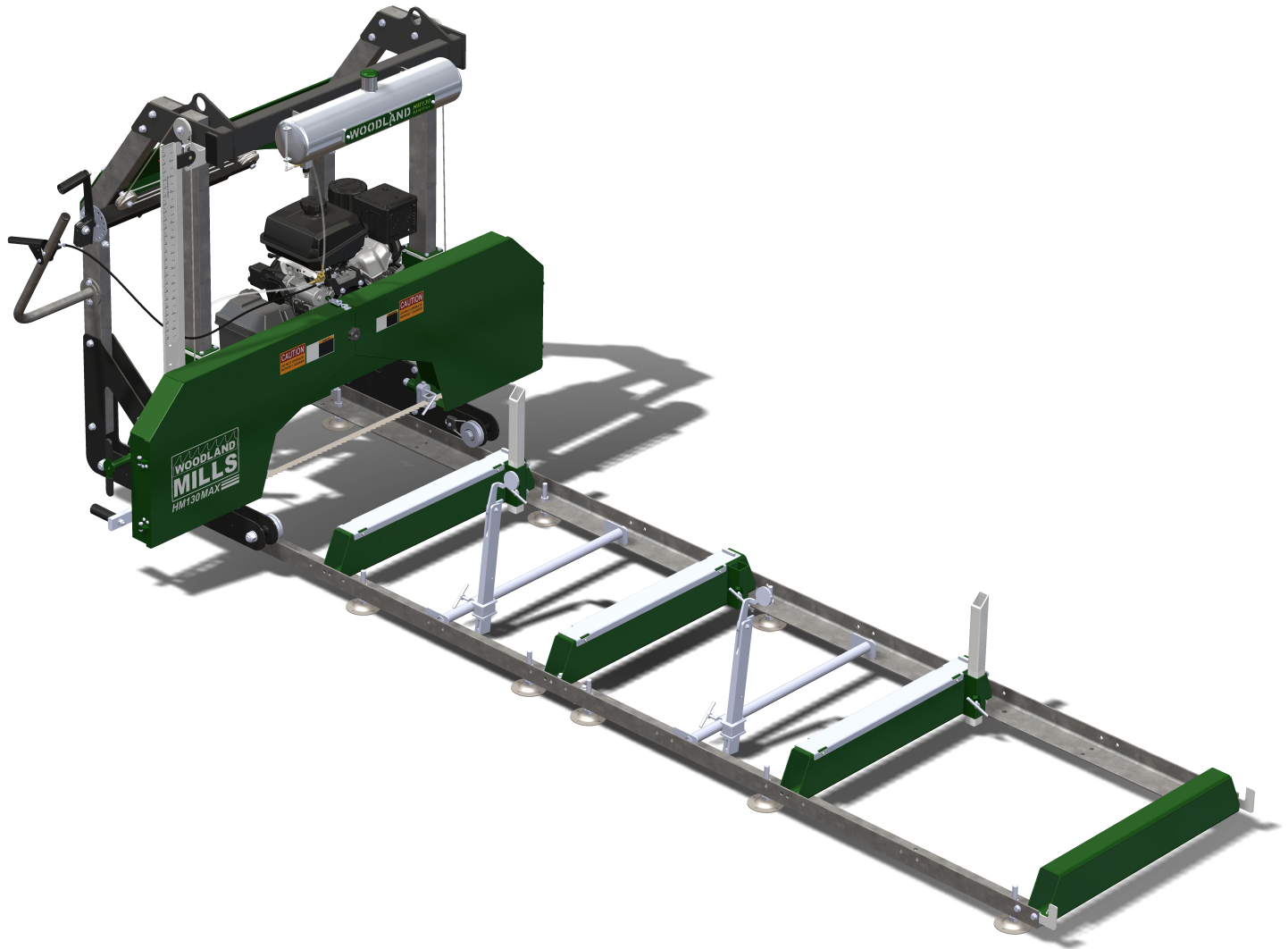


HM130MAX™ PORTABLE SAWMILL

14 Horsepower Electric Start



OPERATOR'S MANUAL



DISCOVER THE WOODLAND™

HM130MAX™ is a trademark of Woodland Mills, Inc.

This page intentionally left blank.



