

Sales and Service
Centers and
Warehouses:



COMPLETE METALWORKING SOLUTIONS
(800) 991-4225 www.ahbinc.com
ISO Certified customerservice@ahbinc.com

**Manufacturing
Facilities:**
Oshkosh, WI

**Direct Sales
Managers and
Technical Specialists
in Major Cities**



Series 8 Mark III

Vertical Metal Cutting Band Saw

- Safety
- Installation
- Operation
- Maintenance
- Parts Catalog

Part No. 8SD10871N, 04/08
For machines beginning with S/N 840258

Record your machine's serial number here:



Corporate Office and Service Center:

3501 Marvel Drive
Oshkosh, WI 54902
Phone (920) 236-7200
Fax (920) 236-7209
Toll Free 1-800-4-SAWING (1-800-472-9464)

www.sawing.com

Copyright © 2008 Marvel Manufacturing Company, INC.

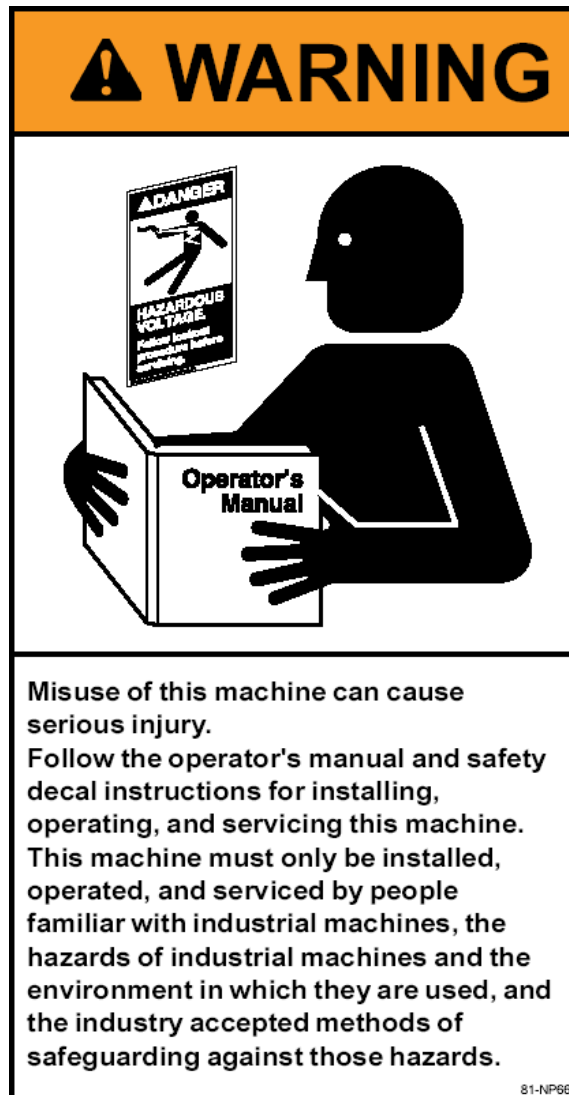
MARVEL 8 MARK III

IMPORTANT MESSAGE

While Marvel Manufacturing Co. Inc. machinery and equipment is engineered for safety and efficiency, a high degree of responsibility must be placed upon the machine operator to follow safe practices, based primarily on common sense, upon which true safety depends. Any machine with a potential safety hazard must be operated according to the instructions in the instruction manual, within the equipment's capacity, and in a careful and deliberate manner. All guards must be in place, and safety glasses and other applicable safety clothing must always be used. The machine must be inspected and maintained regularly.

Any questions regarding the safety, condition, or operation of this equipment must be immediately referred to supervisory or engineering personnel.

The warning sign reproduced below is attached to the machine in plain view of the operator to constantly remind the operator that only s/he can make this machine safe by following safe operating procedures. This sign must not be removed or disfigured. The sign must be replaced if it becomes unreadable. Replacement signs can be obtained from Marvel Manufacturing Co. Inc.



SAFETY	S-1
WHO MAY USE THIS MACHINE?.....	S-2
FOLLOW THE INSTRUCTIONS.....	S-2
RECOGNIZE SAFETY INFORMATION.....	S-2
SAFETY SIGNAL WORDS.....	S-3
WEAR PROTECTIVE EQUIPMENT.....	S-3
STAY CLEAR OF MOVING PARTS.....	S-3
HANDLE CHEMICALS SAFELY.....	S-4
HANDLE BLADES SAFELY.....	S-4
SAFE MATERIAL HANDLING.....	S-5
KEEP THE MACHINE SAFE.....	S-5
KEEP THE WORK AREA SAFE.....	S-5
HAZARDOUS MATERIALS.....	S-6
HIGH PRESSURE FLUIDS.....	S-6
HORIZONTAL MACHINES CAN CRUSH.....	S-6
OPERATE THE MACHINE SAFELY.....	S-7
PUNCHING AND SHEARING EQUIPMENT.....	S-8
REMOVING SAW CHIPS.....	S-8
SERVICE THE MACHINE SAFELY.....	S-9
ELECTRICAL HAZARDS.....	S-10
ARC FLASH HAZARD.....	S-10
INSTALLATION	A-1
HANDLING AND PLACEMENT.....	A-1
FOUNDATION.....	A-1
LIGHTING.....	A-1
STOCK MOVEMENT.....	A-1
MAINTENANCE.....	A-1
CLEANING.....	A-2
LEVELING AND ANCHORING.....	A-2
ASSEMBLY.....	A-2
INSTALLING AND WIRING THE COOLANT PUMP.....	A-2
OPTIONAL EQUIPMENT.....	A-3
CONNECTING POWER.....	A-4
LUBRICATION.....	A-5
COOLANT SYSTEM.....	A-5
COOLANT PUMP ROTATION CHECK.....	A-5
FINAL INSPECTION.....	A-5
SPECIFICATIONS	B-1
COMPONENTS	C-1
SERIAL NUMBER.....	C-2

MACHINE DESCRIPTION	D-1
OPERATOR'S CONTROL PANEL.....	D-1
BLADE SPEED CONTROL KNOB.....	D-1
POWER PUSHBUTTON.....	D-1
STOP PUSHBUTTON.....	D-1
START BLADE PUSHBUTTON.....	D-2
BLADE MODE SELECTOR SWITCH.....	D-2
TILT SELECTOR SWITCH.....	D-2
COLUMN FORWARD PUSHBUTTON.....	D-2
CYCLE INTERRUPT/COLUMN RE-TRACT PUSHBUTTON.....	D-2
COLUMN AUTO RETRACT SELECTOR SWITCH.....	D-3
COOLANT SELECTOR SWITCH.....	D-3
COOLANT SYSTEM SELECTOR SWITCH.....	D-3
MESSAGE LIGHT.....	D-3
FEED FORCE DISPLAY GAUGE.....	D-3
FEED FORCE ADJUSTMENT KNOB.....	D-4
UPPER GUIDE ARM AND BLADE GUARD.....	D-4
WORK LIGHT.....	D-4
COOLANT VALVE.....	D-4
MAIN ELECTRICAL DISCONNECT SWITCH.....	D-5
COLUMN TILT LOCK HANDLE.....	D-5
VICES.....	D-5
BLADE TRAVEL LIMITS AND NOTCHING TRAVEL LIMIT.....	D-6
FLUSHING HOSE.....	D-7
CHIP PAN.....	D-7
COOLANT PAN.....	D-7
DOOR SAFETY INTERLOCKS.....	D-7
BLADE BREAKAGE SENSOR INTER-LOCK.....	D-7
LOCKOUT VALVE.....	D-8
FILTER/REGULATOR.....	D-8
LUBRICATOR.....	D-8
OIL RESERVOIR.....	D-8
OPTIONAL EQUIPMENT.....	D-9
SECOND MACHINE VISE.....	D-9
HIGH JAW VISE - COMPLETE.....	D-9
HIGH VISE JAWS - JAWS ONLY.....	D-9
60° HIGH JAW VISE - COMPLETE.....	D-9
60° HIGH VISE JAWS – JAWS ONLY.....	D-9
LENGTH GAUGE – SAW TABLE.....	D-9
AIR OPERATED VISE RATCHET.....	D-9
HIGH SAW COLUMN.....	D-9
DEAD ROLLER TABLE.....	D-9
EXTENSION ROLLER TABLE.....	D-9
ADDITIONAL ROLLERS.....	D-9
ECCENTRIC LIFT ROLLER.....	D-9
LENGTH GAUGE.....	D-9
COOLANT PAN.....	D-9
MIST LUBRICATION SYSTEM.....	D-10
DIGITAL TILT READOUT.....	D-10

CUTTING EDGE.....	E-1
FEED PRESSURE.....	E-1
CUTTING RATE.....	E-1
BLADE SPEED.....	E-1
USER RECORD.....	E-2
OPERATION.....	F-1
PRE-OPERATION CHECKLIST.....	F-1
MACHINE SET-UP.....	F-2
OPERATION.....	F-2
SETTING SAW BLADE TO A 3° FORWARD CANT.....	F-4
MAINTENANCE.....	G-1
MARVEL SERVICE TECHNICIANS.....	G-1
MAINTENANCE SCHEDULE.....	G-1
DAILY.....	G-1
QUARTERLY (EVERY 3 MONTHS).....	G-1
CLEANING.....	G-1
LUBRICATION.....	G-2
COLUMN TRAVEL FEED CHAIN.....	G-2
COLUMN TRAVEL GEAR BOX.....	G-2
COMPRESSED AIR LUBRICATOR.....	G-2
OIL RESERVOIR.....	G-3
MIST LUBRICATION SYSTEM.....	G-3
BLADE CHANGING PROCEDURE.....	G-4
REPLACING THE WORK LAMP BULB.....	G-7
COOLANT CHANGING PROCEDURE.....	G-7
BLADE GUIDE ADJUSTMENT AND REPLACEMENT.....	G-8
BLADE PRESSURE BLOCK ADJUSTMENT AND REPLACEMENT.....	G-9
BLADE GUIDE CARRIER ALIGNMENT.....	G-10
BLADE WIPER REPLACEMENT.....	G-11
CHIP BRUSH REPLACEMENT.....	G-12
BLADE TRACKING ADJUSTMENT.....	G-12
RE-CALIBRATING THE BLADE TENSIONER.....	G-14
BLADE BREAK/SLIP SENSOR.....	G-15
POWER FEED SYSTEM.....	G-15
INSPECTING AND REPLACING CORK INSERTS.....	G-15
ADJUSTING THE FEED CHAIN.....	G-17
FEED CHAIN/SPROCKET REPLACEMENT.....	G-17
CARRIAGE FEED BRAKE ADJUSTMENT/REPLACEMENT.....	G-18
VARIABLE SPEED CARRIAGE DRIVE MOTOR BELT TENSION/ REPLACEMENT..	G-19
HIGH SPEED CARRIAGE GUIDE BELT TENSION/REPLACEMENT.....	G-20
MAIN MOTOR BELT TENSION/RE-PLACEMENT.....	G-20
FINAL DRIVE BELT TENSION/RE-PLACEMENT.....	G-21
TROUBLESHOOTING.....	H-1
PARTS.....	I-1
IMPORTANT.....	I-1
HARDWARE AND FITTINGS.....	I-1
ELECTRICAL AND PNEUMATIC COMPONENTS.....	I-1

This page intentionally left blank.



Industrial Machinery can be Dangerous.

Read the safety messages on the following pages as well as the instructions in the operator's manual and those posted on the machine before attempting to install, operate, or maintain this machine.

While Marvel Manufacturing Co., Inc. has made every effort to eliminate the potential dangers in its equipment through careful design and guarding, this equipment, if not operated and maintained properly, has the potential to cause serious injury or death.

A thorough knowledge of the operation of this machine and the hazards it presents is your best protection against injury.

Attention Users of Older Marvel Equipment:

Marvel equipment is ruggedly built and many machines are still operating well beyond their anticipated useful life. Older equipment may not meet current standards and may have been modified outside the control of Marvel Manufacturing Co., Inc. While we are happy to support your use of this equipment, we ask that you take whatever means necessary to safeguard your operators. Please contact Marvel Manufacturing Co., Inc. for the availability of safety retrofit kits for your particular machine.



3501 Marvel Drive • Oshkosh, WI 54902
Ph. (920) 236-7200 • Fax (920) 236-7209
Toll Free: 1-800-4-sawing (1-800-472-9464)
www.sawing.com • email: abinfo@sawing.com

WHO MAY USE THIS MACHINE?

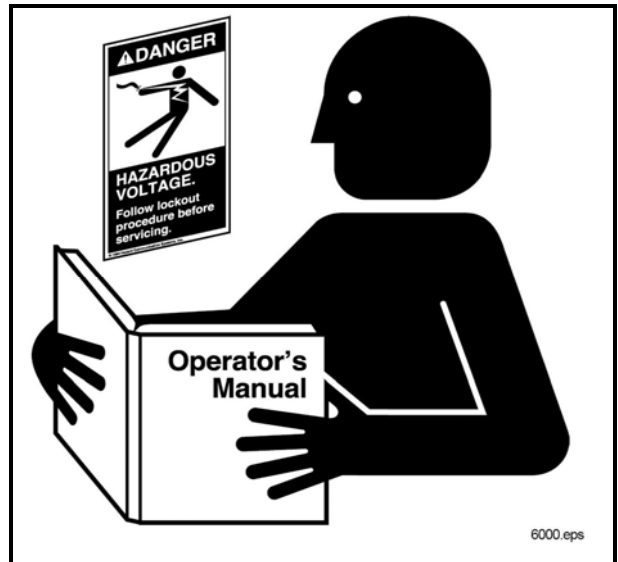
Machinery sold by Marvel Manufacturing Co., Inc. is to be installed, operated, and maintained by people familiar with industrial machinery, the hazards associated with industrial machinery and the environment in which it is used, and the accepted methods of safeguarding against those hazards.



FOLLOW THE INSTRUCTIONS

Read and follow all of the safety and operating instructions supplied with your machine. This includes the operator's manual, any safety signs on the machine, all Material Safety Data Sheets (MSDS), vendor literature, etc.

- Keep safety and operating instructions in good condition and located where the machine operator can refer to it. Replacement signs and literature are available from Marvel Manufacturing Co., Inc.
- Do not allow anyone to operate or repair the machine without proper instructions.
- If you need information not supplied in the operator's manual or accompanying literature, contact Marvel Manufacturing Co. Inc. French, German, and Spanish language manuals may also be available for your machine.



RECOGNIZE SAFETY INFORMATION

- This safety-alert symbol signals important safety information to prevent personal injury or death.
- Safety messages are highlighted with bold words.
- Always obey safety messages which accompany the safety-alert symbol.

Note: The safety-alert symbol is a relatively new device which does not appear in older Operator's Manuals. Please review manuals which do not contain safety-alert symbols carefully to identify safety information.



SAFETY

SAFETY SIGNAL WORDS

A safety signal word always accompanies the safety-alert symbol. The safety signal words - **DANGER**, **WARNING**, and **CAUTION** - identify the severity of a hazard.

- **DANGER** indicates a situation which, if not avoided, will result in serious injury or death.
- **WARNING** indicates a situation which, if not avoided, could result in serious injury or death.
- **CAUTION** indicates a situation which, if not avoided, can result in damage to the machine.



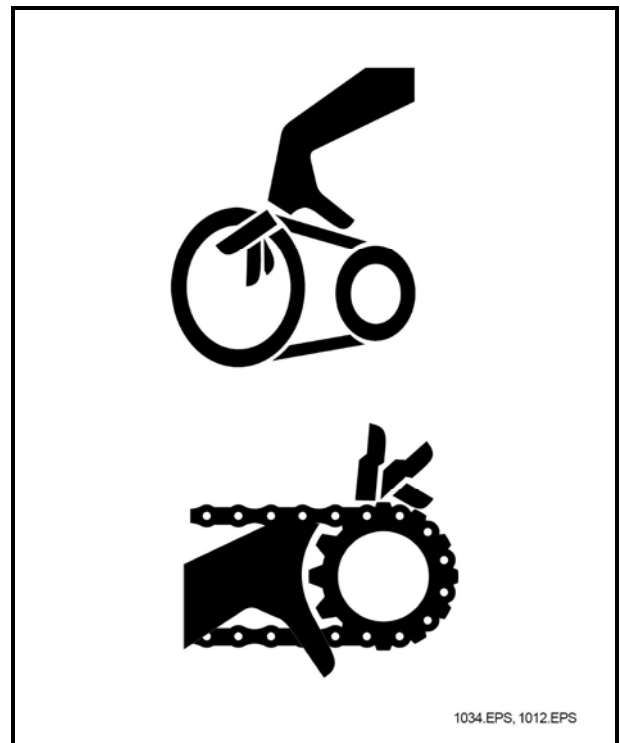
WEAR PROTECTIVE EQUIPMENT

- Wear safety glasses, safety shoes and hearing protection.
- Do not wear gloves except when handling a blade. Gloves can get caught in the machine's moving parts and cause serious injury or death.



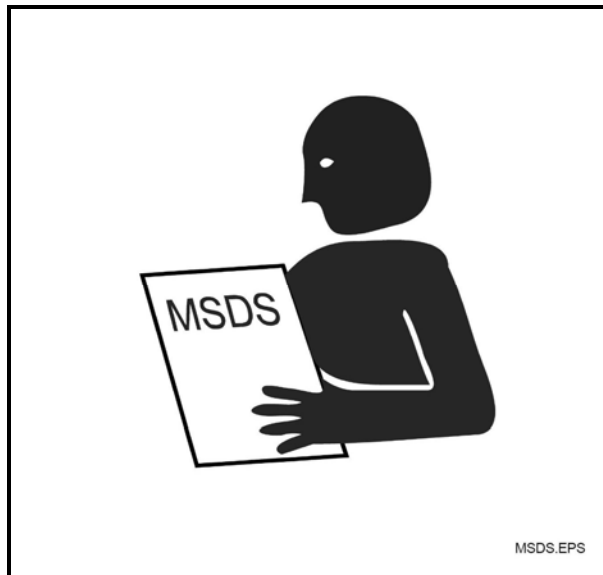
STAY CLEAR OF MOVING PARTS

- Contact with moving and rotating parts can cause serious injury or death.
- Wear close fitting clothing, secure apron and garment strings, and tie back long hair so they can not get caught in moving parts.
- The machine may have automated movements which can cause the blade, vises, shuttle, saw column and other parts to go in motion unexpectedly. Be familiar with the machine's operation before operating the controls.
- Turn off the machine's power at its main electrical disconnect switch and lock it in the "Off" position before adjusting, servicing, or cleaning the saw.



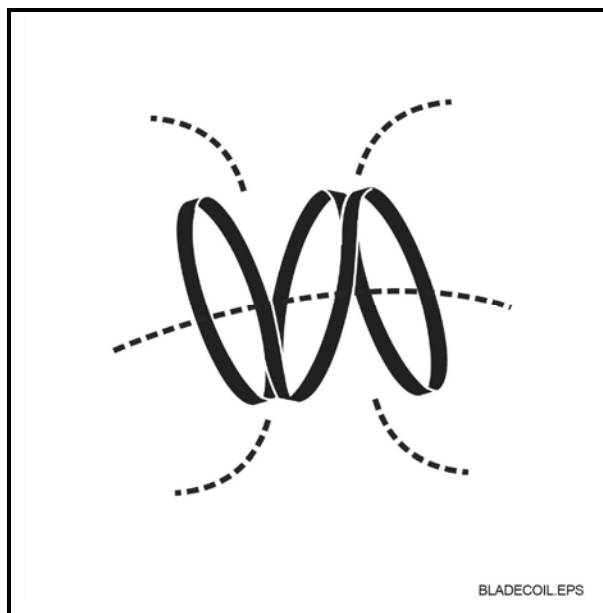
HANDLE CHEMICALS SAFELY

- Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with this machinery include lubricants, hydraulic fluid, and cutting fluid (coolant).
- The Material Safety Data Sheets (MSDS) provide specific details on these chemical products including the specific hazards, safety procedures, and emergency responses.
- Consult the MSDS before operating the machine to become familiar with the specific hazards and how to avoid them.
- MSDS sheets for chemical products supplied with your machine are available from Marvel Manufacturing Co., Inc. These may be different from the actual chemicals present in your machine. Contact the chemical manufacturer for the MSDS of the products you are using.
- Protect the environment. Dispose of used and unwanted chemicals properly.



HANDLE BLADES SAFELY

- Coiled blades can spring open and cause serious injury. Handle coiled blades with great care.
- Wear protective equipment including face shield, safety shoes, protective clothing, and gloves when handling a blade.
- Turn off the machine's power at its main electrical disconnect switch before changing the blade.
- Remove gloves before turning the machine's power on and operating the machine. Gloves can get caught in moving parts and cause serious injury or death.



SAFETY

SAFE MATERIAL HANDLING

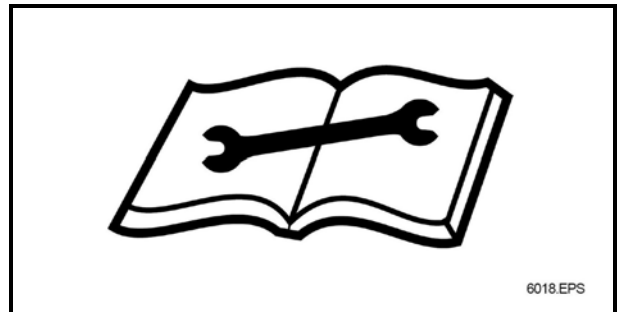
Loading and unloading material from the machine presents safety hazards of its own.

- Wear appropriate safety equipment including safety shoes, hard hat, safety glasses, etc.
- Do not allow any part of your body to come between the material and any other surface. Serious or fatal crushing injuries can result.
- Never stand underneath the material while it is being handled.
- Always use equipment, in good, serviceable condition, capable of safely handling the material. This includes cranes, hoists, chains, and straps with a lifting capacity greater than the weight of the material being lifted.
- Never lift the material higher than necessary.



