

CYCLONE 600 VFD UPCUT CUT OFF SAW



WARNING

The operator must thoroughly read and understand this manual before operating the cut off saw or starting any servicing. All safety and warning instructions should be followed. This manual must be available to all operators.

Contents

General Safety Rules for Woodworking Machinery.....	3
Safety Rules for Cut Off Saw.....	5
Arrival Inspection	6
Installation	6
Connecting Power.....	7
Turning on your Saw for the First Time.....	7
Setting the Top Clamp Height.....	8
Installing / Changing a Saw Blade.....	9
Squaring the Blade.....	11
General Operation.....	13
Adjusting Pressures and Speeds.....	14
Operating the LCD Display.....	17
Lubrication.....	18
Cutting Capacity and Specifications.....	21
Schematics & Troubleshooting.....	22

General Safety Rules for Woodworking Machinery



WARNING

The operator must thoroughly read and understand this manual before operating the cut off saw or starting any servicing. All safety and warning instructions should be followed. This manual must be available to all operators.

1. For your own safety, read the operation manual carefully. Know your machine. Learn its applications and limitations, and any hazards specific to this machine. All personnel should be trained in the operational procedures and received safety instruction before operating this equipment. If you have not received proper training in the use of this machine, **DO NOT OPERATE THIS MACHINE**, damage to the equipment or injury to the operator is possible.
2. This machine should not be operated without all of the guards in place and safety devices in operation. Removal of any guards or disabling any of the safety devices may result in damage to the equipment or injury to the operator. If any of the guards or safety devices are missing, damaged or not working properly, **DO NOT OPERATE THIS MACHINE**, notify your supervisor immediately.
3. If the operator has any safety concerns or questions regarding the operation of this equipment, **DO NOT OPERATE THIS MACHINE**, the machine should be locked out and your supervisor notified immediately.
4. All Lock Out/Tag Out procedures must be followed before servicing or adjusting this equipment. If you have not received proper training in the Lock Out/Tag Out procedures for this machine, **DO NOT OPERATE THIS MACHINE**, damage to the equipment or injury to the operator is possible.
5. In case of any equipment malfunction or jam the machine should be powered off and locked out before clearing any materials from the operational areas of this machine. Once cleared the reset procedures need to be followed when powering up the equipment. At no time should any of the machine control systems including electrical, hydraulic or pneumatic circuits be manually overridden.
6. Check machine for damaged parts. Before continued machine use any damaged guard or part must be carefully checked for proper operation of its intended function. Check all moving parts for proper alignment, check for binding of moving parts, breakage of parts, proper secure mounting, and any other condition that may affect machine operation. Guards or other parts that are damaged must be properly repaired or replaced.
7. Machine must be properly grounded.
8. Maintain and clean machine at recommend intervals. Intervals may need to be adjusted due to work load or material type to keep machine in top condition. Follow instructions for lubrication, setup, and changing accessories.

9. Disconnect machine from power source before, changing accessories, or any servicing activity.
10. Avoid accidental starting. Make sure switch is in the off position before connecting to power.
11. Remove any tools or loose objects from work surface of machine. Make sure any tools used for adjustment or maintenance are removed from machine before machine is restarted. Make a habit of scanning for tools and scraps every time the machine is started.
12. Keep work area clean. Cluttered work areas and workbenches increase the likelihood of an accident.
13. Do not use in dangerous environments. Do not use machine in damp or wet locations, or expose them to rain. Keep work area well illuminated.
14. Keep children away. All visitors should be kept at a safe distance from work area.
15. Make workshop childproof, with padlocks, master switches, or by removing starter keys.
16. Do not force the machine. It will function better and safer at its designed rate.
17. Use the right tools. Do not force the machine or attachments to do a job for which they were not designed. Contact the manufacturer or distributor if there is any question about the machines suitability for a particular job.
18. Use only recommended accessories. Consult the operation manual for recommended accessories.
19. Wear proper apparel. Avoid loose clothing, gloves, neckties, rings bracelets, or jewelry which could be tangled in moving parts. Keep long hair contained to prevent entanglement. Non-slip footwear is recommended.
20. Always wear safety glasses.
21. Secure the work piece.
22. Keep proper footing and balance at all times.
23. Do not use machine while under the influence of drugs, alcohol, or any medication.
24. Always wear a face mask or dust mask if operation creates excessive dust or chips. Always operate machine in a well ventilated area and provide proper dust removal.
25. Never leave machine running unattended. Turn power off. Do not leave machine until it comes to a complete stop.

Safety Rules for Cut-Off Saw



WARNING

The operator must thoroughly read and understand this manual before operating the cut off saw or starting any servicing. All safety and warning instructions should be followed. This manual must be available to all operators.

1. Read and understand the operation manual before operation.
2. Keep hands away from the cutting area.
3. Before making any adjustments disconnect all power sources including electrical and pneumatic.
4. Minimum air pressure is 50 psi, DO NOT operate saw if minimum air pressure is not available. Normal working pressure is 80psi.
5. At the start of each work session turn on saw and trigger the two hand trip with no work piece present, cycle the saw and check for normal operation of top clamp and blade advance cylinders. Turn off saw and as the motor slows and comes to a stop check for correct rotation direction compared to arrow indicator.
6. Do not cut warped wood; work piece should lay flat on table without rocking.
7. Use infeed and outfeed supports when cutting long work pieces.
8. Set top clamp stop pin to limit opening height to only what is required to process the work piece.
9. Never place hands under top clamp; remove cut piece by pulling it out from under open top clamp. Short trim scraps should only be removed by pushing them out with a scrap piece.
10. Always use push roller handles to position and guide work piece against fence. Do not use hands to support work piece.

When Your Saw Arrives...



WARNING

The operator must thoroughly read and understand this manual before operating the cut off saw or starting any servicing. All safety and warning instructions should be followed. This manual must be available to all operators.

The saw ships complete on one pallet, if ordered with stop the stop will be in separate crate.

Unpack the saw ensuring that all parts are present and free from damage. If any parts are missing or damaged contact your local distributor immediately. Do not assembly or attempt to operate saw without all components present and in undamaged condition.

Installation



WARNING

The operator must remove from and lock out all power to saw before servicing or connecting power.

Install saw with enough free space to conveniently allow workpiece to be brought into saw. If infeed and or outfeed is required allow room for such. The floor should be a flat non-slip surface. The saw will be more stable if bolted to floor. After locating the saw use leveling feet to adjust level of saw table. Place level on saw table and adjust feet to bring table into level position.

Connect Power



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The saw has been factory wired to the requested voltage before shipment. Check that your supply lines match the labeled voltage on the saw before connection. Connect wires inside the electrical enclosure. After wires are connected cycle the start button and stop button quickly to pulse the motor on and then off, look through the fan guard of the motor to check direction of rotation. Rotation must match direction indicated on side of enclosure. If rotation needs to be reversed swap the connection of two of the three power wires and recheck rotation.

Saw Operation



WARNING

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Before operating saw read all general and safety rules.

If operator is uncomfortable with any operation or condition of saw get help from supervisor.

The Cyclone upcut saw is operated by the triggering of two hand anti tie down triggers located on the work piece clamping handles at either side of the top clamp blade cover. The operator's hands must never be placed under the top clamp. Maintain pressure on triggers until the top clamp opens completing the saw cycle.

Setting the Top Clamp Height



WARNING

Set the top clamp opening height before sawing material.

Adjust top clamp opening height by swinging the flip stops as shown in the photo below.



Swing the flip stops over as shown to limit the open height of the top clamp. Turn off power before adjusting.

