INSTRUCTION MANUAL

BS-13LS
Semi-Automatic Swivel Head Metal Cutting Band Saw (415V)
510 x 210mm (W x H) Rectangle

B031

⚠ 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.

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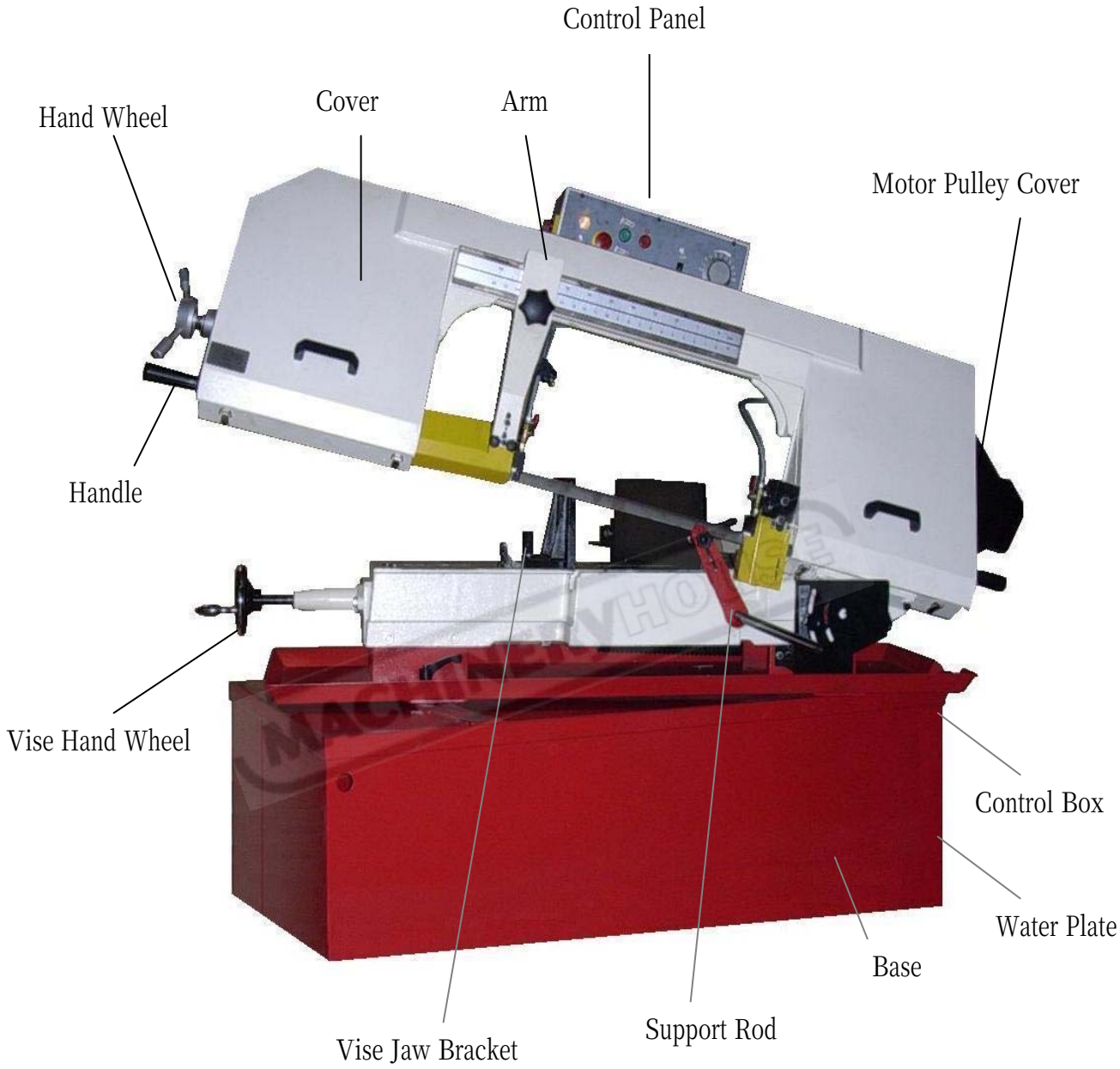
CAUTION

Install saw blade and blade guard

before use. Set proper blade tension

to prevent any danger caused by

1.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 f or 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 ALLOW** hands or anything else. to encroach on the cutting zone while the machine is in operation.

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 working 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 : 80 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

Spindle Motor			3HP 60HZ/50HZ 1720/1427 RPM	
Coolant Pump Motor			1/8HP 60HZ/50HZ 2840/3440 RPM	
Hydraulic Motor			1/4HP 60HZ/50HZ 1720/1420 RPM	
Saw Blade Speed	Variable Speed		Mt/min	60HZ 25-102 50HZ 30-123
			Ft/min	60HZ 83-332 50HZ 100-400
Blade Size(mm/inch)			27 x 0.9 x 3810L / 1.06 x 0.035 x 150	
Dimension L x W x H			2030 x 750 x 1280 mm 79.9 x 29.5 x 50.4 inch	
Packing	N.W / G.W (kgs)		430 / 460	
	Measurement		2080 x 795 x 1370 mm 81.9 x 31.3 x 54 inch h	
	Sets per 20’ CTNR		7 sets	
Cutting Capacity	0°	○(mm/inch)	330 mm / 13”	
		□(mm/inch)	305 mm x 305 mm / 12” x 12”	
	45°	○(mm/inch)	305mm / 12”	
		□(mm/inch)	280 mm x 280 mm / 11 ”x 11”	

4.FEARTURES:

1. This machine is useful for cutting normal steel, steel pipe, and provides cutting angle at 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.**

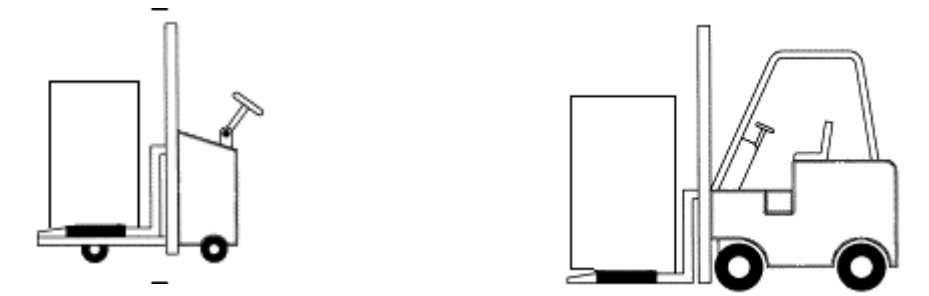


Fig. B

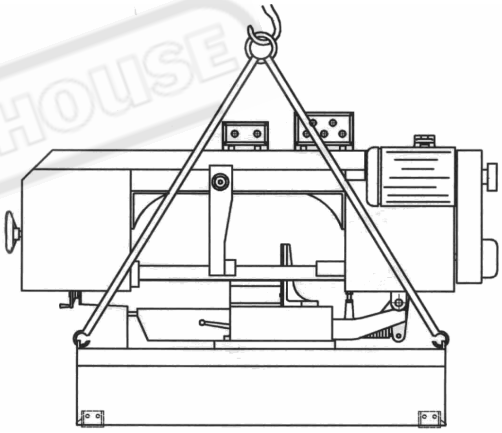
ALLWAYS KEEP PROPER FOOTING & BALANCE WHILE MOVING THIS MACHINE.

5-2.TRANSPORTATION OF MACHINE:

As this machine weights 470kgs(1036lbs) 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 pr operly 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.



5-3.Installation:

(1) Always Keep proper footing & balance while moving this 430kgs 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 safety wiring.

