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AMADA MARVEL, INC.

Series 380A-PC60/380M

- **Safety**
- **Installation**
- **Operation**
- **Maintenance**

Part No. V380SD13379 Revision B
For machines beginning with S/N E380-0336PC3 and UP



AMADA MARVEL, INC.

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MARVEL SERIES 380A-PC60/380M TABLE OF CONTENTS

IMPORTANT MESSAGE

While Amada Marvel, 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 Amada Marvel, Inc.



TABLE OF CONTENTS MARVEL SERIES 380A-PC60/380M

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 METALS.....	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	A-1
POSITIONING	A-1
ASSEMBLY, LEVELING, AND ANCHORING.....	A-2
CONNECTING POWER.....	A-4
GROUNDING	A-5
LUBRICATION	A-5
ELECTRICAL CHECK.....	A-5
ALIGNING THE VISE JAWS.....	A-6
ADDING COOLANT.....	A-6
CLEANING	A-7
INSTALLING A BLADE.....	A-7
MISCELLANEOUS	A-7
FINAL INSPECTION	A-8

MARVEL SERIES 380A-PC60/380M TABLE OF CONTENTS

SPECIFICATIONS.....	B-1
MACHINE DESCRIPTION	C-1
ALL STOP PUSHBUTTON.....	C-2
START HYDRAULIC PUMP PUSHBUTTON	C-3
BLADE MODE SWITCH	C-3
CYCLE INTERRUPT / COLUMN RETRACT PUSHBUTTON	C-4
WISE PRESSURE VALVE AND GAUGE (OPTIONAL)	C-4
MARVEL PC3 [®] PROGRAMMABLE CONTROLLER	C-4
OUTBOARD WISE AND SWITCH (OPTIONAL).....	C-5
MAIN ELECTRICAL DISCONNECT SWITCH.....	C-5
GUIDE ARM AND POINT OF OPERATION BLADE GUARD	C-6
COOLANT VALVE.....	C-6
MACHINE WISE.....	C-6
CHANGING / REVERSING THE WISE JAWS	C-7
TRAVERSE LIMIT FEATURE.....	C-7
VARIABLE WISE PRESSURE OPTION	C-7
2ND MACHINE WISE (OPTIONAL).....	C-7
SHUTTLE WISE AND SHUTTLE	C-7
FLOATING SHUTTLE WISE.....	C-8
OUT OF STOCK SENSORS	C-8
COOLANT PAN, CHIP RAMP, AND CHIP TROUGH	C-8
CHIP CONVEYOR (OPTIONAL).....	C-8
DOOR SAFETY INTERLOCK SWITCHES	C-9
BLADE TENSION SWITCH.....	C-9
LIFT ROLLER (OPTIONAL).....	C-9
UNIST COOLANT SYSTEM (OPTIONAL)	C-10
HOLD DOWNS (OPTIONAL)	C-10
0 TO 3 DEGREE CANT.....	C-10
CUTTING GUIDE.....	D-1
FEED RATE	D-1
FEED FORCE.....	D-1
BLADE SPEED	D-1
CUTTING RATE.....	D-1
USER CHART.....	D-2

TABLE OF CONTENTS MARVEL SERIES 380A-PC60/380M

OPERATION	E-1
PRE-OPERATION CHECKLIST	E-1
MACHINE SET-UP	E-2
MAINTENANCE	F-1
MARVEL SERVICE TECHNICIANS	F-1
MAINTENANCE SCHEDULE	F-1
CLEANING	F-1
LUBRICATION	F-2
CHANGING BLADE	F-5
CHANGING COOLANT	F-7
CHIP BRUSH REPLACEMENT	F-7
CHECKING HYDRAULIC FLUID LEVEL	F-8
REPLACING HYDRAULIC FLUID FILTER	F-8
CHANGING HYDRAULIC FLUID	F-9
SHUTTLE DRIVE BELT	F-9
REPLACING WORK LIGHT BULB	F-10
CLEANING AIR FILTER	F-11
SERVICING BLADE GUIDES	F-12
BLADE TRACKING ADJUSTMENT	F-13
PROXIMITY SWITCHES	F-15
CHECKING AND ADJUSTING HYDRAULIC CIRCUITS	F-18
PARTS	G-1
HARDWARE AND FITTINGS	G-1
ELECTRICAL AND PNEUMATIC COMPONENTS	G-1

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**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 Amada Marvel, 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 Amada Marvel, 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 Amada Marvel, Inc. for the availability of safety retrofit kits for your particular machine.

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WHO MAY USE THIS MACHINE?

Machinery sold by Amada Marvel, 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 Amada Marvel, 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 Amada Marvel, 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 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.



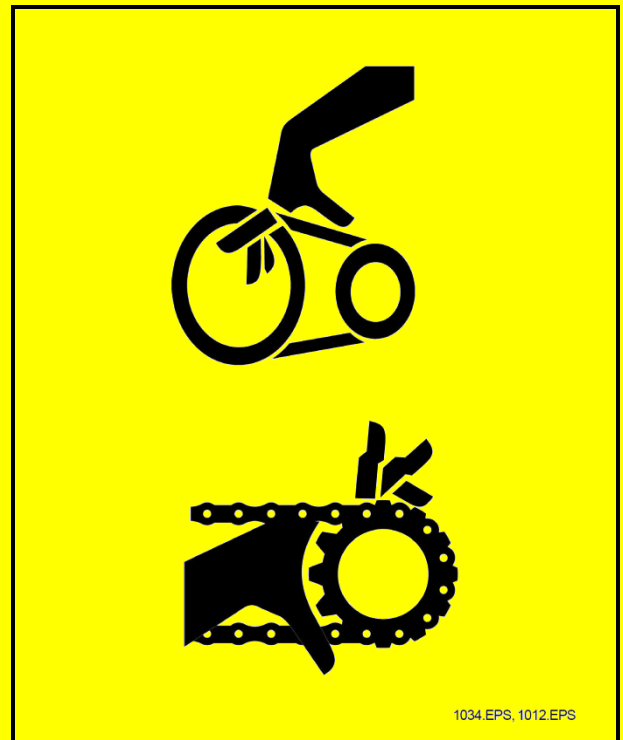
WEAR PROTECTIVE EQUIPMENT

- 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.



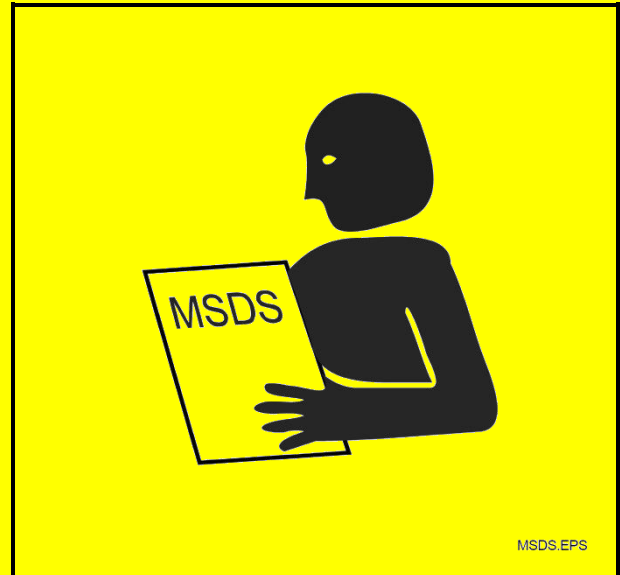
STAY CLEAR OF MOVING PARTS

- 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.



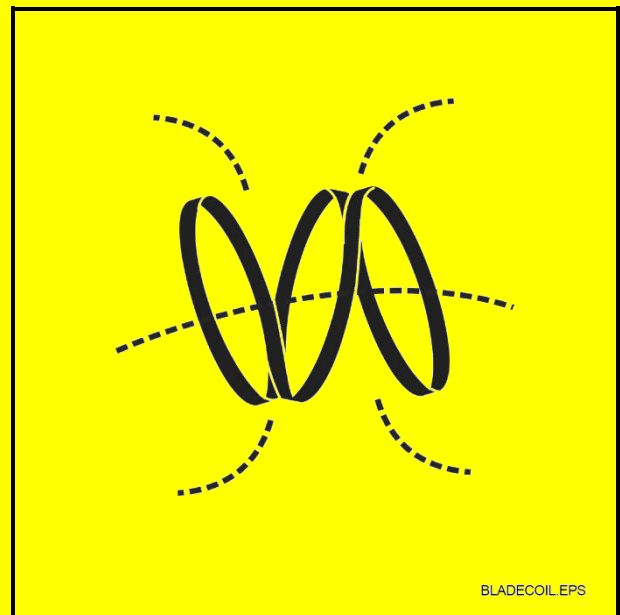
HANDLE CHEMICALS SAFELY

- 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 Amada Marvel, 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.



SAFE MATERIAL HANDLING

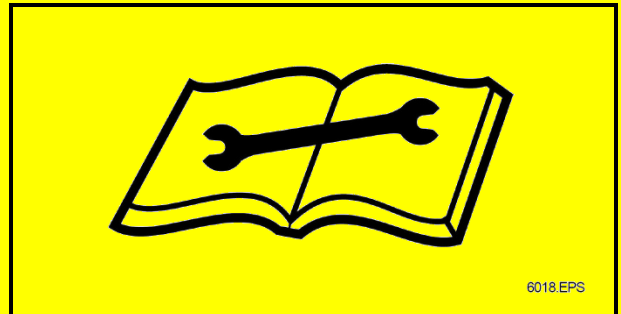
Loading and unloading material from the machine presents safety hazards of its own.

- 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

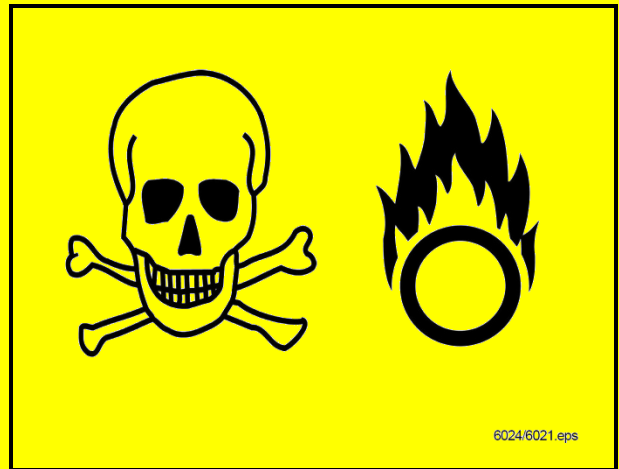
- Keep the machine and the area around the machine clean, well lighted, and free of debris and spills.
- Immediately clean up coolant (cutting fluid) and hydraulic fluid from the floor. These create serious slipping hazards.
- Keep air hoses, power cords, etc., off the floor. These create serious tripping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

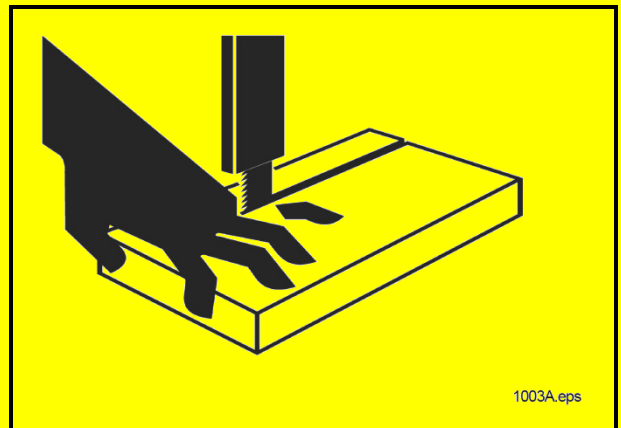
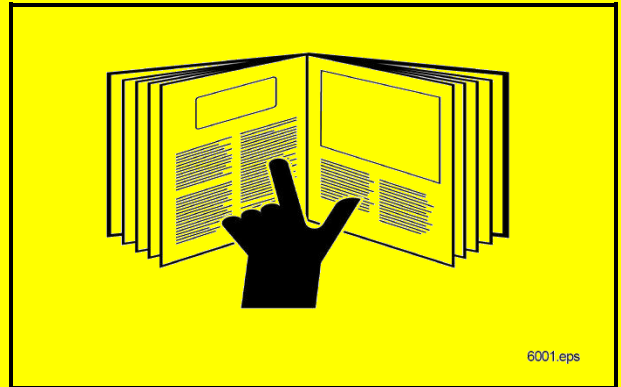
Horizontal machines have heavy saw frames which can crush a person causing serious injury or death.

- 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.



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.



ADDING COOLANT

IMPORTANT: Refer to “Coolant System” for proper coolant levels.

CAUTION



Avoid damaging the machine. Never operate the machine unless the coolant is at the proper level. Failure to follow this warning will result in damage to the coolant pump.



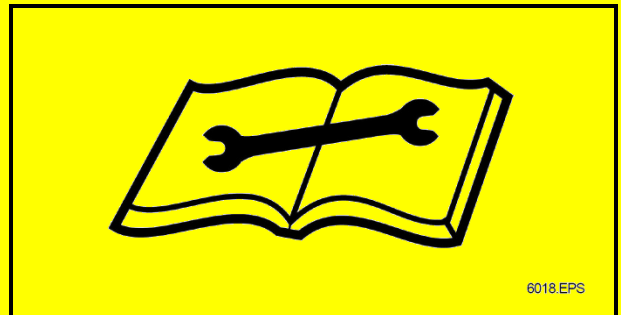
SERVICE THE MACHINE SAFELY

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.



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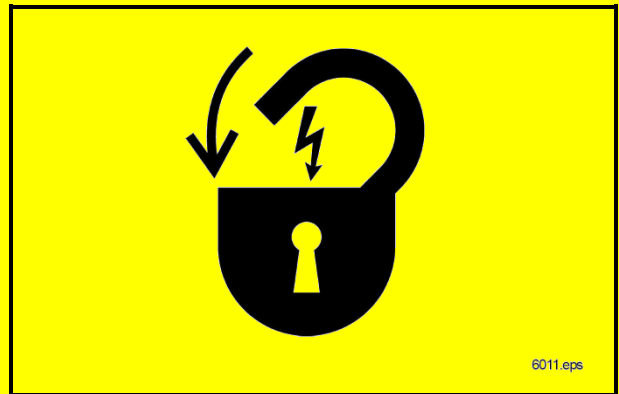


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ELECTRICAL HAZARDS

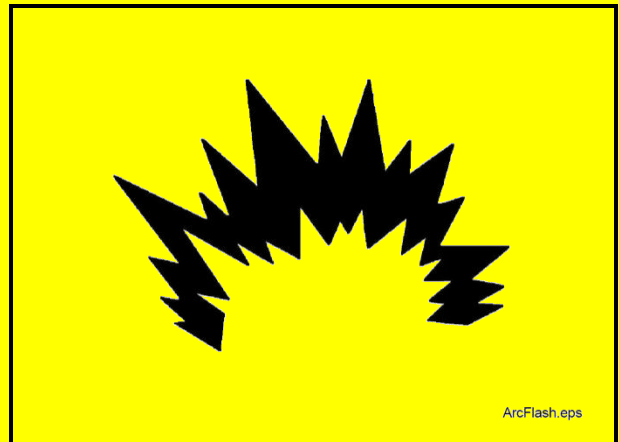
Contact with high voltage will cause death.

- 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 yellow pages in section S of the manual). The safety section contains important information which will help 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.

HANDLING

WARNING Avoid personal injury. Never push, pull, or lift the shipping crate to move the saw. Only move the saw with an appropriately rated forklift, utilizing the fork pockets on the skid



WARNING Avoid serious personal injury. Never place any body part under the saw while the saw is raised.



CAUTION Avoid damaging the saw. Do not lift the saw any higher than necessary.

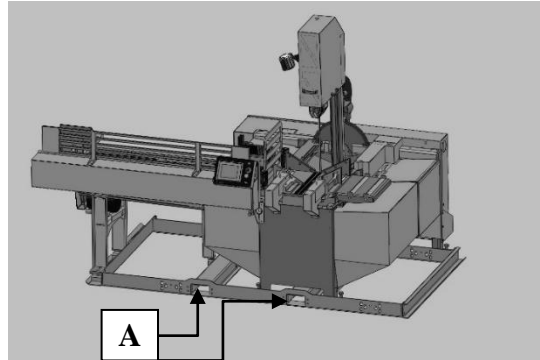


IMPORTANT: Equipment capable of safely handling the weight of the machine is required. Always use cranes, hoists, chains, straps, etc., with a lifting capacity greater than the weight of the object being lifted.

CRATED SHIPPING WEIGHTS		
Item	lbs.	kg
380APC60	5125	2325

There are two pockets in the shipping skid that allows the saw to be lifted with a fork truck.

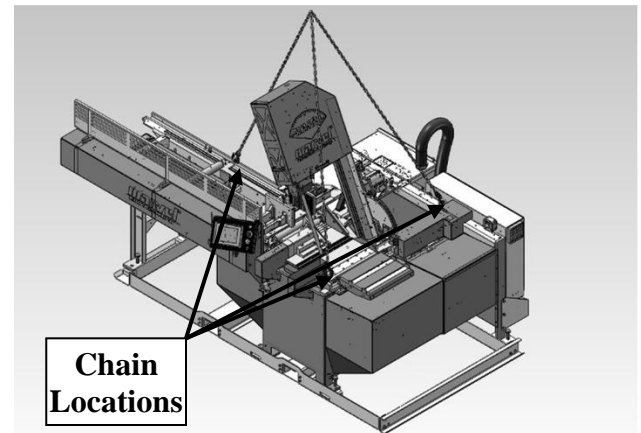
CAUTION Avoid damaging the saw. Incorrect placement of the lifting chains or forks will result in damage to the saw.



