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270

Metal Cutting Band Saw



MODEL: 270V INSTRUCTION MANUAL

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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.

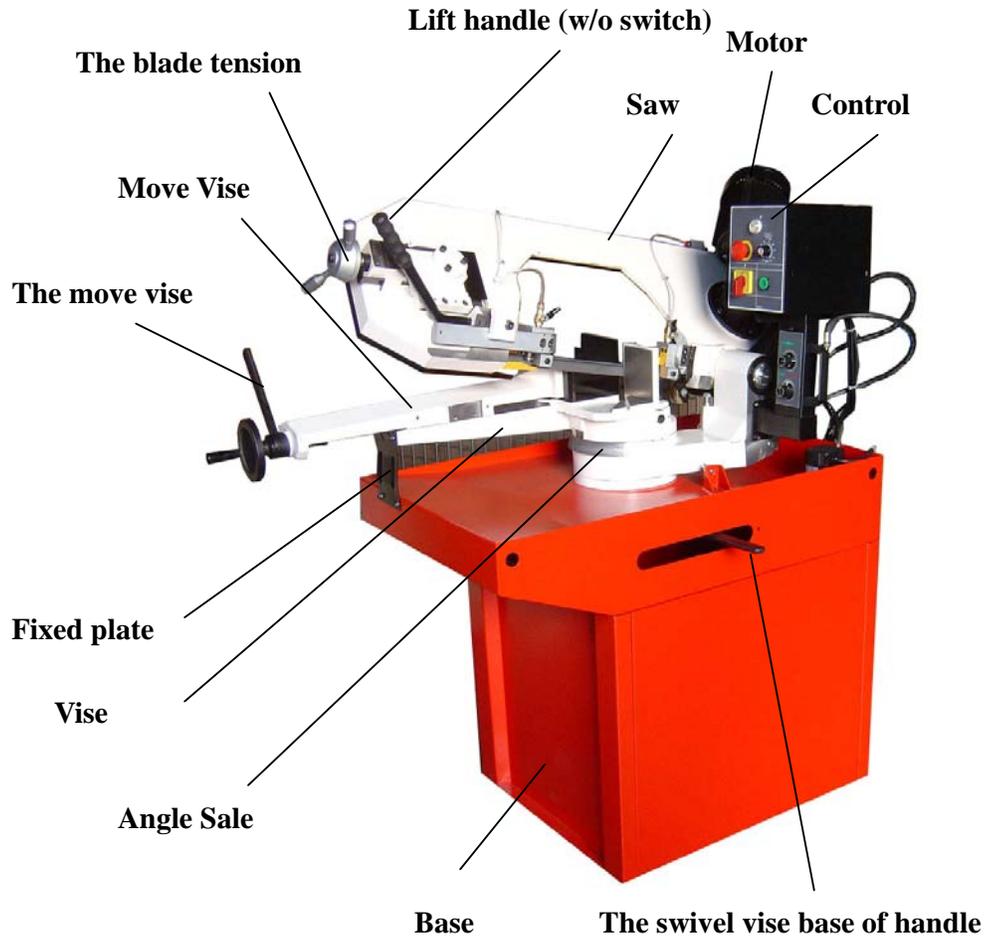
**WARNING: FAILURE TO FOLLOW THESE RULES
MAY RESULT IN SERIOUS PERSONAL INJURY**

As with all machinery there are certain hazards involved with operation and use of this machine. Proper use of the machine will considerably lessen the possibility of personal injury. If normal safety precautions are overlooked or ignored, personal injury to the operator may result.

This machine was designed for specific 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 applications DO NOT use the machine until you contact the manufacturer and they have advised you.

Before using this bandsaw, the proper electrical connections specific to this machine must be followed. Trajan Saw Works accepts no responsibility or liability for damages or injuries caused by improper electrical components and/or connections

1. Machine Overview



2.SAFETY

A. OPERATOR SAFETY:

1. WEAR PROPER APPAREL. Avoid loose fitting clothing, jewelry & gloves
2. ALWAYS WEAR EYE PROTECTION
3. NEVER LEAVE THE SAW RUNNING UNATTENDED. TURN POWER OFF.
4. DO NOT OPERATE THE SAW UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR ANY PERSSCRIPTION MEDICATION
5. ALWAYS KEEP HANDS AWAY FROM THE CUTTING AREA
6. STOP THE SAW BLADE BEFORE CLEANING CHIPS OUT OF THE PAN.
7. KEEP ALL GUARDS IN PLACE & IN WORKING ORDER.

