

# SpeedCut

Models 78 & 98



Tube & Pipe Cleaners ◦ Tube Testers ◦ Tube Plugs ◦ Tube Removal ◦ Tube Installation



## Operating and Maintenance Instructions



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# **Introduction**

Thank you for purchasing this Elliott product. More than 100 years of experience have been employed in the design and manufacture of our products, representing the highest standard of quality, value and durability. Elliott tools have proven themselves in thousands of hours of trouble free field operation.

If this is your first Elliott purchase, welcome to our company; our products are our ambassadors. If this is a repeat purchase, you can rest assured that the same value you have received in the past will continue with all of your purchases, now and in the future.

The Elliott SpeedCut has been designed for cutting tube bundles and shells in the following types of equipment:

**Heat Exchangers**

**Condensers**

**Chillers**

**Feedwater Heaters**

If you have any questions regarding this product, manual or operating instructions, please call Elliott at +1 800 332 0447 toll free (USA only) or +1 937 253 6133, or fax us at +1 937 253 9189 for immediate service.

# Safety Instructions

Read and save all instructions. Before use, be sure everyone that will operate this machine reads and understands this manual, as well as any labels packaged with or attached to the machine.

## **WARNING**

When using electric tools, certain safety precautions are required to reduce the risk of electrical shock and personal injury.

## **WARNING**

To reduce the risk of injury, always unplug your machine before performing any maintenance. Never disassemble the machine or try to do any wiring on the electrical system. Contact Elliott for all repairs.

## **WARNING**



**EYE HAZARD:**  
Wear protective glasses.

## **WARNING**



**NOISE HAZARD:**  
Wear approved ear protection in this area.

## **WARNING**



**BLADE HAZARD:**  
Keep hands clear while operating.  
Lock out power while servicing.

## **WARNING**



**ELECTRIC HAZARD:**  
Use the proper lockout and tagout procedures before servicing machine.

# **Safety Instructions (cont.)**

Read all safety and operating instructions contained in this manual prior to use of the machine. Failure to follow all instructions listed below may result in electrical shock, fire and/or serious injury.

- Do not operate this machine while tired, distracted, under the influence of drugs or alcohol or on medication that causes decreased control.
- Check for misalignment, binding of moving parts, improper mounting, broken parts or any other conditions that may affect operation before use. Do not use a damaged machine. Repair or replace any defective parts prior to use of the machine.
- Do not use machine in wet conditions. Keep work area clean and well lit.
- Use only extension cords and plugs approved for outdoor use when working outdoors.
- Use appropriate safety equipment (i.e. safety glasses, ear plugs, dust masks, safety boots, etc) when using this machine.
- Ensure that long hair or loose fitting clothes are secure prior to use of the machine.
- Never apply the machine to an unsecured work piece.
- Maintain a safe distance from the machine during use.
- Always disconnect the machine from the power source prior to performing any maintenance or repairs.
- Keep guards in place and in good working order.
- Always use properly grounded electrical outlets, and if using an extension cord, make sure that it is of the proper size for the electrical load and it is equipped with a ground wire and ground plug. See “Electrical Systems” on page 11 for further information.
- Do not force a machine or attachment to do a job or operate at a speed it was not designed for.
- Use proper accessories and use Elliott accessories only. For all repairs, insist on only identical replacement parts.
- Do Not Overreach. Keep proper footing and balance at all times.
- When working on hydraulic circuits, the frame must be in the extreme down position or mechanically blocked as the frame is always under pressure.
- Labels and Nameplates carry important information and will assist you in ordering spare and replacement parts. If unreadable or missing, contact an Elliott service facility for a replacement.
- Set up safety fencing around perimeter of machine to prevent unintended access to machine, under moving head or to blade when in operation.

# Installation

The SpeedCut was designed and manufactured to conform to traditional high standards of performance. Each SpeedCut must pass a series of final inspection tests, including actual metal cutting operations before it is shipped. For this machine to provide satisfactory service, it is necessary that it be properly installed, operated and maintained. This manual has been prepared to assist you in carrying out these functions. We urge you to study the manual and follow these suggestions.

## **Uncrating**

Carefully remove the protective crating so the saw and its parts are not marred or otherwise damaged.

## **Start Up**

Upon receipt of machine, uncrate and check all parts. In case of loss or damage, file Proof of Loss Claim with carrier. Remove rust preventive from vertical posts using mineral spirits. Coat with light oil.

## **Utility Hook-Up**

The use of a qualified electrician is always recommended when connecting the saw to the main power supply. Electrical codes differ from area to area and it is the customer's responsibility to ensure their saw complies with applicable codes. Your SpeedCut is prewired at the factory for a specified voltage. Check the motor and electrical panel to ensure that they are wired to correspond to your electrical power supply.

## **Mounting**

The SpeedCut comes with six (6) mounting holes in base. Six (6) Machine Leveling Bolts are also included with the SpeedCut. Machine should be mounted to floor to prevent walking. Ensure machine is level in all directions.

# Operating Instructions

1. Remove wheel covers and install blade if necessary. Be sure the teeth are pointing toward the drive end of the machine. This is the proper direction of blade travel through the cutting area
2. Raise frame by pressing RAISE button, which starts the hydraulic pump. When frame reaches a position so that the blade is about 1" above stock to be cut, push STOP button, which will stop and hold the frame at this point.
3. Move upper limit switch to desired height on control rod and lock in position with thumb screw.
4. Place stock in approximate cutting position. Press FRAME LOWER button to lower the frame. NOTE: When FRAME LOWER button is activated the LED light on top of the control panel will turn on. When the head reaches the lower feed stop limit switch, the FRAME LOWER button is deactivated and the light will turn off.
5. If more rapid traverse in lowering the frame is desired, this can be accomplished by turning the indicator head in a counter-clockwise direction. When blade is about 1/8" above stock, press LOWER STOP button, stopping and holding the frame. Measuring from blade tooth, adjust stock to exact cutting position and secure stock.
6. With stock in proper position for cutting and clamped, push BLADE START button to start blade drive motor and push FRAME LOWER button, which energizes blade micro switch and solenoid valve circuit. The machine will then start its controlled cutting action. The blade will automatically stop when the frame reaches the lower limit switch.
7. When cutting begins, notice the action of the blade micro switch located in casting above the blade on the idle end guide assembly. Also, when the feed mode is activated the LED light on top of the control panel will turn on.
8. Should the blade become stuck or jammed, the REVERSE JOG button will momentarily reverse the direction of blade to un-stick it. NOTE: The blade cannot be reversed too much. The bandwheels are pitched to keep the top of the blade against the flange while rotating in the forward direction. Running the blade in reverse for more than five revolutions will cause the blade to work itself off the bandwheels.

