	M6×12	2
21	Hand Wheel		1	56-2	Spring Washer	M6	2
21-1	Set Screw	5/16″ ×3/8	1	57	Switch Mounting Plate		1
21-2	Handle	3/8	1	57-1	Handle		1
22	Rack		1	57-2	Washer	M10	1
23	Lead Screw Seat		1	59	Hex. Socket Cap Screw	M8×25	2
23-1	Hex. Socket Cap Screw	M8×16	2	60	Spring Washer	M8	2
23-2	Hex. Socket Cap Screw	M8×20	1	61	Hex. Socket Cap Screw	M6×30	1
23-3	Flat Washer	M8	1	61-1	Nut	M6	1
24	Lead Screw		1	61-2	Washer	M6	3
24-1	Key	6×6×25	1	61-3	Spring Washer	M6	1
25	Slide Bracket		1	62	Electric Cabinet Box		1
26	Vise Jaw-Left		1	63	Contactor		3
26-1	Hex. Cap Bolt	M12×40	1	63-1	Sub-Connector		1
26-2	Locking Bolt	M12×45	1	63-2	Overload Relay		1
26-3	Spring Washer	M12	2	64	Fuse		4
26-4	Washer	M12×35×5W	1	65	Transformer		1
27	Rack Block		1	65-1	Relay		6
28	Set Screw	M6×8	1	65-2	Timer		1
29	Pin		1	66	Pin		2
30	Bearing	3020	2	67	Terminal Strip		1
30-1	Spacer		1	68	Main Door Power Switch		1
32	Pivot Shaft		1	69	Grounding Plate		1
32-1	Hex. Cap Bolt	M12×20	2	70	Rod		1
32-2	Washer	M12	2	70-1	Ball Bearing	6004ZZ	2
33	Pivot Bracket		1	70-2	Feeding Roller		1
34	Spring		1	71	Bushing		2

