



DAKE VERTICAL BAND SAW

Model V-16

INSTRUCTION MANUAL



Please record your saws information

		VERTICAL BANDSAW	
A Laguna Tools Company			
MODEL	V-16	MOTOR	1.5 KW
WELDER	2.4 KVA	CONTROL VOLT	110 V
VOLTAGE	220 V	FREQUENCY	60 Hz
SER. NO	<input type="text"/>	DATE	<input type="text"/>
www.dakecorp.com			

DAKE (A Laguna Tools Company)

1809 Industrial Park Dr.

Grand Haven, Michigan 49417

Phone 800-937-3253

Web: www.dakecorp.com

E-mail : customerservice@dakecorp.com

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FOREWARD

First of all, we would like to take this opportunity to thank you for selecting our Dake V-16 model vertical Bandsaw.

As you know, the vertical bandsaw is a universal saw for contour cutting. Blade selection is important and by choosing the right blade, you can make most any pattern cutting on most any material with this machine. However, the most important thing is to realize how to operate it in a safe and correct way and how to maintain it.

We have tried to supply you all the information about these. Please be sure to look through all the contents in this manual so that you may obtain the maximum efficiency and the longest machine life with minimum expense.

The specifications and information in this manual were current at the time this manual was approved for printing. Dake, whose policy is one of continuous improvement, reserves the right, however, to change specifications or design at any time without incurring obligations.

Always include the part number, model number, and parts description, for parts orders or correspondence concerning your bandsaw, so we can supply you a rapidly after-sales service.

▲WARNING

1. Read the operator's manual carefully. Learn the tools applications and limitations, as well as the specific potential hazards peculiar to it.
2. Always wear approved safety glasses/face shields while using this machine.
3. Make certain the machine is properly grounded.
4. Before operating the machine, remove tie, rings, watches, other jewelry, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. DO NOT wear gloves when operating.
5. Keep the floor around the machine clean and free of scrap material, oil and grease.
6. Keep machine guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
7. DO NOT over reach. Maintain a balanced stance at all times so that you do not fall or lean against blades or other moving parts.
8. Use only sharp blades. Dull blades are dangerous.
9. Make all machine adjustments or maintenance with the machine unplugged from the power source.
10. Use the right tool. Don't force a tool or attachment to do a job which it was not designed for.

11. DO NOT make cuts requiring more power than is available on the machine.
12. Replace warning labels if they become obscured or removed.
13. Make certain the motor switch is in the OFF position before connecting the machine to power.
14. Give your work undivided attention. Looking around, carrying on a conversation. And “horse-play” is careless acts that can result in serious injury.
15. Make a habit of checking to see that keys and adjusting wrenches are removed before turning on the machine.
16. Keep visitors a safe distance from the work area.
17. Use recommended accessories; improper accessories may be hazardous.
18. Never place hands directly in line with the saw blade.
19. Always use push sticks when cutting small material.
20. Raise or lower the blade guide only when the machine has been turned off and the blade has stopped moving.
21. Read and understand warnings posted on the machine.
22. DO NOT use attachments for any other purpose than for what they were designed for.
23. Failure to comply with all of these warnings could lead to serious injury.

INSTALLATION

WARNING!!!

The machine table must NOT be used as a lifting point. Damage to the saw could occur.

UNLOADING: Remove the shrink-wrap covering the machine, careful not to damage painted surfaces. **Carefully inspect the machine for physical damage. If damage is noted, notify the truck line at once. They may require inspection, and that a claim be filed.** Check that all standard accessories are with the machine. Some accessories may be boxed or placed behind the rear access door. The band saw is provided with a lifting eye that is screwed into the top of the machine. This lifting eye may be located in the rear compartment.

Particular care should be taken in selecting areas of the machine for handling, as electrical components and adjustment knobs can be marked up or damaged. Remove the mounting bolts holding the machine to the skid, using the lifting eye, remove the machine from the skid and set in designated area.

CLEANING

1. Remove anti-rust oil.
2. Remove the coating with a clean brush applied with appropriate solvent.
3. When the coating has been softened, remove it with clean rag.

POWER SUPPLY

1. Shut off the main power switch before connecting cable.
2. Check motor voltage against supply voltage.
3. Make sure the power supply is connected to comply with the local safety regulations.
4. Your saw may be pre-wired with a power cable attached. This cable can be hard wired or the preferred method of installing a properly rated quick disconnect.
5. The leads connect to L1, L2, and L3 and ground. The bandsaw must be grounded.
6. Check that the blade is running in the correct clockwise direction. If the blade runs backwards, disconnect the power. Then reverse any two of the three L1, L2, and L3 leads. Do not reverse the ground.

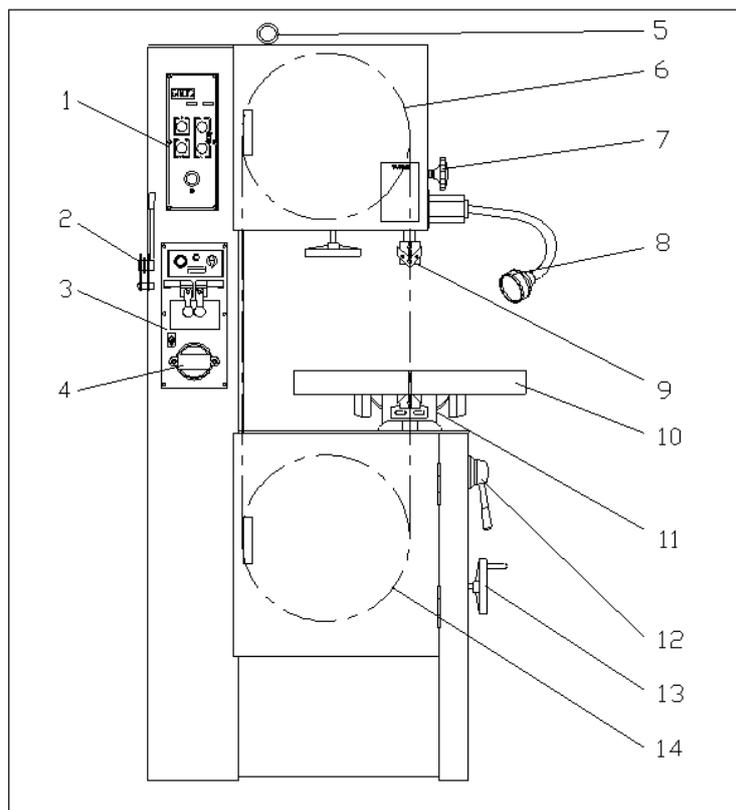
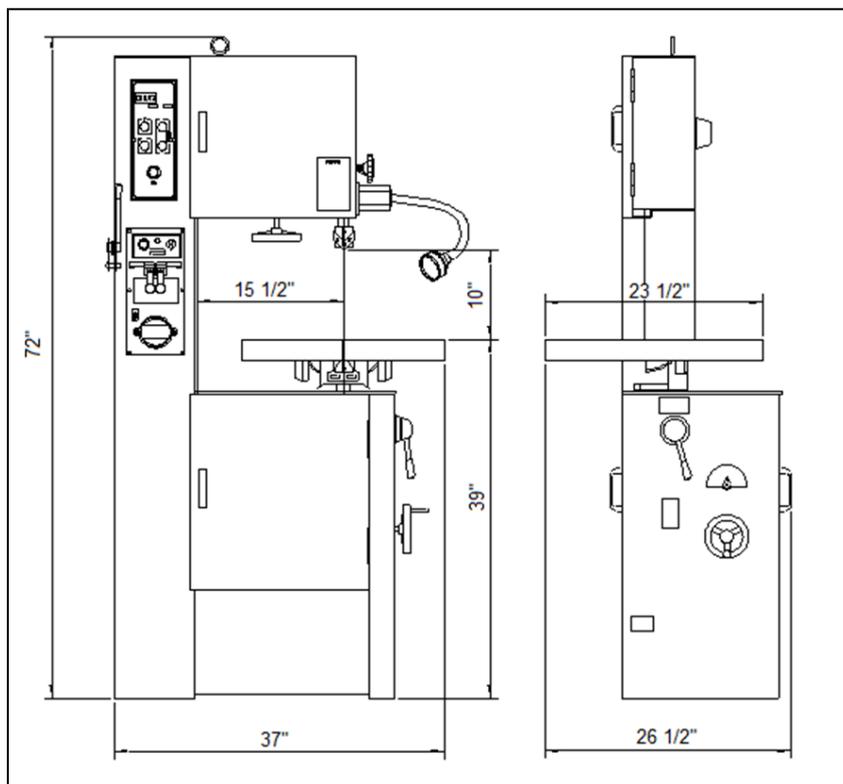
▲ WARNING

All electrical connections must be done by a qualified electrician. Failure to comply may cause serious injury!

All adjustment or repairs must be done with the machine disconnected from the power source. Failure to comply may result in serious injury!

SPECIFICATIONS

Capacity	15 ½" X 10"
Blade Width Cap.	1/8" ~ 5/8"
Blade Speed	82-3,950 fpm
Table Size	21.5" x 24"
Table Tilt	R-15 ° , L- 12 ° , 8 ° Each F & B
Main Drive Motor	230 volt 3 Phase, 2 HP
Grinder Motor	110V, 1 Phase, 0.04 KW
Blade Length	123 ½"
Blade Welder Cap	2.4 KVA, 1/8" ~ 5/8"
Band Wheel Diameter	16"
Table Height	39"
Dimension	37" (Length) 26 ½" (Width) 72" (Height)
Mach. Weight	904 lbs.