B. MACHINE SAFETY:

1. REMOVE ADJUSTING KEYS AND WRENCHES. Form a habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".
2. DON'T FORCE THE SAW. It will do the job better and be safer at the rate for which it was designed.
3. PROPER USE OF ATTACHMENTS. Do not use attachment to do a job for which they were not designed.
4. SECURE WORK. Use clamps or the saw vise to hold work.
5. MAINTAIN SAW BLADES IN TOP CONDITION. Keep saw blades sharp & clean for best performance. Follow instructions for lubricating and changing saw blades.
6. AVOID ACCIDENTAL STARTING. Make sure switch is in "OFF" position before plugging in power cord.
7. ADJUST AND POSITION the blade guide arm before starting the cut.
8. KEEP BLADE GUIDE ARM TIGHT, A loose blade guide arm aill affect sawing accuracy.
9. MAKE SURE blade speed is set correctly for the material being cut.
10. CHECK for proper blade size and type.
11. STOP the machine before putting material in the vise. ALWAYS have stock firmly clamped in vise before starting cut.
12. REMOVE ADJUSTING KEYS AND WRENCHES. Form a habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".
13. DON'T FORCE THE SAW. It will do the job better and be safer at the rate for which it was designed.
14. PROPER USE OF ATTACHMENTS. Do not use attachment to do a job for which they were not designed.
15. SECURE WORK. Use clamps or the saw vise to hold work.
16. MAINTAIN SAW BLADES IN TOP CONDITION. Keep saw blades sharp & clean for best performance. Follow instructions for lubricating and changing saw blades.

17. AVOID ACCIDENTAL STARTING. Make sure switch is in "OFF" position before plugging in power cord.
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19. KEEP BLADE GUIDE ARM TIGHT, A loose blade guide arm will affect sawing accuracy.
20. MAKE SURE blade speed is set correctly for the material being cut.
21. CHECK for proper blade size and type.
22. STOP the machine before putting material in the vise.
23. ALWAYS have stock firmly clamped in vise before starting cut.

C. WORK ENVIRONMENT SAFETY:

1. KEEP WORK AREA CLEAN. Cluttered, dirty work areas invite accidents.
2. DON'T USE IN DANGEROUS ENVIRONMENTS. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.
3. DON'T install & use this machine in explosive, dangerous environment.

D. PROPER MAINTENANCE:

1. DISCONNECT machine from power source when making repairs.
2. CHECK FOR DAMAGED PARTS. Before further use of the saw, a guard or other part that is damaged should be carefully inspected to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, broken parts, mountings, and any other conditions that may affect the saw's operation. Any 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. CHECK COOLANT DAILY Low coolant level can cause foaming and high blade temperatures. Dirty or weak coolant can clog the pump, cause crooked cuts, rust, low cutting rate and permanent blade failure. Dirty coolant can cause the growth of bacteria with ensuing skin irritation.
7. 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.
8. TO PREVENT CORROSION of machined surfaces when a soluble oil 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.

E. SPECIFIED USAGE:

1. This machine should be used only for general metal cutting within the range of cutting capacity..

F. SAFETY FEATURES:

1. Interlock switch on pulley cover.
2. As soon as the pulley cover is open, machine will stop with the function of this switch. Do not remove this switch from machine for any reason, and check it's function frequently. Interlock switch on cutting area as soon as the cover of cutting area is open, machine will stop at once with the function of this switch. Do not remove this switch from machine for any reason, and check it's function frequently.

3.SPECIFICATIONS

MOTOR			1.5HP, Single Phase
Saw Blade Speed		FPM	92 ~ 360(60HZ)
		MPM	28 ~ 110(60HZ)
Blade Size(mm)		27x0.9x2450	
Dimension LxWxH (mm)		1350x700x1326	
Packing	N.W / G.W (kgs)		208 / 240
	Measurement		1450x800x1260
Cutting Capacity	0°	○ (mm/inch)	225 / 8 3/4 "
		□ (mm/inch)	240 x 160 / 9 3/8" x 6 1/4"
	- 45°	○ (mm/inch)	160 / 6 1/4"
		□ (mm/inch)	155 x 115 / 6 1/8" x 4 1/2"
	-60°	○ (mm/inch)	90 / 3 1/2"
		□ (mm/inch)	90 x 100 / 3 1/2"x3 7/8"

4.FEATURES:

1. This machine is useful for cutting normal steel, steel pipe, and provides cutting angle at 0° to - 60° 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.
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. TRANSPORTATION & 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.