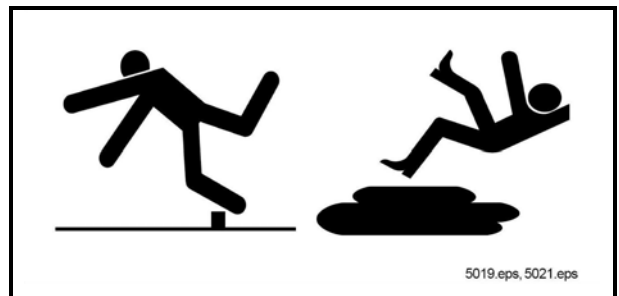
KEEP THE MACHINE SAFE

- Do not alter the machine in any way.
- Do not remove protective guards, covers, or safety signs.
- Perform regular maintenance to keep the machine operating safely and efficiently.
- Immediately replace worn, missing, or damaged parts, including safety signs attached to the machine.



KEEP THE WORK AREA SAFE

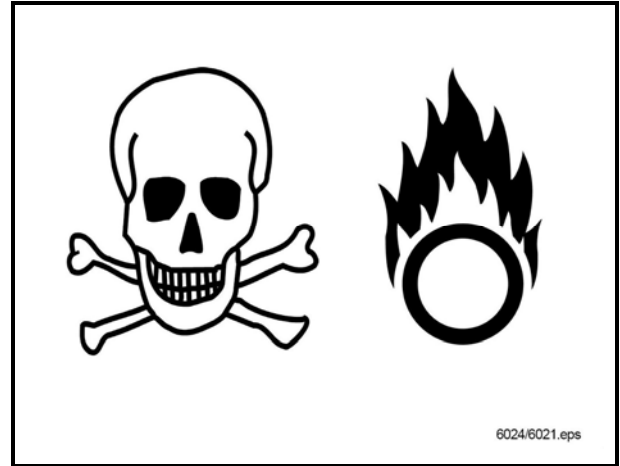
- Keep the machine and the area around the machine clean, well lighted, and free of debris and spills.
- Immediately clean up coolant (cutting fluid) and hydraulic fluid from the floor. These create serious slipping hazards.
- Keep air hoses, power cords, etc., off the floor. These create serious tripping hazards.



HAZARDOUS METALS

Your machine was designed specifically for metal cutting. However, some metals, such as beryllium, magnesium, and lead, have characteristics which, if not handled properly, will cause serious injury or death.

- Know the material you are cutting and the hazards it presents.
- Do not cut materials which require specialized equipment or a controlled atmosphere unless your machine has been specifically designed and installed for that purpose. Standard machines sold by Marvel Manufacturing Co., Inc. do not meet those special requirements.



HIGH PRESSURE FLUIDS

- Fluid escaping under pressure can penetrate skin and cause serious injury and death.
- Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
- Look for leaks with a piece of cardboard. Protect your hands and body from exposure to the fluid.
- If an accident occurs, see a doctor immediately and inform them of the nature of the accident. Injected fluids must be surgically removed within a few hours or gangrene will result.



HORIZONTAL MACHINES CAN CRUSH

Horizontal machines have heavy saw frames which can crush a person causing serious injury or death.

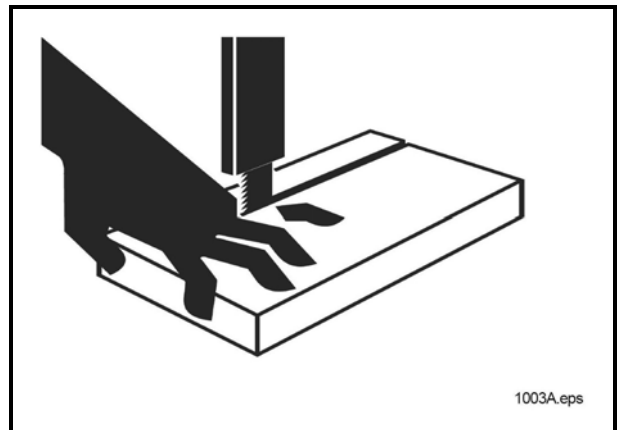
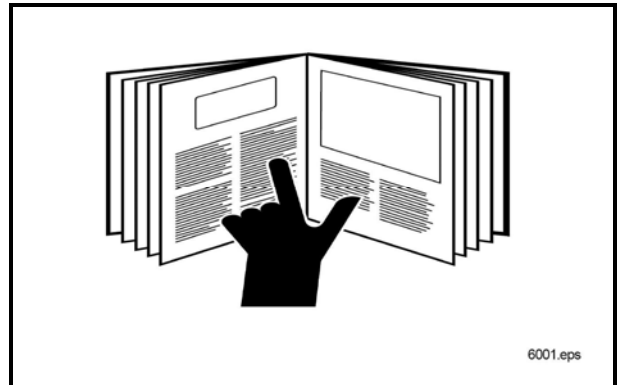
- Never place any part of your body under the saw frame.
- Never disconnect hydraulic hoses when the saw frame is raised. The loss of hydraulic pressure can cause the saw frame to fall.
- If you must service the machine with the saw frame raised, support the saw frame by blocking it open or by securing it with safety chains and an overhead crane capable of supporting the weight of the saw frame.



SAFETY

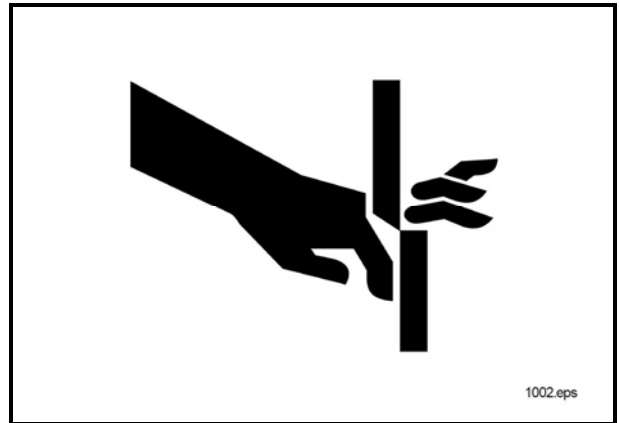
OPERATE THE MACHINE SAFELY

- Use the machine only for its intended use – metal cutting within its specified capacity.
- Do not operate the machine if it has been altered in any way, is defective, or has worn, missing, or broken parts.
- Operate the machine in a careful and deliberate manner.
- Remove rings, watches, bracelets, necklaces and other jewelry. These can get caught in the machine and cause serious injury or death.
- Refer to the machine's data charts and operating instructions for the proper blade type, feed rate, blade speed, and feed pressure for the material you are cutting.
- Stop the machine before reaching into the cutting area or any area with moving parts.
- Position the blade guards as close to the stock as possible.
- Clamp the stock securely.
- Report unsafe conditions to your employer.
- Never feed material into the blade by hand unless the machine is specifically designed for manual stock feed.
- Always use appropriate pushing devices when feeding stock by hand or removing remnants from the cutting area.



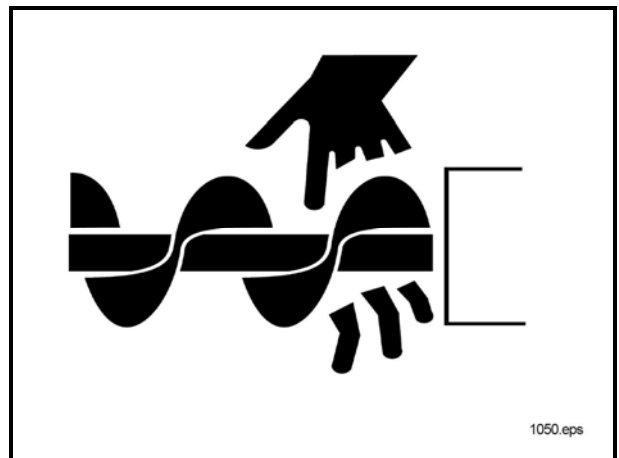
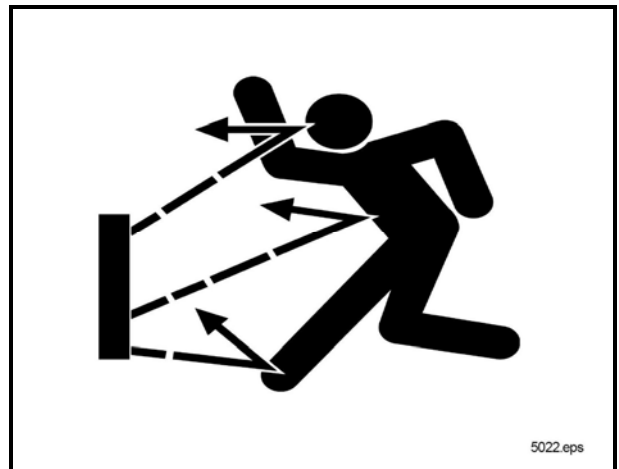
PUNCHING AND SHEARING EQUIPMENT

- Always wear gloves when handling stock which has been punched or sheared. The edges can be extremely sharp.
- Never place your hands inside the safety guards.
- Keep fingers and hands away from the tooling.
- Always use the hold downs supplied with the machine to clamp the material.
- Turn off the machine before changing the tooling.



REMOVING SAW CHIPS

- Never use compressed air to remove chips from the machine. The flying chips can cause serious personal injury. Remove chips with a brush or by flushing with the coolant hose.
- Never reach into the chip conveyor. Serious injury or death will result. Turn off the machine's power and lock it out before cleaning the chip conveyor.

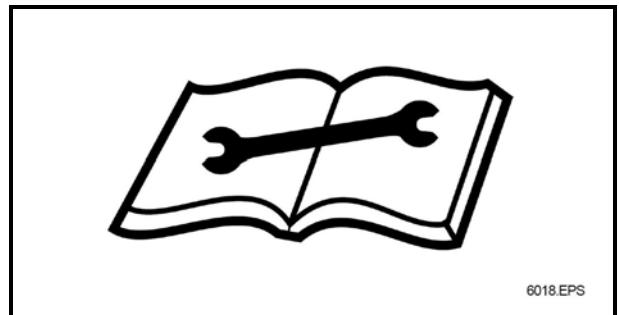
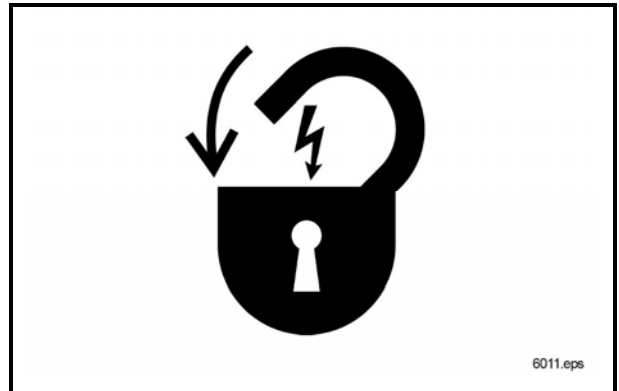


SAFETY

SERVICE THE MACHINE SAFELY

Review all safety information provided with your machine before servicing the machine. Additionally, important safety information which the service technician should be aware of is located throughout this safety section.

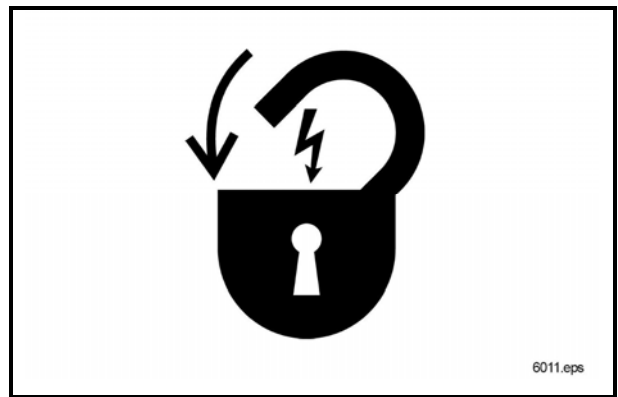
- Turn off the machine's power and lock it out before adjusting, servicing, or cleaning the saw.
- Read and understand a service procedure before performing the service.
- Never lubricate or service the machine while it is running. Keep your body, clothing, and tools away from power-driven parts.
- The machine may have automated movements which can cause the blade, vises, shuttle, powered rollers, ejectors, saw column and other parts to go in motion without action by the operator. Become familiar with the machine's operation before operating the controls.
- Turning off the machine's main electrical disconnect switch does not remove electrical power from the input side of the machine's main fuses. To eliminate all electrical power at the machine, turn off the machine's electrical supply circuit at your facility's circuit breaker and lock it out.
- Some parts, particularly malfunctioning hydraulic parts and parts subject to high friction, can become hot. Allow the machine to cool before servicing.
- Whenever possible, avoid climbing on any of the machine's components. If it is necessary to climb on the machine's components, such as the saw table, use extreme care! **Always turn the machine's power off and lock it out before climbing on the saw table.** Cutting fluids and saw chips can make the table's surface slippery. Always maintain a safe footing, a firm hand hold, and never jump off the machine.



ELECTRICAL HAZARDS

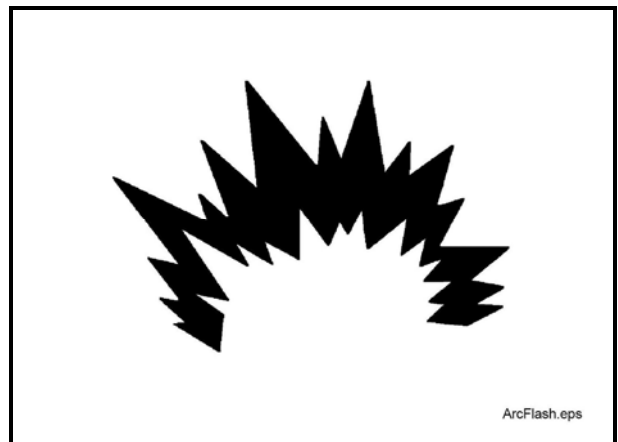
Contact with high voltage will cause death.

- Never perform any maintenance on or near electrical components until the machine's power source has been disconnected. **Lock out power before servicing.**
- The only way to be sure the machine's electrical circuits are safe is to turn off the machine's power supply at your facility's circuit panel and lock it out.
- The "All Stop" pushbutton does not disconnect the machine's power supply. Hazardous electricity is still present in the machine's electrical circuits.
- The machine's main electrical disconnect switch will remove electricity from the machine's circuits, however, deadly voltage is still present inside the main electrical panel at the in feed (line) side of the main fuses. **Keep hands and tools away from the top of the electrical panel's main fuses.**
- Never spray coolant directly at electrical components or junction boxes.



ARC FLASH HAZARD

- Arc flash hazard.
- Appropriate personal protective equipment required.
- Failure to comply can result in serious injury or death.
- Refer to NFPA 70E for safe work practices.



IMPORTANT

Before completing any steps in this section, read the entire safety section. The safety section contains important information which will safeguard both yourself and the machine during installation.

It is extremely important to read through the entire installation section to familiarize yourself with the installation procedure before performing any steps in this section.

NOTE: The term "saw column" is used throughout this section. This term is used to identify the portion of the machine that contains the band wheels, blade, blade guides and other related equipment.

HANDLING AND PLACEMENT

CAUTION Never push, pull or lift the shipping crate to move the saw. Personal injury or machine damage may occur. Move the saw only by pushing the skid with a forklift or by lifting with the eyebolts provided in the saw table.



IMPORTANT: When crated, the basic saw weighs approximately 2870 lb (1300 kg). Equipment capable of safely handling this weight is required.

The saw is skidded and crated for shipment. While the crate may be removed at anytime, the saw should remain on the skid until positioned for installation.

NOTE: One shipping brace secures the saw column for shipment. Do not remove this brace until the saw has been removed from the skid and positioned for installation.

The following items should be considered when positioning the saw:

FOUNDATION The foundation should be a dry, level concrete floor in good condition. No special machine foundation is required.

LIGHTING The entire machine should be well lit, both for operator safety, convenience and for machine maintenance.

STOCK MOVEMENT Allow sufficient space around the machine for loading and unloading work stock.

MAINTENANCE The saw should be placed to allow easy access to all areas for maintenance and repairs. Ensure that all doors and access panels can be opened and the coolant pan removed without interference.

ANCHORING The saw's leveling screws are hollow to permit insertion of anchor screws. The anchor holes need to be drilled in the floor prior to placement of the machine. Anchor hole size and spacing dimensions are found on the technical drawing supplied with the machine.

After a suitable location has been prepared, the machine can be removed from the skid and placed in position.

1. Remove all loosely packed items from under the saw, including the coolant pan. The coolant pan slides out the side of the saw.
2. The saw is secured to the skid with four bolts that extend up through the saw's leveling screws. Remove the nut from each of the four bolts to free the saw

CAUTION Do not lift the saw any higher than necessary to remove the skid and position the saw.



CAUTION Avoid serious personal injury or damage to the saw. Lift the saw only with the four eyebolts installed in the saw table.



3. Using the four (4) eyebolts supplied in the saw table (see photo in Components section) lift the saw off the skid with chains and an overhead crane capable of safely lifting the weight of the saw.

WARNING Never place any part of your body under the saw while the saw is suspended.



4. Before lowering the machine to the floor, make sure the leveling screws protrude equally through the bottom of the table legs and place a floor washer (supplied) under each leveling screw. See Leveling and Anchoring section below.
5. After the machine is in position, remove the four eyebolts from the saw table and one (1) red shipping brace which secures the saw column. Save these items for future movement of the machine.

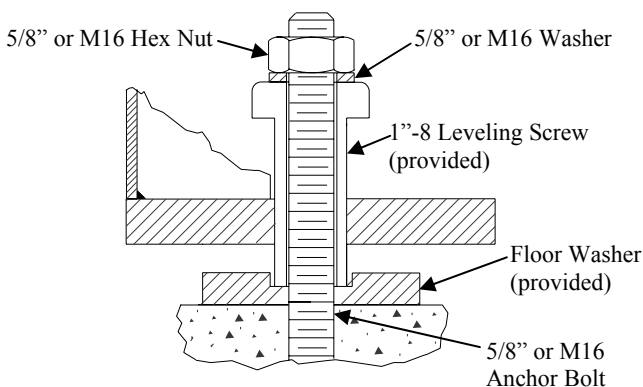
CLEANING

All machined surfaces were coated with a rust inhibitor prior to shipment and need to be thoroughly cleaned. Remove the rust inhibitor with an appropriate solvent.

LEVELING AND ANCHORING

After the machine has been placed in a suitable location and its machine surfaces have been cleaned, the saw should be leveled and anchored as described below.

IMPORTANT: Leveling is extremely important for consistent accurate cuts.



This is a drawing of a typical leveling screw and anchor bolt installation.

LEVELING The saw is equipped with four leveling screws - one on each leg. A floor washer should have been placed under each leveling screw when the machine was positioned for installation. Level the saw by placing a machinist's level at right angles on the saw table and adjusting the leveling screws until the machine is level both side to side and front to back.

ANCHORING The leveling screws are hollow to permit the installation of 5/8" or M16 anchor bolts. To install anchor bolts, the floor must have been pre-drilled as described in the Handling and Placement section on page A-1. Install the anchor bolts through the leveling screws, into the floor and install a 5/8" or M16 washer and hex nut on each anchor bolt.

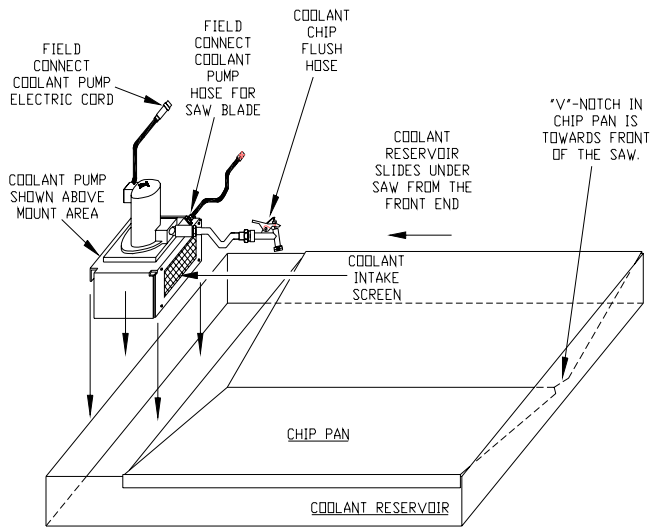
IMPORTANT: After installing the anchor bolts, check the saw table to ensure it is still level. Loosen the anchor bolts and re-level the saw if necessary.

ASSEMBLY

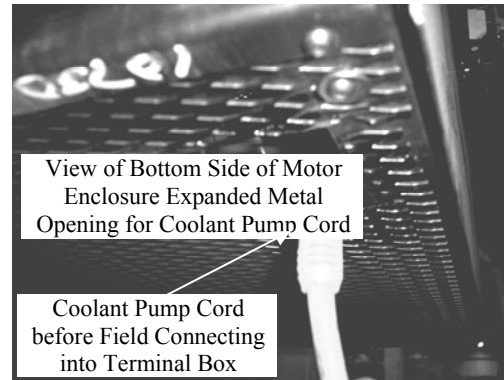
After the machine is leveled and anchored, the saw components can be assembled.

INSTALLING AND WIRING THE COOLANT PUMP

1. Slide the coolant pan between the front legs of the saw and push it until the pan is centered between the legs. Make sure the "V" shaped cut-out in the chip pan, which installs on top of the coolant pan, is at the front of the machine. Make sure chip pan is tight against front end of reservoir. See following illustration.
2. Adjust the angle iron door supports to rest on the coolant pan cover.
3. Place the coolant pump in the coolant pan, hooking the tabs on the pump housing over the edges of the coolant pan.



of the motor enclosure. This plug receptacle can be found on the underside of the motor enclosure and can be connected without gaining access to the motor enclosure.