TABLE OF CONTENTS

TABLE OF CONTENTS	1
INTRODUCTION	4
INTENDED USE	4
SAFETY, WARNING & INFORMATION SYMBOLS	5
SAFETY GUIDELINES	6
WORK AREA	7
INTERNAL COMBUSTION ENGINE SAFETY	7
PERSONAL SAFETY	8
TOOL USE AND CARE	9
EQUIPMENT OPERATION	10
MAINTENANCE	11
TECHNICAL SPECIFICATIONS	12
OVERALL DIMENSIONS	13
UNPACKING	14
COMPONENT LISTS	15
TO-SCALE HARDWARE	17
BOLTS & SCREWS	17
WASHERS	20
NUTS	21
ASSEMBLY	22
1. TOOLS REQUIRED	22
2. TRACK	23
RAILS & CENTRE BUNK	24
MID & END BUNKS	26
SQUARING THE TRACK AND SETTING THE WIDTH	27
LEVELLING FEET	28
LEVELLING THE TRACK	30
CARRIAGE STOPS	31
LOG CLAMPS	32
LOG SUPPORTS	35
3. SAWMILL HEAD ASSEMBLY	37
FRONT POSTS	37



CARRIAGE LEGS	39
HEAD LOCK-DOWN PLATES	40
STANDING THE SAWHEAD UPRIGHT	41
REAR POSTS	42
CROSS BEAM	43
LUBRICATION TANK	45
BATTERY CONNECTIONS	46
DASHBOARD & HOUR METER	48
LIFT MECHANISM	50
LIFT CABLE ROUTING	52
LOG SCALE	54
PUSH HANDLE	57
THROTTLE HANDLE AND CABLE	59
BAND WHEEL DOOR LATCHES	61
ADJUSTABLE BLADE GUIDE HANDLE	62
LUBRICATION TUBING	63
TIGHTEN CARRIAGE WHEEL BOLTS	64
4. PLACING THE HEAD ON THE TRACK	65
METHOD 1	65
METHOD 2	66
ROLLING THE SAWMILL HEAD ASSEMBLY	67
RAISING & LOWERING THE SAWHEAD	68
LEVELLING THE SAWMILL HEAD ASSEMBLY	69
ADJUST THE POST SLEEVE BUSHINGS	70
GREASING THREADS	71
ENGINE OIL	72
PRE START-UP CHECKLIST	74
SAWMILL SET-UP PROCEDURES	75
DIRECTION OF CUT	75
DRIVE BELT TENSION	76
BLADE TENSION	78
TENSIONING METHOD	78
BELLEVILLE WASHER STACK	79



BLADE TRACKING _____	80
TEST PROCEDURE _____	81
FOLLOWER-SIDE ADJUSTMENT _____	82
DRIVE-SIDE ADJUSTMENT _____	83
TRACKING RUN-IN _____	84
BLADE GUIDE ADJUSTMENT _____	85
BLADE STOPPER ADJUSTMENT _____	87
ADJUSTABLE BLADE GUIDE CALIBRATION _____	88
ECCENTRIC V-ROLLER ADJUSTMENT _____	88
BALL PLUNGER ADJUSTMENT _____	89
CARRIAGE & GUIDE ARM ADJUSTMENT _____	90
SAWMILL MAINTENANCE _____	91
CHANGING THE BLADE _____	91
REPLACING BELTS _____	92
TROUBLESHOOTING _____	95
REPLACEMENT PARTS ORDERING _____	97
EXPLODED ASSEMBLY VIEWS _____	98
TRACK _____	98
SAWHEAD _____	99
BACK BEAM _____	100
GUIDE BLOCK HOLDERS _____	101
BAND WHEEL HOUSING _____	102
BAND WHEEL HOUSING DOORS _____	103
BAND WHEELS AND BELT TENSIONER _____	104
ENGINE COMPONENTS _____	105
CARRIAGE _____	106
CARRIAGE LEG, WHEEL, AND SWEEPER _____	107
LIFT MECHANISM _____	108
THROTTLE HANDLE _____	109
CABLES, TUBING & LABELS _____	110
PARTS LIST _____	111
NOTES _____	117



INTRODUCTION

Congratulations on your purchase and welcome to Woodland Mills! This manual gives you the necessary information about your machine so you will be able to use it properly. The entire manual must be read and understood before you start using the machine. If any questions should arise that are not covered by this manual, please contact Woodland Mills Inc.