## Operating Instructions (cont.)

In case of excessive feed, the tension of the spring is quickly overcome. The excessive pressure on the blade raises the stem linkage that operates the blade micro switch which closes the solenoid valve. This stops the downward travel of the saw frame. As the cutting action of the blade removes material to relieve this excessive pressure, the micro switch will function and open the solenoid valve for an instant until pressure again becomes excessive. This can be noticed by the operator due to the jumpy action of the saw frame exerting excessive pressure on the blade as the solenoid valve opens and closes.

To adjust the lower limit of the feed stops, feed head down until it is resting on the mounted rests on the main frame (can be seen from the back of the machine). Raise the lower limit switch until the light turns off and tighten. Using the switch and not just resting the head on the rests will ensure all the solenoids are closed and that there are no open hydraulic circuits.

Decrease feed at indicator head until cutting and feed are equalized. Insufficient feed is easily recognized as the blade will do very little cutting, if any, due to the lack of cutting pressure. When correct feed is being employed, the blade will cut steadily and the micro switch will function occasionally to open and close the solenoid valve. The LED light on the top of the front mounted control box indicates that the saw is feeding. When the solenoid valve closes, the light goes out.

After a correct feed has been established, the position of the indicator head should be noticed, and this location maintained while cutting similar size and type material. Always keep the indicator head within cutting limits, as shown on dial, during actual cutting operations.

We call your attention to the adjusting knob on the blade micro-switch assembly. It may be necessary at times to adjust the spring pressure when radically different materials are to be cut. For instance, from bar stock to thin wall tubing; the operator should not make a habit of changing it casually.

As the spring is compressed, more pressure must be exerted against the blade before the micro-switch functions. The micro-switch spring controls the pressure against the blade and considerable discretion should be used before making any change.

During the cutting cycle, when frame is in downward travel, all operations can be stopped immediately by pressing STOP or BLADE STOP buttons or EMERGENCY STOP button. When in upward travel, this can be accomplished by pressing the STOP button.

# Operating Instructions (cont.)

## **Blade Guides**

The blade guides are arranged to hold the blade in alignment both vertically and horizontally. Before making adjustments, always try a new blade to be sure that the old blade was not causing the difficulty.

## **Band Band Tension**

The band is properly tensioned by tightening the take-up nut on the left end of the saw frame using a torque wrench (provided). When installing a new blade, check to be sure the band is snug up against the flange of each bandwheel and properly located in each of the two blade guides. Increase torque slowly to 30 to 35 lbs/ft (484kg/cm).

## **Blade Brushes**

Brushes should be cleaned frequently in kerosene and reversed to take advantage of both rows of bristles. For best results, replace worn, filled or sticky brushes with new ones. In bolting brushes to angles, be sure wire bristles are bent in the same direction as the blade travels

## **Band (Blade) Speed Control**

Band Speed is indicated on the speed display on the panel. Speed is indicated in feet per minute. Control knob is graduated in percentage from zero to 100 percent. Band speed is adjusted with the control knob on the front control pedestal of the machine.

100 FPM = 30.5 meters per minute

200 FPM = 61 meters per minute

## **Blade Break/Stall Proximity Switch**

This saw is equipped with a Blade Break/Stall Proximity Switch. Should the blade break or stall in the work, the blade motor will stop if the saw ceases operation. This allows the operator to leave the machine unattended with greater confidence. The operation of this feature is fully automatic and requires no attention. The sensor is located under the Idle Bandwheel and monitors the spokes as they pass over the sensor.

## **Saw Head Rests/Stops**

At the bottom of the stroke the saw head rests on two removable stops. Should the saw head need to be lowered below the base position, these stops can be temporarily removed.

## **Belt**

Proper adjustment of the 'V' belt is important to prevent overheating of the motor. Be sure the belt guard is closed after changing blade speeds.

## **Frame Limit Switch**

For adjustment see "Adjustment and Repair" Section.

# General Information

## **CAUTION**

Do NOT grease upright posts!

The cutting head, or frame, of the SpeedCut is raised and lowered by the hydraulic unit in the base. Working in conjunction with this assembly are the electrical units composed of the control cabinet, front mounted controls, limit switches, blade micro switch, pump motor, and blade drive motor.

### **Hydraulic System**

- Pump – Positive displacement, rotary type. Forces oil into lifting cylinders.
- Tank – should contain 10 gallons of Mobil DTE 25 Hydraulic Oil or equivalent.
- Cylinder & Piston – steel cylinder and piston with neoprene cup.
- Solenoid Valve – Regulates flow of oil through line as blade pressure increases and decreases, actuated by blade micro-switch
- Needle Valve – Governs discharge of oil from cylinder as frame lowers

### **Electrical Systems**

- Control Cabinet – Contains transformer to provide 110 volts to all controls, magnetic starters with adjustable overloads, relay and terminal blocks.
- Limit Switches – Upper limit switch stops upward travel of cutting head at predetermined height set by trip collar. Lower limit switch stops blade motor at end of cut.
- Blade Micro-Switch – An automatic device is actuated by pressure on the blade and controls the solenoid valve to maintain constant downward blade force. It also activates an indicator light on top of the front mounted controls
- Pump Motor – Drives hydraulic pump.
- Blade Drive Motor – “V” belt drive to gear case.
- Front Mounted Controls – Push buttons for blade motor, feed, emergency stop.

# Notes on Sawing

It is widely recognized that a proficient operator is a key to optimum performance in band sawing. Make certain the machine is properly maintained and adjusted for dependable operation. Carefully set up each cutting job to prevent damage to the machine and obtain the best performance of the equipment.

Some of the factors affecting cutting performance are: the blade, tooth pitch, the work/size of material being cut, blade speed and feed.

Experienced blade dealers can be very helpful in selecting the grade and proper toothed blade for each sawing job. All blades should be straight, have sharp teeth with uniform set, and be “broken in” to obtain good cutting performance and blade life.