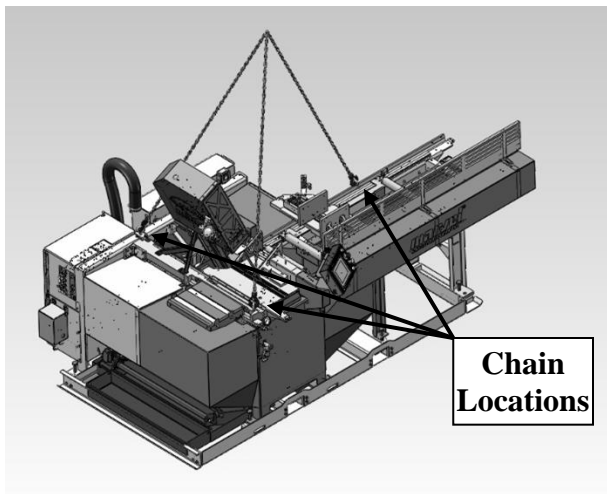
Use the fork pockets (A) to maneuver the saw into position.

The machine is equipped with 3 lifting points on machines equipped with a feed table and 4 lifting points on manual machines for positioning with an overhead crane. Two or four M16 eyebolts are supplied along with a shackle, depending on configuration, and must be used when lifting the machine. The shipping skid also needs to stay intact during use of a crane.

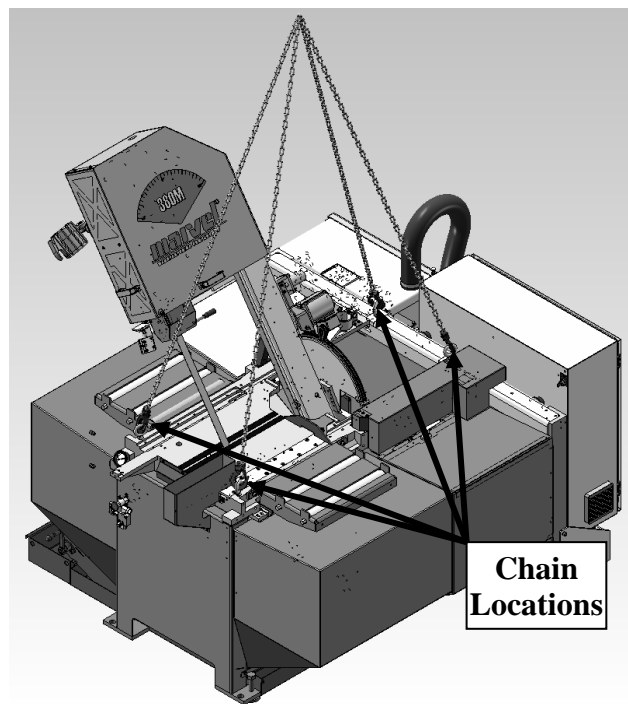
Chains used to lift the machine must be eighty (80) inches minimum in length. See chain layouts for standard hand, opposite hand, and manual machines below. Eyebolts are used on the machine table and the shackle on the back side of the shuttle body.



Standard hand lifting chain layout.

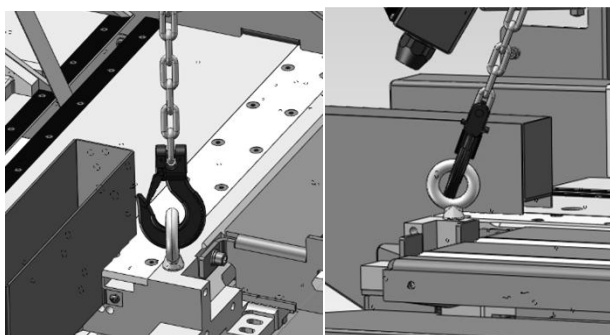


Opposite hand lifting chain layout.



Manual machine lifting chain layout.

Loads must be aligned with the plane of each eye as shown below. If necessary, 1 washer can be placed between the shoulder and mounting surface for proper orientation.



A-2

POSITIONING

Consider these items when selecting a position for the saw:

Foundation - The foundation must be a dry, level, concrete floor in good condition.

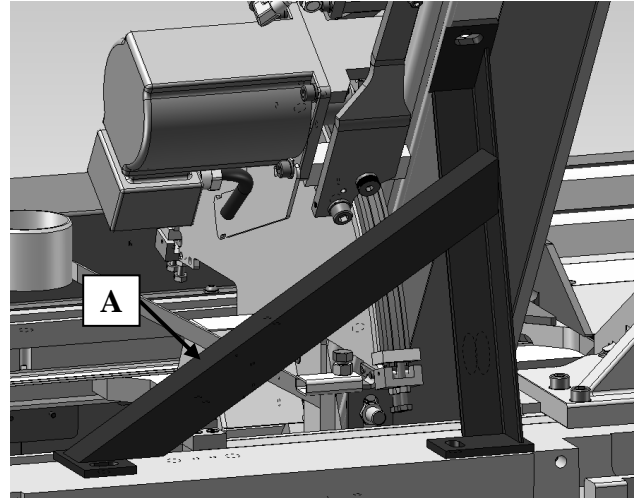
Lighting - The entire machine must be well lighted for operator safety and maintenance.

Stock Movement - Leave space around the machine, including any material handling ordered, for loading and unloading stock.

Maintenance - The saw must be placed to allow easy access to all areas for maintenance and repairs. Make sure all doors and panels can be opened easily.

ASSEMBLY, LEVELING, AND ANCHORING

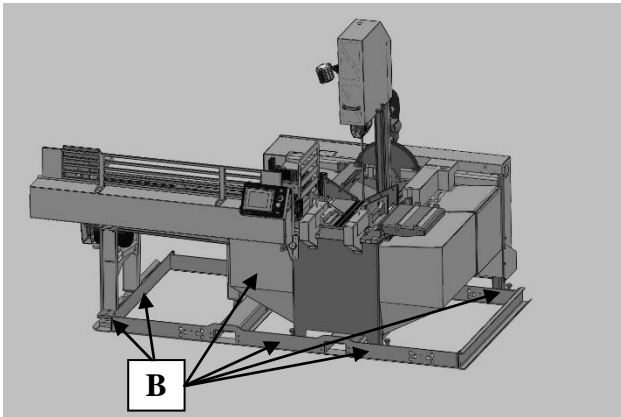
1. Place the machine in the exact spot it is to be anchored at. Once the skid is removed, the saw can no longer be moved.
2. Remove the red shipping brace (A).



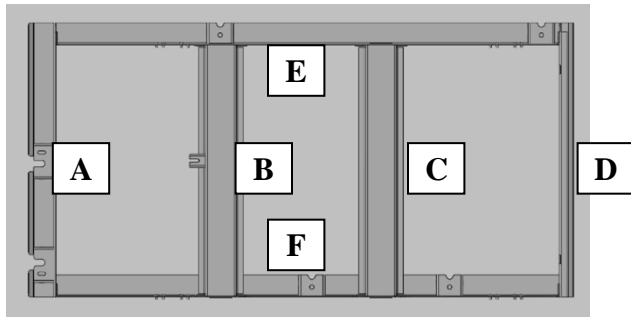
3. Remove the bolts (B) holding the feet to the skid and raise the machine from the skid using the leveling bolts provided about one full turn. Place a floor washer under each leveling screw before lowering them into position on the floor.

Note: If your saw does not have a feed table, go to step 8.

- Remove all the bolts holding the shipping skid together except the ones holding sections B and C to section E.



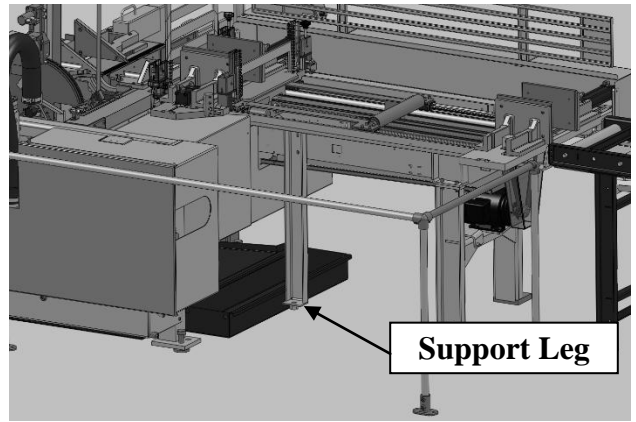
Remove the 6 bolts (B) holding the skid to the saw. Use the leveling bolts in these locations to raise the machine off the skid.



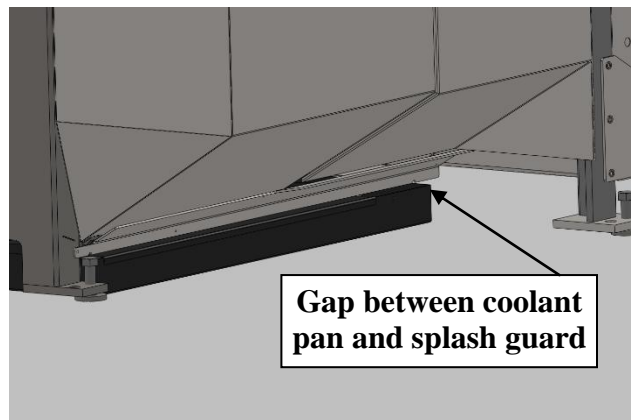
Shipping skid top view.

- Remove section D and F.
- Pull sections B, C, and E towards the front of the saw to gain access to the bolts holding those sections together and remove them.
- Pull out the remaining sections of the shipping skid.

NOTE: The skid is non-returnable; please keep in mind the saw cannot be moved without the shipping skid.
- Slide the coolant pan under the saw. This is most easily accomplished by sliding the pan in from the rear or right side of the saw.
- If your machine is equipped with a shuttle, remove the support leg from the shuttle and slide the chip conveyor/pan in from the side of the machine.

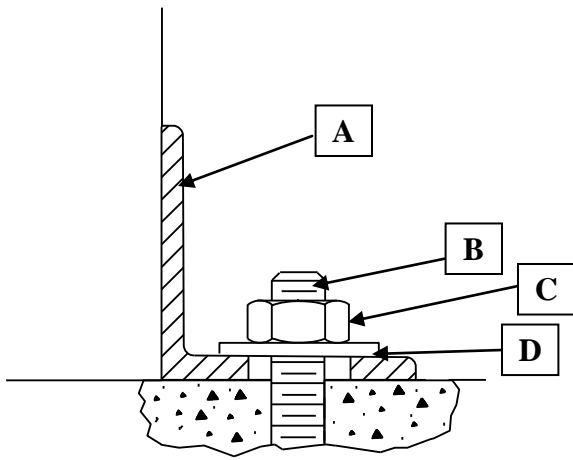


- Replace the shuttle support leg.
- Lower the saw using the leveling screws, until the splash guard is about .25-.38" [6.4-9.6mm] from the top of the coolant pan. Be sure to lower the machine evenly by not turning each screw more than two full turns at a time.



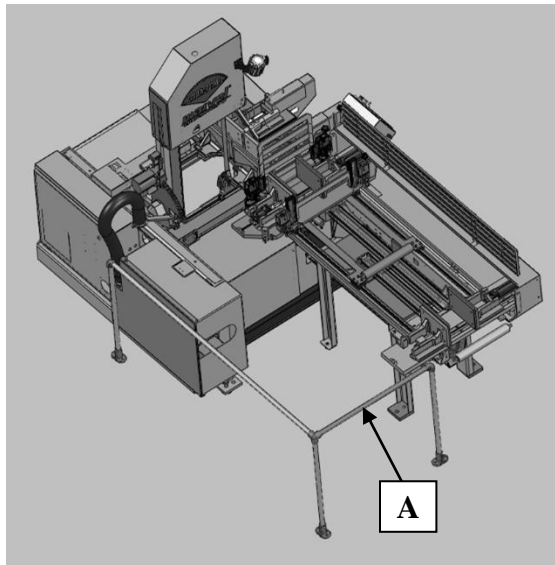
- Place a machinist's level on the saw table and adjust the saw's four leveling screws until the saw is level both side to side and front to back.

Note: If your saw does not have a feed table, go to step 14.
- Place a level on the Shuttle carriage and adjust the Shuttle's leveling screws until the Shuttle is level with the saw table.
- Anchor the machine to the floor by drilling holes in the floor through the tabs on the six feet (four feet on a manual machine) and installing anchor bolts, washers, and nuts.



Anchor the saw: Machine foot (A), anchor bolt (B), hex nut (C), and washer (D).

- 15. Check the saw table and Shuttle, if equipped, to make sure they are still level. Re-level if necessary.
- 16. Place the rear Shuttle guard (A) if the machine is equipped with a shuttle.



WARNING Avoid serious injury. Do not operate this machine with missing, altered, or defective guards or covers.



WARNING Crushing hazard. Avoid serious injury. Stay clear of this area during operation. Follow lockout / tagout procedure before servicing.



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.



DANGER 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. Failure to do so will cause serious injury or death.



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



2. Remove the three main line fuses 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.

IMPORTANT: On 208 volt machines, a transformer is needed to convert to 230 volts. This machine cannot be rewired to operate at any other voltages. Refer to the following description, photo and electrical diagram included separately.

GROUNDING

IMPORTANT: The importance of a properly grounded machine cannot be over emphasized - both for the safety of the operator and the dependable operation of the machine.

The machine must be grounded, **by a qualified electrician**, in conformance with:

- National Fire Protection Association (NFPA) No. 79, "Electrical Standard for Metal Working Machine Tools".
- NEC "National Electrical Code".
- The prevailing national, state, and local electrical codes.

LUBRICATION

The lubrication points and intervals must be checked before operating the saw. Refer to the Lubrication section.

ELECTRICAL CHECK

CAUTION Avoid damaging the machine.



Make sure the hydraulic fluid level is correct before operating the saw. Refer to Checking the Hydraulic Fluid Level in the Maintenance section.

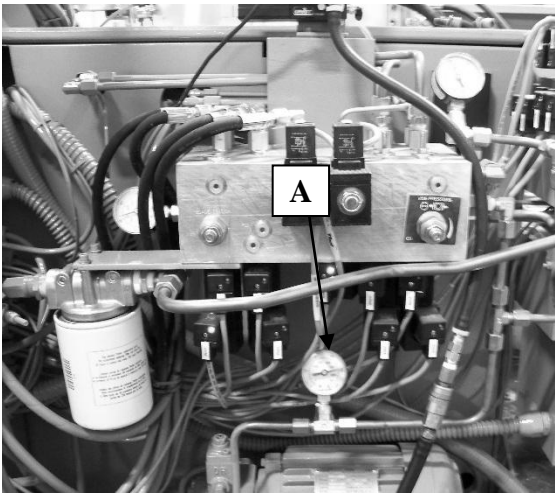
This electrical check ensures the leads of the power supply are properly connected. Two people are needed for this check; one to operate the controls, and one to observe the hydraulic motor.

1. Reset the All Stop pushbutton on the operator's panel by turning it clockwise.
2. Turn the Main Electrical Disconnect switch on.

CAUTION The hydraulic pump can be damaged if the main power leads are not connected properly. Do not allow the pump to operate more than 3 seconds during this check.



3. While one person watches the hydraulic motor and pressure gauge for an indication of hydraulic pressure, a second person must press the Start Hydraulic Pump pushbutton and *within 3 seconds* press the All Stop pushbutton.



The hydraulic gauge on the hydraulic pump will show an indication of pressure if the leads of the power supply are properly connected.

4. If the hydraulic motor starts moving clockwise when looking at the back of the motor, and the pressure gauge (A) indicated hydraulic pressure, the wires to the main electrical disconnect switch are properly connected. If the motor turned counter clockwise, and gauge did not indicate any hydraulic pressure, the wires to the main electrical disconnect switch are improperly connected. To change the connections:
 - a. Turn off the Main Electrical Disconnect switch.

DANGER **Hazardous voltage. Will cause serious injury or death.**



Turn off supply electricity at your facility's circuit breaker before making electrical connections to the saw.

- b. Turn off the saw's supply voltage at your facility's circuit breaker.
 - c. Reverse power leads L1 and L2, or L2 and L3, not both.
 - d. Repeat steps 1 through 4 above.
5. Turn the Main Electrical Disconnect switch off.

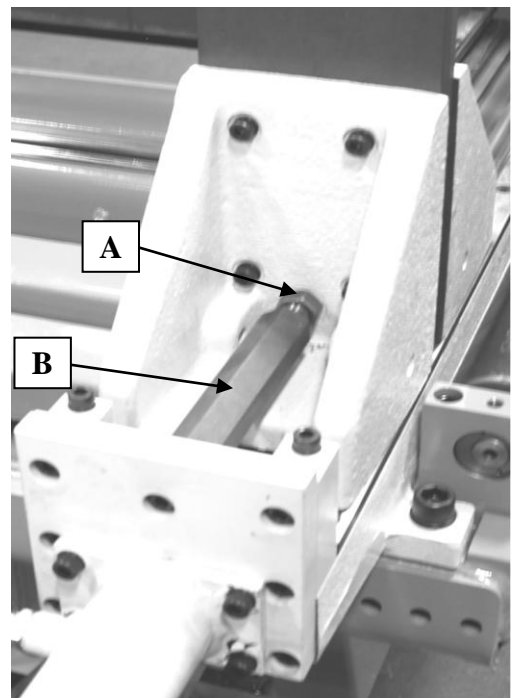
ALIGNING THE VISE JAWS

For Machines with Optional Outboard Vise
Machines equipped with the outboard vise must have the stationary vise jaw of the outboard vise aligned with the stationary vise jaw of the machine vise. This should be done at the factory, but needs to be checked that components have not shifted during shipping.

