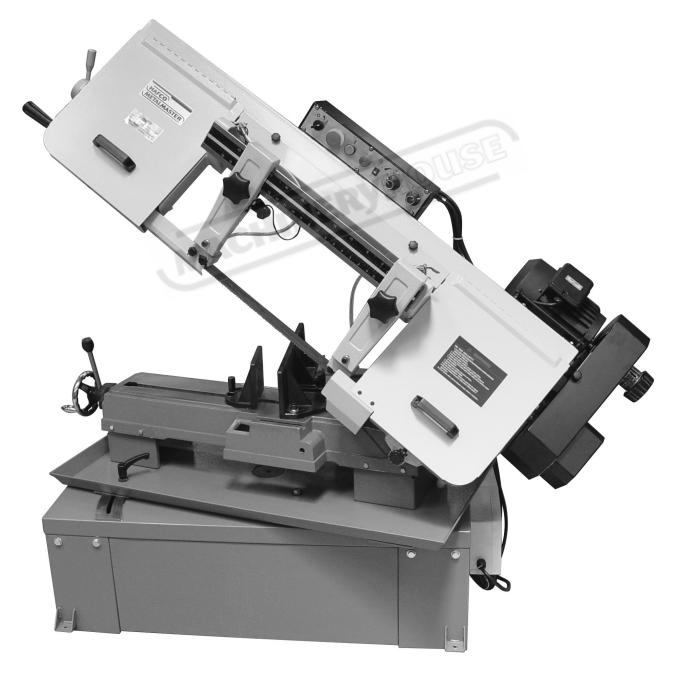
# **INSTRUCTION MANUAL**

# BS-10LS

# Swivel Head Metal Cutting Band Saw (415V) 468 x 250mm (W x H) Rectangle

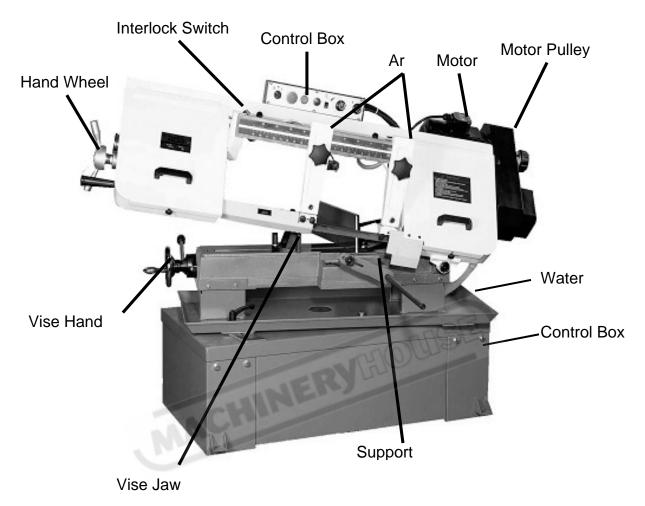


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# **Overall Aspect**



# CAUTION

Install saw blade and blade guard before use. Set proper blade tension to prevent any danger caused by damaged saw blade or work piece.

# 1 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 recommends 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.

### **ULES 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 foot wear 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.

#### **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 aill 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 use 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 work day.

(7).**CHECK COOLANT DAILY** Low coolant level can cause foaming and high blade temperatures. Dirty or week coolant can clog pump, cause crooked. Cust, 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 it's function frequently.

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 SPECIFICATION**

MOTOR		2HP(1.5KW)		
Saw Blade Speed			60Hz	35-60-88-115 MPM (114-196-288-377 FPM)
	or S mode		50Hz	29-50-73-96 MPM (95-164-239-314 FPM)
	Blade Sp		60Hz	35~115 MPM (114~377 FPM)
(fo	(for SV model)		50Hz	29~96 MPM (95~314 FPM)
Bla	de Size(n	nm)	27 x 0.9 x 3090	
Dimensio	n L x W z	к H (mm)	67" x 25" x 42"/1700x635x1067	
Dealzing	N.W	/ G.W (kgs)	350 / 380	
Packing	Measurement		1740 x 762 x 1143 mm	
	0°	° (mm/inch)	250 / (10")	
Cutting	0	□ (mm/inch)	250 x 468 ( 10 "x18 3/8")	
Capacity	1. 150	° (mm/inch)	241.3 (9 1/2")	
	+ 45°	□ (mm/inch)	241.3 x 250.4 (9 1/2"x10")	

### **3 TRANSPORTATION OF MACHINE:**

# Unpacking

- 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

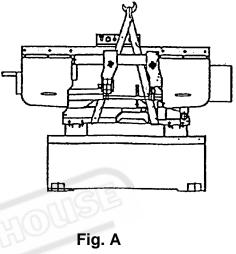
ALLWAYS KEEP PROPER FOOTING & BALANCE WHILE MOVING THIS MACHINE.

# Installation:

As this machine weights 310 kg. It is recommended that the machine shall be transported, with help of lifting jack.

# **Transportation Recommendation:**

- (1). Tighten all locks before operation.
- (2). **ALWAYS** Keep proper footing & balance while moving this 310kgs machine, and only use heavy duty fiber belt to lift the machine as Fig. A
- (3). TURN OFF the power before wiring, & be sure machine in proper grounding, Overload & circuit breaker is recommended for safety wiring.
- (4). Tighten 4 bolts to base holes after machine in balance.
- (5). **CHECK** carefully if the saw blade is running in counter-clock wise direction it not reverse the wiring per circuit diagram then repeat the running test.
- (6). **KEEP** machine always out from sun, dust, wet, raining area.

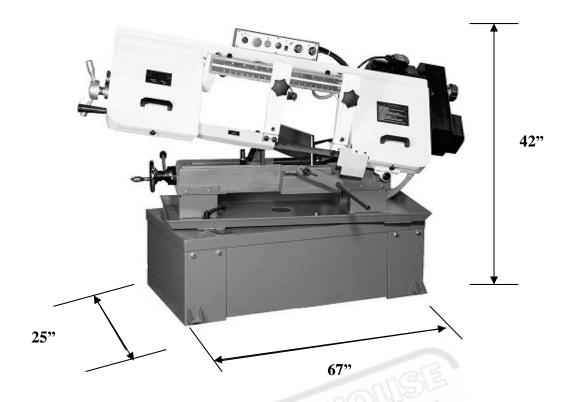


# **CLEAIG & LURICATING**

(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.

