METAL CUTTING BAND SAW MACHINE

MODEL: 270S

INSTRUCTION MANUAL

050110-R0

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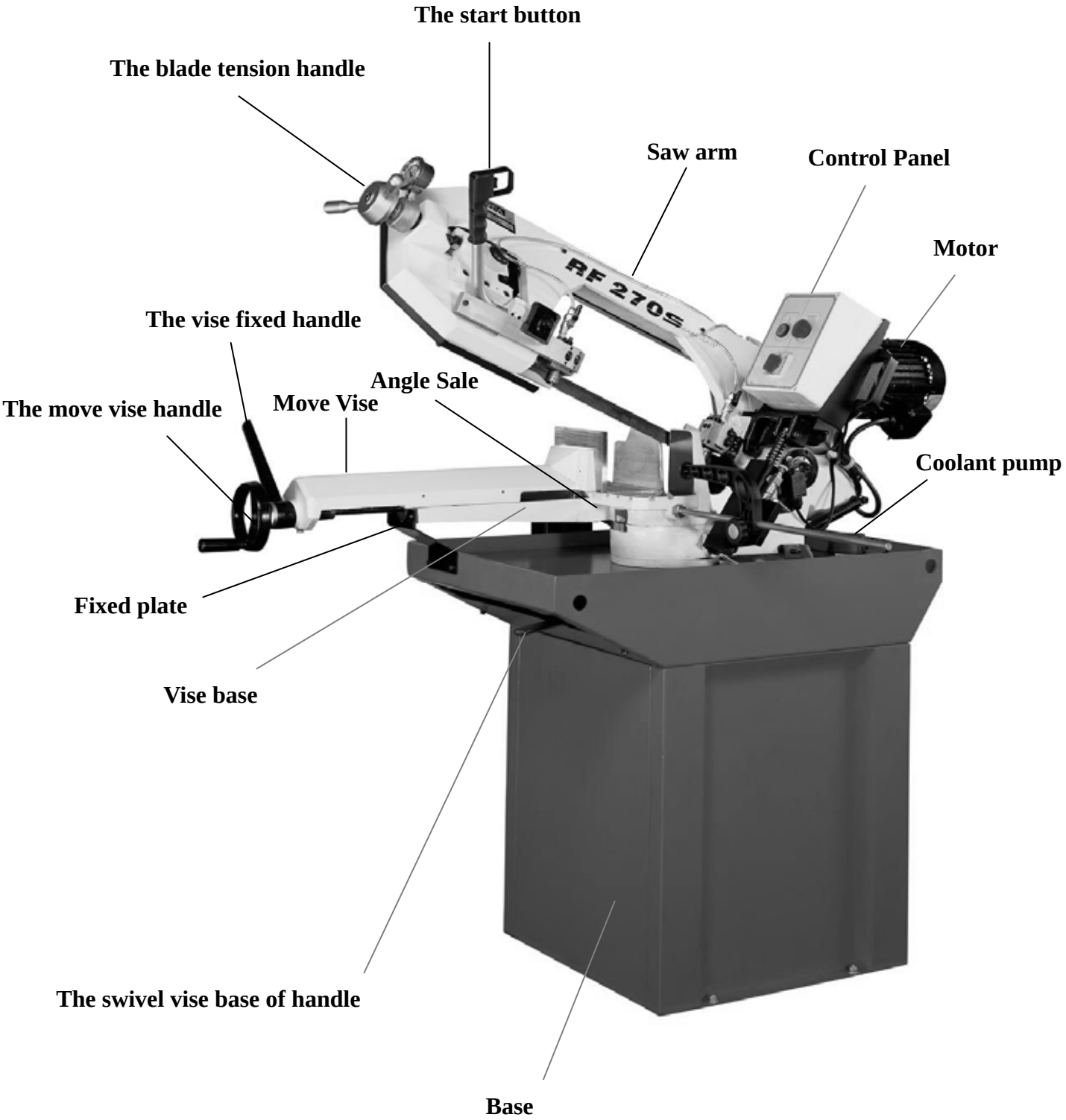
CAUTION

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.Overall Aspect



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

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

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

2.SAFETY RULES FOR ALL TOOLS

A. USER:

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

B. USE OF MACHINE:

(1). **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".
(2). **DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.
(3). **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.
(4). **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand frees both hands to operate tool.
(5). **MAINTAIN TOOLS IN TOP CONDITION**. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
(6). **USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause hazards.
(7). **AVOID ACCIDENTAL STARTING.** Make sure switch is in **"OFF"** position before plugging in power cord.
(8). **DIRECTIONOF FEED**. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
(9). **ADJUST AND POSITION** the blade guide arm before starting the cut.
(10). **KEEP BLADE GUIDE ARM TIGHT**, A loose blade guide arm will affect sawing accuracy.
(11). **MAKE SURE** blade speed is set correctly for material being cut.
(12). **CHECK** for proper blade size and type.
(13). **STOP** the machine before putting material in the vise.
(14). **ALWAYS** have stock firmly clamped in vise before starting cut.
(15). **GROUNDALL TOOLS**. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate atwoprong receptacle, the adapter lug must be attached to a known ground. Never removed the third prong.

C. ADJUSTMENT :

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

D. WORKING ENVIRONMENT:

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

E. MAINTENANCE:

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

F. SPECTIFIED USAGE:

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

G. NOISE:

A weighted sound pressure level : under80 dB.