1	Control Panel	8	Work Lamp
2	Blade Shear	9	Blade Guide Supports
3	Welder Panel	10	Work Table
4	Grinding Wheel Motor	11	Table Support Housing
5	Lifting Eye	12	Low/High Range Shift Lever
6	Upper Wheel	13	Variable Speed Hand Wheel
7	Guide Post Lock Knob	14	Lower Wheel

▲CONTROLS

Low/High Range Shift Lever –

Located on right side of machine base. Pull toward the front of the machine to shift into the low speed range. Push toward the rear of the machine to shift into the high-speed range. Caution: Do not change the speed range while the machine is running. Adjust only when the machine is stopped NOTE: If the lever will not mesh the speed range, slightly rotate the band wheel and the lever will go into gear.

Variable Speed Hand Wheel –

Located below the worktable on right side of machine base. Turn clockwise to increase speed and counter-clockwise to decrease speed.

Caution: Do not turn handle while machine is stopped. Adjust speed only when machine is running. RPMs will be displayed on the control panels digital readout.

Upper Guide Post Lock Knob –

Located on right side of upper frame. Turn counter-clockwise to loosen and clockwise to tighten. Always support the guide post when adjusting this knob to prevent unexpected dropping of the guide post.

Work Lamp Switch – Turn lamp on and off. Caution must be used as light will be hot.

Blade Shear Lever –

Located on upper left hand side of the column. Lever up position allows insertion of the blade into the shear. Pull lever downward to cut the blade. (This shear unit must be mounted during set up)

Grinder Toggle Switch –

Located on the blade welder panel found on columns front. Flip switch up to start grinder; flip down to stop grinder. This motor has temperature protection which will turn off the power automatically when the motor is over-heating. Motor will reset once it cools down.

Weld Button –

Located on the blade welders panel found on the front of the column. Depress and hold to start welding. Shuts off automatically when weld is done. Release when weld is completed

Anneal Button –

Located on the blade welders panel found on the front of the column. Depress and hold to anneal blade, release to stop.

Blade Clamp Pressure Knob –

Located on the blade welders panel found on front of the column. Sets pressure for different width blades.

Blade Clamps –

Located on the blade welder panel found on the front of the column. Down position allows insertion of the blade into the clamp. Up position locks blade

Blade Tension Hand Wheel –

Located on underside of the upper frame. Turn clockwise to tension the blade; counter-clockwise to release tension on the blade.

Blade Tracking Hand Wheel –

Located at the upper rear of the saw. Turn clockwise to track the blade toward front of the blade wheel Turn counter-clockwise to track blade toward rear of the blade wheel. (Do not let the blade ride up onto the wheel lip)

Table Tilt Mechanism –

Located under worktable. To tilt table left or right, loosen hex cap screws at the rear of the mechanism. Always tighten table bolts before operating the saw.

Power indicator Light –

Indicates that power to the control panel is on.

Key Lock Switch–

Turn the key to the 12 o'clock position and remove key to lock out power from the control panel.

System Fuse Holder –

Holds the fuse that renders the saw inoperable when blown.

Main Motor Start Switch –

Depress to start bandsaw.

Main Motor Stop Switch –

Depress to stop bandsaw.

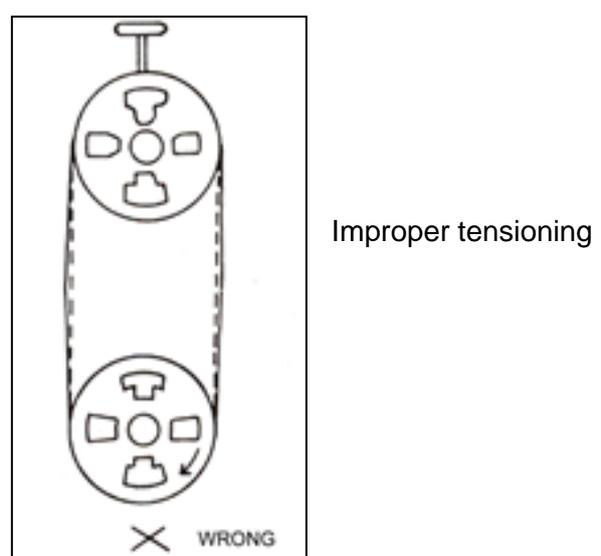
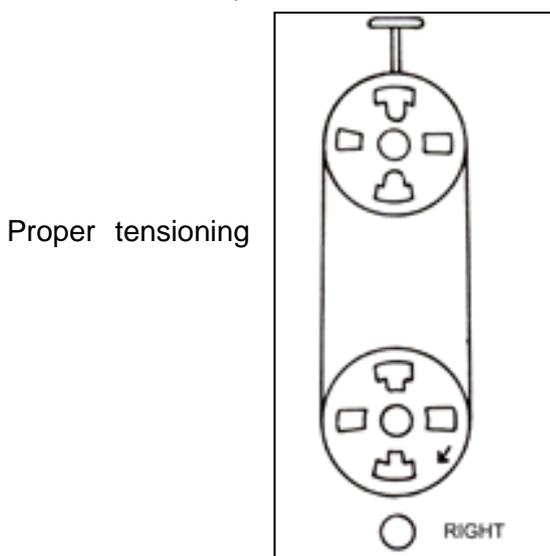
Emergency Stop Switch –

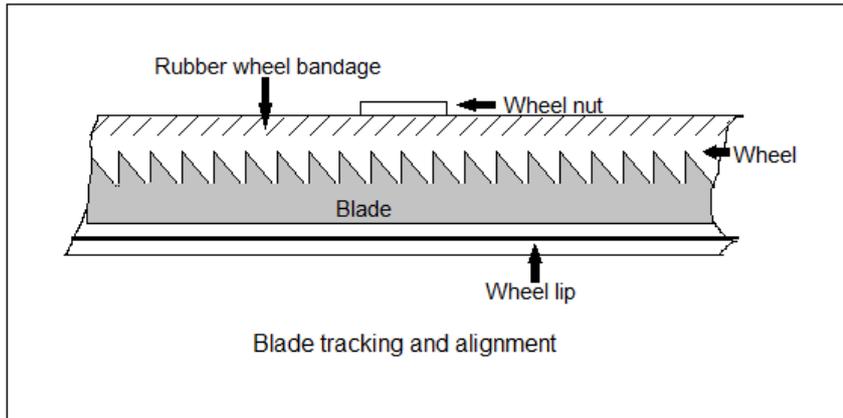
Press to stop the machine. Turn knob 90° to reset.

OPERATIONS

BLADE INSTALLATION

1. Install the blade as illustrated through the guides and onto the upper and lower wheels. Replace any guarding that was removed after blade is installed.
2. Adjust blade tension per the tension scale by turning the blade tension adjustment hand wheel. The scale is visible from the rear side.
3. Jog the machine to see if the blade tracks properly, adjust blade tracking by turning the tracking adjuster when it is necessary. (See blade tracking section on next page for further details)





BLADE TRACKING

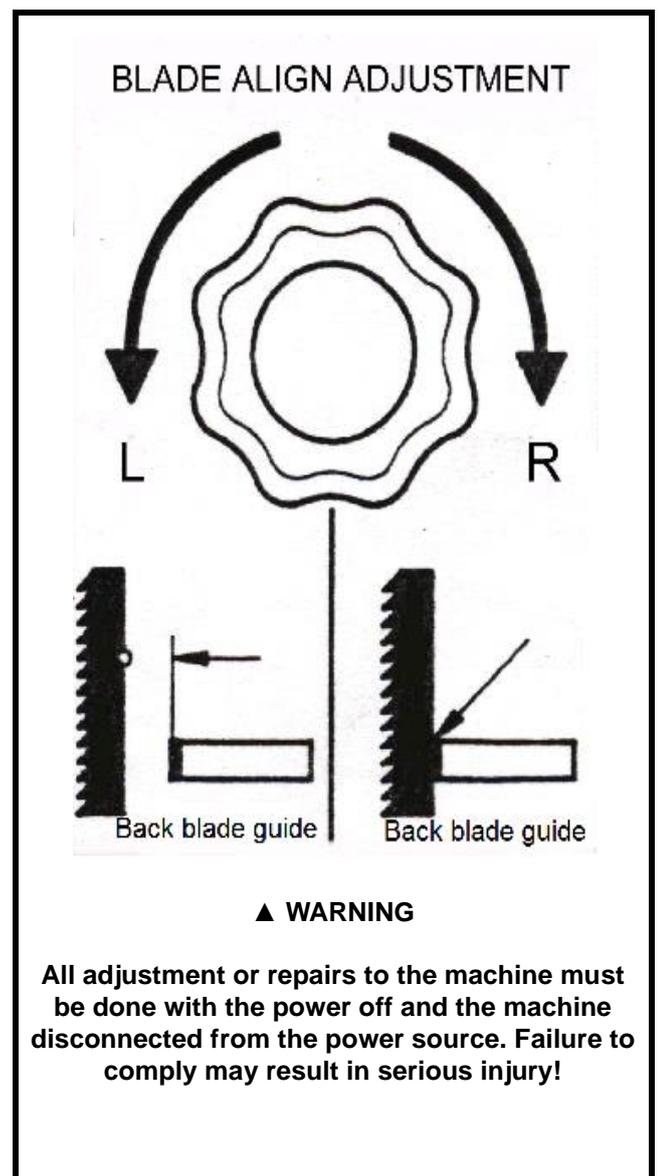
Blade tracking may be required from time to time depending on the blade size and tension. Disconnect the machine from the power source and open both blade wheel doors. Shift the high-low gearbox lever into the neutral position. Turn the upper blade wheel by hand while observing blade position on the upper blade wheel to determine if adjustment is necessary:

- Turn blade tracking knob clockwise to track blade toward front of blade wheel.
- Turn counter-clockwise to track blade toward rear of blade wheel. Blade should be tracked as close of the center of the top blade wheel as possible. Do not allow blade to run on the wheel lip.

