# VW18

**393397**

Valid for machines from serial# JWA0617689B onward

THANK YOU,

On behalf of everyone at HYD·MECH Group Limited, we would like to thank and congratulate you on your decision to purchase a HYD·MECH bandsaw.

Your new machine is now ready to play a key role in increasing the efficiency of your operation, helping you to reduce cost while boosting quality and productivity.

To ensure you are maximizing the power and versatility of your new HYD·MECH bandsaw, please take the time to familiarize yourself and your employees with the correct operation and maintenance procedures as outlined in this manual. Please keep this instruction manual for future reference in a known location and easily accessible to all users of the device.

HYD·MECH offers a great variety of options, components, and features for its various models. Therefore, some of the equipment described in this manual (various illustrations and drawings) may not be applicable to your particular machine.

The information and specifications provided in this manual were accurate at the time of printing. HYD·MECH reserves the right to discontinue or change specifications or design at any time without notice and without incurring any obligation.

Thank you.

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# SECTION 0 - SAFETY INSTRUCTIONS

## SUMMARY

All persons operating this machine must have read and understood all of the following sections of this Manual:

Section 0 SAFETY
Section 2 OPERATING INSTRUCTIONS

However, as a memory aid, the following is a summary of the Safety Section.

**Put Safety First**

**Mandatory Information** – What operators and maintenance people must have read and understood.

**Signatures** – Everyone involved with this machine must sign to confirm they have read and understood mandatory information.

**Basic Rules** – only use this machine when

- It is in good working order.
- All safety equipment is in place and functional.
- Operations are in compliance with this manual.
- Materials are within designed specifications and are non-hazardous.

**Owner is responsible to**

- Keep Manual accessible at the machine.
- Ensure only reliable, fully trained personnel work with the machine.
- Clearly define responsibilities of all personnel working with the machine.
- Keep the machine in good working order.

**Operator and Maintenance Personnel are responsible to:**

- Keep all safety equipment in order, check its function at the beginning of each shift, and report any shortcomings.
- Shut down machine and report any faults or malfunctions that could impair safety.
- Understand and obey safety hazard labels.
- Not to wear un-restrained long hair, loose clothing or jewelry.
- Wear all required personal protective equipment.
- Not to wear gloves within 24 inches of moving blade.
- Maintain a clean working area and machine.
- Always use Lock-out when performing maintenance or repairs.

**FOREWORD**

**Put Safety First!**

This Safety Section contains important information to help you work safely with your machine and describes the dangers inherent to bandsaws. Some of these dangers are obvious, while others are less evident.

It really is important to PUT SAFETY FIRST. Make it a habit to consider the hazards associated with any action BEFORE you do it. If you feel any uncertainty, stop and find a safer approach to the action. If you're still uncertain, ask for advice from your supervisor.

The SAFETY FIRST approach is particularly necessary when you do something new, or different, and most people instinctively recognize this, although impatience may still cause them to take unnecessary risks.

Danger also lurks in the routine task that we have done over and over. Here, familiarity, boredom, or tiredness may lull us into unthinking, automatic repetition. Be alert for this, and when you feel it happening, stop and take stock of your situation. Review the safety hazards associated with what you are doing. That should get your brain working again.

Certainly production is important, but if you think you're too busy to put safety first, think how much production you'll lose if you get hurt.

You owe it to yourself, your family, and your co-workers to PUT SAFETY FIRST.

**Mandatory Information**

All persons operating this machine must have read and understood all of the following sections of this Manual:

Section 0 SAFETY

Section 2 OPERATING INSTRUCTIONS

Personnel involved in installation and maintenance of the machine must have read and understood all sections of the manual

Persons who have difficulty reading, or for whom English is not their first language, must receive particularly thorough instruction.

**Signatures**

Everyone involved in operation of this machine must sign below to confirm that:

I have read and understood all parts of Section 0 – Safety, and Section 2 – Operating Instructions.

| Name | Date | Signature |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Everyone involved in the installation, inspection, maintenance, and repair of this machine must sign below to confirm that:

I have read and understood all parts of this Operation and Maintenance Manual.

| Name | Date | Signature |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

## BASIC RULES

### Intended Use

Our machines are designed and built in line with the state of the art, and specifically in accordance with American National Standards Institute Standard B11.10 *Safety Requirements for Metal Sawing Machines.* However, all machines may endanger the safety of their users and/or third parties, and be damaged, or damage other property, if they are operated incorrectly, used beyond their specified capacity, or for purposes other than those specified in this Manual.

Exclusion of Misuse

Misuse includes, for example:

Sawing hazardous materials such as magnesium or lead.

Sawing work pieces which exceed the maximum workload appearing in the Specifications.

Operating the machine without all original safety equipment and guards.

Liability

The machine may only be operated:

When it is in good working order, and

When the operator has read and understood the Safety and Operating Instructions Sections of the Manual, and

When all operations and procedures are in compliance with this Manual.

Hyd-Mech Group cannot accept any liability for personal injury or property damage due to operator errors or non-compliance with the Safety and Operating Instructions contained in this Manual.

## RESPONSIBILITIES OF THE OWNER

Organization of work

This Operation and Maintenance Manual must always be kept near the machine so that it is accessible to all concerned.

The general, statutory and other legal regulations on accident prevention and environmental protection must also be observed, in addition to the Manual material. The operators and maintenance personnel must be instructed accordingly. This obligation also includes the handling of dangerous substances and the provision and use of personal protective equipment.

Choice and qualification of personnel

Ensure that work on the machine is only carried out by reliable persons who have been appropriately trained for such work.

Training

Everyone working on or with the machine must be duly trained with regard to the correct use of the machine, the correct use of safety equipment, the foreseeable dangers that may arise during operation of the machine, and the safety precautions to be taken.

In addition, the personnel must be instructed to check all safety devices at regular intervals.

Define responsibilities

Clearly define exactly who is responsible for operating, setting-up, servicing and repairing the machine.

Define the responsibilities of the machine operator and authorize him to refuse any instructions by third parties if they run contrary to the machine's safety.

Persons being trained on the machine may only work on or with the machine under the constant supervision of an experienced operator. Observe the minimum age limits required by law.

Condition of Machine and Workplace

Ensure that the machine and its safety equipment are kept in good working order.

Ensure that the work area is well lit, and protected from the elements, such as rain, snow, abrasive dust, and extremes of temperature.

Ensure that the machine is installed with sufficient clearance around it for the safe loading and unloading of work pieces.

## RESPONSIBILITIES OF THE OPERATOR AND MAINTENANCE PERSONNEL

Safety equipment

All machines are delivered with safety equipment that must not be removed or bypassed during operation.

The correct functioning of safety equipment on the machine must be checked:

- At the start of every shift.
- After maintenance and repair work
- When starting for the first time, and after prolonged shutdowns

Emergency Stop Button (E-Stops)

Always be aware of the location of the Emergency Stop Button(s). Do not allow material or objects to block your access to an Emergency Stop.

Damage

If any changes capable of impairing safety are observed in the machine or its operation, such as damage, malfunctions, or irregularities, then appropriate steps must be taken immediately, the machine switched off, locked-out, and the fault reported to the responsible person.

Safe operation

The machine may only be operated when in good working order and when all protective equipment is in place and operational.

Keep a safe distance from all moving parts – especially the blade and vises.

Stock should not be loaded onto the saw if the blade is running.

Long and heavy stock should always be properly supported in front of and behind the saw.

Faults

The machine must be switched off and locked-out before starting to remedy any faults.

Safety hazard labels

Safety hazard labels and other instructional labels on the machine must be observed. They must be clearly visible and legible at all times. If they become damaged they must be replaced.

Clothing, jewelry, protective equipment

Personnel operating or working on the machine must not wear un-restrained long hair, loose-fitting clothes and dangling jewelry.

When operating or working on the machine, always wear suitable, officially tested personal protective equipment such as safety glasses and safety boots and any other equipment required by plant regulations.

Gloves

Experience has shown that careless use of gloves around machinery is a major factor in serious hand injuries.

Gloves should not be worn when operating or adjusting the machine, except:

Wear protective gloves when handling bandsaw blades at blade changes.

Gloves may be worn when handling work pieces, only if the machine is in Manual Mode and the bandsaw blade is not running.

If the machine is running in Auto Mode, and only if the cut parts are greater than 24 inches long, it may be possible to safely wear gloves for handling the cut parts, but the wearer of the gloves must never put his hands near the blade for any reason. If the cut parts are less than 24 inches long, it is required to arrange their automatic flow into a parts bucket or other suitable arrangement to avoid the necessity to pick them off the machine by hand.

Hearing protection

Ear protection must be worn whenever necessary.

The level and duration of noise emission requiring hearing protection depends upon the national regulations in the country in which the machine is being used.

The actual level of noise emission by band sawing machines depends upon work piece size, shape and material, blade type, blade speed and feed rate.

The only practical course of action is to measure the actual noise emission levels for the type of work that is typically done. With reference to national standards, decide upon the necessary hearing protection required.

In the absence of such measurements, it is advisable for anyone exposed to long periods of moderate to loud noise to wear hearing protection. It is important to understand that hearing loss is gradual and easily goes un-noticed until it is serious and irreversible.

Workplace

A clear working area without any obstructions is essential for safe operation of the machine. The floor must be level and clean, without any build-up of chips, off-cuts, coolant, or hydraulic oil.

The workplace must be well lit, and protected from the elements, such as rain, snow, abrasive dust, and extremes of temperature

Nothing may ever be placed on, or leaned against the machine, with the obvious exception of the work piece on the table and conveyor of the machine.

Master Disconnect

Lock-out the machine before undertaking any maintenance or repair work on it. ‘Lock-out’ refers switching off the master electrical disconnect switch, and locking it out so that it cannot be switched on again without authorization.

On Hyd-Mech machines the Master Disconnect Switch will be of one of four types:

- Rotary switch mounted in electrical control cabinet door and inter-locked with door.
- Rotary switch mounted on the side of the operator interface console.
- Lever switch mounted in separate box mounted on the machine.
- Supply disconnect switch supplied by user at installation and usually wall-mounted within sight of the machine, depending upon local regulations.

In almost all jurisdictions, it is required that owners of industrial equipment establish and post lock-out procedures. Know and use the lock-out procedures of your company or organization.

Residual Risks

The machine is still not completely de-energized if an electrical cabinet door type switch is locked-out.

The line side of the disconnect switch itself remains energized.

Variable speed blade drives store dangerous voltage in their capacitors, and this requires time to dissipate. After locking out power, wait 3 minutes before beginning to work on machine electrical circuits.

If compressed air is supplied to the machine to power a mist lubrication system or other devices, it should be disconnected, and any stored air pressure released before working on the machine.

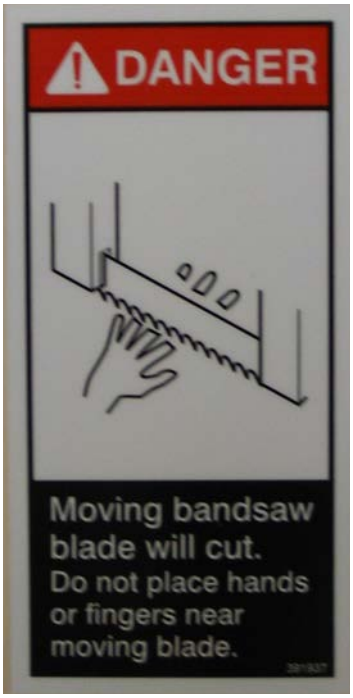
The weight of individual machine components represents stored potential energy that can be released if they fall when disconnected. Secure these components with adequate hoisting gear before disassembly.

## SAFETY HAZARD LABELS

The safety hazard labels attached to your machine represent important safety information to help you avoid personal injury or death.
All supervisors, operators, and maintenance personnel must locate and understand the safety information associated with each hazard label prior to operating or servicing the machine.
The safety hazard labels shown below are located at various positions on the machine to indicate possible safety hazards. The location and re-order part number of all the safety labels associated with this particular model of bandsaw are indicated at the end of this section of the manual. It is important to replace any safety hazard label that becomes damaged or illegible.


### HAZARDOUS VOLTAGE INSIDE

Contact with high voltage may cause death or serious injury. Never perform maintenance on, or near, electrical components until the machine’s electrical power source has been disconnected. Lock-out power in accordance with your company’s lock-out procedures before any such maintenance. The “Stop” or “Emergency Stop” push button does not disconnect the machine’s power supply. Hazardous voltage is still present in the machines electrical circuits.
The machine’s Electrical Disconnect Switch does disconnect voltage from the machine’s circuits; however hazardous voltage is still present inside the main electrical cabinet, on the infeed (line) side of the main fuses. Therefore keep hands and tools away from the infeed side of the control panel main fuses. If these fuses need to be replaced, use a fuse puller.
Allow three minutes after locking-out power before opening any electrical enclosures. Your machine may be equipped with a variable frequency drive that stores high voltage within its capacitors. Three minutes will allow sufficient time for this voltage to safely discharge.
Never spray coolant directly at electrical components or cabinets.




**MOVING BANDSAW BLADE WILL CUT**

Do NOT operate with guard removed.
Do NOT place hands or fingers near moving bandsaw blade.
For blade changing, always follow the proper Blade Changing Procedure, as given in Section 3 of this manual.

**PINCH POINT**

Machine parts may move without warning, either because the machine is operating automatically, or because another person initiates the motion. Keep hands clear of all labelled pinch points, whenever the machine is running. Machine vises can exert great force and cause severe injury. Keep hands clear of vises and work piece when vises are opened or closed. Be aware that vise closing or opening may result in potentially dangerous work piece movement. Be aware also that the opening motion of a vise may create potential pinch points.



**MOVING PARTS CAN CRUSH AND CUT**

Keep hands clear of chip auger. Lock-out power in accordance with your company's lock-out procedures before attempting to clear a jam in the chip auger.
Be aware that the chip auger may start unexpectedly, either because the machine is operating automatically, or because another person initiates the motion.
If the chip auger is stalled because of a jam, it may start without warning when the jam is cleared, unless the machine power is locked out.

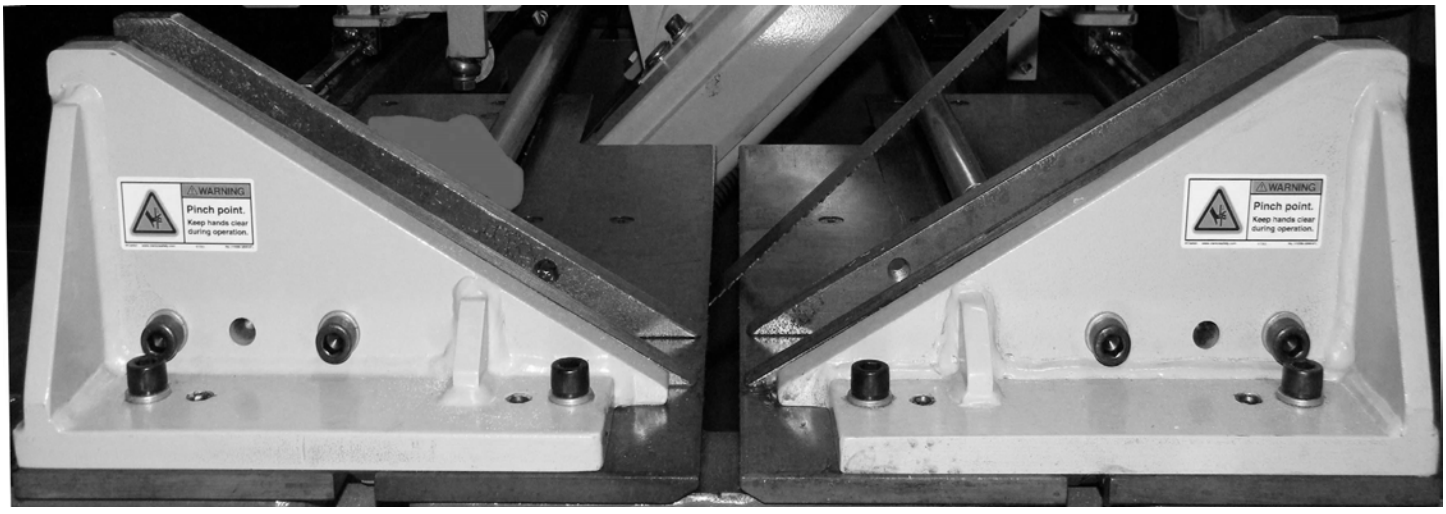
## LOCATION OF SAFETY HAZARD LABELS ON VW18

Power Junction Box


Electrical and Hydraulic panel lock.


Drive wheel Door


Coolant shroud

# SECTION 1 - INSTALLATION

## INSTALLATION

Upon delivery of your new VW18 saw, it is imperative that a thorough inspection be undertaken to check for any damage that could have been sustained during shipping. Special attention should be paid to the electrical and hydraulic systems to check for damaged cords, hoses and fluid leaks. In the event of damage caused during shipping, contact your carrier to file a damage claim.

## SAFETY PRECAUTIONS

The VW18 has been designed to give years of reliable service. It is essential that operators be alerted to the safe operation of this saw, and the practices to avoid that could lead to injury. The following safety rules are at the minimum necessary for the safe installation, operation, and maintenance of the saw. Take every precaution for the protection of operators and maintenance personnel.

- POWER HOOK-UPS AND REPAIRS SHOULD BE ATTEMPTED ONLY BY QUALIFIED TRADESMEN.
- THE SAW SHOULD BE LOCATED IN AN AREA WITH SUFFICIENT ROOM TO SAFELY LOAD STOCK INTO THE SAW. SECURE THE SAW TO THE FLOOR.
- THE AREA AROUND THE SAW SHOULD BE MAINTAINED IN A CLEAN AND TIDY CONDITION TO AVOID OBSTACLES OPERATORS COULD TRIP OVER.
- THE VW18 SHOULD ONLY BE OPERATED ACCORDING TO THE SPECIFICATIONS OF THE SAW. AVOID UNSAFE USAGE PRACTICES.
- IF AT ANY TIME THE SAW DOES NOT APPEAR TO BE OPERATING PROPERLY IT SHOULD BE STOPPED IMMEDIATELY AND REPAIRED.

OPERATOR:

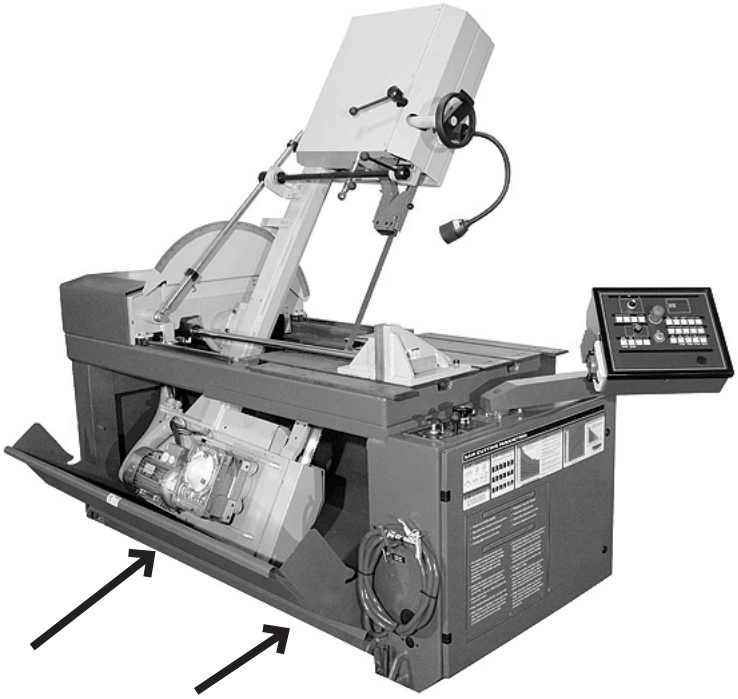
- THE SAW SHOULD NEVER BE OPERATED UNLESS ALL GUARDS AND DOORS ARE IN PLACE AND CLOSED.
- KEEP A SAFE DISTANCE FROM ALL MOVING PARTS - ESPECIALLY THE BLADE AND VISES.
- LOOSE CLOTHING AND GLOVES SHOULD NEVER BE WORN WHILE OPERATING THE SAW. COVER LONG HAIR.
- STOCK SHOULD NOT BE LOADED ONTO THE SAW IF THE BLADE IS RUNNING.
- LONG AND HEAVY STOCK SHOULD ALWAYS BE PROPERLY SUPPORTED IN FRONT OF AND BEHIND THE SAW.
- NEVER ATTEMPT TO DISLODGE OR MOVE STOCK WHILE THE BLADE IS MOVING. TAKE THE TIME TO STOP THE SAW BLADE, REMOVE OBSTRUCTIONS, AND RESTART BLADE.
- MUST WEAR EYE PROTECTION
- MAINTAIN PROPER ADJUSTMENT OF BLADE TENSION, AND BLADE GUIDES
- HOLD WORK PIECE FIRMLY AGAINST TABLE
- DO NOT REMOVE JAMMED CUTOFF PIECES UNTIL BLADE HAS STOPPED

NO MODIFICATIONS TO THE MACHINE ARE PERMITTED WITHOUT PRIOR APPROVAL FROM HYD-MECH. ANY APPROVED MODIFICATIONS SHOULD ONLY BE UNDERTAKEN BY TRAINED PERSONNEL.

## LIFTING AND SHIPPING

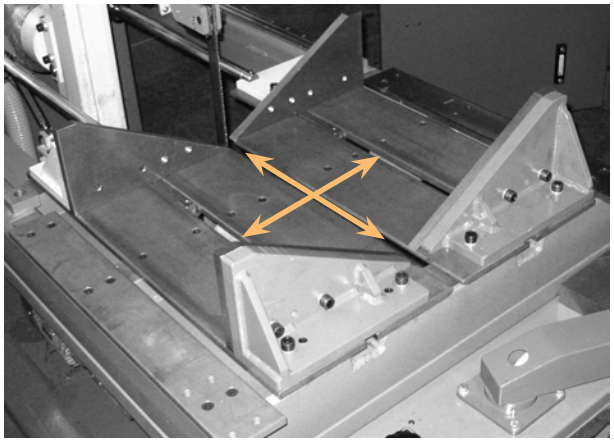
To lift a VW18 bandsaw with a forklift, it must meet the following minimum requirements;
Capacity of 2800 lb (1270 kg.) at 48”(122 cm) from the mast, as well as 6’ (183cm) long forks.

The machine should be lifted from under the base, at either side as shown below.
**(Head should be at 90º position before attempting to pick up machine)**



## FOUNDATION, LEVELLING AND ANCHORING

Machine location should be carefully selected. A flat concrete floor area should be chosen. It should have enough free space surrounding the machine to enable free access for safe operation and maintenance. The machine should be leveled in both directions (from side to side & from front to back). Four leveling screws used for securing the machine to the pallet during transport, should be installed, one in each corner of the machine base. It might be required to place steel plates under leveling bolts to prevent their sinking into the concrete floor. In cases when the machine is to be anchored permanently, anchoring holes are provided. They are located next to the leveling screw holes. The larger diameter hole is used for retaining during shipping and for use with concrete floor anchors. The smaller diameter threaded hole at each corner, are used for leveling the saw.
Using a level on the machine out-feed table, level machine front to back and side to side.
**NOTE:** In some cases leveling the saw infeed with a slight slope towards the blade is recommended. This will prevent coolant from running down the raw stock. (This is especially true when cutting tubing or bundles).



