



Operating Instructions - Parts Manual

12-Inch Universal Tilt Frame Vertical Cut-Off Band Saw

Models VTF6-2 and VTF6-4

Part No. 5518238

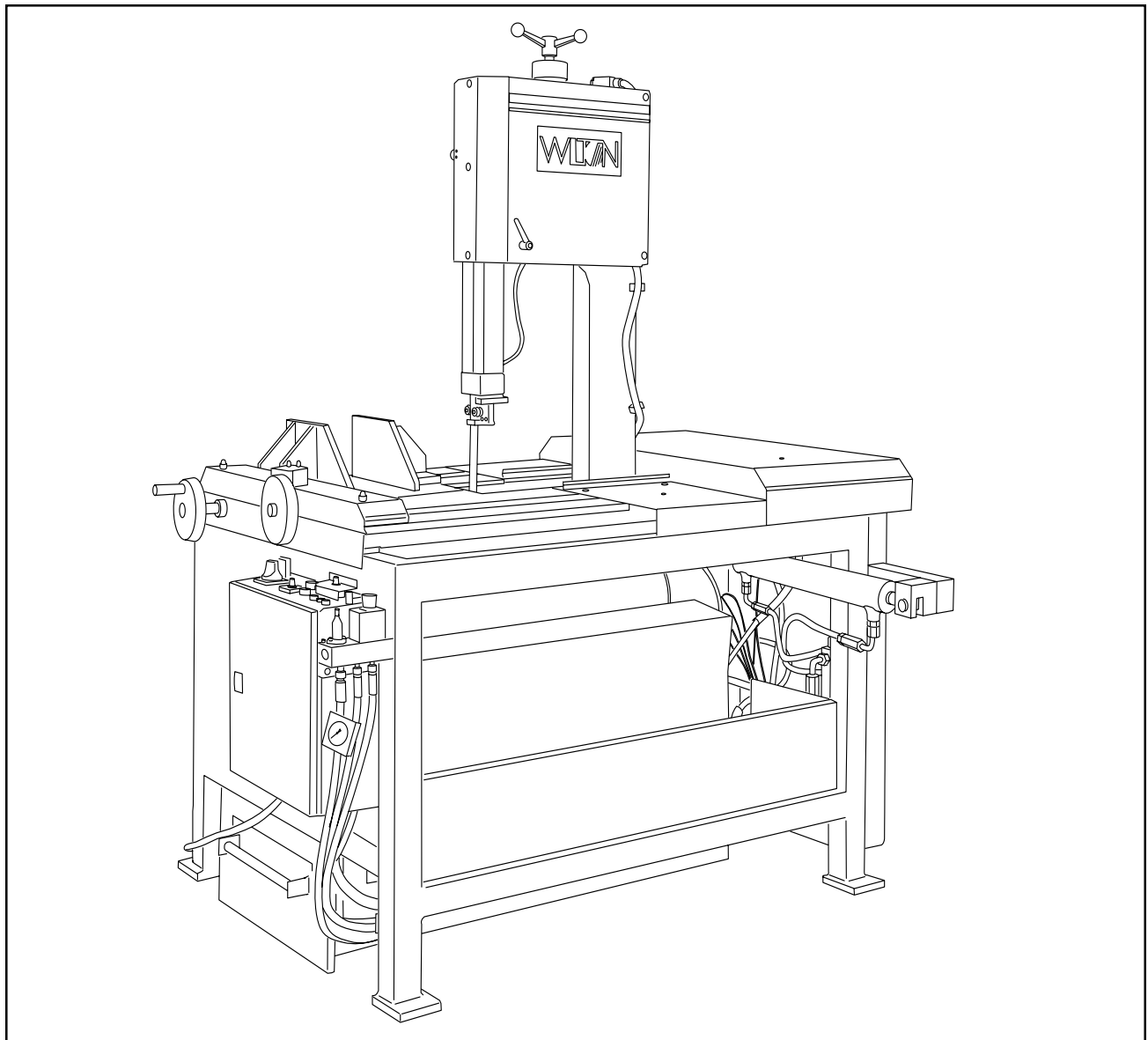


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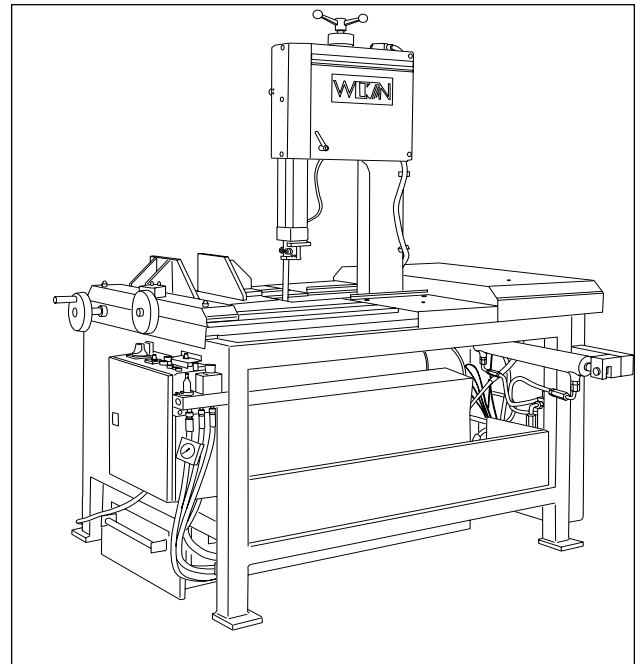
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General Specifications

The Wilton 12-inch Universal Tilt-Frame Band Saw, Models VTF6-2 and VTF6-4, offers the same rugged features as Wilton's Model VTF8 band saw. Among the features are heavy-duty steel frame construction, saw head linear guidance system, and advanced no-belt direct drive motor and gearbox make this new tilt frame saw ideal for today's sawing needs.

This saw features hydraulic head positioning for mitering 45 degrees left and 60 degrees right. Whether cutting solids, shapes of tubing, our hydraulic feed system ensures a smooth, constant feed pressure on the blade. Hard or soft materials can be cut easily by increasing or decreasing the feed pressure with the turn of a knob.

The saw has a 12-inch x 15-inch cutting capacity, a 1-inch wide blade, and enclosed coolant and hydraulic system.



Standard Features

- Linear guidance system for forward and rearward travel
- Convenient front-mounted controls
- Advanced direct drive motor and gearbox power controls
- Two-speed, 1-1/2 HP motor
- Six contact point blade guide assemblies
- All steel frame construction
- Heavy-duty cast iron table
- Flood coolant system
- Cast iron drive wheels
- 1-inch bi-metal blade
- All steel vise
- Electrical safety package includes:
 - Control panel fitted inside a sealed enclosure
 - Transformer steps-down voltage at switch to 24V
 - Thermal overload protection with magnetic starter
 - Lockout/tagout on main power switch

Specifications

	VTF6-2	VTF6-4
Cutting Capacity:		
At 90 degrees	12 x 15 Inches	12 x 15 Inches
At 45 degrees	12 x 10 Inches	12 x 10 Inches
At 60 degrees	12 x 6 Inches	12 x 6 Inches
Hydraulic System Capacity	4.7 Gallons	4.7 Gallons
Coolant System Capacity	6.5 Gallons	6.5 Gallons
Blade Wheels	12.6 Inches Diameter, Cast Iron	12.6 Inches Diameter, Cast Iron
Blade Size	1 x 0.035 x 133.6 Inches	1 x 0.035 x 133.6 Inches
Blade Speed (SFPM)	100 and 200 SFPM	100 and 200 SFPM
Blade Guides	Adjustable, 6-point	Adjustable, 6-point
	Contact, Bearing-	Contact, Bearing-
	and-Guide Type	and-Guide Type
Motor	1.5 HP/220V/3 Phase	1.5 HP/440V/3 Phase
Dimensions:		
Length	67 Inches	67 Inches
Width	44 Inches	44 Inches
Height	70 Inches	70 Inches
Shipping Weight	1764 pounds	1764 pounds



WARNING

- Misuse of this machine can cause serious injury.
- For safety, machine must be set up, used and serviced properly.
- Read, understand and follow instructions in the Operating Instructions and Parts Manual which was shipped with your machine.

When Setting up Machine:

- Always avoid using machine in damp or poorly lighted work areas. Always be sure the machine support is securely anchored to the floor or the work bench.

When Using Machine:

- Always wear safety glasses with side shields (See ANSI Z87.1)
- Never wear loose clothing or jewelry.
- Never overreach - you may slip and fall.

When Servicing Machine:

- Always disconnect the machine from its electrical supply while servicing.

- Always follow instructions in Operating Instructions and Parts Manual when changing accessory tools or parts.
- Never modify the machine without consulting Wilton Corporation.

You - the Stationary Power Tool User - Hold the Key to Safety.

Read and follow these simple rules for best results and full benefits from your machine. Used properly, Wilton's machinery is among the best in design and safety. However, any machine used improperly can be rendered inefficient and unsafe. It is absolutely mandatory that those who use our products be properly trained in how to use them correctly. They should read and understand the Operating Instructions and Parts Manual as well as all labels affixed to the machine. Failure in following all of these warnings can cause serious injuries.

Machinery General Safety Warnings

1. Always wear protective eye wear when operating machinery. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection.
2. Wear proper apparel. No loose clothing or jewelry which can get caught in moving parts. Rubber soled footwear is recommended for best footing.
3. Do not overreach. Failure to maintain proper working position can cause you to fall into the machine or cause your clothing to get caught pulling you into the machine.
4. Keep guards in place and in proper working order. Do not operate the machine with guards removed.
5. Avoid dangerous working environments. Do not use stationary machine tools in wet or damp locations. Keep work areas clean and well lit.
6. Avoid accidental starts by being sure the start switch is OFF before plugging in the machine.
7. Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation.
8. Disconnect electrical power before servicing. Whenever changing accessories or general maintenance is done on the machine, Electrical power to the machine must be disconnected before work is done.
9. Maintain all machine tools with care. Follow all maintenance instructions for lubricating and the changing of accessories. No attempt shall be made to modify or have makeshift repairs done to the machine. This not only voids the warranty but also renders the machine unsafe.
10. Machinery must be anchored to the floor.
11. Secure work. Use clamps or a vise to hold work, when practical. It is safer than using your hands and it frees both hands to operate the machine.
12. Never brush away chips while the machine is in operation.
13. Keep work area clean. Cluttered areas invite accidents.
14. Remove adjusting keys and wrenches before turning machine on.
15. Use the right tool. Don't force a tool or attachment to do a job it was not designed for.
16. Use only recommended accessories and follow manufacturers instructions pertaining to them.
17. Keep hands in sight and clear of all moving parts and cutting surfaces.
18. All visitors should be kept at a safe distance from the work area. Make workshop completely safe by using padlocks, master switches, or by removing starter keys.

General Electrical Cautions

This saw should be grounded in accordance with the National Electrical Code and local codes and ordinances. This work should be done by a qualified electrician. The saw should be grounded to protect the user from electrical shock.

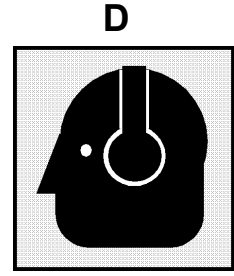
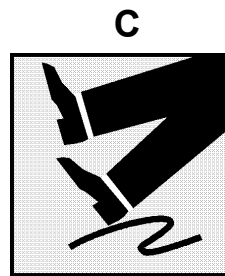
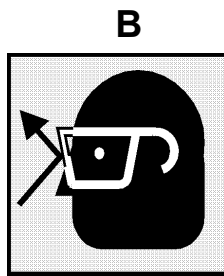
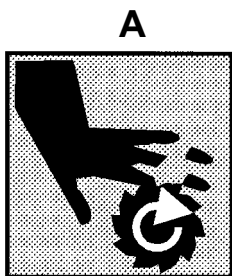
Caution: For circuits which are far away from the electrical service box, the wire size must be increased in order to deliver ample voltage to the motor. To minimize power losses and to prevent motor overheating and burnout, the use of wire sizes for branch circuits or electrical extension cords according to the following table is recommended.

Wire Sizes

Conductor Length	AWG (American Wire Gauge) Number	
	240 Volt Lines	120 Volt Lines
0 - 50 Feet	No. 14	No. 14
50 - 100 Feet	No. 14	No. 12
Over 100 Feet	No. 12	No. 8

Safety Instructions on Sawing Systems

1. Always wear leather gloves when handling saw blade. The operator shall not wear gloves when operating the machine.
2. All doors shall be closed, all panels replaced, and other safety guards in place prior to the machine being started or operated.
3. Be sure that the blade is not in contact with the workpiece when the motor is started. The motor shall be started and you should allow the saw to come up to full speed before bringing the saw blade into contact with the workpiece.
4. Keep hands away from the blade area. **See Figure A.**
5. Remove any cut off piece carefully while keeping your hands free of the blade area.
6. Saw must be stopped and electrical supply must be cut off before any blade replacement or adjustment of blade support mechanism is done, or before any attempt is made to change the drive belts or before any periodic service or maintenance is performed on the saw.
7. Remove all loose items and any unnecessary workpieces from the area before starting machine.
8. Bring adjustable saw guides and guards as close as possible to the workpiece.
9. Always wear protective eye wear when operating, servicing, or adjusting machinery. Eyewear shall be impact resistant, protective safety glasses with side shields complying with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection. **See Figure B.**
10. Nonslip footwear and safety shoes are recommended. **See Figure C.**
11. Wear ear protectors (plugs or muffs) during extended periods of operation. **See Figure D.**
12. The workpiece, or part being sawed, must be securely clamped before the saw blade enters the workpiece.
13. Remove cut off pieces carefully, keeping hands away from saw blade.
14. Saw must be stopped and electrical supply cut off or machine unplugged before reaching into cutting area.
15. Avoid contact with coolant, especially guarding your eyes.



Introduction

This manual includes the operating and maintenance instructions for the Wilton 12-inch Universal Tilt Frame Vertical Cut-Off Band Saw, Models VTF6-2 and VTF6-4. This manual also includes parts listings and illustrations of replaceable parts for the band saw.

Tilt-Frame Saw Features

Refer to **Figure 1** for key features of the Model VTF6 tilt-frame band saw. The tilt-frame band saw is designed to cut stock at various angles by tilting the saw frame to the desired angle. When tilted to the right, the saw can cut at angles up to 60 degrees. When tilted to the left, the saw can cut at angles up to 45 degrees.

The machine consists of a base weldment onto which is installed all other machine components. Major components include the base, the saw head, the rocker mechanism, the hydraulic system, the coolant system, the vise, and the machine operating controls and indicators.

The saw frame is mounted on a rocker mechanism which, in turn, is supported by pillow blocks. A disk attached to the forward pillow block has a cutting angle indicator.

The rocker mechanism, and therefore the tilt angle, is changed by an hydraulic cylinder mounted at the rear of the machine.

The saw frame is supported by guide rails mounted on the rocker mechanism. When cutting a length of stock, the saw frame translates from the back to the front on the guide rails. The back to front movement is accomplished by an hydraulic cylinder.

The saw has a vise on the left side of the work table. The vise is opened and closed using a hand wheel on the left front of the machine. The front (moveable) jaw is supported by and moves using an Acme screw. The vise has extra large, steel jaws that provide for clamping of various sizes and shapes of material.

Electrical Enclosure

The electrical enclosure is located at the right front of the cut-off saw. The enclosure contains the electrical components required to operate the saw. (Refer to the **Electrical Connection** section.)

The operator's control panel is mounted to the top of the electrical enclosure. (Refer to the **Operating Controls** section for further description.)

Saw Head

The saw head consists of a drive motor, a speed reduction gearbox, drive and driven blade wheels, saw blade guide bearings and a saw blade. Blade guards are provided to cover the exposed areas of the saw blade.