#### 4 MINIMUM ROOM SPACE FOR MACHINE OPE

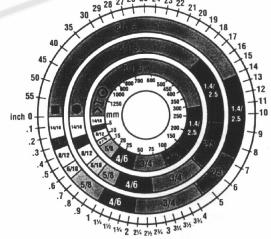


#### **5 MAKE PROPER TOOTH SELECTION**

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 workpiece until it leaves the workpiece, and

1. The shape of the workpiece.

# • 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 Sollds (Symbol : • )

Locate the diameter of your workpiece 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, Structurals( Symbol : O H ^ )

Determine the average width of cut by dividing the area of the workpiece 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<sup>2</sup>) 3"(75 mm) ID = 7.0 sq.ln. (44cm<sup>2</sup>) Area = 5.5 sq.ln. (35cm<sup>2</sup>)

5.5 sq.ln.  $(35 \text{ cm}^2) / 4$ " (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.

### 6 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 (I0/I4 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	BAND S	SPEED
	ASTM NO.	FT./MIN	M/MIN
Copper	173,932	314	96
Alloy	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	1117	339	103
Steel	1137	289	88
	1141,1144	279	85
	1141 HI STRESS	279	85
	1030	329	100
	1008,1015,1020,1025	319	97
	1035	309	94
	1018,1021,1022	299	91
. N	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	8615,8620,8622	239	73
Alloy Steel	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	420	189	58

Page 12	

Steel			
	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 indicator 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.

SPEED

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

# 7 CONNECTING SAW TO POWER SOURCE

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

Before connecting your machine to an electrical power system, be sure the motor rating agrees with the electrical system it is to be connected to. We recommend that #14 wire, fused with a 16 amp, dual element, time lag fuse, 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.





#### 8 STARTING AND STOPPING MACHINE

- 1. Raise the saw frame to the up position.
- 2. The machine is started by pushing the start button (C) Fig. 2. And it will continue to run until the saw arm is in



Fig. 2

stop button

- (D) is pushed. 3. When in emergency push button (D) to stop the machine. After removing the trouble, release emergency button, re-start the machine by pushing the start button (C).
- 4. When using the coolant turn the select button (A) to the right.

the down position at the end of the cut, or when the

5. To adjust the feeding rate when in cutting, turn the volume valve (F) clockwise for faster feeding, counterclockwise for slower feeding. When volume valve (F) has been properly adjusted, turn the control valve (G) to handle saw arm action, (H) is infrared rays switch.

6. An automatic shut-off limit switch is provided to stop the motor when the cut is completed. The limit switch (D) is controlled by a lever Fig. 3, which contacts the top of the hydraulic cylinder (E) shutting off the motor and coolant pump.

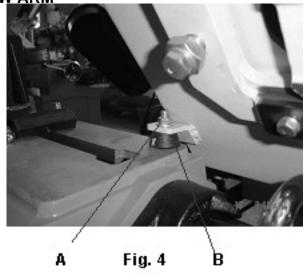
7. If the motor stops before the cut is completed or con-tinues to run after the cut is completed, the limit switch(D) Fig. 3. Can be adjusted up or down by loosening the two screws (F).



Fig. 3 D

### 9 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 are 1/16" below the tab-le surface. If an adjustment is necessary, loosen lock nut (A) Fig. 4. And turn stop screw (B) in or out until the correct adjustment is made. Then tighten lock nut (A).



#### 10-1 CHANGING SPEEDS AND ADJUSTING BELT TENSION (For 1018S)

Your machine is provided with a range of four speeds: 35,60, 88 and 115 MPM feet per

minute. To change speeds, pro-ceed as follows:

- 1. Disconnect the machine from the power source.
- Release tension on the belt by loosening the tension lock knob(A). Fig. 5 . And letting the motor swing forward.
- 3. Loosen belt guard screw (D) Fig. 6.
- 4. Shift the belt (G) Fig. 6. To the desired grooves on the pulleys. When the belt is or) the largest step of the motor pulley (E) and the smallest step of the gear box pulley (F) the speed with be 275 feet per minute. When the belt is on the smallest step of the motor pulley (E) and the largest step of gear box pulley (F) the speed will be 50 feet per minute.
- Adjust belt tension by pivoting the motor to the rear until there is approximately 1/2" deflection of the belt at the center span of the pulleys using light finger pressure. Then tighten tension lock knob(A). Fig. 5 . And close belt and pulley guard.

# 10-2.CHANGING SPEEDS AND ADJUSTING BELT TENSION ( For 1018SV)

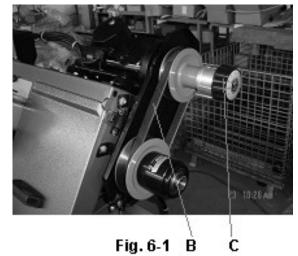
If the belt (B) (Fig 6-1) is too loose, Loosen screw nut (A)(Fig5) adjust the screw to proper tension and lock the screw nut. The cutting speed is controlled by speed change C (Fig 6-1). Turn it clockwise to decrease the cutting speed and increase the cutting speed by turning counter-clockwise. Change speed always when motor is running, and be sure the belt cover is always in locked position.



Fig. 5

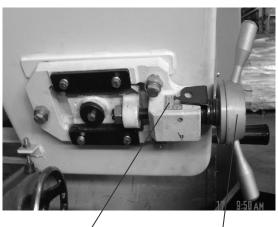
A





#### **11 ADJUSTING BLADE TENSION**

To tension the blade, lift up the left wheel cover and turn the blade tension handle (A) Fig. 8, 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 car-bon blades (similar to the one supplied with the machine) the blade should be tensioned at 20,000 psi. For bi-metal blades, the blade



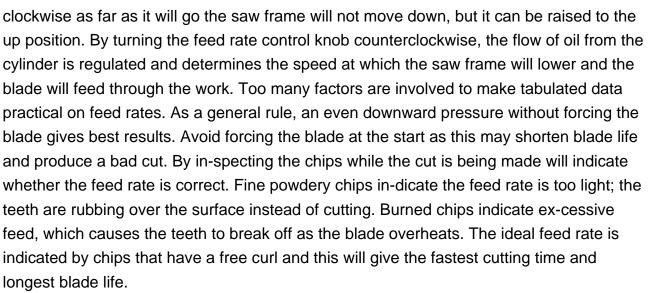
should be tensioned at 30,000 or 35,000 psi. Always release Fig. 8 Α blade tension at the end of each work day to prolong blade life.

### 12 ADJUSTING BLADE GUIDE SUPPORT ARM

The blade guide support arm (A) Fig. 10, should be set as close to the workpiece as possible. To move the sup-port arm, first loosen clamp knob (B). move the support arm (A) into relationship with the workpiece. When you are sure the support arm will not interfere with the workpiece, first tighten clamp knob (B).