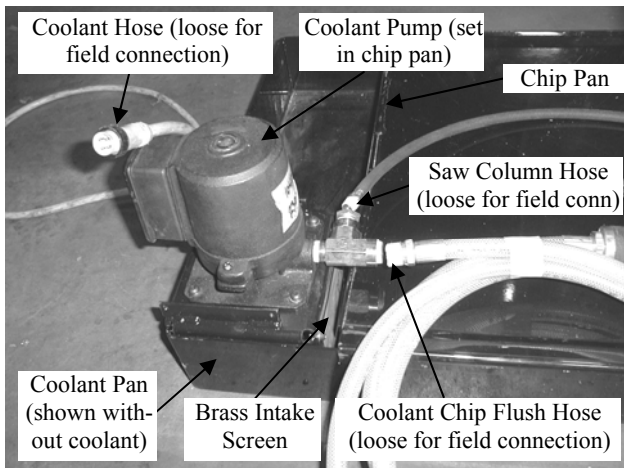


- The coolant pump is shipped with one hose attached with a spray nozzle on the end for coolant flushing. The other end of this hose is attached to a tee at the pump outlet. This tee has an open 1/4" FNPT port. There is a 1/4" I.D. black hose attached to the table leg closest to the pump with a 1/4" MNPT swivel fitting on the end. This swivel fitting must be attached to the open port at the pump outlet as shown in the following photo.

The coolant pump electrical cord attaches to the plug receptacle on the bottom of the terminal box under the motor enclosure as shown.

OPTIONAL EQUIPMENT

The Marvel Series 8 can be equipped with a wide range of optional equipment. Much of this equipment, such as special vise jaws and length gauges, is installed for use during a specific job and then removed. The installation and use of this type of equipment is described in the "Machine Description" section.



Optional Roller Tables are available for both the load and discharge sides of the machine. The roller tables can be mounted on the basic machine at anytime. Assembly instructions are included with the optional roller table.

Digital Tilt Readout must be set to zero. To calibrate the digital tilt readout:

The coolant hose attaches to the pump outlet tee on the pump assembly as shown above.

- Ensure that the saw blade is square (at a 90° angle) to the level table.
- Press and release the button on the back of the digital tilt readout to set the tilt to 0°.

- The coolant pump is shipped with one electrical cable assembly connected to the pump motor with a connection plug wired onto the opposite end. This connection plug must be connected to the plug receptacle on the bottom of the terminal box located inside

CONNECTING POWER

DANGER Hazardous voltage. Will cause serious injury or death. Turn off the supply electricity at your facility's circuit breaker before connecting the saw to an electrical circuit.



WARNING All electrical wiring must be done by a qualified electrician in conformance with the prevailing electrical standards of your area.



WARNING This machine must be grounded by a qualified electrician, in conformance with the NEC “National Electrical Code” or the prevailing national, state, and local electrical codes. Failure to do so will cause serious injury or death.



WARNING Be sure the supply voltage and phase matches the voltage the machine has been wired for. Refer to the data plate on the electrical enclosure.

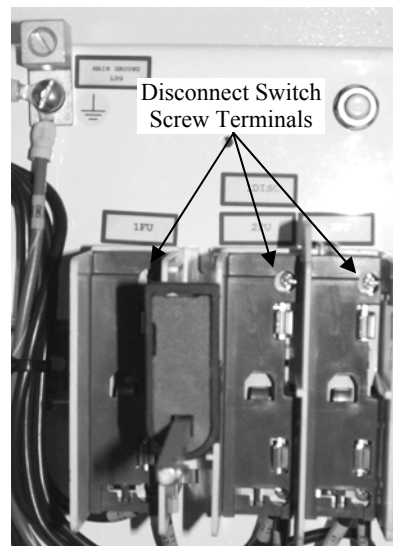


After the coolant pump has been plugged into the terminal box (see Installing and Wiring the Coolant Pump in the previous Assembly section), supply power can be connected to the saw.

1. Connect an appropriate grounding wire to the main panel ground lug.



2. Remove the three main line fuses 1FU, 2FU and 3FU to expose the screw terminals for the main line connection.
3. Connect the three phase power to the top of the disconnect and torque wires to the listed torque shown on the panel above the disconnect.
4. Reinsert the fuses into the disconnect switch.
5. Close and secure the electrical panel's door. Leave the electrical disconnect switch in the “Off” position.



LUBRICATION

The lubrication points and intervals should be checked before operating the saw. Refer to the Maintenance Schedule.

COOLANT SYSTEM

CAUTION The coolant pump should never be run without coolant in the reservoir. Damage to the coolant pump will occur.



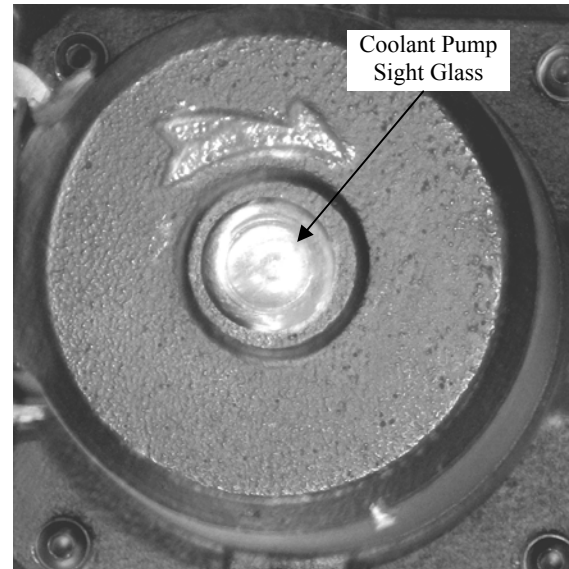
The coolant system needs approximately 20 gallons (75 liters) of coolant, mixed according to the coolant manufacturer's directions, poured directly into the coolant pan.

COOLANT PUMP ROTATION CHECK

IMPORTANT: Two people are required to perform this check.

1. Ensure all guards and doors are closed and secure.
2. Turn the main electrical disconnect switch on.
3. Press the start button on the saw.
4. Have a person watch the coolant pump sight glass and observe the shaft in the center. The shaft will have a red mark on it.
5. Turn the coolant pump selector switch to the "On" position and then back to the "Off" position. The shaft should rotate clock wise, if so this step is done.
6. If the coolant pump is rotating counter-clock wise then do the following.

7. Turn the main disconnect to the "Off" position.
8. Open the electrical enclosure door.
9. Lock out the disconnect switch.
10. Reverse the 2T1 and 2T2 wires on the coolant pump overload (2OL).
11. Repeat steps above.



FINAL INSPECTION

After the saw has been installed, a thorough inspection should be performed. The following check list will locate any items that may need further attention.

Inspect For:

- Loose components, guards or panels
- Loose fasteners and fittings
- Loose hoses and conduit
- Missing or damaged items
- Coolant leaks
- Overall condition and readiness for use

NOTE: Metric specifications represent nearest SI Unit converted from the basic U.S. Customary Unit.

NOTE: Specifications given are for standard machines. Available options may alter these specifications. Refer to the Technical drawings supplied with the machine for specifications specific to your saw.

All specifications are subject to change without notice.

MARVEL SERIES 8 MARK III CAPACITY (WIDTH X HEIGHT):

Standard Column			Standard Column with 3° Forward Cant		
	U.S. Unit	Metric		U.S. Unit	Metric
90°			90°		
Rectangle	18" x 22"	457mm x 558mm	Rectangle	17.5" x 22"	445mm x 558mm
Round	18"	457mm	Round	17.5"	445mm
60° Tilt Right			60° Tilt Right		
Rectangle	18" x 9.7"	457mm x 246mm	Rectangle	17.5" x 9.7"	445mm x 246mm
Round	9.7"	246mm	Round	9.7"	246mm
60° Tilt Left			60° Tilt Left		
Rectangle	18" x 7.3"	457mm x 185mm	Rectangle	17.5" x 7.3"	445mm x 185mm
Round	7.3"	185mm	Round	7.3"	185mm
Maximum Vise Opening	19.17"	487mm	Maximum Vise Opening	17.5"	445mm
45° Tilt Right			45° Tilt Right		
Rectangle	18" x 14.5"	457mm x 368mm	Rectangle	17.5" x 14.5"	445mm x 368mm
Round	14.5"	368mm	Round	14.5"	368mm
45° Tilt Left			45° Tilt Left		
Rectangle	18" x 13"	457mm x 330mm	Rectangle	17.5" x 13.0"	445mm x 330mm
Round	13"	330mm	Round	13.0"	330mm
Maximum Vise Opening	19.17"	487mm	Maximum Vise Opening	17.5"	445mm

SPECIFICATIONS

MARVEL 8 MARK III

NOTE: Metric specifications represent nearest SI Unit converted from the basic U.S. Customary Unit.

NOTE: Specifications given are for standard machines. Available options may alter these specifications. Refer to the Technical drawings supplied with the machine for specifications specific to your saw.

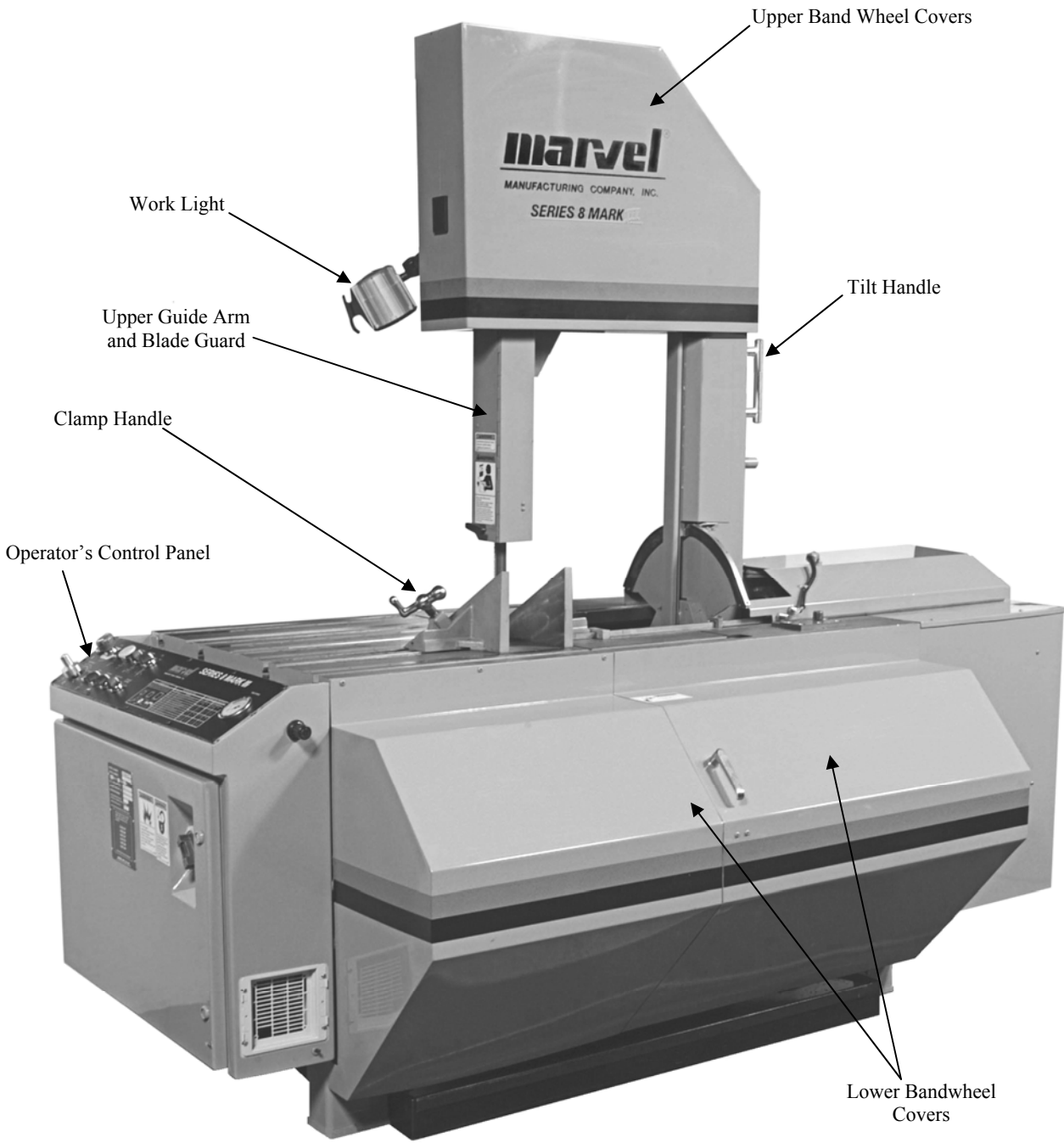
All specifications are subject to change without notice.

MARVEL SERIES 8 MARK III CAPACITY (WIDTH X HEIGHT):

High Column			High Column with 3° Forward Cant		
	U.S. Unit	Metric		U.S. Unit	Metric
90°			90°		
Rectangle	18" x 28"	457mm x 711mm	Rectangle	17.5" x 28"	445mm x 711mm
Round	18"	457mm	Round	17.5"	445mm
60° Tilt Right			60° Tilt Right		
Rectangle	18" x 12.7"	457mm x 322mm	Rectangle	17.5" x 12.7"	445mm x 322mm
Round	12.7"	322mm	Round	12.7"	322mm
60° Tilt Left			60° Tilt Left		
Rectangle	18" x 10.3"	457mm x 262mm	Rectangle	17.5" x 10.3"	445mm x 262mm
Round	10.3"	262mm	Round	10.3"	262mm
Maximum Vise Opening	19.17"	487mm	Maximum Vise Opening	17.5"	445mm
45° Tilt Right			45° Tilt Right		
Rectangle	18" x 18.7"	457mm x 475mm	Rectangle	17.5" x 18.7"	445mm x 475mm
Round	18.7"	475mm	Round	17.5"	445mm
45° Tilt Left			45° Tilt Left		
Rectangle	18" x 17.2"	457mm x 437mm	Rectangle	17.5" x 17.2"	445mm x 437mm
Round	17.2"	437mm	Round	17.2"	437mm
Maximum Vise Opening	19.17"	487mm	Maximum Vise Opening	17.5"	445mm

BLADE/BLADE DRIVE

	Blade Size (L x W x T):	
	U.S. Customary Unit	Metric
Standard Column:	15' 4" x 1.25" x 0.42"	4674mm x 32mm x 1.07mm
High Column:	16' 4" x 1.25" x 0.42"	4978mm x 32mm x 1.07mm
Blade Speed	50 to 450 fpm	15 to 137 m/min
Drive Motor	5 hp (TEFC), 1800 rpm	3.75kw (TEFC), 1800 rpm
Band wheel	18.98" Diameter	482mm Diameter
Feed System		
Feed Force	0 to 250 lb.	0 to 1112N
Feed Motor	.25 hp (TEFC), 1800 rpm	.20kw (TEFC), 1800 rpm
Tilt Gear Motor	.067 hp (TEFC), 15 rpm	.05kw (TEFC), 15 rpm
Column Power Tilt (Optional)		
Coolant System		
Capacity	20 Gallons (Maximum)	75.7 liters
Motor	0.13 hp, 3400 rpm	.10kw (TEFC), 3400 rpm
Domestic Shipping Weight	2870 lb	1300kg

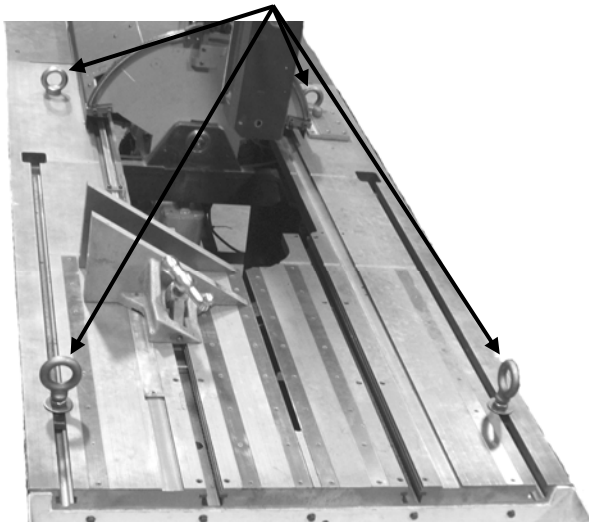


IMPORTANT: This section is not intended to describe the operation of the saw, but rather the function and operation of individual components.

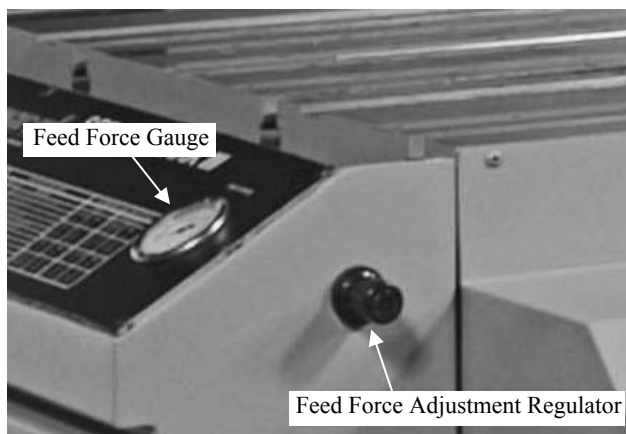
This section describes the function of each machine control and component to help the operator become familiar with the machine.

NOTE: This section describes the standard machines as well as the most common options. Options not included in this manual may be described by separate bulletins.

(4) Lift Eyes – Remove before Operating Saw



Four eyebolts are installed in the saw table for lifting the machine. These eyebolts must be removed from the table before operating the saw.

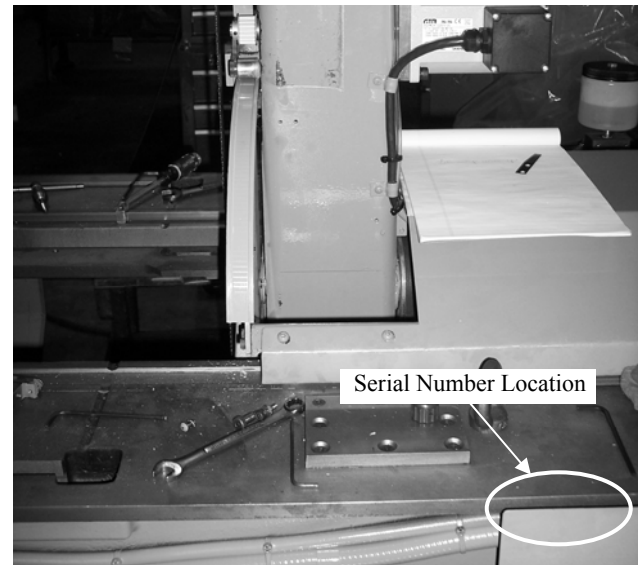


Feed Force Gauge and Feed Force Adjustment Regulator

SERIAL NUMBER

The machine's serial number is stamped on the rear of the right side of the saw table. The serial number is very important when requesting service or ordering repair parts.

NOTE: Machine serial number is also on the machine's data plate.



The serial number is stamped in the area enclosed by the box in this photo.

MACHINE DESCRIPTION

MARVEL 8 MARK III

The Marvel Series 8 is a versatile, vertical, metal cutting band saw designed for rugged, continuous use. It can perform cuts on a wide variety of round, rectangular, structural and thick or thin walled tubular stock up to the saw's standard, nominal capacity of 18" (457mm) horizontally by 22" (558mm) vertically. The saw can be quickly set up to perform either straight (90°) cuts or miter cuts up to 60° in either direction while the work piece remains stationary on the saw table. The power feed system provides constant, uniform feed force which may be set between 0 and 250 lb (0 to 1112N).

The blade drive system utilizes a variable speed drive to provide infinitely adjustable blade speeds from 50 to 450 feet per minute (15 to 137m/min). The Series 8 can be equipped with a variety of optional equipment such as roller table for stock handling, vise options and length gauges.

OPERATOR'S CONTROL PANEL

The controls in this section are located on the operator's control panel pictured below.



The operator's control panel controls are as follows.

BLADE SPEED CONTROL KNOB The "BLADE SPEED" control knob is used to adjust the blade speed from 50 to 450 feet per minute (15 to 137 meter per minute).



DANGER



Avoid serious injury. Make sure all guards and covers are closed and properly positioned and no part of your body is in the area of operation before starting the saw.

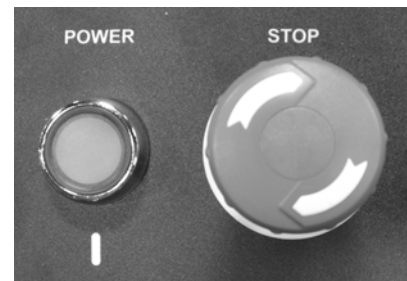
POWER PUSHBUTTON The green "Power" pushbutton enables power to be turned onto the control system when all electrical safety interlocks are satisfied. The pushbutton will illuminate green when power is turned and the area work light will also turn on.

STOP PUSHBUTTON The large red "Stop" pushbutton interrupts power to the coolant pump, blade drive, column feed and column tilt motors, causing these functions to stop.

DANGER



Hazardous voltage. The "Stop" pushbutton does not disconnect any components from the main power supply. Avoid serious injury or death by turning of the machine's power with the electrical enclosure and locking it in the "Off" position before servicing the machine.



START BLADE PUSHBUTTON The black “Start Blade” pushbutton starts the blade drive motor.



BLADE MODE SELECTOR SWITCH The “BLADE MODE” switch is a three position, key operated switch.