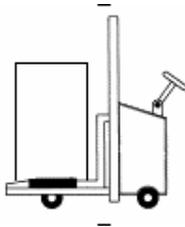


Fig. B



ALLWAYS KEEP PROPER FOOTING & BALANCE WHILE MOVING THIS MACHINE.

5-2. TRANSPORTATION OF MACHINE:

As this machine weights 240kgs (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 then repeat the running test.
6. **Keep** machine always out from sun, dust, wet, or raining area.

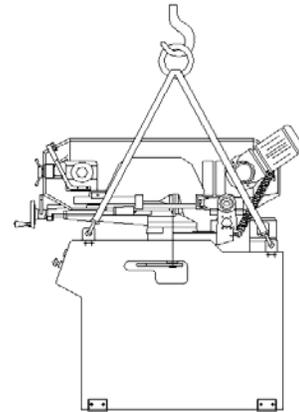
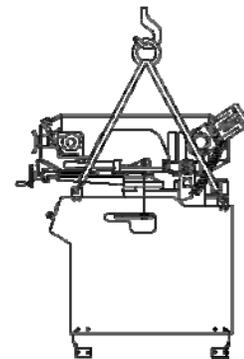


Fig. A

diagram,

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.



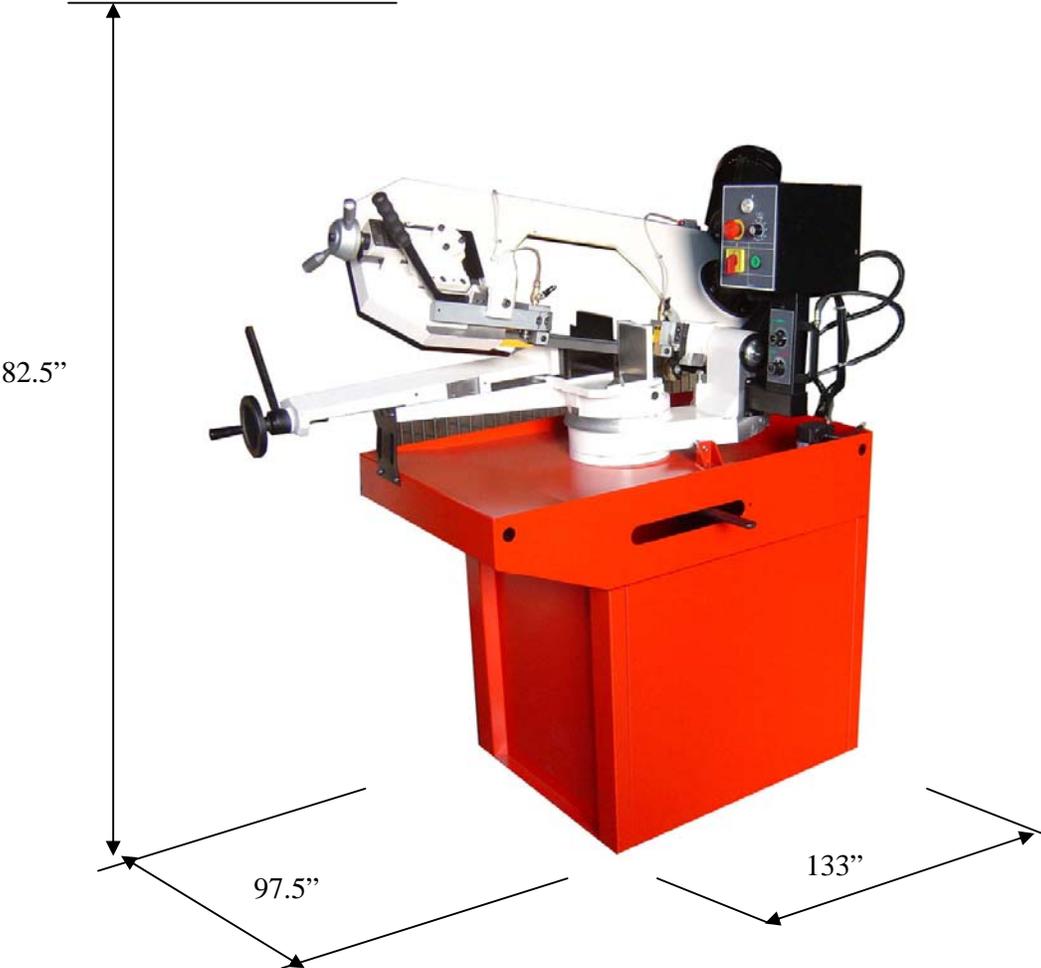
B

Fig. B

5-4. CLEANING & LUBRICATING

- (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 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.

