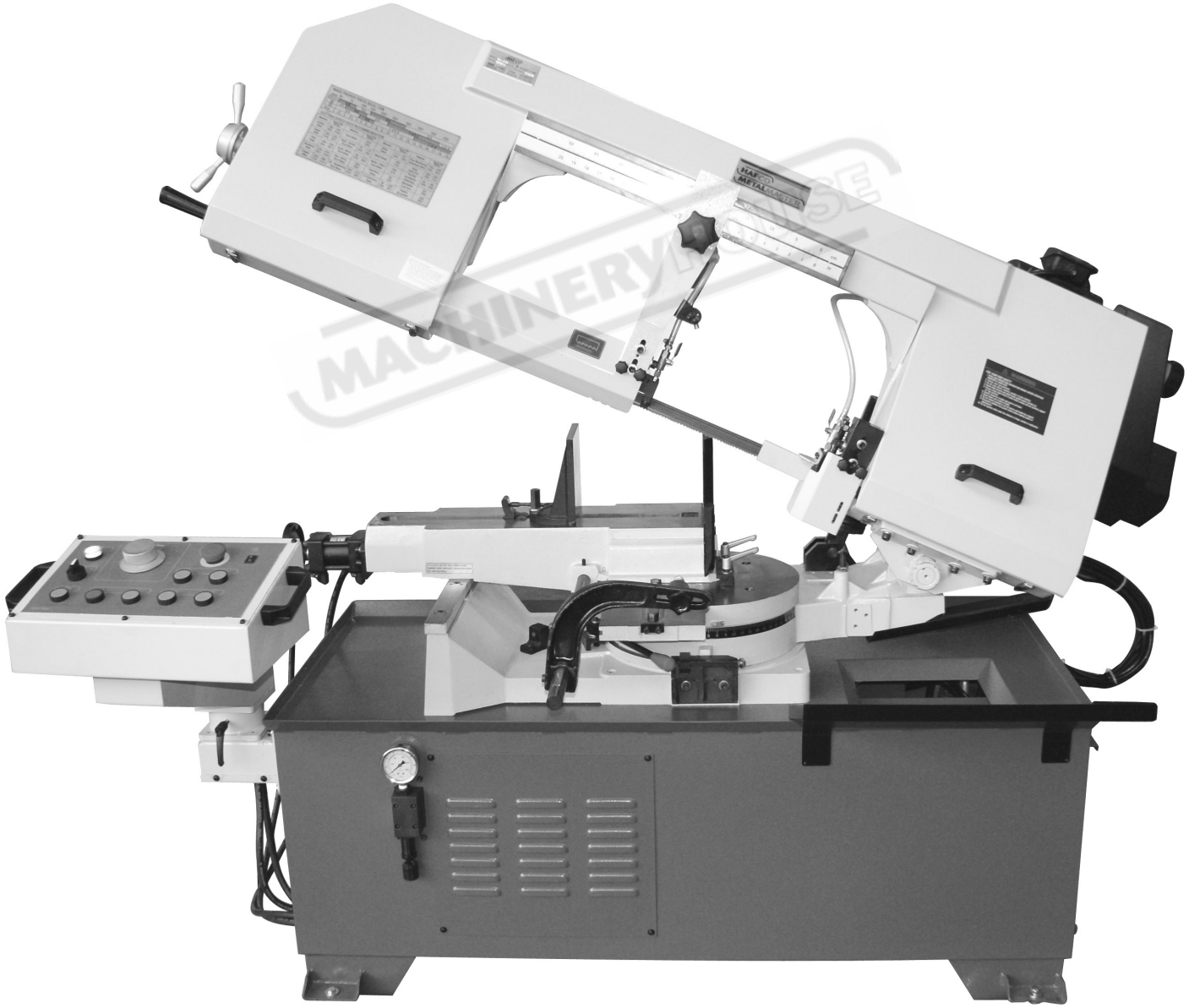
INSTRUCTION MANUAL

BS-13DS
Dual Mitre Semi - Automatic Swivel Head Metal Cutting Band Saw (415V)
458 x 235mm (W x H) Rectangle



B030

⚠ WARNING !

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reprodrctive harm. Some examples of these chemical are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement and other masonry products.
- Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and word with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

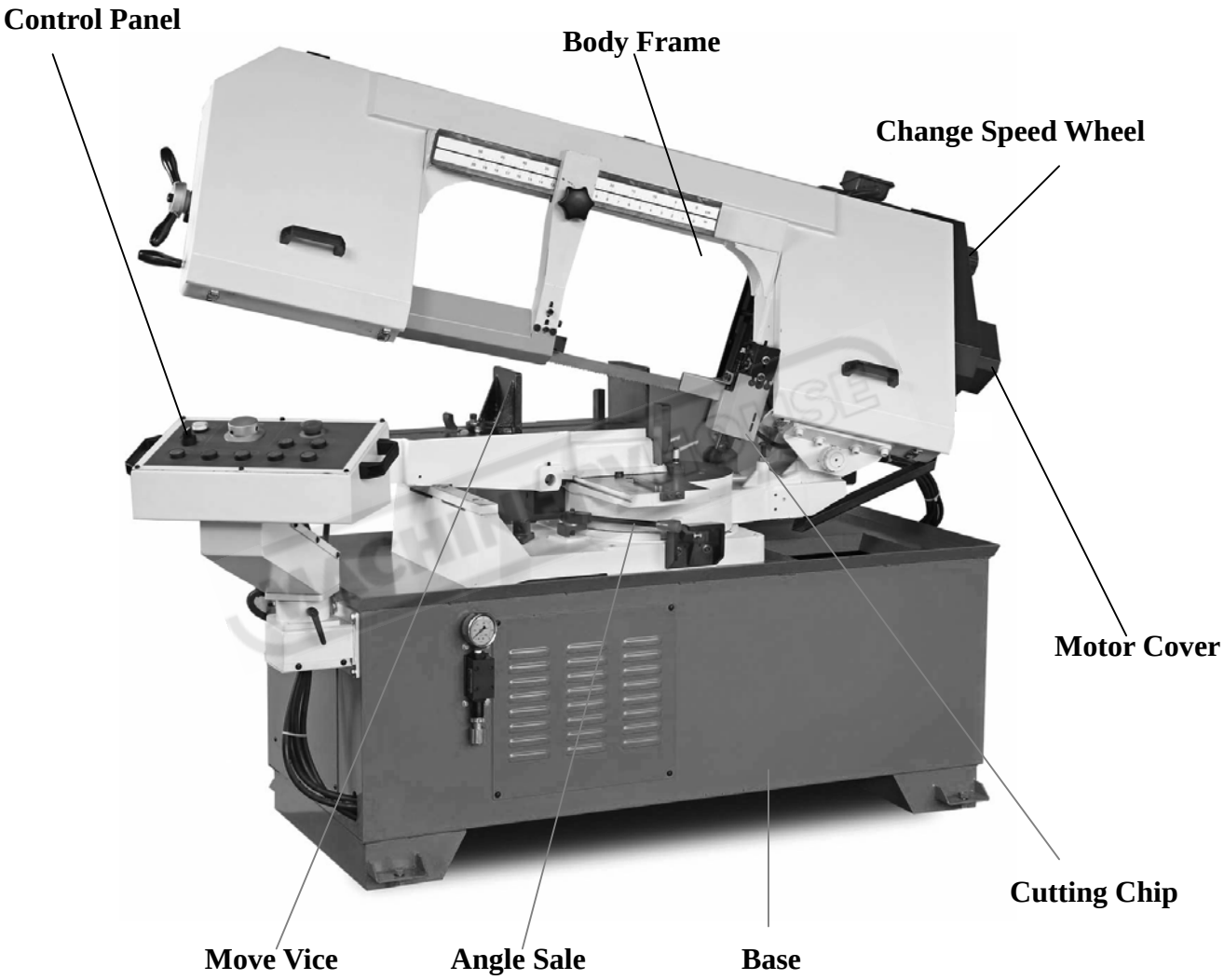
MACHINERYHOUSE

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MACHINERYHOUSE

Overall Aspect



WARNING: FAILURE TO FOLLOW THESE RULES
MAY RESULT IN SERIOUS PERSONAL INJURY

As with all machinery there are certain hazards involved with operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.
This machine was designed for certain applications only. We strongly recommend that this machine NOT be modified and/or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the machine until you contact with us and we have advised you.

Your machine might not come with a power socket or plug. Before using this Machine, please do ask your local dealer to install the socket or plug on the Power cable end.

2.SAFETY RULES FOR ALL TOOLS

A. USER:

(1). **WEAR PROPER APPAREL.** No loose clothing, gloves, rings, bracelets, or other jewelry to get caught in moving parts.
Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
(2). **ALWAYS WEAR EYE PROTECTION.** Refer to ANSLZ87.1 standard for appropriate recommendations.
Also use face or dust mask if cutting operation is dusty.
(3). **DON'T OVERREACH.** Keep proper footing and balance at all times.
(4). **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
(5). **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
(6). **DRUGS, ALCOHOL, MEDICATION.** Do not operate tool while under the influence of drug, alcohol or any medication.
(7). **MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY**. While motor is being mounted, connected or reconnected.
(8). **ALWAYS** keep hands and fingers away from the blade.
(9). **STOP** the machine before removing chips.
(10). **SHUT- OFF** power and clean the BAND SAW and work area before leaving the machine.
(11).DO NOT Touch the cutting Blade while the machine is turm on.

B. USE OF MACHINE:

(1). **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".
(2). **DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.
(3). **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.
(4). **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand frees both hands to operate tool.
(5). **MAINTAIN TOOLS IN TOP CONDITION**. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
(6). **USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause hazards.
(7). **AVOID ACCIDENTAL STARTING.** Make sure switch is in "**OFF"** position before plugging in power cord.

(8). **DIRECTIONOF FEED**. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
(9). **ADJUST AND POSITION** the blade guide arm before starting the cut.
(10). **KEEP BLADE GUIDE ARM TIGHT**, A loose blade guide arm will affect sawing accuracy.
(11). **MAKE SURE** blade speed is set correctly for material being cut.
(12). **CHECK** for proper blade size and type.
(13). **STOP** the machine before putting material in the vise.
(14). **ALWAYS** have stock firmly clamped in vise before starting cut.
(15). **GROUNDALL TOOLS**. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate atwoprong receptacle, the adapter lug must be attached to a known ground. Never removed the third prong.

C. ADJUSTMENT :

MAKE all adjustments with the power off. In order to obtain the machine. precision and correct ways of adjustment while assembling, the user should read the detailed instruction in this manual.

D. WORKING ENVIRONMENT:

(1). **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
(2). **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.
(3). **KEEP CHILEREN AND VISITIORS AWAY.** All children and visitors should be kept a safe distance from work area.
(4). **DON'T** install & use this machine in explosive, dangerous environment.

E. MAINTENANCE:

(1). **DISCONNECT** machine from power source when making repairs.
(2). **CHECK DAMAGED PARTS**. Before further using of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
(3). **DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits, cutters, etc.
(4). **MAKE SURE** that blade tension and blade tacking are properly adjusted.
(5). **RE-CHECK** blade tension after initial cut with a new blade.
(6). **TO RPOLONG BLADE LIFE ALWAYS** release blade tension at the end of each workday.
(7). **CHECK COOLANT DAILY** Low coolant level can cause foaming and high blade temperatures. Dirty coolant can clog pump, cause crooked. Rust, low cutting rate and permanent blade failure. Dirty coolant can cause the growth of bacteria with ensuing skin irritation.
(8). **WHEN CUTTING MAGNESIUM NEVER** use soluble oils or emulsions(oil-water mix) as water will greatly intensify any accidental magnesium chip fire. See your industrial coolant supplier for specific coolant recommendations when cutting magnesium.
(9). **TO PRNMT** corrosion of machined surfaces when a soluble on is used as coolant, pay particular attention to wiping dry the surfaces where fluid accumulates and does not evaporate quickly, such as between the machine bed and vise.