H. SAFETY DEVICE:

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

3.SPECIFICATION

<table>
<tr><td colspan="2">MOTOR</td><td colspan="2">1.5HP</td></tr>
<tr><td rowspan="2">Saw Blade Speed</td><td rowspan="2">2 Speed Motor</td><td>60Hz</td><td>48 ~ 96 MPM</td></tr>
<tr><td>50Hz</td><td>40 ~ 80 MPM</td></tr>
<tr><td colspan="2">Blade Size(mm)</td><td colspan="2">27x0.9x2450</td></tr>
<tr><td colspan="2">Dimension L x W x H (mm)</td><td colspan="2">1420x510x1380</td></tr>
<tr><td rowspan="3">Packing</td><td>N.W. / G.W. (kgs)</td><td colspan="2">216 / 246</td></tr>
<tr><td>Measurement</td><td colspan="2">1400x560x755</td></tr>
<tr><td>Sets per 20’ CTNR</td><td colspan="2">48 sets</td></tr>
</table>

Cutting Capacity	0°	◯(mm/inch)	225 / 8.75 “
		□(mm/inch)	200x200 / 7.8“x7.8“
	+ 45°	◯(mm/inch)	160 / 6.25“
		□(mm/inch)	140x140 / 5.5“x5.5“
	+60°	◯(mm/inch)	90 / 3.5“
		□(mm/inch)	90x90 / 3.5“x3.5 “

4.FEARTURES:

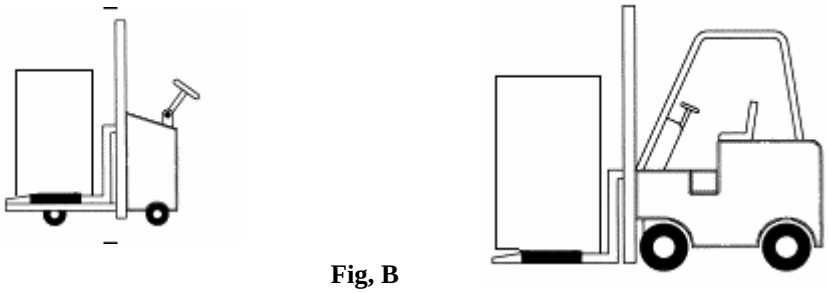
1. This machine is useful for cutting normal steel, steel pipe, and provides cutting angle at + 60° and +45° by the swivel head.
2. A tooth selection chart was provided on the machine for cutting reference.
3. Variable speed control gives convenient selection of speeds. (This machine comes with a standard 2-speed motor. But can be purchased with a DC driven motor as an option.)
4. This machine is using manual cutting by pulling down the saw bow by hand. Start(press) button is located at the handle of the saw bow. Motor stops when button was released.
5. Stability of the machine, plus working table height is 950 mm, conforming to human engineering.
6. The one-inch blade and carbide guide provide better result of the cutting surface and efficiency.
7. The one-piece casting and one time CNC processing provide better rigidity and precision of the machine.
8. The one-piece and full coverage blade cover conforms to CE stipulation. Well coolant fluid collection system provides clean and dry, and safety of the working area.
9. Chip pan underneath the working table prevents coolant fluid leaking and keep floor dry.
10. Coolant for cutting,, water : oil = 40 : 1 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 208kgs(458.6lbs) 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. A.
3. **TURN OFF** the power before wiring & be sure machine is properly grounded. Overload & circuit breaker are recommended for safety wiring.
4. **Tighten** 4 bolts to base holes after machine is balanced.
5. **Check** carefully if the saw blade is running in counter-clockwise direction if not, reverse the wiring per circuit diagram,

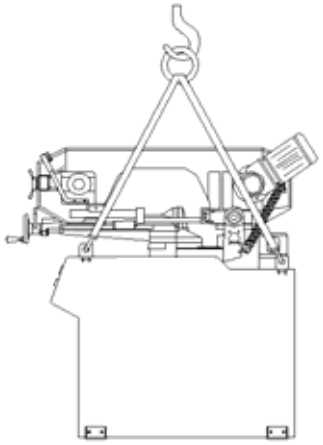


Fig. A

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 208kgs machine. And only use heavy-duty fiber belt to lift the machine as per Fig. (B).

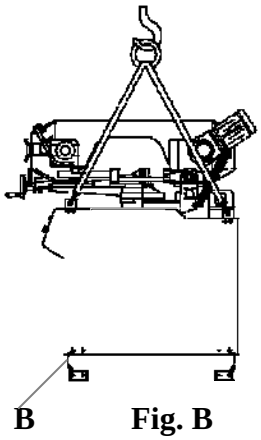
(2) Hang the machine up, away from the floor, take away the 4 pads and assemble them on the auxiliary stand. Fix the machine on the auxiliary stand and lock the connection nut.

(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.



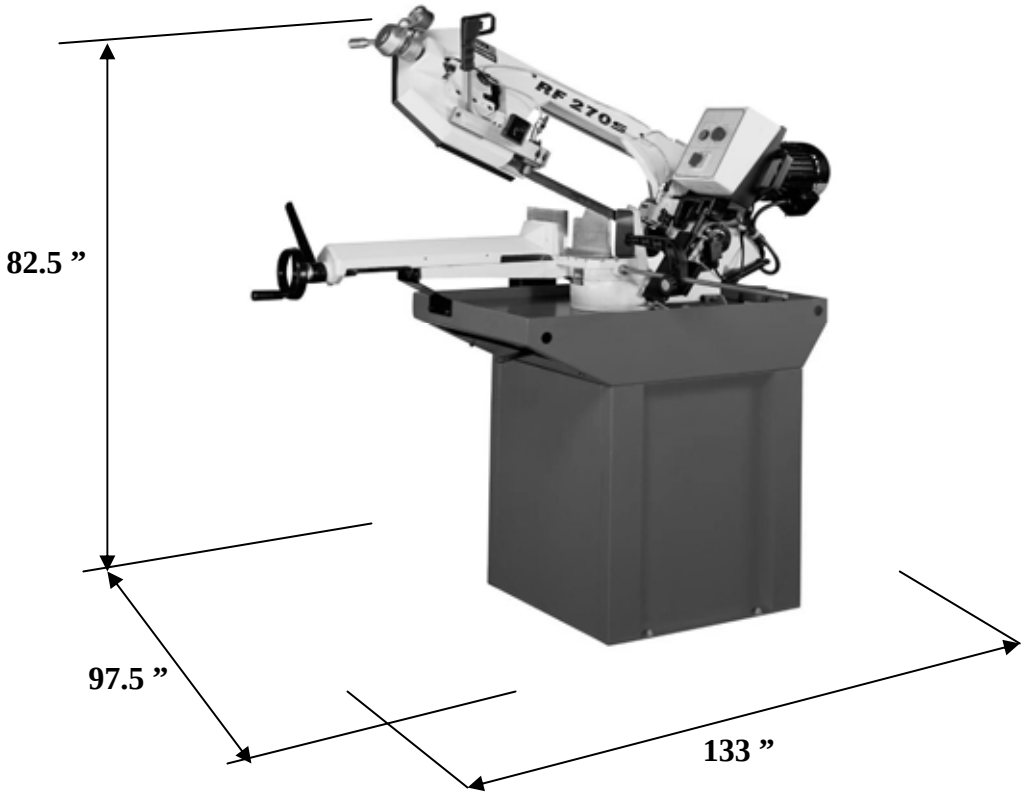
B **Fig. B**

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 . with a medium consistency machine oil.