## RELOCATION OF INNER STOP SWING COLLARS (POWER TILT OPTION)

For shipment inner stop swing collars should be relocated and locked against brake assembly as shown on Fig. 1

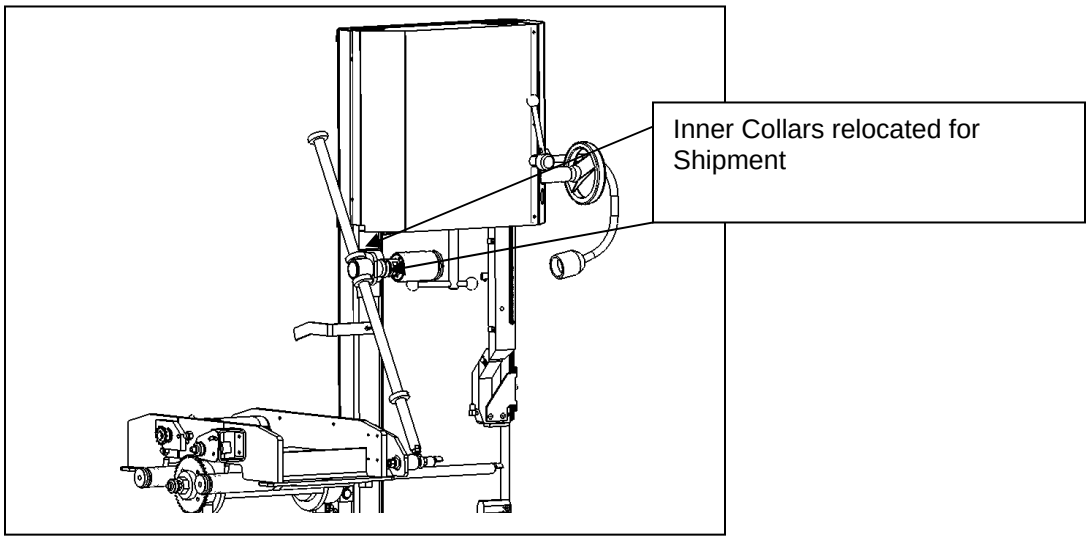



Fig. 1

After installation collars should be moved back to original location against outside collars and locked as shown on Fig. 2

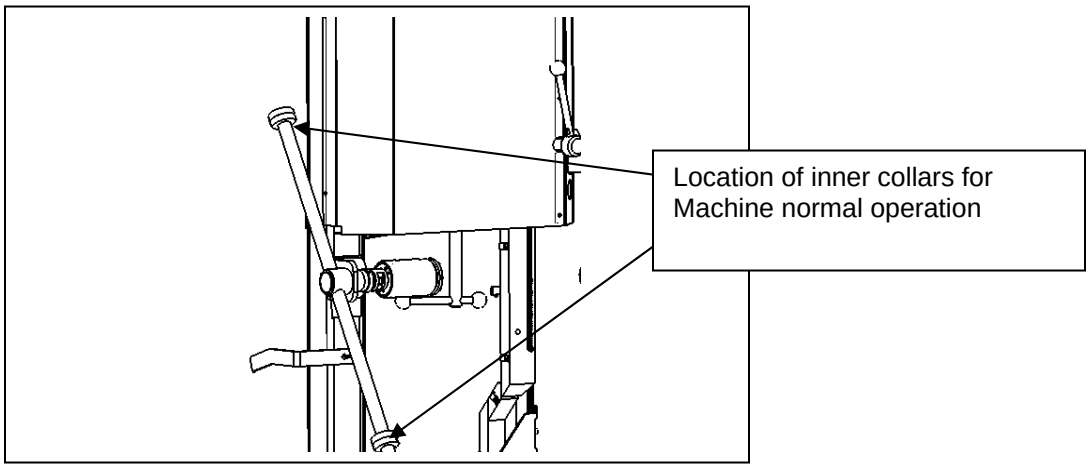



Fig. 2

## CUTTING FLUID

The VW18 uses a pump and reservoir to circulate the necessary cutting fluid to the blade for maximum blade life. Your saw blade supplier will be able to provide information to the cutting fluid products that are available for your needs.

No cutting fluid (coolant) is supplied with the machine. There are two types of coolant available:

- Oil based; dilute 1:10 ratio (one part concentrated coolant to 10 parts water)
- Synthetic; dilute as recommended by manufacturer.

## HYDRAULIC OIL

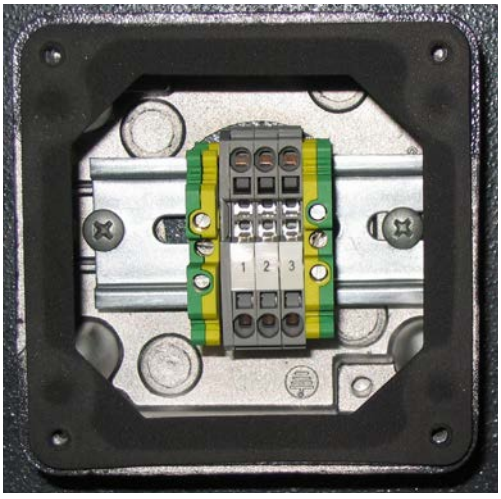
The VW18 is supplied with Texaco Rando HD46 hydraulic oil. Substitutes should be of the same viscosity hydraulic oil.

## WIRING CONNECTIONS

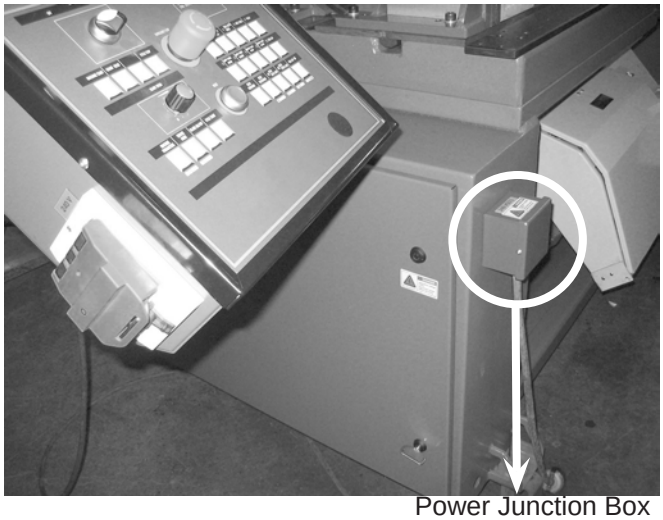
After the machine is leveled and anchored the necessary power hook-up needs to be performed.
Check that there is no sign of shipping damage to the electrical conduits, cords or hydraulic hoses.

As supplied, the VW18 is built to run on three phase AC Voltage, as indicated on the machine serial plate and voltage label. Machine voltage is customer specific and should be indicated while ordering the machine. If machine voltage does not match available power source contact factory.

Power connection to the machine is made in the junction box, located on the side of the electrical and hydraulic panel. The power cable can be routed through the supplied hole in the junction box, and connections made to L1, L2, L3, and ground terminals. Proper strain relief should be used on the incoming power cable.




Power Junction Box



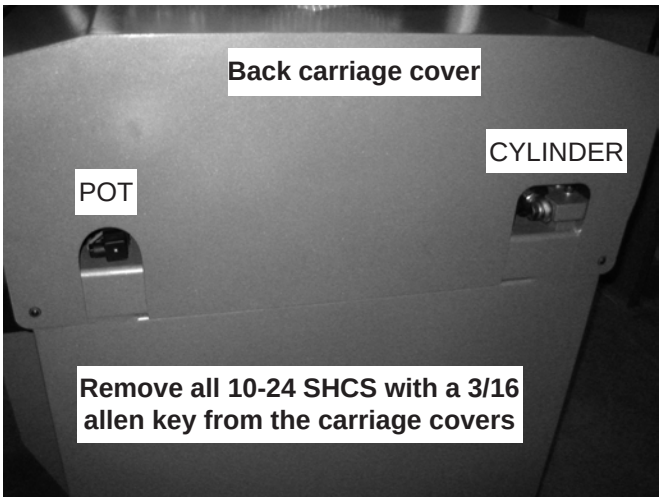
Power Junction Box

## RE-INSTALLING THE HEAD FORWARD/BACKWARD CYLINDER AND POTENTIOMETER.

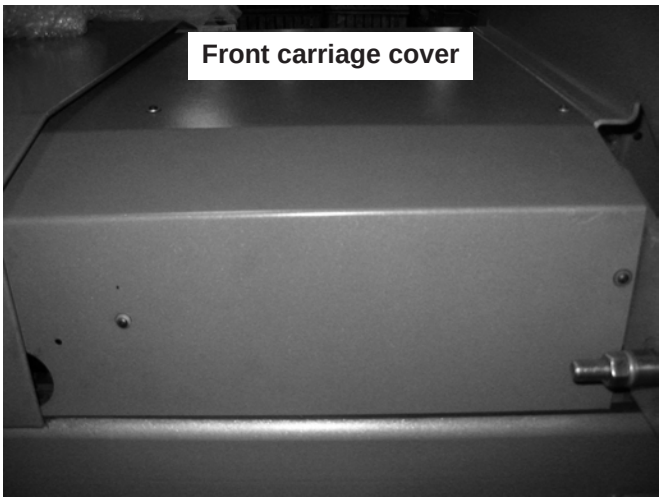
**To prevent damage to the Head cylinder and potentiometer during shipping, the two items have been secured for shipping purposes. For machine operation the head cylinder and potentiometer have to be re-installed as described in the following steps.**

STEP ONE

Remove the top covers of the carriage by removing the front carriage cover first and then the back carriage cover.




View from the back of the machine.



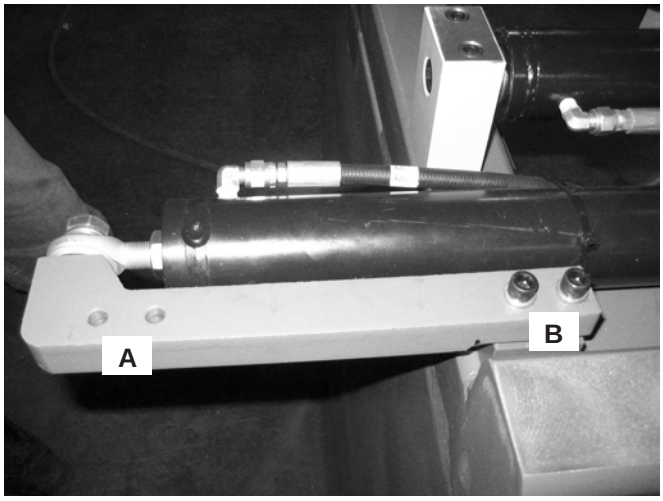

View from the side of the machine.

STEP TWO

Once the covers are removed you will see the Head Cylinder and the Head Potentiometer. To move the head cylinder:

1. Remove the two 1/2" SHCS which are located at '**A**' with a 3/8" allen key.

2. Move the bracket and cylinder out and insert the two 1/2" SHCS at '**B**' as the picture indicates and tighten.

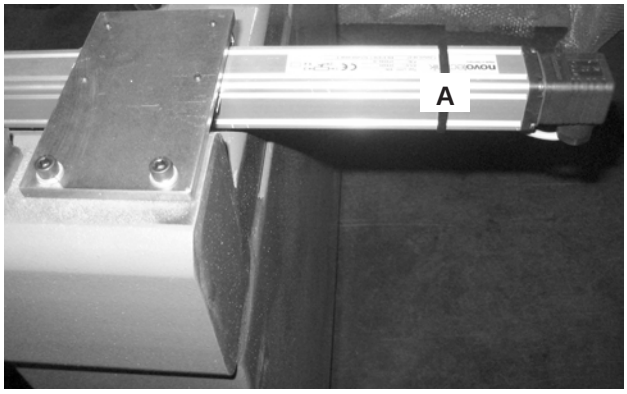



STEP THREE

1. Cut the zip ties except for 'A'.

2. Move bracket to the position shown in the picture.

3. Insert and tighten the 10-24 SHCS with a 3/16 allen key.



STEP FOUR

Install the back carriage cover and install all the 10-24 SHCS with a 3/16 allen key.

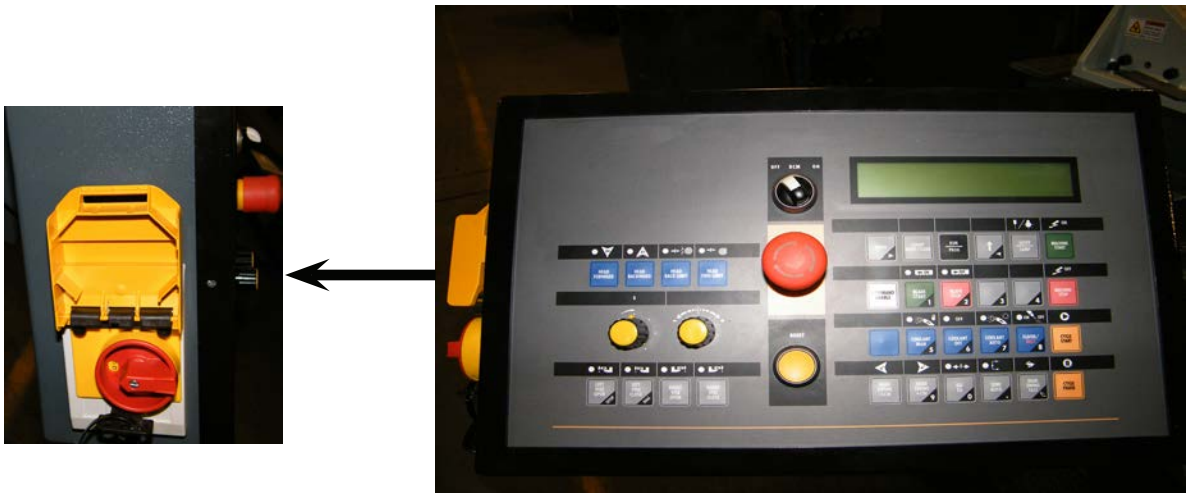
Install the front carriage cover and install all the 10-24 SHCS with a 3/16 allen key.

**View of the head potentiometer and cylinder after re-installation.**

# SECTION 2 - OPERATING INSTRUCTIONS

## OPERATOR CONTROL PANEL

The operator control panel provides the operator with all the controls necessary to operate the saw after the cutting angle has been set and the stock has been loaded and secured. All of the electrical functions are operated from the control panel. For all the functions to work the machine has to be powered up. The Main Disconnect switch, which is located on the side of control box, has to be in ON (1) position. Emergency Switch has to be released (Rotate Emergency button 45º to release). For the blade to operate the blade door has to be completely shut and blade tensioned to minimum tension of 1320 lbs (600 kg) maximum tension of 2650 lbs (1202 kg)



POWER TILT OPERATOR PANEL SHOWN

The Machine Disconnect Switch is located on the side on the machine control box. It is a **Thermal-magnetic circuit breaker with under voltage coil and door locking device.** The switch consists of three power failure protection systems. In the event of a power failure, this switch disconnects all the electrical devices, causing the machine to immediately shut down and prevents it from automatically starting when power is restored. This device also resets the thermal relay fitted to protect against current overloads.

## START-UP

The VW18 control console has been designed to simplify the operation of the saw, to give the operator the ability to stop any function at any time, and to be able to control all the functions remotely.

We cannot overstress the importance of familiarizing yourself with the controls prior to starting the machine.

**NOTE: WHEN STARTING THE VW18 FOR THE FIRST TIME MAKE SURE THAT THE HYDRAULIC PRESSURE IS 450 - 500 ± 25 PSI AND THAT THE BLADE IS RUNNING IN A COUNTERCLOCKWISE DIRECTION AS VIEWED FROM THE DOOR SIDE THE OF HEAD.**

**IF THERE IS NO IMMEDIATE PRESSURE, SHUT THE SAW DOWN AND CHANGE THE PHASE ORDER.**

## CONTROL CONSOLE

The control console is arrayed with a complete set of controls to operate the electrical and hydraulic functions of the saw. The HMI (**H**uman **M**achine **I**nterface) consists of all, the electrical controls required to function the saw.


STANDARD OPERATOR PANEL

**ENABLE BUTTON**


POWER TILT OPERATOR PANEL

## OPERATION CONTROLS (STANDARD MACHINE)

The electrical buttons on the control panel allow for full manual and semi-automatic operation of the VW18. The operation of each button is detailed on the following pages.


**ENABLE:**

- This push button is located on the right side of the conrol console.
- The ENABLE button must be pushed and held simultaneously with the “LEFT or RIGHT” VISE “OPEN or CLOSE” in order for the desired vise to move.
- If either of the buttons are released, then the vise will stop opening or closing.


**BLADE OFF (0) - ON (1):**

- This selector switch must be in the ON (1) position for the BLADE ON/OFF push-button to function.


**MACHINE START:**

- Starts the hydraulic pump motor.
- Machine disconnect switch must be in “ON” position.
- When the hydraulic pump is idle for a period of time the pump will shut down. The pump will start up again when any hydraulic function is activated. I.e. Head Forward, Left Vise Open.


**COUNT RESET:**

- Resets the number of pieces cut to 0 (Zero) on the LCD display.


**CYCLE PAUSE:**

- In MANUAL MODE and SEMI-AUTO MODE, if CYCLE PAUSE is depressed the cycle pauses. (The HEAD will STOP but the BLADE will continue to RUN)
- To continue the cycle, depress CYCLE START push button.


**BLADE SPEED DIAL:**

- This dial controls the blade speed which can be adjusted between 65 and 385 SFM (20-117 m/min). The blade speed is displayed on the LCD display next to the BS abbreviation.


**MACHINE PARAMETERS:**

- Controls behavior of the machine and behavior of the optional equipment which may be installed.
- Controls language in which to communicate with the operator.
- Prior to making changes, care should be taken to ensure a complete understanding of each parameter and it's effect on the operation of the saw.


**SERVICE MODE:**

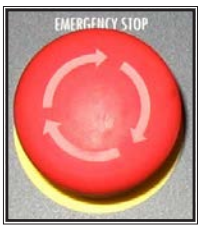
- Service Mode allows the outputs and inputs to be forced 'ON' or 'OFF' during trouble shooting.
- Prior to forcing any inputs or outputs 'ON' or 'OFF' care should be taken to ensure a complete understanding of each 'INPUT' and each 'OUTPUT' and it's effect on the operation of the saw.


**BLADE ON/OFF:**

- The push-button controls the blade and by toggling the push-button will either START the blade or STOP the blade.
- For this function to work the BLADE OFF - ON selector switch must be in the 'ON' position.


**CYCLE START:**

- This will allow the head to advance towards the material at the predefined feed rate, provided the BLADE is 'ON'




**EMERGENCY STOP:**

- This button will stop both the hydraulic and blade motors. The head motion will cease. The vises remain as they are, but if closed, they will lose gripping force. For this reason all long stock should be supported so that it will not fall.
- To reset the button, simply rotate through 45º


**RESET:**

- This is used at the initialization phase after MACHINE START is depressed and to RESET any alarm conditions that may occur.


**CYCLE PARAMETERS:**

- This push button toggles the display of the many parameters of the saw.
- The parameters are visible on the LCD display.


**LCD DISPLAY:**

- All visual communication from machine controller to operator is displayed on the LCD display.


**MANUAL MODE**

- Selecting manual mode allows for a manual operation of the saw.
- A lit LED will be visible when MANUAL MODE is selected.
- In this mode all functions are activated by selection of the respective function buttons on the user interface.


**SEMI-AUTO MODE:**

- This mode allows the saw to function in a semi-automatic mode.
- A lit LED will be visible when SEMI-AUTO-MODE is selected
- Follow the on screen instructions on the LCD display to operate the semi automatic mode.


**MIST COOL: (OPTION)**

- If the MIST option is installed then this push button is used to control the MIST.
- A lit LED will be visible when MIST COOL is selected
- With MIST COOL selected, the mist will function when the BLADE is ON and will stop to function, when the blade is OFF.
- MINIMAL LUBRIF parameter is to be set to YES.


**WASH:**

- WASH when selected will allow the wash gun to be used.
- A lit LED will be visible when WASH is selected.


**COOL ON:**

- When selected coolant will flow when the BLADE is ON and will stop to function when the blade is OFF.
- A lit LED will be visible when COOL ON is selected.


**COOL OFF:**

- When selected NO coolant will flow.
- A lit LED will be visible when COOL OFF is selected.


**LEFT VISE OPEN:**

- The push button operates the vise on the left side of the blade.
- When depressed simultaneaously with the ENABLE BUTTON and held, the left (saw) vise will open all the way.
- If either of the buttons are released, then the vise will stop opening.


**LEFT VISE CLOSE:**

- The push button operates the vise on the left side of the blade.
- When depressed simultaneaously with the ENABLE BUTTON and held, the left (saw) vise will start closing all the way to the fixed jaw or until it encounters enough resistance to stop it.
- If either of the buttons are released, then the vise will stop closing.


**RIGHT VISE OPEN:**

- The push button operates the vise on the right side of the blade.
- When depressed simultaneaously with the ENABLE BUTTON and held, the right (saw) vise will open all the way.
- If either of the buttons are released, then the vise will stop opening.


**RIGHT VISE CLOSE:**

- The push button operates the vise on the right side of the blade.
- When depressed simultaneaously with the ENABLE BUTTON and held, the right (saw) vise will start closing all the way to the fixed jaw or until it encounters enough resistance to stop it.
- If either of the buttons are released, then the vise will stop closing.


**HEAD FORWARD:**

- When depressed in MANUAL MODE the head will move forward until released or until it reaches the HEAD FORWARD LIMIT SETTING.
- Advance speed and force are controlled by the FEED RATE and FEED FORCE controls.


**HEAD BACKWARD:**

- When depressed in MANUAL MODE the head will move backward until released or until it reaches the
HEAD BACKWARD LIMIT SETTING.


**HEAD FWD LIMIT:**

- Depressed when the desired HEAD FORWARD LIMIT SETTING is to be set.
- A lit LED will be visible when the HEAD FORTH LIMIT has been reached.


**HEAD BACK LIMIT:**

- Depressed when the desired HEAD BACKWARD LIMIT SETTING is to be set
- A lit LED will be visible when the HEAD BACK LIMIT has been reached.

## Manual Mode Machine Operation

Manual mode allows for a manual operation of the saw. In this mode all functions are activated by selection of the respective function buttons on the user interface.

To enter the manual mode after the main power has been turned ON (1) press the Machine Start button. Follow the instructions on the display, and select the Manual Mode. A lit LED adjacent to the Manual Mode or Semi-Automatic Mode button indicates machine mode.

