# Operation and Parts Manual

## Sawmill
## M120EH5
## M120EH7
## M120G9
## M120G14

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# SECTION 1 INTRODUCTION

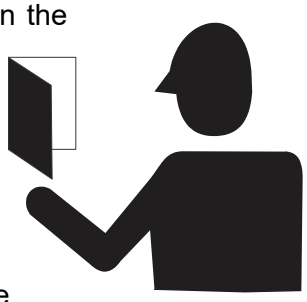
## 1.1 About this manual

Congratulations on your purchase of a TIMBERY M120 sawmill! When properly maintained and operated, your M120 sawmill should give you many years of dependable service.

This manual does not cover every possible operation and safety issues that may occur while using this sawmill. This manual covers some of the basic safety procedures relating to this sawmill and all national and local laws/regulations take precedence over this manual. Operators should follow those laws and regulations.

The information and instructions given in this manual do not amend or extend the limited warranties for the equipment given at the time of purchase.

**CAUTION!** Read this entire manual before operating the equipment. Take notice of all safety warnings throughout this manual and those posted on the equipment. Keep this manual with this equipment at all times, regardless of ownership.



Read all additional manufacturer's manuals and observe any applicable safety instructions including dangers, warnings, and cautions.

Only adults (18+ years) who have read and understood the entire operator's manual should operate the sawmill. The sawmill is not intended for use by or around children.

The TIMBERY M120 sawmill is intended for sawing wood only. The sawmill must not be used for other purposes such as cutting ice, metal or any other materials.

**CAUTION!** It is always the owner's responsibility to comply with all applicable national and local laws, rules and regulations regarding the ownership and operation of your sawmill. All Timbery mill owners are encouraged to become thoroughly familiar with these applicable laws and comply with them fully while using the mill.

## 1.2 Electric Sawmill Nomenclature

| Symbol | Version/Voltage [1]/ Power Code | Safety Standard Code S-CE Standard U-UL Standard |
|---|---|---|
| M120EH7S | 5.5kW, 400V, CE | S/U |
| M120EH7 | 5.5kW, 400V | |
| M120EH5S | 4kW, 400V, CE | |
| M120EH5 | 4kW, 400V | |
| M120EB5S | 4kW, 230V, CE | |
| M120EB5 | 4kW, 230V | |
| M120EB7 | 5.5kW, 230V | |
| M120EB7S | 5.5kW, 230V | |
| M120EA5 | 4kW, 230V | |
| M120EC5 | 4kW, 460V | |
| M120EC7 | 5.5kW, 460V | |
| M120EA5U | 4kW, 230V | UL |

*TABLE 1-1*

[1] A-1x230V, B-3x230V, C-3x460V, H-3x400V

## 1.3 Gas Sawmill Nomenclature

| Symbol | Version/Power Code | Safety Standard Code S-CE Standard U-UL Standard |
|---|---|---|
| M120G14S | 14HP, CE | S/U |
| M120G14 | 14HP | |
| M120G9S | 9.5HP, CE | |
| M120G9 | 9.5HP | |

*TABLE 1-2*

## 1.4 Safety

The symbol  calls your attention to instructions concerning your personal safety.

***Read and follow these instructions!***

**DANGER! indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.**

**WARNING! suggests a potentially hazardous situation which, if not avoided, may result in serious injury or death.**

**CAUTION!** refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury to persons or equipment damage.

**NOTE: informs people of important installation, operation, or maintenance information that is not hazard related.**

Read all additional manufacturer's manuals and observe any applicable safety instructions including dangers, warnings, and cautions!

### *Wear protective clothing*

**WARNING! Secure all loose clothing and jewelry before operating the sawmill. Failure to do so may result in serious injury or death.**

**WARNING! Always wear gloves and eye protection when handling bandsaw blades. Changing blades is safest when done by one person! Keep all other persons away from area when coiling, carrying or changing a blade. Failure to do so may result in serious injury or death.**

**WARNING! Always wear eye, ear, respiration and foot protection as well as protective clothing when operating or servicing the sawmill. Failure to do so may result in serious injury or death.**

### *Keep the sawmill and area around the machine clean*

**WARNING! Maintain a clean and clear path for all necessary movement around the sawmill and lumber stacking areas. Failure to do so may result in serious injury or death.**

### *Handle fuel/lubricants safely*

**DANGER! Due to the flammable nature of fuel and oil, never smoke, weld, grind or allow sparks near your engine or storage tanks, especially during times of fueling. Doing so may result in serious injury or death.**

**DANGER! Never allow fuel to spill on a hot engine during fueling operations or otherwise. The hot temperature of your engine could induce a fire or explosion. Failure to do so will result in serious injury or death.**

**DANGER! Store gasoline away from sawdust and other flammable materials. Failure to do so may result in serious injury or death.**

### *Dispose of sawing by-products properly*

**CAUTION!** Always properly dispose of all sawing by-products, including sawdust and other debris, coolant, oil, fuel, oil filters and fuel filters. Failure to do so may result in injury or equipment damage.

### *Safety for sawmill set-up*

**WARNING! Do not set up the sawmill on ground with more than a 10 degree incline. If setup on an incline is necessary, put blocks under one side of the machine or dig out areas for the legs to keep the sawmill level. Failure to do so may result in serious injury or death.**

### *Check sawmill before operation*

**DANGER! Make sure all guards and covers are in place and secured before operating or towing the sawmill. Failure to do so may result in serious injury or death.**

**WARNING! Release the blade tension when the sawmill is not in use (for example at the end of a shift). Tension the blade again before starting the engine/motor.**

### *Keep all people away*

**DANGER! Keep all persons out of the path of moving equipment and logs when operating the sawmill or loading and turning logs. Failure to do so may result in serious injury or death.**

**DANGER! Always be sure the blade is disengaged and all persons are out of the path of the blade before starting the engine or motor. Failure to do so may result in serious injury or death.**

### *Keep hands away*

**DANGER! Always disengage the blade and shut off the sawmill motor/engine before changing the blade. Failure to do so may result in serious injury or death.**

**DANGER! Always keep hands away from moving bandsaw blade. Failure to do so may result in serious injury or death.**

**DANGER! Always be aware of and take proper protective measures against rotating shafts, pulleys, fans, etc. Always stay a safe distance from rotating members and make sure that loose clothing or long hair does not engage rotating members. Failure to do so may result in serious injury or death.**

**WARNING! Do not spin the blade wheels by hand. Failure to do so may result in serious injury or death.**

**WARNING! Always keep clear of exiting sawdust. Keep hands, feet, and any other objects away from the sawdust chute when operating the sawmill. Failure to do so may result in serious injury or death.**

**WARNING! Never clean the blade or the blade wheels with a brush or a scraper during sawmill operation.**

**WARNING! Before installation of the blade, inspect it for damage and cracks. Use only properly sharpened blades. Always handle the blade with extreme caution. Use suitable carrier equipment for transporting the blades.**

### *Cautions for gas engine operation*

**DANGER! The exhaust gases of your engine are poison gases. Operate your engine/machine in well ventilated areas only. Failure to do so may result in serious injury or death.**

**DANGER! Leaking fuel or oil can contact hot surfaces and ignite into flames. Never operate an engine with a fuel or oil leak. Failure to do so may result in serious injury or death.**

**WARNING!** Engine components can become very hot during operation. Avoid contact with any part of a hot engine especially during and following operation. Contact with hot engine components can cause serious burns. Never touch or perform service functions on a hot engine. Allow the engine to cool sufficiently before beginning any service function. Failure to do so will result in serious injury or death.

**WARNING!** Do not operate the engine without proper and operational spark arrester/muffler. Sparks from the engine can cause a fire or explosion. Failure to do so may result in serious injury or death.

### *Use extreme care when turning heavy logs*

**WARNING!** Before sawing, always make sure the log is securely clamped against the side supports. Failure to do so may result in serious injury or death.

### *Keep safety labels in good condition*

**WARNING!** Always be sure that all safety decals placed on the machine are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact your local distributor, or call Timbery Customer Service to order decals.

**WARNING!** When replacing any component having a safety decal affixed, be sure to place an identical safety decal on the new component.

**See Table 1-3.** See the table below for descriptions of the pictographic warning and informational decals placed on the M120 sawmill.

***TABLE 1-4***

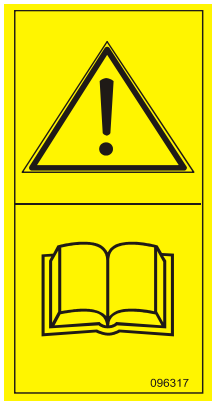
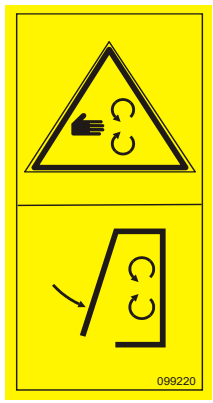
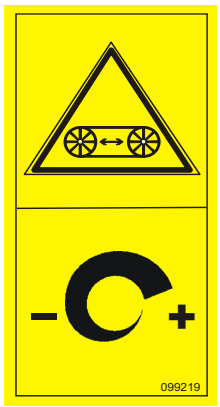
| Decal View | Decal No. | Description |
|---|---|---|
|   | 096317 | CAUTION! Read thoroughly the operator's manual before operating the sawmill. Observe all safety instructions and rules when operating the machine. |
|   | 099220 | CAUTION! Close all guards and covers before starting the machine. |
|   | 099219 | Blade tension. Turning the bolt clockwise will increase the blade tension, and turning the bolt counterclockwise will decrease the tension. |

***TABLE 1-4***

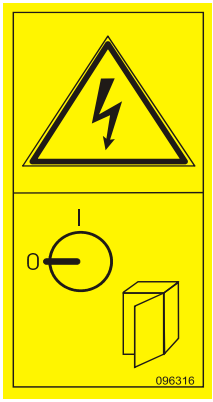
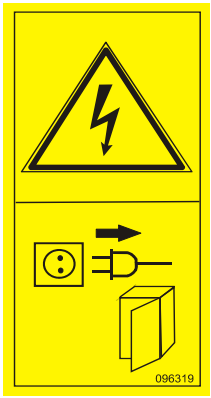
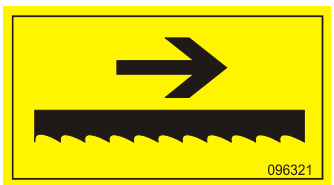
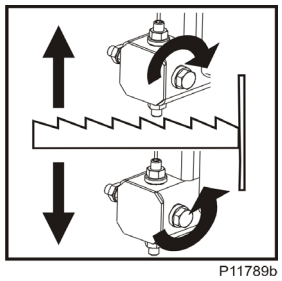
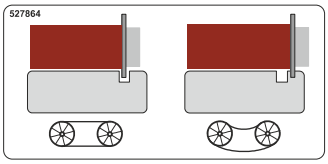
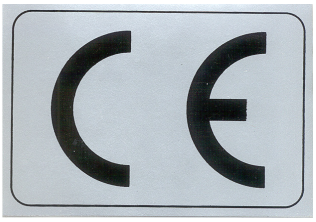
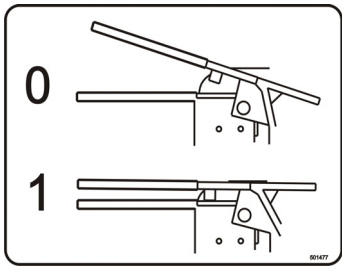
| | | |
|---|---|---|
|  | 099221 | CAUTION! Keep all persons away from work area when operating the machine. |
|  | 096316 | CAUTION! Do not open or close the electric box when the switch is not in the ”0” position. |
|  | 096319 | CAUTION! Disconnect power supply before opening the box. |
|  | 096321 | Blade movement direction |

***TABLE 1-4***

| | | |
|---|---|---|
|  | 086099 | CAUTION! Hot parts - keep a safe distance! |
|  | S12004G | CAUTION! Always wear safety goggles when operating the sawmill! |
|  | S12005G | CAUTION! Always wear protective ear muffs when operating the sawmill! |
|  | 501465 | CAUTION! Always wear safety boots when operating the sawmill! |

***TABLE 1-4***

| | | |
|---|---|---|
|  | P11789 | Tracking the blade on the blade wheels |
|  | 527864 | Setting the blade tension indicator |
|  | P85070 | CE certification marking |
| | | |
|  | S20097 | Direction of motor revolutions |
|  | 501477 | Safety handle - the blade stops after releasing the handle. |

## 1.5 Major Components

The major components of the Timbery M120 are shown in the figures below. These component names will be used throughout the manual.

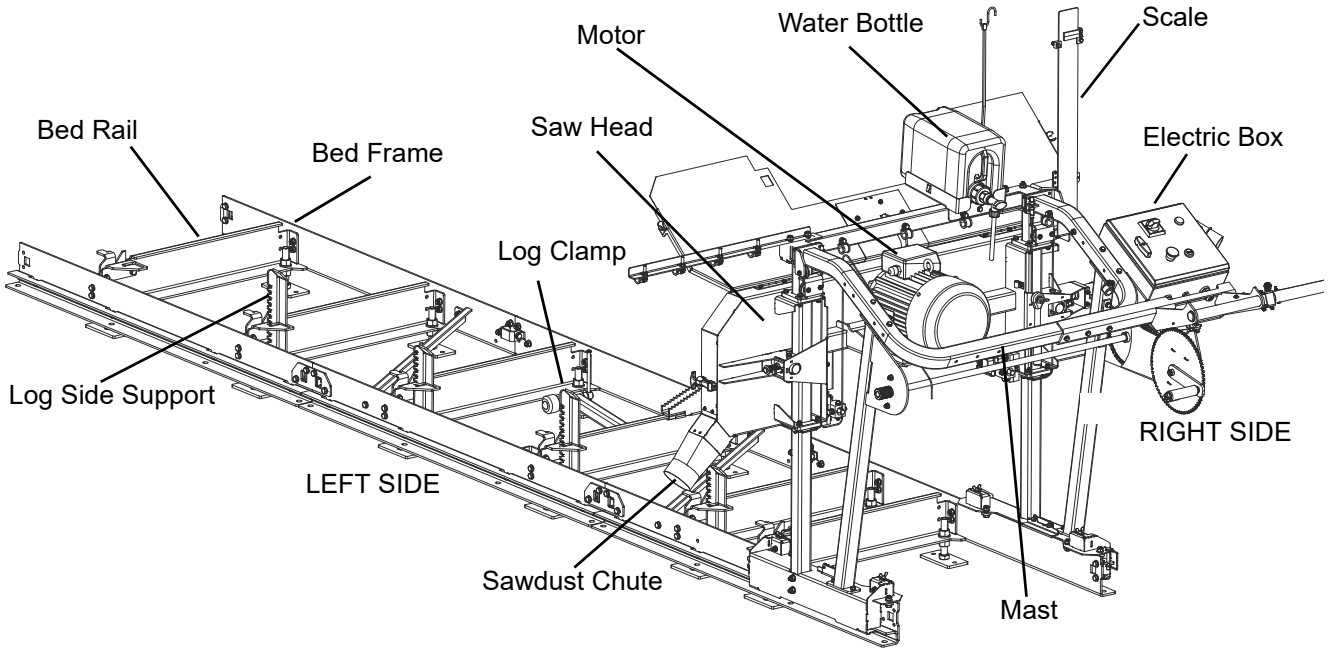



***FIG. 1-1 MAJOR COMPONENTS OF ELECTRIC TIMBERY M120 SAWMILLS***

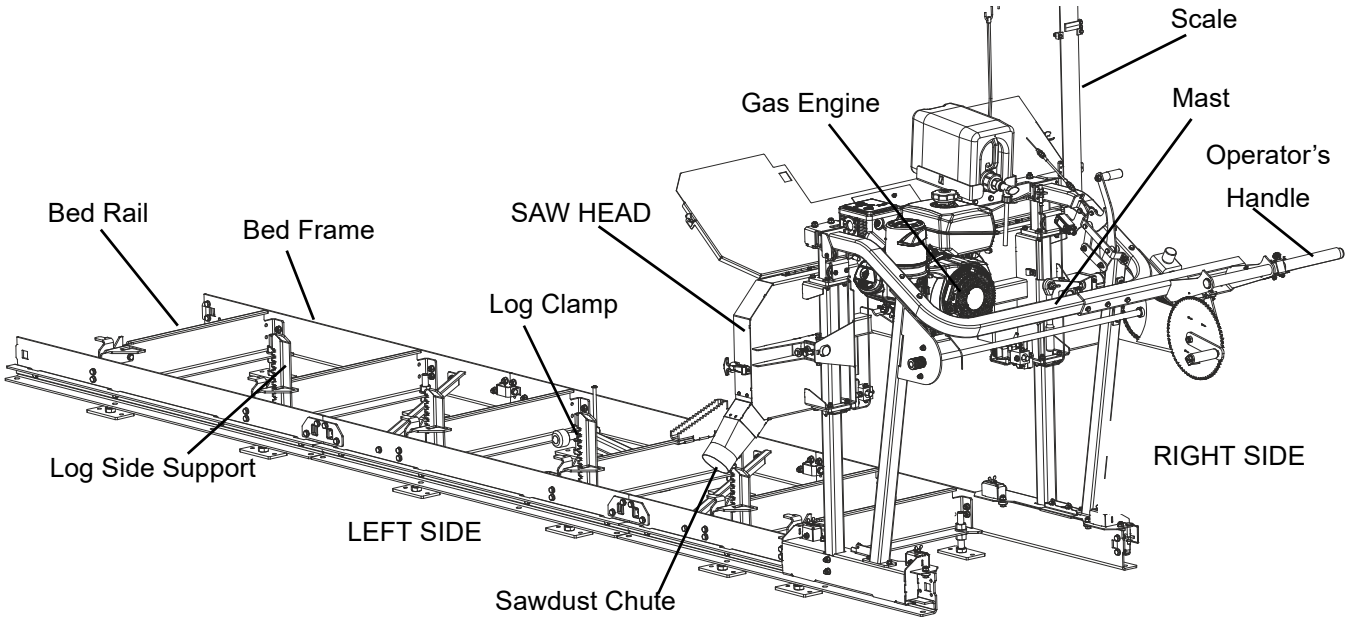



***FIG. 1-2 MAJOR COMPONENTS OF TIMBERY M120 SAWMILLS W/GAS ENGINE***

# SECTION 2 SPECIFICATIONS

## 2.1 Belt Sizes

**See Table 2-1.** Belt sizes for the M120 sawmill are shown below.

| Description | Belt Size | Timbery Part No. |
|---|---|---|
| **Drive-Side Wheel Belt** | B69 CARLISLE SUPER II | X100-905 |
| **Idle-Side Wheel Belt** | B47.5 M120 [1] | X100-900 |

***TABLE 2-1***

[1] To insure proper blade tracking, use Goodyear, Dayco Super II, or Browning belts only.

## 2.2 Blade Sizes

**See Table 2-2.** See the table below for blade specifications for the M120 sawmills.

| Description | Thickness | Length |
|---|---|---|
| **M120** | 0.90 mm (0.035")<br>1 mm (0.039")<br>1.07 mm (0.042")<br>1.14 mm (0.045") | 3340-3360 mm (131.5"-132") |

***TABLE 2-2***

## 2.3 Log Dimensions

**See Table 2-3.** The maximum dimensions of logs that can be cut on the standard M120 sawmill are listed below.

| | Maximum Log Diameter | Log Length |
|---|---|---|
| **M120** | 66 cm | 3.8 m |

***TABLE 2-3***

## 2.4 Engine/Motor Specifications

**See Table 2-4.** See the table below for data on the engines/motors used on the M120 sawmills.

| Engine/Motor Type | Manufacturer | Model No. | Other Specifications |
|---|---|---|---|
| EH5 Electric Motor (4.0 kW) | Siemens, Germany | 1LE1002 1CA13-4AA4-Z F01+F12 | 3 x 400V, 50 Hz |
| EH7 Electric Motor (5.5 kW) | Indukta, Poland | PSg-132 S2 - HM | 3 x 400V, 50 Hz |
| EA5 Electric Motor (4.0 kW) | LEESON | 131638.00 | 1x230V, 50 Hz |
| EA5U Electric Motor (4.0 kW) | - | - | 1x230V, 60 Hz |
| EC5 Electric Motor (4.0 kW) | - | - | 3x460V, 60 Hz |
| EC7 Electric Motor (5.5 kW) | - | - | 3x460V, 60 Hz |
| G9 Gas Engine (9.5 HP) | KOHLER | **CH395-3149** | |
| G14 Gas Engine (14 HP) | KOHLER | **CH440-3149** | |

***TABLE 2-4***

**See Table 2-5.** Power supply specifications for the M120 sawmill are given below.

| Fused Disconnect Switch | Recommended Wire Size |
|---|---|
| M120EH5 - 10A | 1.5 mm |
| M120EH7 - 13A | 1.5 mm |
| M120EB5 - 16A | 2.5 mm |
| M120EB7 - 20A | 2.5 mm |
| M120EA5 | 2.5 mm |
| M120EA5U | - |
| M120EC5 | - |
| M120EC7 | - |

***TABLE 2-5***

## 2.5 Noise Level

**See Table 2-6.** See the table below for the average levels of noise generated by various M120 sawmill models[1][2].

| Sawmill | Noise Level |
|---|---|
| **M120EH5, M120EH7** | $L_{EX8}$ = 99 dB (A) |
| **M120G9, M120G14** | $L_{EX8}$ = 106 dB (A) |

***TABLE 2-6***

1.The noise level measurement was taken in accordance with PN-EN ISO 3746 Standard. The noise exposure level given above concerns an 8-hour work day. Value for associated uncertainty: K=4dB

2. The measured values refer to emission levels, not necessarily to noise levels in the workplace. Although there is a relation between emission levels and exposure levels, it is not possible to determine with certainty if preventives are needed or are not needed. The factors affecting a current level of noise exposure during work are inter alia room characteristics and characteristics of other noise sources, e.g. number of machines and machining operations nearby. Also the permissible exposure level can vary from country to country. This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.

## 2.6 Overall Dimensions

**See Figure 2-1.** The overall dimensions of the M120 sawmills are shown below.

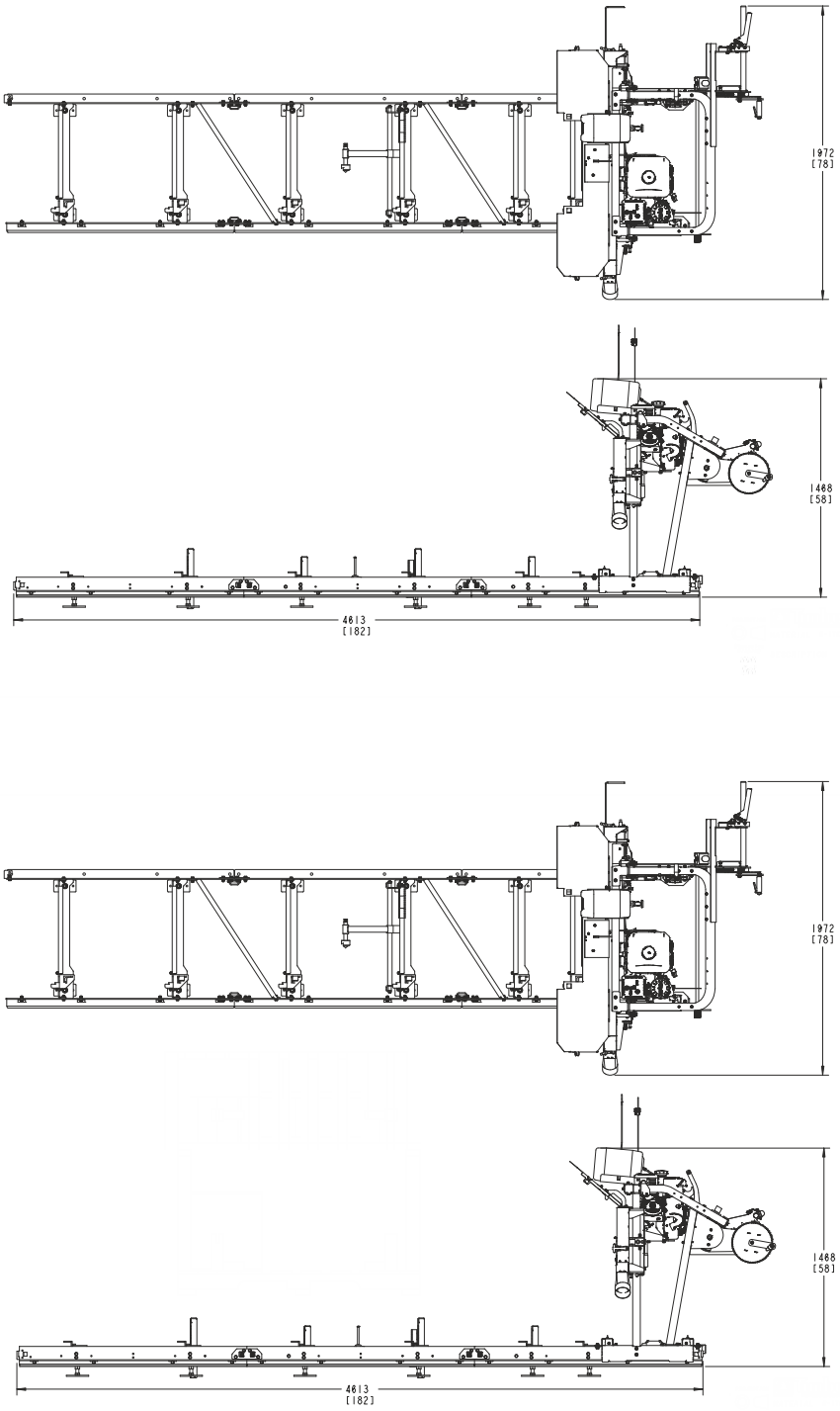



*FIG. 2-1*

**See Figure 2-2.** See the figure below for the operator's work-place.

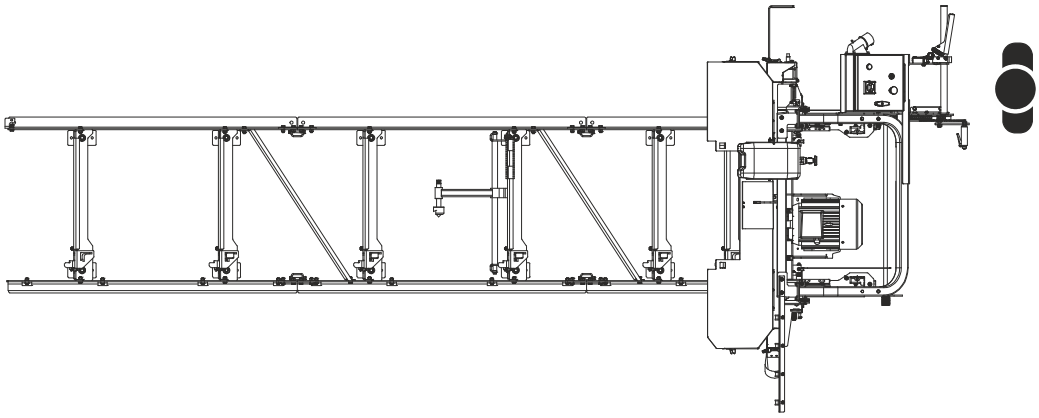


*FIG. 2-2*

# SECTION 3 SAWMILL ASSEMBLY

Scan to see the assembly video

## 3.1 M120 Sawmill Mounting Parts

### *3.1.1 Mounting Parts Description*

**Table 1:**

| Number | Description | Qty M120 w/Electric Motor | | Qty M120 w/Gas Engine | |
|---|---|---|---|---|---|
| | | CE | Non-CE | CE | Non-CE |
| 096499 | Blade Distance Setting Handle | 1 | 1 | 1 | 1 |
| 094821 | Blade Height Scale Indicator | 1 | 1 | 1 | 1 |
| 532335-1 | Scale Spacer | 1 | 1 | 1 | 1 |
| T00414 | Mounting Cap | 1 | 1 | 1 | 1 |
| 530674-1 | Side Support Mount Bracket | 2 | 2 | 2 | 2 |
| 507563 | Complete Log Clamp Screw | 1 | 1 | 1 | 1 |
| X100-1269 | Side Support Bracket | 6 | 6 | 6 | 6 |
| X100-1278 | Long Vertical Side Support | 2 | 2 | 2 | 2 |
| X100-1279 | Short Vertical Side Support | 2 | 2 | 2 | 2 |
| 516939 | Parallel Key, A 6x6x14 | 1 | 1 | 1 | 1 |
| 519161 | Parallel Key, A 6x6x22 | 1 | 1 | 1 | 1 |
| 532328-1 | Winch Friction Pad Bushing | 1 | 1 | 1 | 1 |
| 532329 | Wear Plate | 2 | 2 | 2 | 2 |