900829

PART LIST

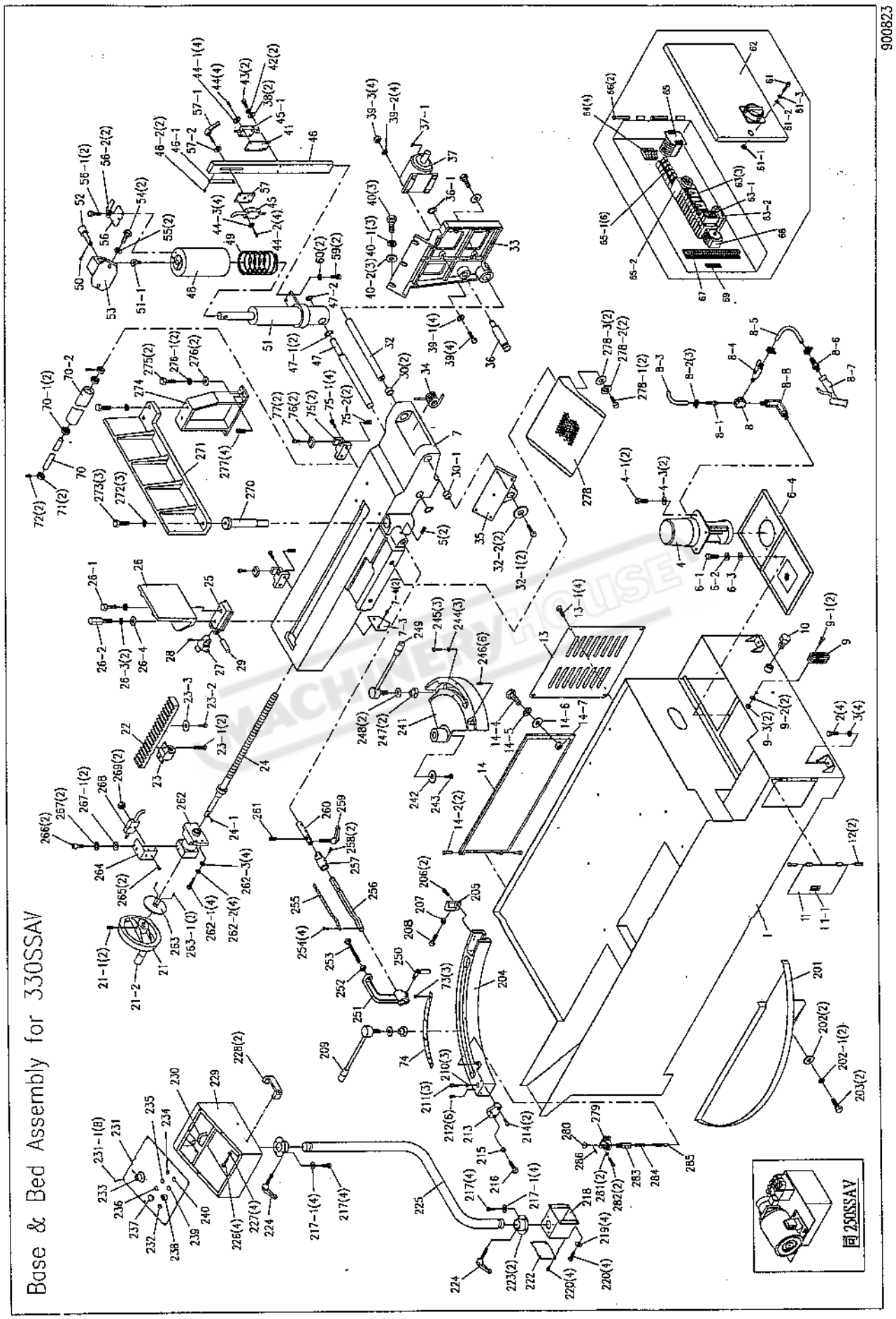
Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
72	Set Screw	M6×8	2	106-1	Hose Clamp		2
73	Rivet		3	107	Connector		2
74	Scale		1	108	Hex. Socket Cap Screw	M8×30	4
75	Roller Bracket		2	109	Ball Bearing	608ZZ	4
75-1	Hex. Socket Cap Screw	M8×20	4	110	Guide Bracket-Right		1
75-2	Set Screw	M10×10	2	111	Flat Washer	M8	4
76	Plate		2	112	Ball Bearing	6201RS	8
77	Hex. Socket Cap Screw	M6×16	2	113	Sleeve		2
78	Blade Wheel Cover		1	113-1	Eccentric Sleeve		2
79	Round Head Screw	M6×10	6	114	Spring Washer	M8	4
79-1	Flat Head Screw	5/32×1/4	4	115	Hex. Socket Cap Screw	M8×45	4
79-2	Lock Pin		2	116	Adjusting Knob		2
81	Brush Cover		1	117	Shaft		2
81-1	Hex. Cap Bolt	M6×12	2	118	Spring		2
81-2	Spring Washer	M6	2	119	Hex. Socket Cap Screw	M6×16	4
81-3	Flat Washer	M6	2	120	Idle Wheel		1
81-4	Nut	M6	2	121	Jam Nut	M30	1
82	Handle		2	122	Star Washer	M30	1
82-1	Round Head Screw	M6×16	4	123	Ball Bearing	30206	2
82-2	Washer	M6	4	123-1	Ball Bearing Cover		1
84	Drive Wheel		1	124	Spacer		1
84-1	Hex. Cap Bolt	M12×20	1	125	Blade Guard		1
84-2	Washer	M12	1	125-1	Hex. Cap Bolt	M8×16	2
84-3	Bushing		1	125-2	Spring Washer	M8	2
85	Saw Blade	34×4100mm	1	125-3	Washer	M8	2
86	Knob	1/4×13	2	126	Adjusting Bracket Mount-Right		1
87	Hex. Cap Bolt	M10×30	4	126-1	Adjusting Bracket Mount-Left		1
88	Spring Washer	M10	4	127	Lock Block		2
89	Hex. Cap Bolt	M12×35	4	128	Handle	3/8×1 1/2	2
90	Spring Washer	M12	4	129	Washer	M10	2