F. SPECTIFIED USAGE:

This machine is used only for general metals cutting within the range of cutting capacity.

G. NOISE:

A weighted sound pressure level : under80 dB.

H. SAFETY DEVICE:

Interlock switch on cutting area as soon as the cover of cutting area is open, machine will stop at once witch the function of this switch. Do not remove this switch from machine for any reason, and check its function frequently.

3.SPECIFICATION

<table>
<tr><td colspan="3">MOTOR</td><td colspan="2">2HP(KW1.5)</td></tr>
<tr><td colspan="2" rowspan="2">Saw Blade Speed</td><td rowspan="2">Variable Speed</td><td>Mt/min</td><td>60HZ/29-115, 50HZ/24-95</td></tr>
<tr><td>Ft/min</td><td>60HZ/95-380, 50HZ/79-316</td></tr>
<tr><td colspan="3">Blade Size(mm)</td><td colspan="2">27x0.9x3810</td></tr>
<tr><td colspan="3">Dimension LxWxH (mm)</td><td colspan="2">2030x1315x1425</td></tr>
<tr><td rowspan="3">Packing</td><td colspan="2">N.W / G.W (kgs)</td><td colspan="2">550 / 600</td></tr>
<tr><td colspan="2">Measurement</td><td colspan="2">2286x1600x1727</td></tr>
<tr><td colspan="2">Sets per 20’ CTNR</td><td colspan="2">6 sets</td></tr>
<tr><td rowspan="6">Cutting Capacity</td><td rowspan="2">0°</td><td>○(mm/inch)</td><td colspan="2">330 / 13 “</td></tr>
<tr><td>□(mm/inch)</td><td colspan="2">127x483 / 5“x18“</td></tr>
<tr><td rowspan="2">+/- 45°</td><td>○(mm/inch)</td><td colspan="2">305 / 12 “</td></tr>
<tr><td>□(mm/inch)</td><td colspan="2">229x305 / 9“x12“</td></tr>
<tr><td rowspan="2">- 60°</td><td>○(mm/inch)</td><td colspan="2">204 / 8“</td></tr>
<tr><td>□(mm/inch)</td><td colspan="2">178x204 / 7“x8“</td></tr>
</table>

4.FEARTURES:

1. This machine is useful for cutting normal steel, steel pipe, and provides cutting angle at + 60°and -45°by the swivel head.
2. A tooth selection label Ms provided on the machine for cutting reference.
3. Variable speed control gives convenient selection of speeds.
4. Hydraulic cylinder controls feeding volume and provides stable cutting.
5. Easy sliding the working table back and forth by loosing and fixing only two bolts.
6. Quick positioning vise for clamping all sizes of work piece.
7. Chip pan underneath the working table prevents coolant fluid leaking and keep floor dry.
8. Hydraulic unit is to rise up the saw arm automatically for easy handling.
9. Coolant for cutting:water:oil=1:40 oil specification.

5.TRANSPORTATATION & INSTALLATION:

5-1.Unpacking

1. **Transportation to desired location before unpacking, please use-lifting jack. (Fig. B)**
2. **Transportation after unpacking, please use heavy duty fiber belt to lift up the machine.**

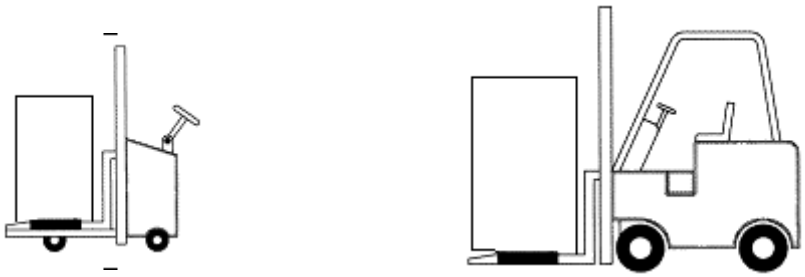


Fig. B

ALLWAYS KEEP PROPER FOOTING & BALANCE WHILE MOVING THIS MACHINE.

5-2.TRANSPORTATION OF MACHINE:

As this machine weights 550kgs(1210lbs) it is recommended that the machine be transported with help of lifting jack.

Transportation Recommendation:

1. **Tighten** all locks before operation.
2. **Always** keep proper footing & balance while moving this machine, and only use a heavy duty of fiber belt to lift the machine as per Fig. 1.
3. **TURN OFF** the power before wiring & be sure machine is properly grounded. Overload & circuit breaker are recommended for safety wiring.
4. **Tighten** 4 bolts to base holes after machine is balanced.
5. **Check** carefully if the saw blade is running in counter-clockwise direction if not, reverse the wiring per circuit diagram, then repeat the running test.
6. **Keep** machine always out from sun, dust, wet, or raining area.

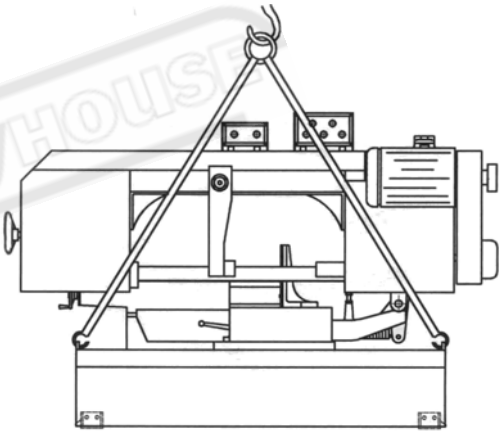


Fig. 1

5-3.Installation:

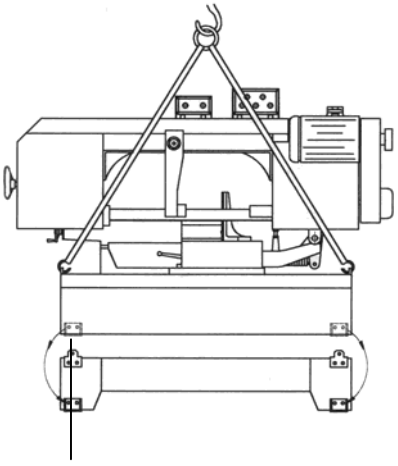
(1) Always Keep proper footing & balance while moving this 470kgs machine. And only use heavy-duty fiber belt to lift the machine as per Fig. (A).

(2) Hang the machine up, away from the floor, take away the 4 pads and assemble them on the auxiliary stand. Fix the machine on the auxiliary stand and lock the connection nut.

(3) **Finish** removing this wooden case/crate from the machine. Unbolt the machine from the crate bottom.

(4) **Position** & tighten 4 bolts into base holes properly after machine in balance.

(5) **Turn off** the power before wiring & be sure machine is in proper grounding. Overload & circuit breaker is recommended for



B **Fig. A**

safety wiring.

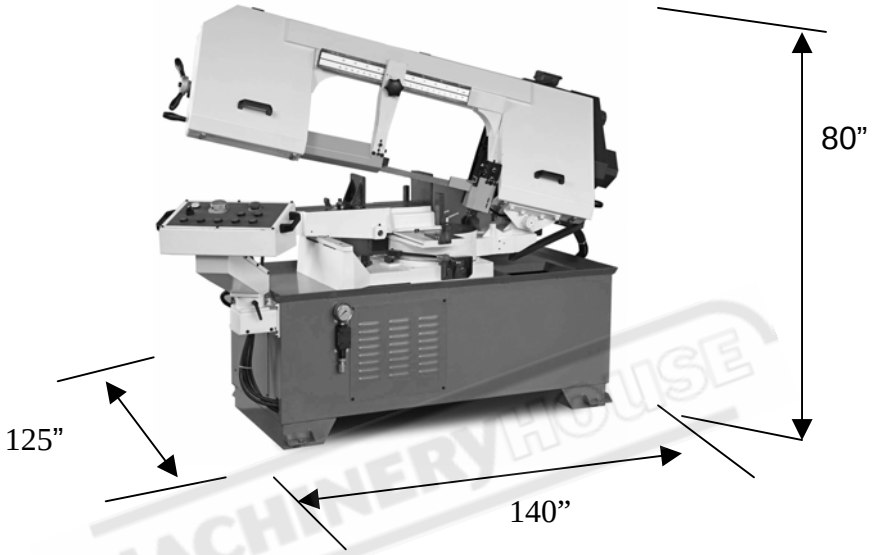
(6) **Keep** machine always out from sun, dust, wet, raining area.

5-4.CLEAIG & LURICATING

(1) Your machine has been coated with a heavy grease to protect it in shipping. This coating should be completely removed before operating the machine. Commercial degreaser, kerosene or similar solvent may be used to remove the grease from the machine, but avoid getting solvent on belts or other rubber parts.

(2) After cleaning, coat all bright work with a light lubricant. Lubricate all points in Fig 1. with a medium consistency machine oil.

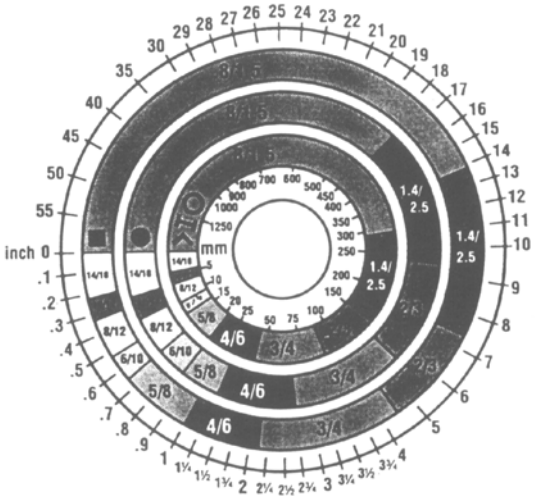
6.MINIMUM ROOM SPACE FOR MACHINE OPERATION



7. MAKE PROPER TOOTH SELECTION

For maximum cutting efficiency and lowest cost per cut, it is important to select the blade with the right number of teeth per inch (TPI) for the material being cut. The material size and shape dictate tooth selection.

TOOTH SELECTION



You need to consider:

The width of the cut - That is, the distance in the cut that each tooth must travel from the point it enters the work-piece until it leaves the work-piece, and

1.The shape of the work-piece.

- **Squares, Rectangles, Flats (Symbol : ■)**
  Locate the width of cut on the chart. (Inches on the outer circle and millimeters on the inner circle.) Select the tooth pitch on the ring marked with the square shape which aligns with the width of cut. EXAMPLE: 6" (150mm) square, use a 2/3 Vari-Tooth.
- **Round Solids (Symbol : ●)**
  Locate the diameter of your work-piece on the chart. Select the tooth pitch on the ring marked with

the round shape which aligns with the size of stock you are cutting.
EXAMPLE: 4" (100mm) round, use a 3/4 Vari-Tooth.

- **Tubing, Pipe, Structural (Symbol : O H ^)**

  Determine the average width of cut by dividing the area of the work-piece by the distance the saw blade must travel to finish the cut. Locate the average width of cut on the chart. Select the tooth Ditch on the ring marked with the tubing and structural shape, which aligns with the average width you are cutting.
  EXAMPLE: 4"(100mm) outside diameter, 3"(75mm) inside diameter tubing.

4"(100mm) OD	=12.5 sq.ln. (79cm^2)
3"(75 mm) ID	= 7.0 sq.ln. (44cm^2)
Area	= 5.5 sq.ln. (35cm^2)

5.5 sq.ln. (35cm^2) / 4" (100mm) distance =1.38(35mm) average width
1.38" (35mm), use a 4/6 Vari-Tooth

NOTE: The band speed and cutting rate recommendations presented on this chart are approximations and are to be used as a starting point for most applications. For exact sawing parameters' consult your saw blade supplier.