Installing and Changing Saw Blade

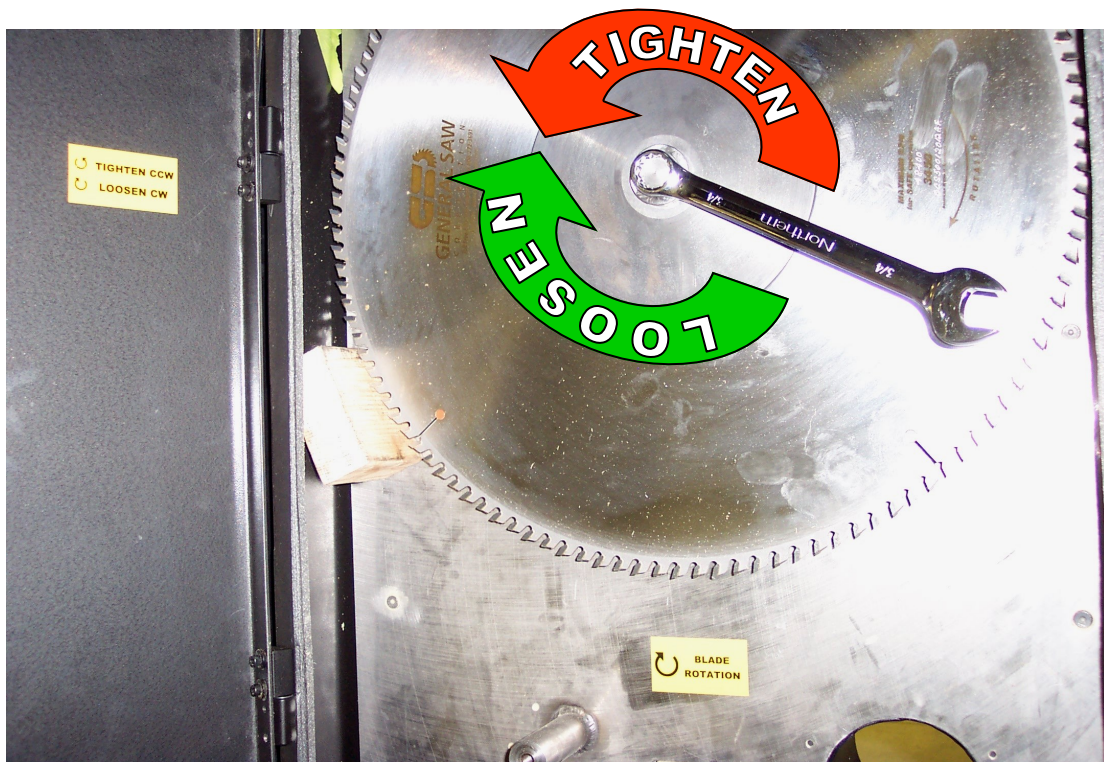


DANGER

The operator must remove from and lock out all power to saw before servicing.

To access blade area remove the door hold down screw, the screw is purposely long to allow the blade and motor to stop before the door will open. Do not use a powered means to remove hold down screw. Do not shorten screw the length is required to make the door interlocks work properly.





When installing or changing blade observe the proper rotation and be sure blade matches the rotation arrow. Use scrap wood to block blade while tightening or loosening blade retaining screw. Blade retaining screw has left hand threads the direction for tightening and loosening is opposite from normal screws and bolts. To loosen blade screw turn wrench in same direction as rotation of blade, clockwise when looking at the blade. Remove retaining screw and blade arbor plate to free saw blade from motor shaft. Do not remove rear arbor plate, check blade brake for dust buildup, clean if necessary.

Squaring the Saw Blade

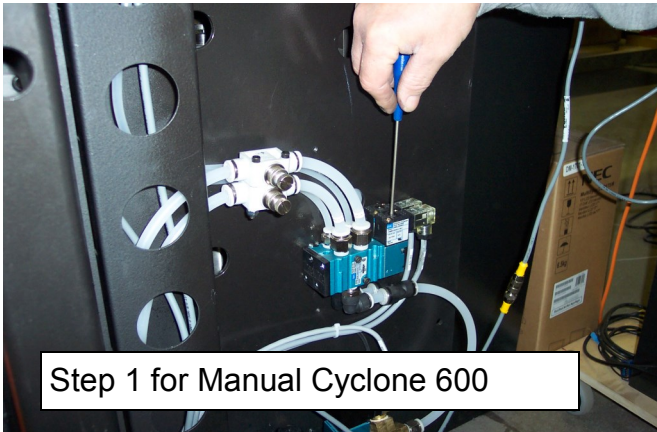


DANGER

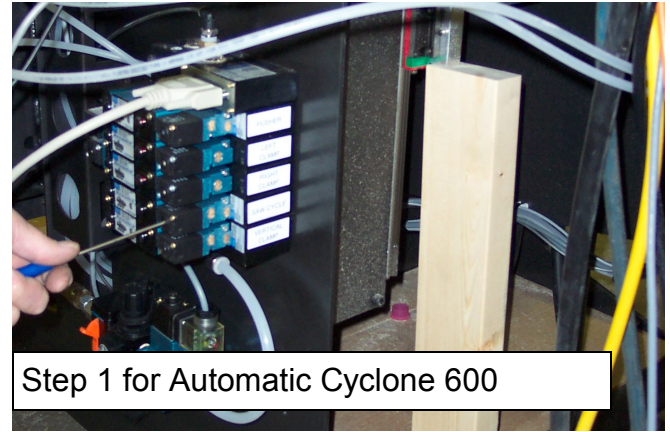
The operator must ensure that no person will be in harms way before performing any of the following steps.

NOTE: The blade is squared at the factory so this step is not necessary unless you need to move the fence off the factory setting.

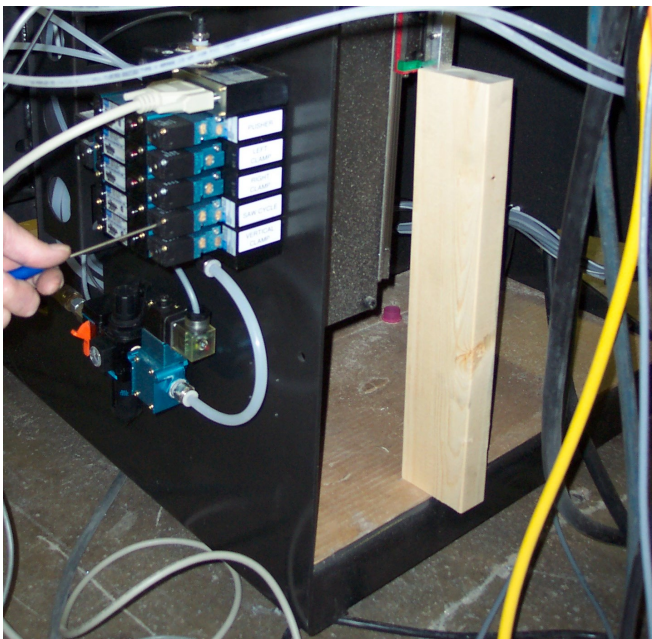
Make sure no person or other obstruction will interfere with the blade as it rises before performing this operation. Use a probe to manually actuate the saw lift valve to raise the saw blade.



Step 1 for Manual Cyclone 600



Step 1 for Automatic Cyclone 600

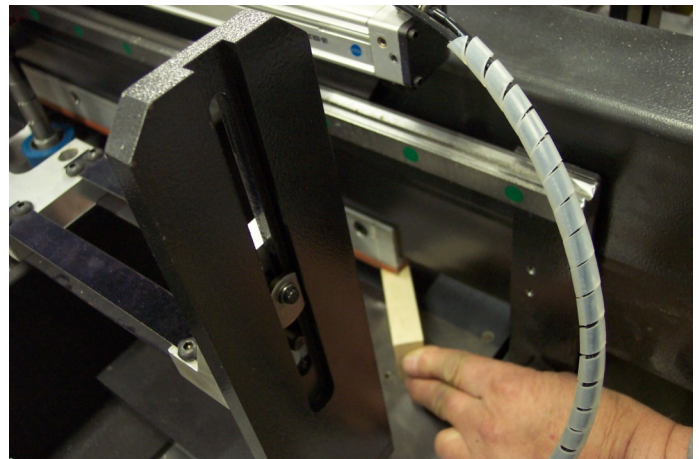


Step 2 for All Cyclone 600 Saws: While holding the valve button, use a board to prop up the saw motor. Release the valve and remove and lock out power and air to the saw.



DANGER

The operator must remove from and lock out all power to saw before continuing.