Cut in Manual Mode

1 Open vise
2 Move head backwards
3 Position material
4 Close vise/vises - Make sure that at least one vise is fully closed on the material.
5 Start blade
6 Press Cycle Start. To pause the head feed press Cycle Pause. To resume head feed press Cycle Start.
7 Machine will shut off blade when head reaches FORWARD most position.
8 Move head backwards
9 Open vise

Semi-Automatic Mode Machine Operation

Upon initial power up, press MACHINE START. You will be prompted to press the reset button. Follow the on screen instructions.

1 Set the HEAD FORWARD and HEAD BACKWARD LIMITS. Refer to **Setting Head Forward and Head Backward Limits**.
2 Open vise by simultaneously pressing the ENABLE & VISE OPEN buttons.
3 Position material.
4 Close the vise by simultaneously pressing the ENABLE & VISE CLOSE buttons. Make sure that at least one vise is fully closed on the material.
5 Start the blade by pressing the BLADE ON/OFF button.
6 Start the cycle by pressing the CYCLE START button.

The machine will automatically close the vise and proceed to advance the head until it reaches the head forward limit (which under most operating conditions should be set beyond the material which is to be cut) The blade will turn off, the head will go back to the preset head backward limit and the vise will open. Subsequent cuts from the same material may be made by repeating step 3 through 6.

## Setting Head Forward and Head Backward Limits

The machine can be setup to restrict the head movement in Semi-Auto mode between forward and backward limit settings. During normal operating conditions where a complete through cut is required, the head forward limit should be set beyond the material which is to be cut. Setting the head forward limit at any other position will result in a partially cut piece.
The head back limit should be set so that the blade clears the material and fixed vise jaws. In cycle mode the head will respect these two preset limits.

**To Set Head Backward Limit**

- Position the head at the desired head backward position by pressing the HEAD FORWARD or HEAD BACKWARD buttons
- Press the HEAD BACK LIMIT button.

**To Set Head Forward Limit**

- Position the head at the desired head forward position by pressing the HEAD FORWARD or HEAD BACKWARD buttons.
- Press the HEAD FWD LIMIT button.

(Once HEAD FWD LIMIT push button is depressed the head will automatically move back to the HEAD BACK LIMIT)

## Cycle Parameter Display

The machine is capable of displaying many parameters, not all of which can de shown on the screen at the same time. Pressing the CYCLE PARAMETERS button will toggle the display of the parameters. The following is a list of available parameters and the corresponding abbreviations as they are shown on the display.

| | |
|---|---|
| Blade speed | BS |
| Cut time | CT |
| Blade tension | BT |
| Head position | HP |
| Amp draw of blade motor | IBM |
| Pieces cut | PC (To reset press COUNT RESET button) |
| Total run time of blade motor | TOTALIZ |

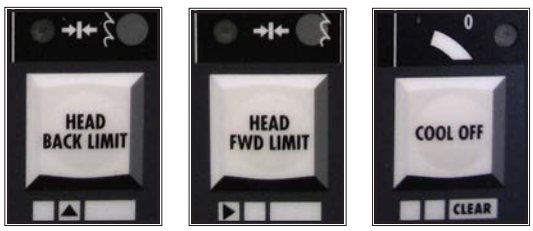
## Machine Parameters

Machine parameters control the behavior of the machine, the type of optional equipment, which may be installed, and the language in which to communicate with the operator. Modifying machine parameters may adversely effect the behavior of the machine. Prior to making changes care should be taken to ensure a complete understanding of each parameter and its effect on the operation of the saw.

To enter **MACHINE PARAMETERS** toggle the main switch located on the side of the panel OFF (0) and ON (1). Press simultaneously and in sequence the **MACHINE PARAMETERS** and **MACHINE START** push buttons.

To move from parameter to parameter press the HEAD BACK LIMIT button.
To change the value of a parameter use the HEAD FORTH LIMIT button.
The COOL OFF button clears the parameter value.

To SAVE the parameters press simultaneously and in sequence the **MACHINE PARAMETERS** and **MACHINE START** push buttons.



| PARAMETER | DESCRIPTION | FACTORY SET VALUE |
|---|---|---|
| LANGUAGE | Language which will be displayed on the interface | English |
| MACHINE TYPE | Machine type | VW 18P |
| MAN & SAD CYCLE | Manual and semi automatic | YES |
| PEDAL START | Pedal start option | NO |
| INVERTER | Inverted blade motor drive | YES |
| BLADE SPD PROXY | | YES |
| MINIMAL LUBRIF | Machine equipped with low level lubricant sensor for mist coolant | NO |
| RHLS/FHLS OUTS | Head backward / Head forward outputs enabled. Allows for control board to supply output signal for respective head position. | NO |
| STOP BLADE MOTOR NVR/RHLS/FHLS | Controls when the blade motor is to stop. Values are: a. NVR (Never) = 2 b. RHLS (Blade to stop when head is at the BACK limit) = 1 c. FHLS (Blade to stop when the head is at the FWD limit) = 0. | 0 |
| HEAD VISE OPEN RHLS/FHLS | Controls when to open vise. Values of parameter are 0 for FWD limit and 1 for BACK limit. | 0 |
| VISE OPEN/CLOSE TIME = | Vise open dwell time. | 2.0 |
| MAX BLADE MOTOR I = | Full load amperage of the blade motor. *(FLA value depicted on the nameplate of the motor. Dependent on voltage) | 8.0* |
| UNIT OF MEASURE FIPS/MKS | Controls which unit system to display. 1 for imperial, 0 for metric. | 0 |
| BLADE MIN TENS THRES = | Minimum blade tension required for the machine to start. | 600 kg (1320 lbs) |
| LCD BACKLIGHT DURATION | Time duration of display backlight to stay on min. | 0.5 |
| LIMITS RHLS / FHLS HEAD POS = | Head position - SEE PROCEDURE (SETTING the HEAD LINEAR POTENTIOMETER (RHLS/FHLS LIMIT) | Value depending on head position. |
| TT = | Total time blade motor run. Software version. | Value depending on run time. |

## MANUAL HEAD SWING

To manually change the angular position of the head, release the head swing lock by turning the head swing lock handle counterclockwise through a maximum of 1/2 a revolution. Move the head to the desired position by pushing or pulling the head with help of the guide arm position wheel. Angle position is displayed on the angle scale located at the back of the head and visible from the front of the machine. Engage the lock before cutting.

## MACHINE ALARMS AND EMERGENCIES

The machine's controller notifies the operator if any alarm or emergency condition which may occur during operation by way of acoustic and visual signals. This section lists the message shown on the display.

| | |
|---|---|
| PRESS RESET | This message is displayed during the initialization phase after pressing the MACHINE START key. |
| PRESS RESET<br>FCTI-FCTA ERROR | This message is displayed when the cutting start position is beyond than the previously set head forward position.<br>Save both the FCTI (head backward) and FCTA (head forward) positions again. |
| PRESS RESET<br>HEAD NOT AT FCTI | This message is displayed if the head is not positioned at the FCTI, position when the cycle is STARTED.<br>Return the head to the FCTI (head backward) position before resuming the cycle. (In SEMI-AUTO MODE, depressing RESET will automatically return the head to the FCTI position) |
| PRESS RESET<br>SELECT SPEED | This message is displayed if the cycle is STARTED without having first selected the cutting speed.(The BLADE OFF - ON selector switch has to be on the ON position)<br>Return the head to the FCTI (head backward) position before resuming the cycle. |

## SETTING THE HEAD LINEAR POTENTIOMETER (LIMITS RHLS/FHLS)

Enter machine parameters by:

1. Using the main disconnect switch on the side of the panel, toggle the main power off and on.
2. Press and hold the MACHINE PARAMETERS button and then the MACHINE START button

Cycle through the parameters until the following is on the display:
LIMITS RHLS/FHLS
HEAD POS = XXX

* You must push the RESET button to energize the emergency relays *

1. The head must move forward until it reaches the forward mechanical position. In order to execute this operation you must first push the button **CYCLE PARAMETERS** and while holding this button depressed then push the **HEAD FORWARD** button until the head reaches its forward mechanical limit.
    a. Increase the number value displayed by 1 unit (move the head backward) by holding the button **CYCLE PARAMETERS** and while holding this button then press **HEAD BACKWARD** button.

2. The current value of the linear potentiometer must be stored. First push the button **CYCLE PARAMETERS** and while holding this button depressed then push the
**HEAD FWD LIMIT** button.

3. Once completed the display will read the following message: FHLS = XXX

4. The head must now be moved backward until it reaches the back mechanical position. Push the button **CYCLE PARAMETERS** and while holding this button depressed then push the **HEAD BACKWARD** button until the head reaches its upper limit.

5. Store the current value of the linear potentiometer by first pushing the **CYCLE PARAMETERS** and while holding this button depressed push the **HEAD BACK LIMIT** button.

6. Once completed the display will read the following message: RHLS = XXX

During machine operation the display will show a certain value at the head up limit position and "0" at the head down position.

## OPERATION CONTROLS (POWER TILT OPTION)

The electrical push buttons on the HMI allow for full manual and automatic operation of the bandsaw. The operation of each push button is detailed on the following pages.


**BCM:**

- **B**LADE **C**HANGE **M**ODE.
- With the selector switch in the OFF position, all functions are operative.
- With the selector switch in the ON position, only HEAD BACKWARD and HEAD FORWARD are operative.


**EMERGENCY STOP:**

- This button will stop both the hydraulic and blade motors. The head motion will cease. The vises remain as they are, but if closed, they will lose gripping force. For this reason all long stock should be supported so that it will not fall.
- To reset the button, simply rotate through 45º


**RESET:**

- This is used at the initialization phase after MACHINE START is depressed and to RESET any alarm conditions that may occur.


**HEAD FORWARD:**

• When depressed in MANUAL MODE the head will move forward until any of the following occur:
  i) The push button is released.
  ii) Head reaches head forward limit setting.

• A lit LED will be visible whilst HEAD FORWARD is depressed.
• Head feed and head force are controlled by the FEED RATE and FEED FORCE controls.


**HEAD BACKWARD:**

• When depressed in MANUAL MODE the head will move back until any of the following occur:
  i) The push button is released.
  ii) The hydraulic cylinder is retracted to it's maximum capacity.

• A lit LED will be visible whilst HEAD UP is depressed.


**HEAD BACK LIMIT:**

• Depressed when the desired HEAD BACK LIMIT SETTING is to be set.
• A lit LED will be visible when the HEAD BACK LIMIT has been reached.


**HEAD FORWARD LIMIT:**

• Depressed when the desired HEAD FORWARD LIMIT SETTING is to be set.
• A lit LED will be visible when the HEAD FORWARD LIMIT has been reached.


**BLADE SPEED DIAL:**

• This dial controls the blade speed which can be adjusted to the desired speed in SFM or SMM . The blade speed is displayed on the LCD display next to the BS abbreviation.

**NUMERICAL DIAL:**

• This dial allows numerical values to be decreased or increased on the LCD over the flashing cursor. Angle control and parameters are an example.


**LEFT VISE OPEN:**
• The push button operates the vise on the left side of the blade.
• When this button is depressed together with the ENABLE BUTTON and both are held, the LEFT vise will open all the way, or until the push button is released.


**LEFT VISE CLOSE:**
• The push button operates the vise on the left side of the blade.
• When this button is depressed together with the ENABLE BUTTON, the LEFT vise will start closing all the way to the fixed jaw or until it encounters enough resistance to stop it. If any button is released then the vise will stop closing.
• Make sure that at least one vise is fully closed on the material.


**RIGHT VISE OPEN:**
• The push button operates the vise on the right side of the blade.
• When this button is depressed together with the ENABLE BUTTON and both are held, the RIGHT vise will open all the way, or until the push button is released.


**RIGHT VISE CLOSE:**
• The push button operates the vise on the left side of the blade.
• When this button is depressed together with the ENABLE BUTTON, the RIGHT vise will start closing all the way to the fixed jaw or until it encounters enough resistance to stop it. If any button is released then the vise will stop closing.
• Make sure that at least one vise is fully closed on the material.


**LCD:**
• All visual communication from machine controller to operator is displayed on the LCD.


**ENTER:**
• Depressed when prompted on the LCD.
• Used to enter data in the controller, such as angle required, machine parameters etc.
• Used to scroll the cursor on the LCD.


**CLEAR:**
When depressed in the following:
• AUTOMATIC MODE: Allows you to delete the angles and replace with new.
• MACHINE PARAMETERS: Allows you to delete existing or incorrect data.
• Resets the number of pieces cut to 0 (Zero) on the LCD display.

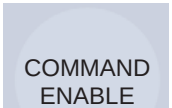

**RUN / PROG:**
•In AUTOMATIC MODE: Allows access to vise open/close time and blade parameters.

• Used to scroll through lines and pages on the LCD display.
• MACHINE PARAMETERS: When depressed previous parameter page is shown.

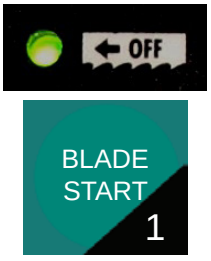



**LASER / LAMP:**
• Depress 1 time: the LAMP will turn on.
• Depress again: the LASER will turn on, and the LAMP will turn off.
• Depress again: both the LAMP and LASER will turn on.
• Depress again: both are turned off.


**MACHINE START**:
• To start the hydraulic pump the following actions are required:
i) Press & hold COMMAND ENABLE then press MACHINE START.
• The EMERGENCY STOP button must be pulled out.
• On initial start up, press & hold COMMAND ENABLE (see symbol below) then press MACHINE START.




**COMMAND ENABLE**:
• For initial start up after the disconnect switch has been set to '1' (ON) press & hold COMMAND ENABLE then press MACHINE START.
• Push button is also used in conjunction with other function buttons such as BLADE START, CYCLE START and are explained in detail in this section.

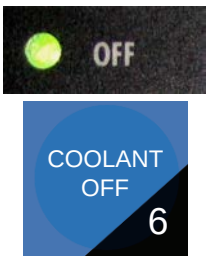



**BLADE START**:
• To start the blade, the following actions are required:
i) Press & hold COMMAND ENABLE then make sure that at least one vise is fully closed on the material, then press BLADE START.
• The blade will not start:
a) if the head is completely in the down position
b) if the HEAD DOWN LIMIT setting has been reached
c) if the front vise is not closed
• Push button is also used to enter the value of 1 when numerical data input is required.


**BLADE STOP**:
- When depressed the blade will stop.
- A lit LED will be visible when the blade is OFF.
- Push button is also used to enter the value of 2 when numerical data input is required.


**MACHINE STOP:**
- When depressed all machine functions and hydraulic pump will shut down. To continue using the saw follow the prompts displayed on the LCD.

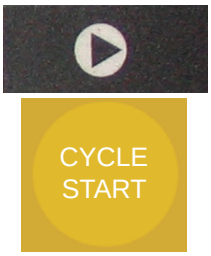

**COOLANT MAN:**
- When depressed COOLANT will flow continuously.
- A lit LED will be visible when the COOLANT MAN is selected.
- Push button is also used to enter the value of 5 when numerical data input is required.




**COOLANT OFF:**
- When depressed COOLANT will stop flowing.
- A lit LED will be visible when the COOLANT OFF is selected.
- Push button is also used to enter the value of 6 when numerical data input is required.


**COOLANT AUTO:**
- When depressed the coolant or mist will flow only when the blade is running OR when the blade is running and the head is descending. This is selectable via the MACHINE PARAMETERS.
- A lit LED will be visible when COOLANT AUTO is selected.
- Push button is also used to enter the value of 7 when numerical data input is required.


**FLOOD / MIST: (MIST OPTION)**
- If the MIST option is installed then this push button is used to select the MIST.
- A lit LED will be visible when MIST COOL is selected.
- With MIST COOL selected, BLADE START must be selected for the MIST to operate.
- Push button is also used to enter the value of 8 when numerical data input is required.




**CYCLE START:**
- To initiate CYCLE START in manual and automatic mode, the following actions are required:
  i) Press & hold COMMAND ENABLE then press CYCLE START.
- When the cycle starts the display on the top line of the LCD will display: IN EXC

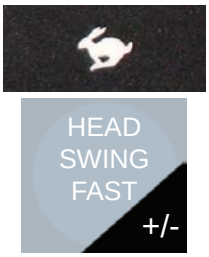
(To continue the cycle after CYCLE PAUSE, follow LCD instructions in conjunction with cycle start)


**HEAD SWING - CCW:**
- When depressed the head will rotate Counter Clockwise between 0° → -60°


**HEAD SWING + CW:**
- When depressed the head will rotate Clockwise between 0° → 60°
- Push button is also used to enter the value of 9 when numerical data input is required.


**GO TO:**
- Depressing this button with COMMAND ENABLE will rotate the head to the programmed angle.
- A lit LED will be visible when GO TO is selected.
- Push button is also used to enter the value of 0 when numerical data input is required.


**SEMI AUTO:**
• Depress to toggle between MANUAL and AUTOMATIC MODE.(The selected mode will be displayed on the LCD)
• A lit LED will be visible when AUTOMATIC MODE is selected.
• Push button is also used to enter a decimal point when numerical data input is required.




**HEAD SWING FAST:**
• Depressing and holding this button with either HEAD SWING - CCW or HEAD SWING + CW, will allow the head to swing in a faster speed.
• Push button is also used to change +/- sign when numerical data input is required.
• Push button is also used to change head movement direction between Left (L) and Right (R) when entering angle A or angle B.


**CYCLE PAUSE:**
• When depressed the controller will pause the cycle in progress.
• When depressed in MANUAL MODE the blade will stop and the display on the top line of the LCD will display: READY
• When depressed in SEMI AUTOMATIC MODE the blade will stop, the head will move back and the display on the top line of the LCD will display: READY

• To continue the cycle follow the action items for CYCLE START (page 2.8)

## STARTING THE MACHINE (POWER TILT OPTION)

Turn the machine disconnect switch to '1' (ON position) to apply power to the machine and release the EMERGENCY STOP if depressed. (To reset the button, simply rotate through 45º)


Follow instructions on the LCD:
Depress and hold COMMAND ENABLE then depress MACHINE START


Select mode operation:
Depress once for MANUAL MODE.
Depress twice for SEMI AUTOMATIC MODE.

## CYCLE PARAMETER DISPLAY (POWER TILT OPTION)

The machine is capable of displaying many parameters, not all of which can de shown on the screen at the same time. Pressing the CYCLE PARAMETERS button will toggle the display of the parameters. The following is a list of available parameters and the corresponding abbreviations as they are shown on the LCD.

| | |
|---|---|
| Cutting Parameters | Y = Position of the head height on the Y axis. |
| | A = Current angle of the head. |
| | ANGLE TARGET = Programmed Angle Degree and Minutes (Manual Mode) |
| | Ang. A = Programmed Angle Degree and Minutes (Semi-Automatic Mode) |
| | Ang. B = Programmed Angle Degree and Minutes (Semi-Automatic Mode) |
| | CM = Maximum current absorption of the blade motor. |
| | C = Blade motor current during cut |
| | CUTS EXECUTED = The number displayed relates to CUTS effectively completed before the machine was last switched off. These will remain in the memory until they are replaced by further cuts carried out using the same program, or until set to zero or modified by a new program. |
| | T = Cutting time for each cut |
| | Tt = Total number of pieces ???? |
| | HS = Head down speed (Feed Rate) |
| | BS = Blade speed. |

## SETTING HEAD UP AND HEAD DOWN LIMITS (POWER TILT OPTION)

The machine can be setup to restrict the head movement in Semi-Automatic mode between backward and forward limit settings. During normal operating conditions where a complete through cut is required, the head forward limit should be set beyond the material which is to be cut. Setting the head forward limit at any other position will result in a partially cut piece.

The head backward limit should be set so that the blade clears the material. In semi-automatic mode these two preset limits will be executed until the limits are changed.

**To Set HEAD BACK LIMIT in MANUAL MODE**

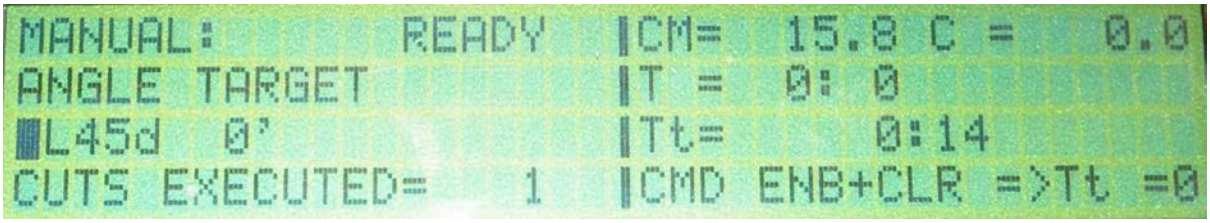
- Position the head at the desired head back position by pressing the HEAD BACKWARD or HEAD FORWARD buttons
- Press the HEAD BACK LIMIT button.

**To Set HEAD FWD LIMIT in MANUAL MODE**

- Position the head at the desired head forward position by pressing the HEAD BACKWARD or HEAD FORWARD buttons.
- Press the HEAD FWD LIMIT button.
- HEAD FWD LIMIT will be set and the head will move to the BACK LIMIT.

## MANUAL MODE: Machine Operation (POWER TILT OPTION)

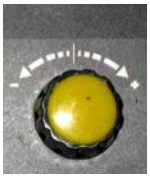
Manual mode allows for a manual operation of the saw. In this mode all functions are activated by selection of the respective function buttons on the HMI.



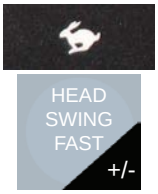

Data on the LCD display may differ slightly on the VW18 PT bandsaw.

### ANGLE GO TO FUNCTION


- Press ENTER (To enter the desired angle)

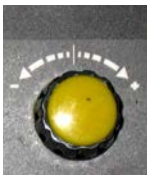


- The cursor will be flashing next to the degrees (45d) and the letter L or R in front of the angle.
- Use the NUMERICAL DIAL or type the desired angle: The angle range is: +/- 60°




- Toggle the +/- button to change angle direction between L and R (LEFT & RIGHT)


- Press ENTER



- The cursor will be flashing next to the minutes. Use the NUMERICAL DIAL or type the desired value


- Press ENTER

**WARNING: ENSURE THAT THERE IS CLEARANCE BETWEEN THE GUIDE ARM THE BOTH VISES BEFORE INITIATING THE ANGLE GO TO FUNCTION.**



• Press COMMAND ENABLE + GO TO
(The head will swing to the programmed angle)

**CUT IN MANUAL MODE**



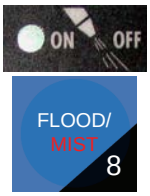
• Press the ENABLE BUTTON and the LEFT VISE OPEN buttons together.