8. BI-METAL SPEEDS AND FEEDS

These figures are a guide to cutting 4"(100mm) material (with a 314 Vari-Tooth) when using a cutting fluid.
Increase Band Speed: 15% When cutting 1/4"(6.4mm) material (l0/l4 Vari-Tooth)
12% When cutting 3/4"(19 mm) material (6/10 Vari-Tooth)
10% When cutting 1-1/4"(32 mm) material(5/8 Vari-Tooth)
5% When cutting 2-1/2" (64 mm) material(4/6 Vari-Tooth)
Decrease Band Speed: 12% When cutting 8"(200mm) material(2/3 Vari-Tooth)

MATERIAL	ALLOY ASTM NO.	BAND SPEED	
		FT./MIN	M/MIN
Copper Alloy	173,932	314	96
	330,365	284	87
	623,624	264	81
	230,260,272	244	74
	280,264,632,655	244	74
	101,102,110,122,172	234	71
	1751,182,220,510	234	71
	625,706,715,934	234	71
	630	229	70
	811	214	65
Carbon Steel	1117	339	103
	1137	289	88
	1141,1144	279	85
	1141 HI STRESS	279	85
	1030	329	100

Carbon Steel	1008,1015,1020,1025	319	97
	1035	309	94
	1018,1021,1022	299	91
	1026,1513	299	91
	A36(SHAPES),1040	269	82
	1042,1541	249	76
	1044,1045	219	67
	1060	199	61
	1095	184	56
Ni-Cr-Mo Alloy Steel	8615,8620,8622	239	73
	4340,E4340,8630	219	67
	8640	199	61
	E9310	174	53
Tool Steel	A-6	199	61
	A-2	179	55
	A-10	159	49
	D-2	90	27
	H-11,H-12,H-13	189	58
Stainless Steel	420	189	58
	430	149	46
	410,502	140	43
	414	115	35
	431	95	29
	440C	80	24
	304,324	120	36
	304L	115	35
	347	110	33
	316,316L	100	30
	416	189	58

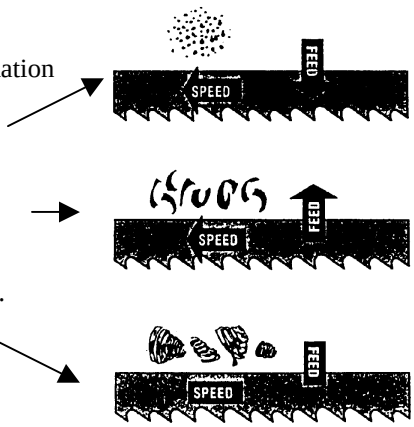
TELLTALE CHIPS

Chips are the best indicators of correct feed force. Monitor chip information and adjust feed accordingly.

Thin or powdered chips – increase feed rate or reduce band speed.

Burned heavy chips – reduce feed rate and/or band speed.

Curly silvery and warm chips – optimum feed rate and band speed.



9.USE OF MAIN MACHINE PARTS

9-1.POWER SYSTEM AND CONTROL PANEL

The electrical rating of your band saw is either with 230 volt-single phase, or 400 volt-3 phase, magnetic control.

If saw arm is in home position and the power is on, the saw arm will be risen up automatically by Hydraulic Unit System when turn on the Hydraulic Unit System button.

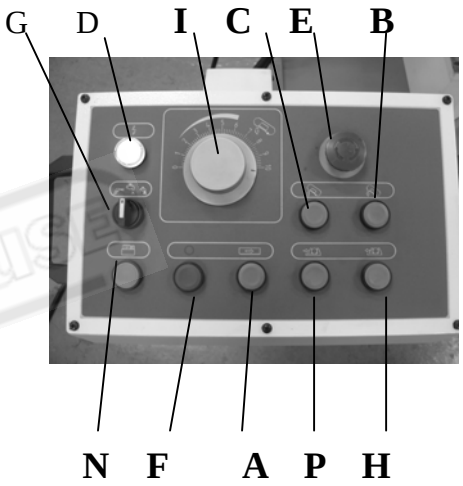
The saw arm rising will be stopped when touching the Upper Limit Switch or pushing the Emergency Switch button.

Before connecting your machine to an electrical power system, be sure the motor shaft is running in the correct direction.

We recommend that 1.5mm² fused with a 10 amp, dual element, time lag fuse, to be used to supply power to all machines regardless of their electrical rating.

Refer to the electrical wiring diagram supplied with your machine for instructions on how to connect saw to power source. Power must be cut off when wheel cover is opened or during repairing.

Please check the moving direction of the blade. If the blade is moving in the wrong direction, please re-connect the wire.



9-2.STARTING AND STOPPING MACHINE

1. Light (D) will be on when power is connected.
2. Push the button (N) for start Hydraulic system.
3. Push the button (C) for raising up the saw arm away from the saw table. If saw arm can not be raised, please check if the power is properly wired.
4. Start the motor by pushing the start button (A), Turn (G) (0-close,1-open) to open the coolant system when saw blade is closing work piece. When the cut is completed, turn off the coolant system (G)

4. Bottom (P) is for Hydraulic Vise Clamp. Push bottom(I)will clamp the work object.
5. Bottom (H) is for Hydraulic Vise Release. Push bottom (H)will release the working object.

**For 330A machine with dc motor only **

The speed button needs to reset if the electric power ever shut off.

Before pushing start button, please turn the speed button back to “0” and then, reset the blade speed by turning speed button.

5. Check if the upper limit switch is in proper position.
6. Push button (B) for controlling downwards of saw arm. And control the downward speed by adjusting hydraulic volume valve.
7. When motor is running, push button (B), saw arm will automatically go down and start cutting the work piece. When the cutting is finished, saw arm will rise up itself. The motor will stop when saw arm touching the upper limit switch. Push button (F) to stop the machine, if needed.
8. When discontinued cutting or reset cutting is necessary during operation, close the cylinder feeding valve, then push the stop button (F)

9. When discontinued cutting or reset cutting is necessary during operation, close the cylinder feeding valve, then push the stop button (F)

10. Press emergency button (E) to shut-off the motor when in emergent situation. Before next operation, release (E) to get power.

11. An automatic shut-off limit switch is provided to stop the motor when the cut is completed. The limit switch (K) is controlled by button (L)(figure 3), which contacts the rear arm (M) for shutting off the motor and coolant system.

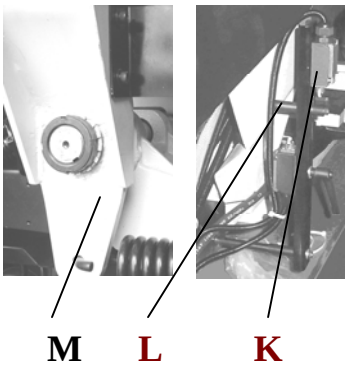


Fig. 3

9-3.ADJUSTING DOWNWARD TRAVEL OF SAW ARM

The downward travel of the saw arm should be adjusted so that when the saw arm is in the extreme downward position, the teeth of the blade will not touch the table surface. The stop screw (A) (Fig.4) is used to adjust the distance between blade and table surface. After the distance is adjusted, tighten lock nut.

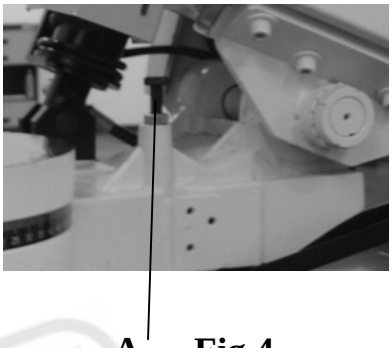


Fig.4

9-4.CHANGING SPEEDS AND ADJUSTING BELT TENSION

If the belt (B) (Fig 6) is too loose, Loosen screw nut (A)(Fig5) adjust the screw to proper tension and lock the screw nut.

The cutting speed is controlled by speed change C (Fig 6). Turn it clockwise to decrease the cutting speed and increase the cutting speed by turning counter-clockwise.

Change speed always when motor is running, and be sure the belt cover is always in locked position.

**For 330D machine with dc motor only **

When motor is running, you can see the blade speed (D) on Operation Control Box. Just changing the blade speed by turning Blade Speed Button (E).

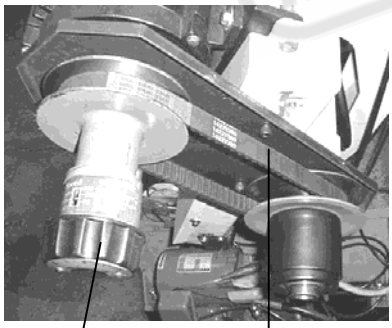


Fig.6

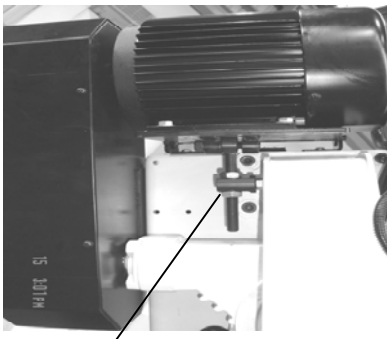


Fig.5

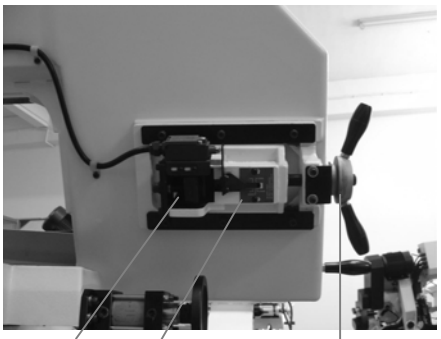


Fig.7

9-5.ADJUSTING BLADE TENSION AND BLADE TRACKING

To tension the blade, turn the blade tension handle (A) (fig. 7) clockwise. A pointer and tension scale (B) is located underneath the wheel. The scale is graduated to indicate blade tension of 20,000, 30.000 and 35,000 pounds per square inch (psi). For carbon blades, the blade should be tensioned at 20,000 psi. For bi-metal blades (similar to the one supplied with the machine), the blade should be tensioned at 30,000 or 35,000 psi. Always release blade tension at the end of each working day to prolong blade life. Make sure the blade is tensioned correctly before checking or adjusting tracking. The blade is tracking properly when the back of the blade is just lightly touching the wheel flanges of both wheels while the machine is running. If the blade is not touching the wheel flanges, tighten or loosen screw C (fig. 7) until the blade tracks properly.

9-6.ADJUSTING CUTTING WIDTH

First loosen clamp knob (A) (fig. 8). Move the left blade guide bar to the suitable position. Then tighten clamp knob (A).

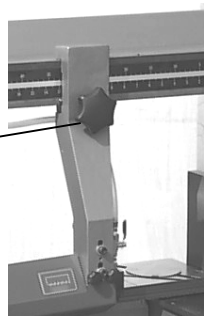


Fig.8

9-7.ADJUSTING BLADE GUIDE ROLLER BEARINGS, CARBIDE BLADE GUIDES AND BACK-UP BEARINGS AND CLEARING THE CUTTING CHIP

Before making the following adjustments, make sure the blade is tracking and tensioned properly:

1. The back of the blade (A) (fig. 9) should ride against the back-up bearing (B). To adjust, loosen set screw (C) and move the guide block (D) up or down, until it lightly touches the back of the blade.

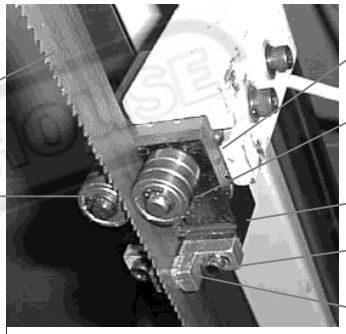


Fig.9

2. The saw blade (A) should also ride between and lightly touch the two blade guide roller bearings (E) and (F) (fig. 9)

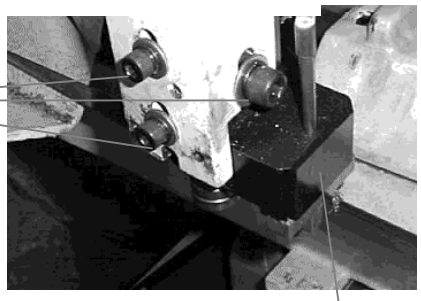


Fig.10

The front bearing (E) (fig. 9) is mounted on an eccentric, and can easily be adjusted to suit blade thickness by loosening set screw (G) and turning shaft (E).