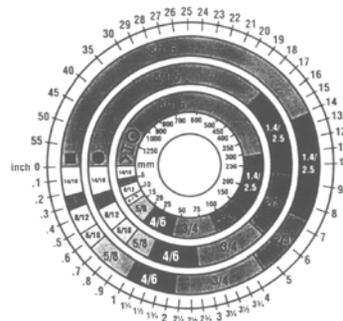
EXAMPLE: 4" (100mm) outside diameter, 3" (75mm) inside diameter tubing.
 $4" (100\text{mm}) \text{ OD} = 12.5 \text{ sq. In. } (79\text{cm}^2)$
 $3" (75 \text{ mm}) \text{ ID} = 7.0 \text{ sq. In. } (44\text{cm}^2)$

 $\text{Area} = 5.5 \text{ sq. In. } (35\text{cm}^2)$

$5.5 \text{ sq. In. } (35\text{cm}^2) / 4" (100\text{mm})$
 $\text{distance} = 1.38(35\text{mm}) \text{ average width}$

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 (10/14 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	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

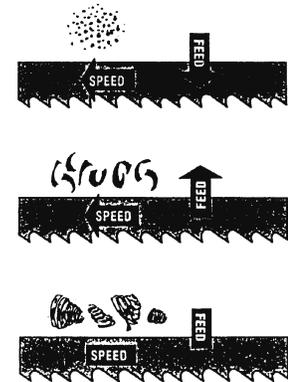
TELLTALE CHIPS

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 115 volt-single phase, or 230 volt-single phase, magnetic control.

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

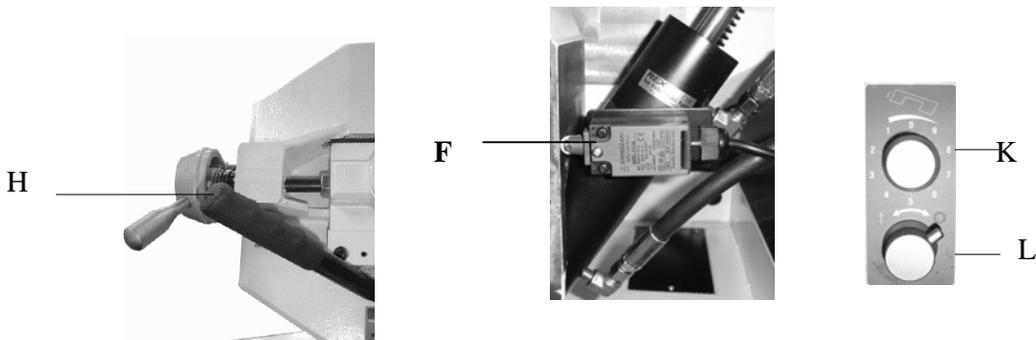
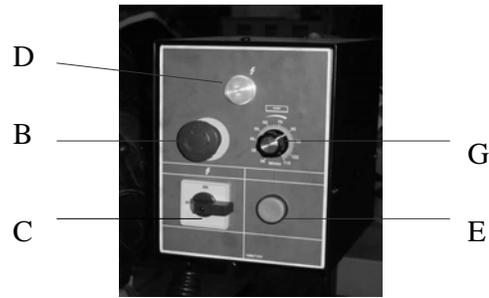
We recommend that 1.5mm² fused with a 10 amp, dual element, time lag fuse, to be used to supply power to all machines regardless of their electrical rating.

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.