CHANGE: In the “CHANGE” position, the operator has the ability to remove the key from the key switch. This will disable most of the saw’s operating capability to allow the operator to walk away from the saw without accidental starting of the saw with a broken blade. The COLUMN RETRACT button will still be operational and allow the column/ saw blade to retract while this pushbutton is held.

RUN: In the “RUN” position, the blade drive motor is enabled and can be started with the “START BLADE” pushbutton. This is the position of the selector switch under normal operation.

TRACK: In the “TRACK” position, the blade drive motor operates at low speed and can be operated with both the upper and the lower access doors open in order to observe the tracking of the blade on the upper and lower band wheel.

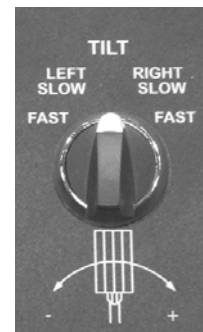


TILT SELECTOR SWITCH The “TILT” selector switch is optional on saws supplied with standard columns. It is supplied as standard with saws supplied with the High Column option. This switch is a variable, three position selector switch with a spring return center position.

LEFT: When the switch is turned fully to the “LEFT” position, the column will tilt to the left at maximum speed. The speed of the column tilt increases as the switch is turned partially, to fully towards the “LEFT” position. When the switch is released, the column tilt travel stops.

RIGHT: When the switch is turned fully to the “RIGHT” position, the column will tilt to the right at maximum speed. The speed of the column tilt increases as the switch is turned partially to fully towards the “RIGHT” position. When the switch is released, the column tilt travel stops.

NOTE: The column can not be tilted if the saw blade is traveling or feeding forward or reverse.



COLUMN FORWARD PUSHBUTTON The “COLUMN FORWARD” pushbutton enables the column to begin moving forward by engaging the blade feed system motor and the carriage travel (blade feed) clutch.

CYCLE INTERRUPT/COLUMN RETRACT PUSHBUTTON The “CYCLE INTERRUPT / COLUMN RETRACT” pushbutton works two ways.

When the pushbutton is momentarily pushed, the blade stops and the blade feed travel stops.

When the pushbutton is held, the blade stops and the blade feed travel reverses if it is traveling in the forward direction.

COLUMN AUTO RETRACT SELECTOR SWITCH The “COLUMN AUTO RETRACT” selector switch is a two position switch.

OFF: In the “OFF” position, the column travel will stop after it reaches the column forward position.

ON: In the “ON” position, the column travel will stop after it reaches the column forward position and then the column travel will automatically retract to the column rear position.



COOLANT SELECTOR SWITCH The “Coolant” switch is a three position switch which controls the coolant pump. The three positions are:

OFF: In the “OFF” position, neither the coolant pump nor optional oil mist system will run.

ON: In the “ON” position, the coolant pump or optional oil mist system runs continuously until the “STOP” pushbutton is pressed.

AUTO: In the “AUTO” position, the coolant pump or optional oil mist system runs any time the blade is operating.

NOTE: Regardless of the coolant switch position, coolant will not flow unless the coolant valve is in the open position.



COOLANT SYSTEM SELECTOR SWITCH The “COOLANT SYSTEM” switch is a two position switch.

FLOOD: In the “FLOOD” position, the coolant pump is enabled to operate.

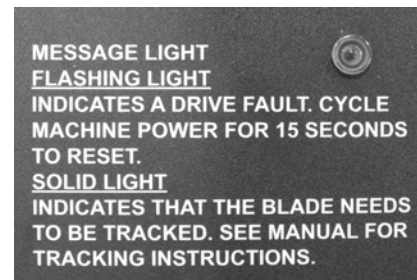
MIST: In the “MIST” position, the optional oil mist system is enabled to operate.



MESSAGE LIGHT The message light is used to alert the operator of problems with the saw.

A flashing light will indicate a drive fault. To reset the fault turn the machine disconnect off for 15 seconds.

A solid light indicates that the blade must be tracked. Refer to the blade tracking section of the manual.



FEED FORCE DISPLAY GAUGE The “FEED FORCE” display gauge indicates the amount of force that is applied to the work piece by the saw blade during a cut.



FEED FORCE ADJUSTMENT KNOB The “FEED FORCE” adjustment knob is used to set the amount of force that is applied to the work piece by the saw blade during a cut. The force may be set from 0 to 250 pounds (0 to 1112 Newtons)

NOTE: The “FEED FORCE” can only be adjusted while the blade feed is traveling in the forward direction.



UPPER GUIDE ARM AND BLADE GUARD The upper guide arm, which contains the upper blade guides and blade guard, can be adjusted up and down to accommodate different stock sizes.

The guide arm should always be positioned as close to the work piece as possible to ensure the most accurate cut and to protect the saw operator from an exposed blade.

To adjust blade guide/blade guard, loosen the clamp handle, reposition the guide/guard with the crank handle and tighten the clamp.

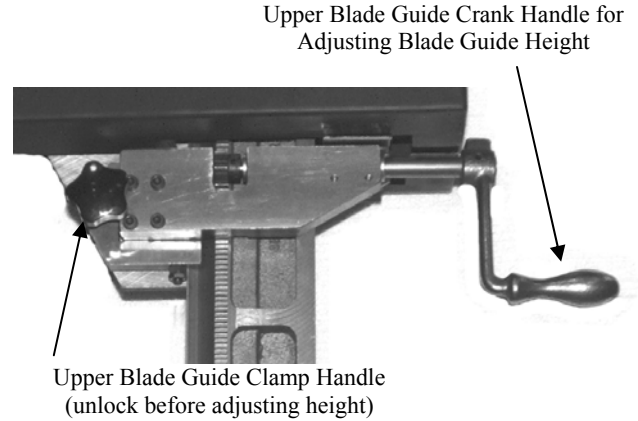
WARNING Avoid serious injury or death. Never adjust the upper guide arm and blade guard while the machine is running.



CAUTION Avoid damaging the saw. Use care to prevent the upper blade guard and guide arm from striking the work stock or vises.



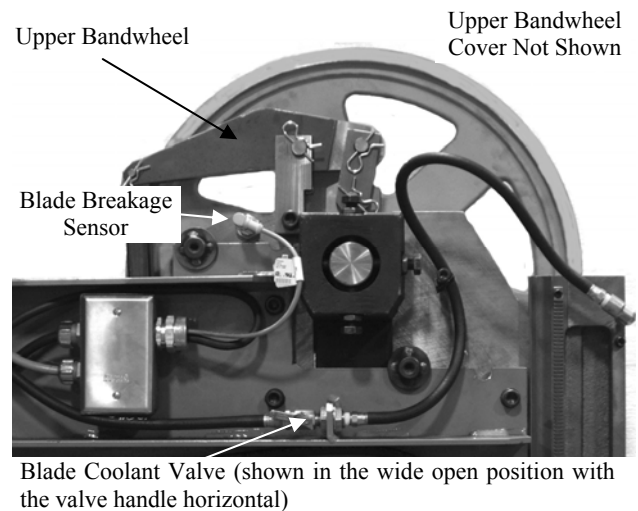
The blade guard is hinged so it can be opened for access to the upper blade guides for adjustment and blade installation. The right upper blade wheel door must be opened to open the blade guard.



The upper blade guide clamp handle and crank handle are clearly shown in this photo.

WORK LIGHT A work light is mounted on the left upper blade door. The light is turned on when the saw power is turned on.

COOLANT VALVE A coolant valve located behind the left upper blade door (see photo below) controls the flow of coolant to the cutting area (upper blade guides)



The flow of coolant to the cutting area is shut off when the valve handle is positioned 90° to the valve body.

MAIN ELECTRICAL DISCONNECT SWITCH The main electrical disconnect switch is located on the electrical enclosure. The switch disconnects the saw's electrical circuits from the main power supply when turned to the "Off" position. The enclosure door is opened by rotating the switch to the "Off" position. The switch can be locked in the "Off" position by pulling out the red tab in the center of the handle and inserting a padlock.

WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



DANGER Hazardous voltage is present on the input side of the main disconnect switch after the disconnect switch is turned to the "Off" position. Serious injury or death will occur if contact is made with the input voltage lines.



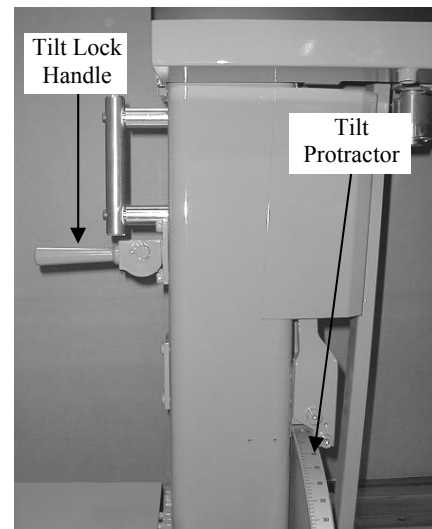
To open the electrical enclosure door, turn the disconnect to the off position.

COLUMN TILT LOCK HANDLE The column tilt lock handle, mounted on the rear of the saw column, locks and unlocks the saw column for tilting. A protractor mounted on the side of the saw column indicates the tilt angle. A handle is provided on the saw column to assist in tilting.

CAUTION Crush Hazard.
Column may fall when brake is released.



CAUTION Avoid damaging the saw. When the saw column is tilted, the saw table vises must be positioned with the 60° edge of the vise jaws next to the blade.



The tilt lock handle is shown above, on the back side of the column. The tilt protractor is visible on the side of the column.

VICES The vises are designed for rapid clamping and can be quickly reversed to allow either the 60° edge or the 90° edge of the face plate to be next to the blade, thus allowing the stock to be clamped as close to the blade as possible for either vertical or miter cutting.

NOTE: The vise jaws and ratchet nuts are not physically connected to each other, so when not under clamping force, the vise jaws move freely on the ratchet nuts. This is normal and permits

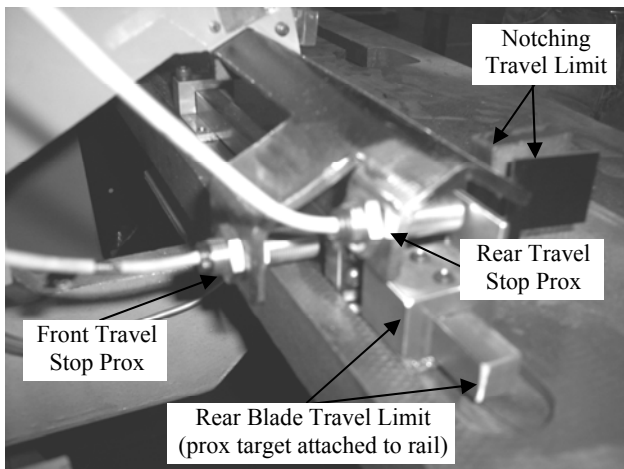
rapid reconfiguration of the vises for miter cuts or for the installation of optional high vises jaws.

The rear vise jaw rests on a ratchet nut equipped with a set screw and is inserted into a T-slot in the saw table. The rear ratchet is designed to resist rearward movement under clamping pressure, so when the stock is clamped between the vises, the rear vise jaw is held firmly in place by the ratchet nut. The ratchet can be positioned as needed in the T-slot.

The front vise jaw rests on a ratchet nut equipped with a hand crank vise screw. The front ratchet nut is designed to resist forward movement under clamping pressure, so when stock is clamped between the vises, the front vise jaw is held firmly in place by the ratchet nut.

Stock is clamped by sliding the front vise jaw and ratchet nut against the stock and tightening the hand crank vise screw.

BLADE TRAVEL LIMITS AND NOTCHING TRAVEL LIMIT The front and rear blade travel limits as well as the notching travel limit are controlled by adjustable proximity switch actuators. These proximity switches control the carriage travel limits. See following photo for prox switch mounting.



The front and rear carriage travel actuators as well as the notching actuator can be located on either the left side or the right side of the table,

depending on which side the controlling vises are located on.

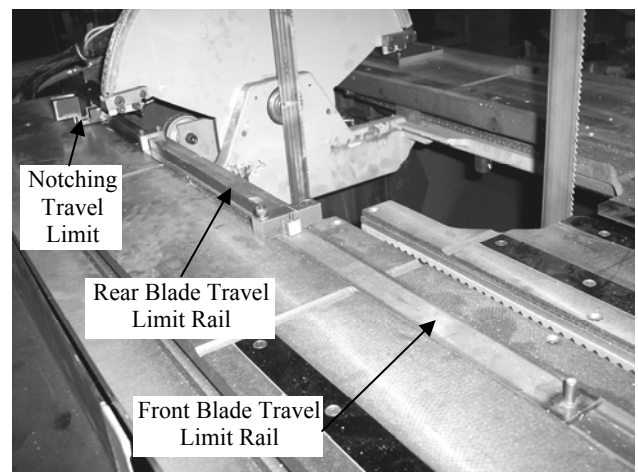
FRONT BLADE TRAVEL LIMIT: The proximity actuator that controls the distance that the carriage travels forward is connected to a rail that slides in a table slot and a pin that connects the rail to the front vice. The FRONT BLADE TRAVEL LIMIT is positioned to allow the blade to travel fully through the work piece and beyond the front vise clamping surface.

REAR BLADE TRAVEL LIMIT: The proximity actuator that controls the distance that the carriage travels back is connected to a shaft that slides above the front blade travel actuator rail. The REAR BLADE TRAVEL LIMIT is to be manually positioned to allow the blade enough room to exit the cut from the work piece and clear the rear vise clamping surface.

To adjust the travel limit location:

1. Loosen the clamp screw.
2. Slide the prox actuator rail to the desired location.
3. Tighten the clamp screw.

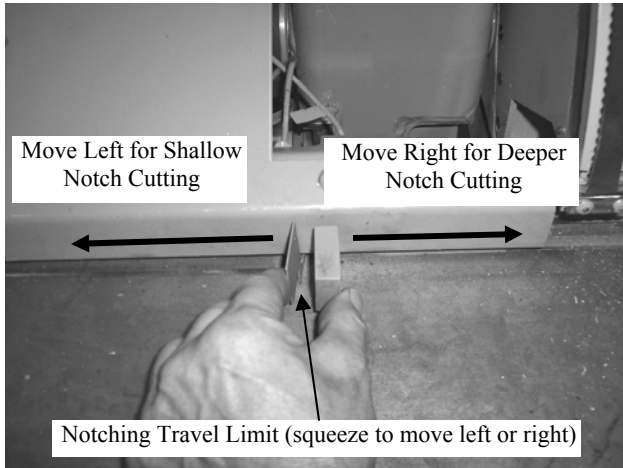
See following photo for blade travel limits and limit rails.



Saw column shown fully retracted.

NOTCHING TRAVEL LIMIT: The proximity actuator that controls the distance that the blade travels into the work piece is independently adjustable from both the front and the rear blade travel limits. This actuator is adjusted by hand, forward and backward with a spring clamp

arrangement. It is designed to allow the blade to partially enter the work piece and is useful in notching operations. See following photo for notching travel limit.



WARNING Do not use compressed air to clean the machine. Flying debris can cause serious injury.



FLUSHING HOSE To aid in cleaning saw chips off the saw table and other surfaces, a flushing hose with a spray nozzle is connected to the coolant pump.

CHIP PAN The chip pan rests on top of the coolant pan and collects the saw chips. This pan should be cleaned as needed to avoid the excessive build-up of saw chips.

COOLANT PAN The coolant pan is located under the chip pan. The coolant pan is a reservoir for coolant - the coolant pump draws coolant through a filter directly from the coolant pan. The coolant level in the pan must be maintained no less than 3/4 full.

NOTE: The coolant level must be checked frequently to maintain its level and proper mixture.

DOOR SAFETY INTERLOCKS

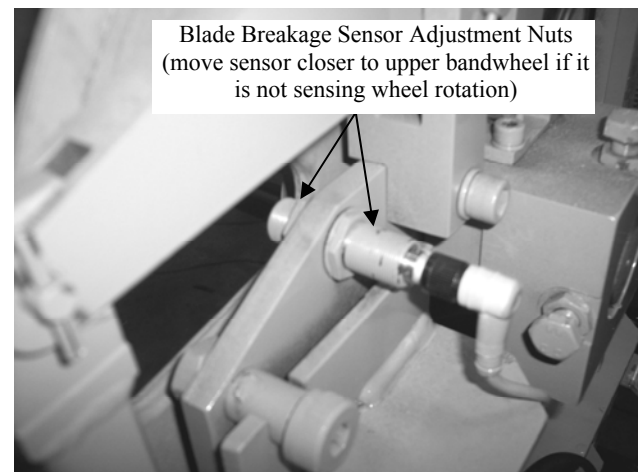
Each of the four band wheel doors is equipped with a door safety interlock switch which prevents normal operation of the saw while the band wheel doors are open. There are two upper and two lower band wheel doors.

WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



The blade drive may be operated with one or all of the band wheel doors open with the BLADE MODE selector switch in the TRACK position. The blade can be operated by pressing and holding the START BLADE pushbutton. This allows the band wheel doors to be open to change the blade with the air operated tensioner ratchet and to observe how the blade is tracking on the upper and lower band wheels.

BLADE BREAKAGE SENSOR INTER-LOCK The upper band wheel area is equipped with a proximity sensor that detects the rotation of the upper band wheel. If the blade drive is engaged, driving the lower band wheel, and the sensor does not detect the rotation of the upper band wheel, this will cause all saw operations to stop. See following photo.



The above photo shows the proximity switch mounted relatively close to the upper band wheel.

PNEUMATIC SYSTEM (COMPRESSED AIR) The saw is equipped with a compressed air system that requires the customer to provide a minimum of 5 SCFM (standard cubic feet per minute) of clean/dry compressed air at a minimum of 80 PSIG (pounds per square inch gauge pressure) (5.5 BAR) pressure.

The PNEUMATIC SYSTEM includes the following items:

LOCKOUT VALVE This LOCKOUT VALVE must be actuated to disconnect the compressed air from the saw. It is equipped with a slide mechanism to turn the air on and off from the system. When in the off position, the compressed air is exhausted from the saw to eliminate potentially dangerous trapped air from causing injury.

WARNING Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.



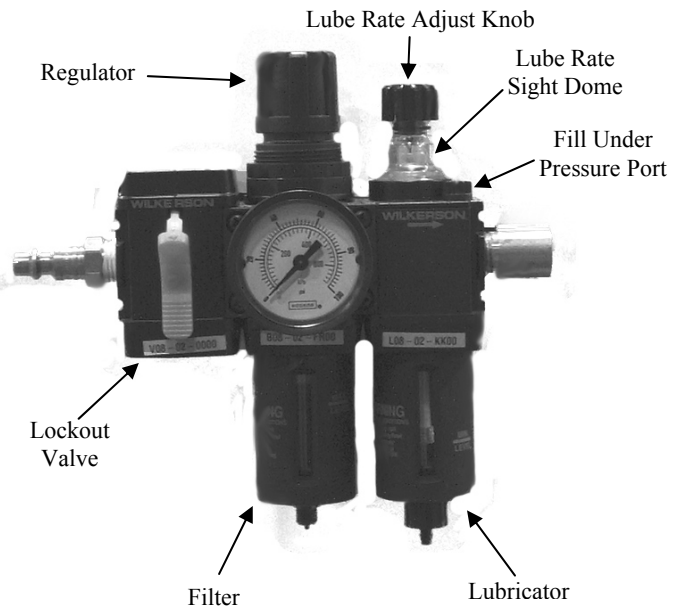
FILTER/REGULATOR The filter is equipped with a 5-micron filter element. The regulator has an adjustable output range of 0 to 125 PSIG (8.6 BAR) and is equipped with a 0-100 PSIG (6.9 BAR) pressure gauge.

The regulator is factory set at 80 PSIG (5.5 BAR). Do not set above 90 PSIG (6.2 BAR).

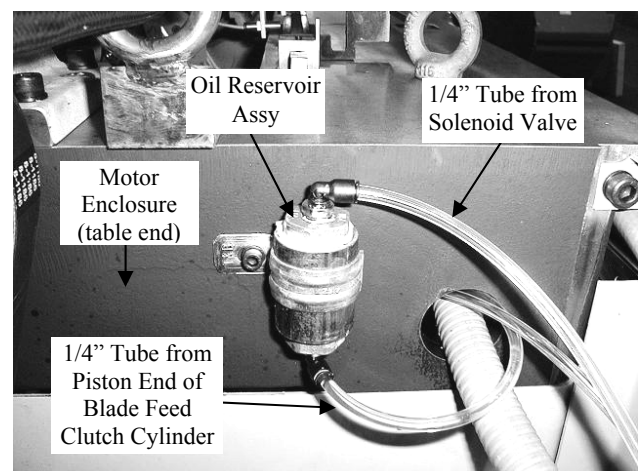
LUBRICATOR The lubricator has a 0.6 ounce (18 CM³) capacity. Fill the lubricator with SAE #10 oil or a compressed air lubricant that is compatible with Buna-N seals.

NOTE: See the Lubrication section for additional detail regarding the lubricator and/or filling.

NOTE: See the pneumatic schematic supplied with this Operator's Manual for additional detail regarding the compressed air system



OIL RESERVOIR The blade feed clutch cylinder in the compressed air system has an oil reservoir in the air line that extends this cylinder rod. This reservoir is filled at the factory with hydraulic oil. The oil reservoir is designed to cushion the cylinder rod travel, thereby preventing the clutch (gearbox) mechanism from binding.



OPTIONAL EQUIPMENT

The following equipment can be installed by customer as optional equipment on the Marvel Series 8.

SECOND MACHINE VISE (Option code E4). A second machine vise operates similar to a standard machine vise. A second machine vise can be used to provide clamping on both sides of the saw blade.

HIGH JAW VISE - COMPLETE (Option code E5). This is a complete vise assembly including additional vise ratchets. This option is recommended when cutting stock larger than 12" (305mm) in diameter. These vise jaws install similar to the standard vise jaws but permit mitered cuts only on the side opposite the vise jaws. For mitered cuts on the large stock, see option E15 (60° High Vise Jaws).

