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712N

Metal Cutting Band Saw



712N INSTRUCTION MANUAL

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**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 connection

1. SAFETY

A. USER:

(1). **WEAR PROPER APPAREL.** No loose clothing, gloves, rings, bracelets, or other that could 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 THE SAW.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

(5). **TURN POWER OFF.** Never leave the saw unattended. Don't leave tool until it comes to a complete stop.

(6). **DRUGS, ALCOHOL, MEDICATION.** Do not operate the saw while under the influence of drugs, alcohol or any type of medication.

(7). **MAKE SURE THE SAW 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 THE SAW:

(1). **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking to see that items such as allen wrenches and other loose items are clear of the cutting area 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 the vise to hold material. NEVER use your hands to hold material.

(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 power switch is in the "OFF" position before plugging in power cord.

(8). **DIRECTION OF FEED.** Feed work into a blade against the direction of rotation of the.

(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). **GROUND THE SAW.** This saw is equipped with a grounded three-prong plug, it should be plugged into a three-hole electrical receptacle. Never removed the third prong.

C. ADJUSTMENTS :

Make all adjustments with the power off.

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 CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.
- (4). **DON'T** install & use this machine in explosive and/or dangerous environments.

E. MAINTENANCE:

- (1). **DISCONNECT** machine from power source when making repairs.
- (2). **CHECK DAMAGED PARTS.** Inspect the saw for damaged or missing parts. Check for alignment of moving parts, binding of moving parts, broken parts, proper mounting, and any other conditions that may affect proper operation of the saw. Any guard or other part that is damaged should be properly repaired or replaced.
- (3). **DISCONNECT POWER** before servicing and when changing accessories such as blades.
- (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 PROLONG BLADE LIFE ALWAYS** release blade tension at the end of each work day.
- (7). **CHECK COOLANT DAILY** Low coolant levels can cause foaming and high blade temperatures. Dirty or weak coolant can clog the pump, cause crooked cuts, low cutting rates and premature 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 PREVENT** corrosion of machined surfaces when a soluble 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. SPECIFIED 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:

- (1). Interlock switch on pulley cover.
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.
- (2). Interlock switch on cutting area as soon as the cover of cutting area in 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.

2. MACHINE SPECIFICATIONS:

MOTOR		0.55KW (3/4HP) / 1HP
Blade Size		19.05 x 0.8 x 2362 mm (Carbon Blade)
Saw Blade Speed	60Hz (FPM)	90,135,195,255
	50Hz (FPM)	70,110,160,210
MODEL NO. CUTTING CAPACITY		712N
90°	○ (mm)	178(7")
	□ (mm)	178x305(7"x12")
45°	○ (mm)	127(5")
	□ (mm)	125x120 (4 3/4" x 4 5/8")
Dimension LxWxH (mm)		1235x430x955
N.W / G.W (kgs)		125 / 150
Packing Measurement (mm) LxWxH		1282x457x990

3. TRANSPORTATION OF MACHINE:

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.

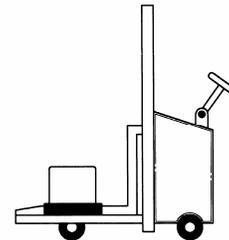


Fig. B

ALLWAYS KEEP PROPER FOOTING & BALANCE WHILE MOVING THIS MACHINE.

4. INSTALLATION:

As this machine weights 275 lbs (125 kg). It is recommended that the machine shall be transported, with the help of a lifting jack.

Transportation Recommendations:

- (1). Tighten all locks before operation.
- (2). **ALWAYS** Keep proper footing & balance while moving this 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 properly grounded, overload & circuit breakers are recommended for safe wiring.
- (4). **CHECK** for proper blade rotation; counter-clockwise, if not,



Fig. A

reverse the wiring and recheck for proper blade rotation.