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

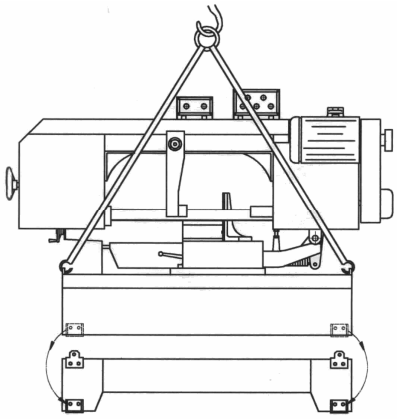


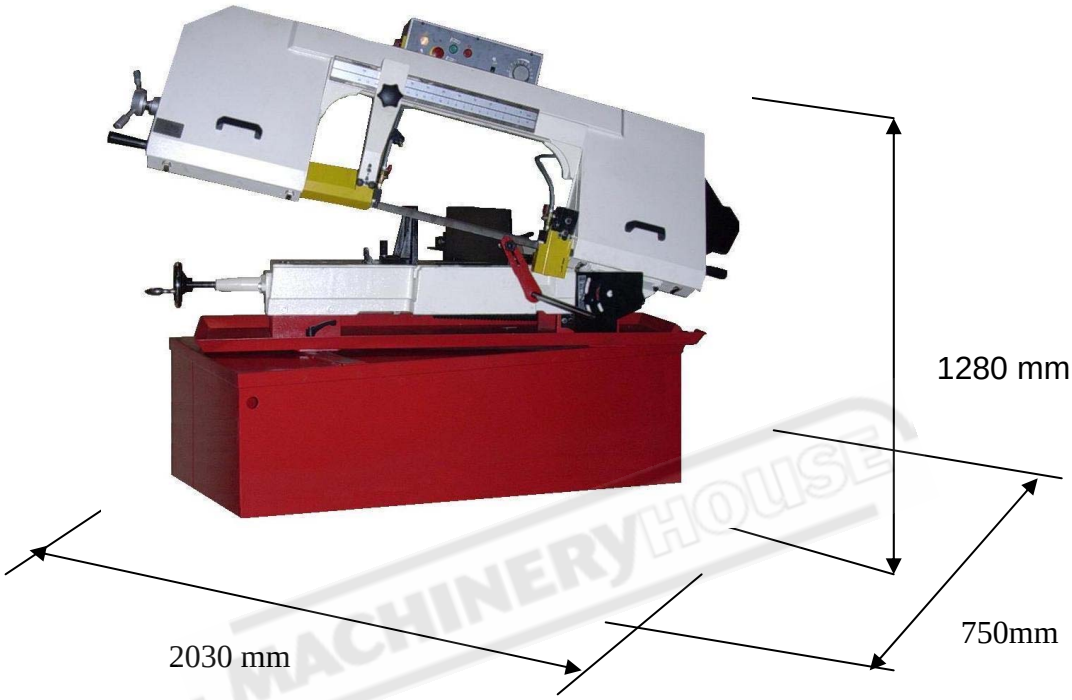
Fig. A

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.

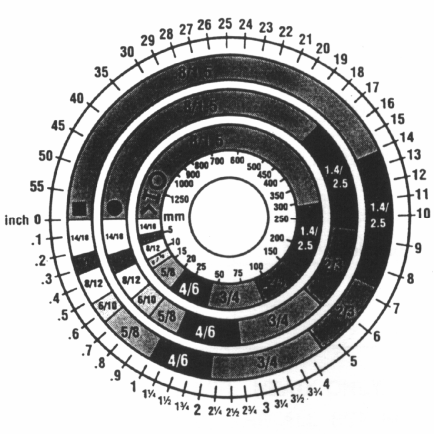
6.MINIMUM ROOM SPACE FOR MACHINE OPERATION



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

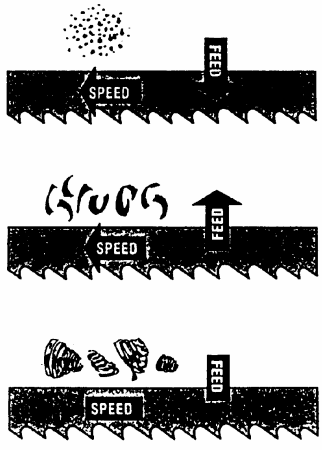
TELLTALE CHIPS

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.

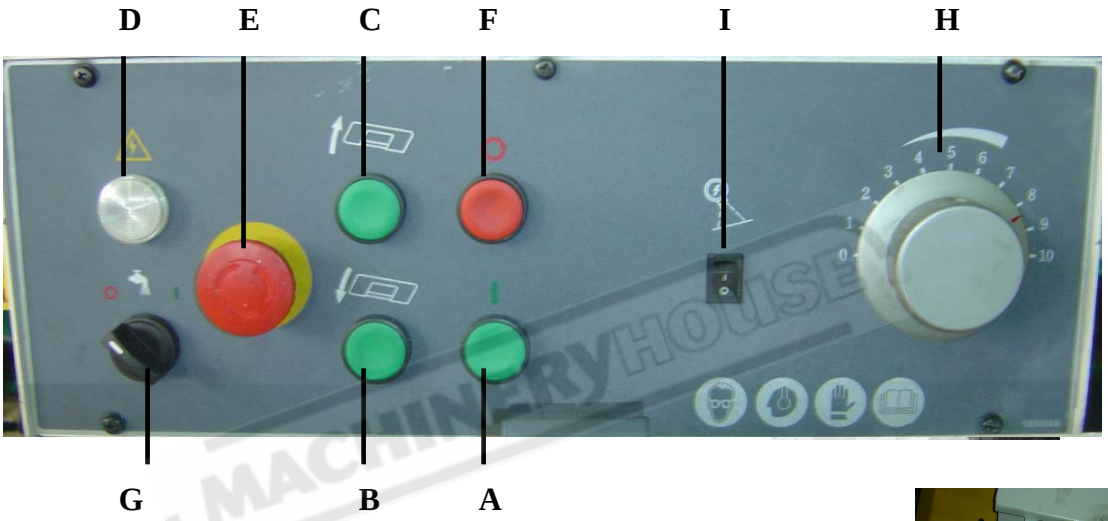
Before connecting your machine to an electrical power system, be sure the motor shaft is running in the correct direction.

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. Open hydraulic valve (H) when in operation.
2. 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.
3. Start the motor by pushing the start button (A), Turn left (G) to clean the chip by using spray equipment. Turn right (G) to open the coolant system when saw blade is running. When the cut is completed, turn off the coolant system (G) in the middle.
4. Check if the upper limit switch is in proper position. Adjust handle (J) to move the up-down position.
5. Push button (B) for controlling downwards of saw arm. And control the downward speed by adjusting hydraulic volume valve.
6. 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.

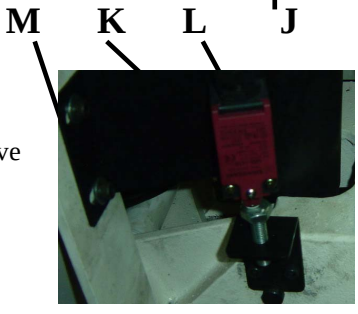


Fig. 3

7. When discontinued cutting or reset cutting is necessary during operation,close the cylinder feeding valve,then push the stop button(F)
8. Press emergency button(E) to shut-off the motor when in emergent situation Before next operation release (E) to get power.
9. AS the operator locate the working piece in the vise, turn the laser light on (F), the laser will mark on the work piece for cutting reference.
10. Turn (H) to controlling downwards of saw arm. And control the downward speed by adjusting hydraulic volume valve.
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 cylinder (M) for shutting off the motor and coolant system.

Notice:

1, Before start blade running, operator has to ensure the blade is assembled appropriately, the blade cover is closed, and the emergency bottom is on. After the confirmation, the machine can be operated only.