Access to the saw blade is gained through the blade wheel doors. The upper door is accessed from the left side of the machine. The lower door is accessed

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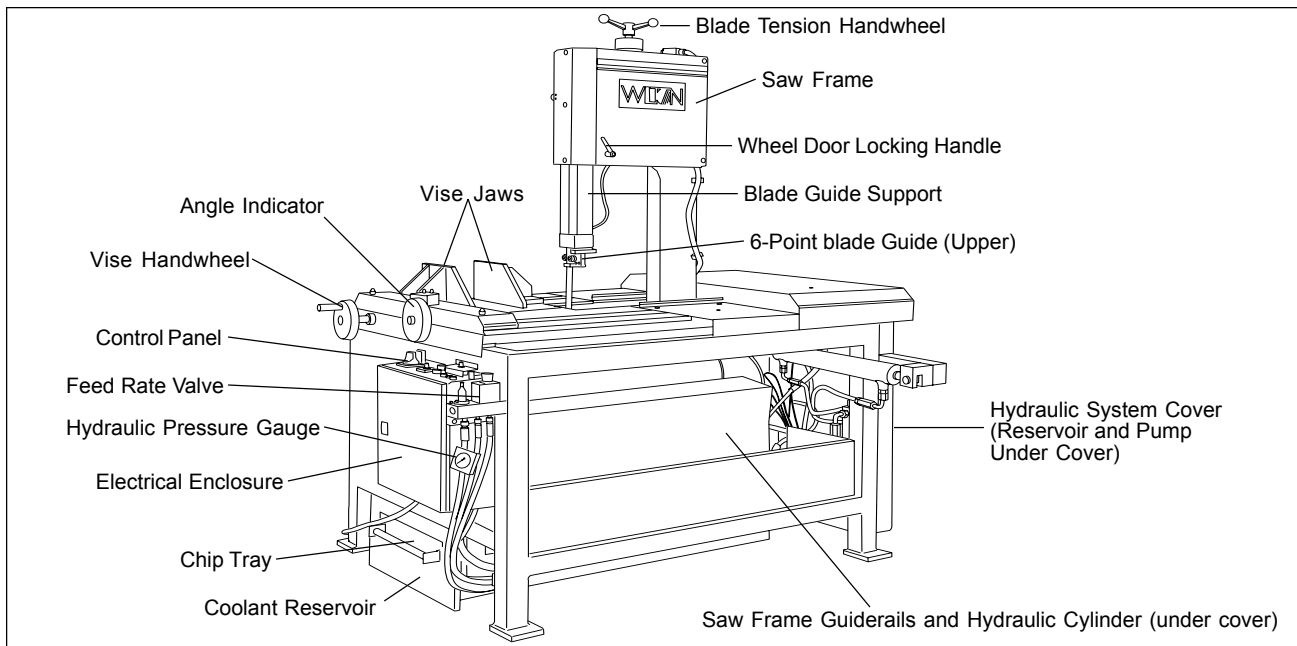


Figure 1: Key Features

from underneath the machine worktable. The covers are fitted with limit switches that serve as system safeties to prevent accidental motor start up during maintenance or blade replacement.

The saw blade is driven by the motor driven blade wheel and is supported by adjustable blade guides. Blade tracking adjustment screws are provided in the tensioning mechanism in the saw frame, providing a means to keep the blade tracking evenly on the blade wheels.

A blade tension indicator is provided on the tension drum assembly. When correctly tensioned, a tab in the slot of the tension drum housing is aligned with a line scribed into the constant tension housing.

Three blade tracking adjustment screws and jam nuts are provided on the blade tensioning mechanism. The adjusting screws are used to change the tilt of the drive wheel as needed to ensure the blade tracks properly.

Blade Guides

The blade guide assemblies provide support for the saw blade to assure squareness and accuracy of the cut. Two blade guide assemblies are provided. The upper blade guide is located on an adjustable support in the saw frame. The lower blade guide assembly is mounted on a bracket just above the lower drive wheel.

When in use, the saw blade is twisted 90 degrees by the blade guides bearings and tungsten inserts. The blade is twisted to position the blade's cutting teeth toward the workpiece.

The blade guides consist of five blade-side bearings, a blade back-edge bearing, and two tungsten inserts. The side bearings assure that the saw blade is perpendicular to the cutting piece. The back-edge bearing assures that the blade is not deflected rearward when the blade begins to feed into the cutting piece. The adjustable carbide inserts provide lateral support for the blade.

A coolant hose fitting is provided on the blade guides to provide coolant flow directly onto the saw blade/workpiece interface.

Blade Tensioning Mechanism

A blade tensioning mechanism (refer to **Figure 7**) provides a means to set the tension of the saw blade. Blade tension is adjusted using a handle on the mechanism.

Coolant System

The saw has a coolant system to provide coolant flow to the workpiece. The coolant reservoir is located underneath the machine. The coolant pump/motor is mounted on a plate on the top of the coolant reservoir.

Hydraulic System

The hydraulic system (refer to the **Hydraulic System Components** illustration in the **Replacement Parts** section) provides the hydraulic pressure required to operate the hydraulic cylinders that, 1) tilt the frame, 2) clamp and hold the rocker mechanism in position, 3) move the saw frame forward and rearward, and 4) control the feed rate.

The hydraulic pump and valves are mounted on the top of the hydraulic reservoir. The hydraulic reservoir is located under a cover at the rear of the machine.

The fluid level can be seen through an opening at the left rear of the machine (see **Figure 5**). The valve manifold is fitted with a hydraulic system filter. A filler cap on the top of the tank is used to fill or replenish the reservoir with hydraulic fluid.

Setup and Operation

Before operating the machine, setup the machine and perform post-installation checks as defined in the following paragraphs.

Machine Setup

The saw has been adjusted at the factory. A number of test pieces have been cut using the saw to verify the accuracy of cutting. Therefore, the only setup operations required before releasing the saw for service are placing and securing the saw, and establishing the electrical connections to the motor. (Refer to the **Electrical Connection** section for wiring requirements.)

Use a fork lift to move the machine to the installation site (see **Figure 2**). Place the saw where it makes the most sense for the operations you will probably be doing. If you are going to be doing cut-off work on very long stock, allow plenty of room for the length of the stock; provide infeed and outfeed supports as required.

Remove the saw from the shipping skid and discard any hold-down devices that were used to secure the saw to the skid. Level the machine and anchor it to the floor using the holes in the feet of the machine base.

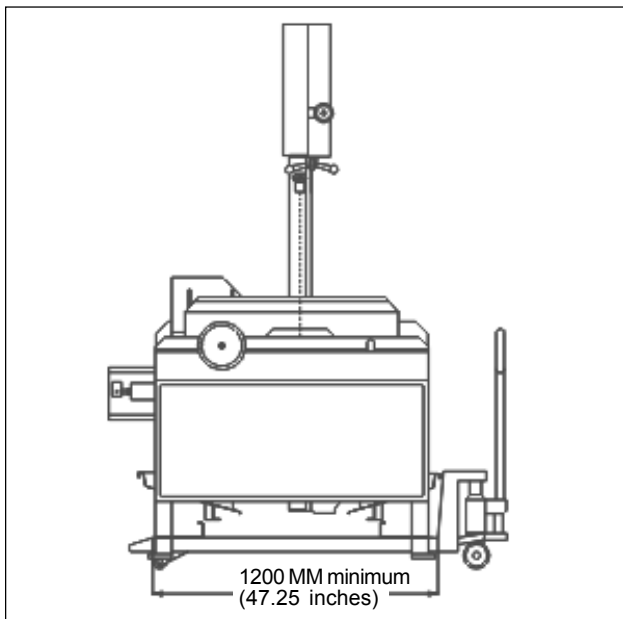


Figure 2. Moving Machine with a Fork Lift

Installation

When installing the machine, make the following checks and follow the instructions provided:

1. Check machine for any shipping damage before starting assembly.
2. Setup the machine on a flat, firm surface. No special foundation is required. However, verify that the thickness of the floor is sufficient to support the weight of the machine.
3. Make sure the machine frame is not distorted when fastened to the floor.
4. It is suggested that the floor surface be treated to prevent coolant or hydraulic oil from being absorbed.
5. Provide sufficient clearance between adjacent walls and machines to allow handling of the length of stock expected to be cut.
6. Level the machine worktable using a precision level.
7. The operating environment for the machine should have an ambient temperature between 32° and 95° Fahrenheit (0° and 35° Celsius).
8. The handle of the vise handwheel is installed facing inward for transport. Make sure the handle is placed in the correct position before starting the machine.
9. Remove all shipping materials used for protection of the machine during shipping.
10. Mount all loose accessories to the machine before startup.
11. Insert coolant reservoir under the bottom of the machine. Mount coolant pump and pump cover.
12. Check direction of saw blade. The teeth should be positioned so they teeth are facing downward as it passes through the blade guides.

13. After connecting electrical power, verify that hydraulic pump runs in the correct direction (observe direction of arrow on motor). This is absolutely necessary for the pump to build up hydraulic pressure.

Electrical Connection

Observe the following when connecting to facility power. (See **Wiring Diagrams** section.)

WARNING: WILTON RECOMMENDS THAT ANY HARD WIRING OF THE SAW TO FACILITY POWER OR ANY CHANGE IN VOLTAGE SUPPLIED TO THE MOTOR BE PERFORMED BY A LICENSED ELECTRICIAN.

1. Make sure the saw is disconnected from facility power. Make sure fuses have been removed or make sure breakers are tripped in the circuit to which the saw will be connected. Make sure you put a warning placard on the fuse holder or circuit breaker to prevent accidental electrical shock.
2. If you are using hard-wired connections to a junction box, connect the wires in the box, and close the box.
3. Install the fuses or reset the breakers.
4. The saw is now ready for service.

Operating Instructions

CAUTION: Remove all saw frame shipping materials before operating the machine for the first time.

Complete the following steps at first saw startup:

- Set angle indicator reference and adjust for desired cutting angle.
- Fill coolant reservoir with coolant. Fill hydraulic reservoir with hydraulic oil
- Check saw blade tension.
- Verify tooth ratio and cutting speed adjustment are adequate for material to be sawed.
- Verify that material is fed (must lie on machine worktable) and clamped correctly.

Operating Controls

Control Panel

The machine operating controls are located on a control panel on the top of the electrical enclosure. All operating controls are mounted on the control panel with the exception of the hydraulic pressure gauge and the saw frame feed rate control that are mounted on the right side of the enclosure (see **Figure 3**).

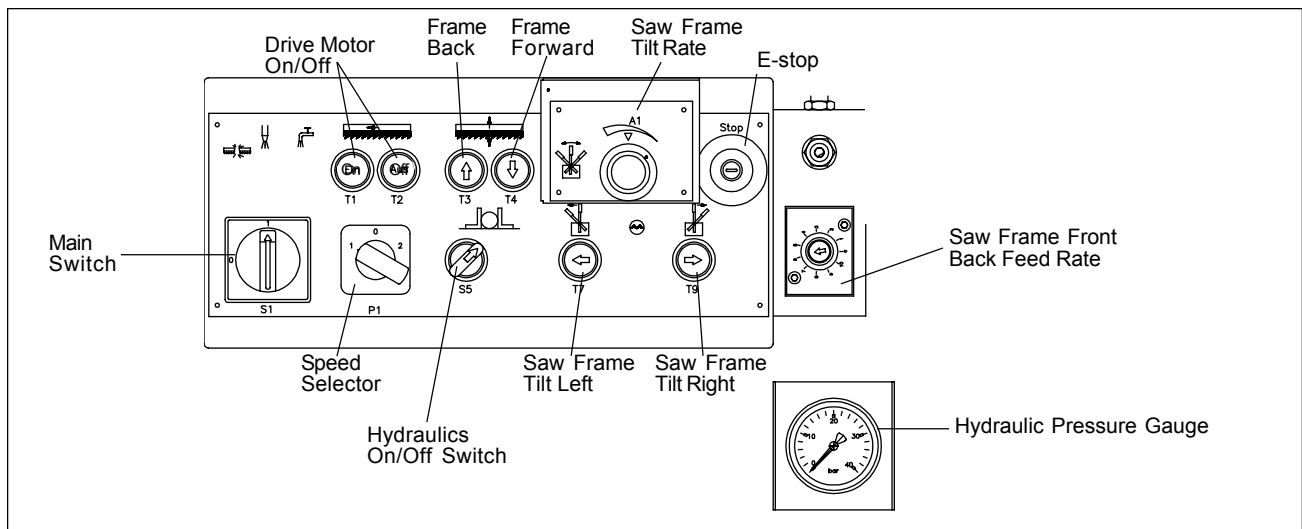


Figure 3. Control Panel

Saw Speed Selector Switch (P1)

The saw speed selector switch is used to set the drive motor speed so it provides a blade speed of either 100 sfpm or 200 sfpm.

Saw On/Off Push-buttons (T1/T2)

The saw on/off push-buttons start and stop the saw drive motor.

Saw Frame Forward/Back Push-buttons (T3/T4)

The saw frame forward and saw frame back push-buttons are used to feed the saw blade into or away from the workpiece.

Main Switch (S1)

The main power disconnect switch is located on the lower left side of the control panel. The switch is used to disconnect electrical power to the machine for maintenance and component replacement.

Hydraulic Pump Selector Switch (S5)

The hydraulic pump on/off switch starts or stops the hydraulic pump.

Saw Frame Tilt Left/Right Push-buttons (T7/T9)

The tilt left and the tilt right push-buttons control the direction in which the saw frame is tilted. These push-buttons are also used to set the desired miter angle on the workpiece.

Emergency Stop Button (E-Stop)

The E-stop is used to quickly cut off all electrical power to the control panel and the machine mounted electrical components.

Saw Frame Tilt Rate Valve (A1)

The saw frame tilt rate valve is used to set the rate at which the saw frame will move to the desired position.

Saw Frame Feed Rate Control

The saw frame feed rate is set using a feed rate valve mounted on the right side of the electrical enclosure (see **Figure 3**). The valve knob is turned counterclockwise to increase the feed rate and clockwise to decrease the feed rate.

Hydraulic Pressure Gauge

A pressure gauge is mounted on an angular bracket on the right side of the electrical enclosure (see **Figure 3**). The gauge provides hydraulic pressure.

Hydraulic Fluid Level

The level of the hydraulic oil in the reservoir can be viewed through an opening on the left rear corner of the machine (see **Figure 4**). The level in the reservoir should be maintained no lower than 3/4 the height of the reservoir for proper operation.

Saw Frame Tilt Angle Indicator

The saw frame angle indicator is located at the front center of the machine (see **Figure 5**). The indicator consists of a disk that has an angle scale on its outside diameter. The disk is attached to the rocker mechanism that supports the saw frame and therefore moves when the saw frame angle is changed.

Coolant Level

The coolant level can be viewed by removing the chip tray from the coolant reservoir. Maintain the coolant level in the reservoir no lower than 1/3 full.

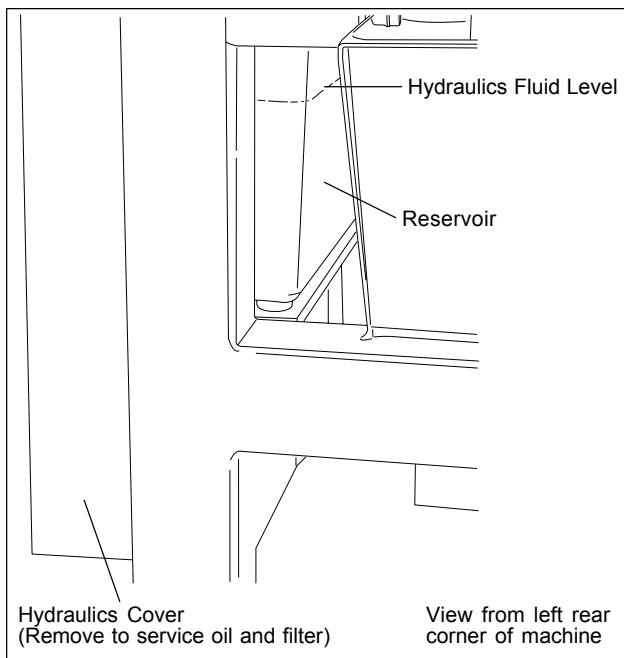


Figure 4. Hydraulic Fluid Level Check

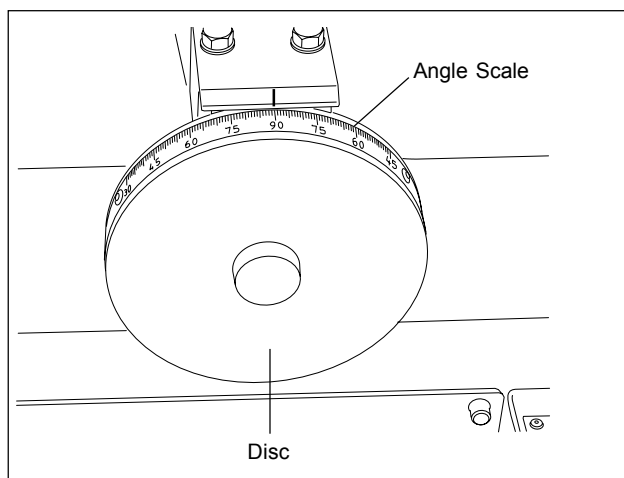


Figure 5. Saw Frame Tilt Angle Indicator

Adjustments

The efficient operation of the cut-off saw is dependent upon the condition of the saw blade. If the performance of the saw begins to deteriorate, the first item that you should check is the blade.

If a new blade does not restore the machine's cutting accuracy and quality, refer to the **Troubleshooting** section (or the blade manufacturer's guide) for conditions to consider and adjustments that can be made to increase the life of the blade. To change the blade, refer to **Replacing Blades** in the **Maintenance** section. To adjust the blade tracking, refer to the following procedures.

Blade Guide Support

The blade support should be adjusted so the upper blade guide is as close as possible to the workpiece (see **Figure 6**). (The lower blade guide support is fixed to the saw frame and therefore is not adjustable.)