OWNER'S RECORD

Please take a moment to record the following information about your sawmill. If you need to call for assistance, please be ready to provide your model and serial numbers. This information will allow us to help you more quickly when you call.

MODEL NUMBER

SERIAL NUMBER

DATE OF PURCHASE

This machine is designed for certain applications only. We strongly recommend that this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted us to determine if it can or should be performed on the product.

For technical questions and replacement parts, please contact Woodland Mills Inc.

INTENDED USE

Woodland Mills wood sawmills are designed for acreage owners to aid in the milling of natural, untreated wood with the mill firmly supported on the ground. Materials that are processed may contain chemicals or by-products that could corrode the machine or damage it, resulting in safety concerns.



SAFETY, WARNING & INFORMATION SYMBOLS

Throughout this operator's manual there are safety, warning, and information symbols. Please heed and obey all warnings.

Symbol	Description
	Refer to instruction/operator's manual
	Wear protective gloves
	Wear safety footwear
	Wear eye protection
	Wear a face shield
	Wear a mask
	Wear ear protection
	Lift point
	Lockout electrical power (electric sawmills only)
	General warning
	Electricity warning
	Instructions are different for electric sawmills. Refer to electric sawmill manual addendum for electric sawmill-specific instructions.
	Instructions do not pertain to electric sawmills. Instructions can be skipped and ignored when working with an electric sawmill.

****Look for symbols in the upper-right corner of the page throughout the manual.****



SAFETY GUIDELINES

****SAVE THESE INSTRUCTIONS****



WARNING!

Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.



WARNING!

The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product but must be supplied by the operator.



WARNING!

Only operate the engine in a well ventilated area. Carbon Monoxide (CO) produced by the engine during use can kill. Do not use indoors, near windows, or in other sheltered areas.

NOTE: All Federal and State laws and any regulation having jurisdiction covering the safety requirements for use of the machine take precedence over the statements in this manual. Users of this machine must adhere to such regulations.



WORK AREA

- **Keep work area clean, free of clutter and well lit.** Cluttered and dark work areas can cause accidents.
- **Do not use your sawmill where there is a risk of causing a fire or an explosion;** e.g. in the presence of flammable liquids, gasses, or dust. Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away** while operating a power tool. Distractions can cause you to lose control, therefore, visitors should remain a safe distance from the work area.
- **Be aware of all power lines,** electrical circuits, water pipes and other mechanical hazards in your work area, particularly those hazards below the work surface hidden from the operator's view that may be unintentionally contacted and cause personal harm or property damage.
- **Be alert of your surroundings.** Using power tools in confined work areas may put you dangerously close to cutting tools and rotating parts.

INTERNAL COMBUSTION ENGINE SAFETY

WARNING!

Internal combustion engines present special hazards during operation and fuelling. Read and follow the warning instructions in the engine Owner's Manual and the safety guidelines below. Failure to follow the warnings and safety standards could result in severe injury or death.



- **DO NOT** run the machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas (CO); exposure to carbon monoxide can cause loss of consciousness and may lead to death.
- **DO NOT** smoke while operating the machine.
- **DO NOT** smoke when refuelling the engine.
- **DO NOT** refuel a hot or running engine.
- **DO NOT** refuel the engine near an open flame.
- **DO NOT** spill fuel when refuelling the engine.
- **DO NOT** run the engine near an open flame.
- **ALWAYS** refill the fuel tank in a well-ventilated area.
- **ALWAYS** replace the fuel tank cap after refuelling.
- **ALWAYS** check the fuel lines and the fuel tank for leaks and cracks before starting the engine. Do not run the machine if fuel leaks are present or the fuel lines are loose.
- **ALWAYS** avoid contact with hot fuel, oil, and exhaust fumes.



PERSONAL SAFETY

- **Stay alert, watch what you are doing and use common sense when operating a power tool.** Do not use a power tool when you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly.** Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents often cover moving parts and should be avoided.
- **Use safety apparel and equipment.** Use safety goggles or safety glasses with side shields which comply with current national standards, or when needed, a face shield. Use a dust mask in dusty work conditions. This applies to all persons in the work area. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate.
- **Do not overreach.** Keep proper footing and balance at all times.
- **Remove adjusting keys or wrenches** before connecting to the power supply or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may result in personal injury.
- **Never make blade guide adjustments, remove or install blades, or conduct any other maintenance or make any other adjustments while the engine is running.** Always shut the engine off, remove the ignition key, and turn the engine off before carrying out any of the aforementioned procedures. Consult your engine manual for safe shutdown procedures to prevent accidental ignition.