92-1	Saw Arm		1	130	Hex. Socket Cap Screw	M10×40	4
92-2	Lock Seat		2	131	Spring Washer	M10	4
93	Connector		1	132	Washer	M10	4
93-1	Hex. Socket Cap Screw	M6×25	2	133	Hex. Socket Cap Screw	M12×25	2
93-2	Hose Fitting		1	134	Set Screw	M8×10	4
93-3	On/Off Valve		2	135	Scale		1
93-4	Hose Clamp	15mm	3	136	Round Head Screw	M5×10	5
93-5	Hose	5/16″ ×900	1	137	Slide Bracket		1
93-6	Hose	5/16″ ×1640	1	138	Bracket –Left		1
94	Gear Box		1	139	Hex. Cap Bolt	M12×30	4
94-1	Key	12×8×32	1	139-1	Spring Washer	M12	4
94-2	Key	7×7×40	1	139-2	Flat Washer	M12	4
94-3	Set Screw	M10×12	2	140	Bracket-Right		1
95	Plate		1	141	Nut	M12	1
95-1	Hex. Cap Bolt	M6×12	2	142	Stop Support		1
95-2	Spring Washer	M6	2	143	Spring		1
95-3	Washer	M6	2	144	Pin	M4×32	2
96	Pulley Cover		1	145	Rubber Pad		1
97	Input Pulley		1	146	Stop Block		1
98	Belt	1922V443	1	147	Chip Brush		1
99	Variable Speed Adjustable		1	147-1	Hex. Cap Bolt	M6×12	2
100	Cover Plate		1	147-2	Spring Washer	M6	4
100-1	Hex. Cap Bolt	M8×16	3	147-3	Washer	M6	4
100-2	Spring Washer	M8	3	148	Pin		1
100-3	Washer	M8	6	149	Brush Bracket		1
101	Shaft		1	149-1	Hex. Cap Bolt	M6×12	2
101-1	Knob		1	161	Extension Bar		1
101-2	Washer	5/16″	1	161-1	Key	5×5×30	1
101-3	Nut	5/16″	1	162	Handle Base		1
101-4	Spring Washer	5/16″	1	162-1	Handle		2
102	Guide Bracket-Left		1	162-2	Set Screw	M8×10	1
103	Set Screw	M8×16	4	163	Thrust Bearing	51105	1
104	Blade Guide-Left		2	164	Indicator Scale		1
105	Blade Guide-Right		2	165	Spacer		1
106	Connector		2	166	Blade Wheel Bracket Shaft		1