WARNING **Avoid serious injury. Turn off the machine's main electrical disconnect and lock it out before aligning the vises.**



1. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
2. Place a 6' straight edge against the stationary vise jaw of the machine vise and the stationary vise jaw of the outboard vise.
3. Loosen the lock nut (A) on the vise adjusting screw.



The adjusting screw (B) of the stationary vise jaw.

4. Rotate the vise adjusting screw (B) until the stationary vise jaws of both the machine vise and the outboard vise are aligned.

Note: Make sure the straight edge is not in contact with the rear jaw of the Shuttle vise.

5. Tighten the lock nut (A).

ADDING COOLANT

CAUTION



Avoid damaging the saw. Never operate the saw unless the coolant is at the proper level. Failure to follow this warning will result in damage to the coolant pump.

Pour approximately 26 gallons (98 liters) of coolant, mixed according to the coolant manufacturer's directions, into the coolant pan.

CLEANING

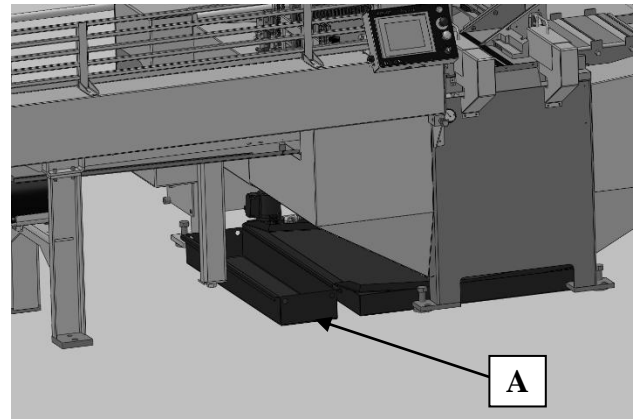
All machined surfaces were coated with a rust inhibitor to protect them during shipment. Remove the rust inhibitor with an appropriate solvent.

INSTALLING A BLADE

A blade must be installed before the saw can be operated. See Changing the Blade in the Maintenance section.

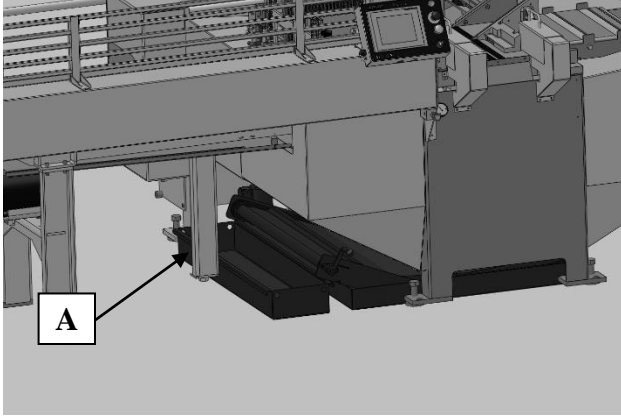
MISCELLANEOUS

Chip Box - Standard. Place the standard chip box (A) next to the chip ramp so that saw chips can be pulled up the ramp with the chip scraper and dropped into the chip pan.



The standard chip box (A).

Chip Box - Optional Chip Conveyor. The optional chip conveyor is supplied with chip box which catches the saw chips when the conveyor is operated. Place the chip box (A) next to the chip conveyor as shown in the photo below.



The chip box for the optional chip conveyor (A).

FINAL INSPECTION

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

- Loose components, guards or panels
- Loose fasteners and fittings
- Loose hoses and conduit
- Missing or damaged items
- Coolant, oil, or hydraulic leaks
- Tools and other material left on the saw
- Overall condition and readiness for use
- Shipping brace removed
- Lifting eyes removed from saw table and shuttle

SPECIFICATIONS

MARVEL SERIES 380A-PC60/380M

Note: Metric Specifications represent nearest SI Unit Converted from basic U.S. Customary Unit.

Note: Specifications given are for standard machines. Available options may alter these specifications.

All specifications are subject to change without notice.

	US Customary Unit	Metric
Capacity*		
Round: Head in Straight Position		
● @ 0°	15.00" Dia.	381mm Dia.
@ 45°	Pos. 14.00" Dia./Neg. 13.25" Dia.	Pos. 356 mm Dia./Neg. 337 mm Dia.
@ 60°	Pos. 9.25" Dia./Neg. 8.00" Dia.	Pos. 235 mm Dia./Neg. 203 mm Dia.
Round: Head in 3° Cant Position		
@ 0°	14.50" Dia.	368 mm Dia.
@ 45°	Pos. 13.50" Dia./Neg. 12.75" Dia.	Pos. 343 mm Dia./Neg. 324 mm Dia.
@ 60°	Pos. 8.75" Dia./Neg. 7.75" Dia.	Pos. 222 mm Dia./Neg. 197 mm Dia.
Rectangle: (W x H) Head Straight		
■ @ 0°	15.00" x 20.00"	381mm x 508mm
@ 45°	Pos. 15.00" x 14.00"/Neg. 15.00" x 13.25"	381mm x 355mm/381mm x 336mm
@ 60°	Pos. 15.00" x 9.25"/Neg. 15.00" x 8.00"	381mm x 235mm/381mm x 203mm
Rectangle: (W x H) Head 3° Cant		
@ 0°	14.50" x 20.00"	368mm x 508mm
@ 45°	Pos. 14.50" x 13.50"/Neg. 14.50" x 12.75"	368mm x 343mm/368mm x 324mm
@ 60°	Pos. 14.50" x 8.75"/Neg. 14.50" x 7.75"	368mm x 222mm/368mm x 197mm
Table Load Capacity*, **	1000 lbs	454kg
Maximum Vise Opening*:	15.25"	387mm
Blade/Blade Drive		
Blade Size	1.25 x 0.042" x 16'-0"	32mm x 1.3mm x 4877mm
Blade Speed	60-400 FPM	18-122 m/min
Feed Force	0-300 lbs	0-1334 N
Band Wheel	16.00" Dia.	406mm Dia.
Blade Drive Motor	5 hp	3.7 kw
Coolant System		
Capacity	26 Gallons	98 liters
Motor	0.25 hp	0.2 kw
Hydraulic System		
Capacity	14 Gallons	53 liters
Drive Motor	2 hp	1.49 kw
Pump Capacity	5.3 GPM	20 lpm
Work Height	40.00"	1016mm
Feed Table (Optional)		
Load Capacity *	500 lbs/ft	446 kg/m
Shuttle Stroke:	48.00"	1219mm

*WARNING

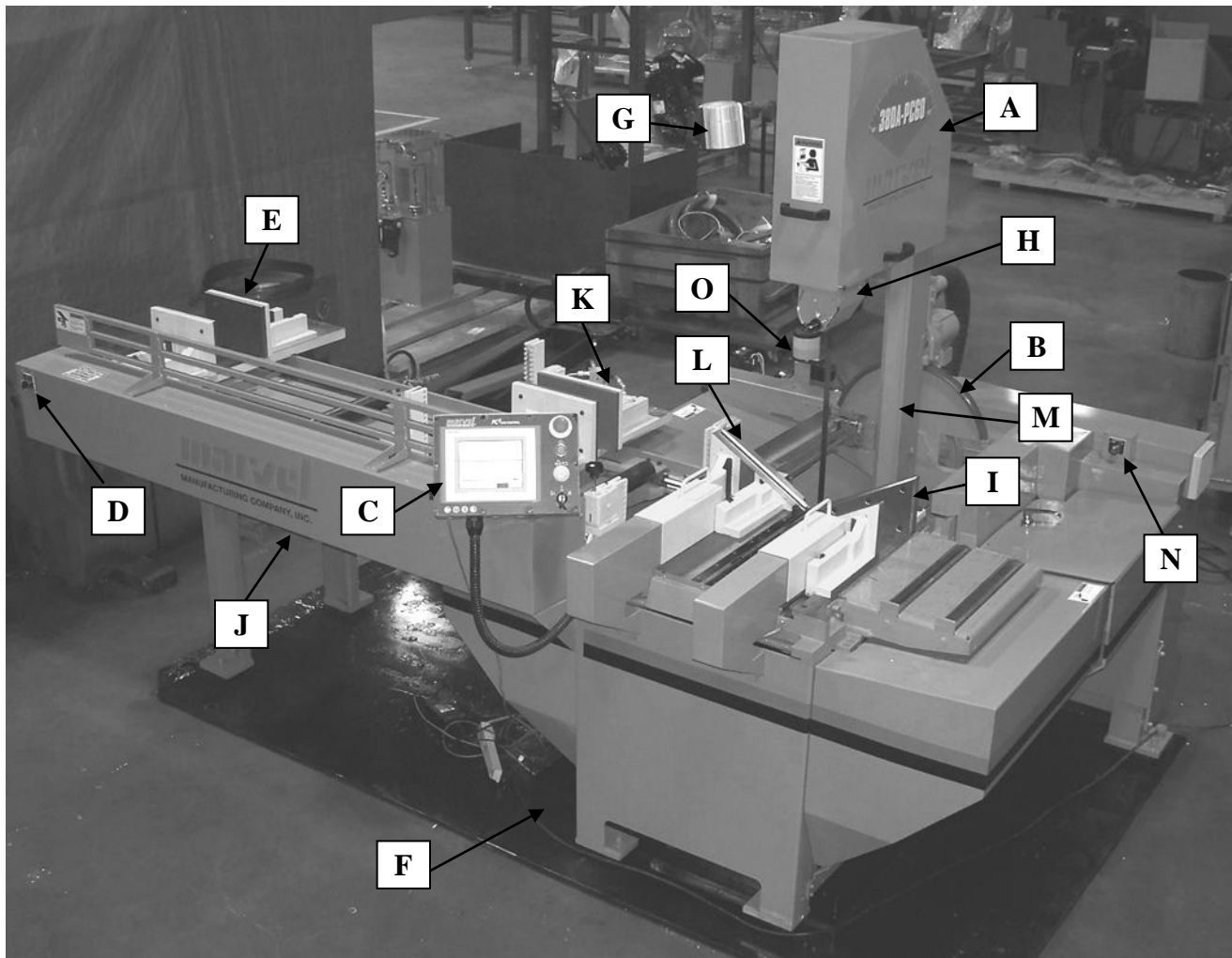


Avoid serious injury. Never load or cut material which exceeds the machine's dimensional or load bearing capacity.

** This is assuming the material is not dropped. The material needs to be evenly distributed with no side loads applied. The equipment needs to be securely fastened to the floor with the feet fully supported with either grout or shims.

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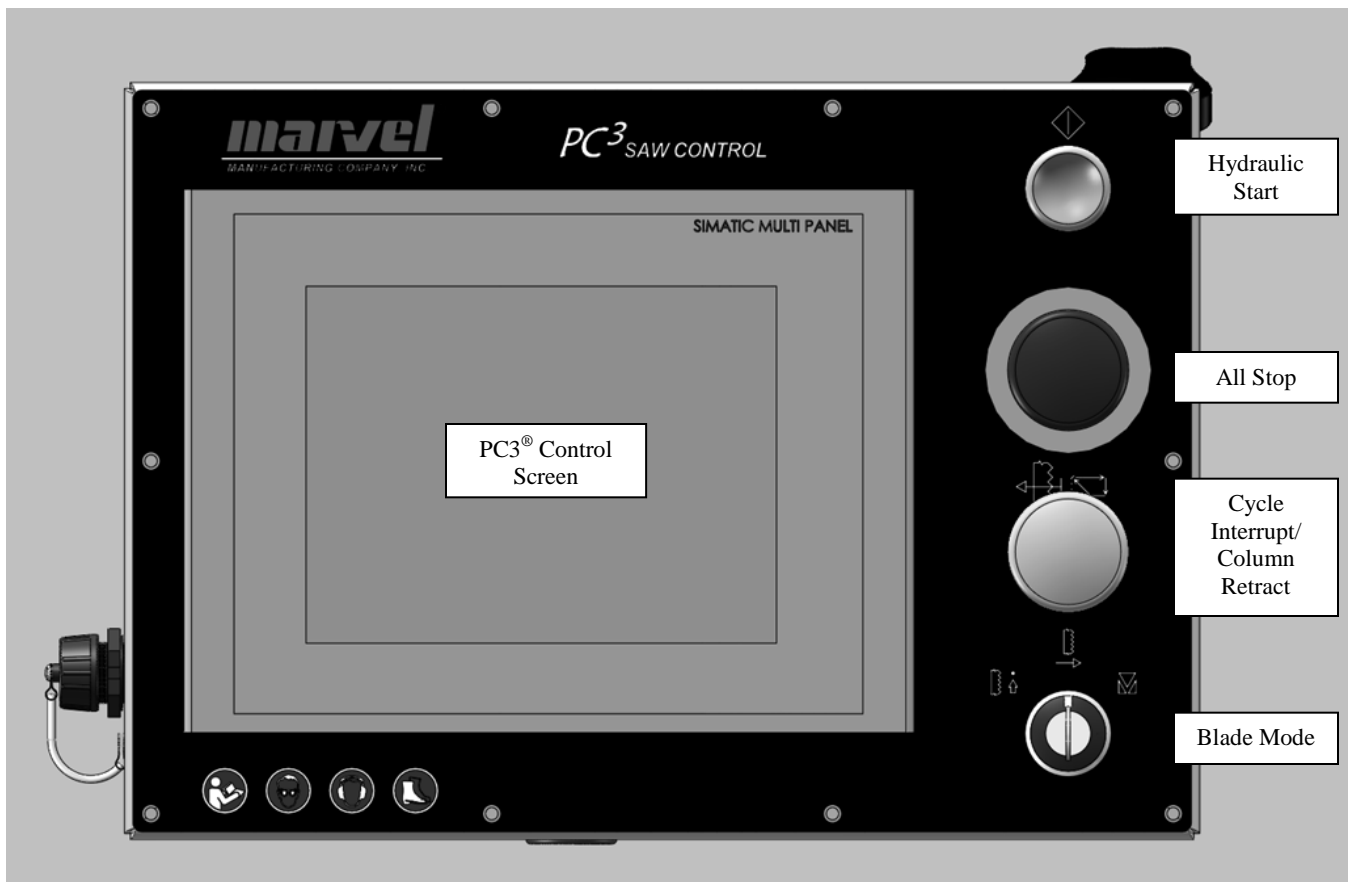
MACHINE DESCRIPTION MARVEL SERIES 380A-PC60/380M



Some safety equipment has been removed to illustrate this machine clearly. All safety equipment must be in place and functioning prior to operating the machine.

- A. Upper Band Wheel Door
- B. Tilt Protractor
- C. PC3[®] Operator's Panel
- D. Outboard Vise Switch (optional)
- E. Outboard Vise (optional)
- F. Coolant Pan
- G. Work Light
- H. Guide Arm
- I. Optional 2nd Machine Vise
- J. Shuttle
- K. Shuttle Vise
- L. Machine Vise
- M. Blade Guard
- N. Blade Tension Switch
- O. Mist Lube System (optional)


MARVEL SERIES 380A-PC60/380M MACHINE DESCRIPTION




The individual switches of the operator's panel are described on pages C-3 and C-4. Note: This illustration depicts the standard pushbutton panel. Optional accessories may require additional switches not shown in this illustration.

IMPORTANT

This section describes the function, location, and operation of the individual machine components. It does not describe how to operate the machine.

WARNING  Do not operate the saw until you are familiar with the location and function of its individual components. Failure to familiarize yourself with the individual components before operating the saw can result in serious personal injury or death.

ALL STOP PUSHBUTTON

WARNING  The All Stop pushbutton does not disconnect any components from the power supply.

Avoid serious injury or death by turning the machine's power off at the Main Electrical Disconnect switch before servicing the machine.

The red pushbutton causes all of the saw's functions to stop. After the button is pressed it remains in the off position, preventing the machine from being restarted, until the button is reset by turning it clockwise. After the button is reset the saw can be restarted. There is about a 30 second delay when restarting before the blade, shuttle, or tilt will become active.

MACHINE DESCRIPTION MARVEL SERIES 380A-PC60/380M

START HYDRAULIC PUMP PUSHBUTTON

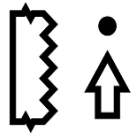
Pressing the Start Hydraulic Pump pushbutton starts the hydraulic pump motor, permitting the saw to function. The Start Hydraulic pushbutton illuminates when the hydraulic motor is operating.

Note: If the hydraulic pump motor does not start when the Start Hydraulic pushbutton is pressed, the "All Stop" pushbutton or other interlock may need to be reset.

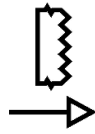
BLADE MODE SWITCH

IMPORTANT: Refer to the Maintenance section of the machine operation manual for step-by-step blade changing and blade tracking instructions.