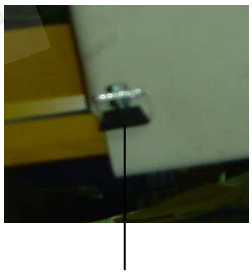
2, After the cutting is completed, make sure the main power is cut-off for safety.

**Usage of laser light: AS the operator locate the working piece in the vise, turn the laser light on (F), the laser will mark on the work piece for cutting reference.

Notice: Laser light is for cutting reference only, operator can turn it off during the cutting for longer life of the laser light.

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.



A Fig.4

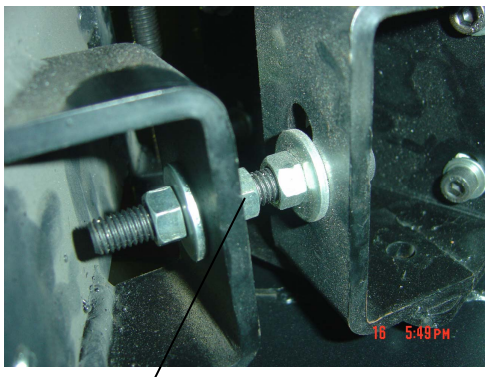
9-4.CHANGING SPEEDS AND ADJUSTING BELT TENSION

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.

C Fig.6 B



A Fig.5

9-5.ADJUSTING BLADE TENSION AND BLADE TRACKING

C Fig.7 B A

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).

A

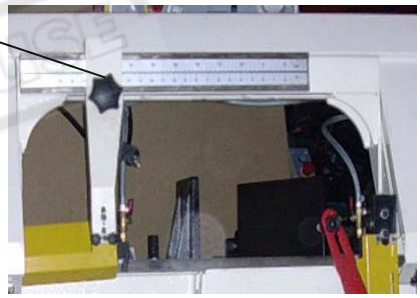


Fig.8

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.

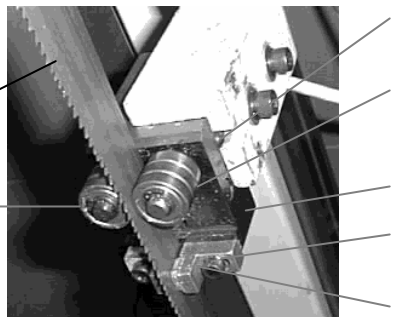


Fig.9

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

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.

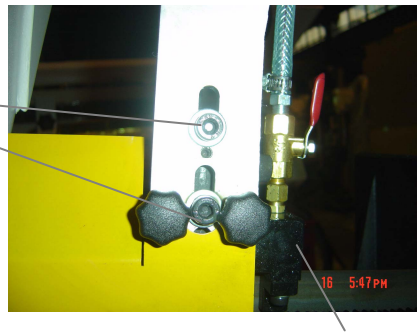


Fig.10

9-8.CLEARING THE CUTTTNG CHIP

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

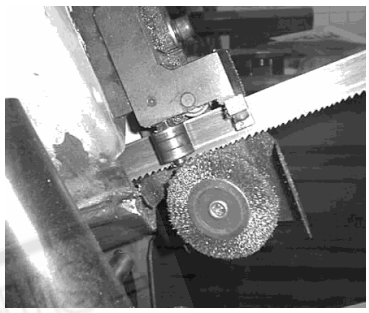


Fig.11

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.

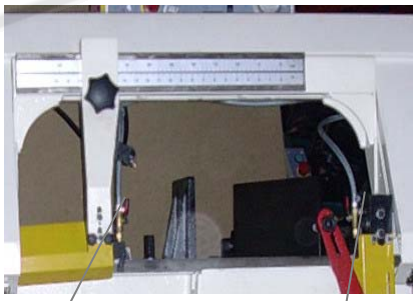


Fig.12

9-10. Setting the Vise for Square Cuts

The procedure for setting the vise for square cuts is identical to setting for angle cuts (above) except that a machinist's square is used to set the angle of the fixed vise jaw (A, Fig. 13). Align one side of the square with the side of the slot (C, Fig. 13) in the table.

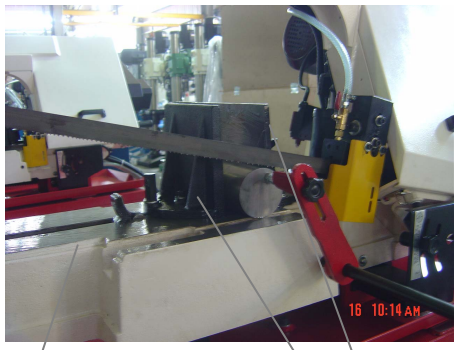
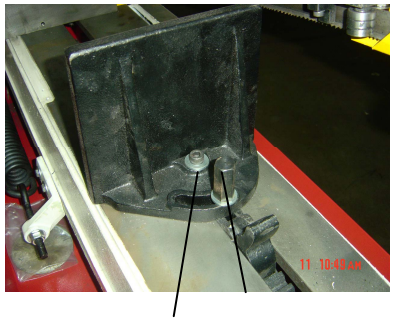


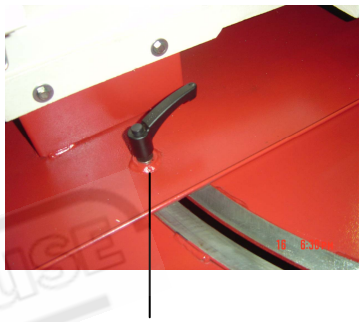
Fig.13

When change angle-cutting. Please follow bellow steps:

1.release the handle H (fig 15) and A (fig 16) to required angle and fix the handles.
2 Release (A) (B) of Fig.14 adjust to required angle the fix it.
3 Place work-piece the top of it touch distance-rod.and set the length you need.
4.Tighten vise jaw the fix the work-piece and get the same cutting length.



B A **Fig.14**



A H **Fig.15**

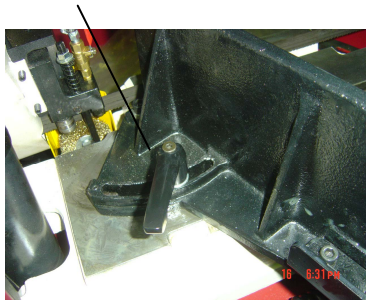
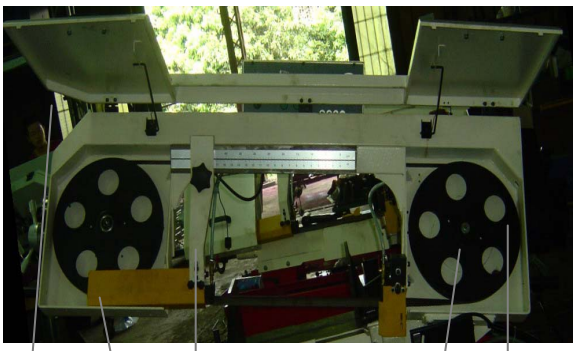


Fig.16

9-11.REMOVING AND INSTALLING THE BLADE

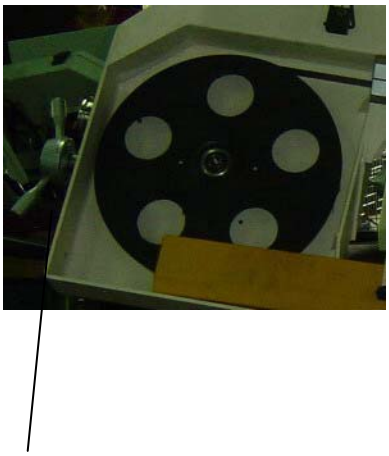
When it is necessary to replace the blade, proceed as follows:

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 17).
2. Move the blade guide arm to the right.(E)
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.