**Table 1:**

| | | | | | |
|---|---|---|---|---|---|
| 532331-1 | Clamping Plate, Winch Friction Pad | 1 | 1 | 1 | 1 |
| 531997-1 | Crank Handle Grip | 1 | 1 | 1 | 1 |
| 532332 | Slide Bushing | 2 | 2 | 2 | 2 |
| 532333 | Slide Bushing | 2 | 2 | 2 | 2 |
| 532319-1 | Small Sprocket | 1 | 1 | 1 | 1 |
| 532365 | Chain | 1 | 1 | 1 | 1 |
| 091625 | Master Link | 1 | 1 | 1 | 1 |
| 532323-1 | Large Sprocket | 1 | 1 | 1 | 1 |
| 532339-1 | Support Plate | 1 | 1 | 1 | 1 |
| 532340-1 | Main Support Plate | 1 | 1 | 1 | 1 |
| 532343-1 | Dial Assembly | 1 | 1 | 1 | 1 |
| 532325 | Right Bushing for Lift Cable | 1 | 1 | 1 | 1 |
| 534526 | Left Bushing for Lift Cable | 1 | 1 | 1 | 1 |
| 532306 | Cable Guide Roller | 2 | 2 | 2 | 2 |
| X100-1273 | Track Rail Connection Bracket | 4 | 4 | 4 | 4 |
| X100-1272 | Track Rail Connection Plate | 4 | 4 | 4 | 4 |
| X100-1275 | Saw Head Stop Bracket | 2 | 2 | 2 | 2 |

**Table 1:**

| | | | | | |
|---|---|---|---|---|---|
| X100-1155 | Cover Lock Bracket | 1 | 1 | 1 | 1 |
| 014151 | Pin | 2 | 2 | 2 | 2 |
| 530701 | Clamp Arm | 1 | 1 | 1 | 1 |
| 532326 | Steel Lift Cable | 2 | 2 | 2 | 2 |
| X100-1179 | Scale Stiffener | 2 | 2 | 2 | 2 |
| R01885 | Water Hose | 105 cm | 105 cm | 105 cm | 105 cm |
| F81082-5 | Tie Wrap | 5 | 5 | 5 | 5 |
| X100-1105 | Sawdust Chute | 1 | 1 | 1 | 1 |
| 532363 | Clutch Lever | 1 | 1 | 1 | 1 |
| M120G9/9S/14/ 14S | Bolts | 1 | 1 | 1 | 1 |

### *3.1.2 Mounting Hardware Specifications*

**Table 2:**

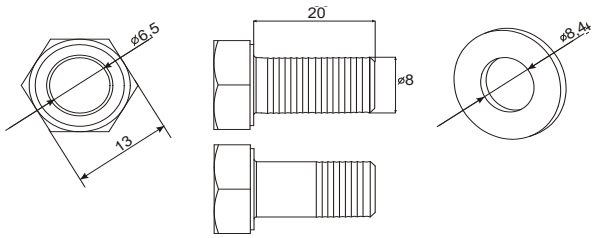
| Timbery Part No. | Description | Qty M120 Electric | | Qty M120 Gas | |
|---|---|---|---|---|---|
| | | CE | RPA | CE | RPA |
| **Exemplary designations of fasteners**<br>Nut M8 Bolt M8x20 Washer 8.4<br>  | | | | | |
| Scale Bracket | | | | | |
| F81001-8 | BOLT, M6x30-8.8 HEX HEAD FULL THREAD ZINC | 2 | 2 | 2 | 2 |
| F81002-11 | BOLT, M8x20-8.8 CARRIAGE ZINC | 2 | 2 | 2 | 2 |
| F81031-2 | NUT, M6-8-B HEX NYLON ZINC LOCK | 2 | 2 | 2 | 2 |
| F81032-2 | NUT, M8-8-B HEX NYLON ZINC LOCK | 2 | 2 | 2 | 2 |
| F81053-1 | WASHER, 6.4 FLAT ZINC | 4 | 4 | 4 | 4 |
| F81054-1 | WASHER, 8.4 FLAT ZINC | 2 | 2 | 2 | 2 |
| Sawdust Chute | | | | | |
| F81000-13 | SCREW, H M5x10 8.8 CROSS RECESSED PAN HEAD ZINC | 4 | 4 | 4 | 4 |
| F81030-2 | NUT, M5-8 DIN 985 HEX NYLON ZINC LOCK | 4 | 4 | 4 | 4 |
| F81052-1 | WASHER, 5.3 FLAT ZINC | 4 | 4 | 4 | 4 |
| Cover Latch | | | | | |
| F81002-4 | BOLT, M8x20-8.8-B HEX HEAD FULL THREAD ZINC | 2 | 2 | 2 | 2 |
| F81054-1 | WASHER, 8.4 FLAT ZINC | 2 | 2 | 2 | 2 |
| F81054-4 | WASHER, 8.2 SPLIT LOCK ZINC | 2 | 2 | 2 | 2 |
| Complete Mast | | | | | |
| F81003-50 | BOLT, M10x80 -8.8 HEX HEAD ZINC | 4 | 4 | 4 | 4 |
| F81002-71 | BOLT, M8x70-8.8 HEX HEAD ZINC | 8 | 8 | 8 | 8 |

**Table 2:**

| | | | | | |
|---|---|---|---|---|---|
| F81002-7 | BOLT, M8x30-8.8 HEX HEAD FULL THREAD ZINC | 12 | 12 | 12 | 12 |
| 500043 | THREADED ROD | 2 | 2 | 2 | 2 |
| F81001-56 | BOLT, 8/M6x12-12.9 ISO-7379 SHOULDER | 2 | 2 | 2 | 2 |
| F81033-1 | NUT, M10-8-B HEX NYLON ZINC LOCK | 6 | 6 | 6 | 6 |
| F81033-3 | NUT, M10-8-B HEX ZINC | 4 | 4 | 4 | 4 |
| F81032-2 | NUT, M8-8-B HEX NYLON ZINC LOCK | 16 | 16 | 16 | 16 |
| F81055-1 | WASHER, 10.5 FLAT ZINC | 16 | 16 | 16 | 16 |
| F81054-1 | WASHER, 8.2 SPLIT LOCK ZINC | 36 | 36 | 36 | 36 |
| F81054-4 | WASHER, 8.2 SPLIT LOCK ZINC | 4 | 4 | 4 | 4 |
| Complete M120 Bed | | | | | |
| F81003-2 | BOLT, M10x30-5.8 HEX HEAD FULL THREAD ZINC | 74 | 74 | 74 | 74 |
| F81003-50 | BOLT, M10x80 -8.8 HEX HEAD ZINC | 4 | 4 | 4 | 4 |
| F81033-1 | NUT, M10-8-B HEX NYLON ZINC LOCK | 78 | 78 | 78 | 78 |
| F81055-1 | WASHER, 10.5 FLAT ZINC | 156 | 156 | 156 | 156 |
| Cable Bracket | | | | | |
| F81087-2 | CLAMP, 1.20/20 METAL & RUBBER | 9 | 9 | 0 | 0 |
| F81002-20 | BOLT, M8x16-8.8 HEX HEAD FULL THREAD ZINC | 4 | 4 | 0 | 0 |
| F81001-15 | BOLT, M6x16-8.8 HEX HEAD FULL THREAD ZINC | 4 | 4 | 0 | 0 |
| F81054-1 | WASHER, 8.4 FLAT ZINC | 4 | 4 | 0 | 0 |
| F81053-11 | WASHER, 6.5 SPECIAL FLAT ZINC | 4 | 4 | 0 | 0 |

## 3.2 Unpacking the Sawmill

**WARNING!** Place the sawmill bed on firm and level ground. Fasten the sawmill to the ground to prevent moving during operation. Failure to do so may cause the saw head to tip, causing serious injury or death.

Needed Tools:
- Strap Cutter
- Screwdriver Set
- Socket Wrench Set
- Socket Wrench Extension Bar (Option)
- Flat Wrench Set
- Allen Wrench Set
- Moving equipment (such as a fork-lift truck)

Leave enough room around the sawmill for the operators, sawdust removal, log loading, and board removal.

**See Figure 3-1.**

***FIG. 3-1***

Before unpacking the sawmill, remove all square head wood screws.

**WARNING!** When unpacking the sawmill saw head, be extremely careful and keep all persons away. Failure to do so may result in serious injury or death.

**See Figure 3-2.**


***FIG. 3-2***

Using a wrench, unfasten the bed parts from the wooden crate. Remove all parts from the crate and place them on level ground.

**See Figure 3-3.**

***FIG. 3-3***

## 3.3 Sawmill Bed Assembly

**WARNING!** Place the sawmill bed on firm and level ground. Failure to do so may cause the saw head to tip, causing serious injury or death.

1. Assemble each bed section. To do this, place the track rails on level ground and attach them to the cross rails using the M10x30 bolts.

   **See Figure 3-4.**

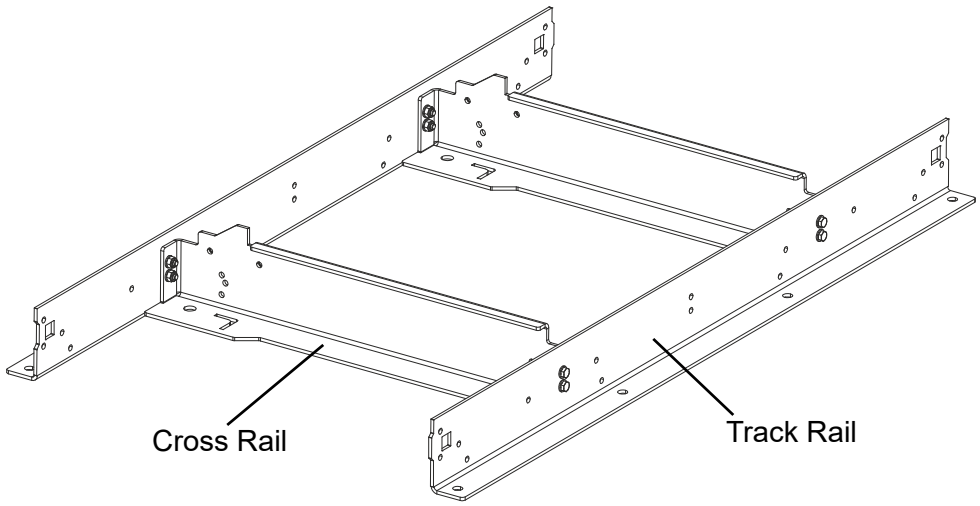



***FIG. 3-4***

2. Position all three assembled bed sections end-to-end in the order shown below.

   **See Figure 3-5.**

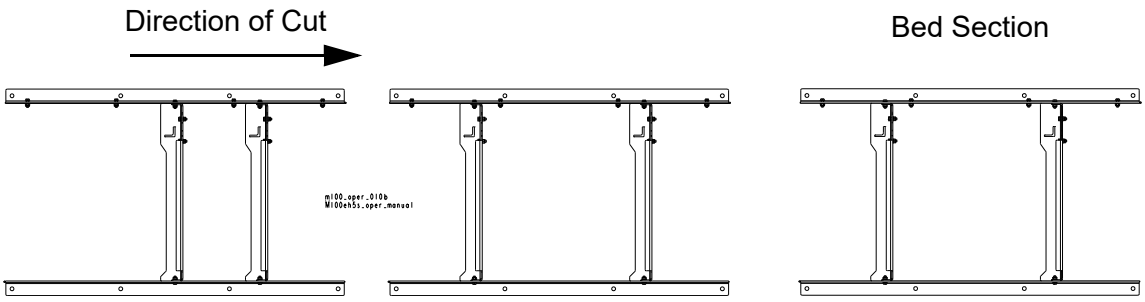



***FIG. 3-5***

3. Connect the bed sections using the connecting plate, clamp and bolts shown in Figure 3-6. Set the clamp in place by inserting the larger notch ①in first and tilting the clamp in then upward to catch the smaller notch ②.

**See Figure 3-6.**

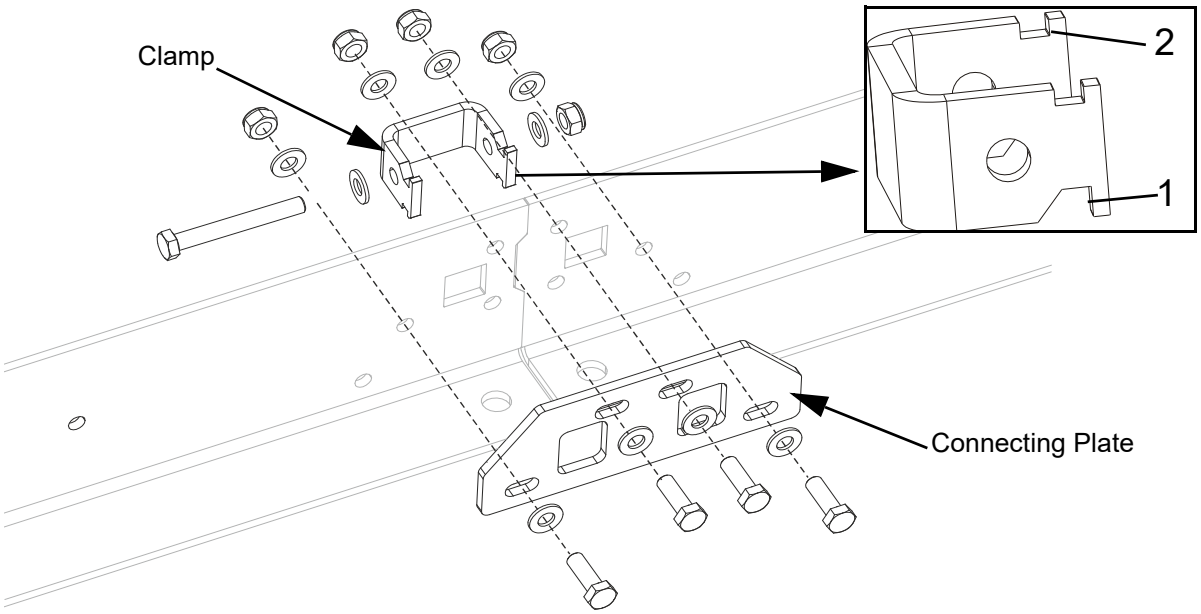



***FIG. 3-6***

**NOTE: Before tightening the bolts, be sure the track rails (top and side surfaces) of each bed section are aligned.**

Repeat the above steps for the remaining bed section connections.

Optional bed extension sections may be added at this time, in the same manner as the standard bed sections.

**See Figure 3-7.** Mount the reinforcing bracket using M10x30 bolts, washers and nuts.

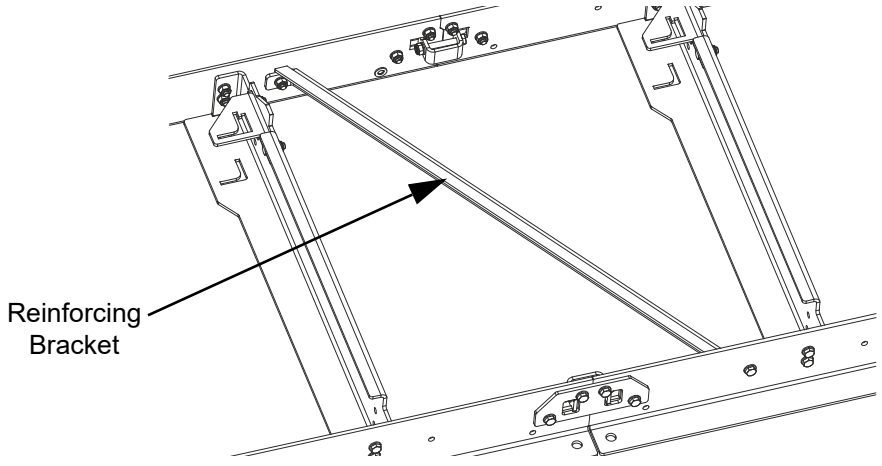



***FIG. 3-7***

## 3.4 Log Clamp and Side Support Installation

1. Assemble the log clamp. To do this, dismount the mounting bracket on one side of the log clamp rod, insert the log clamp arm onto the rod and reinstall the mounting bracket. Attach the complete log clamp in the middle of the bed using the bolts included in the log clamp kit. The log clamp mounting bracket and the side support bracket mounted on the same cross rail are bolted with the same bolts.

   **See Figure 3-8.**

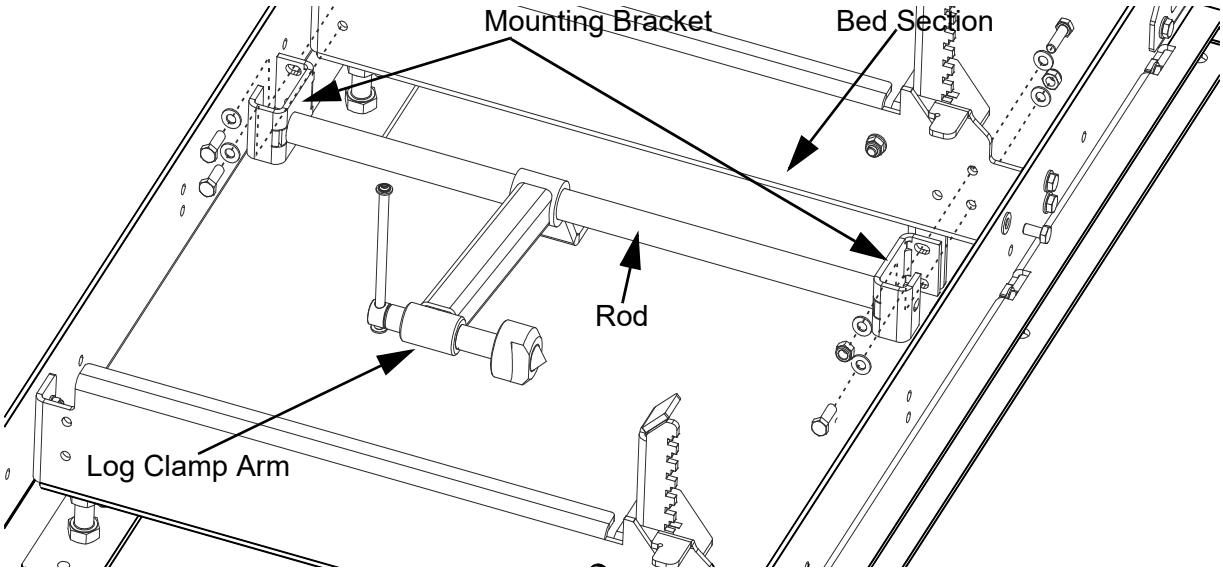



***FIG. 3-8***

2. **Install the side supports and their brackets. Do not tighten until the bed is leveled.**

**See Figure 3-9.**

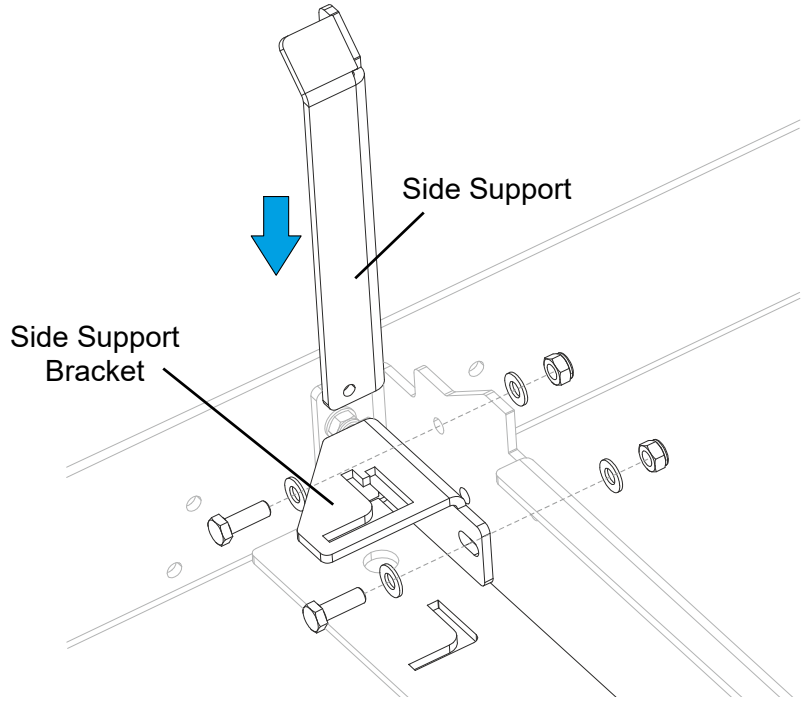



***FIG. 3-9***

**3.** Mount the bed on wooden skids for leveling and increasing the ground clearance. A straight 4x4" (100x100mm) or 4x6" (100x150mm) are an ideal size for the wooden skids. If the skids are not a solid one-piece section, make sure the seams of skids are offset from the seams of the bed frame.

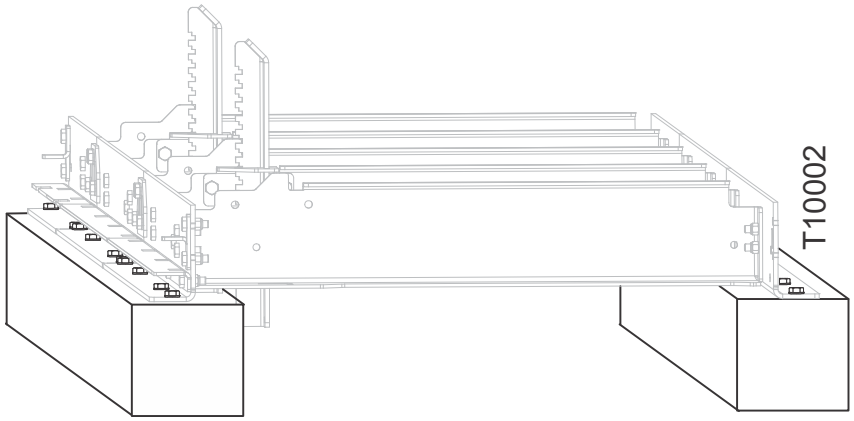



***FIG. 3-10***

## 3.5 Bed Leveling

1. Using a min. 4-foot (120cm) level (or a laser level), level the bed in all directions.

   **NOTE:** It is important that the bed be level for the saw head to travel smoothly over the rails.

   **See Figure 3-9.**

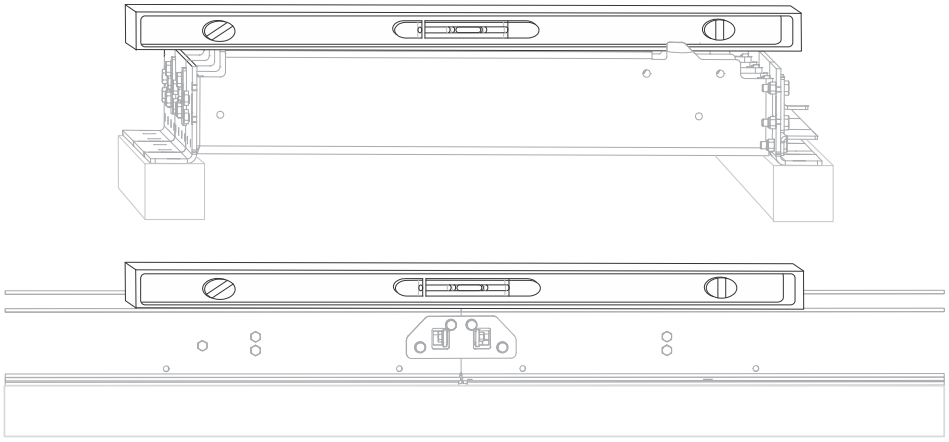


***FIG. 3-11***

2. If your sawmill is equipped with the optional adjustable legs, use these legs to level the bed. Adjust the bed height by turning the lower nut (B) and lock the bed position with the upper nut (A).

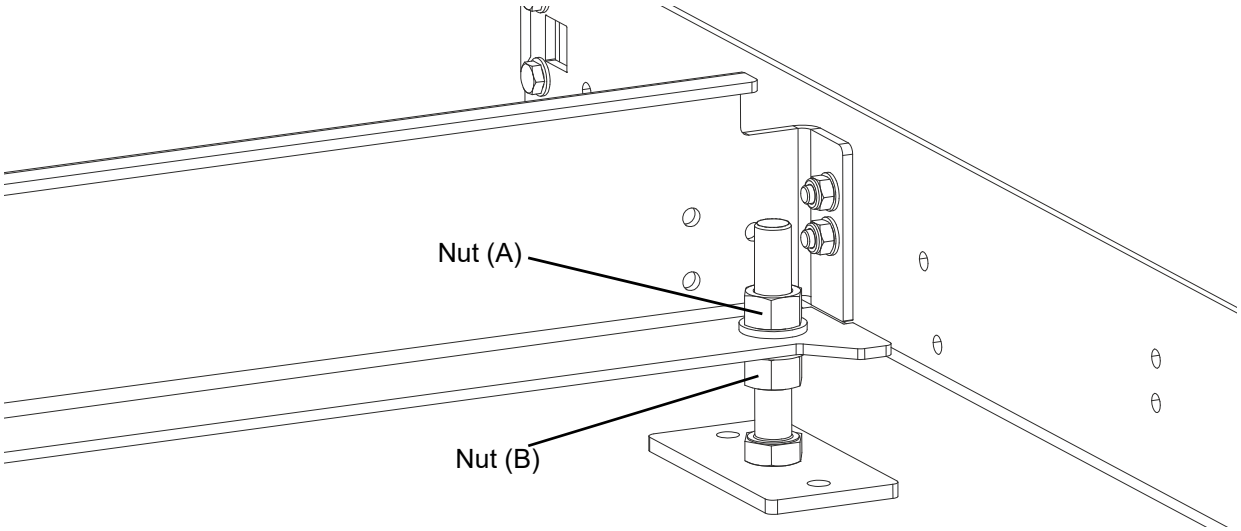



***FIG. 3-12***

**3.** After leveling the bed, adjust the side supports square to each bed rail using a square. After adjusting each side support, tighten the side support bracket bolts.