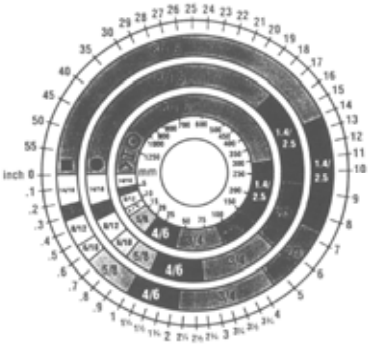
6.MINIMUM ROOM SPACE FOR MACHINE OPERATION



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

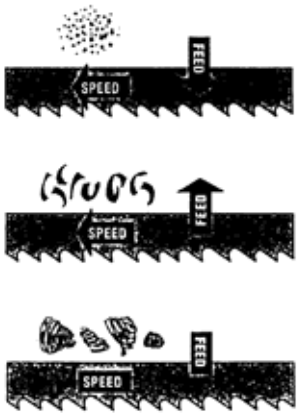
TELLTALE CHIPS

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 SYSTEMS AND CONTROL PANEL

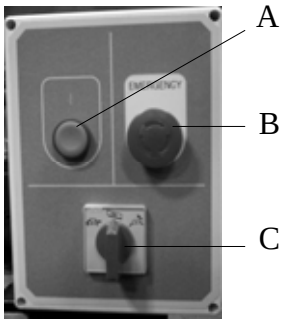
The electrical rating of your band saw is either with 230 volt-single phase, or 400 volt-3 phase, magnetic control.

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.
2. Start the motor by turning the start button (C), Push the button (E) to start blade saw. Unhand button (E) stop The motor.
3. Turn (A) (0-close,1-open) to open the coolant system
4. When saw blade is closing work piece. Or when the cut is completed, turn off the coolant system (A)
5. Press emergency button (B) to shut-off the motor when in emergent situation.

9-3.ADJUSTING UPWARD AND 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 (G) is used to adjust the distance between blade and table surface. After the distance is adjusted, tighten lock nut.

The screw (F) is used to adjust the saw arm upward angle, tighten lock nut.

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9-4.ADJUSTING BLADE TENSION AND BLADE TRACKING

To tension the blade, turn the blade tension handle (fig. 1)(A) clockwise. 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.

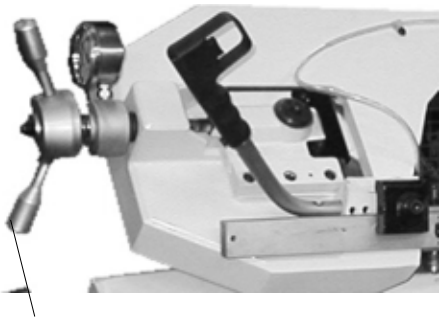


Fig.1

9-5.ADJUSTING CUTTING WIDTH

First loosen screw (A) (fig.2). Move the left blade guide bar to the suitable position. Then tighten screw (A).

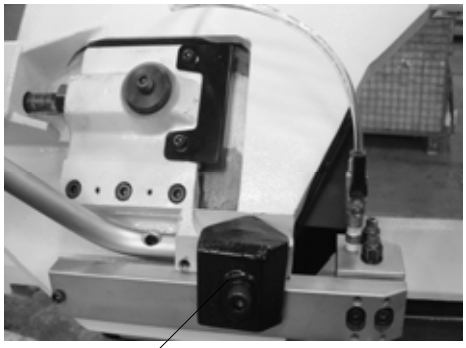


Fig. 2

9-6.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) (fig3) should ride against the back-up block (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 .

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 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) should be adjusted in the same manner.

5. Cutting chips on the blade will be cleared by the steel brush.

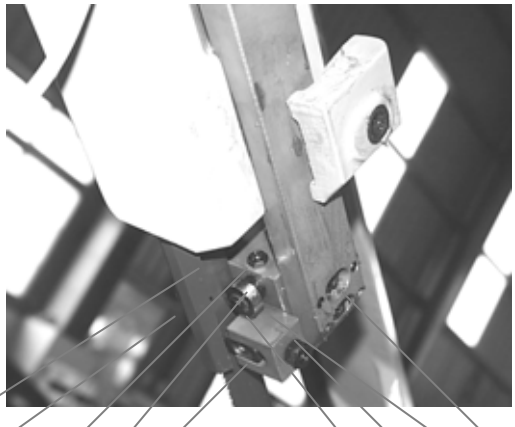


Fig.3

9-7.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. 4), which directs the coolant onto the blade. The lever (A) is shown in the off position.

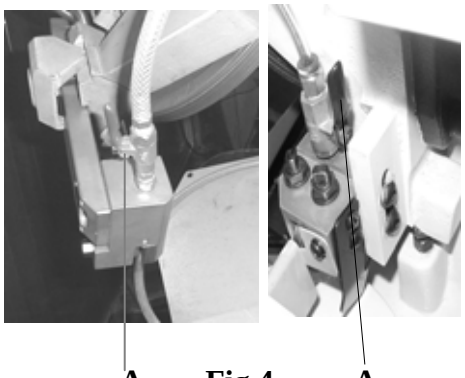


Fig.4

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

9-8.OPERATING THE TRU-LOCK VISE SYSTEM INSTRUCTIONS

To operate, proceed as follows:

1) Raise the arm 2" above the work piece; close the cylinder valve to maintain the arm 2" above the work piece.
2) Put your work piece on the table. Move the vise handle (A) upwards to an angle of 45 degree (a-Half opened) to loosen the vise. Move the vise jaw bracket against the work piece by turning the rectangular handle (B) . Push down on the vise handle (A) to lock the work piece in position.
3) To loosen the work piece from the vise, hold the work piece and lift the vise handle (A) to a 90 degree position (completely opened). Remove work piece.