B D E **Fig.17** C A

3. Release blade tension (F) (fig 18) by turning the blade
4. 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.



F **Fig.18**

9-12.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. 19).
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.

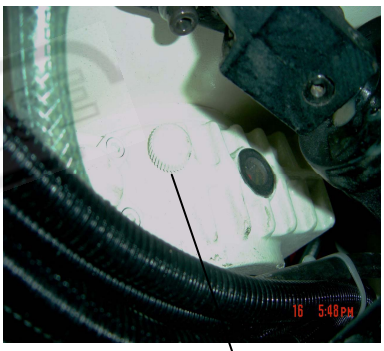
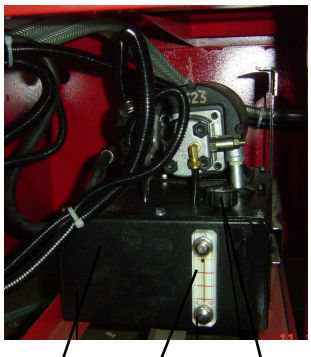


Fig.19 **A**

9-13. HOW TO OPERATE HYDRAULIC UNIT (FOR 335SRVA)

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.



B C A

Fig.20

9-14. 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.

Fig.21

NOTICE : Please using the suitable volume of coolant fluid for cleaning.
Cleaning the floor immediately when the coolant fluid leaking on the floor.

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

9-15.When the coolant is used and dirty

The cooling pump is almost entirely maintenance-free.
Replace the cooling agent regulary,depending on usage.
When using coolants which leave residues, the cooling pump be washed.
Pump the coolant to an adequate vessel by the spray gun.
Let the remenant coolant drain though the outlet.
Fill in new coolant over the chip pan. The maximum capacity of the coolant is 30 litres.

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.

(d) Please confirm no breaking in give bedspring or damaged cylinder tile road with leaking problems before use.

(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.

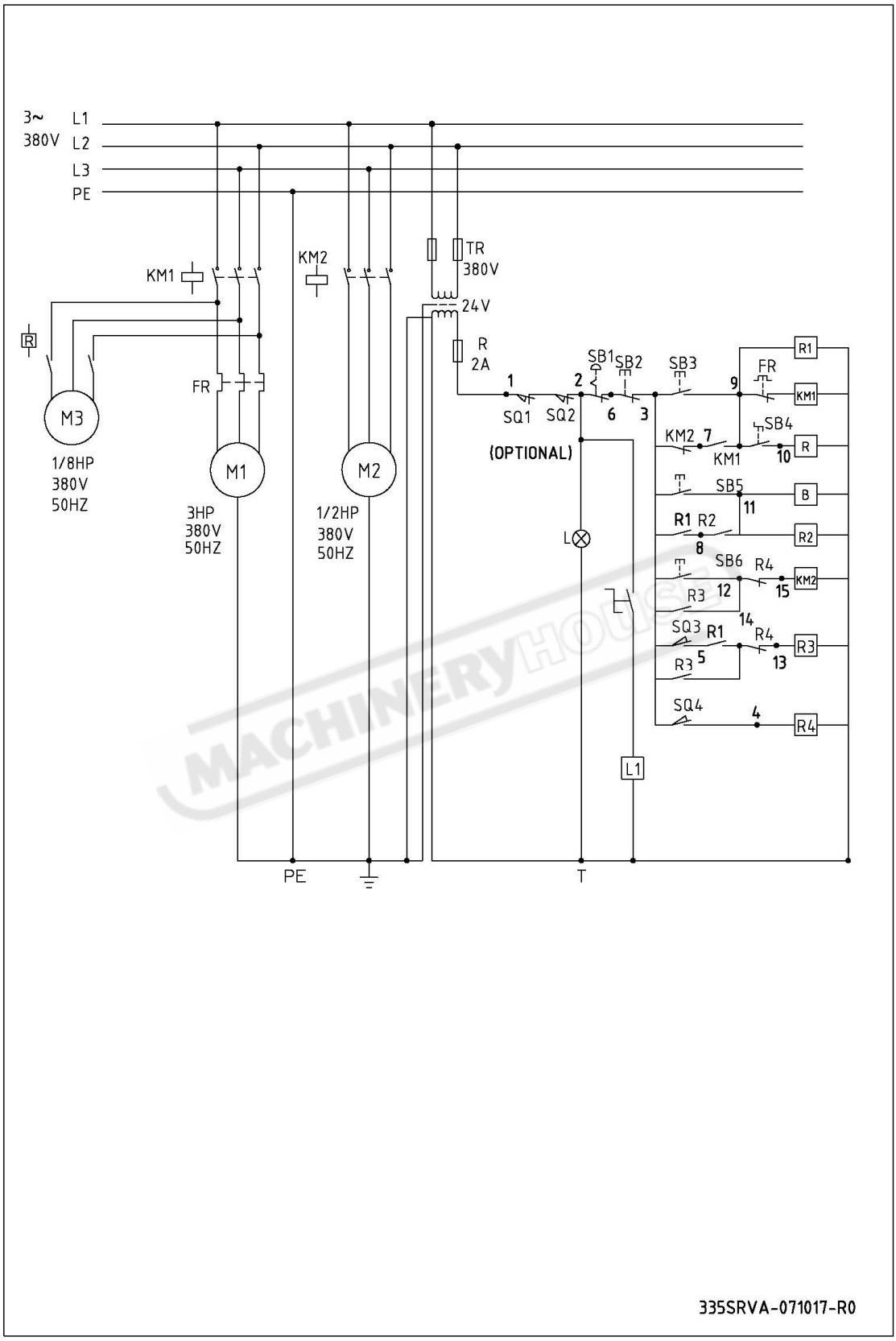
(b) Check electric cord, plugs, switch, bedspring , Cylinder Assembly at least once a year to avoid loosening or wearing.

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 Breakag	1. Materials loosen in vise. 2. Incorrect speed or feed 3.Blade teeth spacing too large 2. Material too coarse 5. Incorrect blade tension 6.Teeth in contact with material before saw is started 7. Blade rubs on wheel flange 8. Miss-aligned guide bearings 9. Blade too thick 10 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.