▲Note: Upper and lower blade guides should be moved away and left loose from the blade while tracking adjustments are being made.

GUIDE POST ADJUSTING

- Loosen the guide post locking knob. Always support the guide post when loosening the guide post to prevent it from unexpectedly falling. (Figure A next page)
- The height of the upper guide post setting is in relationship to the height of the material. The height between the material and the blade guide end is suggested to be about 1/4". (See figure B illustration on next page)
- Lock the guide post tightly.



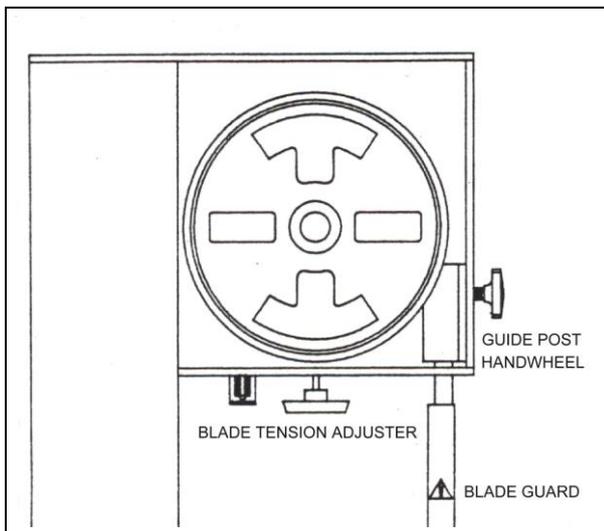


Figure A

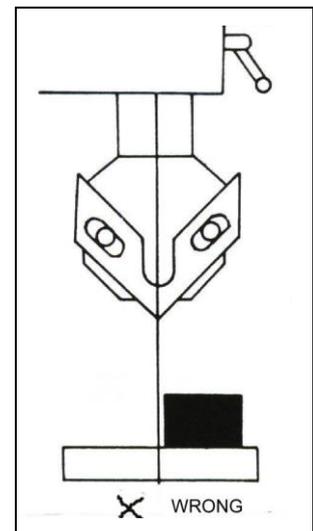
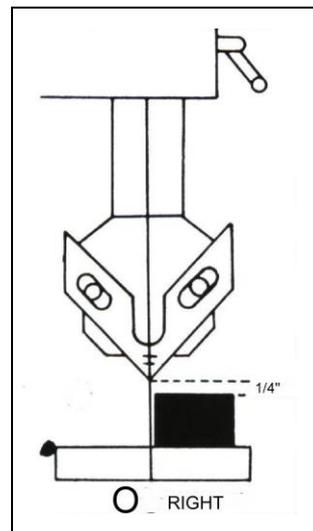
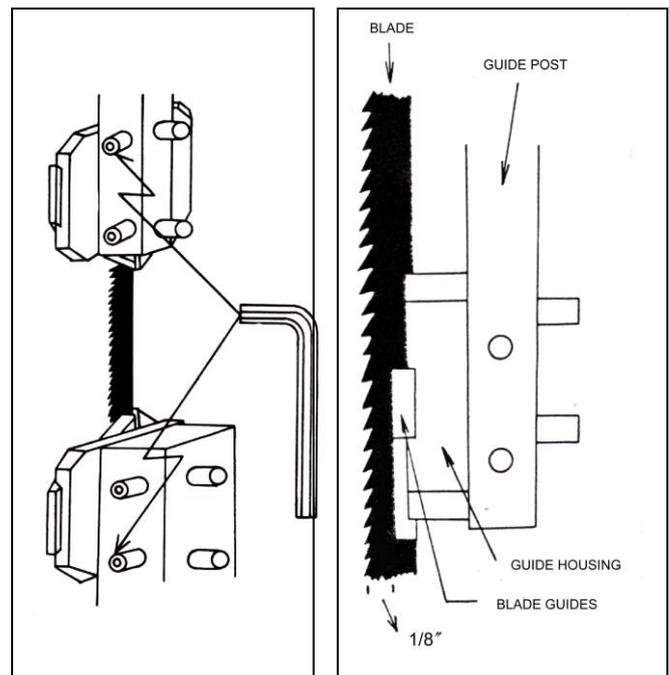


Figure B

▲ It may be necessary to open the blade guides, before you adjust the guide post to allow free movement of the guide post.

GUIDE HOLDER ADJUSTMENT

1. Loosen the inner hex screws located at the right lower side of guide post with an “L” shaped allen wrench.
2. Adjust the guide holder forward or backward according to the blade width. The front edge of the blade guides must be adjusted about 1/8” behind the blade teeth. (see figure B next page)
3. Tighten the screws securely.



BLADE GUIDE ADJUSTING

1. Loosen the inner hex screws of the blade guide with an “L” shaped allen wrench.
2. Adjust the blade guides very close to the blade but not touching the guide faces. (approx. thickness of a business card)
3. With blade tight allow guides to ride up to the blade not forcing them off center. Tighten the blade guides securely. (See figure A next page)

NOTE: There are a total of four blade guides and two guide holders located above the table and under the table, all to be adjusted to the same position.

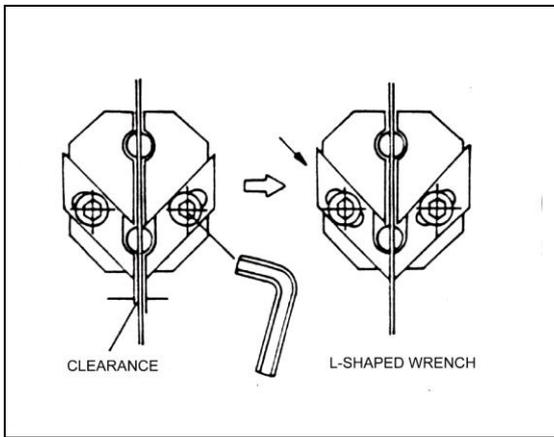


Figure A

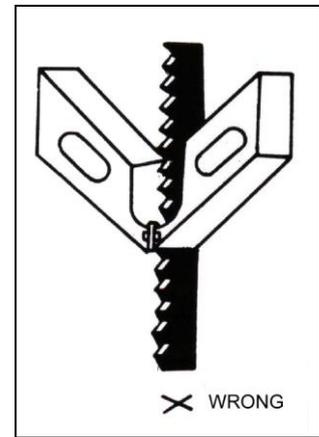
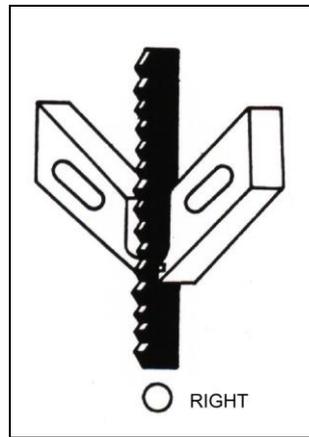
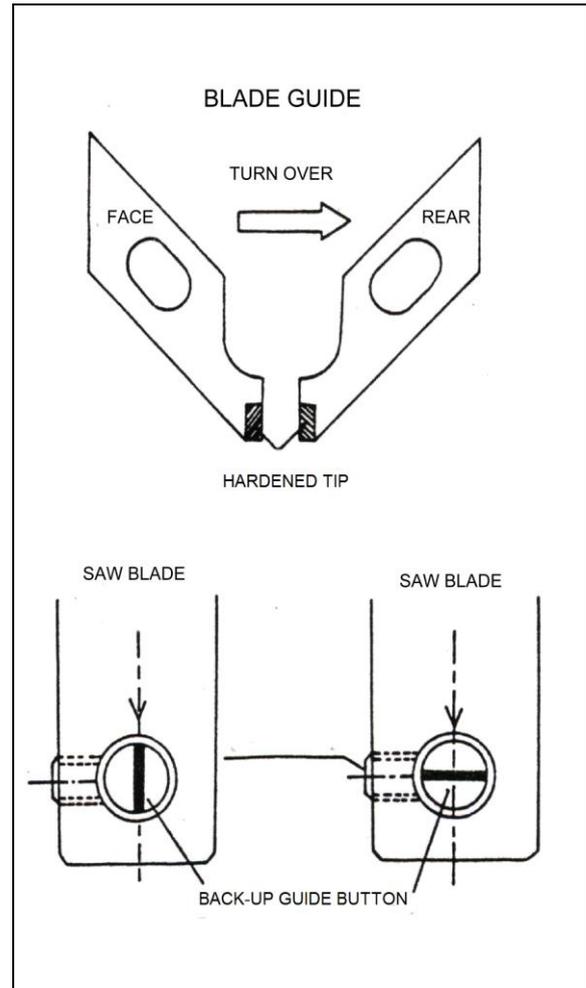


Figure B

The blade guides will wear after time at the front faces. If the blade guides become hard to be properly adjusted, turn the left blade guide over to the right side, as illustrated in the right illustration, and turn the right-side blade guide over to the left side as well. The blade guides can then be used on both sides getting more mileage out of the guides.

The backup blade guide button will wear over time as friction from the saw blade may cause a worn line on its surface. If this is found to happen, loosen the lower guide holder bolt and turn it to rotate the button shaft to change the buttons position on the saw blade.



▲ CAUTION

Blade guide must be properly adjusted or damage may occur to the blade and/or the guides.

BLADE SELECTION

To get the most satisfactory work from your saw, it is important to choose a blade that is correct for the work. Blade life, cut straightness, finishing quality and sawing efficiency is all related to the choice of blade. Blade breakage, teeth stripping, crooked cuts, and other common complaints are, in most instances, caused by using the wrong blades. Blades are classified by materials, tooth shapes, and types of set.