• Press the ENABLE BUTTON and the RIGHT VISE OPEN buttons together

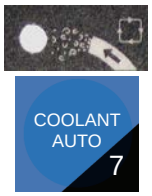

• Move Head backwards



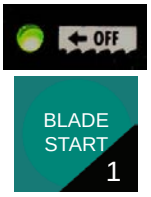
• Press the ENABLE BUTTON and the LEFT VISE CLOSE buttons together and held them until the vise is fully closed on the material.
• Press the ENABLE BUTTON and the RIGHT VISE CLOSE buttons together and held them until the vise is fully closed on the material.



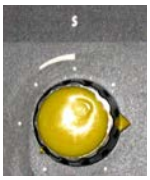





• Select coolant type: FLOOD/MIST and coolant flow: Continuous or Automatic.


• Press COMMAND ENABLE + BLADE START.



• Use the potentiometer to set the desired blade speed.



- The selected vise must be fully closed on the material.
- Press COMMAND ENABLE + CYCLE START.

• Use the hydraulic feed controls to adjust the Feed Force Limit and the Feed Rate.

The machine will perform the cut and the blade will stop when the head reaches the FORWARD LIMIT position.


- Move Head backwards

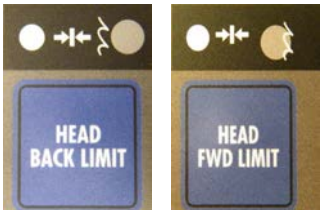


- Press the ENABLE BUTTON and the LEFT VISE OPEN buttons together.

- Press the ENABLE BUTTON and the RIGHT VISE OPEN buttons together

**To move to another angle repeat steps from page 2.19: ANGLE GO TO FUNCTION**

## SEMI-AUTOMATIC MODE: Machine Operation (POWER TILT OPTION)




• Set the HEAD FORWARD and HEAD BACKWARD LIMITS.
Refer to Setting Head Forward and Head Backward Limits. (2.10)



- Load and position the material to the desired cut length.
- Press the ENABLE BUTTON and the LEFT VISE CLOSE buttons together and held them until the vise is fully closed on the material.
- Press the ENABLE BUTTON and the RIGHT VISE CLOSE buttons together and held them until the vise is fully closed on the material.

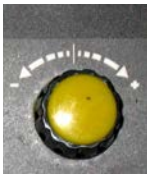
Automatic mode can be programmed to run 2 different cutting angles (Ang. A and Ang. B)

1. **Ang. A is to be programmed in Manual Mode first.**
2. **Ang. B is to be programmed in Semi- Automatic Mode second.**

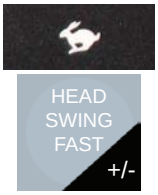
## CUT IN SEMI-AUTOMATIC MODE (POWER TILT OPTION)

In MANUAL MODE position the head to the 1st required angle (**Ang. A**) as outlined below:


- Press ENTER

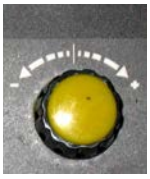


- The cursor will be flashing next to the degrees and the letter L or R in front of the angle.
- Use the NUMERICAL DIAL or type the desired angle: The angle range is: +/- 60°




- Toggle the +/- button to change angle direction between L and R (LEFT & RIGHT)


- Press ENTER



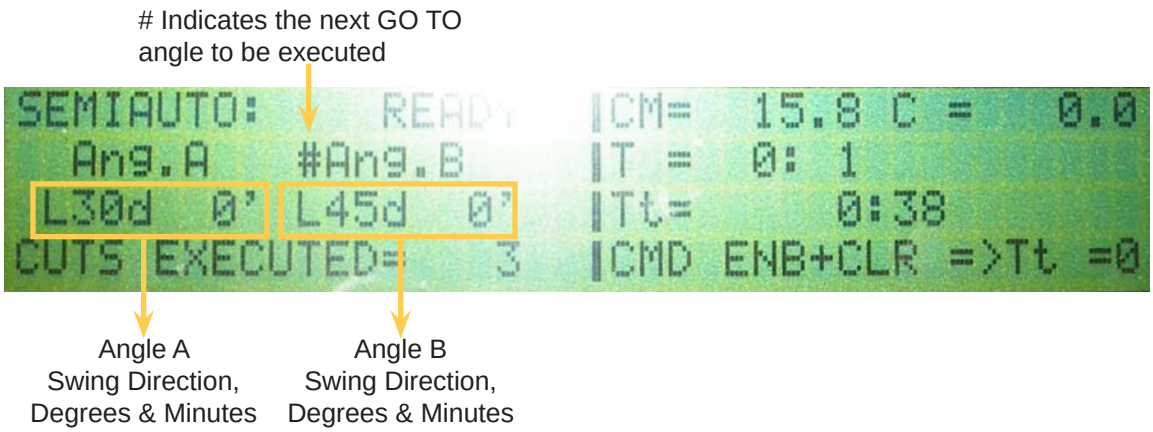
- The cursor will be flashing next to the minutes. Use the NUMERICAL DIAL or type the desired value


- Press ENTER



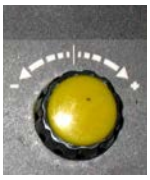
- Press COMMAND ENABLE + GO TO. (The head will swing to the programmed angle


• Press the SEMI AUTO button to go into SEMI-AUTOMATIC MODE. The screen display will change to Semi-Auto Mode.

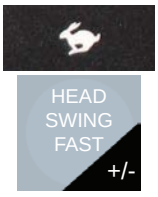




• Press ENTER 3 times to program **Ang. B**.

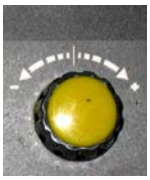


• The cursor will be flashing next to the degrees and the letter L or R in front of the angle.
• Use the NUMERICAL DIAL or type the desired angle: The angle range is: +/- 60°



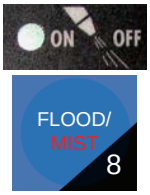

• Toggle the +/- button to change angle direction between L and R (LEFT & RIGHT)


• Press ENTER

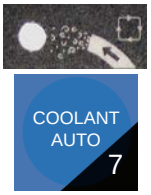


• The cursor will be flashing next to the minutes. Use the NUMERICAL DIAL or type the desired value

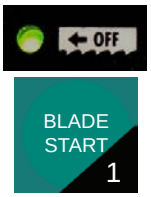

• Press ENTER
• At this time there will be NO flashing cursor on the screen.



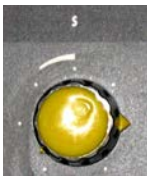





• Select coolant type: FLOOD/MIST and coolant flow: Continuous or Automatic.


• Press COMMAND ENABLE + BLADE START.



• Use the potentiometer to set the desired blade speed.



• Press COMMAND ENABLE + CYCLE START.

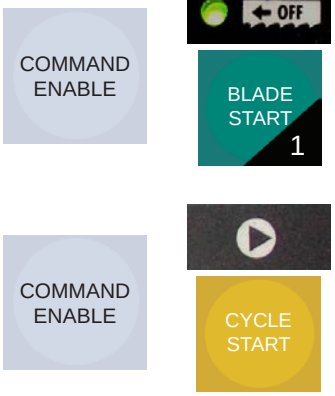
• Use the hydraulic feed controls to adjust the Feed Force Limit and the Feed Rate.

- The machine will perform the cut for Ang. A.
- Once the cut is complete the head will move to the HEAD BACK LIMIT position.
- The vises will begin to open and the head will rotate to Ang. B.
- The machine will wait for the operator to position the material for Ang. B.





- Load and position the material to the desired cut length for Ang. B
- Press the ENABLE BUTTON and the LEFT VISE CLOSE buttons together and held them until the vise is fully closed on the material.
- Press the ENABLE BUTTON and the RIGHT VISE CLOSE buttons together and held them until the vise is fully closed on the material.




- Press COMMAND ENABLE + BLADE START.




- Press COMMAND ENABLE + CYCLE START.

- The machine will perform the cut for Ang. B.
- Once the cut is complete the head will move to the HEAD BACK LIMIT position.
- The vises will begin to open and the head will rotate back to Ang. A.
- The machine will wait for the operator to position the material for Ang. A.

## MACHINE PARAMETERS (POWER TILT OPTION)

Machine parameters control the behavior of the machine, the type of optional equipment, which may be installed, and the language in which to communicate with the operator. Modifying machine parameters may adversely effect the behavior of the machine. Prior to making changes care should be taken to ensure a complete understanding of each parameter and its effect on the operation of the saw.

To enter **MACHINE PARAMETERS** toggle the main switch located on the side of the panel OFF (0) and ON (1).
Press simultaneously and in sequence the **COMMAND ENABLE** and **SETUP** push buttons.

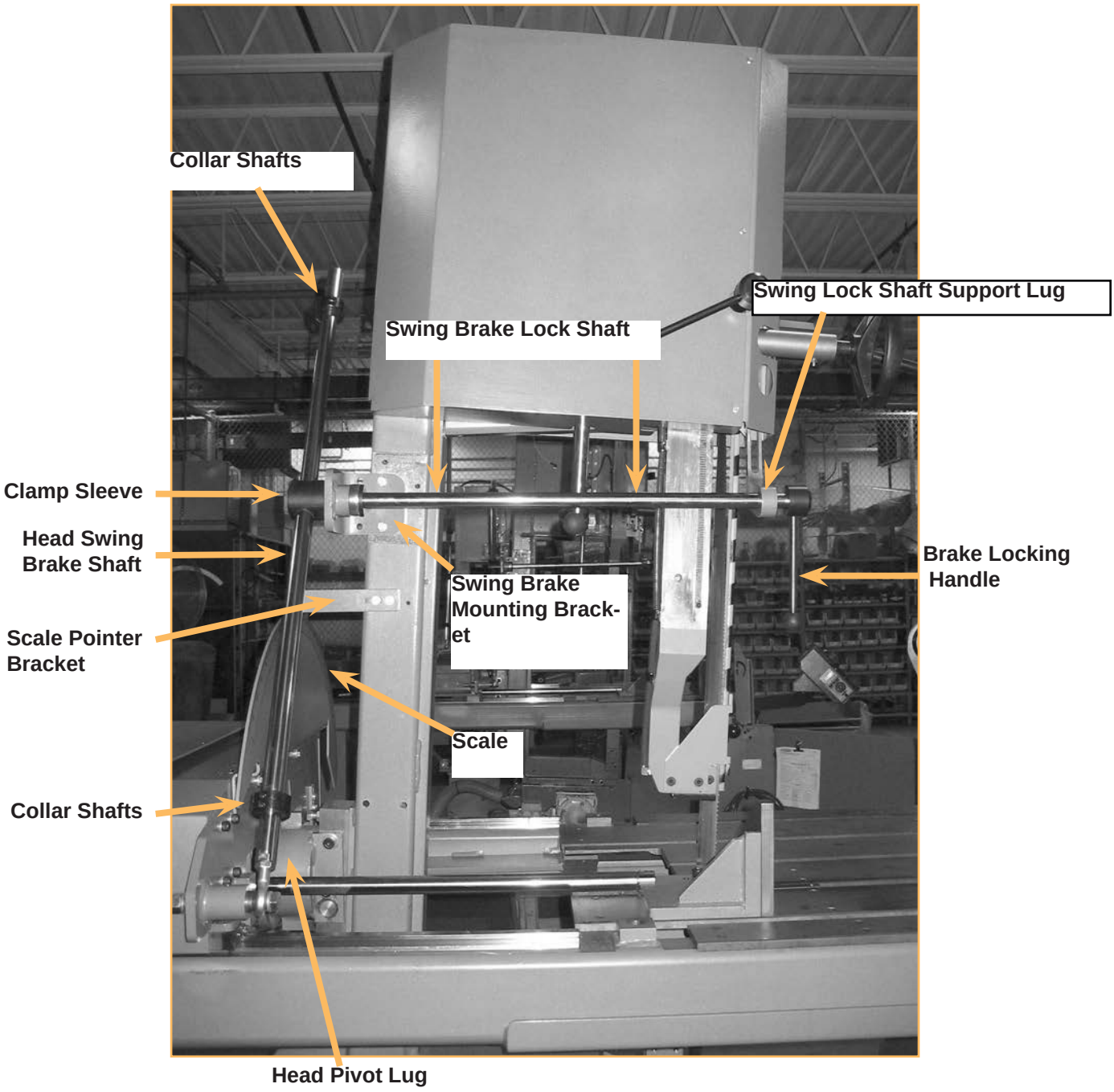

To move from parameter to parameter press the ENTER button.
To change the value of a parameter use the NUMERICAL buttons or the NUMERICAL DIAL.
To move to the previous parameter use the ARROW button.


To **SAVE** the parameters press simultaneously and in sequence the **COMMAND ENABLE** and **SETUP** push buttons.

| PARAMETER | DESCRIPTION | VALUE & PAGE # |
|---|---|---|
| LANGUAGE | Display language | ENGLISH (1/46) |
| MACHINE TYPE | Machine model | VW18PT (2/46) |
| UNIT OF MEASURE | FIPS = Feet, Inch, Pounds, Seconds<br>MKS = Meters, Kilograms, Seconds | FIPS (3/46) |
| MIST COOLANT | OPTION. Is the machine equipped with a mist coolant option? | NO (5/46) |
| CHIP CONVEYOR | **OPTION. Not available on this model.** | NO (5/46) |
| HUL/HDL OUTPUT | Optional output: HUL = Head Backward<br>HDL = Head Forward | NO (6/46) |
| BLADE SPEED PROXY | Is the machine equipped with proximity switch installed on idler wheel? | YES (6/46) |
| INVERTER | Is the machine equipped with a variable frequency drive? | YES (7/46) |
| ABSOLUTE ENCODER | Changing YES to NO and back to YES, will register a new 90 deg. position. | YES (7/46) |
| BLADE DEVIATION | OPTION. Is the machine equipped with blade deviation option? | NO (10/46) |
| HEAD FAST APPROACH | OPTION. Is the machine equipped with a head fast approach sensor? | NO (10/46) |
| FIXED VISE OPENING (NEV./HUL 1/0) | Controls when to open vise:<br>1 = NEV (never)<br>0 = HUL (when head moves to the Head Back Limit position) | 0 (16/46) |
| BLADE MOTOR OFF (NEV./HUL/HDL 2/1/0) | Controls when the blade motor is to switch OFF in Semi-Auto Mode.<br>2 = NEV (never)<br>1 = HUL (when head moves to the Head Back Limit position )<br>0 = HDL (when head is in Head Forward Limit position) | 1 (16/46) |
| MAXIMUM BLADE TENSION | | 3370 (17/46) |
| MINIMUM BLADE TENSION | | 1190 (17/46) |
| MAXIMUM POSITIVE SWING | End off stroke in clockwise direction. | R28 dg (19/46) |
| MAXIMUM NEGATIVE SWING | End off stroke in counterclockwise direction | L27 dg (19/46) |
| LASER/LAMP OFF TIME | OPTION. The setting of the laser and lamp timer. When the set time has elapsed the laser and lamp will turn OFF.<br>If set to 0, it will be always ON. | 5 (20/46) |
| LCD BACKLIGHT OFF TIME | The setting of the backlight timer. When the set time has elapsed the backlight will turn OFF. If set to 0, it will be always ON. | 5 (20/46) |
| GEAR RATIO | Gear Ratio of head swing gearbox. | 87.5/1 (24/46) |
| STEP/REV.(800/400/200) | Step resolution of stepper motor | 400 (24/46) |
| RAMP TIME | Acceleration time of stepper motor | 6 (27/46) |
| MAX. CURRENT | Maximum current of stepper motor | 10 (27/46) |
| DRIFT FREQUENCY | Stepper motor drift frequency | 50 (28/46) |
| MANUAL FREQUENCY | Head swing speed in Manual mode | 70 (29/46) |
| MAXIMUM FORWARD FREQ. | Head swing speed in Semi-Auto mode | 500 (30/46) |
| MAX. CURRENT (Blade motor driver) | Full load amperage of the blade motor.<br>*(FLA value depicted on the nameplate of the motor. Dependent on voltage) | 15.0* (32/46) |
| REVERSE HEAD LIMIT | Head Back Limit position | 732 (45/46) |
| HEAD POSITION | Current Head position | 293 (45/46) |
| FORWARD HEAD LIMIT | Head Forward Limit position | 84 (45/46) |
| SOFTWARE REVISION | Software version of the M32 board | M33Cv01.00 20-10 |
| | Software version of the M31 board | M31Cv01.00 10-10 |
| Tt (blade total run time) | Total blade run time | XXXX (46/46) |

## 3º CANTED HEAD

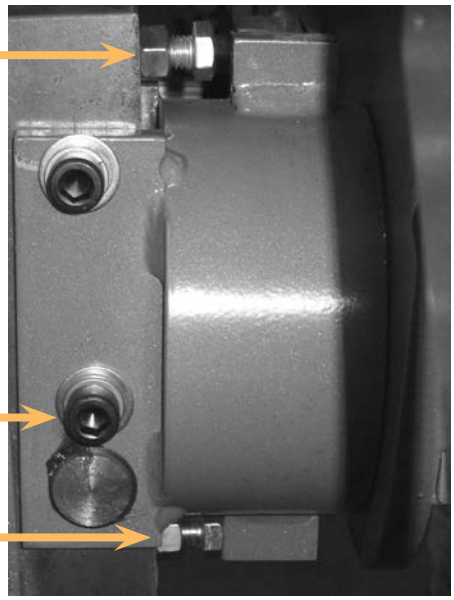
All VW18 machines are built with the head positioned at a 3º cant. The head can also be positioned at 90º.
Positioning the head at any other canted position will cause head vibration which will result in poor cut quality and poor blade life.
To change the head to 90º the following steps are to be taken.



STEP ONE

The head pivot lug contains four SHCS bolts, two on each side.

Loosen all the 1/2” SHCS bolts with a 3/8” allen key.




**Head pivot lug shown at the 3º canted position**

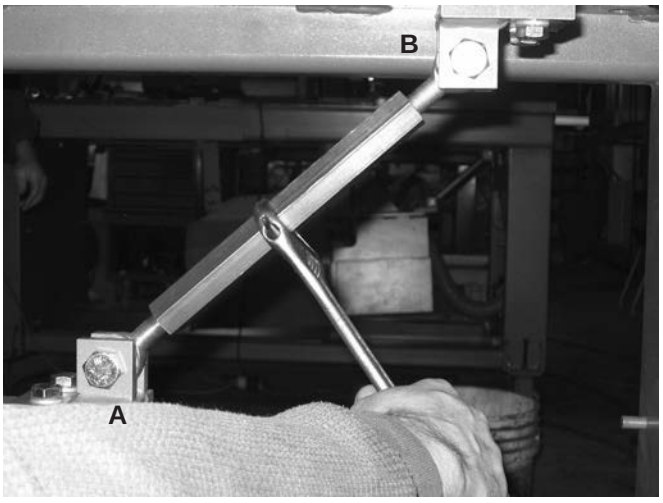
STEP TWO

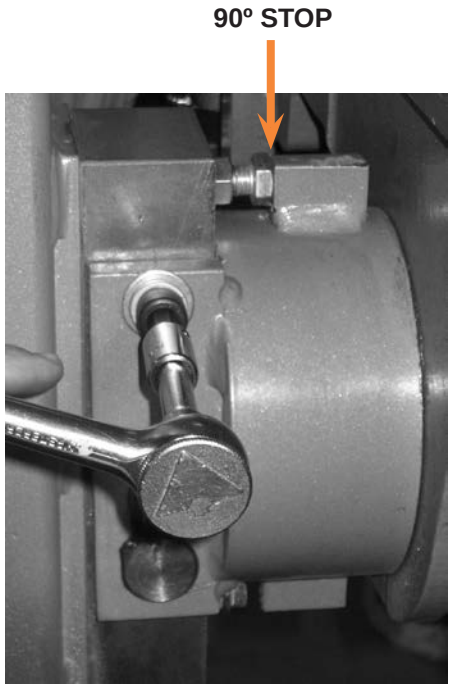
Turn the HEX STRUT with a 1” flat wrench to expand points A & B.

The head will start to move and will stop when the 90º stop is reached.

Once the 90º stop has been reached, tighten all four 1/2” SCHS bolts.

Ensure HEX STRUT is tight and not loose. If loose slight adjustment is required to tighten.



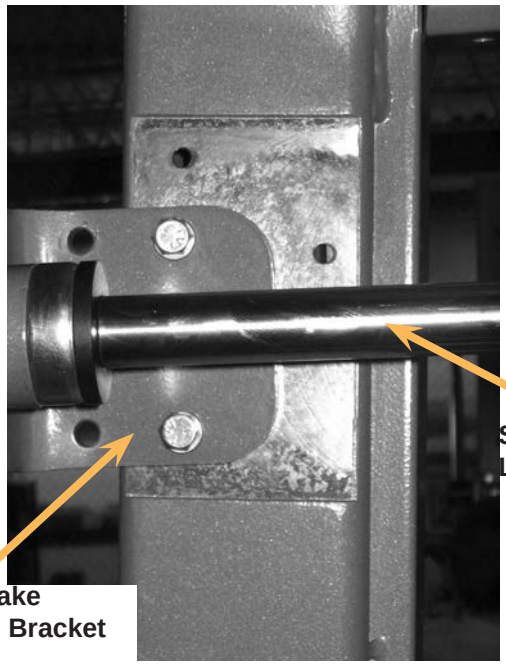




**Head pivot lug shown at the 90º position**

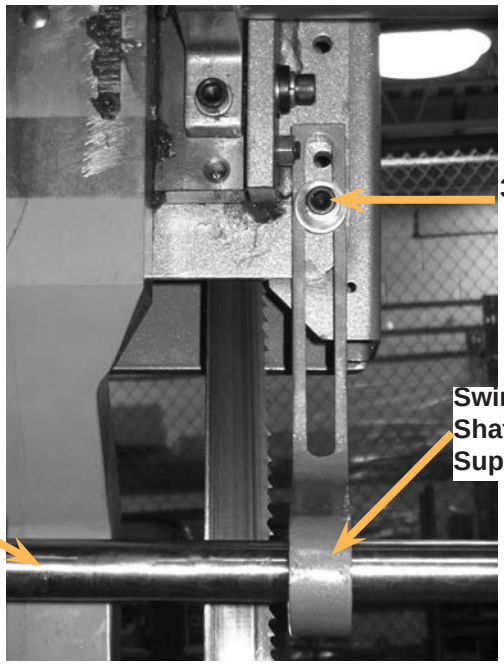
STEP THREE

**Block the head so that is does not swing.**

**Remove all three 3/8” HCS bolts with 9/16” flat wrench.**

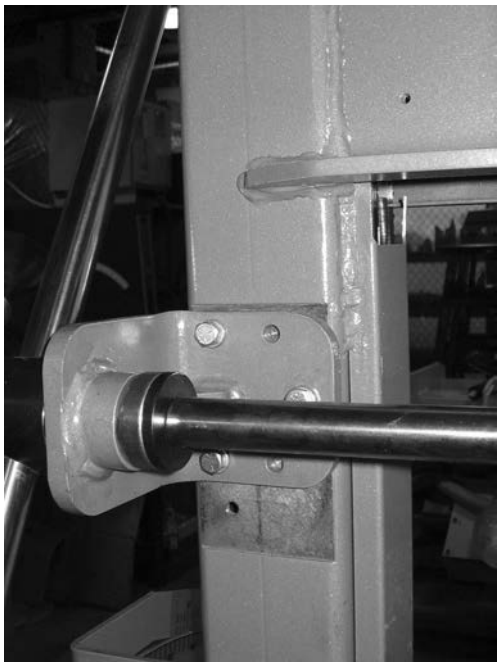



**Loosen 3/8” SHCS with 5/16 allen key.**




**Pictures shown above are part of the head swing brake assembly at the 3º canted head position.**

**STEP FOUR**



**Part of the head swing brake assembly at the 90º head position.**

1. Move swing brake lock shaft up, until the swing brake mounting bracket is in the same position as the picture on the left indicates.