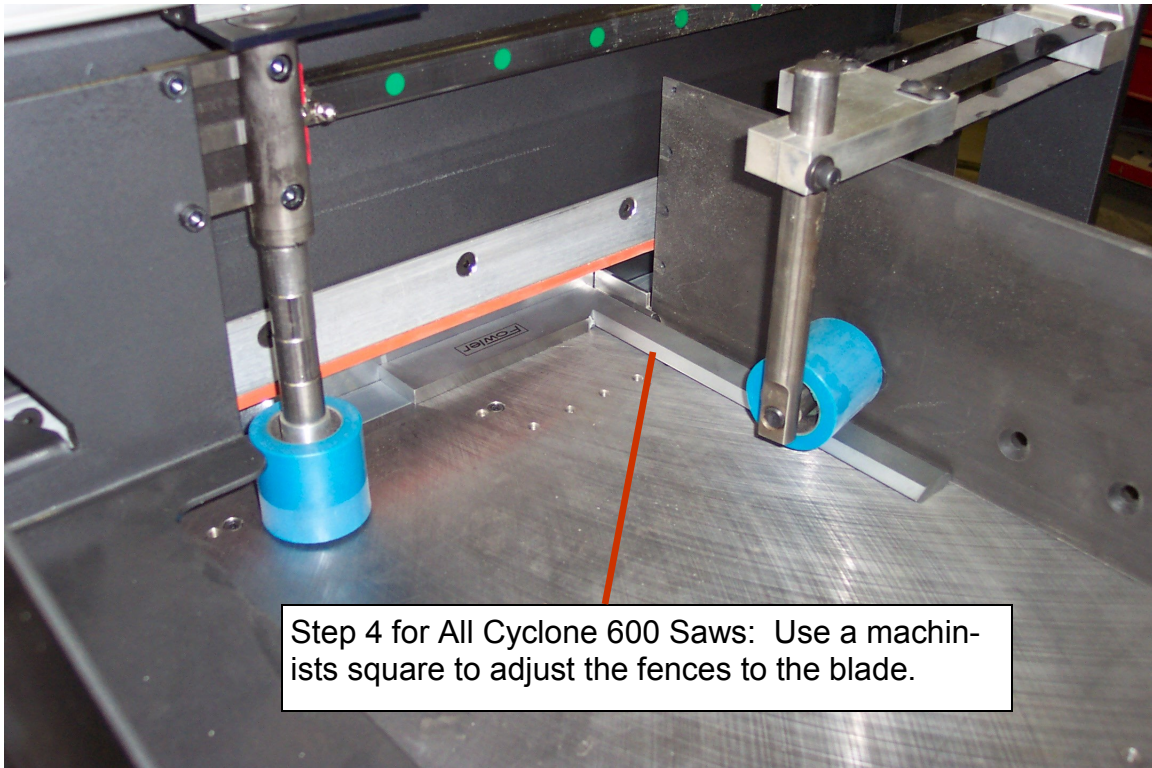


Step 3 for All Cyclone 600 Saws: Manually raise the top clamp and place a spacer under it to hold it up off the table.



DANGER

The operator must remove from and lock out all power to saw before continuing.



Step 4 for All Cyclone 600 Saws: Use a machinists square to adjust the fences to the blade.

Turning the Saw On

Make sure all guards are in place and that no person will be at risk in any way when the motor is energized and the saw blade begins to turn before making the decision to turn on the saw. Make sure you and all persons who may be operating the saw know how to turn the saw OFF before turning the saw ON. Pull the Emergency Stop button OUT. Press the green START button. The motor will begin ramping up to operating speed.



Make sure you and all persons who may be operating the saw know how to turn the saw OFF before turning the saw ON.

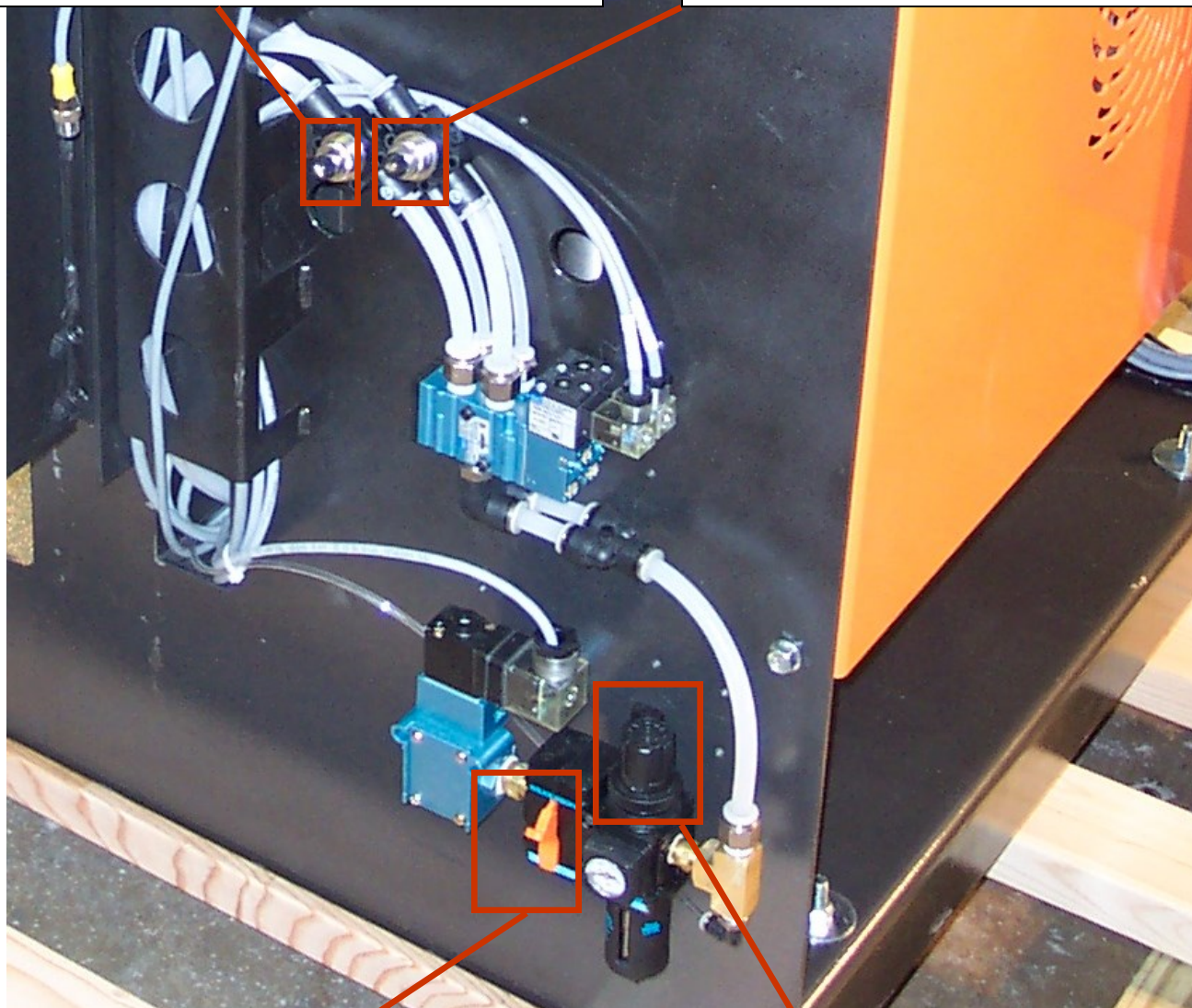
Turning the Saw OFF

Press the RED EMERGENCY STOP BUTTON. If your saw is equipped with a RED STOP BUTTON, it may also be used to stop the saw motor.

Adjusting the Sawing Speed & Main Pressure

This device controls the speed of the blade as it travels down through the material. Loosen the locking thumb nut before adjusting. Turn the knob clockwise to decrease speed, counter clockwise to increase speed. Re-tighten the locking nut.

This device controls the speed of the blade as it travels up through the material. Loosen the locking thumb nut before adjusting. Turn the knob clockwise to decrease speed, counter clockwise to increase speed. Re-tighten the locking nut.



This device is a manual means of dumping all air pressure in the saw and locking it out with your approved lockout device.