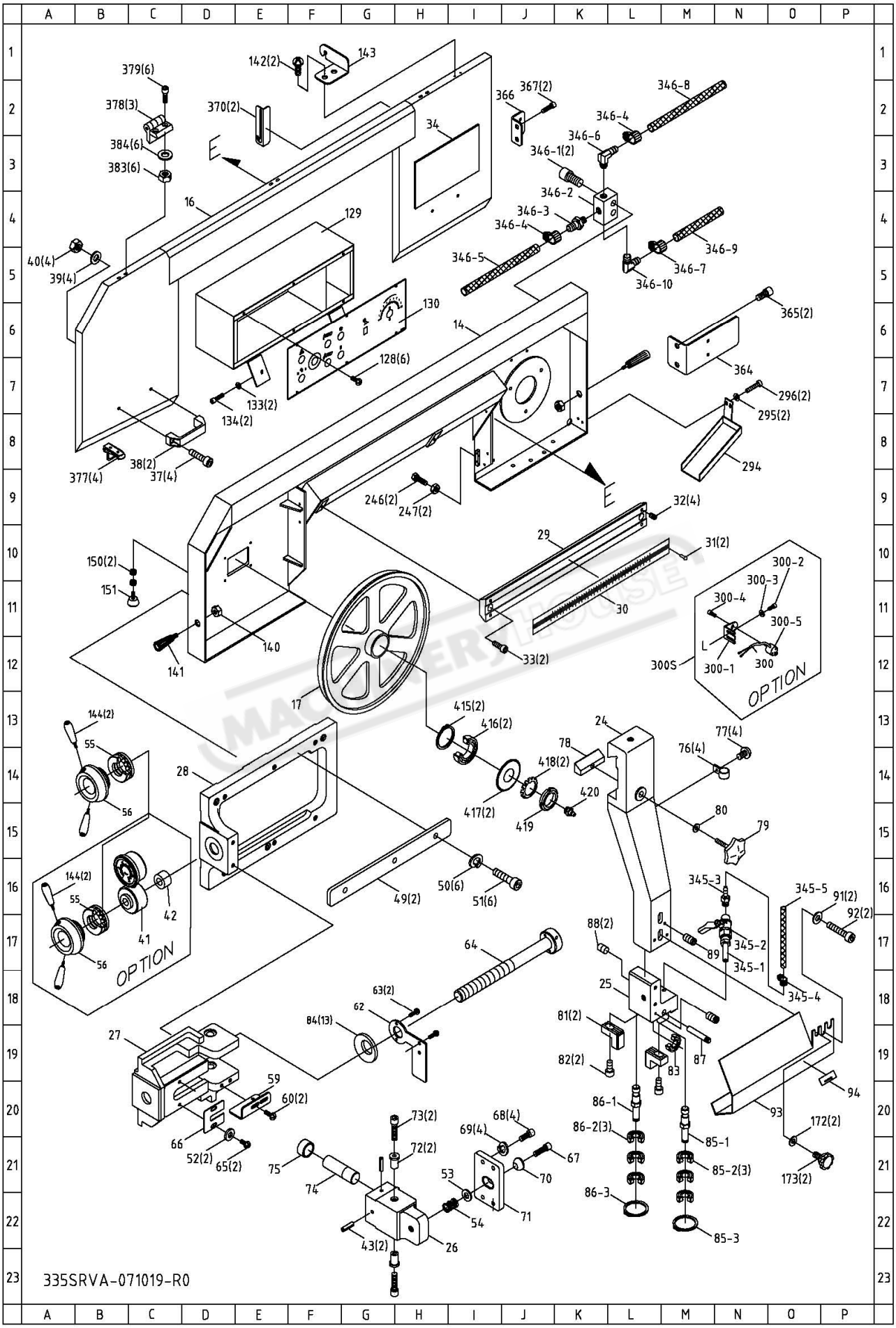
12.CIRCUIT DIAGRAM

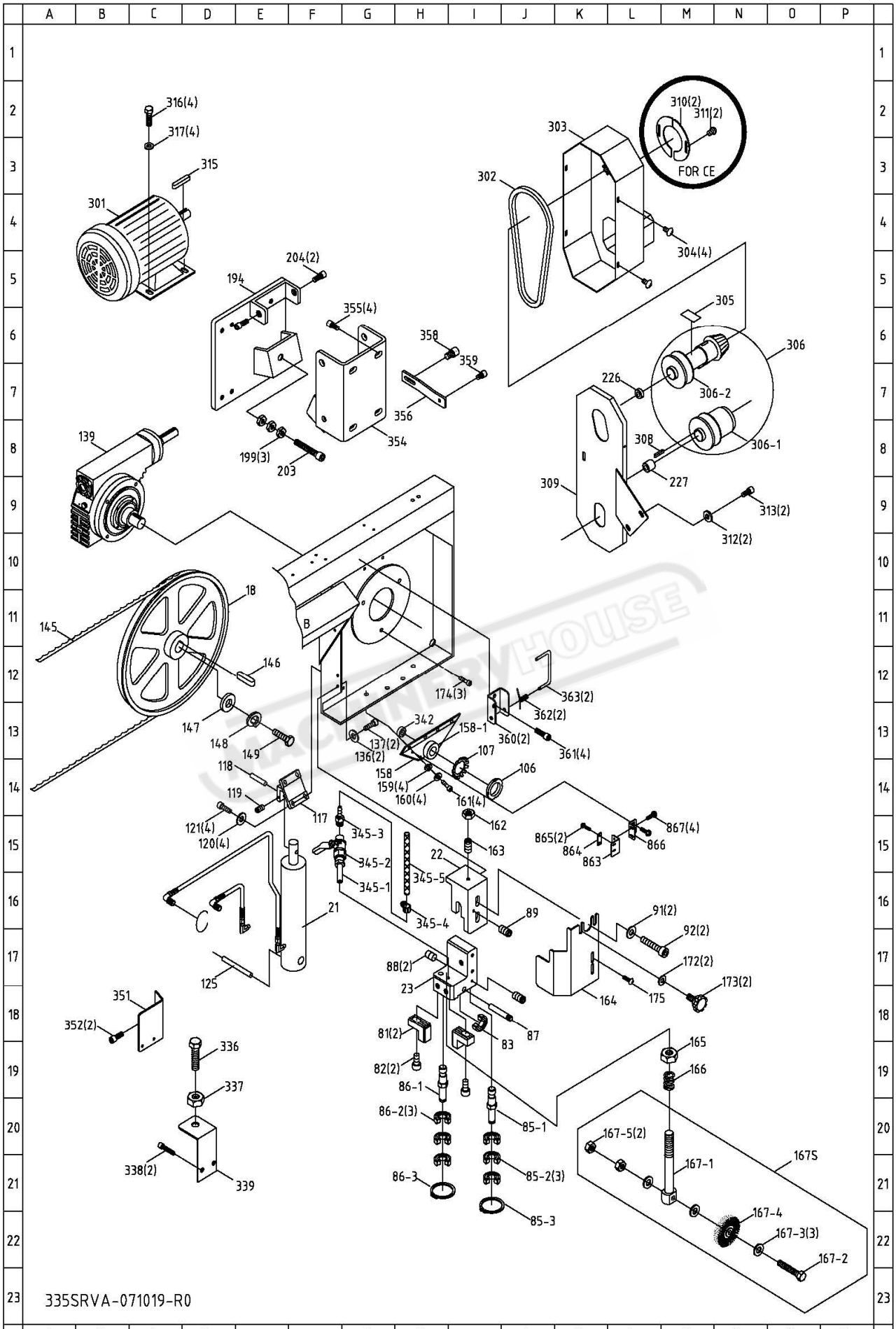


335SRVA	SCHEDULE OF ELECTRICAL EQUIPMENT			Sheet:		
Item.	Designation and function	Technical data	QTY	Suppiler	Suppilerg reference	REMARK
SQ1	LIMIT SWITCH	OPTIONAL ONLY(CE) AZD-1122	1	SHINOZAKI		
SQ2	LIMIT SWITCH	AZD-1122	1			
SB1	EMERGENCY SWITCH	TE	1	TE		
SB2	OFF SWITCH	TE	1			
SB3	START SWITCH	TE	1			
SB4	SELECTING SWITCH	TE	1			
SB5	DOWN SWITCH	TE	1			
SB6	UP SWITCH	TE	1			
KM1	MEGNETIC SWITCH	LCK0901B7	1	TE		
KM2			1			
R	CONTROL RELAY	RT424524	1	SCHRACK		
R1			1			
R2			1			
R3			1			
R4			1			
SQ3	LIMIT SWITCH	AZD-1112	1	SHINOZAKI		
SQ4	LIMIT SWITCH	AZD-1112	1			
B	DC ELECTRIC VALVE	DC-24V	1		SWITCH	
L	LIGHT	TE	1	TE		
TR	TRANSFORMER	380V/24V	1	SUENNLIANG		
M1	MOTOR	3HP 380V	1	CHUTA		
M2	OIR MOTOR	1/2HP 380V 50HZ	1			
M3	COOL PUMT	1/8HP 380V 50HZ	1	CHUTA		
FU	FUSE	2A	1	WAGO		
FR	OVER LOAD	3.7A~5.5A	1			
L1	LASER	OPTIONAL	1			