1. To adjust the position of the upper blade guide support, loosen the locking handle.
2. Move the upper blade support up or down as required by the size of the workpiece. Place the blade guide as close as possible to the workpiece.
3. Tighten the locking handle to secure the upper blade support.

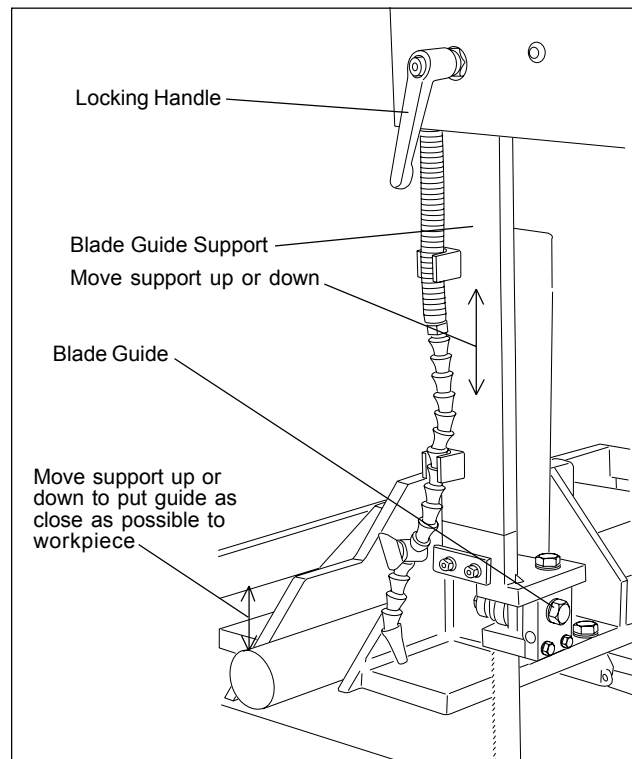


Figure 6. Adjustment of Blade Guide Support

Adjusting Blade Guide Inserts

The blade guide inserts installed in the blade guide assemblies are subject to wear and will periodically require adjustment. Adjust the blade guide inserts as follows:

Note: The item references in the following procedures correspond to the item numbers in the corresponding exploded view for the blade guide assembly in the **Replacement Parts** section.

1. Loosen the two screws (14) securing inserts (3). The inserts can be moved laterally as needed.
2. Move one of the inserts (3) until it contacts the side of the saw blade. Do not deflect the blade. Tighten the corresponding screw (14).

3. Move the other insert (3) into contact with the blade. Hold the inserts in that position while tightening the second screw (14).

Blade Tensioning Adjustment

When changing the saw blade or when replacing blade drive components, it will be necessary to adjust the tension on the saw blade. Blade tension is adjusted using the handwheel at the top of the saw frame. Turning the handwheel clockwise tightens the blade. Turning the handwheel counterclockwise reduces blade tension.

The blade tension mechanism has a visual indicator of blade tension. The blade should be tightened until the tab on the indicator is aligned with the scribe mark on the tension assembly (see **Figure 7**).

Blade Tracking Adjustment

Blade tracking has been tested at the factory. Adjustment is rarely required when the blade is used properly or if the blade is correctly welded. (See **Figure 7** for location of blade tracking adjustment screws.)

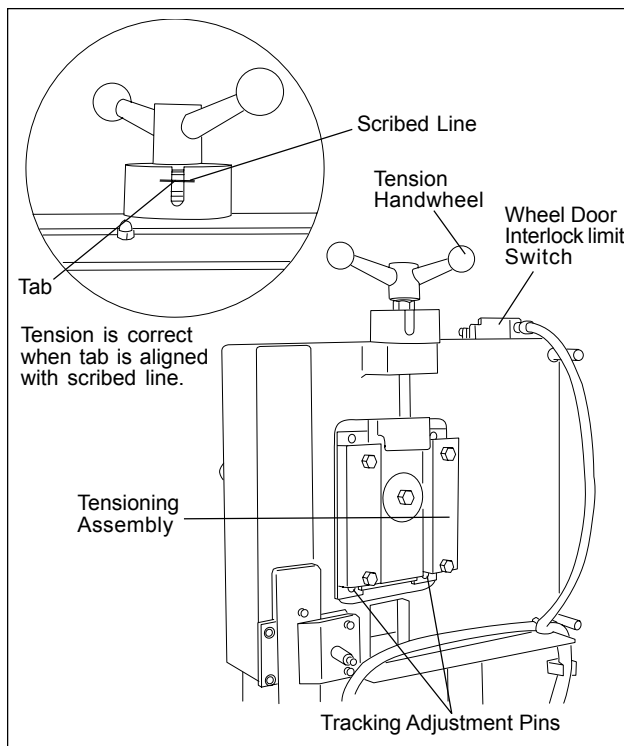


Figure 7. Adjusting Blade Tracking and Tensioning

Using the Vise

The vise is located on the left side of the work table (see **Figure 8**). Turn the handwheel to position the back vise jaw against the workpiece; the front vise jaw is fixed.

Place the stock between the vise jaws and clamp tightly. Observe the recommendations for clamping workpieces of different shapes (see **Figure 9**.)

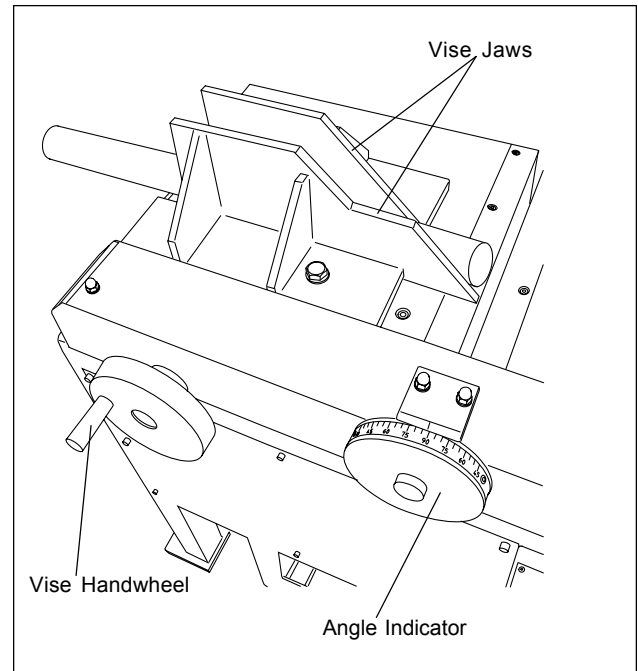


Figure 8. Vise Handwheel and Angle Indicator

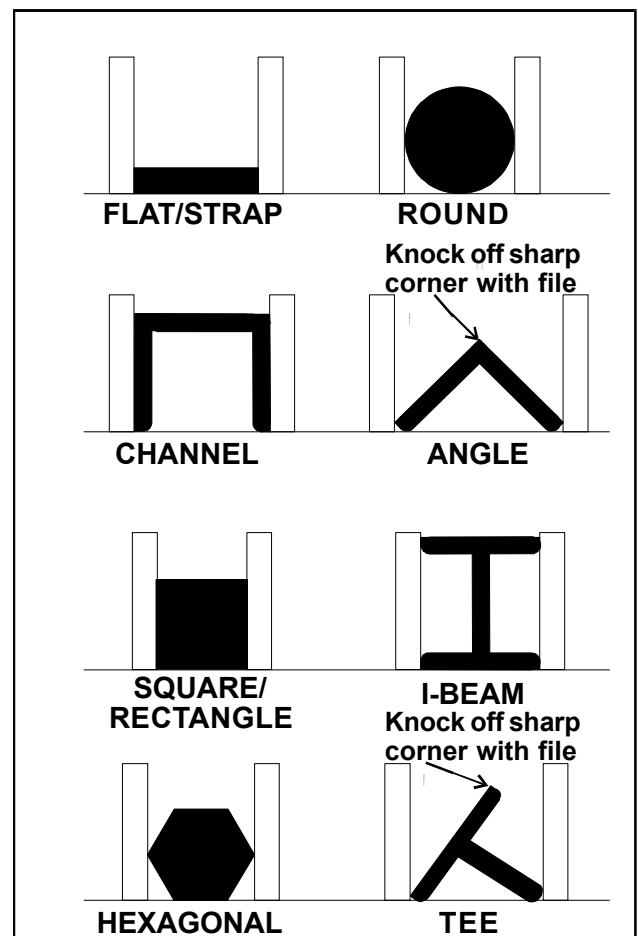


Figure 9. Clamping of Odd-shaped Stock

Factory or Field Procedure

1. Start the saw drive motor.
2. Loosen the knobs securing the blade covers.
3. Remove the blade guards from the guide bearing support.
4. Remove both blade guide bearing brackets.

NOTE: Maintain proper tension at all times using the blade tensioning mechanism (see **Blade Tensioning Adjustment**).

5. Be prepared to adjust the threaded adjustment pins in the blade tensioning mechanism (see **Figure 7**).

CAUTION: WHILE PERFORMING THE FOLLOWING, KEEP THE BLADE FROM RUBBING EXCESSIVELY ON THE SHOULDER OF THE WHEEL. EXCESSIVE RUBBING WILL DAMAGE THE WHEEL AND/OR THE BLADE.

6. Start the saw. Slowly turn the two adjustment pins at the rear of the tracking mechanism to tilt the idler wheel. Do not turn the other two adjustment pins. Alternately turn the adjustment pins in small increments until the blade is touching the shoulder of the idler wheel.
7. Alternately turn the adjustment pins in small increments so the blade starts to move away from the shoulder of the wheel — then immediately turn the adjustment pins in the other direction so the blade stops moving across the wheel, then moves slowly toward the shoulder.

WARNING: KEEP FINGERS CLEAR OF THE BLADE AND WHEEL TO AVOID INJURY.

8. Turn the adjustment pins to stop the motion of the blade on the wheel as it gets closer to the wheel shoulder. Put a 6-inch length of paper between the blade and the wheel as shown in **Figure 10**. The paper should not be cut as it passes between the wheel shoulder and blade.

NOTE: Turning the screw inward causes the blade to move toward the shoulder of the wheel. Turning the screw outward causes the blade to move away from the shoulder.

9. Turn the adjustment pins a small amount. Repeat the insertion of the paper between the wheel shoulder and the blade until the paper is cut in two pieces.

NOTE: You may have to repeat the check with the paper several times before the blade and the shoulder cuts the paper into two pieces. Do not hurry the adjustment. Patience and accuracy here will pay off with better, more accurate, quieter cutting and much longer machine and blade life.

10. When the paper is cut, turn the hex adjustment screw slightly in the counterclockwise direction. This assures that the blade is not touching the shoulder of the wheel.
11. Shut off the saw.
12. Hold the hex adjustment screws with a wrench and tighten the jam nuts. Make sure the hex adjustment screws do not move while tightening the lock nuts.
13. Close the saw head cover.

Verifying Cutting Accuracy

Test cuts can be used to determine whether or not you have adjusted the blade accurately. Use 2-inch round bar stock to perform these test cuts, as follows:

1. With the bar stock securely clamped in the vise, make a cut through the bar stock (see **Figure 11**.)
2. Mark the top of the bar stock.
3. Move the bar stock about 1/4-inch past the blade so you can begin a second cut.
4. Rotate the bar stock 180 degrees so the mark you made is now at the bottom of the cut.
5. Make a cut through the bar stock.
6. Use a micrometer to measure the thickness variation of the disk you have cut from the bar stock. Measure at the top and bottom of the disk.
7. The saw blade can be considered correctly adjusted when the variation is no more than 0.012 inch across the face of the disk.

If you do not have a piece of 2-inch bar stock available for a test cut, use a larger diameter test piece rather than a smaller one. The maximum thickness variation on any test piece should be no more than 0.003 inch per side, per inch of stock diameter.

Band Saw Operation

Before switching on the saw motor, make the following adjustments:

- Use a saw blade with adequate tooth spacing
- Adjust blade speed and feed rate.

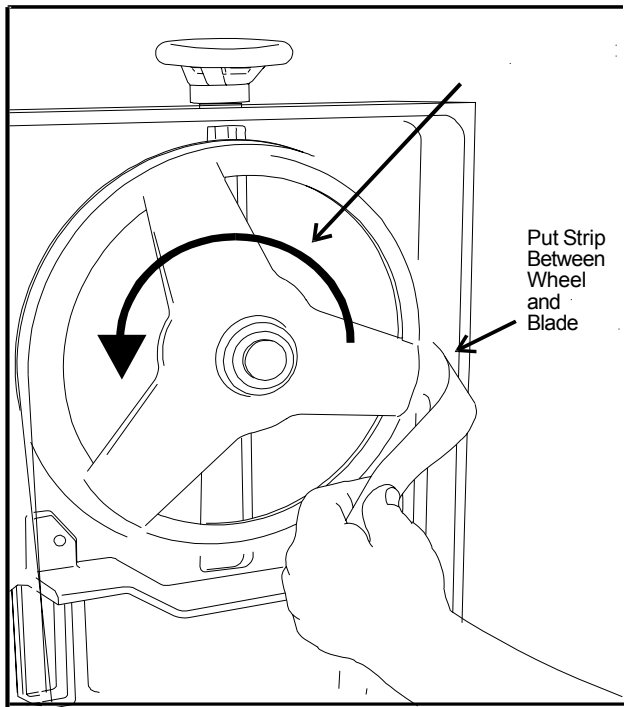


Figure 10: Blade-to-Wheel Clearance

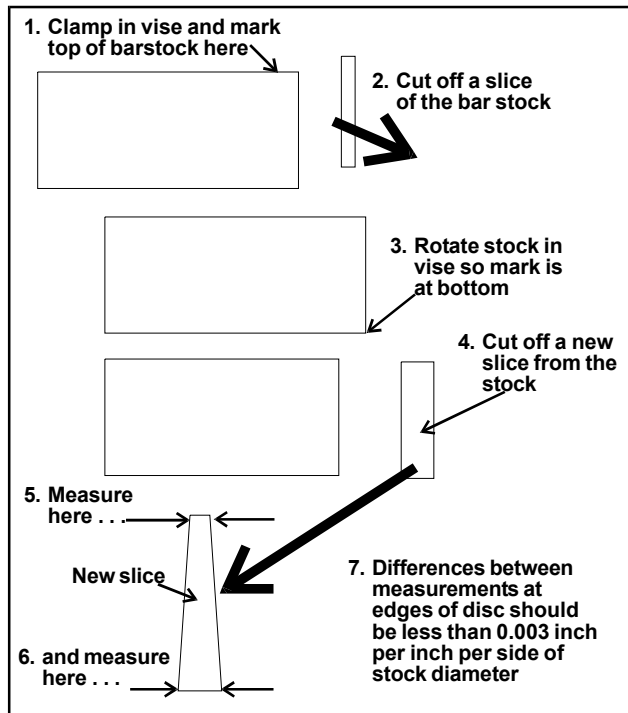


Figure 11: Cutting a Test Disk

- Cutting pressure (modify only in special cases such as high-alloy steel).
- Miter (saw frame) angle
- Positioning of material and clamping of vise
- Adjustment of upper blade guide distance from workpiece/stock.
- Provide for removal of cuttings

SAWING PRECAUTIONS:

- VERIFY THAT THE SAW BLADE IS NOT TOUCHING THE MATERIAL BEFORE STARTING THE DRIVE MOTOR. THE BLADE CAN BE DAMAGED IF THE BLADE IS IN CONTACT WITH THE MATERIAL.
- NEVER USE DULL SAW BLADES. USE OF DULL BLADES WILL PRODUCE POOR AND INACCURATE CUTTING.
- IF THE CUTTING OPERATION IS INTERRUPTED BECAUSE OF SAW BLADE TOOTH BREAKAGE, DO NOT CONTINUE CUTTING IN THE SAME CUTTING CHANNEL WITH A NEW SAW BLADE. THE NEW BLADE COULD BE DAMAGED BY THE REMNANTS OF THE BROKEN TOOTH. REMOVE ANY BROKEN TEETH STILL IN THE CHANNEL.
- NEVER MOVE THE SAW BLADE ABRUPTLY INTO THE MATERIAL. DOING SO WILL REDUCE THE SERVICE LIFE OF SAW BLADE.
- IF THE SAWING OPERATION WAS INTERRUPTED, RETURN THE SAW FRAME TO THE BACK OF THE MACHINE BEFORE CONTINUING THE SAWING OPERATION.
- ALWAYS PERFORM A RUN-IN ON NEW SAW BLADES. DOING SO WILL INCREASE SERVICE LIFE OF SAW BLADE.
- NEVER USE DULL SAW BLADES. USE OF DULL BLADES WILL PRODUCE POOR AND INACCURATE CUTTING.

Tips for Optimum Sawing

Saw Blade Teeth Breakage

Each tooth of the saw blade can only withstand a defined cutting force which varies depending on blade quality. If this limit is exceeded, the tooth will break.