3. The carbide blade guides (H) (fig 9) should also be adjusted so they lightly touch the blade by loosening screw (K).
4. The blade guide roller bearings, carbide guides and backup bearing on holder (fig 9 and 10) should be adjusted in the same manner.
5. Cutting chips on the blade will be cleared by the steel brush.

9-8.CLEARING THE CUTTTNG CHIP

Please use steel brush to clear the chip on the blade teeth (fig 11)

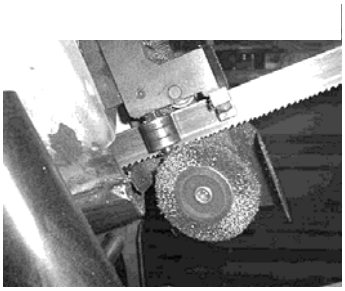


Fig.11

9-9.BLADE AND COOLING SYSTEM

The use of proper cutting fluid is essential to obtain maximum efficiency from a band saw blade. The main cause of tooth failure is excessive heat build-up. This is the reason that cutting fluid is necessary for long blade life and high cutting rates. cutting area and blade wheels should be kept clean at all time.

The rate of coolant flow is controlled by the stop valve lever (A) (fig 12), which directs the coolant onto the blade. The lever (A) is shown in the off position.



A Fig.12 A

9-10.OPERATING AND ADJUSTING VISE

The work-piece is placed between the vise jaws with the amount to be cut-off extending out past the blade. Your machine is equipped with a "quick action" Vise jaw which allows you to instantly position the moveable vise jaw (B) (fig, 14). Simply turn hand-wheel (A) counterclockwise 1/2 turn and move the vise jaw(B) to the desired position. Pull away the rack hook (C) to move the vise jaw (B). Then tighten the vise jaw (B) against the work-piece by turning hand-wheel clockwise. When it is not lockable the work piece by turning the hand wheel (A) in clockwise direction, turn the hand wheel (A) in counter-clockwise direction then and turn clockwise again the wheel to lock firmly the work piece.

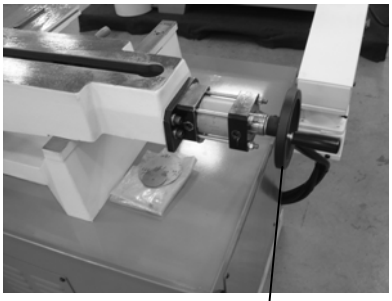


Fig.13 A

If the same cutting length can be used repeatedly on many work-pieces, distance set rod can he used to set a fix cutting length. Proceed as follows:

1. Pull the distance set rod (H) (fig 15) to a desired position. Loosen the fix screw. (K)
2. Let the top of the work-piece touch the distance set rod. Lock firmly the fix screw.(K)
3. Tighten vise jaw the fix the work-piece and get the same cutting length.



B C Fig.14



K Fig.15 H

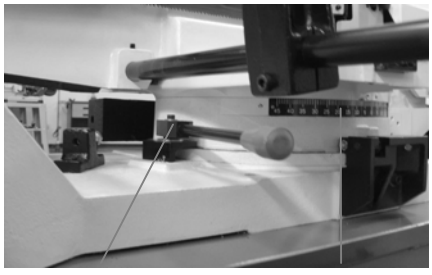
9-11.VARIABLE CUTTING ANGLE SELECTION

Please proceed as follows to obtain desired cutting angle. The swivel range is from 60°clockwise to 45 °counter-clockwise.

Before swinging the base, make sure there is nothing in the way, or any interference.

1. Pull out the bar (B) (fig. 16) swing and hold the bar.
2. Push to turn the swivel base to desired angle. Refer to scale on (D) for degree.
3. then start the cutting.

The swivel range is from 60°clockwise to 45° counter-clockwise.



B Fig.16 D

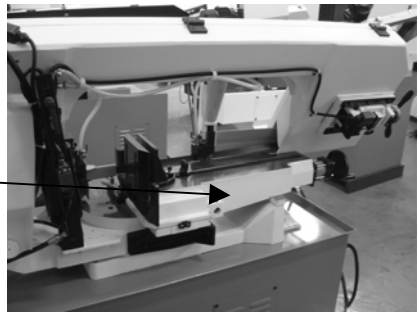


Fig.17 C

For front or rear cutting, move the sliding vise table by direct pushing. Be sure to put your hand ahead of (C) to prevent the contact with the pumper.

Fig 18 is the Hydraulic Vise set. The hydraulic (B) movement is: turning the handle(A) and make the vise(C) to clamp working object, and push the bottom of Hydraulic Vise Clamp. The hydraulic device will move the vise and press the working object, make the working object being clamped tied. The object will not be moving during the cutting and cause any danger. After cutting completed, push the release bottom and take the object from the working table

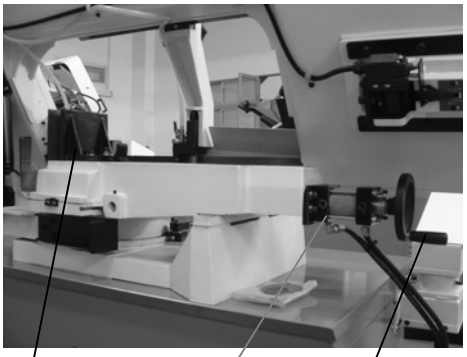


Fig.18

9-12.REMOVING AND INSTALLING THE BLADE

When it is necessary to replace the blade, proceed as follows:

1. Raise the saw frame about 6" and close the feed on/off knob by turning it clockwise as far as it will go (fig 19).
2. Move the blade guide arm to the right.
3. Disconnect the machine from the power source. Loosen cover screw, remove cover (A), open the cover (B), remove cover (C) and (D), then clean the chips and dirt inside the machine.

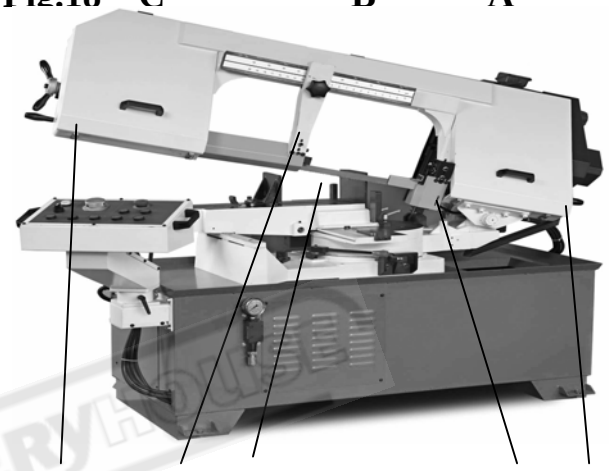


Fig.19

3. Release blade tension (F) (fig 20) by turning the blade tension hand-wheel counterclockwise.
5. Remove the blade from both wheels and out of each blade guide. But remove side (B) saw blade. When totally released, then remove the side (A).
6. Make sure the teeth of the new blade are pointing in the right direction. IF necessary, turn the blade inside out.
7. Place the new blade on the wheels. In the blade guides and adjust blade tension and blade guides.



Fig.20

9-13.HYDRAULIC SYSTEM (OPTIONAL FOR 1PH)

A). The hydraulic system on this machine consists of a hydraulic cylinder, which is operated by a needle valve. The saw frame is to be automatically raised up by the hydraulic movement, and as this is done, oil passes to the underside of the piston. The restricted flow is regulated by the feed rate control knob and governs the speed the saw frame lowers If turn the valve (D) (fig 21) clockwise, the descending speed of the saw frame will decrease If turn the valve counterclockwise, the descending speed of the saw frame will increase. Bottom (E) is for Hydraulic Vise Clamp. Push bottom (E) will clamp
the work object. Bottom (G) is for Hydraulic Vise Release. Push bottom (G)will release the working object.

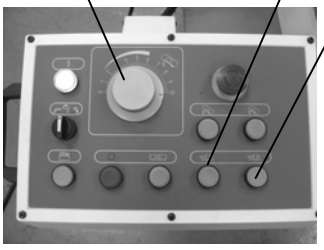


Fig.21

9-14.GEAR BOX

The gearbox should be drained and refilled after the first 50 hours of use and thereafter every 5 months, with Mobil Synthetic Gear Oil, SHC-636, ISO Viscosity Grade 680. This oil meets or exceeds American Gear Manufacturers Association (AG.M.A.) #8 compounded Cylinder Oil specifications. This oil is available through Grainger's in 1 quart bottles as number SW061.
To change the gear oil, proceed as follows:

1. Run the machine for 10 minutes to warm up the gearbox.
2. Disconnect the machine from the power source.
3. Raise the saw arm to its maximum position and close the feed rate control knob.
4. Drain the gearbox by removing the screw away from the oil-out hole (A) (fig. 22).
5. Replace a screw and lower the saw arm to its lowest position.
6. Open the oil-in hole and fill the gearbox with oil
7. Close the oil-in hole.



Fig.22 A

9-15.PIVOT

Occasionally lubricate the pivot using waterproof grease at the fitting (C) (fig 23)

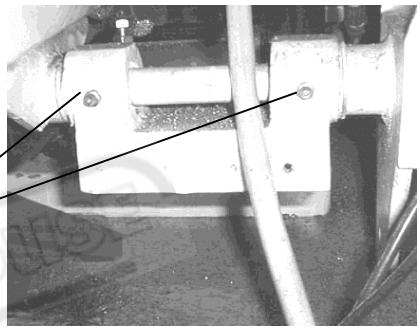


Fig.23 C

9-16. HOW TO OPERATE HYDRAULIC UNIT (FOR 330A)

1. This hydraulic unit is using (Esso,H15) oil. Change first oil after 50 hours use. Then change oil every 6 months after. Run the hydraulic unit for at least 10 minutes before changing oil, this will let the oil flow smoother and easier to change.
2. Open the oil outpour door with tool when changing the oil. Let the used oil out completely. Close the outpour door firmly, open the input door (A) and pour in the oil by 3 liter (will be 80%full).
3. If in long time use, please watch out the oil temperature to be 60º C maximum.

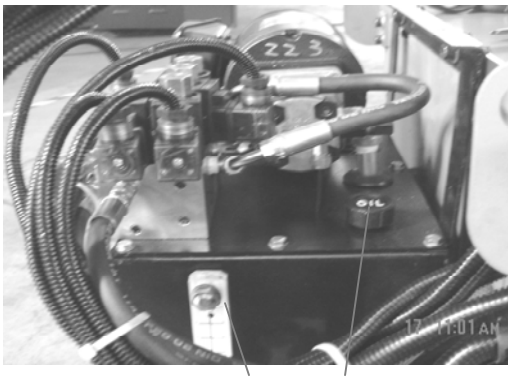


Fig.24 C A

9-17. HOW TO USING CLEAN EQUIPMENT

After finished cutting, you can clean the chip by using clean equipment.

Adjust the screw (A) (on the end of spray) to control the volume of coolant fluid.

NOTICE : Please using the suitable volume of coolant fluid for cleaning.

Cleaning the floor immediately when the coolant fluid leaking on the floor.

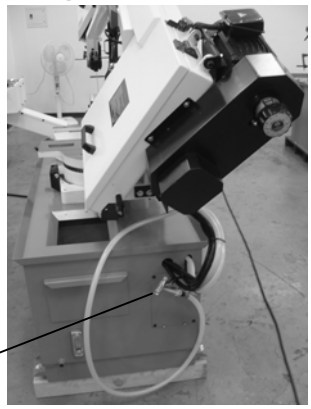


Fig. 25 A

Always keep the floor dry to prevent slip or any accident.