**NOTE: Failure to set the side supports precisely will result in decreased cutting quality.**

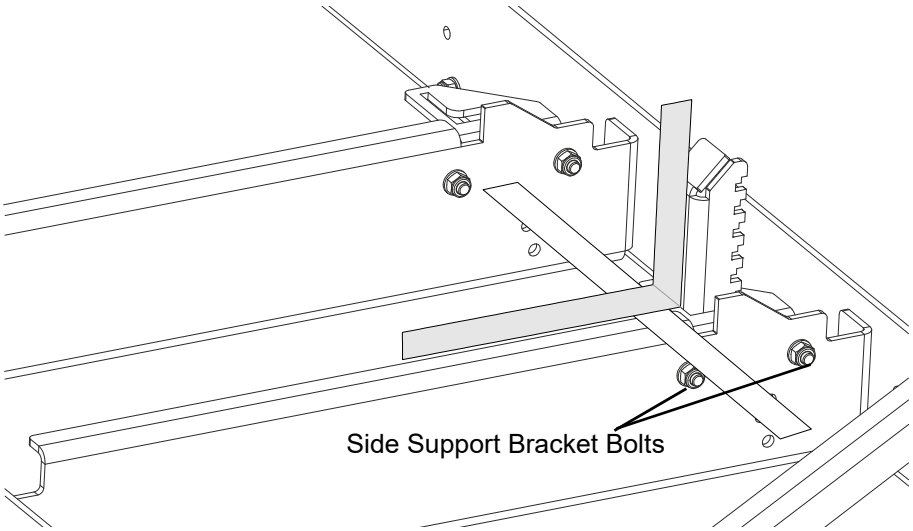



***FIG. 3-13***

## 3.6 Stop Bracket Installation

1. Install the stop brackets at both ends of the bed to prevent the saw head from sliding off the bed. Attach the stop brackets on the outside surfaces of the front and last bed sections. Tighten the nuts. The stop brackets can also be used to prevent accidental saw head movement as described in Section **3.7 Saw Head Installation**, step 5.

**WARNING!** Failure to apply the stop brackets to both ends of the track rail may result in serious injury or equipment damage.

**See Figure 3-10.**

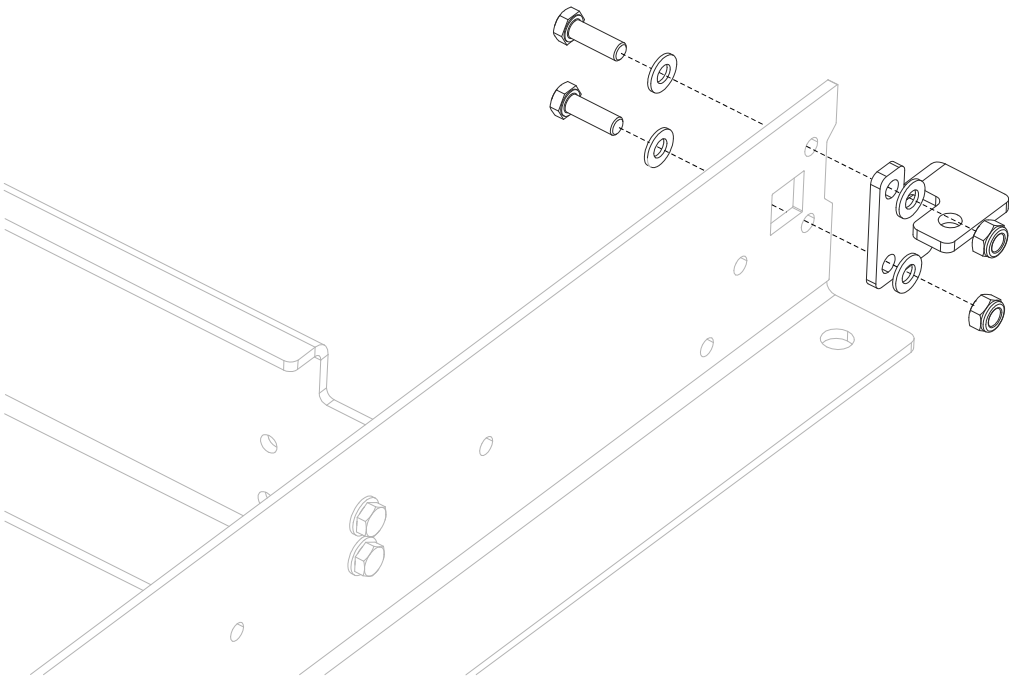


***FIG. 3-14***

## 3.7 Saw Head Installation

**WARNING!** When unpacking the sawmill saw head, be extremely careful and keep all persons away. Failure to do so may result in serious injury or death.

1. Before installation of the mast tubes, loosen the mounting bolts located on the mast guide bracket shown below.

   **See Figure 3-11.**

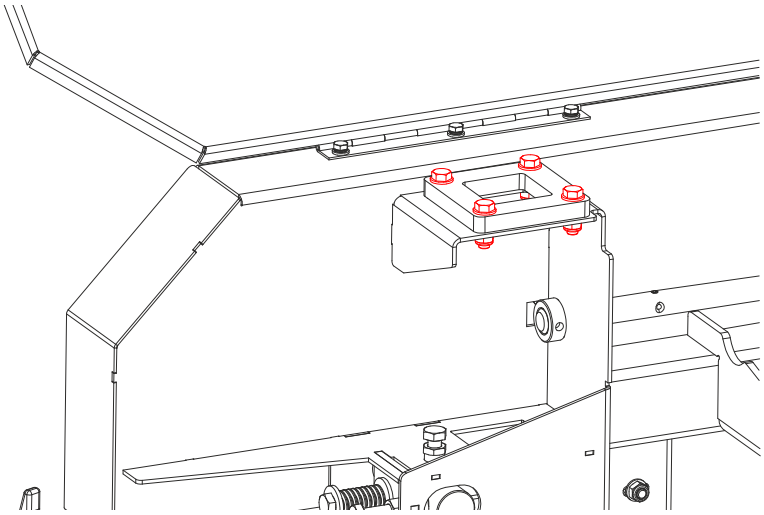
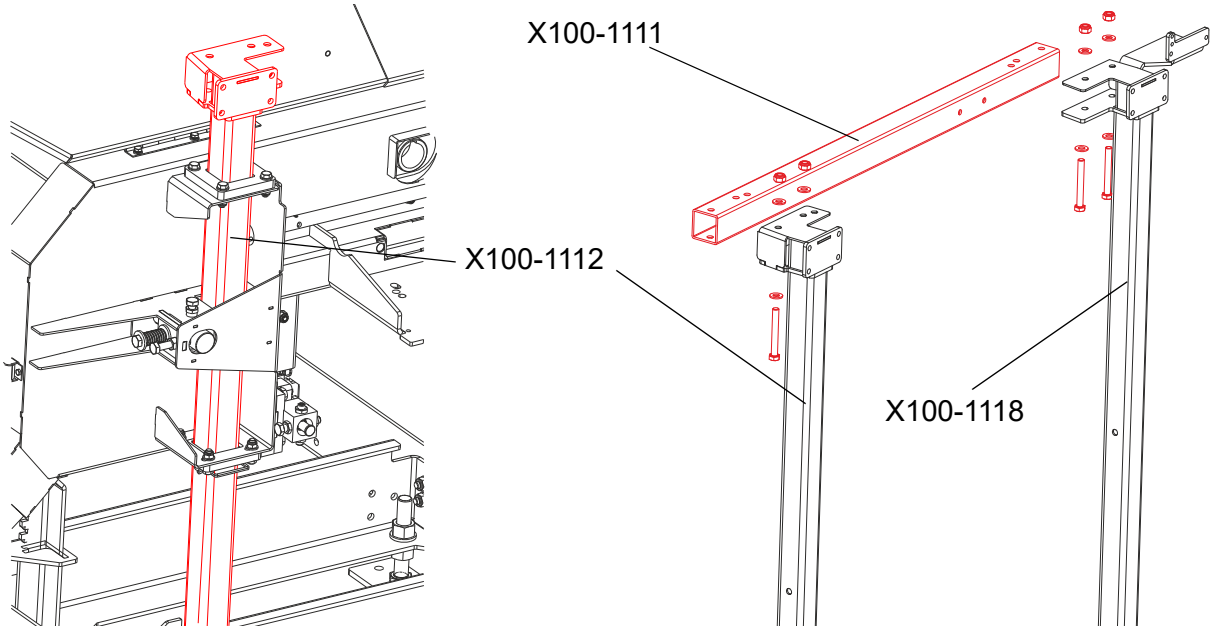


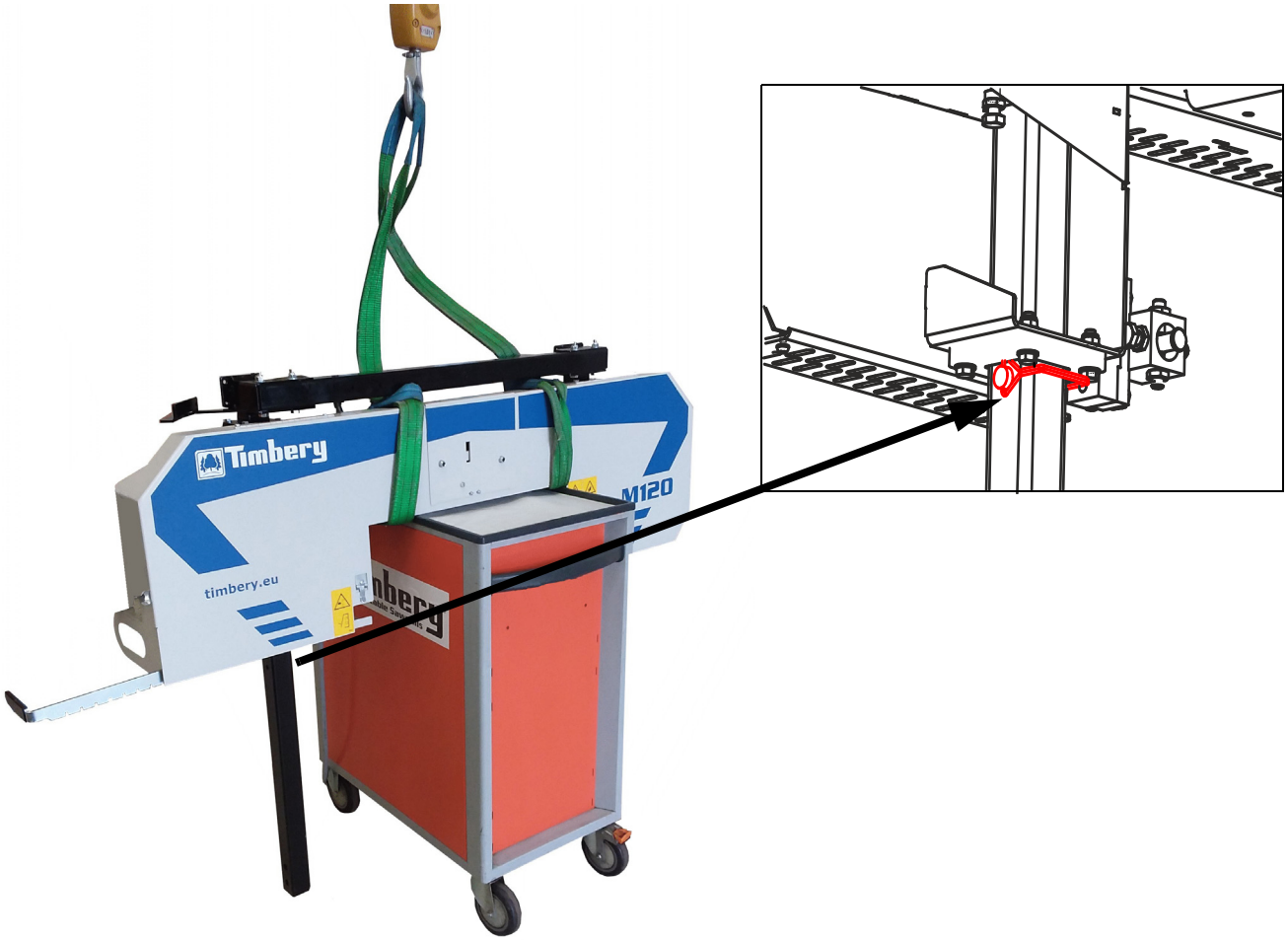
***FIG. 3-15***

2. Insert the left mast tube (Part No. X100-1112) into the mast guide bracket on the left side of the saw head (where the drive blade wheel is mouted) - see the figure below. Next, install the right mast tube (Part No. X100-1118) in the same way on the right side of the saw head. Connect both mast tubes with the cross tube (Part No. X100-1111) and the provided mounting hardware. Before fastening the cross tube, make sure the water bottle mounting holes in this tube are on the right side (the same as the operator's handle). The left and right mast tubes can be connected with the

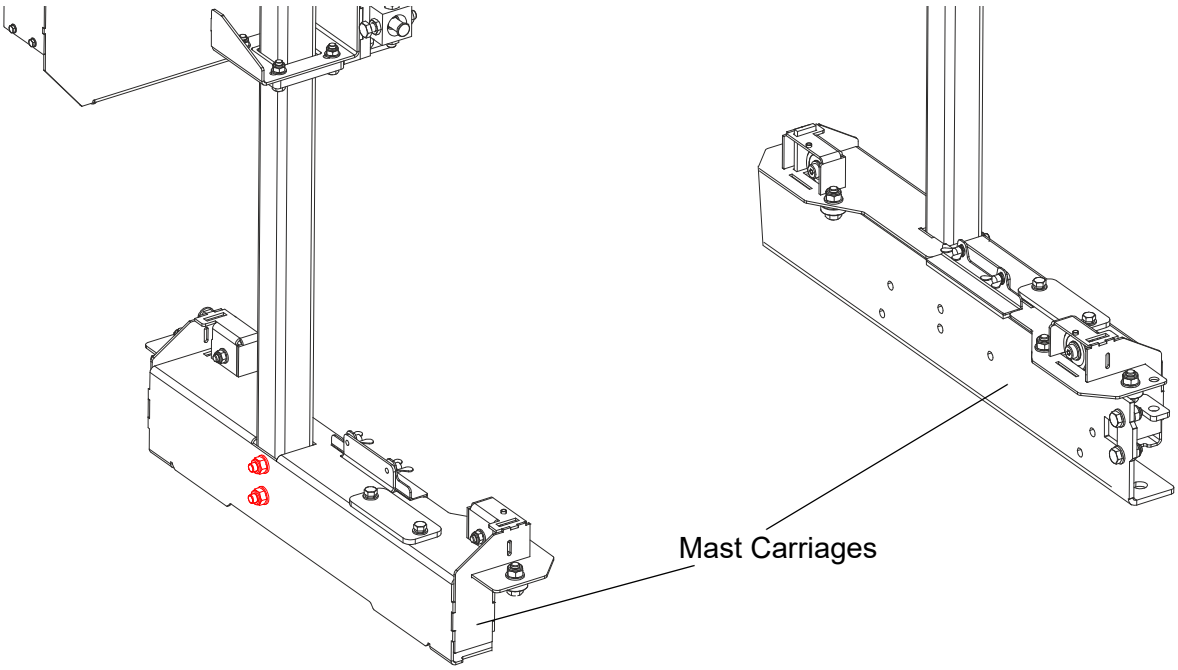
cross tube before inserting them into the guide brackets.



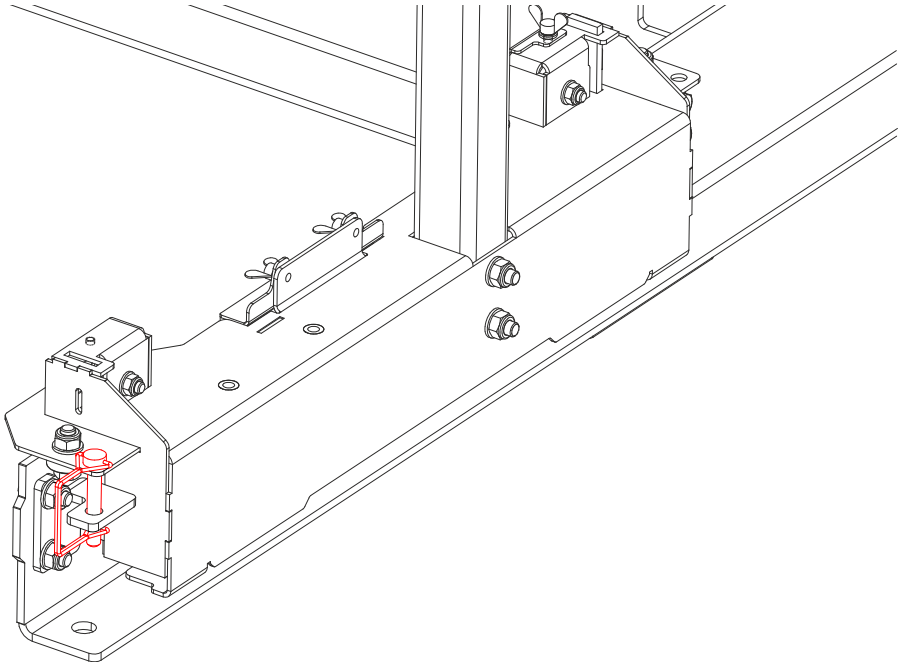

**3.** Place the strap around the saw head so that the saw head remains stable while it is being lifted. Lift the saw head - using a winch or other suitable lifting equipment and the strap - and set it on any raised surface and secure. The saw head should be set at the top position on the mast so that you can easily access the bottom ends of the vertical mast tubes and the holes at half the height of the tubes. Install the two head-locking stop pins in these holes on both tubes. These pins will prevent the saw head from lowering.


Timbery
M120
timbery.eu

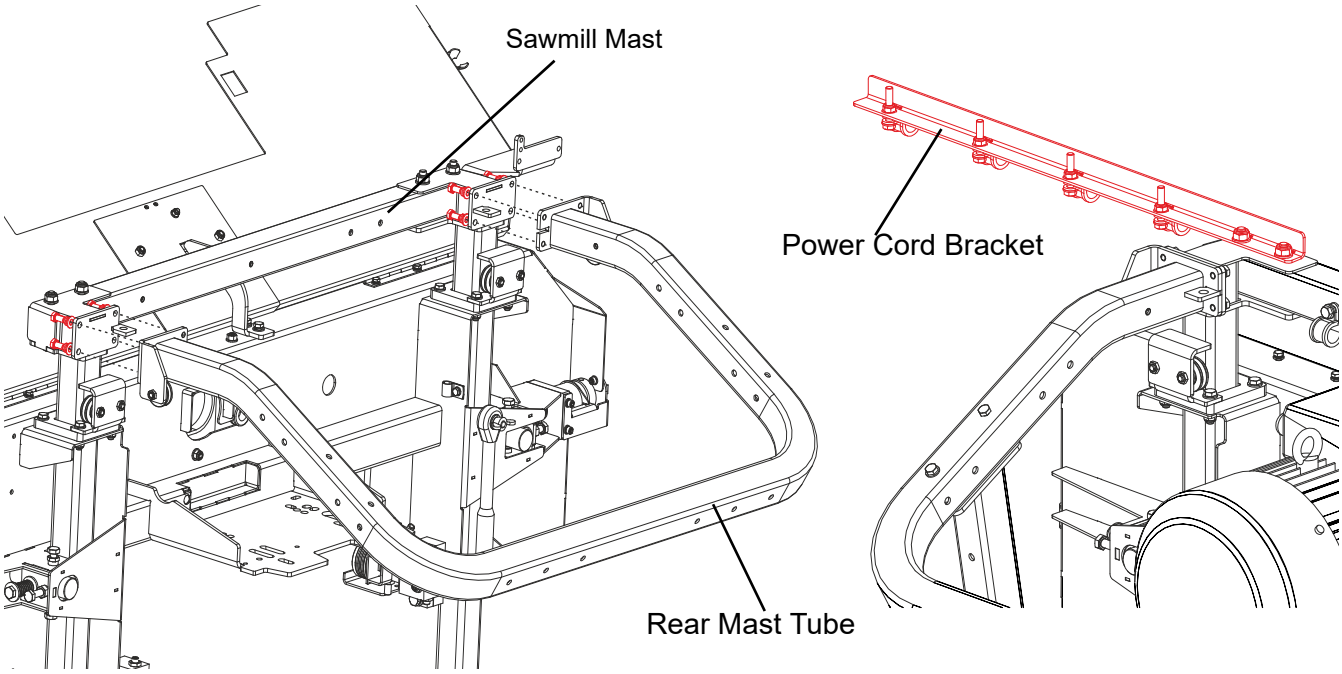
**4.** Slide the mast uprights into the mast carriages and secure with the fasteners as shown below.



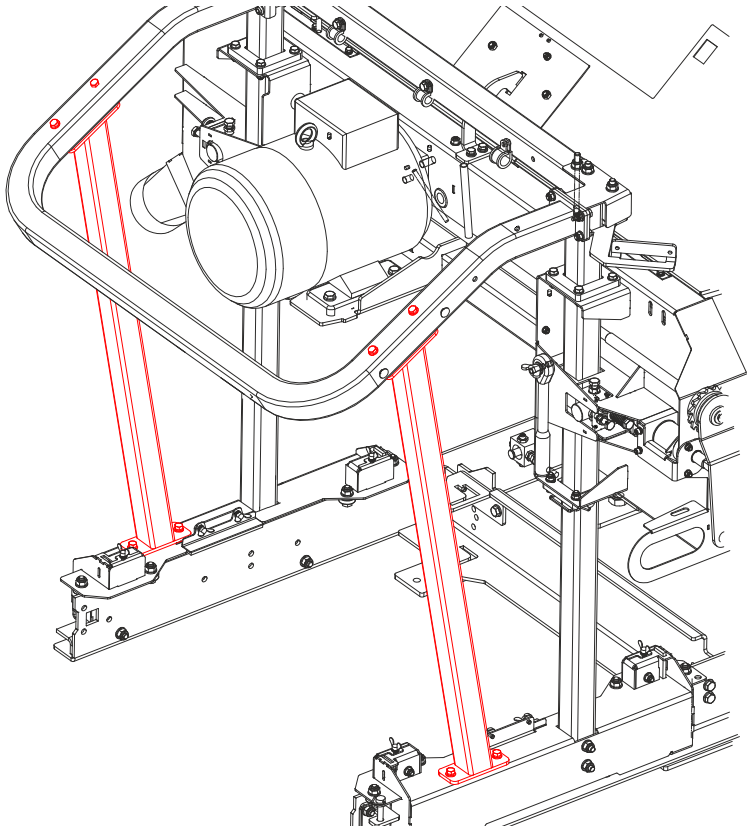

**5.** Using lifting equipment, place the saw head with the mast on the sawmill bed. Make sure the track rollers ride smoothly on the track rail. Then position the saw head at the front of the bed to secure it with a locking pin that will prevent accidental saw head movement.



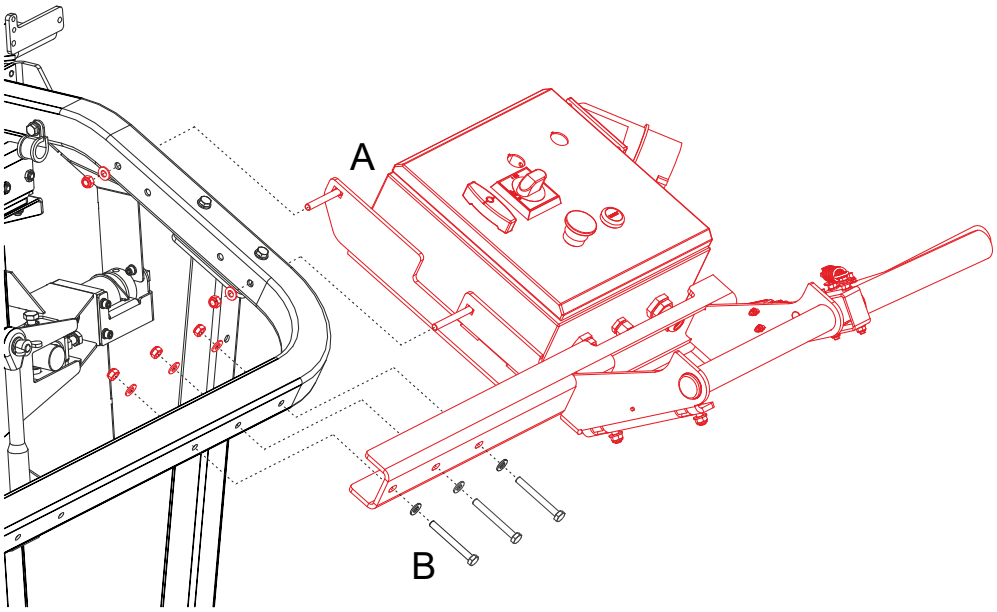
**6.** Attach the power cord bracket to the rear mast tube as shown below. Bolt the rear mast tube with the attached bracket to the mast upright on the engine side.



