Wood-Mizer® Battery Mill

Safety, Setup, Operation & Maintenance Manual

LT15-Battery Mill **rev. A1.00**

Safety is our #1 concern!

Form #2597

Models affected:

LT15B4W

WARNING! Read and understand this manual before using this machine.

California

Proposition 65 Warning

WARNING: Breathing gas/diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Always start and operate the engine in a well-ventilated area.
If in an enclosed area, vent the exhaust to the outside.
Do not modify or tamper with the exhaust system.
Do not idle the engine except as necessary.

For more information go to **www.P65warnings.ca.gov**.

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection.

For more information go to **www.P65Warnings.ca.gov/wood**.

Active Patents assigned to Wood-Mizer, LLC

Wood-Mizer, LLC has received patents that protect our inventions which are a result of a dedication to research, innovation, development, and design. Learn more at: *woodmizer.com/patents*

Wood-Mizer, LLC
8180 West 10th Street
Indianapolis, Indiana 46214

Table of Contents Section-Page

Wood-Mizer® LLC
Limited Product Warranty

Wood-Mizer

Wood-Mizer LLC ("Warrantor"), an Indiana corporation with its principal place of business at 8180 West Tenth Street, Indianapolis, IN 46214-2400 USA, warrants to the purchaser ("Purchaser") that for the time periods specifically stated herein and subject to the terms, conditions and limitations stated herein, the equipment manufactured by the Warrantor will be free from defects in material and workmanship attributable to Warrantor so long as, during the warranty periods stated herein, the equipment is installed, operated and maintained in accordance with the instructions provided by Warrantor.

PRODUCT	MODEL CLASS	LENGTH OF WARRANTY		EFFECTIVE DATE
		USA & CANADA	NON USA & CANADA	
Portable Sawmills, Resaws, Edgers	LT, LX, HR, EG	Two years	One year	Date of purchase
Portable Sawmills with Chassis	LT28, LT35, LT40, LT50, LT70, LX450	Two years, excluding the chassis, which chassis shall have a five year warranty	One year	
Industrial Sawmills, Resaws, Edgers	WM, HR, EG, TVS, SVS	One year	One year	Date of purchase or date of installation / training (if applicable), whichever occurs first, not to exceed 6 months from date of purchase
TITAN Industrial	WB, TV, HR, EG, EA, MR	One year	One year	
Material Handling	TWC, IC, TD, LD, GC, CR, CB, CC	One year	One year	
Blade Maintenance Equipment	BMS, BMT, BMST	One year	One year	Date of purchase
Options and Accessories	Various	One year*	One year*	
Moulders, Extractors	MP, MD	Two years	One year	
Kilns	KS, KD	One year	One year	
Slab Flattener	MB	Two years	One year	
Pallet Equipment	PD, PC	One year	One year	
Log Splitters	FS	One year	One year	
Replacement Parts	Various	90 days	90 days	

* Warranty on Options will match the warranty on the primary equipment when purchased on same invoice.

Exclusions from 90 Day, Limited One Year and Two Year Warranty

Warrantor shall have **no** responsibility under this warranty for any wear components, including, but not limited to: belts, blade guides, blades, electric motor brushes, drum switches, filters, fuses, hoses, bearings (excluding cylindrical drive bearings), bushings, cable carriers, and spark plugs. All wear components are furnished **"as is"**, without any warranty from Warrantor. This limited warranty does not cover any defects caused by misuse, negligence, alterations, damage due to overload, abnormal conditions, excessive operation, accident, or lack of performance of normal maintenance services.

Several components which are used in the manufacture of the equipment but not manufactured by Warrantor such as cant hooks, power plants, laser sights, batteries, tires, and trailer axles have warranties provided by the original equipment manufacturer (written copies available upon request). Warrantor does not separately warrant such items. Components or equipment manufactured by third parties are not covered by this warranty. Warrantor, however, will provide reasonable assistance to the Purchaser to make claims against any warranties applicable to such component parts as provided by such original equipment manufacturers. Components or equipment manufactured by third parties are not covered by this Warranty.

Five Year Limited Chassis Warranty

The limited five year chassis warranty described above, DOES NOT extend to (a) any damage stemming from accident, improper towing, overload, abuse, misuse, abnormal conditions, negligence, excessive operation, or lack of maintenance, (b) rust caused by exposure to corrosive atmospheric conditions, or (c) the sawmill head, carriage, axle, brakes, or any hydraulic or electrical components attached to the chassis.

Warrantor's Obligations as To Defects

In the event that the equipment fails to perform due to defective materials or workmanship attributable to Warrantor under normal use and service within the established warranty period, Purchaser's sole and exclusive remedy and Warrantor's sole liability shall be to replace or repair, in Warrantor's sole and subjective discretion, any defective part at Warrantor's principal place of business without cost to the Purchaser if such defect exists. The determination of whether a product is defective shall be made by Warrantor in Warrantor's sole and subjective discretion. The Purchaser must notify Warrantor prior to shipping any defective part. Warrantor, at its sole discretion, may cover expenses incurred in shipping the defective part to Warrantor for evaluation; provided, however, that Warrantor will not be responsible for labor, travel time, mileage, removal, installation or incidental or consequential damages. However, any part in excess of 140 pounds must be returned by the Purchaser, to the Warrantor's nearest authorized facility at the Purchaser's expense, if return is requested by Warrantor. Warrantor shall have a reasonable time within which to replace or repair the defective part. If Warrantor determines that the product is not defective under the terms of this warranty in Warrantor's sole and subjective discretion, then Purchaser shall be responsible for any expenses incurred by Warrantor in returning the equipment to the Purchaser.

Limitations and Disclaimers of Other Warranties

EXCEPT FOR THE EXPRESS WARRANTY PROVISIONS STATED ABOVE, WARRANTOR DISCLAIMS ALL WARRANTIES, EXPRESS AND/OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT AND TITLE. No representation or other affirmation of fact by representatives of Warrantor, whether verbal or in writing, including photographs, brochures, samples, models, or other sales aids, shall constitute a warranty or other basis for any legal action against Warrantor. There are no other representations, promises, agreements, covenants, warranties, guarantees, stipulations or conditions, express or implied, by Warrantor except as expressly set forth herein. THE ORIGINAL PURCHASER AND ANY INTENDED USER OR BENEFICIARY OF THIS EQUIPMENT, SHALL NOT BE ENTITLED TO RECOVER ANY INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, CONSEQUENTIAL, SPECIAL, OR INCIDENTIAL DAMAGES OR LOSES, INCLUDING BUT NOT LIMITED TO, DAMAGES OF LOST PRODUCTION, LOST REVENUE, LOST PRODUCT, LOST PROFITS, LOST BUSINESS, LOSS OF USE, LOSS OF GOODWILL, OR BUSINESS INTERRUPTION, FROM WARRANTOR FOR ANY REASON WHATSOEVER INCLUDING WITHOUT LIMITATION WARRANTY OR DEFECT IN THE PRODUCT REGARDLESS OF THE SOLE, JOINT AND/OR CONCURRENT NEGLIGENCE, BREACH OF CONTRACT, BREACH OF WARRANTY, STRICT LIABILITY IN TORT OR STATUTORY CLAIMS OR OTHER LEGAL FAULT OR RESPONSIBILITY OF EITHER WARRANTOR OR PURCHASER OR ITS EMPLOYEES OR AGENTS. Warrantor does not warrant that its equipment meets or complies with the requirements of any particular safety code or governmental requirements.

Defective items replaced under the terms of this warranty become the property of Warrantor.

Design Changes

Warrantor reserves the right to change the design of its products from time to time without notice and without obligation to make corresponding changes in or to its products previously manufactured.

Rights of Purchasers

The validity and effect of this limited warranty as well as its interpretation, operation and effect, shall be determined exclusively by the principles of law and equity of the State of Indiana, USA. This limited warranty gives Purchaser specific legal rights. Purchaser may also have other rights, which may vary from state to state. Some states may not allow limitations as to the duration of implied warranties or to the exclusion or limitation of incidental or consequential damages, so some of the limitations and exclusions detailed set forth above may not apply. In the event that any one or more of the provisions of this warranty shall be or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this warranty shall not be affected thereby.

Interpretations

This Warranty constitutes the entire warranty agreement between Warrantor and Purchaser and supersedes any prior understandings or agreements pertaining to the same subject matter. This warranty cannot be amended except in writing which refers to this warranty which is signed by both Warrantor and Purchaser.

SECTION 1 INTRODUCTION

1.1 About This Manual

This manual replaces any previous information received on your Wood-Mizer® equipment.

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

1.2 Getting Service

For contact information, sales, service, parts, and additional manuals, sign into your account on *https://woodmizer.com*, or call inside the USA: 1-800-553-0182 or from outside the USA: 317-271-1542

1.3 Specifications

Equipment specification are included in the Online Manuals, which are found at *https://apps.woodmizer.com/Manuals/Manuals.aspx?parent=0.*

1.4 Options and Accessories

Your Wood-Mizer product may have options that can be added to the machine or accessories available to purchase. Different power configurations are also available.

Option: Your specific product can have accessories installed at the factory, or installed in the field. For example, a sawmill might have a debarker or power-feed option.

Accessory: Your specific product may have accessories added to the machine that are not available to be installed at the factory. They may only be installed in the field. For example, a sawmill might have a bed extension or a Shingle/Lap Sider accessory.

Power Options: Your specific product power option is detailed based on the specific product number purchased.

This product has the following options available:

Document	Name	Type
2432	LT15TRG2W Wide Trailer	Accessory
1337	Lathe-Mizer	Accessory
2100	Cookie Mizer	Accessory
1308	Lathe-Mizer Tenon Kit	Accessory
903	Shingle Lap Sider	Accessory

SECTION 2 GENERAL SAFETY

2.1 Safety Symbols

The following symbols and signal words call your attention to instructions concerning your personal safety. Be sure to observe 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, could result in serious injury or death.

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

NOTICE indicates vital information.

2.2 Safety Instructions

OWNER/OPERATOR'S RESPONSIBILITY

The procedures listed in this manual may not include all ANSI, OSHA, or locally required safety procedures. **It is the owner/operator's responsibility and not Wood-Mizer LLC to ensure all operators are properly trained and informed of all safety protocols.** Owner/Operators are responsible for following all safety procedures when operating and performing maintenance to the equipment.

Observe ALL Safety Instructions

NOTICE Read the entire Operator's Manual before operating this equipment.

Note all safety warnings throughout this manual and those posted on the machine.

Be able to access this manual at all times while operating this equipment.

Read additional manufacturer's manuals and observe their applicable safety instructions.

Only persons who have read and understood the entire operator's manual should operate this equipment.

This equipment is not intended for use by or around children.

It is the owner/operator's responsibility to comply with all applicable federal, state, and local laws, rules, and regulations regarding the ownership, operation, and transporting your equipment.

Operators should become thoroughly familiar with and comply with these applicable laws for operating and transporting equipment.

WARNING! Clean sawdust from all guards, vents, control boxes, or any area where sawdust may gather **after every shift**. Failure to do so may result in fire, causing death or serious injury.

WEAR SAFETY CLOTHING

WARNING! Secure all loose clothing and jewelry before operating the equipment.

Always wear eye, ear, and foot protection when operating or servicing the equipment.

Wear hand protection while servicing the equipment blades.

Wear respiratory protection when sawing woods that require it.

HANDLE LUBRICANTS SAFELY

WARNING! Do not use flammable fuels or liquids such as diesel fuel. Use ONLY water and Wood-Mizer Lube Additive with the water lube accessory.

MILL SETUP

DANGER! Do not operate the mill without **all** covers and guards in place.

WARNING! Set up the mill on solid, level ground.

Use a minimum of three people (four recommended) to safely load or unload the sawmill from a pickup truck.

Do not lift the sawmill using ropes, cables or chains, etc. The weight is off balanced and may cause the mill to fall.

Keep all persons out of the area between the frame rails while loading and unloading the sawmill.

CHECK SAWMILL BEFORE OPERATION

DANGER! Ensure all guards and covers are in place and secured before operating or towing the sawmill.

Use the safety retainer pin and cable to fasten blade housing covers.

KEEP PERSONS AWAY

DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs.

Ensure the blade is disengaged and all persons are out of the path of the blade before starting the motor.

KEEP HANDS AWAY

DANGER! Remove power before clearing debris or any other maintenance activity.

Disengage the blade and shut off the sawmill motor before changing the blade.

WARNING! Avoid contact with any hot parts (motors).

Allow the system to cool sufficiently before beginning any service function, including debris removal.

Avoid contact with sharp edges of the cutting blades.

Stay a safe distance from rotating members (shafts, pulleys, fans, etc.) and ensure loose clothing or long hair does not engage rotating members

Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

Do not adjust the motor drive belt with the motor running.

Keep hands, feet, etc., clear of exiting sawdust chute when operating sawmill.

UP/DOWN SYSTEM SAFETY

WARNING! Secure the saw head with a chain with a minimum of 1900 lbs. working load capacity before adjusting the up/down system.

KEEP SAFETY LABELS IN GOOD CONDITION

NOTICE Ensure that all safety decals are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact your local distributor, or call your Customer Service Representative to order more decals.

NOTICE If replacing a component that has a safety decal affixed to it, ensure the new component also has the safety decal affixed.

KEEP MILL AND AREA AROUND MILL CLEAN

WARNING! Maintain a clean and clear path for all necessary movement around the mill and material stacking areas.

Do not allow children in the area of the mill. Failure to follow this may result in death or serious injury.

DISPOSE OF WOOD BY-PRODUCTS PROPERLY

NOTICE Properly dispose of all wood by-products, including sawdust, chips, and other debris, including operation waste such as oil, filters, etc.

WORKING WITH BATTERIES AND CHARGING DEVICES

DANGER! The battery units must be used for powering the LT15-Battery Mill only. The battery units must not be opened, dismantled, or mechanically damaged in any way. Overvoltage, wrong wiring, reverse polarity of the terminals, or short circuits between the terminals can damage the battery unit, which can be extremely dangerous.

NOTICE The hazard symbols and safety instructions on the battery label must be observed, and must never be removed from the battery. The safety instructions specified in this manual must also be observed.

WARNING! The battery units must never be short circuited. If several batteries are stored in the battery compartment, it must be ensured that the batteries cannot short circuit each other. It must also be ensured that the batteries cannot be short circuited by any other electroconductive objects.

NOTICE The battery units must be kept in the original package before being used. Before inserting the battery units into the battery compartment, the system must be turned off.

NOTICE During storage, the battery units must be protected from direct sunlight and kept away from the flammable materials.

NOTICE In case of exceptional temperature rise of the battery units during operation, the battery units must be disconnected and removed from the machine. Please report it to the Customer Service Department immediately.

CAUTION! If the temperature of the battery unit is too high while charging, the charging process should be stopped immediately.

WARNING! In case of battery leakage, the leaking electrolyte must never come into contact with skin or eyes. In case of skin contact, the affected area has to be cleaned with water and soap immediately. In case of eye contamination, the affected eye must be thoroughly rinsed with clean water immediately. In both cases, a doctor must be consulted without delay. If the electrolyte is swallowed, a doctor must be consulted immediately.

WARNING! Do not put the battery unit on the ground, metal plate, electrically conductive materials, or a wet floor. Instead, place it on a clean, not conductive and dry surface, making sure not to soil the battery terminal on the bottom face.

WARNING! It is imperative that the battery unit is not subjected to any form of mechanical damage. This includes but is not limited to: impacts, punctures, crushing, bending, or exposure to high levels of vibration. Mechanical damage can compromise the structural integrity of the battery unit and cause internal damage, leading to safety hazards such as leakage or combustion. Even minor damage to the battery can have serious consequences, and it is essential to handle the battery with care and avoid exposing it to any situation that could potentially damage it.

WARNING! To extinguish a burning battery unit, any type of extinguisher can be used, preferably an ABC (Multi-Purpose) powder extinguisher. In case of fire, turn off the power and, if possible, remove the battery from the fire area, then alert the fire department. Fire residues must be inspected by a specialist and disposed of accordingly. Take persons out of the danger zone immediately and alert the fire department/police.

WARNING! In case of flooding, switch off the power supply to the battery, and dispose of the flooded battery according to legal requirements.

DANGER! Batteries expel explosive gases; keep sparks, flames, burning cigarettes, or other ignition sources away at all times. Failure to follow this will result in serious injury or death.

WARNING! Always wear safety goggles and a face shield when working near batteries. Failure to follow this could result in serious injury or death.

Charge the battery in a well ventilated area. Failure to follow this could result in serious injury or death.

Do not attempt to charge a frozen battery. Failure to follow this could result in serious injury or death.

CAUTION! Do not overcharge the battery. Overcharging may reduce the overall service life of the battery.

NOTICE After charging the batteries, extract them from the charging cradle.

NOTICE Always remember to extract the battery units from the battery compartment before transporting the sawmill.

2.3 Electrical Lockout Procedures

RULES FOR USING LOCKOUT PROCEDURE

WARNING! The equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch or valve bearing a lock.

LOCKOUT PROCEDURES MUST BE USED DURING, BUT NOT LIMITED TO:

- Changing or adjusting blades
- Unjamming operations
- Cleaning
- Mechanical repair
- Electrical maintenance
- Retrieval of tools/parts from work area
- Activities where guards or electrical panel guard is open or removed

MAINTENANCE HAZARDS INCLUDE, BUT NOT LIMITED TO:

- Blade contact
- Pinch points
- Kickbacks
- Missiles (thrown blades/wood chips)
- Electrical

FAILURE TO LOCKOUT MAY RESULT IN, BUT NOT LIMITED TO:

- Cut
- Crush
- Blindness
- Puncture
- Electrocution
- Serious injury and death
- Amputation
- Burn
- Shock

TO CONTROL MAINTENANCE DANGERS:

- Lockout procedures must be followed (see **OSHA regulation 1910.147**).
- Never rely on machine stop control for maintenance safety (emergency stops, on/off buttons, interlocks).
- Do not reach into moving blades or feed systems. Allow all coasting parts to come to a complete stop.
- Electrical power supply and air supply must both be locked out.
- Where established lockout procedures cannot be used (electrical troubleshooting or mechanical dynamic troubleshooting), alternative effective protective techniques shall be employed which may require special skills and planning.
- Always follow safe operations practices in the workplace.

EQUIPMENT LOCKOUT PROCEDURE

Lockout procedures per OSHA regulation 1910.147, appendix A:

GENERAL

The following simple lockout procedure is provided to assist owner/operators in developing their procedures so they meet the requirements of **OSHA regulation 1910.147**. When the energy isolating devices are not lockable, tagout may be used, provided the owner/operator complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the owner/operator must provide full operator protection (see OSHA regulation 1910.147, paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented, and utilized.

PURPOSE

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before personnel perform any servicing or maintenance where the unexpected enervation or start-up of the machine or equipment or release of stored energy could cause injury.

COMPLIANCE WITH THIS PROGRAM

All personnel are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized personnel are required to perform the lockout in accordance with this procedure. All operators, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

SEQUENCE OF LOCKOUT

1. Notify all affected personnel that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

2. The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

4. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

5. Lock out the energy isolating device(s) with assigned individual lock(s).

6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, steam, or water pressure, etc.) must be dissi-

pated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

CAUTION! Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

8. The machine or equipment is now locked out.

RESTORING EQUIPMENT TO SERVICE

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all personnel have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout devices and re-energize the machine or equipment.

   NOTE: The removal of some forms of blocking may require re-enervation of the machine before safe removal.

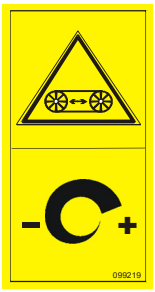
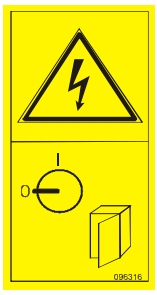
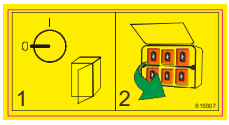
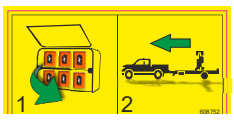
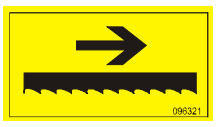
5. Notify affected personnel that the servicing or maintenance is completed and the machine or equipment is ready for use.

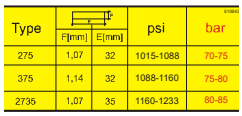
PROCEDURE INVOLVING MORE THAN ONE PERSON

In the preceding steps, if more than one individual is required to lock out the equipment, **each shall place his own personal lock on the energy isolating devices.**

2.4 Safety Labels Description

See table below for safety labels description.

Label View	Description
	096317 CAUTION! Read and understand operator's manual before handling the machine.
	099220 Close guards prior to operating the machine
	099219 Blade tension. Turning the bolt clockwise will increase the blade tension, and turning the bolt counterclockwise will decrease the tension.
	099221 CAUTION! Keep all persons away from the machine during sawmill operation.
	096316 CAUTION! Do not open or close the electric box when the switch is not in the "0" position.
	615007 CAUTION! Make sure that the switch on the electric box is in the "0" position and extract the battery units from the battery compartment before opening the electric box.
	608752 Extract the battery units from the battery compartment before transporting the sawmill.
	096321 Blade movement direction.

Label View	Description
	510643 Blade tension indicator

SECTION 3 SAWMILL ASSEMBLY

DANGER! COILED BLADES ARE UNDER SPRING TENSION. KNOW PROPER BLADE HANDLING BEFORE UNPACKING YOUR BLADE. FAILURE TO FOLLOW THIS WILL RESULT IN SERIOUS INJURY.

READ THE PAMPHLET THAT CAME WITH YOUR MILL OR WATCH THE VIDEO ON SAWMILL BLADES BEFORE REMOVING THE BLADE FROM THE BOX.

HOW TO COIL, UNCOIL, AND INVERT A BLADE

NOTICE The sawmill is shipped properly secured to the pallet. Before starting sawmill assembly, remove the shipping brackets and bolts securing the saw head to the mast.

3.1 Leg Assembly

NOTE: If assembling the sawmill to an LT15 trailer, skip this section 3.1. Refer to the trailer option manual for assembly instructions then return to section 3.2 when instructed to complete sawmill assembly.

1. Place a hex nut on each leg approximately half way down the shaft.
2. Slide the outrigger (nut keeper) plate into the mounting bracket.
3. Position the square nut between the plate and the bracket.
4. Thread each leg through the bracket, the square nut, and the plate. (See FIG. 3-1.)
5. Tighten the hex nut around the leg bracket (requires 1 5/16” wrench).
6. Assemble four legs to each bed section.