10.MAINTAINING

That's easier to keep machine in good condition or best performance by means of maintaining it at any time than remedy it after it is out of order.

(1) Daily Maintenance (by operator)

(a) Fill the lubricant before starting machine everyday.

(b) If the temperature of spindle caused over-heating or strange noise, stop machine immediately to cheek it for keeping accurate performance.

(c) Keep work area clean; release vise, cutter, work-piece from table; switch off power source; take chip or dust away from machine and follow instructions lubrication or coating rust proof oil before leaving.

(2) Weekly Maintenance

(a) Clean and coat the cross leading screw with oil.

(b) Check to see if sliding surface and turning parts lack of lubricant. If tile lubricant is insufficient, fill it.

(3) Monthly Maintenance

(a) Check if the fixed portion has been loose.

(b) Lubricate bearing worm, and worm shaft to avoid the wearing.

(4) Yearly Maintenance

(a) Adjust table to horizontal position for maintenance of accuracy.

(b) Check electric cord, plugs, switch, at least once a year to avoid loosening or wearing.

11. TROUBLE SHOOTING

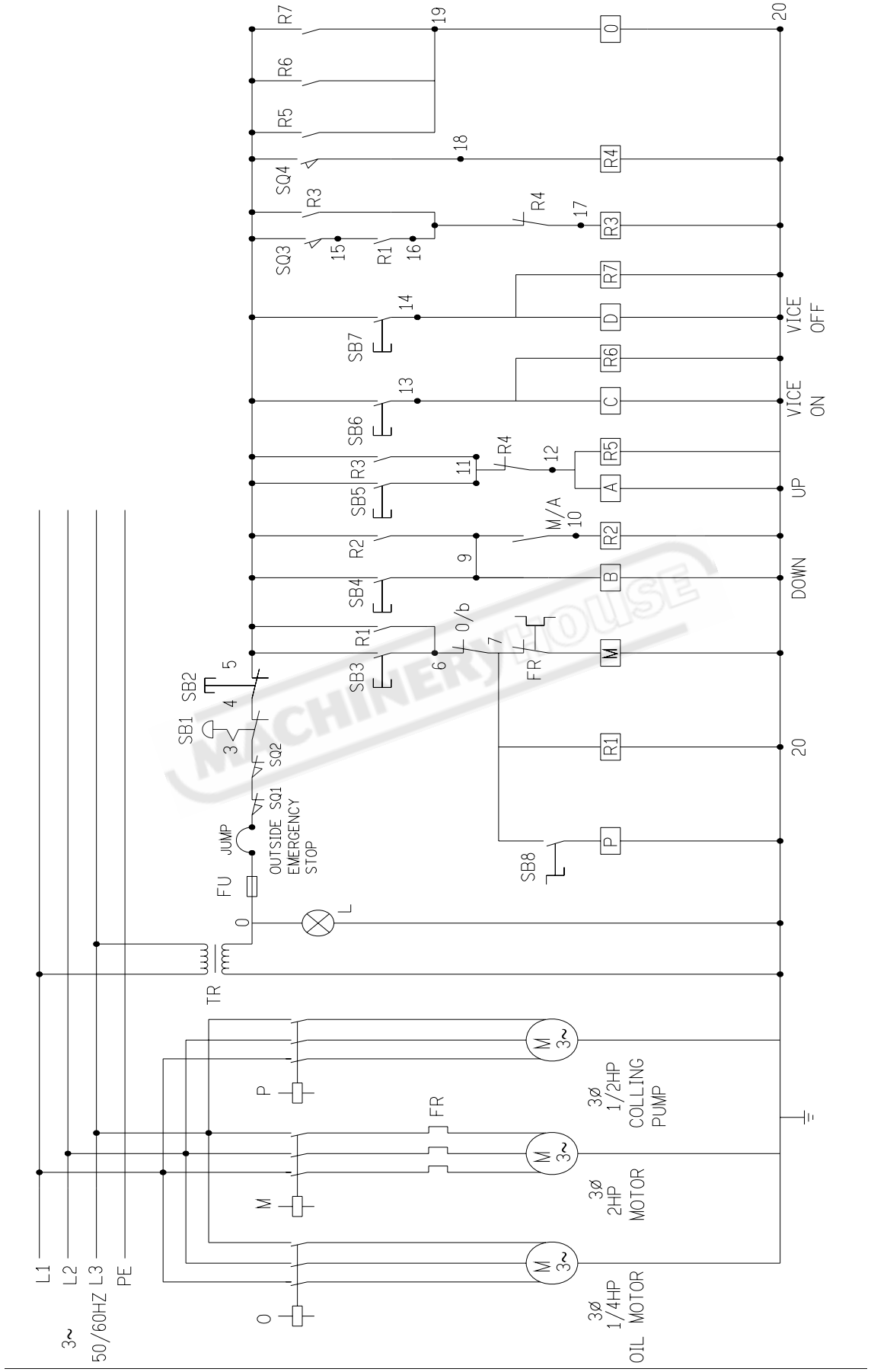
Symptom	Possible Cause(s)	Corrective Action
Machine can not be started	1. Power is not plugged; the power light on control panel is not on. 2. Motor can not be started; power was cut by limit switch. 3. Operation button can not be normally operated.	1. Check the motor specification; connect the power with correct power supply. Make sure the power light in on. 2. Make sure the cover is in correct position. 3. Push the emergency button; return it to original position. Then release the emergency button.
Excessive Blade Breakage	1. Materials loosen in vise. 2. Incorrect speed or feed 3.Blade teeth spacing too large 4. Material too coarse 6. Incorrect blade tension 7.Teeth in contact with material before saw is started 8. Blade rubs on wheel flange 9. Miss-aligned guide bearings 10. Blade too thick 11.Cracking at weld	1. Clamp work securely 2. Adjust speed or feed 3. Replace with a small teeth spacing blade 4. Use a blade of slow speed and small teeth spacing 5. Adjust to where blade just does not slip on wheel 6. Place blade in contact with work after motor is starred 7. Adjust wheel alignment 8. Adjust guide bearings 9. Use thinner blade 10. Weld again, beware the welding skill.

Premature Blade Dulling	1. Teeth too coarse 2. Too much speed 3. Inadequate feed pressure 4.Hard spots or scale on material 5. Work hardening of material. 6.Blade twist 7. Insufficient blade 8. Blade slide	1. Use finer teeth 2. Decrease speed 3. Decrease spring tension on side of saw 4. Reduce speed, increase feed pressure 5. Increase feed pressure by reducing spring tension 6. Replace with a new blade, and adjust blade tension 7. Tighten blade tension adjustable knob 8. Tighten blade tension
Unusual Wear on Side/Back of Blade	1. Blade guides worn. 2. Blade guide bearings not adjust properly 3. Blade guide bearing bracket is loose	1. Replace. 2. Adjust as per operators manual 3. Tighten.
Teeth Ripping from Blade.	1. Tooth too coarse for work 2. Too heavy pressure; too slow speed. 3. Vibrating work-piece. 4. Gullets loading	1. Use finer tooth blade. 2. Decrease pressure, increase speed 3. Clamp work piece securely 4. Use coarser tooth blade or brush to remove chips.
Motor running too hot	1. Blade tension too high. 2. Drive belt tension too high. 3. Blade is too coarse for work 4. Blade is too fine for work 5. Gears aligned improperly 6. Gears need lubrication 7. Cut is binding blade	1. Reduce tension on blade. 2. Reduce tension on drive belt. 3. Use finer blade. 4. Use coarse blade. 5. Adjust gears so that worm is in center of gear. 6. Check oil path. 7. Decrease reed anti speed
Bad Cuts (Crooked)	1. Feed pressure too great. 2. Guide bearings not adjusted properly 3. Inadequate blade tension. 4. Dull blade. 5. Speed incorrect. 6. Blade guides spaced out too much 7. Blade guide assembly loose 8. Blade truck too far away from wheel flanges	1. Reduce pressure by increasing spring tension on side of saw 2. Adjust guide bearing, the clearance can not greater than 0.001. 3. Increase blade tension by adjust blade tension 4. Replace blade 5. Adjust speed 6. Adjust guide space. 7. Tighten 8. Re-track blade according to operating instructions.
Bad Cuts (Rough)	1. Too much speed or feed 2. Blade is too coarse 3. Blade tension loose	1. Decrease speed or feed. 2. Replace with finer blade. 3. Adjust blade tension.

Blade is twisting	1. Cut is binding blade. 2. Too much blade tension	1. Decrease reed pressure. 2. Decrease blade tension.
Saw arm can not be raised up after pushing the raising button	1.Improper setting of depth gauge	1. Press the emergency stop Button and RESET. 2. Check the upper limit switch and stop round Position. Make sure the limit switc is always underneath the stop roun bar. 3. Check the oil gauge ; make sure the oil is in proper range. 4. Check the motor revolution direction; make sure the motor revolution is in clock-wise direction.