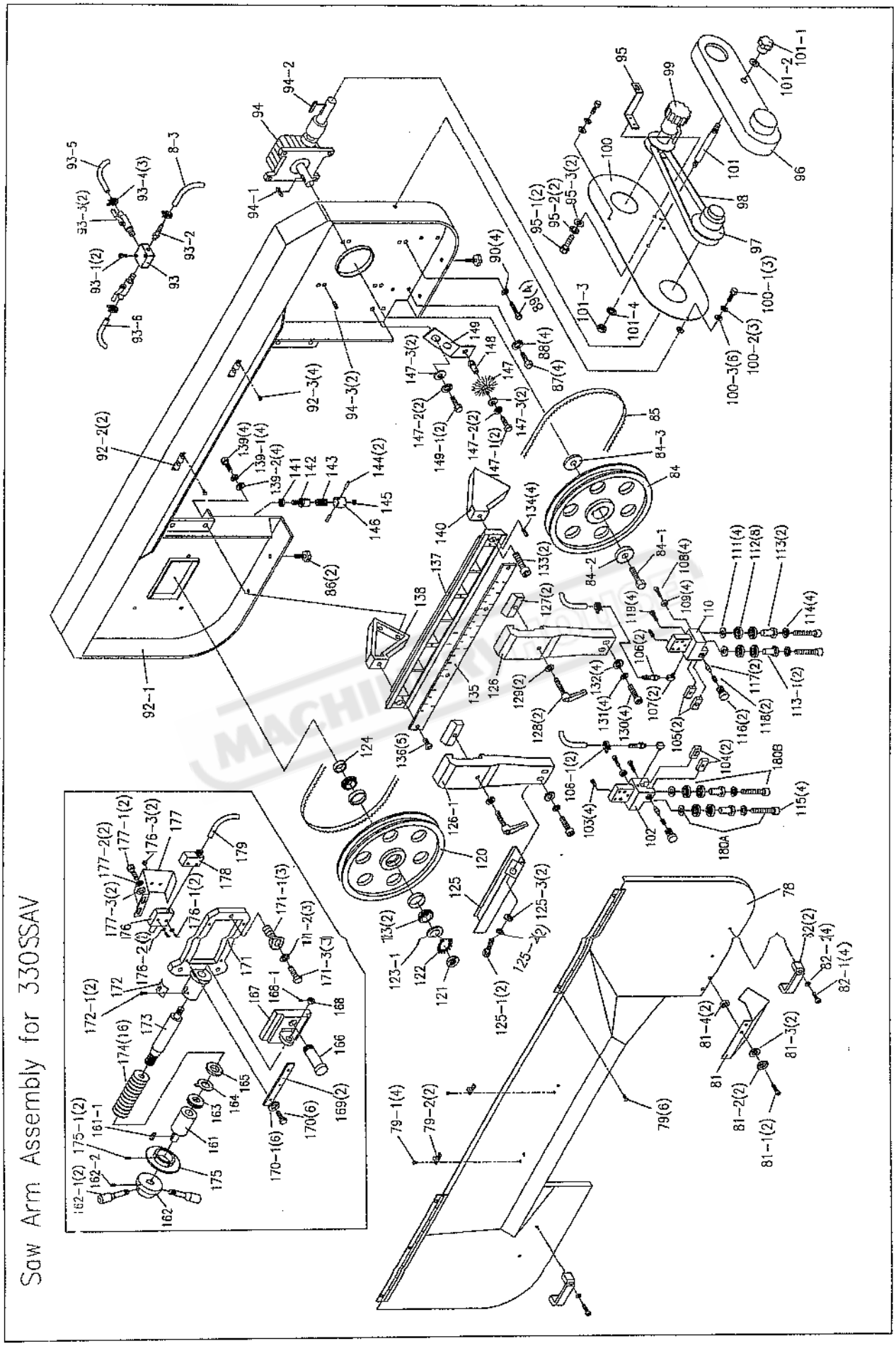
901114

PART LIST

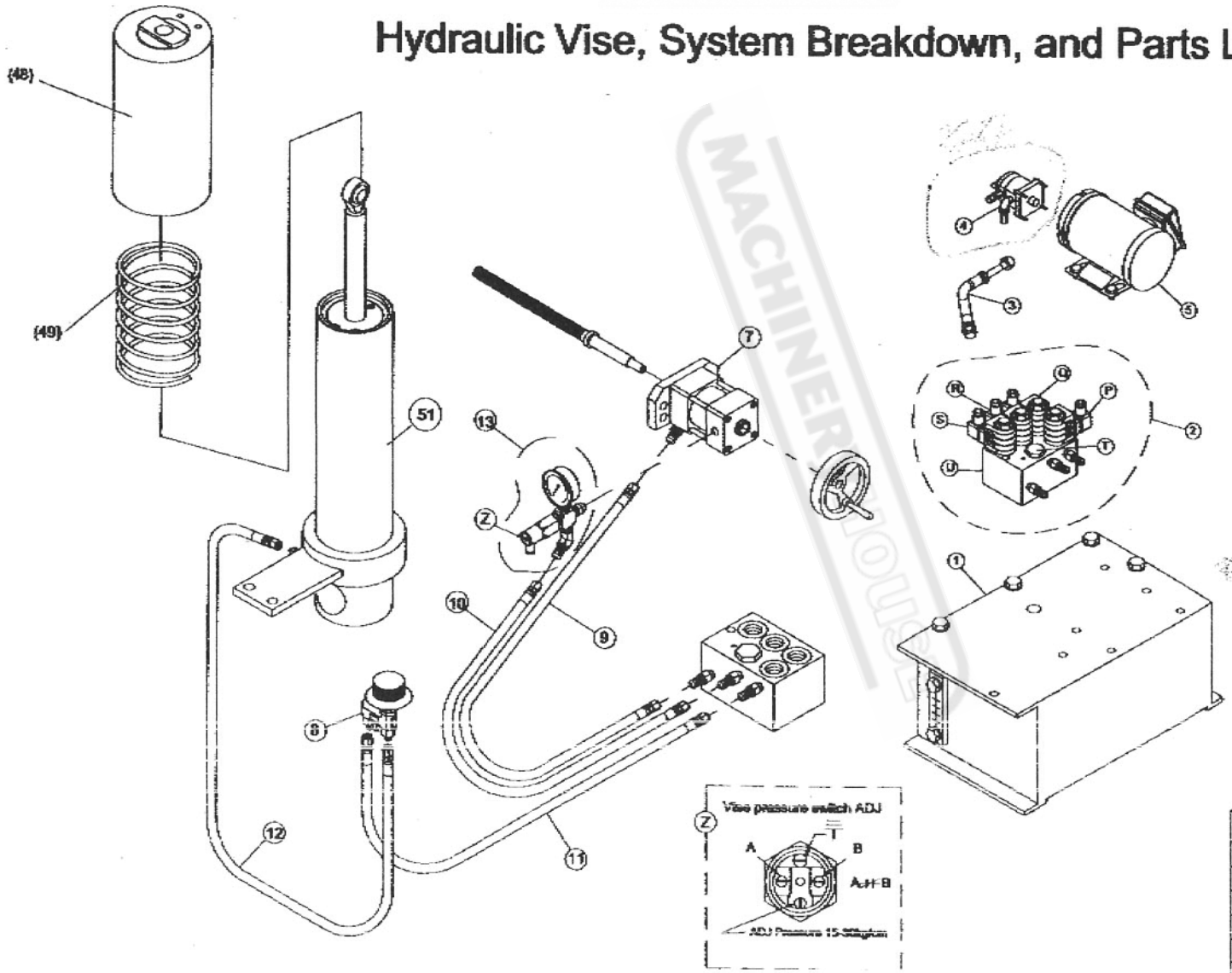
Part No.	Description	Size No.	Q'ty	Part No.	Description	Size No.	Q'ty
167	Slide Bracket		1	236	Start Switch		1
168	Adjusting Nut		1	237	Power Indicator Light		1
168-1	Set Screw	M6×8	1	238	Pump Start Switch		1
169	Slide Plate		2	239	Emergency Stop Switch		1
170	Hex. Socket Cap Screw	M8×20	6	240	Bow Down Switch		1
170-1	Spring Washer	M8	6	241	Turning Slide (Short)		1
171	Bracket Slide		1	242	Washer	Ø51×5×13	1
171-1	Sleeve	M20×35	3	243	Hex. Cap Bolt	M12×20	1
171-2	Spring Washer	M12	3	244	Washer	M12	3
171-3	Hex. Cap Bolt	M12×65	3	245	Hex. Socket Cap Screw	M12×30	3
172	Blade Tension Scale		1	246	Set Screw	M8×10	6
172-1	Round Head Screw	M5×10	2	247	Nut	Ø40 M16×2	2
173	Spring Supporting Shaft		1	248	Washer	38×5×16.5	2
174	Belleville Spring	W=2.5mm	16	249	Handle Assembly		1
175	Stop Flange		1	250	Adjustable Handle		1
175-1	Set Screw	M8×20	2	251	Bar Stop		1
176	Limit Switch	1307	1	252	Nut	1/2	1
176-1	Round Head Screw	5/32" ×1	2	253	Hex. Socket Cap Screw	1/2×4"	1
176-2	Washer	M4	2	254	Rivet		4
176-3	Nut	M4	2	255	Scale		1
177	Cover		1	256	Bar Stop Rod (Long)	22×755	1
177-1	Hex. Cap Bolt	M6×12	2	257	Joint		1