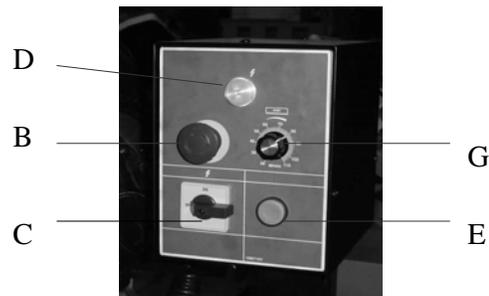
9-2-1. STARTING AND STOPPING MACHINE (cylinder system)

1. Light (D) will be on when power is connected.
2. Rising up the saw arm away from the saw table.
3. Turn right Value (L) to Close hydraulic valve when in operation.
4. Turn (K) to controlling downwards of saw arm. And control the downward speed by adjusting hydraulic volume valve.
5. When motor is running, turn right (K), saw arm will automatically go down and start cutting the work piece. When the cutting is finished, push button (E) to stop the machine, lift saw arm rise up itself and close (L), to next reset cutting.
6. Start the motor by turning the start button (C), Push the button (E) to start blade saw.
7. The coolant system will start as the saw blade operating. The coolant system will stop running as the saw blade stop operating.
8. Turning (G) to adjust the cutting speed. (Please take the recommend speed reference on the manual)When saw blade is closing work piece. Or when the cut is completed, turn off the coolant system (A)
9. Press emergency button (B) to shut-off the motor when in emergency situation.
10. The motor will be stopped when the Frame touch the Limit switch(F).
11. The coolant system will run and stop with blade operation.
12. This handle(H) will not install a switch if your machine is using cylinder system.
13. Please use the star switch(E) on the electrical box for star operation.

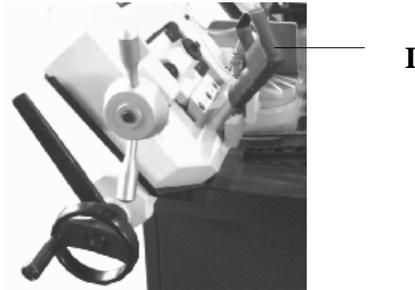


9-2-2 STARTING AND STOPPING MACHINE (with handle switch)

- 1.Light (D) will be on when power is connected.
- 2.Rising up the saw arm away from the saw table.
- 3.Turn right Value (L) to Close hydraulic valve when in operation.
- 4.Turn (K) to controlling downwards of saw arm. And control the downward speed by adjusting hydraulic volume valve.
- 5.When motor is running, turn right (K), saw arm will automatically go down and start cutting the work piece. When the cutting is finished, push button (E) to stop the machine, lift saw arm rise up itself and close (L), to next reset cutting.
6. Start the motor by turning the start button (C), Push the button (E) or the handle switch (I) to start blade saw. Unhand button (I) stop the motor.
7. The coolant system will start as the saw blade operating. The coolant system will stop as the saw blade stops.
8. Turning (G) to adjust the cutting speed. (Please take the recommend speed reference on the manual)



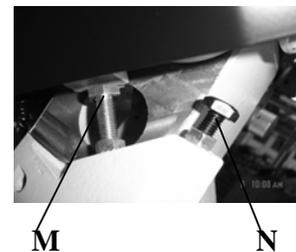
9. Press emergency button (B) to shut-off the motor when in emergent situation.
- 10 The coolant system will run and stop with blade operation.



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 (N) is used to adjust the distance between blade and table surface. After the distance is adjusted, tighten lock nut.

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



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.

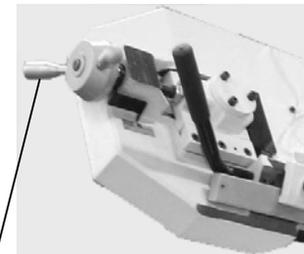


Fig. 1

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).

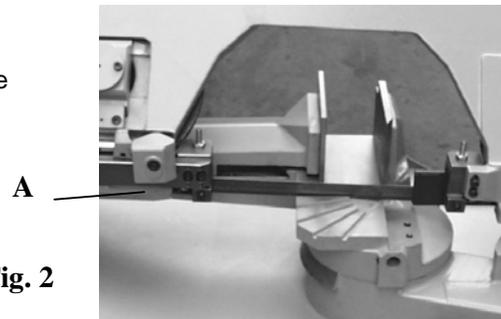
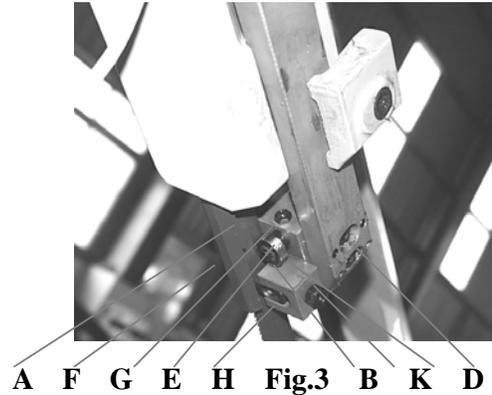