The key-operated Blade Mode switch is a 3-position switch which disables and enables various functions of the machine, allowing the blade to be changed, tensioned, and tracked in an interlocked manner. Mode is indicated by the following symbols:



Change



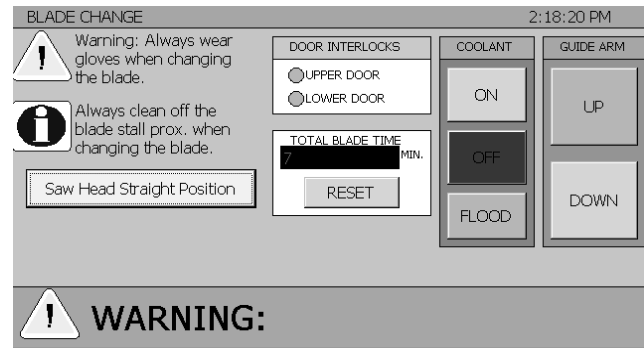
Run



Track

Change: In this position the blade drive motor is disabled, however the saw column can be moved forward and back, and the guide arm can be repositioned. The guarding can also be opened without disabling the hydraulics.

The touch screen will display the Blade Change Screen.



WARNING:
You have switched to the blade change mode. When in this mode you will not be able to switch to other screens.



- A. Saw Head Straight Position/Saw Head @ 3 Deg Position Toggle – Select the position of the saw head.

NOTE: The saw head must be in the straight position to utilize the notching feature. Reference the notching section of the manual for details of this feature.

- B. Door Interlocks - Displays whether the upper and/or lower door interlocks are open (green) or closed (red).
- C. Total Blade Time – Displays the number of minutes that blade has run since the last reset. Press Reset to reset the run time to zero.
- D. Coolant - These buttons are used to set the coolant mode.
 - ON - Turns the coolant on
 - OFF – Turns the coolant off
 - FLOOD/MIST – Toggles between mist coolant and flood coolant.
- E. Guide Arm - Use these buttons to manually move the guide arm.

IMPORTANT: Ensure that the guide arm is clear of obstructions before tilting.

UP - Press this button to move the guide arm up. The arm will continue to move while the button is pressed and will stop moving when the button is released.

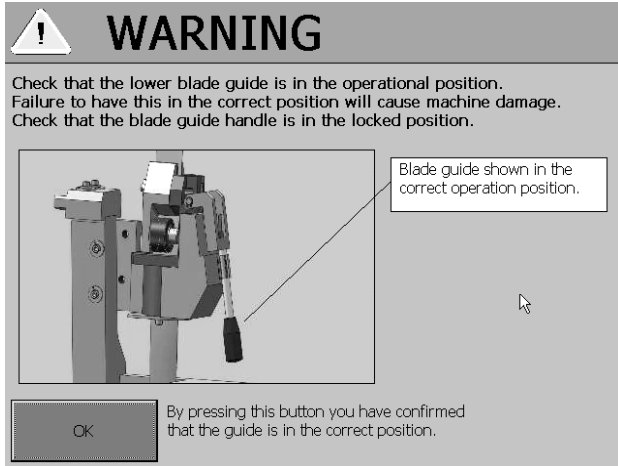
DOWN – Press this button to move the guide arm down. The arm will continue to

MARVEL SERIES 380A-PC60/380M MACHINE DESCRIPTION

move while the button is pressed and will stop moving when the button is released.

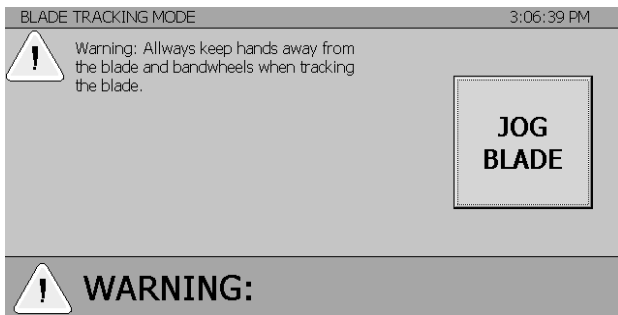
Run: In this position the machine is fully functional, and all interlocks are enabled.

When the switch is turned to the Run position, the touch screen will display the following warning screen:



Ensure that the blade guide is positioned correctly, and then press OK to continue to the Main Screen.

Track: When the switch is in this position, the touch screen will display the Blade Tracking Mode Screen.



You have switched to the blade tracking mode. When in this mode you will not be able to switch to other screens.



Press Jog Blade to run the blade at reduced speed with the band-wheel door open.

CYCLE INTERRUPT / COLUMN RETRACT PUSHBUTTON

The yellow Cycle Interrupt pushbutton is used to manually retract the saw column. The saw column moves backward for as long as the pushbutton is held, or until the saw column reaches its rearmost position.

Pressing the Cycle Interrupt pushbutton during a cutting cycle stops the blade and the cutting cycle. The cutting cycle can be restarted by pressing the Start Cycle button.

WISE PRESSURE VALVE AND GAUGE (OPTIONAL)

The optional vise pressure valve regulates the clamping pressure of the vises. This is useful when clamping thin-wall material, as it prevents the vises from crushing or deforming the material.

The vise pressure setting is indicated on the vise pressure gauge, located above the valve.

MARVEL PC3[®] PROGRAMMABLE CONTROLLER

The PC3[®] programmable controller automates the cutting process, resulting in increased production and sawing accuracy. Operation of the Marvel PC3[®] is fully explained in the Marvel PC3[®] Owner's Manual.

MACHINE DESCRIPTION MARVEL SERIES 380A-PC60/380M

OUTBOARD VISE AND SWITCH (OPTIONAL)

WARNING **Crushing hazard. Avoid serious injury. Never place any part of your body between the vise jaws.**



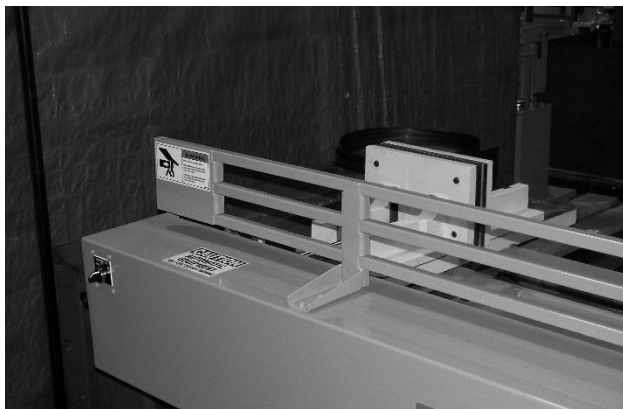
The Shuttle can be equipped with an optional outboard vise. This vise, when turned on, clamps and unclamps together with the machine vise(s). The outboard vise is useful for handling long pieces of work material as it provides additional stock clamping while the Shuttle retracts.

When this option is fitted, a 3-position selector switch mounted near the outboard vise provides control of the vise:

Open: When the switch is held in the open position the outboard vise opens. When the switch is released the vise jaws stop moving and the switch returns to the "Off" position.

Off: When the switch is in the "Off" position the outboard vise is nonfunctional.

On: When the switch is in the "On" position the outboard vise opens and closes automatically with the main machine vise.



The optional outboard vise with control switch.

MAIN ELECTRICAL DISCONNECT SWITCH

DANGER **Hazardous voltage is present on the input side of the saw's main electrical disconnect switch even when the switch is turned off. Contact with this voltage will cause serious injury or death.**

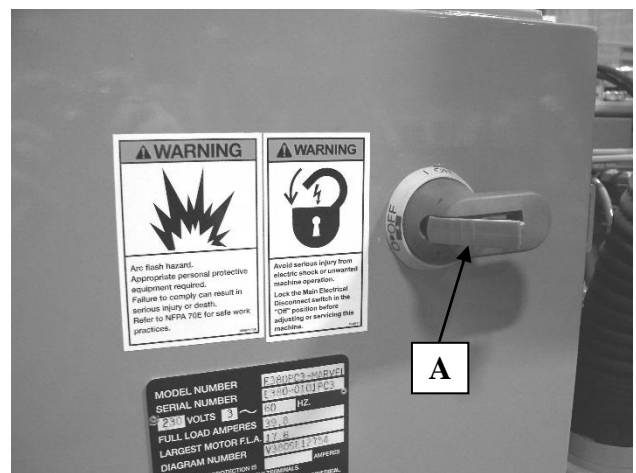


The main electrical disconnect switch is located on the door of the electrical enclosure. The switch has two positions:

Position:	Function:
OFF - "O"	The saw's electrical circuits are disconnected from the power source and the saw will not operate. See " Danger " above. The switch can be locked in this position by pulling out the black tab (A) in the center of the handle and inserting a lock.

ON - "I" The saw's electrical circuits are connected to the power source and the saw can be operated.

The enclosure door is opened by turning the switch to the "Off" position.



The Main Electrical Disconnect switch's locking tab (A).

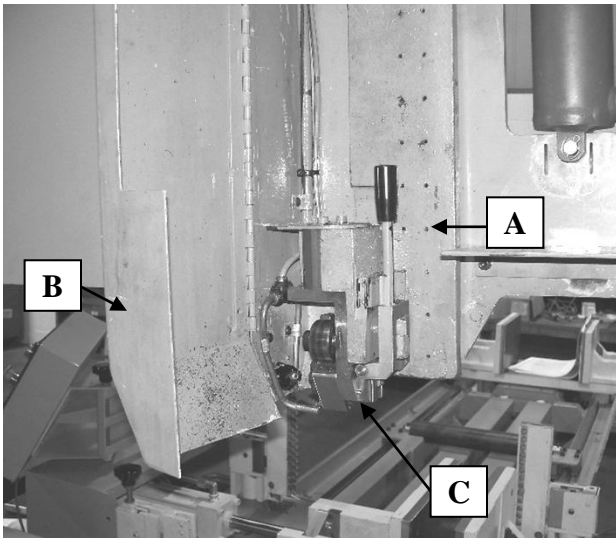
MARVEL SERIES 380A-PC60/380M MACHINE DESCRIPTION

GUIDE ARM AND POINT OF OPERATION BLADE GUARD

CAUTION Avoid damaging the saw. When positioning the guide arm or tilting the saw column, make sure the guide arm and blade guard will not strike the work stock or vises.



The guide arm (A) includes the upper blade guides (C) and point-of-operation blade guards (B). Its position is controlled by the “Guide Arm” button. The guide arm must always be positioned as close to the work piece as possible without striking the vises or work stock to achieve the most accurate cut.

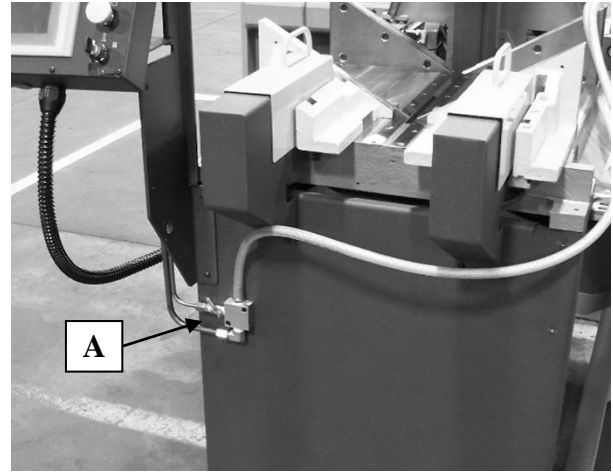


The guide arm must always be positioned so the point-of-operation blade guard (B shown in open position) is as near the work stock as possible.

COOLANT VALVE

The coolant valve (A) on the front of the machine leg regulates the flow of coolant to the cutting area.

NOTE: Coolant will flow only if the coolant pump is running.



The coolant valve (A) adjusts coolant flow to the cutting area.

MACHINE VISE

WARNING Avoid personal injury. Never place any part of your body between the vise jaws.



The saw table is equipped with a single vise as standard equipment, and can have an optional second vise installed on the out feed side of the saw table (see "2nd Machine Vise"). The machine vise is controlled with the vise buttons on the operator's panel.

MACHINE DESCRIPTION MARVEL SERIES 380A-PC60/380M

CHANGING / REVERSING THE VISE JAWS

WARNING Avoid serious injury. Turn off the machine's power and lock it out before reversing or changing the vise jaws.



CAUTION Avoid damaging the saw. Never tilt the saw column when the vertical (90°) edge of the vise is next to the blade.

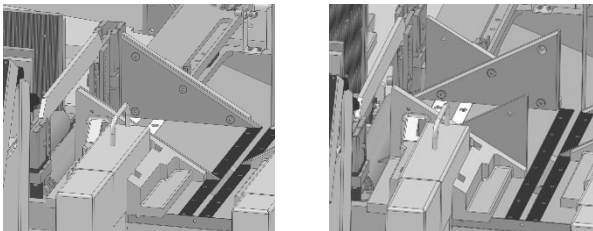


CAUTION Avoid damaging the saw. Make sure the blade guide/guard will clear the top of the vise before moving the saw column or starting a cut.



The machine comes with one set of vise jaws. The jaws have a vertical edge and a 60° edge. The 60° edge vise jaws must be installed anytime angled cuts between 45° and 60° are made.

The vise jaws can be changed or reversed by unbolting the four flat head screws that hold the face plates, and re-installing the face plates with the desired angle next to the saw blade.



The machine vise(s) have vise plates which can be installed with either edge next to the blade. Typically, the 60° edge is next to the blade, as shown in the left photo.

TRAVERSE LIMIT FEATURE

The machine's moveable (front) vise jaw is attached to a traverse limit rod which reduces the cutting cycle time by eliminating unnecessary forward travel of the saw column.

The saw column stops traveling forward when the blade's teeth pass just beyond the clamping surface of the front vise jaw.

VARIABLE VISE PRESSURE OPTION

To avoid crushing thin walled material, the vise's clamping pressure can be adjusted with an optional variable vise pressure valve. See Vise Pressure Valve and Gauge.

2ND MACHINE VISE (OPTIONAL)

WARNING Avoid personal injury. Never place any part of your body between the vise jaws.



An optional 2nd machine vise can be installed on the out feed side of the saw table.

The 2nd machine vise is manually controlled with a button on the operator's panel and can be set to operate automatically with the standard machine vise.

SHUTTLE VISE AND SHUTTLE

WARNING Avoid personal injury. Never place any part of your body between the vise jaws.



The Shuttle vise is mounted on the Shuttle. The Shuttle vise clamps the stock while the Shuttle feeds the stock onto the saw table.

The Shuttle vise can be manually clamped and unclamped with the "Shuttle Vise" button on the operator's panel.

NOTE: To avoid crushing thin walled material, the vise's clamping pressure can be adjusted

MARVEL SERIES 380A-PC60/380M MACHINE DESCRIPTION

with the optional variable vise pressure valve.
See Vise Pressure Valve and Gauge.

Floating Shuttle Vise

WARNING Avoid personal injury. Never place any part of your body between the vise jaws.



The rear vise jaw of the Shuttle vise is equipped with a short stroke cylinder which pulls the rear vise jaw back, away from the material when the shuttle vise is unclamped. This allows long pieces of stock which may not be perfectly straight to be cut more accurately. It also helps prevent the bands on bundled material from getting caught on the shuttle vise as the shuttle retracts.

Out of Stock Sensors

The shuttle has out of stock sensors which sense when there is no longer material in the shuttle. If an out of stock condition is sensed while an automatic job is running, the job will be paused until more stock is loaded on the shuttle. See Proximity Switches in the Maintenance section.

COOLANT PAN, CHIP RAMP, AND CHIP TROUGH

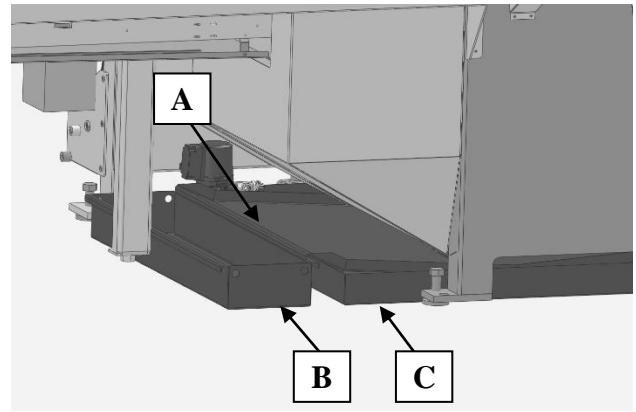
WARNING Do not use compressed air to clean saw chips from the saw.



Flying chips can cause serious personal injury.

Compressed air will embed saw chips in the saw's components, causing premature wear.

The machine is equipped with a coolant pan, chip ramp, and chip trough as standard equipment. The pan is a reservoir for the coolant and also collects the saw chips.



Standard equipment includes a chip ramp (A), chip trough (B), and coolant pan (C).

A coolant pump in the corner of the pan draws coolant through a filter before delivering it to the cutting area. The coolant level in the pan must be maintained at least 3/4 full.

Note: The coolant must be checked frequently to maintain its proper level and mixture. See the Maintenance section for specific instructions.

A ramp inside the pan allows the saw operator to clean the saw chips from the pan into a free-standing chip trough.

CHIP CONVEYOR (OPTIONAL)

WARNING Do not use compressed air to clean saw chips from the saw.



Flying chips can cause serious personal injury.

Compressed air will embed saw chips in the saw's components, causing premature wear.