2. Insert all three 3/8” HCS bolts and tighten completely.

3. Un-block the head and swing the head and ensure the head swings freely without any resistance.

4. If some resistance occurs block the head so that it does not swing. Loosen all three 3/8” HCS and adjust the swing brake lock shaft at the swing lock shaft support lug.

5. Tighten the three 3/8” HCS and un-block the head and check if the head swings freely.

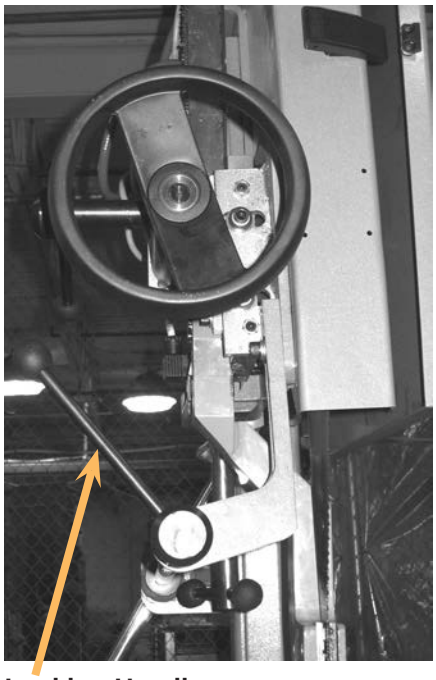
6. Once head swings freely, tighten the 3/8” SHCS.

STEP FIVE

1. Lock the brake in position by moving the locking handle until it is in the position shown.

2. If the locking handle cannot be moved in the position shown, loosen the 3/8 SHCS with 5/16” allen key, adjust handle and lock in position.

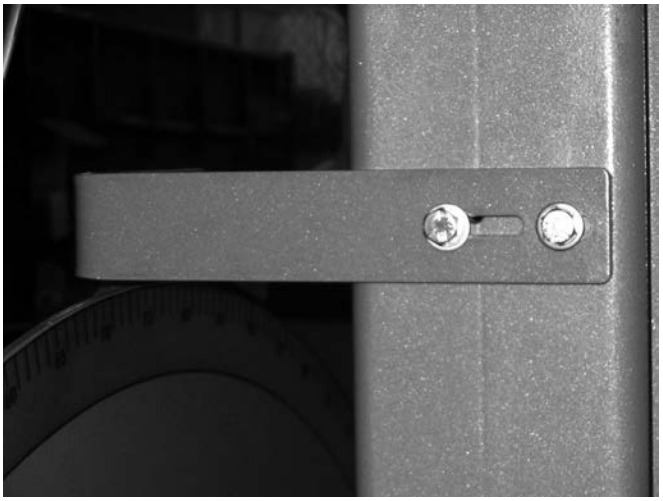
3. Tighten the 3/8” SHCS.



**Locking Handle**

**3/8” SHCS**

STEP SIX



**Scale pointer bracket shown at the 3º canted head position.**

**Scale pointer bracket shown at the 90º head position.**

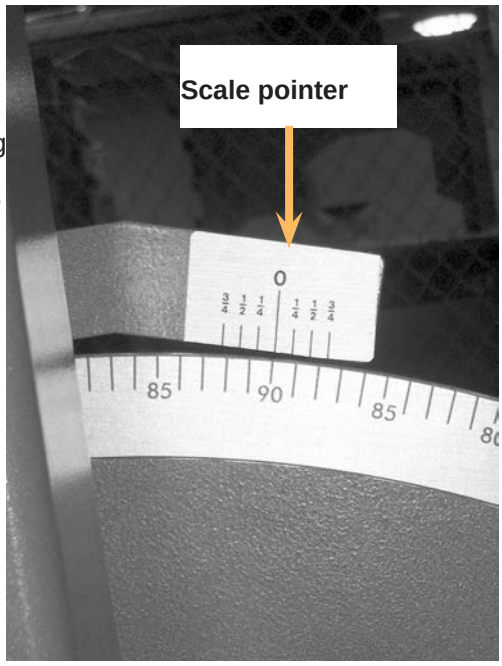
1. Remove the two 1/4” HCS bolts with 7/16 flat wrench.

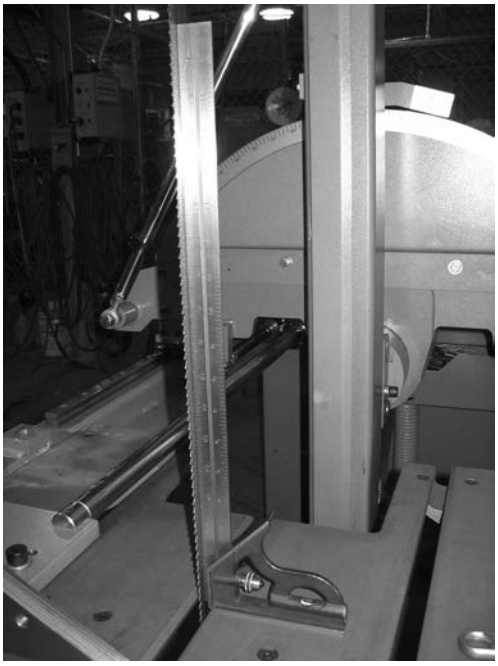
2. Move the scale pointer bracket to the 90º position and tighten the 1/4” HCS bolts. The scale pointer will now be aligned with the scale.

STEP SEVEN

1. Loosen the head brake and move head until it is set to 90º as indicated on the scale

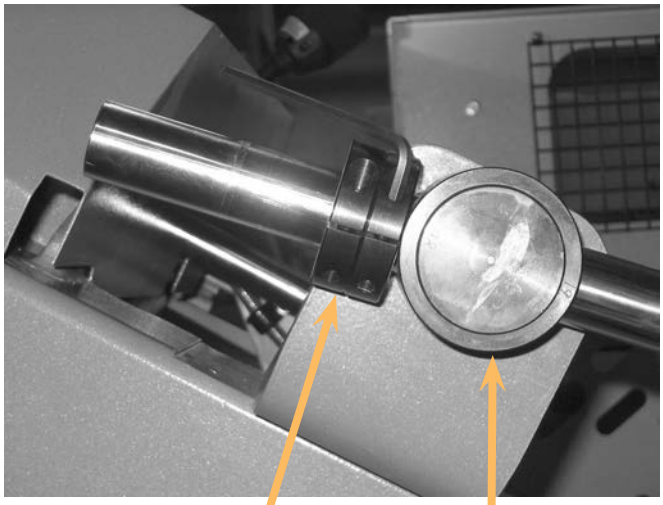
2. Ensure the blade is at 90º by using a square to check. If the blade is at 90º but the scale pointer is not at 90º then adjust the scale pointer bracket.



**Ensure blade is at 90º**

STEP EIGHT



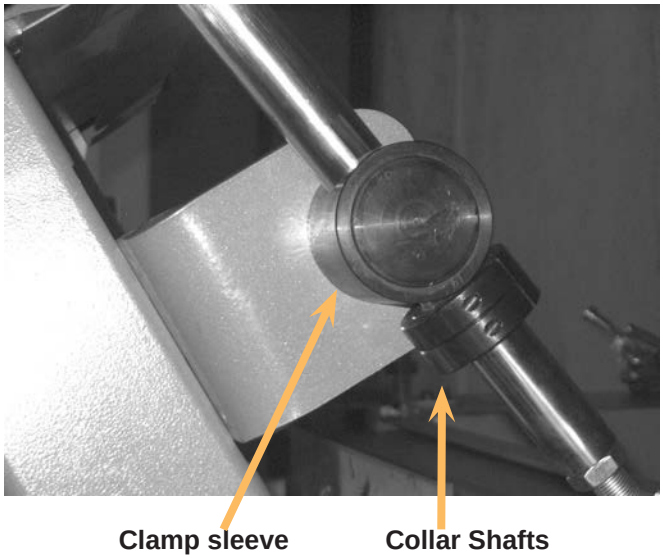

1. On the head swing brake shaft their are in total 4 collar shafts which have to be adjusted. Two for the right side and two for the left side.

2. Swing head to the right until 30º is reached.

3. Loosen both collars  with 3/16 allen key and move collars towards clamp sleeve hub as shown in the above picture.

4. Tighten both of the collars.

STEP NINE


1. Swing head to the left until 30º is reached.

2. Loosen both collars with a 3/16 allen key and move towards clamp sleeve hub as shown in the above picture.

3. Tighten both of the collars

All the steps are now complete. The head now is set to 90º .

## HYDRAULIC FEED CONTROL

The Hydraulic Feed Control is located to the left of the control panel. These controls allow independent control of Feed Force (FF)  and Feed Rate (FR)

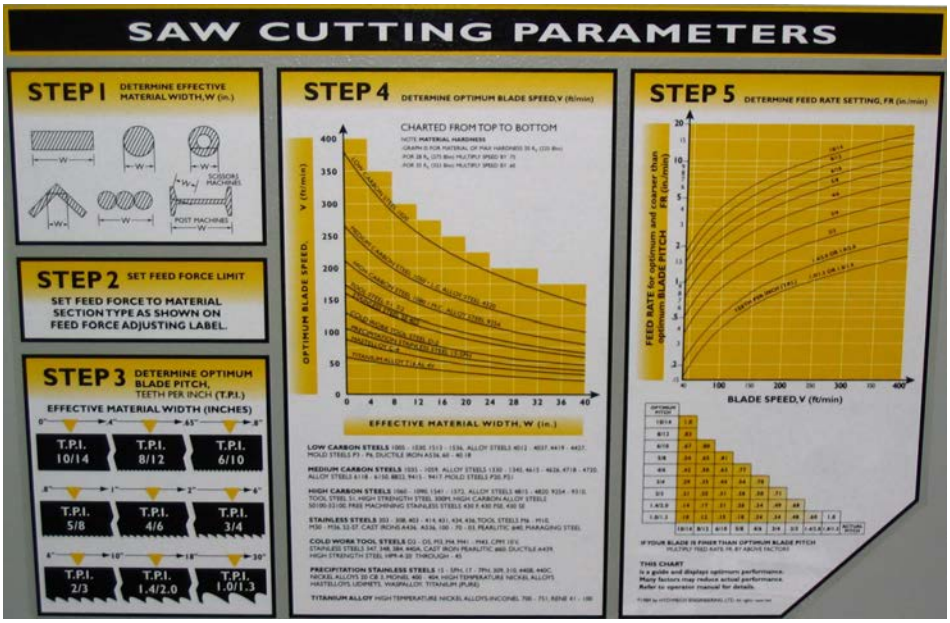

FAST APPROACH LEVER.
DEPRESS FOR FAST HEAD DESCENT

FEED FORCE KNOB
USED TO SET FEED FORCE LIMIT (COUNTERCLOCKWISE ROTATION TO INCREASE AND CLOCKWISE ROTATION TO DECREASE).

FEED RATE KNOB
USED TO SET FEED RATE (COUNTERCLOCKWISE ROTATION TO INCREASE AND CLOCKWISE ROTATION TO DECREASE).

## CUTTING PARAMETERS CHART

A full size CUTTING PARAMETERS CHART is mounted on the front of the saw. The chart contains five steps for the operator to follow in order to achieve optimum performance of the saw. These steps are detailed on the following pages.



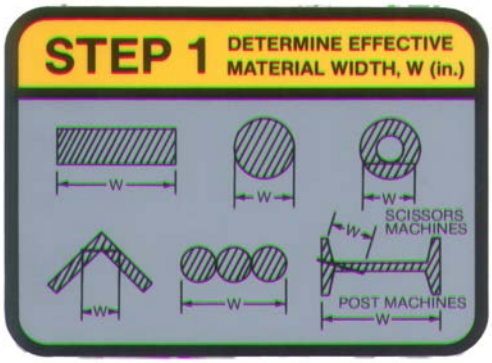

Saw Cutting Parameters Chart

### CHART EXAMPLE #1

We will use the parameters chart to set up the saw for cutting 8” (200mm) Diameter #1045 Carbon Steel.

**STEP 1**: DETERMINE EFFECTIVE MATERIAL WIDTH - W (inches) or (mm)

Effective material width, W (in.) for most common shapes of materials, is the widest solid part of the material to be in contact with blade during cutting. For simple shapes, as illustrated on the chart, this can be directly measured. For bundles of tubes and structurals, measuring the effective width is difficult. Effective width is 60% to 75% of the actual material width.




Material Width Chart

NOTES:

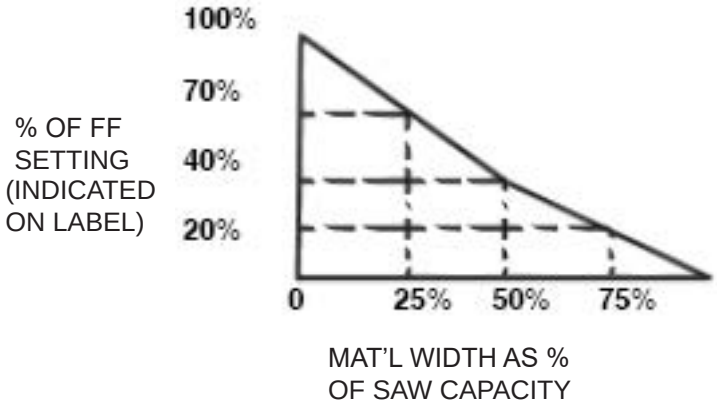
1. Effective material width, as determined here in STEP 1, can be thought of as the average width of material “seen” by each tooth, and it is used in STEPS 3 and 4.
   In Example #1, for an 8” (200 mm) diameter solid, Effective Material Width is 8” (200mm).

**STEP 2**: SET FEED FORCE LIMIT

The Feed Force Limit is the maximum amount of force with which the head is allowed to push the blade into the work-piece.

**CUTTING SOLIDS**

For cutting solids, the wider the section, the less FF should be set, to avoid blade overloading. See the graph below.



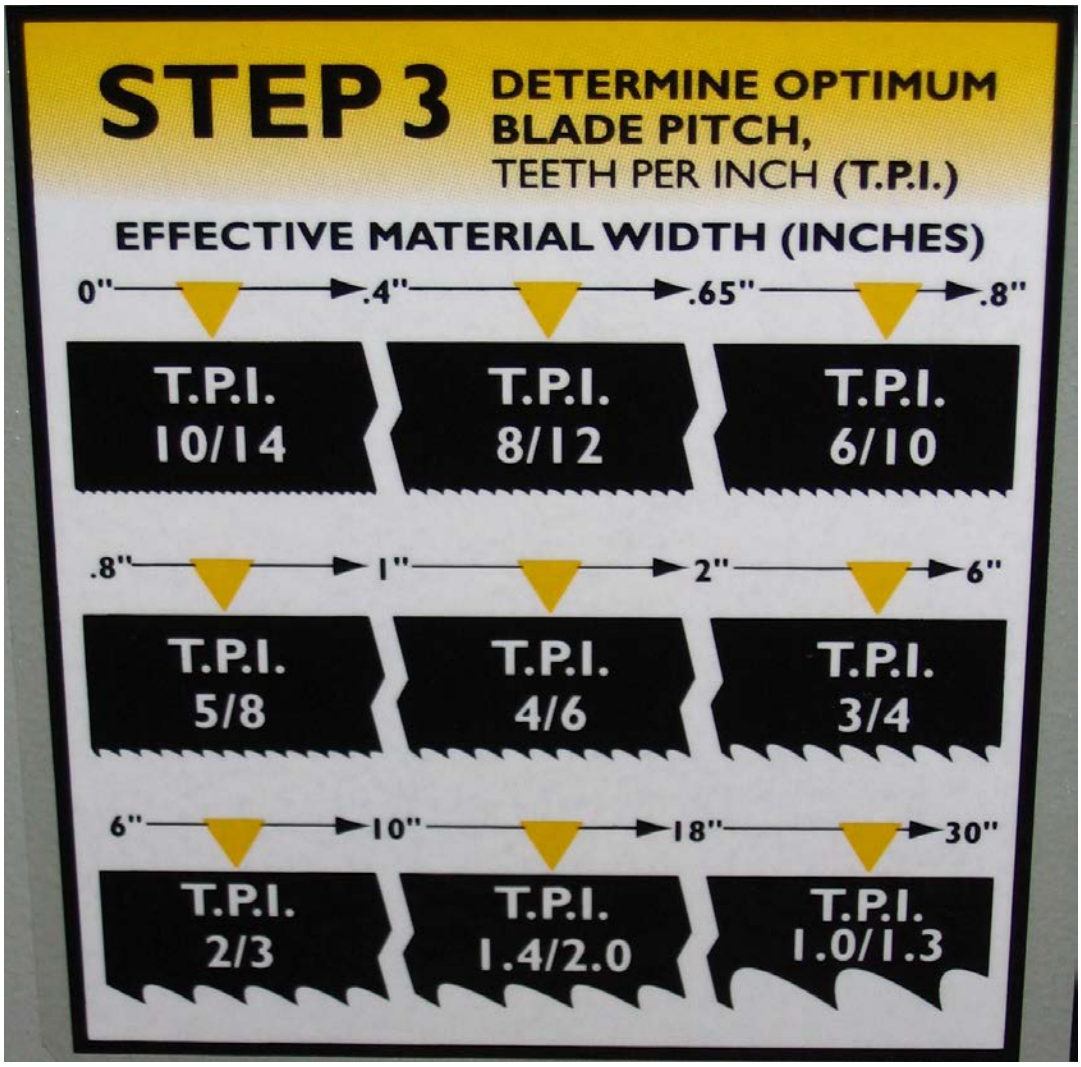

EXAMPLE: When cutting a solid which is 1/2 of machine capacity using the graph, locate 50% on the horizontal line and travel upwards to the plotted line and then travel directly across to the vertical FF Setting line. The point that you have arrived at shows a setting of 40% for a piece 50% of capacity.

**CUTTING STRUCTURALS:** A reduced Feed Force Setting is used when cutting structurals.

**STEP 3**: DETERMINE OPTIMUM BLADE PITCH - TEETH PER INCH (T.P.I.)

Selecting a blade with proper tooth pitch is important in order to achieve optimal cutting rates and good blade life.

For cutting narrow or thin wall structural materials a fine blade with many teeth per inch (T.P.I.) is recommended. For wide materials a blade with a coarse pitch should be used. The sketch can be referenced for the blade pitch changes for differing effective material widths.




Optimum Blade Pitch (T.P.I) for Material Width (Inches)

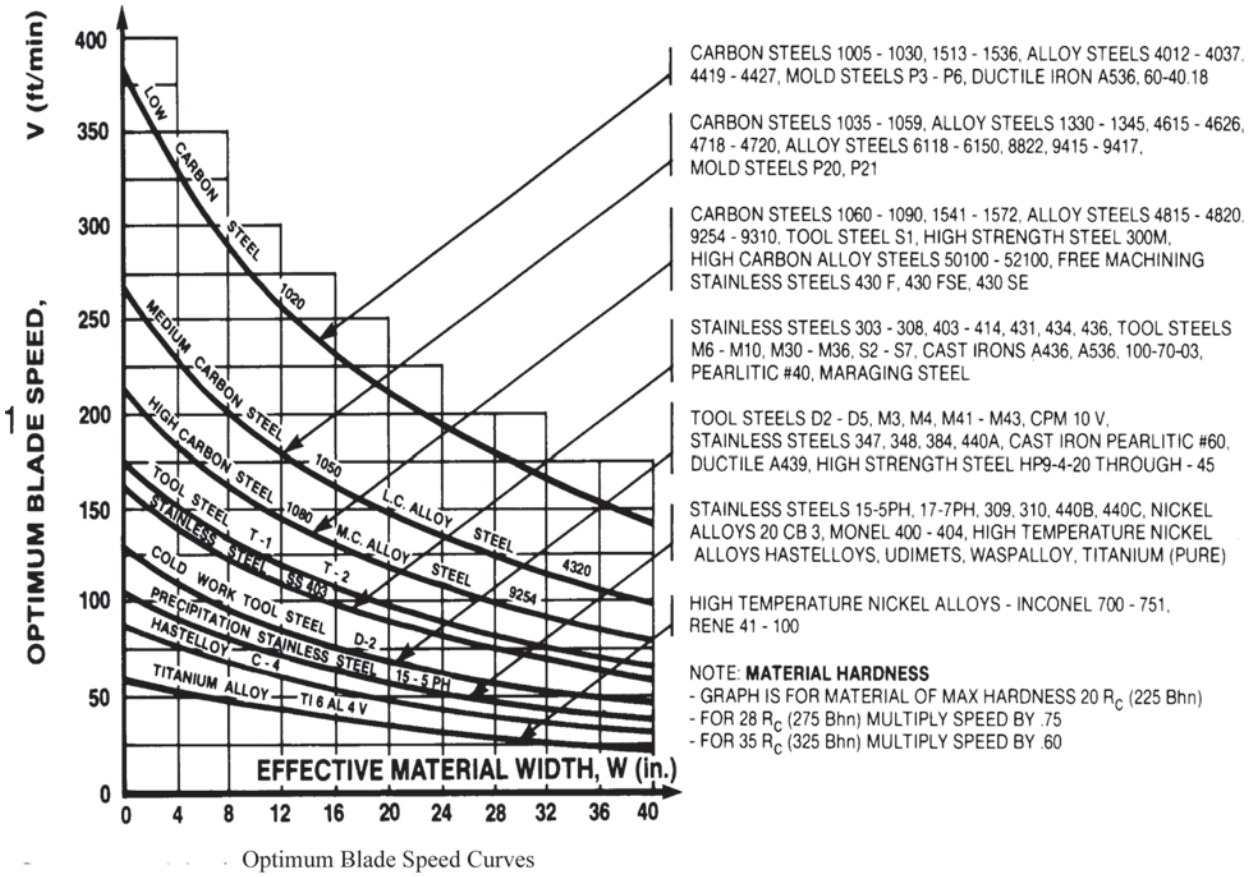
It is impractical to change the blade to the proper pitch every time a different width of material is cut and it is not necessary, but remember that the optimum blade will cut most efficiently. Too fine a blade must be fed slower on wide material because the small gullets between the teeth will get packed with chips before they get across and out of the cut. Too coarse a blade must be fed slower because it has fewer teeth cutting and there is a limit to the depth of a cut taken by each tooth. Allowance for the use of a non-optimum blade is made in STEP 5.