Overcharging of chip space happens when larger cross sections are sawn with fine-spaced saw blades (such as cutting a 4-inch diameter workpiece with a 10 Z/inch saw blade) and high feed rates.

In some cases, fine-spaced saw blades can be used to saw larger cross sections. However, a lower feed rate must be used.

Breaking of Teeth Results from:

- Sawing thin wall profiles with a blade that has tooth spacing that is too large or by using feed rate that is too high.
- Feed rate too fast or saw blade touching material before starting saw motor.

Saw Blade Life

The saw blade can become prematurely dull if you do not match the blade to the material, if you select too high a cutting speed, or if you do not use any coolant. If the cutting speed is too high, the saw blade teeth will become dull due to overheating. Overheating the tips of the teeth can also occur when the saw blade slides across the workpiece with little or no chip removal (results in poor heat transfer because only the tooth tips contact the material).

Feed Rate for Changing Profiles

When sawing profiles such as tubes, the cross section being cut changes continuously as the blade cuts through the tube. Initially it is like a piece of solid round stock. When it breaks through the wall of the tube, the blade is contacting the two sides of the tube. For sawing operations involving changing profiles, we recommend using multiple pitch blades. The feed rate used on changing profiles should not be made too fast. The rate should be even lower with differing cross section profiles in order to avoid tooth breakage.

Flat Iron

Most tooth breakage occurs when cutting flat iron, often from spacing that is too fine. By clamping flat iron a bit diagonally, you can saw with fine spacing because the cross section is reduced by the diagonal position of the flat iron.

Saw Blade Selection

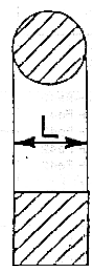
Selection of the correct saw blade for various materials is very important. Following are some tips for determining the saw blade to use:

- Refer to the upper chart in **Figure 12**. When cutting many different kinds of materials and cross sections, we recommend using saw blades with spacing of 4 Z/inches (shape of tooth N) and spacing of 8/12 Z/inches (multiple pitch spacing).
- Saw blades with 4 Z/inches can be used for solid material of 0.75 inch to 8.00 inches and profile bars from 0.25 inch and higher. Multiple pitch spacing of 8/12 Z/inches is used for solid material of 0.08 inch to 6.00 inches and profile bars from 0.5 inch to 2.0 inches.
- As a rule, we recommend the use of high quality bimetal saw blades so that all materials mentioned can be sawn (in particular, if there are hardened blow holes) and fewer saw blade replacements will be required.

- In some cases, however, it might be less expensive to use saw blades of special quality. This applies if constant tooth breakage is a problem.
- In order to take advantage of full machine capabilities, such as when sawing larger quantities of the same materials and cross sections, select the optimum spacing, shape of tooth and highest quality saw blade possible.
- If you are not sure which saw blade to use for a particular application, contact your dealer for help.

Tooth Profile

- Standard Tooth (N)** Effective cutting angle is zero (0) degrees. Suitable for sawing most types of cast iron and steel.
- Claw Tooth (K)** Effective cutting angle 10 degrees. Suitable for free machining materials, such as non-ferrous metals or low strength steels.
- Multiple Pitch (C)** Variable spacing with different shapes and depths of teeth. Available only in bimetal. Suitable for all materials and frequently changing cross sections/profiles.

	L mm.	Zx1"	Zx1" Zx1"
	≤ 40	8	6/10
>30<80	6	5/8	
>60<90	4	4/6	
≥ 100	3	3/4	

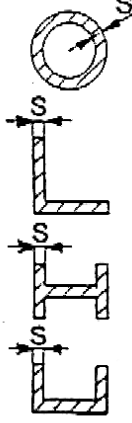
	S mm.	Zx1"	Zx1" Zx1"
	≤ 1.5	14	—
>1<2	10	10/14	
>2<4	8	8/12	
>4<8	6	6/10	
>6<12	6	5/8	
≥ 12	4	4/6	

Figure 12: Table for Spacing and Shape of Tooth

Maintenance

WARNING: THE MAIN SWITCH OF THE MACHINE MUST BE OFF AND POWER DISCONNECTED WHEN PERFORMING MAINTENANCE. ALL WORK MUST BE CARRIED OUT BY QUALIFIED AND AUTHORIZED PERSONNEL. VERIFY THAT ALL PROTECTIVE DEVICES HAVE BEEN REINSTALLED AND NO UNAUTHORIZED PERSONNEL ARE IN THE AREA OF THE MACHINE BEFORE POWER IS RESTORED.

Daily Maintenance

- Check coolant level daily. Replenish coolant if level is less than 1/3 full.
- Apply a thin film of oil to the vise spindle, vise rails, and other unpainted surfaces.
- Keep machine free of sawing debris and chips. Empty debris accumulated in chip tray.

Hydraulic Oil Checks

During the first week of operation (about 50 operational hours), check level of hydraulic oil in reservoir. Also check all hoses and fittings for leaks. After this initial period, perform the checks weekly.

CAUTIONS:

- REPLACE DAMAGED PARTS (ESPECIALLY HOSES) IMMEDIATELY.
- FILL OIL TO MAXIMUM LEVEL AT EVERY CHECK.
- TIGHTEN LOOSE SCREWS, BUT DO NOT EXCEED TORQUE.
- WHEN ADDING FLUID OR COMPLETING ANY HYDRAULIC INSTALLATION, BE VERY CAREFUL TO MAINTAIN CLEANLINESS, ESPECIALLY WHEN PIPES OR CONTAINERS ARE OPEN.
- USE ONLY HYDRAULIC OIL OF VISCOSITY 32 TO 46 ACCORDING TO DIN 51519 AND QUALITY HLP (E.G. SHELL-TELLUS 32).

Maintenance After First Week

1. After the first 50 operational hours, all terminal connections in the switch cabinet should be checked and re-tightened.
2. Clean coolant reservoir.
3. Check chip brushes for wear.
4. Change hydraulic oil and filter after first 50 to 100 operational hours. After that, change the oil and filter every 2,000 operational hours or a minimum of once a year.

CAUTION: IF OIL AND FILTER CHANGES ARE NOT PERFORMED (ESPECIALLY AFTER THE FIRST 50 TO 100) OPERATIONAL HOURS, THE SOLENOID VALVES MAY FAIL FROM THE DIRTY OIL. THE WARRANTY WILL BE VOIDED IF THE SOLENOID VALVES FAIL DUE TO DIRTY OIL. WHEN ADDING HYDRAULIC OIL AND/OR CHANGING THE FILTER, CHECK FOR DAMAGE OR LEAKS.

Every 100 Hours

Check, and if necessary, adjust saw blade guides (see **Adjusting Blade Guide Inserts**).

Every 1,000 Hours

1. Lubricate linear guide rails (see **Lubricating Linear Guide Rails**).
2. Clean entire machine and dispose of chips and saw debris. Remove debris from the drive, the saw blade, the guide rails, and from the coolant reservoir. (Take special care that linear guides of the saw frame are cleaned of debris and dirt every time the blade is replaced.)
3. Dispose of dust and coolant separately.
4. Verify that all adhesive labels are legible. If not, replace the labels immediately.
5. Protect electrical components such as motors, switches, and switch cabinet components, from moisture during cleaning.

WARNING: NEVER USE FLAMMABLE SOLVENTS OR CLEANING AGENTS THAT COULD EMIT DANGEROUS VAPORS.

Lubricating Linear Guide Rails

Every 1000 hours, apply a thin coating of general purpose grease to upper and lower rails and the corresponding guide blocks.

Hydraulic Oil Level

Check hydraulic oil level daily (see **Figure 4**). The hydraulic oil level should be a minimum of 3/4 full.

Coolant Level

Check the coolant level daily. The coolant level should be a minimum of 1/3 full.

Hydraulic Oil and Filter Change

Change the oil every 1000 hours by removing the reservoir drain plug. Change the hydraulic filter whenever the oil is changed.

Replacing Saw Blade

WARNING: ALWAYS WEAR LEATHER GLOVES WHEN HANDLING SAW BLADE TO AVOID INJURY FROM THE SAW TEETH.

Saw blade replacement is one of the most dangerous procedures performed on the band saw, since the sharp teeth of the saw blade are completely unprotected. This work must be completed by authorized and trained personnel only.

Use the following procedure for saw blade replacement:

1. Switch off band saw motor and move saw frame into rearmost position.
2. Put saw frame in right tilt of 7 to 7-1/2 degrees to the right.

WARNING: ALWAYS TURN OFF MAIN POWER SUPPLY TO THE MACHINE AND WEAR WORK GLOVES WHEN REPLACING THE SAW BLADE.

3. Disconnect main power switch.
4. Loosen upper blade guide support locking handle. Push support down until saw blade cover can be tilted forward.
5. Open upper and lower blade wheel covers.
6. Loosen saw blade tensioner as far as possible.
7. Loosen chip brush locking screw (10). Turn chip brush completely to the right.
8. Push saw blade forward out of the guides with one hand and hold the blade with the other hand so that blade does not engage (see **Figure 13**).
9. Remove saw blade from the machine. Hold saw blade firmly with both hands.
10. Hold saw blade (see **Figure 14**) with both hands. Wind the blade into a roll and fasten with a length of wire.
11. Clean debris from the saw blade guides and the linear guides.
12. Check condition of chip brush. Adjust or replace if necessary.

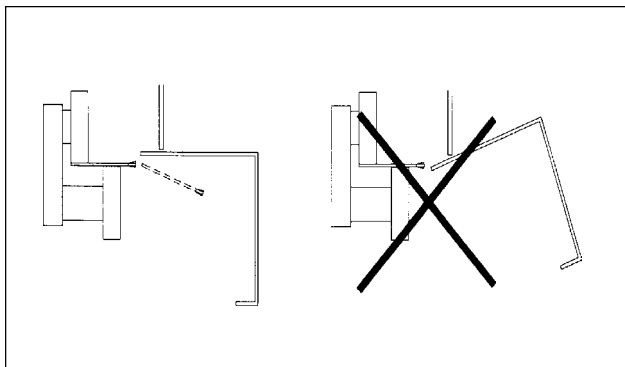


Figure 17. Removing Saw Blade

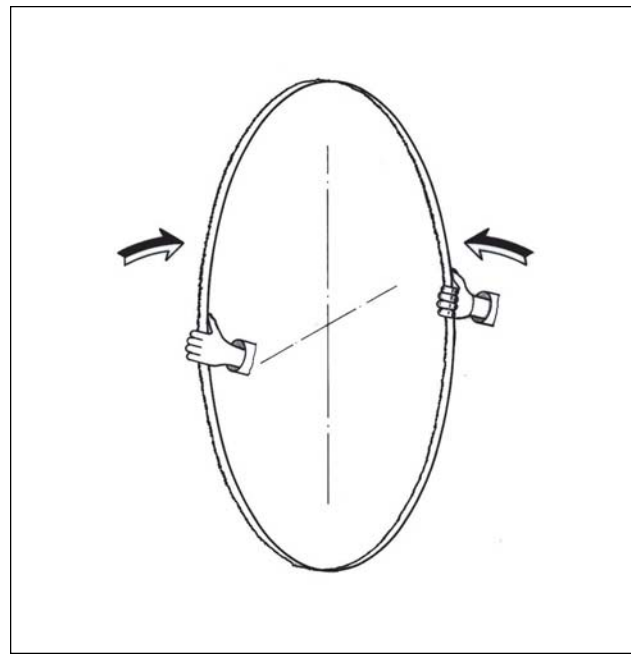


Figure 14. Holding Saw Blade

Installation of Saw Blade

WARNING: HOLD SAW BLADE FIRMLY WITH BOTH HANDS AND NEVER RELEASE THE BLADE DURING INSTALLATION!

1. Hold the saw blade away from your body and feed it slowly into place.
2. Check saw blade teeth direction. Teeth must face the same direction the saw blade will run. If not, change teeth direction by "twisting" the saw blade.
3. To reverse the direction of the teeth, grasp the upper third of saw blade tightly between thumbs and forefingers of both hands, with thumb at the outside of the saw blade. Then twist saw blade by turning both hands in the same direction.
4. Insert saw blade into the saw.
5. Move it onto the drive wheel, then push it upwards from below into the saw frame and move it onto the idler wheel. Now push the saw blade into the lower guide, and then into the upper guide. The saw blade will have to be turned 90 degrees.

CAUTION: THE BACK OF BLADE (NOT THE TEETH) MUST BE BELOW THE STOP COLLAR OF THE TENSIONING AND DRIVE ROLL. TEETH MUST FACE FORWARD BETWEEN THE GUIDES!

6. Tighten saw blade slightly using the tension handwheel and check seating of saw blade. If necessary, correct seating of saw blade by pressing against stop collar and pushing the blade into the guides.

7. Put the chip brush back into its original position and tighten screw (10).
8. Turn the tension handwheel until proper tension is achieved. Use of a blade tensioning gauge is recommended.
9. Close idler and drive wheel covers.
10. Adjust position of guide support and tighten the locking handle.

NOTE: Each new saw blade should be run-in by reducing the feed rate to 2/3 for the first 300 cm².

Cleaning

1. Clean off any preservative on machine surfaces.
2. After cleaning, coat the machined surfaces of the cut-off saw with a medium consistency machine oil. Repeat the oil coating process at least every six months.
3. Clean up accumulated saw cuttings after use. Make sure the lead screw is kept free of saw cuttings and other material that would cause damage.
4. Clean the chip sludge from the coolant tank. The frequency should be determined by how often the saw is used.

Lubrication

Lubricate the following components at the specified frequencies and using the lubricants defined below:

1. Ball bearings: the bearings are lubricated and sealed—periodic lubrication is not required.
2. Blade guide bearing: the bearings are lubricated and sealed—lubrication is not required. Inspect periodically.
3. Idler wheel bushing: the bearings are lubricated and sealed—lubrication is not required. Inspect periodically.
4. Slide rails: lubricate with light oil monthly (see **Assembled View**, Replacement Parts section).
5. Hydraulic cylinders: lubricate pivots with light oil every 6 months.
6. Blade tension screw: lubricate with grease every 6 months.
7. Blade brush bearing: lubricate with light oil monthly.
8. Drive motor gearbox: check oil once a year.
9. Change coolant on a frequency appropriate to the type of coolant being used. Refer to the coolant supplier's instructions for change frequency.
10. Coolant reservoir: clean every 6 months or as required.

Replacing the Saw Drive Gearmotor

WARNING: SHUT OFF ALL ELECTRICAL POWER TO THE MACHINE.

1. Shut off the power to the branch circuit. Disconnect the gearmotor from all electrical power.
2. Open drive wheel and idler wheel doors.
3. Remove saw blade (see **Replacing Blades**).
4. (Refer to **Cutaway View** in **Replacement Parts** section.) Remove screw (5), spacer (6), drive wheel (2), and key (6). Retain key (6) for use on replacement gearmotor.
5. Remove four screws (7) and nuts (8) that secure the gearmotor (1) to the saw frame.
6. Separate the gearmotor from the saw frame.
7. Installation of a new motor is the reverse of removal.

Replacing Limit Switches

WARNING: SHUT OFF ALL ELECTRICAL POWER TO THE MACHINE.

1. Disconnect electrical connector.
2. Remove attaching screws and remove the affected limit switch. Install replacement limit switch and secure with screws.
3. Adjust trip point of limit switch and tighten jam nuts.
4. Adjust screw as required. Tighten jam nut.
5. Install threaded connector.

CAUTION: BE PREPARED TO PRESS THE EMERGENCY STOP BUTTON IF THERE SHOULD BE CONTACT WITH A HARD STOP.

6. Connect to electrical power and verify that the switch is operating properly.

Replacement of Hydraulic Cylinders

WARNING: SHUT OFF ALL ELECTRICAL POWER TO THE MACHINE. MAKE SURE HYDRAULIC SYSTEM HAS BEEN DEPRESSURIZED BEFORE DISCONNECTING HYDRAULIC LINES.

1. Shut off electrical power and depressurize hydraulic system.
2. Disconnect hydraulic line from fitting on cylinder.
3. Remove attaching parts from cylinder rod end.

NOTE: Attachment points for longer cylinders are rod end fittings at both ends of the cylinder.

4. Remove fitting from hydraulic cylinder and install in replacement cylinder.
5. Install new cylinder in the reverse order of removal.
6. After connecting hydraulic lines, start hydraulic pump and check for leakage.
7. Operate the saw through an operational sequence to verify that the hydraulic cylinder is operating properly.

Replacement of Blade Guides

WARNING: SHUT OFF ALL ELECTRICAL POWER TO THE MACHINE.

1. Remove screws (14) and washers (13). Remove and discard the worn guides (3).
2. Install the one replacement guide (3). Install the guide using washer (13) and screw (14). Install guide so it just contacts the side of the saw blade.
3. Install the other guide (3) using washer (13) and screw (14). Set the guide so it contacts the side of the blade.

Replacement of Guide Bearings

WARNING: SHUT OFF ALL ELECTRICAL POWER TO THE MACHINE.