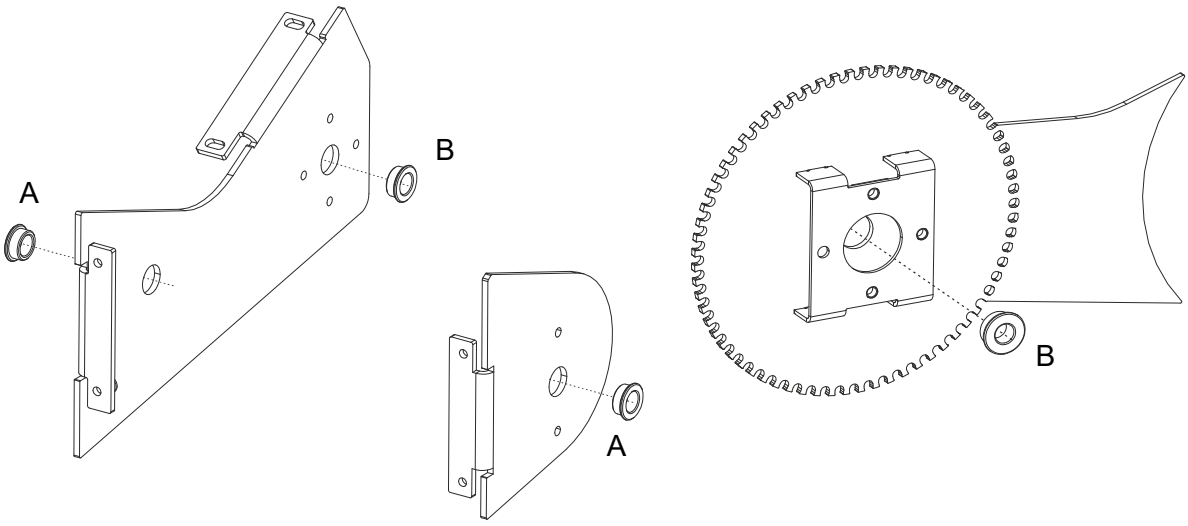

**7.** Mount the mast support tubes as shown in the figure below.



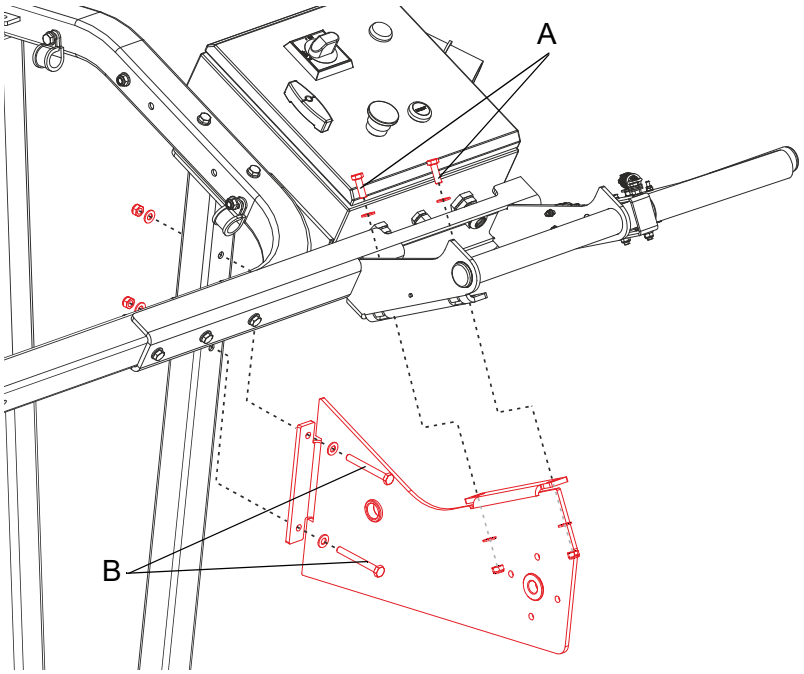
**8.** Install the control box to the mast. To do this, insert the M8x75 bolts (A), fastened to the control box bracket, through the side tube of the mast and secure with the nuts. Then, using the M8x70 bolts (B), bolt the control box handle to the rear mast tube as shown below.



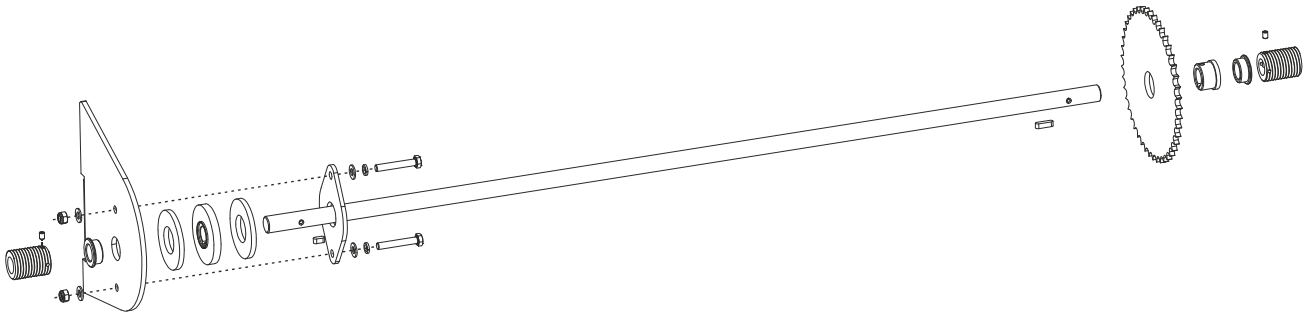
**9.** To install the up/down assembly (winch assembly), first place the plastic bushings (type A and B) in the holes located in the brackets and dial shown below. The inside diameter of the ”A” bushing is 20 mm, the ”B” bushing is 16 mm in diameter.



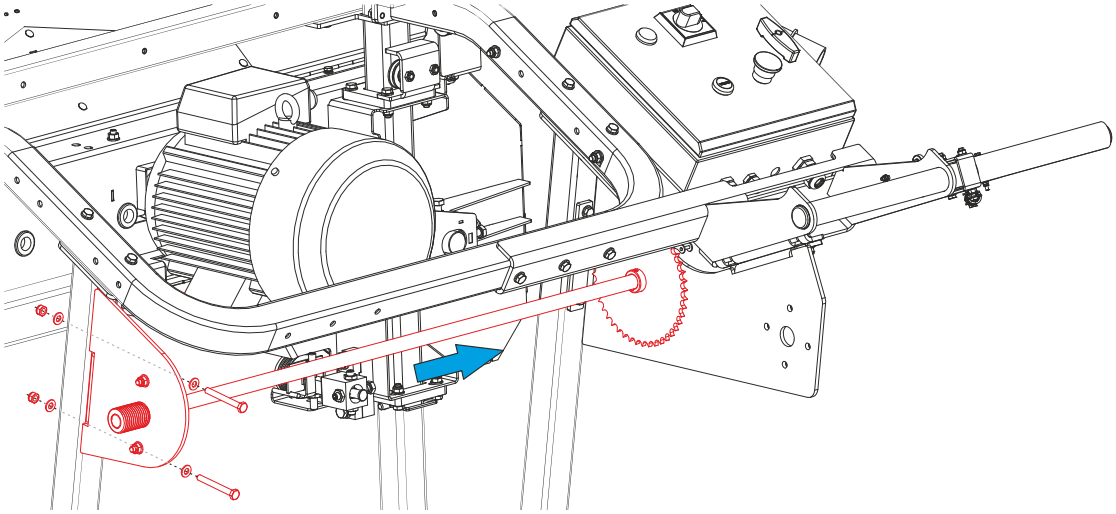

**10.** Mount the up/down bracket at the control box using the M8x25 (A) and M8x70 (B) bolts.




**11.** Place the key and sprocket on the up/down shaft and tighten the screw to prevent them from sliding off the shaft. Then insert the friction torque limiter (friction pads, bushing, clamping plate) onto the shaft at the other end of the shaft as shown below.

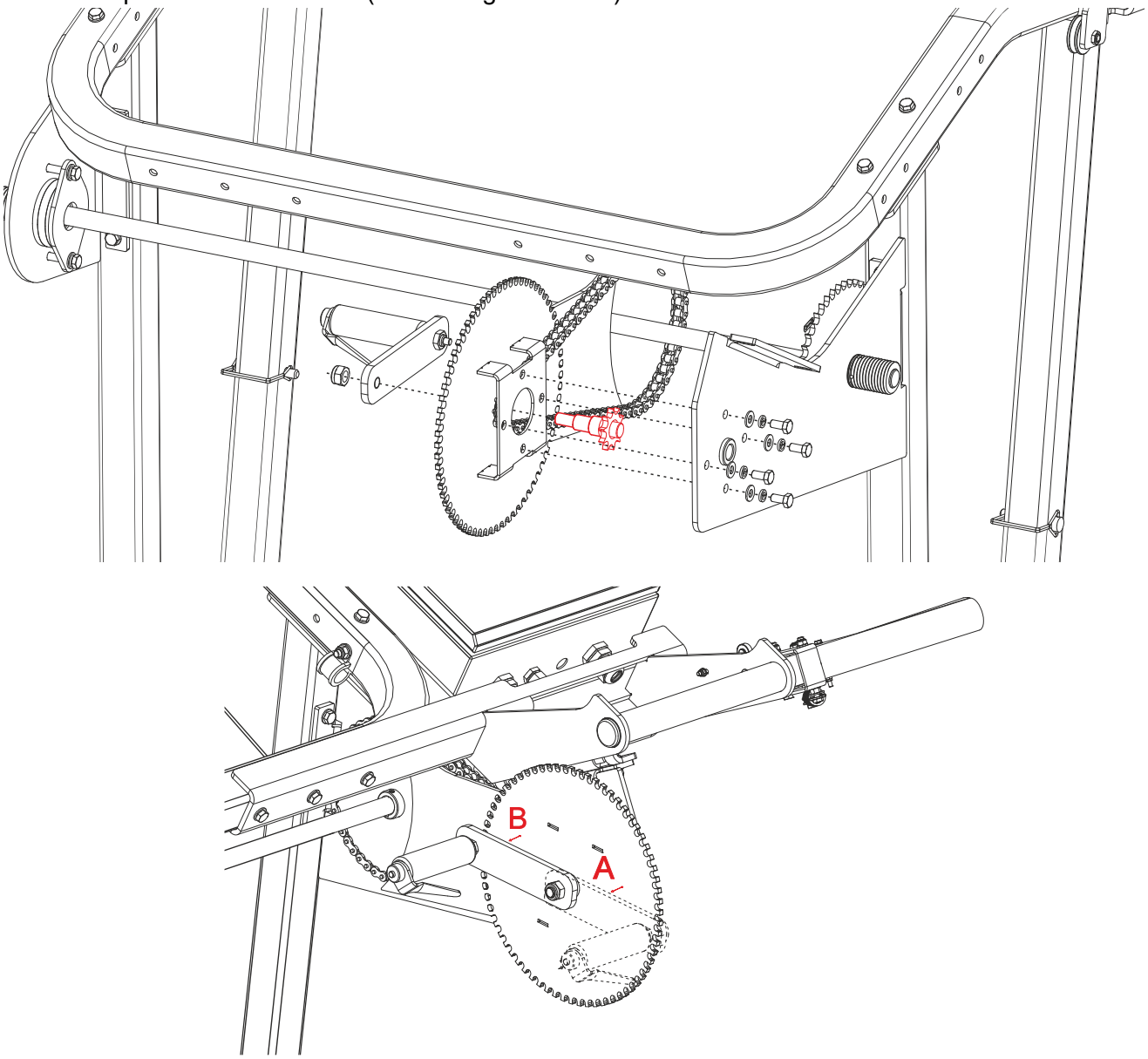


**12.** Place the shaft end with the sprocket in the up/down bracket fastened earlier at the control box. Next, use the M8x70 bolts to install the other up/down bracket to the mast frame on the opposite side of the saw head. Bolt the friction torque limiter to this bracket with the M8x50 bolts. Be careful not to tighten the bolts too much; it can cause greater resistance when the up/down crank is being used. Now that the up/down shaft with all necessary parts has already been placed in the up/down brackets, insert the left and right bushings for the lift cable onto the ends of the up/down shaft and secure with the hex socket head cap screws. (See the figure below.)

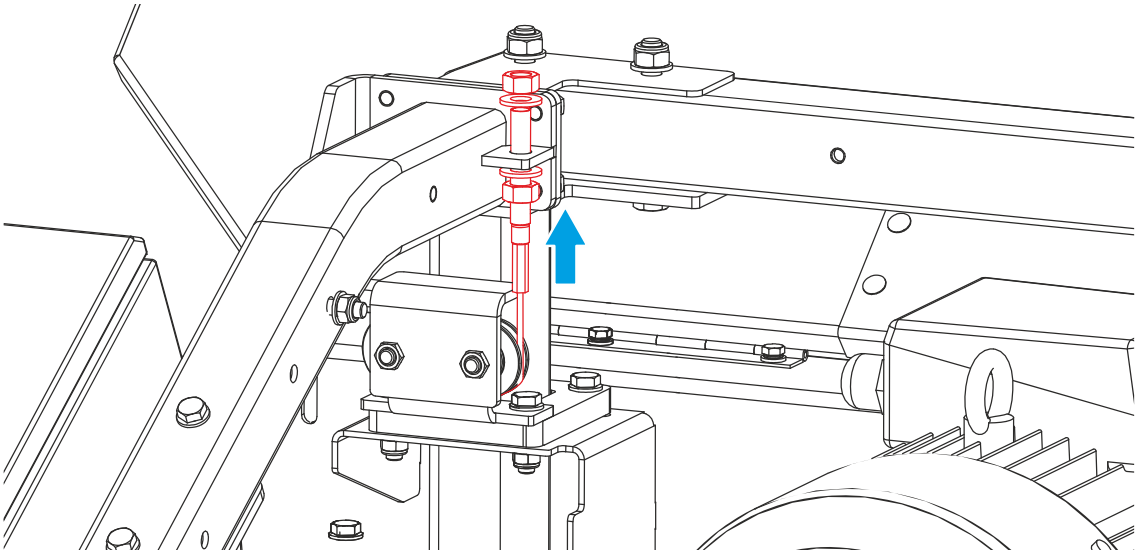


**13.** Insert the shaft with sprocket through the dial hole and put the chain on the shaft. Place the other side of the chain on the up/down shaft sprocket. Connect the chain ends with the master link. Then bolt the dial to the up/down bracket located at the control box. Install the up/down crank. It is important that the up/down crank be square with the dial. The distances A and B must be the same at

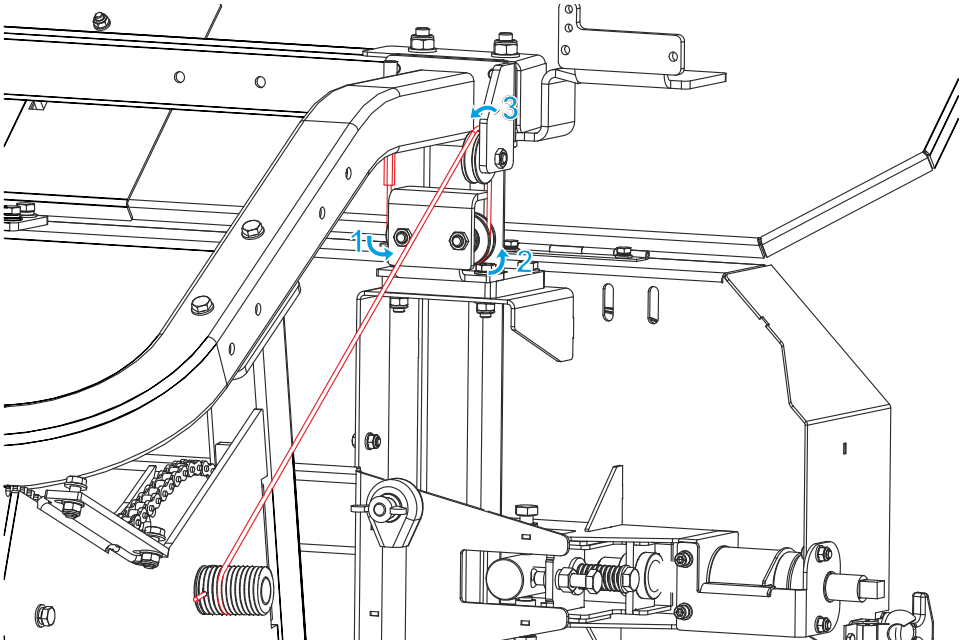
each position of the crank. (See the figure below.)




**14.** Thread the lift cable end through the hole in the mast (from the bottom). Secure the lift cable by placing the nut and washer at the top. Repeat for the other lift cable.



**15.** Remove the head-locking stop pins and use the up/down crank to lower the saw head to the sawmill bed. With the saw head all the way down, loop the cable around the rollers in the sequence shown in the figure below. Insert the cable end through the hole in the bushing as shown below and secure with the set screw located in the bushing. It is important that the lift cable installed on the rollers be tight.
Repeat for the other lift cable.



## 3.8 Clutch Lever Installation (Gas Sawmills)

1. Install the clutch lever to the sawmill mast frame using the fasteners shown below.

   **See Figure 3-12.**

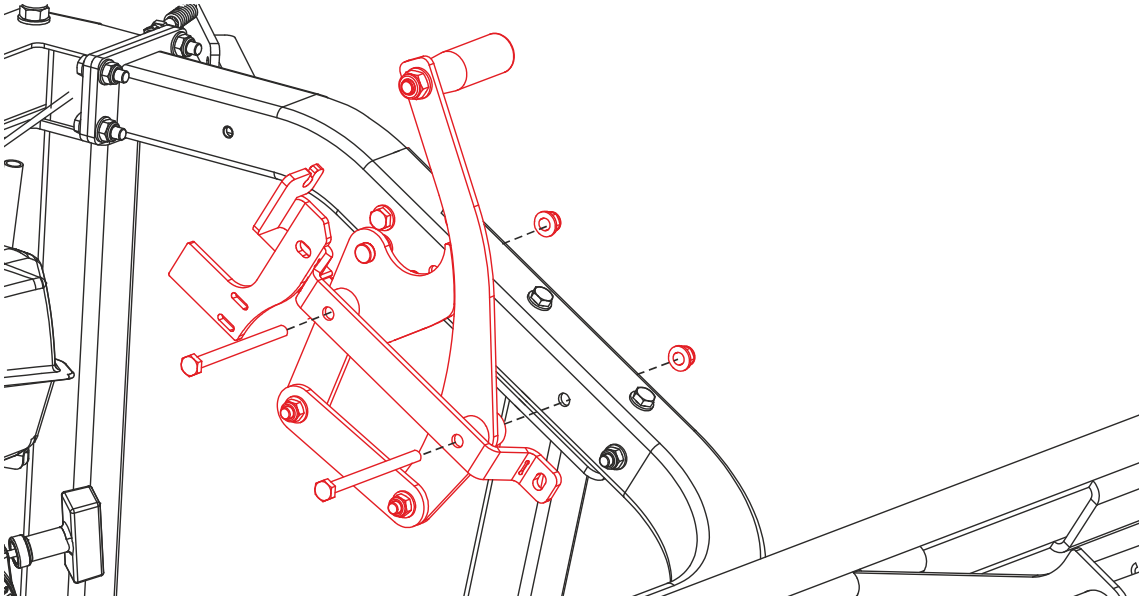


***FIG. 3-16***

2. Bolt the clutch cable to the lever.

   **See Figure 3-13.**

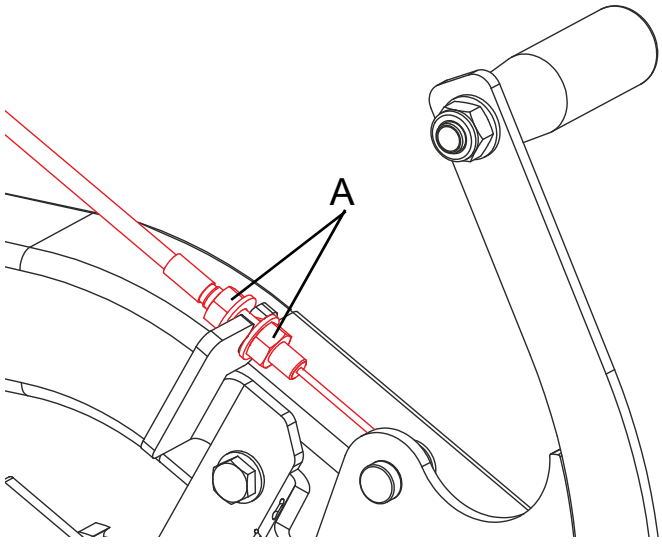



***FIG. 3-17***

3. Install the other end of the clutch cable at the clutch as shown below. Using the adjustment bolts A and B, adjust the clutch cable so that it engages the clutch (that causes the V-belt to tension and engages the blade) when you pull the clutch lever toward you.

**See Figure 3-14.**

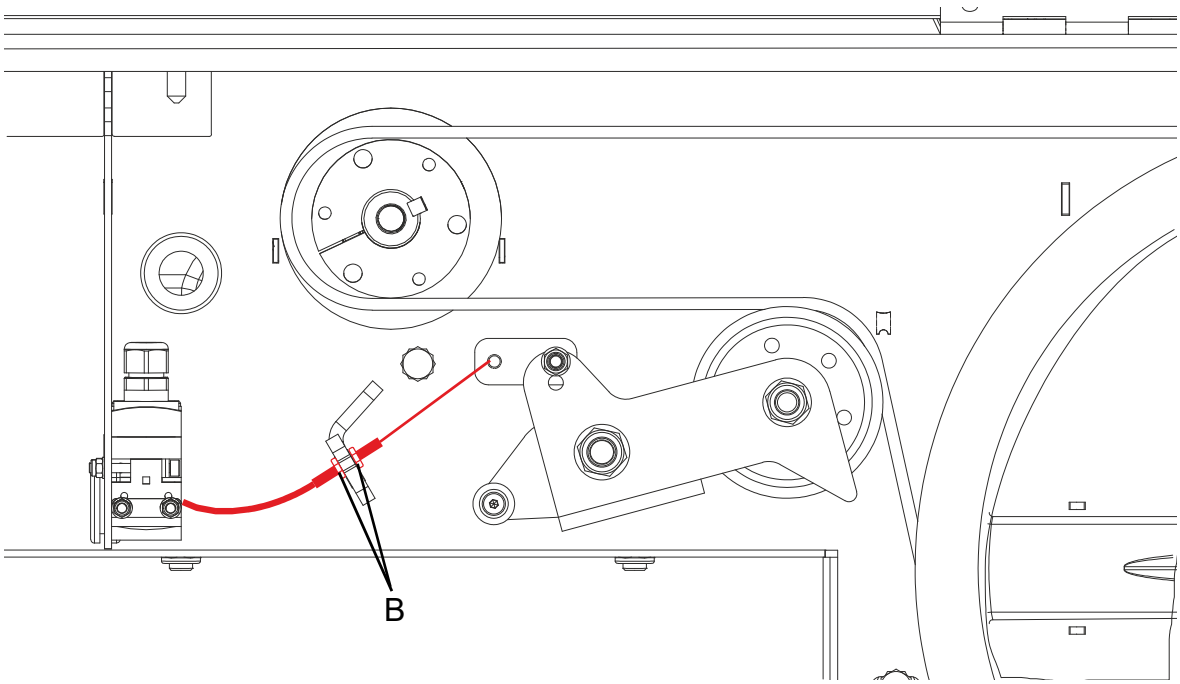



***FIG. 3-18***

4. Install the emergency stop button on the control box.

**See Figure 3-15.**

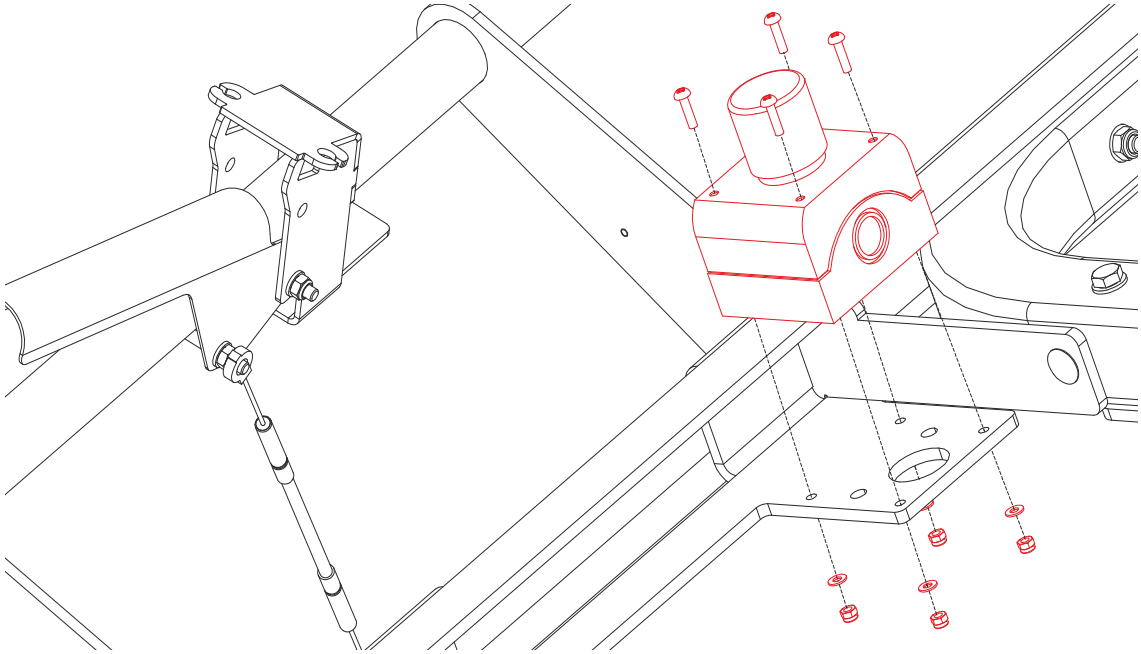


***FIG. 3-19***

**5.** Install the safety switch to the clutch lever bracket using the four screws as shown below.

**See Figure 3-16.**

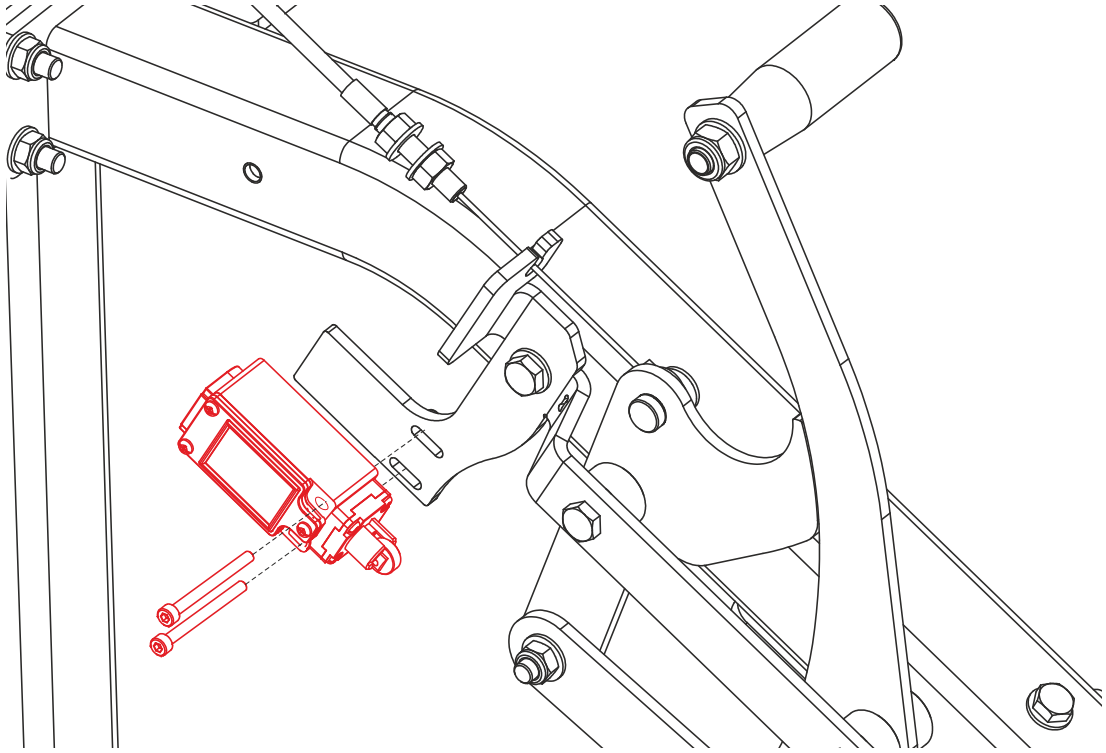


***FIG. 3-20***

## 3.9 Water Bottle Installation

**1.** Install the water bottle tray to the mast cross tube using the fasteners shown below. Before bolting,

place a cable clamp on one of the hex head bolts.