TYPES OF BLADES

Bandsaw blades are available in specific sizes, or in 100 feet coils. They are made from several different metals:

1. Carbon Steel Blade: which are widely used because of their general adaptability for all types of work and the low cost. They are excellent for cutting nonferrous metals and plastics.
2. High-Speed Steel Blade: which resist heat generated in cutting to far greater extent than carbon steel blades. They are best suited for cutting ferrous metals.
3. Alloy Steel Blade: which are tougher and more wear resistant than either of the above. They will cut faster and longer than blades of carbon or high-speed steel.
4. Carbide-Tipped Blade: which are best used for cutting unusual materials such as uranium, titanium, and beryllium. These metals are difficult to cut with other types of blades.

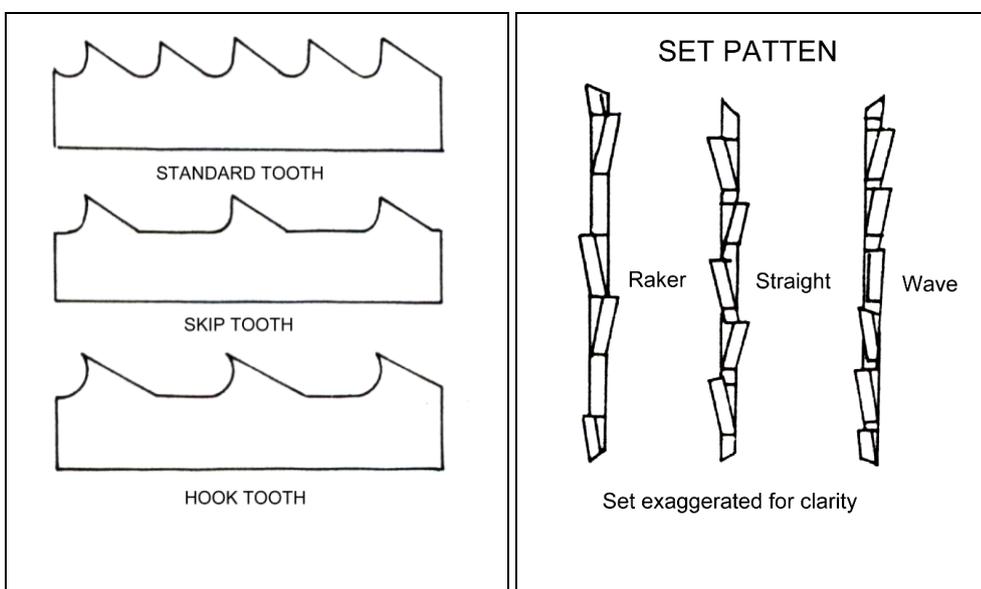
TOOTH SHAPES

The regular or standard tooth is preferred for all ferrous metals and general-purpose cutting. The skip-tooth blade has widely spaced teeth to provide the added chip clearance needed for cutting softer nonferrous materials. The hook, or saber tooth blades has a 10° undercut which permits better feed and chip removal, it is best for the harder nonferrous alloys.

SET TYPES

Regular or rake set is generally furnished on saws that have 2 to 24 teeth per inch. These blades have one tooth set to left, one to right, and one unset tooth called a rake. This set is used when material is to be contour cut. Wavy set is furnished on saws that have 8 to 32 teeth per inch. This set has groups of teeth bent alternately to left and right, which greatly reduce the strain on individual teeth. Saws with wavy set are used where tooth breakage is a problem, such as in cutting thin stock or where a variety of work is cut without changing blades.

Of the three common set patterns, only raker and wave are now used in metalworking.



Always use rake set except:

For work of varying cross section use wave set.

When one blade must be used for a range of material sizes use wave set

▲ PLEASE NOTE THAT CORRECT BLADE SELECTION IS VERY IMPORTANT TO BANDSAW OPERATING AT FULL POTENTIAL. ALWAYS SELECT A BLADE ACCORDING TO THE MATERIAL SHAPE AND THICKNESS OF THE WORK
Always break in the blade per blade manufactures recommendations.

SAW BLADE SELECTION

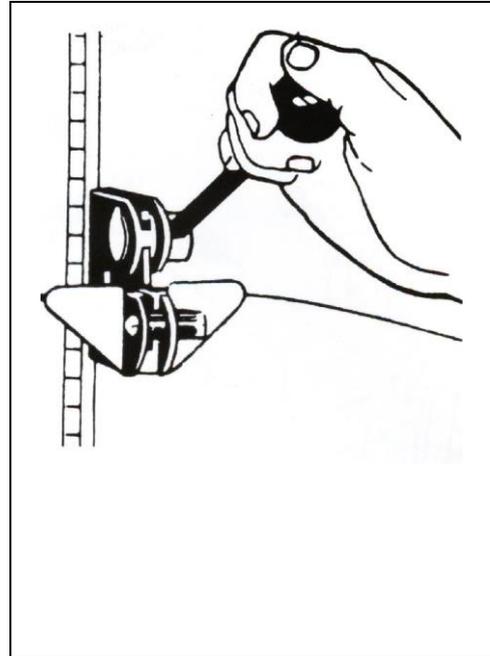
	MATERIAL SHAPE	MATERIAL SHAPE	MATERIAL SHAPE
MATERIAL IN	■	●	○ H A
INCHES	TOOTH SELECTION	TOOTH SELECTION	TOOTH SELECTION
0	14 / 18	14 / 18	14 / 18
.1	14 / 18	14 / 18	14 / 18
.2	14 / 18	14 / 18	14 / 18
.3	10 / 14	14 / 18	10 / 14
.4	8 / 12	10 / 14	8 / 12
.5	8 / 12	8 / 12	6 / 10
.6	6 / 10	8 / 12	5 / 8
.7	6 / 10	6 / 10	5 / 8
.8	5 / 8	6 / 10	5 / 8
.9	5 / 8	5 / 8	5 / 8
1	5 / 8	5 / 8	4 / 6
1 1/4	4 / 6	5 / 8	4 / 6
1 1/2	4 / 6	4 / 6	4 / 6
1 3/4	4 / 6	4 / 6	4 / 6
2	4 / 6	4 / 6	3 / 4
2 1/4	4 / 6	4 / 6	3 / 4
2 1/2	3 / 4	4 / 6	3 / 4
2 3/4	3 / 4	4 / 6	3 / 4
3	3 / 4	3 / 4	3 / 4
3 1/4	3 / 4	3 / 4	3 / 4
3 1/2	3 / 4	3 / 4	3 / 4
3 3/4	3 / 4	3 / 4	2 / 3
4	3 / 4	3 / 4	2 / 3
5	2 / 3	3 / 4	2 / 3
6	2 / 3	3 / 4	2 / 3
7	2 / 3	2 / 3	1.4 / 2.5
8	1.4 / 2.5	2 / 3	1.4 / 2.5
9	1.4 / 2.5	2 / 3	1.4 / 2.5
10	1.4 / 2.5	1.4 / 2.5	1.4 / 2.5
11	1.4 / 2.5	1.4 / 2.5	1.4 / 2.5
12	1.4 / 2.5	1.4 / 2.5	1.4 / 2.5

WELDER OPERATION

This welder is for occasional use for blade repair and is not intended for welding blades on a regular basis from bulk stock. This welder is best suited for carbon bands but with practice both carbon and bi-metal can also be welded.

BLADE CUTTING

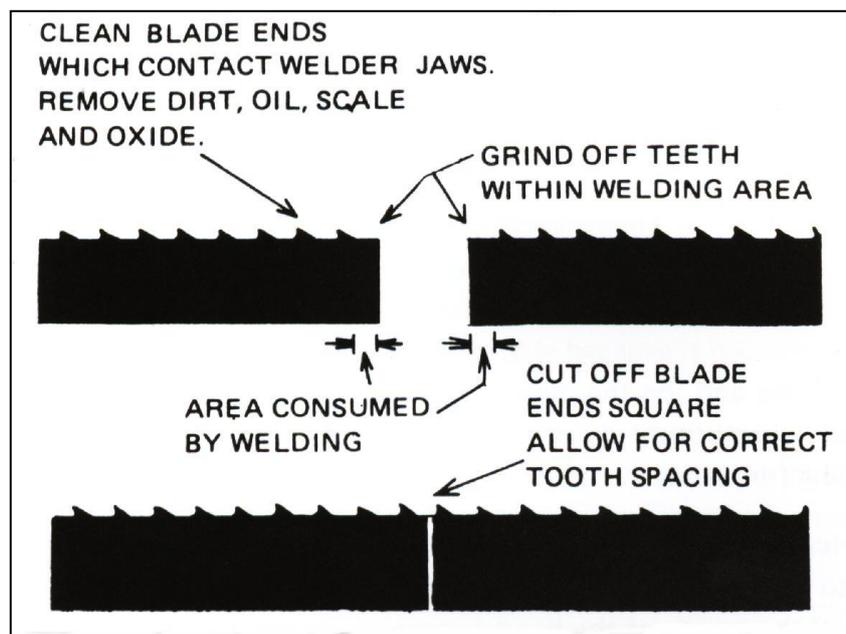
1. Cut the blade to the length of the machine. Using the blade shear will insure that the blade ends are cut flat, square and smooth.
2. Place the back edge of blade against the square cutting guide of the shear and firmly pull the cutting lever down to shear the blade. Both ends of the blade must be sheared to allow for a good butt weld.
3. Keep the shear blade clean and free from blade end pieces that can get trapped in the shear.



Using the Blade Shear.