1. Remove screws (10). Separate the bearings (8, 9, and 11), bushings (7 and 9), and ring (12) and from the screws. Discard the damaged or worn bearings.

NOTE: There is a light press fit between the bearing and the bushing.

2. Install ring (12) and bushings (7 and 9) on screws (10) in the sequence shown in the exploded view in the **Replacement Parts** section.

Replacement of Chip Brush

WARNING: SHUT OFF ALL ELECTRICAL POWER TO THE MACHINE.

1. Open the lower blade cover.
2. Loosen screw (10). Remove assembled chip brush assembly.
3. Remove screw (9), washer (8), and brush (4).
4. Install replacement brush (4). Secure with washer (8) and screw (9).
5. Install chip brush assembly (13). Position the brush over the saw blade. Secure the assembly with screw (10).
6. Close the blade cover and secure with four knobs.

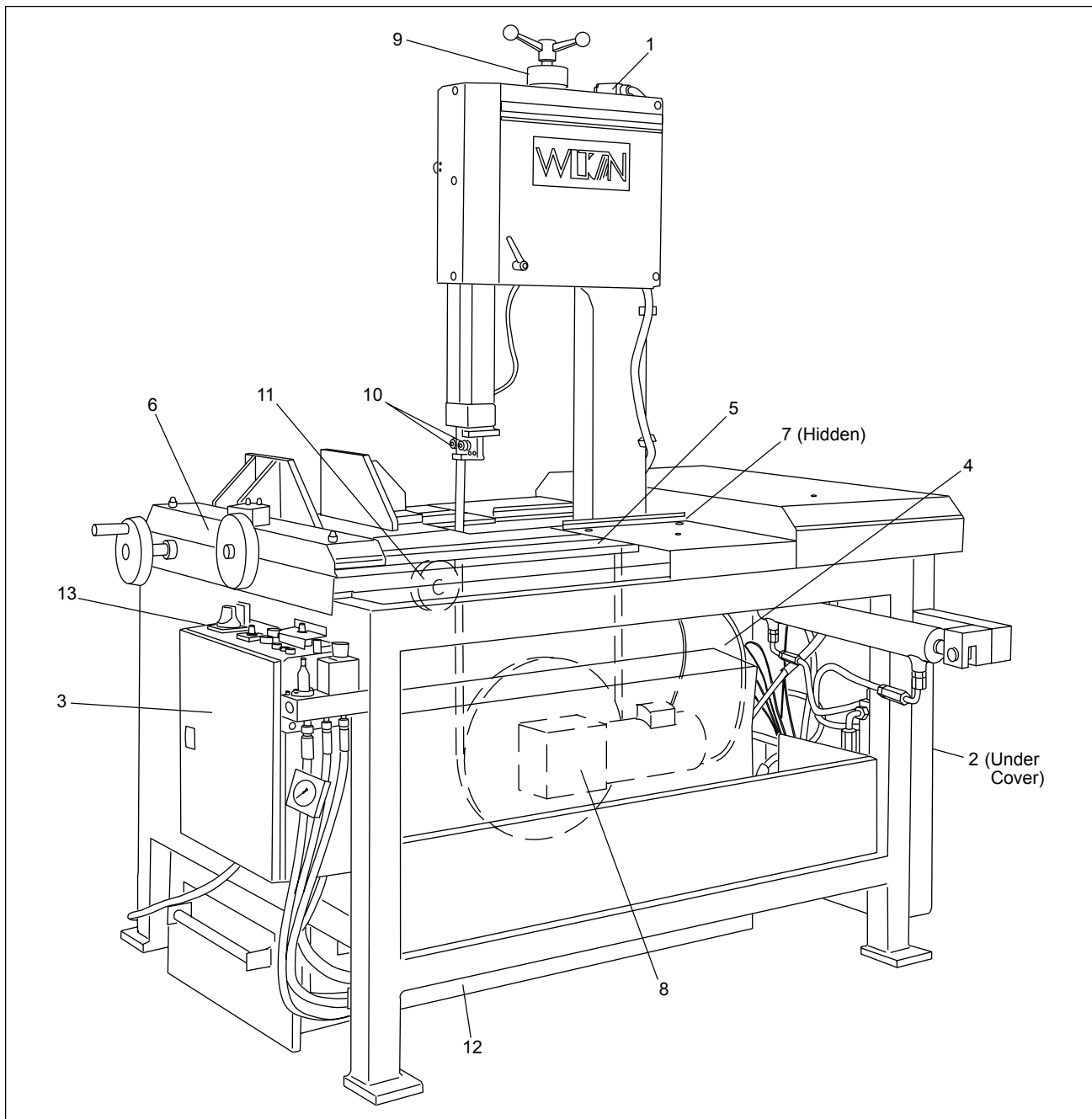
Replacement Parts

This section provides illustrations that show the replacement parts for the Model VTF6-2 and VTF6-4, Universal Vertical Tilt Frame Cut Off Band Saw.. Also provided are parts listings that provide part number and description. The item numbers shown on the illustration relate to the item number in the facing parts listing. Order replacement parts from:

WMH Tool Group, Inc.
2420 Vantage Drive
Elgin, IL 60123
Phone: 847-649-3010
Fax: 847-649-3013

Identify the replacement part by the part number shown in the parts listing. Be sure to include the model number and serial number of your machine when ordering replacement parts to assure that you will receive the correct part.

Assembled View - Tilt Frame Band Saw - Model VTF6



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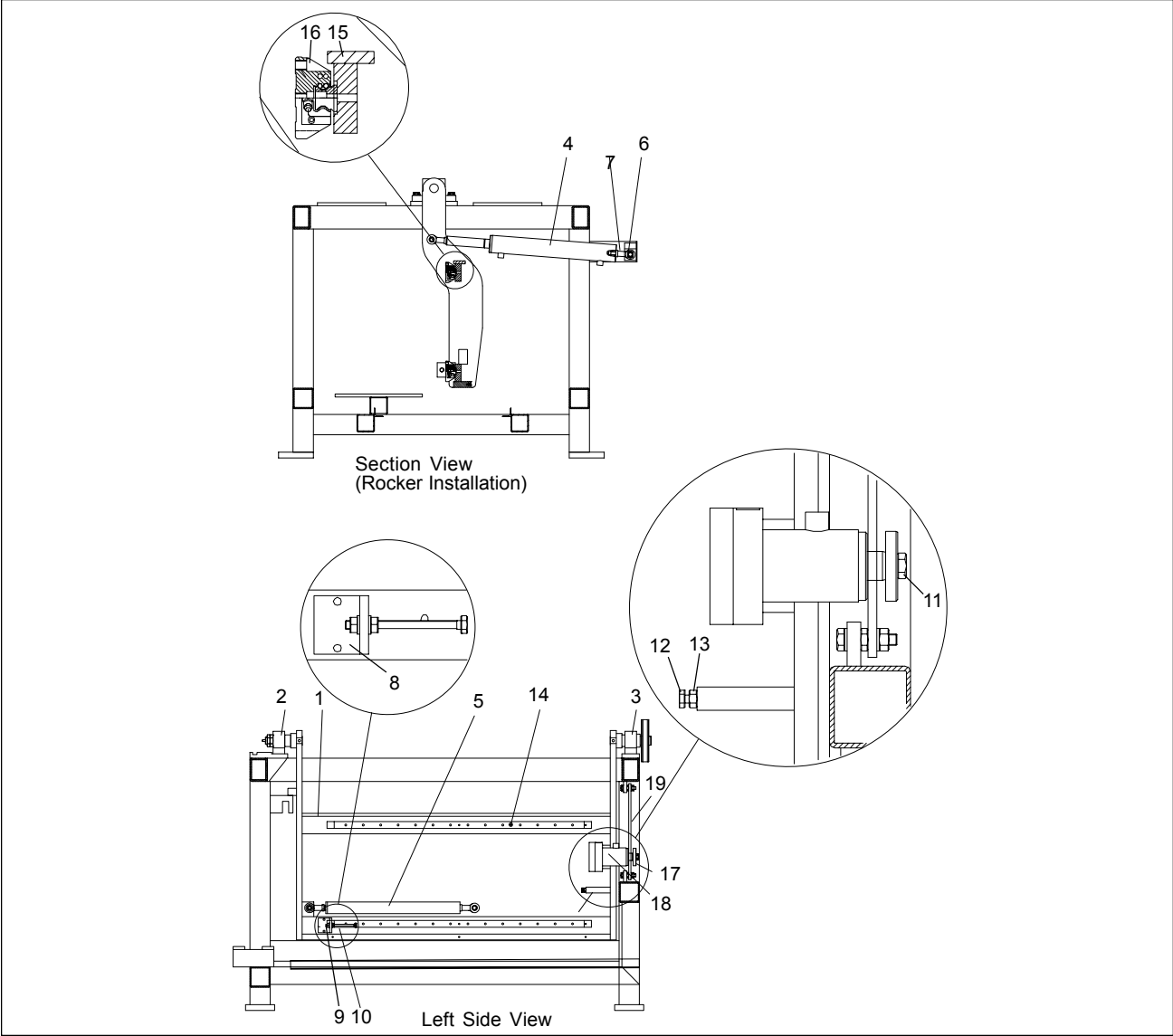
Parts Listing - Tilt Frame Band Saw - Model VTF6

Item No.	Part Number	Description	Qty.
1	5518520	Limit Switch	3
2	5518521	Hydraulic System*	1
3	5518522	Enclosure, Electrical*	1
4	5518523	Rocker Assembly*	1
5	5518524	Table*	1
6	5518525	Bearing Block, Front*	1
7	5518526	Bearing Block, Rear*	1

Item No.	Part Number	Description	Qty.
8	5518527	Drive, Blade*	1
9	5518528	Drum, Tension*	1
10	5518529	Guide, Blade*	1
11	5518530	Brush, Chip*	1
12	5518531	Reservoir, Coolant*	1
13	5518532	Panel, Control*	1

* See separate parts list

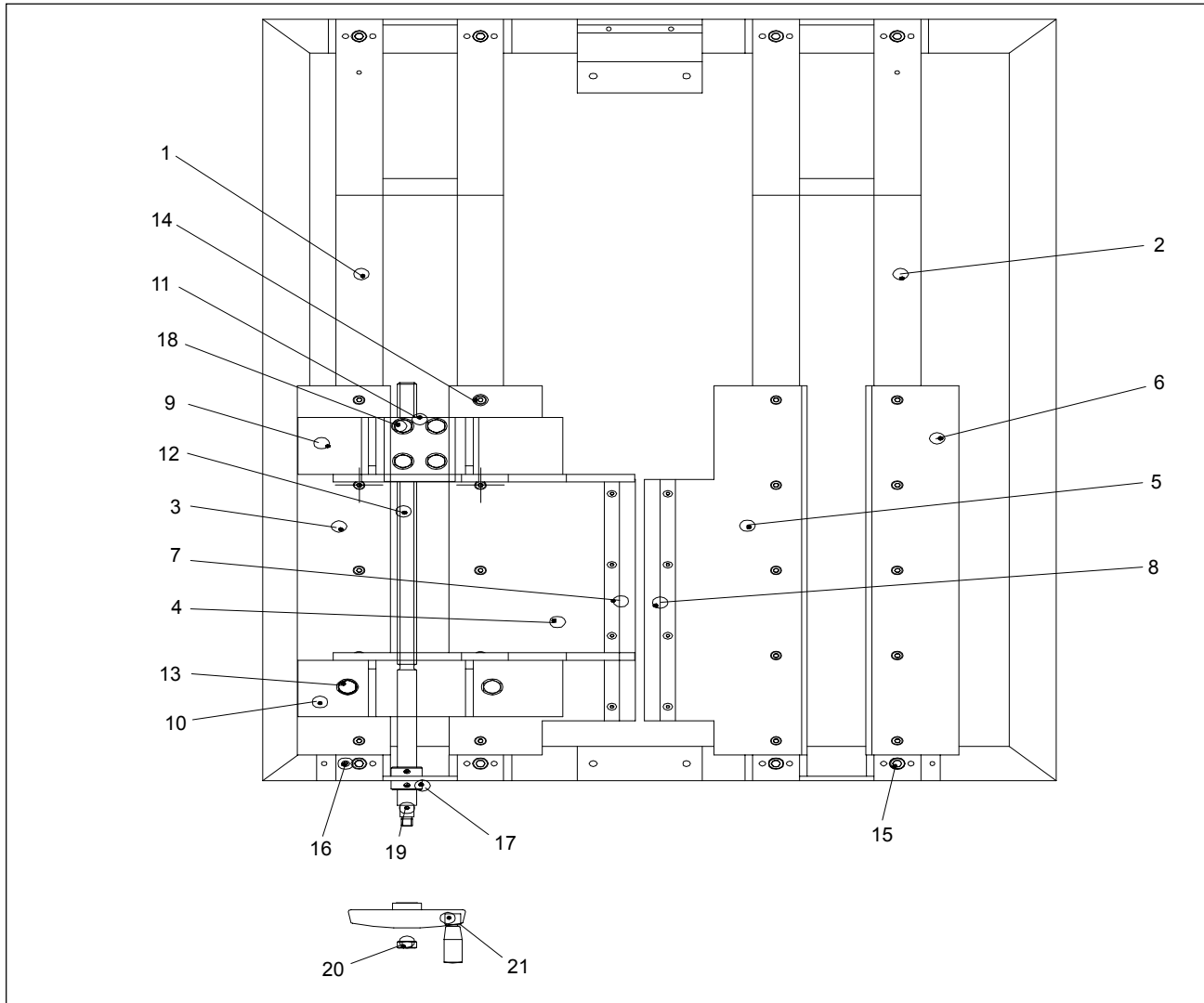
Orthographic View - Rocker Assembly - Model VTF6



Parts Listing - Rocker Assembly - Model VTF6

Item No.	Part Number	Description	Qty.	Item No.	Part Number	Description	Qty.
1	5518533	Arm, Rocker	1	11	5518543	Bolt, Distance (M8 X 94)	1
2	5518534	Bearing Block, Rear*	1	12	5518544	Bolt, Hex Head (M8 X 20)	1
3	5518535	Bearing Block, Front*	1	13	5518545	Nut, Hex (M8)	1
4	5518536	Cylinder, Hydraulic (50 x 30)	1	14	5518546	Rail, Guide	2
5	5518537	Cylinder, Hydraulic (30 x 16)	1	15	5518547	Block, Guide	4
6	5518538	Bolt	1	16	5518548	Stripper	4
7	5518539	Head, Joint (M12)	4	17	5518549	Washer (60/13 X 10)	1
8	5518540	Bracket	1	18	5518550	Cylinder, Hydraulic, Clamping (50 X 25)	1
9	5518541	Nut, Hex (M8)	2	19	5518551	Rocker (Swing)	1
10	5518542	Screw, Hex Head (M8 X 100)	1	* See separate parts listing			

Orthographic View - Table Assembly - Model VTF6



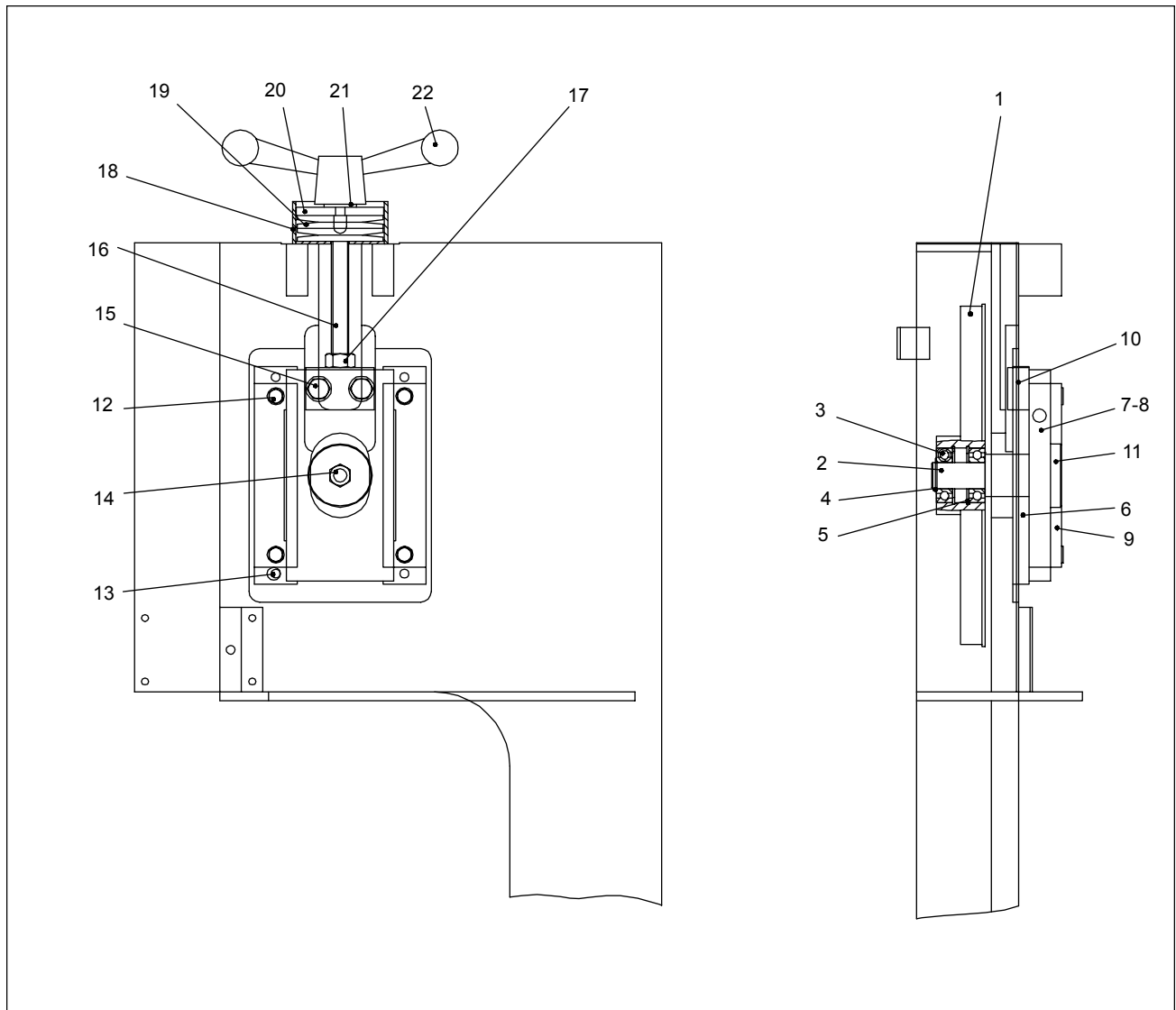
Parts Listing - Table Assembly - Model VTF6