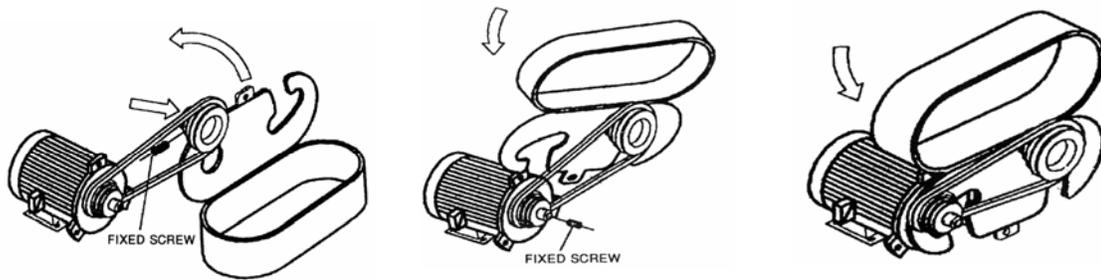
(5). **KEEP** machine always out of intense direct sunlight, excessive dust, or direct exposure to rain.

Installation steps for plastic belt cover:

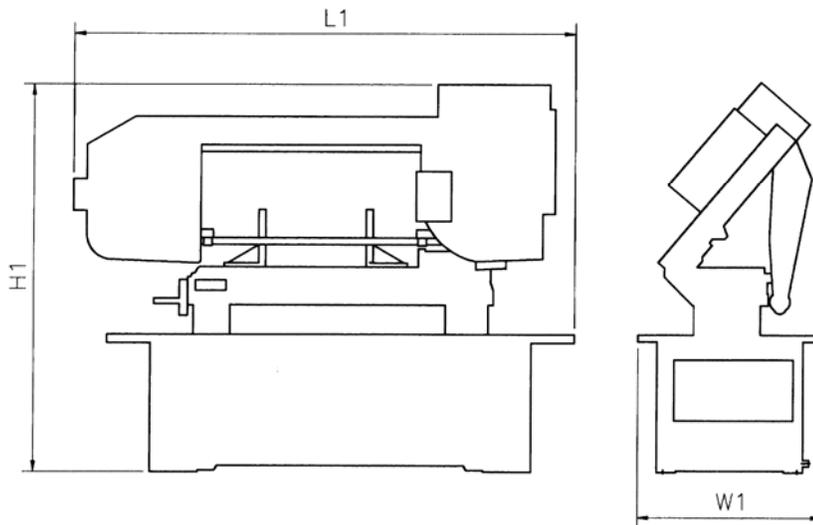
A), Open plastic molded belt cover. Position the left slot at the bottom of the pulley, if the gap is too small between slots. Loose the screws of pulley. Then, move the pulley out slightly.

B). Turn the belt cover counter-clockwise, which will enable the slots in the belt cover to slide over the pulley shafts to set the belt cover into it's proper location

C). Adjust the pulley to it's proper position and tighten all related screws.



5. MINIMUM SPACE FOR MACHINE OPERATION



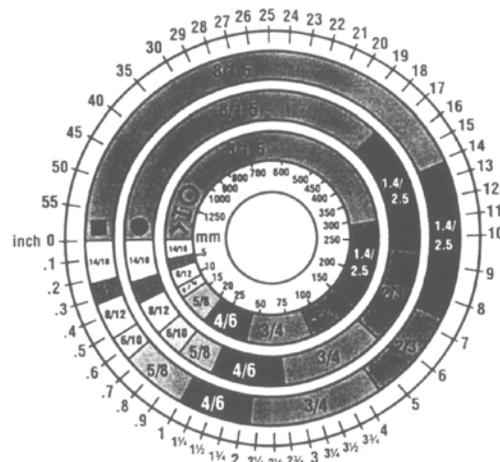
Model No.	712N
Dimension L1xW1xH1(mm)	2240x1500x2120

6. 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.

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)
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 pitch 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.

$$\begin{array}{r} 4"(100\text{mm}) \text{ OD} = 12.5 \text{ sq.in. } (79\text{cm}^2) \\ 3"(75 \text{ mm}) \text{ ID} = 7.0 \text{ sq.in. } (44\text{cm}^2) \\ \hline \text{Area} = 5.5 \text{ sq.in. } (35\text{cm}^2) \end{array}$$

$5.5 \text{ sq.in. } (35\text{cm}^2) / 4" (100\text{mm}) \text{ distance} = 1.38(35\text{mm}) \text{ average width}$
1.38" (35mm), use a 4/6 Vari-Tooth

7. BI-METAL SPEEDS AND FEEDS

NOTE: The band speed and cutting rate recommendations 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.