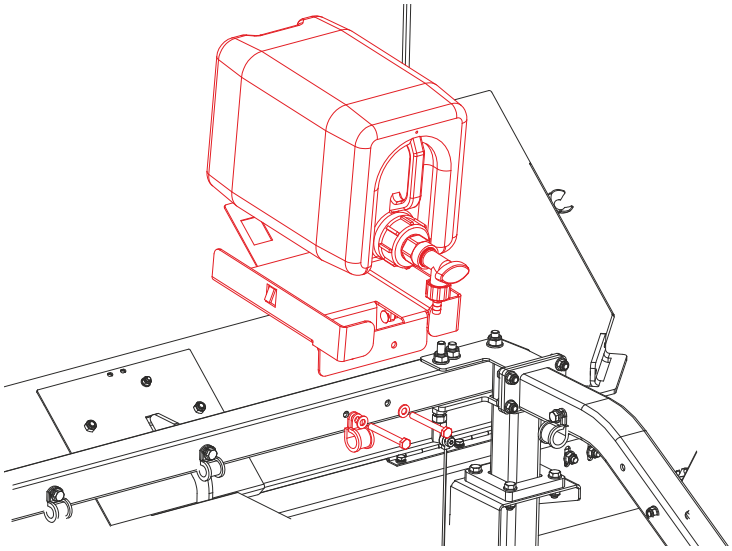


***FIG. 3-21***

2. Slide the rubber water tube onto the water bottle pipe fitting. Place the other end of the water tube on the fitting located on the blade guide.

   **See Figure 3-17.**

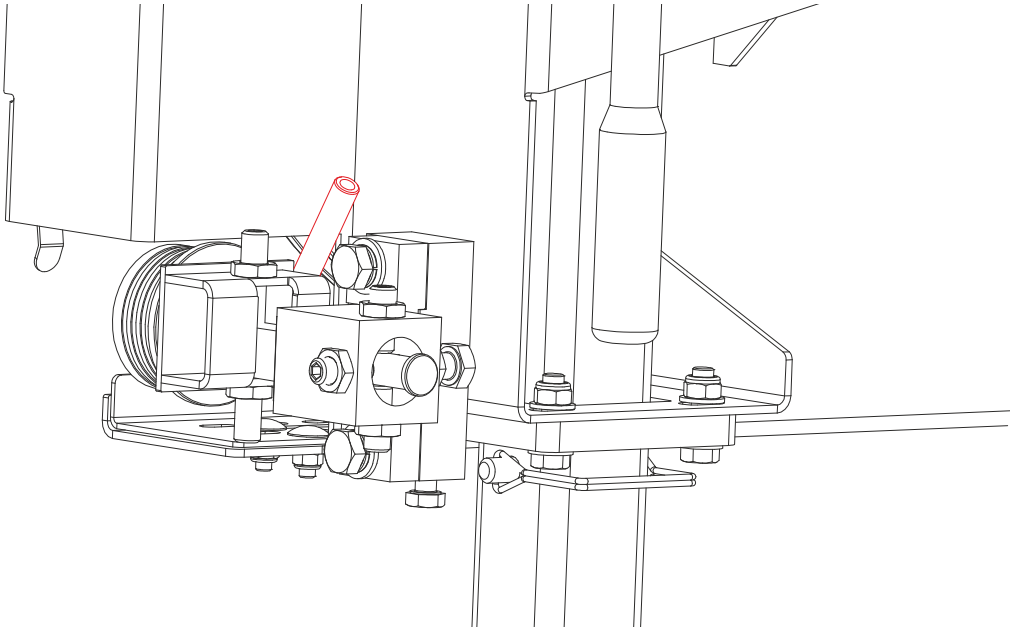


***FIG. 3-22***

3. Install the saw head cover latch using the fasteners shown below.

**See Figure 3-18.**

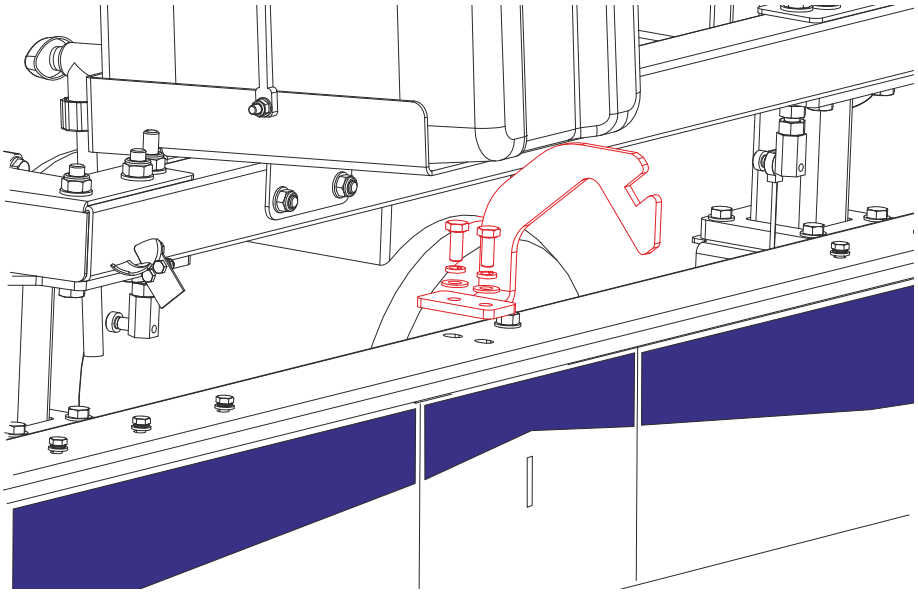


***FIG. 3-23***

## 3.10 Sawdust Chute Installation

1. Open the saw head cover and fasten the sawdust chute using the provided mouting hardware (four hex head bolts with washers and nuts).

**See Figure 3-19.**

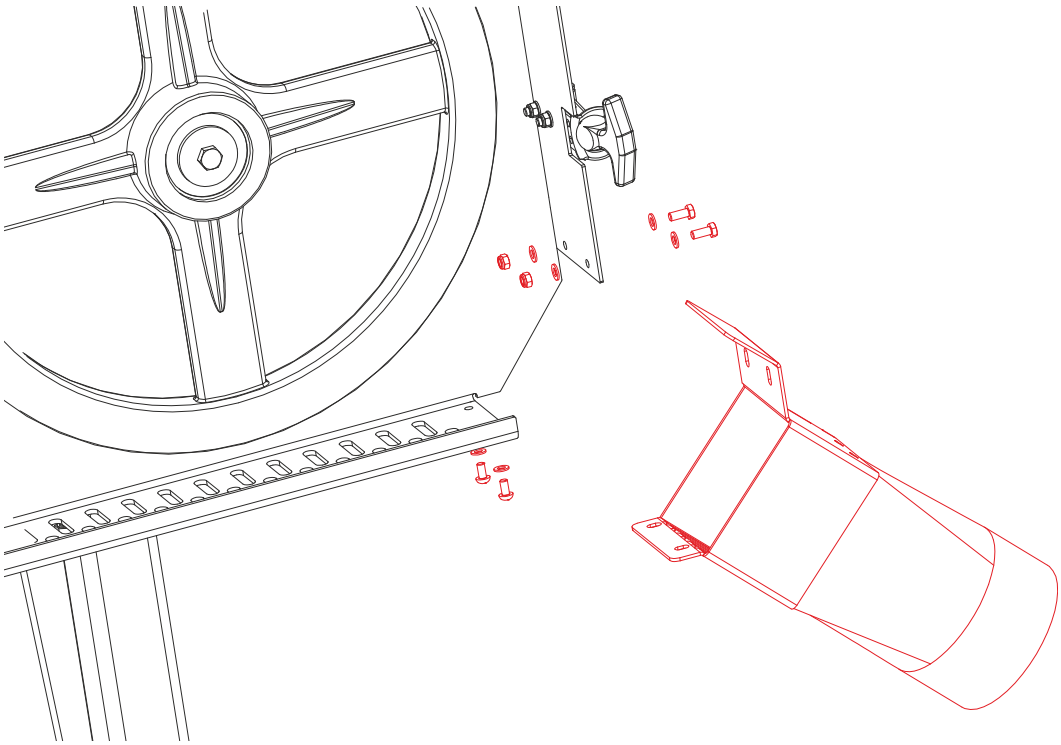


***FIG. 3-24***

## 3.11 Blade Height Scale Installation

1. Bolt the scale guide blocks to the scale mount bracket. Lower the saw head all the way down, insert the scale into the slot in the bracket (from the bottom) and bolt the scale to the saw head.

   **See Figure 3-20.**

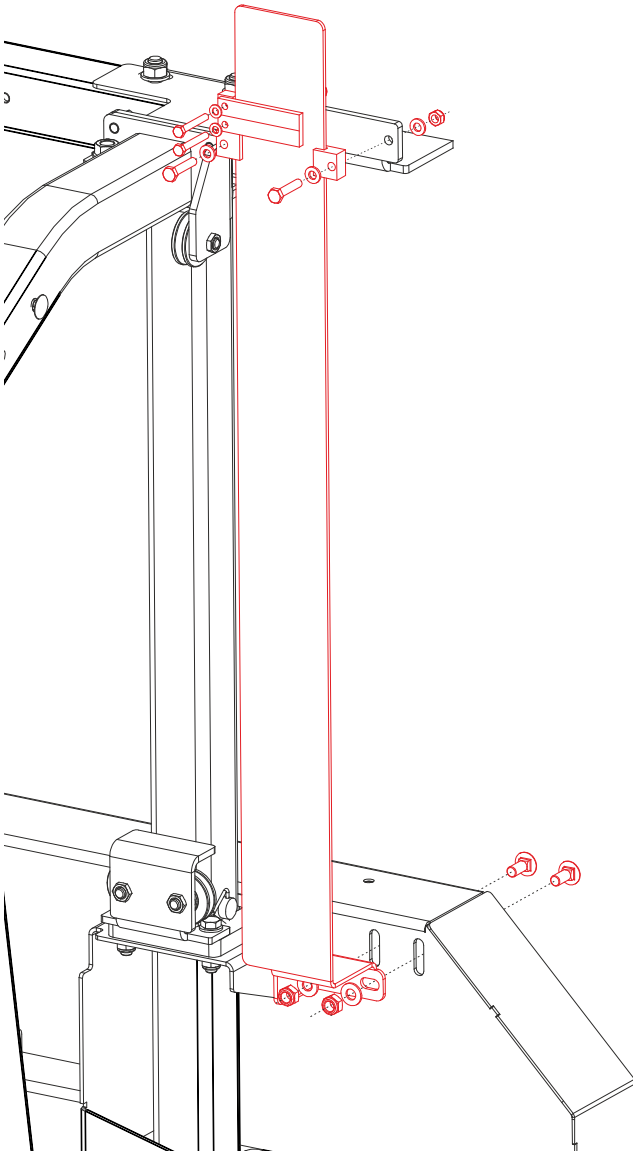


***FIG. 3-25***

## 3.12 Catch Rail Installation

1. Place the safety catch rails along the sawmill bed and prepare the fasteners (bolts, nuts and washers). Set the rails in proper position as shown below. First, bolt the A and B rails to the bed. Then move the saw head to the middle of the bed and attach the C rail.

   **See Figure 3-21.**

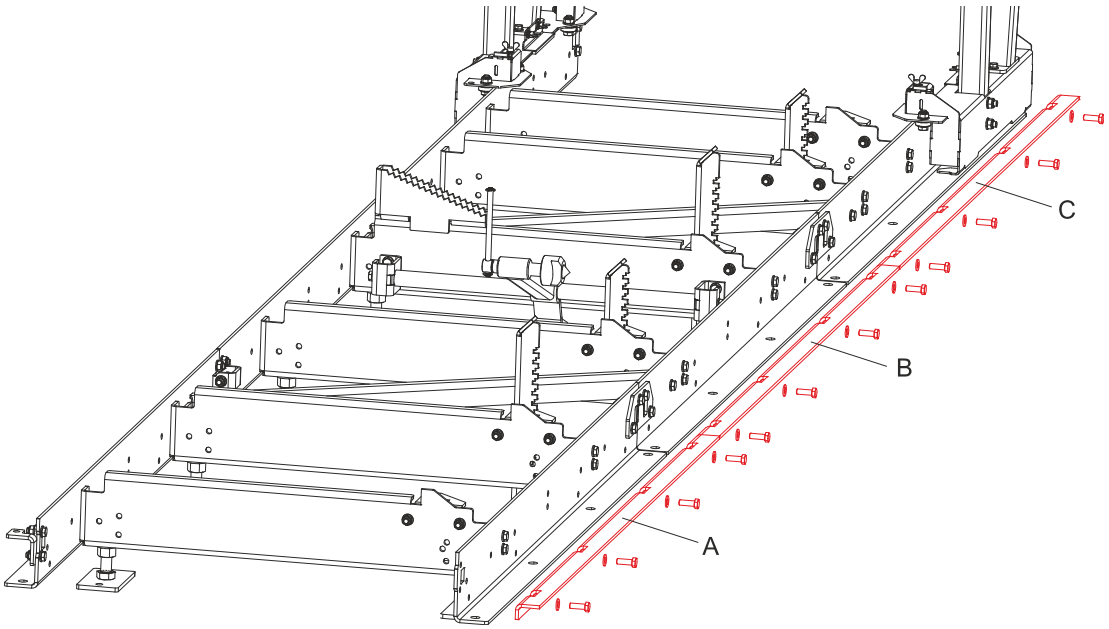



***FIG. 3-26***

## 3.13 Final Adjustments

1. Tighten the mast guide bolts shown in Figure 3.15.

2. Adjust the track wiper so that the felt touches the track rail surface and the saw head moves freely on the bed. Use the wing nuts to fasten the track wiper.

   **See Figure 3-22.**

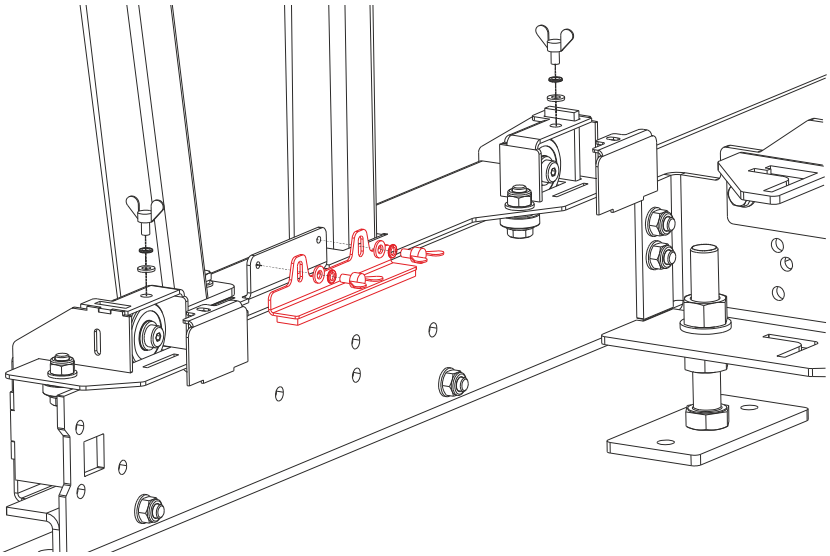


***FIG. 3-27***

3. The side bearings must be properly clamped against the track rail so that there is no clearance between the bearings and the track rail while the saw head is being moving. The side bearings should lightly touch the vertical surface of the track rail. If adjustment is needed, use the bearing nuts. Be sure to tighten the nuts to lock the bearings in the adjusted position. If the bearings press too firmly against the rail, it will cause the saw head to not move easily on the rail and will result in premature bearing wear. Make this adjustment for all side bearings.

**See Figure 3-23.**

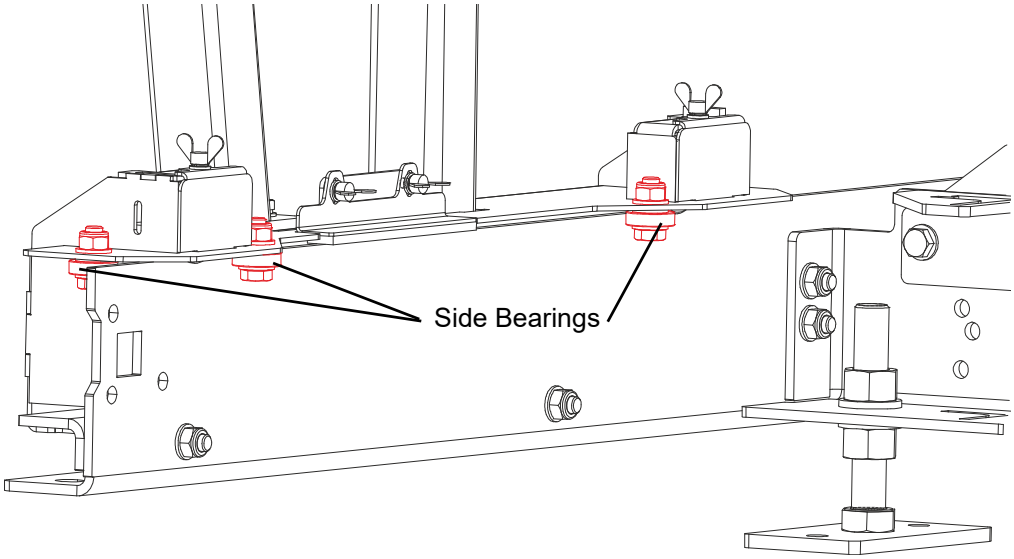



***FIG. 3-28***

# SECTION 4 OPERATION

## 4.1 Safety Instructions

**DANGER! Make sure that the engine is off before performing any maintenance. Failure to do so will result in serious injury or death.**

**DANGER! Keep all persons out of the path of moving equipment and logs when operating the sawmill or loading and turning logs. Failure to do so will result in serious injury or death.**

**WARNING! Secure all loose clothing and jewelry before operating the sawmill. Failure to do so may result in serious injury or death.**

**WARNING! Always wear eye, ear, respiration, and foot protection as well as safety clothing when operating or servicing the sawmill. Failure to do so may result in serious injury or death.**

**WARNING! Always keep clear of exiting sawdust. Keep hands, feet, and any other objects away from the sawdust chute when operating the sawmill. Failure to do so may result in serious injury or death.**

**WARNING! Assemble the bed on firm, level ground. Failure to do so may cause the saw head to tip, resulting in serious injury or death. If using the sawmill stationary it is recommended to fasten the sawmill to the floor.**

**WARNING! If the blade or drive belt breaks, wait until all moving parts are completely stopped. Failure to do so may result in serious injury.**

**CAUTION! Release the blade tension when the mill is not in use (for example at the end of a shift). Tension the blade again before starting the motor.**

## 4.2 Set-Up

**IMPORTANT!** Before starting to use the sawmill, you have to meet the following conditions:

- Clear the area. Inspect the sawing site for debris or uneven surfaces that may become a trip hazard. Ensure that eye, ear, and respiration protection are readily available. Ensure that the operator is wearing foot protection and proper work clothing.
- Check the engine oil level (see the engine manual).
- Ensure the fuel and water levels are sufficient.
- The sawmill must not be operated indoors without a sawdust extraction system connected and started.
- AC sawmills must not be used outdoors when it is raining or snowing. In such a case, they must be used and stored under roof or indoors.
- Gas sawmills must not be used indoors. Such sawmills can be operated outdoors without a sawdust extraction system, but the operator should be positioned downwind. It will prevent the operator from being exposed to sawdust and engine exhaust gases.
- The sawmill can be operated in the temperature range of -15$^{o}$ C to 40$^{o}$ C.
- The sawmill can be lifted with suitable lifting equipment only.
- The intensity of light at the operator's work-place must be at least 300lx.
- Have a qualified electrician install the power supply (according to EN 60204 Standard). The power supply must meet the specifications given in section ''Specifications".

**IMPORTANT!** When starting the machine for the first time, check that the main motor rotation direction is as indicated by the arrow located on the motor body. If the rotation direction is incorrect, invert the phases in the phase inverter in the power socket.

**WARNING!** If the blade or drive belt breaks, wait until all moving sawmill components stop completely. Failure to do so may result in serious injury or death.

The M120 sawmills are only partially aligned at the factory. Some assemblies need to be aligned by the user before first usage of the sawmill.

**Factory-aligned assemblies:**

- Engine r.p.m. (DC sawmills only)
- Blade wheels (vertical and horizontal adjustments)

## 4.3 Replacing the Blade

**DANGER!** Always disengage the blade and shut off the sawmill motor/engine before changing the blade. Disconnect power supply using the main switch. Failure to do so will result in serious injury.

**WARNING!** Always wear gloves and eye protection when handling bandsaw blades. Keep all other persons away from area when coiling, uncoiling, carrying or changing a blade. Changing blades is safest when done by one person! Failure to do so may result in serious injury.

Turn the blade tensioner screw to decrease the blade tension until the blade is lying loose in the blade housing. Lift the blade out of the blade housing.

Install a new blade on the blade wheels so it is lying loose around the wheels. When installing the blade, make sure the teeth are pointing the correct direction. Track the blade properly on the wheels as described further in this section.

## 4.4 Tensioning the Blade

**See Figure 4-1.**
A wrench for tensioning blades is located at the rear of the saw head. Place the wrench on the tensioner screw. Turn the tensioner screw right until the tension indicator is in the middle of the notch indicating the correct tension.

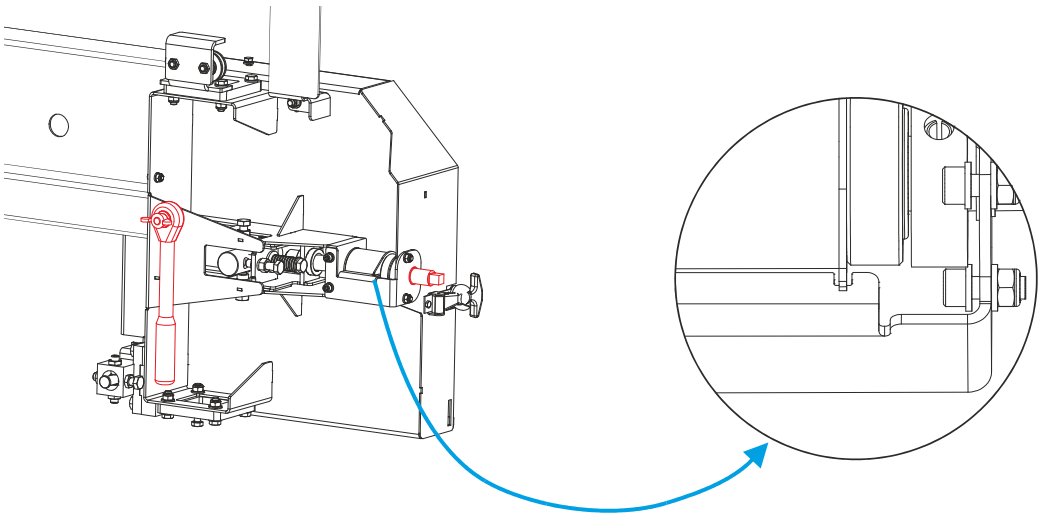


*FIG. 4-1*

**CAUTION!** Release the blade tension after you have finished using the sawmill (e.g. after each shift). Place information on the machine for other operators that it is necessary to tension the blade again before further sawmill operation.

## 4.5 Tracking the Blade

After tensioning the blade, check its position on the blade wheels.

**See Figure 4-2.** Position 1 1/4” (32 mm) wide blades on the blade wheels so the blade teeth are 9 -10 mm (±1 mm) out from the edge of the wheel. Make sure the rear edge of the blade is lying flat on the wheels and is no more than 3 mm out from the edges of the blade wheel belts.

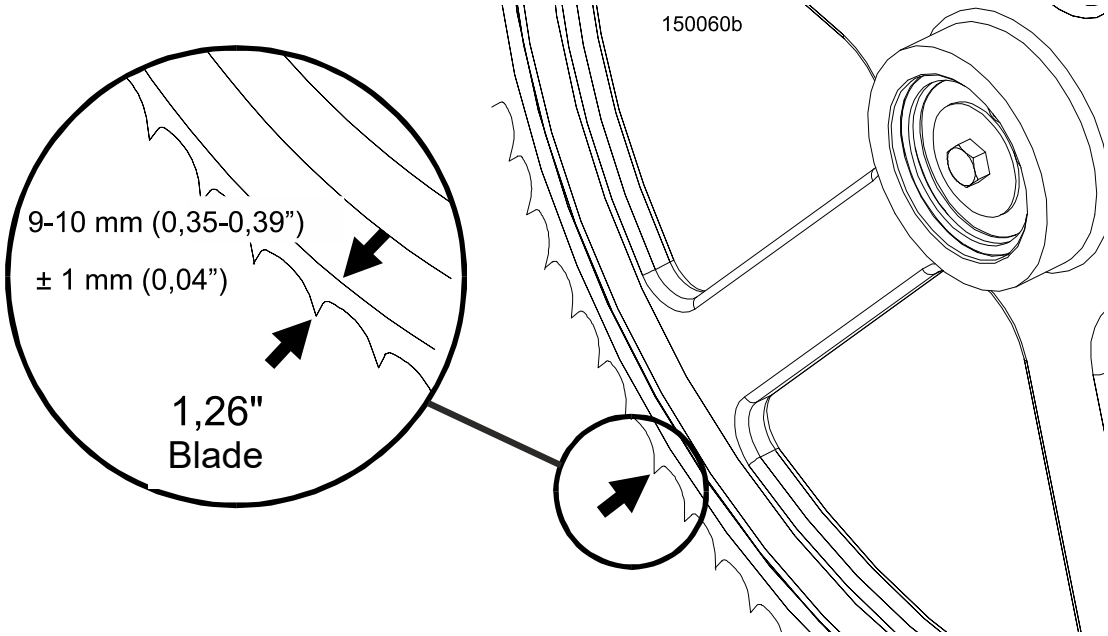



*FIG. 4-2*

To track the blade properly on both blade wheels:

- (CE electric version) - open the blade housing cover, set the key switch to the "H" position and spin the blade wheel by hand a few times.
- (Non-CE electric version) - open the blade housing cover and spin the blade wheel by hand a few times.
- (Gas engine version) - open the blade housing cover and spin the blade wheel by hand a few times.

  Cant control bolts are located at the rear of the saw head, on both sides. They can be used to adjust where the blade travels on the blade wheels.