177-2	Spring Washer	M6	2	258	Set Screw	M8×10	2
177-3	Washer	M6	2	259	Handle	M8×30	1
178	Rubber Cover		1	260	Bar Stop Rod (Short)	36×125	1
179	Electrical Wire	0.5/2C×430cm	1	261	Set Screw	M6×8	1
180A	Eccentric Sleeve Assembly		2	262	Hydraulic Cylinder (Vise)		1
180B	Sleeve Assembly		2	262-1	Hex. Socket Cap Screw	M8×30	4
201	Chip Tray		1	262-2	Spring Washer	M8	4
202	Washer	M8	1	262-3	Washer	M8	4
202-1	Spring Washer	M8	1	263	Block		1
203	Hex. Cap Bolt	M8×16	1	263-1	Flat Head Screw	3/16×1/4	2
204	Turning Slide (Long)		1	264	Guard		1
205	Bracket		1	265	Round Head Screw	5/32×1 1/4	2
206	Hex. Socket Cap Screw	M6×25	2	266	Hex. Cap Bolt	M6×8	2
207	Nut	M10	1	267	Spring Washer	M6	2
208	Hex. Cap Bolt	M10×30	1	267-1	Washer	M6	2
209	Adjustable Handle		1	268	Limit Switch	1307	1
210	Spring Washer	M12	3	269	Nut	5/32	2
211	Hex. Socket Cap Screw	M12×30	3	270	Shaft		1
212	Set Screw	M8×10	6	271	Fixed Vise Jaw		1
213	Bracket		1	272	Spring Washer	M12	3
214	Hex. Socket Cap Screw	M6×30	2	273	Hex. Socket Cap Screw	M12×40	3
215	Nut	M10	1	274	Set Bracket		1
216	Hex. Cap Bolt	M10×30	1	275	Hex. Cap Bolt	M12×35	2
217	Hex. Socket Cap Screw	M6×16	8	276	Washer	M12	2
217-1	Spring Washer	M6	8	276-1	Spring Washer	M12	2
218	Wire Box		1	277	Set Screw	M8×10	4