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 STRESS	279	85
	1030	329	100
	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
	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 indicator of correct feed force. Monitor chips and adjust the 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



8. ASSEMBLY

A 3/4 HP, motor, split phase or capacitor-start is recommended for best economical performance.

Counterclockwise rotation is required. Note that rotation can be reversed by following directions

given on terminal or nameplate.

- (1). Assemble the motor Mounting plate to the head using the long bolt. Note that the flat side of the plate faces up.
- (2). Assemble the guard plate to the head using the screw and Lock Washer and the Carriage Bolt Washer and Wing Nut are used to secure the motor mounting plate to the Guard plate through the slotted hole in the Guard plate. These components also serve to position and lock the motor in place for proper speed/ belt adjustment.
- (3). Place the spacer over the long Bolt and secure it with the nut .
- (4). Secure the Motor to the Motor Mounting plate with the four bolts and nuts. Note, that the motor shaft is placed through the large opening in the Guard plate and must be parallel with the drive Shaft.
- (5). Assemble the Motor Pulley, the smaller of the two provided, to the motor shaft. Note, the larger diameter must be closest to the motor.
Do not tighten the set screw.
- (6). Assemble the Driven Pulley, the larger of the two provided, to the protruding drive Shaft. Note the small diameter must be closest to the bearing.
Do not tighten the set screw.
- (7). Place the belt into one of the pulley grooves and the other end into the respective grooves of the second pulley.
- (8) Line up the belt and both pulleys such that the belt is running parallel in the pulley grooves.
- (9). Tighten the set screws of both pulleys in this position.
- (10). Place the belt into proper pulley combination for proper blade speed. See material

cutting Chart .

(11). Adjust the position of the Motor to obtain approximately 1/2" depression in the belt when applying pressure with your thumb.

(12). Tighten the head screw Holding the Motor Mounting plate to the Guard plate.

(13). Connect the Electrical Harness to the motor terminal box. The motor should be protected with a time delay fuse or circuit breaker with a rated amperage slightly greater than the full load amperage of the motor.

9. OPERATION

A. WORK SET UP:

- (1). Raise the saw head to vertical position.
- (2). Open vise to accept the Piece to be cut by rotating the wheel at the end the base.
- (3). Place workpiece on saw bed. If the piece is long, support the end.
- (4). Clamp workpieced securely in vise.

B. WORK STOP ADJUSTMENT:

- (1). Loosen the thumb screw holding the work stop casting to the shaft.
- (2). Adjust the work stop casting to the desired length position.
- (3). Rotate the work stop to as close to the bottom of the cut as possible.
- (4). Tighten thumbscrew.
- (5). DO NOT ALLOW the blade to rest on the work while the motor is shut off.

C. BLADE SPEEDS:

When using your Band saw always change the blade speed to best suit the material being cut the material Cutting Shart gives suggested settings for several materials.

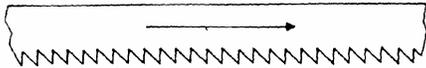
Material	Speed F.P.M				Belt Groove Used	
	60Hz		50Hz		Motor Pulley	Saw Pulley
	A	B	A	B		
Tool, Stainless Alloy Steels Bearing Bronze	90	98	70	81	Small	Largest
Medium to High Carbon Steels Hard Brass or Bronze	135	164	110	135	Medium	Large
Low to Medium Carbon Steel Soft Brass	195	246	160	203	Large	Medium
Aluminum Plastic	255	328	210	270	Largest	Small

✧ A: For 712N with carbon blade

✧ B: 712N with Bi-Metal blade

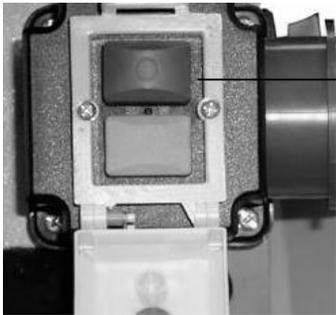
D. BLADE DIRECTION OF TRAVEL:

Inspect saw blade for proper rotation and tooth direction



Blade Direction

E. STARTING THE SAW:

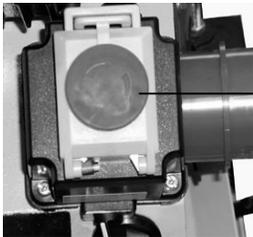


ON / OFF switch

ON / OFF switch

Open the cover of the switch in order to switch on the saw. Close the cover after switching on to guarantee correct operation of the EMERGENCY STOP function.