TOOL USE AND CARE

- **Always** be sure the operator is familiar with proper safety precautions and operation techniques before using machine.
- **Never touch** the engine or muffler while the engine is on or immediately after it has been turned off. These areas get extremely hot and can cause burns.
- **Always** close the fuel valve on the engine when the machine is not in use.
- **Do not force the tool.** Tools do a better and safer job when used in the manner for which they are designed.
- **Never use the sawmill** with a malfunctioning switch or throttle. Any power tool that cannot be controlled with the switch is dangerous and must be repaired before using.
- Turn off the engine and place the switch in the locked or off position before servicing, adjusting, installing accessories or attachments, or storing. Such preventive safety measures reduce the risk of starting the power tool accidentally.
- Secure logs with the log screw clamping device instead of with your hand or another individual's help. This safety precaution allows for proper tool operation using both hands.
- **Storing sawmill.** When the sawmill is not in use, store it in a dry, secure place or keep well covered and out of the reach of children. Inspect the sawmill for good working condition prior to storage and before re-use.
- **Maintain your sawmill.** It is recommended that the general condition of the sawmill be examined before it is used. Keep your sawmill in good repair by adopting a program of conscientious repair and maintenance in accordance with the recommended procedures found in this manual. If any abnormal vibrations or noise occurs, turn the sawmill off immediately and have the problem corrected before further use.
- **Keep saw blades sharp and clean.** Properly maintained bandsaw blades are less likely to bind and are easier to control.
- **Cleaning and Lubrication.** Use only soap and a damp cloth to clean your sawmill. Many household cleaners are harmful to plastic and rubber components on the sawmill.
- **Use only accessories that are recommended** by the manufacturer for your model. Accessories that may be suitable for another sawmill may create a risk of injury when used on the sawmill.
- **Always** operate machine with all safety devices and guards in place and in working order. DO NOT modify or make changes to safety devices. DO NOT operate machine if any safety devices or guards are missing or inoperative.
- **Never leave sawmill running unattended.**
- **Coiled blades can spring apart with considerable force and unpredictably in any direction.** Always deal with coiled blades, including those packaged in boxes, with the utmost care.
- **Never use the equipment to cut anything other than lumber** or for any purpose other than cutting lumber as described in this manual.



EQUIPMENT OPERATION



1. Wear heavy-duty work gloves, ANSI-approved goggles behind a full face shield, steel-toed work boots, hearing protection, and a dust mask.
2. Operate only with assistance.
3. Cut-off branches from the lumber to be processed.
4. Place the lumber to be cut on the track supports.
5. Clamp the lumber firmly in place using the included log clamps and supports.
6. Fill the lubrication tank with clean water. Add no more than a teaspoon of liquid dish soap per full tank. The soap helps keep the blade clean(er) when excess pitch builds up.
7. Start and operate the engine according to the provided engine manual.
8. Depress the throttle to bring the blade up to speed—the throttle should be fully depressed while the saw is under load.
9. Roll the head assembly slowly along the track and against the lumber to make the cut.
10. Trim off the rounded sides of the log.
11. When the log is squared-off, boards or posts can be cut to standard or custom specifications.
12. To prevent accidents, turn off the engine and disconnect its spark plug wire after use. Wait for the engine to cool, clean external parts with a clean cloth, then store the equipment out of children's reach.



WARNING!

To avoid death or serious injury, do not cut lumber containing embedded foreign objects such as nails, metal fragments, etc.



WARNING!

The operator and any assistants must stay clear of the front and back of the blade whenever the engine is on.



MAINTENANCE

Proper and routine maintenance is critical to operator safety, achieving good milling results, and to prolong the life of your investment.