## **Breaking in the Blade**

Breaking in your blade is done by slowing your feeds and speeds down on the first 8”-10” of the cut (about 5-8 minutes), which burnishes the blade and extends blade life. NOTE: CUTTING AT TOO HIGH OF FEEDS AND SPEEDS WITH A NEW BLADE CAN DECREASE THE QUALITY OF CUTTING AND SHORTEN BLADE LIFE. DO NOT START A NEW BLADE IN AN OLD CUT.

## **Good Cutting Performance**

Every cutting situation has special characteristics requiring some experimentation to determine which blade, speed, and feed will achieve the most satisfactory results. Cutting charts indicate a good starting point, but must be modified by direct experience if optimum performance is desired. Here are some helpful pointers for adjusting speed and feed for good cutting performance.

- Make sure the saw is cutting a good chip from the work piece. (see page 14)
- Watch for blue chips or excessive “smoke” from coolant indicating heat in the cut, which could damage the blade directly or work-harden the material being cut.
- Watch for excessive vibration or chatter marks on the cut off piece indicating possible damage to saw teeth by “hammering”.
- Check the cut off piece for flatness. A dull blade or excessive feed will cause “cutting in” or “cutting out”.
- Inspect the blade for worn or dubbed cutting edges. Avoid cutting conditions, which allow chips to “weld” to saw teeth.
- When experimenting, gradually increase speed, then feed, by small amounts until adverse effects are noted; then reduce speed to a reasonable level for continuous cutting. Remember that speed and feed must be “balanced” to keep cutting a good chip

# Notes on Sawing (cont.)

## **Blade Force Limit (Spring Loaded Blade Micro-Switch)**

Blade Force Limit is set by the knob on the Guide Arm. This sets a spring force on the blade back-up bearing to interrupt excessive frame feed, and is indicated by the LED light blinking off during a cut. A setting of “3” will normally protect the blade from excessive force when the feed rate is set so the LED light remains on through the cut. This setting may be changed as needed for particular cutting applications. For a few applications at slow feed rates, the blade force switch may be set to control feed rate by interrupting down feed during the cut.

## **Lubrication**

Correct and adequate lubrication is a very important factor in determining the life and service of your SpeedCut. It is essential that all dust, dirt, chips, etc. be thoroughly removed before lubricating the saw. Heavy use and hostile environments may indicate more frequent lubrication for best saw performance.

## **Speed Selection**

The SpeedCut provides a range of blade speed, from 80 SFPM to 210 SFPM. Generally, softer materials require faster speeds and slower feed pressure and tougher materials require slower speeds and higher feed pressure. If you are unsure, always start at a slower speed and slowly increase to avoid decreasing blade life and ensure productive cutting.

<b>Speed Selection</b>		
<b>Slow (approximately 100 SFPM)</b>	<b>Medium (approximately 150 SFPM)</b>	<b>Fast (approximately 200 SFPM)</b>
Hastelloy Metals**	Cold-Rolled Metal	Thin-Walled Metal
Nickel Steels	Machine Steels	Tubing
Metals Requiring Slow Speeds on a Lathe	Heavy Channels	Thin Channels
	General Cutting	Aluminum
		Thin Brass*
		Metal that Will Not Burn Teeth

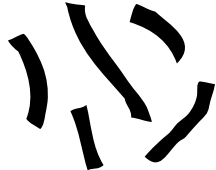



\*Brass should always be cut with a blade, which has not previously cut other metal.

\*\*Cutting work-hardening materials, such as hastelloy etc., can present problems if feeding is too slow, because the surface gets harder and the blade will not cut anymore. A new cut needs to be started and the feed needs increased.

If teeth wear off unusually fast, use slower speed. ALWAYS KEEP THE BLADE TIGHT AND FLUSH AGAINST THE FLANGE OF THE BAND WHEELS.

# Metal Chip Troubleshooting

By examining the metal chips being produced by the saw, you can improve the productivity of your sawing and ensure long blade life. This chart diagrams some common chip sizes and the actions that should be taken should your chips appear as such.

Blade Force Settings			
Chip	Blade Speed	Blade Feed	Notes
 <p>Thick, hard and short</p>	Decrease Blade Speed	Decrease Blade Feed	Check Cutting Fluid and Mix
 <p>Thin and curled</p>	Suitable	Suitable	
 <p>Powdered or pulverized</p>	Decrease Blade Speed	Increase Blade Feed	
 <p>Thin</p>	Suitable	Decrease Blade Feed	Check Tooth Pitch

# Troubleshooting

<b>Blade</b>	
<b>Problem</b>	<b>Solution</b>
1. Premature Dulling of Teeth	<ul style="list-style-type: none"> <li>a.) Teeth pointing in wrong direction (blade mounted backwards).</li> <li>b.) Improper or no blade break-in.</li> <li>c.) Hard spots in material.</li> <li>d.) Material work-hardened.</li> <li>e.) Speed too high.</li> <li>f.) Feed too light.</li> <li>g.) Teeth too small.</li> </ul>
2. Blade Teeth Stripping	<ul style="list-style-type: none"> <li>a.) Feed pressure too high.</li> <li>b.) Tooth stuck in cut.</li> <li>c.) Insufficient coolant flow.</li> <li>d.) Incorrect tooth size.</li> <li>e.) Hard spots in material.</li> <li>f.) Blade speed too slow.</li> <li>g.) Blade teeth running backwards.</li> <li>h.) Chip brush not working.</li> </ul>
3. Gullets of Teeth Loading	<ul style="list-style-type: none"> <li>a.) Saw band pitch too fine. Use coarser pitch.</li> <li>b.) Saw band velocity too great. Reduce speed.</li> <li>c.) If not using coolant, apply it.</li> </ul>
4. Chips Welding To Teeth	<ul style="list-style-type: none"> <li>a.) Insufficient coolant flow.</li> <li>b.) Excessive speed and/or feed.</li> <li>c.) Tooth size too small.</li> <li>d.) Chip brush not working.</li> </ul>