EMERGENCY STOP button



EMERGENCY

The self-latching, lockable EMERGENCY STOP button is equipped with an under voltage circuit breaker. When the switch is in closed position, it may be secured with a padlock to prevent the machine from being turned on accidentally or by unauthorized personnel.

CAUTION: NEVER OPERATE SAW WITHOUT BLADE GUARDS IN PLACE.

Be sure the blade is not in contact with the work when the motor is started. Start the motor, allow the saw to come to full speed, then begin the cut by letting the head down slowly onto the work. **DO NOT DROP OR FORCE.** Let the weight of the saw head provide the cutting force. The saw automatically shuts off at the end of the cut.

F. CHANGING THE SAW BLADE:

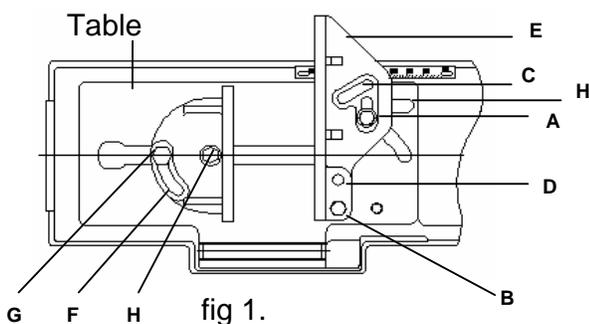
Raise saw head to vertical position and open the blade guards. Loosen tension screw knob sufficiently to allow the saw blade to slip off the wheels. Install the new blade with teeth slanting toward the motor as follows:

- (1). Place the blade in between each of the guide bearings.
- (2). Slip the blade around the motor pulley (bottom) with the left hand and hold in position.
- (3). Hold the blade taut against the motor pulley by pulling the blade upward with the right hand which is placed at the top of the Made.
- (4). Remove left hand from bottom pulley and place is at the top aide of the Made to continue the application on the upward pull on the blade.
- (5). Remove right hand from blade and adjust the position of the top pulley to permit left hand to slip the blade around the pulley using the thumb, index and little finger as guides.
- (6). Adjust the blade tension knob clockwise until it is just right enough so no blade slippage occurs. Do not tighten excessively.
- (7). Replace the blade guards.

ANGLE CUTTING:

- (1). Loosen the A. B. C. D. Screw.
- (2). Adjust rear vise to the threaded hole position. (E)
- (3). Set the scale to the desired angle.
- (4). Adjust the front vise (F) to parallel the rear vise (E)
- (5). Tighten the A. B. C. D. Screw.

I-1 The position for 0° cutting. (The original position)(See fig1.)



I-2 The position fro 90° cutting. (See fig2.)

- Step: 1.Remove the screw from A to C.
2.Remove the screw from B to D.
3.Turn E (Rear vise) to the right.
4.Turn F (Front vise) to the right.

I-3 The position for cutting 12" workpiece. (See fig3.)

- Step:1.Disconnect the metal belt saw from the power supply.
 2.Unscrew the bolts on the rear clamping jaw.
 3.Set the clamping jaw at a greater distance in the holes provided.
 4.Screw the clamping jaw back in.