Example #1: Effective material width of 8” (200 mm):

Optimum blade has 2/3 teeth per inch.

**STEP 4:** DETERMINE OPTIMUM BLADE SPEED, V (ft/min) (m/min)

The relationship between optimum blade speed and effective material width for various materials is represented on the graph shown.




Optimum Blade Speed Curves

The graph shows that as effective material width gets wider or as material gets harder, lower blade speeds are recommended. If material is narrow or soft, higher blades speeds should be selected.

Example #1

1. 8” (200mm) diameter #1045 Medium Carbon Steel solid bar is to be cut.
2. On the graph above find the Medium Carbon Steel Curve which represents the optimum blade speeds for 1045 Carbon Steel.
3. On the horizontal axis (effective material width axis) find number 8 which represents effective material width of an 8” (200mm) diameter solid.
4. Find the point where a vertical line from 8” (200mm) intersects the Medium Carbon Steel Curve.
5. From this intersection point run horizontally left to the vertical axis (optimum blade speed axis) and find the point marked “200”.
6. For 8” (200mm) diameter, 1045 Carbon Steel solid bar 200 ft/min (60m/min) is the optimum blade speed.

NOTE:

1. Higher than optimum blade speed will cause rapid blade dulling. Lower than optimum blade speeds reduce cutting rates proportionately and do not result in significantly longer blade life except where there is a vibration problem. If the blade vibrates appreciably at optimum speed as most often occurs with structurals and bundles, a lower blade speed may reduce vibration and prevent premature blade failure.

2. Material Hardness - The graph above illustrates blade speed curves for materials of hardness 20 RC (225 Bhn) or lower. If the material is hardened then the multipliers need to be used. These multipliers are given in the NOTE at the bottom right of the graph. As the hardness increases the optimum blade speed decreases.

The following table gives examples of the optimum blade speeds for different materials.

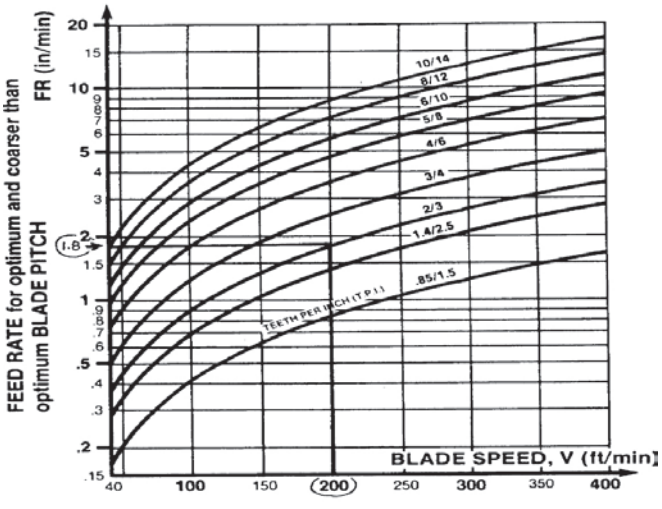
| # | MATERIALS | OPTIMUM | BLADE SPEED |
|---|---|---|---|
| | | (ft/min) | (m/min) |
| 1 | 5” (125mm) Diameter Solid Carbon Steel | 225 | 70 |
| 2 | 12” (300mm) I-Beam | 290 | 90 |
| 3 | 4” x 4” (100mm x 100mm) Rect. Tube 1/4” (6mm) Wall | 350 | 110 |
| 4 | 4” (100mm) 400 Stainless Steel | 140 | 45 |
| 5 | 2” x 2” (50mm x 50mm) Rect. Tube 1/4” (6mm) Wall | | |
| | Bundle 5” x 5” pcs. 10” x 10” (500mm x 500mm) | 325 | 100 |
| 6 | 3” x 3” (75mm x 75mm) Inconel | 60 | 20 |

Materials and Blade Speed

**STEP 5:** DETERMINE FEED RATE SETTING, FR (in/min) (mm/min).


FEED RATE is the vertical speed at which the blade descends through the work-piece.

The FEED RATE Knob controls FEED RATE of the blade descent. The FEED RATE should be adjusted only in one direction (from “O” to required value). If you go too far, go back to “O” and come back up. To set FEED RATE for particular cutting situations use the graph below, which represents the relationship between FEED RATE, blade speed and blade pitch.




Feed Rate Calculation

Example #1: It is known from Step 3 that optimum blade pitch is 2/3, and from Step 4 that blade speed is 200 ft/min (60mm/min). From the Graph on the left, the FEED RATE is determined in the following way:

1. On the horizontal axis (blade speed axis), find 200 ft/min (60mm/min).

2. Find the point where a vertical line from 200 ft/min (60mm/min) would intersect the 2/3 blade pitch curve

3. From this intersection point run horizontally left to the vertical (FEED RATE) axis, to arrive at 1.8 in/min (45mm/min) FEED RATE. Thus 1.8 in/min (45mm/min) is the FEED RATE for cutting 8” (200mm) diameter 1045 Carbon Steel when the optimum 2/3 pitch blade is used.

FEED RATE, continued

If the saw is fitted with a blade coarser than optimum (e.g.: 1.4/2.5 TPI) we can still use the graph, but we go to the 1.4/2.5 curve. As a result we find that the FEED RATE is decreased to 1.3 in/min (133mm/min) for this blade. If however, the machine is fitted with a finer than optimum blade (e.g. 3/4 TPI) we use the graph for the optimum blade as before, and then use a multiplier given by the table below.

| OPTIMUM PITCH | 10/14 | 8/12 | 6/10 | 5/8 | 4/6 | 3/4 | 2/3 | 1.4/2.5 | .85/1.5 | ACTUAL PITCH |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/14 | 1.0 | | | | | | | | | |
| 8/12 | .83 | | | | | | | | | |
| 6/10 | .67 | .80 | | | | | | | | |
| 5/8 | .54 | .65 | .81 | | | | | | | |
| 4/6 | .42 | .50 | .63 | .77 | | | | | | |
| 3/4 | .29 | .35 | .44 | .54 | .70 | | | | | |
| 2/3 | .21 | .25 | .31 | .38 | .50 | .71 | | | | |
| 1.4/2.5 | .17 | .20 | .25 | .31 | .40 | .57 | .80 | | | |
| .85/1.5 | .10 | .12 | .15 | .18 | .24 | .34 | .48 | .60 | 1.0 | |

**IF YOUR BLADE IS FINER THAN OPTIMUM BLADE PITCH**
MULTIPLY FEED RATE, FR, BY ABOVE FACTORS

Optimum Vs Actual Blade Pitch

**ADDITIONAL CUTTING SETUP EXAMPLES**

EXAMPLE # 2

Material:

Round Steel Tube SAE 4320 - Hardened to 35 RC (325 Bhn )
Dimensions - 6” O.D. x 4” I.D. (150mm O.D. x 100mm I.D.)

**Step 1** Effective Material Width: 4 1/2” (.75 X 6) 114mm (19 x 6)

**Step 2** Feed Force limit setting for 6” Diameter material (Refer to Feed Force Limit, Setting in Step 2)

**Step 3** Optimum blade pitch (TPI): 3/4 T. P. I.
Actual blade pitch on the saw: 4/6 T. P. I.

**Step 4** Optimum blade speed for 4 1/2” effective 225 ft/min (70m/min) material width
Blade speed reduced by hardness factor: 225 ft/min X .60 = 135ft/min (70m/min x .60 = 42m/min)

**Step 5** Feed Rate for 3/4 TPI blade: 1.8 in/min (45mm/min)
Feed Rate for 4/6 TPI blade: 1.8 in/min X .70 = 1.3in/min
(reduced by finer than optimum blade pitch factor) (45mm/min x .70= 31.5mm/min)

ADDITIONAL CUTTING SETUP EXAMPLES, continued

EXAMPLE # 3

Material:

Bundle low carbon steel 2” x 2” Tube with 1/4” wall, 12 piece bundle (50mm x 50mm with 6mm wall)

Dimensions: 6” x 8” (150mm x 200mm)

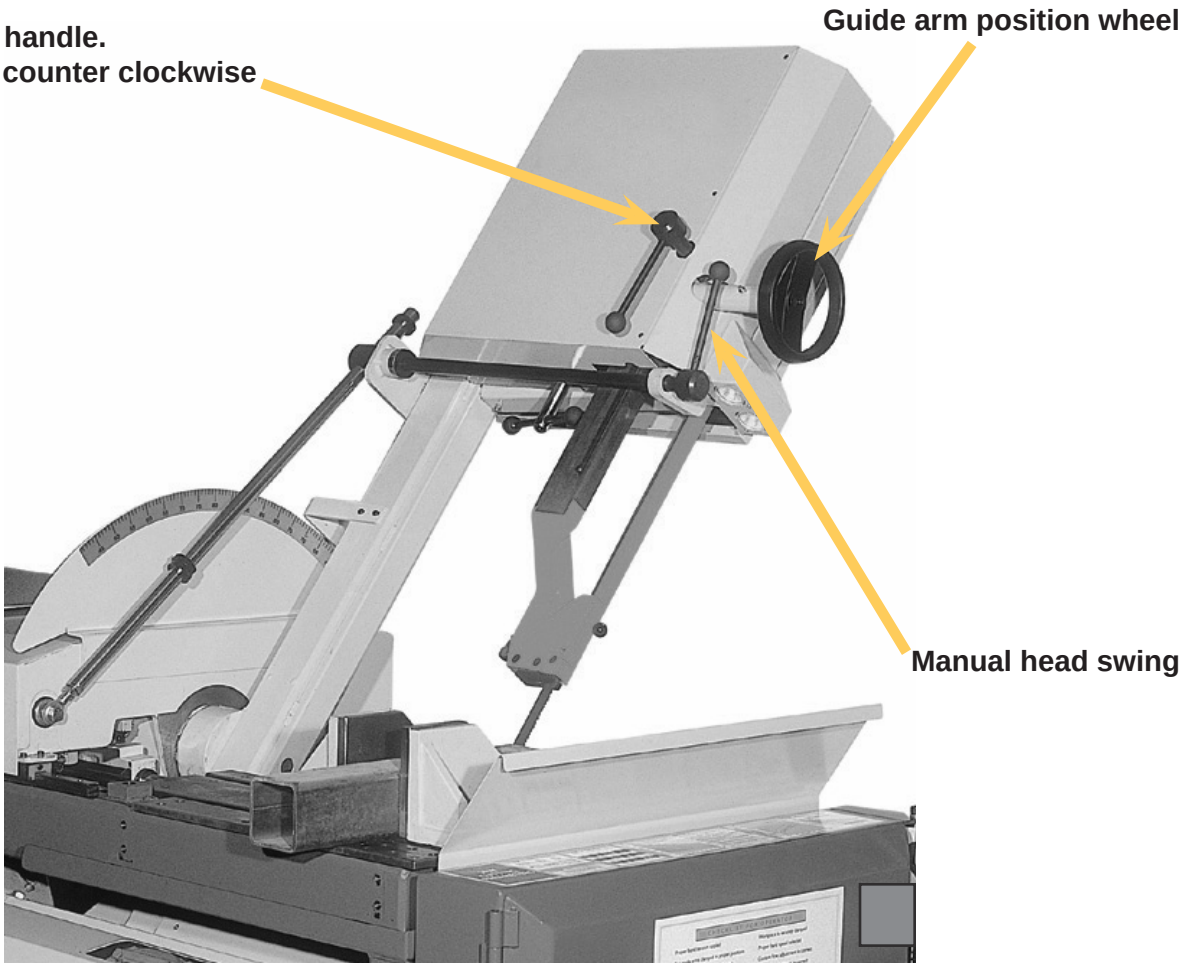
**Step 1** Effective Material Width: 5” ( .6 X 8” ) 120mm (.6 x 200)

**Step 2** Feed Force limit setting for 8” Diameter material. (Refer to Feed Force Limit, Setting in Step 2)

**Step 3** Optimum blade pitch (TPI): 3/4 T. P. I.

**Step 4** Optimum blade speed for 5“ effective material width: 320 ft/min (100m/min)

**Step 5** Feed Rate for 3/4 TPI blade: 4.0 in/min (100mm/min)




## GUIDE ARM POSITION

In order to obtain maximum cutting performance from the blade, the guide arm should be positioned within 1/2” of the top of the material. To adjust the position of the guide arm, unlock it using the guide arm lock handle and make the desired adjustment with the adjustment wheel. Once adjusted, be sure to re-engage the lock handle.
**CAUTION:** When making angle cuts past 45º the guide arm must be positioned high enough to avoid interference with the vises.

## COOLANT FLOW

A generous flow of coolant should be applied in order to increase production and blade life. The machine is provided with a control switch on the operator panel and an independently controlled coolant spout. This spout should always flood the blade with coolant. Slight adjustment may be required when changing the blade speed. A properly adjusted flow of coolant should cover the blade which in turn will carry it into the cutting area. Flow adjusting tap is shown at console side in the photo.

**NOTE:** When cutting materials that do not need coolant (cast iron) some coolant flow is required to provide blade lubrication in order to prevent blade scoring by the carbides.

# SECTION 3 – MAINTENANCE & TROUBLESHOOTING

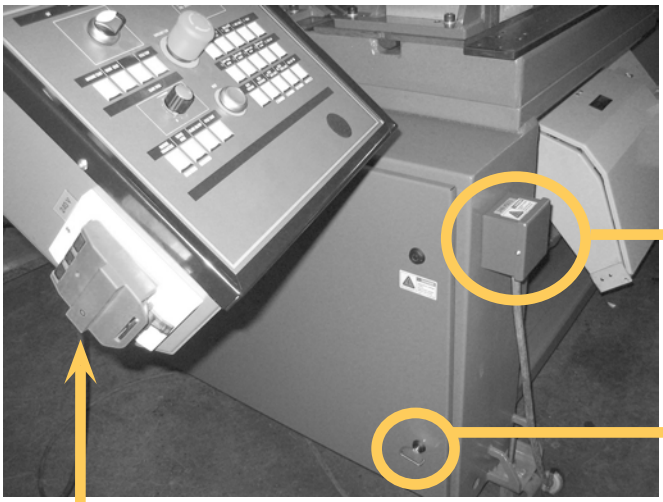
## SAFETY DURING MAINTENANCE

“Lock-out”, or “Lock-out Tag-out” are terms that refer to procedures taken to prevent the unexpected start-up, or other release of energy, by a machine, whenever anyone is required to remove or bypass safety guards or devices, or whenever anyone is required to place part of his body in a hazard area.
In almost all jurisdictions, it is required that owners of industrial equipment establish and post lock-out procedures. Know and use the lock-out procedures of your company or organization. In the absence, of such posted procedures, use the following procedure.

## LOCK OUT PROCEDURE

Whenever work is to be performed on a machine, which requires removal or bypassing of safety guards or devices, or the placement of part of anyone’s body in a hazard area, the following steps shall be taken:

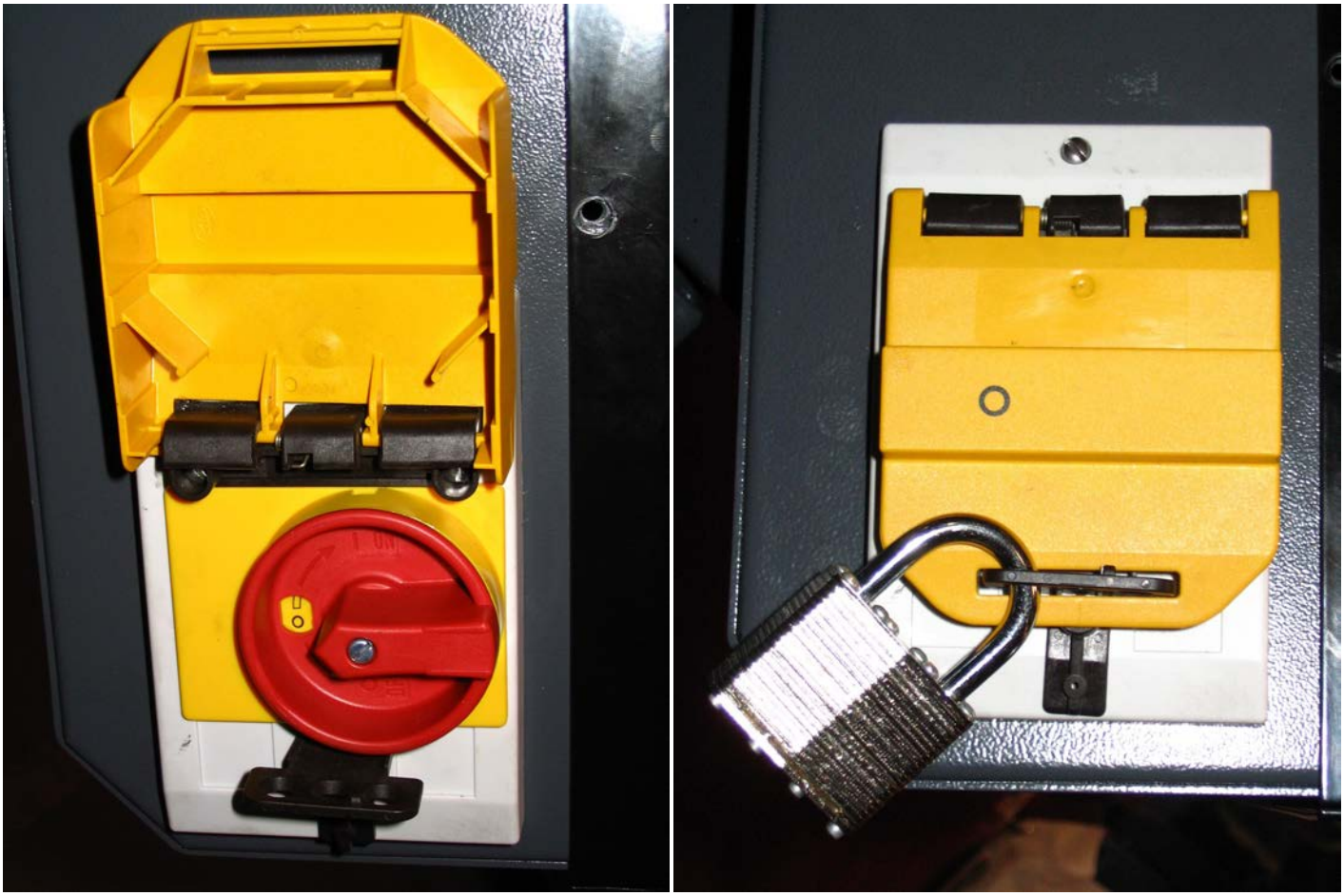
1. Operator shuts down the machine.
2. The supervisor in charge of the machine must be informed of the intention to Lock-out the machine.
3. The FEEDER power which supplies power to the machine and which is connected to the machine via the Power Junction Box (see picture below) must be turned OFF and locked in the OFF (0) position by means of a padlock. The key for this padlock must be kept by the person performing the work on the machine. If more than one person is performing work on the machine, then a multiple lock hasp shall be used, and each person shall apply his or her own lock to the hasp.
4. The Machine Power Disconnect Switch must be turned OFF, and locked in the OFF (0) position by means of a padlock. The key for this padlock must be kept by the person performing the work on the machine. If more than one person is performing work on the machine, then a multiple lock hasp shall be used, and each person shall apply his or her own lock to the hasp.
5. Prior to starting any work on the locked-out machine, the supervisor shall attempt to start the machine to ensure that the lock-out device provides adequate protection. Operating controls must be reset to the “OFF” position after this test.
6. Work on the locked-out machine may now proceed.



**The machine power disconnect switch used for safety lockout purposes.**


**Power Junction Box**

**Special door lock.**



Machine Power Disconnect located on the side of the machine control box.

1. Ensure switch is in the OFF position.
2. Close the disconnect switch cover.
3. Install padlock and lock it.

## RESTORING MACHINE TO USE

After completion of all repairs or maintenance to the locked-out machine, it shall be restored to use as follows:

The person(s) who performed the work shall verify that all areas around the machine are safe, before the machine is re-energized. No-one shall be permitted in un-safe areas around the machine. All guards and covers shall be properly installed.

Each lock-out padlock shall be removed by the person who applied it.
After the lock-out padlocks are removed, and before the machine is started, the supervisor and all other employees who use the machine, shall be informed that the lock-out has been removed. After notification is made, the machine may be re-started.

## BLADE CHANGING PROCEDURE

Wear safety glasses, gloves, and a long sleeve shirt for protection when handling band saw blades during blade change. NOTE THAT GLOVES SHOULD NEVER BE WORN NEAR A RUNNING BANDSAW BLADE. When handling new blades or ones that will be re-used, it is important to keep the teeth out of contact with concrete floors.

STEP ONE - Head Retract and Head Swing

Move the head backwards until it reaches the back mechanical position. This will create a wider gap between the blade and the cutting table allowing easier removal of the blade. If required swing the head to 90' which will also allow easier removal and easier installation of the new blade.

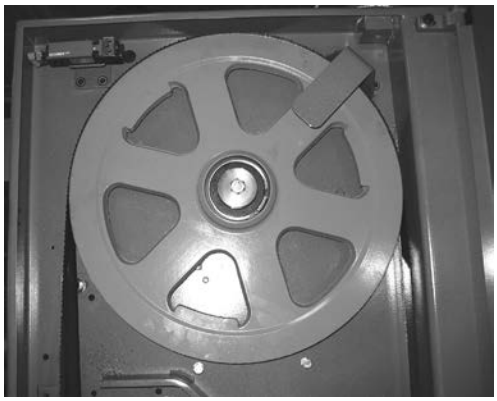
STEP TWO - BCM

Switch the blade change mode switch to the ON position and follow lock out procedure.


STEP THREE - Open Doors

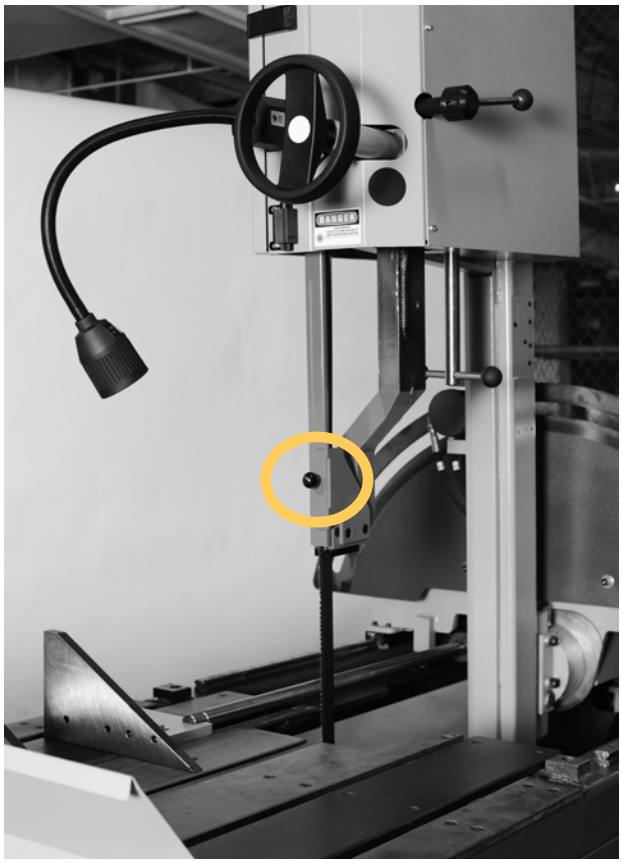
The blade on the VW18 travels around two blade wheels, the bottom Drive wheel and the top Idler wheel. Both of these wheels are housed in compartments with locking doors. The photo shows the top Idler wheel with the door open.