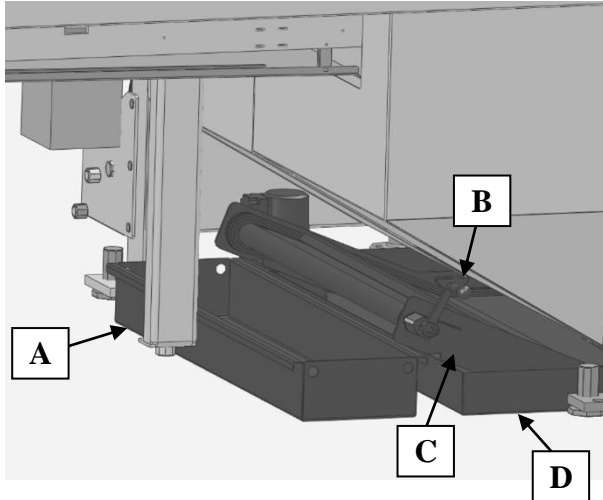
The optional chip conveyor (C) is a manual conveyor that collects the saw chips and is equipped with a hand crank (B) that transports them to the chip pan (A).

The coolant pan (D) is located under the chip pan and serves as a reservoir for the cutting fluid. The coolant pump draws coolant through a filter directly from the coolant pan. The

MACHINE DESCRIPTION MARVEL SERIES 380A-PC60/380M

coolant level in the pan must be maintained at least 3/4 full.

Note: The coolant must be checked frequently to maintain its proper level and mixture. See the Maintenance section for specific instructions.



DOOR SAFETY INTERLOCK SWITCHES

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.



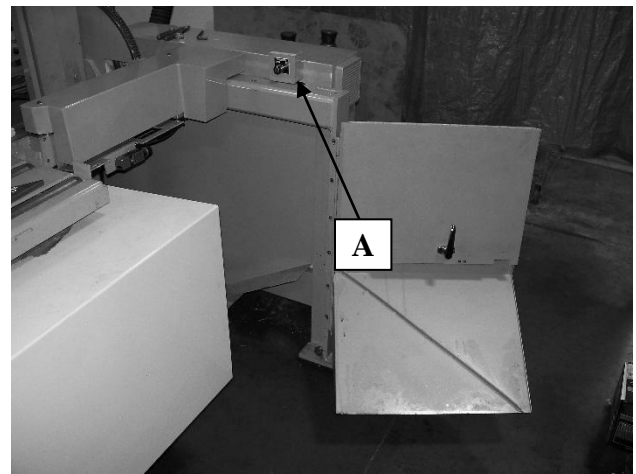
Each band wheel door is equipped with a door safety interlock switch which prevents normal operation of the saw while the band wheel doors are open.

BLADE TENSION SWITCH

The blade tension switch (A), at the rear of the saw, is used to apply and release blade tension.

Turning the key towards tension raises the upper band wheel until proper blade tension is achieved. When proper tension is achieved the upper band wheel will stop rising, even if the switch continues to be held in the up position.

Turning the key towards release lowers the upper band wheel, which reduces blade tension and allows blades to be removed and installed. See Changing the Blade in the Maintenance section.



The blade tension switch (A) is located at the rear of the saw.

LIFT ROLLER (OPTIONAL)

An optional lift roller, mounted on the in-feed side of the saw table raise the work stock above the saw table while work material is being moved into position. Before the machine vise(s) clamp the work material for a cut, the lift roller lowers the material back onto the saw table.

Note: The machine vise(s) must be unclamped before the lift rollers will operate.

MARVEL SERIES 380A-PC60/380M MACHINE DESCRIPTION

UNIST COOLANT SYSTEM (OPTIONAL)

The optional Unist coolant system provides a mist coolant system which replaces or supplements the standard flood coolant system.

Installation, operation, maintenance, and troubleshooting of the Unist coolant system is fully described in the Unist User's Guide included separately.



Mist coolant from the optional mist coolant system, above, is dispensed onto the blade by a coolant nozzle (A) which is mounted to the guide arm.



HOLD DOWNS (OPTIONAL)

The optional hold downs are turned off and on with the hold down button on the operator panel. Reference the PC3[®] operation manual for details on their control.

When “OFF” is selected the hold downs are inoperative.

When “ON” is selected the shuttle and machine hold downs operate automatically with their respective vises.

IMPORTANT: The hold down cross bar height can interfere with the column when miter cutting. Assure both the machine and shuttle hold down bars or any extensions will clear prior to tilting the column, or moving the shuttle forward.

0 TO 3 DEGREE CANT

This machine has the ability to change the cant of the blade from 3 degrees to 0 degrees (straight). The 3 degree position is a general purpose position and is advantageous for cutting structural materials. The 0 degree position is generally used only when notching is required. The procedure for changing the cant of the blade is as follows:

1. Remove the blade as described in the maintenance section.

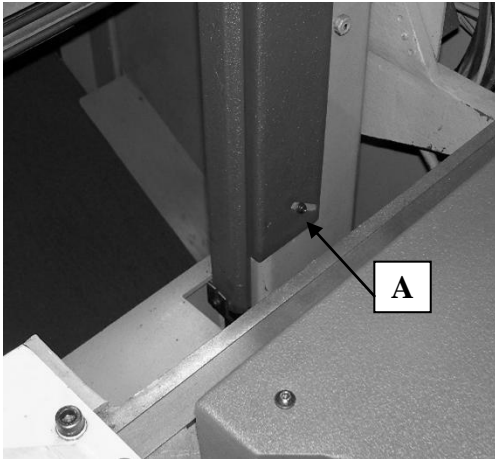
WARNING Avoid serious injury. Turn off the machine's power and lock it out before servicing the saw.



2. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
3. Remove the stationary, rear, upper door cover and set it aside.

MACHINE DESCRIPTION MARVEL SERIES 380A-PC60/380M

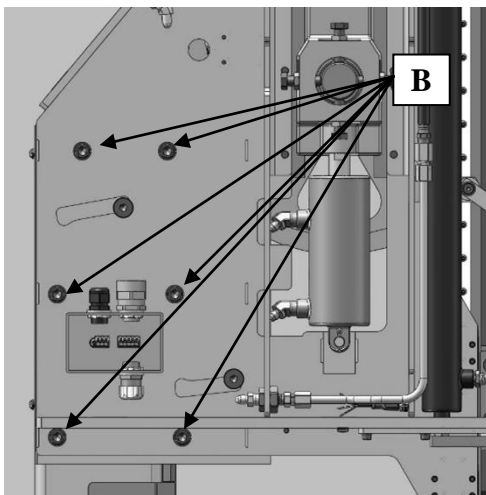
4. Loosen the two bolts holding the bottom of the rear blade guard so it can slide in the slots.



Loosen the bolt (A) on each side of the rear blade cover.

5. Remove the six bolts (B) holding the saw head assembly in place. The shoulder bolts will hold the assembly when the six bolts are removed.

WARNING Avoid serious injury and damaging the saw. Do not remove the two shoulder bolts in the slots. The assembly will fall if the shoulder bolts are removed.

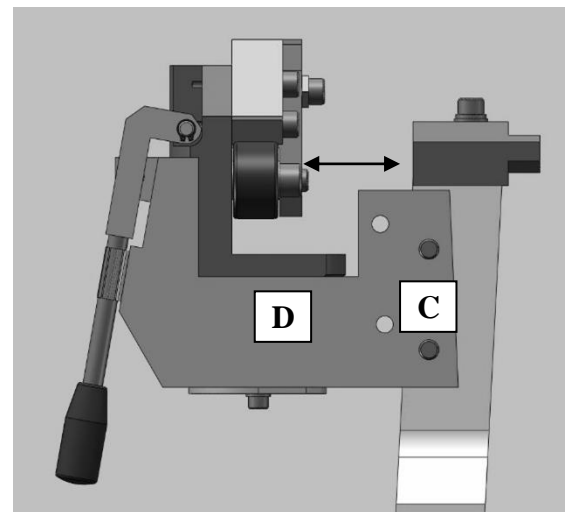


Remove the six bolts (B) that hold the saw head assembly in position.

6. Slide the saw head assembly to the desired position by lifting on the front to

disengage the plate from the shoulder bolts. Make sure both shoulder bolts are sitting in the proper slots.

7. Reinstall the 6 bolts that secure the assembly in position. They should be installed to a torque of 122N-m[90lb-ft].
8. Reinstall the stationary, rear, upper cover and tighten the lower bolts on the rear blade guard.
9. The lower blade guide also needs to be moved to match the saw head. Remove the two mounting bolts while holding onto the lower guide assembly.
10. Reinstall the lower guide assembly with two bolts in the correct position. Front holes (C) for the 0 degree and rear holes (D) for the 3 degree cant as shown below.



Lower blade guide shown in the 0 degree position. Move to holes labeled (D) for saw in the 3 degree position.

11. Turn power back on and reinstall the blade following the procedure in the maintenance section.

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IMPORTANT CONSIDERATIONS

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 force
- 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 only as a starting point when setting cutting rates, forces, and blade speeds.

FEED RATE

The feed rate controls the maximum penetration rate of the saw blade. It helps prevent overfeeding when cutting structural shapes or when entering and leaving round sections.

The feed rate is factory set at 7 inches per minute, but can be adjusted to optimize a particular cut.

FEED FORCE

The feed force is the amount of force applied to the blade to push the blade into the material.

The feed force for a particular material can be obtained from the cutting guide found in the cut

screens of the PC3[®] control under the Cutting Chart button. Generally, the feed force increases as the size or cross section of the material increases.

When setting the feed force, a good practice is to begin in the middle of a material's range and increase or decrease the feed force after observing actual cutting conditions.

Note: The cutting chart is only a guide. If your conditions allow acceptable cutting results outside the charts printed range, do not hesitate to exceed the chart's recommendations.

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.

CUTTING RATE

The cutting rate is the actual rate, expressed in square inches of material per minute (in.²/min.), at which a particular piece of material is cut. The cutting rate is affected by the setting of the feed force, feed rate, and blade speed, as well as the blade type and condition.

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 stripping of blade teeth. The proper cutting rate will produce a clean, curled chip.

USER CHART

The user chart below has been provided for you to record your most commonly cut materials and their appropriate blade type and saw settings.

MATERIAL		BLADE		SAW SETTINGS		
TYPE	SIZE	TYPE	TEETH	BLADE SPEED	FEED FORCE	FEED RATE

IMPORTANT

You *must* be familiar with the function and location of the components described in the Machine Description section of this manual, as well as the PC3® Owner's manual, before performing any steps in this Operation section.

Safe operation of this saw depends on you, the operator.

Do not operate the saw unless:

- **You are familiar with the function and location of the saw's controls and components.**
- **You have inspected the machine and determined it is in safe, working condition (for example: no missing, altered or broken parts; all controls are functional; all safety devices are in place; etc.).**
- **You have read and understand all of the safety and instructional material supplied with the saw by Amada Marvel, Inc. including the Operator's manual and the safety and warning signs attached to the saw.**

PRE-OPERATION CHECKLIST

This checklist must be completed at the beginning of each shift and by each operator.

- Safety First! Obey all warnings.
- Review and comply with the instructional and safety information provided with this machine.
- Press the "All Stop" push button.
- Turn the machine's power off with the main electrical disconnect switch and lock it in the "Off" position.
- Make sure the proper blade is installed for the type and size of the material to be cut.
- Make sure the blade is in good condition.
- Make sure all guards and covers are in place and function properly.

WARNING

Avoid serious injury. Do not operate this machine with missing, altered, or defective guards or covers.

- Remove unnecessary tools and equipment from the saw and surrounding area.
- Inspect the chip brush. Replace if worn.
- Inspect the machine for damage, leaks, and alterations. Repair before operating.

WARNING

Avoid serious injury. Do not operate this machine if it is damaged, has worn or missing parts, or is altered in any way.

- Inspect the band wheels and blade guides - remove saw chips.
- Check the hydraulic fluid level. Fill if needed.

CAUTION

Never operate the machine with a low hydraulic fluid level or coolant level. Damage to the machine will occur.

- Check the coolant level and condition. Add or change coolant as required.
- Check the air filter. Wash if dirty.

MACHINE SET-UP

The following steps must be performed for each cutting operation.

1. Perform the pre-operation checklist.
2. Turn the main electrical disconnect switch on.
3. Turn the stop pushbutton clockwise to reset it.
4. Press the "Start Hydraulic Pump" button.

Note: If the hydraulic pump doesn't start, make sure the stop pushbutton is reset and the upper and lower band wheel doors are closed.

The saw is set up and ready for operation. Refer to the PC[®] operation manual for an explanation of operation and controls.

IMPORTANT

Read and follow all of the safety and operating instructions supplied with your machine.

Regular cleaning, maintenance, and lubrication of this machine will help it perform dependably and minimize the cost and inconvenience of repairs. Follow the Maintenance Schedule outlined below.

Read an entire procedure before performing the individual steps.

Repairs not described in this manual must be performed by a Marvel Service Technician.

Before performing any maintenance, become familiar with the function and location of the components described in the Machine Description section.

MARVEL SERVICE TECHNICIANS

If you need the help of a Marvel service technician, contact your Marvel distributor or call Amada Marvel, Inc., Oshkosh, Wisconsin, at 1-800-472-9464.

MAINTENANCE SCHEDULE

This Maintenance Schedule is the *minimum* recommended maintenance interval. Your particular usage may require more frequent maintenance.

Reference page numbers are given after each item when additional instructions are provided in this manual.

Daily:

- Clean saw chips from the machine.
- Inspect the blade, blade guides, and chip brush for wear. Replace worn parts
- Check the level and condition of the hydraulic fluid
- Check the level and condition of the coolant.

Weekly:

- Inspect the air filter.

Every Month:

- Lubricate the saw carriage.
- Clean and lubricate the front column pivot.

Every 2 Months:

- Check the level of the transmission oil.

Every 3 Months:

- Clean the coolant pan and coolant pump intake screen.
- Lubricate the blade tension slide.
- Lubricate the guide arm slide.
- Lubricate the shuttle carriage linear bearing blocks.
- Inspect the shuttle drive belt for proper tension and condition.

Every 6 Months:

- Change the hydraulic fluid filter.
- Lubricate the shuttle ball screw nuts and mount bearings.

Once Every Two Years:

- Change the hydraulic fluid.
- Change the transmission fluid.

CLEANING

WARNING Avoid serious injury. Turn off the machine's main electrical disconnect switch and lock it out before cleaning the machine.



WARNING Do not use compressed air to clean the machine. Flying metal chips can cause serious injury and become embedded in the saw's bearings, causing premature wear.



CAUTION Failure to clean this machine will result in inaccurate cuts, worn parts, and costly repairs.



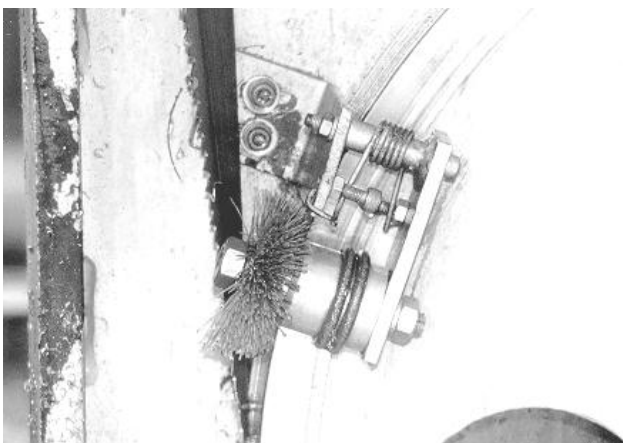
Regular cleaning of the equipment is an essential part of maintenance. Failure to do so can result in inaccurate parts and worn equipment which will cause reduced life and costly repairs.

IMPORTANT: All mechanical surfaces including the linear rails, vise jaw slides and vise jaw faces should be kept as free of chips as possible. It is acceptable to either wipe or flush the chips off these surfaces.

Operator's Panel. Clean the operator's panel with ammonia free liquid household cleaners only. Do not use benzene, toluene, ketone, or esters.

Proximity Switches. The saw's proximity switches must also be kept free of saw chips. Saw chips that accumulate around the proximity switches can cause erratic saw operation.

Metal chips. Keep the entire saw, particularly the band wheels, blade guides, front tilt pivot, and chip brush, free of saw chips. Chips that accumulate on these parts will cause excessive wear and reduce the saw's accuracy.



A functioning chip brush, located behind the lower band wheel door, is vital to the performance and maintenance of the saw.

LUBRICATION

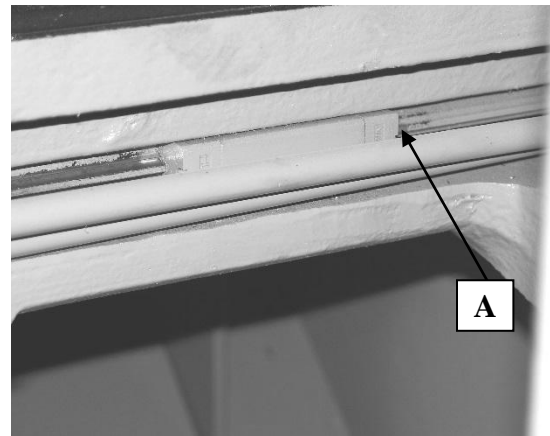
WARNING Avoid serious injury. Turn off the machine's power and lock it out before lubricating the machine.



Regular lubrication is essential for accurate cuts and long saw life. The minimum lubrication intervals are given below. Your use may require more frequent lubrication.