10. BLADE GUIDE BEARING ADJUSTMENT

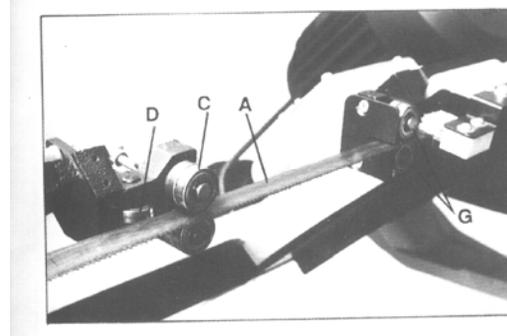
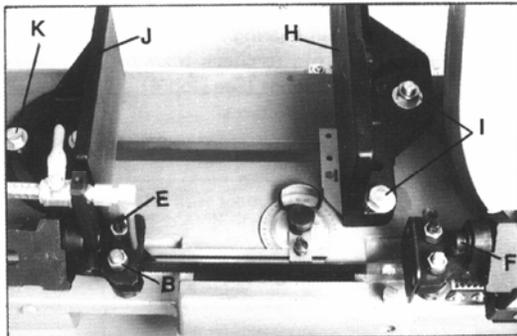
ATTENTION: This is the most important adjustment on your saw. It is impossible to get satisfactory work from your saw if the blade guides are not properly adjusted. The blade guide bearings on your metal cutting band saw are adjusted and power tested with several test cuts before leaving the factory to insure proper setting. The need for adjustment should rarely occur when the saw is used properly. If the guides do get out of adjustment though, it is extremely important to readjust immediately. If improper adjustment is maintained, the blade will not cut straight, and if the situation is not corrected it will cause serious blade damage. Because guide adjustment is a critical factor in the performance of your saw, it is always best to try a new blade to see if this will correct poor cutting before beginning to adjust. If a blade becomes dull on one side sooner than the other, for example, it will begin cutting crooked. A blade change will correct this problem the guide adjustment will not. If a new blade does not correct the problem, check the blade guides for proper spacing.

NOTE: There should be from 000 (just touching) 001 clearance between the blade and guide bearings to obtain this clearance adjust as follows:

1. The inner guide bearing is fixed and cannot be adjusted.
2. The outer guide bearing is mounted to an eccentric bushing and can be adjusted.
3. Loosen the nut while holding the bolt with an Alien wrench.
4. Position the eccentric by turning the bolt to the desired position of clearance.
5. Tighten the nut.
6. Adjust the second blade guide bearing in the same manner.

ALIGNING BLADE GUIDES AND VISE TO BLADE

1. Adjust the tension of blade until the back of the blade(A) against the blade wheel (front) lightly.
2. Be sure the nut (E) is tightened.
3. Turn the eccentric shaft(B) counterclockwise, when the bearing(D) touches the saw blade properly, tighten the nut(E).
4. To adjust, loosen set screw(F) and move the blade adjustable up or down until it lightly touches the back of the blade(A).
5. Repeat 1, 2, 3, and 4 steps to adjust the other side's blade guide bearings(G).
6. Correct the base and blade to be a vertical position with a scale. If necessary, loosen set screw(F).
7. Set down the blade frame, correct the jaw vise(H) and blade to be a vertical position with a scale then tighten the set screws (I).
8. Loosen set screw (K), move front jaw vise (J) to against rear jaw vise(H) tightly. Finish correcting by tighten set screw(K).



11. BLADE TRACKING ADJUSTMENT

- (1). Open the blade guard.
- (2). Remove the blade guide assemblies (top and bottom)
- (3). Loosen the hex head screw in the tilting mechanism to a point where it is loose but snug.
- (4). With the machine running, adjust both the set screw and blade tension knob simultaneously to keep constant tension on the blade. The setscrew and blade tension knob are always turned in opposite directions, i.e., when one is turned clockwise the other is turned counterclockwise. The blade is tracking properly when the back side just touches the shoulder of pulley or a slight gap appears near the center line of the pulley. Care should be taken not to over-tighten the saw blade since this will give a false adjustment and limit life of the blade.
- (5). Tighten the hex head screw in tilting mechanism. **IMPORTANT:** Sometimes in trying to make this critical adjustment it is possible to cause the basic setting to be misaligned. Should this occur, proceed as follows:
 - a. Loosen the set screw and back it out as far as it can go and still remain in the threaded hole.
 - b. Turn the hex head screw clockwise until it stops (do not tighten).
 - c. Turn the set screw clockwise until it bottoms, then continue for half a turn and check the tracking by turning on the machine.
 - d. If further adjustment is required, go back to step 4.
- (6). Turn off power to the machine.
- (7). Replace the blade guide assemblies--it may be necessary to loosen the blade tension a lightly.
- (8). Adjust the vertical position of blade guide bearing assemblies so that the back side of the blade just touches the ball bearing.
- (9). Make a final run to check tracking. If required, touch up adjustment (See step 4)
- (10). Replace the blade guards.

12. MAINTENANCE

CAUTION: MAKE CERTAIN THAT THE UNIT IS DISCONNECTED FROM THE POWER SOURCE BEFORE ATTEMPTING TO SERVICE OR REMOVE ANY COMPONENT.