<b>Blade</b>	
<b>Problem</b>	<b>Solution</b>
5. Premature Blade Breakage	<ul style="list-style-type: none"> <li>a.) Incorrect blade – teeth too coarse.</li> <li>b.) Blade tension too high.</li> <li>c.) Damaged or misadjusted blade guides.</li> <li>d.) Excessive feed.</li> <li>e.) Wheel diameter too small for blade.</li> <li>f.) Blade rubbing on wheel flanges.</li> <li>g.) Teeth in contact with work before starting saw.</li> <li>h.) Incorrect blade speed.</li> </ul>
6. Blade Wear (Teeth Blue)	<ul style="list-style-type: none"> <li>a.) Blade tooth pitch too fine.</li> <li>b.) Feed too slow or speed too high.</li> <li>c.) Insufficient coolant flow.</li> </ul>
7. Wear Lines on Blade / Loss of Set	<ul style="list-style-type: none"> <li>a.) Saw guides or wheel flange are riding on teeth.</li> <li>b.) Insufficient blade tension.</li> <li>c.) Hard spots in material.</li> <li>d.) Blade guide is worn.</li> </ul>
8. Wear on Back of Blades	<ul style="list-style-type: none"> <li>a.) Excessive feed pressure.</li> <li>b.) Insufficient blade tension.</li> <li>c.) Guide roll frozen, damaged or worn.</li> <li>d.) Blade rubbing on wheel flange.</li> </ul>
9. Blade Slips Off BandWheels	<ul style="list-style-type: none"> <li>a.) Band not tensioned correctly.</li> <li>b.) Wheel pitch not set properly.</li> <li>c.) Guides set too tight.</li> </ul>
10. Twisted Blade (Profile Sawing)	<ul style="list-style-type: none"> <li>a.) Blade binding in cut.</li> <li>b.) Side guides too tight.</li> <li>c.) Radius too small for blade width.</li> <li>d.) Excessive blade tension.</li> </ul>

## Uneven Cuts

Problem	Solution
11. Saw not Cutting Straight (concave in center of bundle)	<ul style="list-style-type: none"> <li>a.) Blade speed too high.</li> <li>b.) Blade tooth pitch too fine.</li> <li>c.) Insufficient blade tension.</li> </ul>
12. Saw not Cutting Straight (crooked from left to right or top to bottom – consistent)	<ul style="list-style-type: none"> <li>a.) Blade guides out of adjustment.</li> <li>b.) Blade tooth pitch too fine.</li> <li>c.) Chip brush not working.</li> </ul>
13. Saw not Cutting Straight (crooked at portions of the bundle – inconsistent)	<ul style="list-style-type: none"> <li>a.) Incorrect speed or feed.</li> </ul>

## Motor

Problem	Solution
14. Motor Overheating	<ul style="list-style-type: none"> <li>a.) Check for correct voltage.</li> <li>b.) Check voltage at switch.</li> <li>c.) Check voltage at motor.</li> <li>d.) Check for correct size overloads.</li> <li>e.) Check for loose connection at switch, motor and plug.</li> <li>f.) Check amp reading – does it correspond to motor rating.</li> <li>g.) Is motor wired correctly internally?</li> <li>h.) Is drive belt over-tightened?</li> <li>i.) Check for power drop during operation caused by power drawn by other machines.</li> </ul>

## General

Problem	Solution
15. Saw Will Not Run	<ul style="list-style-type: none"> <li>a.) Correct voltage to saw. Check rotation.</li> <li>b.) Emergency stop out.</li> <li>c.) Press raise button, frame should go up unless switch is on upper limit collar.</li> <li>d.) Check fuse on transformer.</li> <li>e.) Check “reset” on motor starters.</li> <li>f.) Is there power to hydraulic motor?</li> <li>g.) Is there power to drive motor?</li> <li>h.) Check for mechanical bind.</li> </ul>
16. Band Stalls in Work	<ul style="list-style-type: none"> <li>a.) Insufficient band tension.</li> <li>b.) Excessive feed pressure on soft materials.</li> <li>c.) Band tooth spacing too coarse.</li> <li>d.) Motor worn or defective.</li> </ul>
17. Saw Band Vibrations	<ul style="list-style-type: none"> <li>a.) Incorrect band speed for material.</li> <li>b.) Band tension incorrect.</li> <li>c.) Back-up bearing may be worn. Replace.</li> <li>d.) Incorrect coolant or mixture.</li> <li>e.) Incorrect feed setting.</li> <li>f.) Work piece not firmly clamped.</li> <li>g.) Worn or improperly adjusted saw guides. Check and make necessary adjustments.</li> </ul>
18. Band Squeal	<ul style="list-style-type: none"> <li>a.) Feed rate too light for band speed. Increase feed rate and/or reduce blade speed.</li> <li>b.) Blade running against flange on wheel.</li> </ul>
19. LED does not Turn On (during feeding down)	<ul style="list-style-type: none"> <li>a.) Pressure sensor stuck.</li> <li>b.) Use screwdriver to release roller yoke (holds bearing).</li> <li>c.) Increase feed pressure will assist in alleviating this from happening again.</li> </ul>

# Maintenance Instructions

## **WARNING**

To reduce the risk of injury, always unplug your machine before performing any maintenance. Never disassemble the machine or try to do any rewiring on the machine's electrical system. Contact Elliott for all repairs.

The proper performance and service life of every machine depends on how well it is maintained. The following should become a regular routine of operations.

### **Weekly**

1. Clean & Lubricate Exposed Surfaces
  - a.) Wipe exposed surfaces free of dirty oil, chips and dirt.
  - b.) Apply a thin coat of oil, Symbol 2190TEP, or equivalent to machine's surfaces.
2. Check Drive Belt for Proper Tension
3. Inspect RING GEAR Lubricant
4. Inspect Hydraulic Oil Level

## **WARNING**

Cutting head shall be at lowest extremity when inspecting oil level.

- a.) De-energize circuit. Tag 'OUT OF SERVICE'.
- b.) Locate site gauge on the hydraulic tank.
- c.) Inspect oil level. Proper oil level is 1" from top of tank.
- d.) Remove safety tag. Energize circuit.

### **Monthly**

5. Lubricate Horizontal Bandsaw

## Quarterly

6. Clean Coolant Reservoir
  - a.) De-energize circuit. Tag 'OUT OF SERVICE'.
  - b.) Remove and clean chip pan.
  - c.) Remove coolant.
  - d.) Remove residue, sediment, and sludge from reservoir.
  - e.) Clean coolant pump.
  - f.) Reinstall chip pan.
  - g.) Fill coolant reservoir to operating level.
  - h.) Remove safety tag and energize circuit.
  - i.) Return cooling systems to normal operation.
  