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Item No.	Part Number	Description	Qty.
1	5518552	Table, Left	1
2	5518553	Table, Right	1
3	5518554	Table Plate, Outer	1
4	5518555	Table Plate, Inner Left	1
5	5518556	Table Plate, Slotted, Inside Right	1
6	5518557	Table Plate, Slotted, Outer	1
7	5518558	Table Bar, Left	1
8	5518559	Table Bar, Right	1
9	5518560	Rear Jaw, Left	1
10	5518561	Front Jaw, Left	1
11	5518562	Nut, Vise	1
12	5518563	Spindle, Vise	1
13	5518564	Screw, Hex Head (M14 X 50)	2

Item No.	Part Number	Description	Qty.
14	5518565	Screw, Cap, Hex Socket Head (M8 X 16)	20
15	5518566	Screw, Cap, Hex Socket Head (M12 X 35)	8
16	5518567	Pin, Hex, Threaded (M10 X 20)	16
17	5518568	Ring, Adjusting	2
18	5518569	Screw, Hex Head (M14 X 40)	4
19	5518570	Pin, Straight, Spring Type	1
20	5518571	Nut, Hex	1
21	5518572	Handwheel (with Reversible Handle)	1

Exploded View - Tension Drum - Model VTF6

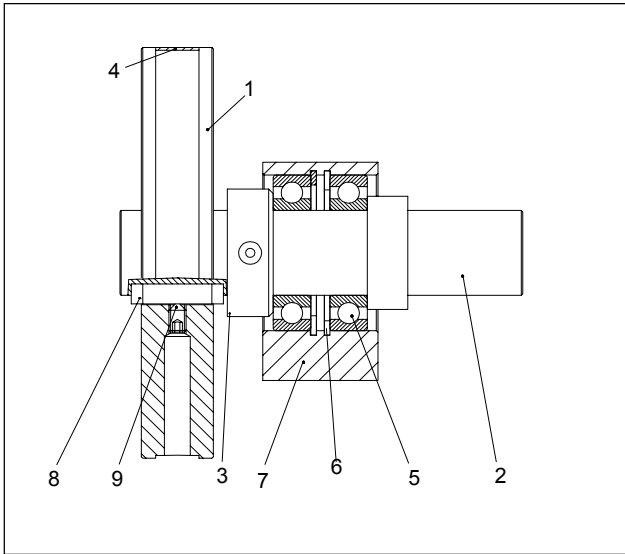


Parts Listing - Tension Drum - Model VTF6

Item No.	Part Number	Description	Qty.
1	5818587	Drum, Tension	1
2	5818588	Bolt, Tension Drum	1
3	5818589	Bearing, Ball (6205-2Z) (25/52 X 15)	2
4	5818590	Ring, Retaining (25 X 12)	1
5	5818591	Ring, Retaining (52 X 2)	1
6	5818592	Guide, Blade	1
7	5818593	Plate, Tension Drum	1
8	5818594	Guide, Blade	2
9	5818595	Guide, Blade	2
10	5818596	Nut, Plate	1
11	5818597	Washer	1

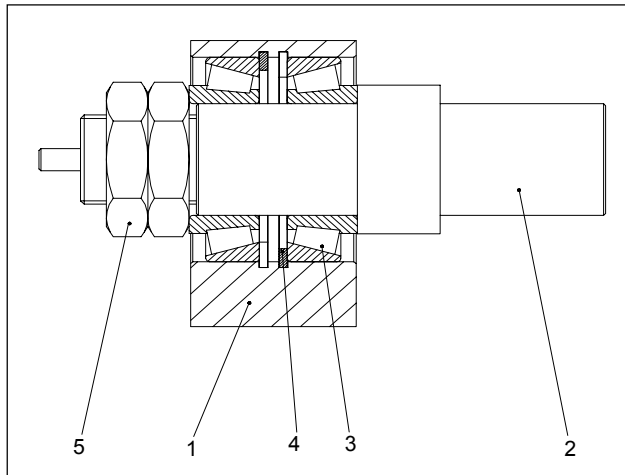
Item No.	Part Number	Description	Qty.
12	5818598	Screw, Hex Head (M8 X 60)	4
13	5818599	Pin, Hex, Threaded (M10 X 20)	4
14	5818600	Screw, Hex Head (M12 X 25)	1
15	5818601	Screw, Hex Head (M12 X 35)	2
16	5818602	Rod, Threaded (M16 X 240)	1
17	5818603	Nut, Hex (M16)	1
18	5818604	Box	1
19	5818605	Disc, Spring (81 X 41 X 4)	4
20	5818606	Plate, Pressure	1
21	5818607	Washer	1
22	5818608	Handle, Tension	1

Cutaway View - Front Bearing Block - VTF6



Item No.	Part Number	Description	Qty.
1	5818578	Block, Bearing	1
2	5818579	Shaft	1
3	5818580	Disk	1
4	5818581	Scale, Angle	1
5	5818582	Bearing, Ball (6006-2Z) (30/55 X 13)	2
6	5818583	Ring, Retaining (55 X 2)	2
7	5818584	Ring, Adjusting	1
8	5818585	Key, Parallel (A8 X 7 X 32)	1
9	5818586	Pin, Hex, Threaded (M 6 X 10)	1

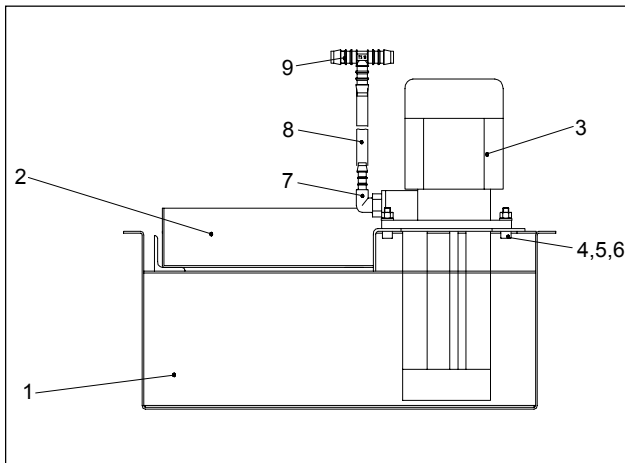
Cutaway View - Rear Bearing Block - VTF6



Item No.	Part Number	Description	Qty.
1	5818573	Block, Bearing	1
2	5818574	Shaft	1
3	5818575	Bearing, Tapered Roller (30/55 X 17)	1
4	5818576	Ring, Retaining (55 X 2)	1
5	5818577	Nut, Hex, Thin (M24 X 1.5)	1

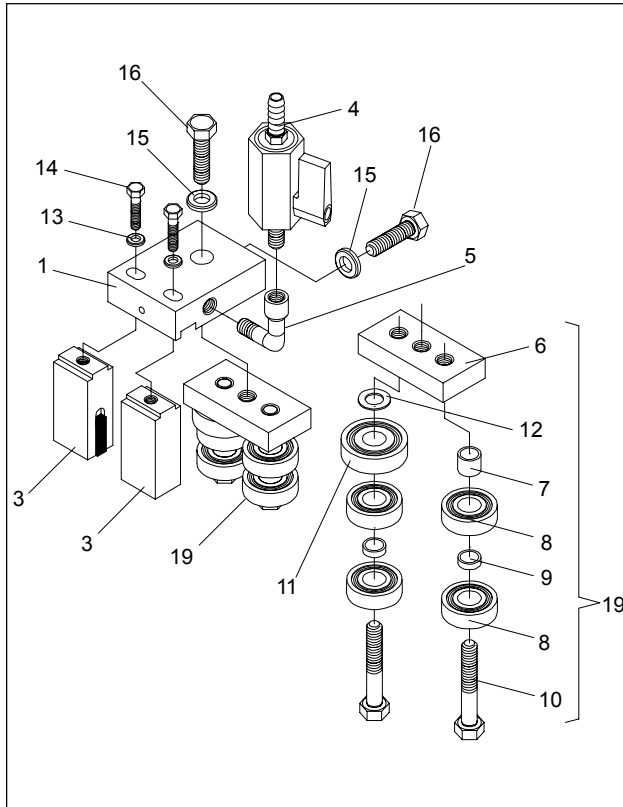
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Cutaway View - Coolant Pump Installation - VTF6



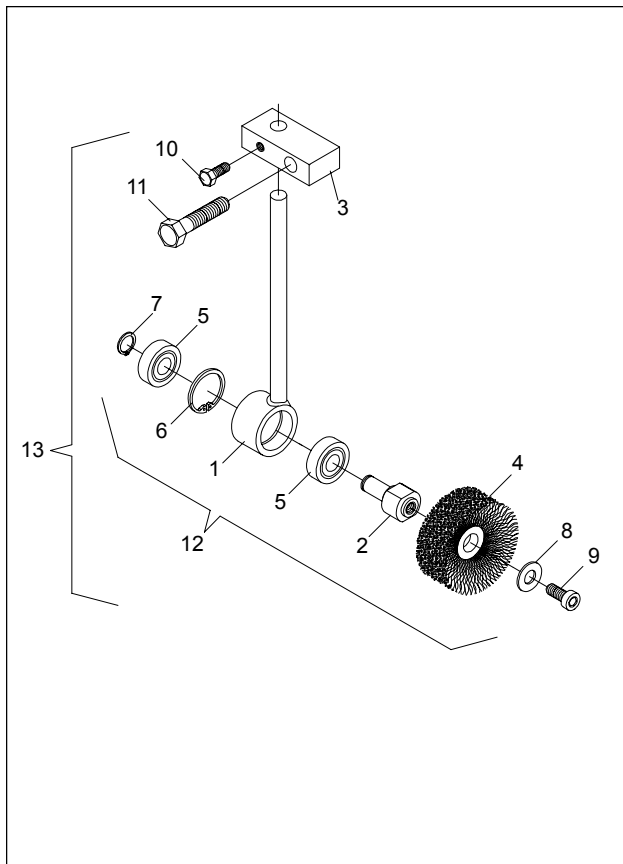
Item No.	Part Number	Description	Qty.
1	5818666	Reservoir, Coolant	1
2	5818667	Tray, Chip	1
3	5818668	Cover, Coolant Pump	1
4	5818669	Hose, Coolant (9 X 15)	1
5	5818670	Fitting, Elbow (R 3/8 Inch) (8 Long)	1
6	5818671	Pump, Coolant (0.06 kW)	1
7	5818672	Screw, Hex Head	1
8	5818673	Washer	2
9	5818674	Nut	2
10	5818675	Fitting, Tee	2

Exploded View/Parts List - Blade Guide Assembly - VTF6



Item No.	Part Number	Description	Qty.
1	5818609	Plate, Base, Rear	1
2	5818610	Plate, Base, Front	1
3	5818611	Guide, Tungsten	2
4	5818612	Valve, Coolant	1
5	5818613	Union, Angular (w/threaded end)	1
6	5818614	Plate, Guide	1
7	5818615	Bushing	2
8	5818616	Bearing, Ball (6000-2RS1)	4
9	5818617	Bushing	2
10	5818618	Screw, Hex Head	2
11	5818619	Bearing, Ball (6200-2RS1)	1
12	5818620	Ring, Shim	1
13	5818621	Washer	2
14	5818622	Screw, Hex Head (M6 X 30)	2
15	5818623	Washer	2
16	5818624	Screw, Hex Head (M10 X 25)	2
17	5818625	Hose, Coolant	1
18	5818626	Protector, Blade	1
19	5818627	Guide Assembly, Ball Bearing (Includes 5 through 12)	1
20	5818628	Guide, Upper	1
21	5818629	Guide, Lower	1

Exploded View/Parts List - Chip Brush Assembly - VTF6



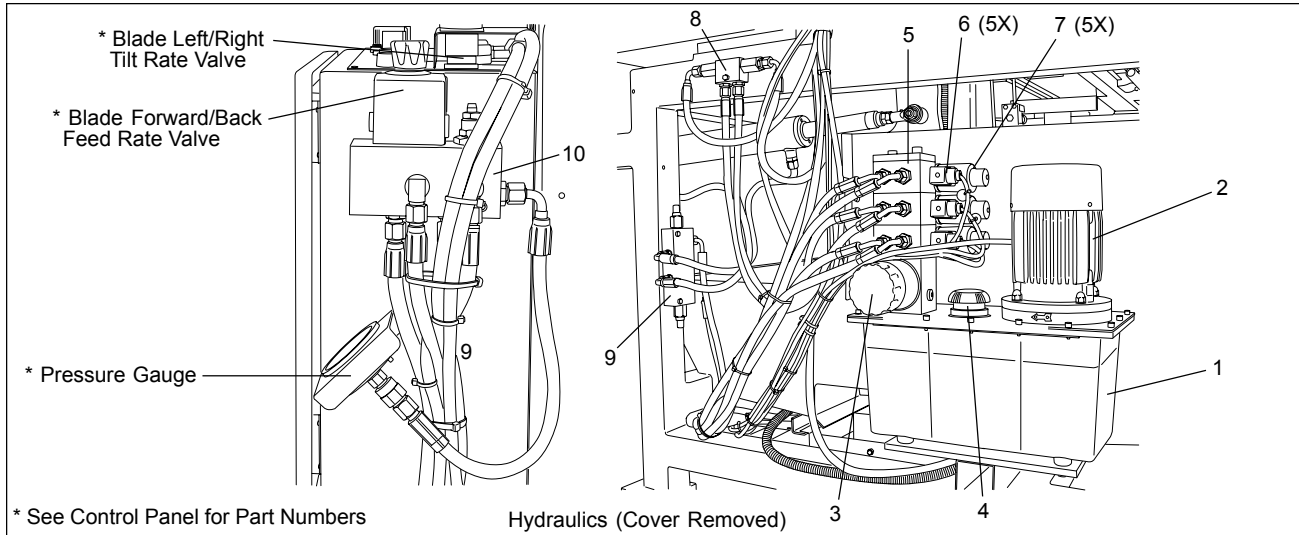
Item No.	Part Number	Description	Qty.
1	5818630	Bearing, Chip Brush	1
2	5818631	Bearing, Journal	1
3	5818632	Block, Mounting	1
4	5818633	Brush, Chip	1
5	5818634	Bearing, Ball (6006-2RS1)	2
6	5818635	Ring, Retaining (26 X 1.2)	1
7	5818636	Ring, Retaining (10 X 1)	1
8	5818637	Washer (8.4)	1
9	5818638	Screw, Socket Head Cap (M8 X 10)	1
10	5818639	Screw, Hex Head (M6 X 16)	1
11	5818640	Screw, Hex Head (M8 X 35)	1
12	5818641	Brush, Chip (Note 1)	1
13	5818642	Brush, Chip (Note 2)	2

NOTES

Note 1: Chip brush assembly less mounting block (3) (consists of items 1, 2, and 4 through 9).

Note 2: Chip brush assembly including mounting block (3) and fasteners (consists of items 3, 10, 11, and 12).