335SRVA-071017-R0

16. PARTS LISTS

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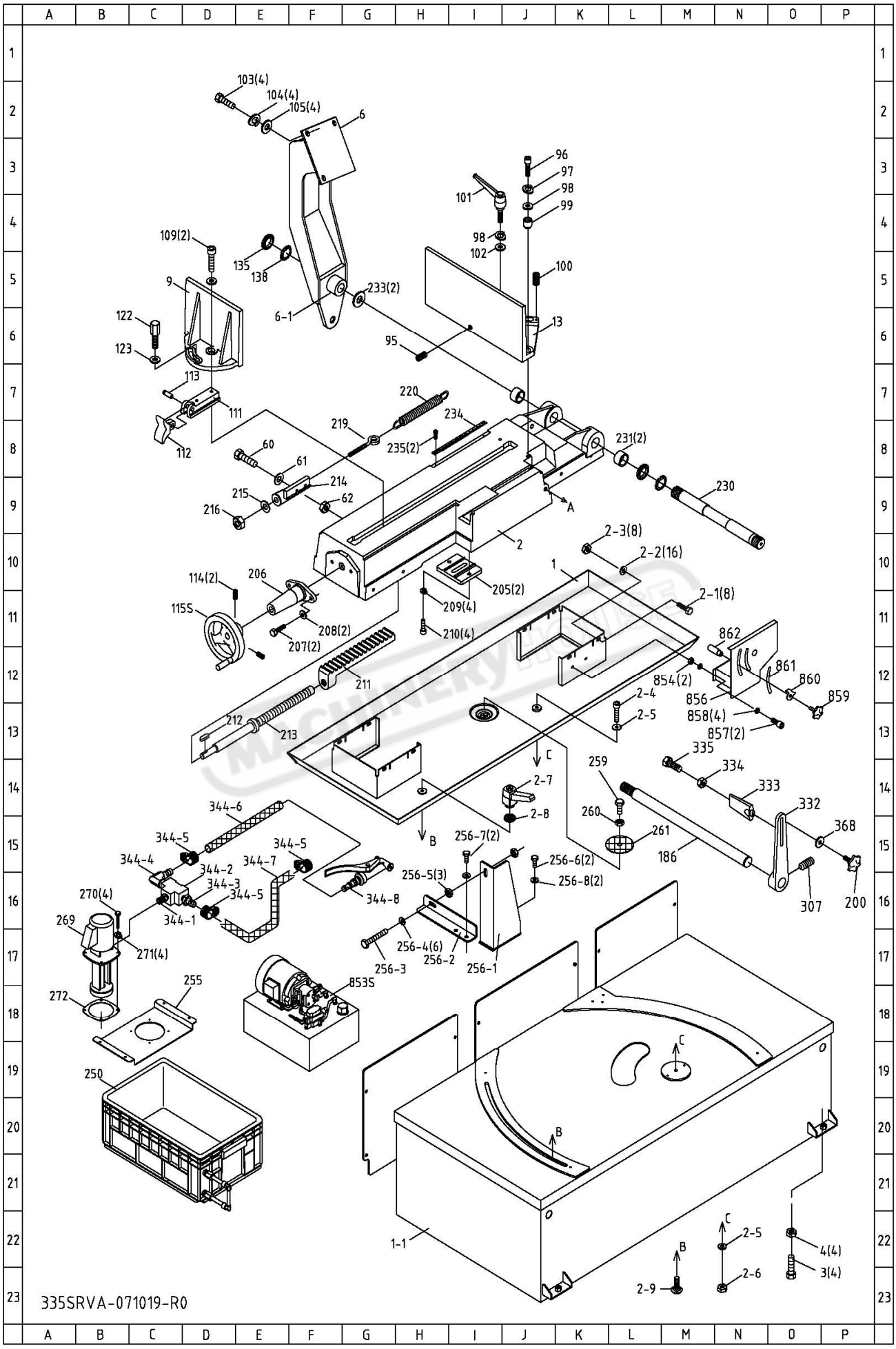
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PARTS LIST
MODEL NO. 335SRVA

CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
1	103301RA	Fluid Collected Plate		1.00	
1-1	103301R	Stand		1.00	
2	103302	Base		1.00	
2-1	HS050	Hex. Head Screw	M8-1.25Px40L	8.00	
2-2	W016	Washer	5/16"x23x2mm	16.00	
2-3	HN005	Hex. Nut	M8	8.00	
2-4	HS259	Hex. Socket Head Screw	M10X25L	1.00	
2-5	HW030	Washer	M10x27x2t	2.00	
2-6	HB804	Hex. Nut	M10	1.00	
2-7	103330	Knob		1.00	
2-8	HW030	Washer	M10x27x2t	1.00	
2-9	32427	Carriage Screw	3/8"	1.00	
3	HS093	Hex. Head Screw	M12x50L	4.00	
4	HN007	Hex. Nut	M12	4.00	
6	103045R	Rear Pivot Bracket		1.00	
6-1	105073	Bushing		1.00	
9	103316	Vise Jaw Bracket(Front)		1.00	
13	103315	Vise Jaw Bracket(Rear)		1.00	
14	103041B	Body Frame		1.00	
16	103138S	Blade Back Cover		1.00	
17	103024	Idler Wheel Assembly		1.00	
18	103025	Drive Wheel		1.00	
21	103091A	Cylinder Assembly		1.00	
22	103032	Arm (Right)		1.00	
23	103029	Blade Adjustable (Rear)		1.00	
24	103031	Arm (Left)		1.00	
25	103030	Bearing Bracket (Left)		1.00	
26	103252A	Blade Angle Adjusting Bracket		1.00	
27	103250	Blade Tension Sliding Plate		1.00	
28	103251	Anchor Block		1.00	
29	1965011	Column		1.00	
30	103008C	Scale		1.00	
31	HH001	Rivet	∮ 2x5L	2.00	
32	HS432	Hex. Socker Headless Screw	M8x20L	4.00	
33	HS278	Hex. Socket Head Screw	M12x20L	2.00	
34	103157	Blade Select Chart		1.00	
37	HS242	Hex. Socket Head Screw	M8x20L	4.00	
38	1965052	Knob		2.00	
39	HW005	Washer	M8	4.00	
40	HN005	Hex. Nut	M8	4.00	
41	198170	Pressure Gauge		1.00	OPTION

PARTS LIST
MODEL NO. 335SRVA

CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
42	103328	Bushing		1.00	OPTION
43	HP023	Pin	∮5X45L	2.00	
49	103259	Gib		2.00	
50	HW105	Spring Washer	M8	6.00	
51	HS246	Hex. Socket Head Screw	M8x40L	6.00	
52	HW003	Washer	M5	2.00	
53	HW006	Washer	M10	1.00	
54	101116	Spring		1.00	
55	CA51203	Bearing	51203	1.00	
56	198051A	Blade Tension Handle		1.00	OPTION
56	103257	Blade Tension Handle		1.00	
59	103261	Switch Base		1.00	
60	HS049	Hex. Head Screw	M8x35L	2.00	
61	HN005	Hex. Nut	M8	2.00	
62	HW028	Washer	8*18-2.0t (M8)	1.00	
63	HS511	Cross Round Head Screw	M4X20L	2.00	
64	103327	Leadscrew		1.00	OPTION
64	103255	Leadscrew		1.00	
65	HS519	Cross Round Head Screw	M5x8L	2.00	
66	191415	Tension Indicating Plate		1.00	
67	HS262	Hex. Socket Head Screw	M10x40L	1.00	
68	HS229	Hex. Socket Head Screw	M6x15L	4.00	
69	HW104	Spring Washer	M6	4.00	
70	101008	Hemicycle Washer		1.00	
71	103258	Washer		1.00	
72	103260	Shaft Bushing		2.00	
73	HS231	Hex. Socket Head Screw	M6x25L	2.00	
74	103111	Shaft		1.00	
75	191404	Bushing		1.00	
76	HD608	Hose Clamp	∮12	4.00	
77	HS519	Cross Round Head Screw	M5x10L	4.00	
78	1965014	Gib		1.00	
79	1965015	Blade Adjustable Knob		1.00	
80	HW006	Washer	M10	1.00	
81	103120	Carbide Guide		4.00	
82	HS230	Hex. Socket Head Screw	M6x20L	4.00	
83	CA609ZZ	Bearing	609ZZ	2.00	
84	191414	Disc Spring		13.00	
85	103027AS	Bearing Shaft Assembly		2.00	
85-1	103027A	Bearing Shaft		2.00	
85-2	CA609ZZ	Bearing	609ZZ	6.00	