## 4.6 Horizontal Adjustment of Idle-Side Blade Wheel

First, adjust the idle-side blade wheel horizontally. To do this, loosen the set nuts on the adjustment bolts and tilt the blade wheel until it is properly aligned.

**See Figure 4-3.** The bolts for adjustment of the idle-side blade wheel are shown below.

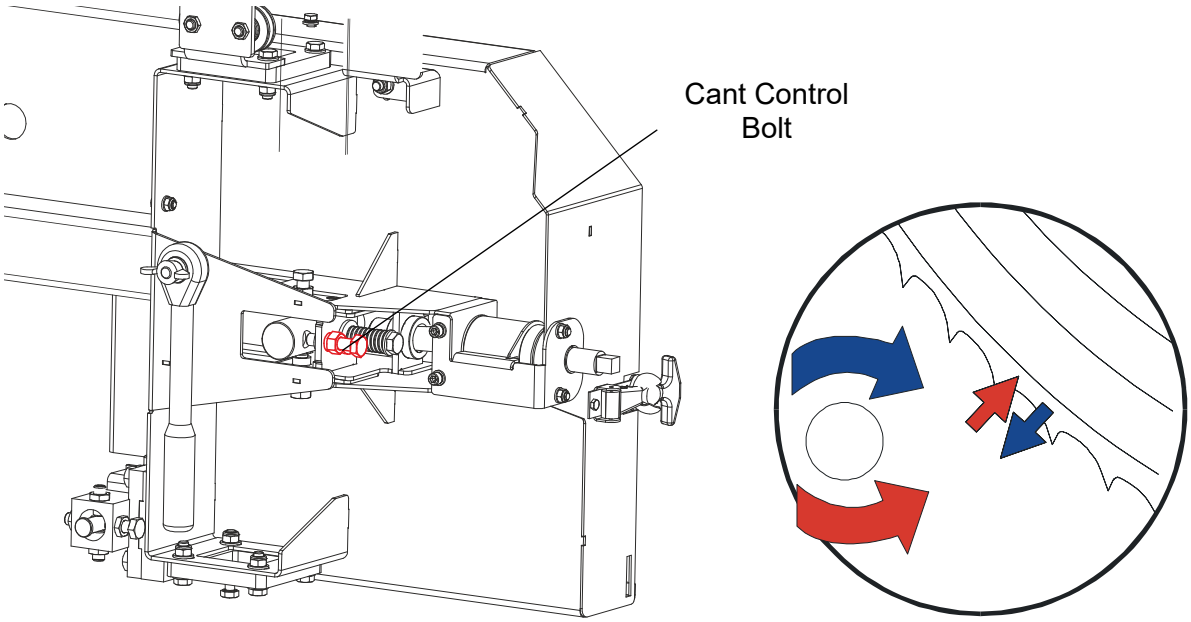



*FIG. 4-3*

If the blade is too far out, back the blade onto the wheel by turning the cant control bolt left. If the blade is too far in, turn the cant control right until the gullet of the blade is the correct distance from the front edge of the wheel.

## 4.7 Horizontal Adjustment of Drive-Side Blade Wheel

Check the position of the blade on the drive-side blade wheel. The blade should be positioned on this wheel as described for the idle blade wheel. If not, adjust the drive wheel horizontally.

**See Figure 4-4.** Use the adjustment screw shown below to adjust the drive-side blade wheel horizontally. First, loosen the nut on this screw. If you want to move the blade on the wheel away from the machine, loosen the screw. To move the blade towards the machine, tighten the screw. Be sure to tighten the nut after adjustment.

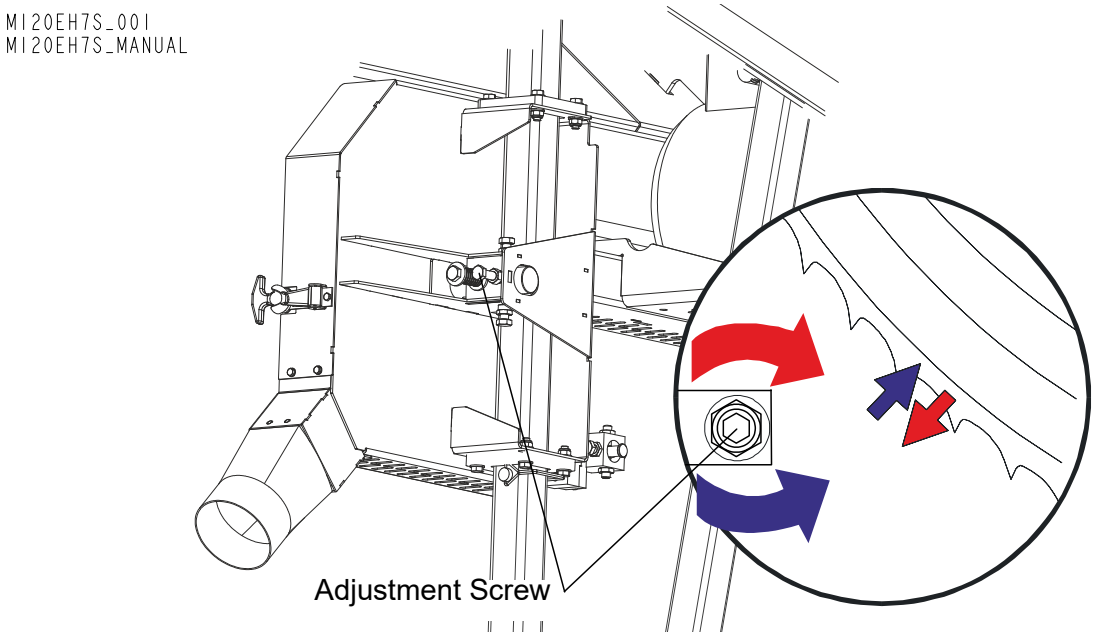



*FIG. 4-4*

## 4.8 Vertical Adjustment of Drive-Side Blade Wheel

The blade wheels must be square to the sawmill bed and parallel to each other in both vertical and horizontal planes. If the blade wheels are tilted up or down, the blade will want to travel in the tilted direction. If the blade wheels are tilted horizontally, the blade will not track properly on the wheels.

Use the blade guide alignment tool to check the vertical alignment of each blade wheel.

1. Attach the alignment tool to the blade near the drive-side blade guide. Be sure the tool does not rest on a tooth or burr, and is lying flat against the blade.

   **See Figure 4-5.**

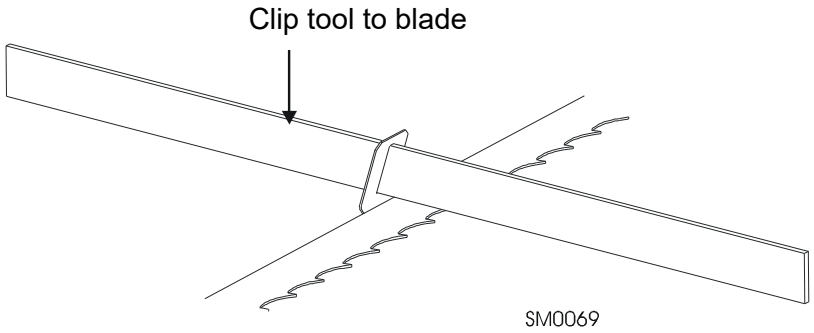



***FIG. 4-5***

2. Move the saw head so the front end of the tool is positioned over the first bed rail. Measure from the bottom of the tool to the top surface of the bed rail.

3. Move the saw head so the rear of the tool is positioned over the bed rail. Again, measure from the bottom of the tool to the bed rail.

4. If the two measurements differ by more than 1/16" (1.5 mm), adjust the vertical tilt of the drive-side blade wheel.

**See Figure 4-6.** Use the screws shown below to adjust the drive blade wheel vertically. To tilt the wheel down, loosen the top adjustment screw half a turn. Loosen the jam nut on the bottom adjustment screw and tighten the screw. Tighten the top and bottom jam nuts.

To tilt the wheel up, loosen the bottom adjustment screw half a turn. Loosen the jam nut on the top adjustment screw and tighten the screw. Tighten the top and bottom jam nuts.

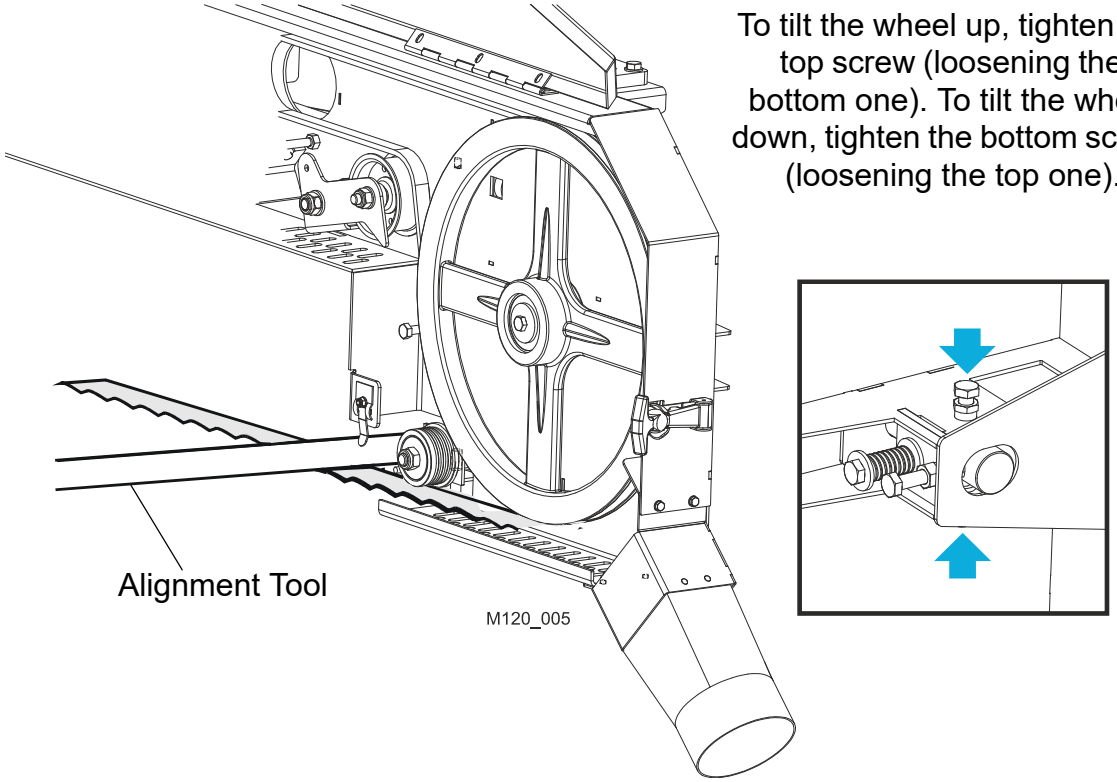



***FIG. 4-6***

**5.** Measure again the distance between the tool and the bed rail at both ends of the tool. If the measurements at the front and rear ends of the tool still differ by more than (± 1.5 mm), readjust the vertical tilt of the drive-side blade wheel.

## 4.9 Vertical Alignment of Idle-Side Blade Wheel

1. Attach the alignment tool to the blade near the idle-side blade guide.

2. Measure from the bottom of the tool to the bed rail at both ends of the tool. If the measurements are not equal (± 1,5 mm), adjust the idle-side blade wheel in the vertical plane.

   **See Figure 4-7.** To tilt the idle-side blade wheel up, loosen the lower nut and adjustment screw 1/2 turn, loosen the nut on the upper adjustment screw and tighten the upper screw. Then tighten the upper and lower nut.

   To tilt the idle-side wheel down, loosen the upper adjustment screw 1/2 turn, loosen the nut on the lower adjustment screw and tighten the lower screw. Tighten the upper and lower nut.

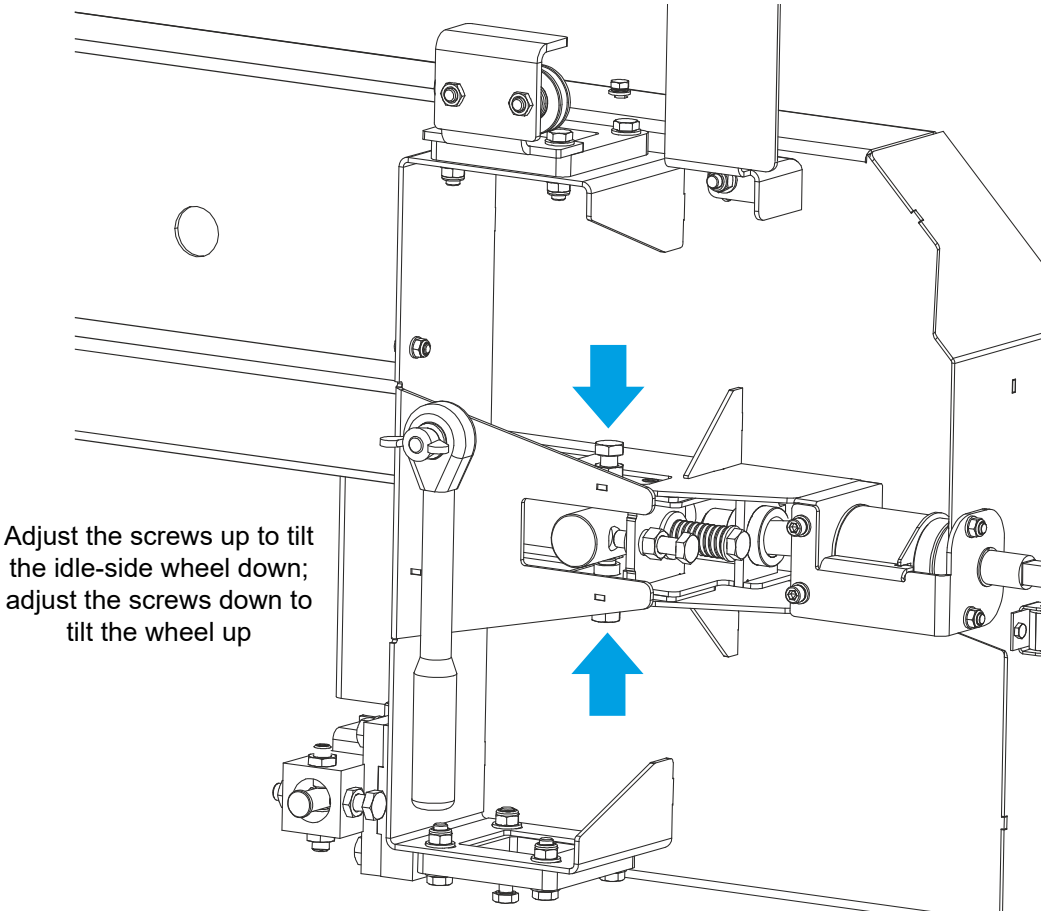



*FIG. 4-7*

3. Recheck the vertical tilt of the idle-side blade wheel. If it is still incorrect, repeat the adjustment procedure.

4. Check the position of the blade on the blade wheel.

**See Figure 4-8.** The figure below shows the screws for aligning the blade on the blade wheels.

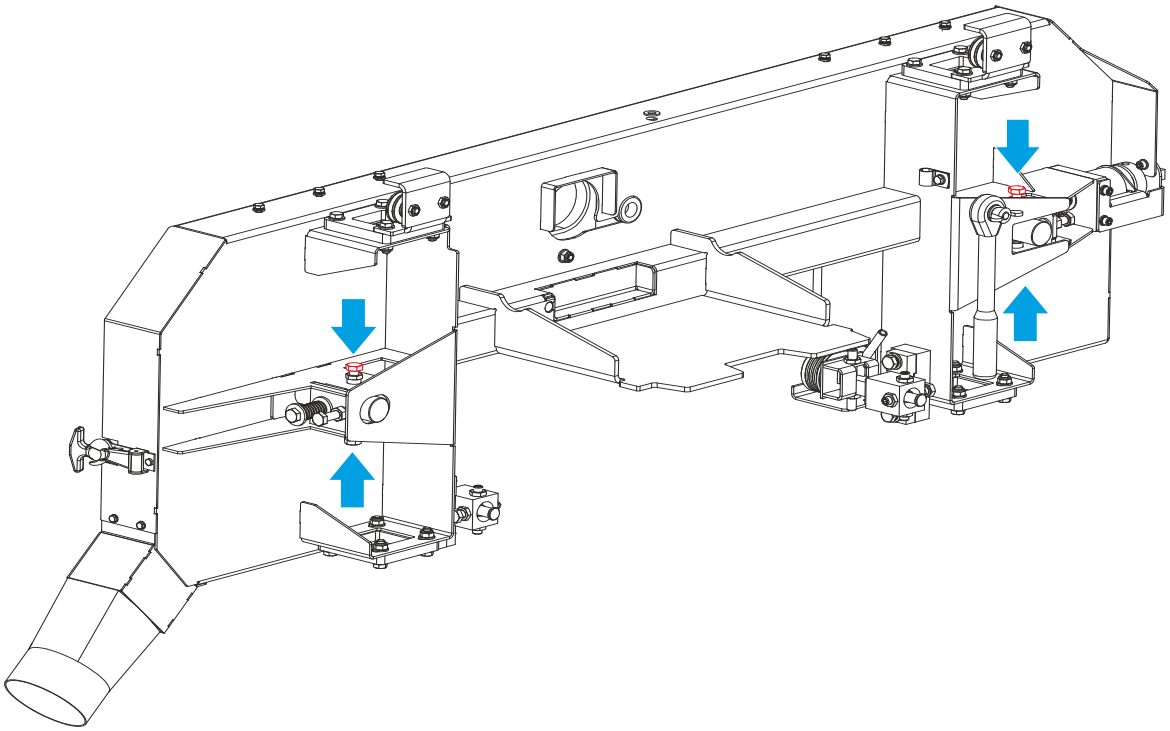


*FIG. 4-8*

## 4.10 Saw Head Adjustment

1. Check that the tensioned blade is parallel to a bed rail. To do this, measure the distance between the blade and the bed rail on both sides of the saw head. If the two measurements are not the same, adjust the saw head in relation to the bed on one or both sides, as necessary.

2. To adjust the saw head, move the threaded rod (on which the lift cable is installed) up or down. To move the saw head up, loosen the lower jam nut and tighten the upper nut. For the user's safety, the lift cable bracket with the cable locking screw must be tightened all the way. After adjustment, the lift cable locking screw should be in the same position as before.

   **NOTE:** When adjusting the saw head, be careful not to loosen the upper nut completely as it can cause the saw head to lower.

**See Figure 4-9.** The figure below shows the screws for aligning the blade on the blade wheels.

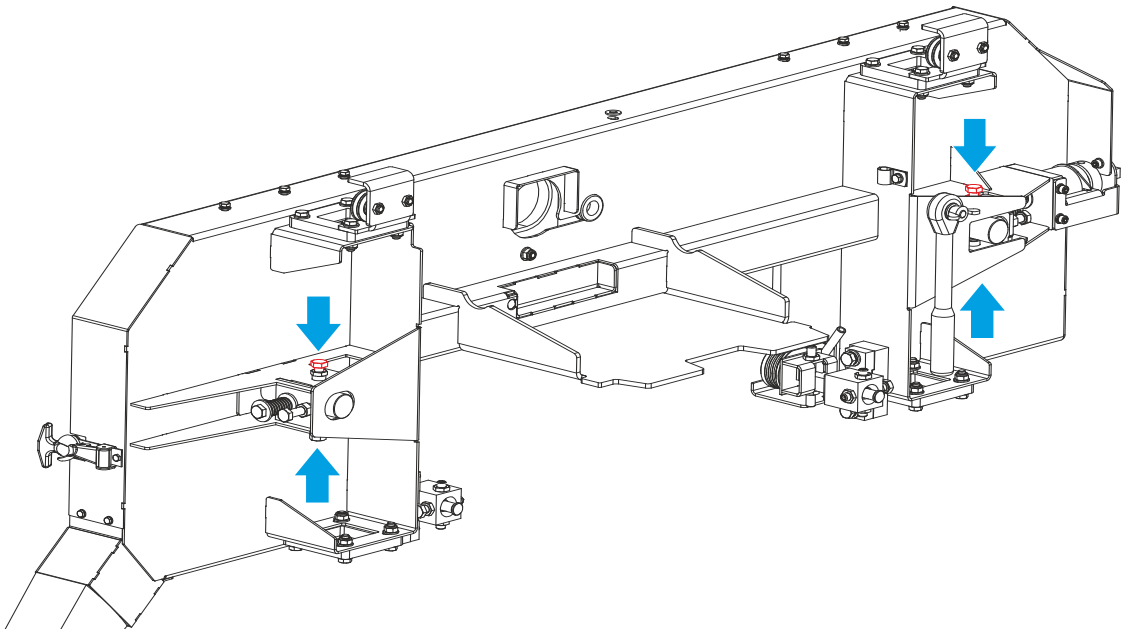


*FIG. 4-9*

## 4.11 Blade Deflection

Perform the following steps to achieve proper blade deflection with the blade guides:

1. Position the saw head so that the blade is above a bed rail. Measure the actual distance with a tape from the top of the rail to the bottom of the blade.

**See Figure 4-10.**

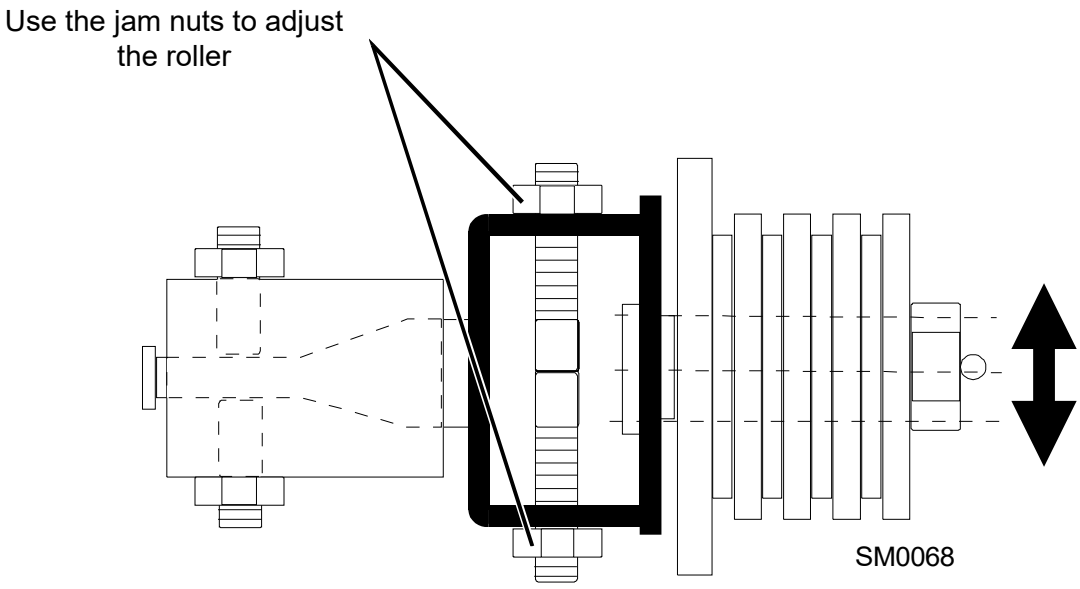



***FIG. 4-10***

2. Loosen the bottom jam nut and tighten the top jam nut until the blade guide deflects the blade down 3 - 4 mm.

3. Repeat for the other blade guide.

**NOTE**: Be sure the blade guard clears the blade. It should be checked with the blade guard all the way in and all the way out.

## 4.12 Blade Guide Vertical Tilt Adjustment

Check that the blade guides does not tilt the blade up or down. A Blade Guide Alignment Tool is provided to help you measure the vertical tilt of the blade.

1. Attach the alignment tool to the blade. Position the tool close to a blade guide roller. Be sure the tool does not rest on a tooth or burr, and is lying flat against the blade.

   **See Figure 4-11.**

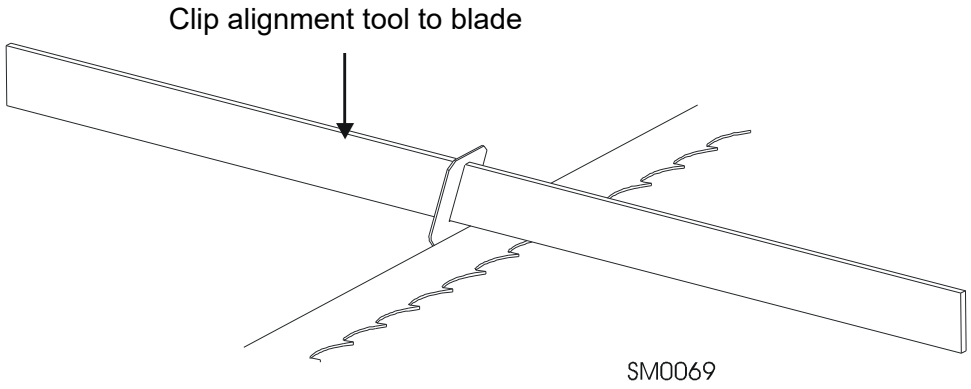



***FIG. 4-11***

2. Measure the distance from the bottom of the tool to the bed rail.
3. Move the saw head so that the front end of the tool is positioned above the bed rail.
4. Measure again the distance between the tool and bed rail.
5. The two measurements should be the same. If they are not, loosen one side set screw of the guide assembly and adjust the blade guide in the vertical plane using the screws shown below.

**See Figure 4-12.**

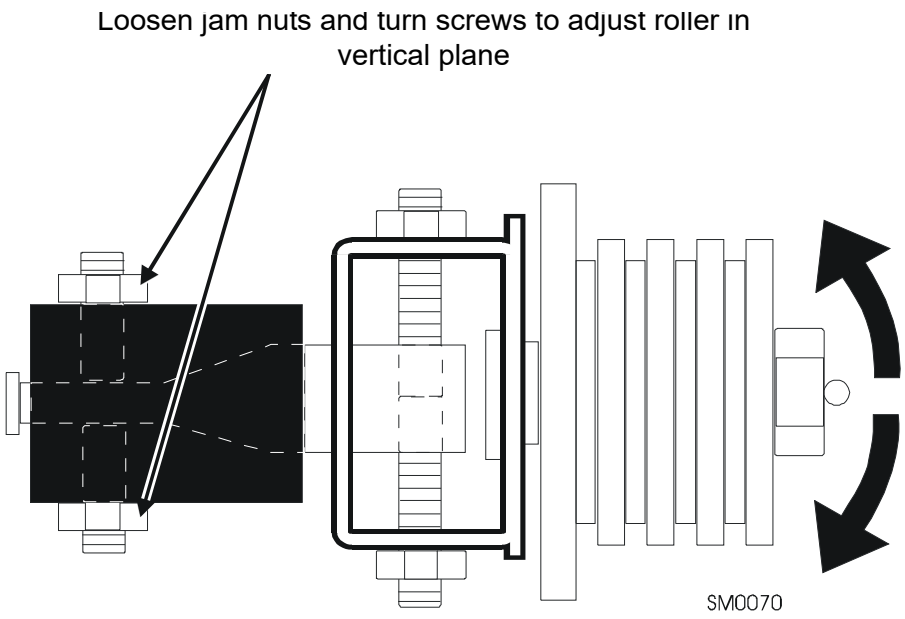



***FIG. 4-12***

6. Move the saw head in the cutting direction so the back end of the tool is over the bed rail. Measure the distance between the tool and the bed rail.