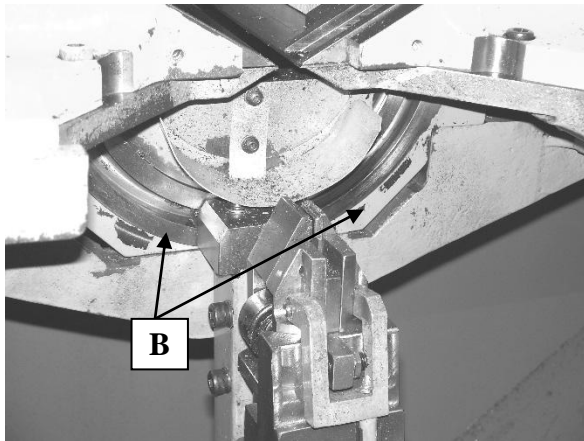
Once a Month:

Saw Carriage. Lubricate the saw carriage trucks (4 places) with Mobilith SHC460. Clean the grease fittings (A) before lubricating. Lubricate until grease is visible being discharged from the seals.



The saw carriage moves on four trucks, one at each corner of the carriage. Each truck has a single grease fitting (A).

Front Pivot. Clean the pivot out by wiping it with a rag. Be sure to remove the old grease and any chips. Brush a new coat of moly-based grease in the entire pivot groove (B).



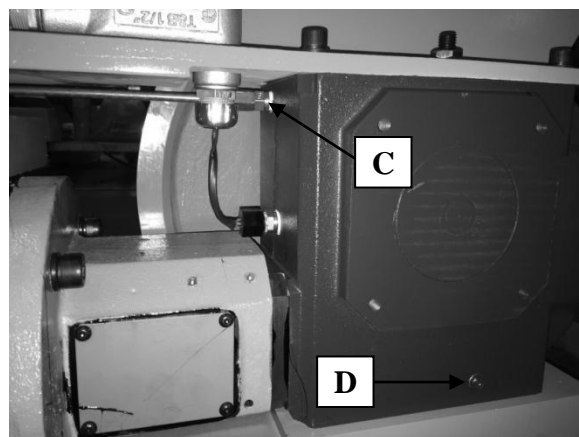
Remove old grease and any chips out of groove (B).

Every Two (2) Months:

WARNING Avoid serious injury. The transmission becomes very hot when it is operating. Use caution when servicing the transmission.



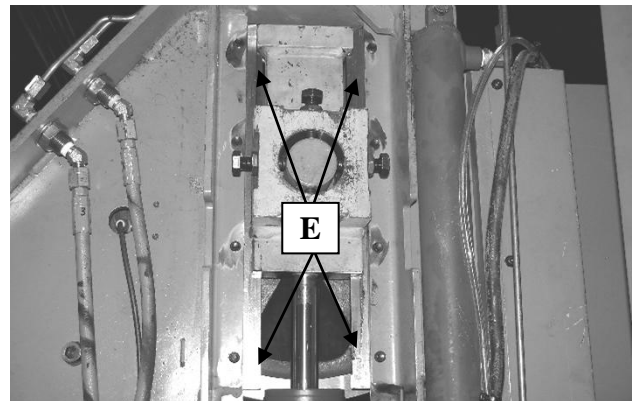
Transmission Oil Level. With the saw column rotated 60° to the right, remove the breather plug (C) and add Mobil SHC632 until oil is at the level of the hole. When the oil is at the proper level, clean and install the breather plug.



Filler plug (C) and drain plug (D) for the transmission fluid.

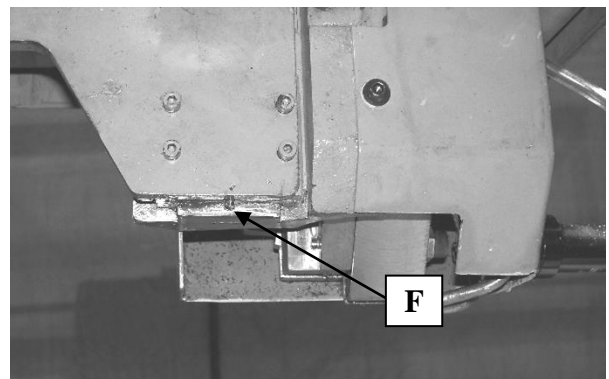
Every Three (3) Months:

Blade Tension Slides (E). Brush a light coat of moly-based grease on the bars bolted to the column that the blade tension slide rides on.



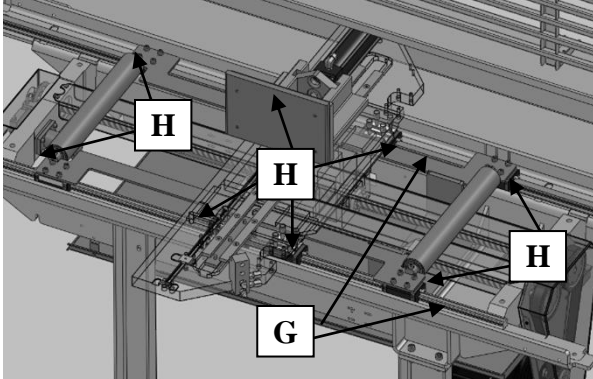
The blade tension slides (E).

Guide Arm Slide (F). The guide arm rides on a linear bearing rail and two trucks. Lubricate the trucks (2 places) with Mobilith SHC460. Clean the grease fittings (F) before lubricating. Lubricate until grease is visible being discharged from the seals.



The guide arm moves on two trucks. Each truck has a single grease fitting (F).

Linear Bearing Rails (G). The shuttle rides on two linear bearing rails and eight trucks. Lubricate the trucks (8 places) with Mobilith SHC460. Clean the grease fittings (F) before lubricating. Lubricate until grease is visible being discharged from the seals.



The shuttle rides on eight trucks. Each truck has a single grease fitting (H).

Every Six Months:

Ball Screw Nuts and End Bearings. The shuttle is driven by two ball screw and nut assemblies. Lubricate the end bearings by pulling out the hole plug. Clean the grease fittings and put in four pumps of grease or until the grease is discharged from the seals. To lubricate the ball screw nuts:

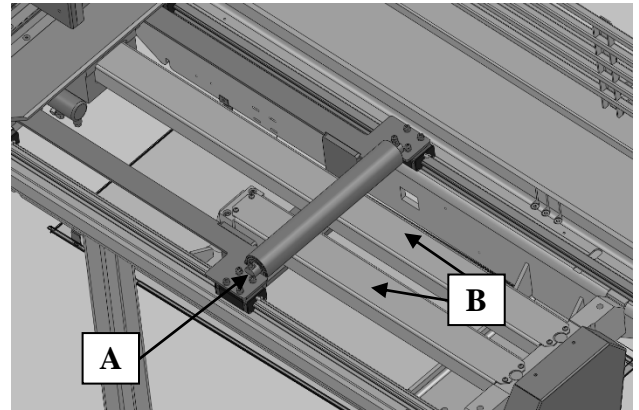
1. Move the shuttle to the middle of the travel.
2. Remove the two bolts holding the end of the long ball screw cover from the front of the machine.
3. Move the shuttle to the forward position.

WARNING Avoid serious injury. Turn off the machine's power and lock it out before servicing the saw.

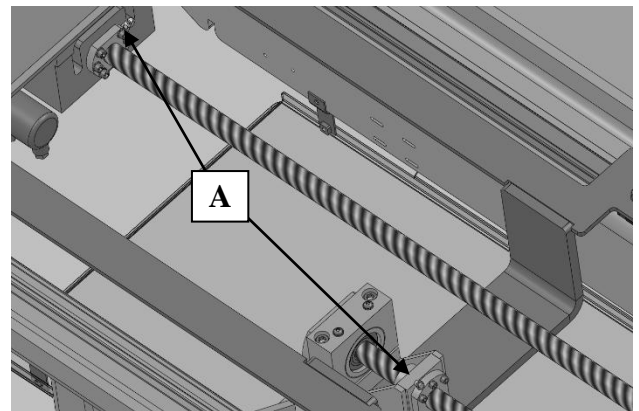


4. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
5. Remove the rear rest roller (A).

6. Remove the remaining six bolts holding on the two ball screw covers (B).



7. Remove the covers to access the ball screw nuts.
8. Lubricate the nuts (A) with Mobilith SHC460. Clean the grease fittings and lubricate until grease is visible being discharged from the seals.



9. Re-install the covers following steps 1-7 in reverse.

Once Every Two Years:

Change the Transmission Oil.

WARNING Avoid serious injury. The transmission becomes very hot when it is operating. Use caution when servicing the transmission.



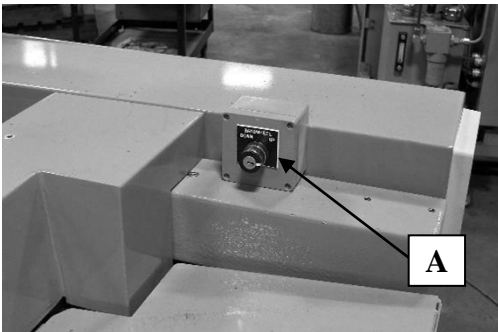
1. With the saw column in the vertical position, remove the transmission's drain plug and

drain the fluid into a suitable container. Clean and re-install the drain plug.

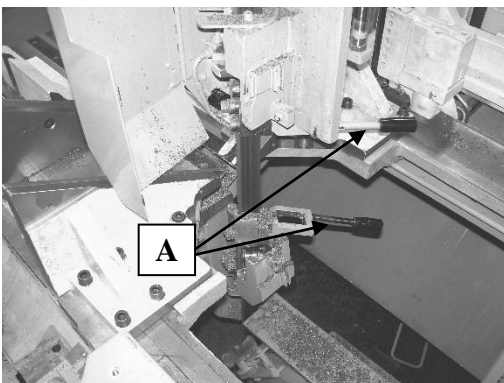
2. Tilt the column 60° to the right. Remove the breather plug and add Mobil SHC632 until it runs out of the hole (approximately 110oz. [3.25 liters]). When the oil is done running from the hole, clean and install the breather plug.

CHANGING THE BLADE

1. Fully retract the saw column.
2. Position the guide arm halfway between the saw table and the upper band wheel doors.
3. Turn the "Blade Mode" switch to the "Change" Position.
4. Take the key out of the front panel and put it in the tension switch (A) at the rear of the saw.



4. Open the upper and lower band wheel doors.
5. Open the blade guard.
6. Open the Easy-load guides by pulling the handle (A) and let the blade twist to the relaxed position.



7. Turn the key towards release to move the upper band wheel down until it stops descending. The hydraulic pump must be operating for the band wheel to descend.

WARNING Avoid serious injury. Wear protective clothing, including a face shield and gloves, when handling blades.

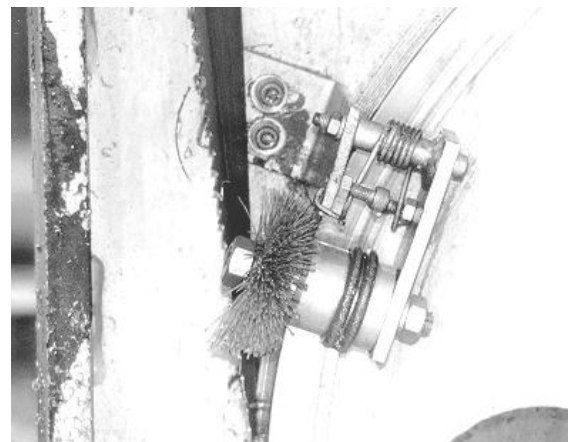


IMPORTANT: When removing a blade it is not necessary to loosen the blade guides.

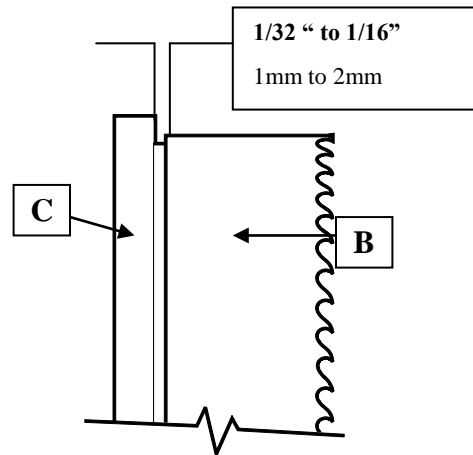
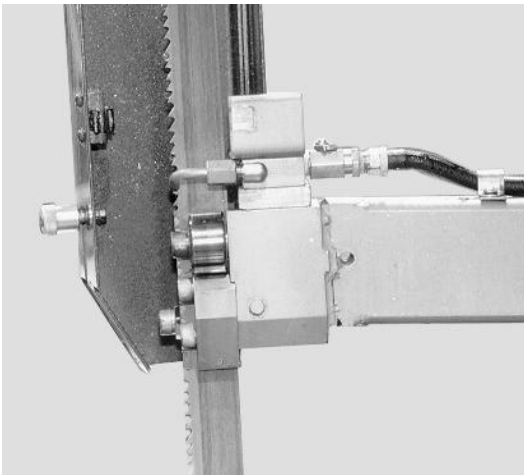
8. Carefully remove the blade from the machine.
9. Select a new blade for the type and thickness of the material to be cut.
10. Hold the new blade with the blade's teeth pointing toward your body and the teeth in your left hand pointing down.
11. Place the new blade around the band wheels and insert it into the blade guides and guard on the back of the saw column.

IMPORTANT: When installing a blade it is not necessary to loosen the blade guides.

12. Make sure the blade is behind the chip brush.



Make sure the blade is behind the chip brush.



The blade's teeth must point down and away from the blade guide.

13. Position the back edge of the blade 1/32" to 1/16" from the flange of each band wheel and hold the blade tension switch towards tension until the blade is fully tensioned.

Note: If full blade tension is not achieved before the blade tension lever is released, full blade tension will automatically be applied when the upper band wheel door is closed. The blade tension circuit prevents over-tensioning the blade.

14. Twist the guides 90 degrees and swing the handles over the alignment screws until it snaps into the spring clip.
15. Remove the key from the tension switch and return it to the blade mode switch. Turn it to tracking mode. Press the track button on the screen to run the blade at slow speed. This will allow the blade to position itself on the band wheels. Check the gap from the back of the blade to the band wheel flange. There should be a gap as shown below.

There must be a 1/32" to 1/16" space between the back of the blade (B) and the flange of the bandwheels (C).

16. Close the blade guard and the upper and lower band wheel doors.
17. Turn the "Blade Mode" switch to "Run".
18. Briefly operate the blade at its slowest speed to ensure proper installation.

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

CHANGING THE COOLANT

WARNING Avoid serious injury. Turn off the machine's power and lock it out before servicing the saw.



WARNING Do not use compressed air to clean the machine. Flying metal chips can cause serious injury and become embedded in the saw's bearings, causing premature wear.



WARNING Avoid serious injury. Coolant creates a serious slipping hazard. Clean up all spilled coolant from the floor.



The coolant must be changed - and the saw chips cleaned from the coolant reservoir - every three months.

1. Drain the saw's coolant (approx. 26 gallons / 96 liters) into an appropriate container
2. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
3. Clean the saw chips from the chip conveyor and coolant pan.
4. Remove the coolant intake screen (A) and wash it off with a stream of water. Inspect the screen for holes and tears. Replace the screen if it is damaged.
5. Reinstall the coolant intake screen.
6. Pour approximately 26 gallons (96 liters) of new coolant, mixed to the coolant manufacturer's instructions, into the coolant reservoir.

CHIP BRUSH REPLACEMENT

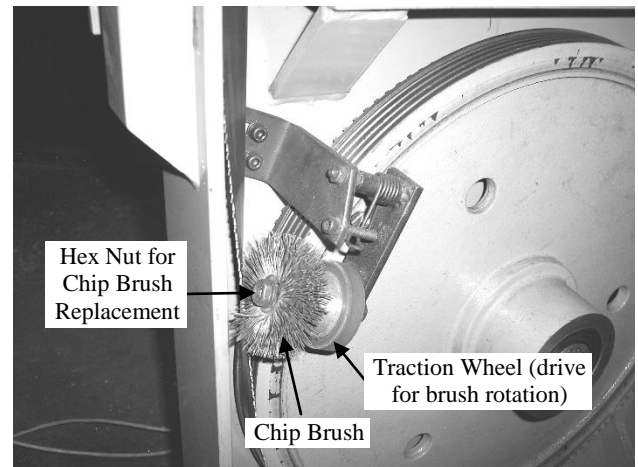
WARNING The main electrical disconnect switch must always be turned to the "Off" position and locked before adjusting, servicing or cleaning the saw. Failure to do so can result in serious injury or death.



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 (Marvel part# 81DBA156) and secure it with the nut.
6. Close the band wheel covers.

CHECKING THE HYDRAULIC FLUID LEVEL

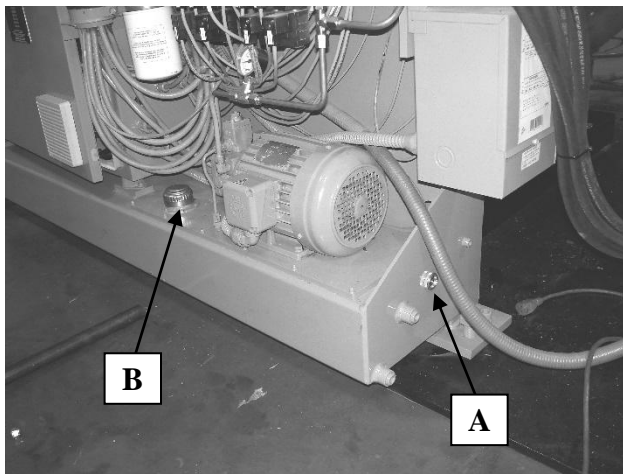
WARNING



Avoid serious injury. Hydraulic fluid creates a serious slipping hazard. Clean up all spilled hydraulic fluid from the floor.