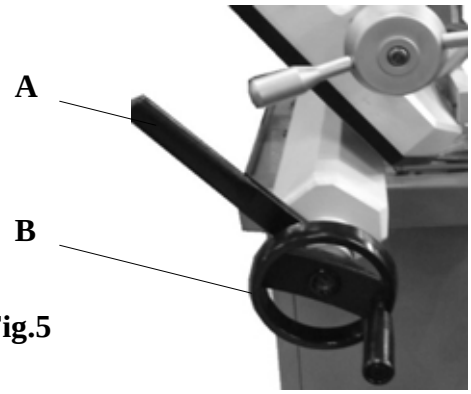


Fig.5

CONTINUED CUTTING:

When you need to cut a work piece many times, just raise the vise handle (A) to loosen and adjust work piece position. Then push down on the same handle to tighten. You can also push the vise handle (A) down first, and then tightening the vise by turning the rectangular handle (B) clockwise. After finishing the cut, you can loosen the work piece by turning rectangular handle only. This Tru-Lock Vise System has a 4mm tightening travel when the rectangular handle is completely opened. There is only a 2mm tightening travel necessary for normal metal materials. The operator can tighten the work piece by pushing down the vise handle (A) with a certain amount of pressure depending on hardness of work piece.

9-9.VARIABLE CUTTING ANGLE SELECTION

Please proceed as follows to obtain desired cutting angle. The swivel range is from 0° to 60°clockwise. Before swinging the base, make sure there is nothing in the way, or any interference.

1. Pull out the bar (A) (fig. 6) swing and hold the bar.
2. Push to turn the swivel base to desired angle. Refer to scale on (B) for degree.
3. Lock the bar (A), then start the cutting.

Fig.6

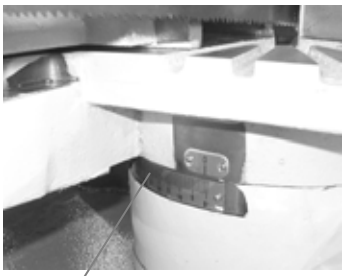


Fig.7

9-10.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 8).
2. Move the blade guide arm to the right.(Fig.9).
3. Disconnect the machine from the power source. Loosen cover screw, remove cover (A), open the cover (B), remove cover (C) , then clean the chips and dirt inside the machine.
4. Release blade tension (F) (fig 9) by turning the blade tension hand-wheel counterclockwise.

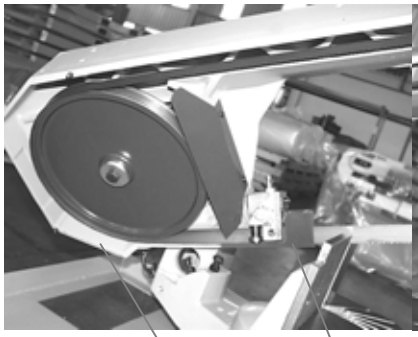


Fig.8 A B

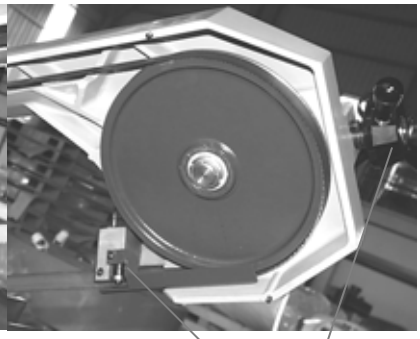


Fig.9 C F

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.

10.MAINTAINING

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

(1) Daily Maintenance (by operator)

(a) Fill the lubricant before starting machine everyday.