Installation View - Hydraulic System Components - VTF6

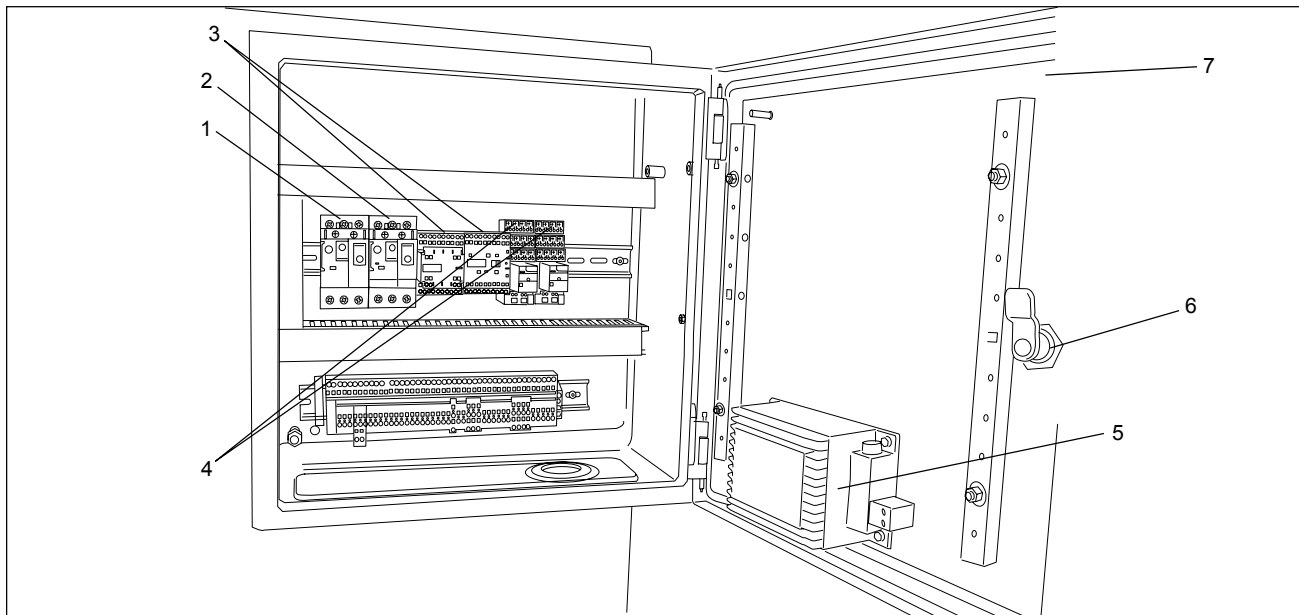


Item No.	Part Number	Description	Qty.
1	5818686	Reservoir, Hydraulic	1
2	5818687	Pump, Hydraulic	1
3	5818688	Filter	1
4	5818689	Cap, Filler	1
5	5818690	Manifold	1
6	5818691	Solenoid	5
7	5818692	Valve, Flow Control	5

Item No.	Part Number	Description	Qty.
8	5818693	Block, Flow Divider	1
9	5818694	Block, Distribution	1
10	5818695	Block	1

NOTE: When ordering hoses, provide fitting configuration at both ends, and hose size and length.

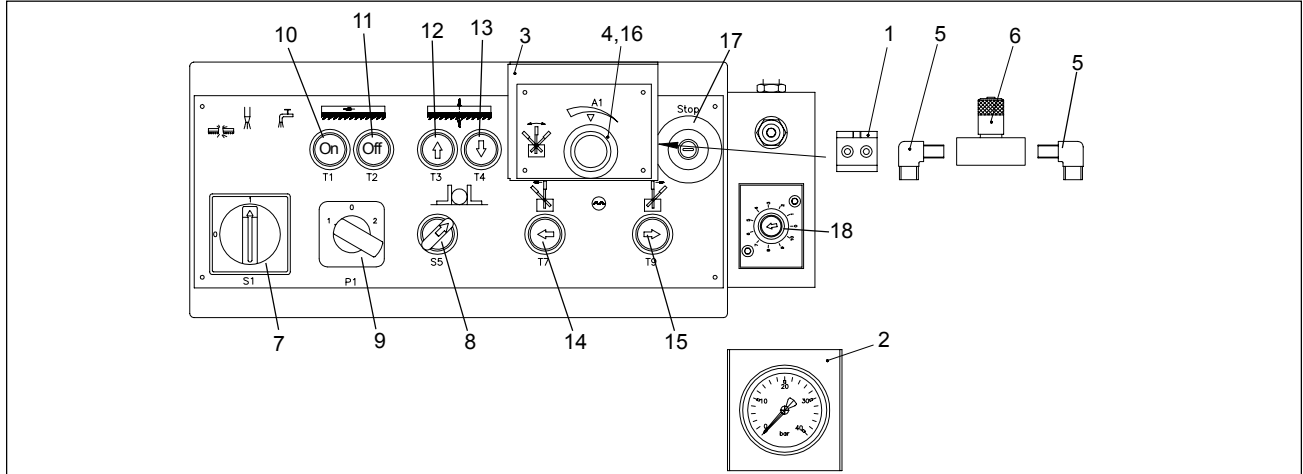
Installation View - Electrical Enclosure Components - VTF6



Item No.	Part Number	Description	Qty.
1	5818696	Overload Protector	1
2	5818697	Overload Protector	1
3	5818698	Contact, Motor	2
4	5818699	Relay	2

Item No.	Part Number	Description	Qty.
5	5818700	Transformer	1
6	5818701	Latch Assembly, Complete	1
7	5818702	Enclosure (with door)	1

Assembled View - Control Panel - Model VTF6



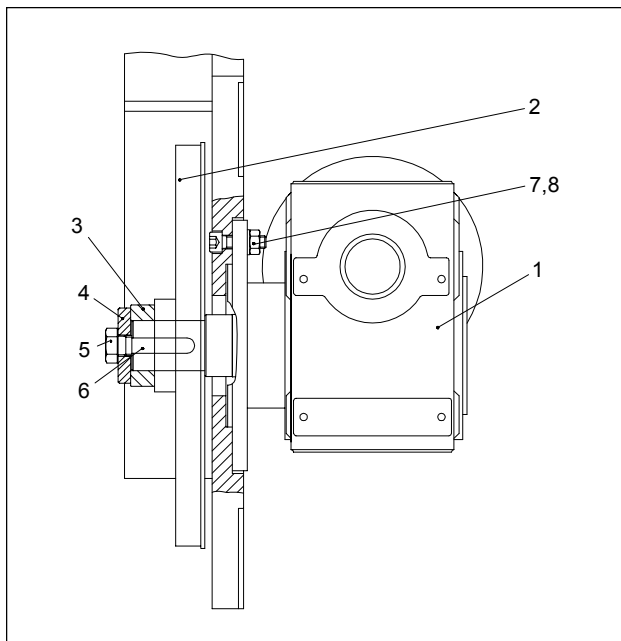
Parts Listing - Control Panel - Model VTF6

Item No.	Part Number	Description	Qty.
1	5518643	Block, Throttle Valve Mounting	1
2	5518644	Bracket, Pressure Gauge	1
3	5518645	Plate, Throttle Valve	1
4	5518646	Knob, Throttle Valve	1
5	5518647	Elbow (R 1/4 X 8L)	2
6	5518648	Valve, Throttle (1/4)	1
7	5518649	Switch, Main (S1)	1
8	5518650	Switch, Coolant (ON/OFF)**	1
9	5518656	Switch, Selector (1-0-2) (Low-Off-High) (P1)	1
10	5518657	Switch, Push-button (On) (T1)	1
11	5518658	Switch, Push-button (Off) (T2)	1

Item No.	Part Number	Description	Qty.
12	5518659	Switch, Push-button (Frame Retract) (T3)	1
13	5518660	Switch, Push-button (Frame Forward) (T4)	1
14	5518661	Switch, Push-button (Tilt Frame Left) (T7)	1
15	5518662	Switch, Push-button (Tilt Frame Right) (T9)	1
16	5518663	Valve (Frame Tilt Rate)	1
17	5518664	Stop (Emergency Stop)	1
18	5518665	Valve (Frame Feed Rate)	1

** Not Illustrated

Cutaway View - Drive Motor - VTF6



Item No.	Part Number	Description	Qty.
1	5518678	Gearmotor	1
2	5518679	Wheel, Drive	1
3	5518680	Ring, Distance (65 X 40 X 19)	1
4	5518681	Washer (60/17 X 10)	1
5	5518682	Screw, Hex Head Cap (M16 X 40)	1
6	5518683	Key, Parallel	1
7	5518684	Screw, Socket Head Cap (M10 X 35)	4
8	5518685	Nut, Hex (M10)	4

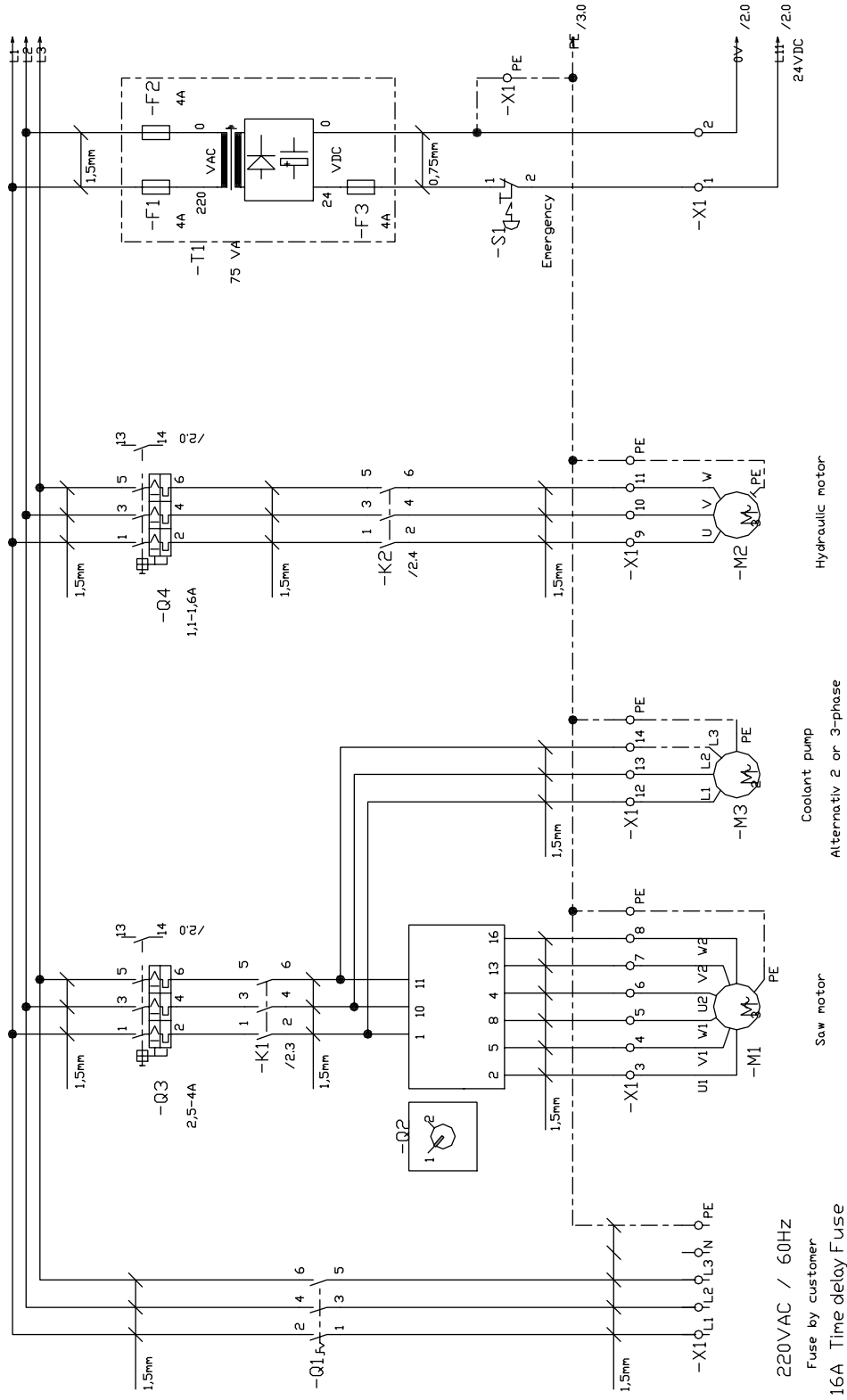
Troubleshooting

Fault	Probable Cause	Possible Remedy
Saw blade turning wrong direction	Wired incorrectly	Reverse phases of connections
Hydraulic pump turning wrong direction	Wired incorrectly	Reverse phases or connections
Saw does not start	Emergency stop switch actuated Main fuse or circuit breaker trips Loose power cable Saw blade cover open (limit switch interlock tripped)	Determine reason E-stop tripped. Reset E-stop Check Check Close and tighten knob on covers
Saw shuts down during operation	See Saw Does Not Start above. Motor circuit breaker trips.	See above See Saw Motor Overloaded
Saw motor overloaded	Motor air flow screen obstructed	See Saw Motor Overloaded or Coolant Pump Overloaded
Coolant supply does not operate	Coolant reservoir empty Coolant valve closed Coolant valve clogged Coolant supply hose kinked or clogged Air in the system	Replenish reservoir Open valve Remove clog Replace or clean hose Bleed air by removing and reinstalling pressure hose.
Short saw blade life (teeth dull)	Blade not compatible with material being cut Wrong tooth ratio causes broken tooth (dulling other teeth) Coolant not being used Cutting speed too high	Select compatible bi-metal blade Select blade with correct ratio Adjust coolant flow/use correct coolant for material being used Reduce speed
Broken tooth	Saw blade gullet filled with debris	Use saw blade with a different tooth ratio, or reduce feed rate, or use a different clamping method (especially with flat steel)

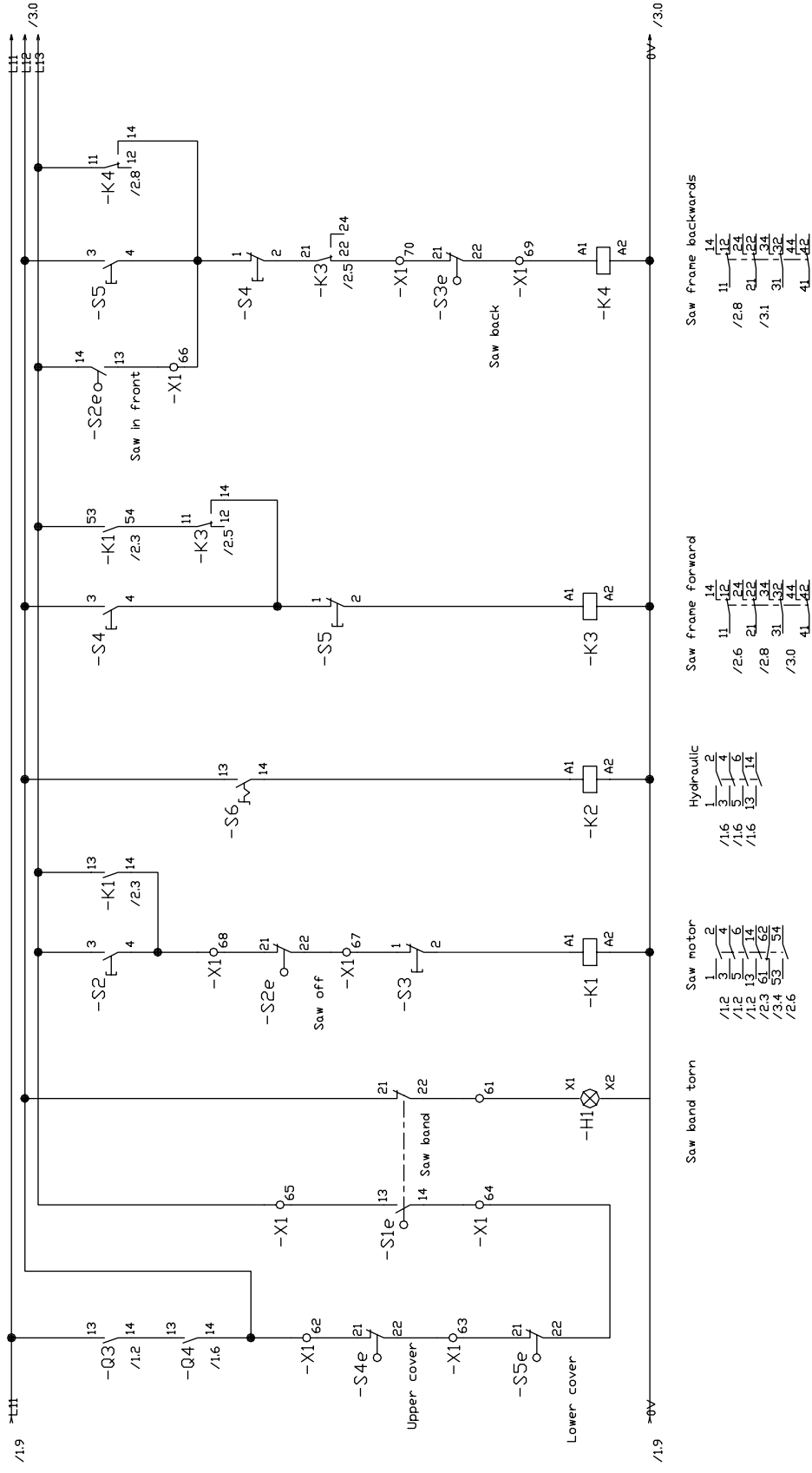
Troubleshooting (Continued)