It is easier to keep machine in good condition and at it's best performance level by means of proper maintenance

(1) Daily Maintenance (by operator)

- (a) Fill the lubricant before starting machine everyday.
- (b) If the temperature of the spindle over-heats or makes strange noises, stop the machine immediately to check for damage.
- (c) Keep the work area clean; switch off power source; take chips away from the machine and follow lubrication instructions before leaving.

(2) Weekly Maintenance

- (a) Clean and coat the leading screw with oil.
- (b) Check to see if sliding surface and turning parts lack lubricant. If the lubricant is insufficient, fill it.

(3) Monthly Maintenance

- (a) Check fixed vise for proper alignment.
- (b) Lubricate bearing and worm shaft to avoid wear.

(4) Yearly Maintenance

- (a) Adjust table & vise to maintain accuracy.
- (b) Check electric cord, plugs, switches at least once a year.

13. LUBRICATION:

Lubricate the following components using SAE-30 oil as noted.

- (1). Ball-bearing.

- (2). Driven pulley bearing.
- (3). Vise lead screw as needed.
- (4). The drive gears run in an oil bath and will not require a lubricant change more often than once a year, unless the lubricant is accidentally contaminated or a leak occurs because of improper replacement of the gear box cover. During the first few days of operation, the worm gear drive will run hot. Unless the temperature exceeds 200F., there is no cause for alarm.

The following lubricants may be used for- the gear box:

Atlantic Refinery Co.	Mogul Cyl. Oil
Cities Service	Optimums No. 6
Gulf Refinery Co	Medium Gear Oil
Pure oil Co.	Park Clipper

14. TROUBLE SHOOTING

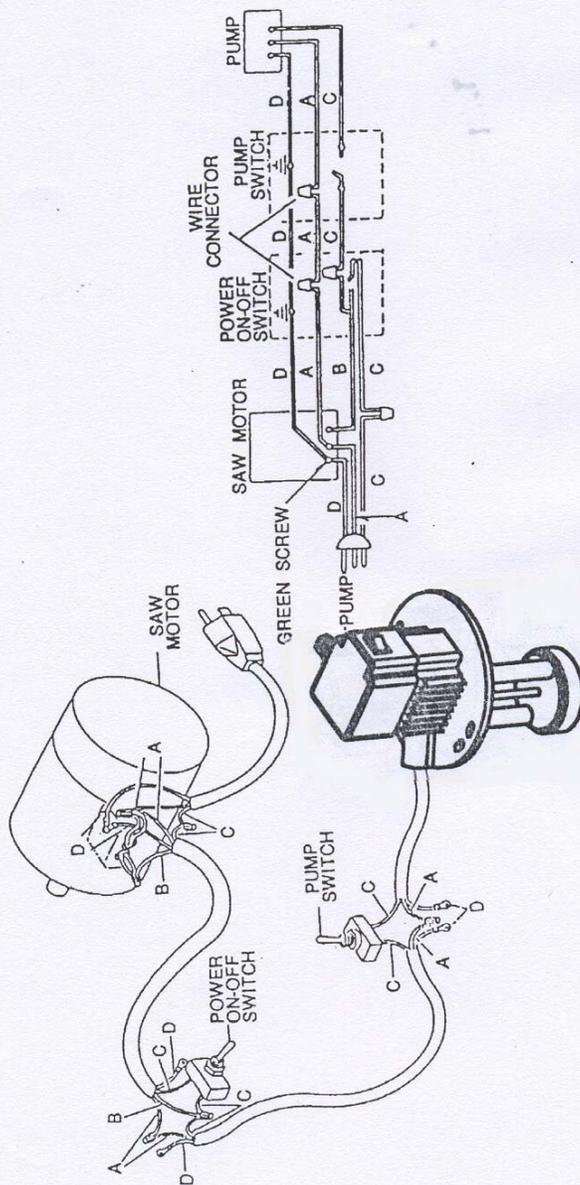
Symptom	Possible Cause(s)	Corrective Action
Excessive Blade Breakage	<ul style="list-style-type: none"> 1. Materials loosen in vise. 2. Incorrect speed or feed 3. Blade teeth spacing too large 3. Material too coarse 5. Incorrect blade tension 6. Teeth in contact with material before saw is started 7. Blade rubs on wheel flange 8. Miss-aligned guide bearings 9. Blade too thick 10 Cracking at weld 	<ul 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	<ul 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 	<ul 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	<ul style="list-style-type: none"> 1. Blade guides worn. 2. Blade guide bearings not adjust properly 3. Blade guide bearing bracket is loose 	<ul style="list-style-type: none"> 1. Replace. 2. Adjust as per operators manual 3. Tighten.
Teeth Ripping from Blade.	<ul 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 	<ul 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	<ul 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 	<ul 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.