#### **13 ADJUSTING FEED RATE**

When the feed rate control knob is turned



A

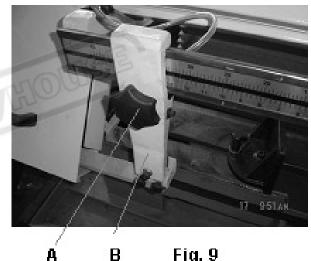


Fig. 9

# 14 ADJUSTING CUTTING PRESSURE OF SAW ARM

The cutting pressure of the saw arm has been set at the factory and should not need further adjustment. If adjustment should ever become necessary, lower the saw arm to the horizontal position. Loosen locknut (A) Fig.11. until the pressure is increased or decreased.

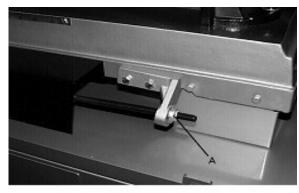
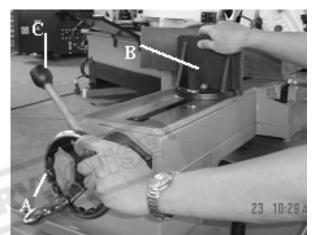


Fig. 11

### **15 OPERATING AND ADJUSTING VISE**

The workpiece is placed between the vise jaws with the amount to be cut-off extending out past the blade. Simply turn hand wheel (A) counterclockwise 1/2 turn and move `the vise jaw (B) to the desired position. Then tighten the vise jaw (B) against the workpiece by turning hand wheel clockwise. The vise can be adjusted to cut any angle from a straight 90 degree cut-off to a 45 degree



angle by loosening the two sp ring-loaded clamp handles (one located Fig.12 on each vise jaw), positioning the vise jaws to the desired angle and tightening the tow spring-loaded handles.Part C is for quick locking.As the

work piece is fix in the vise part C help operator for locking the work piece without rolling the wheel. The right vise jaw is provided with positive stops to instant-ly position the jaw at 90 or 45 degrees. To check and adjust the positive stops, roceed as follows:

- Pivot the right vise jaw (C) Fig. 13. All the way to the right, and lock spring loaded clamp handle (D).
- 2. Using a combination square (E), place one end of the square against the vise

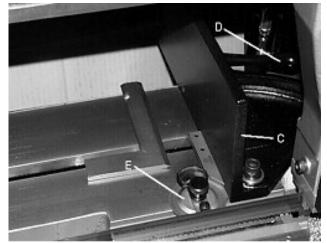


Fig. 13

jaw and the other end against the blade as shown in Fig. 13. Check to see if the vise jaw is 90 degrees to the blade.

3. If an adjustment is necessary loosen clamp handle (D) Pig. 14. Loosen set screw (F) and turn adjusting screw (G) until the vise jaw is 90 degrees to the blade.NOTE: turn screw (G) from the opposite end, through the face of the vise jaw. End of screw (G) should contact stud of clamp handle(D) when vise jaw is 90 degrees to the blade. Then tighten set screw (F). 4. If an adjustment is necessary, loosen clamp handle (D) Pig. 14. Loosen set screw (H) and turn adjusting screw (K) until the vise jaw is 45 degrees to the blade. NOTE: end of screw (K) should contact stud of clamp handle when vise jaw is 45 degrees to the blade. Then tighten set screw (H).

- Pivot the right vise jaw (C) all the way to the left, as shown in Fig. 15, and lock spring loaded clamp handle (D).
- 6. Using a combination square (E), place one end of the square against the vise jaw and the other end against the blade, as shown in Fig. 15. And check to see if the vise jaw is at 45 degrees to the blade.

#### **16 COOLANT**

The use of proper cutting fluid is essential to obtain max-imum 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 (B) Fig. 16 which directs the coolant onto the blade at (C). The lever (B) is shown in the off position.

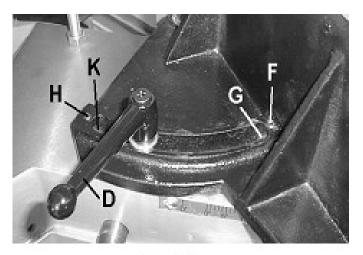


Fig. 14

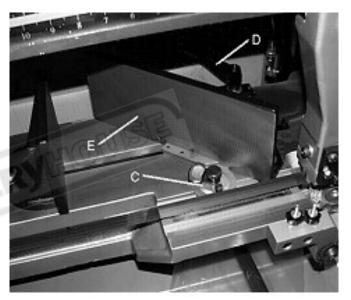
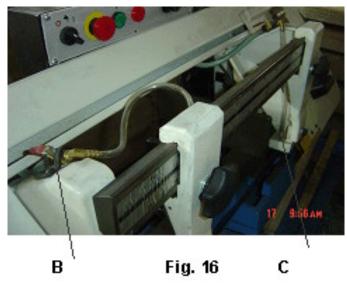


Fig. 15



#### **17 ADJUSTING STOCK ADVANCE STOP**

The stock advance stop is used mainly when more than one piece of work is to be cut to the same length. Simply position the stop (A) Fig. 17 the desired distance away from the blade. The stop may be repositioned by loosen-ing lock screw (E) and moving the rod (C) in or out accord-ingly. Then tighten lock screw (&). Fine adjustment to the stop can be made by loosening nut (D) and turning stop screw (A). To move the stop (A) out of the way, loosen set screw (E) and move arm (F) to the down position.

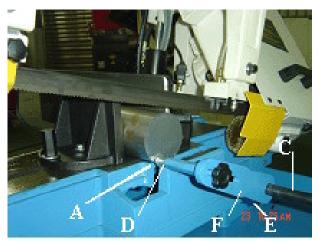


Fig.17

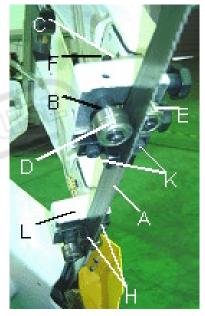
# 18 ADJUSTING BLADE GUIDE ROLLER BEARINGS, CARBIDE BLADE GUIDES AND BACK-UP BEAR'INGS

Before making the following adj~stments make sure the blade is tracking and tensioned roperly:

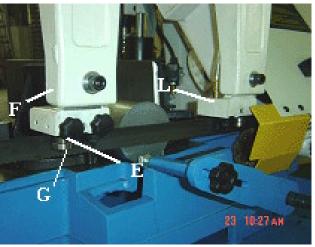
 The back of the blade (A) Fig. 18, should ride against the back-up bearing (B). To adjust, loosen set screw (C) and move the bearing (B) up or down until it lightly touches the back of the blade.

2. The saw blade (A) should also ride between and lightly touch the two blade guide roller bearings (D) and (E) Fig.18. The front bearing (E) Fig. 18 and 19, is mounted on an eccentric and can easily be adjusted to suit blade thickness by loosening set screw (F) and turning shaft (G) Fig. 19.