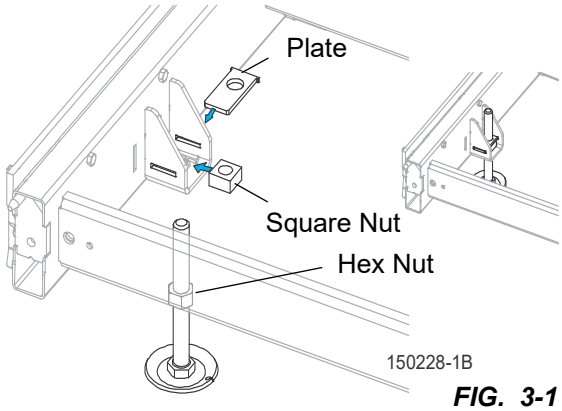


FIG. 3-1

3.2 Bed Section Assembly

1. Lay the bed sections end-to-end so the track portion of each section is on the same side.
2. Slide the sections together and secure with four 1/2-13 x 4 1/2” hex head bolts and nylon lock nuts.

NOTE: Make sure the top surfaces of the outer side of the bed sections are aligned. It may be necessary to pry one bed section up or down until the surfaces are aligned, then tighten the bolts.

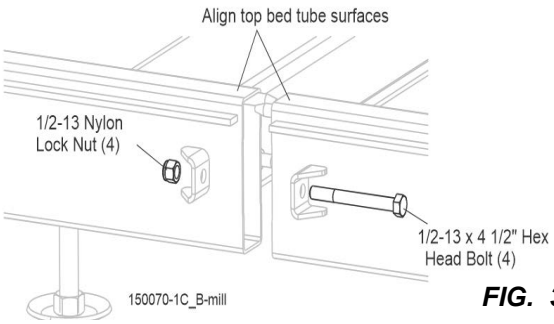


FIG. 3-2

3. Insert the splice pins into the holes in the track rail and secure with two 3/8-16 x 1” hex head bolts.

   TIP: The threaded holes at the end of the splice are provided to help remove the splice if you wish to disassemble the sawmill. Remove the two splice bolts from the middle holes and thread into the end holes. Evenly turn the bolts clockwise to push the splice pins out of the track rail holes.

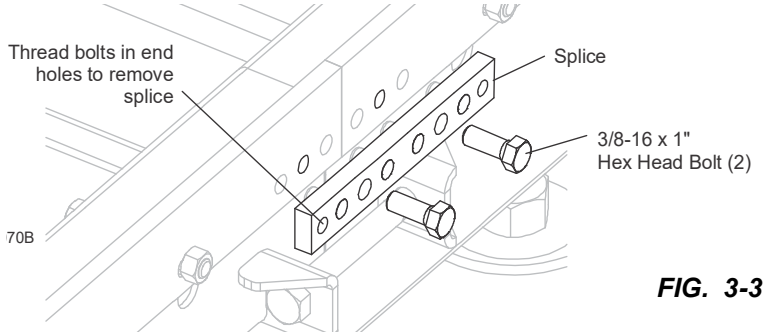


FIG. 3-3

3.3 Clamp Assembly

Assemble a log clamp to the bed as shown in FIG. 3-4.

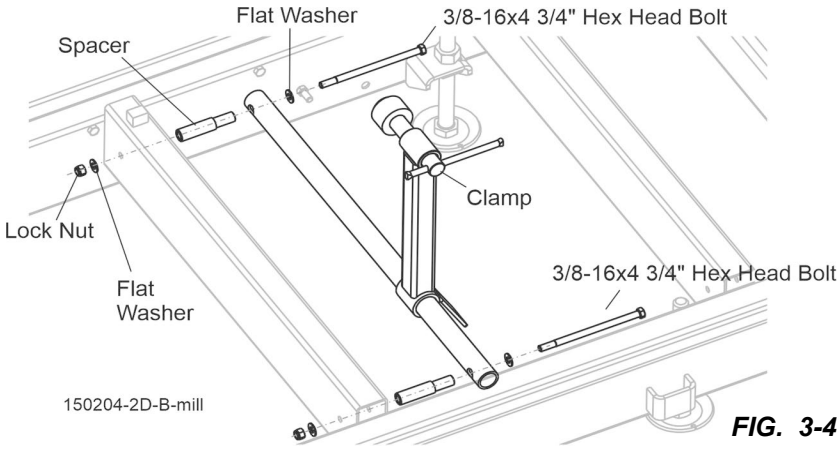


FIG. 3-4

3.4 Frame Leg Adjustment

Use a 1 1/4” wrench to adjust each leg until the top of the leg is approximately 1” (25mm) below the bed tube. See FIG. 3-5.

3.5 Saw Carriage Assembly

The saw carriages are equipped with two lock pins at the bottom of the mast near the track rollers. These pins can be adjusted to two different positions:

1. **Operation position.** The pins catch the bottom of the track rail, preventing the saw head from tilting and disengaging the bed frame.

   NOTE: The pins are designed so if they are inadvertently left in the travel position, they will move to the operation position when the carriage is moved.

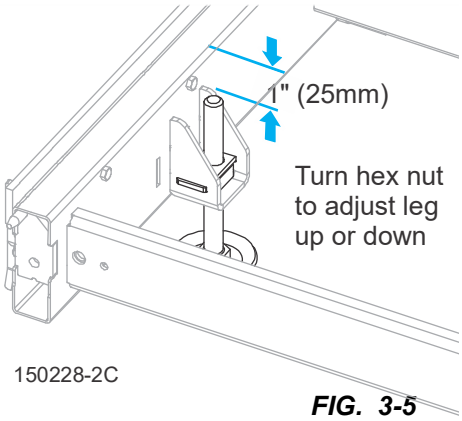


FIG. 3-5

2. **Travel position.** Secures the saw head to the bed frame during travel.

   1). Rotate the pin at the end of the sawmill so it is clear of the pin bracket.

   2). Be sure the pin engages the hole in the bed frame tube.

3). The other pin should remain in the operation position to prevent the saw head from tilting. See FIG. 3-6.

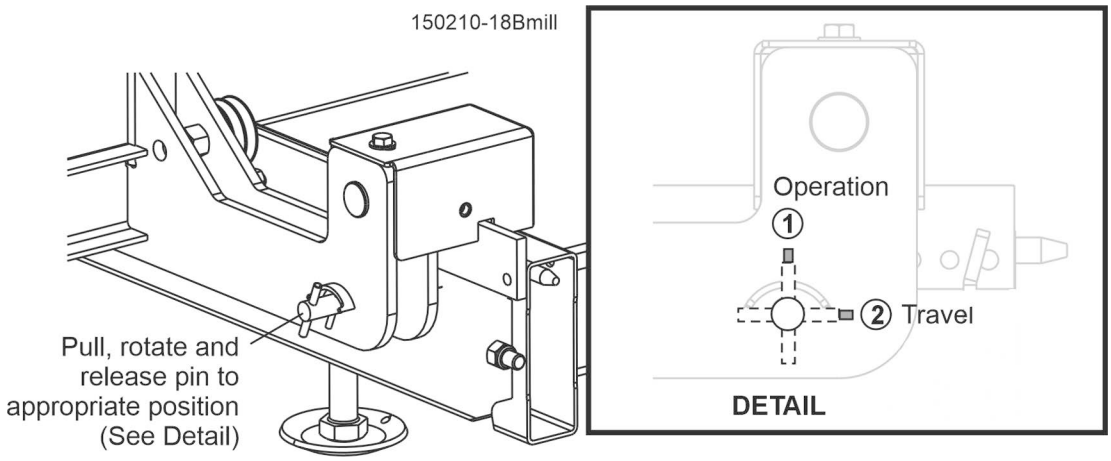


FIG. 3-6

NOTICE Before beginning saw carriage assembly, make sure both lock pins are in the operation position (lock pins seated in upper notches of pin rest brackets).

3. To reposition pin, pull pin outward, rotate as desired, and release into proper position.

4. Position the saw head carriage at the end of the bed frame assembly.

1). Carefully slide the saw head carriage rollers onto the bed frame track.

2). Keep the carriage square to the bed to avoid putting the track rollers in a bind.

5. Place both carriage lock pins in the operation position to secure carriage onto bed frame assembly.

6. Locate the middle track cover and soak the felt wiper with Dexron III transmission fluid, 10W30 motor oil or 3-in-1 turbine oil.

1). Remove the existing hex bolts and flat washers located on the inside of each track roller housing cover.

2). Position the middle track cover between the two track roller housings so the opening in the cover is positioned over the feed rope pulleys.

3). Replace the two hex head bolts and flat washers.

7. Install a slotted track scraper to each track roller housing with a 3/8” flat washer and 3/8-16 x 3/4” hex head bolt.

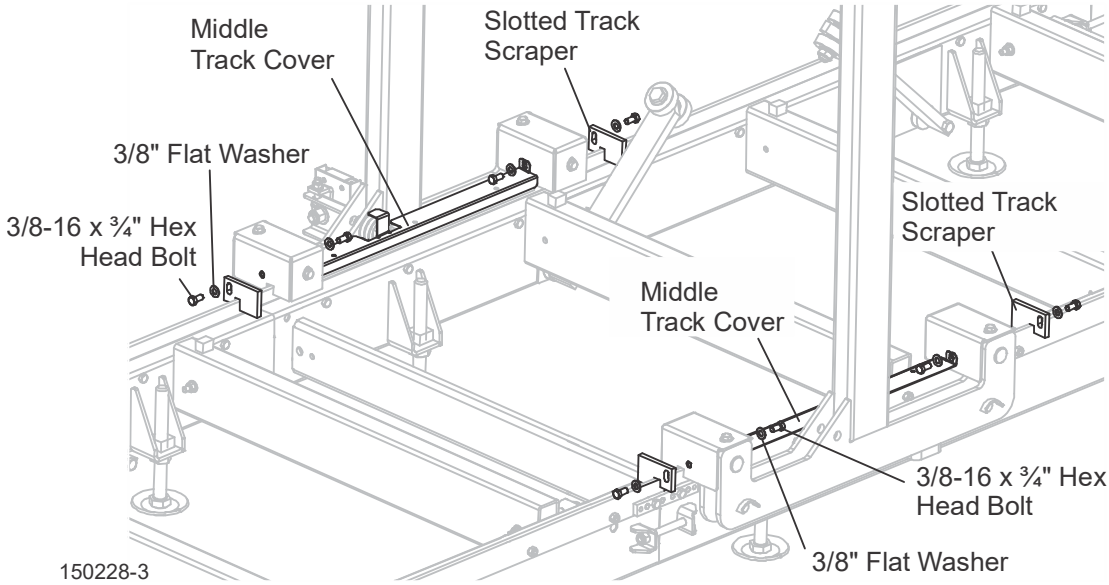


FIG. 3-7

8. Locate the track scrapers and soak the felt wipers with Dexron III transmission fluid, 10W30 motor oil or 3-in-1 turbine oil.

9. Assemble the two track scrapers to the idle side upright with a hex head bolt, two flat washers, and a nylon lock nut.

3.6 Power Feed Assembly

1. Assemble the front and rear chain brackets to both ends of the bed frame.

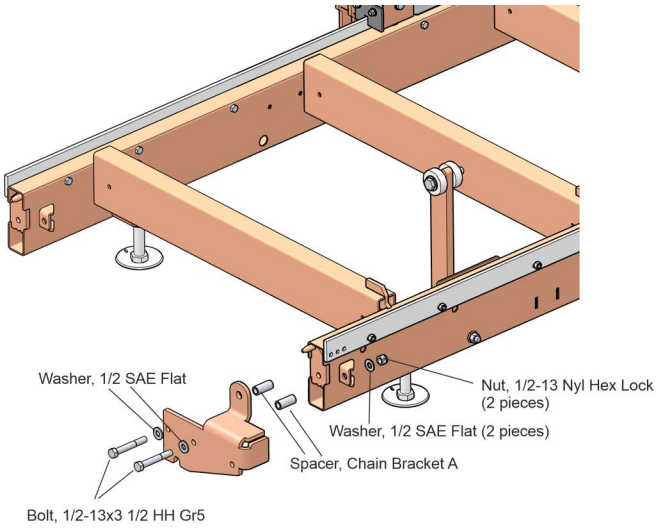


FIG. 3-8

2. Assemble the power feed chain tensioners to the previously mounted chain brackets. Mount the rubber stop assemblies at both ends of the bed frame.

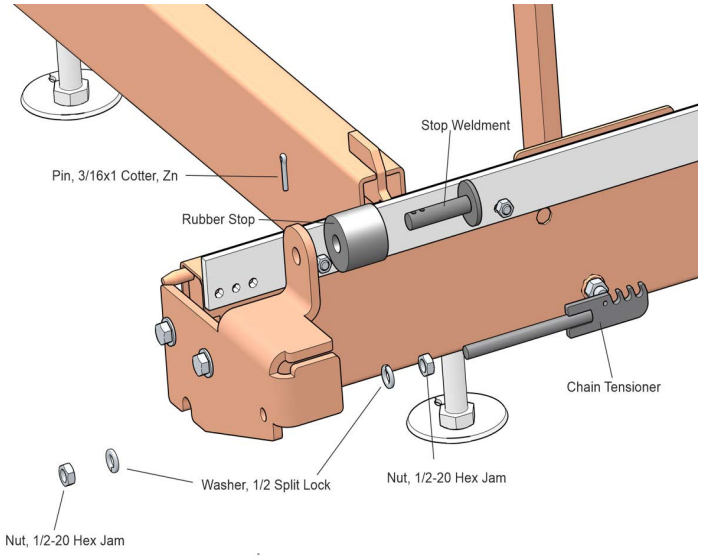


FIG. 3-9

3. Attach the chain to one of the tensioners.

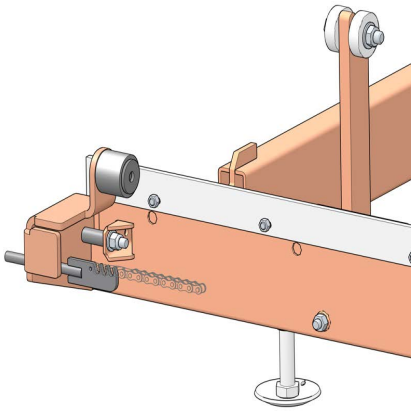


FIG. 3-10

4. Pass the chain through the sprockets in the power feed motor as shown in the figure below and attach the chain to the other tensioner.

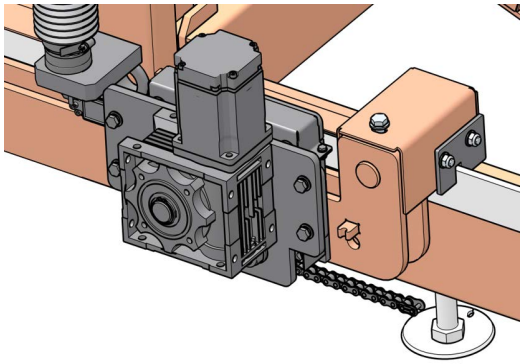


FIG. 3-11

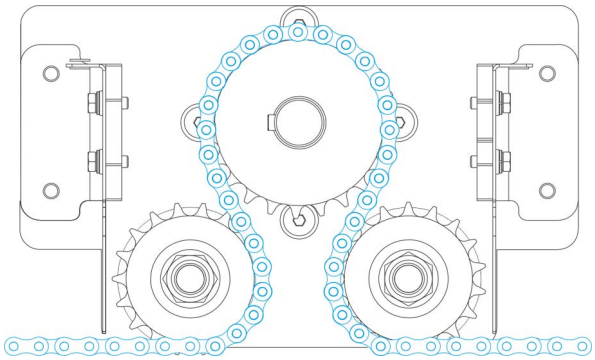


FIG. 3-12

5. Tighten the chain at both ends of the sawmill with the nuts marked in the figure below.

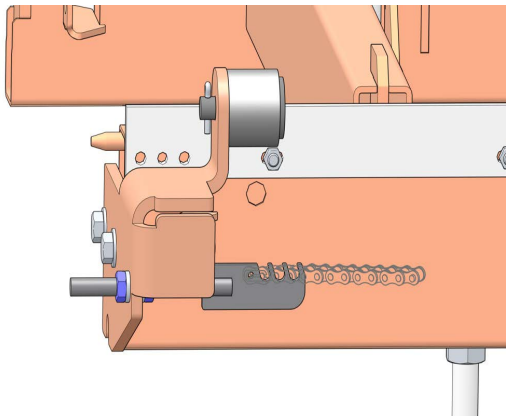


FIG. 3-13

3.7 Operator's Guard

Assemble the operator's PVC guard with the bolts, nuts, and washers marked in the figure below.

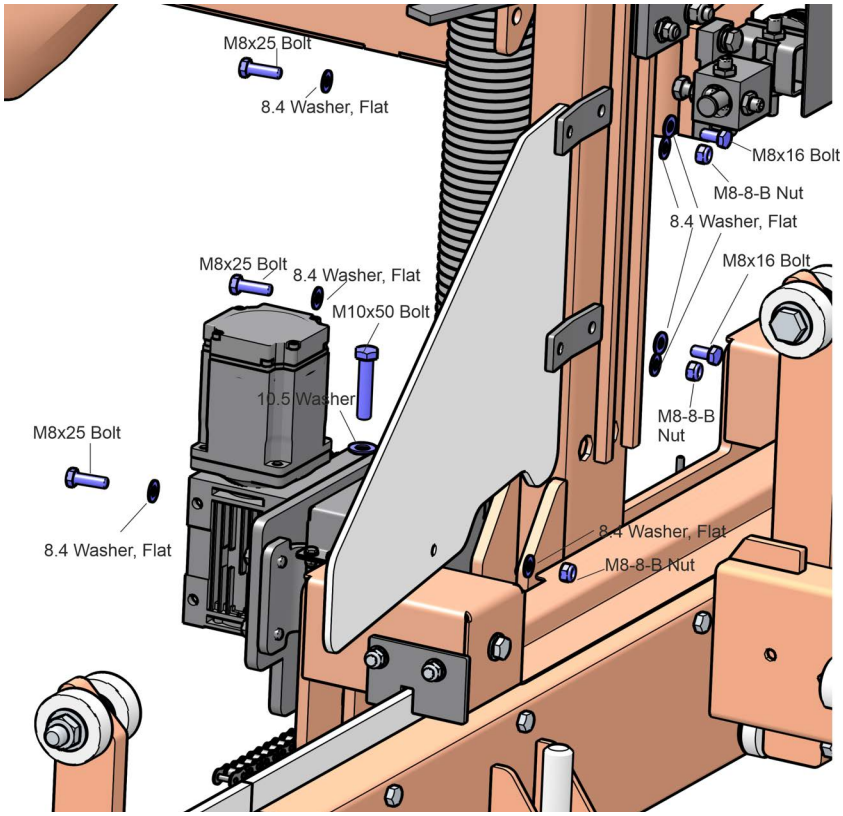


FIG. 3-14

3.8 Sawdust Chute

NOTICE Before operating the sawmill, be sure to mount the sawdust chute with M8x16 bolts and washers.

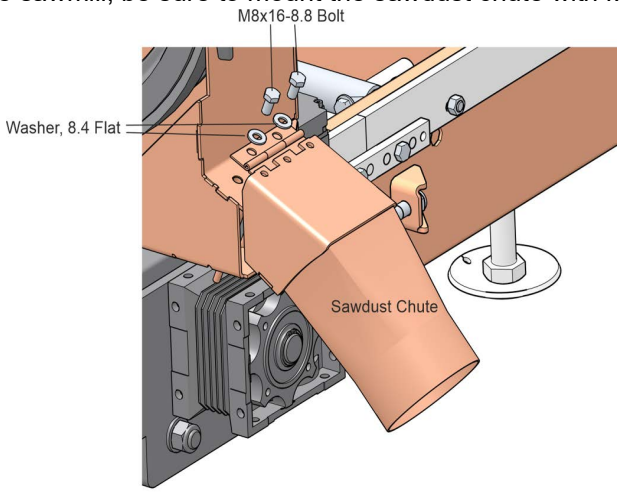


FIG. 3-15

SECTION 4 SAWMILL SETUP & OPERATION

4.1 Sawmill Setup

NOTICE The following setup procedure should be performed whenever the sawmill is moved or reassembled. If sawing problems occur and misalignment is suspected, *See Section 5 Sawmill Alignment* for complete alignment instructions.

- The sawmill must not be operated indoors without a sawdust exhaust system connected and started.
- The sawmill can be operated in temperature range from -15° C to 40° C only.
- The sawmill's operator position is shown below.

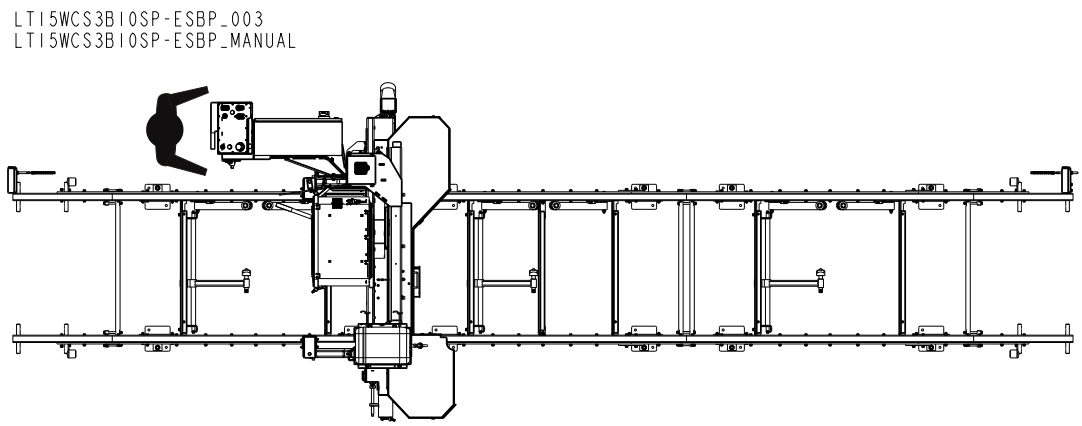


FIG. 4-1

WARNING! In case of blade or drive belt break, wait until all rotating parts stop. Failure to do so may result in serious injury or death.

The LT15-Battery Mill sawmills are only partially aligned at the factory. Some assemblies need to be aligned by the operator before using the sawmill for the first time.

Assemblies aligned at the factory:

- Blade drive belt tension;
- Blade wheels (in vertical and horizontal planes);
- Blade guide arm - *See 5.5*;
- Blade guides - *See 5.6*;
- Blade height scale - *See 5.12*;
- Cam engaging the limit switch and/or stop bolt.

1. Adjust the frame legs so the sawmill appears level. If sawmill is on soft ground, use shims under the legs if necessary.
2. Run a string from the front bed rail to the rear bed rail near the control box.
3. Place **identical spacers** between the string and the front and rear bed rails.
4. Measure the distance between the string and the other bed rails.