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

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

(2) Weekly Maintenance

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

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

(3) Monthly Maintenance

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

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

(4) Yearly Maintenance

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

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

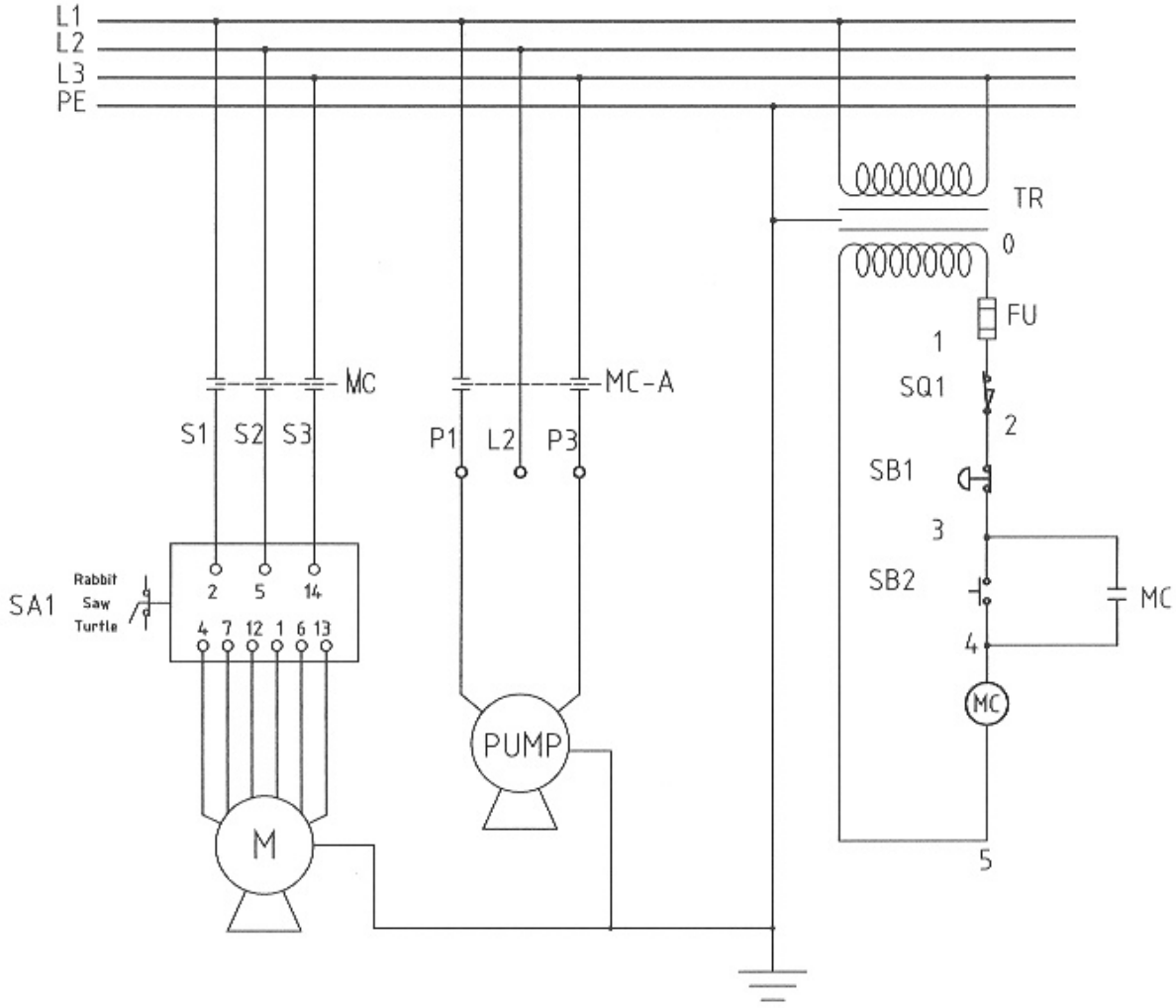
11. TROUBLE SHOOTING

Symptom	Possible Cause(s)	Corrective Action
Machine can not be started	1. Power is not plugged; the power light on control panel is not on. 2. Motor can not be started; power was cut by limit switch. 3. Operation button can not be normally operated.	1. Check the motor specification; connect the power with correct power supply. Make sure the power light in on. 2. Make sure the cover is in correct position. 3. Push the emergency button; return it to original position. Then release the emergency button.
Excessive Blade Breakage	1. Materials loosen in vise. 2. Incorrect speed or feed 3.Blade teeth spacing too large	1. Clamp work securely 2. Adjust speed or feed 3. Replace with a small teeth spacing

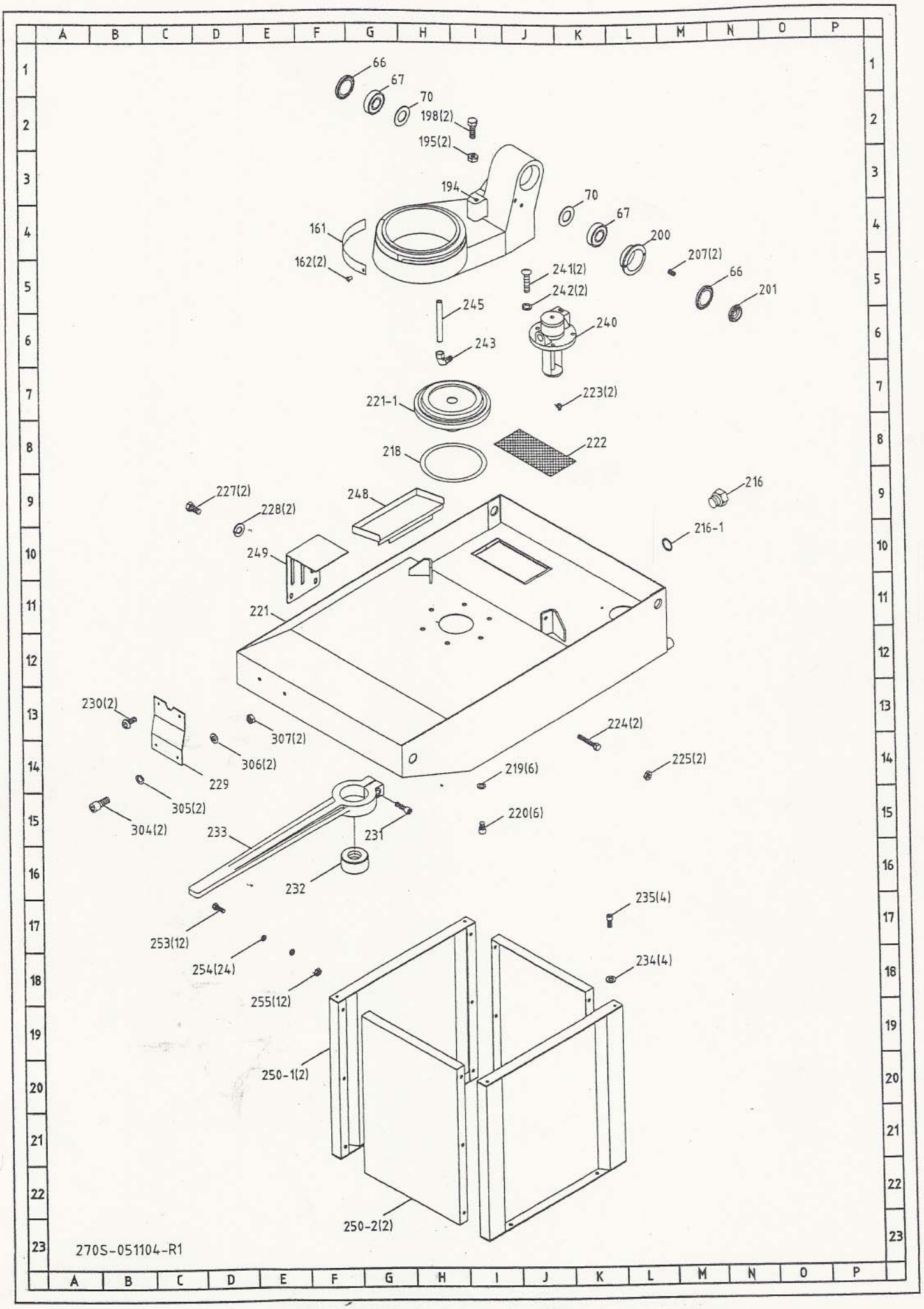
	4.Material too coarse 5.Incorrect blade tension 6.Teeth in contact with material before saw is started 7. Blade rubs on wheel flange 8. Miss-aligned guide bearings 9. Blade too thick 10.Cracking at weld	blade 4. Use a blade of slow speed and small teeth spacing 5. Adjust to where blade just does not 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	1. Decrease speed or feed. 2. Replace with finer blade.