7. Inspect Flexible Hoses & Fittings
  - a.) Inspect hoses for cracks, breaks and deterioration.
  - b.) Inspect hoses for chafing or evidence of unusual wear.
  - c.) Inspect fittings for tightness.

## Semi-Annually

8. Inspect Drive Belt for Wear.
  - a.) De-energize circuit. Tag 'OUT OF SERVICE'.
  - b.) Remove covers for access to belt.
  - c.) Inspect belt for deterioration.
  - d.) Depress belt half-way between pulleys. Belt should depress  $\frac{1}{2}$ " to  $\frac{3}{4}$ ". NOTE: A BELT THAT IS TOO TIGHT WILL DAMAGE BEARINGS.
  - e.) Remove safety tag. Energize circuit.
  
9. Provide Hydraulic Oil Sample for Analysis
  - a.) De-energize circuit. Tag 'OUT OF SERVICE'. NOTE: CLEANLINESS OF TOOLS AND EQUIPMENT IS ESSENTIAL FOR PROVIDING TRUE SAMPLE.
  - b.) Operate machine 5-8 minutes to allow a true sample to be drawn after liquid is mixed; stop machine.
  - c.) Fill sample bottle from hydraulic reservoir.
  - d.) Tag the sample bottle to identify equipment and location.
  - e.) Deliver to oil/water laboratory.
  - f.) Renew hydraulic oil when one or more of the following limits is exceeded:
    - WATER: 0.001%
    - SEDIMENT: 0.1%
    - ACID TEST: Indicates Positive

10. Clean, Inspect and Lubricate Wheel Ball Bearing.
  - a.) De-energize circuit . Tag 'OUT OF SERVICE'.
  - b.) Remove wheel covers.
  - c.) Remove cutting blade.
  - d.) Remove jamnut and hexnut.
  - e.) Remove band idler wheel and drive wheel.
  - f.) Remove ball bearing.
  - g.) Clean ball bearing.
  - h.) Clean idler wheel and drive wheel hub.
  - i.) Inspect ball bearing for rough turning and head discoloration
  - j.) Pack ball bearing with grease, VV-G-632, Type B, Grade 2.
  - k.) Reinstall ball bearing.
  - l.) Reinstall band idler wheel and drive wheel.
  - m.) Reinstall hexnut and jamnut.
  - n.) Repeat steps "D" through "M" for other wheel bearings.
  - o.) Reinstall blade.
  - p.) Reinstall wheel covers.
  - q.) Remove safety tag. Energize circuit.

### **Annually**

11. Sound and Tighten Foundation Bolts.
12. Inspect Gear Box Assembly.

### **Every 6,000 Hours**

13. Inspect Gear Case Lubricant Every 6,000 Hours
  - a.) De-energize circuit. Tag. 'OUT OF SERVICE'.
  - b.) Remove gearcase cover.
  - c.) Use Texico Marfax '0' on the gears.
  - d.) Remove excess lubricant.
  - e.) Reinstall gearcase.
  - f.) Remove safety tag. Energize circuit.

## As Required

14. Renew Hydraulic Oil
  - a.) Lower head to full down position to facilitate draining of hydraulic reservoir
  - b.) De-energize circuit. Tag "OUT OF SERVICE."
  - c.) Remove drain plug and drain oil.
  - d.) Reinstall drain plug.
  - e.) Remove filler cap.
  - f.) Fill reservoir to proper level with MOBIL DTE 25 Hydraulic Oil or equivalent. The tank will hold approximately 10 gallons.
  - g.) Remove safety tag. Energize circuit.
  - h.) Return saw to normal operating condition.
  
15. Clean Oil Line Screen
  - a.) To clean hydraulic oil screen, which is located at the base of the machine between the lifting cylinders. Lower frame to remove all pressure from hydraulic lines. The screen can then be removed and cleaned by unscrewing the hex nut.

# Adjustment & Repair

## 1. Adjust Wheel Pitch

- a.) De-energize circuit. Tag 'OUT OF SERVICE'.
- b.) Loosen blade tension. NOTE: MOST WHEEL ADJUSTMENTS CAN BE MADE BY ADJUSTING THE IDLE END WHEEL PLATE FIRST.
- c.) Loosen and tighten opposing wheel pitching screws ½ turn as required to change blade tracking on wheel.
- d.) Re-tension blade.
- e.) Energize and run blade to verify that blade tracks on wheel properly, touching wheel flange but not rubbing.
- f.) Remove safety tag.

## 2. Adjust Blade Micro Switch

- a.) To check operation of the switch, remove control cover. Now turn off the feed valve and press the "Lower" button with the operation selector in setup. The LED light should be on. Depress the switch plunger and the lower light should go off.
- b.) If the LED light did not go on when the FRAME LOWER button was pushed, check to see if stud is holding the switch plunger in.
- c.) If the stud is holding the switch plunger in check for sticking mechanism then adjust the stud to activate the switch with .006 gap.
- d.) If the stud is not holding the switch plunger in and the LED light does not come on when the FRAME LOWER button is pushed, then the switch will need to be replaced. To verify this condition, check the switch with a continuity light.

Blade Force Settings	
Position Number	lbs of force to close solenoid
1	110
1.5	120
2	130
2.5	140
3	150
3.5	160
4	170
4.5	180
5	190
5.5	200

## 3. Blade Guide Adjustment

- a.) The blade should travel from the idle wheel to the drive wheel without distortion.
- b.) The blade guides should be perpendicular to the top of the channel. Using a square, adjust each guide.
- c.) Place a flat, preferably ground piece of steel on the top of the channel and, using a square, adjust each guide.
- d.) Check the side bearings to be sure they are snug against the side of the blade. Adjust the eccentric roller axle as needed.

## 4. Gear Box Repair

- a.) Remove gear box from saw.
- b.) Remove four machine screws holding gear box together.

# Adjustment & Repair (cont.)

- c.) Separate gear box by carefully prying castings apart at location near pulley shaft.



- d.) Once gear box is open, the internal parts may be inspected for wear.  
e.) Liquid plastic gasket is used to seal the gear case.  
f.) Grease – Texaco Marfax “O” or equivalent. NOTE: THE SHAFT IS HELD IN PLACE BY A SNAP RING BELOW THE DRIVE GEAR. REMOVE PINION TO ACCESS SNAP RING.