Fig. 2

9-6.ADJUSTING BLADE GUIDES

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

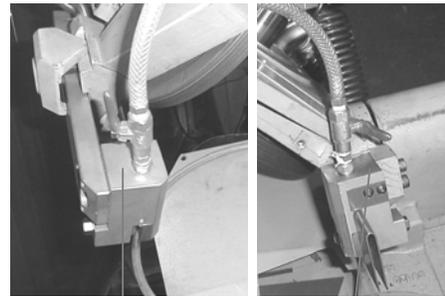
- 1.The back of the blade (A) (fig3) should ride against the back-up block (B). To adjust, loosen set screw (C) and move the guide block (D) up or down, until it lightly touches the back of the blade .
- 2.The saw blade (A) should also ride between and lightly touch the two blade guide roller bearings (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.



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.



A Fig.4 A

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.

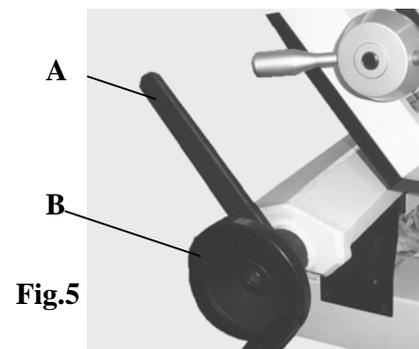


Fig.5

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.

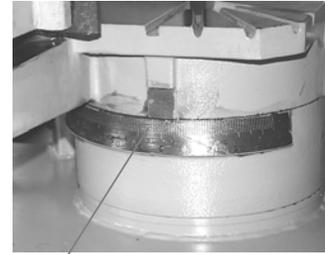
9-9.VARIABLE CUTTING ANGLE SELECTION

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 A



B 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.

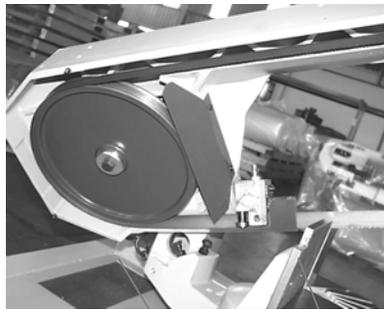


Fig.8 A B

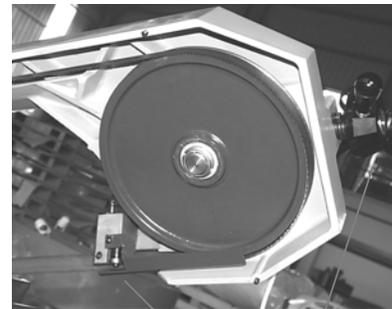


Fig.9 C F

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 check 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.