5. Adjust the frame legs until all bed rails measure the same distance from the string.

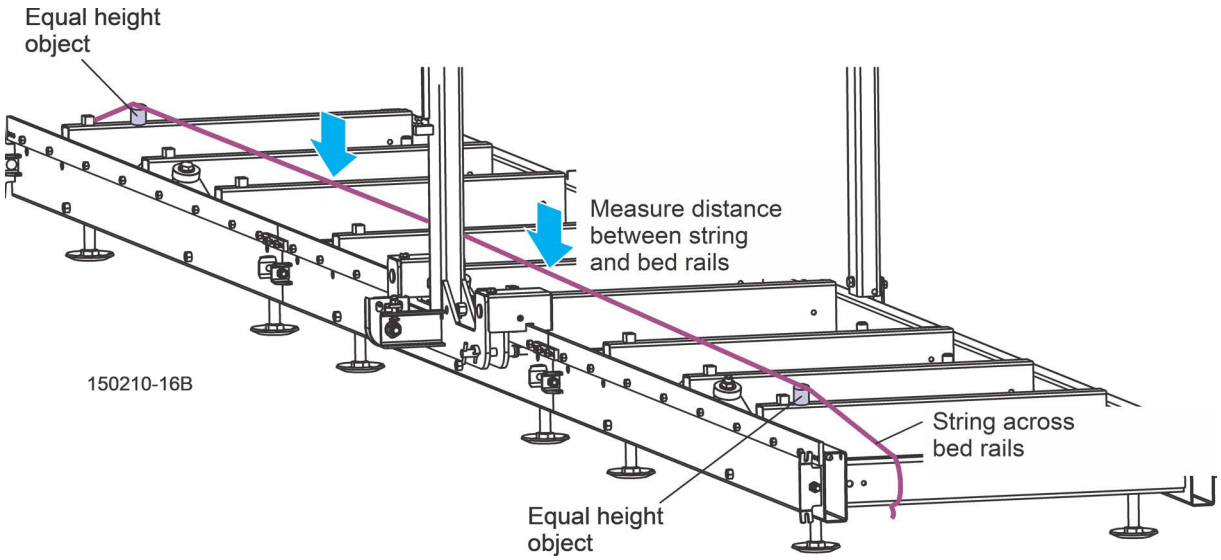


FIG. 4-2

6. Repeat the bed rail adjustment with the string at the other side of the sawmill frame.

7. Install a blade (*See 4.2* through *See 4.4*) and move the saw head until the blade is positioned over the front bed rail.

8. The blade guide rollers should not touch and deflect the blade and the blade guide arm should be adjusted all the way out, away from the other blade guide.

9. Measure the distance from the bed rail to the bottom of the blade near the inside (fixed) blade guide.

10. Measure the distance from the bed rail to the bottom of the blade near the outside (movable) blade guide.

When the blade is parallel to bed, it will measure the same distance from the bed rail at the inside and outside of the saw head. If not, adjust the saw head tilt. To do this, loosen the four mounting bolts (A) and use the saw head adjustment nut (B).

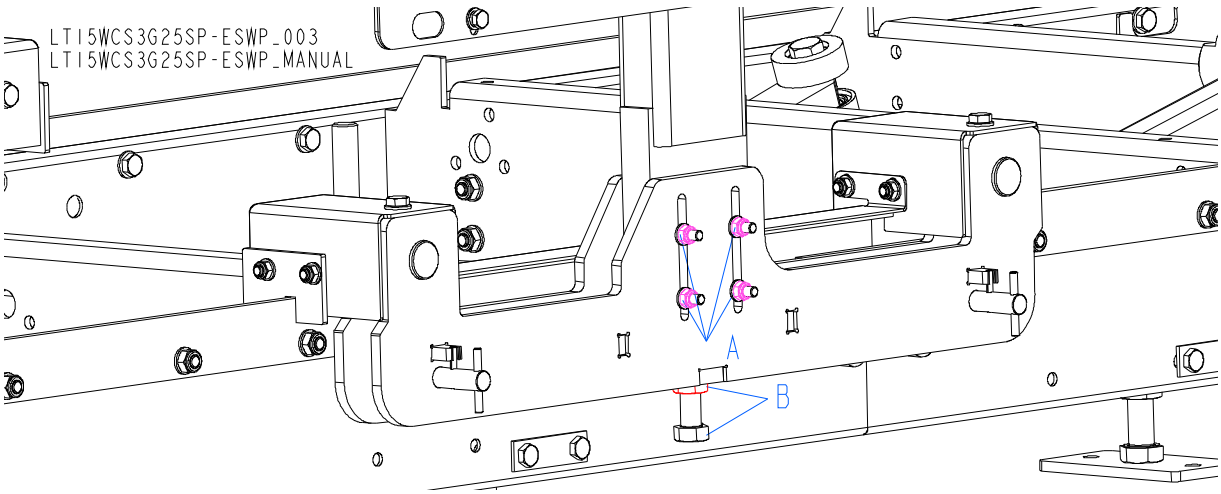


FIG. 4-3

11. Make sure the entire face of each slide pad makes contact with the mast. Use the adjustment nuts shown below to adjust the slide pads if necessary.

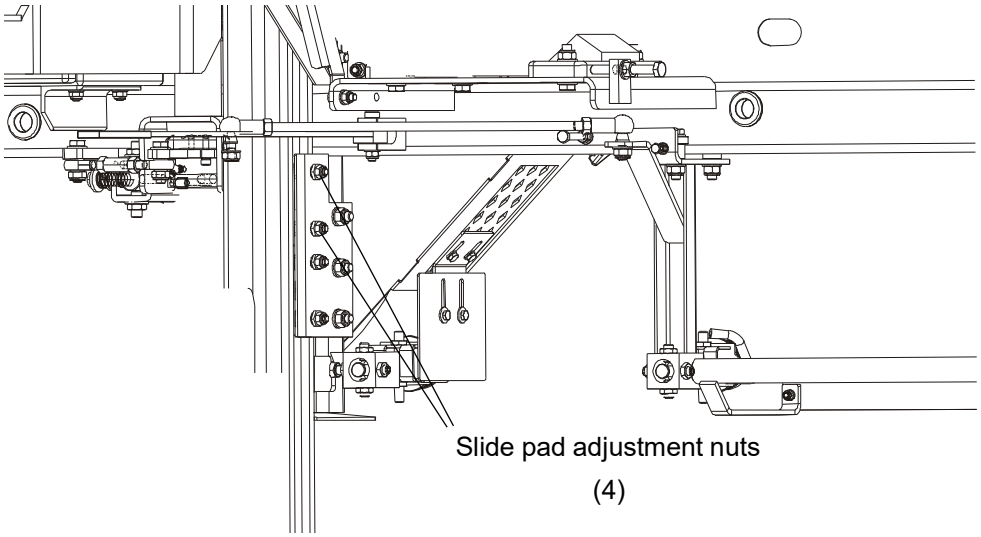


FIG. 4-4

12. Check if the blade is parallel to the bed rails. To do this, use the blade guide alignment tool.

- Attach the tool to the blade near the outer blade guide (next to idle blade wheel). Be sure the tool does not rest on a tooth or burr and is lying flat on the blade.

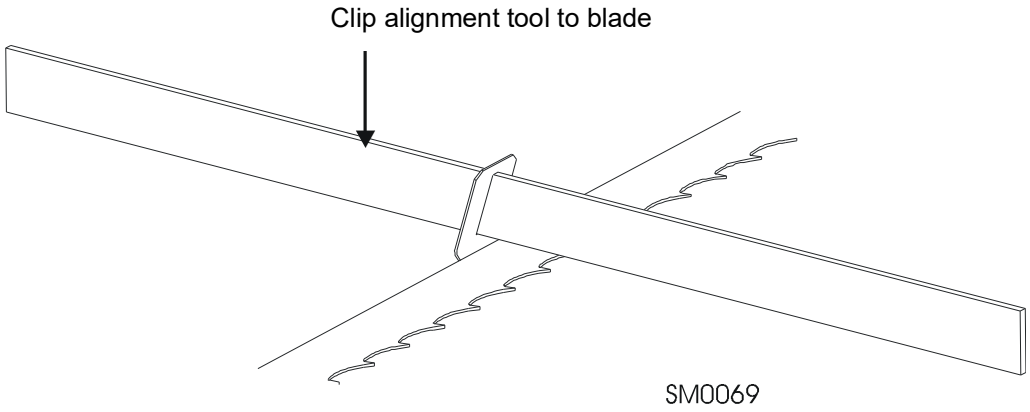


FIG. 4-5

- Move the saw head so the front end of the tool is positioned over the first bed rail. Measure the distance from the bottom of the tool to the top surface of the bed rail.
- Move the saw head so the front end of the tool is positioned over the bed rail. Again measure the distance from the bottom of the tool to the bed rail.
- If the two measurements differ by more than 1/16” (1.5 mm), adjust the vertical tilt of the idle-side blade wheel.
- Remove the tool from the blade and reattach it near the inner blade guide. Measure from the tool to the bed rail at both ends of the tool. If the measurements at the front and rear ends of the tool differ by more than 1/16” (1.5 mm), adjust the vertical tilt of the drive-side blade wheel.

To tilt the idle-side blade wheel up, loosen the bottom adjustment screw 1/2 turn. Loosen the nut on the top adjustment screw and tighten the top adjustment screw. Then tighten the upper and lower nut.

To tilt the wheel down, loosen the top adjustment screw 1/2 turn. Loosen the nut on the bottom adjustment screw and tighten the bottom adjustment screw. Tighten the upper and lower nut.

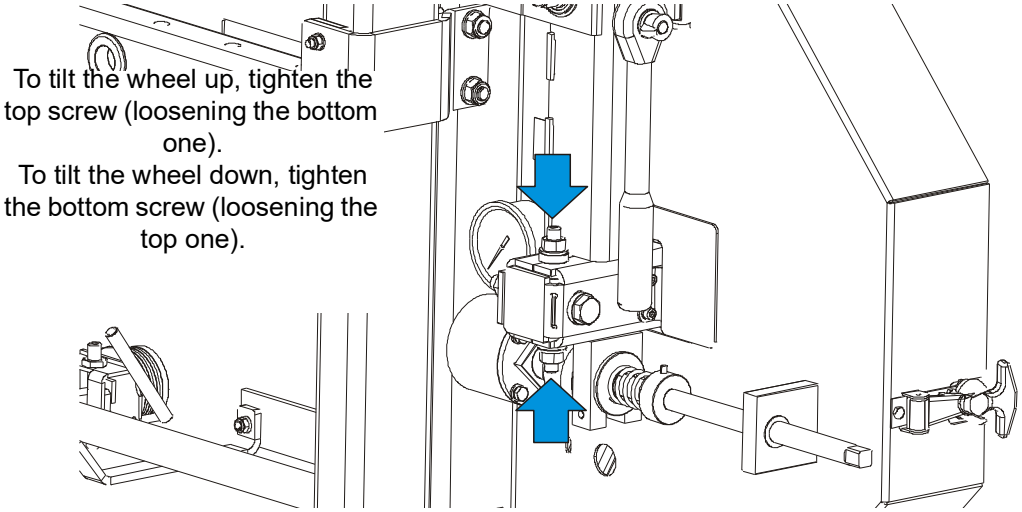


FIG. 4-6

Use screws shown below to adjust vertical tilt of the drive-side blade wheel. To tilt the drive-side blade wheel down, loosen the top adjustment screw. Loosen the jam nut on the bottom adjustment screw and tighten the screw. Tighten the top and bottom jam nuts.

To tilt the drive-side blade wheel up, loosen the bottom adjustment screw. Loosen the jam nut on the top adjustment screw and tighten the screw. Tighten the top and bottom jam nuts.

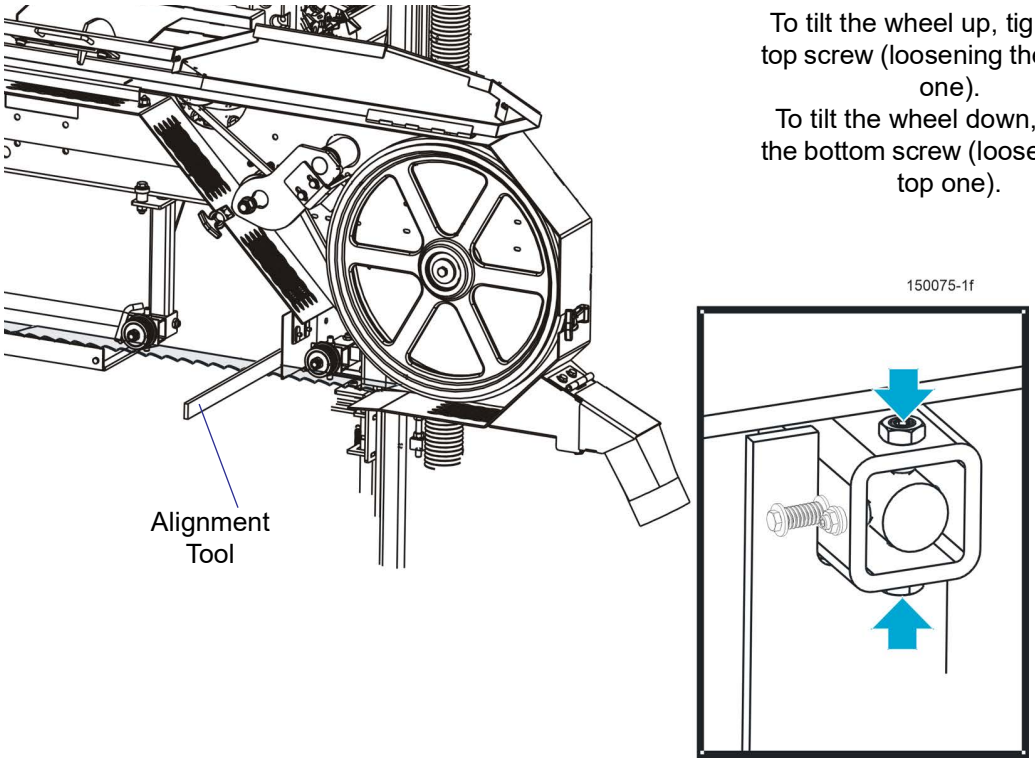


FIG. 4-7

- Recheck the vertical alignment of each blade wheel. Readjust if necessary.

13. Adjust the spacing between each blade guide roller flange and the back of the blade. *See 5.9*

14. Adjust the horizontal angle of the blade guides. *See 5.6*

15. Adjust the blade deflection (*See 5.7*) and vertical angle of the blade guides (*See 5.8*).

HINT: It is best to preliminarily set the blade deflection so that is 3 - 4 mm, then adjust the blade guides in vertical plane and make the final adjustments to the blade deflection. The proper blade deflection is 6mm. After adjusting the blade deflection, recheck the vertical alignment of the blade guides and adjust if necessary.

16. Install the blade height scale. To do that, first measure the distance from the bottom edge on a down-set set tooth of the blade to the top of the bed rail. Then stick the blade height scale on the mounting bracket so that it indicates the true distance from the blade to the bed. Adjust the scale if necessary. *See 5.12*.

17. Bolt the blade guide guard, so that its bottom edge is about 5mm above blade.

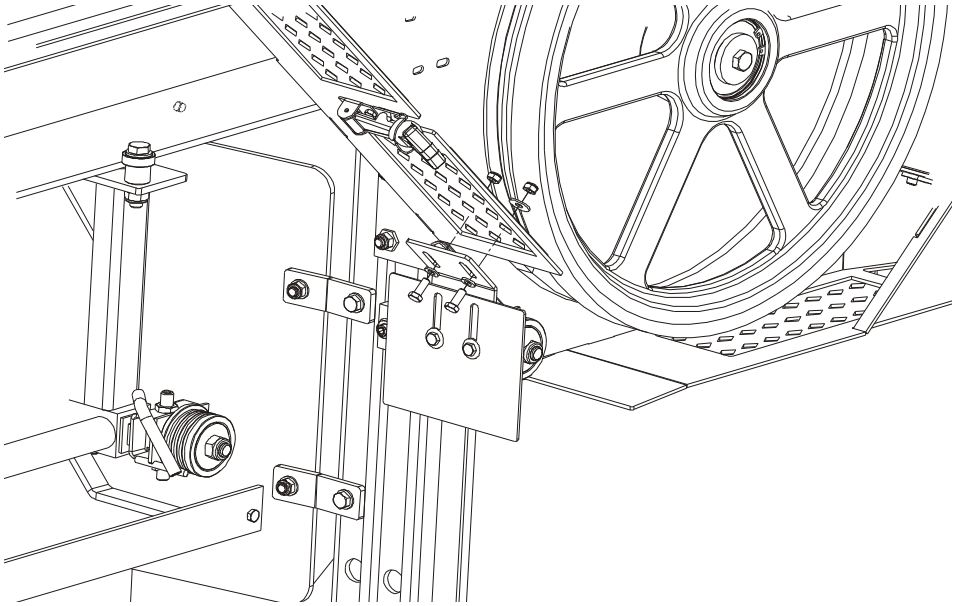


FIG. 4-8

Adjust the cam engaging the limit switch as well as the saw head stop bolt so that the saw head stops moving at its lower travel limit - at the height of 25 mm above the bed.

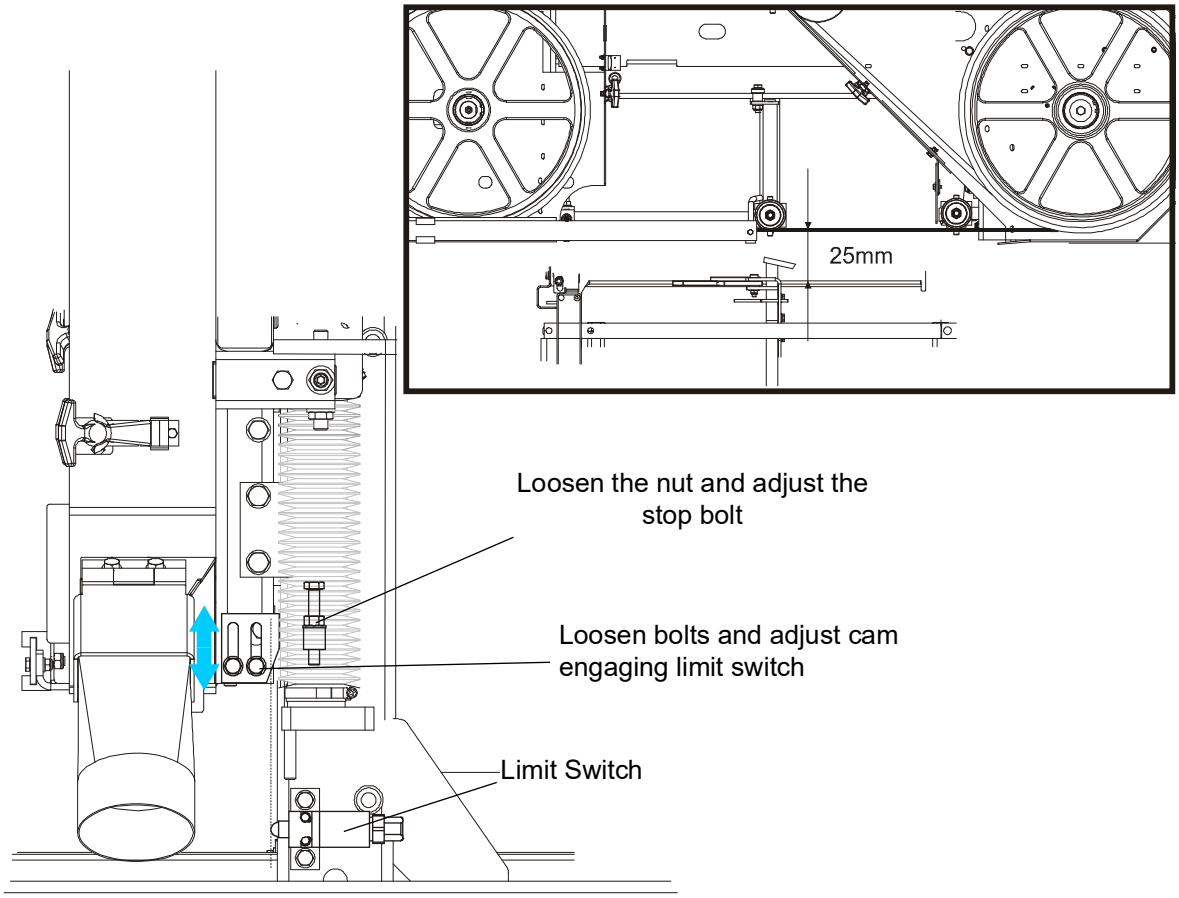


FIG. 4-9

4.2 Replacing The Blade

DANGER! Always disengage the blade and shut off the sawmill motor before changing the blade. Disconnect the 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.

Adjust the blade guide arm all the way open.

Open the blade housing cover. Turn the blade tension handle to release the blade tension until the blade is pulled in and 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. When installing the blade, make sure the teeth are pointing the correct direction. The teeth located between the blade guide assemblies should be pointing toward the sawdust chute.

Position 1 1/4” wide blades on the wheels so the gullet is 3 mm out from the front edge of the wheel. Position 1 1/2” wide blades on the wheels so the gullet is 4.5mm out from the front edge of the wheel.

Close the blade housing cover.

Next, turn the tension handle until the blade is tensioned correctly.

4.3 Tensioning the Blade

Tension the blade by turning the tensioner handle clockwise until the tension gauge indicates the recommended tension. Check the blade tension occasionally when adjusting the cant control or while cutting. As the blade and belts heat up and stretch, the blade tension will change. Also, ambient temperature changes can cause tension to change.

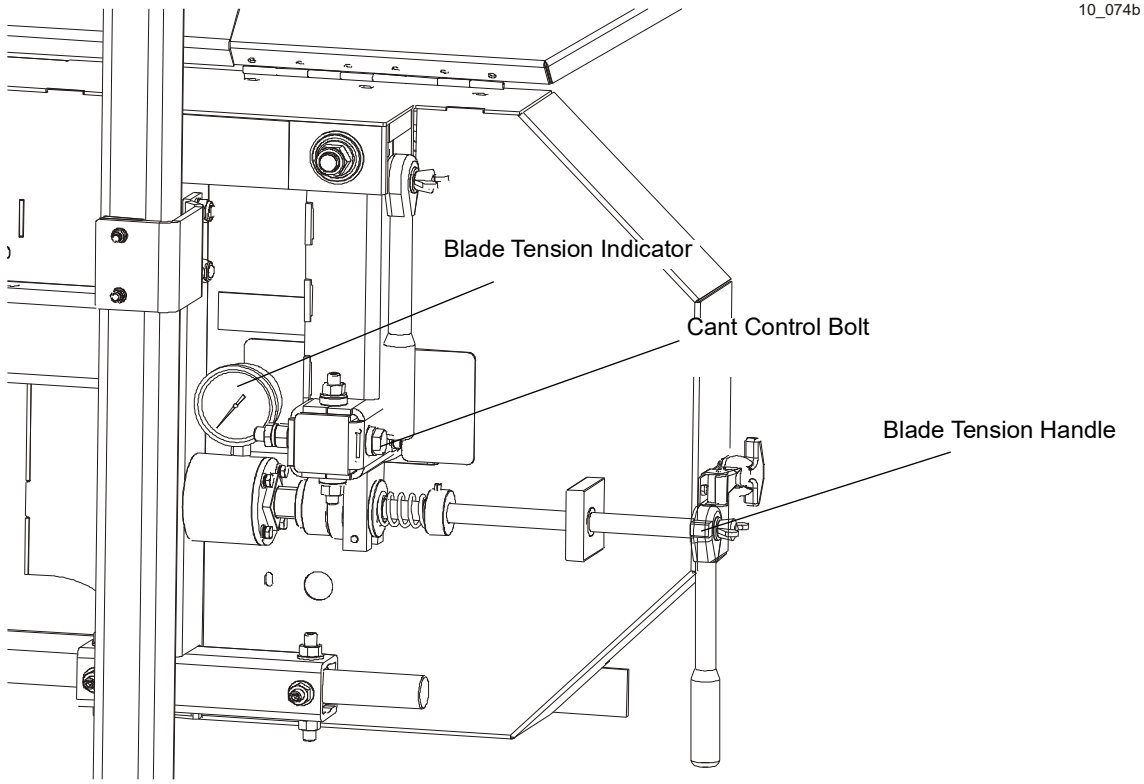


FIG. 4-10

See Table 4-1. The recommended tension for different blades is shown below.