HIGH VISE JAWS - JAWS ONLY (Option code E6). Same as option E5 but does not include ratchets. Existing vise ratchets must be used.

60° HIGH JAW VISE - COMPLETE (Option code E15). This is a complete vise assembly including additional vise ratchets. This option is recommended when miter cutting stock larger than 12" (305mm) in diameter. These vise jaws install similar to the standard vise jaws.

60° HIGH VISE JAWS – JAWS ONLY (Option code E16). Same as option E15 above, but does not include vise ratchets. Existing vise ratchets must be used.

LENGTH GAUGE – SAW TABLE (Option code E8). This length gauge installs in a T-slot in the saw table and can be set to any pre-measured length up to 10.5" (268mm). A single locking knob locks the gauge in position for rapid, multiple cuts to the same length.

AIR OPERATED VISE RATCHET (Option code E14). This air operated ratchet replaces a standard vise ratchet for rapid clamping of the stock. This option requires a user supplied air source.

HIGH SAW COLUMN (Option code M6). This option, available only factory installed,

uses a saw column which is 6" (152mm) higher than the standard Series 8 saw column. This option increases the saw's vertical capacity from 22" (558mm) to 28" (711mm) at 90°; from 12.75" (324mm) to 17" (432mm) at 45° and from 13.0" (330mm) to 17.2" (437mm) at 60°. This option requires a longer blade. See previous Specifications section.

DEAD ROLLER TABLE (Option code F055). This option increases the saw's material handling capacity by adding a 5'0" (1524 mm) roller table to either side of the machine. This option attaches directly to the basic saw and includes five ball bearing rollers, mounting bracket and end stop. The weight capacity of the roller table is 800 lb/ft (1212kg/m).

Installation of a dead roller table is described in Marvel Bulletin 8-4 which is included with every roller table.

EXTENSION ROLLER TABLE (Option code X055). Extension roller tables are used to extend the length of a dead roller table (Option code F055) an additional 5'0" (1524 mm).

The weight capacity of an extension roller table is 610 lb/ft (924kg/m). Extension roller tables can not be attached to the basic saw, only to a dead roller table.

ADDITIONAL ROLLERS (Option code E13). Additional rollers may be installed between the existing rollers of a roller table for added stock support. The roller table capacity remains the same.

ECCENTRIC LIFT ROLLER (Option code E12). This roller replaces the first roller of a dead roller table (Option code F055) and aids in moving larger stock across the saw table by raising the stock slightly above the saw table's surface.

LENGTH GAUGE (Option code E10). This clamp-on style stop gauge can be mounted anywhere on a dead roller table to allow repetitive cuts of the same length.

COOLANT PAN (Option code E11). This coolant pan can be installed on any roller table to capture coolant and carry it back to the saw.

MIST LUBRICATION SYSTEM The Unist mist lubrication system is an environmentally accepted lubrication/coolant system which dispenses minute amounts of lubricant, eliminating the mess and waste of conventional flood coolants. This system also reduces heat build-up resulting in faster, more accurate cuts and increased blade life.

DIGITAL TILT READOUT The digital tilt readout provides a display that outputs a visual indication of the column tilt angle. This option enhances the tilt operation of the saw by displaying the tilt angle which is viewable from the saw operator control station.

Metal sawing is influenced by several elements or combinations of elements which are always present during the cutting cycle. Some of those elements are:

- Machinability of material
- Condition of material (surface condition and hardness)
- Size and shape of material (cross section)
- Blade condition
- Blade type
- Blade speed and feed pressure
- Type and condition of coolant

Because so many factors affect the performance of a cut, the information given in cutting charts and guides should be used as a starting point when setting feed pressure and blade speeds.

FEED PRESSURE

Generally, the feed pressure increases as the material size or cross section increases.

CUTTING RATE

The actual cutting rate achieved depends on the feed pressure, blade speed, blade type, condition, etc.

If the cutting rate is too low, the saw chips will have a powdery appearance. If the cutting rate is too high, the chips will be thick and cause the teeth to strip. The proper cutting rate will produce a clean, curled chip.

BLADE SPEED

The blade speed is expressed in surface feet per minute (SFPM). To obtain recommended blade speeds for a particular material consult information supplied by the blade manufacturer. For this machine, consult information for a (1.25") blade.

NOTE: The following page may be used to record your most commonly cut materials and their appropriate feed pressure and blade speed.

CAUTION



Avoid personal injury and/or damage to the saw. Do not operate this saw until you are thoroughly familiar with the function and location of each operator control and the safety warnings and cautions associated with the operation of this saw.

This section describes normal operation of the Marvel Series 8 metal cutting band saw, step by step, from the pre-operation check list to the final shut-down. This section assumes the operator is already familiar with the function and location of the components described in the Machine Description section.

IMPORTANT

WARNING



Never operate a defective or broken saw, a saw with missing parts or a saw that has been altered in any way. Serious injury can result.

WARNING



Never operate the saw with guards or covers removed. Serious injury can result.

WARNING



The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

WARNING



Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid

serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.

CAUTION



Never operate the coolant pump without coolant in the reservoir. Damage to the pump will occur.

PRE-OPERATION CHECKLIST

This check list should be performed at the beginning of each shift and by each operator. Completing this check list will help maintain peak saw performance, increase blade life, reduce down-time and provide a safer machine for the operator.

- Obey all warnings and cautions.
- Review and comply with the safety message and warnings on the inside front cover of this manual, those in the Machine Description and the Operation sections of this manual and those posted on the machine.
- Turn the machine's power off with the main electrical disconnect switch and lock the switch in the "Off" position.
- Turn the machine's air supply off with the air lock-out valve and lock the valve in the "Off" position.
- Check that all covers and guards are in place and secure.
- Remove unnecessary tools and equipment from the saw and surrounding area.
- Inspect for damage and leaks. Repair before operating.

- Inspect the band wheels and blade guides and remove chips.
- Inspect the blade wiper and chip brush. Replace them if worn. See Maintenance section.
- Check the coolant level and condition. Add coolant if necessary, change the coolant if contaminated or excessively dirty. Refer to "Coolant Changing Procedures" in the Maintenance section.

MACHINE SET-UP

These steps should be performed for every new cutting operation.

1. Perform the pre-operation check list on page F-1.
2. Position the following switches as indicated:
 - A. Adjust the BLADE SPEED for the material to be cut.
 - B. Set COLUMN AUTO RETRACT to Off or On as desired
 - C. Set COOLANT to either ON, OFF or AUTO as desired
 - D. Set COOLANT SYSTEM to either FLOOD or optional MIST if supplied with saw.
 - E. Set BLADE MODE to RUN

CAUTION



When tilting the column, pinch points exist at the front and rear of the column. Keep body parts and other objects clear of the column to avoid injury and/or damage.

3. Manually tilt the saw frame to the desired cut-off angle. Make sure the upper guide arm and blade guard will not strike the vises as damage to the saw will occur.

OPERATION

IMPORTANT: This section assumes the operator is already familiar with the function and location of the components described in the Machine Description section, has thoroughly reviewed and will adhere to all safety warnings in this manual and those attached to the machine.

WARNING



Never operate the saw without the rear cover properly in place. Operating the saw without the rear cover in place exposes moving parts, belts, and pulleys, creating risk of serious injury and/or machine damage.

1. Complete steps 1 through 3 of the "Machine Set-up section above".
2. Turn the main disconnect switch on and the air lock-out valve on.

WARNING



Never load stock which exceeds the machine's design capacity. Personal injury or machine damage will occur.

3. Position the work stock for a trim cut (if necessary), or for the desired cut-off length and firmly clamp it in the vise.
4. Adjust the carriage notching travel limit to limit the saw column's travel and to shut off the machine as desired for work stock notching.
5. Press the POWER pushbutton to turn on the work light, energize the controls and start the coolant pump or the optional oil MIST system.
6. If the saw is equipped with the optional power TILT feature, use the TILT selector

switch to tilt the saw frame to the desired cut-off angle.

CAUTION



If vises are swapped, care must be taken not to cut with the saw column tilted. Doing so will damage the vises. To prevent personal injury, ensure that the blade guard is positioned as close to the material as possible.

7. Position the upper guide arm as close to the work stock as possible. Make sure the upper blade guide arm and blade guard will not strike the vises or the work stock as damage to the saw will occur.

DANGER



If the saw is supplied with the high saw column option, the blade guard extension must be used when cutting materials less than 6" in height. Failure to install the extension will result in cut hands and fingers.

NOTE: When the blade guard extension is not being used, it can be stored to the right side of the control panel. See the following photos for clarification.

8. Push the COLUMN RETRACT pushbutton to retract the column fully.

DANGER



The blade will go in motion when the "Start Blade" pushbutton is pressed. Avoid serious injury or death by keeping all body parts clear of the saw blade at all times.

9. Press the START BLADE pushbutton to start the saw blade.

10. Press the COLUMN FORWARD pushbutton to start the column/blade travel towards the forward position.

11. As the column/blade begins moving forward, set the blade FEED FORCE setting for the material to be cut by adjusting the FEED FORCE knob on the right side of the control panel and reading the control panel mounted FEED FORCE gauge.

CAUTION



When the saw frame is moving, pinch points exist at the front and rear of the column. Keep body parts and other objects clear of the column to avoid injury and/or damage.

12. As the blade begins to enter the work piece, closely watch that clearance exists between the upper blade guide arm / blade guard and the work piece.

13. If necessary, momentarily press the CYCLE INTERRUPT / COLUMN RETRACT pushbutton to stop the saw blade and the column travel. Press and hold the CYCLE INTERRUPT / COLUMN RETRACT pushbutton to stop the saw blade and to cause the blade feed travel to simultaneously reverse.

IMPORTANT: Always check the accuracy of the first cut before performing more cuts. Make any adjustments that may be necessary.

14. At the completion of the cut, the saw blade will automatically stop and the saw column will automatically retract if the COLUMN AUTO RETRACT is in the ON position.

15. Press and hold the CYCLE INTERRUPT / COLUMN RETRACT pushbutton to manually retract the saw column. If no additional cuts are required, go to the next step. To continue cutting:

- A. Unclamp the work stock from the vices, reposition the work stock for the next cut and clamp work stock in vices.
- B. Press the “START BLADE” pushbutton to start the saw blade.
- C. Repeat steps 10 through 15 until all cuts have been completed.


16. When all cuts have been completed:


- A. Turn the COOLANT switch to the OFF position.
- B. Press the STOP pushbutton to de-energize the saw.
- C. Turn the main electrical disconnect switch to OFF and lock it in position.
- D. Actuate the compressed air LOCKOUT VALVE and lock it in position.

SETTING SAW BLADE TO A 3° FORWARD CANT

The Series 8, Mark III saw has a new feature that allows the operator to set the saw blade to a 3° forward cant. This feature is helpful in starting cuts more efficiently in thicker materials.

Set the saw blade to a 3° forward cant as follows:

WARNING  The door safety interlocks **DO NOT** disconnect the saw from the main power supply. Avoid serious injury or death by turning the main electrical disconnect switch to the "Off" position before adjusting, servicing or cleaning the saw.

WARNING  Avoid Serious Injury. Wear Protective work gloves and safety face shield when adjusting blades.

WARNING



Avoid serious injury. Keep away from the drive and avoid direct contact with accessories during use of the air ratchet. Loose clothing, jewelry, and hair can be caught in the ratchet and cause choking, scalping, or other serious injury.

WARNING



Always wear impact-resistant eye protection when involved with the operation, repair, or maintenance of the air ratchet or when changing accessories on the tool. Ensure that all other in the area are also wearing eye protection. Even small projectiles can injure eyes and cause blindness.

CAUTION



Use only proper accessories designed for use with pneumatic screwdrivers, nut-runners, ratchets, and pulse tools.

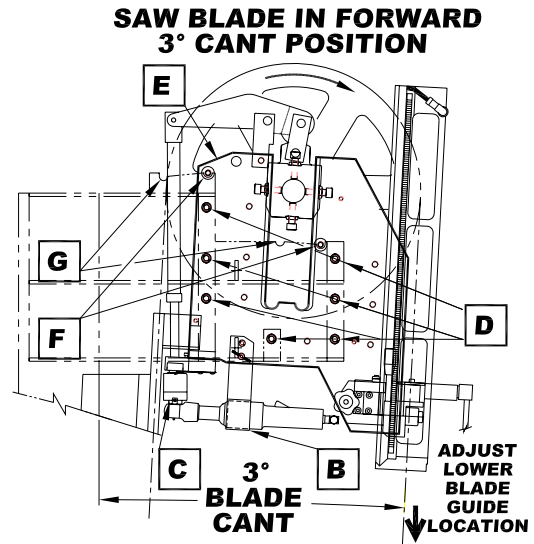
CAUTION



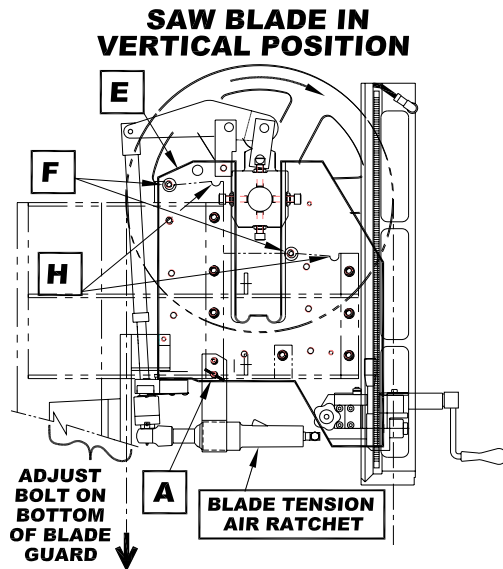
Unexpected blade movement may occur and should be anticipated at any time after the blade tension has been reduced. The blade may drop off of the upper band wheel or disengage from the lower band wheel and spring into a coiled shape.

1. Position the saw in the full back position.
2. Disconnect electrical power using the main disconnect on the front of the main control panel.
3. Open the upper band wheel doors carefully.
4. Operate the Blade Tension Air Ratchet to reduce the tension on the blade enough to remove the blade from the upper band wheel.

5. Open the lower band wheel doors and the upper blade guard carefully. Remove the Blade Tension Air Ratchet from Blade Tensioner mechanism by removing the M8 Thumb Screw (A) on top of the Ratchet Support (B) to remove the ratchet from the support. See the following illustrations.
6. Rotate the blade 90° by using the levers on the upper & lower blade guides. See Blade Changing section.
7. Disengaging the ratchets output shaft from the torque limiter (C) and sliding the ratchet out of the Ratchet Support.
8. Using the air ratchet, remove the seven (7) M12 socket head cap screws with lock washers (D) from the Tilt Plate (E) and loosen the bolt on the bottom of the blade guard next to the column, below the table top. See the following illustrations.

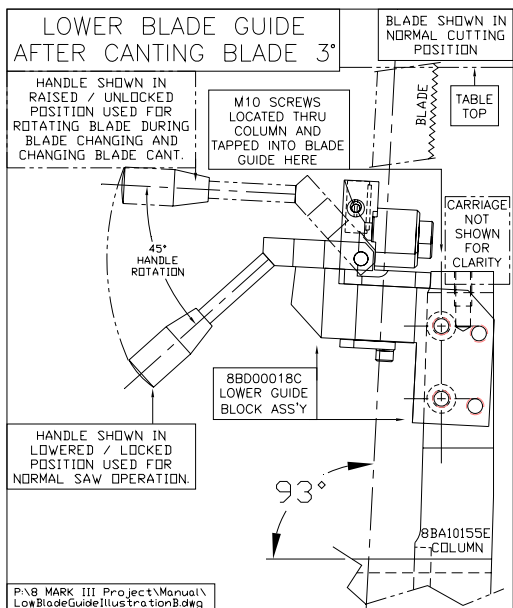
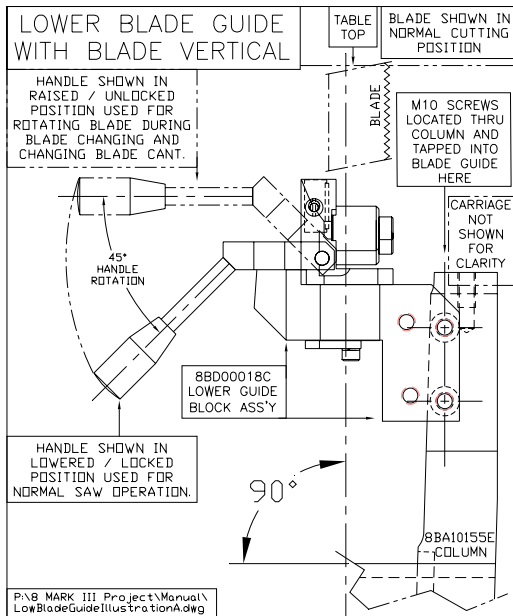


9. Lift the Tilt Plate slightly to lift the two (2) 16 mm shoulder bolts (F) out of the Rear Plate Locating Slots (G).
10. Move the Tilt Plate forward to set the shoulder bolts into the forward set of Plate Locating Slots (H).
11. Using the Air Ratchet, tighten the seven (7) M12 socket head cap screws with lock washers into Tilt Plate to secure it to the column.



12. Move the lower blade guide to the position shown below to allow the 3° Blade Cant. See the following illustrations.

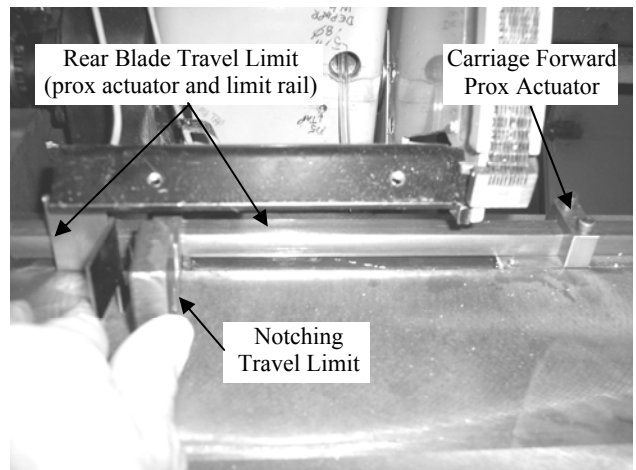
- A. Remove the two (2) M10 bolts from the blade guide mount.
- B. Reposition blade guide & thread two (2) M10 bolts into the second set of blade guide tapped holes.
- C. Rotate the blade 90° into the cutting position by using the levers on the upper & lower blade guides.



13. Secure the Air Ratchet to the Blade Tensioner mechanism (see step 5 above) and apply tension to the saw blade. See Blade Changing section.

14. The actuator, prox carriage forward must be moved when the blade is canted forward 3°. To enable the saw to cut the full width of stock given in saw specifications, complete the following steps. See following photo for clarification.

- A. Remove the two (2) M5 screws that connect the prox actuator to the prox actuator rail.
- B. Move the prox actuator to the rear set of holes on the prox actuator rail.
- C. Insert two the two (2) M5 screws through the prox actuator and tighten the actuator to the rear set of holes.



Regular maintenance of your Marvel band saw will help it deliver consistently accurate performance. This section begins with a suggested maintenance schedule and is followed by instructions for all common maintenance procedures. Read through an entire procedure before performing any maintenance. Extensive repairs should be performed by a qualified technician.

IMPORTANT: Before performing maintenance on this machine, become familiar with the function and location of the components described in the previous "Machine Description" section.

NOTE: Refer to the Trouble Shooting Guide for help in determining the possible causes of a problem. See Blade Changing section.

MARVEL SERVICE TECHNICIANS

Should you require the help of a Marvel Service Technician, contact your Marvel distributor or call Marvel Manufacturing Co. Inc, Oshkosh, Wisconsin, 920-236-7200 or toll free (1-800-472-9464).

MAINTENANCE SCHEDULE

DAILY

- Clean chips from the mechanical surfaces, vise jaws, band wheels, blade guides, blade wipers, chip brush and chip pan.
- Inspect the blade, blade wipers, blade guides and chip brush for wear. Replace worn parts.
- Check the compressed air lubricator for proper oil level.

QUARTERLY (EVERY 3 MONTHS)

- Clean the coolant reservoir and screen.
- Lubricate the carriage feed chain.
- Inspect the drive belts for proper tension and condition.

- Check the oil level in the carriage feed worm gearbox. Add Mobil SHC634 or equivalent oil as necessary

CLEANING

Regular cleaning of the saw is an essential part of maintenance. Failure to clean the saw will result in inaccurate cuts, worn parts, reduced blade life and costly repairs.

WARNING



The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

The band wheels, blade guides, blade wipers, vise jaw faces, saw table, chip brush and vise ratchets should be kept as free of chips as possible. Chips that accumulate on these parts will cause wear and reduce the quality and accuracy of the cut.

WARNING



Do not use compressed air to clean the machine. Flying debris can cause serious injury.

WARNING



Avoid damaging the saw. Clean the operator's panel only with ammonia free household cleaners. Do not use benzene, toluene, ketone or esters.

LUBRICATION

Under normal use, the Marvel Series 8 requires very little lubrication. The few areas that do require periodic lubrication are described here.

NOTE: All bearings have been grease packed for life and should require no further attention.

COLUMN TRAVEL FEED CHAIN Every three months the feed chain should be lubricated with light-weight oil.

COLUMN TRAVEL GEAR BOX The column travel gear box is shipped with 170 grams (6.0 oz.) / 195 CM³ (11.9 in³) of Mobil SHC-634 transmission oil.

The gear box is mounted below the table and is supplied with a dipstick that is accessible from the top of the table. Clean the area around the dipstick to prevent contaminants from dropping into the gear box as the gear box does not have a drain port.