TOOTH SPACING

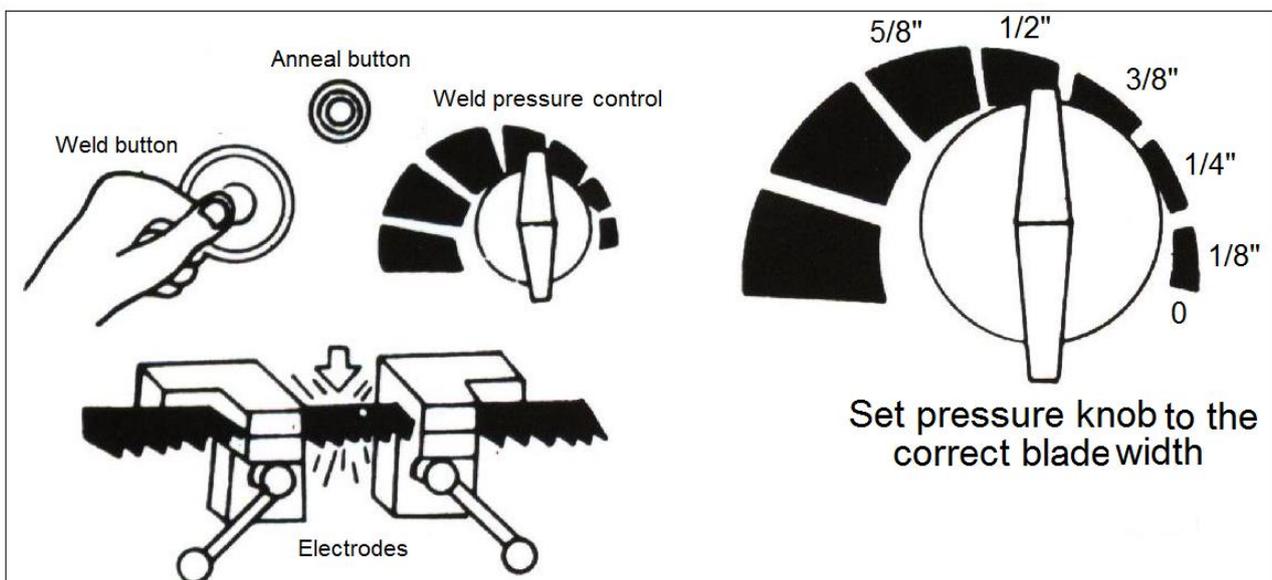
1. On fine-pitched blades, one or more teeth on each side of the cut must be removed by grinding so that the cross section of the weld area of the blade is uniform. Following these guidelines will help make the teeth uniformly spaced after the weld.



▲ **CAUTION:** If the saw blade is rusty, the rust must be ground off before the blade is welded.

WELDING

1. Turn pressure knob to "0" position.
2. Butt blade ends together and locate joint in the center between the two electrodes.
3. Set pressure knob to blade width. (Due to the different materials and thickness of blade, please pay especial attention to the pressure adjustment. Thicker the blade higher the pressure setting.)
4. Press and hold welder button. Do not release until the blade joint is "red" hot. The switch is automatic and will shut welder off after a preset time of 3 or 4 seconds and the blade returns to original color. **Note: The weld joint may throw sparks during welding so wear safety glasses and proper apparel.**



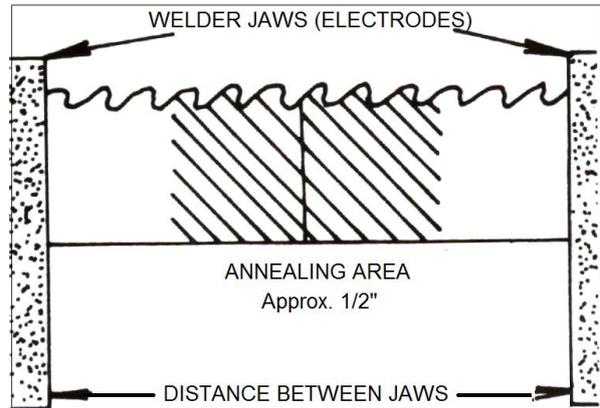
ANNEALING (Carbon Blades)

1. Turn pressure knob to "0" position.
2. Release blade and center the weld joint at the front of the electrodes. (At the wider part)
3. Press and jog the annealing switch button until the weld is a "dull cherry" to "cherry red" color. Allow the blades to cool slowly by decreasing the jogging frequency.
4. Perform the annealing operations 4 or 5 times, gradually reducing the heat each time.
5. Remove any welding dust or scale from the joint and anneal 2 or 3 more times, successively at lower temperatures. (quicker series of press and release of annealing button)

ANNEALING (Bi-Metal)

Set up blade for annealing as mentioned above for carbon blades steps 1 & 2.

Heat the band slowly by jogging the annealing switch button until the weld just begins to emit light (this would be the dull red color) or minute puff of smoke. The desired color may not be visible in normal room light. Always shade the weld area with your hand. Cool the weld quickly by releasing the annealing button. Repeat this operation 4 or 5 times.



▲ NOTE: This procedure should be followed both before and after grinding BI-METAL Blades.

GRINDING THE WELDED BLADE

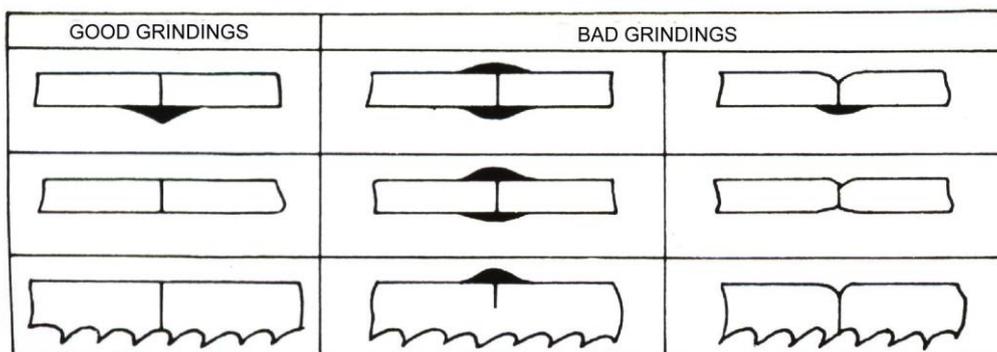
▲ WARNING

Keep hands away from rotating grinding wheel. When not in use make, sure wheel is covered with built in cover

After welding, the blade must be dressed to remove excess metal or flash from the weld. Grind the welded area down to the same thickness as the rest of the band. Handle the blade carefully.

Grind Carefully: do not hit the teeth; or grind deeper than the thickness of the blade; or overheat the weld area. Be sure to remove flash from the back edge of the blade. Any flash or "stub" teeth that project beyond the normal set or height of the other teeth must be ground off.

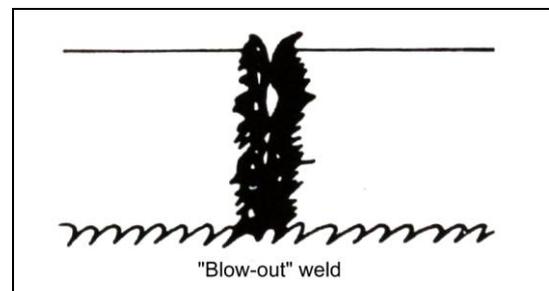
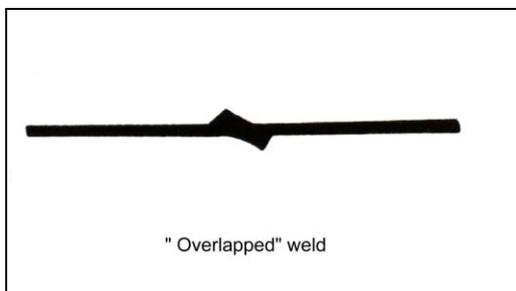
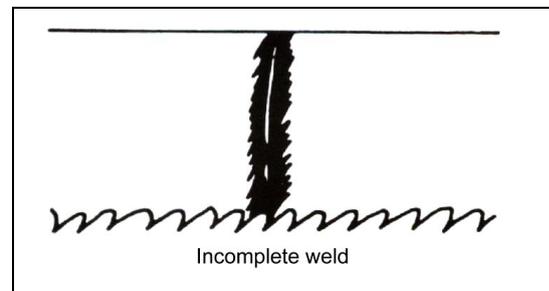
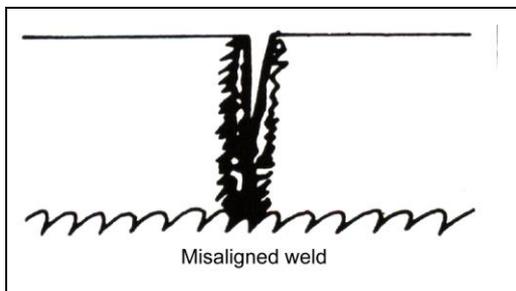
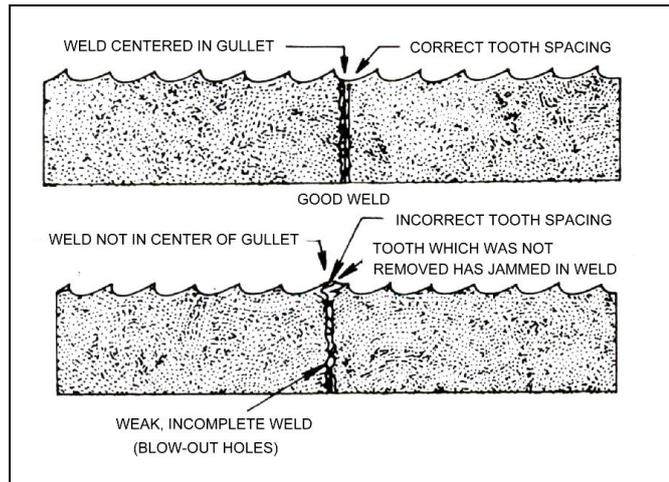
Anneal the welded area that was ground again. Anneal 2 or 3 times using a lower temperature. (Just as area starts to emit light)



INSPECION OF THE WELD

When the blade is removed from the welder it should be inspected carefully.