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

12. CIRCUIT DIAGRA



270S SCHEDULE OF ELECTRICAL EQUIPMENT			
Item.	Designation and function	Technical data	QTY
TR	Transformer	LCP-TBSW-G	1
MC	Contactor	LC1K0910B7	1
MC-A	Contactor-assist contact	LA1KN20	1
FU	Fuse Wirt	286-611	1
SA1	2 Speed Switch	H-13-U24	1
SB1	Urgent Switch Button	HY57B	1
SB2	Flas Head Switch Button	XB7-EA-1	1
SQ1	Limit Switch	AZD-1122	1
PUMP	Cooling Pump		1
M	Motor		1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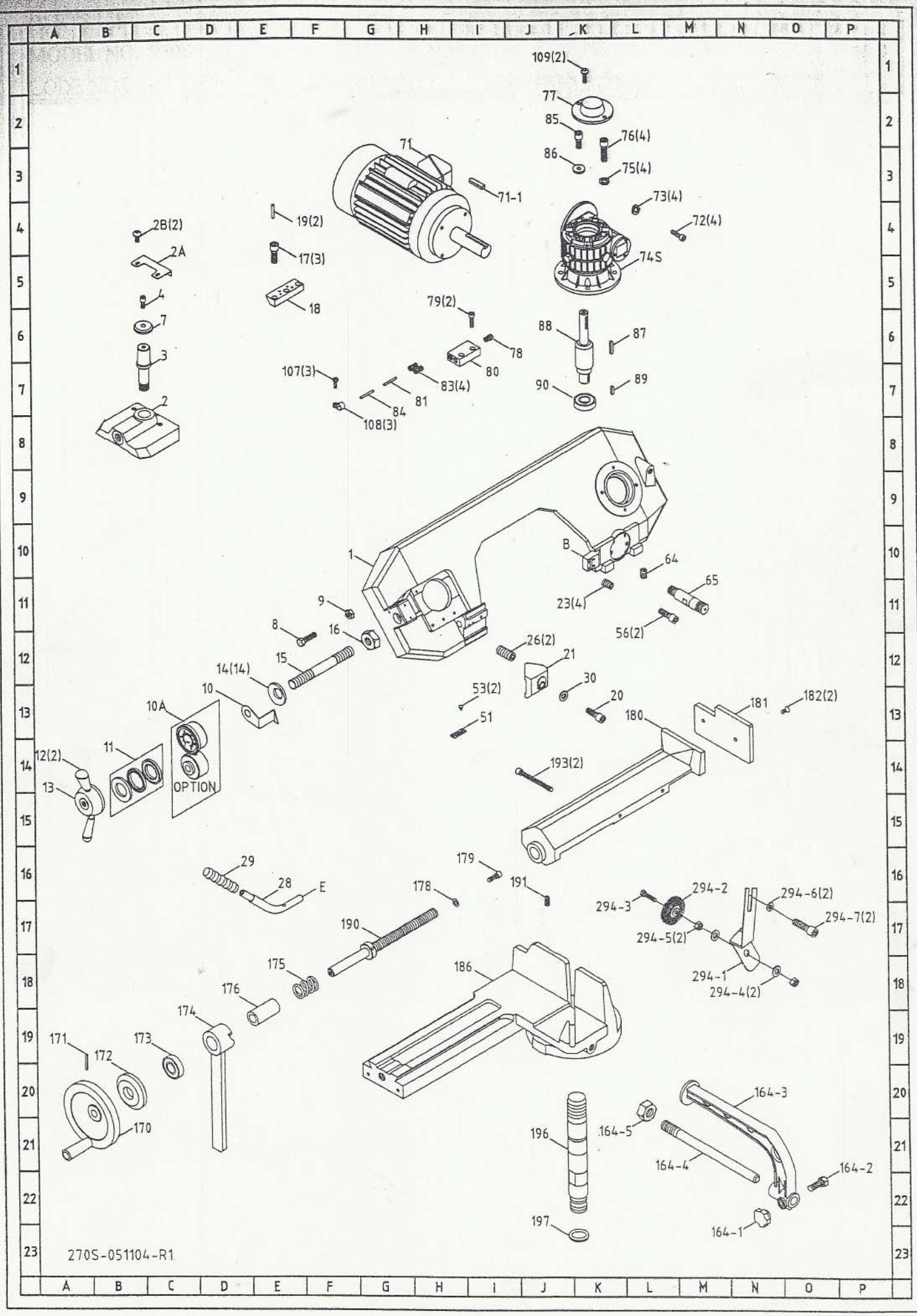
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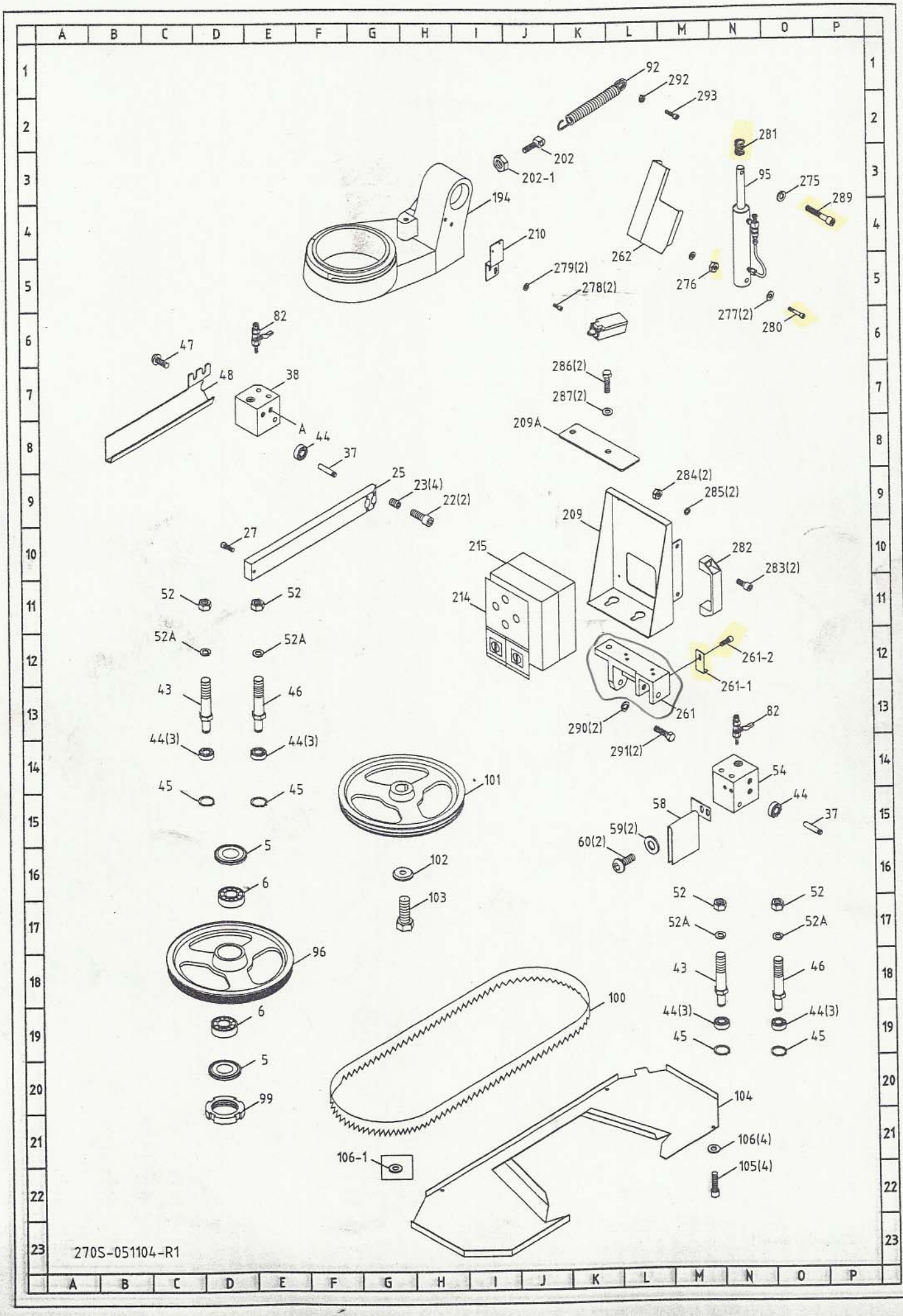
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PARTS LIST