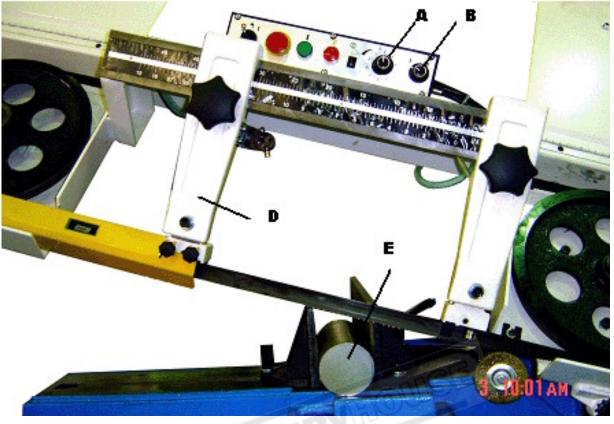
- The carbide blade guides (H) Fig. 18, should also be adjusted so they lightly touch the blade by loosening screws (K).
- The blade guide roller bearings, carbide blade guides and back-up bearing on holder (L) Fig. 18 and 19 should be adjusted in the same manner.



**Fig.18** 



**Fig.19** 

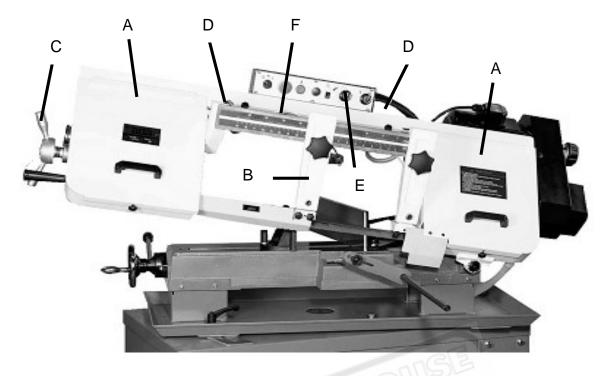


#### **19 SETTING UP THE MACHINE FOR OPERATION**

Fig. 20

- 1. Select the proper speed and blade for the type of material you are cutting.
- 2. Make sure the blade tension is adjusted properly.
- 3. Raise the saw frame and close the feed ion/off knob (E) Fig. 20.
- 4. Place the stock (B) Fig. 20, between the vise jaws. Adjust the stock for the desired length of cut and tighten the vise clamping hand wheel (C).
- 5. Make sure the blade guide arm (D) Fig. 20, is adjusted as close as possible to the workpiece.
- 6. Turn the machine on and adjust the coolant flow.
- 7. Turn the feed rate control knob (A) Fig. 20, counterclockwise until the saw blade begins to lower at the desired rate of speed.
- 8. Proceed to cut through the workpiece. The motor and coolant pump will shut off upon completion of the cut.
- 9. After adjusting the down speed (A), the saw frame position and down movement are controlled by (E) on/off knob.

#### 20 REMOVING AND INSTALLING THE BLADE



# Fig. 21

When it becomes necessary to replace the blade. Proceed as follows:

- 1. Disconnect the machine from the power source.
- 2. Raise the saw frame about 6" and close the feed on ioff knob (E) Fig 21, by turning it clockwise as far as it will go."
- 3. Move the blade guide arm (B) to the right, as shown in Fig. 21.
- 4. Loosen two screws (D) and open upper blade guard (F) Fig. 21.
- 5. Open both wheel covers (A) Fig. 21, and clean the swarf out of the machine
- Release blade tension by turning the blade tension handwheel (C) Fig. 21. Counterclockwise.
- 7. Remove the blade from both wheels and out of each blade guide.
- 8. Make sure the teeth of the new blade are pointing In the right direction. If necessary, turn the blade inside out.
- 9. Place the new blade on the wheels, in the blade guides and adjust blade tension and blade guides.

#### 21 GEAR BOX

The gear box 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 (A.G.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 box oil, proceed as follows:

1. Run the machine for 10 minutes to warm up the gear box.

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 gear box by removing screw (A) Fig. 24.

5. Replace screw (A) Fig.24. and lower the saw arm to its lowest position.

6. Remove oil breather nut (B) Fig.25.

7. Fill the gear box with oil through the oil hole

(B) until the oil reach 1/3 volume in the oil

window. Then replace oil breather nut (B).

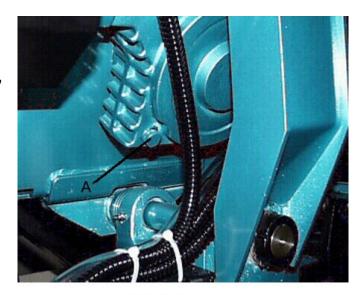


Fig. 22

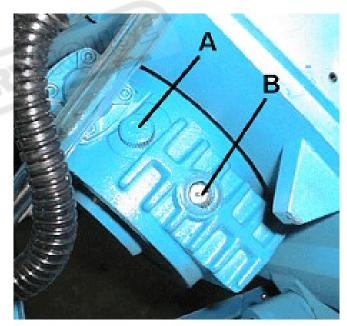


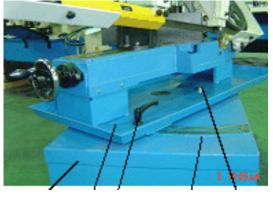
Fig. 23

Fig.24

Fig.25

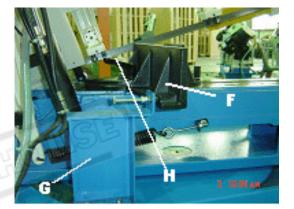
# 22 Instruction of Water Plate swivel Structure and operation

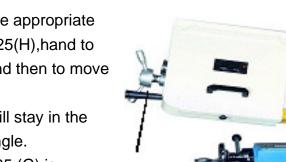
1.The structure of swivel is connection of the water plate (D) and stand (E), (B) as swivel center, the center (B) is at the same vertical position with fixing vise center (F). This kind of design is using 2 rails on the stand and the bottom of the water plate doing the swivel. The biggestswivel angle is 45 degree.



DEA CB

2. When swivel to the cutting angle you want, use the handle (A) to do the locking (clock direction is to lock, anti-clock direction is to loosen). To lock the water plate is preventing the vibration during the cutting; and increase the stability of the cutting.





3.When the operator swivel the bow to the appropriate angle, first is to loosen the handle Fig.25(H),hand to grasp body frame on knob, Fig.26(I),and then to move the body,

When the body is swiveling, the vise will stay in the same position with the same cutting angle.

That is the purpose of the design. Fig.25 (G) is position

bracket. It is for locking the vise and keep the vise at the same angle and position.