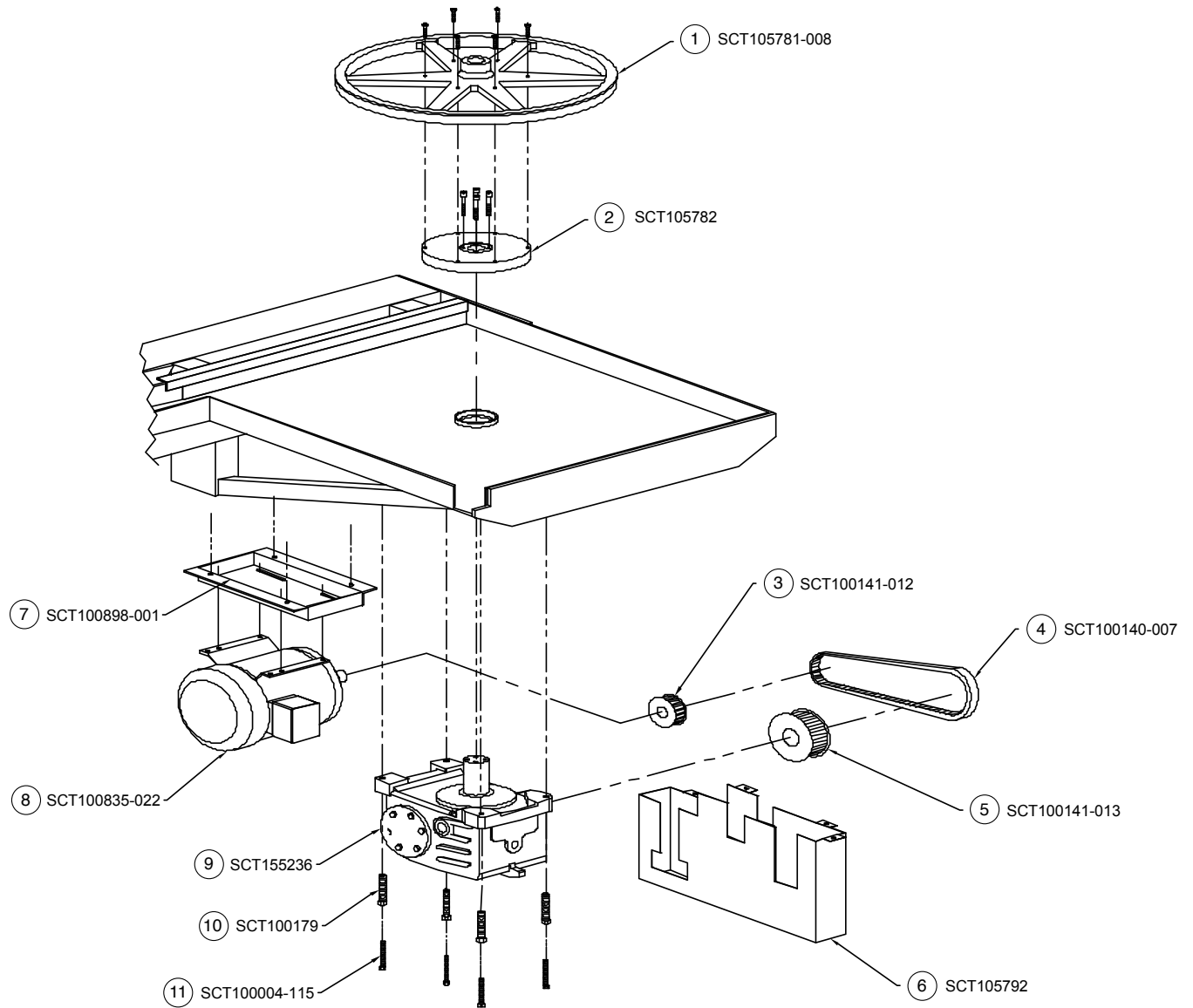
## 5. Replace Brass Shear Key in Drive Pinion.

- a.) De-energize circuit. Tag “OUT OF SERVICE.”  
b.) Remove the two flat head socket screws.  
c.) Remove retainer cover.  
d.) Remove old brass key. (Note: A 6-32 tapped hole has been drilled into the brass key to assist in its removal).  
e.) Be sure all pieces of the old brass key have been removed.  
f.) Be sure the pinion rotates freely around the pinion shaft. A small amount of grease may be applied to the shaft if needed.  
g.) Insert new brass key.  
h.) Reinstall retainer cover and screws.  
i.) Check ring gear for proper lubrication.  
j.) Remove safety tag. Re-energize circuit.

## 6. Adjusting Frame Limit Switches

- a.) Adjust the top actuating collar on the support rod to maximum height.  
b.) Raise the frame so the teeth on the blade are approximately 1” above the material to be cut.  
c.) Raise the actuating collar until the collar moves the switch arm enough to activate the switch. When the contacts close you will hear the switch click.  
d.) Secure the collar in place at this point by tightening the thumb bolt in the actuating collar.  
e.) To set the lower limit, lower the frame until the teeth on the saw blade are 1/8” below the material to be cut.  
f.) Move the lower limit collar until the switch moves enough to activate the switch. When the contacts close you will hear a click.