Note: Both doors have safety interlock switches, which will not allow the hydraulics and blade motor to be to be started or run while the doors are open.



STEP FOUR - Open blade guard

The VW18 blade is only exposed to the operator at the cutting area. A hinged cover protects the operator from the blade between the Idler wheel assembly and the actual cutting area. A black handle on the cover allows it to be easily pulled open.

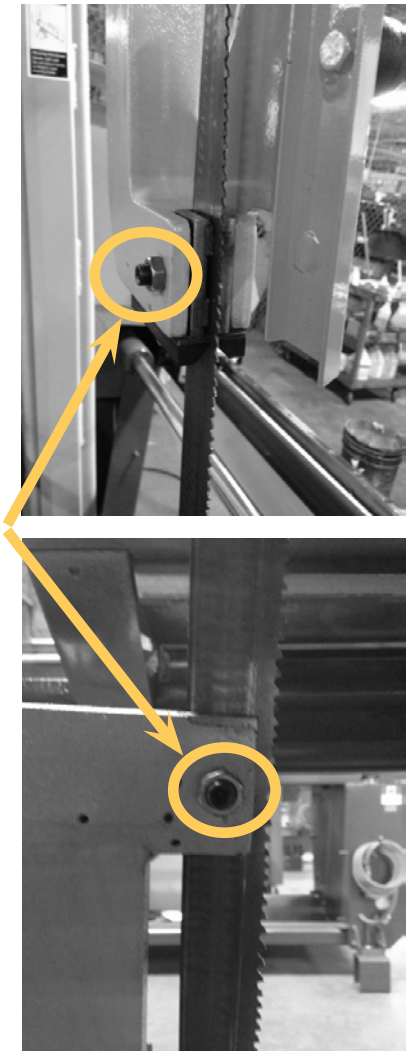


STEP FIVE - Release Carbides

It is necessary to release the carbides from the locked position so that the blade can be easily removed. The carbides are released by loosening the lock nuts and loosening the set screws.

STEP SIX - Blade Tension

To remove the blade, the blade tension must be released. Turning the tension handle counter clockwise releases tension, and clockwise rotation tensions the blade. When re-tensioning, the tension pressure can be seen on the LCD display.
**Note:** Blade motor will not start unless tension pressure is within proper range.




STEP SEVEN:
Remove the blade from the carbide guides by pulling out.

STEP EIGHT:
Remove the blade of the wheels. Gloves are a necessity.

STEP NINE:
Place the new blade onto the wheels in correct orientation; teeth pointing down as they pass through the guides and teeth pointing out (away) from front of the wheel.

STEP TEN:
Tension the blade just enough to keep blade on the wheels.

STEP ELEVEN:
Place the new blade into the carbide guides (by twisting the blade) until seated.

STEP TWELVE:
Slightly Increase the tension and close both the idler and drive wheel doors.

STEP THIRTEEN:
Power up the machine and set Blade Tension to 2400 lbs (see LCD) Minimum blade tension required for the blade to start is 1320 lbs or 600kg.

STEP FOURTEEN - BCM
Switch the blade change mode switch to the OFF position.

STEP FIFTEEN:
Start the blade for a few rotations. This allows the blade to fully seat in the carbide guides and track onto the wheels.

FINAL STEP
Turn the machine power disconnect to the OFF position.
Set the carbide pads on both the upper and lower guide blocks:

- Tighten the set screw against the pad, then back it off. Do this 3x.
- Once the pad is loaded properly, loosen the set screw a 1/16 to 1/8 of a turn.
- Tighten the nut to lock it in place.

**Break-in the blade.**

BLADE CHANGE PROCEDURE IS NOW COMPLETE

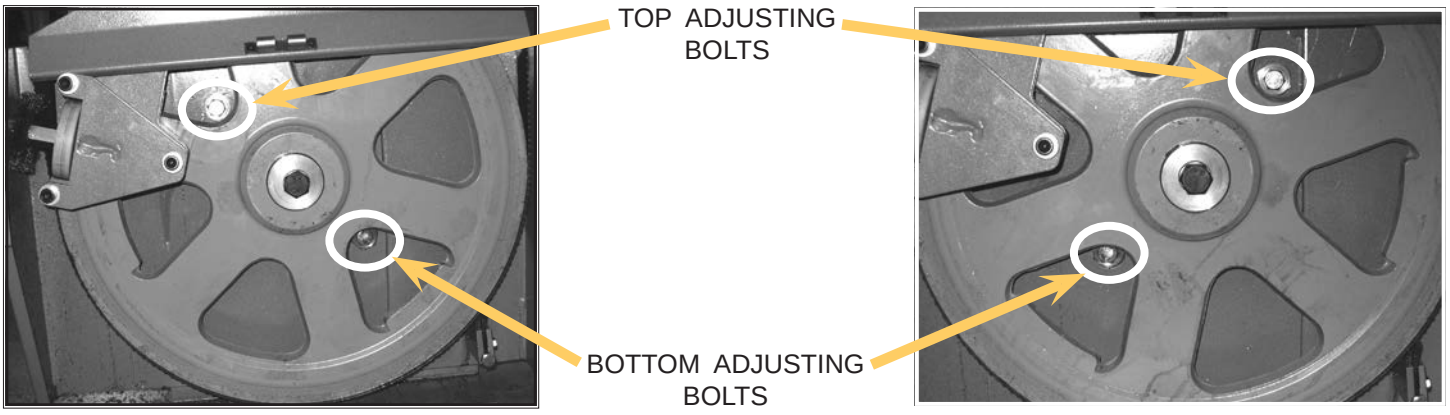
## BLADE TRACKING

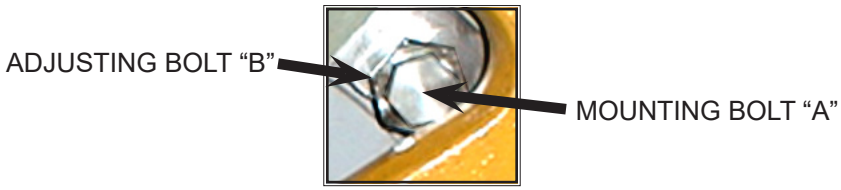
Blade tracking should be set so that the blade overhangs the front of each of the wheels by 0.180” to 0.200” (4.5mm to 5mm) measured from the tip of the teeth to the face of the wheel. Tracking is preset from the factory and normally should not need adjustment unless a wheel has been replaced. Before attempting adjustment of the tracking, inspect the blade wheels & wheel bearings for wear or damage and repair as required. Improper blade tension can also affect tracking.

Blade tracking adjustment should always begin at the wheel where the tracking is farthest out of specification. Using the following instructions, adjust the worst wheel, jog the blade and check both wheels. Repeat this process until both wheels are within specification.

## DRIVE WHEEL TRACKING ADJUSTMENT

The drive wheel has 4 adjusting bolt assemblies. The bolt assemblies work in pairs to adjust tracking as seen below.




Adjustments should be made with the blade tension released slightly.

Loosen mounting bolts “A” and turn adjusting bolts “B” in or out by equal amounts, and then re-tighten bolts “A”.

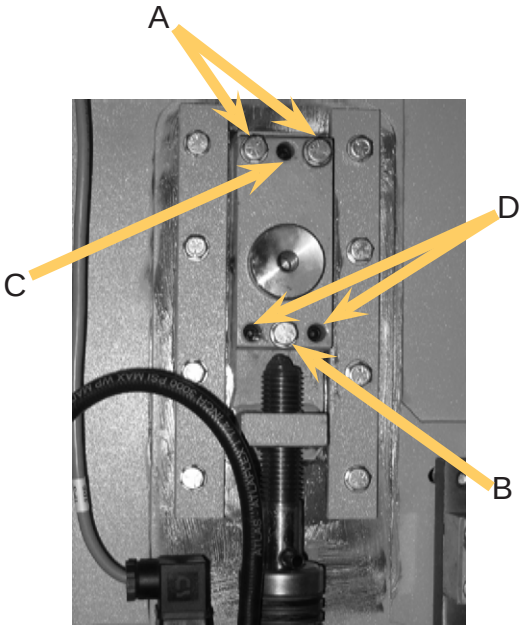
Turning clockwise the top 2 adjusting bolts “B” will push the blade off the wheel.

Turning clockwise the bottom 2 adjusting bolts “B” will pull the blade onto the wheel.

**NOTE:** Both of the adjusting bolt assemblies should be turned by equal amounts.
Check the tracking movement after each one-quarter turn of bolts “B” by running the blade at minimum speed.
When the tracking is within specification, tighten bolts “A” and recheck the tracking.

## IDLER WHEEL TRACKING ADJUSTMENT

Adjustments should be made with the blade tension released slightly. Remove the cover on the left side of the head. There are three hex bolts (A & B) and three setscrews (C & D). Loosen bolts A, 1/2 turn and bolt B, 1/4 turn. Adjust setscrew C, 1/4 turn, tighten bolts A, and then tighten bolt B. Turning setscrew C clockwise will move the blade onto the wheel, counterclockwise will move the blade off the wheel. Each 1/4 turn will move the blade approximately 0.02” (0.5mm). If setscrew C has been turned fully counterclockwise to move the blade off the wheel, and no more adjustment is left with this setscrew, setscrews D may be adjusted inward to bring the blade further off the wheel.

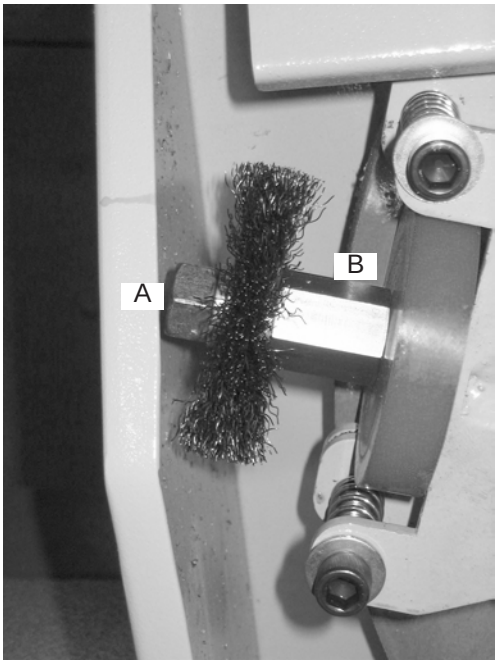



## BLADE BRUSH

A new brush has a 3” (76mm) outside diameter. Once worn down to 2.5” to 2” (64mm - 51mm) the brush should be replaced. A brush may be purchased from your HYD-MECH dealer.

To replace the brush:

1. Using a 7/8” wrench hold shaft extension ‘**B**’
2. Using the a 3/4” wrench, remove the 1/2” jam nut ‘**A**’
3. Remove and replace old blade brush with new blade brush.
4. Insert 1/2” jam nut and tighten.

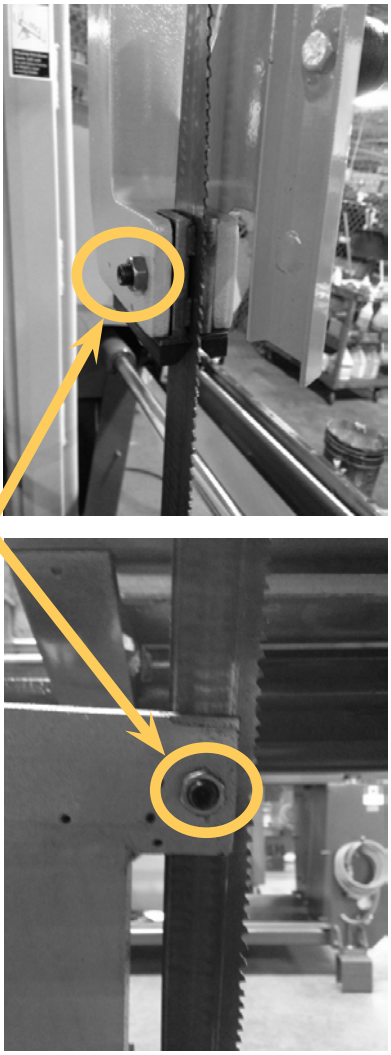


## BLADE GUIDES

Both guide arms are provided with blade guide assemblies consisting of carbide pads that are integral to the correct guidance of the saw blade. These guide assemblies will require an adjustment periodically. To adjust the pads properly, follow this simple procedure. Loosen the nut and turn the adjusting setscrew clockwise until snug and then loosen 1/16 to 1/8 of a turn. Tighten the nut to lock it in position. This should put just enough pressure on the blade to permit you to push the blade out approximately 0.12" (3mm).

In the event that the pads must be replaced, refer to the exploded parts drawing in Section 6.

Carbide Pad lock nuts and set screws



## HYDRAULIC MAINTENANCE

1. OIL LEVEL:
   Oil level should be maintained in the upper half of the gauge. Normally the rate of oil consumption will be very low and it should be unnecessary to add oil more often than a filter change. Add oil only to the top line on level gauge.

2. OIL PRESSURE:
   Oil pressure is factory set to 30 bar and should not require further attention.

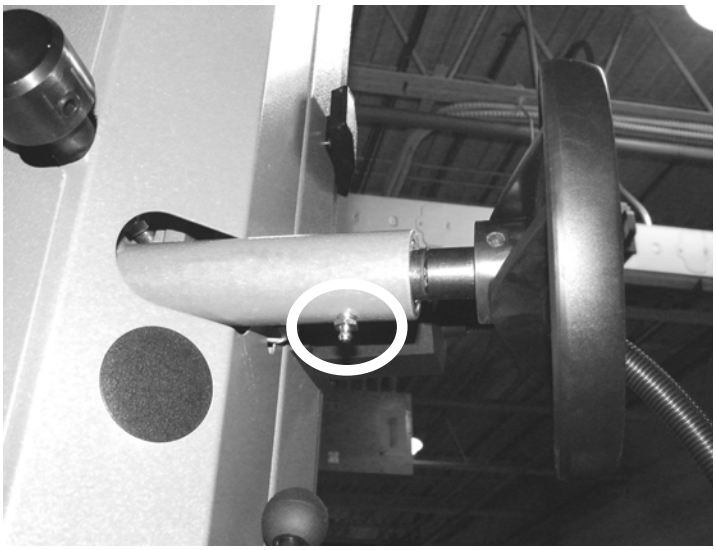
## GEARBOX LUBRICATION

The Bonfiglioli W86 gearbox used on the VW18 is supplied with 0.64 liters (0.17 US gallons) of Shell Tivella S 320 synthetic oil. This oil has an ISO Viscosity Grade of 320 that is optimum for ambient temperatures from 20 - 40 Deg C [70 – 104 Deg F]. The W86 was designed to be a sealed unit, so no oil change should be necessary. However, if the oil needs to be changed, Bonfiglioli recommends that, should a lubricant other than the approved Shell type be used, this be equivalent viscosity-wise and of the synthetic type. The lubricant must also have the necessary EP and anti-foaming additives.

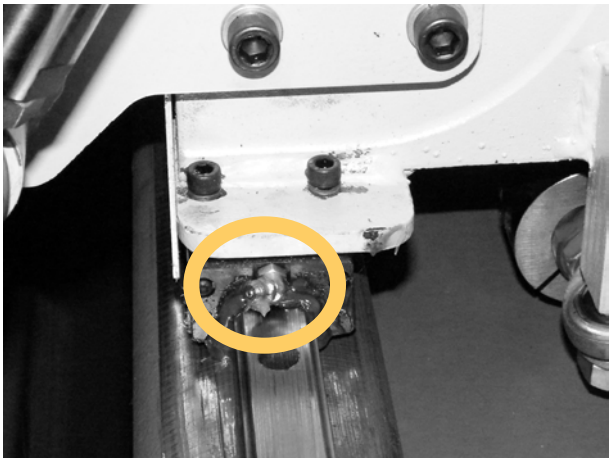
## LUBRICATION

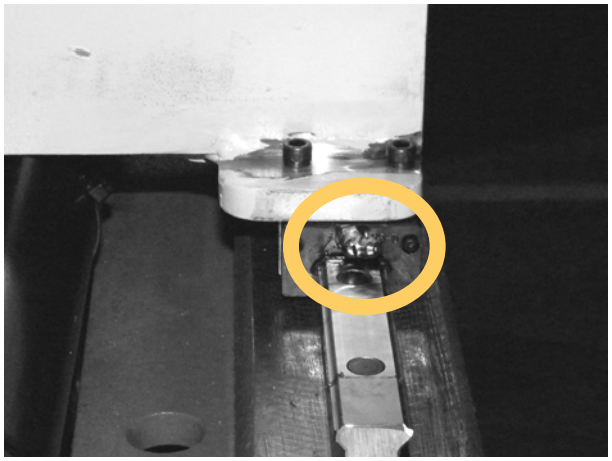
The VW18 was designed with a goal to minimize the maintenance required so as to reduce downtime. Moving parts of the VW18 will require periodic lubrication nonetheless, primarily application of a general-purpose grease to the moveable guide arm, vise ways, and the linear bearings.

In addition, it is good practice to maintain a constant greased surface on the vise ways. As the vises are precision fit to the vise table, The constant friction of metal to metal can be effectively alleviated with the application of general-purpose grease.

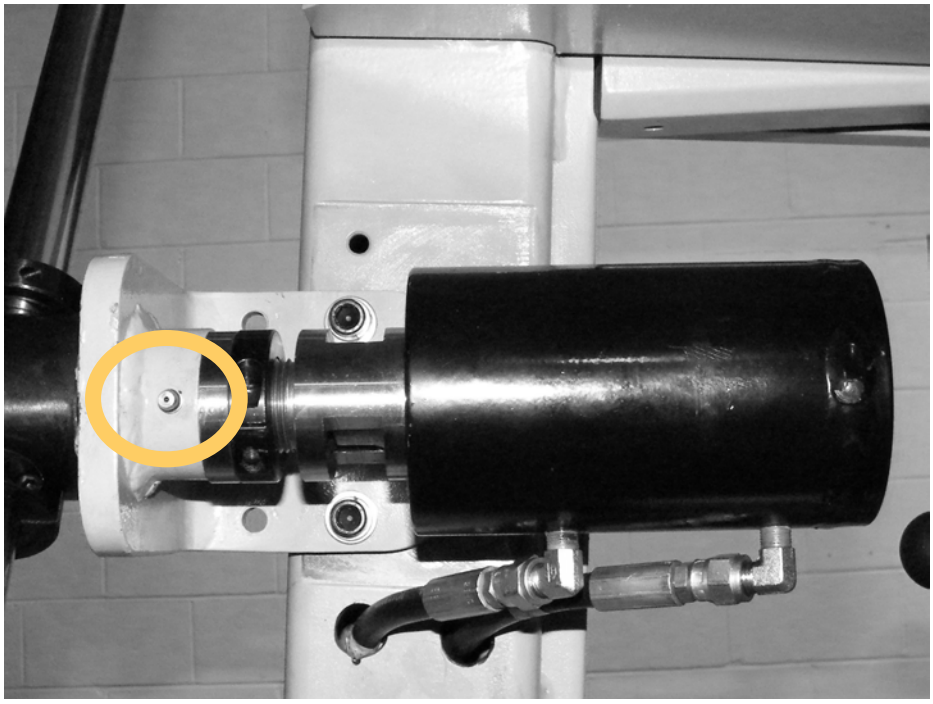


Grease nipple for moveable guide arm adjustment





Linear bearing grease nipples. Four in total, two at the front of the carriage and two at the back of the carriage, hidden by the carriage cover.



Head brake grease nipples.

## MEP31 AND MEP32 CONTROLLER: TROUBLESHOOTING

**PROBLEM #1**

MEP32 CONTROLLER is not measuring angles / angle inaccuracies.

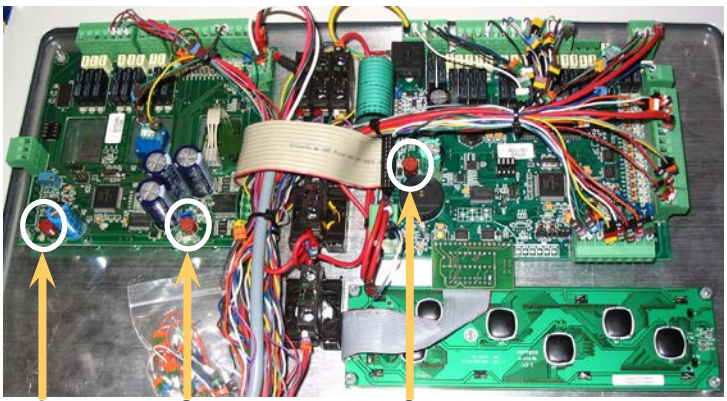
POSSIBLE CAUSES:

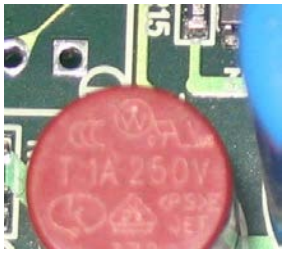
1. Coupling loose between gearbox and stepper motor or gearbox and sprocket.
2. Bad stepper motor drive
3. Faulty unit (not repairable in the field) Contact Hyd-Mech service department.
4. Encoder pulley loose. - Check set screw
5. Chain loose or damaged.
6. Head brake seized up.

**FUSES**

MEP31 controller has 2 fuses installed: F1 = 1A  250V and F2 = 2.5A  250V. When the fuse is blown, a lit LED beside the corresponding fuse will be visible.

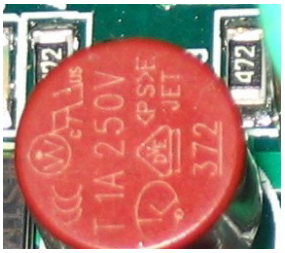
MEP32 controller has 1 fuse installed: F1 = 1A  250V. When the fuse is blown, a lit LED beside F1 fuse will be visible.




1


2




3

**PROBLEM #2 – NO DISPLAY**

POSSIBLE CAUSES:

1. No power to the MEP 31 and MEP 32 CONTROLLER.
2. MEP CONTROLLER failure.

DIAGNOSIS:

1. Check fuses on the MEP31 & MEP32 CONTROLLER.

**PROBLEM #3 – NO BLADE SPEED DISPLAY**

POSSIBLE CAUSES:

1. Fault at proximity sensor
    - Bad sensor, misadjusted sensor (gap should be approx. 0.015”)
    - Contamination on the end of the sensor
    - Check BLADE SPEED PROXIMITY is set to YES in the parameters.