Blade Type	Blade Dimensions		Tension range	
	Width	Height	PSI	Bar
275	1.07	32	1015-1088	70-75
375	1.14	32	1088-1160	75-80
2735	1.07	35	1160-1233	80-85

TABLE 4-1

CAUTION! Release the blade tension when the sawmill is not in use (e.g.: at the end of the shift). It should be also an information on the sawmill, that the blade should be tensioned before starting.

4.4 Tracking The Blade

1. Make sure the blade housing cover is closed and all persons are clean of the blade.
2. Start the motor for a moment until the blade positions itself on the wheels.

WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

3. Turn off the motor and check the position of the blade on the blade wheels.

Position 1 1/4” wide blades on the wheels so the gullet is 3.0 mm (± 0,75 mm) out from the front edge of the wheel.

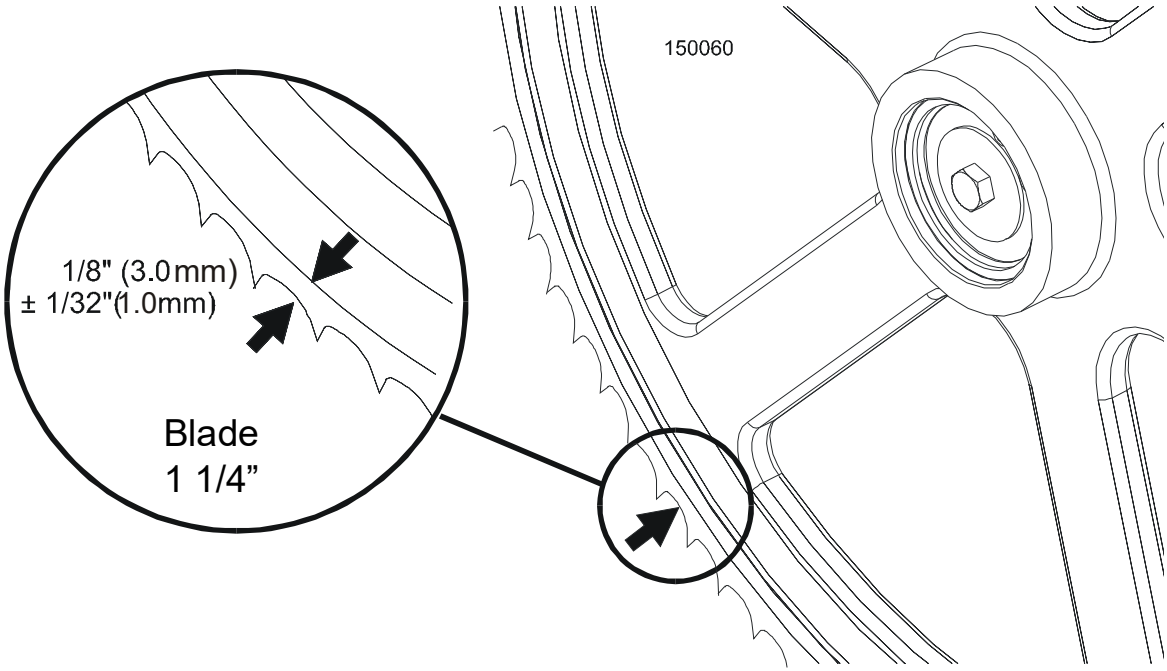


FIG. 4-11

To adjust where the blade travels on the blade wheels, use cant control bolt.

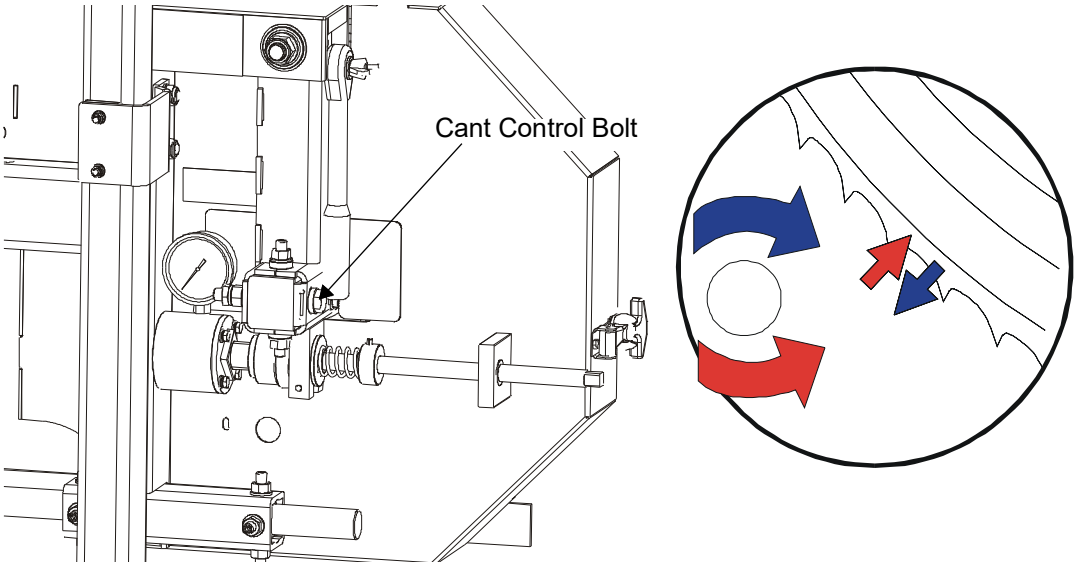


FIG. 4-12

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

4. Adjust the blade tension if necessary to compensate for any changes that may have occurred while adjusting the cant control.

5. Close the blade housing cover.

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

NOTICE After aligning the blade on the wheels, always double-check the blade guide spacing and location. (*See Section 6* for more information.)

4.5 Starting the Motor

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 motor. Failure to do so may result in serious injury.

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

4.6 Loading, Turning And Clamping Logs

TO LOAD LOGS

1. Start the motor and move the saw carriage to the front end of the frame.

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

2. Adjust the log clamps all the way down and move them toward the loading side of the sawmill frame.

NOTE: The clamps can be lifted and removed from the bracket assemblies to avoid damage to the clamp when loading a log.

CAUTION! Be sure the log clamps are adjusted out of the path of the log before loading a log onto the bed. Failure to follow this 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. Place the **optional** loading ramps[1] (part number 015804) in the frame brackets that will evenly support the length of the logSee FIG. 4-27..

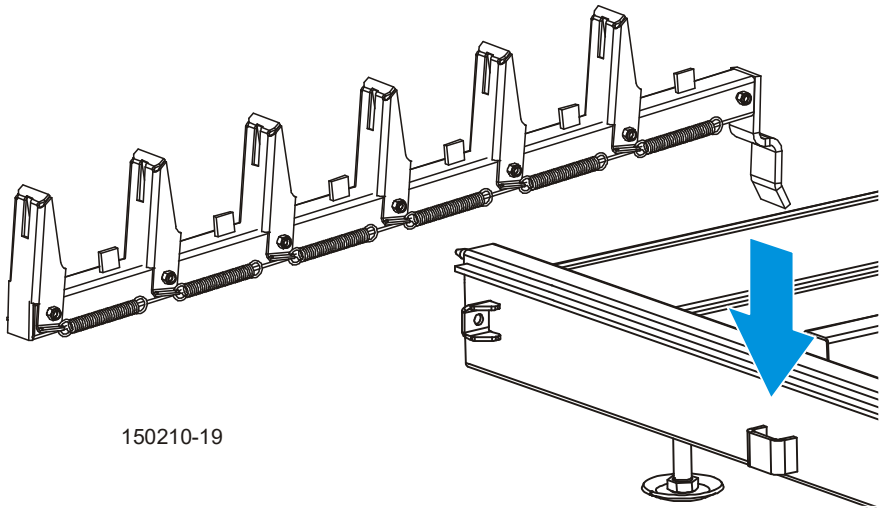


FIG. 4-13

5. Position the log at the foot of the ramps.

6. Use a cant hook[2] (part number CH48) to roll the log up the ramps and onto the sawmill bed. Position the log against the side supports.

   NOTE: Position the log on the bed sections to maximize support of the log by the bed. If the log overhangs the bed, (particularly if the optional bed extension is installed) it may tend to sag, resulting in inaccurately sawn lumber.

7. Remove the **optional** log ramps and set aside.

CAUTION! The saw head will hit the spring-loaded ramp stops when adjusted for low cuts. Remove the loading ramps before sawing to prevent damage to the saw head and/or blade guide arm.

If you did not purchase the optional loading ramps, use boards for ramps or use log loading equipment to load the log on the sawmill bed.

NOTE: Logs also may be loaded onto the mill with a tractor or other equipment specifically designed for that purpose.

1.Also available as part of the LT15OP, Optional Package Kit for the LT15.
2.Also available as part of the LT15OP, Optional Package Kit for the LT15.

TO TURN LOGS

1. Use cant hooks to rotate the log on the sawmill bed.Spin the log against the side supports until it is turned the way you want it for the first cut.

TO CLAMP LOGS

Slide the clamp against the log and turn the locking handle to lock the clamp against the log. See FIG. 4-29.**CAUTION!** Make sure the side supports and clamp 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 level of your first few cuts.

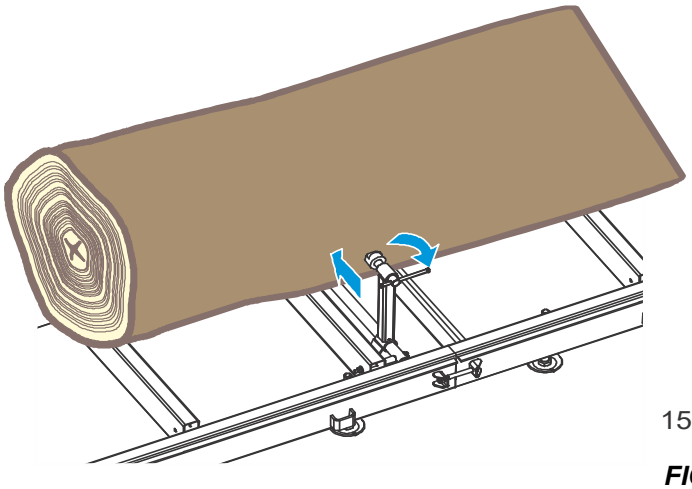


FIG. 4-14

TO LEVEL A TAPERED LOG

Use shims or the **optional** Log Wedge[1] (part number 015809) to raise either end of a tapered log, if desired.

Shim one end of the log until the heart of the log measures the same distance from the bed rails at each end of the log.

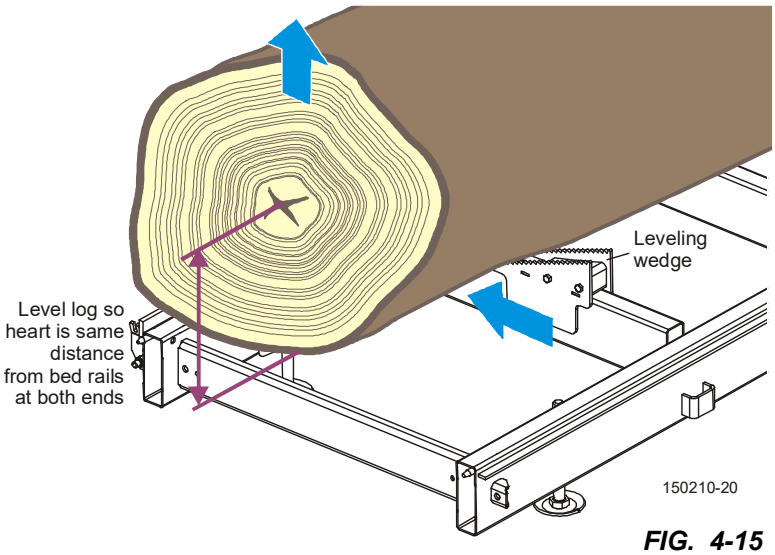


FIG. 4-15

1.Also available as part of the LT15OP, Optional Package Kit for the LT15.

4.7 SW-B Setworks Operation

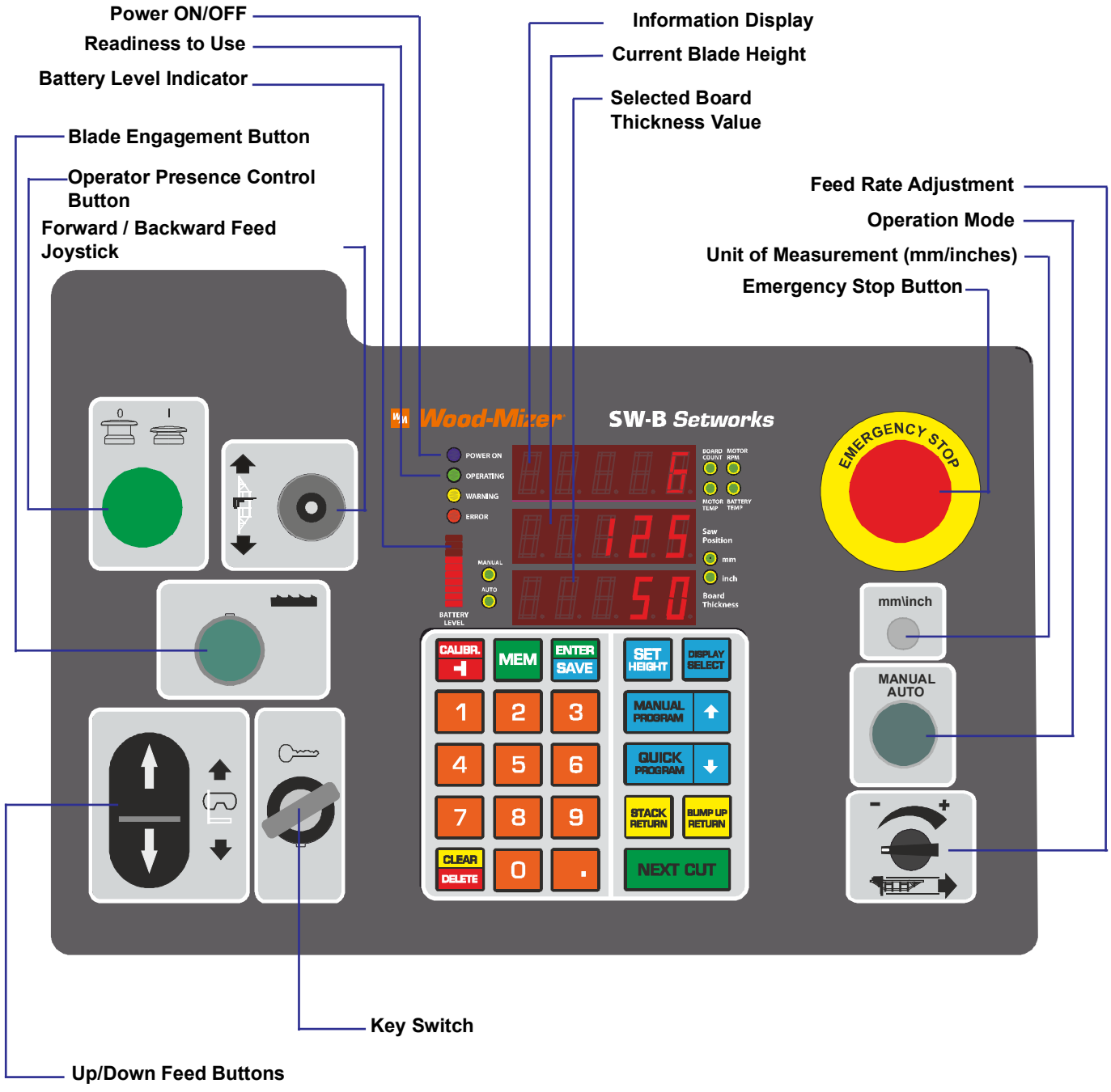


FIG. 4-16

NOTE: Do not use any hard objects, or too much force, to press the buttons on the control panel.

NOTE: Protect the controller keypad against rain and direct sunlight. Clean it with a soft rag and mild cleaners.

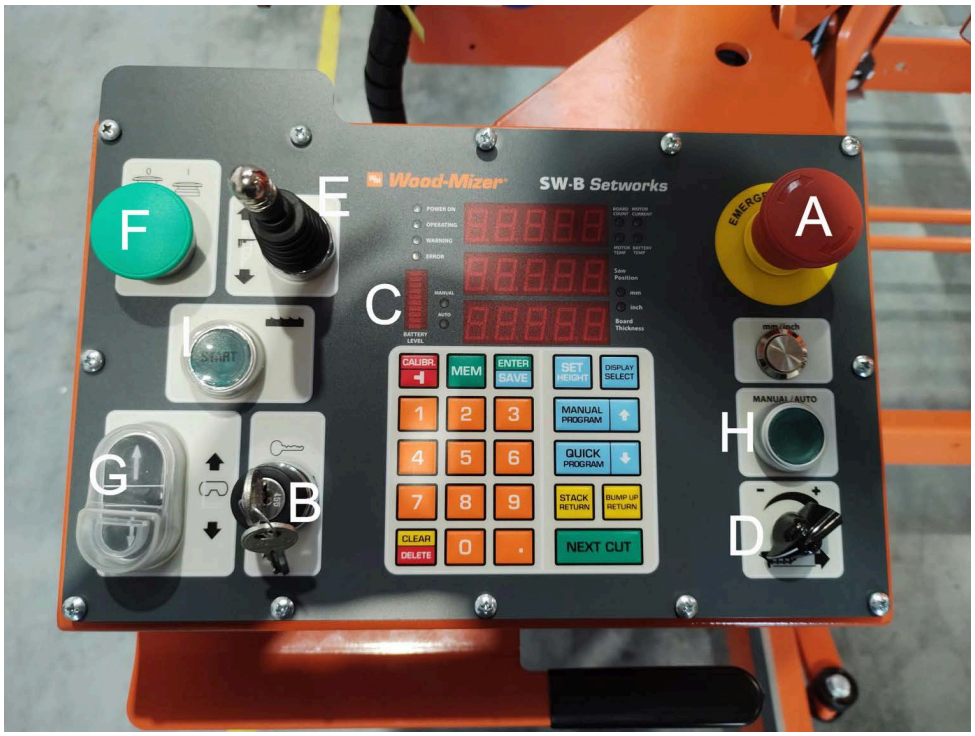


FIG. 4-17

TO STOP THE SAWMILL IMMEDIATELY

Press the emergency stop button (A). Twist the emergency stop button to release it.

TO TURN THE POWER ON

Turn the main switch on the electrical box to the ON position. Turn the key (B) to the right to turn the power on.

BATTERY LEVEL

The battery charge level is shown by the battery level indicator on the control panel.

FEED OPERATION

The power feed system includes an electric motor with gear which moves the saw head using a chain. The speed at which the saw head travels forward is adjusted by the feed rate potentiometer (D).

To drive the saw head forwards, press and hold the operator presence control button (**F** - green button on the left-hand side of the control panel), then move the joystick (E) to the forward position. Feed speed is adjusted with the potentiometer.

To drive the saw head backwards, move the joystick to the backward position. There is no need to press the operator presence control button while driving the saw head backwards.

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. Turn the saw head feed rate switch to a slow speed until the whole width of the blade has entered the cut. Then use the saw head feed rate potentiometer to increase the feed rate as desired. Maximum feed rate varies with width and hardness of the wood. Over-feeding results in motor and blade wear, and also produces a wavy cut.

1. Stop the saw head at the end of the cut by turning the saw head feed rate switch counterclockwise until the saw head stops moving.

2. Using the blade engagement button, disengage the blade. This will stop the blade. Remove the board from the log.

   NOTE: Always disengage the blade before returning the saw head and raise the saw head slightly to make sure the blade clears the log.

UP/DOWN OPERATION

Use the buttons with arrow symbols ↑ ↓ to move the saw head up or down.

CAUTION! DO NOT try to force the saw head above the 87.2 cm mark or below the 2.54 cm mark. Damage to the up/down system may result.

STARTING THE BLADE

Be sure the blade housing cover is closed and secured before starting the 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 interrupts the ignition circuit and the motor cannot be started. If the cover has been opened during operation, the motor will be stopped immediately.

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.

1. Clear any loose objects from the area of the blade, motor, and drive belt.
2. Make sure the clamps and side supports are positioned low enough for the blade to pass over them. Make sure the log is clamped securely.
3. Press and hold the operator presence control button. The blade engagement button (I) will flash green. Press the blade engagement button.

NOTE: Keep the operator presence control button pressed all the time the blade is driven. If the safety button is released, the motor stops and it needs to be restarted.

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

MANUAL/AUTO MODE (H)

Mode for controlling the feed speed of the saw head forward movement (during cutting).

- MANUAL

When setting the feed speed in MANUAL mode, the forward feed speed is set with the potentiometer located in the bottom right corner of the control panel.

- AUTO

The AUTO feed mode is activated by pressing the AUTO / MANUAL button. The button is lit green and after pressing it, the LED indicator on the control panel switches from MANUAL to AUTO.

In this mode, control of the forward feed speed is automatic. The controller adjusts the feed speed itself according to the load on the main motor and the SOC level of the battery units in the battery compartment. If excessive current drawn by the main motor is detected, the feed is slowed down automatically. When the load on the main motor decreases, the feed speed returns to the original rate.

The saw head is driven backwards at a constant speed regardless of the selected operation mode.

BUTTONS ON THE CONTROL PANEL

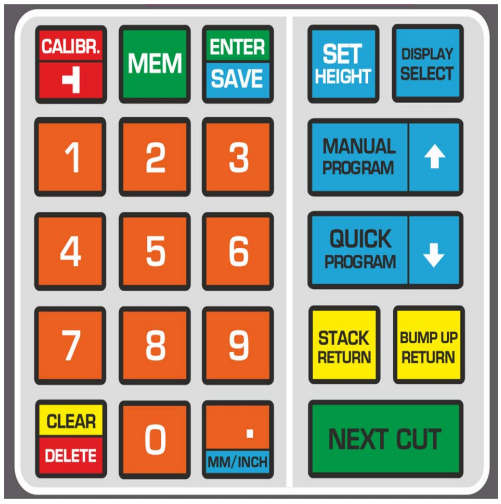


FIG. 4-18

CALIBR. - the saw head height calibration. Before starting the operation, always check if the blade height shown on the display is correct. In order to do that, use the blade height scale on the sawmill or measure the distance between the blade and the sawmill bed frame. If the blade height shown on the display is incorrect, press the CALIBR. button, enter the correct value using the keypad on the control panel and press the ENTER/SAVE button.