To check oil level, remove the dipstick. If there is no oil on the dipstick, the oil level is low. Add Mobil SHC-634 or equivalent synthetic, hydrocarbon based oil that is compatible with Buna-N seals.

NOTE: See the Gear Box Assembly drawing for additional detail.

COMPRESSED AIR LUBRICATOR The compressed air lubricator is mounted on the outside of the motor enclosure and is not pre-filled with lubricant. This lubricator has a 0.6 oz (18 CM³) capacity and should be filled with SAE #10 oil or a compressed air lubricant that is compatible with Buna-N seals.

WARNING Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and



to avoid serious injury during normal saw operation.

WARNING



The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

To fill the lubricator, shut the saw down and lock out the air supply, using the lockout valve to release air pressure from the system. Remove the 1/4" turn quick-disconnect bowl and fill the lubricator as needed.


NOTE: The lubrication rate should be set to 2 drops per minute.


The lubrication rate can be viewed through the lube rate sight dome, located between the top lube rate adjustment knob and the body of the lubricator. Remove the air ratchet from the blade tensioner and activate the air ratchet trigger continuously while setting the lubrication rate.

NOTE: See the Lubricator section in Machine Description for additional details and an illustration of the Filter/Regulator/Lubricator assembly.

NOTE: See the Pneumatic Schematic for additional detail regarding the lubricator and compressed air system.

OIL RESERVOIR The oil reservoir is mounted to the end of the table inside the motor enclosure. The reservoir is filled at the factory with ISO 46 petroleum-based hydraulic oil.

WARNING  Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.

WARNING  The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

During normal operation, the oil reservoir does not require filling. If the feed clutch cylinder is removed from the system or the air line between the cylinder and the reservoir is disconnected, the reservoir must be refilled with oil and the air bled from the system.

To refill the oil reservoir:


1. Shut down power to the saw and lock out the air supply.
2. Remove the air tube from the top of the oil reservoir by pushing in the collar of the air fitting while pulling out the air tube.
3. Fill the reservoir with ISO 46 petroleum-based hydraulic oil (Mobil DTE-25 or BENZ Oil PTL-46).
4. Bleed air from the system while filling the reservoir.
 - A. Remove the air tube from the cylinder piston end fitting and allow the oil to


discharge into a container while removing air bubbles from the tube line.

- B. When only clear oil is discharging from the tube, push the tube into the cylinder piston end fitting.

NOTE: It is acceptable to have a minimal number of small air bubbles in the air line. These will clear during normal operation.

MIST LUBRICATION SYSTEM (optional)
The mist lubrication system is mounted on top of the motor enclosure with the mist lubrication nozzle adjacent to the upper blade guide above the table.

WARNING  Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.

WARNING  The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.


Rate of lubrication will vary depending on operation of the saw, saw blade selection, materials cut, and speed and feed rates. A starting rate of 1 drop per 6-10 seconds is recommended. With proper drop rate and cutting conditions, near-dry cutting can be achieved.


The mist lube system is manufactured by Unist. The 16-ounce reservoir is filled at the factory


with 8 ounces of Unist Coolube 2210 vegetable-based cutting fluid. Coolube 2210 is recommended for non-ferrous cutting, and Coolube 2210EP for ferrous cutting. Use of other lubricant will void the Unist warranty.


NOTE: Some coolant types can cause varnish build-up that plugs the air atomizer spray nozzles supplied with the mist lubrication system. Care should be taken in selecting alternate lubricants.


BLADE CHANGING PROCEDURE


WARNING  The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

WARNING  Avoid serious injury. Wear protective work gloves and safety face shield when handling blades.


WARNING  Avoid serious injury. Coiled blades are under tension and can spring open. Use extreme caution when uncoiling a blade.

WARNING  Avoid serious injury. Keep away from the rotating drive and avoid direct contact with accessories during use of the air ratchet. Loose clothing, jewelry, and hair can be caught in the ratchet and cause choking, scalping, or other serious injury.

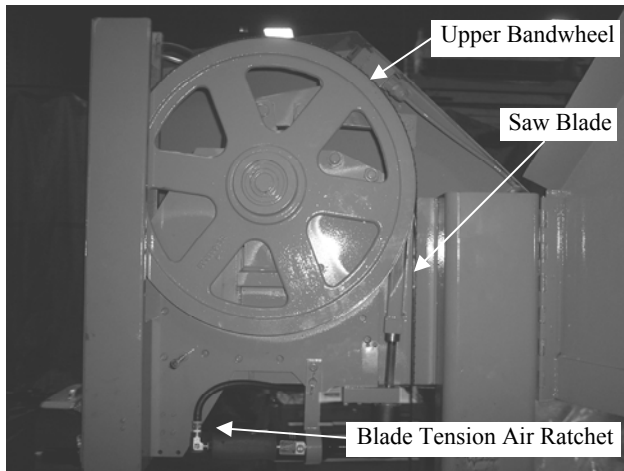
WARNING  Always wear impact-resistant eye protection when involved with the operation, repair, or maintenance of the air ratchet or when changing accessories on the tool. Ensure that all other in the area are also wearing eye protection. Even small projectiles can injure eyes and cause blindness.

CAUTION  Use only proper accessories designed for use with pneumatic screwdrivers, nut-runners, ratchets, and pulse tools.

1. Move the saw column to the fully retracted position.
2. Tilt the column to the vertical position.
3. Disconnect the saw from the main power supply and lock the disconnect switch in the "Off" position.

CAUTION  Unexpected blade movement may occur and should be anticipated at any time after the blade tension has been reduced. The blade may drop off of the upper band-wheel or disengage from the lower band-wheel and spring towards a coiled shape.

4. Open the upper band wheel doors carefully. In the event that the blade is broken, the blade ends may spring out from the upper door as the doors are being opened.
5. Operate the Blade Tension Air Ratchet to reduce the tension on the blade enough to remove the blade from the band wheels.

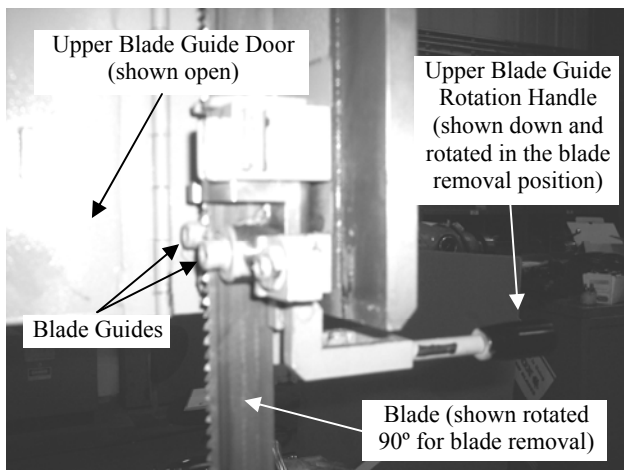


- Open the lower band wheel doors and the upper blade guard carefully. In the event that the blade is broken, the blade ends may spring out from these areas as they are being opened. See photo above.

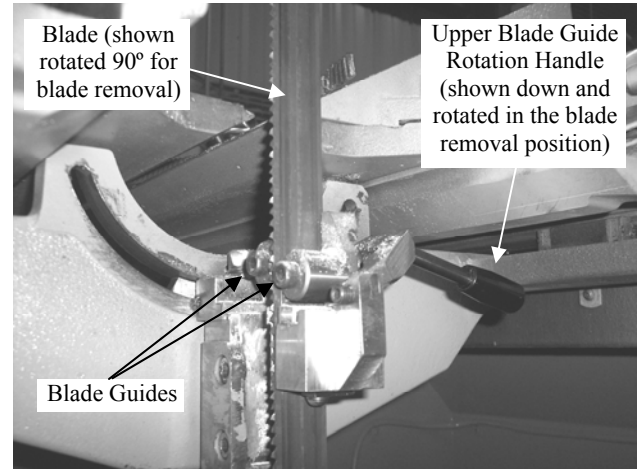
CAUTION The main compressed air lockout valve must be turned off and locked before adjusting, servicing, or cleaning the saw.



- Unclip and lower the Upper Blade Guide Block blade "Rotation Handle" 90° downwards from its raised/seated position. Using the handle, rotate the blade 90° from the cutting direction. See following photo.



- Lift the Lower Blade Guide Block blade "Rotation Handle" 45° upwards from its lowered/seated position. Using the raised handle, rotate the blade 90° from the cutting direction. See following photo.



IMPORTANT: When removing and installing blades, it is not necessary to adjust the settings of the blade guides. Blade guide rotation adjustment and/or blade preload settings are explained in the upcoming Maintenance section.

WARNING Avoid serious injury. Worn blades, broken blades and new coiled blades are under tension and can spring open or off of a band wheel at any time. Use extreme caution when uncoiling a new blade.



- Remove broken or worn blade from saw.
- Uncoil a new blade and hold it in both hands so the teeth in your left hand are pointing down and towards yourself. See following photo.

NOTE: If the teeth on the left side on the loop are not pointing down, twist the blade inside out.

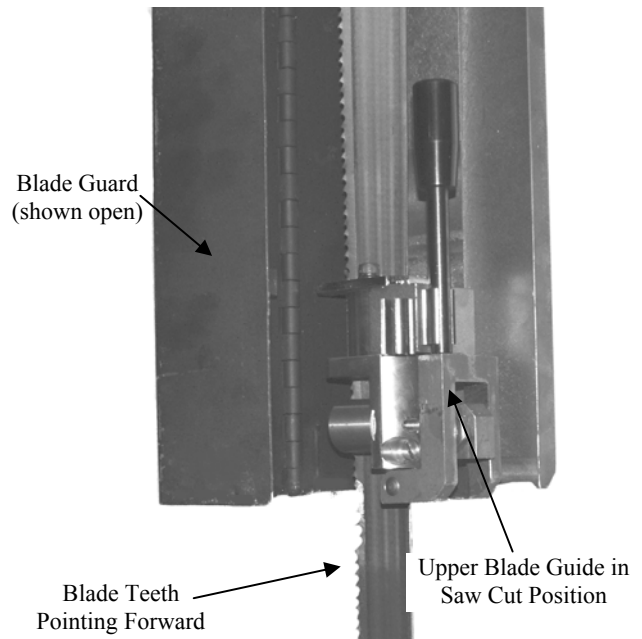


Note the position of the blade's teeth in your left hand. They should point down and towards your body.

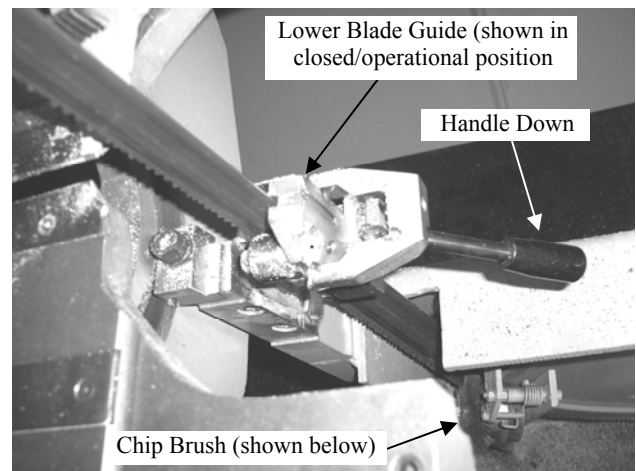
11. Lower the bottom loop of the blade through the opening in the saw table and place the upper loop around the upper band wheel.
12. Insert the blade in the guard which runs the vertical length of the saw column.
13. Insert the blade in the slots of the upper and lower blade guides but do not rotate the blade into position at this time.
14. Place the lower loop of the blade around the lower band wheel. Pay particular attention to getting the blade behind the chip brush.
15. Unlock the air supply and operate the Blade Tension Air Ratchet to provide enough tension on the blade to prevent the blade from slipping off the band wheels. Make sure the back edge of the blade is approximately 1/32" (0.8mm) from the flange of each band wheel.

IMPORTANT: The blade's teeth should point away from the blade guides and down towards the saw table as shown in the photograph below. If they do not, remove the blade from the saw and reposition the blade as described in step 10.

16. Using the handles of the Upper and Lower Blade Guide Blocks, rotate the blade 90°, inline with the cutting direction and position the handles back into position for saw operation.
17. Operate the Blade Tension Air Ratchet to tension the blade until the torque limiter stops the rotation of the ACME screw above the air ratchet.



NOTE: For longer blade life, reduce the feed force of the blade approximately 50 percent for the first 50 square inches of material cut.




18. Confirm that the back edge of the blade is approximately 1/32" (0.8 mm) from the flange of each band wheel.
19. Unlock the main power supply disconnect and switch to the "ON" position.
20. Turn the BLADE MODE switch to the TRACK position.
21. Push the POWER pushbutton to apply power to the controls.
22. Push the START BLADE pushbutton to allow the blade to travel at low speed.

23. Carefully observe the tracking of the blade on the upper and lower band wheels while the band wheel doors are open, making sure that the blade is still no more than 1/16" (1.6 mm) from the flange of each band wheel as it is operating. Blade tracking adjustments are explained in the upcoming MAINTENANCE section.
24. Carefully observe the upper and lower blade guides for blade binding. Blade guide and pressure block adjustments are explained in the upcoming MAINTENANCE section.
25. Press and hold the CYCLE INTERRUPT / COLUMN RETRACT pushbutton to stop the blade and retract the column after confirmation that the blade is tracking on the band wheels and blade guides as noted above.
26. Close the front blade guard and the band wheel doors. The saw is now ready for normal operation.

REPLACING THE WORK LAMP BULB

The bulb in the work lamp is designed for use in a rough and vibration prone environment. It should be replaced with a similar bulb. The recommended bulb is a Sylvania # 0-64156, 24V, 70W (Marvel # PEA-0135) bulb. Never install a bulb larger than 70 watts.

WARNING  **The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.**

1. Caution should be taken when taking apart the WORK LAMP assembly as the bulb and lamp guard may be very hot. Unscrew the lamp guard and remove old bulb.
2. When installing the new halogen bulb, it is important to keep the bulb clean and oil free. Do not touch the new bulb with your bare fingers as the oils from your skin will be


deposited on the bulb, causing premature failure of the bulb due to heat build-up in that area.

3. When reinstalling the clear lamp guard, make sure all gaskets, rings and hardware are reinstalled to prevent fluids and dirt from entering the lamp holder.
4. Turn main electrical disconnect switch to the "ON" position and push the POWER pushbutton to energize the saw's controls and turn on the new light.


COOLANT CHANGING PROCEDURE

Under normal use, the coolant should be changed and the saw chips should be cleaned from the coolant reservoir every three months.

1. Turn off the saw's main electrical disconnect.

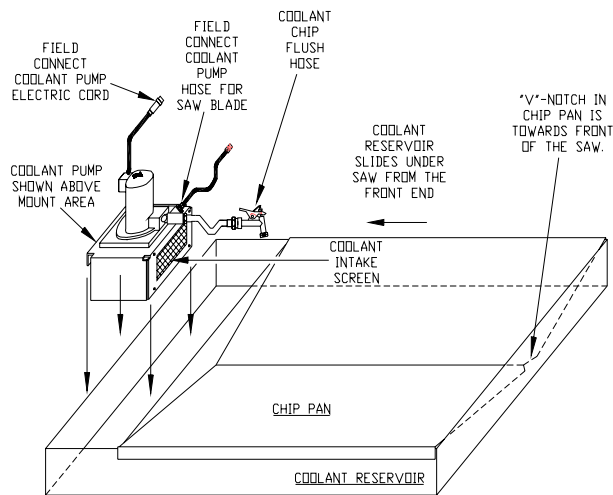
WARNING  **The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.**

2. Drain the coolant (approx. 20 gallons or 75 liters) into an appropriate container.
3. Clean the chips from the chip pan

WARNING  **Do not use compressed air to clean the machine. Flying debris can cause serious injury.**

4. Remove the chip pan from the top of the coolant reservoir.

- Remove the coolant pump intake screen and wash it off with a stream of water. Inspect the screen for holes and tears. Replace the screen if damaged.



The illustration above identifies the parts mentioned in the text. No tools are required to disassemble and clean the coolant reservoir.

- Clean the chips from the coolant reservoir and chip pan with a lint free rag and reinstall the chip pan close to the pump end of reservoir.
- Reinstall the intake screen on the coolant pump assembly and set assembly into the coolant reservoir.
- Add approximately 20 gallons (75 liters) of new coolant, mixed according to the coolant manufacturer's instructions, to the reservoir.

BLADE GUIDE ADJUSTMENT AND REPLACEMENT

The blade guides require little maintenance, however, when blades begin to appear scored or when cuts become consistently uneven, it may indicate the guides need to be adjusted or replaced.

- Move the saw column to the full retract position.
- Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.

WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



- Open the upper and lower band wheel covers and the upper blade guard to provide full access to the blade guides.
- Rotate the top and bottom blade guide blocks 90° to position the blade 90° from its normal operating position.
- If you are adjusting the blade guides, loosen the button head screws shown in the photo below and turn each guide about 1/8 turn until an unused portion of the guide comes into contact with the blade. Retighten the button head screws.

NOTE: The blade guides are designed to be stationary during blade operation without rotating.

If you are replacing the guides, remove the old guides and install new ones.


- Apply full blade tension to the blade. Rotate the top and bottom Blade Guide Blocks 90° into the saw's operating position and confirm proper blade tracking as described in the previous BLADE CHANGING PROCEDURE.

BLADE PRESSURE BLOCK ADJUSTMENT AND REPLACEMENT

Each guide block has a blade pressure block which supports the back of the blade during a cut. The pressure blocks are mounted on an eccentric pin so the plates can be adjusted as they wear. The pressure plates are easily adjusted by performing the following steps.

IMPORTANT: Install a new blade before adjusting the pressure blocks.

1. Move the saw column to the full retract position.
2. Turn off the machine's main electrical disconnect switch and lock it in the "Off" position.

WARNING  The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

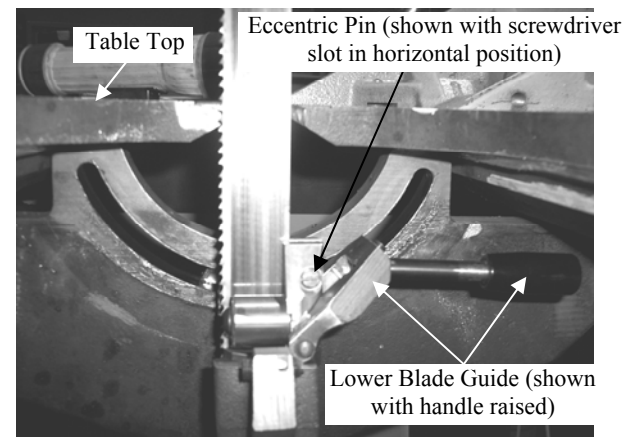
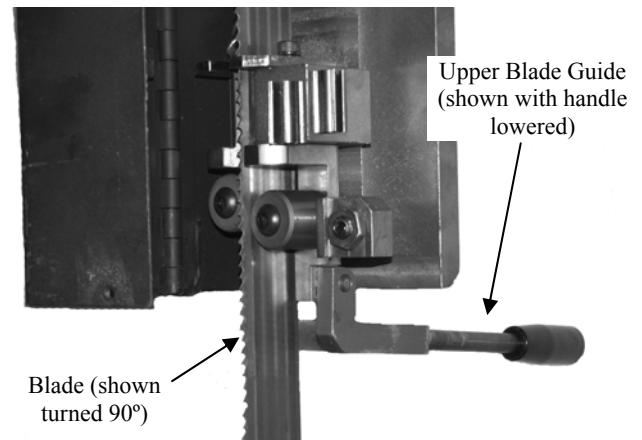
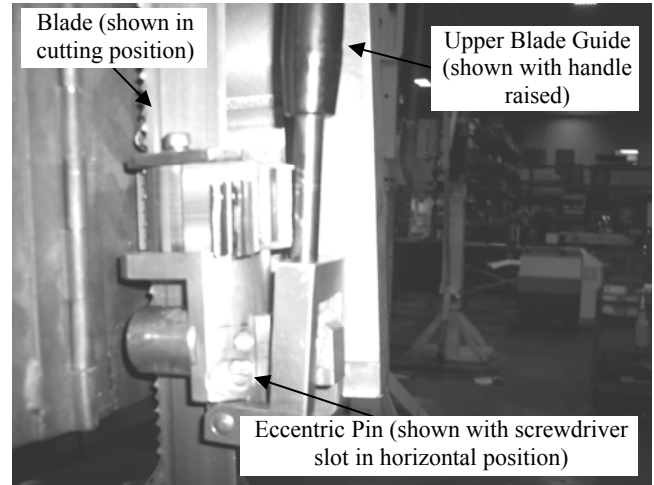
3. Open the upper and lower band wheel doors and the blade guard.
4. Raise the upper guide arm as high as it will go and lower the lower guide arm.
5. Rotate the top and bottom blade guide blocks 90° to position the blade 90° from its normal operating position.

The eccentric pins (one per guide block) are slotted for easy adjustment with a screw driver. Because each pin's eccentric lobe lines up with the screwdriver slot, when the slot is horizontal the guide block is either fully retracted or fully extended. It is not necessary to turn an eccentric pin more than 180° to retract the pressure block.

6. Turn each pin counterclockwise to retract the pressure blocks fully from the blade.


NOTE: If you are replacing the pressure blocks, remove the eccentric pin and replace the old

pressure block with a new one after loosening the blade slightly as described in the previous blade changing procedure. Make sure the new block is installed so the carbide edge will be in contact with the blade. After installing the new block, leave it in the retracted position and go to step 7.



In the photos of an eccentric pin, the screwdriver slot is horizontal indicating the pressure block is either fully extended or fully retracted.