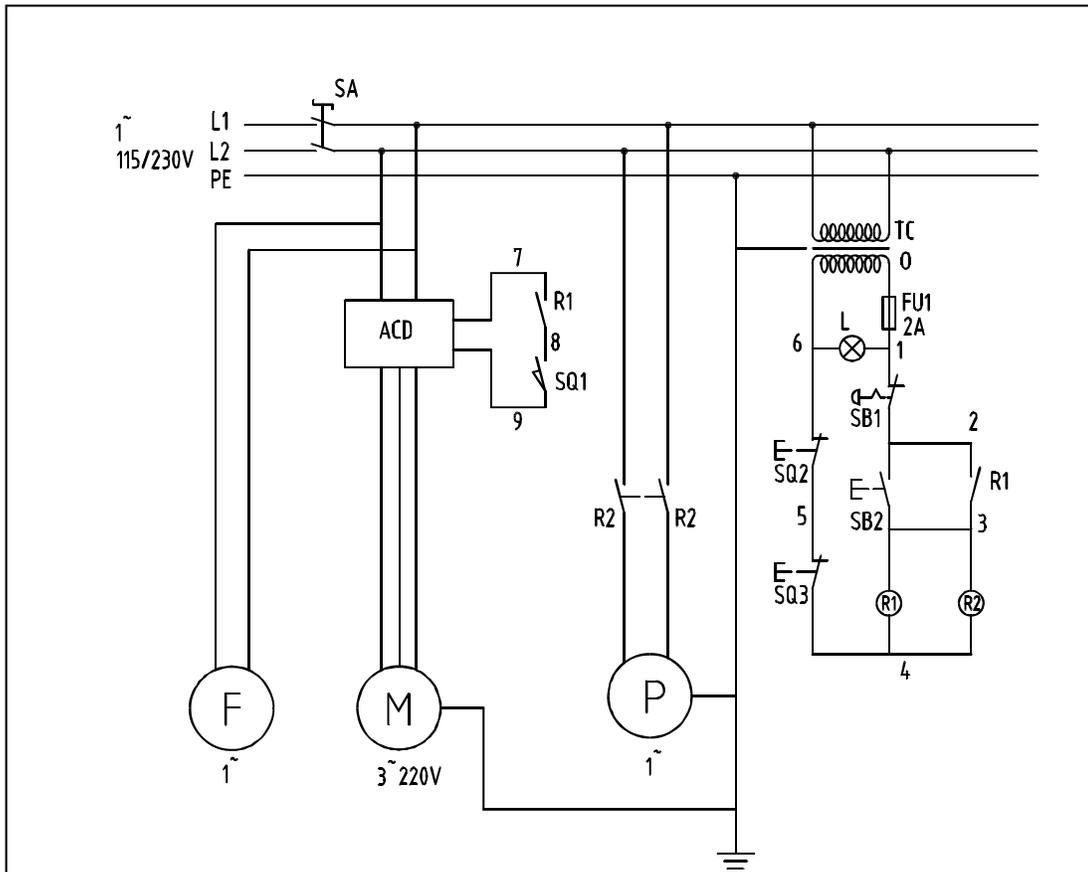
(4) Yearly Maintenance

- (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
Excessive Blade Breakage	<ol style="list-style-type: none"> 1. Materials loosen in vise. 2. Incorrect speed or feed 3. Blade teeth spacing too large 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 	<ol style="list-style-type: none"> 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 started 7. Adjust wheel alignment 8. Adjust guide bearings 9. Use thinner blade 10. Weld again, note the weld skill.
Premature Blade Dulling	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Blade guides worn. 2. Blade guide bearings not adjust properly 3. Blade guide bearing bracket is loose 	<ol style="list-style-type: none"> 1. Replace. 2. Adjust as per operators manual 3. Tighten.
Teeth Ripping from Blade.	<ol style="list-style-type: none"> 1. Tooth too coarse for work 2. Too heavy pressure; too slow speed. 3. Vibrating work-piece. 4. Gullets loading 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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)	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 guides space. 7. Tighten 8. Re-track blade according to operating instructions.
Bad Cuts (Rough)	<ol style="list-style-type: none"> 1. Too much speed or feed 2. Blade is too coarse 3. Blade tension loose 	<ol style="list-style-type: none"> 1. Decrease speed or feed. 2. Replace with finer blade. 3. Adjust blade tension.
Blade is twisting	<ol style="list-style-type: none"> 1. Cut is binding blade. 2. Too much blade tension. 	<ol style="list-style-type: none"> 1. Decrease reed pressure. 2. Decrease blade tension.

12 Circuit Diagram



210V & 270V (W /Cyinder)		SCHEDULE OF ELECTRICAL EQUIPMENT		
Parts umber	Item.	Designation and function	Technical data	QTY
RFVF-24D	ACD	AC Motor Speed Control	1HP,,For 210 Machine	1
RFVF-26D	ACD	AC Motor Speed Control	1.5HP,,For 270 Machine	1
ET1312	TC	Transformer	CE 20W	1
ET1127	R	Relay	RF-424524	2
ET1758A	SA	Power Switch	48x48(附鎖)	1
ET1245	SB1	Emergency stop	HY-57B	1
ET1231	SB2	Push-Button Switch	XB7-EA31	1
ET1628	SQ1	Limit switch	無柄	1
ET1623	SQ2	Limit switch	AZD-S11	1
ET1622	SQ3	Limit switch	AZD-1000	1
ET1415	L	Light	XB7-EV67	1
ET1815	FU	Fuse	281-611	1

270V-95117-V1