MODEL NO. 270S

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
1	198005T	Body Frame		1	
2	121008	Anchor Block		1	
2A	121151	Anchor Plate		1	
2B	HT003	Round Head Screw	M6X10L	2	
3	198024T	Shaft		1	
4	HS242	Hex. Socket Head Screw	M8X20L	1	
5	198050	Anti-Chip Cover		2	
6	CA32006A	Tapered Bearing	32006A	2	
7	121011	Washer		1	
8	HS051	Hex. Head Screw	M8X45L	1	
9	HN005	Hex. Nut	M8	1	
10	198148M	Indication Plate		1	
10A	198170	Scale		1	
11	CA51203	Bearing	51203	1	
12	198086	Knob		2	
13	198051A	Blade Tension Handle		1	
14	198093	Spring Washer	ϕ ID16.3X ϕ 31.5X1.8t	14	
15		Leadscrew		1	
16	HN008	Hex. Nut	M16XP2	1	
17	HS242	Hex. Socket Head Screw	M8X20L	3	
18	198013	Fixed Block		1	
19	HP022	Pin	ϕ 5X40	2	
20	HS266	Hex. Socket Head Screw	M10x60L	1	
21	198012M	Fixed Block		1	
22	HS242	Hex. Socket Head Screw	M8X20L	2	
23	HS468	Hex. Socker Headless Screw	M6X16L	8	
25	198016	Blade adjust stick		1	
26	HS430	Hex. Socker Headless Screw	M8X10L	2	
27	HS228	Hex. Socket Head Screw	M6X10L	1	
28	198044A	Connecting Tube		1	
29	198193A	Handle		1	
30	HW006	Washer	M10	1	
37	121061	Bearing Shaft		2	
38	198015T	Blade Adjust (Front)		1	
43	198020T	Eccentric Guide		2	
44	CA6082ZZ	Bearing	608-2RS	14	

PARTS LIST

MODEL NO. 270S

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
45	C100	C-Retainer Ring	ϕ 8	4	
46	198019T	Eccentric Guide		2	
47	HT003	Round Head Screw	M6X10L	1	
48	198034	Blade Cover (Front)		1	
51	198152	Scale		1	
52	HE907	Hex. Nut	M10X14-8	4	
52A	HW106	Spring Washer	M10	4	
53	HH005	Rivet	ϕ 2X6	2	
54	198014T	Blade Adjustable (Rear)		1	
56	HT017	Hex. Socket Head Screw	M8X35L	2	
58	198032AT	Deflector Plate		1	
59	HW003	Washer	M5	1	
60	HT001	Round Head Screw	M5X10L	1	
64	HS431	Hex. Socker Headless Screw	M8X15L	1	
65	121028	Frame Pivot Shaft		1	
66	198050	Anti-Chip Cover		2	
67	CA32006	Tapered Bearing	32006	2	
70	121055	Prive Shaft Washer		2	
71		Motor		1	
71-1	HK114	Key	6X6X40L	1	
72	HS035	Hex. Socket Head Screw	M6x25L	4	
73	HW104	Spring Washer	M6	4	
74S	198201MS	Gear Box	E=1/40 ,	1	
75	HW106	Spring Washer	M10	4	
76	HS258	Hex. Socket Head Screw	M10x20L	4	
77	198108M	Reducer Cover		1	
78	HD607	Hose Fitting	ϕ 8X1/4"PT	1	
79	HS229	Hex. Socket Head Screw	M6X15L	2	
80	198067	3 Way Valve		1	
81	HD801	PU Tube	ϕ 6x240L	1	
82	HD803	Valve	1/8"	2	
83	HD606	Hose Fitting	ϕ 6X1/8"PT	4	
84	HD802	PU Tube	ϕ 6x800L	1	
85	HS060	Hex. Socket Head Screw	M10X30L	1	
86	198037	Prive Shaft Washer		1	
87	HK091	Round Head Key	8X7X50	1	