PARTS LIST
MODEL NO. 335SRVA

CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
85-3	HSC01	C-Retainer Ring	S10	2.00	
86	103028AS	Eccentric Shaft Assembly		2.00	
86-1	103028A	Eccentric Shaft		2.00	
86-2	CA609ZZ	Bearing	609ZZ	6.00	
86-3	HSC01	C-Retainer Ring	S10	2.00	
87	103026	Bearing Pin		2.00	
88	HS414	Hex. Socker Headless Screw	M5x10L	4.00	
89	HS422	Hex. Socker Headless Screw	M6x10L	2.00	
91	HW005	Washer	M8	4.00	
92	HS243	Hex. Socket Head Screw	M8x25L	4.00	
93	105013	Blade Guard (Front)		1.00	
94	196504	Label		1.00	
95	HS434	Hex. Headless Screw	M8-P1.25x30L	1.00	
96	HS281	Hex. Head Screw	M12-1.5Px35L	1.00	
97	HW106	Spring Washer	∮ 10.2-3t	2.00	
98	HW023	Washer	o10.5*o21Xt2mm	2.00	
99	1966004	Bushing		1.00	
100	HS422	Hex. Headless Screw	M6-P1.0x10L	1.00	
101	191210	Knob		1.00	
102	HW025	Washer	o10.5*o27Xt3mm	2.00	
103	HS258	Hex. Socket Head Screw	M10x20L	4.00	
104	HW106	Spring Washer	M10	4.00	
105	HW006	Washer	M10	4.00	
106	103106	Nut	AN07	2.00	
107	HW206	Washer	AW07	2.00	
109	HS265	Hex. Socket Head Screw	M10x55L	1.00	
111	103054	Bracket		1.00	
112	103053	Rack Hook		1.00	
113	103069	Pin		1.00	
114	HS422	Hex. Socker Headless Screw	M6x10L	2.00	
115S	187055S	Handwheel		1.00	
	187055A	Handwheel		1.00	
	189055R	Knob		1.00	
	HS422	Hex. Headless Screw	M6-P1.06x10L	1.00	
117	103060	Cylinder Upper Support		1.00	
118	103078	Pivot Pin		1.00	
119	HS422	Hex. Socker Headless Screw	M6x10L	1.00	
120	HW005	Washer	M8	4.00	
121	HS242	Hex. Socket Head Screw	M8x20L	4.00	
122	189067	Fixed Bolt		1.00	
123	191209	Bushing		1.00	

PARTS LIST
MODEL NO. 335SRVA

CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
125	103317	Pivot Pin		1.00	
128	HS519	Cross Round Head Screw	M5x10L	6.00	
129	105053N	Control Box		1.00	
130	105058N	Control Plate		1.00	
133	HW004	Washer	M6	2.00	
134	HS527	Cross Round Head Screw	M6x10L	2.00	
135	103106	AN07	Nut	2.00	
136	HW005	Washer	M8	2.00	
137	HS242	Hex. Socket Head Screw	M8X20L	2.00	
138	HW206	AW07	Washer	2.00	
139	19116S-1	Gear Box Assembly		1.00	
140	N005	Hex. Nut	3/8"	2.00	
141	189033	Handle		2.00	
142	HS519	Cross Round Head Screw	M5x10L	2.00	
143	103136	Bracker		1.00	
144	198086	Knob		2.00	OPTION
144	623124	Knob		2.00	
145	103108	Blade	27x0.9x3810L-4/6T	1.00	
146	HK044	Key	7x7x30L	1.00	
147	HW006	Washer	M10	1.00	
148	HW106	Spring Washer	M10	1.00	
149	HS059	Hex. Head Screw	M10x25L	1.00	
150	HN005	Hex. Nut	M8-1.25P	2.00	
151	189087	Screw	M8-1.25P	1.00	
158	103046C	Bracket		1.00	
158-1	103165	Bushing		1.00	
159	HW106	Spring Washer	M10	4.00	
160	HW006	Washer	M10	4.00	
161	HS258	Hex. Socket Head Screw	M10x20L	4.00	
162	HN005	Hex. Nut	M8	1.00	
163	HS433	Hex. Socker Headless Screw	M8x25L	1.00	
164	103049	Blade Guard (Rear)		1.00	
165	HN006	Hex. Nut	M10	1.00	
166	191333	Spring		1.00	
167S	103133S	Brush Assemble		1.00	
167-1	103133	Brush Shaft		1.00	
167-2	HE305	Cross Round Head Screw	M6-1.0x40L	1.00	
167-3	HW004	Washer	6.5*13-0.8t (M6)	3.00	
167-4	191334A	Brush		1.00	
167-5	HB802	Hex. Nut	M6	1.00	
172	HW004	Washer	M6	4.00	

PARTS LIST
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CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
173	103127	Plum Screw	M6x10L	4.00	
174	HS258	Hex. Socket Head Screw	M10x20L	3.00	
175	HS519	Cross Round Head Screw	M5X8L	1.00	
186	189037	Distance Set Rod		1.00	
194	103151	Motor Plate		1.00	
199	HN006	Hex. Nut	M10	3.00	
200	196213	Plum Screw		1.00	
203	HS267	Hex. Socket Head Screw	M10x65L	1.00	
204	HS284	Hex. Socket Head Screw	M12x50L	2.00	
205	103058	Rack Support		2.00	
206	103326	Axle Base		1.00	
207	HS059	Hex. Head Screw	M10x25L	2.00	
208	HW006	Washer	M10	2.00	
209	HW105	Spring Washer	M8	4.00	
210	HS242	Hex. Socket Head Screw	M8x20L	4.00	
211	103056	Rack		1.00	
212	HK007	Key	5X5X15L	1.00	
213	103325	Acme Screw		1.00	
214	103388	Spring Bracket		1.00	
215	HW007	Washer	M12	1.00	
216	HN007	Hex. Nut	M12	1.00	
219	101033	Eye Bolt		1.00	
220	1976026	Spring	ϕ 10	1.00	
226	103115	Washer Ring		1.00	
227	103101	Washer Ring		1.00	
230	103082R	Pivot Shaft		1.00	
231	103329	Axle Bushing	35x39x40B	2.00	
233	103088	Gap Ring		2.00	
234	103320	Meter		1.00	
235	HE501	Cross Tablet Head Screw	M5-P0.8x8L	2.00	
246	HS046	Hex. Head Screw	M8x20L	2.00	
247	HN005	Hex. Nut	M8	2.00	
250	103128	Coolant Tank		1.00	
251	103321	Coolant Bracket		1.00	
256-1	103319	Bracket		1.00	
256-2	103318	Bracket		1.00	
256-3	HS066	Hex. Head Screw	M10x60L	1.00	
256-4	HW006	Washer	M10	4.00	
256-5	HN006	Hex. Nut	M10	3.00	
256-6	HS046	Hex. Head Screw	M8x20L	2.00	
256-7	HS058	Hex. Head Screw	M10x20L	2.00	