MACHINERYHOUSE

12. CIRCUIT DIAGRAM

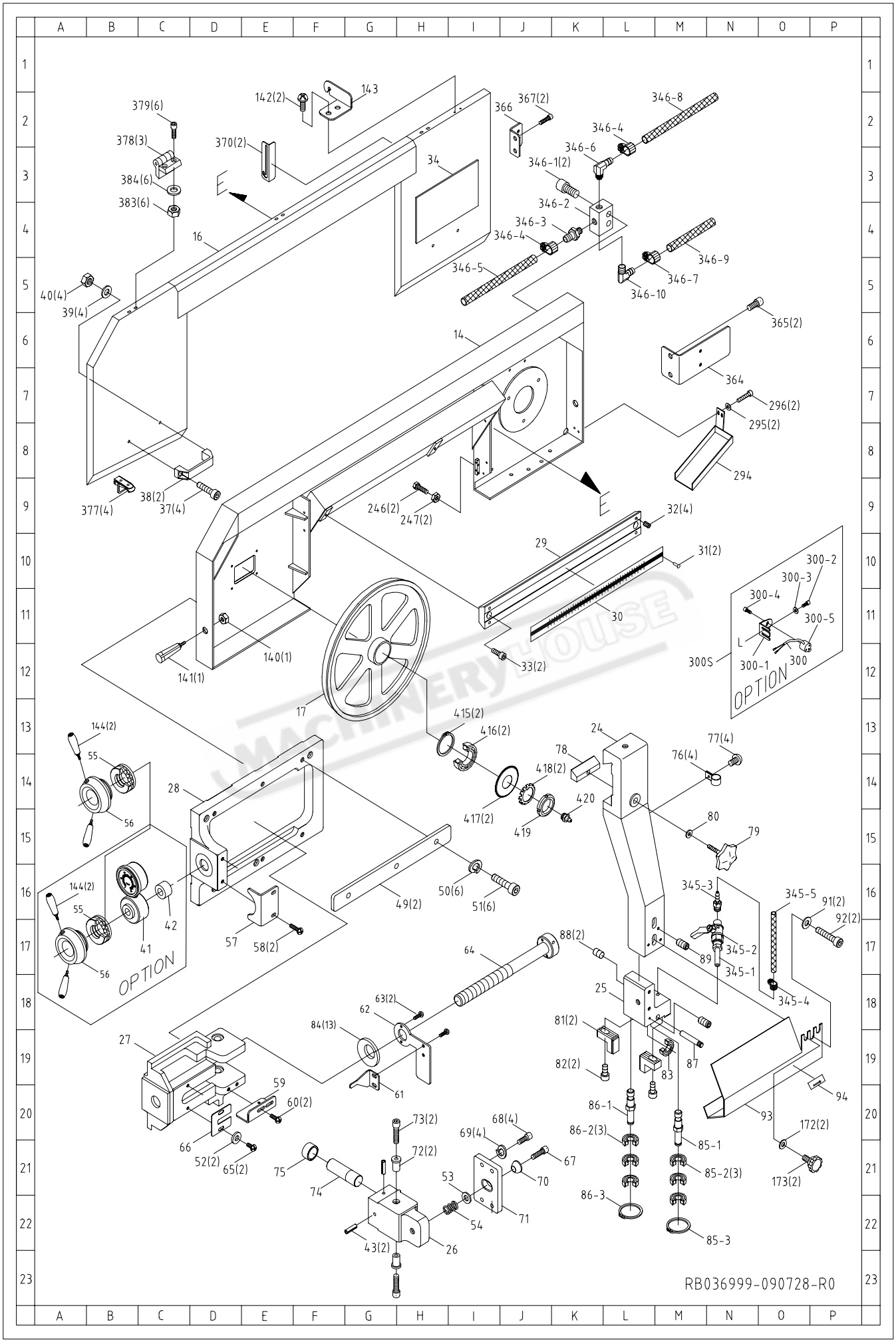


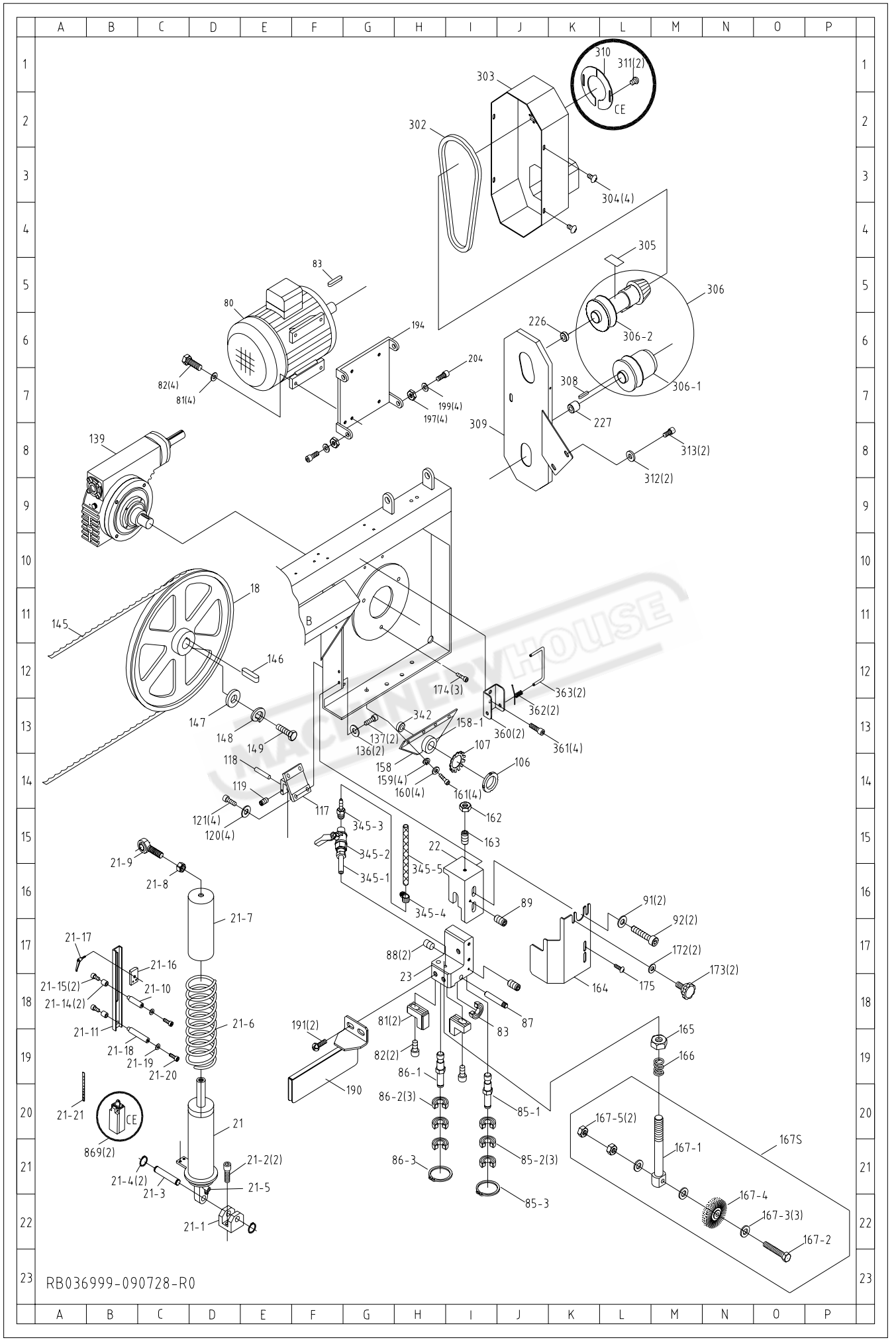
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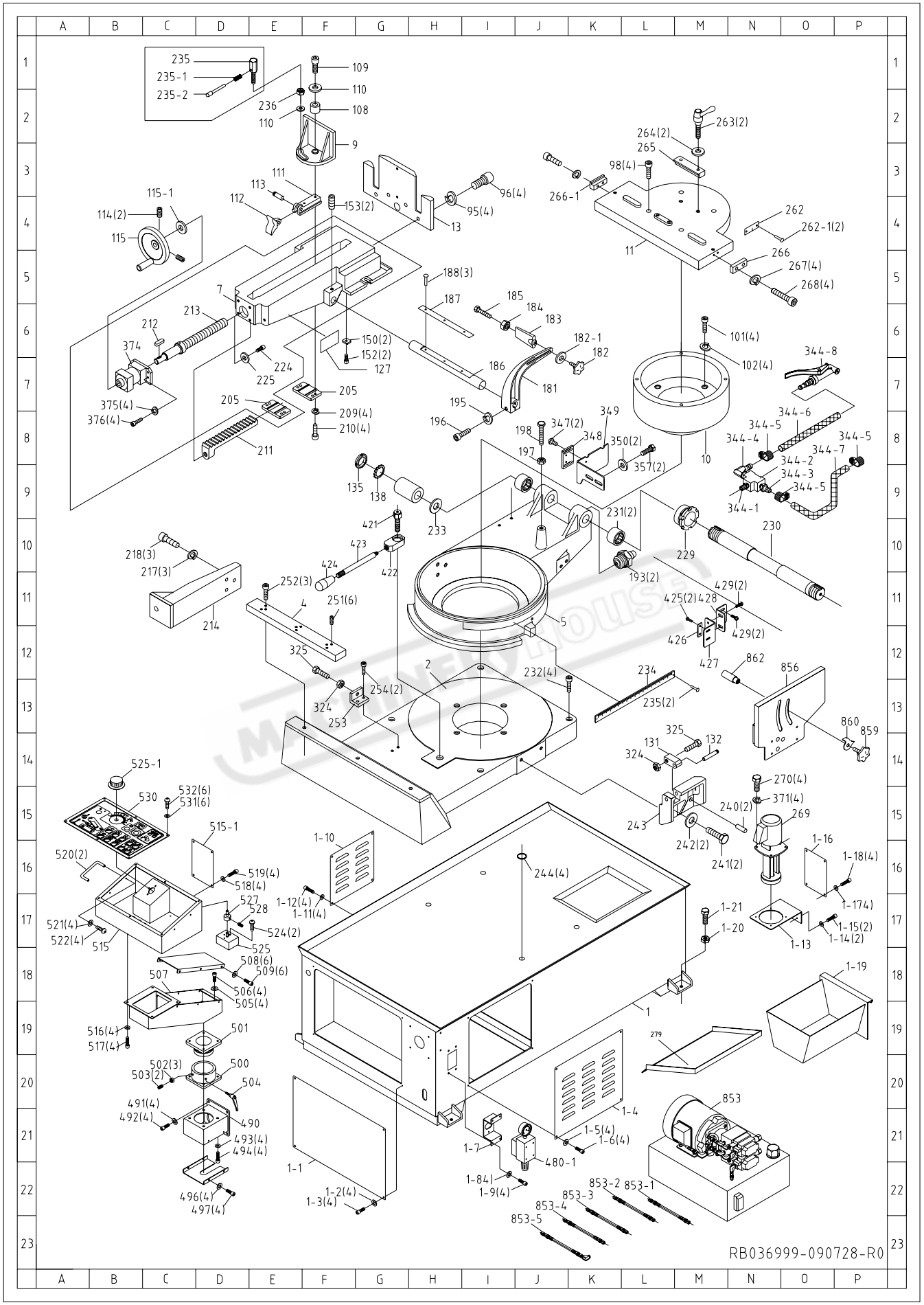
330NAA

Item.	Designation and function	QTY	Item.	Designation and function	QTY
R6	RELAY	1	O	OIL	1
R7	RELAY	1	M	MOTOR	1
FU3	FUSE	1	P	PUMP	1
SQ1	LIMIT SWITCH	1	L	LIGHT	1
SQ2	LIMIT SWITCH	1	TR	TRANSFORMER	1
SB1	EMERGENCY STOP	1	FR	OVERLOAD FOR MOTOR	1
SB2	OFF SWITCH	1	C	VICE ON VALVE	1
SB3	START SWITCH	1	SQ3	LOWER LIMIT SWITCH	1
SB4	DOWN SWITCH	1	SQ4	UPPER LIMIT SWITCH	1
SB5	UP SWITCH	1	B	LOWER MAGNETIC VALVE	1
SB6	ON VICE	1	A	UPPER MAGNETIC VALVE	1
SB7	OFF VICE	1	D	VICE OFF VALVE	1
SB8	COLLINS POMP SWITCH	1	R3	RELAY	1
R1	RELAY	1	R4	RELAY	1
R2	RELAY	1	R5	RELAY	1