MEM - use this function to save the most frequently used board thickness values. In order to do that, press the MEM button. Enter the first board thickness value and confirm with the ENTER/SAVE button. Press the button with the up arrow, enter the second board thickness value and confirm with the ENTER/SAVE button. All the desired board thickness values can be saved this way.

ENTER/SAVE - the value entered into the controller is confirmed with this button.

SET HEIGHT - automatically moves the saw head to the height set in the controller.

1. Press the SET HEIGHT button,

2. Enter the desired saw head height value,

3. Confirm with the ENTER / SAVE button.

DISPLAY SELECT - button to select the parameter displayed on the upper display panel: BOARD COUNT (number of boards), MOTOR CURRENT (main motor current), MOTOR TEMP (main motor temperature), BATTERY TEMP (battery temperature).

MANUAL PROGRAM - this function allows an individual cutting program to be entered manually. Successive boards are counted from the bottom. It is possible to enter up to 15 different board thickness values.

NOTICE The first board from the bottom must not be thinner than 1" (25 mm)!

1. Position the saw head slightly above the log,

2. Enter the board thickness value of the first board (not less than 1"/25 mm),

3. Confirm with the ENTER / SAVE button,

4. Press the button with the up arrow ↑ next to the MANUAL PROGRAM button,

5. Enter the desired thickness value of the next board,

6. Repeat points 2 - 4 until the display stops flashing. This indicates that the entered board thickness values have reached the current saw head height.

7. Press the NEXT CUT button to recalculate the values and allow the controller to set the saw head to the height of the first cut.

If you enter a board thickness value greater than the height at which the saw head is currently set, the controller will display the following message: *FULL*. To delete the last position, press the CLEAR / DELETE button and re-enter the correct value.

QUICK PROGRAM - this function allows the desired board thickness value to be quickly entered into the controller. In this mode, the controller sets the same thickness value for all the boards.

1. Position the saw head slightly above the log,

2. Press the QUICK PROGRAM button,

3. Enter the desired board thickness value,

4. Confirm by pressing the ENTER / SAVE button,

5. Press the NEXT CUT button to recalculate the values and allow the controller to set the saw head to the height of the first cut.

STACK RETURN - constant saw head return height over the log.

1. Set the saw head manually or automatically to the desired height above the log,

2. Press and hold the STACK RETURN button for 3 seconds.

3. Cut the log,

4. Press the STACK RETURN button,

5. Return to the beginning of the log,

6. Press the NEXT CUT button.

After cutting the log, a short press of the STACK RETURN button will bring the saw head to the set height over the log and allow the saw head to return over the log. This function can be used instead of the BUMP UP RETURN function.

BUMP UP RETURN - the saw head is moved to a height allowing a safe return over the last cut board.

1. Cut the log,

2. Press the BUMP UP RETURN button,

3. The saw head will position itself 10mm above the last cut board,

4. Once the saw head has returned to the beginning of the log, press the NEXT CUT button.

NEXT CUT - button to trigger the transition to the next cut. The saw head moves to the cutting height of the next board. Holding the button for 3 seconds causes the saw head to return to the position of the previous cut.

4.8 Operation in Reference Mode

CAUTION! The minimum thickness of the last board (when using the auto mode) cannot be lower than **25 mm/1 inch**.

After switching-on the SW-B setworks, *the Operating* indicator light is blinking, and the Setworks is ready for operation within a few seconds.

- Set the saw head in the position for the first cut.
- To change the board thickness, enter the new thickness value using the keypad. Press NEXT CUT. The saw head will move down by the preset value (taking into account the kerf value).
- If you want to use the same thickness again, press NEXT CUT. The controller remembers the last board thickness value and the saw head will be moved to the next cut position.
- Having completed a cut, press BUMP UP RETURN, the saw head will automatically go up by the Bump Up value so that it clears the log or cant when returning to the position.
- If needed, change the board thickness value dimension using the keypad.
- Press NEXT CUT and the saw head will be lowered by the pre-set board thickness value to **the next cut position**.

CAUTION! To start a new program, enter the board thickness value and confirm with ENTER SAVE button.

4.9 Operation in Quick Program Mode

The Quick Program mode can be used to quickly create a program of cuts referenced from the sawmill bed frame. A value currently displayed in the *Selected Board Thickness* window is automatically copied to all items in the program.

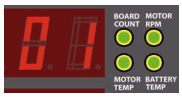
The number of boards that can be cut is calculated from the bed rails.

- Position the saw head at the height of the top end of the log or cant.
- Press QUICK PROGRAM button.
- Enter the board thickness (using the keypad) and press ENTER SAVE.
- Press NEXT CUT. The saw head will be set to the predefined value. The number of boards will be displayed in *Information Display*.
- Start the cutting process. While cutting, use the BUMP UP RETURN or STACK RETURN and NEXT CUT buttons, as in the Reference mode.
- To change the board thickness, repeat the Quick Program procedure.

4.10 Operation in Manual Program Mode

To create a series of cuts calculated from the bed level, use the Manual Program.

- Position the saw head at the height of the top end of the log or cant.
- Press MANUAL PROGRAM.
- Using the keypad, enter the dimension of the first board calculated from the sawmill bed and press ENTER SAVE button. The number of the next board will be shown in the *Information Display*.

- Press ↑ and enter the thickness value of the next board. Repeat until the total value of the entered board thickness (plus the kerf value) calculated by the controller, exceeds the blade height value. The number of a given board is shown in the *Information Display*. 
- Push NEXT CUT to position the blade at the height of the first cut.
- Start the cutting process. While cutting, use the BUMP UP RETURN or STACK RETURN and NEXT CUT buttons, as in the Reference mode

Example:

In this example there is a log with three sides flat and the aim is to finish with a 100mm x 100mm cant and get three boards - 50mm, 28mm and 25mm without removing the board after each cut.

- Position the saw head at the height of the top end of the log.
- Press MANUAL PROGRAM ↑.
- Using the keypad, enter the first board thickness (calculated from the sawmill bed) value (100) and press ENTER SAVE. Press ↑. Enter the next board thickness values (50, 28 and 25mm); each time confirm the setting by pressing ENTER SAVE.
- Raise the saw head so that it clears the log along its entire length and press STACK RETURN.
- Press NEXT CUT and the saw head will be moved to the first cut height.
- Cut the material using STACK RETURN and NEXT CUT, as in the Reference Mode.
- Remove the boards.

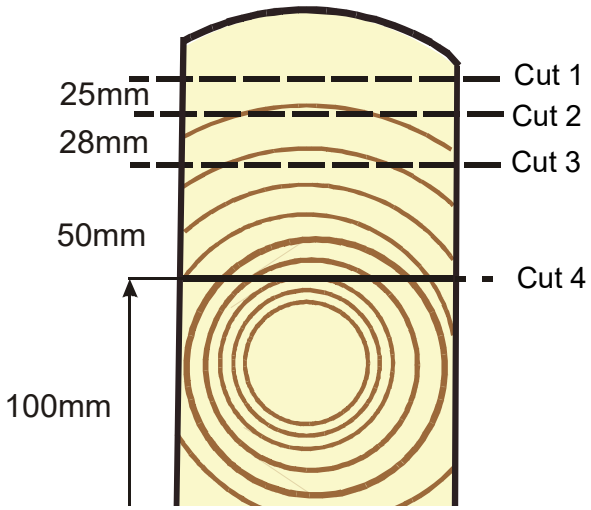


FIG. 4-19

4.11 Using Battery Units

NOTICE Each battery weighs 9,52 kg and has 1.4kWh of power.

Checking for Damage

As soon as you take the battery units out of the packaging, check them for any damage. If you find any damage, get in touch with the Customer Service Department. It is forbidden to use or install a damaged battery unit.

Operation

LT15-Battery Mill allows to use from 4 to 6 battery units while operating the machine. 4 battery units in the battery compartment are an absolute minimum for the machine to operate. The estimated operating time for 6 batteries is up to 8 hours. The battery charge level is shown by the battery level indicator on the control panel.

NOTICE All the battery units in the battery compartment must be have the same SOC (State of Charge) level when the operation is started. Otherwise, an error of uneven charging will be reported on the SW-B setworks control panel.

Battery units for LT15-Battery Mill sawmill are stored in the IP67 weather-resistant battery compartment (A) secured by 2 fasteners (B). In order to extract the discharged battery units, release the fasteners and lift the cover of the battery compartment.

FIG. 4-20

In order to replace the discharged battery units, insert the fully charged battery units into the slots, close the cover of the battery compartment and secure it with the fasteners.

FIG. 4-21

NOTICE If any of the battery units has been discharged, it needs to be extracted from the battery compartment and replaced with a fully charged battery unit. Make sure there are no fewer than 4 charged battery units in the battery compartment while operating the machine.

Charging Battery Units

NOTICE Battery charging system is compatible with a standard wall outlet connection.

Battery units are shipped with SOC (State of Charge) level lower than 25%. Check the battery units for damage and make sure to charge them fully before the first use.

NOTICE Dirty battery terminals must be cleaned with a dry and clean cloth. It is forbidden to use the battery units if the battery terminals are corroded. Battery units must always be kept dry and clean.

NOTICE During longer periods of non use, the battery units should be removed from the battery compartment to reduce self discharge.

It is crucial to ensure that the charging cradle is free of dirt and moisture, and that no obstructions, such as dust, papers, or soil, block the high voltage connector (A).

FIG. 4-22

DANGER Batteries expel explosive gases. Keep sparks, flames, burning cigarettes, or other ignition sources away at all times.

NOTICE Wear safety goggles and a face shield when working near batteries.

NOTICE Charge the battery in a well ventilated area. Do not attempt to charge a frozen battery.

NOTICE In case of exceptional temperature rise of the battery units during operation, the battery units must be disconnected and removed from the machine. Please report it to the Customer Service Department immediately.

WARNING! If the temperature of the battery unit is too high while charging, the charging process should be stopped immediately.

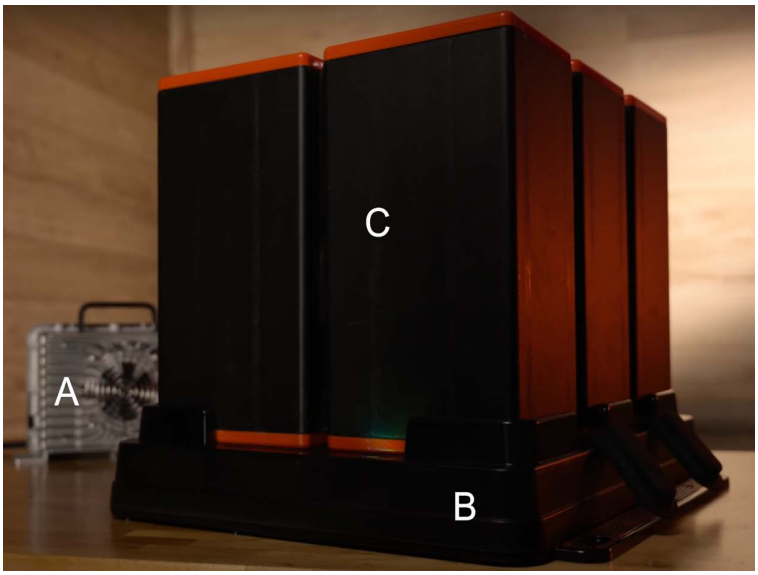


FIG. 4-23

To charge the battery units (C), the charger (A) and the charging cradle (B) must be used.

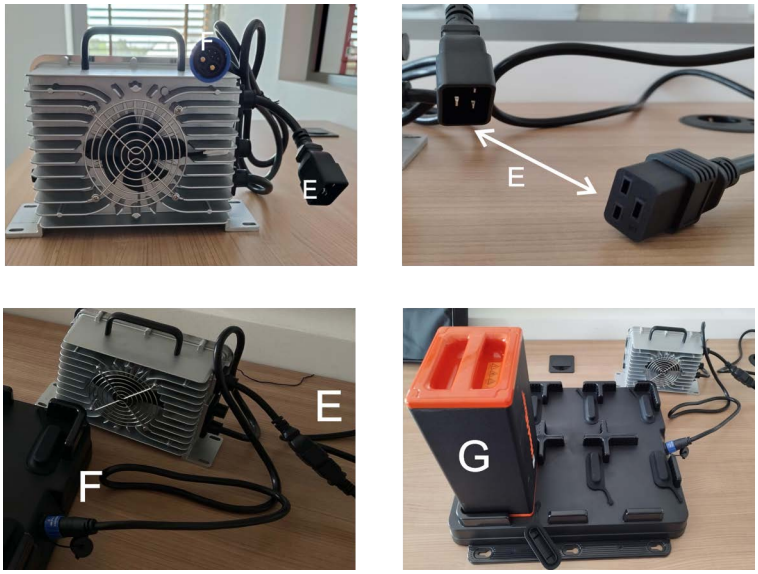


FIG. 4-24

Charging Procedure:

1. Connect the DC power cable (E) between the charger and the charging cradle.
2. Connect the CAN signal cable (F) between the charger and the charging cradle.
3. Insert the AC power plug into the AC power outlet.
4. Carefully put the battery unit (G) into the charging cradle slot.

Estimated battery charge time differs with regard to the number of battery units in the charging cradle - 4 batteries charge fully under 4 hours, 5 batteries under 5 hours, and 6 batteries under 6 hours.

The charging cradle is equipped with the SOC (state of charge) level indicator. The SOC level is shown in 10 steps, it means that each LED indicator bar stands for 10% of the charged battery unit. When the battery unit is fully charged, 10 LED bars are lit.

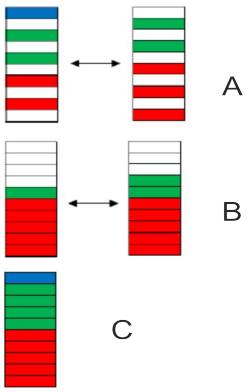


FIG. 4-25

A - Standby for charging: The LED level bar is flashing EVEN LED and ODD LED every 1 second alternatively.

B - The LED bar lights up every 10% increase in the state of charge level while charging the battery unit. For example, if the current SOC level for the battery unit is 70%, the 7th LED on the level bar will blink every second.

C - When the battery unit is fully charged, all LED bars are lit and the 10th LED bar is lit blue.

The charging cradle and the charger always need to be monitored and when the battery packs are fully charged, the blue led bar of the SOC level meter on the charging cradle is on. The fully charged battery units need to be removed as quick as possible just to avoid any unexpected overcharging or temperature rise.

WARNING! In case of temperature rise of the battery while charging, the charging process should be stopped immediately.

Errors While Charging the Battery Units

The SOC level indicator also displays error communicates if an error occurs while charging.

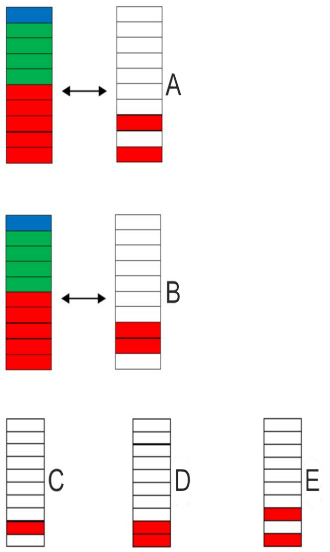


FIG. 4-26

A - Communication error. Disconnect the charger and the charging cradle, disconnect the AC power from the charger and repeat the charging procedure.

B - Charging error. Disconnect the charger and the charging cradle, disconnect the AC power from the charger and repeat the charging procedure.

C - Battery unit switch operation error. Disconnect the battery unit and leave it for a moment, then recharge it. If the error still occurs, contact the Customer Service Department.

D - Battery unit error or protection state. Disconnect the battery unit and leave it for a moment, then recharge it. If the error still occurs, contact the Customer Service Department.

E - Battery protection state due to over-temperature. Disconnect the battery and leave it until it cools down. Then recharge the battery.

4.12 Blade Guide Arm Operation

1. The outer blade guide should be properly positioned before starting to cut the log. It should be adjusted to clear the widest section of the log by less than 25 mm.

2. To adjust the outer blade guide use the blade guide arm handle shown below. Move the handle to the right to move the blade guide arm out. Move the handle to the left to move the blade guide arm in

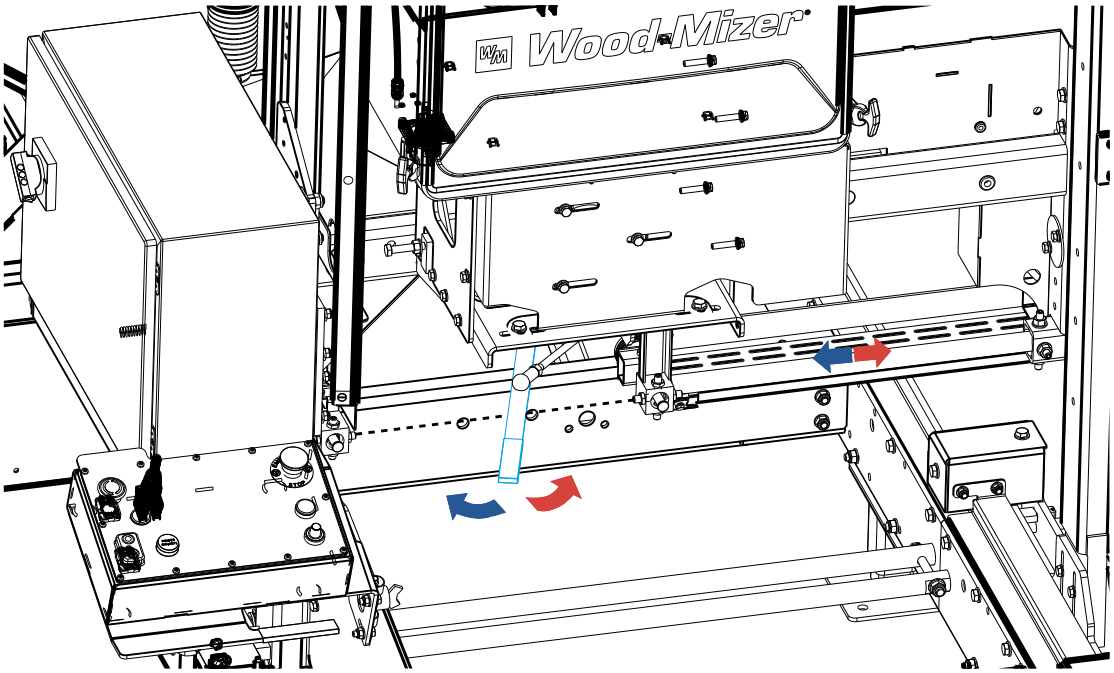


FIG. 4-27

4.13 Cutting The Log

The following steps guide you through normal operation of the Wood-Mizer sawmill.

1. Once the log is placed where you want it and clamp 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. (*See 4.15*) Set the blade to the desired height with the up/down buttons. Make sure that the blade will clear all side supports and clamps. Adjust the outer blade guide properly (*See 4.12*).

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

4. Start the water lube if necessary to prevent sap building on the blade (*See 4.16*).

5. 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.

6. As you get to the end of the log, slow down the feed rate. When the blade teeth exit the end of the log, release the operator presence control button on the control box. Remove the slab that you have just cut from the log.

7. Use the joystick on the control panel to return the saw head to the front of the mill. Always disengage the blade before returning the saw head for the next cut.

8. 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.

9. Remove the leveling wedge if it was used. Release the clamps and turn the log 90 or 180 degrees. Make sure the flat side of the log is placed against the side supports if the log was turned 90 degrees. If the log was turned 180 degrees, its flat side should rest on the bed rails. If the log was turned 90 degrees and it is necessary to level it on the bed, follow the leveling instructions described in Section 3.6.

10. Repeat the steps used to cut the first side of the log until the log is square. Then cut boards from the cant.

Example: Remember that the blade cuts a 1/16 - 1/8” (1.6 - 3.2mm) wide kerf. If you want 1” (25 mm) thick boards, lower the saw head 1 1/16 - 1 1/8” (27 - 29 mm) for each board.

4.14 Edging

The following steps guide you through edging boards on the Wood-Mizer sawmill.

1. Raise the side supports to 1/2 the height of the boards that need to be edged.

2. Stack these boards on edges against the side supports.

3. Clamp the boards against the side supports halfway up the board 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 boards 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 clamps and turn the edged boards over to edge the other side.

6. Repeat steps 2-4.

7. Loosen the clamps and remove the boards that have good clean edges on both sides. Clamp the remaining boards and repeat steps 2-5.

4.15 Blade Height Scale

The blade height scale is mounted on the vertical mast. It includes:

- a blade height indicator,

- a centimeter scale (or quarter inch scale),

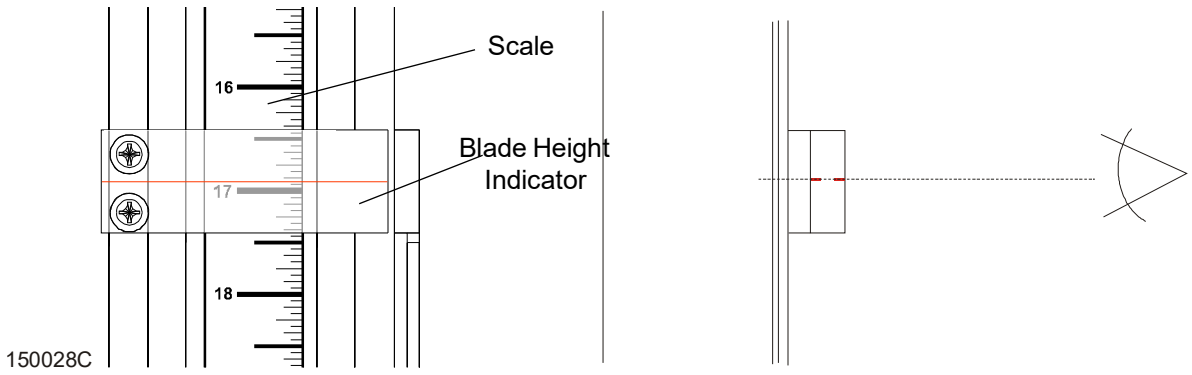


FIG. 4-28

Blade Height Indicator

The blade height indicator has two horizontal, red lines on both sides. Readings should be taken with eyes level with the indicator, when the two red lines are in line. This will allow to avoid the parallax error (different scale readings depending on the angle of vision).

Scale

The horizontal red line on 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 1” (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 29mm below the original measurement (the extra 3 mm allows for saw kerf and shrinkage of the lumber).

The yellow area on the scale identifies where the blade could encounter a side support or log clamp. Check that these items are below the blade level.

The Quarter Scale

See Table 4-2. The quarter scales contains four sets of marks. Each set represents a specific lumber thickness. Saw kerf and shrinkage allowance are included. Actual board thickness will vary slightly depending on blade thickness and tooth set.