# Technical Drawings

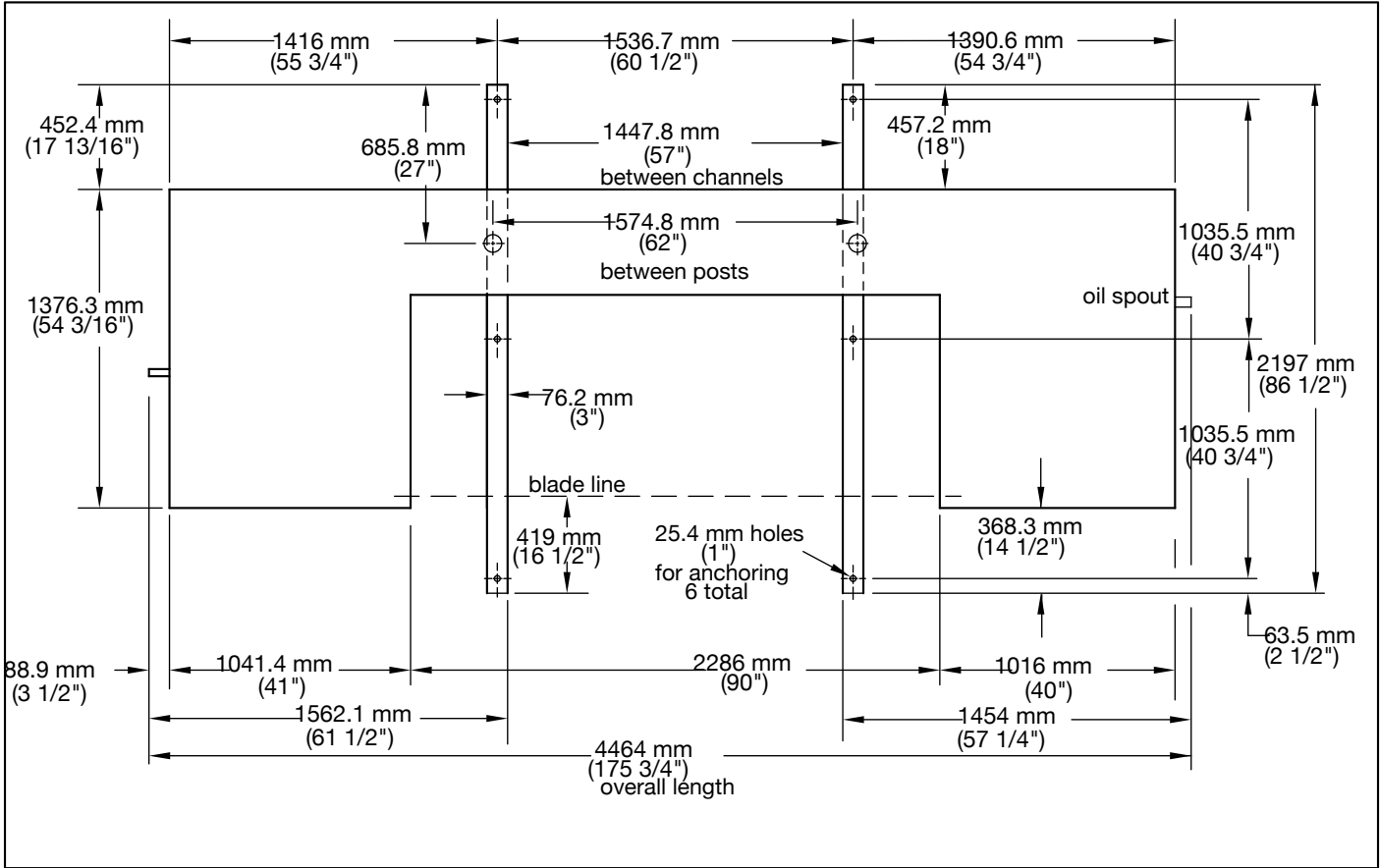


## Drive End - Exploded View

No.	Part Name	Part Number
1	Bandwheel	SCT105781-008
2	Bandwheel Adaptor	SCT105782
3	Pulley, Motor	SCT100141-012
4	Drive Belt	SCT100140-007
5	Pulley, Gearbox	SCT100141-013
6	Belt Guard	SCT105792

No.	Part Name	Part Number
7	Motor Base	SCT100898-001
8	Motor	SCT100835-022
9	Gearbox	SCT155236
10	Leveling Screws	SCT100179
11	Hex Head Cap Screw	SCT100004-115