2. Fault at the MEP32 CONTROLLER
    - Bad connection of sensor wiring
    - Faulty MEP32 CONTROLLER.

DIAGNOSIS:

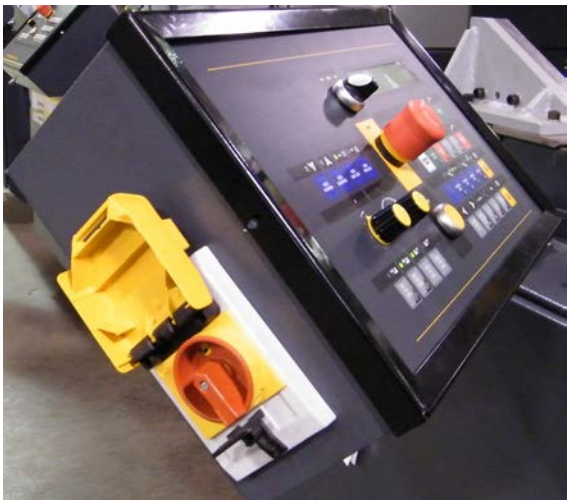
Check for LED light on the sensor – light ON indicates proximity sensor power connections are correct and sensor is activated. Problem could be with sensor, signal wire to the MEP CONTROLLER. With blade running, proximity LED should pulse. Likewise, the MEP CONTROLLER  LED for proxy input should be pulsing. If both LEDs are pulsing with the blade running, the CONTROLLER is the problem. If the sensor LED is pulsing but the input at the MEP CONTROLLER is not; there is a problem between the sensor and the MEP CONTROLLER INPUT. If the LED on the sensor is not on, the problem is with the sensor wiring or the sensor is at fault or sensor adjustment is required.

| MACHINE ALARMS AND TROUBLESHOOTING | | |
|---|---|---|
| **LCD DISPLAY** | **DESCRIPTION** | **DIAGNOSIS** |
| EMERGENCY<br>EMERGENCY BUTTON<br>PRESSED<br>PRESS RESET | Displayed when the EMERGENCY STOP push button is depressed. | 1.Release EMERGENCY STOP<br>2. PRESS RESET |
| PRESS RESET | Displayed at the initialization phase after MACHINE START is depressed. | PRESS RESET |
| END OF CUTS<br>PRESS RESET | Displayed when the machine has completed the number of programmed cuts. | PRESS RESET |
| TWO OR MORE COMMANDS<br>PRESS RESET | Displayed when two keys are simultaneously depressed on the HMI. | NONE |
| COMMAND DISABLED<br>CLOSE FIXED VICE<br>PRESS RESET | Displayed when starting the blade or cycle with the LEFT / RIGHT VISE OPEN | Close VISE / VISES |
| COMMAND DISABLED<br>HEAD NOT AT BACK LIMIT<br>PRESS RESET | Displayed if the head is not positioned at the Head Back Limit position when the cycle is STARTED. | Move the head to the HEAD BACK LIMIT position before resuming the cycle. |
| BLADE GUARD<br>OPEN<br>PRESS RESET | Displayed when the door interlock safety switch is activated by:<br>1. Changing the blade.<br>2. The idler/drive door is open.<br>3. Defective switch | Close idler/drive door.<br>Check safety switch. |
| EMERGENCY<br>FROM BLADE TENSION<br>PRESS RESET | Displayed when a mechanical or electrical/electronic fault is affecting the blade tension unit. | Check:<br>1. Blade Tension<br>2. Operation of the tensioning slider.<br>3. The blade is correctly positioned on both wheels.<br>4. The STRAIN GAUGE input on the IUV card.<br>5. Blade condition<br>6. Wiring connections. |
| EMERGENCY<br>HEAD JAMMED<br>PRESS RESET | Displayed when the head cannot move backwards or forwards due to a mechanical or hydraulic obstruction. | 1. Check & remove any mechanical obstacles.<br>2. Check hydraulic powerpack, hoses & solenoid valves.<br>3. Turn OFF main power, wait 30 seconds and restart. |
| EMERGENCY<br>BLADE TENSION OUT<br>OF RANGE<br>PRESS RESET | Blade Tension outside of the specified range | 1. Adjust blade tension in the range of:<br>1320 lbs (600kg) to<br>2650 lbs (1202kg) |

| TROUBLESHOOTING THE VW-18 PT | | | | | |
|---|---|---|---|---|---|
| | PROBLEM | | PROBABLE CAUSE | | SOLUTION |
| | | | | Shaded actions to be performed | |
| | ELECTRICAL PROBLEMS | | | only by qualified service personnel. | |
| 1 | Saw will not start at all. | 1.1 | Emergency Stop push button not reset. | 1.1 | Rotate through 45º to pull out E-stop push button. |
| | | 1.2 | Safety interlock switches not closed. | 1.2 | Check that both wheel door latches are closed. |
| | | 1.3 | Insufficient blade tension. | 1.3 | Check that blade is not broken or off the blade wheels.<br>Change or re-mount blade. |
| | | | | 1.31 | Adjust blade tension. See 6.3 below. |
| | | 1.4 | Main disconnect switch turned off (0) | 1.4 | Turn switch on (1)<br>**Observe all Lock-out procedures.** |
| | | 1.5 | Power fuse(s) F7 - F9 blown | 1.5 | Check and replace as required |
| 2 | Hydraulic pump motor starts, but hydraulic functions do not respond.<br>No pressure on gauge. | 2.1 | Wrong phase order from electrical supply.<br>(blade will run counter-clockwise) | 2.1 | Stop immediately.<br>Reverse any two phase connections - **qualified personnel only** |
| | | 2.2 | Inadequate oil in hydraulic tank. | 2.2 | Check level gauge, add oil to upper line. |
| | | 2.3 | Pump malfunction or other cause. | 2.3 | Contact dealer. |
| 3 | Hydraulic pump motor starts, but hydraulic function does not respond to electrical push button.<br>Pressure on gauge. | 3.1 | If LED on cord connector at valve solenoid lights, but no function:<br>Solenoid failure or valve stuck. | 3.1 | Interchange coils with other valve.<br>If fault follows coil, replace coil.<br>If fault stays with valve, replace valve. |
| | | 3.2 | If LED on **any** of the cord connectors does **not** light, but corresponding LED'S at the MEP 32 output lights:<br>No 24Vac power at outputs. | 3.2 | Use meter to check voltage from 24Vac terminal (-x-J13) on MEP 32 PCB to 0Vac terminal. If 24Vac is not present, check fuse F14 & if required replace. |
| | | 3.3 | If LED on cord connector does **not** light, but corresponding LED at the MEP 32 output lights:<br>Possible PCB failure. | 3.3 | Contact dealer / service department. |
| 4 | Hydraulics are active, but blade will not start. | 4.1 | Check Blade Change Mode selector switch | 4.1 | Switch is to be in the OFF position. |
| | | 4.2 | Overload of variable frequency drive | 4.2 | Remove the cause of the overload and then RESET. See 5.2. |
| | | 4.3 | LEFT / RIGHT vise is open. | 4.3 | Close LEFT / RIGHT vise |
| 5 | Head will not swing | 5.1 | Vise or vises on material. | 5.1 | Open appropriate vise. |
| | | 5.2 | Servomotor driver overload. | 5.2 | Remove the cause of the overload and then RESET by turing the Disconnect switch 'OFF' Wait 60 seconds before turning switch to 'ON' |
| CUTTING PROBLEMS | | | | | |
| 6 | Saw is cutting out-of-square vertically. | 6.1 | Excessive feed force. | 6.1 | Check settings against Saw Cutting Parameter Chart.<br>Reduce Feed Rate setting. |
| | | 6.2 | Blade is dull or damaged. | 6.2 | Replace blade. |
| | | 6.3 | Low blade tension. | 6.3 | Check blade tension display - adjust tension to between 1320 lbs (600kg) - 2650 lbs (1202kg). |
| | | 6.4 | Too low feed force when cutting materials that work harden (stainless steels, nickel alloys) | 6.4 | Increase feed force setting.<br>Check that feed rate display does not drop below 0.20 in/min. |
| | | 6.5 | Stock misalignment. | 6.5 | Check that stock rests evenly on conveyor rollers. |

| | PROBLEM | | PROBABLE CAUSE | | SOLUTION |
|---|---|---|---|---|---|
| | | | | Shaded actions to be performed only by qualified service personnel. | |
| 7 | Saw is cutting out-of-square horizontally. | 7.1 | Stock misalignment. | 7.1 | Check for bowed stock. Re-arrange stock. |
| 8 | Blade comes off blade wheels. | 8.1 | Low blade tension. | 8.1 | See 6.3 |
| | | 8.2 | Excessive feed force. | 8.2 | See 6.1 |
| | | 8.3 | Blade tracking. Too far off wheels. | 8.3 | Check tracking, adjust if necessary. |
| | | 8.4 | Excessive wheel wear. | 8.4 | Put straight edge on wheel surface and check for rocking. |
| 9 | Blade stalls in cut. | 9.1 | Low blade tension. | 9.1 | See 6.3 |
| | | 9.2 | Excessive feed force. | 9.2 | See 6.1 |
| | | 9.3 | Blade pinched by stock with internal stresses. | 9.3 | Use blade with extra wide set. |
| 10 | Blade vibrates excessively. | 10.1 | Blade speed too high. | 10.1 | Lower blade speed.(Occasionally increasing speed can help.) |
| | | 10.2 | Low blade tension. | 10.2 | See 6.3 |
| | | 10.3 | Not best blade pitch. | 10.3 | Refer to Saw Cutting Parameter Chart. If blade pitch is correct per chart: In solids, try next finer pitch. In structural's try next finer pitch. |
| 11 | Excessive blade breakage. | 11.1 | Band tension too high. | 11.1 | Check blade tension display - If required adjust tension see 6.3 |
| | | 11.2 | Excessive feed force. | 11.2 | See 6.1 |
| 12 | Blade tooth strippage. | 12.1 | Gullet packing - blade pitch too fine. | 12.1 | Refer to Saw Cutting Parameter Chart for correct pitch. |
| | | 12.2 | Gullet packing - blade brush not cleaning. | 12.2 | Adjust or replace blade brush. |
| | | 12.3 | Excessive feed force. | 12.3 | See 6.1 |
| 13 | Blade dulls too quickly. | 13.1 | Blade speed too high. | 13.1 | Refer to Saw Cutting parameters Chart. |
| | | 13.2 | Excessive feed force. | 13.2 | See 6.1 |
| | | 13.3 | Wrong blade for work piece material. | 13.3 | Seek advice o f blade supplier or Hyd-Mech dealer. |
| | | 13.4 | Ineffective cutting fluid. | 13.4 | Check fluid cleanliness and concentration. Seek advice of fluid supplier or Hyd-Mech dealer. |
| 14 | No or low cutting fluid flow. | 14.1 | Fluid level in tank is too low. | 14.1 | Add cutting fluid. |
| | | 14.2 | Fluid line(s) blocked. | 14.2 | Clear line(s) with compressed air. **Wear suitable eye protection** |
| | | 14.3 | Cutting fluid pump not running but, corresponding LED at the MEP 32 output lights: No 24Vac power at output. | 14.3.1 | Use meter to check voltage from coolant pump terminal (-x-J13) on MEP 32 PCB to 0Vac terminal. If 24Vac is not present, check fuse F14 & if required replace. |
| | | | Cutting fluid pump not running but, corresponding LED at the MEP 32 output lights: 24Vac power present at output. | 14.3.2 | Check coil of contactor K4. If contactor has latched check 3 phase power to the coolant pump. If 3 phase power is present, replace pump. |
| | | 14.4 | Cutting fluid pump running, but not pumping. | 14.4.1 | Tilt and shake pump, while running to clear air and assist priming. |
| | | | | 14.4.2 | Shut-down and remove pump, check for blockages. Check that impeller is intact, replace pump if necessary. |

## RE-SETTING 90 DEGREE REFERENCE OF ANGLE ENCODER (POWER TILT OPTION)



Main Disconnect switch is located on the side on the machine control box


Machine Parameters

Machine parameters control the behavior of the machine, the type of optional equipment which, may be installed and the language in which to communicate with the operator. Modifying machine parameters may adversely effect the behavior of the machine. Prior to making changes care should be taken to ensure a complete understanding of each parameter and its effect on the operation of the saw.

1. Physically set the saw head to true 90 degree reference.
2. Turn the main disconnect switch to the OFF (0) position.
3. Turn the main disconnect switch to the ON (1) position.
4. Press simultaneously and in sequence the MACHINE PARAMETERS and MACHINE START push buttons. (Machine Parameter Mode in effect)

To move from parameter to parameter press the ENTER or VERTICAL ARROW button to scroll through the parameters.

To change the value of a parameter use the NUMERICAL DIAL:
• This dial allows numerical values to be decreased or increased on the LCD over the flashing cursor.

5. Scroll through the parameter list until parameter ABSOLUTE ENCODER is displayed.
6. Using the NUMERICAL DIAL, change the parameter value from ‘YES’ to ‘NO’
7. Depress ENTER button to move to the next parameter.
8. Depress VERTICAL ARROW button to move back to the previous parameter: ABSOLUTE ENCODER
9. Using the NUMERICAL DIAL, change the parameter value from ‘NO’ to ‘YES’
10. Depress ENTER button to move to the next parameter.
11. To SAVE & EXIT machine parameters, press simultaneously and in sequence the MACHINE PARAMETERS and MACHINE START buttons.

# SECTION 4 - ELECTRICAL

## ELECTRICAL SCHEMATICS: SEE PDF ON ATTACHED CD

# SECTION 5 - HYDRAULIC

## HYDRAULIC SCHEMATICS & PLUMBING DIAGRAMS: SEE PDF ON ATTACHED CD

# SECTION 6 - MECHANICAL ASSEMBLIES

**MECHANICAL ASSEMBLY DRAWINGS & PARTS LIST: SEE PDF ON ATTACHED CD**

# SECTION 7 - OPTIONS

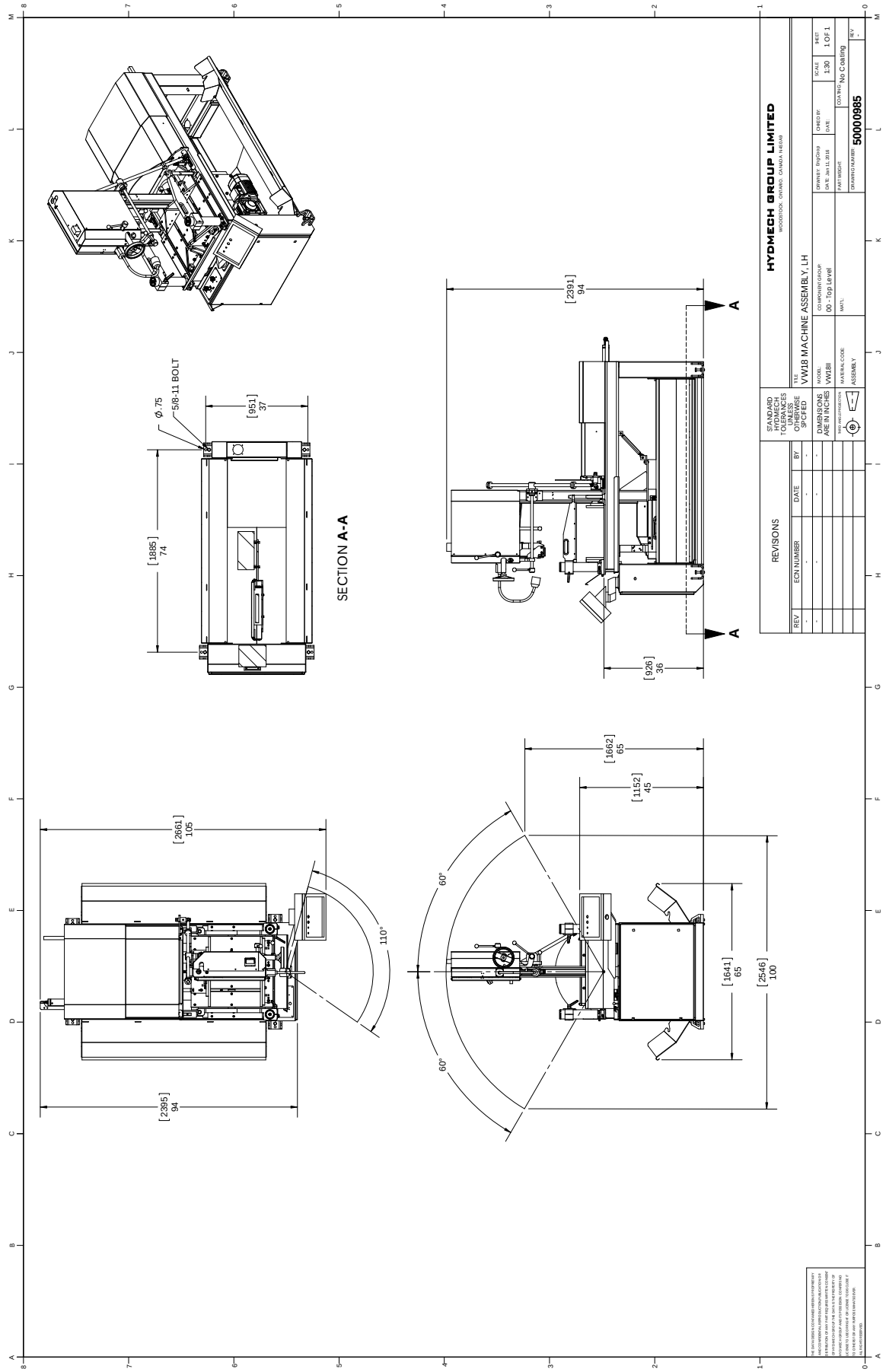
## OPTIONAL ASSEMBLY DRAWINGS: SEE PDF ON ATTACHED CD

# SECTION 8 - SPECIFICATIONS

## VW18 SPECIFICATIONS LIST

| Capacity (width x height) | Straight Head | | 3º Canted Head | |
|---|---|---|---|---|
| | | | | |
| Vertical @ 90° Rectangle | 18” x 22” | 457mm x 558mm | 20.75" | 457mm x 527mm |
| Round (tall vise insert option) | 17.5” diameter | 445mm diameter | 17.5” diameter | 445mm diameter |
| | | | | |
| @ 45° Rectangle | 18” x 15” | 457mm x 381mm | 18” x 14” | 457mm x 355mm |
| Round | 15” diameter | 381mm diameter | 14” diameter | 355mm diameter |
| | | | | |
| @ 60° Rectangle | 18” x 10.25” | 457mm x 260mm | 18” x 9.5” | 457mm x 241mm |
| Round | 10.25” diameter | 260mm diameter | 9.5” diameter | 241mm diameter |
| Blade Size (L x W x T) | 16'3" x 1.25” x .042” | 4953mm x 31mm x 1.1mm | | |
| Speed | 65-385 SFM VFD | 20-118 m/min VFD | | |
| Drive Motor | 5 hp VFD driven | 3.7 kW VFD driven | | |
| Band Wheel | 19” diameter | 482mm diameter | | |
| Guides | Carbide | Carbide | | |
| Hydraulic System Pressure | 435 psi | 3000 kPa | | |
| Tank Capacity | 4 US gal | 15 L | | |
| Motor | 0.5HP | 0.37kW | | |
| Table Height | 36.5" | 927mm | | |
| Head Feed | Hydraulic | Hydraulic | | |
| Coolant System Capacity | 12 US gal | 45 L | | |
| Shipping Weight | 2800 lbs | 1270 kg | | |
| Control Functions: | Vise | Full stroke hydraulic | | |
| | Blade Tension | Manual | | |
| | Head Swing | Manual | | |
| | Guide Arm | Manual | | |
| Optional Equipment: | Additional vise | Full stroke hydraulic | | |
| | Overhead bundling | Hydraulic | | |
| | Variable vise pressure | | | |
| | Tall square vise Inserts | | | |
| | Work stop | | | |
| | Mist Cool | 24Vac, 50/60Hz | | |
| Overall Dimensions: | | | | |
| Length | 94.5" | 2400mm | | |
| Width | 36" | 914mm | | |
| Height @ 90º | 96" | 2438mm | | |

## VW18 LAYOUT


HYDMECH GROUP LIMITED
WOODSTOCK, ONTARIO, CANADA, N4S 8A9
TITLE: VW18 MACHINE ASSEMBLY, LH
MODEL: VW18I
COMPONENT GROUP: 00 - Top Level
MATL:
MATERIAL CODE:
ASSEMBLY
DRAWN BY: BigDrop
DATE: Jun 11, 2018
CHKD BY:
DATE:
PART WEIGHT:
DRAWING NUMBER: 50000985
SCALE: 1:30
SHEET: 1 OF 1
COATING: No Coating
REV: -
REVISIONS
REV | ECN NUMBER | DATE | BY
STANDARD HYDMECH TOLERANCES UNLESS OTHERWISE SPCIFIED
DIMENSIONS ARE IN INCHES
THIRD ANGLE PROJECTION
SECTION A-A
Ø .75
5/8-11 BOLT
[951] 37
[1885] 74
[2391] 94
[926] 36
[2661] 105
[2395] 94
110°
[1662] 65
[1152] 45
60°
60°
[1641] 65
[2546] 100

# SECTION 9 - WARRANTY

## WARRANTY

Hyd-Mech Group Limited warrants parts/components on each new VW18 bandsaw to be free from failure resulting from defective material and workmanship under proper use and service for a period of two years on following the date of shipment from the factory. Hyd·Mech's sole obligation under this warranty is limited to the repair or replacement without charge, at Hyd·Mech's factory, warehouse, or approved repair shop any part or parts which Hyd·Mech's inspection shall disclose to be defective. Return freight must be pre-paid by the user.

This warranty, in its entirety, does not cover maintenance items, including but not limited to lubricating grease and oils, filters, V-belts, saw blades, etc., nor any items therein which show signs of neglect, overloading, abuse, accident, inadequate maintenance, or unauthorized altering.

MOTOR, GEARBOX, PUMP, ELECTRIC COMPONENTS, VALVES, HOSES, FITTINGS, and any other items used in the manufacture of the VW18, but not originally manufactured by Hyd·Mech are subject to the original manufacturer's warranty. Hyd·Mech will provide such assistance and information as is necessary and available to facilitate the user's claim to such other manufacturer.

Liability or obligation on the part of Hyd·Mech for damages, whether general, special or for negligence and expressly including any incidental and consequential damages is hereby disclaimed. Hyd·Mech's obligation to repair or replace shall be the limit of its liability under this warranty and the sole and exclusive right and remedy of the user.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WRITTEN OR ORAL, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

This warranty may not be changed, altered, or modified in any way except in writing by Hyd-Mech Group Limited

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