7. After both guide blocks have been retracted from the saw blade, rotate the top and bottom blade guide blocks 90° to position the blade in its normal operating position.
8. Tighten the blade as described in the previous blade changing procedure.
9. Close the blade guard and all band wheel covers.
10. Push the POWER pushbutton to energize the controls, put the BLADE MODE selector switch in the TRACK position and push the BLADE START pushbutton to momentarily run the blade. This will seat the blade on the band wheels and in the blade guides.
11. Turn off the machine's power with the main electrical disconnect switch and lock it in the "Off" position.

WARNING  **The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.**


12. Open the upper and lower band wheel covers and the blade guard.
13. Turn the lower eccentric pin until the face of the pressure block comes into contact with the back edge of the blade and then turn the pin 1/8 turn (45°) more to preload the blade.
14. Turn the upper eccentric pin until the guide block forces the blade into vertical alignment. Blade alignment can be checked by placing a square on the saw table and against the back of the blade.
15. Repeat steps 9 and 10 to return the saw to its operating condition.

BLADE GUIDE CARRIER ALIGNMENT

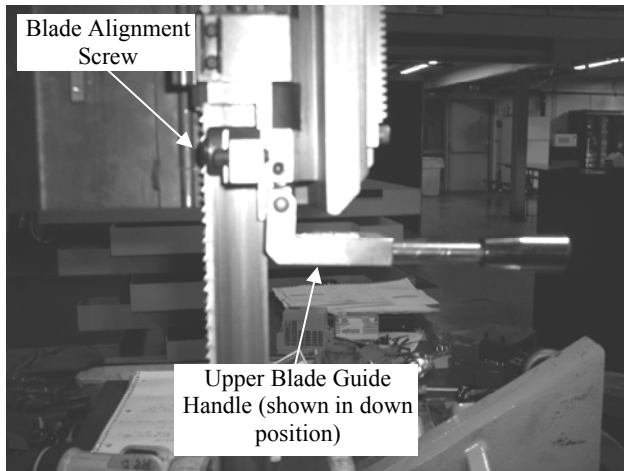
The blade guide carriers can be adjusted so the rear edge of the blade can be aligned behind the blade's teeth. If your blade appears crooked in the cut, or is worn or scored on one side, aligning the blade guides should correct the problem.

NOTE: Before aligning the blade guide carriers, inspect the blade guides for wear and adjust or replace the guides as needed.

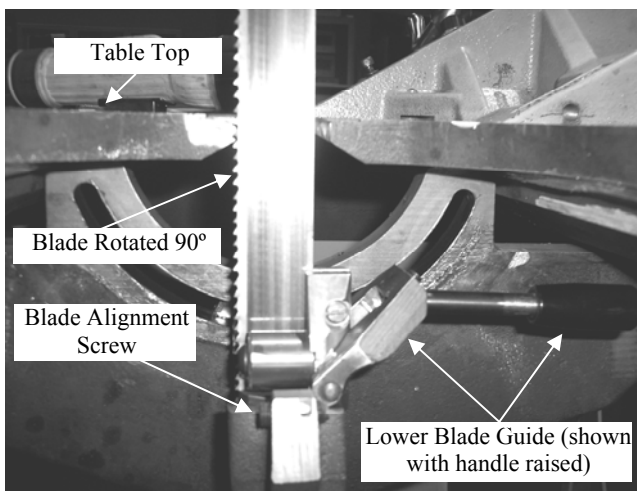
1. Move the saw column to the full retract position.
2. Turn off the machine's power at the main electrical disconnect switch and lock it in the "Off" position.

WARNING  **The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.**

3. Open the upper and lower band wheel doors and blade guards.
4. The upper and the lower blade guide blocks can each be adjusted independently for blade alignment. Each has a socket head ALIGNMENT SCREW.
5. Note the direction that the blade is required to be twisted for proper alignment.
6. Unclip and lower the Upper Blade Guide Block blade "Rotation Handle" 90° downwards from its raised / seated position but do not rotate the blade. This will expose the end of the socket head ALIGNMENT SCREW. See following photo.



7. Turn the ALIGNMENT SCREW into or out of the GUIDE BLOCK ASSEMBLY, depending on which direction additional blade twist is required.
8. Raise and clip the “Rotation Handle” back into position.
9. Lift the Lower Blade Guide Block blade “Rotation Handle” 45° upwards from its lowered / seated position but do not rotate the blade. This will expose the end of the socket head ALIGNMENT SCREW. See following photo.



10. Turn the ALIGNMENT SCREW into or out of the GUIDE BLOCK ASSEMBLY, depending on which direction additional blade twist is required.
11. Lower the “Rotation Handle” back into position.

12. Close the blade guard and all band wheel covers.
13. Turn electrical power on and Push the POWER pushbutton to energize the controls, put the BLADE MODE selector switch in the TRACK position and push the BLADE START pushbutton to momentarily run the blade. This will seat the blade on the band wheels and in the blade guides.
14. Turn off the machine’s power at the main electrical disconnect switch and lock it in the “Off” position.

WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



15. Check the blade alignment by placing one leg of a machinist square against the surface of one of the work piece clamp vises. Lay the other leg of the square along side the saw blade to determine if the blade is inline with the direction of column travel.

BLADE WIPER REPLACEMENT

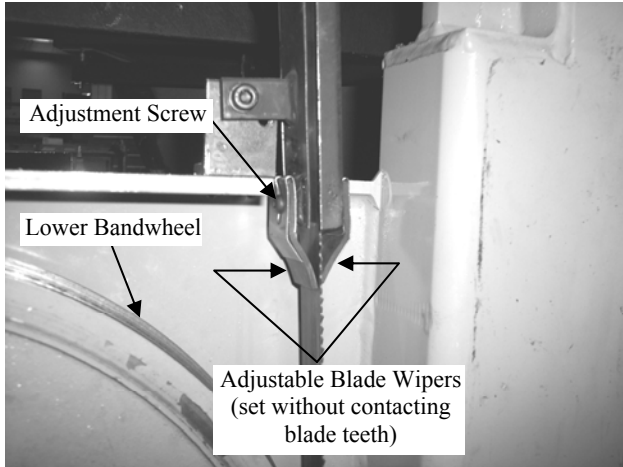
WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



The blade wipers, mounted inside the lower band wheel housing, towards the rear of the saw column, helps remove coolant and chips from the saw blade which reduces wear on the blade and blade guides. The wipers should be replaced when they begin to show wear.

1. Turn off the machine's power at the main electrical disconnect switch and lock it in the "Off" position.


2. Remove the blade from the saw. See Blade Changing Procedure.
3. Loosen the machine screws that secure the blade wipers, remove the wipers and install a new one.



One set of the blade wipers is located next to the lower band wheel.

4. Install a new blade. See Blade Changing Procedure.
5. Make sure the blade wipers are in full contact with the blade but not contacting the blade teeth. Adjust as required.

CHIP BRUSH REPLACEMENT

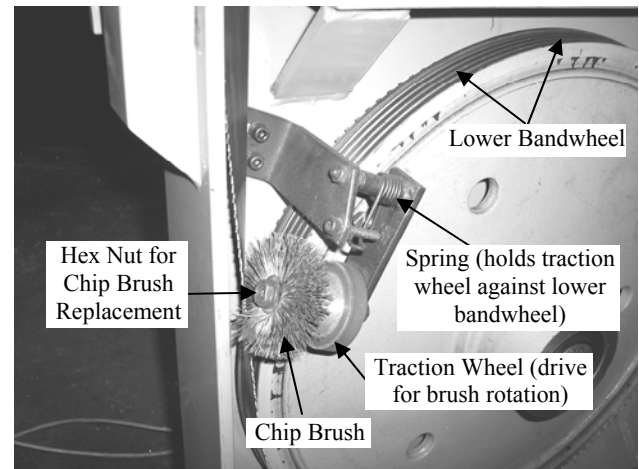
WARNING  The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

The chip brush removes saw chips from the blade to prevent them from being carried into the band wheels and blade guides where they can cause significant wear. It is important to always have a functioning chip brush on the machine.

To replace a worn chip brush:

1. Move the saw column to the full retract position.

2. Turn off the saw's main electrical disconnect switch.
3. Open the lower band wheel covers.
4. Remove the nut that holds the chip brush on the drive shaft and remove the brush.



The chip brush is held in place by a single hex nut as shown above.

5. Install a new chip brush and secure it with the nut.
6. Close the band wheel covers.

BLADE TRACKING ADJUSTMENT

Accurate band wheel alignment is necessary for the blade to track correctly. If the blade does not track correctly, blade tension will be unevenly distributed causing the blade to crack and break. The blade should track no more than 1/16" (1.6 mm) from the band wheel flanges.

The upper band wheel has four (4) blade tracking adjustment screws. The screws (socket head cap screws locked in place with hex nuts) are positioned 90° apart on the upper band wheel shaft housing. The lower band wheel is fixed and no adjustment is needed.

To adjust the blade tracking:

1. Make sure the blade is properly tensioned.
2. Lower the blade guard to its lowest position.
3. Open the upper band wheel doors.

IMPORTANT: To adjust the blade tracking as described below, it is necessary to put the **BLADE MODE** selector switch in the **TRACK** position.

WARNING



The blade will go in motion when the "Start Blade" pushbutton is pressed. Avoid serious injury by keeping all body parts clear of the saw blade and exposed moving parts at all times.

4. Press and hold the START BLADE pushbutton. The blade will automatically begin moving at its slowest rate of speed.
5. Observe the blade on the upper band wheel. If the blade is not tracking properly, release the START BLADE pushbutton to stop the blade travel and perform the adjustments as follows.
6. Turn off machine's power at the main electrical disconnect switch and lock it in the "off" position.

WARNING



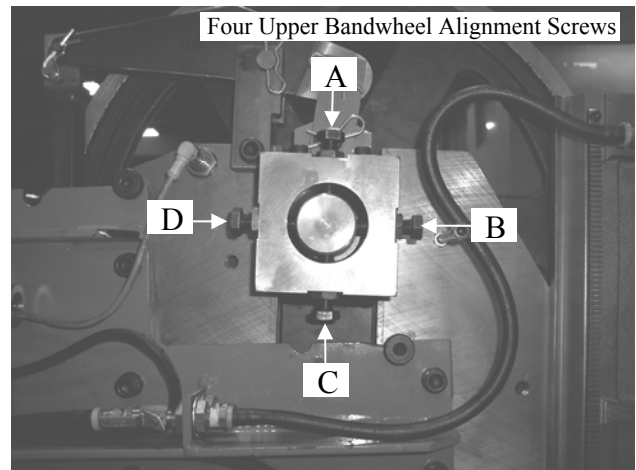
The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

7. Loosen the hex nuts which lock the adjusting screws in position. See following photo.

IMPORTANT: The adjusting screws are always adjusted in pairs. Loosen one screw no more than a half turn at a time and then tighten the opposite screw.

NOTE: Refer to the following photo. The four adjustment screws are identified as "A" thru "D" and identified in the following adjustment steps.

NOTE: The adjustments below are interrelated. One adjustment may affect the other and may need to be performed several times to achieve correct blade alignment.



8. Have an assistant press and hold the START BLADE pushbutton to start the blade travel.
9. Adjusting the band wheel alignment is a process of trial and error. The following guidelines will ease the process:
 - A. If the blade tracks too close to the upper band wheel flange, loosen the top screw "A" and tighten the bottom screw "C".
 - B. If the blade tracks too far from the upper band wheel flange, loosen the bottom screw "C" and tighten top screw "A".
 - C. If the blade tracks close to the front flange of the upper band wheel, loosen right screw "B" and tighten left screw "D".
 - D. If the blade tracks too far from the front flange of the upper band wheel, loosen left screw "D" and tighten right screw "B".
10. After the band wheel has been adjusted, the lock nuts tightened on the adjusting screws and the blade is tracking properly, release the START BLADE pushbutton to stop the blade travel and close the upper band wheel door.

RE-CALIBRATING THE BLADE TENSIONER

Proper blade tension is essential for clean, accurate cuts and long blade life. The blade tensioner torque limiter was calibrated at the factory to provide proper blade tension, however, over time; it may be necessary to be re-calibrated.

IMPORTANT: To accurately recalibrate, the blade tensioner stop requires a blade tension gauge. Refer to your blade manufacturer.

IMPORTANT: A new blade must be installed before performing the following steps. See Blade Changing Procedure.

WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury.

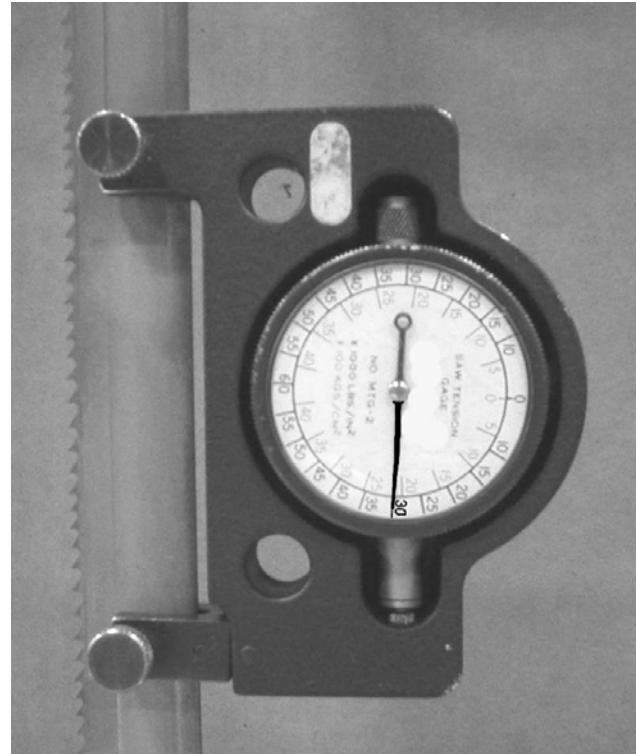


1. Disconnect the saw's main electrical disconnect switch and lock it in the "Off" position.
2. Open the upper and lower band wheel covers and the upper blade guard.
3. Position the upper blade guide so it is 16" to 18" (41 to 46 cm) above the saw table.
4. Reduce the blade's tension with the integral air ratchet unit the blade can be hand deflected approximately 1.5" (38 mm) between the blade guides.

NOTE: If the blade is too loose, it will come off of the band wheels and out of the blade guides.

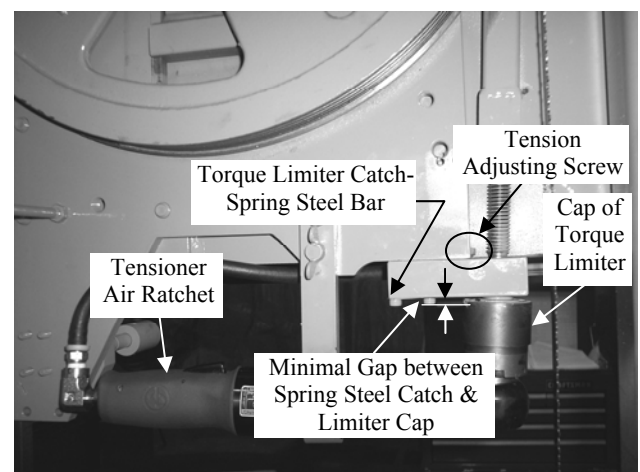
5. Clamp the blade tension gauge on the blade, centered between the upper and lower blade guides. Zero (0) the gauge.
6. Slowly tension the blade, making sure it is properly seated on the band wheels and in the blade guides, until the tension gauge

indicates 30,000 lb/in² (2,200 kgs/cm² or 207 N/mm²).



This photo shows a Blade Tension gauge mounted to the saw blade.

The UPPER BAND WHEEL TENSIONER has an AIR RATCHET that is attached to a torque limiter. The upper part of the TORQUE LIMITER has a rotating member with catch notches. After the blade is brought up to the proper tension, set the tension adjusting screw that moves the spring steel TORQUE LIMITER CATCH so it just touches the catch notches in the TORQUE LIMITER. See following photo.

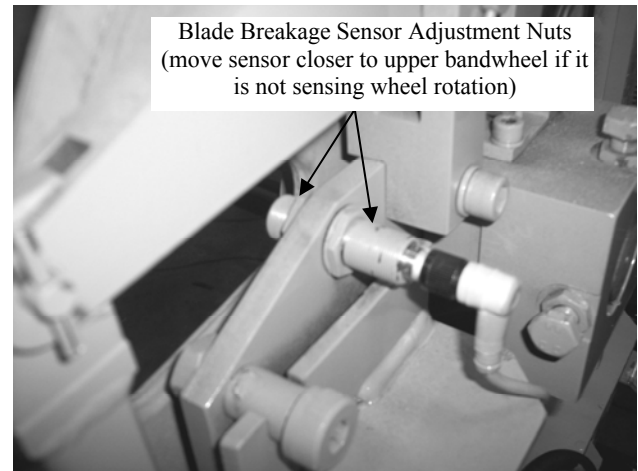


7. After the above adjustment is made, loosen the tension on the blade with the air ratchet, reverse the air ratchet and retighten the blade. If the TORQUE LIMITER CATCH engages in the TORQUE LIMITER notches before the proper tension is reached, the set screw needs to be adjusted to increase the distance between the TORQUE LIMITER and the TORQUE LIMITER CATCH.
8. If the TORQUE LIMITER CATCH does not engage in the TORQUE LIMITER notches when the proper tension is reached, the set screw needs to be adjusted to decrease the distance between the TORQUE LIMITER and the TORQUE LIMITER CATCH.

BLADE BREAK/SLIP SENSOR

The blade break sensor is an important safety feature which automatically stops the saw if a blade breaks and/or if the blade is not under sufficient tension to rotate the upper band wheel. The blade break sensor consists of a proximity switch that senses the rotation of the upper band wheel.

1. If the upper band wheel is not rotating with the lower band wheel, this would indicate the presence of insufficient tension on the saw blade. The saw will immediately stop operating.
2. If the upper band wheel stops rotating and the bottom band wheel continues to rotate, this would indicate that there is a broken blade condition or indicate that the blade has come off of the upper band wheel. The saw will immediately stop operating.
3. If the BLADE BREAK SENSOR arrangement is out of adjustment and the controls indicate that the upper band wheel is not rotating when it is indeed rotating, the proximity switch needs to be adjusted closer to the upper band wheel.



The above photo shows the proximity switch mounted relatively close to the upper band wheel.

POWER FEED SYSTEM

The effective friction operated power feed system balances the speed of the carriage's forward travel with the amount of cutting resistance encountered to provide the optimum cutting speed. Proper operation of this feed system depends on the condition of the cork inserts in the feed pulley and the amount of slack in the feed chain.

INSPECTING AND REPLACING CORK INSERTS

WARNING



Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.

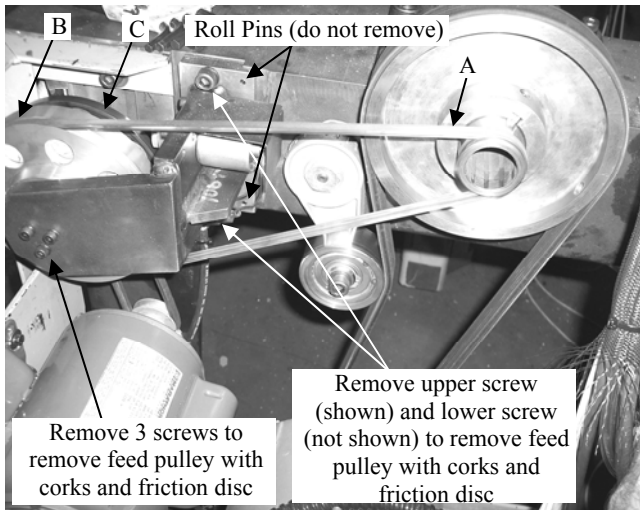
WARNING



The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

There are eight (8) cork inserts in the feed pulley which should be inspected yearly and replaced as needed.

1. Disconnect the saw's main electrical disconnect switch and air supply. Lock them in the "Off" position.
2. Remove the top cover from the motor enclosure.

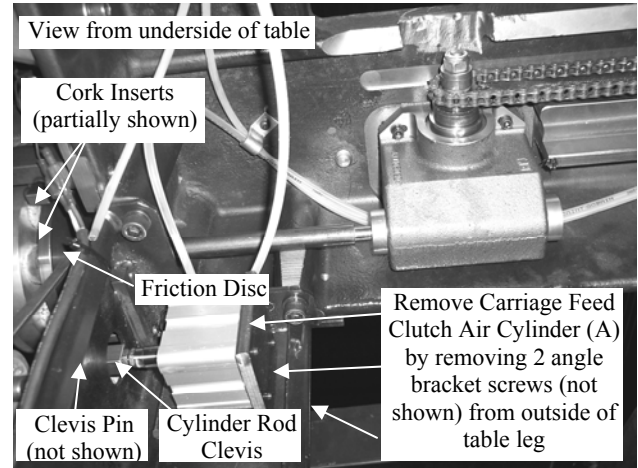


A – High Speed Carriage Belt (stretched onto pulleys)
 B – Feed Pulley with Cork Inserts
 C – Friction Disc

3. Remove the belt (A) from the feed pulley with corks (B). Refer to photo above.
4. Remove the feed pulley with corks (B) from the feed system by removing hardware as required.
5. Inspect the (8) cork inserts for damage. Remove and replace if damaged and/or if they are not clean and dry.

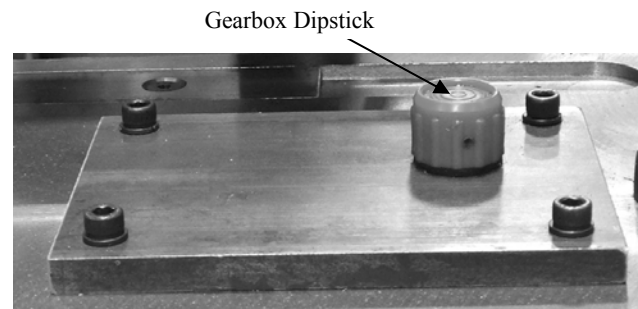
NOTE: If replacement cork inserts do not fit correctly, sand or grind the new inserts to size.