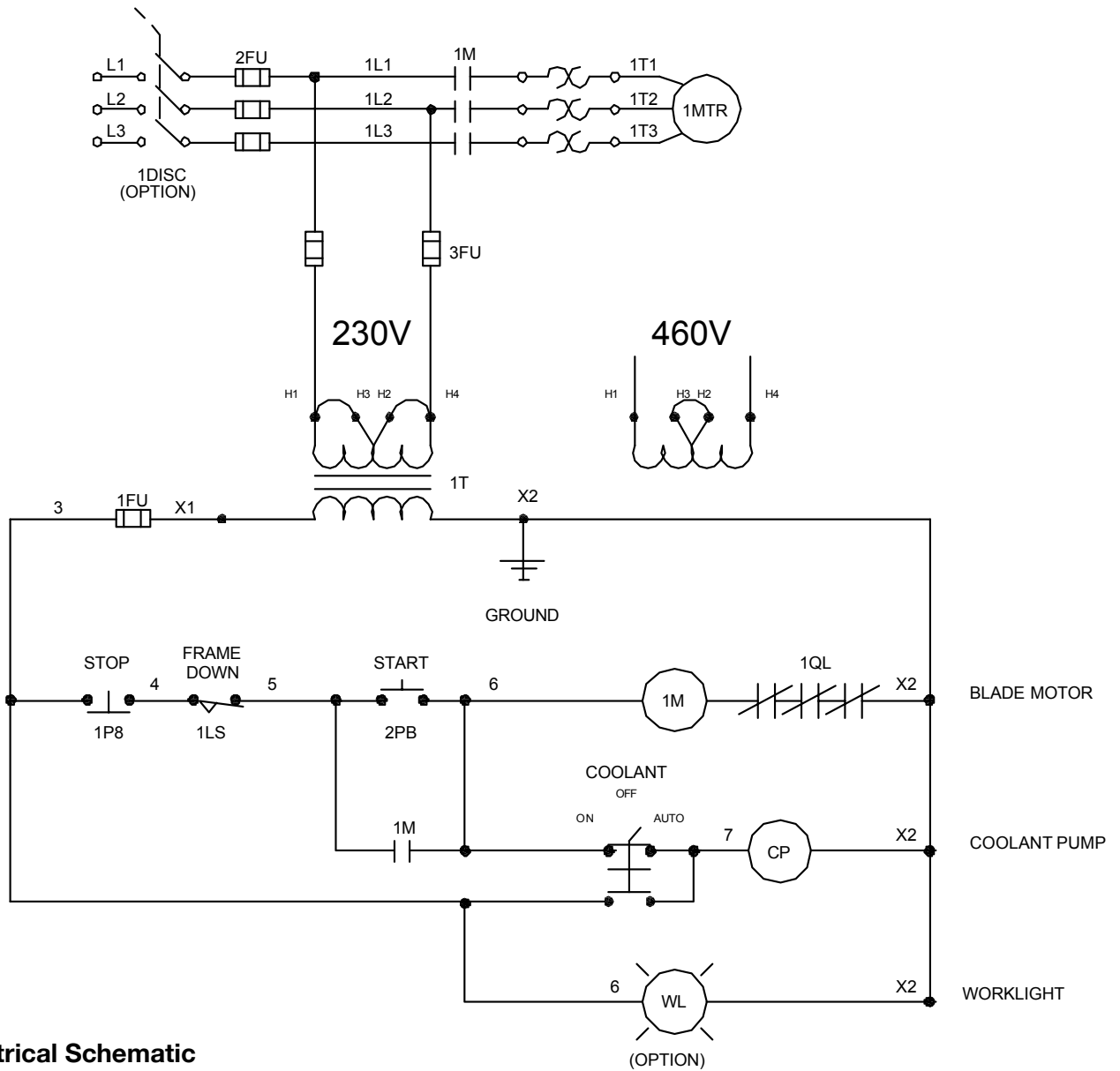
# Technical Drawings



**Base Detail Foundation Layout**

**Elliott SpeedCut 78**

# Technical Drawings



## Electrical Schematic

### Elliott SpeedCut

- 1FU 2.5 amp/250 VOLT, TYPE TD
- 2FU 15 amp, TYPE J
- 3FU 1.5amp/250 VOLT, TYPE TD

# Technical Information

	SpeedCut 78	SpeedCut 98
<b>Power</b>		
Blade Motor	7.5 HP (5.6kW)	10 HP (7.5kW)
Hydraulic Motor	1 HP (.75kW)	
Hydraulic Capacity	10 gal	
Power Requirement	230V 3 Phase - 50/60 Hz (Select from 208V - 600V)	
<b>Cutting</b>		
Cutting Capacity (round)	78.5" (2,000mm)	98.5" (2,500mm)
Cutting Capacity (rectangular)	78.5" (2,000mm) height	98.5" (2,500mm) height
	85" (2,160mm) width	98.5" (2,500mm) width
Cutting Depth/Throat	33.75" (857mm)	
Blade Speed (typical speed)	50 - 275 FPM Infinitely Variable (15 - 84 mpm)	
Blade Size	1.5" x .05" x 375" (38mm x 1mm x 9,779mm)	1.5" x .05" x 402" (38mm x 1mm x 10,211mm)
Typical Bundle Cutting Time	20 - 60 minutes	
<b>Dimensions &amp; Weight</b>		
Working Area	168" (4,267mm) height	190" (4,826mm) height
	178" (4,520mm) width	192" (4,877mm) width
	87" (2,210mm) depth	
Minimum Height	120" (3,048mm)	140" (3,556mm)
Bandwheels	36" (914mm) cast iron	
Weight	6,000 lbs. (2,722Kg)	6,600 lbs. (2,994Kg)
Shipping Dimensions (Crated)	125" (3,175mm) height	155" (3,937mm) height
	189" (4,801mm) width	220" (5,588mm) width
	98" (2,489mm) depth	
Shipping Weight (Crated)	7,400 lbs. (3,357Kg)	8,150 lbs. (3,697Kg)
Bundle Support Table	20.25" (514mm) height	
	56" (1,422mm) width	
	21.5" (546mm) depth	
Support Table Weight	1,000lbs (454Kg)	

	SpeedCut 78	SpeedCut 98
<b>Spares &amp; Accessories</b>		
Bi-Metal Bandsaw Blade	SCT78B1	SCT98B1
Lubricant	SCT100318-028	
Bundle Support Table	SCTBT	
Hydraulic Sheet Clamp	SCT78HC	SCT98HC
Recommended Spares Kit	SCT155291	

## Included in the Recommended Spares Kit:

- 1 quart of Uptime TM gear oil
- Blade Brush
- Drive Belt
- Bearings
- Fuses
- Roller Axles
- Roller supports

# **Know Your Responsibility**

The Elliott SpeedCut warranty covers defects in material and workmanship. The following items are considered the responsibility of the SpeedCut owner (some features listed may not apply to your SpeedCut model). Elliott is not responsible for consequential costs due to the improper attention of the below items. Please feel free to contact Elliott for technical support on any of these items.

## **Machine Installation and Initial Settings**

- Power supply to the saw.
- Counterbalance Spring adjustment to control weight of saw head.
- Position of Blade Guide on the Beam (distance between the guides).
- Saw Blade speed.
- Saw Head Feed Rate Control.
- Selection of the appropriate blade pitch and type for each job.
- Secure clamping of stock to be cut.
- Proper mixture of coolant and rate of flow (if applicable).

## **Alignments and Calibrations**

- Alignment of the Blade Guides, the Vise Jaws and the sweep of the Saw Head.
- Alignment of the Bandwheels for proper blade tracking.
- Calibration of Variable Bandspeed Indicator.
- Calibration of Blade Tensioning Device.

## **Normal Wear Items**

- Saw Blade is covered for breakage only. It is not covered for wear or tooth stripping.
- Sawing Coolant.
- Blade Guide Bearings and Carbide Guide blocks.
- Blade Brush and Blade Brush Drive Belt.
- Motor Drive Belt.

# Warranty

Should any part, of Seller's own manufacture, prove to have been defective in material or workmanship when shipped (as determined by Seller), Seller warrants that it will, at its sole option, repair or replace said part f.o.b., point of manufacture, provided that Buyer notifies, in writing, of such defect within twenty-four (24) months from date of shipment from the manufacturing plant.

On request of Seller, the part claimed to be defective will be returned, transportation, insurance, taxes and duties prepaid, to the factory where made, for inspection. Any item, which has been purchased by Seller, is warranted only to the extent of the original manufacturer's warranty to Seller. Seller shall not be liable for any damages or delays caused by defective material or workmanship.

No allowance will be made for repairs or alterations made by others without Seller's written consent or approval. If repairs or alterations are attempted without Seller's consent, Seller's warranty is void.

THE WARRANTIES PROVIDED IN THE OBLIGATIONS AND LIABILITIES OF SELLER HEREUNDER, AND THE RIGHTS AND REMEDIES OF BUYER HEREUNDER ARE EXCLUSIVE AND IN SUBSTITUTION FOR, AND BUYER HEREBY WAIVES ALL OTHER WARRANTIES, GUARANTEES, OBLIGATIONS, CLAIMS FOR LIABILITIES, RIGHTS AND REMEDIES, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY FOR MERCHANTABILITY AND FITNESS FOR PURPOSE.

Seller's total liability is limited to the lower of the cost of repair or replacement.





## Contact Us

Elliott Tool offers a complete line of precision tube tools to meet your needs. Contact us or your local support.

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