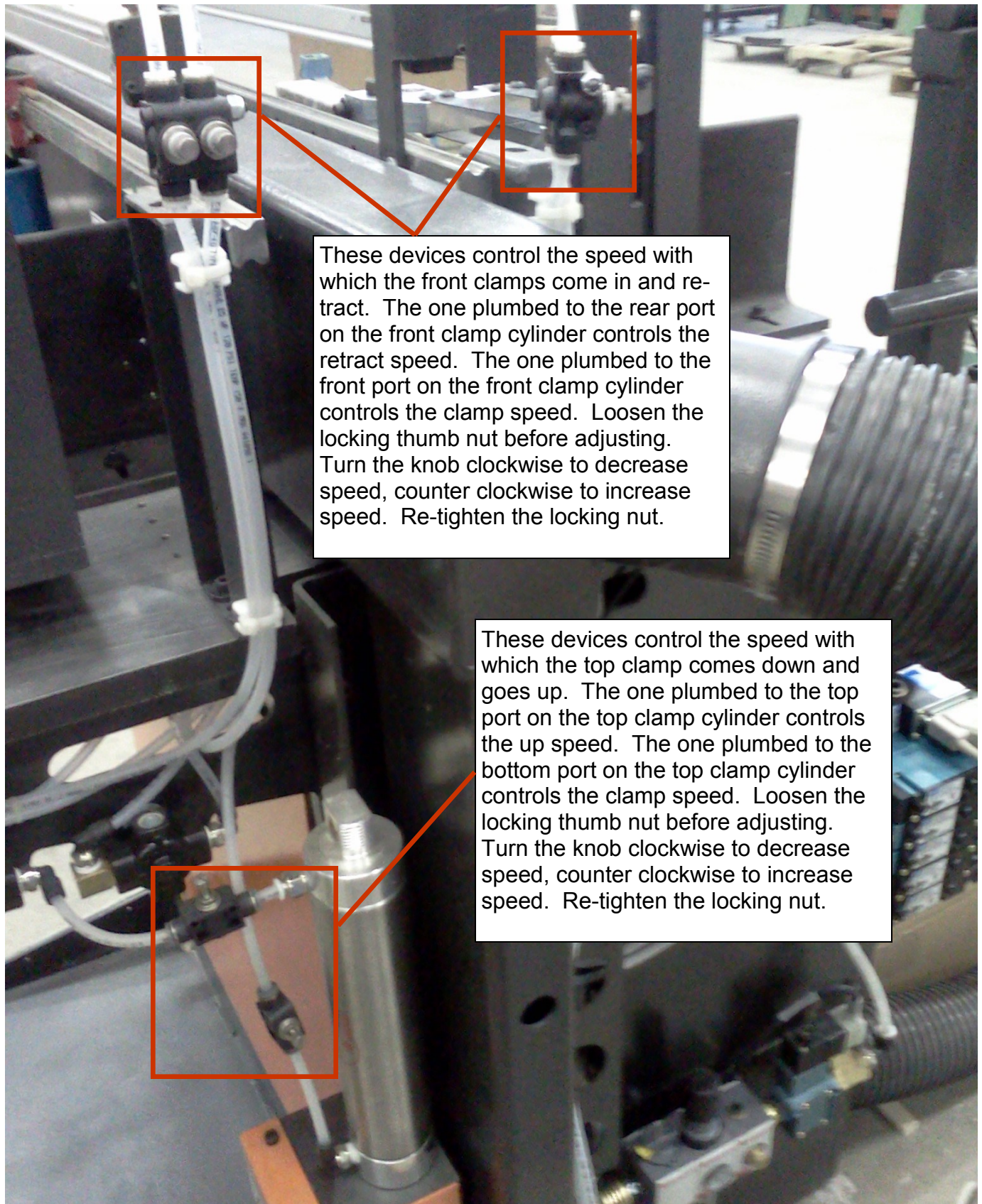
This device controls the saw's main incoming air supply pressure. Set it to 80 psi as per the pressure gage below the adjustment knob. Turn the knob clockwise to increase pressure, counter clockwise to decrease pressure.

Adjusting the Clamping Pressure

In addition to the main air supply pressure, there are also pressure adjustments for the top clamp and (optionally) the front clamps located beneath the right table to the rear. Turn clockwise to increase pressure, counter clockwise to decrease pressure. For the Vertical clamp start low and gradually increase. Stop when the cut is acceptable. The front clamps can generally be opened up to the max.



Adjusting the Clamping Speed



These devices control the speed with which the front clamps come in and retract. The one plumbed to the rear port on the front clamp cylinder controls the retract speed. The one plumbed to the front port on the front clamp cylinder controls the clamp speed. Loosen the locking thumb nut before adjusting. Turn the knob clockwise to decrease speed, counter clockwise to increase speed. Re-tighten the locking nut.

These devices control the speed with which the top clamp comes down and goes up. The one plumbed to the top port on the top clamp cylinder controls the up speed. The one plumbed to the bottom port on the top clamp cylinder controls the clamp speed. Loosen the locking thumb nut before adjusting. Turn the knob clockwise to decrease speed, counter clockwise to increase speed. Re-tighten the locking nut.

CYCLONE 600 Manual VFD Display Codes

Saw is idle, waiting for a cycle start signal. Saw Safe / Done signal is on.

State 1		Edit
8420 ST1 REF SEL	0	
8421 ST1 COMMANDS	DRIVE STOP	
8422 ST1 RAMP	RAMP PAIR 1	
8423 ST1 OUT CONTROL	1	
8424 ST1 CHANGE DLY	0	

OUT CONTROL (84#3):
Sets / Resets outputs for the specific State.

Output States:

- 1 – Output 4 (Saw Safe/Done)
- 2 – None
- 3 – Output 3 (Vertical Clamp)
- 4 – Output 3 (Vertical Clamp) & Output 4 (Saw Advance)

Cycle start signal received. Vertical clamp moves down.

8425 ST1 TRIG TO ST 2 - DLY AND DI4

State 2		Edit
8430 ST2 REF SEL	0	
8431 ST2 COMMANDS	DRIVE STOP	
8432 ST2 RAMP	RAMP PAIR 1	
8433 ST2 OUT CONTROL	3	
8434 ST2 CHANGE DLY	0.5	

8436 ST2 TRIG TO ST N DI4 (INV)
8437 ST2 STATE N STATE 6

Inputs:

- DI1 – Start Saw (Start/Stop Program)
- DI2 – Saw Advanced
- DI3 – Saw Retracted
- DI4 – Cycle Start
- LOGIC VALUE – DI2 & DI4

Vertical clamp down dwell time is reached. Saw blade advances up.

8435 ST2 TRIG TO ST 3 - DLY AND DI4

State 3		Edit
8440 ST3 REF SEL	0	
8441 ST3 COMMANDS	DRIVE STOP	
8442 ST3 RAMP	RAMP PAIR 1	
8443 ST3 OUT CONTROL	4	
8444 ST3 CHANGE DLY	0	

8446 ST3 TRIG TO ST N DI4 (INV)
8447 ST3 STATE N STATE 6

Saw blade up prox. input received. Saw blade retracts.

8445 ST3 TRIG TO ST 4 - LOGIC VAL

State 4		Edit
8450 ST4 REF SEL	0	
8451 ST4 COMMANDS	DRIVE STOP	
8452 ST4 RAMP	RAMP PAIR 1	
8453 ST4 OUT CONTROL	3	
8454 ST4 CHANGE DLY	0	

8456 ST4 TRIG TO ST N DI4 (INV)
8457 ST4 STATE N STATE 6

Saw blade down prox. input on. Cycle completed, waiting for cycle start signal to reset.

8455 ST4 TRIG TO ST 5 - DLY AND DI3

State 5		Edit
8460 ST5 REF SEL	0	
8461 ST5 COMMANDS	DRIVE STOP	
8462 ST5 RAMP	RAMP PAIR 1	
8463 ST5 OUT CONTROL	2	
8464 ST5 CHANGE DLY	0	

8466 ST5 TRIG TO ST N DI4 (INV)
8467 ST5 STATE N STATE 1

State Triggers:

- 84#5 – Conditions required for changing to next state.
- 84#6 – Conditions required to change to a selected state.
- 84#7 – State changed to when conditions in 84#6 are met.

Cycle start signal is lost. Saw blade and vertical clamp retract, waiting for cycle start signal to resume.