The hydraulic fluid level must be maintained for proper machine operation.

1. Check the level of the hydraulic fluid in the sight gauge (A) on the hydraulic tank. It must be visible in the sight gauge and preferably in the middle.



The hydraulic fluid level sight gauge (A) and filler cap (B).

2. If the level is low, remove the filler cap (B) and add Mobil® DTE 25 anti-wear hydraulic oil, or equivalent, to bring the hydraulic fluid to the proper level.

REPLACING THE HYDRAULIC FLUID FILTER

WARNING



Avoid serious injury. Hydraulic fluid creates a serious slipping hazard. Clean up all spilled hydraulic fluid from the floor.

The hydraulic fluid filter must be replaced every six months and/or every time the hydraulic fluid is changed.

To Replace the Filter:

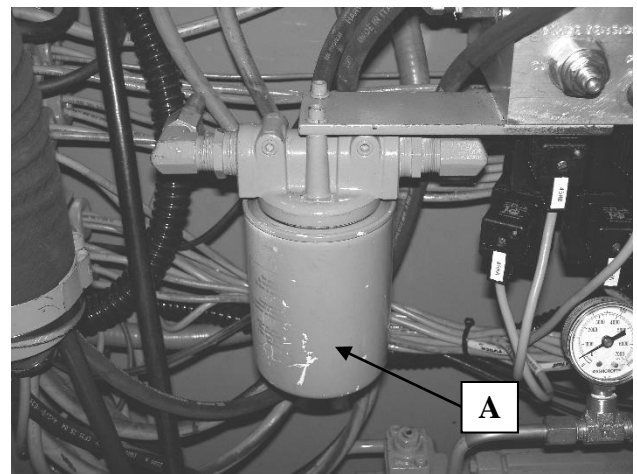
WARNING



Avoid serious injury. Turn off the machine's power and lock it out before servicing the saw.

1. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
2. Unscrew the filter (A).

Note: The filter is full of hydraulic fluid which will leak out as the bowl is removed.



The hydraulic fluid filter (A) Marvel part #V380PM13340.

3. Remove the filter with a downward twisting motion and discard it. Do not try to clean and reuse a dirty filter element.
4. Use a standard cellulose media hydraulic filter with a 10 micron rating. Marvel part# V380PM13340. Lubricate the O-ring of a

- new filter with hydraulic fluid and install the filter on the filter head.
- 5. Screw the filter into place and tighten to the filter manufacture's specifications.
- 6. Operate the saw and inspect for leaks.
- 7. Check the hydraulic fluid level and add more fluid as needed.
- 8. Wipe up any hydraulic fluid that has spilled.

CHANGING THE HYDRAULIC FLUID

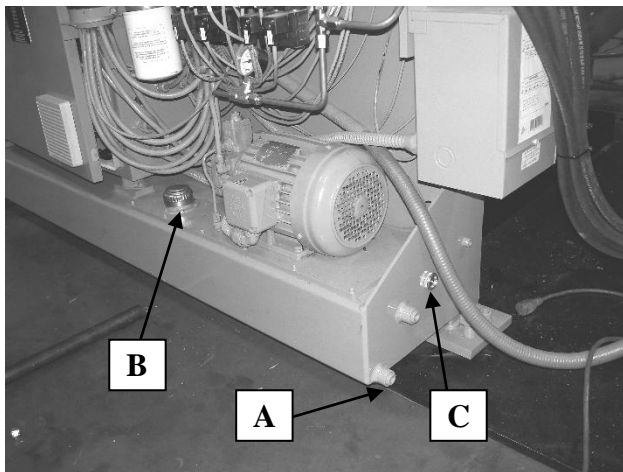
WARNING Avoid serious injury. Turn off the saw's power and lock it out before servicing the saw.



WARNING Avoid serious injury. Hydraulic fluid creates a serious slipping hazard. Clean up all spilled hydraulic fluid from the floor.



The hydraulic fluid must be changed at least once every two years and any time it becomes dirty or contaminated.



The Hydraulic fluid drain plug (A), filler port (B), and sight gauge (C).

- 1. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
- 2. Remove the hydraulic fluid drain plug (A) and drain the hydraulic fluid into a suitable container.
- 3. Replace the drain plug.
- 4. Perform steps 2 through 6 of "Replacing the Hydraulic Filter".
- 5. Remove the filler cap (B) and add approximately 14 gallons (53 liters) of Mobil® DTE 25 anti-wear hydraulic oil, or equivalent, to bring the hydraulic fluid up to the proper level (C).
- 6. Wipe up any hydraulic fluid that has spilled. The hydraulic fluid drain plug (A), filler port (B), and sight gauge (C). Replace the O-ring if necessary.

SHUTTLE DRIVE BELT

WARNING Avoid serious injury. Do not operate this machine with missing, altered, or defective guards or covers.



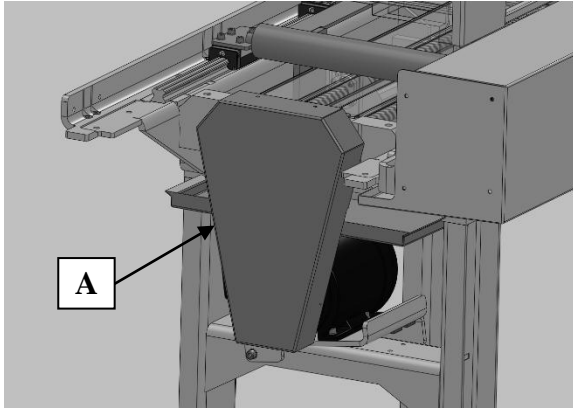
The shuttle is driven by a timing belt at the far end of the machine. The belt should be checked every three months for condition and tension to ensure proper working order. Contact Marvel Service to replace timing belts. Incorrect belt replacement can cause damage to the ballscrew and other parts of the machine.

To Inspect the Drive Belt:

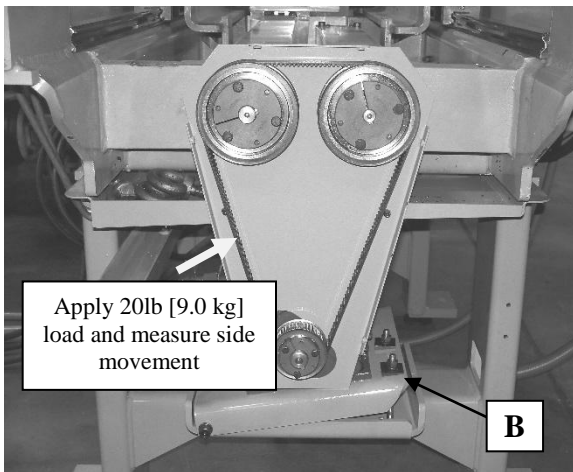
WARNING Avoid serious injury. Turn off the machine's power and lock it out before servicing the saw.



1. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
2. Remove the belt cover (A). The cover is held to the backing plate with six bolts.



3. Inspect the belt for wear, frayed edges, missing teeth, or cracks. If the belt shows any signs of these, it must be replaced.
4. Check the belt tension by applying a 20 lb [9.0 kg] side load to the belt at the location shown in the picture below.



5. Measure the belt movement at the side load. There should be 0.15-0.20in [3.8-5.2mm] of belt side movement.
6. If you do not have the correct movement, adjust the tension bolts (B) to provide the correct movement.
7. Replace the belt cover.

REPLACING THE WORK LIGHT BULB

The work light has a replaceable, 24V halogen bulb. Replace bulb with same type and rating.

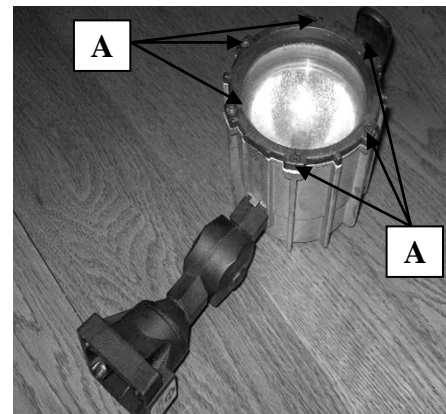
CAUTION Avoid damaging the bulb. Handle the bulb with clean, cotton gloves or rags. Oil from skin, or other contaminants, will cause the bulb to fail.



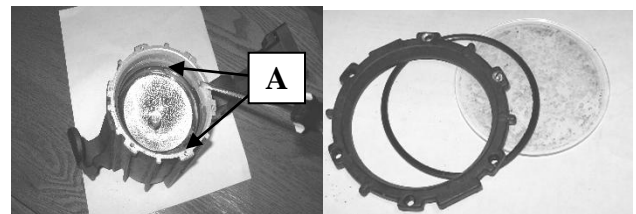
CAUTION Do Not touch the replacement bulb directly or the oil from your fingers will cause the bulb to fail prematurely. Use the plastic package to grip the new bulb while handling it!



1. Remove six screws (A) using a phillips screwdriver. Carefully remove bezel, o-ring and glass lens. Set aside for reassembly later.



2. Remove the two internal retaining rings (A)



3. Pull the lamp/reflector assembly out of the housing.



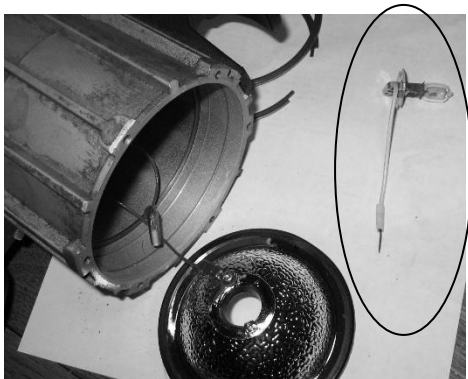
4. Remove the bulb retaining



5. Unplug the bulb pigtail from the insulated socket



6. Remove and replace bulb assembly as required

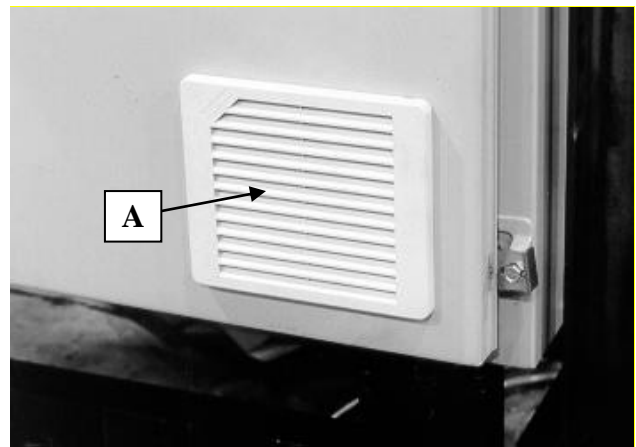


CLEANING THE AIR FILTER

CAUTION Avoid damaging the saw. Failure to replace a plugged air filter can result in overheating and damaged electrical components.



The air filter (A), located behind a louvered vent on the electrical enclosure's door, filters the enclosure's cooling air. The filter consists of a plastic frame with a washable filter. The filter must be inspected weekly and washed with warm, soapy water when it appears dirty.



The electrical compartment's air filter cover (A).

CLEANING THE AIR FILTER

1. Remove the plastic cover which holds the air filter in place.
2. Remove the filter and wash it with warm, soapy water.
3. Allow the filter to dry.
4. Re-install the clean, dry filter.
5. Re-install the louvered cover. The electrical compartment's air filter cover.

SERVICING THE BLADE GUIDES

Indications that the blade guides require service include scored blades, consistently inaccurate cuts, and worn blade guide components.

Servicing the blade guides includes:

- Adjusting the moveable blade guide.
- Replacing the blade guides and/or bearings.
- Replacing the pressure plate.

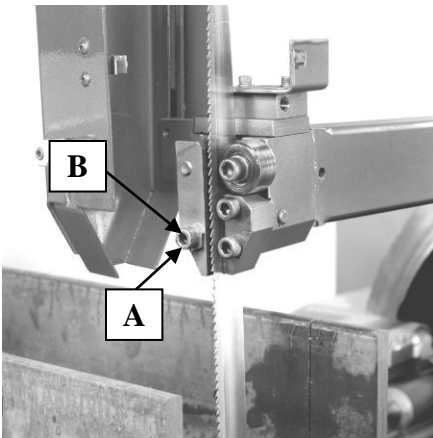
Adjusting the Moveable Blade Guide

A properly adjusted moveable blade guide will permit a blade to be installed and removed, but prohibit the blade from twisting in the guide.

WARNING Avoid serious injury. Turn off the machine's main electrical disconnect and lock it out before servicing the saw.



1. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
2. Open the upper band wheel door.
3. Open the blade guard.
4. Loosen the M8 socket cap screw (A) which locks the eccentric shaft (B) in place.



The moveable blade guide is mounted on an eccentric shaft (B) which is locked in place by an M8 socket cap screw (A).

5. Place an open-end wrench on the eccentric shaft's hex-shaped end and turn the shaft until the blade fits properly between the blade guides.
6. Tighten the socket head cap screw (A) to lock the eccentric shaft in place.
7. Recheck the adjustment.
8. Repeat this procedure for the lower blade guide.
9. Close the blade guard.
10. Close the upper and lower band wheel doors.

Replacing the Blade Guides

WARNING Avoid serious injury.



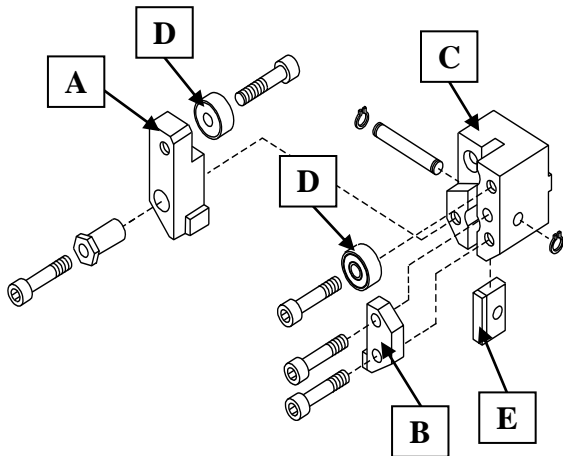
Turn off the machine's main electrical disconnect and lock it out before servicing the saw.

IMPORTANT: Always replace the blade guides in pairs.

Note: Only the upper blade guide carrier is illustrated. The lower blade guide carrier is the same.

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

- Remove the blade guides (A and B) from the guide block (C).



Upper and lower blade guides.

- Remove the guide bearing (D) from the old blade guide and transfer it to the new blade guide. If the guide bearing appears worn, replace it.
- Install the new blade guides (A and B) on the guide block (C).
- Adjust the moveable blade guide (A).

Replacing the Pressure Plates

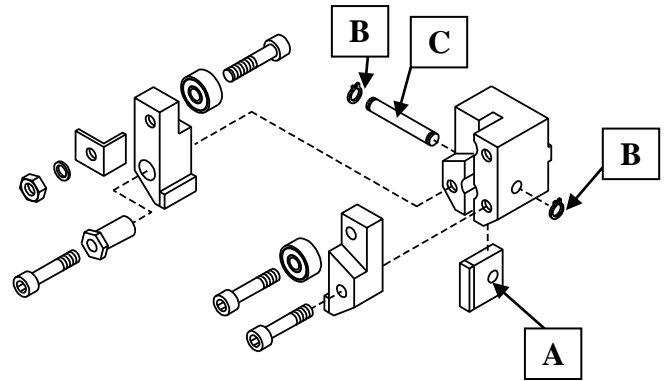
WARNING Avoid serious injury. Turn off the machine's main electrical disconnect and lock it out before servicing the saw.



Note: Only the upper blade guide carrier is illustrated. The lower blade guide carrier is the same.

- Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
- Remove one of the snap rings (B) which hold the pin (C) in the guide block.
- Push the pin out of the guide block until the pressure plate (A) comes free.

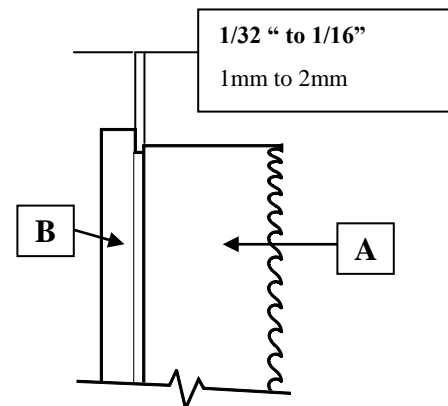
- Install a new pressure plate and press the pin into the guide block to hold the pressure plate in place.
- Reinstall the snap ring removed in step 2.



The pressure plate (G) is held in place by a pin.

BLADE TRACKING ADJUSTMENT

If the blade does not track correctly, the blade's tension is unevenly distributed and the blade will crack and break. The blade (A) must track $1/32''$ to $1/16''$ (1 to 2 mm) from the flange of each band wheel (B).



There must be a $1/32''$ to $1/16''$ space between the back of the blade (A) and the flange of the bandwheels (B)

Checking the Blade's Tracking

The blade's tracking can be checked by opening the upper and lower band wheel doors and checking the blade's position on each band wheel. If the blade is not properly positioned on each band wheel, the tracking screws will need to be adjusted.