Fault	Probable Cause	Possible Remedy
Does not cut straight	Blade guide too far from workpiece Saw blade dull Feed rate too high Saw blade teeth not evenly set Saw blade not correctly adjusted	Set blade guides closer to workpiece Replace blade Reduce feed rate Replace blade Adjust saw blade
Stock not cut at right angle or is not parallel	Stock not evenly clamped for cutting Vise jaws not square (not 90 degrees to the saw blade) Material support stand not aligned with machine	Insert and clamp workpiece correctly Set jaws at 90 degrees Align material to vise bed
Blade stops sawing but motor continues to run	Drive wheel defective	Disassemble drive wheel components and check for damaged parts
Saw blade comes off drive or idler wheel	Tracking or tensioning out of adjustment	Readjust tensioning and tracking

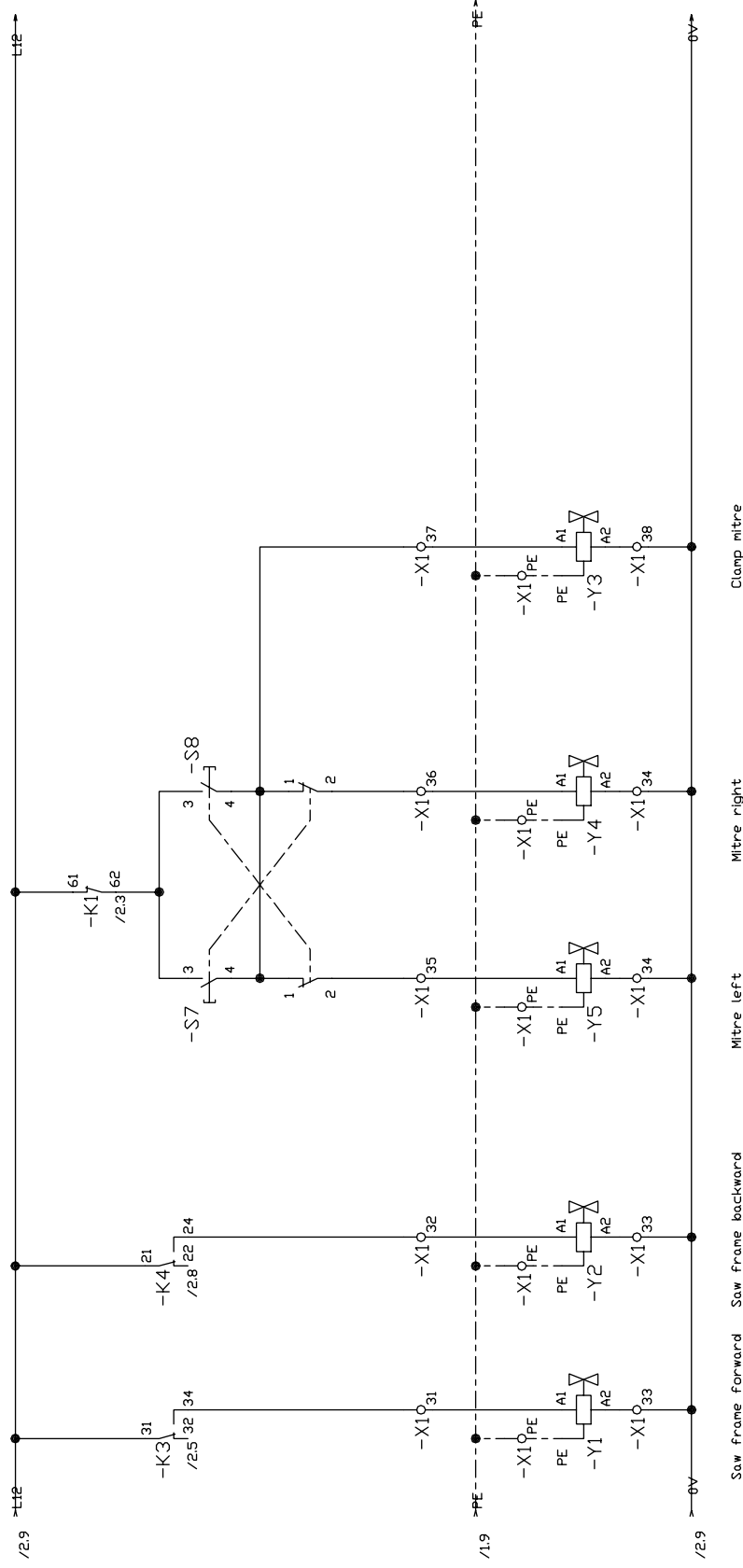
Wiring Diagram - Model VTF6-2 (220V System)



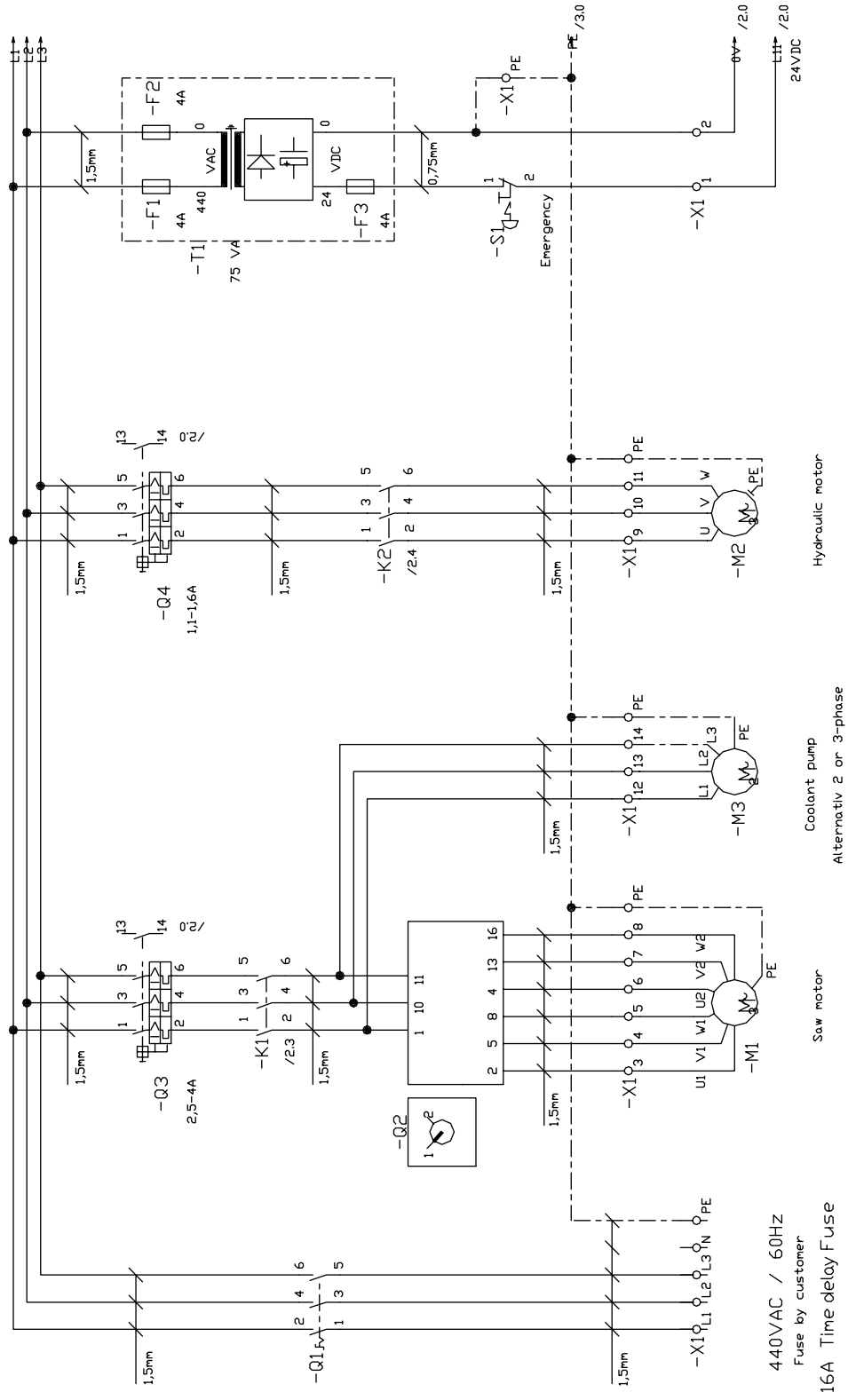
Wiring Diagram - Model VTF6-2 (220V System)



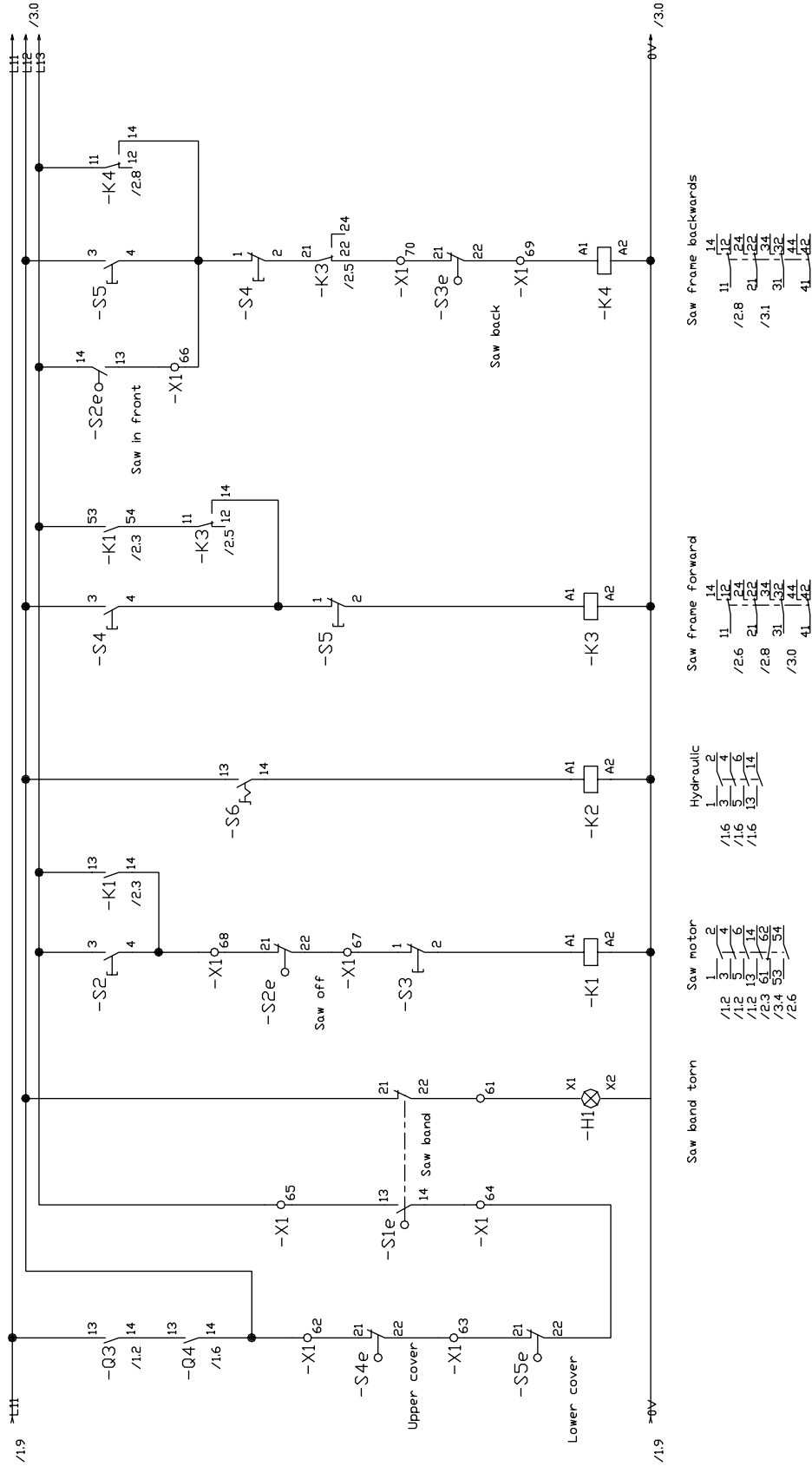
Wiring Diagram - Model VTF6-2 (220V System)



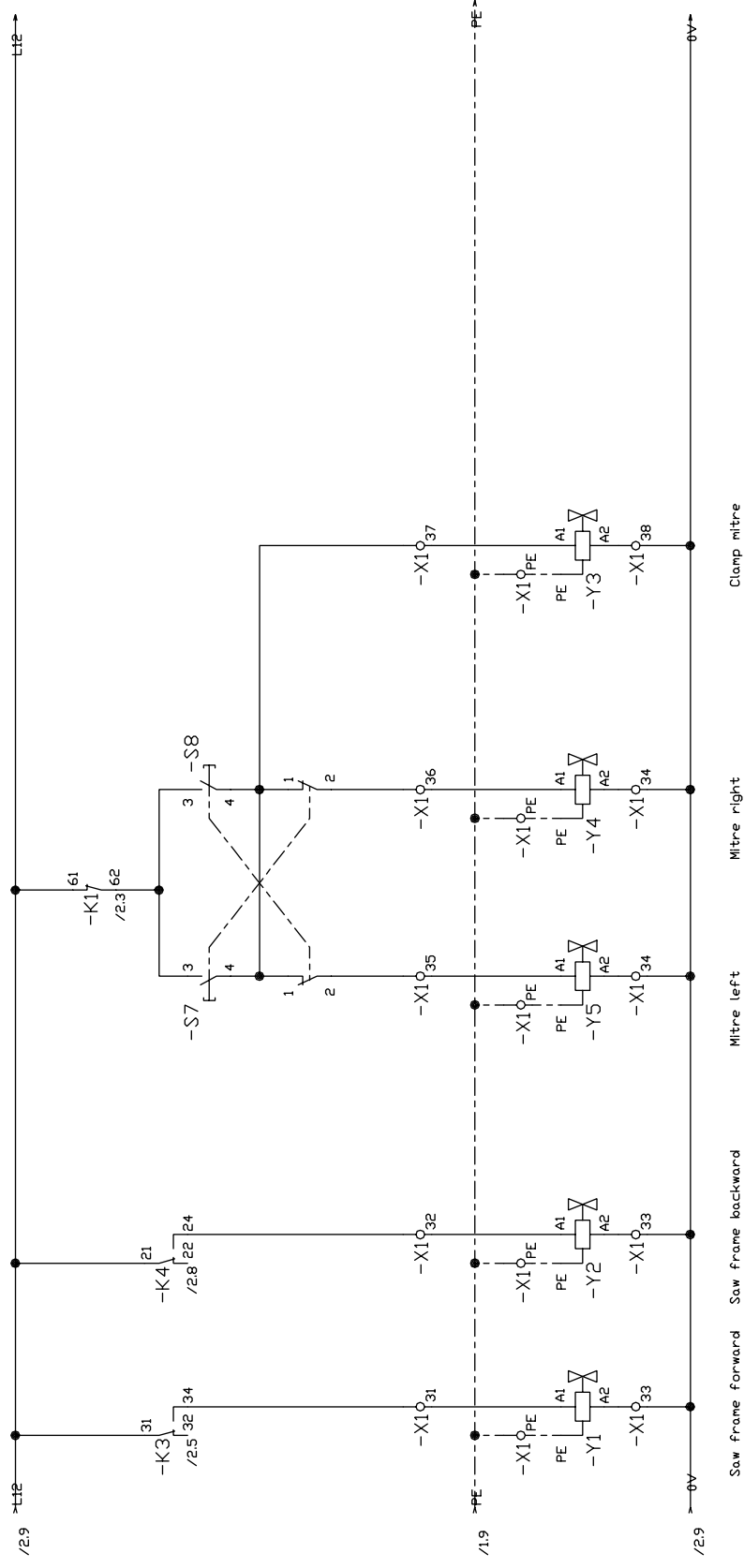
Wiring Diagram - Model VTF6-4 (440V System)



Wiring Diagram - Model VTF6-4 (440V System)



Wiring Diagram - Model VTF6-4 (440V System)





WMH Tool Group, Inc.

2420 Vantage Drive

Elgin, IL 60123

Phone: 847-649-3010

Fax: 847-649-3013

Industrial Products Group: Wilton Tool Wilton Machinery Anderson Products Anderlex Abrasives