State 6		Edit
8470 ST6 REF SEL	0	
8471 ST6 COMMANDS	DRIVE STOP	
8472 ST6 RAMP	RAMP PAIR 1	
8473 ST6 OUT CONTROL	1	
8474 ST6 CHANGE DLY	0	

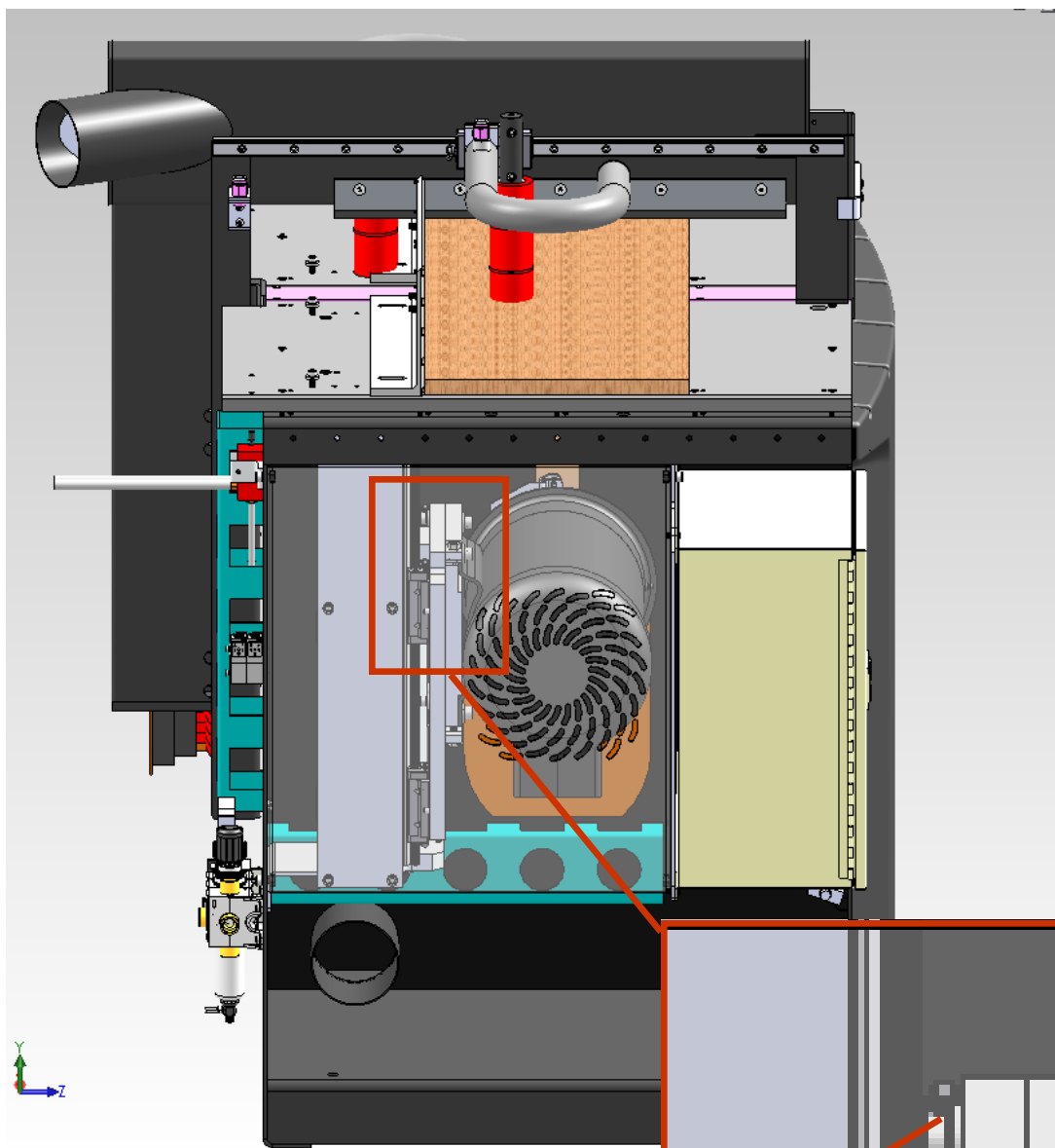
8476 ST6 TRIG TO ST N DLY AND DI4
8477 ST6 STATE N STATE 2

CHANGE DLY (84#4):

Delay timer used as an optional condition to change states

Note: Parameter 8434 is the dwell timer for the vertical clamp. Default is 0.5 seconds.

Greasing the motor slide bearings on the Cyclone 600



The grease zerks for the upper bearing blocks on the saw motor slide are located here

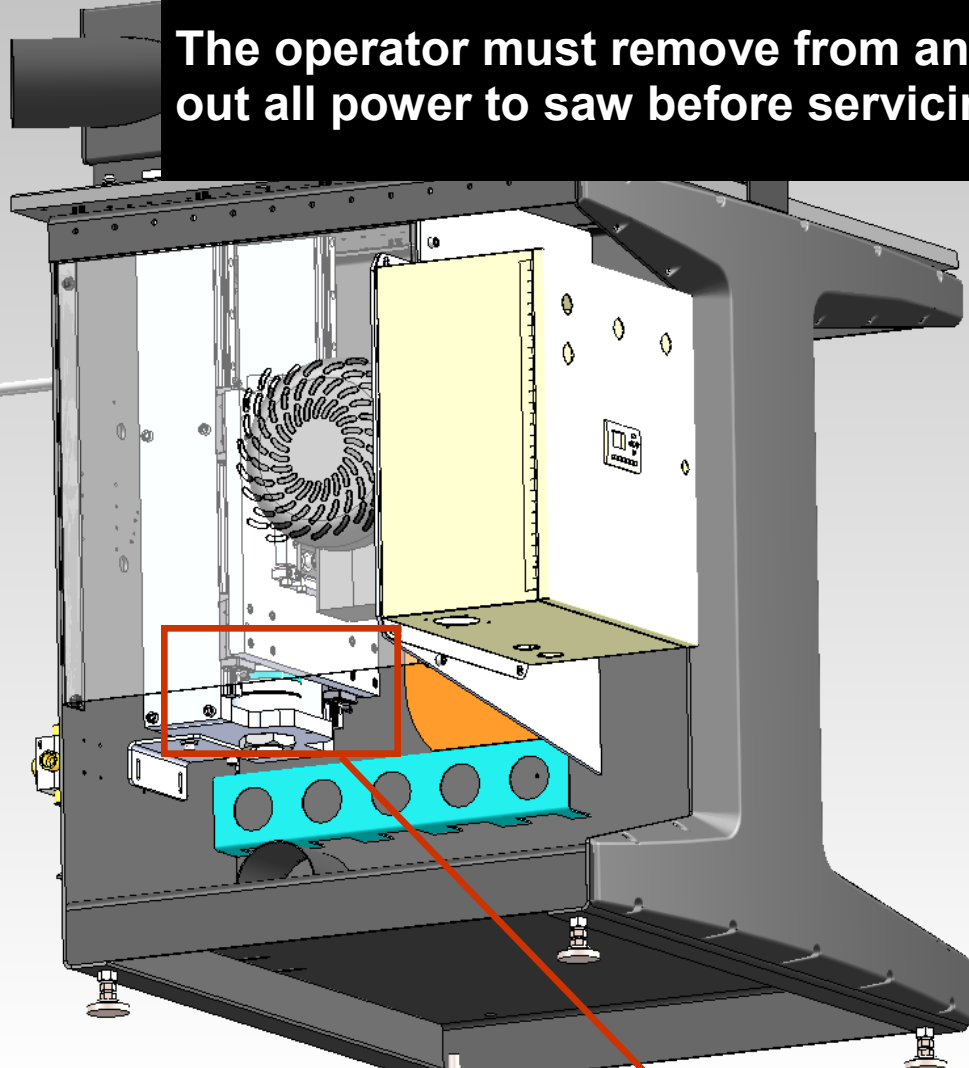
Use a lithium soap based grease for lubrication. Lubricate top clamp bearing blocks and saw slide blocks every 5000 cycles.