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

16.WIRING DIAGRAM

**WIRING DIAGRAM
TOGGLE SWITCH SINGLE PHASE**

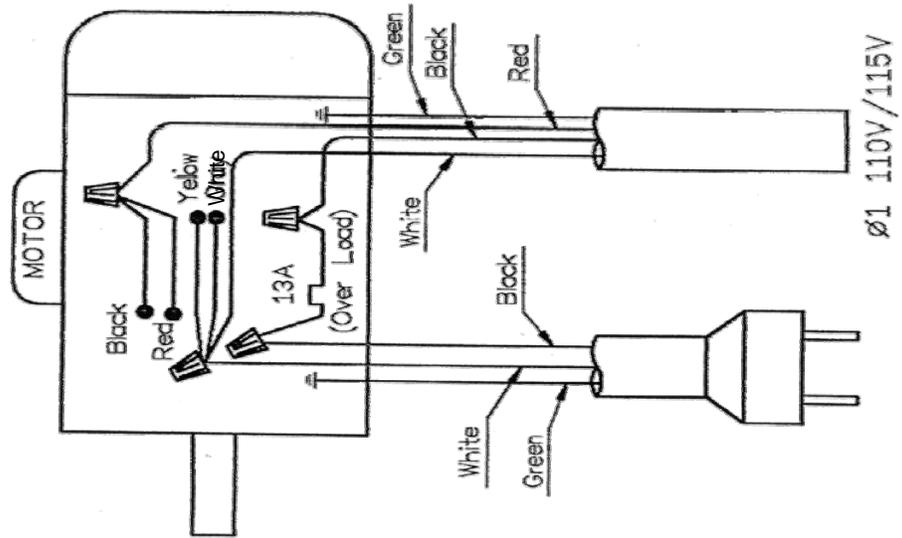
712N



COLOR	REF NO.	A	B	C	D
HZ		BLUE	BLACK	BROWN	YELLOW GREEN
50		WHITE	RED	BLACK	GREEN
60					

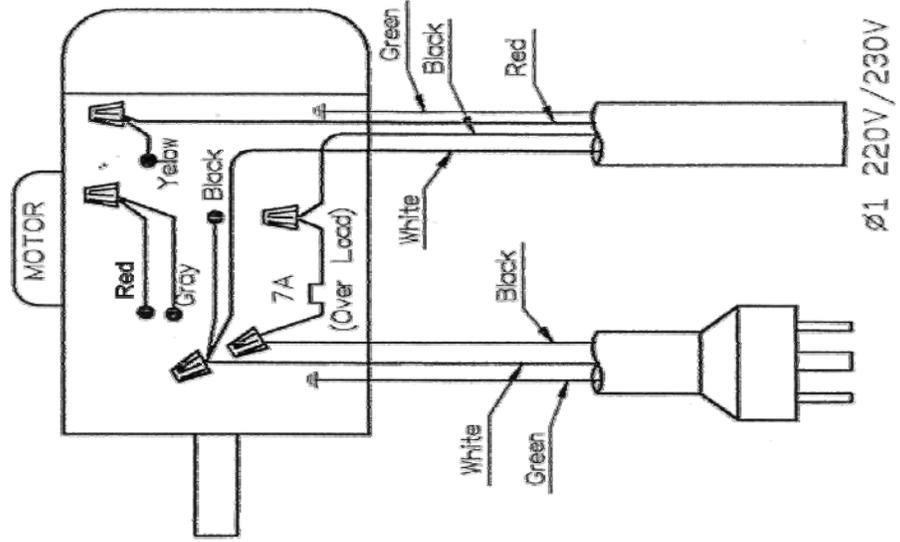
G0561

Electrical Schematic-110/115V



W-M-1

Electrical Schematic-220/230V



W-M-1

17.CIRCUIT DIAGRAM