Follow these guidelines when making blade tracking adjustments:

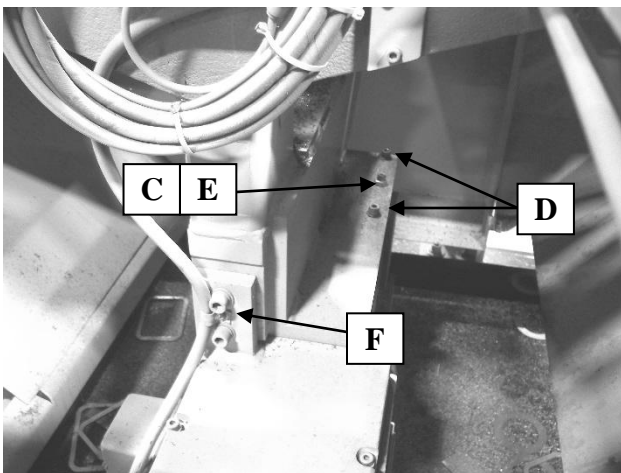
- Never turn the adjusting screws more than 1/2 turn before operating the blade.
- Always tighten the lock nuts before operating the blade.
- Never stand on the machine to reach the tracking bolts.

Lower Band Wheel Adjustment

The lower band wheel adjustment controls how closely the blade tracks to the flange of the lower band wheel, but may also affect the blade's tracking around the upper band wheel.

If the blade tracks too far from the lower band wheel flange:

1. Turn the "Blade Mode" keyed switch to "Track" mode and remove the key from the switch.
2. Open the upper and lower band wheel doors.
3. Loosen lock nut (E) and bolts (F).



Blade tracking adjustments for the lower bandwheel are made with the screws located near the top of the transmission.

F-14

4. Turn screw (C) counter-clockwise.
5. Turn screws (D) clockwise an even amount until they are snug.
6. Tighten lock nut (E) and bolts (F).

WARNING Avoid serious injury. The blade will go in motion when step 7 is performed. Keep away from the blade and band wheels.



7. Move to the front of the saw and press the "Track" button to operate the blade. Observe the blade's track on the band wheels.
8. Perform further blade tracking adjustments if necessary, or close the band wheel doors then turn the "Blade Mode" switch to "Run". The saw is ready for normal operation.

If the blade tracks too close to the lower band wheel flange:

1. Turn the "Blade Mode" keyed switch to "Track" mode and remove the key from the switch.
2. Open the upper and lower band wheel doors.
3. Loosen lock nut (E) and bolts (F).
4. Turn screw (D) counter-clockwise.
5. Turn screw (C) clockwise until it is snug.
6. Tighten lock nut (E) and bolts (F).

WARNING Avoid serious injury. The blade will go in motion when step 7 is performed. Keep away from the blade and band wheels.



7. Move to the front of the saw and press the "Track" button to operate the blade. Observe the blade's track on the band wheels.

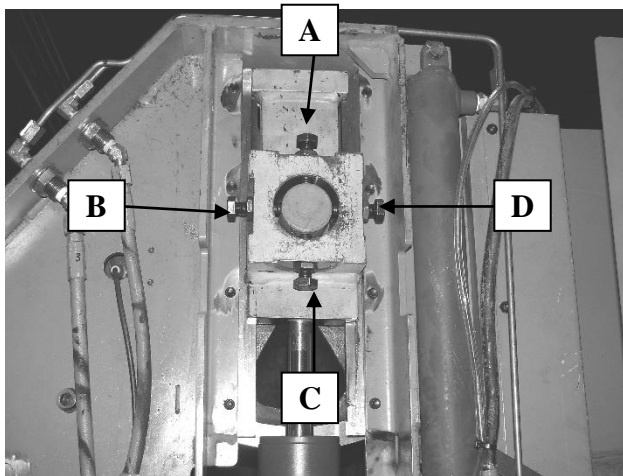
8. Perform further blade tracking adjustments if necessary, or close the band wheel doors then turn the “Blade Mode” switch to “Run”. The saw is ready for normal operation.

Upper Band wheel Adjustment

The upper band wheel adjustment controls how closely the blade tracks to the flange of the upper band wheel, but may also affect the blade's tracking around the lower band wheel.

1. Turn the “Blade Mode” keyed switch to “Track” mode and remove the key from the switch.
2. Open the upper and lower band wheel doors.
3. Loosen lock nuts holding bolts (A, B, C, and D).

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.



The tracking adjustment screws for the upper band wheel are identified in this photo.

4. 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 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).

5. Tighten lock nuts on adjustment screws.

WARNING Avoid serious injury. The blade will go in motion when step 8 is performed. Keep away from the blade and band wheels.



6. Move to the front of the saw and press the "Track" button to operate the blade. Observe the blade's track on the band wheels.
7. Perform further blade tracking adjustments if necessary, or close the band wheel doors then turn the “Blade Mode” switch to “Run”. The saw is ready for normal operation.

PROXIMITY SWITCHES

The saw has proximity switches which monitor or detect:

- the saw column's forward position (1PRS).
- when the saw column is fully retracted (2PRS).
- a broken or slipping blade (3PRS).
- the position of the guide arm (4PRS).
- when the Shuttle is out-of-stock (5PRS and 6PRS).

The proximity switches operate by emitting a small magnetic field which detects a ferrous metal "target". A "target" is a specific part of the saw a proximity switch has been positioned to detect.

Small labels are affixed to the saw near each proximity switch which identifies each switch by number (1PRS, 2PRS, etc.). These numbers also appear on the electrical schematics supplied with the saw.

SERVICING PROXIMITY SWITCHES

Note: It is important to keep the proximity switches clean to avoid false signals caused by saw chips.

The distance between each proximity switch and its target must be accurately maintained. The distance for each proximity switch, typically no more than .16" (4 mm) is provided in the description of each proximity switch.

To adjust a proximity switch:

WARNING Avoid serious injury. Turn off the machine's power and lock it out before servicing the saw.

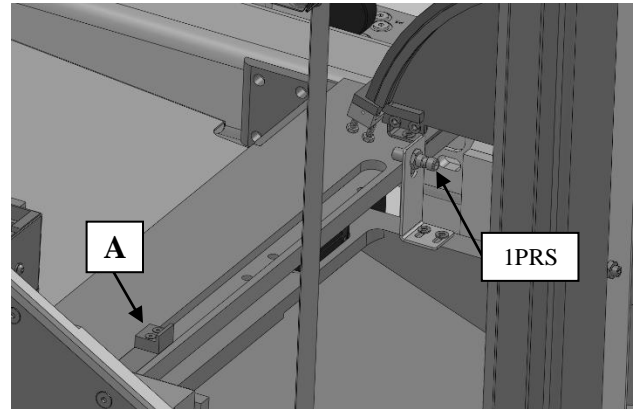


1. Turn off the saw's main electrical disconnect switch and lock it in the "Off" position.
2. Loosen the hex nut on each side of a switch's mounting bracket.
3. Turn the proximity switch until the space between the end of the switch and the switches' target is within the switches' sensing distance. The sensing distance for each switch is provided in the description of each switch on the following page.
4. Tighten the hex nut on each side of the switch's mounting bracket.

Saw Column Forward Proximity Switch (1PRS)

The saw forward proximity switch, mounted just below the tilt protractor, stops the saw column's forward movement when it detects its target (A).

The saw forward proximity switch's sensing distance is no more than 0.13" (3.2 mm).

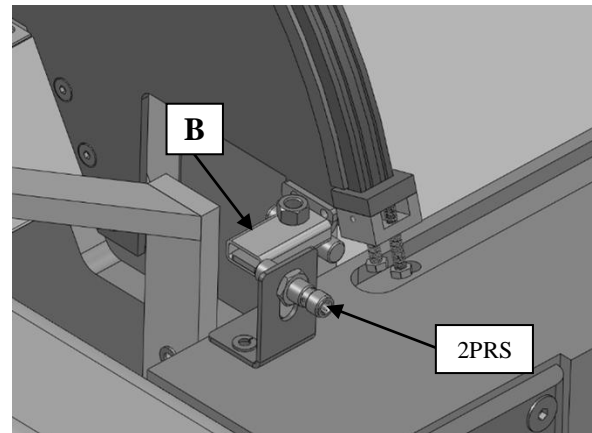


The saw forward proximity switch (1PRS) stops the saw column's forward movement when it detects its target (A).

Saw Column Retracted Proximity Switch (2PRS)

The saw column retracted proximity switch (2PRS) stops the saw column's rearward movement when it detects the target on the back of the tilt protractor (B).

The column retracted proximity switch's sensing distance is no more than 0.13" (3.2 mm).



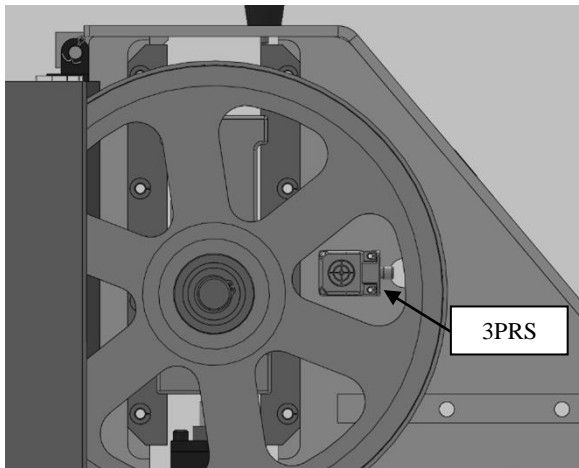
The saw column retracted proximity switch (2PRS) stops the saw column's rearward

movement when it detects its target on the back of the tilt protractor (B).

Blade Break Proximity Switch (3PRS)

The blade break proximity switch (3PRS) receives pulses from the "spokes" in the upper band wheel as the blade runs. If the proximity switch does not detect any pulses, it shuts off the blade drive motor.

The blade break proximity switch's sensing distance is no more than 0.63" (16 mm).



The blade break proximity switch (3PRS) stops the saw's blade drive motor when it stops detecting the spokes of the upper band wheel.

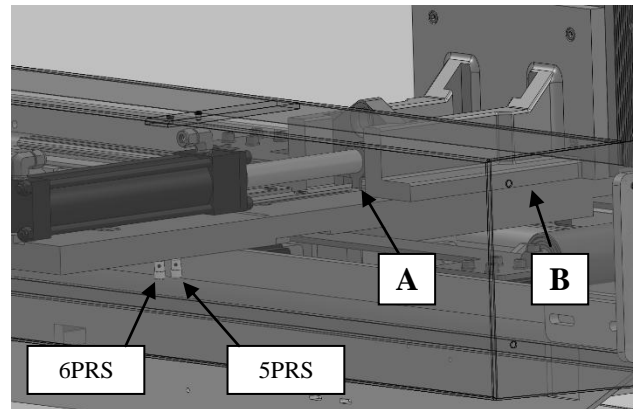
Shuttle Vise Out-of-Stock (6PRS) and Shuttle Vise Out-of-Stock Counter (5PRS) Proximity Switches

WARNING **Crushing hazard. Avoid serious injury. Never place any part of your body between the vise jaws.**



The Out-of-Stock proximity switches (6PRS and 5PRS) detect the position of the Shuttle vise jaw. If the vise jaw closes too far for the material being cut, these switches pause the job and "Out of Stock" is displayed on the PC3[®] programmable controller. These switches only function when the machine is running an automatic job.

Both of these switches are mounted under the shuttle carriage targeting a sliding bar (A) which is attached to the front Shuttle vise jaw (B).



The out-of-stock proximity switches are located under the shuttle carriage targeting a sliding bar (A) which is attached to the front shuttle vise jaw (B).

Out-of-Stock Counter (5PRS)

As the vise jaw moves to clamp the work material, the Out-of-Stock Counter (5PRS) counts recesses in the side of the sliding bar. If it counts more recesses than is should for the material being cut, it triggers an out-of-stock message.

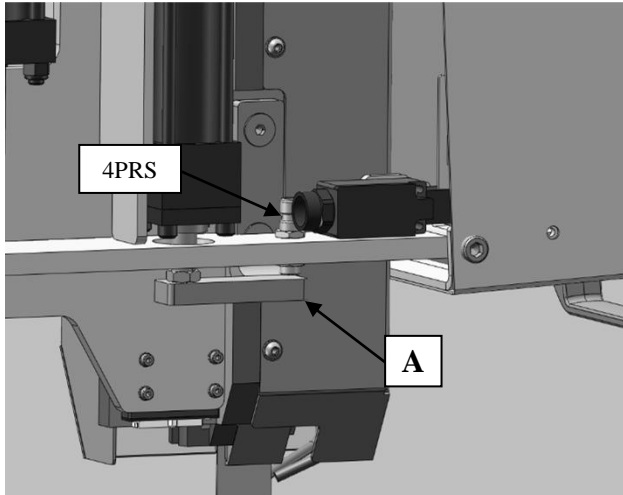
The Out-of Stock switch (6PRS) detects the end of the sliding bar. If the end is detected the vise jaw is nearly fully closed and an out-of stock condition is displayed on the PC3[®]

Guide Arm Proximity Switch (4PRS)

CAUTION Avoid damaging the machine. The operator must make sure the guide arm will not strike the vises before tilting the column.



The guide arm proximity switch (4PRS) detects the position of the guide arm to help prevent the guide arm from striking the vise jaws.



The guide arm proximity switch (4PRS) and its target (A).

If the guide arm is below a pre-determined position when a tilt command is received at the start of an automatic job, the guide arm will automatically raise before the saw column tilts.

The guide arm proximity switch's sensing distance is not more than 0.13" (3.2mm).

CHECKING AND ADJUSTING THE HYDRAULIC CIRCUITS

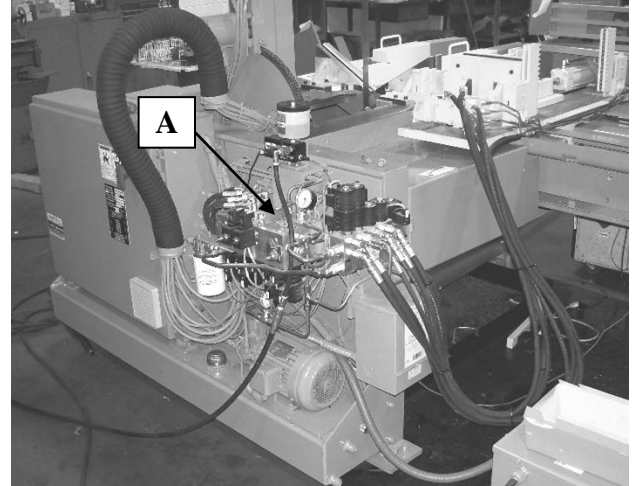
GENERAL GUIDELINES

The information in this section should be used together with the machine's hydraulic diagram to maintain and troubleshoot the saw's hydraulic system.

IMPORTANT: All pressure readings must be taken with the hydraulic pump running and the hydraulic fluid at normal operating temperature.

MAIN HYDRAULIC MANIFOLD

Some of the valves described in this section are located on the main hydraulic manifold. The main hydraulic manifold is located at the rear of the machine.



The main hydraulic manifold (A) is located at the rear of the machine.

HYDRAULIC CIRCUIT CHART

The following chart identifies the hydraulic circuit served by each test port, the correct pressure for each circuit, and a reference page for detailed instructions on setting each circuit's pressure.

Circuit	PSI [MPa]
Blade Tension	620 [4.275]

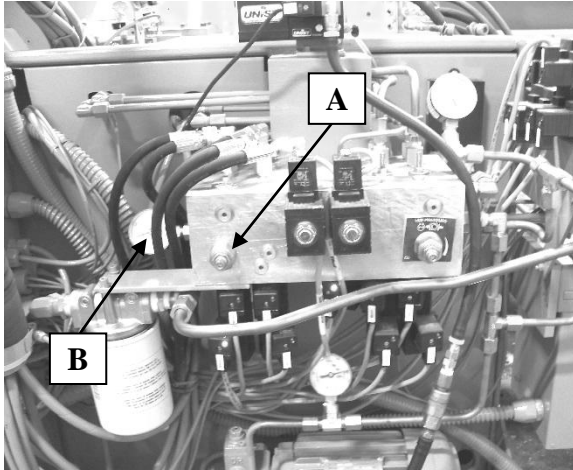
BLADE TENSION

The pressure of the blade tension circuit must be set to achieve a measured blade tension of approximately 25,000 psi [172.4 MPa] using a calibrated tensiometer.

IMPORTANT: For accurate pressure settings, read and follow the "General Guidelines" at the beginning of this section.

IMPORTANT: A new blade must be installed prior to adjusting the pressure of the Blade Tension circuit.

1. Press the "Start Hydraulic Pump" pushbutton and allow the hydraulic fluid to circulate about 15min to reach normal operating temperature if the saw has not been running previously.
2. Loosen the lock nut on the blade tension valve (A).



3. Insert a hex wrench in the socket at the end of the blade tension pressure adjusting valve (A).
4. Turn the hex wrench until the pressure gauge (B) indicates the pressure stated in the Hydraulic Circuit Pressure chart in this section. The approximate blade tension will be 25,000 psi [172.4 MPa].

Note: To determine the exact blade tension, use a calibrated blade tensiometer.

5. Tighten the valve's lock nut.

When ordering repair parts always provide the following information:

- * Machine model number (380A-PC60)
- * 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:

Amada Marvel, 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 or death. 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.