Greasing the motor slide bearings on the Cyclone 600



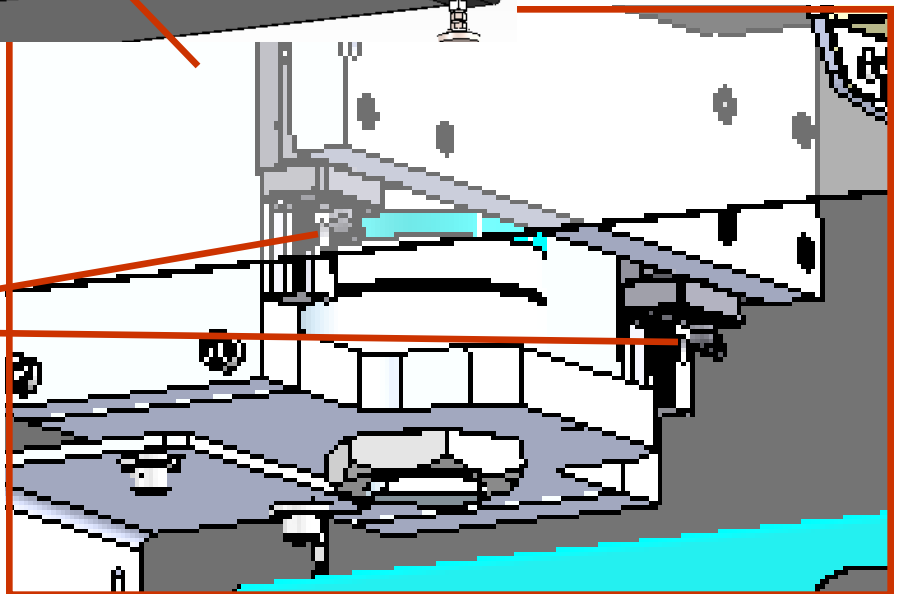
DANGER

The operator must remove from and lock out all power to saw before servicing.



The grease zerks for the lower bearing blocks on the saw motor slide are located here

Use a lithium soap based grease for lubrication. Lubricate top clamp bearing blocks and saw slide blocks every 5000 cycles.



Greasing the top clamp slide bearings on the Cyclone 600



DANGER

The operator must remove from and lock out all power to saw before servicing.

To access the grease zerks for the top clamp slide bearing blocks insert the neck of the grease gun through these holes.



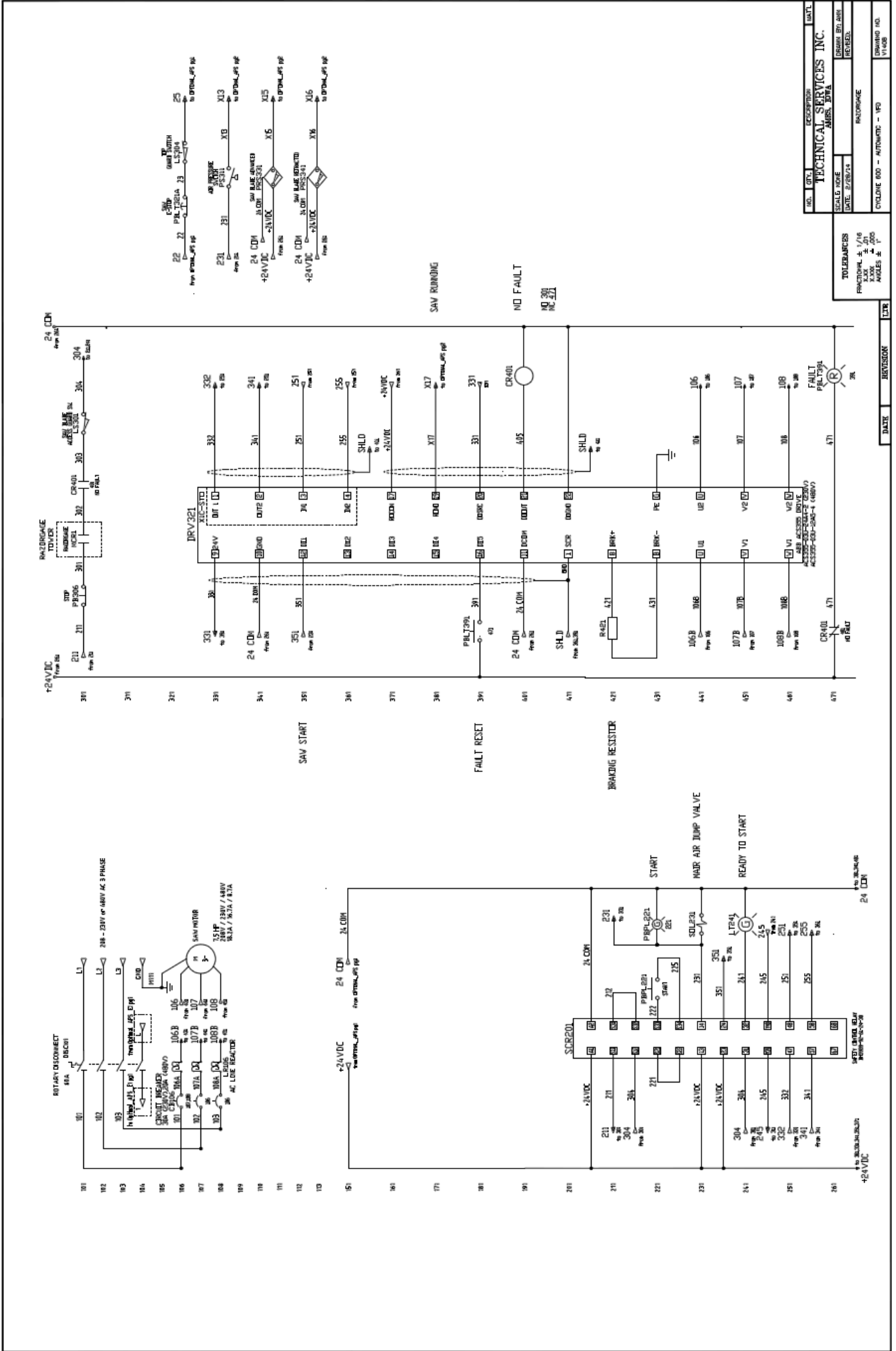
Use a lithium soap based grease for lubrication. Lubricate top clamp bearing blocks and saw slide blocks every 5000 cycles.

Cyclone 600 Sawing Capacity Chart & General Specifications

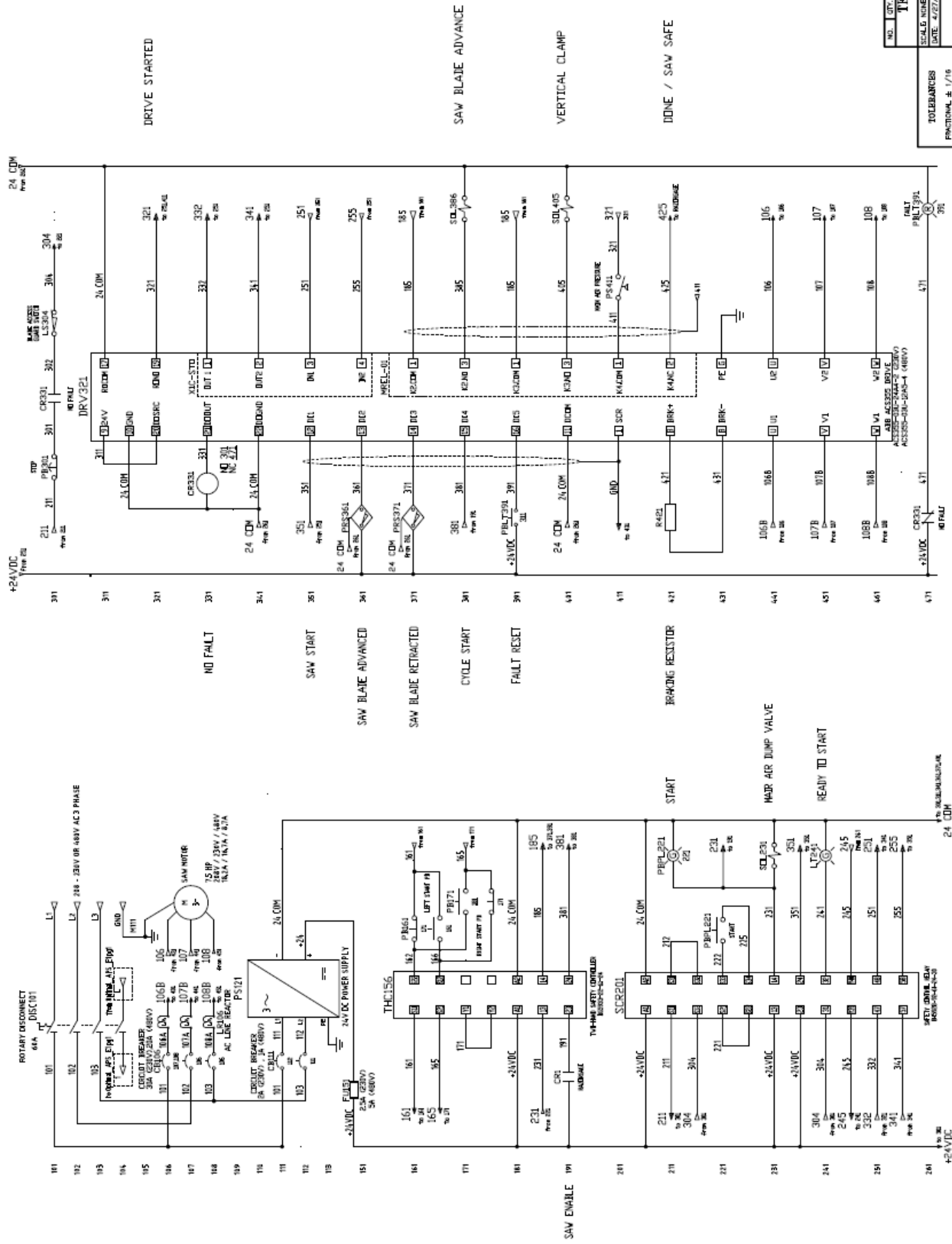
Material Thickness	Cyclone 600 Width Capacity for Common Blade Diameters					
	14" Blade	16" Blade	18" Blade	500mm Blade	22" Blade	24" Blade
0.5	6.97	10.38	13.23	15.42	18.27	20.62
0.75	6.04	9.77	12.76	15.02	17.93	20.32
1	4.89	9.10	12.25	14.59	17.57	20.00
1.25	3.32	8.35	11.70	14.13	17.19	19.67
1.5		7.49	11.10	13.64	16.79	19.32
1.75		6.49	10.44	13.11	16.36	18.95
2		5.25	9.72	12.54	15.90	18.55
2.25		3.56	8.91	11.92	15.42	18.14
2.5			7.98	11.24	14.90	17.70
2.75			6.90	10.50	14.35	17.24
3			5.58	9.68	13.75	16.74
3.25			3.78	8.75	13.11	16.22
3.5				7.68	12.42	15.67
3.75				6.40	11.67	15.08
4				4.75	10.84	14.45
4.25				1.99	9.92	13.77
4.5					8.88	13.03
4.75					7.68	12.24
5					6.20	11.37
5.25					4.20	10.40
5.5						9.30
5.75						8.03
6						6.49