6. Inspect the face of the friction disk (C) for scoring or other damage. Remove and replace if damaged and/or wipe off if not clean and dry.
7. Inspect all bushings for damage and replace as required.



Disconnect air cylinder (A) from the feed system by removing angle mounting bracket and cylinder rod clevis pin. Refer to photo above.

8. Inspect the air cylinder by manually pulling the rod in and out of the cylinder. The cylinder rod should be free from damage and the cylinder should operate smoothly. Replace the cylinder if damaged.
9. Remove the dipstick from the gearbox and inspect oil level. If the oil is not visible on the dipstick, the oil level is low. Add oil with oil as described in the lubrication section of this manual. See following photo.



ADJUSTING THE FEED CHAIN

Proper feed chain tension is important for the smooth carriage/column travel and accurate saw cuts. To adjust the tension of the feed chain:

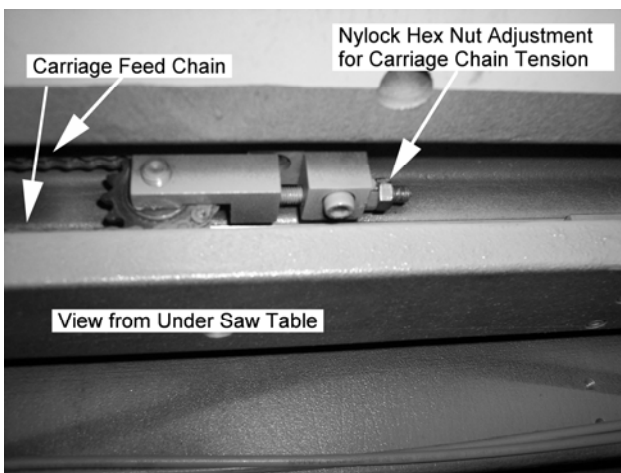
WARNING Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.



WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



1. Position the saw carriage/column in the full back position.
2. Open the lower band wheel access doors.



3. Located the feed chain tension block below the saw table as shown in the photo above

4. The slack in the chain should not exceed ¼” (6.4 mm) total between the top and the bottom strand of the chain.
5. Inspect the chain and chain sprockets for excessive wear. See Feed Chain/Sprocket Replacement section below if required.
6. If additional chain tension is required, tighten the M8 Nyloc hex nut to the desired setting.
7. Connect the electric and air supply to the system and cycle the carriage / column forward and back several times to confirm proper chain tension.

FEED CHAIN/SPROCKET REPLACEMENT

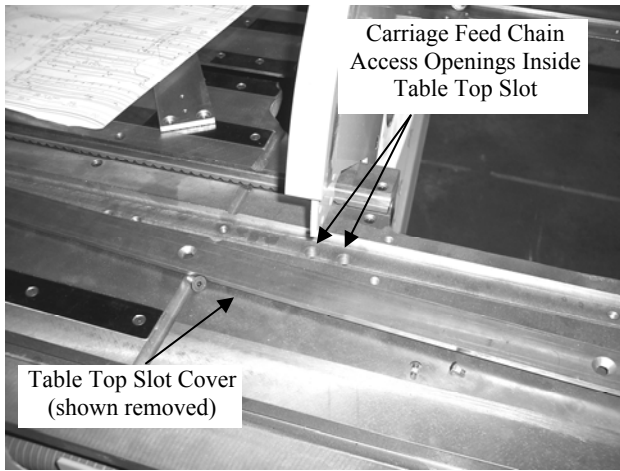
WARNING Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.



WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



1. Position the saw carriage/column in the full forward position, making sure that the feed chain attachment bolts are visible through the access openings on the table top in the area that the chain attaches to the carriage. See following photo.



2. Open the lower band wheel access covers and loosen chain as described in the above section.
3. Remove the two bolts through the table top that connects the chain attachment block to the carriage.
4. Remove and replace the chain, the chain sprocket from the gear box and the chain sprocket from the chain tension assembly as required.
5. Lubricate new chain with a light weight oil and tension the chain as described in the above section.

CARRIAGE FEED BRAKE ADJUSTMENT/REPLACEMENT

WARNING



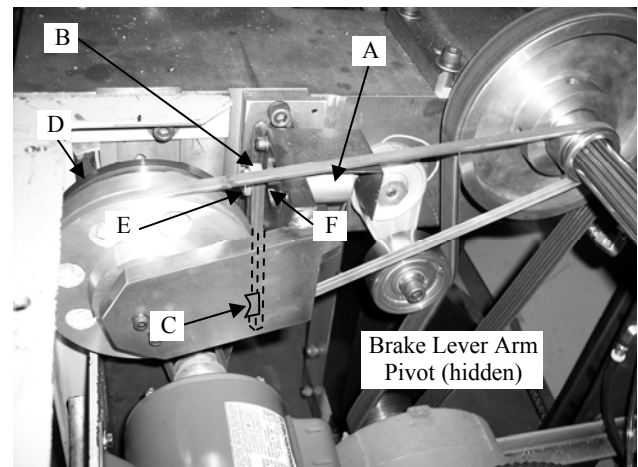
Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.

WARNING



The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.

1. The Carriage Brake assembly consists of a Linear Solenoid (A) connected to a Brake Lever Arm (B) engages the Brake Pad (C) to the Friction Disc (D). See following photo.



- A – Linear Solenoid (shown under sheet metal cover)
- B – Brake Lever Arm
- C – Brake Pad (hidden)
- D – Friction Disc
- E – Jam Nut
- F – Set Screw

2. The Carriage Brake is engaged when the Linear Solenoid is energized.
3. With the brake disengaged, there is a gap between the Brake Pad (C) and the Friction Disc (D). There should be no more than a 1/8" (3.2 mm) gap between the Brake Pad and the Friction Disc. If there is a gap greater than this, the Brake Pad needs to be adjusted or replaced.
4. This gap can be adjusted by loosening the M12 Jam Nut (E) and adjusting the M12 socket head set screw (F).
5. If there is insufficient adjustment available, replace the old Brake Pad by removing the (2) two M6 flat head screws that pass through the brake pads and adjust as described above.

VARIABLE SPEED CARRIAGE DRIVE MOTOR BELT TENSION/ REPLACEMENT

WARNING

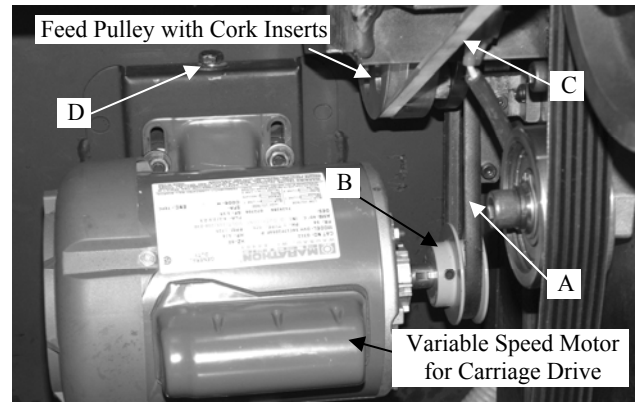


Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.

WARNING



The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



A – Drive Belt
 B – Motor Pulley
 C – Friction Disc
 D – Adjustable Motor Base

1. There should be slight tension on the Belt (A) between the small variable speed Motor Pulley (B) and the Friction Disc (C) to prevent the carriage travel drive clutch from binding. If the belt requires tension adjustment, make adjustments on the adjustable Motor Base (D) to suit.
2. When the belt appears cracked or worn, it should be replaced.
3. Loosen the belt tension by adjusting the screw on the Motor Base.

NOTE: Do NOT loosen the motor mounting nuts. Loosening these nuts will cause misalignment of the motor pulley with the friction disc pulley.

4. Remove the Feed Pulley with the eight (8) cork inserts as described in a previous section of this maintenance chapter and remove the old belt.
2. Replace the belt, reassemble, apply slight belt tension and test by cycling carriage forward and back.

HIGH SPEED CARRIAGE GUIDE BELT TENSION/REPLACEMENT

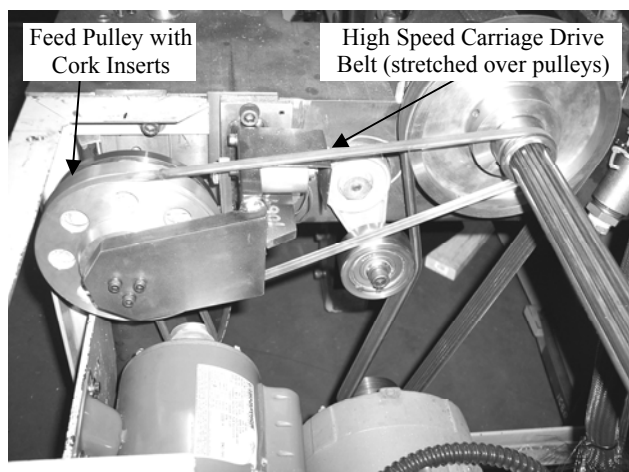
WARNING Before servicing, release air pressure from the system by using the lockout valve and applying a padlock to prevent unauthorized application of compressed air and to avoid serious injury. The maximum pressure that is supplied to the system should NOT exceed 150 PSIG (10.3 BAR) to prevent component failure and to avoid serious injury during normal saw operation.



WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



1. The tension of the High Speed Carriage Drive Belt is not adjustable and set with the 37" (940 mm) long urethane belt. The urethane belt is stretched over the pulleys and is approximately 10% longer after installation, thereby applying the necessary belt tension. See photo previous page.



2. When the belt appears cracked or worn, it should be replaced.
3. Replace the belt, reassemble with new belt and test by cycling carriage forward and back after reconnecting electrical power.

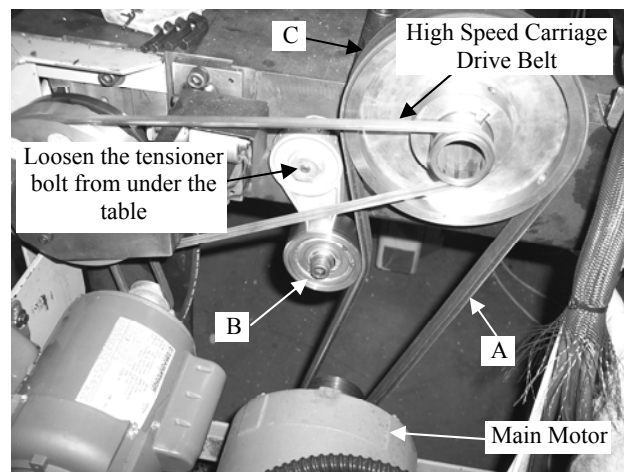
MAIN MOTOR BELT TENSION/REPLACEMENT

1. Drive the carriage to the full forward position.

WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



2. The tension of the Main Motor Belt (A) is factory set with the installation of a Spring Loaded Belt Tensioner (B) between the Main Motor Belt Pulley and the Spline Shaft Pulley (C). This spring tensioner is mounted on the end of the table. See above photo.
3. When the belt appears cracked or worn, it should be replaced.
4. To replace the Main Motor Belt, open the lower band wheel access doors.



- A – Main Motor Belt
- B – Spring Loaded Belt Tensioner
- C – Spline Shaft Pulley

5. From the under the table, loosen the M10 bolt that mounts the Spring Loaded Belt Tensioner. This will remove the tension on the belt.
6. Remove the High Speed Carriage Drive Belt as described in the previous section.
7. Remove and replace the Main Motor Belt, reverse steps 5 thru 3 and apply proper belt tension with the Spring Loaded Belt Tensioner.
8. Tighten the M10 Spring Loaded Belt Tensioner adjustment/mounting bolt.

NOTE: Do NOT loosen the Main Motor mounting bolts or any belt pulleys as this will affect the factory set belt alignment.

FINAL DRIVE BELT TENSION/RE-PLACEMENT

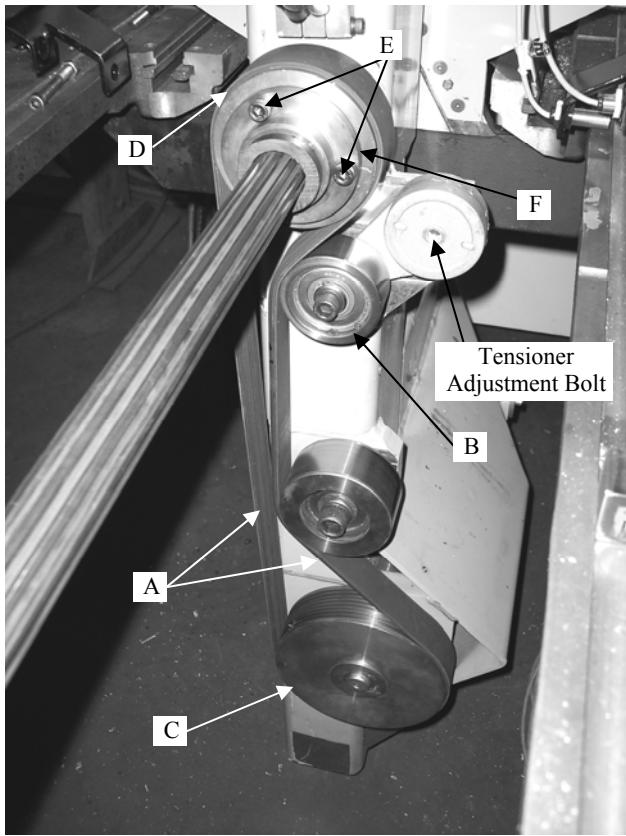
WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



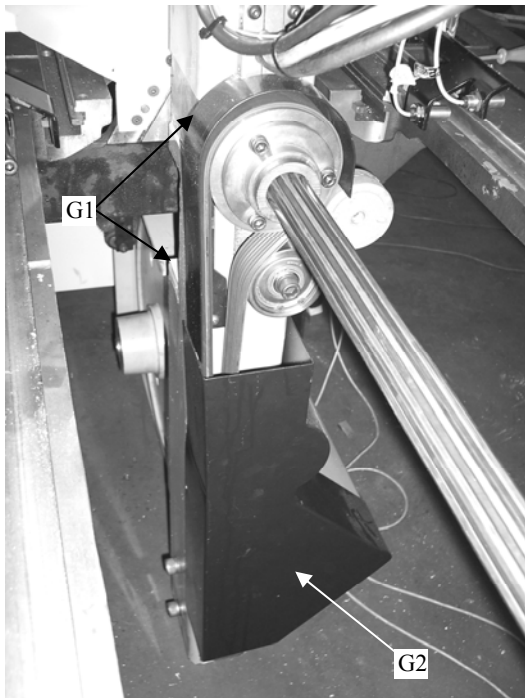
1. Drive the carriage to within 3" of the full back position.
2. The tension of the Final Drive Belt (A) is factory set with the installation of a Spring Loaded Belt Tensioner (B) between the Bevel Gear (lower) Belt Pulley (C) and the Pivot Belt Pulley (D). See photo above.
3. When the belt appears cracked or worn, it should be replaced.
4. To replace the Final Drive Belt, open the lower band wheel access doors.
5. Remove the Final Drive Belt Guard (G1) (See following photo) from the column and loosen the M10 bolt that mounts the Spring Loaded Belt Tensioner to the column. This will remove the tension on the belt.
6. Remove the guard that covers the spline shaft (G2) (see following photo).
7. Remove the three (3) M8 bolts (E) that connect the Spline Hub (F) to the Pivot Pulley (D) and pull the Spline Hub back towards the motor end approximately 3" (76 mm) with the spline shaft.
8. Remove and replace the Final Drive Belt, reverse steps 6 thru 4 and apply proper belt tension with the Spring Loaded Belt Tensioner.
9. Tighten the M10 Spring Loaded Belt Tensioner adjustment / mounting bolt.

NOTE: Do NOT loosen any belt pulleys as this will affect the factory belt alignment.

NOTE: Check the belt tension after the first 3 hours of operation and apply additional tension as required.



- A – Final Drive Belt
- B – Spring Loaded Belt Tensioner
- C – Bevel Gear Belt Pulley
- D – Pivot Belt Pulley
- E – 3 Bolts (attach the Spline Hub)
- F – Spline Hub



- G1 – Upper Drive Belt Guard
- G2 – Lower Drive Belt Guard

NOTE: It is beyond the scope of this troubleshooting guide to cover every possible problem or cause of a problem. The best trouble-shooting guides are a thorough knowledge of the machine's systems and the technical drawings supplied with the machine.

Saw will not start

- Power is off
- Main electrical disconnect switch is off
- Compressed Air is Off or valve closed
- Air pressure available is low
- Feed force setting is too low
- Main fuses are open
- Motor overload relay is open
- No blade is installed
- Blade is not properly Tensioned
- Belt is loose or broken
- Band wheel door(s) are open
- Band wheel door interlock switch(es) are open
- The detented "Stop" pushbutton is engaged

Saw stops when "Start" button is released

- Starter holding contacts dirty or worn
- No blade is installed
- Blade is not properly tensioned
- Band wheel door(s) are open
- Band wheel door interlock switch(es) are open
- "Blade Mode" selector switch is in the "Change" or "Track" position

No coolant flow

- Coolant switch is turned off
 - Low coolant level
 - Coolant intake screen is dirty/plugged
 - Coolant valves are closed
 - Coolant pump impeller is worn
 - Plugged coolant line
 - "Coolant system" selector switch is in the "Mist" position
- NOTE: if "Coolant" selector switch is in "Auto" on saws supplied with this option, coolant will flow only when saw is operating*

Saw column will not tilt

- Tilt lock handle not loosened
- For Saws Supplied with the "Power Tilt" option:
 - Tilt Chain may be loose or broken
 - Cylinder operate lock cylinder may be stuck
 - Cylinder operate lock solenoid valve may be burned out or stuck
- Tilt mechanism components are worn.
- Tilt drive is "faulted". Reset drive.

Saw column will not feed or feed smoothly

- "Column Retract" pushbutton is stuck or needs replacing.
- Carriage linear bearings are dirty
- Cork inserts are dirty or worn in feed clutch
- Feed chain is too tight or too loose
- Blade feed gear box oil is dirty or gears/bushings worn
- Air supply is turned off
- Air pressure available is too low
- Feed Force setting is too low
- Feed Clutch cylinder mechanism is stuck
- Feed Clutch solenoid valve may be burned out or stuck
- Feed Clutch V-belt is be too loose or broken
- Upper blade guide set to low
- Saw column is contacting work piece vice

Cuts are crooked or rough

- Blade guide arm set too high
- Column not set at proper angle
- Dull Blade
- Vises worn or loose
- Improper blade, blade speed, or feed force
- Blade guides worn or loose
- Chip brush not functioning properly
- Loose guide arm
- Improper cutting fluid or mixture
- Blade tracking is out of adjustment
- Carriage linear bearings are loose, worn, or dirty
- Cork inserts are dirty or worn in feed clutch
- Feed chain is too tight or too loose
- Feed Clutch V-belt is be too loose or broken
- Blade feed gear box oil is dirty or gears/bushings worn
- Worn or chipped blade pressure block
- Improper blade tension
- Column tilt brake pads need replacing
- Improper cutting fluid or mixture

Blade breakage

- Improper blade
- Improper cutting fluid or mixture
- Worn or chipped blade pressure block
- Worn or chipped blade guide
- Defective blade weld
- Material loose in vise
- Improper blade speed
- Excessive feed pressure
- Improper blade speed
- Blade teeth in contact with work before the saw is started
- Blade pressure blocks too far back
- Chip brush not functioning properly
- Improper blade tension
- Band wheels not properly aligned
- Column tilts during cut and brake pads need replacing

Blade stalls in work

- Excessive feed pressure on soft, ductile materials
- Blade pitch too coarse
- Blade tension too low
- V-belt(s) are too loose or broken
- Improper blade tension
- Improper cutting fluid or mixture

Unusual wear on blade

- Excessive feed pressure
- Back of blade too soft for application (improper blade)
- Blade guides worn or loose
- Blade pressure blocks worn
- Improper blade tracking or tension
- Chip brush not functioning properly
- Improper cutting fluid or mixture

Premature dulling of teeth

- Hard spots or scale on stock
- Work hardening of material
- Improper cutting fluid or mixture
- Improper break-in period for blade
- Insufficient feed pressure
- Blade teeth inverted (upside-down)
- Insufficient blade tension
- Chip brush not functioning properly
- Improper blade selection
- Improper blade speed

When ordering repair parts always provide the following information:

- * Machine model number (8MARK III)
- * Machine Serial number.

NOTE: The serial number is stamped on the machine's data plate (see Serial Number reference photo in the Components section).

- * Machine voltage (stamped on the machine's data plate)
- * Part number (not key number)
- * Part Description
- * Quantity required

This information is important to speed the processing of your order and to avoid the cost and inconvenience of shipping the wrong part.

To order parts or request service, contact:

Marvel Manufacturing Co. Inc.
3501 Marvel Drive
Oshkosh, WI 54902

Phone (800) 472-9464
Fax (920) 236-7209

IMPORTANT

Never operate the machine unless all parts are installed and all guards and covers are closed and functioning properly.

WARNING Avoid serious injury. Never operate the saw unless all guards and covers supplied with the machine are installed and functioning as designed.



HARDWARE AND FITTINGS

Important: This saw has been assembled using both standard and metric hardware.

It is beyond the scope of this parts section to identify every common piece of hardware or hydraulic and electrical fitting. In most cases parts which are not identified will never need replacement. If you do require a part that is not identified in this manual, our parts and service department will gladly assist you in identifying and obtaining the part you need.

ELECTRICAL AND PNEUMATIC COMPONENTS

When your saw requires replacement electrical or pneumatic components, please refer to the electrical and/or pneumatic schematics supplied with your machine. These schematics will contain part numbers that may be specific to your particular machine.