To choose which scale to use, determine what finished thickness you want to end up with. The Grade Hardwood Quarter Scale provides thicker finished boards usually required by commercial buyers. The Standard Quarter Scale allows for kerf and shrinkage of finished boards suitable for most custom applications. Always check with your customer before you saw to determine what actual finished thickness is required.

Standard Quarter Scale	
Scale	**Actual Board Thickness**
4/4	1" (25 mm)
5/4	32 mm (1 1/4")
6/4	38 mm (1 1/2")
8/4	2" (51 mm)

Grade Hardwood Quarter Scale	
Scale	**Actual Board Thickness**
4/4	29 mm (1 1/8")
5/4	35 mm (1 3/8")
6/4	41 mm (1 5/8")
8/4	54 mm (2 1/8")

TABLE 4-2

To use the quarter scale, look at the blade height indicator. **Example:** You want to cut 1" (25 mm) random width boards from a log. Position the blade for the first cut. Adjust the quarter scale so a 4/4 mark is aligned with the red line on the indicator. Make a trim cut. Return the carriage for the second cut. Now, instead of having to measure down 1 1/8" (29 mm) on the inch scale, you can simply lower the blade so the indicator is aligned with the next 4/4 mark on the quarter scale. Turn the log 90 degrees and repeat.

4.16 Water Lube Operation

The Water Lube System keeps the blade clean. 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.

Open the valve on the water bottle to start water flow to the blade. The second valve is located next to the control panel. A stream of water flows only when the blade is engaged.

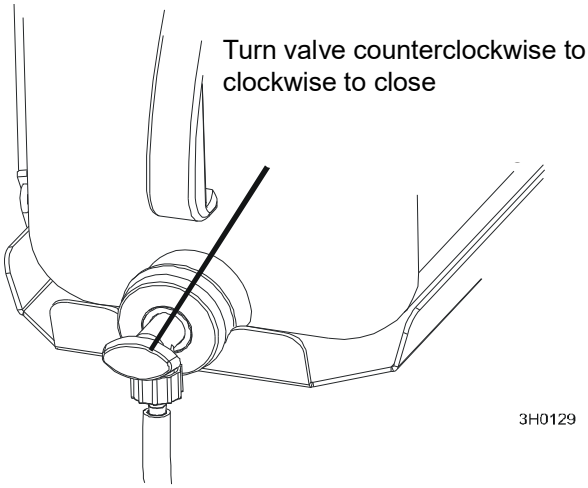


FIG. 4-29

Turn valve counterclockwise to start the water flow; clockwise to stop it.

FIG. 4-30

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

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, 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. To do this, disconnect the water lube hose from the water bottle and start the main motor for about 10 seconds.

4.17 Transporting the Sawmill

WARNING! Always remember to extract the battery units from the battery compartment before transporting the sawmill.

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

1. Adjust the saw head up just far enough so it will clear the sides of your truck bed when loaded. Do not adjust the saw head so high that the sawmill will tip easily while being loaded.

2. Move the saw head to one end of the frame. Engage the travel lock pin to prevent the saw head from moving. Pull the pin and rotate and release so the roll pin seats in the locking position notch.

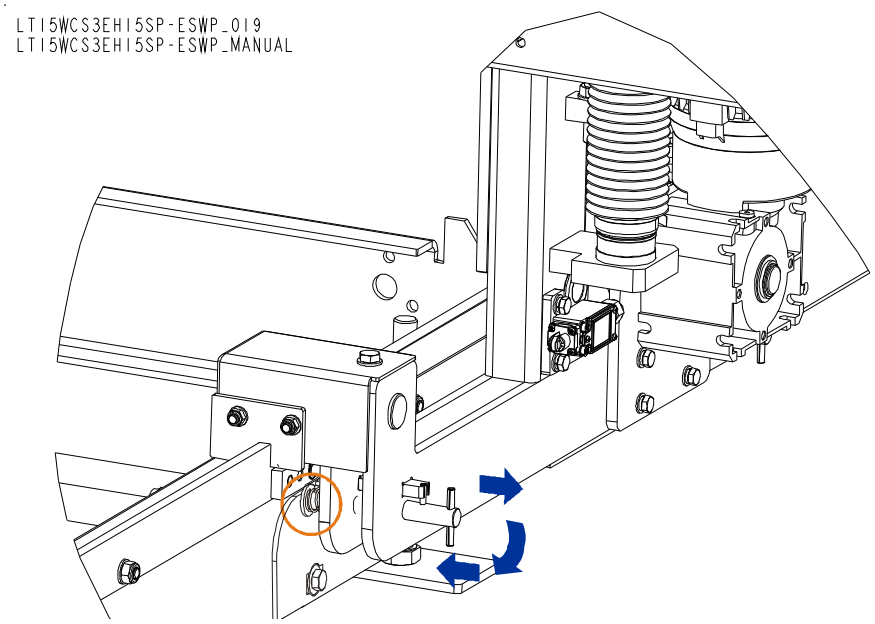


FIG. 4-31

3. Remove the leg assemblies or adjust them above the bottom of the bed frames.

4. Position the bed of the truck at the end of the frame opposite the saw head.

5. While two people lift the end of the frame without the saw head, back the truck under the sawmill until the end of the frame is resting firmly on the bed of the truck.

6. With a person positioned on either side of the saw head, disengage the travel lock pin. Push the saw head up the bed frame and engage the travel lock pin in the end of the frame in the truck bed.

7. Use two people to lift the end of the mill still on the ground and slide the sawmill into the truck bed.

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

8. Secure the sawmill to the truck bed to prevent the sawmill from shifting while it is being transported.

SECTION 5 SAWMILL ALIGNMENT

5.1 Pre-Alignment Procedures

Periodically check the sawmill alignment and adjust if necessary. This chapter explains how to align the entire sawmill. Care should be taken in performing these steps. Sawmill alignment determines the accuracy and squareness of your cuts.

The sawmill alignment steps are:

1. Prepare the sawmill for alignment,
2. Adjust the blade parallel to the bed rails,
3. Adjust the blade guide arm parallel to the saw head brace,
4. Align blade guides to the blade,
5. Adjust side supports square to the bed,
6. Final adjustments.

To insure accurate alignment, the sawmill frame must be level and the blade needs to be properly installed.

See SECTION 4 Sawmill Setup & Operation for setup information.

5.2 Pre-Installation Procedure

Before performing the following alignment procedures, setup the mill on firm, level ground. String the bed and adjust the legs so the frame is level.

5.3 Blade Installation and Alignment

Install a blade and apply the appropriate tension as shown in (Section 3.3 Tensioning The Blade.)

1. Close the blade housing cover and make sure all persons are clear of the open side of the saw head.
2. Start the motor for a moment.

WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

3. Turn off the motor, open the blade housing cover, remove the key from the key switch (or turn off the power supply using the switch on the electric box) and check the position of the blade on the blade wheels.

Check the vertical alignment of the idle-side blade wheel. The gullet of the blade should ride the same distance from the front edge of the wheel at the top and bottom of the wheel. If it does not, loosen and tighten the appropriate adjustment screws on the wheel shaft.

The blade wheels should be adjusted so that the gullet of 1 1/4" blades ride 1/8” (3 mm) out from the front edge of the wheels (±1/26 [1 mm]). The gullet of 1 1/2" blades should ride 3/16" (4.5 mm) from the front edge of the wheels (±1/26 [1 mm]). Do not let the blade teeth ride on the wheels.

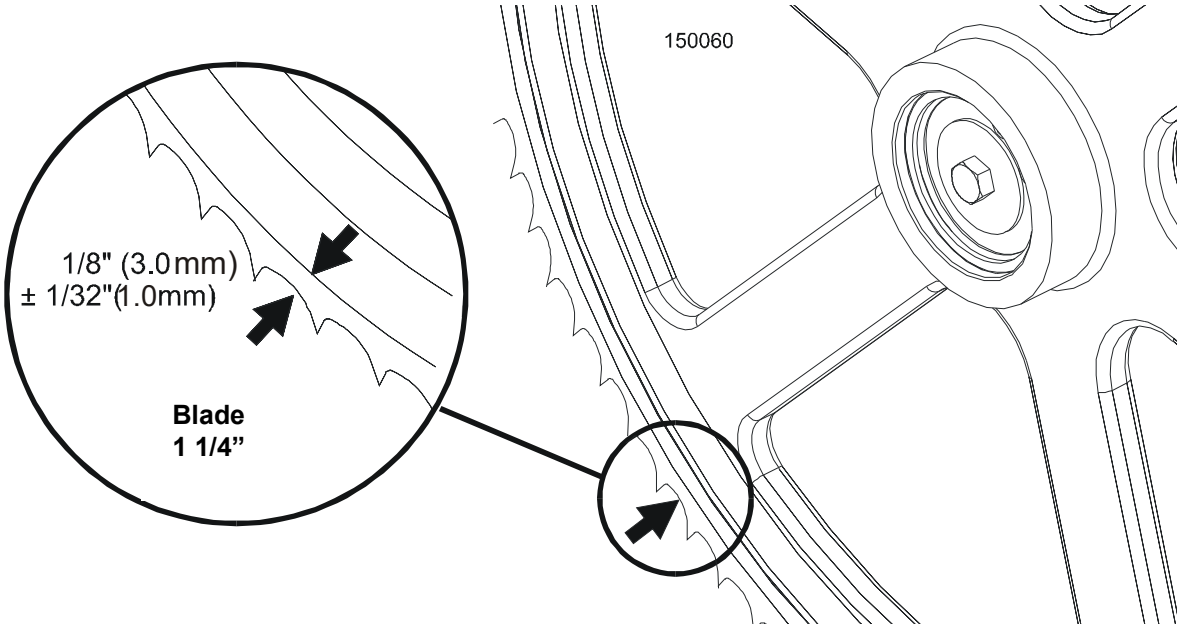


FIG. 5-1

To adjust where the blade travels on the idle-side and drive-side blade wheel see section below.

5.4 Blade Wheel Alignment

The blade wheels must be square to the sawmill bed and parallel to each other in the vertical and horizontal planes. If the blade wheels are tilted up or down, the blade will not be properly adjusted in relation to the sawmill bed and sawn wood. 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 tool to the blade near the inner blade guide. Be sure the tool does not rest on a tooth or burr and is lying flat on the table.

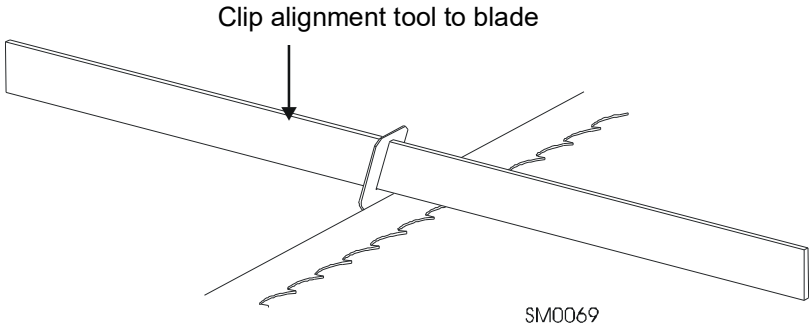


FIG. 5-2

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

3. Move the saw head so the front end of the tool is positioned over the bed rail. Again measure the distance 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.

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

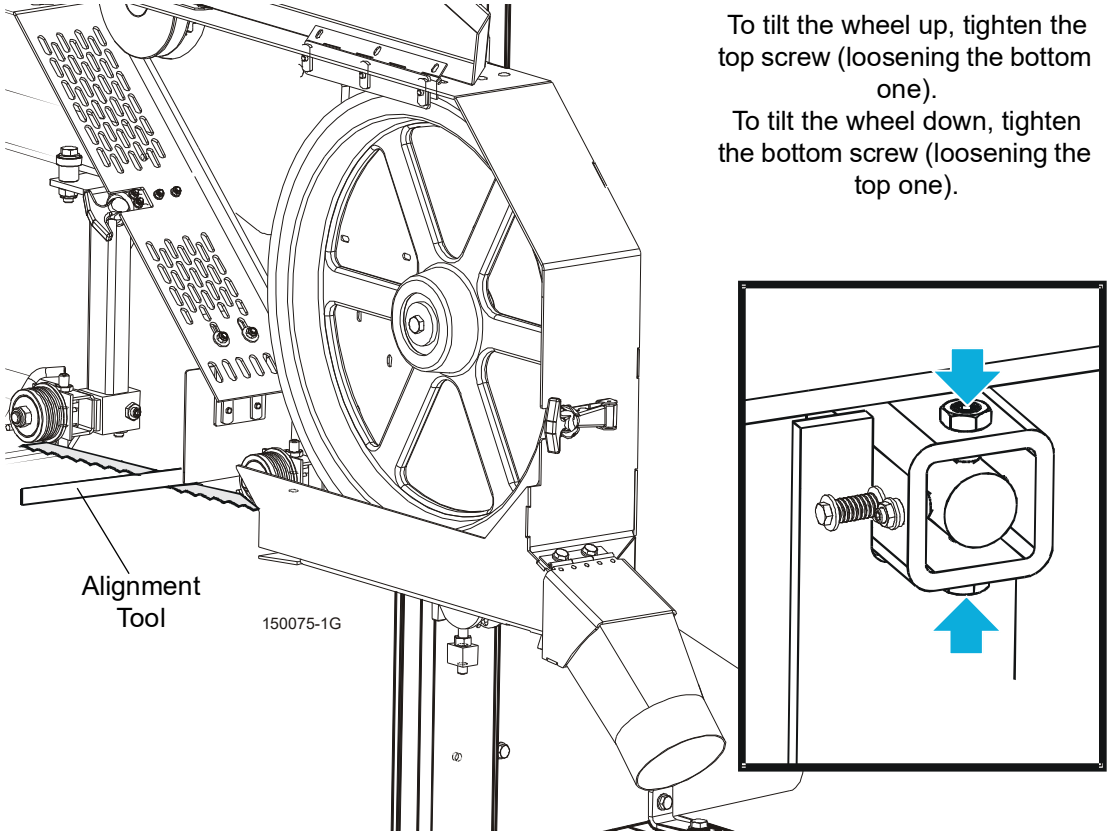


FIG. 5-3

5. Recheck the vertical tilt of the drive-side blade wheel with the blade guide alignment tool. Readjust the blade wheel as necessary until the front and rear of the tool are the same distance from the bedrail (± 1/16" [1.5 mm]).

6. Remove the tool from the blade and reattach it near the outer blade guide assembly.

7. Measure from the tool to the bed rail at both ends of the tool. If the measurements at the front and rear ends of the tool differ by more than 1/16" (1.5 mm), adjust the vertical tilt of the idle-side blade wheel.

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.

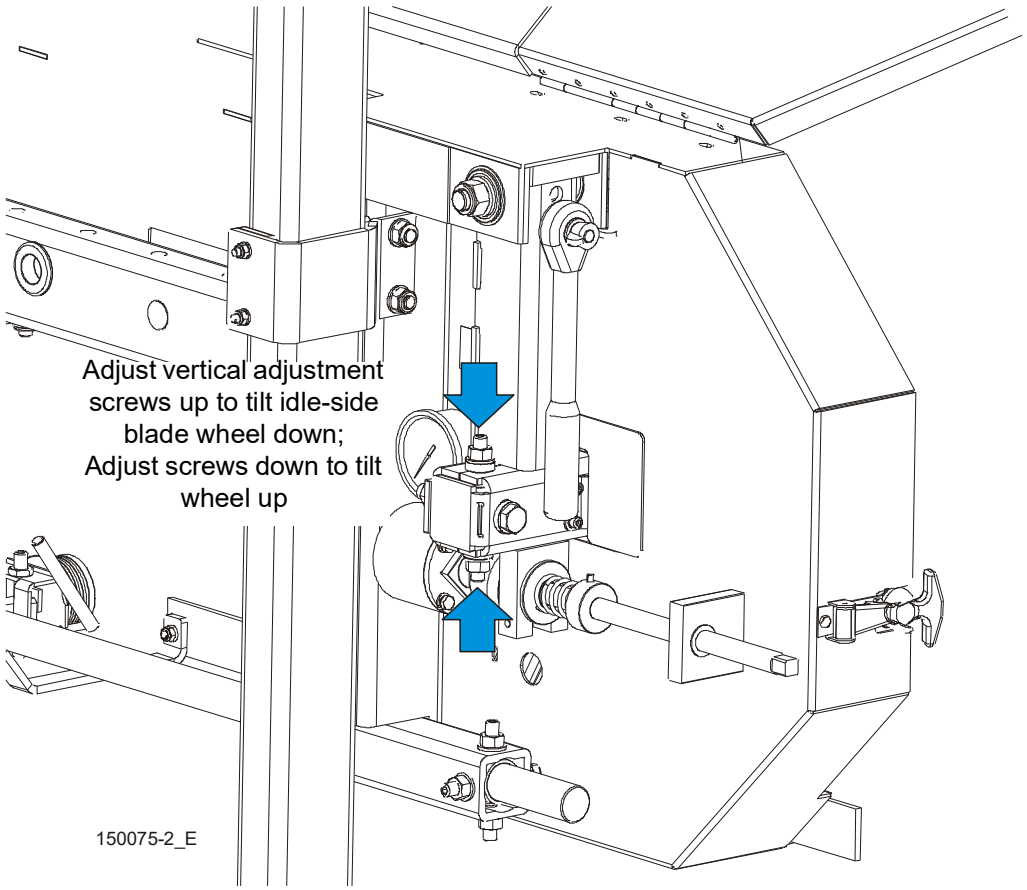


FIG. 5-4

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

9. Check the position of the blade on the idle-side blade wheel.

The horizontal tilt of the blade wheel should be adjusted so that the gullet of an 1-1/4" blade is 1/8" (3 mm) out from the front edge of the wheel (±1/32 [0.75 mm]).

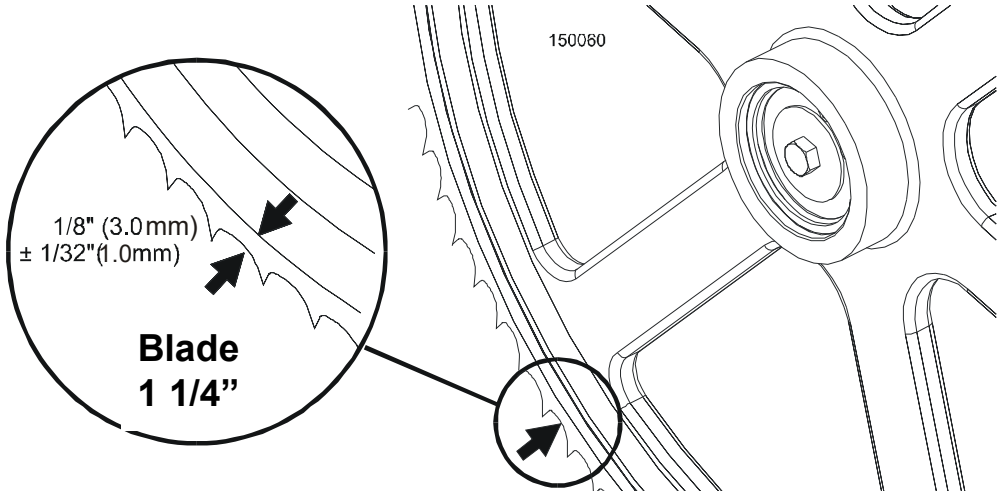


FIG. 5-5

Use the cant control adjustment to adjust the idle-side blade wheel. If the blade is too far forward on the wheel, turn the cant control counterclockwise. If it is too far back on the wheel, turn the cant control clockwise.

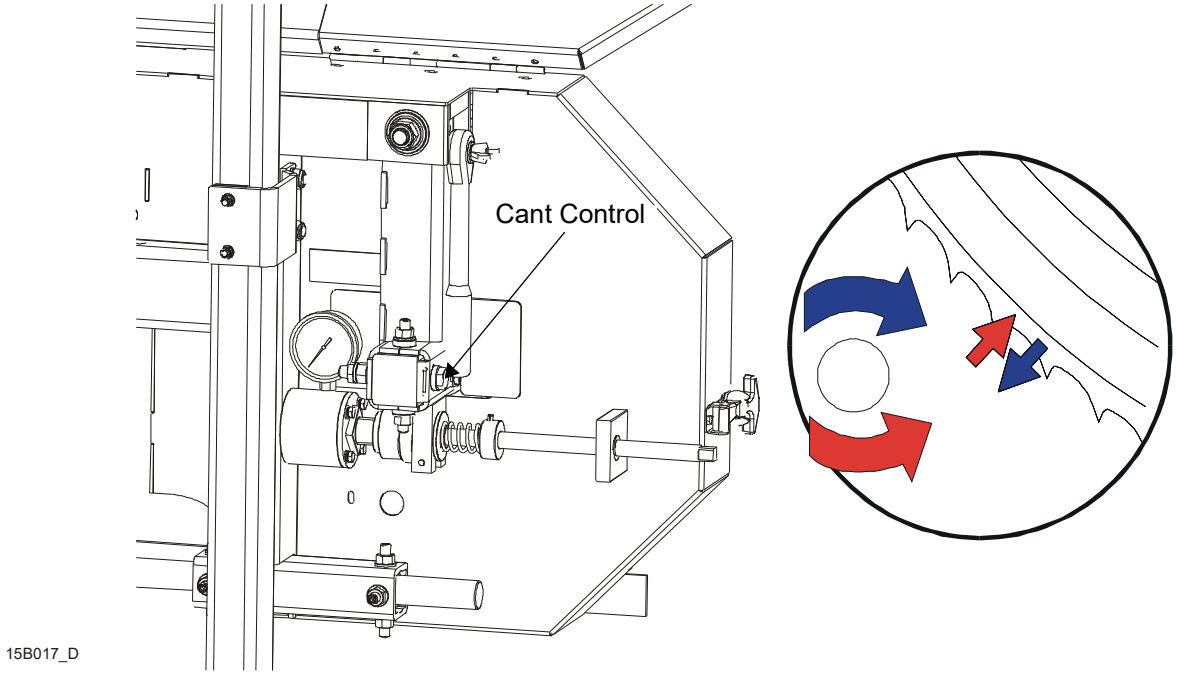


FIG. 5-6

10. 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.

Use the adjustment screw shown below to adjust the drive-side blade wheel horizontally. First, loosen the nut on this screw. Loosen adjustment screw to move blade out on wheel. Tighten adjustment screw to move blade in on wheel. Be sure to tighten the nut after adjustment.