PARTS LIST
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CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
256-8	HW005	Washer	M8	2.00	
259	HS032	Hex. Head Screw	M6x10L	1.00	
260	HN004	Hex. Nut	M6	1.00	
261	191106A	Filter		1.00	
269	MB13304CR	Cooling Pump	HP1/8/400/50 /3	1.00	
270	HS033	Hex. Head Screw	M6x15L	4.00	
271	HW104	Spring Washer	M6	4.00	
272	1975007	Rubber Cushion		1.00	
294	103038	Splash Board		1.00	
295	HW104	Washer	M6	2.00	
296	HS229	Hex. Socket Head Screw	M6x12L	2.00	
300S	189072AS	Laser Set		1.00	OPTION
300	189074	Bracket		1.00	OPTION
300-1	189072A	Infrared		1.00	OPTION
300-2	HS558	Cross Round Head Screw	M5-0.8P*8L	3.00	OPTION
300-3	HW003	Washer	o5.3*o10Xt1mm	2.00	OPTION
300-4	HS558	Cross Round Head Screw	M5-0.8P*8L	2.00	OPTION
300-5	189073	Bracket Base		1.00	OPTION
301	MFH2059	Motor	3HP,400V,50HZ,3PH	1.00	
302	101090	Belt	(1422) 360V	1.00	
303	103098	Motor Pulley Cover		1.00	
304	HS519	Cross Round Head Screw	M5x10L	4.00	
305	103156	Speed Label	E=1/30	1.00	
306	1965032AS	Spindle Pulley		1.00	
306-1	1965033	Spindle Pulley	2HP § 24	1.00	
306-2	1965032	Variable Speed Pulley	2HP § 24	1.00	
307	HS422	Hex. Headless Screw	M6-1.0Px10L	1.00	
308	HK044	Key	7x7x30L	1.00	
309	103099A	Pulley Lower Cover		1.00	
310	105046	Cover		2.00	FOR CE
311	HS518	Cross Round Head Screw	M5x5L	2.00	FOR CE
312	HW004	Washer	M6	2.00	
313	HS228	Hex. Socket Head Screw	M6x10L	2.00	
315	HW005	Washer	M8	4.00	
316	HS045	Hex. Head Screw	M8x15L	4.00	
317	HK045	Key	7x7x35L	1.00	
332	189038	Support Rod		1.00	
333	1966008	Distance Set Bracket		1.00	
334	HN006	Hex. Nut	M10-1.5P	1.00	
335	HS059	Hex. Head Screw	M10-1.5Px25L	1.00	
336	HS062	Hex. Head Screw	M10x40L	1.00	

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CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
337	HN006	Hex. Nut	M10	1.00	
338	HS219	Hex. Socket Head Screw	M5x15L	2.00	
339	103322	Lower Adjusting Support		1.00	
342	103088	Gap Ring		1.00	
344	103125S	Spray Assembly		1.00	
344-1	103125-1	Straight Connector	PT3/8"xPT3/8"	1.00	
344-2	103125-2	3 Way Connector	PT3/8"xPT3/8"Xpt3/8"	1.00	
344-3	103125-3	Straight Connector	PT3/8"x1/2"	1.00	
344-4	103125-4	Micro Control Block	PT3/8"x1/2"	1.00	
344-5	103125-5	Hose Clamp	ID ∮ 19	3.00	
344-6	103125-6	Net Tube	ID1/2"x2.8tx126cm	1.00	
344-7	103125-7	Net Tube	ID1/2"x2.8tx320cm	1.00	
344-8	103125-8	Spray		1.00	
345	103126S	Valve Assembly		2.00	
345-1	103126-1	Copper Tube	1/4"x4.2cm	2.00	
345-2	103126-2	Valve	PT1/8"x1/8"	2.00	
345-3	103126-3	Straight Connector	PT1/8"x1/4"	2.00	
345-4	103126-4	Hose Clamp	ID ∮ 12	2.00	
345-5	103127-3	Net Tube	ID1/4"x2.2tx143cm	2.00	
346	103127S	3 Way Valve Assembly		1.00	
346-1	HS232	Hex. Socket Head Screw	M6x30L	2.00	
346-2	105173	3 Way Valve		1.00	
346-3	103127-1	Straight Connector	PT1/4"x1/4"	1.00	
346-4	103126-4	Hose Clamp	ID ∮ 12	2.00	
346-5	103127-3	Net Tube	ID1/4"x2.2tx143cm	1.00	
346-6	103127-2	Micro Control Block	PT1/4"x1/4"	1.00	
346-7	103125-5	Hose Clamp	ID ∮ 19	1.00	
346-8	103127-4	Net Tube	ID1/4"x2.2tx64cm	1.00	
346-9	103127-5	Net Tube	ID1/2"x2.8tx320cm	1.00	
346-10	103127-6	Micro Control Block	PT1/4"x1/2"	1.00	
351	105054	Switch Bracket		1.00	
352	HS228	Hex. Socket Head Screw	M6x10L	2.00	
354	103152	Motor Bracket		1.00	
355	HS242	Hex. Socket Head Screw	M8x20L	4.00	
356	103134	Support Sheet		1.00	
358	HS046	Hex. Head Screw	M8x18L	1.00	
359	HS045	Hex. Head Screw	M8x15L	1.00	
360	103135B	Bracket		2.00	
361	HS228	Hex. Socket Head Screw	M6X10L	4.00	
362	103137	Twisted Spring		2.00	
363	103135C	Support Rod		2.00	

PARTS LIST
MODEL NO. 335SRVA

CODE_NO	PART_NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
364	105056	Blade Cover		1.00	
365	HS228	Hex. Socket Head Screw	M6x10L	2.00	
366	105057	Limit Switch Support		1.00	
367	HS519	Cross Round Head Screw	M5x10L	2.00	
368	W004	Spring Washer	1/4"x19xt1.5mm	1.00	
370	103135A	Bracket		2.00	
377	103213	Ring		4.00	
378	103214	Flexible Plate		3.00	
379	HS243	Hex. Socket Head Screw	M6X20L	6.00	
383	HN004	Hex. Nut	M6	6.00	
384	HW004	Washer	M6	6.00	
415	HCR06	C-Retaniner Ring	R52	2.00	
416	CA30205J	Taper Roller Bearing (30205J)	30205J	2.00	
417	105060	Cover		3.00	
418	HW313	Star Washer	AW05	2.00	
419	1965043	Nut		1.00	
420	HB501	Grease Nipple	PT1/8	1.00	
853S	103063S2	Hydraulic Unit	3PH 1/4HP	1.00	335SRVA
854	HN004	Nut	M6	2.00	335SRVA
856	103387	Bracket		1.00	335SRVA
857	HS230	Hex. Socket Head Screw	M6x20L	2.00	335SRVA
858	HW005	Washer	M8	4.00	335SRVA
859	195083	Knob	1/4"X12L	1.00	335SRVA
860	103107	Scale		1.00	335SRVA
861	105211	Degree-Mark		1.00	335SRVA
862	103092	Shaft		1.00	335SRVA
863	103162	Down Bracket		1.00	
864	103164	Screw Plate		1.00	
865	HS519	Cross Round Head Screw	M5X10L	2.00	
866	103163	Bracket		1.00	
867	HS509	Cross Round Head Screw	M4X10L	4.00	

MANUFACTURER:
ADDRESS:
SERIAL No.:

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