219	Spring Washer	M6	4	278	Chip Grate		1
220	Hex. Socket Cap Screw	M6×12	8	278-1	Hex. Cap Bolt	M10×20	2
222	Cover Plate		1	278-2	Spring Washer	M10	2
223	Set Ring		2	278-3	Washer	M10	2
224	Handle	M8×25	2	279	Bracket		1
225	Pipe		1	280	Nut		1
226	Round Head Screw	M5×10	4	281	Spring Washer	M8	2
227	Washer	M5	4	282	Hex. Socket Cap Screw	M8×20	2
228	Grip		2	283	Bushing		1
229	Control Box		1	284	Spring		1
230	Hydraulic Feed Valve		1	285	Lock Pin		1
231	Panel		1	286	Hollow Pin	3×18	1
231-1	Round Head Screw	M5×10	8				
232	Rapid Reverse Button		1				
233	Hydraulic Flow Control Switch		1				
234	Bow Up Switch		1				
235	Stop Switch		1				

900829


Base & Bed Assembly for 330SSAV
900823
230SSAV


Saw Arm Assembly for 330SSAV
900803

Hydraulic Vise, System Breakdown, and Parts List



No.	Description	QTY
1	Oil tank	
2	Solenoid check valves set	
3	Hose	
4	Pump	
5	Motor	
6	Flow control	
7	Vise hydraulic	
51	Lift hydraulic	
9	Hose 2.5mm 1/4H	
10	Hose 2.2mm 1/4H	
11	Hose 3.2mm 1/4H	
12	Hose 3.4mm 1/4H	
13	Pressure switch set	

No. 2 Solenoid check valve set		QTY
P	Solenoid check valve (arm down)	
Q	Solenoid check valve (arm up)	
R	Solenoid check valve (vise forward)	
S	Solenoid check valve (vise Backward)	
T	Pilot check	
U	Manifold body	