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2		Part lists	Diagram No.
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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
1	103005K	Stand		1	
1-2	HW004	Washer	6.5*13-0.8t (M6)	4	
1-3	HS229	Hex. Socket Head Screw	M6x15L	4	
1-5	HW004	Washer	6.5*13-0.8t (M6)	4	
1-6	HS229	Hex. Socket Head Screw	M6x15L	4	
1-7	103005K-1	Bracket A		1	
1-8	HW004B	Washer	M6	4	
1-9	HS334	Hex. Socket Head Screw	M6X12L	4	
1-11	HW004B	Washer	M6	4	
1-12	HS334	Hex. Socket Head Screw	M6X12L	4	
1-13	103005K-2	Bracket B		1	
1-14	HW004B	Washer	M6	2	
1-15	HS334	Hex. Socket Head Screw	M6X12L	2	
1-17	HW004B	Washer	M6	4	
1-18	HS334	Hex. Socket Head Screw	M6X12L	4	
1-19	103005K-3	Chip Tray		1	
1-20	HN008	Hex. Head Nut	M16	4	
1-21	HS117	Hex. Head Screw	M16x50L	4	
4	103015	Adjustable Support		1	
5	101029B	Swivel Base(Upper)		1	
6	103045A	Rear Pivot Bracket		1	
6-1	105073	Bushing		1	
6	105014	Rear Pivot Bracket		1	
7	101035A	Vise Base		1	
9	196208D	Vise Jaw Bracket(Front)		1	
10	101012	Fixed Shaft		1	
11	103011	Vise Base		1	
12	103014	Vise Base Plate		1	
13	101044	Vise Jaw Bracket(Rear)		1	
14	103041B	Body Frame		1	
16	103138S	Blade Back Cover		1	
17	103024	Idler Wheel Assembly		1	
18	103025	Drive Wheel		1	
19	191416	Hex. Head Screw		2	
21	103091A	Cylinder Assembly		1	
21	103091K	Cylinder Assembly		1	
21-1	151036A	Support Flange		1	
21-2	HS242	Hex. Socket Head Screw	M8X20L	2	
21-3	151037	Shaft		1	
21-4	HCS09	C-Retaniner Ring	S20	2	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
21-5	HD817	Connector	1/8"	1	
21-6	103178	Spring		1	
21-7	103174	Bush		1	
21-8	HN009B	Hex. Nut	M20XP1.5	1	
21-9	CAPOS20	Bearing	POS 20	1	
21-10	103176	Shaft		1	
21-11	103175	Bracket		1	
21-14	103177	Shaft		1	
21-15	HS232	Hex. Socket Head Screw	M6x30L	1	
21-16	103390	Limit Switch Adjusting Bracket		1	
21-17	151192	Knob	M8xP1.25*20L	1	
21-18	103180	Shaft		1	
21-19	HS241	Hex. Socket Head Screw	M8X12L	2	
21-20	HW005	Washer	8.5*18-1.6t (M8)	2	
21-21	JNB036999S1	Gauge	Iinch	1	
22	103032	Arm (Right)		1	
23	103029	Blade Adjustable (Rear)		1	
24	103031	Arm (Left)		1	
25	103030	Bearing Bracket (Left)		1	
26	103252A	Blade Angle Adjusting Bracket		1	
27	103250	Blade Tension Sliding Plate		1	
28	103251	Anchor Block		1	
29	1965011	Column		1	
30	103008A	Scale		1	
31	HH001	Rivet	§ 2x5L	2	
32	HS432	Hex. Socker Headless Screw	M8x20L	4	
33	HS278	Hex. Socket Head Screw	M12x20L	2	
34	103157	Blade Select Chart		1	
36	HS527	Cross Round Head Screw	M6x10L	4	
37	HS242	Hex. Socket Head Screw	M8x20L	4	
38	1965052	Knob		2	
39	HW005	Washer	M8	4	
40	HN005	Hex. Nut	M8	4	
41	198170	Pressure Gauge		1	Option
42	103328	Bushing		1	Option
43	HP023	Pin	§ 5X45L	2	
46	HW006	Washer	M10	1	
47	HW106	Spring Washer	M10	1	
48	HS058	Hex. Head Screw	M10x20L	1	
49	103259	Gib		2	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
50	HW105	Spring Washer	M8	6	
51	HS246	Hex. Socket Head Screw	M8x40L	6	
52	HW003	Washer	M5	2	
53	HW006	Washer	M10	1	
54	101116	Spring		1	
55	CA51204	Bearing	51204	1	
56	198051A	Blade Tension Handle		1	Option
56	103257	Handle Body		1	Option
57	103254	Bracket		1	
58	HS519	Cross Round Head Screw	M5x10L	2	
59	103261	Switch Base		1	
60	HS519	Cross Round Head Screw	M5x10L	2	
61	103253	Scale		1	
62	103256	Plate		1	
63	HS511	Cross Round Head Screw	M4X20L	2	
64	103327	Leadscrew		1	
64	103255	Leadscrew		1	
65	HS519	Cross Round Head Screw	M5x8L	2	
66	191415	Tension Indicating Plate		1	
67	HS262	Hex. Socket Head Screw	M10x40L	1	
68	HS229	Hex. Socket Head Screw	M6x15L	4	
69	HW104	Spring Washer	M6	4	
70	101008	Hemicycle Washer		1	
71	103258	Washer		1	
72	103260	Shaft Bushing		2	
73	HS231	Hex. Socket Head Screw	M6x25L	2	
74	103111	Shaft		1	
75	191404	Bushing		1	
76	HD608	Hose Clamp	§ 12	4	
77	HS519	Cross Round Head Screw	M5x10L	4	
78	1965014	Gib		1	
79	1965015	Blade Adjustable Knob		1	
80	HW006	Washer	M10	1	
81	103120A	Carbide Guide		4	
82	HS230	Hex. Socket Head Screw	M6x20L	4	
83	CA609ZZ	Bearing	609ZZ	2	
84	191414	Disc Spring		13	
85	103027S	Bearing Shaft Assembly		2	
85-1	103027	Bearing Shaft		2	
85-2	CA609ZZ	Bearing	609ZZ	6	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
85-3	HSC01	C-Retainer Ring	S10	2	
85	103027AS	Bearing Shaft Assembly		2	
85-1	103027A	Bearing Shaft		2	
85-2	CA609ZZ	Bearing	609ZZ	6	
85-3	HSC01	C-Retainer Ring	S10	2	
86	103028AS	Eccentric Shaft Assembly		2	
86-1	103028A	Eccentric Shaft		2	
86-2	CA609ZZ	Bearing	609ZZ	6	
86-3	HSC01	C-Retainer Ring	S10	2	
86	103028S	Eccentric Shaft Assembly		2	
86-1	103028	Eccentric Shaft		2	
86-2	CA609ZZ	Bearing	609ZZ	6	
86-3	HSC01	C-Retainer Ring	S10	2	
87	103026	Bearing Pin		2	
88	HS414	Hex. Socker Headless Screw	M5x10L	4	
89	HS422	Hex. Socker Headless Screw	M6x10L	2	
90	HS242	Hex. Socket Head Screw	M8x20L	2	
91	HW005	Washer	M8	4	
92	HS243	Hex. Socket Head Screw	M8x25L	4	
93	105013	Blade Guard (Front)		1	
94	196504	Label		1	
95	HW107	Spring Washer	M12	4	
96	HS283	Hex. Socket Head Screw	M12x45L	4	
97	HW106	Spring Washer	M10	4	
98	HS260	Hex. Socket Head Screw	M10x30L	4	
100	HS227	Hex. Socket Head Screw	M6x5L	2	
101	HS261	Hex. Socket Head Screw	M10x35L	4	
102	HW106	Spring Washer	M10	4	
103	HS258	Hex. Socket Head Screw	M10x20L	4	
104	HW106	Spring Washer	M10	4	
105	HW006	Washer	M10	4	
106	103106	Nut	AN07	2	
107	HW206	Washer	AW07	2	
108	191209	Bushing		1	
109	HS262	Hex. Socket Head Screw	M10x40L	2	
110	HW006	Washer	M10x20xt2	2	
111	103054	Bracket		1	
112	103053	Rack Hook		1	
113	103069	Pin		1	
114	HS422	Hex. Socker Headless Screw	M6x10L	2	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
115	105093	Wheel		1	
115-1	HW017	Washer	23*10.5-3	1	
116	HS230	Hex. Socket Head Screw	M6x20L	4	
117	103060	Cylinder Upper Support		1	
118	103078	Pivot Pin		1	
119	HS422	Hex. Socker Headless Screw	M6x10L	1	
120	HW005	Washer	M8	4	
121	HS242	Hex. Socket Head Screw	M8x20L	4	
122	HW105	Spring Washer	M8	2	
123	HS242	Hex. Socket Head Screw	M8x20L	2	
124	103059A	Cylinder Lower Support		1	
125	103079A	Pivot Pin		1	
126	HS422	Hex. Socker Headless Screw	M6x10L	1	
131	193030	Protractor Locating Block		1	
132	103026	Bearing Pin		1	
135	103106	Nut	AN07	1	
136	HW005	Washer	M8	2	
137	HS242	Hex. Socket Head Screw	M8X20L	2	
138	HW206	Washer	AW07	1	
139	19116S-1	Gear Box Assembly		1	
140	N006	Hex. Nut	M10	1	
141	189033	Handle		1	
142	HS519	Cross Round Head Screw	M5x10L	2	
143	103136	Bracker		1	
144	623124	Handle	ABS	2	Option
144	198086	Handle		2	Option
145	103108	Blade	27x0.9x3810L-4/6T	1	
146	HK044	Key	7x7x30L	1	
147	HW006	Washer	M10	1	
148	HW106	Spring Washer	M10	1	
149	HS059	Hex. Head Screw	M10x25L	1	
150	101107	Base Support		2	
152	HS242	Hex. Socket Head Screw	M8x20L	2	
153	HS430	Hex. Socker Headless Screw	M8x10L	2	
158	103046C	Bracket		1	
158-1	103165	Bushing		1	
159	HW106	Spring Washer	M10	4	
160	HW006	Washer	M10	4	
161	HS258	Hex. Socket Head Screw	M10x20L	4	
162	HN005	Hex. Nut	M8	1	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
163	HS433	Hex. Socker Headless Screw	M8x25L	1	
164	103049	Blade Guard (Rear)		1	
165	HN006	Hex. Nut	M10	1	
166	191333	Spring		1	
167S	103133S	Brush Assemble		1	
167-1	103133	Brush Shaft		1	
167-2	HE305	Cross Round Head Screw	M6-1.0x40L	1	
167-3	HW004	Washer	6.5*13-0.8t (M6)	3	
167-4	191334A	Brush		1	
167-5	HB802	Hex. Nut	M6	1	
172	HW004	Washer	M6	4	
173	103127	Plum Screw	M6x10L	4	
174	HS258	Hex. Socket Head Screw	M10x20L	3	
175	HS519	Cross Round Head Screw	M5X8L	1	
181	101061	Stop Block Support		1	
182	196213	Plum Screw		1	
182-1	HW004	Plum Screw	M6	1	
183	1966008	Distance Set Bracket		1	
184	HN006	Hex. Nut	M10	1	
185	HS060	Hex. Head Screw	M10x30L	1	
186	101078	Distance Set Rod		1	
186	101078A	Distance Set Rod		1	
187	105213	Scale		1	
188	HH001	Rivet	§ 2x5L	2	
190	105047	Blade Guard II (Rear)		1	
191	HS519	Cross Round Head Screw	M5x10L	2	
193	HB501	Grease Nipple	PT1/8	2	
194	103151	Motor Plate		1	
194	103151k	Motor Plate		1	
195	HW105	Spring Washer	M8	1	
196	HS247	Hex. Socket Head Screw	M8x45L	1	
197	HN007	Hex. Nut	M12	1	
197	HN007	Hex. Nut	M12	2	
198	103104	Screw		1	
199	HN006	Hex. Nut	M10	3	
199	HW007	Washer	M12	2	
200	1966033	Knob		1	
201	103102	Support Plate		1	
202	HS033	Hex. Head Screw	M6x12L	1	
204	HS284	Hex. Socket Head Screw	M12x50L	2	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
204	HS284	Hex. Socket Head Screw	M12x50L	4	
205	103058	Rack Support		2	
209	HW105	Spring Washer	M8	4	
210	HS242	Hex. Socket Head Screw	M8x20L	4	
211	103056	Rack		1	
212	HK007	Key	5X5X15L	1	
213	103055	Acme Screw		1	
213	103055G	Acme Screw		1	
214	101025	Feed Support		1	
224	HS242	Hex. Socket Head Screw	M8x20L	1	
225	HW005	Spring Washer	M8	1	
226	103115	Washer Ring		1	
227	103101	Washer Ring		1	
229	105078	Ring		1	
230	103082	Pivot Shaft		1	
231	CA32007	Bearing	32007	2	
232	HS261	Hex. Socket Head Screw	M10x35L	4	
233	103088	Gap Ring		2	
234	101034	Degree-Meter		1	
235	105063	Bolt		1	
235-1	105062	Spring		1	
235-2	105064	Shaft		1	
236	HN006	Hex. Nut	M10	1	
235	HH001	Rivet	∮ 2x5L	2	
240	HP018	Pin	∮ 5x20L	2	
241	HS047	Hex. Head Screw	M8x25L	2	
242	HW005	Washer	M8	2	
243	103084A	Angle Position		1	
244	HO029	O-Retainer Ring	P12	4	
246	HS046	Hex. Head Screw	M8x20L	2	
247	HN005	Hex. Nut	M8	2	
248	HN006	Hex. Nut	M10	1	
250	103128	Coolant Tank		1	
251	HS425	Hex. Socker Headless Screw	M6x12L	6	
252	HS243	Hex. Socket Head Screw	M8x25L	3	
253	103093	Angle Margin		1	
254	HS242	Hex. Socket Head Screw	M8x20L	2	
259	HS032	Hex. Head Screw	M6x10L	1	
260	HN004	Hex. Nut	M6	1	
261	191106A	Filter		1	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
262	105210	Scale		1	
262-1	HH001	Rivet	§ 2x5L	2	
263	101113	Knob	M10x40L	2	
264	HW009	Bushing	§ 19x § 11x5t	2	
265	101081A	Fix Block		1	
266	101037	2 Way Limit Block		1	
266-1	101037A	2 Way Limit Block		1	
267	HW104	Spring Washer	M6	4	
268	HS230	Hex. Socket Head Screw	M6x20L	4	
269	MB13304CR	Cooling Pump	HP1/8/400/50 /3	1	
270	HS033	Hex. Head Screw	M6x15L	4	
271	HW104	Spring Washer	M6	4	
272	1975007	Rubber Cushion		1	
275	HS520	Cross Round Head Screw	M5x15L	2	
276	1975008	Acryl Plate		1	
277	HS093	Hex. Head Screw	M12x50L	4	
278	HN007	Hex. Nut	M12	4	
279	101087	Splash Board		1	
280	101085	Chip Tray		1	
282	105037A	Locating Foot (Left)		2	
283	HS431	Hex. Socker Headless Screw	M8x12L	2	
284	105037	Locating Foot (Right)		2	
285	HW005	Washer	M8	8	
286	HS241	Hex. Socket Head Screw	M8x15L	8	
287	103094	Connecting Plate		4	
288	HW005	Washer	M8	12	
289	HS241	Hex. Socket Head Screw	M8x15L	12	
290	103004SA	Stand Leg		1	
292	HW005	Washer	M8	8	
293	HS241	Hex. Socket Head Screw	M8x15L	8	
294	103038	Splash Board		1	
295	HW104	Washer	M6	2	
296	HS229	Hex. Socket Head Screw	M6x12L	2	
297	HS242	Hex. Socket Head Screw	M8x20L	2	
298	HW005	Washer	M8	4	
299	HN005	Hex. Nut	M8	2	
300S	SB03A060	Infrared ray Assembly		1	Option
300	189074	Bracket		1	Option
300-1	189072A	Infrared ray		1	Option
300-2	HS558	Cross Round Head Screw	M5-0.8P*8L	3	Option