The vertical stroke of the upcut saw blade requires that the workpiece be centered over the center line of the blade to maximize thickness capacity. The fence is adjustable to accommodate the potential material sizes as shown in the chart above. For best cut quality on thin stock the work piece should be toward the rear of the saw. Adjust the position of the fence toward the rear of saw to optimize cut quality. See adjustment section for directions on adjustment of fence and squaring fence to blade after adjustment.

CYCLONE 600 AUTOMATIC SCHEMATIC



CYCLONE 600 MANUAL SCHEMATIC



TOOLER/NO.		DESCRIPTION		DATE	
FUNCTIONAL		CYCLONE 600 - MANUAL - VFD		4/27/24	
REVISION		AMIS, DTA		4/27/24	
CYCLONE 600 - MANUAL - VFD		INCH/NO.		4/27/24	
CYCLONE 600 - MANUAL - VFD		INCH/NO.		4/27/24	

TOLERANCES	
FUNCTIONAL	± 1/16
REVISION	± 1/16
CYCLONE 600 - MANUAL - VFD	± 1/16
CYCLONE 600 - MANUAL - VFD	± 1/16

TOLERANCES	
FUNCTIONAL	± 1/16
REVISION	± 1/16
CYCLONE 600 - MANUAL - VFD	± 1/16
CYCLONE 600 - MANUAL - VFD	± 1/16

TROUBLESHOOTING

	Problem Description	Possible Causes	Corrective Action
1	SAW DOESN'T START.	<ul style="list-style-type: none"> • Disconnect switch is off. • Active E-stop switch. • Saw guard open and/or bolt is out. • Safety circuit or VFD input wire connections. • Tripped circuit breaker. • Blown fuse. • VFD fault. • Safety relay or pushbutton failure. 	<ul style="list-style-type: none"> • If <i>Ready to Start</i> LED indicator is off <ul style="list-style-type: none"> ○ Turn on disconnect. Reset E-stop switch. Replace saw guard and bolt. ○ If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ▪ Check VFD inside the cabinet for the active fault code and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action. • Press the Power On button. • If saw doesn't start: <ul style="list-style-type: none"> ○ Reset circuit breaker CB106 if tripped. ○ Check safety control relay (SCR). If <i>Power</i> LED indicator is off. <ul style="list-style-type: none"> ▪ Check fuse FU151 and replace if blown ▪ Check wire +24VDC from A1 to terminal +24VDC. ▪ Check wire 24 COM from A2 to terminal 24 COM. ○ If <i>Power</i> LED indicator is on <ul style="list-style-type: none"> ▪ Check K1 LED indicator. If indicator is off. Check following wire connections: <ul style="list-style-type: none"> ❖ Wire 211 from S11 to terminal 211. ❖ Wire 211 from terminal 211 to X1 on E-stop PB301. ❖ Wire 301 from X2 on Stop PB301 to terminal 301. ❖ Wire 301 from terminal to CR331. ❖ Wire 302 from CR331 to terminal. ❖ Wire 302 from terminal 302 to guard switch LS304. ❖ Wire 304 from guard switch LS304 to terminal 304. ▪ Check K2 LED indicator. If indicator is off. <ul style="list-style-type: none"> ❖ Check wire 221 from S21 to S22. ▪ If K1 & K2 LED indicators are on <ul style="list-style-type: none"> ❖ Check wire 351 to VFD input DI1 (terminal 12). +24VDC should be present. ❖ Check SCR relay contacts and replace relay if necessary.
2	SAW STARTS BUT THE TOP CLAMP DOESN'T MOVE UP.	<ul style="list-style-type: none"> • No or low air supply. • Vertical clamp adjustable hard stop set too low. • Flow controls closed too much. 	<ul style="list-style-type: none"> • Turn on air supply manual shutoff if necessary. Make sure regulator is set to 80 PSI. • Check vertical clamp adjustable hard stop. Swing out stop shims for more travel. • If dump valve doesn't shift (LED indicated solenoid) when saw is started.

		<ul style="list-style-type: none"> • Dump valve wiring problem or failure. • Pinched or broken air line / fitting. • Valve or cylinder problem / failure. • Dirty or dry linear bearing 	<ul style="list-style-type: none"> ○ Check wire connections to terminals 231 & 24 COM. ○ Try to manually shift solenoid on valve. If valve doesn't shift electrically or manually repair or replace dump valve unit. • Check for the saw cylinder and valve for air leaks caused by pinched, loose or broken air line or fittings. • Check vertical clamp cylinder flow control settings. • Grease bearings and clean bearing rail.
3	SAW DOESN'T CYCLE.	<ul style="list-style-type: none"> • Enable signal from Razorgage isn't on • Pushbutton wire connections • Two-hand control relay circuit wire connections • VFD input wire connections. • Pushbutton failure • Two-hand safety relay failure • VFD fault 	<ul style="list-style-type: none"> • If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ○ Check VFD digital display inside the cabinet for an active fault and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action. • Check enable signal from Razorgage <ul style="list-style-type: none"> ○ Contact CR1 closed. 24VDC on terminal 191. • Check <i>Supply</i> LED on Two Hand Control Relay (THC). <ul style="list-style-type: none"> ○ If not on: <ul style="list-style-type: none"> ▪ Check +24VDC & 24 COM wire connections to A1 & A2 on the relay. Should have 24VDC. • Press the two-hand control cycle start pushbuttons simultaneously. Check <i>K1</i> & <i>K2</i> LEDs. <ul style="list-style-type: none"> ○ If <i>K1</i> LED does not light: <ul style="list-style-type: none"> ▪ Check wire connections from the THC to the left start button. <ul style="list-style-type: none"> ❖ Wire 161 from S11 on relay to NC & NO on button. ❖ Wire 162 from NC on button to S13 on relay. ❖ Wire 166 from NO on button to S12 on relay. ▪ Check left start pushbutton contacts and replace pushbutton if necessary. ○ If <i>K2</i> LED does not light: <ul style="list-style-type: none"> ▪ Check wire connections from the THC to the right start button. <ul style="list-style-type: none"> ❖ Wire 165 from S21 on relay to NC & NO on button. ❖ Wire 166 from NC on button to S23 on relay. ❖ Wire 162 from NO on button to S22 on relay. ▪ Check right start pushbutton contacts and replace pushbutton if necessary.