The spacing of the teeth should be uniform and the weld should be located in the center of the gullet. Major jaw misalignment is easily noted at this time from the weld appearance. See the trouble shooting chapter if the weld is imperfect.



▲ CAUTION: This welder is designed for intermittent use. Repeated welding within a short period of time may cause the welder to overheat.

TROUBLE SHOOTING

MISALIGNED WELD

- (1) Dirt or scale on jaws or blade.
- (2) Blade ends not cut off square.
- (3) Blade ends not correctly aligned when clamped in jaws.
- (4) Worn jaws or inserts.
- (5) Jaws are not aligned correctly.

MISALIGNED WELD-BLADE ENDS ARE OVERLAPPED

- (1) Jaw Upset Force Control set for wider blade than used, re-adjust correctly.
- (2) Blade ends or jaws not aligned correctly.

WELD BREAKS WHEN USED

(Joint is not complete, “blow holes” in joint)

- (1) Weld not annealed correctly.
- (2) Weld has been ground too thin.
- (3) Weak “Incomplete” weld.

INCOMPLETE WELD (Items 3 – 8 requires welder removal)

- (1) Incorrect Initial Set-Up:
 - (a) Initial jaw gap (weld lever position) not set correctly.
 - (b) Upset force control not set correctly.
- (2) Improper clamping procedures.
- (3) Defective cut-off switch may not break the circuit at end of welding operation.
- (4) Cut-off Switch not adjusted correctly.
- (5) Points of cut-off switch welded together.
- (6) Slide Rod sticking because of rust or dirt. Clean and oil the rod.
- (7) Slide Rod movement obstructed because the stop screw too tight on the Rod.
- (8) Jaw movement obstructed by kinked jaw cable or tangled wires. Bend cable and untangle wires.

BRITTLE WELDS

Weld has not been annealed correctly; see “Annealing” in operation chapter. Poor annealing can be caused by:

1. Incorrect annealing heat. Bring weld up to correct color as described under “Annealing” in welder operations chapter.
2. Scale or oil on weld can cause poor annealing.

TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTIONS
The Weld could not be made, the Jaws do not move	A. The wire connection is poor, the connecting point of welding switch is bad B. The transformer is burnt out C. Some oil is on the blade D. Some rust is on the blade ends E. The adjustment of the welding pressure is incorrect	A. Change the welding switch. B. Change the transformer. C. Remove the oil D. Grind off the rust E. Loosen the adjusting screw that is in center of it
The weld area melts the blade not welds it when welding switch is pushed	A. The welding switch cut off too late B. The Welding Pressure is too weak C. The jaw movement is too slow	A. Screw the welding switch Connecting Nut tight B. Turn the welding pressure adjuster clockwise C. Put some oil on the rear side of the welding lever jaws

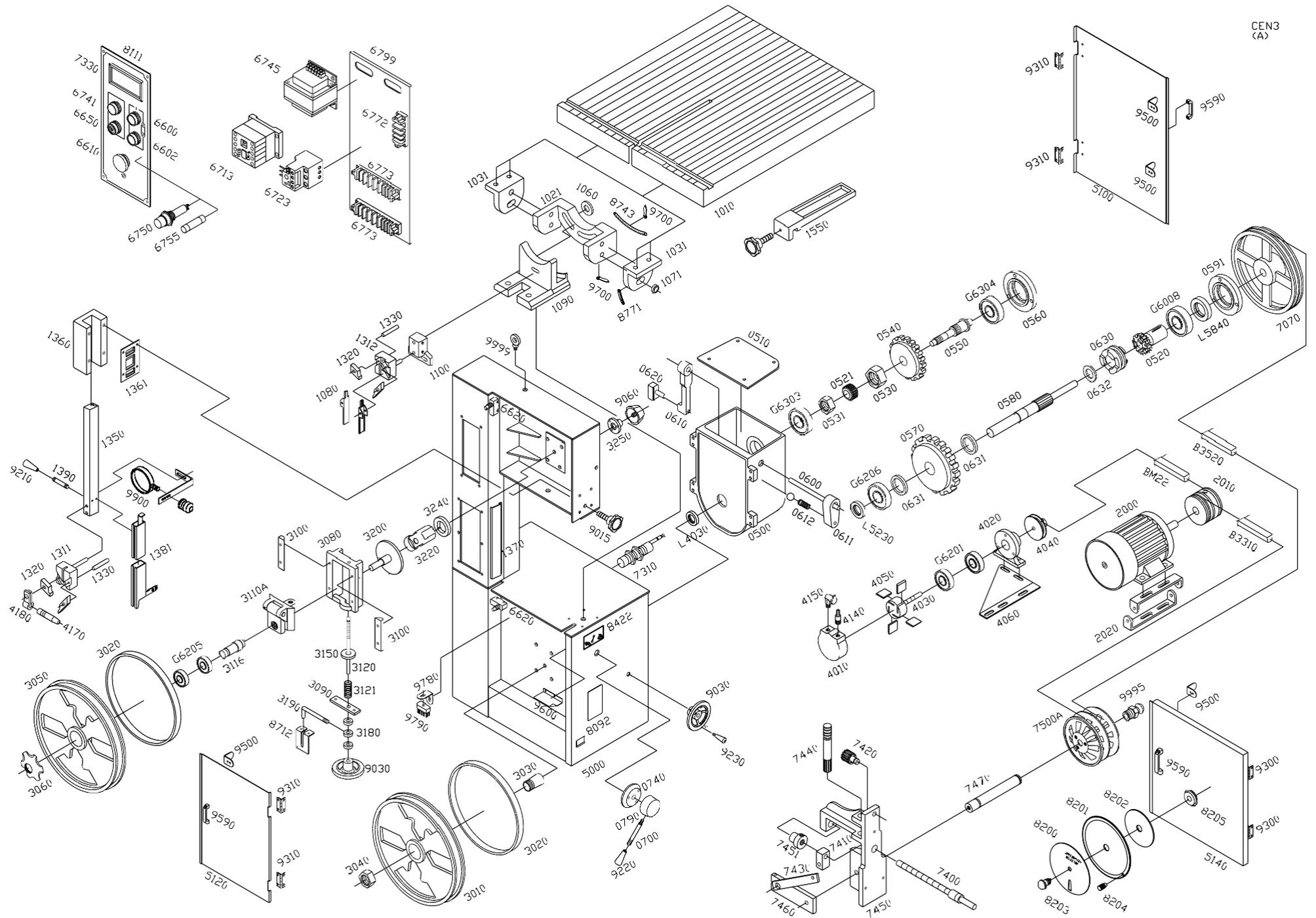
The annealing job cannot be made when pushing the anneal button	A. The connection of annealing switch is loose or broken B. The fuse is blown C. The connection of the electrodes to blade is poor	A. Change an anneal switch B. Change a fuse C. Clean electrode surfaces
The grinder is not running when the grinder switch on	A. The grinder motor is defective B. The grinder switch is defective	A. Replace the grinder B. Replace the switch
The blade can not be tightly clamped with the jaw clamps	A. The jaw clamps are burnt or defective B. The lower jaw inserts defective C. The Jaws are burnt or eroded	A. Change clampers B. Change lower jaw Inserts C. Change jaws
The annealing button will not release to neutral position	Some dust or debris around the anneal button restricting movement	Release the anneal button by gently pulling it to the neutral position Clean out any dust or debris
Blade tooth broken	A. Incorrect pitch for the application B. Brittle blade improper annealing C. Inferior blade	A. Select a right pitch blade B. Re-weld and anneal C. Decrease feeding rate D. Change to high quality blade
Blade damaged	A. Brittle blade improper annealing B. Blade tension out of adjustment C. Too Fast feeding D. Blade teeth hitting guides. E. Cannot cut radius without blade twisting.	A. Decrease the annealing temperature B. Adjust blade tension C. Decrease feed rate D. Adjust a proper gap between the blade and the guide insert E. Change to a narrower blade

PROBLEM	CAUSE	SOLUTIONS
Saw blade is twisted	A. Improper weld B. Blade installed in improper way C. Blade tension too loose D. The blade is being over fed	A. Re-weld the blade again B. Set the guide inserts closer C. Increase blade tension D. Decrease the feeding rate when starting the cut E. Use a proper width blade for radius cutting
The sawing direction deviates	A. The blade tooth is not on even or worn unevenly. B. The blade tension is too loose C. The guide post was set too high	A. Make sure a good blade is used without damaged teeth B. Increase blade tension C. Set the guide post to be within a 1/4" of the work D. Decrease feeding rate
Saw blade walks off	A. Blade tension is too loose B. Blade is not tracked properly	A. Increase blade tension B. Adjust the wheel alignment

The blade dulling prematurely	A. The blade speed is too fast B. The selection of blade is improper C. Feeding rate too fast	A. Slow down the blade speed B. Use a proper blade for the application C. Decrease feeding rate
The blade is not cutting straight vertically	A. The blade dull B. The guide post is not properly fixed C. The blade tension is too loose D. The blade is not exactly 90° to the table	A. Change to a new blade B. Fix the guide post properly 1/4" above material C. Increase blade tension D. Adjust it to be 90°
Excessive noise when machine is running	A. The variable speed pulley is damaged C. The saw is not sitting flat on the floor	A. Change a new pulley B. Reposition the machine on a flat even hard floor