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
300-3	HW003	Washer	ø5.3*ø10Xt1mm	2	Option
300-4	HS558	Cross Round Head Screw	M5-0.8P*8L	2	Option
300-5	189073	Bracket		1	Option
301	MFH2049	Motor		1	
302	101090	Belt	(1422) 360V	1	
303	103098	Motor Pulley Cover		1	
304	HS519	Cross Round Head Screw	M5x10L	4	
305	103156	Speed Label	E=1/30	1	
306	1965033S	Spindle Pulley		1	
308	HK044	Key	7x7x30L	1	
309	103099A	Pulley Lower Cover		1	
310	105046	Cover		2	FOR CE
311	HS518	Cross Round Head Screw	M5x5L	2	FOR CE
312	HW004	Washer	M6	2	
313	HS228	Hex. Socket Head Screw	M6x10L	2	
324	HN006	Hex. Nut	M10	3	
325	HS062	Hex. Head Screw	M10x40L	3	
332	103039A	Stop Block Support		1	
333	103076	Distance Set Rod		1	
334	HN006	Hex. Nut	M10	1	
335	HS062	Hex. Head Screw	M10x40L	1	
336	HS062	Hex. Head Screw	M10x40L	1	
337	HN006	Hex. Nut	M10	1	
338	HS219	Hex. Socket Head Screw	M5x15L	2	
339	105059	Lower Adjusting Support		1	
342	103088	Gap Ring		1	
344S	103125S	Spray Assembly		1	
344-1	HD636	Straight Connector	PT3/8"xPT3/8"	1	
344-2	HD638	3 Way Connector	PT3/8"xPT3/8"Xpt3/8"	1	
344-3	HD655	Straight Connector	PT3/8"x1/2"	1	
344-4	HD659	Micro Control Block	PT3/8"x1/2"	1	
344-5	103125-5	Hose Clamp	§ 19	3	
344-6	103125-6	Net Tube	ID1/2"x2.8tx126cm	1	
344-7	103125-7	Net Tube	ID1/2"x2.8tx320cm	1	
344-8	103125-8	Spray		1	
345S	103126S	Valve Assembly		1	
345-1	103126-1	Copper Tube	1/4"x4.2cm	2	
345-2	103126-2	Valve	PT1/8"x1/8"	2	
345-3	HD677	Straight Connector	PT1/8"x1/4"	2	
345-4	HD656	Hose Clamp	§ 12	2	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
345-5	103127-3	Net Tube	ID1/4"x2.2tx143cm	2	
346S	103127S	3 Way Valve Assembly		1	
346-1	HS232	Hex. Socket Head Screw	M6x30L	2	
346-2	105173	3 Way Valve		1	
346-3	HD650	Straight Connector	PT1/4"x1/4"	1	
346-4	HD656	Hose Clamp	∮12	2	
346-5	103127-3	Net Tube	ID1/4"x2.2tx143cm	1	
346-6	HD625	Micro Control Block	PT1/4"x1/4"	1	
346-7	103125-5	Hose Clamp	∮19	1	
346-8	103127-4	Net Tube	ID1/4"x2.2tx64cm	1	
346-9	103127-5	Net Tube	ID1/2"x2.8tx320cm	1	
346-10	HD632	Micro Control Block	PT1/4"x1/2"	1	
347	HS520	Cross Round Head Screw	M5x12L	2	
348	1976027	Switch Adjusting Bracket		1	
349	105023	Switch Bracket(For CE Only)		1	
350	HW003	Washer	M5	2	
351	105054	Switch Bracket(For CE Only)		1	
352	HS228	Hex. Socket Head Screw	M6x10L	2	
354	103152	Motor Bracket		1	
355	HS242	Hex. Socket Head Screw	M8x20L	4	
356	103134	Support Sheet		1	
357	HS219	Hex. Socket Head Screw	M5x15L	2	
358	HS046	Hex. Head Screw	M8x18L	1	
359	HS045	Hex. Head Screw	M8x15L	1	
360	103135B	Bracket		2	
361	HS228	Hex. Socket Head Screw	M6X10L	4	
362	103137	Twisted Spring		2	
363	103135C	Support Rod		2	
364	105056	Blade Cover		1	
365	HS228	Hex. Socket Head Screw	M6x10L	2	
366	105057	Limit Switch Support		1	
367	HS519	Cross Round Head Screw	M5x10L	2	
370	103135A	Bracket		2	
374	105094	Cylinder		1	
375	HW105	Spring Washer	M8	4	
376	HS244	Hex. Socket Head Screw	M8-1.25Px30L	4	
377	103213	Ring		4	
378	103214	Flexible Plate		3	
379	HS243	Hex. Socket Head Screw	M6X20L	6	
382	103073C	Electrical Contral Box (ECB)		1	

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PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
382-2	103269B	Rear Cover of ECB		1	
382-3	HS519	Cross Round Head Screw	M5X10L	8	
382-4	103073E	Cylinder Control Cover		1	
383	HN004	Hex. Nut	M6	6	
384	HW004	Washer	M6	6	
385	HS230	Hex. Socket Head Screw	M6X20L	4	
386	HW004	Washer	M6	4	
387	103271PC	Lable for Name Plate		1	
388	103072PC	Name Plate		1	
389	103153	Tube	1/4" 2550L	1	
390	103153A	Tube	1/4" 3900L	1	
394	HS046	Hex. Head Screw	M8x20L	1	
395	103105A	Fixed Plate		1	
396	HW005	Washer	M8	2	
397	HS045	Hex. Head Screw	M8x15L	2	
398	HB803	Nut	M8	2	
400	HS510	Cross Round Head Screw	M5X12L	4	
407	103124A	Throttle Valve		1	
409	103173	Cylinder Control Plate	330AA	1	
412	103003	Hanger Plate		4	
415	HCR06	C-Retaniner Ring	R52	2	
416	CA30205J	Taper Roller Bearing (30205J)	30205J	2	
417	105060	Cover		3	
418	HW313	Star Washer	AW05	2	
419	1965043	Nut		1	
420	HB501	Grease Nipple	PT1/8	1	
421	105065	Bolt		1	
422	105066	Bracket		1	
423	105067	Screw rod		1	
424	105068	Knob		1	
430	105087A	Limit Switch Adjusting Bracket		1	
431	103092	Shaft		1	
432	103107	Scale		1	
433	195083	Knob	1/4"X12L	1	
462	103166	3 Way Connector	5/16"N	2	
469	HW105	Spring Washer	M8	16	
470	HS241	Hex. Socket Head Screw	M8x15L	16	
471	103141	Switch Bracket		1	
472	HW012	Washer	ø6.3xø13xt1.2	1	
473	HS228	Hex. Socket Head Screw	M6x10L	1	

MACHINERY HOUSE

PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
474	HS519	Cross Round Head Screw	M5x10L	2	
477	HS044	Hex. Head Screw	M8x10L	2	
480-1	151105-1	Adjustment Valve		1	
490	151130	Bracket		1	
491	HW005B	Washer	M8	4	
492	HS242	Hex. Socket Head Screw	M8X20L	4	
493	HW005B	Washer	M8	4	
494	HS349	Hex. Socket Head Screw	M8X15L	4	
496	HW004B	Washer	M6	4	
497	HS334	Hex. Socket Head Screw	M6X12L	4	
500	151132	Body Frame B		1	
501	151131	Body Frame A		1	
502	HN005B	Hex. Nut	M8	3	
503	HS432	Hex. Socker Headless Screw	M8X20L	2	
504	151174	Knob	M8XP1.25*25L	1	
505	HW005B	Washer	M8	4	
506	HS349	Hex. Socket Head Screw	M8X15L	4	
507	151129	Bracket		1	
508	HW004B	Washer	M6	6	
509	HS334	Hex. Socket Head Screw	M6X12L	6	
515	151127	Control Box		1	
516	HW003B	Washer	M5	4	
517	HS331	Hex. Socket Head Screw	M5X12L	4	
518	HW003B	Washer	M5	4	
519	HS331	Hex. Socket Head Screw	M5X12L	4	
520	151175	Knob		2	
521	HW003B	Washer	M5	4	
522	HS331	Hex. Socket Head Screw	M5X12L	4	
525	133170	Valve		1	
525-2	ET1639	Timer	220V-5	1	
524	HT001	Round Head Screw	M5X10L	2	
527	151161	Connect Shaft		1	
528	HS422	Hex. Socker Headless Screw	M6X10L	1	
530	103072k	Switch Plate		1	
531	HW003B	Washer	M5	6	
532	HS331	Hex. Socket Head Screw	M5X12L	6	
850	HS241	Hex. Socket Head Screw	M8x15L	2	
851	HW005	Washer	M8	4	
852	HN005	Nut	M8	2	
853S	103063ES2	Hydraulic Unit	3PH /1/4HP	1	

MACHINERYHOUSE

PARTS LIST

MODEL NO. 330NAA

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
853-1	103063AA	Cover		1	
853S	103063KS	Hydraulic Unit	3PH/ 1/4HP	1	
854	HS519	Cross Round Head Screw	M5x10L	4	
855	HW103	Spring Washer	M5	4	
856-1	103172	Cross Round Head Screw		1	
857	HS240	Hex. Socket Head Screw	M8x10L	3	
858	HW105	Spring Washer	M8	3	
861	105211	Degree-Meter		1	
868	ET1621	Limit Switch		1	FOR CE
869	ET1624	Limit Switch		1	FOR CE

MACHINERYHOUSE

MACHINERYHOUSE

MANUFACTURER:
ADDRESS:
SERIAL No.:

PLEASE WRITE DOWN THE SERIAL NO. ON THIS BLOCK FROM THE NAME PLATE AFTER YOU RECEIVE THIS MACHINE.