PARTS LIST

MODEL NO. 270S

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
88	198023	Output Shaft		1	
89	HK097	Round Head Key	8X7X25	1	
90	CA62082Z	Bearing	6208-2RS	1	
92	198042TB	Spring		1	
95	198065T	Cylinder Assembly		1	
96	198007T	Idler Wheel		1	
99	HN105	Nut	AN06	1	
100	198077	Blade	0.9X27X2450X5/8T	1	
101	198006T	Drive Wheel		1	
102	198036	Drive Shaft Washer		1	
103	HS089	Hex. Head Screw	M12X30L	1	
104	198030	Blade Back Cover		1	
105	HS229	Hex. Socket Head Screw	M6X15L	4	
106	HW104	Washer	M6	4	
106-1	198189	Washer		1	
107	HS521	Cross Round Head Screw	M5X20L	3	
108	HD610	Hose Clip	ϕ 8	3	
109	HS241	Hex. Socket Head Screw	M8x15L	2	
161	121062	Scale		1	
162	HH001	Rivet	ϕ 2	2	
164S	111057S	Length Stop Set		1	
164-1	111097	Plum handle		1	
164-2	HS036	Hex. Head Screw	M6x30L	1	
164-3	111058	Distance Set Bracket		1	
164-4	111057	Distance Set Rod		1	
164-5	HN010	Hex. Nut	M14xP1.5	1	
170	121065T	Handwheel		1	
171	HP021	Pin	ϕ 5X35	1	
172	198039	Bearing Cover		1	
173	CA3047	Bearing	ϕ 30X ϕ 47X3.5	1	
174	198009	Vise Handle		1	
175	198040	Spring		1	
176	121049	Bushing		1	
178	HW016	Washer	ϕ 6.5 * ϕ 18-1.5	1	
179	HS229	Hex. Socket Head Screw	M6x15L	1	
180	198004T	Vise Jaw Bracket(Front)		1	

PARTS LIST

MODEL NO. 270S

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
181	198022T	Vise		1	
182	HD501	Hex. Socket Flat Head Scvev	M6X12L	2	
186	198003T	Vise Jaw Bracket(Rear)		1	
190	198025T	Leadscrew A		1	
191	HS432	Hex. Socker Headless Screw	M8X20L	1	
193	HS326	Hex. Socket Head Screw	M6X100L	2	
194	121002	Swivel Arm		1	
195	HN006	Hex. Nut	M10	2	
196	121043	Vise Jaw Adjustable Rod		1	
197	HO0031	O-Retainer Ring	§ 19.8X § 2.4	1	
198	HS063	Hex. Head Screw	M10X45L	2	
200	121029	Bushing		1	
201	HN105	Nut	AN06	1	
202	198046	Bolt		1	
202-1	HN006	Hex. Nut	M10-P1.5	1	
207	HS423	Hex. Socker Headless Screw	M6X15L	2	
209	198074T	Control Box Base		1	
209A	198074T1	Press Board		1	
210	198158T	Bracket		1	
214	198074R	Lable for Name Plate		1	
215	EA0027SA	Control Switch Assembly		1	
216	HB605	Hex Socket Plug	3/8"PT	1	
216-1	121169	Washer		1	
218	HO042	O-Retainer Ring	ID170X5.7W	1	
219	HW106	Spring Washer	M10	6	
220	HS230	Hex. Socket Head Screw	M10X20L	6	
221	198001T	Stand		1	
221-1	121001P	Swivel Arm Base		1	
222	121031	Filter		1	
223	HS509	Cross Round Head Screw	M4X8L	2	
224	HS064	Hex. Head Screw	M10X50L	2	
225	HN007	Hex. Nut	M12XP1.75	2	
227	HS059	Hex. Head Screw	M10X25L	2	
228	HW106	Spring Washer	M10	2	
229	198041T	Fixed Plate		1	
230	HT003	Round Head Screw	M6X10L	2	

PARTS LIST

MODEL NO. 270S

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
231	HS261	Hex. Socket Head Screw	M10X35L	1	
232	198038	Nut		1	
233	198010T	Adjustable Handle		1	
234	HW006	Washer	M10	4	
235	HS258	Hex. Socket Head Screw	M10X20L	4	
240		Cooling Pump		1	
241	HS033	Cross Round Head Screw	M6X15L	2	
242	HW104	Spring Washer	M6	2	
243	HD608	Micro Control Block	3/8"x3/8"	1	
245	HD804	PU Tube	§ 8x1300L	1	
248	198073T	Fluid Collected Plate		1	
249	121054T	Feed Support		1	
250	121001FT	Stand Leg Set		1	
250-1	121001FTB	Stand Leg (front)		2	
250-2	121001FTC	Stand Leg(Right)(Left)		2	
253	HS046	Hex. Head Screw	M8x20L	12	
254	HW005	Washer	M8	24	
255	HN005	Hex. Nut	M8	12	
261	198154T	Cylinder Upper Bracket		1	
261-1	198159T	Down Bracket		1	
261-2	HS218	Hex. Head Screw	M5x10L	1	
262	198160T	Cylinder Cover		1	
275	HW106	Spring Washer	M10	1	
276	HN006	Hex.Nut	M10	1	
277	HW006	Washer	M10	2	
278	HS218	Hex. Socket Head Screw	M5X10L	2	
279	HW003	Washer	M5	2	
280	HS290	Hex. Socket Head Screw	M12X80L	1	
281	121042T	Spring		1	
282	1965052	Knob		1	
283	HS241	Hex. Socket Head Screw	M8X15L	2	
284	HN005	Hex.Nut	M8	2	
285	HW105	Spring Washer	M8	2	
286	HS046	Hex. Head Screw	M8X20L	2	
287	HW005	Washer	M8	2	
289	HS266	Hex. Socket Head Screw	M10X60L	1	

PARTS LIST

MODEL NO. 270S

CODE NO	PART NO	DESCRIPTION	SPECIFICATION	QTY	NOTE
290	HW106	Spring Washer	M10	2	
291	HS060	Hex. Head Screw	M10X30L	2	
292	HN006	Hex.Nut	M10	1	
293	HS262	Hex. Socket Head Screw	M10X40L	1	
294S	198032BS1	Brush Assembly		1	
294-1	198032B	Brush Support		1	
294-2	181241C	Brush		1	
294-3	HS036	Hex. Head Screw	M6x30L	1	
294-4	HW016	Washer	ø6.5Xø18Xt1.5mm	2	
294-5	HN004	Hex. Nut	M6	2	
294-6	HW004	Washer	M6	2	
294-7	HS228	Hex. Socket Head Screw	M6x10L	2	
304	HS229	Hex. Socket Head Screw	M6x15L	2	
305	HW104	Spring Washer	M6	2	
306	HW004	Washer	M6	2	
307	HN004	Hex. Nut	M6	2	