MAINTENANCE

PART OR PLACE TO BE OILDED OR GREASED	TYPE OF OIL OR GREASE	LUBRICATING PERIOD	REMARKS
Bearings	Gear oil	every 6 months	Gear Box:
Guide post sliding part	Grease	weekly	#1350 & #1360
Speed Change handle	Grease	every 6 months	#0600, # 0740, #7120 & #7290
Gear and thread	Grease	every 3 months	#7080 & 7110
Variable pulley	Grease	every 100 hours	#9995: V-16 only
Table slide shaft	Machine oil	N/A	
Upper wheel slide block	Machine oil	monthly	#3100 & #3110
Blade Tension Screw	Grease	monthly	#3110 & #3120
Welder Jaw			(clean up daily)
Rubber Tire			(clean up daily)
Work Table Assembly			(clean up daily)



CEN3
(A)

GEAR BOX COMPONENT

Dake #	Ref.	
303386	0500	1 GEAR BOX
303243	0510	1 GEAR BOX COVER
	0520	1 GEAR
	0521	1 GEAR
	0530	1 SCREW NUT
	0531	1 SCREW NUT
303245	0540	1 GEAR
304031	0550	1 GEAR SHAFT
	0560	1 SHAFT COVER
303244	0570	1 GEAR
	0580	1 MAIN SHAFT
	0591	1 MAIN SHAFT COVER
	0600	1 SPEED CHANGING SHAFT
	0610	1 SPEED CHANGING ARM
	0611	1 SHAFT STOPPER
	0612	1 SPRING
	0620	1 SLIDE BLOCK
	0630	1 CRUTCH
	0631	2 BRASS BRACKET
	0632	1 BRASS BRACKET
	0700	1 SPEED CHANGING LEVER
	0740	1 SHAFT HOUSING
	0790	1 SPEED LEVER RIGHT
303260	7070	1 PULLEY
	9220	1 LEVER KNOB
303773	B3520	1 V-BELT, 7070+VARIATOR
	G6008	1 BALL BEARING
	G6206	1 BALL BEARING
	G6303	1 BALL BEARING
	G6304	1 BALL BEARING
	L4030	1 OIL SEAL
	L5230	1 OIL SEAL
	L5840	1 OIL SEAL

WORK TABLE COMPONENT

Dake #	Ref.	
	1010	1 WORK TABLE
	1021	1 TABLE SUPPORT FRAME
	1031	2 TABLE BRACKET
	1060	2 WASHER, 1/2"
	1071	4 TUBE SCREW
	1080	2 BLADE GUARD
	1090	1 TABLE SUPPORT HOUSING
	1100	1 GUIDE SUPPORT HOUSING
303259	1550	1 RIP FENCE + LOCKER

GUIDE POST COMPONENT

Dake #	Ref.	
303806	1311	1 UPPER GUIDE SUPPORT,
303810	1312	1 LOWER GUIDE SUPPORT,
303233	1320	4 BLADE GUIDE
303235	1330	2 BLADE STOPPER
303808	1350	1 BLADE GUIDE POST
303809	1360	1 GUIDE POST HOUSING
	1361	1 POST CLAMPING SPRING
303670	1370	1 BLADE GUARD, LEFT
	1381	1 BLADE GUARD, RIGHT CE
303804	1390	1 POST HOUSING PIN
303736	9015	1 GUIDE POST LOCKER
	9210	1 HANDLE KNOB

MAIN DRIVE

Dake #	Ref.	
303257	2000	1 MAIN DRIVE MOTOR
303814	2010	1 MOTOR PULLEY
	2020	2 MOTOR SUSPENSION ARM
303774	B3310	1 V-BELT, 2010+VARIATOR
	BM22	1 V-BELT, 2010+4040

WHEEL COMPONENT

Dake #	Ref.	
303252	3010	1 LOWER WHEEL
303262	3020	2 RUBBER TIRE
304030	3030	1 TAPER SLEEVE
	3040	1 WHEEL LOCKING NUT
303269	3050	1 UPPER WHEEL
	3060	2 UPPER WHEEL LOCKER
	3080	1 SLIDE BLOCK HOUSING
	3090	1 SLIDE BLOCK SEAT
	3100	2 SLIDE BLOCK GUIDE
	3110A	1 UPPER WHEEL SLIDER
	3116	1 SLIDER SCREW SHAFT
	3120	1 WHEEL ELEVATE SHAFT
	3121	1 SPRING
	3150	1 WASHER
	3180	3 INDICATOR RING
	3190	1 TENSION INDICATOR
	3200	1 WHEEL TILT ADJUSTER
	3220	1 WHEEL TILT CONNECTER
	3240	1 CONNECTER WASHER
	3250	1 CONNECTER HOUSING
	9030	1 HANDWHEEL
	9060	1 TILT ADJUST HANDWHEEL
	G6205	2 BALL BEARING
	3100A	1 UPPER WHEEL SLIDER
	3111	1 SLIDER COVER
	3116	1 SLIDER SCREW SHAFT
	3120	1 WHEEL ELEVATE SHAFT
	3121	1 SPRING

AIR PUMP COMPONENT

Dake #	Ref.	
	4010	1 AIR PUMP HOUSING
	4020	1 AIR PUMP COVER
	4030	1 AIR PUMP SHAFT
	4040	1 AIR PUMP PULLEY
	4050	4 AIR PUMP LEAVE
	4060	1 AIR PUMP SEAT
	4140	1 AIR OUTLET
	4150	1 AIR INLET
	4170	1 AIR NOZZLE
	4180	1 AIR NOZZLE CLIPPER
	BM22	- V-BELT, 2010 + 4040
	G6201	2 BALL BEARING

MAIN BODY & MISCELLANEOUS

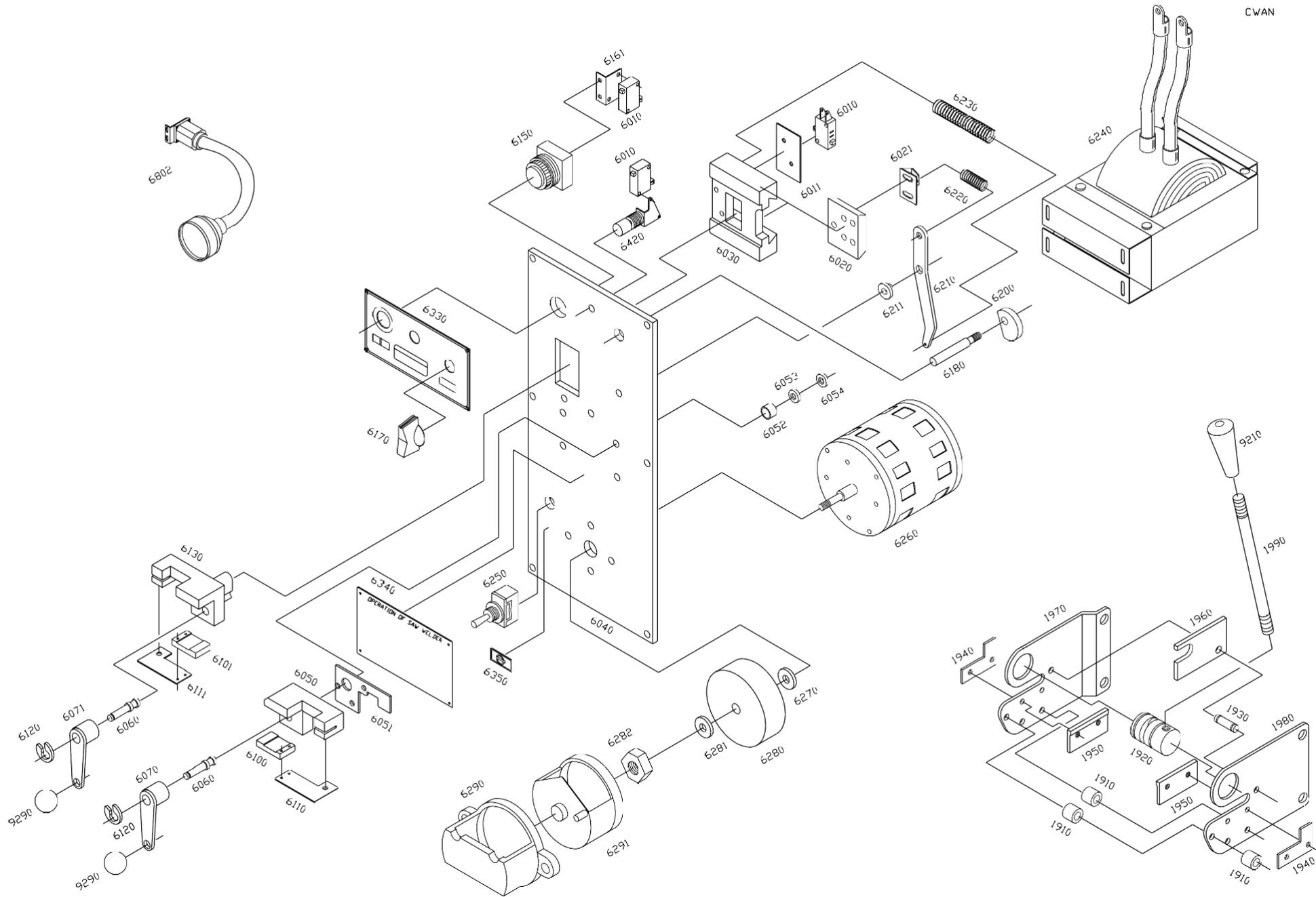
Dake #	Ref.	
	5000	1 MAIN BODY
	5100	1 REAR DOOR, RIGHT
	5120	1 LOWER DOOR
	5140	1 UPPER DOOR
	8092	1 LUBRICATE INSTRUCTION
	8111	1 CONTROL PLATE
	8422	1 GEAR BOX INSTRUCTION
	8712	1 INDICATOR PLATE
	8743	1 TILT INDICATOR, L & R
	8771	1 TILT INDICATOR, F & B
	9300	2 UPPER DOOR HINGE
	9310	4 HINGE
	9500	6 SPRING PLATE
	9590	3 HANDLE ARM
	9600	1 CHIP STOPPER
	9700	2 INDICTOR NEEDLE
	9900	1 MAGNIFYING GLASS
	9780	1 BRUSHER BRACKET
303237	9790	1 CHIP BRUSHER
	9999	1 EYE BOLT