7. This measurement should equal the other two measurements taken. If it is not the same, adjust the blade guide using the screws shown in the figure above.

8. Move the tool close to the other blade guide and repeat the adjustment procedure described above.

   **NOTE:** If any adjustments to blade guide tilt were made, make sure the blade deflection is correct (3 mm).

   **NOTE:** After adjusting the blade guides, start the blade drive for a moment. Then stop the blade and recheck if the blade guides are properly positioned.

## 4.13 Blade Guide Spacing Adjustment

**HINT:** To adjust the spacing between the roller flange and the blade, loosen one top and one side set screw only. This will ensure horizontal and vertical adjustments to the blade guide tilt are maintained when the set screws are retightened.

1. Adjust the blade guide so the blade guide roller flange is approximately 1.5 - 3.0 mm from the back of the blade.

2. Loosen one side and one top set screw shown. Tap the blade guide forward or backward until properly positioned.

   **See Figure 4-13.**

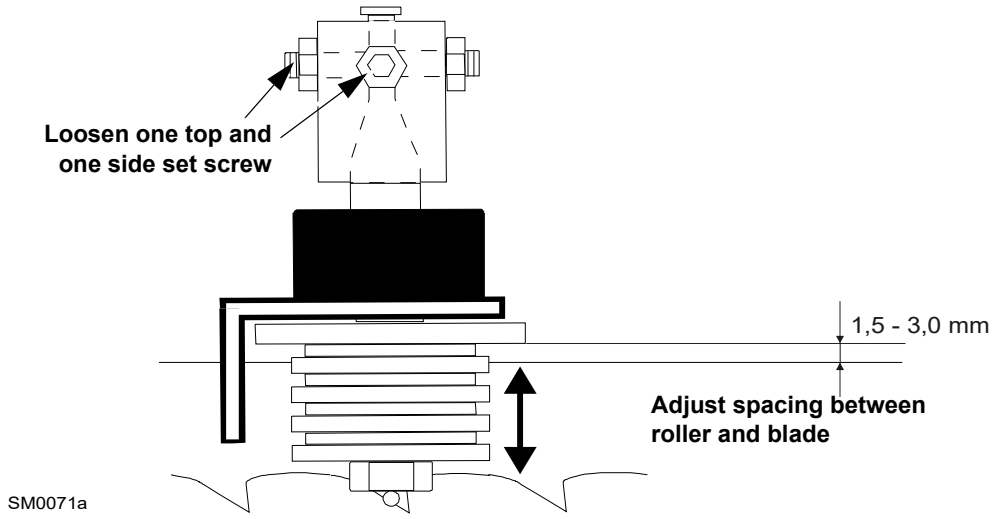



***FIG. 4-13***

3. Tighten the set screws.

4. Repeat Steps 1 - 3 for the other blade guide.

   **NOTE:** After adjusting the blade guide spacing, start the blade drive for a moment. Then stop the blade and recheck the spacing.

## 4.14 Blade Guide Horizontal Tilt

**See Figure 4-14.**

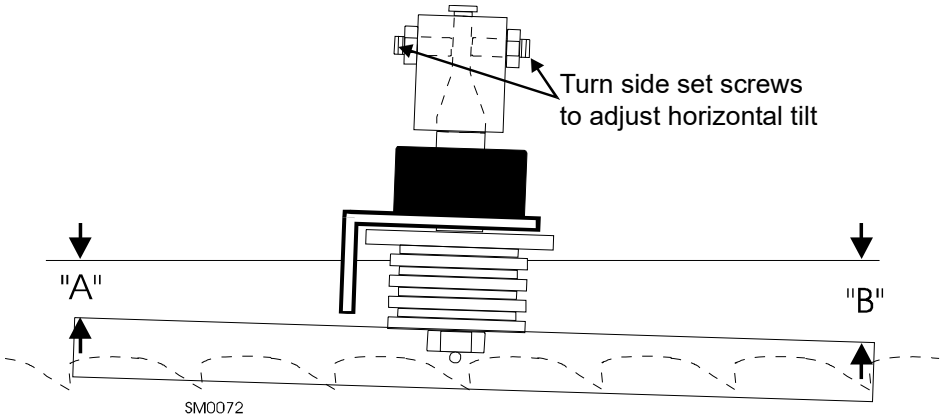



***FIG. 4-14***

1. Place the Blade Guide Alignment Tool against the face of a blade guide roller and center it on the roller as shown above.

2. Measure between the back edge of the blade and the tool at one end of the tool ("B").

3. Measure between the back edge of the blade and the other end of the tool ("A").

4. The blade guide roller should be parallel to the blade (A=B) or slightly tilted in the horizontal plane as shown in Figure 4-13 (A=B-6 mm). If this condition is not met, adjust the roller in the horizontal plane using the side set screws on the blade guide.

5. Repeat the above steps for the other blade guide.

   **NOTE:** Once the blade guides have been adjusted, any cutting variances are most likely caused by the blade.

## 4.15 Blade Height Scale Adjustment

After the entire sawmill has been aligned and all adjustments made, check that the blade height scale indicates the true distance from the blade to the bed rails.

**See Figure 4-15.**

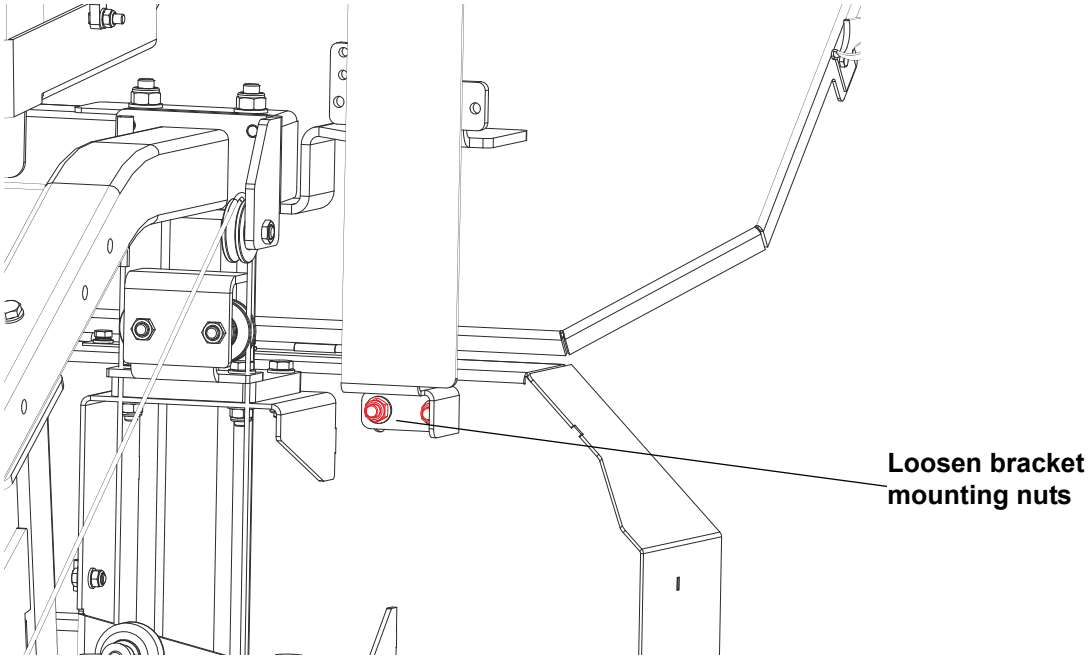



*FIG. 4-15*

1. Move the saw head so the blade is positioned directly above one of the bed rails. Measure from the bottom edge on a down-set tooth of the blade to the top of the bed rail.

2. Loosen the scale bracket mounting bolts and nuts, adjust the scale position until the scale indicator reads the distance measured in the previous step. Retighten the bracket mounting bolts and nuts.

   Example: if the measurement from blade to bed rail was 14 3/4" (375 mm), make sure the indicator reads 14 3/4" (375 mm) on the scale.

## 4.16 Engine/Motor Drive Belt Adjustment

1. On sawmills equipped with an electric motor, the drive belt is adjusted by adjusting the tensioner screw nuts (see the figure below).

   **See Figure 4-16.**

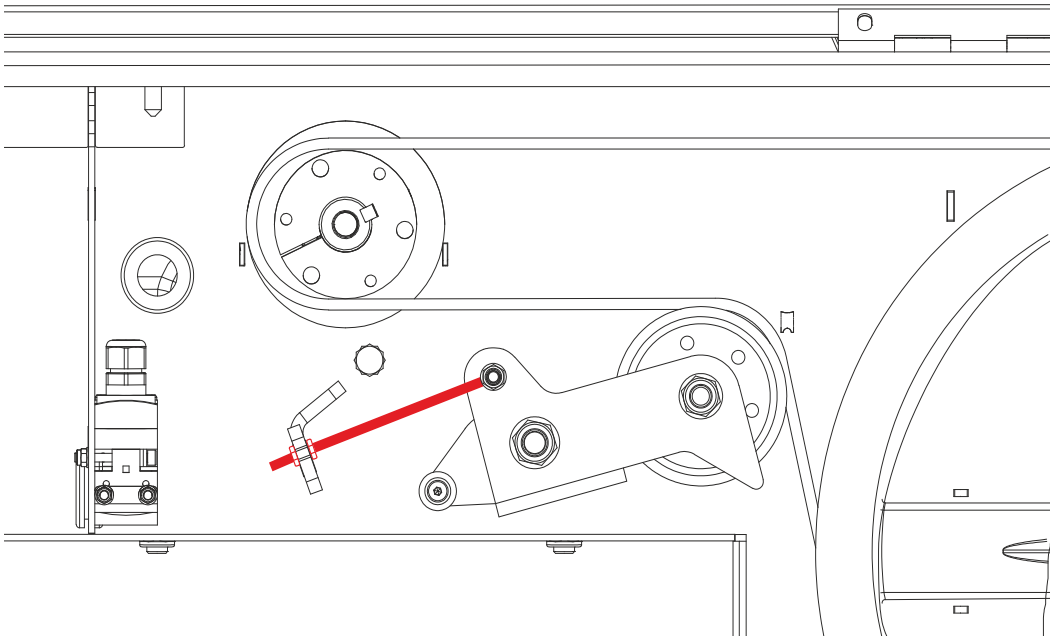


*FIG. 4-16*

2. To adjust the drive belt on sawmills with a gas engine, increase or reduce the steel cable connecting the tensioner handle with the belt tensioner. If necessary, adjust also the length of the throttle cable connecting the tensioner with the engine throttle. The drive belt is tensioned properly if the drive pulley is fully engaged when the tensioner handle is in the down position. The throttle cable is adjusted properly if the engine runs at full rotational speed when the tensioner handle is pushed down. When the tensioner handle is released, the engine should return to idle and the drive pulley should stop spinning.

**See Figure 4-17.**

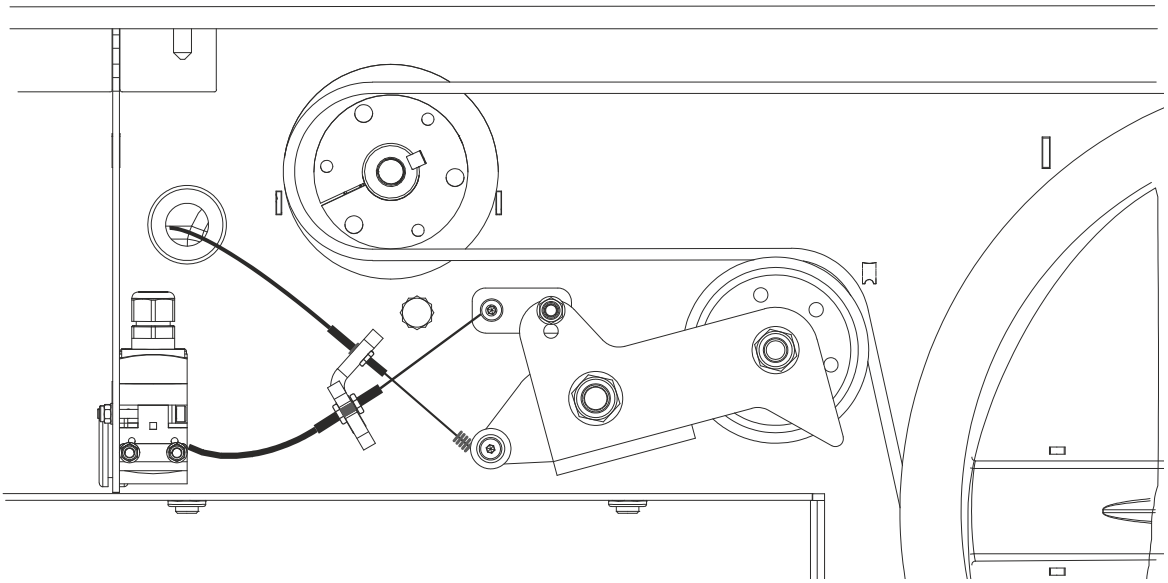


*FIG. 4-17*

## 4.17 Starting the Engine/Motor

See the engine/motor manual supplied with your machine for starting and operating instructions.

**IMPORTANT!** When starting the machine for the first time, check that main motor rotation direction is as indicated by the arrow located on the motor body. If the rotation direction is incorrect, invert the phases in the phase inverter located in the power socket. Setting the phases in the phase inverter correctly will ensure correct rotation directions of all sawmill motors (electric motor sawmill).

**DANGER!** Make sure all guards and covers are in place and secured/closed before operating the sawmill. Failure to do so may result in serious injury.

**DANGER!** Always be sure the blade is disengaged and all persons are out of the path of the blade before starting the engine or motor. Failure to do so will result in serious injury.

**WARNING!** Always wear eye, ear and foot protection as well as safety clothing when operating the sawmill. Failure to do so may result in serious injury.

## 4.18 Loading, Turning and Clamping Logs

**To Load a Log:**

1. Move the saw head to the front end of the frame.

   **CAUTION!** Before loading a log, be sure the saw head is moved far enough forward so the log does not hit it. Failure to do so may result in machine damage.

2. Lower the log clamp completely and move it toward the loading side of the sawmill frame.

   **CAUTION!** Be sure the log clamp is all the way down before loading a log onto the bed. Failure to do so may result in machine damage.

3. Raise the side supports on the sawmill bed to prevent the log from falling off the side of the bed.

4. Position the log parallel to the sawmill bed.

5. Use a cant hook to roll the log onto the sawmill bed. Position the log against the side supports.

   If your sawmill is not equipped with optional loading ramps, use other log loading equipment or boards to load a log onto the sawmill bed.

**To Turn a Log:**

1. Use a cant hook to spin the log against the side supports until it is turned the way you want it for the first cut.

**To Clamp a Log:**

1. Position the log clamps against the log, far enough down so they are below your cuts on a given side of the log. Using the clamp handle, move the log firmly against the side supports.

2. Be sure to leave the crank in the bottom position to avoid damage to the blade during sawing operation.

**See Figure 4-18.**

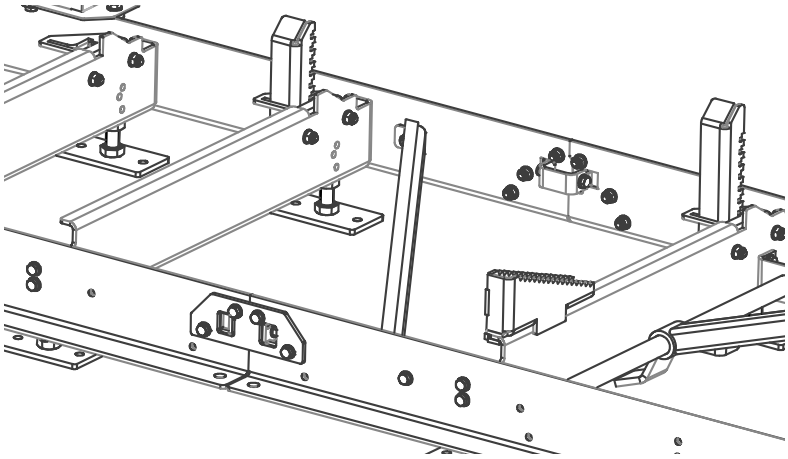


*FIG. 4-18*

3. Make sure the side supports are positioned low enough for the blade to pass over them. If they are not, back the clamp off slightly and push the side supports down until they are positioned below the height of your last cut on a given side of the log.

**To Level a Log:**

Shim one end of the log (e.g. using an optional leveling wedge) until the heart of the log measures the same distance from the bed at both ends of the log.

**See Figure 4-19.**

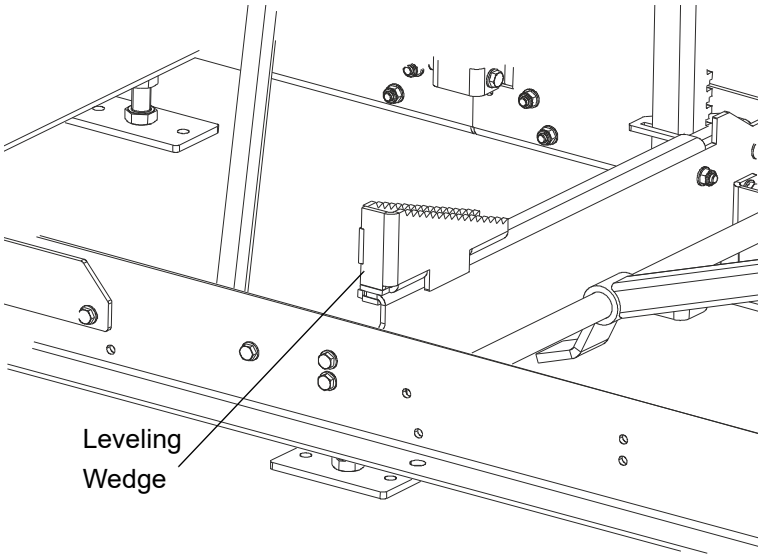



***FIG. 4-19***

## 4.19 Up/Down Operation

1. Install a blade, if needed, and check for correct blade tension (*See Section 4.4*).

2. Set the saw head to the desired height using the crank handle. (The blade height scale shows the blade height above the bed rails.)

   **See Figure 4-20.** Use the crank handle to raise or lower the saw head.

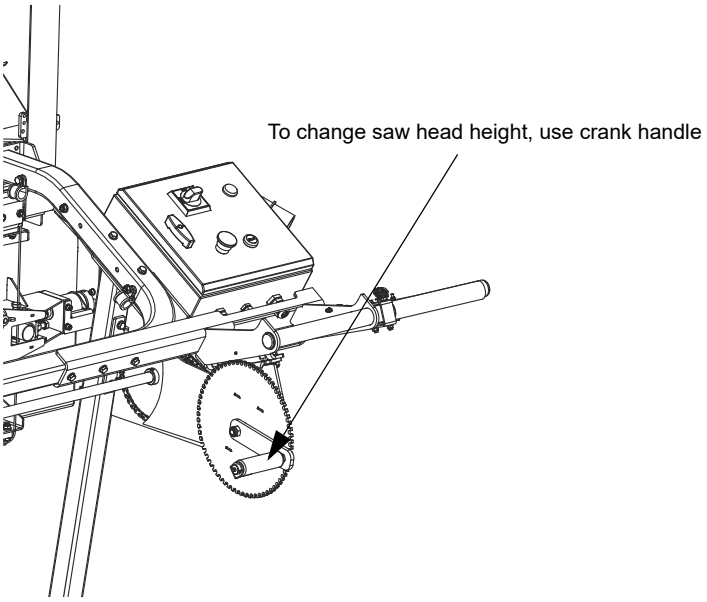



***FIG. 4-20***

**CAUTION!** DO NOT try to force the carriage above the 50 cm mark or below the 2.54 cm mark. Damage to the up/down system may result.

## 4.20 Blade Drive Operation

**DANGER!** Make sure all guards and covers are in place and secured/closed before operating the sawmill. Failure to do so may result in serious injury.

Be sure the blade housing cover is closed and secured before starting the engine or motor. Use the rubber latches to fasten the blade housing cover shut. If the blade housing cover is not closed and secured, the safety switch located on it makes starting the motor/engine impossible. If you open the cover during sawmill operation, the blade engine/motor will be stopped.

**For Sawmills with Electric Motors**

1. Clear any loose objects from the area of the blade, motor, and drive belt.
2. Make sure the clamp and side supports are positioned low enough for the blade to pass over them. Make sure the log is clamped securely.
3. Start the motor. To do this, turn the main switch to the ”I” position. Then manually engage the safety handle and start the feed by pressing the green button on the electric box.

**See Figure 4-21.**

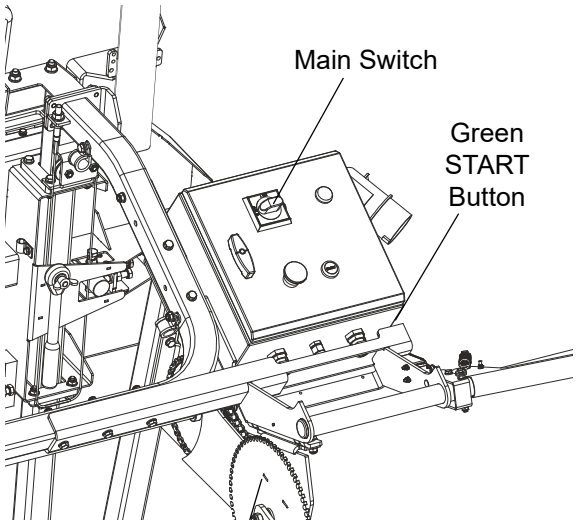



*FIG. 4-21*

**CAUTION!** If at any time you need to immediately stop the blade motor, press the emergency stop button located on the electric box.

## 4.21 Gas Engine Operation (G9, G14)

**WARNING!** Do not start the engine if the drive belt tensioner handle is ENGAGED. Always be sure the blade is disengaged and all persons are out of the path of the blade before starting the engine.

**IMPORTANT!** Read the engine manual for instructions and safety precautions before operating the engine.

1. Clear any loose objects from the area of the blade, engine, and drive belt.
2. Make sure the clamp and side supports are positioned low enough for the blade to pass over them. Make sure the log is clamped securely.

   **See Figure 4-22.**

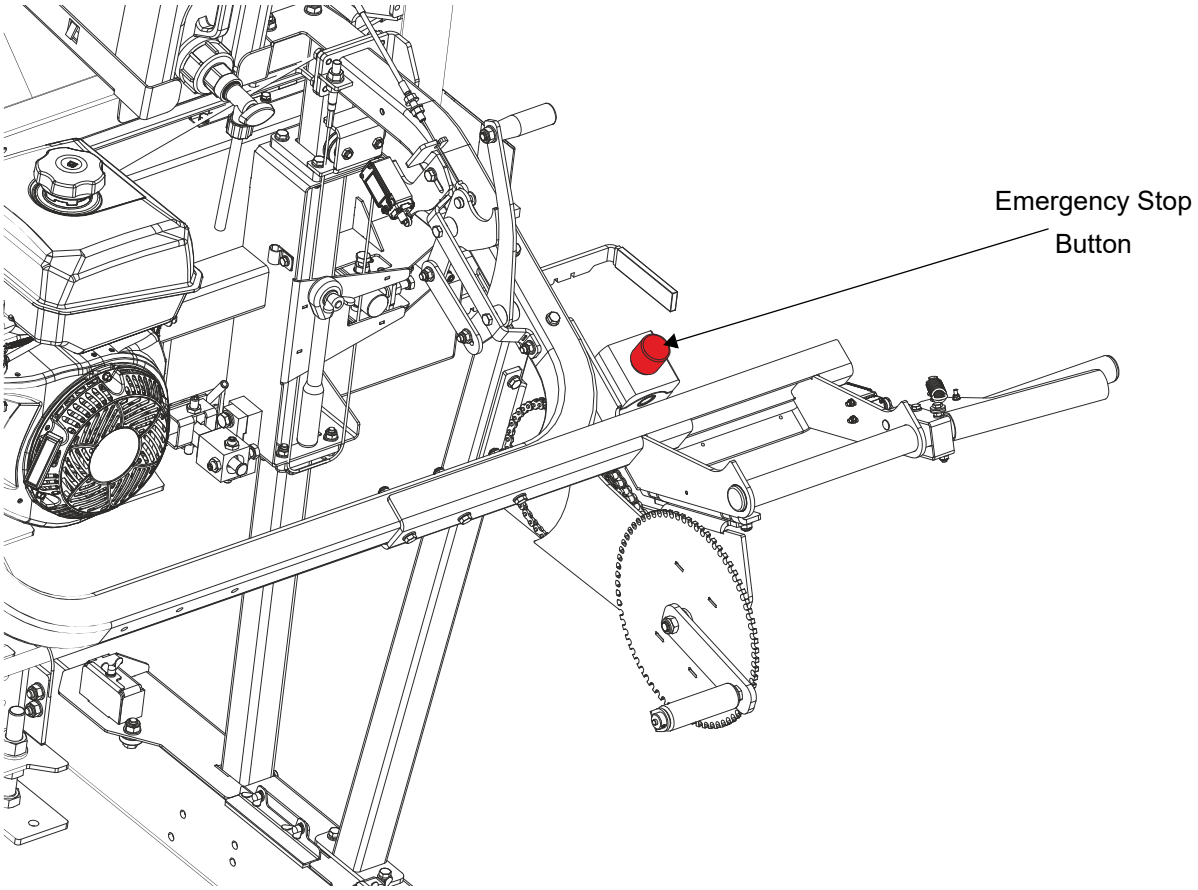



*FIG. 4-22*

**CAUTION!** If at any time you need to immediately stop the blade engine, press the emergency stop button located on the operator's handle.

3. Open the fuel supply valve and turn on the ignition by moving the ignition/fuel lever to position "ON".

4. **Cold engine:** Close the engine choke by moving the choke lever to position “ON”. Disengage the tensioner handle (by moving it away from you).

5. **Warm engine:** Disengage the tensioner handle (by moving it away from you). A warm engine usually does not require choke on.

6. Pull the engine starter cord slowly until you feel resistance, then pull the cord quickly to start the engine.

7. **Cold engine:** When the engine starts, slowly open the choke all the way by moving the choke lever to the “OFF” position.