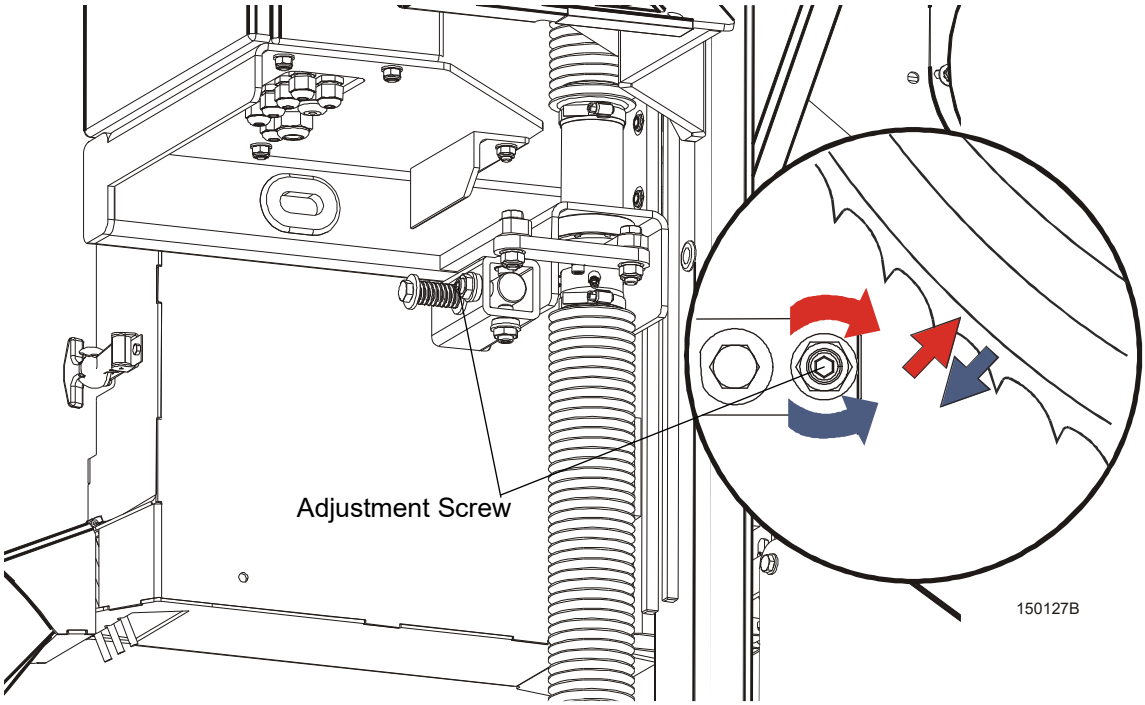


FIG. 5-7

NOTE: It is not necessary to align the spring bolt (M10x75 bolt [WM# F81003-15] + spring + washer) shown in the figure above. When replacing the bolt or spring just screw in the bolt maximally.

5.5 Blade Guide Arm Alignment

Before aligning the blade guide arm, track the blade on the blade wheels as described in Section 3.4 Tracking The Blade. Move the cutting head so the blade is positioned over the first bed rail. Level the blade to the bed rails shown in Section The LT15WC sawmills are only partially aligned at the factory. Some assemblies need to be aligned by the user before first usage of the sawmill.. Adjust the blade guide rollers so they do not touch the blade.

Vertical Alignment

1. Adjust the blade guide arm all the way out away from the other blade guide (maximum distance between the guide rollers).

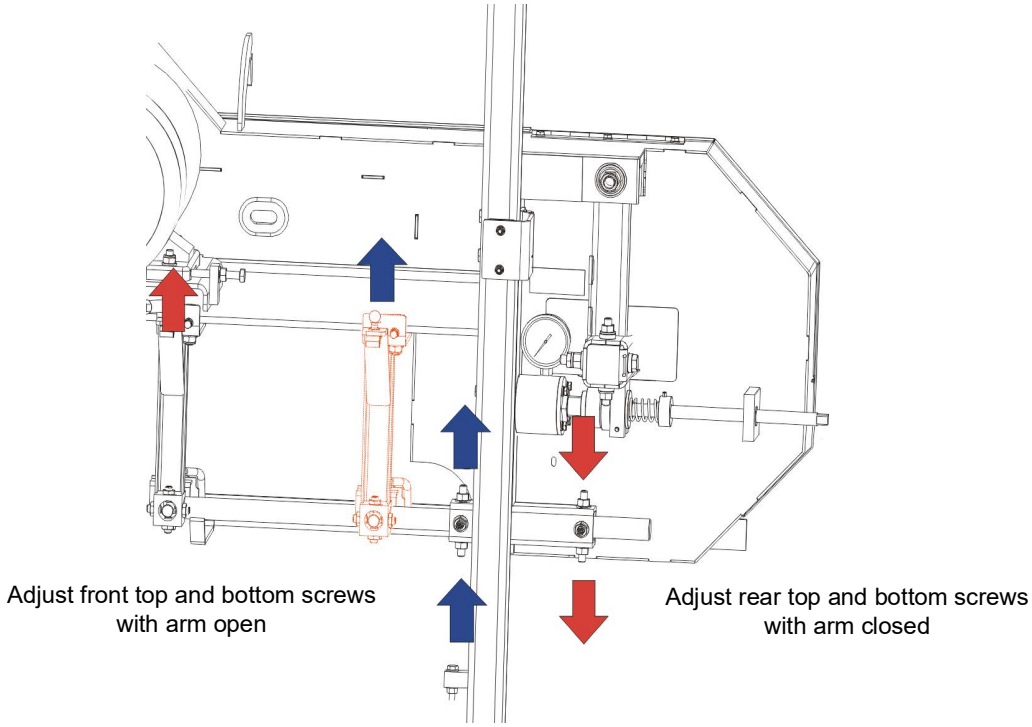


FIG. 5-8

2. Use the arm adjustment screws, marked with blue arrows in the figure above, to adjust the arm up until the slide pad touches the saw head brace tube. Tighten the jam nuts.

3. Adjust the blade guide arm in all the way toward the other blade guide (minimum distance between the guide rollers).

4. Use the arm adjustment screws, marked with red arrows in the figure above, to adjust the arm up until the slide pad touches the saw head brace tube. Tighten the jam nuts.

NOTE: When adjusting the blade guide arm screws, be careful not to damage their threads or deform the arm guide bushing. Operate the blade guide arm handle to ensure the arm moves easily left and right when the handle is moved.

Horizontal Alignment

1. With the blade guide arm still all the way in toward the other blade guide, tighten all the side screws until they touch the arm. Back the screws off 1/4 turn and tighten the jam nuts.

2. Sight across the horizontal saw head brace to view the blade guide arm. Adjust all side screws on the blade guide arm housing so the arm is parallel to the saw head brace.

3. To move the blade guide end of the arm toward the front of the sawmill, loosen jam nuts on the front inside screw and the rear outside screw. Turn the screws counterclockwise one full turn and tighten the jam nuts. Loosen the jam nuts on the front outside screw and the rear inside screw. Turn the screws clockwise until they touch the arm, back off 1/4” turn, and tighten the jam nuts.

4. To move the blade guide end of the arm toward the rear of the sawmill, loosen jam nuts on the front outside screw and the rear inside screw. Turn the screws counterclockwise one full turn and tighten the jam nuts. Loosen the jam nuts on the front inside screw and the rear outside screw. Turn the screws clockwise until they touch the arm, back off 1/4” turn, and tighten the jam nuts.

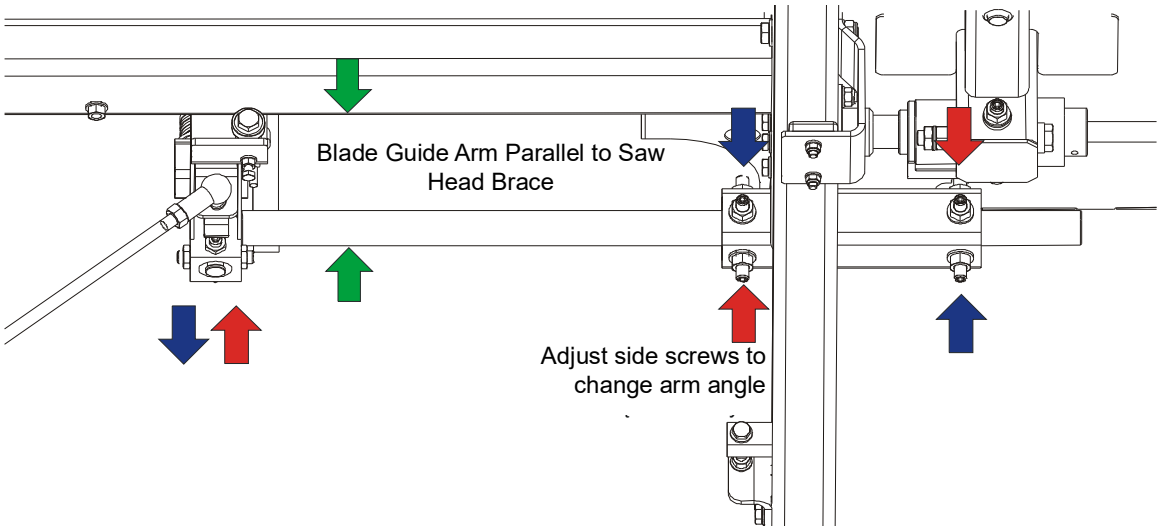


FIG. 5-9

5.6 Aligning The Blade Guides

Each Wood-Mizer sawmill has two blade guide assemblies that help the blade maintain a straight cut. The two blade guide assemblies are positioned on the saw head to guide the blade on each side of the material being cut.

One blade guide assembly is mounted in a stationary position on the drive side of the saw head. This assembly is referred to as the "inner" blade guide assembly.

The other blade guide assembly is mounted on the idle side of the saw head. It is referred to as the "outer" assembly and is adjustable for various widths of materials to be processed.

Blade guide alignment includes four steps:

- Blade Deflection,
- Blade Guide Vertical Tilt,
- Blade Guide Flange Spacing,
- Blade Guide Horizontal Tilt.

Perform the blade guide alignment after you have aligned the blade on the wheels and adjusted the blade and blade guide arm parallel to the bed rails. After the blade guide alignment procedure, check the scale indicator to make sure it is adjusted properly.

5.7 Blade Deflection

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

1. Raise the saw head until the blade is 15" (375 mm) above a bed rail. Measure the actual distance with a tape from the top of the rail to the bottom of the blade.

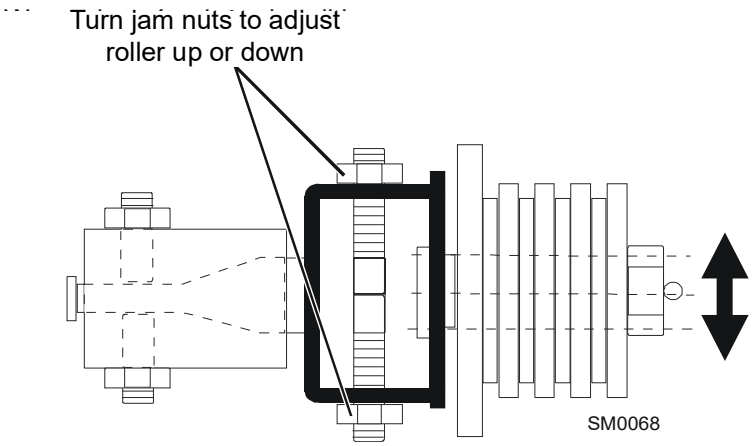


FIG. 5-10

2. Loosen the bottom jam nut and tighten the top jam nut until the blade guide deflects the blade down 6 mm.

3. Repeat for the other blade guide.

NOTE: Be sure the blade guard clears the blade on both guide assemblies. The guard on the outer guide assembly should be checked with the arm all the way in and all the way out.

5.8 Blade Guide Vertical 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. Open the adjustable blade guide arm 1/2" (15 mm) from full open.

2. 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 on the blade.

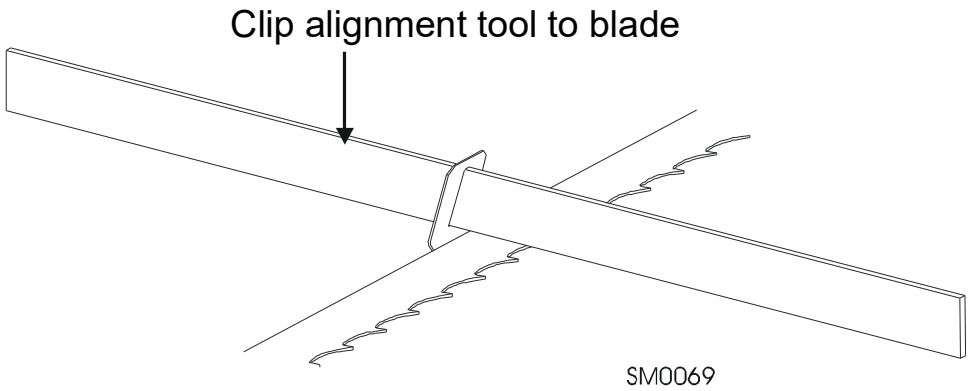


FIG. 5-11

3. Measure the distance from the bottom of the tool to the bed rail.

4. Move the saw head so that the front end of the tool is positioned above the bed rail.

5. Again measure the distance from the bottom of the tool to the bed rail.

6. 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 in Figure 6-12.

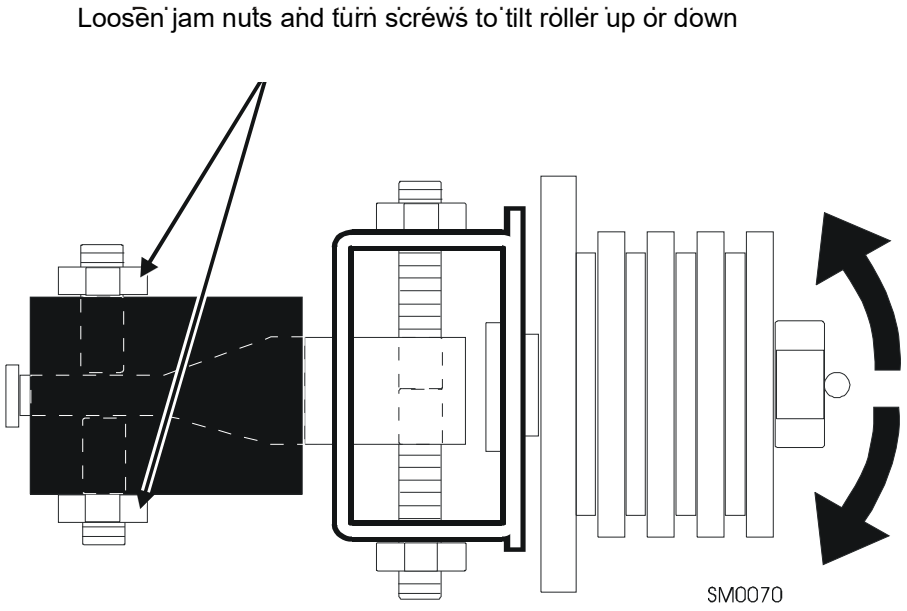


FIG. 5-12

7. Move the saw head forward so the back end of the tool is over the bed rail. Measure the distance between the tool and the bed rail.

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

9. Move the tool close to the other blade guide and repeat the previous steps.

NOTE: If any adjustments to blade guide tilt were made, make sure the blade deflection is correct (6 mm).

NOTE: After adjusting the blade guide spacing, start the blade drive for a moment. Then stop the blade and check again if the blade guides are properly positioned.

5.9 Blade Guide Spacing

HINT: When adjusting blade guide spacing, loosen the top set screw 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 inner blade guide so the blade guide flange is approximately 1/16" - 1/8" (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.

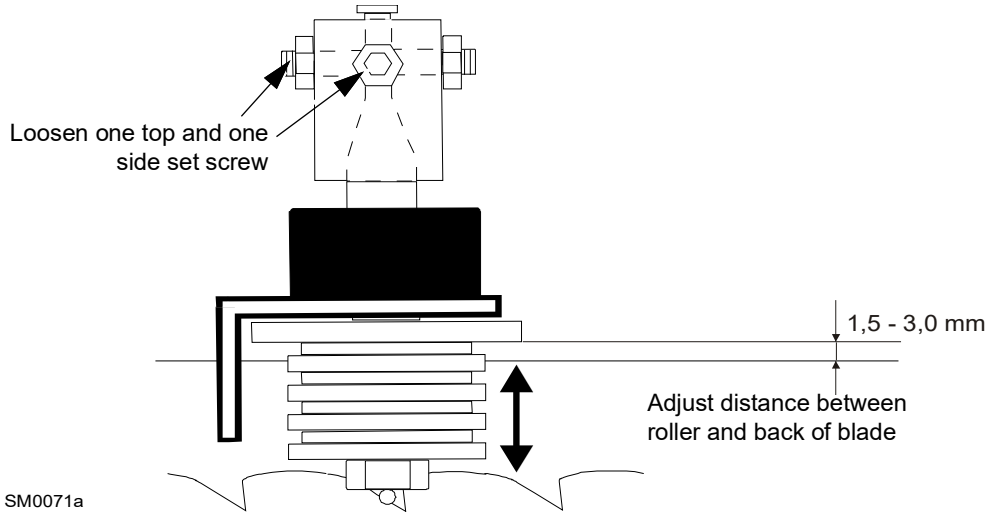


FIG. 5-13

3. Tighten the set screws.

4. Adjust the outer blade guide in the same way.

NOTE: After adjusting the blade guide spacing, start the blade drive for a moment. Then stop the blade and check again if the blade guides are properly positioned.

5.10 Horizontal Tilt Adjustment

1. Adjust the blade guide arm half way in.

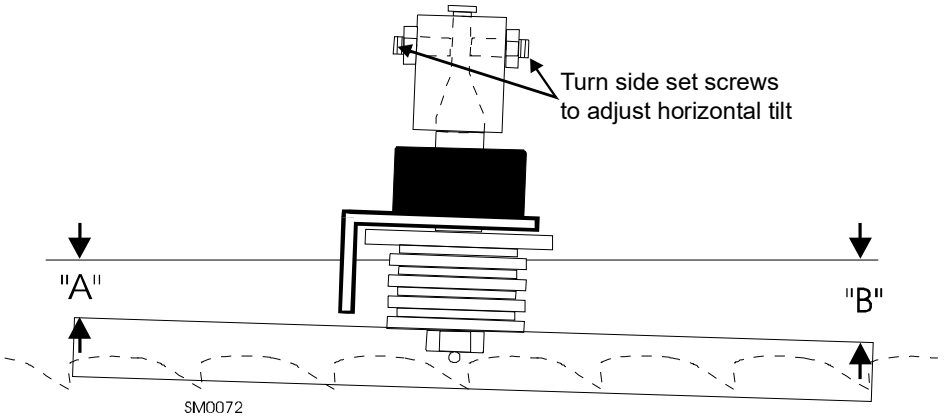


FIG. 5-14

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

3. Measure the distance between the back edge of the blade and the ruler at the end closest to the inner blade guide ("B").

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

5. The blade guide roller should be parallel to the blade (A=B) or slightly tilted in the horizontal plane as shown in Figure 6-14 (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 (see figure above).

6. Repeat the above steps for the inner blade guide.

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

5.11 Side Supports

Logs and boards are clamped against the side supports when sawing. The side supports must be square to the bed to ensure square lumber.

Perform the following steps:

1. Place a flat board across the bed rails.

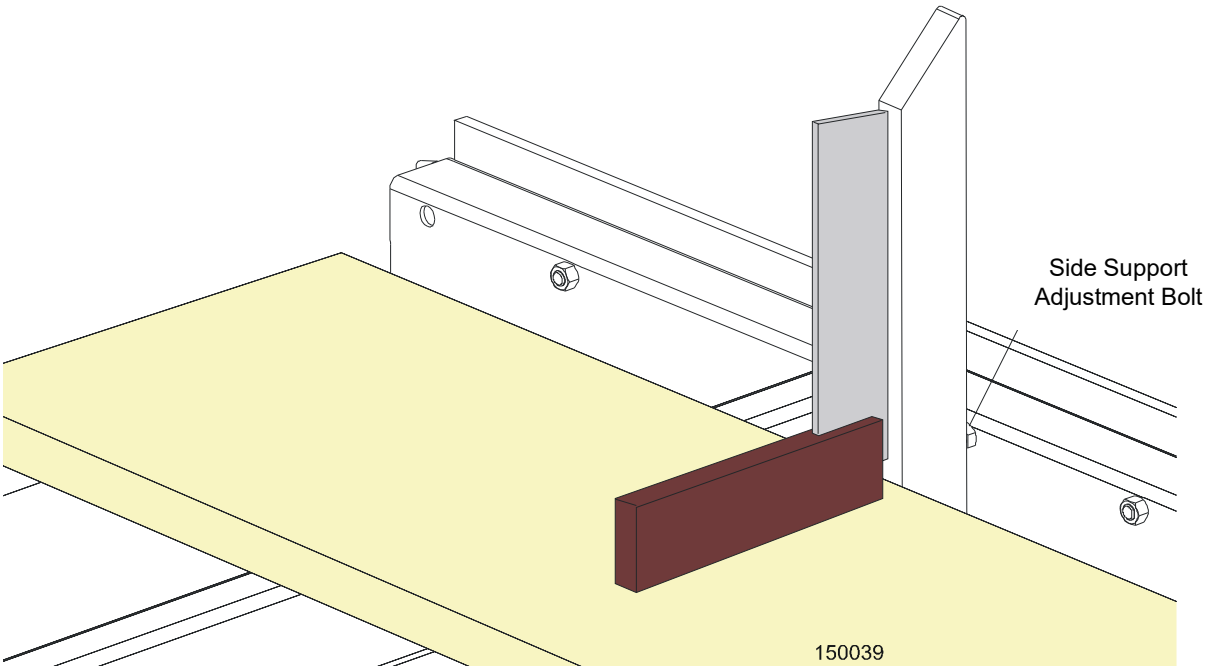


FIG. 5-15

2. Swing a side support up so that it is vertical.

3. Pull back at the top of the support to eliminate slack as if a log were being clamped against it.

4. Check the angle of each support with a square on the board.

5. The side support should be 90° to the bed rails. If it does not, use the adjustment bolt shown on the figure 6.15 to adjust the side support. Turn the adjustment bolt counterclockwise to tilt the top of the side support forward.

6. Repeat for the remaining side supports.

5.12 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.

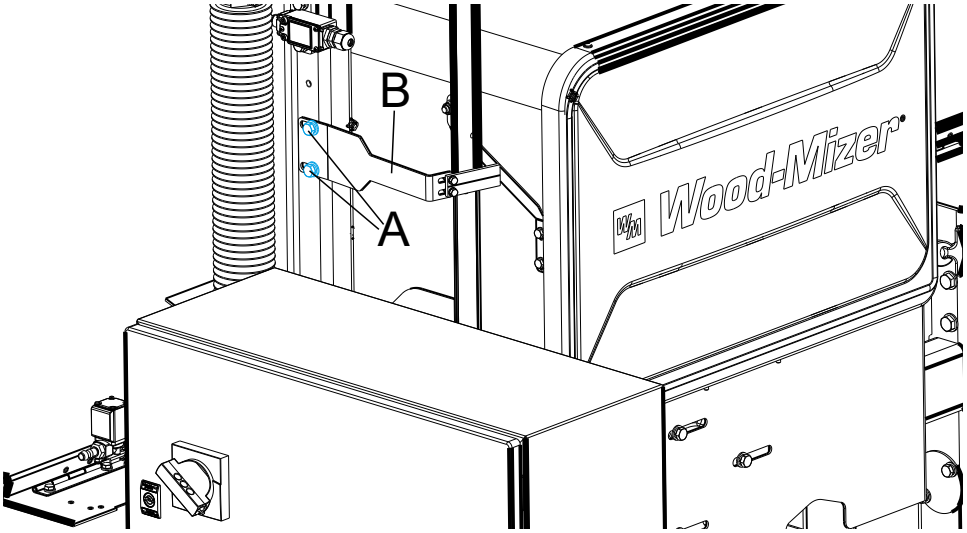


FIG. 5-16

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 (or stainless steel rail cover, if equipped).