CONTROL SWITCH COMPONENT

Dake #	Ref.	
716540		1 PUSH BUTTON, ON
716539		1 PUSH BUTTON, OFF,
716538		1 EMERGENCY SWITCH
	6650	1 KEY SWITCH
303388	6713	1 MAGNETIC SWITCH
	6723	1 OVERLOAD STARTER
303257	6713 &	1 MAGNETIC SWITCH &
	6723	OVERLOAD
	6741	1 PILOT LIGHT
303266	6745	1 VOLTAGE REDUCER
303241	6750	1 FUSE SEAT
303240	6755	1 FUSE
	6772	1 WIRE HOUSING
	6773	2 WIRE HOUSING
	6799	1 WIRING PLATE
303239	6620	2 LIMIT SWITCH
303264	7310	1 SPEED READOUT
303238	7330	1 DIGITAL TACHOMETER

VARIATOR COMPONENT

Dake #	Ref.	
	7400	1 SPEED CHANGE SHAFT
	7410	1 SHAFT BLOCK
	7420	1 SPEED INDICATE SHAFT
	7430	1 GEAR SHAFT ARM
	7440	1 INDICATE GEAR SHAFT ARM
	7450	1 SPEED SHAFT HOUSING
	7451	1 WASHER TUBE
	7460	1 PULLEY SHAFT ARM
	7470	1 VARIABLE PULLEY SHAFT
303270	7500A	1 VARIABLE PULLEY
	9030	1 HAND WHEEL
	9230	1 HAND WHEEL KNOB
	9995	1 GEAR NOZZLE
303774	B3310	- V-BELT, 2010+VARIATOR
303773	B3520	- V-BELT, 7070+VARIATOR
	8200	1 SPEED AND PITCH SELECTOR (1)
	8201	1 SPEED AND PITCH SELECTOR (2)
	8202	1 SPEED AND PITCH SELECTOR (3)
	8203	1 BRASS BOLT
	8204	1 BRASS HANDLE
	8205	1 SELECTOR BUSHING



WELDER COMPONENT

Dake #	Ref.	
303250	6010	3 LIMIT SWITCH
	6011	1 INSULATOR
303729	6020	1 GUIDE BLOCK
	6021	1 SPRING BRACKET
303730	6030	1 GUIDE CASTING
	6040	1 HOUSING
	6050	1 STATIONARY JAW
	6051	1 INSULATOR
	6052	3 INSULATING TUBE
	6053	3 WASHER, INSULATE
	6054	3 SPACER
	6060	2 ECCENTRIC SHAFT
	6070	1 CLAMP LEVER, RIGHT
	6071	1 CLAMP LEVER, LEFT
	6100	1 CLAMP SUPPORT, RIGHT
	6101	1 CLAMP SUPPORT, LEFT
	6110	1 CLAMP PLATE, RIGHT
	6111	1 CLAMP PLATE, LEFT
	6120	2 CAM
	6130	1 MOVING JAW
303271	6150	1 WELD BUTTON
	6161	1 LIMIT SWITCH BRACKET
	6170	1 PRESSURE ADJUST KNOB
	6180	1 SHAFT
	6200	1 CAM
	6210	1 WELD TENSION ARM
	6211	1 BUSHING
	6220	1 SPRING, SHORTER
	6230	1 SPRING, LONGER
	6240	1 TRANSFORMER
	6250	1 SWITCH
303787		1 GRINDER MOTOR
	6270	1 SPACER
303248	6280	1 GRINDER WHEEL
	6281	1 1/4" WASHER, FLAT
	6282	1 6 mm-1.0 HEX NUT
303247	6290	1 GRINDER GUARD
303246	6291	1 GRINDER COVER
	6330	1 WELDER NAME PLATE
	6340	1 INSTRUCTION LABEL
	6350	1 GRINDER LABEL
	6420	1 ANNEAL BUTTON
303249	9290	2 KNOB
	6170	1 PRESSURE ADJUST KNOB
	6180	1 SHAFT

6800 WORK LAMP COMPONENT

Dake #	Ref.	
303272	6802	1 WORK LAMP COMPONENT
303668		1 Bulb - MR 16 12v 20w

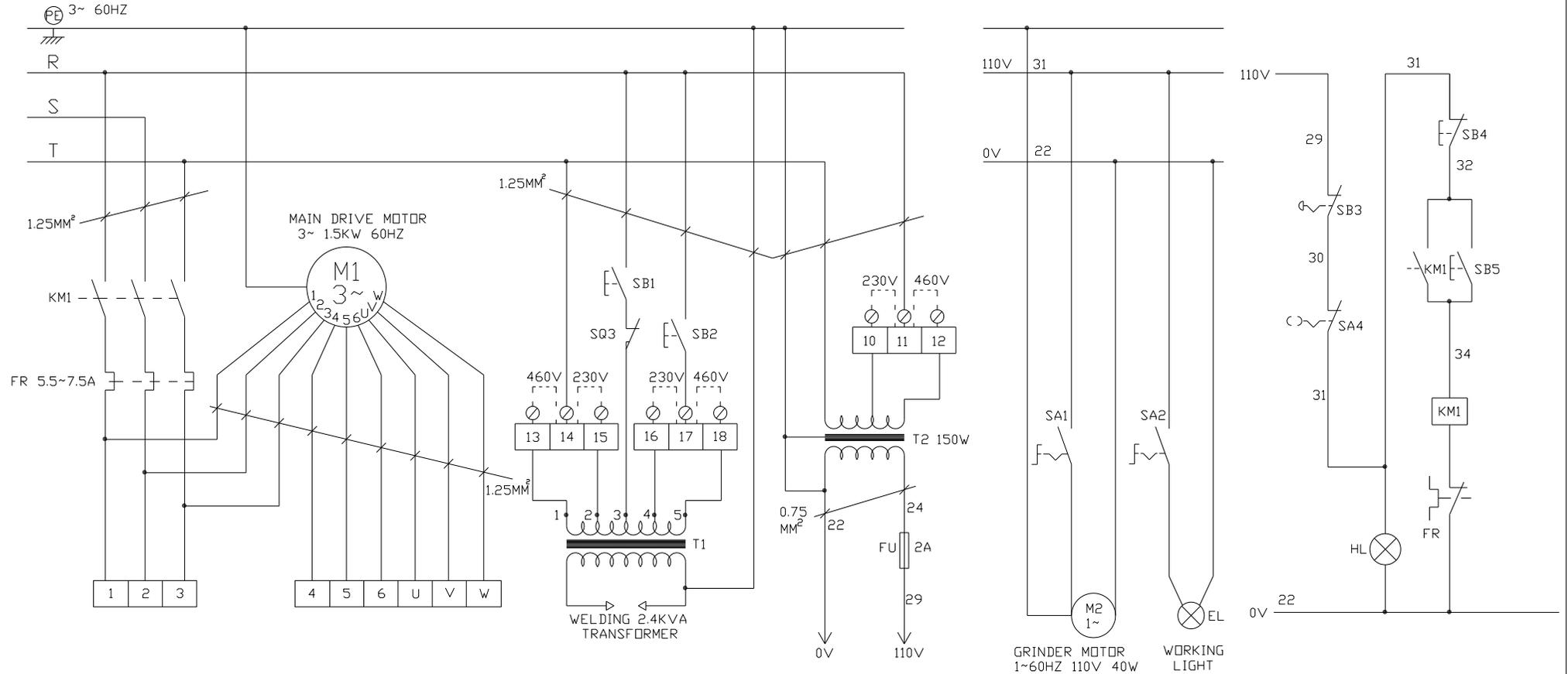
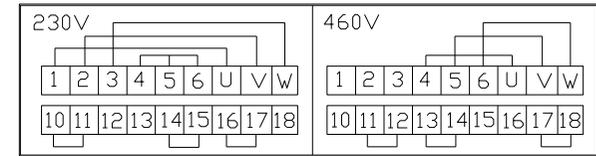
1900 SHEAR COMPONENT

Dake #	Ref.	
	1910	3 SPINDLE BUSHING
	1920	1 SPINDLE LIFT
	1930	1 BLADE SHAFT
	1940	2 VANED IRON PLATE
	1950	2 LOWER BLADE
	1960	1 UPPER BLADE
	1970	1 JOINT PLATE, LEFT
	1980	1 CHAIN JOINT, RIGHT
	1990	1 HANDLE BAR
	9210	1 KNOB

V-16

WIRING DIAGRAM

AC 3 ϕ 230/460V



SB1	WELD ON	RED	SB5	MAIN MOTOR ON	GREEN	KM1	CONTACTOR	HL	INDICATOR LIGHT
SB2	ANNEAL ON		SA1	GRINDER MOTOR ON		FR	OVERLOAD RELAY	EL	LAMP 20w, 110V
SB3	EMERGENCY STOP	RED	SA2	WORK LAMP ON		T1	TRANSFORMER	FU	FUSE
SB4	MAIN MOTOR OFF	RED	SA4	KEY SWITCH		T2	TRANSFORMER	SQ3	WELD AUTO STOP