			<ul style="list-style-type: none"> • Check wire connection from THC to VFD listed below: <ul style="list-style-type: none"> ○ Cable connection +24VDC & 191 to Razorgage. ○ Wire 191 to 23 on two-hand relay. ○ Wire 381 from 24 on THC to terminal strip to VFD input DI4 (terminal 15).
4	CYCLE STARTS, VERTICAL CLAMP DOESN'T COME DOWN (SAW BLADE MAY COME UP.)	<ul style="list-style-type: none"> • Flow controls on clamp cylinder closed too much. • Pinched, loose or broken air line / fitting. • Valve or cylinder problem / failure. • VFD output wiring problem. • VFD fault. 	<ul style="list-style-type: none"> • Check for the vertical clamp cylinder and valve for air leaks caused by pinched, loose or broken air line or fittings. • Check solenoid (SOL405) on vertical clamp valve. <ul style="list-style-type: none"> ○ If solenoid is on (LED indicated): <ul style="list-style-type: none"> ▪ Check flow control settings. ▪ Repair or replace valve. ○ If solenoid is off. Check voltage at solenoid (24VDC). If no voltage present: <ul style="list-style-type: none"> ▪ Check cable wire connections. <ul style="list-style-type: none"> ❖ Wire #1 to terminal 405 ❖ Wire #2 to terminal 24 COM ▪ Check wire connections <ul style="list-style-type: none"> ❖ VFD K3.NO to terminal 405 ❖ VFD K3.COM to terminal 185 ❖ THC relay 13 to terminal 231 ❖ THC relay 14 to terminal 185 ▪ Check VFD relay K2 output for closure. Replace MREL-01 module if necessary. ○ If solenoid is off. Check voltage at solenoid (24VDC). If voltage is present: <ul style="list-style-type: none"> ▪ Check solenoid cable connection. ▪ Replace valve. • If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ○ Check VFD digital display inside the cabinet for an active fault and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action.
5	CYCLE STARTS CLAMP COMES DOWN BUT SAW BLADE DOESN'T COME UP.	<ul style="list-style-type: none"> • No or low air pressure • Flow controls on saw blade up/down cylinder closed too much. • Pinched, loose or broken air line / fitting. • Valve or cylinder problem / failure. • VFD output wiring problem. • VFD fault. 	<ul style="list-style-type: none"> • Turn on air supply manual shutoff if necessary. Make sure regulator is set to 80 PSI. • Grease bearings and clean bearing rail. • Check for the saw cylinder and valve for air leaks caused by pinched, loose or broken air line or fittings. • Check solenoid (SOL386) on saw blade valve. <ul style="list-style-type: none"> ○ If solenoid is on (LED indicated): <ul style="list-style-type: none"> ▪ Check flow control settings. ▪ Repair or replace valve. ○ If solenoid is off. Check voltage at solenoid (24VDC). If no voltage present:

		<ul style="list-style-type: none"> • Dirty or dry linear bearings 	<ul style="list-style-type: none"> ▪ Check if cable connection to solenoid is secure. ▪ Check cable wire connections. <ul style="list-style-type: none"> ❖ Wire #1 to terminal 386 ❖ Wire #2 to terminal 24 COM ▪ Check wire connections <ul style="list-style-type: none"> ❖ VFD <i>K2.NO</i> to terminal 385 ❖ VFD <i>K2.COM</i> to terminal 185 ❖ THC relay 13 to terminal 231 ❖ THC relay 14 to terminal 185 ▪ Check VFD relay K2 output for closure. Replace MREL-01 module if necessary. ○ If solenoid is off. Check voltage at solenoid (24VDC). If voltage is present: <ul style="list-style-type: none"> ▪ Replace valve. • If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ○ Check VFD digital display inside the cabinet for an active fault and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action.
6	CYCLE STARTS, CLAMP COME DOWN, BLADE COMES UP BUT DOESN'T GO BACK DOWN.	<ul style="list-style-type: none"> • Saw blade advanced proximity switch didn't come on. • Switch cable or wire connection problem • Flow controls on saw blade up/down cylinder closed too much. • VFD fault. 	<ul style="list-style-type: none"> • If saw blade retracts when cycle start buttons are released: <ul style="list-style-type: none"> ○ Press cycle start buttons. Check saw blade advanced proximity switch (PRS361 or top switch). If switch is off: <ul style="list-style-type: none"> ▪ Make sure the switch mounting is tight and check the alignment with the flag. Adjust if necessary. ▪ Check if cable connection to proximity switch is secure. ▪ Check cable wire connections: <ul style="list-style-type: none"> ❖ Brown wire to +24VDC terminal ❖ Blue wire to 24 COM terminal ❖ Black wire to 361 terminal ▪ Replace defective proximity switch. ○ If saw blade advanced proximity switch is on <ul style="list-style-type: none"> ▪ Check wire connections: <ul style="list-style-type: none"> ❖ Prox. cable black wire to 361 terminal ❖ VFD input DI2 (terminal 13) to terminal 361. ▪ Replace defective proximity switch. • If saw blade remains extended when cycle start buttons are released: <ul style="list-style-type: none"> ○ Check the flow control settings. • If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ○ Check VFD digital display inside the cabinet for an active fault and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action.

7	SAW CYCLES BUT VERTICAL CLAMP STAY DOWN	<ul style="list-style-type: none"> • Saw blade advanced proximity switch didn't come on. • Switch cable or wire connection problem • VFD fault. 	<ul style="list-style-type: none"> • Check saw blade retract proximity switch (PRS371 or bottom switch). <ul style="list-style-type: none"> ○ If switch is off: <ul style="list-style-type: none"> ▪ Make sure the switch mounting is tight and check the alignment with the flag. Adjust if necessary. ▪ Check if cable connection to proximity switch is secure. ▪ Check cable wire connections: <ul style="list-style-type: none"> ❖ Brown wire to +24VDC terminal ❖ Blue wire to 24 COM terminal ❖ Black wire to 371 terminal ▪ Replace defective proximity switch. ○ If saw blade retracted proximity switch is on <ul style="list-style-type: none"> ▪ Check wire connections: <ul style="list-style-type: none"> ❖ Prox. cable black wire to 371 terminal. ❖ VFD input DI3 (terminal 14) to terminal 371. • If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ○ Check VFD digital display inside the cabinet for an active fault and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action.
8	SAW CYCLES BUT RAZORGAGE DOESN'T RESUME MOVING TO NEXT POSITION	<ul style="list-style-type: none"> • Done / Saw Safe signal to Razorgage isn't on. • Interface cable or wire connection problem. • <u>Mdrive</u> I/O or I/O cable problem. • Pressure switch failure • VFD fault 	<ul style="list-style-type: none"> • Check for 24VDC on terminal 425. <ul style="list-style-type: none"> ○ If correct voltage is present <ul style="list-style-type: none"> ▪ Check cable connection to Razorgage. ▪ Check wire connections to terminal 425 in Razorgage enclosure ▪ If 24VDC is present on terminal 425 in Razorgage enclosure then there is an I/O Cable or <u>Mdrive</u> I/O problem. Check <u>Mdrive</u> I/O cable connection. Replace <u>Mdrive</u> if necessary. ○ If no voltage present: <ul style="list-style-type: none"> ▪ Check wire connections <ul style="list-style-type: none"> ❖ VFD ROCOM to terminal 24 COM ❖ VFD RONO to terminal 321 ❖ Terminal 321 to PS411 ❖ PS411 wire 411 to VFD K4.COM ❖ VFD K4.NC to terminal 452 ▪ Check for air pressure on PS411 and replace air line if necessary. ▪ Check PS411 for contact closure and replace switch if necessary. ▪ Check VFD relay K4 output for closure. Replace MREL-01 module if necessary. • If <i>Fault</i> LED indicator is on <ul style="list-style-type: none"> ○ Check VFD digital display inside the cabinet for an active fault and refer to drive manual <i>EN_ACS355 UM Rev B_screen.pdf</i> for corrective action.