2. Loosen the mounting bolts (A) of the scale bracket (B), adjust the bracket until the indicator is aligned with the correct mark on the scale. Retighten the bracket mounting bolts and nuts. For 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.

5.13 Track Roller Distance Adjustment

Using the screw (1), adjust the distance between the track roller (2) and the track rail (3) so that the mast can move freely. The distance should be about 0.5 mm.

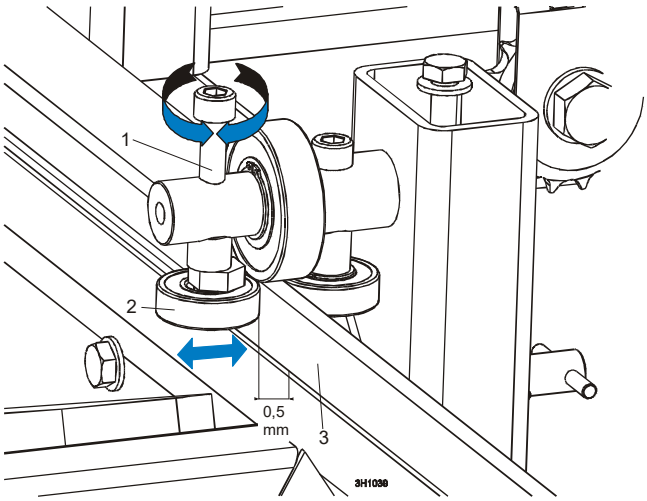


FIG. 5-17

SECTION 6 MAINTENANCE

This section lists the maintenance procedures that need to be performed on LT15-Battery Mill sawmills.

CAUTION! Always disconnect and lock out power supply before performing any maintenance work, cleaning or servicing the sawmill. Extract the battery units from the battery compartment before performing any maintenance work, cleaning or servicing the sawmill. Failure to do so may result in serious injury.

This section lists only part of the maintenance procedures that need to be performed on LT15-Battery Mill sawmills. Be sure to refer to option manuals for other maintenance procedures.

6.1 Wear Life

See table 6-1. This chart lists estimated life expectancy of common replacement parts if proper maintenance and operation procedures are followed. This information is provided so that you may plan ahead in ordering replacement parts. This chart lists estimated life expectancy of common replacement parts if proper maintenance and operation procedures are followed. Due to many variables which exist during sawmill operation the actual part life may vary significantly.

Part Description	Estimated Life
Blade Wheel Belts (B57)	500 hours
Blade Guide Rollers	1000 hours
Drive Belt	1250 hours

TABLE 6-1

6.2 Blade Guides

WARNING! Turn the key switch to the OFF (#0) position prior to performing service near moving parts such as blades, pulleys, motors, belts, or chains.

Check the rollers for performance and wear every blade change. Make sure the rollers are clean and spinning freely. If not, replace them. Replace any rollers which have worn smooth or have become cone shaped.

6.3 Sawdust Removal

Remove sawdust from the blade wheel housing and sawdust chute at every blade change.

6.4 Carriage Track & Rollers

1. Clean the track rails to remove any sawdust and sap buildup every 8 hours of operation.

2. Remove sawdust from the track roller housings and track rail with felt strip cover (B). To do this, remove the bolts (A) and brush any sawdust buildup. Soak the felt wiper with Dexron III transmission fluid, 10W30 motor oil or 3-in-1 turbine oil every 25 hours of operation.

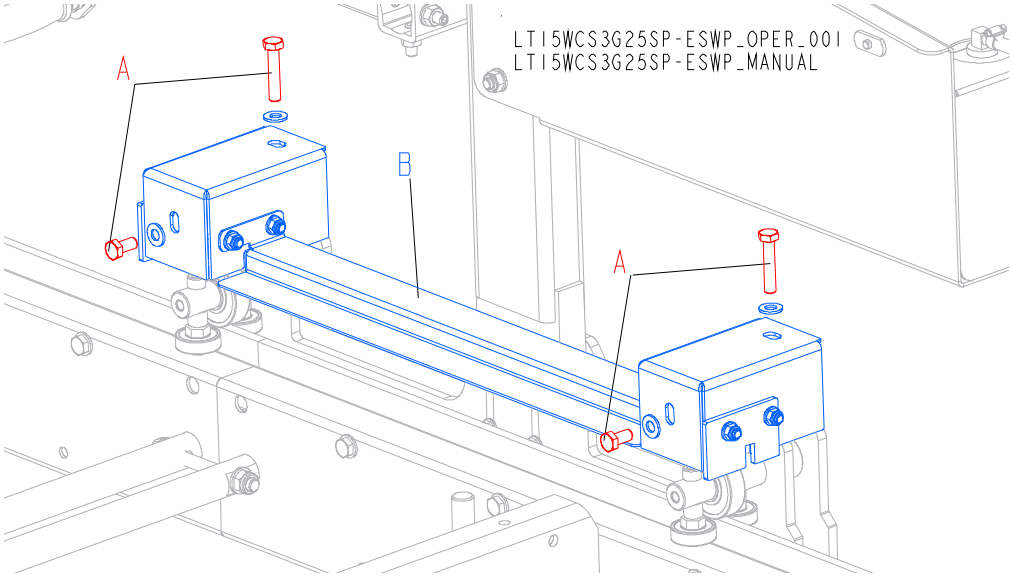


FIG. 6-1

CAUTION! Keep track rails free of rust. Formation of rust on the track rail in the areas where the cam bearings roll can cause rapid deterioration of the track rail's surface.

6.5 Vertical Mast Rails

WARNING! Turn the key switch to the OFF (#0) position prior to performing service near moving parts such as blades, pulleys, motors, belts, or chains.

Clean the vertical mast rails every 50 hours of operation. Clean with solvent and remove any rust with a light-grade sandpaper.

CAUTION! Never use grease on the mast rails as it will collect sawdust.

6.6 Miscellaneous Maintenance

Oil all chains with Dexron III ATF every fifty hours of operation.

CAUTION! Do not use chain lube. It causes sawdust buildup in chain links.

Grease the clamps and side support pivots with a NLGI No. 2 grade lithium grease every fifty hours of operation.

Check the mill alignment every setup *See Section 5 Sawmill Alignment*.

Check the drive belt tension after the first 20 hours and every 50 hours thereafter.

Make sure all safety warning decals are readable. Remove sawdust and dirt. Replace any damaged or unreadable decals immediately. Order decals from your Customer Service Representative.

6.7 Filling Blade Tensioner Cylinder with Oil

1. Loosen the blade tensioner completely.
2. Unscrew the oil pressure gauge.

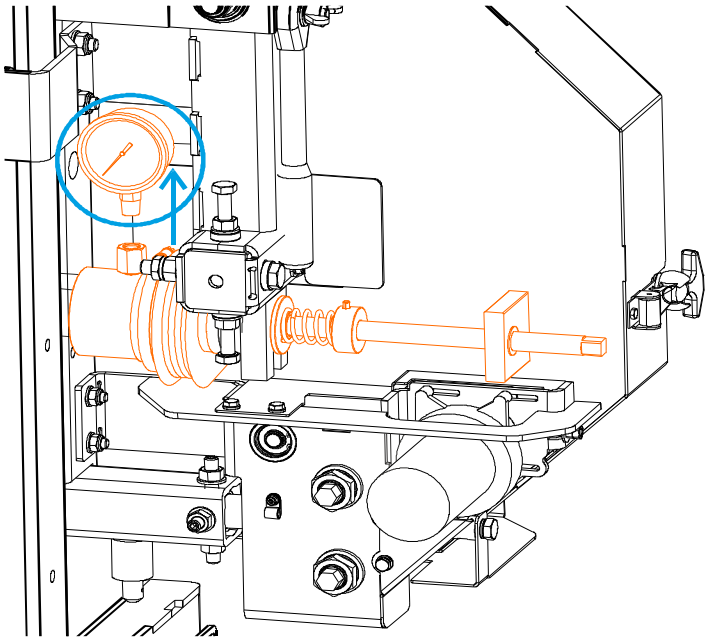


FIG. 6-2

3. Use an oiler equipped with a tube / hose to top up the oil level until the oil flows out of the cylinder.

   NOTICE The cylinder needs to be filled with MOBIL DTE 10 Excel 32 Hydraulic Oil (#WM part number: **P12825**).

   NOTICE When topping up the oil level, make sure that the end of the oiler tube / hose is at the bottom of the cylinder.

4. Wait 5 minutes. If the oil level does not lower, move on to the next step. If the oil level lowers, top up the oil level until the oil flows out of the cylinder.

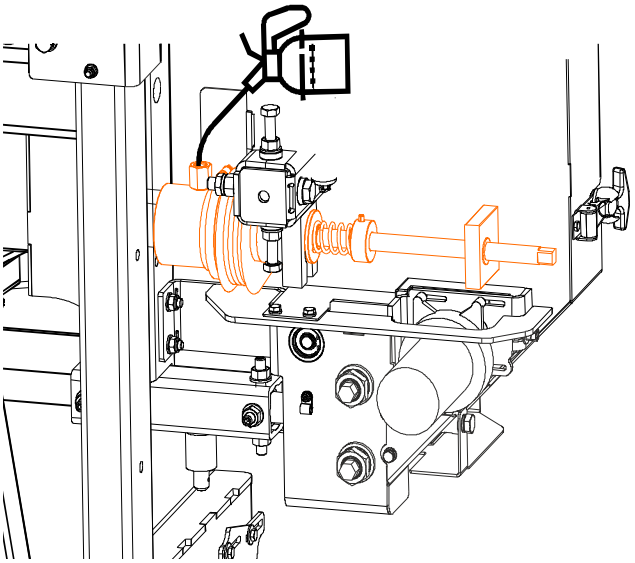


FIG. 6-3

5. Seal the oil pressure gauge with Teflon tape and screw it back.

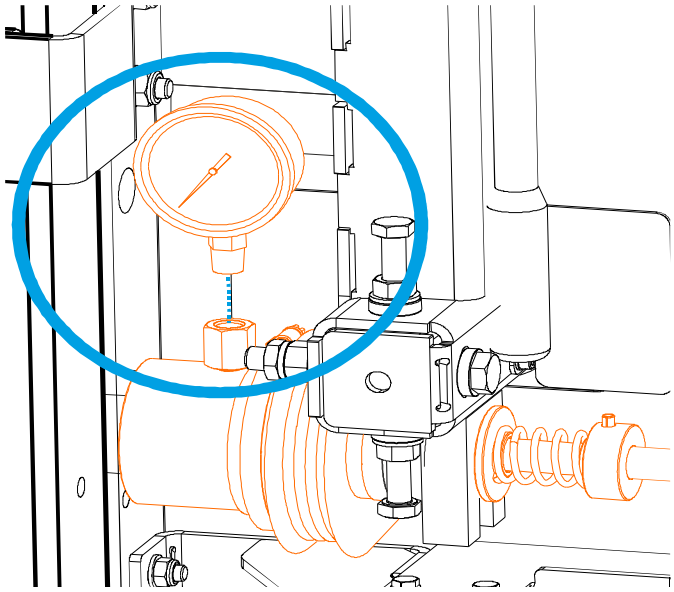


FIG. 6-4

6.8 Blade Wheel Belts

1. Check the blade wheel belts for wear. Replace belts if necessary. Rotating the belts every 50 hours will increase the belt life. Use only B57 belts manufactured by Goodyear or Browning.

2. Periodically check all belts for wear. Replace any damaged or worn belts as needed.

6.9 Up/Down Feed System

CAUTION! Remove any sawdust buildup from the up/down screw bellows, the up/down screw nut, the upper and lower limit switches and the lower bearing housing.

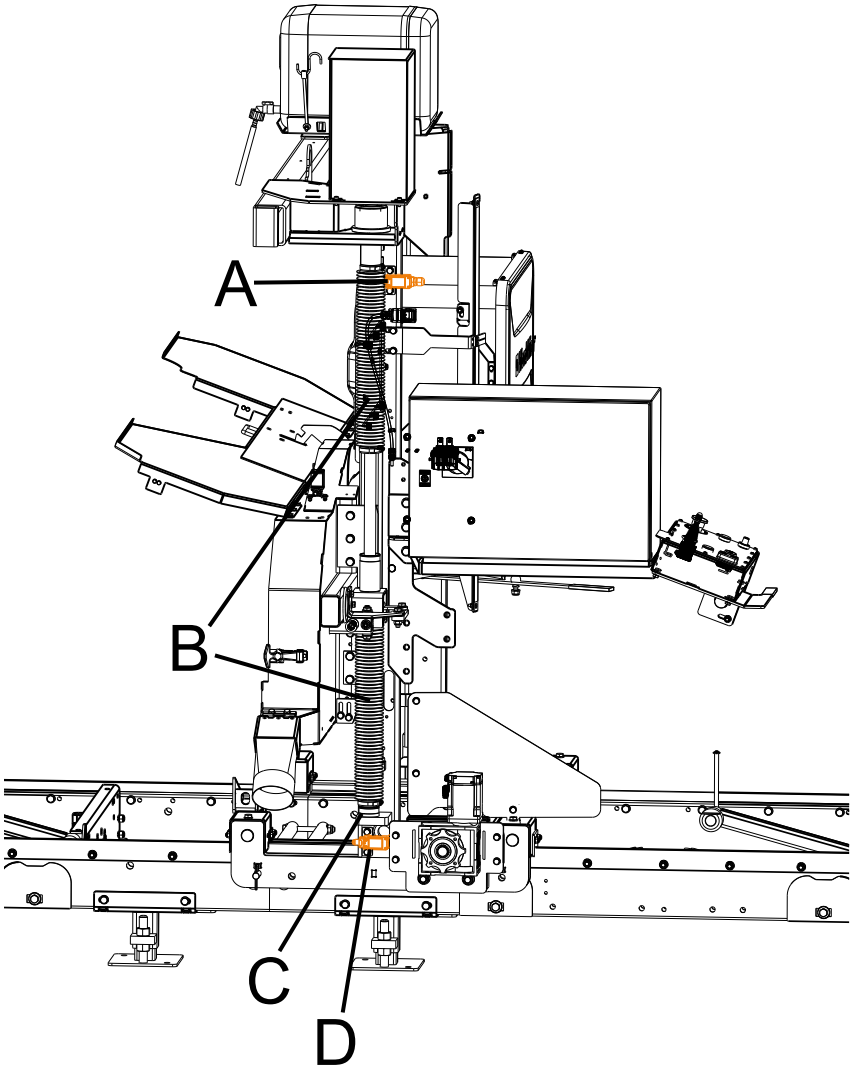


FIG. 6-5

A - Upper limit switch,

B - Up/down screw bellows,

C - Lower bearing housing,

D - Lower limit switch.

3. Lubricate the up/down acme screw with a rolling bearing lubricant (e.g. Shell Extreme Pressure Grease) every six months. Apply the lubricant to the grease fitting in the nut housing. Lubrication may be required sooner if environmental conditions require it. If the lubricant appears to have dispersed or is dry or crusted, reduce the maintenance interval.

The up/down screw bellows should completely cover the screw. If either of the bellows is damaged, replace it immediately. Before installing the new bellows, clean the up/down screw and nut thoroughly with extraction naphtha. The acme screw nut should be replaced if the end play is larger than 1.25 mm.

4. Check the up/down belt tension after the first 20 hours of operation and every 100 hours thereafter.

6.10 Maintenance chart

MAINTENANCE LOG (Check *Option Manuals* for additional maintenance procedures)	MAINTENANCE INTERVAL
Clean sawdust from battery compartment & track cover	8 hours
Clean and lubricate top/bottom track	8 hours
Check blade guide roller wear	8 hours Every blade change
Remove excess sawdust from blade wheel housings and sawdust chute	8 hours Every blade change
Inspect fingers inside sawdust chute	8 hours Every blade change
Remove sawdust from upper track roller housings	25 hours
Clean & lube mast rails	50 hours
Grease pivot points and bearings/oil chains	50 hours
Rotate drive/idle blade wheel belts/check for wear	50 hours
Check belt tensions	50 hours
Re-check belt tensions	200 hours

6.11 Storage of the Battery Units, the Charging Cradle and the Charger

The items should be stored in their packaging box when not in use. The battery units should not be stored in direct sunlight. The battery units should be stored in a clean, dry, well ventilated area on level ground. The warehouse temperature should be within the range of 40°C to 70°C (104°F to 158°F) for extreme temperatures, and 20°C to 50°C (68°F to 122°F) for normal temperatures. The battery units terminals should be covered with non-electroconductive material, such as insulating tape. The battery units should be stored with the State of Charge (SoC) ranging between 40% to 60% of its nominal capacity.

The warehouse should not contain harmful gases, flammable or explosive products, corrosive chemicals. The items should not be exposed to strong mechanical vibrations, shocks, or magnetic fields. The packaging box should be placed at least 20cm (8 inches) above ground and 50cm (20 inches) away from walls, heat sources, and vents.

Under these conditions, the components have a storage period of 2 years, and should be rechecked if stored for more than 2 years.

6.12 Disposing of the Used Battery Units

At the end of their service life, the battery units must be disposed of according to legal provisions. If the battery unit is not broken or damaged, make sure it is fully discharged before you dispose of it. This will help prevent short circuits. Cover the terminals of the battery unit with non conductive tape or another suitable material. If the battery is broken or damaged, protect it from short circuits and pack it separately with inert material like sand or vermiculite

SECTION 7 TROUBLESHOOTING GUIDE

7.1 Sawing Problems

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position, remove the key and extract the battery units from the battery compartment.

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. Use water/coolant while sharpening blade
	Poor sharpening techniques	Make sure the tip is being sharpened completely: Read the instructions with your blade sharpening equipment carefully
Blades Break Prematurely	Poor sharpening techniques	Read the instructions with your blade sharpening equipment carefully
	Tension too tight	Tension blade to recommended specifications
Blade Does Not Track Right on Drive Wheel	Cant adjustment is incorrect	Readjust
Drive Belts Wear Prematurely or Jump	Motor drive pulleys out of alignment	Align pulleys
Boards Thick Or Thin On Ends Or Middle Of Board.	Stress in log which causes log to not lay flat on the 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.
	Set in teeth.	Resharpen and reset blade.
	Bed rails misaligned.	Realign sawmill.
Lumber Is Not Square	Vertical side supports not square to bed	Adjust side supports.
	Blade not parallel to bed rails	Adjust bed rails parallel to blade.
	Sawdust or bark between cant and bed rails	Remove particles
	Tooth set problems	Resharpen and reset blade
Sawdust Builds Up On Track	Excessive oiling	Do not oil track
	Track wipers worn	Adjust wipers to firmly contact track
	Track is sticky	Clean track with solvent and apply silicone spray
Wavy Cuts	Excessive feed	Slow feed rate
	Improperly sharpened blade (This will be the most frequent cause of the problem)	Resharpen blade, following the sharpener's instructions carefully
	Blade guides improperly adjusted	Adjust blade guides.
	Sap buildup on blade	Use Water Lube.
	Tooth set problem	Resharpen and reset blade

7.2 Error Codes

NOTICE See the table below for error codes along with their description and actions that should be performed if a given error appears on the control panel display during operation.

DEVICE	ERROR CODE	DESCRIPTION	ACTION
MAIN MOTOR	101	MCU COMMUNICATION ERROR	MCU CAN communication error, check the CAN cable
	103	OVER CURRENT	The motor is overloaded, slow feed forward or your log is too big to cut
	104	TEMPERATURE OF THE CONTROLLER IS TOO HIGH	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	109	UNDER-VOLTAGE OF BATTERY PACK	Charge the battery units
	110	OVER-VOLTAGE OF BATTERY PACK	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	111	TEMPERATURE OF THE MOTOR IS TOO HIGH	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	113	THE ACCELERATOR FAULT	No issue
BATTERY UNIT	201	BATTERY COMMUNICATION ERROR	Pull out and insert the battery unit again, if the error still appears, contact the Customer Service Department
	202	BATTERY FET CONTROL ERROR	Replace the battery unit and contact the Customer Service Department
	203	BATTERY (BMSERROR, BMSPROTECTION)	Replace the battery unit and contact the Customer Service Department
	204	BATTERY VOLTAGE UNBALANCE ERROR	Recharge the battery fully and try again.if error continue, contact CS
	205	BATTERY CELL OR PACK OVER TEMPERATURE PROTECTION (OTP)	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	206	BATTERY CELL OR PACK UNDER VOLTAGE PROTECTION (UVP)	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	207	BATTERY CELL OR PACK OVER VOLTAGE PROTECTION (OVP)	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	208	BATTERY CELL OR PACK OVER CURRENT PROTECTION(OCP)	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	209	BATTERY CELL OR PACK UNDER TEMPERATURE PROTECTION(UTP)	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	210	BMS IC ERROR, SHORT, FET ERROR, FET THERMISTOR ERROR, FET HI TEMP	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	211	BMS ERROR LOW VOLTAGE, HI VOLTAGE, LOW TEMP, HI TEMP, HI CURRENT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
POWER FEED MOTOR	300	DATA CRC FAILURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department

TABLE 7-1

	301	DRIVER INTERNAL ERROR	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	302	SHORT CIRCUIT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	303	DRIVER OVER TEMPERATURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	304	MOTOR OVER TEMPERATURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	305	OVER VOLTAGE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	306	UNDER VOLTAGE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	307	FEEDBACK FAULT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	308	PHASING ERROR	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	309	TRACKING ERROR	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	310	OVER CURRENT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	311	FPGA FAILURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	312	COMMAND INPUT LOST	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	313	FPGA FAILURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	314	SAFETY CIRCUIT FAULT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	315	UNABLE TO CONTROL CURRENT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
UP/DOWN MOTOR	400	DATA CRC FAILURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	401	DRIVER INTERNAL ERROR	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	402	SHORT CIRCUIT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department

TABLE 7-1

	403	DRIVER OVER TEMPERATURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	404	MOTOR OVER TEMPERATURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	405	OVER VOLTAGE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	406	UNDER VOLTAGE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	407	FEEDBACK FAULT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	408	PHASING ERROR	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	409	TRACKING ERROR	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	410	OVER CURRENT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	411	FPGA FAILURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	412	COMMAND INPUT LOST	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	413	FPGA FAILURE	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	414	SAFETY CIRCUIT FAULT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department
	415	UNABLE TO CONTROL CURRENT	Turn off the system for 30 minutes, and try again, if the error still appears, contact the Customer Service Department

TABLE 7-1