Fig.26

21

# 23 TROUBLE SHOOTING

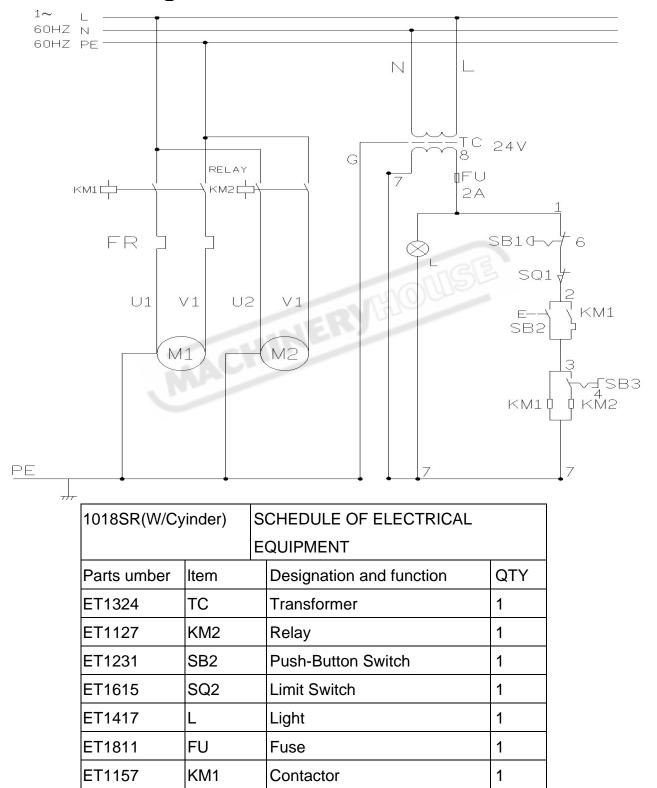
Symptom	Possible Cause(s)	Corrective Action
Machine can not be started	<ol> <li>Power is not plugged; the power light on control panel is not on.</li> <li>Motor can not be started; power was cut by limit switch.</li> <li>Operation button can not be normally operated.</li> </ol>	<ol> <li>Check the motor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

		reducing spring tension
	6.Blade twist	6. Replace with a new blade,
		and adjust blade tension
	7. Insufficient blade	7. Tighten blade tension
		adjustable knob
	8. Blade slide	8. Tighten blade tension
Unusual Wear on	1. Blade guides worn.	1. Replace.
Side/Back of Blade	2. Blade guide bearings not	2. Adjust as per operators
	adjust properly	manual
	3. Blade guide bearing bracket	3. Tighten.
	is loose	
Teeth Ripping from	1. Tooth too coarse for work	1. Use finer tooth blade.
Blade.	2. Too heavy pressure; too slow	2. Decrease pressure,
	speed.	increase speed
	3. Vibrating work-piece.	3. Clamp work piece
	4. Gullets loading	securely
	3	4. Use coarser tooth blade or
		brush to remove chips.
Motor running too hot	1. Blade tension too high.	1. Reduce tension on blade.
juli juli j	2. Drive belt tension too high.	2. Reduce tension on drive
	3. Blade is too coarse for work	belt.
N	4. Blade is too fine for work	3. Use finer blade.
C.	5. Gears aligned improperly	4. Use coarse blade.
		5. Adjust gears so that worm
	6. Gears need lubrication	is in center of gear.
	7. Cut is binding blade	6. Check oil path.
		7. Decrease reed anti speed
Bad Cuts (Crooked)	1. Feed pressure too great.	1. Reduce pressure by
		increasing spring tension
		on side of saw
	2. Guide bearings not adjusted	2. Adjust guide bearing, the
	properly	clearance can not greater
	P. 00011	than 0.001.
	3. Inadequate blade tension.	3. Increase blade tension by
		adjust blade tension
	4. Dull blade.	4. Replace blade
	5. Speed incorrect.	5. Adjust speed
		<ol> <li>Adjust speed</li> <li>Adjust guides space.</li> </ol>
L	6. Blade guides spaced out too	o. Aujusi yulues space.

	much	7. Tighten
	7. Blade guide assembly loose	8. Re-track blade according
	8. Blade truck too far away from	to operating instructions.
	wheel flanges	
Bad Cuts (Rough)	1. Too much speed or feed	1. Decrease speed or feed.
	2. Blade is too coarse	2. Replace with finer blade.
	3. Blade tension loose	3. Adjust blade tension.
Blade is twisting	1. Cut is binding blade.	1. Decrease reed pressure.
	2. Too much blade tension.	2. Decrease blade tension.