8. Press and hold the safety handle (CE sawmills only).

9. Engage the tensioner handle by pushing it toward you as shown below.

   **See Figure 4-23.**

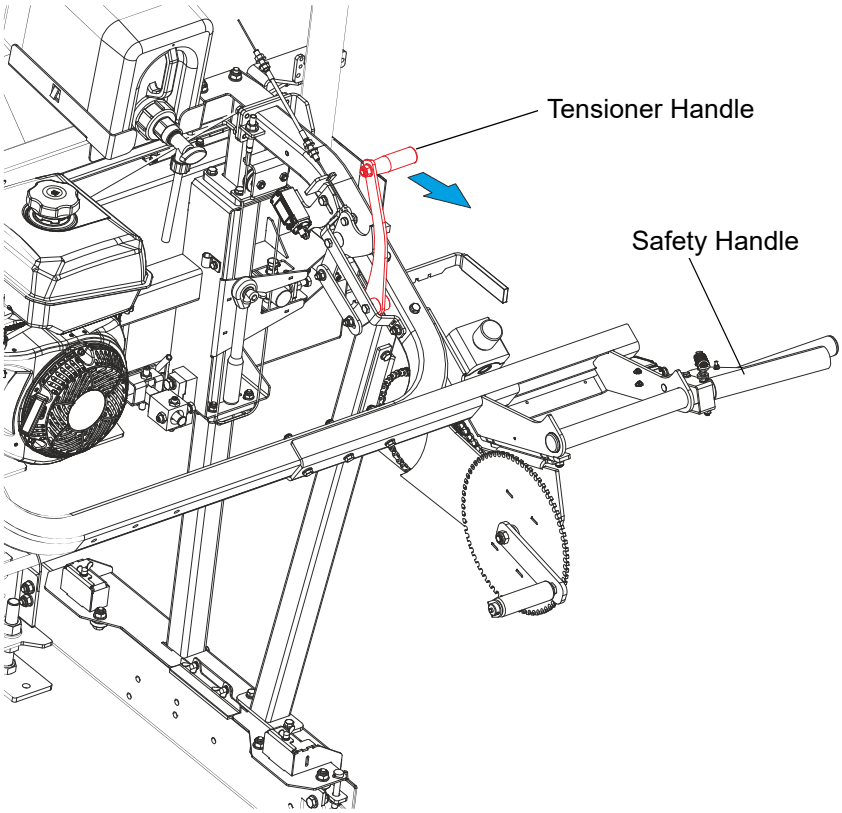



***FIG. 4-23***

**NOTE:** Let the engine to idle for about 1-3 minutes (depending on ambient temperature) to warm up the engine before starting the sawing operation.

**Engine Shutoff**

1. Disengage the tensioner handle (by moving it away from you) to stop the blade.

2. The engine should run with no load for 15 seconds. Stop the engine by moving the ignition/fuel lever to the ”OFF” position.

**CAUTION!** When stopping the engine, reduce the load slowly. Do not stop the engine suddenly as it may cause the engine temperature to raise abnormally.

## 4.22 Feed Operation

The feed operation is performed by pushing the saw head manually. The speed at which the saw head travels should be as steady as possible. Be sure the saw head will not hit any bed components while it is being moving forward or backward.

**HINT:** To get a straight cut in the first part of the log, feed the blade into the log at a slow speed. This stops the blade from flexing and dipping up or down. Use a slow speed until the whole width of the blade has entered the cut. Then increase the feed rate as desired. Maximum feed rate varies with width and hardness of the wood. Over-feeding results in blade and drive belt wear, and also produces a wavy cut.

**CAUTION!** Be sure to stop the blade when returning the saw head. This will not only prevent the blade from being pulled off and ruined by a wood sliver, but also will increase the life of the blade.

## 4.23 Cutting the Log

The following steps guide you through normal operation of the M120 sawmill.

1. Once the log is placed where you want it and clamped firmly, position the blade close to the end of the log.

2. Use the blade height scale to determine where to make your first cut. Set the blade to the desired height. Make sure that the blade will clear the clamp and side supports.

3. Make sure all covers and guards are in place and secured. Start the motor/engine.

4. Feed the blade into the log slowly. Once the blade completely enters the log, increase the feed rate as desired. Always try to cut at the fastest speed you can while keeping an accurate cut. Cutting too slowly will waste blade life and lower production!

5. As you get to the end of the log, slow down the feed rate. When the teeth exit the end of the log: release the safety handle to stop the blade (electric sawmill version), or disengage the tensioner handle and set the throttle lever in SLOW position (gas sawmill version). Remove the slab that you have just cut from the log.

6. Return the saw head to the front of the sawmill. Always disengage the blade before returning the saw head for the next cut.

7. Repeat until the first side of the log is cut as desired. Set aside the usable flitches (boards with bark on one or both sides). You can edge them on the mill later.

8. If the leveling wedge was used, remove it from the sawmill bed. Release the clamp and turn the log 90 or 180 degrees. Make sure the flat on the log is placed flat against the side supports if turned 90 degrees. Make sure it is placed on bed rails if turned 180 degrees. If the log was turned 90 degrees and it is necessary to level it on the bed, follow the leveling instructions in Section 4.14.

9. Repeat the steps used to cut the first side of the log until the log is square. Cut boards from the remaining cant by adjusting the blade height for the thickness of boards that you want.

   **Example:** Remember that the blade cuts a 2 mm (0,08") wide kerf. If you want 25 mm (1") thick boards, lower the carriage 27 mm (1 1/16") for each board.

## 4.24 Edging

The following steps guide you through edging boards on the Timbery sawmill.

1. Raise the side supports to 1/2 the height of the flitches, or the boards that need to be edged.
2. Stack the flitches on edge against the side supports.
3. Clamp the flitches against the side supports halfway up the flitch height. (Wider flitches should be placed to the clamp side. When they are edged, flip them over to edge the second side without disturbing the other flitches or without having to pull them from the middle of the stack.)
4. Adjust the blade height to edge a few of the widest boards.
5. Loosen the clamp and turn the edged boards over to edge the other side.
6. Repeat steps 2-4.
7. Loosen the clamp and remove the boards that have good clean edges on both sides. Clamp the remaining flitches and repeat steps 2-5.

## 4.25 Blade Height Scale

**See Figure 4-24.** The blade height scale is mounted on the vertical mast. It includes:

- a blade height indicator,
- a centimeter scale (or quarter inch scale).

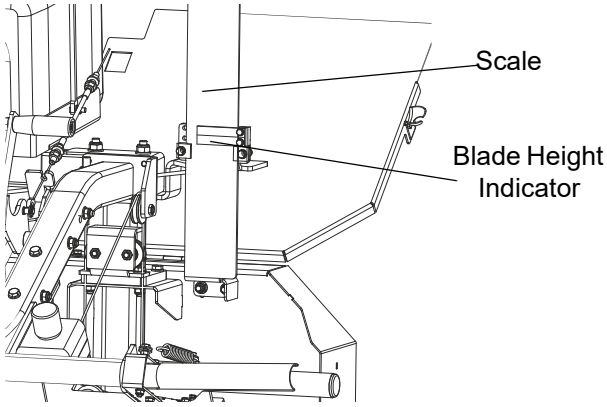



*FIG. 4-24*

### Blade Height Indicator

Readings should be taken with eyes level with the indicator. This will allow to avoid the parallax error (different scale readings depending on the angle of vision). The reading is correct when the upper edge of the indicator is in line with a mark on the scale.

### Scale

The blade height indicator shows how many centimeters the bottom of the blade is above the bed of the mill. If you know the height of your blade at each cut, you can determine the thickness of lumber you are sawing.

**Example:** You want to cut 25 mm random width boards from a log. Position the blade for the first cut. Move the saw head to an even measurement on the scale. Make a trim cut. Return the saw head for the second cut and lower it 27 mm below the original measurement. (The extra 2 mm allows for saw kerf and shrinkage of the lumber.)

## 4.26 Stop Bolt Adjustment

Adjust the saw head stop bolts so that the distance between the top of the bed rail and a down-set tooth of the blade is 25 mm. One of the stop bolts is shown below.

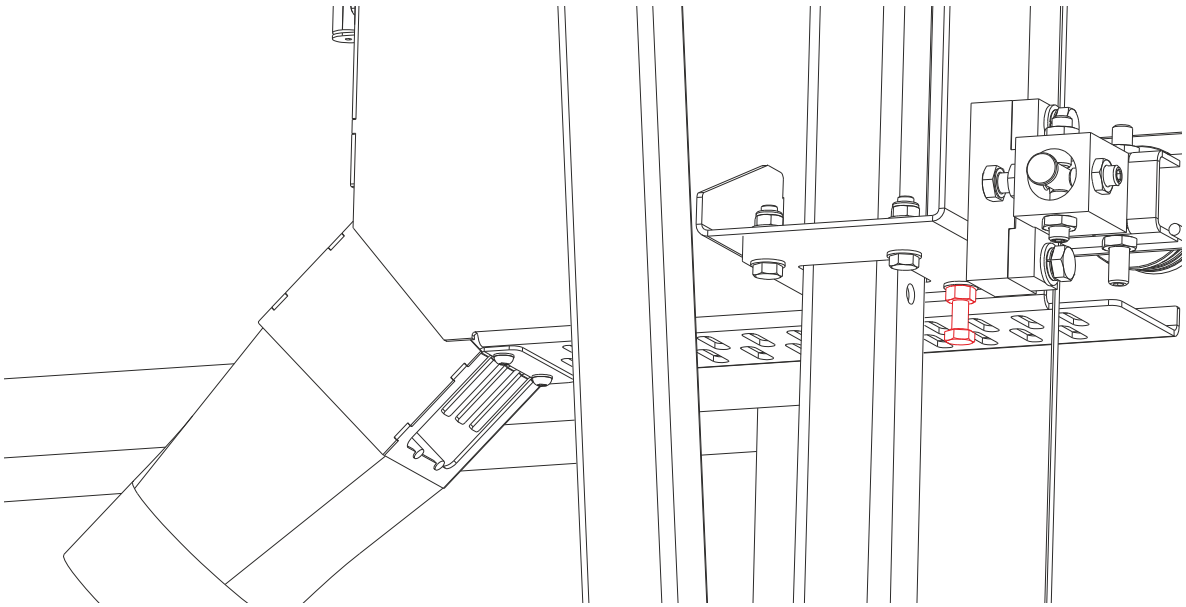


*FIG. 4-25*

## 4.27 Water Lube System

The Water Lube System keeps the blade clean during sawing. Water flows from a 5-gallon (18.9 liter) bottle through a hose to the blade guide where the blade enters the log. A valve in the bottle cap controls the amount of water flow.

**See Figure 4-26.** Open the valve on the water bottle to start water flow to the blade.

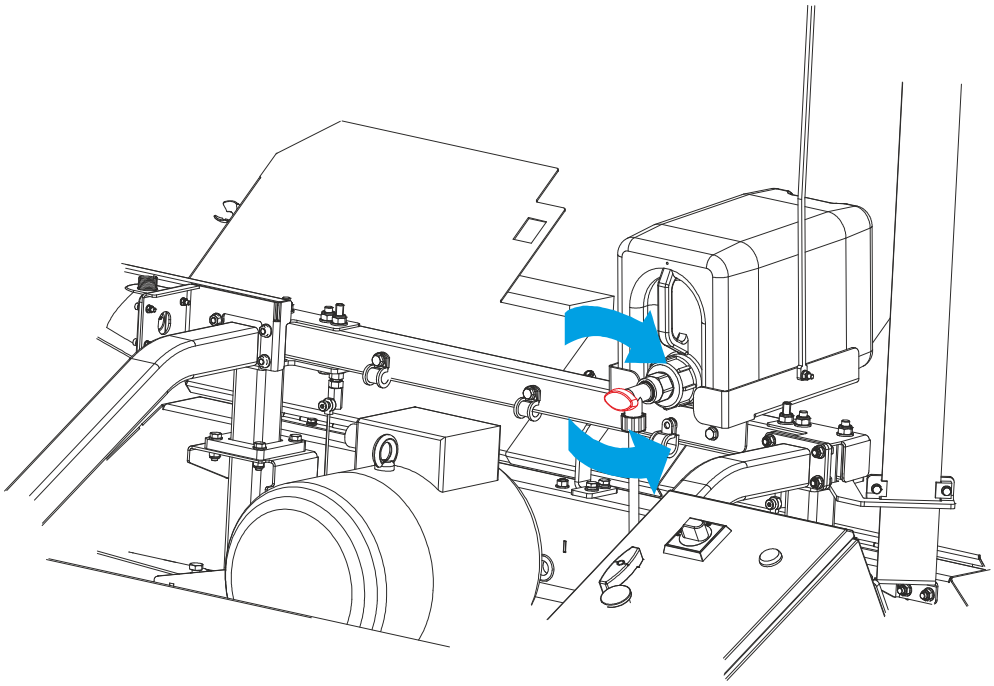


*FIG. 4-26*

Not all types of wood require the use of the Water Lube System. When it is needed, use just enough water to keep the blade clean. This saves water, and lowers the risk of staining the boards with water. Usual flow will be 1-2 gallons (3.8-7.6 liters) per hour. A squirt of liquid dishwashing detergent in the water bottle will help clean the blade when cutting wood with a high sap content.

**WARNING!** Use ONLY water with the water lube accessory. Never use flammable fuels or liquids. If these types of liquids are necessary to clean the blade, remove it and clean with a rag. Failure to do so may result in serious injury or death.

Before removing the blade, engage the clutch/brake lever (sawmills with a gasoline engine only). Let the blade spin with water running on it for about 15 seconds. This will clean the blade of sap buildup. Wipe the blade dry with a rag before storing or sharpening.

If you are sawing in freezing temperatures, remove the water lube bottle from the sawmill when done sawing and store it in a warm place. Blow any remaining water from the water lube hose.

## 4.28 Transporting the Sawmill

The assembled sawmill can be transported in an appropriately equipped pickup truck.

1. Move the saw head to one of the segments equipped with the stop block and secure it in place with the locking pin (see Section 3.7 Saw Head Installation, Step 5).

2. Divide the bed frame into the segments.

3. Slide the bed frame segments into the truck.

4. Use a forklift to load the saw head with the mast and bed segment into the truck and secure it with transport straps.

**WARNING!** Keep all persons out of the path of the saw head while loading and unloading the sawmill. Failure to do so may result in serious injury or death.

## 4.29 Troubleshooting Guide

**DANGER! Before performing any service to this machine, turn off the motor/engine and remove the key. Moving sawmill parts can cause serious injury or death.**

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| **Blades dull quickly** | Dirty logs | Clean or debark logs, especially on entry side of the cut |
| | When grinding teeth, heating too much and causing teeth to soften | Grind just enough metal to restore sharpness to the teeth. Use water/coolant while sharpening the blade. |
| | Poor sharpening techniques | Make sure the tips of teeth are sharpened properly. |
| **Blades break prematurely** | Rubber belts on blade wheels worn to a point that blade contacts metal pulley - look for shiny spots on edges of wheels. | Replace the blade wheel belts. |
| | Blade tension too tight | Tension blade to recommended specifications. (*See "Tensioning the Blade."*) |
| **Blade does not track right on wheels** | Blade wheel improperly adjusted | Readjust (*See "Tracking the Blade."*) |
| | Flat/worn blade wheel belts | Replace the belts. |
| **Drive belts wear prematurely or jump** | Engine/motor and drive pulleys out of alignment | Align pulleys. |
| **Boards thick or thin on ends or in the middle of board** | Stress in log which causes log to not lay flat on bed | After log has been squared, take equal cuts off opposing sides. Take a board off the top. Turn the log 180 degrees. Take a board off. Repeat, keeping the heart in the middle of the cant, and making it your last cut. |
| | Incorrect tooth set | Resharpen and reset blade. |
| | Bed rails misaligned | Realign the bed |
| **Height adjustment jumps or stutters when moving up or down** | Lift cable improperly adjusted | Adjust the lift cable. |
| | Vertical slide pads adjusted too tightly | Adjust pads |
| | Lift cable too loose | Replace/adjust the lift cable. |

| | | |
|---|---|---|
| **Lumber is not square** | Vertical side supports not square to bed | Adjust side supports. |
| | Blade not parallel to bed rails | Adjust bed rails. |
| | Sawdust or bark between log/cant and bed | Remove particles. |
| | Tooth set problem | Resharpen and reset blade. |
| **Sawdust builds up on track** | Excessive lubrication | Apply white lithium grease. |
| | Worn wipers | Adjust wipers to firmer contact track or replace them. |
| | Track is sticky | Clean track and apply silicone spray. |
| **Wavy cuts** | Excessive feed | Reduce feed rate. |
| | Improperly sharpened blade (This will be the problem 99% of the time!) | Resharpen blade. |
| | Blade guides improperly adjusted | Adjust blade guides. |
| | Sap buildup on blade | Use Water Lube. |
| | Tooth set problem | Resharpen and reset blade. |

# SECTION 5 MAINTENANCE

**WARNING! Before removing any covers or guards, always turn off the motor/engine and wait until all parts have stopped moving. Failure to do so may result in serious injury or death.**

## 5.1 Maintenance Activities Performed During Sawmill Operation

### *Mast Track, Rollers and Wipers*

Properly maintaining the mast track and rollers is critical in preventing corrosion that can cause pitting and scaling on the rail surfaces. Pitted and scaled surfaces can, in turn, cause rough cuts or jerky forward/backward movement of the saw head.

**CAUTION!** Keep the mast track free of rust. Formation of rust on the track can cause rapid deterioration of the track's surface.

Apply white lithium grease to the mast track. Oil lubrication will help protect the track from corrosive elements such as acid rain and moisture. This lubrication is also essential to maintain the integrity of the track and track rollers and to achieve long service life.

Make sure the track wipers touch the track and are free of sawdust buildup. *See Figure 5-1.*

**See Figure 5-1.**

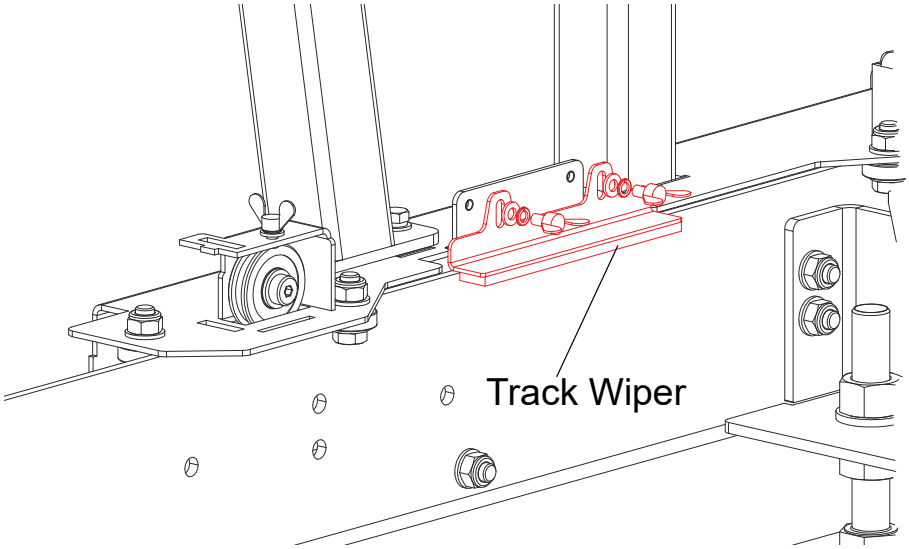



***FIG. 5-1***

After each use of the sawmill, remove sawdust from the track surfaces, bed rails and track rollers. Use a light-grade sandpaper or emery cloth to sand off any rust and other adhering particles from the rails. *See Figure 5-2.*

**See Figure 5-2.**

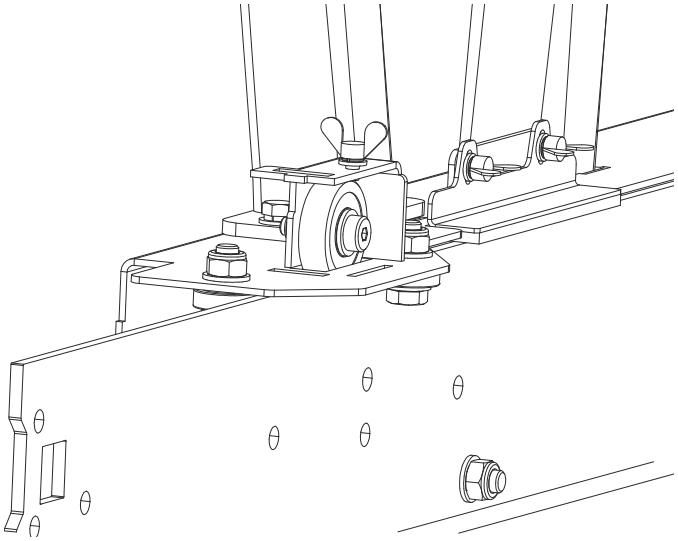


***FIG. 5-2***

## 5.2 General Maintenance

### *Daily (every 8 hours of sawmill operation)*

- Check the engine oil level. (See the Engine Manual.)
- Clean the track rollers, mast carriages and track wipers.
- After you have finished using the sawmill, lower the saw head all the way down so that the saw head rests on the stop bolts and the lift cables are not tensioned.
- Inspect the sawmill parts for damage.
- Open the blade housing cover and brush any sawdust buildup from the housing, cover and V-belts.

**See Figure 5-3.**

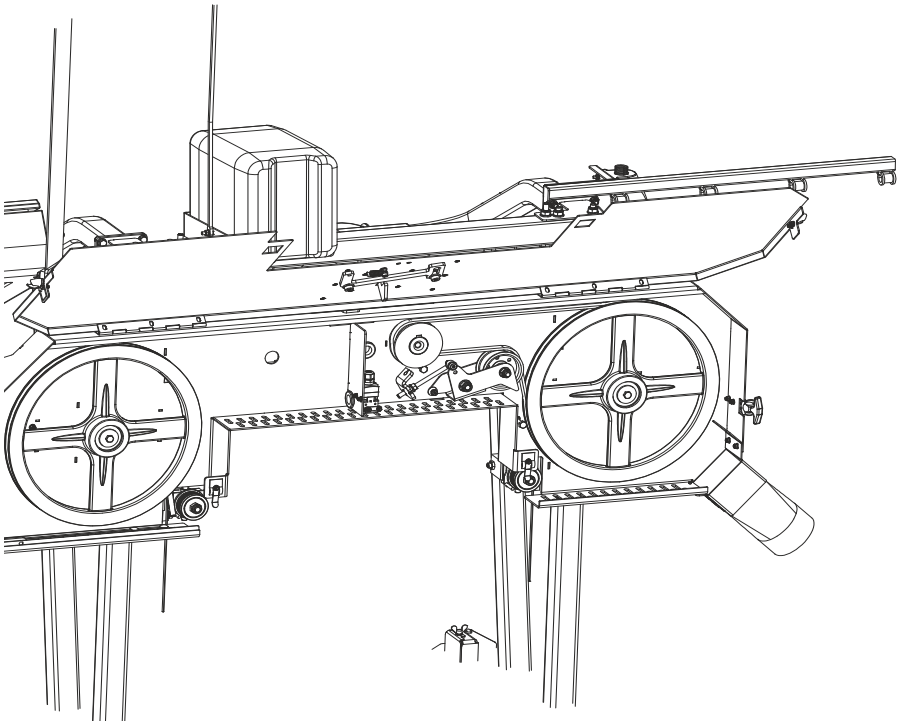


***FIG. 5-3***

## *Monthly (every 160 hours of sawmill operation)*

- Apply white lithium grease to the lift cables on both sides of the saw head.

**CAUTION!** Check if the lift cables are in good condition. If either lift cable is damaged, immediately replace it with a new one.

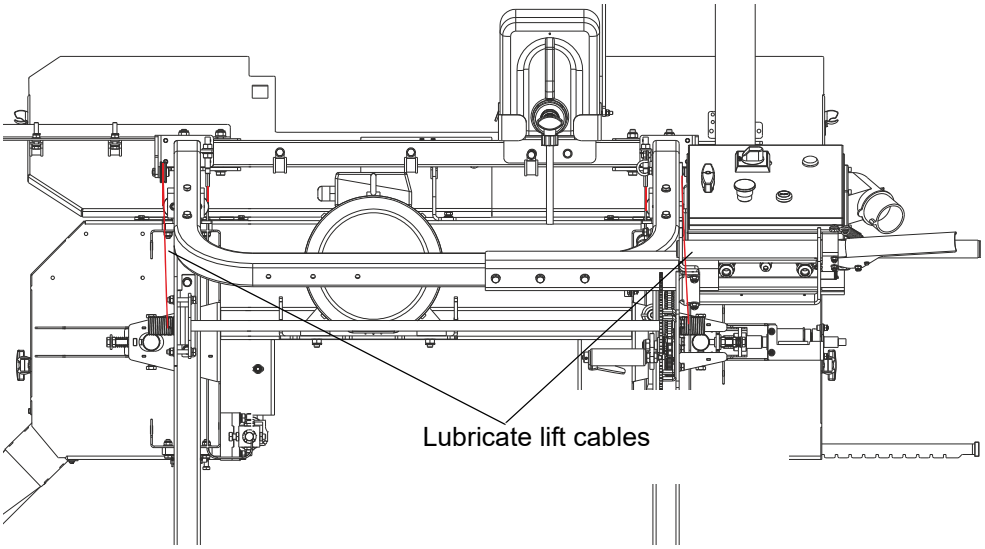



*FIG. 5-4*

## 5.3 Motor/Engine Maintenance

Refer to the motor/engine manufacturer's manual for maintenance intervals and procedures regarding the motor/engine.

# EC declaration of conformity

**according to EC Machinery Directive 2006/42/EC, Annex II, 1.A**

**Manufacturer:** Timbery Sp z o.o.; Nagórna 112; 62-600 Koło, Poland

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Following machine in our delivered version complies with the appropriate essential safety and health requirements of the EC Machinery Directive 2006/42/EC based on its design and type, as brought into circulation by us. In case of alteration of the machine, not agreed by us, this declaration is no longer valid.

**We, the undersigned herewith declare, that:**

| | |
|---|---|
| Designation of the machine: | **Sawmill** |
| Type: | M120 |
| No. of manufacturer: | …….. |
| **Is in conformity with the following EC directives:** | EC Machinery Directive 2006/42/EC<br>EC Electromagnetic Compatibility Directive 2014/30/EU |
| **And is in conformity with the following Harmonized Standards:** | PN-EN ISO 12100:2012<br>PN-EN 1807-2:2013<br>PN-EN ISO 14120:2016-03<br>PN-EN 349+A1:2010<br>PN-EN ISO 13849-1:2016-02<br>PN-EN 60204-1:2010<br>PN-EN ISO 13857:2010 |
| Notified Body according to annex IV: | Sieć Badawcza Łukasiewicz –<br>INSTYTUT TECHNOLOGII DREWNA<br>Centrum Weryfikacji Wyrobów Przemysłu Drzewnego<br>Winiarska 1, 60-654 Poznań |
| Notification No: | 1583 |
| Responsible for: | EC type examination |
| EC type - examination certyficate no: | 0706/2019 |
| Responsible for Technical Documentation: | Radosław Adamkiewicz / Product Manager<br>Timbery Sp. z o.o.<br>62-600 Koło, Nagórna 112, Poland<br>Tel. +48 63 26 26 047 |
| Place / Date / Authorized Signature: | Koło, 14.06.2019 Radosław Adamkiewicz |
| Title: | Product Manager |