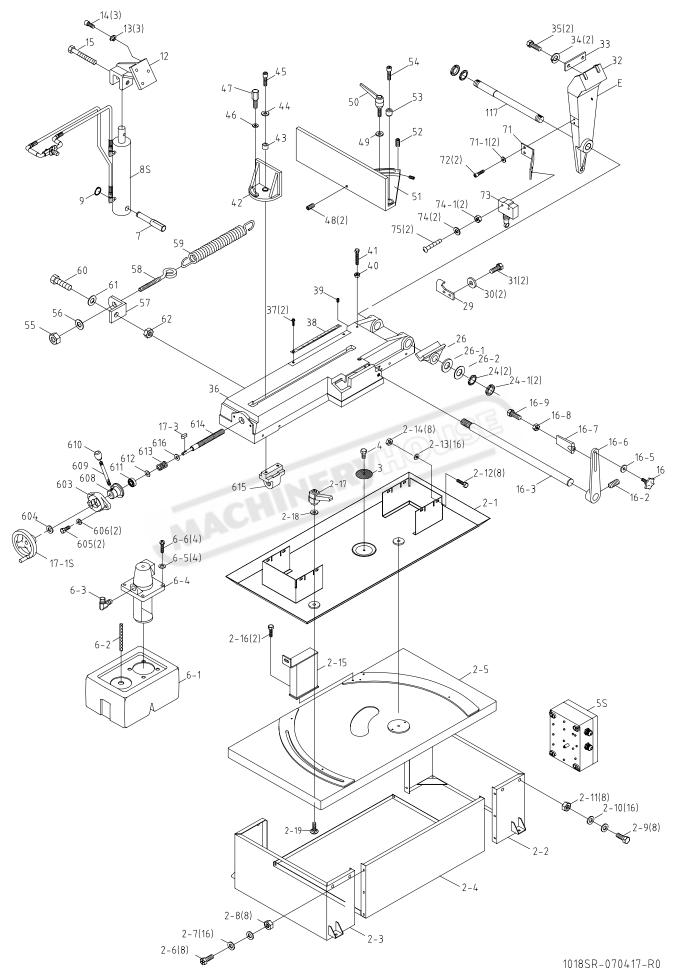
# 24 Circuit Diagram

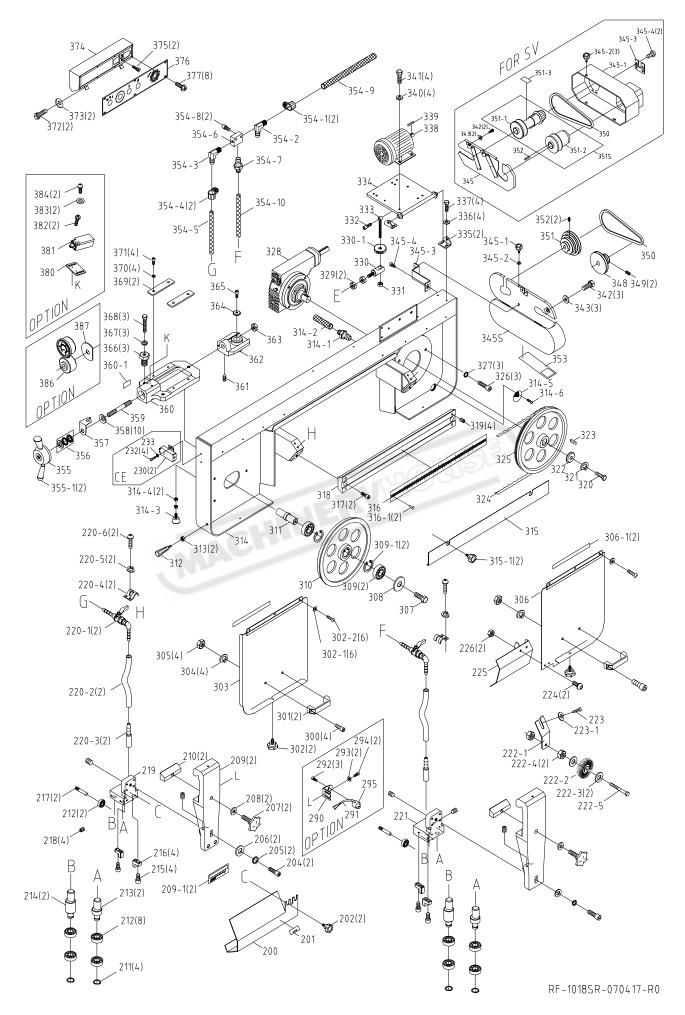


ET2019	FR Overload		1
ET1245	SB1	Emergency Stop	1
ET1235	SB3	Pump Switch	1



# **25. PARTS LISTS**





			DECONTRACT	~ <b>~~·</b>	
CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE
2S	189001RS	Stand Complete Assembly		1	
2-1	189001RA	Coolant Pan		1	
2-2	189001R1	Leg(Right)		1	
2-3	189001R2	Leg(Left)		1	
2-4	189001R3	Panel		1	
2-5	189001R4	Swivel Base		1	
2-6	S204	Cross Hex. Head Screw	1/4"-20*3/4"L	8	
2-7	W005	Washer	1/4"x16xt1.5	16	
2-8	N003	Hex. Nut	1/4"-20	8	
2-9	S010	Hex. Head Screw	3/8"-16*1"L	8	
2-10	W013	Washer	3/8"x20xt2	16	
2-11	N005	Hex. Nut	3/8"-16	8	
2-12	HS050	Hex. Head Screw	M8-1.25Px40L	8	
2-13	W016	Washer	5/16"x23x2mm	16	
2-14	HN005	Hex. Nut	M8	8	
2-15	187034	Angle Position		1	
2-16	HS051	Hex. Head Screw	M8-1.25Px30L	2	
2-17	111039	Knob		1	
2-18	HW030	Washer	M10x27x2t	1	
2-19	HS935	Carriage Screw	M10x33L	1	
3	191106A	Filter		1	
4	HS033	Hex. Head Screw	M6-1.0Px15L	1	
5S	ET1923S	Control Box		1	
6S	MB13103JS	Pump Set	1/8HP 115/230V 1P 130MM	1	
6-1	181256	Coolant Tank		1	
6-2	189061	Hose	13x19-350mm	1	
6-3	103125-4	Coupler	PT1/2x3/8	1	
6-4	MB13103J	Pump	1/8HP/110V/220V/1PH	1	
6-5	W004	Washer	1/4"x19xt1.5mm	4	
6-6	S717	Cross Round Head Screw	1/4"-20*5/8"L	4	
7	189036	Pivot Shaft		1	
8S	187065BS	Cylinder Assembly		1	
9	HCS07	C-Retainer	S18	1	
12	189025	Cylinder Upper Bracket		1	
13	W205	Spring Washer	5/16"-2.0t	3	
14	HS244	Hex. Head Cap Screw	M8-1.25Px30L	3	
15	HS064	Hex. Head Screw	M10-1.5Px50L	1	
16S	189037S	Length StOption Set		1	
16-2	HS422	Hex. Headless Screw	M6-1.0Px10L	1	
16-3	189037	DistanFor CE Only Set Rod		1	
16-4	196213	Plum Screw		1	
10-7	170215			T	

CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE
16-5	W004	Spring Washer	1/4"x19xt1.5mm	1	
16-6	189038	Support Rod		1	
16-7	1966008	DistanFor CE Only Set Brac	eket	1	
16-8	HN006	Hex. Nut	M10-1.5P	1	
16-9	HS059	Hex. Head Screw	M10-1.5Px25L	1	
17 <b>-</b> 1S	187055S	Handwheel		1	
	187055	Handwheel		1	
	189055R	Knob		1	
	HS422	Hex. Headless Screw	M6-1.0P6x10L	1	
17-3	HK007	Кеу	5x5x15L	1	
24	HW313	Star Washer	AW05	2	
24-1	1965043	Model Label	AN05	2	
26	189013	Gap Ring		1	
26-2	189085B	Washer		2	
26-1	189085	Washer		2	
29	196228	Position Set Bracket		1	
30	W018	Washer	5/16"x23xt3mm	2	
31	HS046	Hex. Head Screw	M8-1.25Px20L	2	
32	189012	Rear Pivot Bracket		1	
33	191219	Bushing		1	
34	HW106	Spring Washer	§ 10.2-3t	2	
35	HS061	Hex. Head Screw	M10-1.5Px35L	2	
36	189002G	Base		1	
37	HE501	Cross Tablet Head Screw	M5-0.8Px8L	2	
38	187064	Degree-Meter		1	
39	HS430	Hex. Headless Screw	M8-1.25Px10L	1	
40	HN005	Hex. Nut	M8-1.25P	1	
41	HS051	Hex. Head Screw	M8-1.25Px45L	1	
42	196208	Vise Jaw Bracket		1	
43	191209	Bushing		1	
44	HW023	Washer	ø10.5*ø21Xt2mm	1	
45	HS261	Hex. Head Screw	M10-1.5Px35L	1	
46	HW025	Washer	ø10.5*ø27Xt3mm	1	
47	189067	Fixed Bolt		1	
48	HS434	Hex. Headless Screw	M8-1.25Px30L	2	
49	HW025	Washer	ø10.5*ø27Xt3mm	1	
50	191210	Knob		1	
51	187033	Vise Jaw Bracket(Rear)		1	
52	HS422	Hex. Headless Screw	M6-1.0Px10L	1	
53	1966004	Bushing		1	
54	HS261	Hex. Head Screw	M10-1.5Px35L	1	

CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE
55	N005	Hex. Nut	3/8"	1	
56	W014	Washer	3/8"x23xt2	1	
57	181115	Spring Handle Bracket		1	
58	181118	Spring Adjusting Rod		1	
59	187068	Spring		1	
60	S022	Hex. Head Screw	5/16"x3/4"L	1	
61	W016	Washer	5/16"x23xt2	1	
62	N007	Hex. Nut	5/16"-18	1	
71	189034	Limit Switch Support		1	
71-1	HW004	Washer	ø6.5Xø18Xt1.5mm	2	
72	HS334	Hex. Head Screw	M6-1.0PX12L	2	
73	ET1617	Switch (For For CE Only Or	ıly)	1	
74	HW002	Washer	ø4.3Xø9Xt0.8mm	2	
74-1	HN002	Hex. Nut	M4-0.7P	2	
75	HS513	Cross Round Head Screw	M4-0.7P*30L	2	
117	187035	Pivot Shaft		1	
200	189023J	Blade Guard (Front)		1	
201	196504	Saw Direction Label		1	
202	103127	Knob	M6-1.0Px10L	2	
204	HS243	Hex. Head Screw	M8-1.25Px25L	2	
205	HI105	Spring Washer	ø8.2-2.5t	2	
206	HW005	Washer	ø8.4*ø17Xt1.6mm	2	
207	1965015	Blade Adjustable Knob		2	
208	HW023	Washer	ø10.5*ø21Xt2mm	2	
209	187020	Arm (Left)		2	
209-1	189077	Label		2	
210	1965014	Gib		2	
211	C100	C-Retainer	§8	4	
212	CA6082RS	Bearing	608-2RS	10	
213	189018	EcFor CE Onlyntric Guide		2	
214	189019	EcFor CE Onlyntric Guide		2	
215	HS230	Hex. Head Screw	M6-1.0Px20L	4	
216	103120	Carbide Guide		4	
217	121061	Bearing Shaft		2	
218	HS421	Hex. Headless Screw	M6-1.0Px5L	4	
219	189015	Bearing Bracket (Left)		1	
220S	189081S	Valve Assembly		2	
220-1	189081	Valve		2	
220-2	189088	Hose	<b>§</b> 6	2	
220-3	189083	Straight Connector		2	
220-4	189084	Press Board		2	

CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE
220-5	HW104	Spring Washer	§ 6.1*1.9	4	
220-6	HT016	Bulton Head Screw	M6-1.0P*12L	4	
221	189014	Blade Adjustable (Rear)		1	
222S	189022S	Brush Assembly		1	
222-1	189022	Brush Support		1	
222-2	191334A	Brush		1	
222-3	HW004	Washer	ø6.5Xø18Xt1.5mm	2	
222-4	HN004	Hex. Nut	M6-1.0P	2	
222-5	HS037	Hex. Head Screw	M6-1.0Px35L	1	
223	HS032	Hex. Head Screw	M6-1.0Px10L	1	
223-1	HW004	Washer	ø6.5Xø18Xt1.5mm	1	
224	HF404	Round Head Screw	M6-1.0PX12L	2	
225	189021	Blade Guard II (Rear)		1	
226	HN004	Hex. Nut	M6-1.0P	2	
230	189091	Switch Base	For For CE Only Only	1	For CE Only
232	HS032	Hex. Head Screw	M6-1.0P*10L	4	For CE Only
233	HW004	Washer	ø6.5Xø18Xt1.5mm	4	For CE Only
290S	189072S	Infrared Complete		1	Option
290	189074	Bracket, For For CE Only C	Dnly	1	Option
291	189072	Infrared		1	Option
292	HS558	Cross Round Head Screw	M5-0.8P*8L	3	Option
293	HW003	Washer	ø5.3*ø10Xt1mm	2	Option
294	HS558	Cross Round Head Screw	M5-0.8P*8L	2	Option
295	189073	Bracket		1	Option
300	HS241	Hex. Head Screw	M8-1.25Px15L	4	
301	1965052	Knob		2	
302	103127	Knob	M6-1.0Px10L	2	
302-1	HW003	Washer	ø5.3*ø10Xt1mm	6	
302-2	HT001	Round Head Screw	M5-0.8Px10L	6	
303	187027	Blade Back Cover		1	
303	187027E	Blade Back Cover		1	For CE Only
304	HW105	Spring Washer	ø8.2-2.5t	4	
305	HN005	Hex. Nut	M8-1.25P	4	
306	187026	Cover		1	
306	187026E	Cover		1	For CE Only
306-1	189079	Songe Pad		2	
307	HS046	Hex. Head Screw	M8-1.25Px20L	1	
308	HW027	Washer	ø30Xø16Xt3mm	1	
309	CA6205	Bearing	6025	2	
309-1	HCR06	C-Retaniner Ring	R52	2	
310	105021A	Idler Wheel		1	

CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE
311	187056	Shaft		1	
312	189033	Handle		1	
313	N005	Hex. Nut	3/8"	2	
314	187010	Body Frame		1	
314-1	HD602	Pipe Connector	PT1/2"	1	
314-2	189060	Net Tube	18*24-190mm	1	
314-3	189087	Screw	M8-1.25P	1	
314-4	HN005	Hex. Nut	M8-1.25P	2	
314-5	189080	Filter		1	
314-6	HT001	Round Head Screw	M5-0.8Px10L	1	
315	187021	Cover		1	
315-1	103127	Hex. Head Screw	M6-1.0Px10L	2	
316	187039	Scale		1	
316-1	HH001	Rivet	§ 2x5L	2	
317	HS278	Hex. Head Screw	M12-1.75P*20L	2	
318	1965011	Column		1	
319	HS432	Hex. Headless Screw	M8-1.25Px20L	4	
320	HS089	Hex. Head Screw	M12-1.75P*30L	1	
321	HW107	Spring Washer	ø12.2-3.6t	1	
322	198036	Drive Shaft Washer		1	
323	HK053	Кеу	8x8x30L	1	
324	1965027	Blade	25*0.9*3090*5/8Tmm	1	
325	196304	Drive Wheel	Key 8MM	1	
326	HS258	Hex. Head Screw	M10-1.5Px20L	3	
327	HW106	Spring Washer	§ 10.2-3t	3	
328	19116S-3	Gear Box Assembly	1:30,,,,Ø22,key=5X5 FOR Pull	1	
328	19116S-1	Gear Box Assembly	1:30,,,,Ø22,key=7X7	1	
329	HN006	Hex. Nut	M10-1.5P	2	
330	187069	Shaft		1	
330-1	189032	Knob		1	
331	HN007	Hex. Nut	M12-1.75P	1	
332	HS266	Hex. Head Screw	M10-1.5Px60L	1	
333	105076	Shaft		1	
334	105050B	Motor Plate		1	
335	105079	Motor Bracket		2	
336	HW004	Washer	ø6.5Xø18Xt1.5mm	4	
337	HS034	Hex. Head Screw	M6-1.0Px20L	4	
338	M601	Motor	2HP 110/220V 60HZ	1	
338	M601	Motor	2HP 110/220V 60HZ	1	
339	HK108	Кеу	7x7x35L	1	
339	HK108	Кеу	8x7x35L	1	

CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY N	OTE
340	HW005	Washer	ø8.4*ø17Xt1.6mm	4	
341	HS045	Hex. Head Screw	M8-1.25Px15L	4	
342	HS032	Hex. Head Screw	M6-1.0Px10L	3	
343	HW016	Washer	ø6.5Xø18Xt1.5mm	3	
345S	189059JS	Motor Pulley Cover Assemb	ly	1	
345-1	103127	Hex. Head Screw	M6-1.0Px10L	1	
345-2	HW004	Washer	ø6.5Xø18Xt1.5mm	1	
345-3	189086	Bracket		1	
345-4	HS228	Hex. Head Screw	M6-1.0Px10L	1	
345	1 <b>89059V</b>	Pulley Cover		1	
345-1	1 <b>89058V</b>	Pulley Cover		1	
345-2	103127	Hex. Head Screw	M6-1.0Px10L	3	
345-3	1966018	StOptionper		1	
345-4	HS812	Cross Tablet Head Screw	M5-0.8Px8L	2	
348	189029	Spindle Pulley	Ø22,key=5X5	1	
349	HS430	Hex. Headless Screw	M8-1.25Px10L	2	
350	189046	Belt	17-330	1	
350	1965045	Belt	1422/V330/22x22	1	
351	1965050B	Motor Pulley	Ø24key=7X7	1	
351S	1965032S	Variable Speed Pulley Set		1	
351-1	1965032	Variable Speed Pulley	Ø24key=8X7	1	
351-2	1965033	Spindle Pulley	Ø22,key=7X7	1	
351-3	1965073	Speed Indicator Dial		1	
352	HS430	Hex. Headless Screw	M8-1.25Px10L	2	
352	HK093	Key	7x7x37L	1	
353	1965072	Speed Indicator Dial		1	
354S	103127S	3 Way Valve Assembly		1	
354-1	103126-4	Hose Clamp	§ 12	2	
354-2	103127-6	Micro Control Block	PT1/4"x1/2"	1	
354-3	103127-6	Micro Control Block	PT1/4"x1/2"	1	
354-4	103125-5	Hose Clamp	§ 19	2	
354-5	103127-4	Net Tube	ID1/4"x2.2tx80cm	1	
354-6	105173	3 Way Valve		1	
354-7	103127-1	Straight Connector	PT1/4"x1/4"	1	
354-8	HS232	Hex. Head Screw	M6-1.0Px30L	2	
354-9	103127-3	Net Tube	ID1/4"x2.2tx143cm	1	
354-10	189062	Net Tube	ID1/4"x2.8tx32cm	1	
355	198051AJ	Blade Tension Handle		1	
355-1	198086J	Knob		2	
356	CA51203	Bearing	51203	1	
357	189053	Tension Indication Ring		1	

CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE
358	198093	Spring Washer	§ ID16.3X § 31.5X1.8t	10	
359	198026	Leadscrew		1	
359	187067	Leadscrew		1	Option
360	189050	Tension		1	
360-1	189041	Tension Scale		1	
361	HS423	Hex. Headless Screw	M6-1.0Px15L	1	
362	189051	Anchor Block		1	
363	HN008	Hex. Nut	M16XP2	1	
364	121011	Washer		1	
365	HS242	Hex. Head Screw	M8-1.25PX20L	1	
366	189054	Screw		3	
367	HW106	Spring Washer	§ 10.2-3t	3	
368	HS066	Hex. Head Screw	M10-1.5Px60L	3	
369	189052	Press Board		2	
370	HW105	Spring Washer	ø8.2-2.5t	4	
371	HS240	Hex. Head Screw	M8-1.25Px10L	4	
372	HF024	Hex. Head Screw	M6-1.0Px12L	2	
373	W005	Washer	1/4"x16xt1.5	2	
374	187022	Control Box		1	
375	HS622	Flat Cross Head Screw	M6-1.0Px12L	2	
376	187023	Control Plate		1	
376	187023A	Control Plate		1	Option
377	HE501	Cross Tablet Head Screw	M5-0.8Px8L	8	
380S	198150MS	Micro Switch Assembly		1	Option
380	198150M	Micro Switch Bracket		1	Option
381	ET-1615	Micro Switch		1	Option
382	HS513	Cross Round Head Screw	M4-0.7Px30L	2	Option
383	HW005	Washer	M5	2	Option
384	HS219	Hex. Head Screw	M5X15L	2	Option
386	198170	Scale		1	Option
387	187066	Clamp For For CE Only Only		1	Option
600S	193055S	Presure Lump Assembly		1	
603	193055	Presure Lump		1	
604	HW007	Washer	§ 12*t2	1	
605	S013	Hex. Head Screw	3/8"*1-1/4"L	2	
606	W013	Washer	3/8"*20*t2	2	
608	193056	Presure Shaft		1	
609	193059	Knob W/Shaft		1	
610	290086	Plastic Round Knob	\RF31\	1	
611	CA51101	Bearing		1	
612	HW007	Washer	§ 12*t2	1	

PARTS LIST MODEL NO. 1018SR-SRV							
CODE_NO	PART_NO	SPECIFICATION	DESCRIPTION	QTY	NOTE		
613	193058	Spring		1			
614	187028	Acme Screw		1			
615	181138B	Acme Nut	m.m	1			
616	W002	Washer	1/2"*28*t2	1			



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# MANUFACTURER: ADDRESS: SERIAL No.:

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