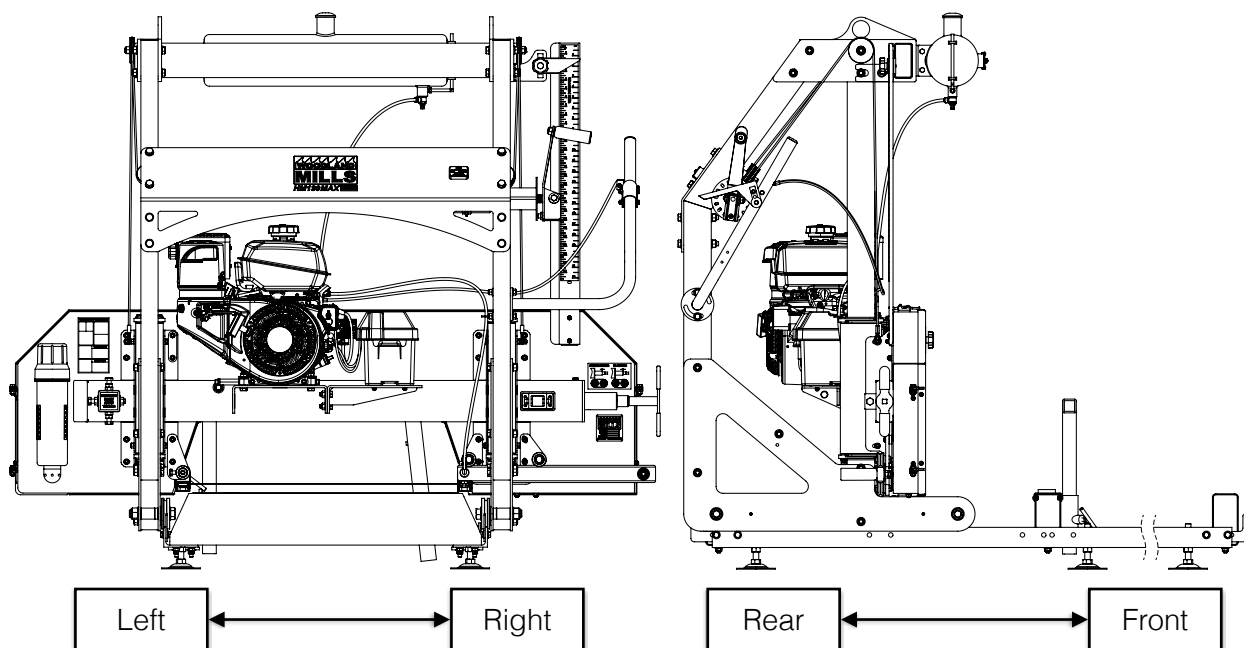
- **Band Wheel Bearings** — Inspect before use to ensure they are not worn. Bearings are sealed and do not need to be greased.
- **Blade Guide Bearings** — Inspect before use for excessive grooves or scoring in the bearing case. Replace if necessary.
- **Blade Tension** — Grease threads of tensioning T-handle when dry or as required. Use multi-purpose, extreme-pressure grease.
- **Log Clamps** — Spray the cam mechanism with dry silicone spray frequently.
- **Belts** — Periodically check the condition and wear of the drive and idler belt. Ensure that the blade does not ride on the band wheels.
- **Drive Belt** — Periodically check the tension of the drive belt.
- **Carriage Posts (Front)** — Spray posts before use with a silicone spray lubricant such as "WD-40 Water Resistant Silicone Spray," "3-in-One Silicone Spray Lubricant," or "Jig-A-Loo."
- **Band Wheel Guards** — Routinely remove any build-up of sawdust that may collect inside the band wheel guards.
- **Lubrication Tank** — Fill with clean water. Add a teaspoon of liquid dish soap if pitch builds up on the blade. In winter months windshield washer fluid can be used. Do not leave water in tank if temperature falls below 32°F [0°C].
- **Blade Lubricant** — Never use diesel fuel or kerosene as blade lubricant. These substances lead to premature wear of your belts and poor sawing performance. For winter operation, replace the water with windshield washer fluid.
- **Engine** — Check the engine oil level before each use and maintain the engine per the instructions set out by the engine manufacturer in the engine manual. The engine is equipped with an oil alert system and will not start without adding oil before starting.
- **Lifting Cables** — Before, during, and after operation, regularly inspect the cables for any wear or kinks. Ensure that the cables are in perfect condition. Oil the coiled part of the cable often to prevent premature wear. Replace with new cables as necessary.



TECHNICAL SPECIFICATIONS

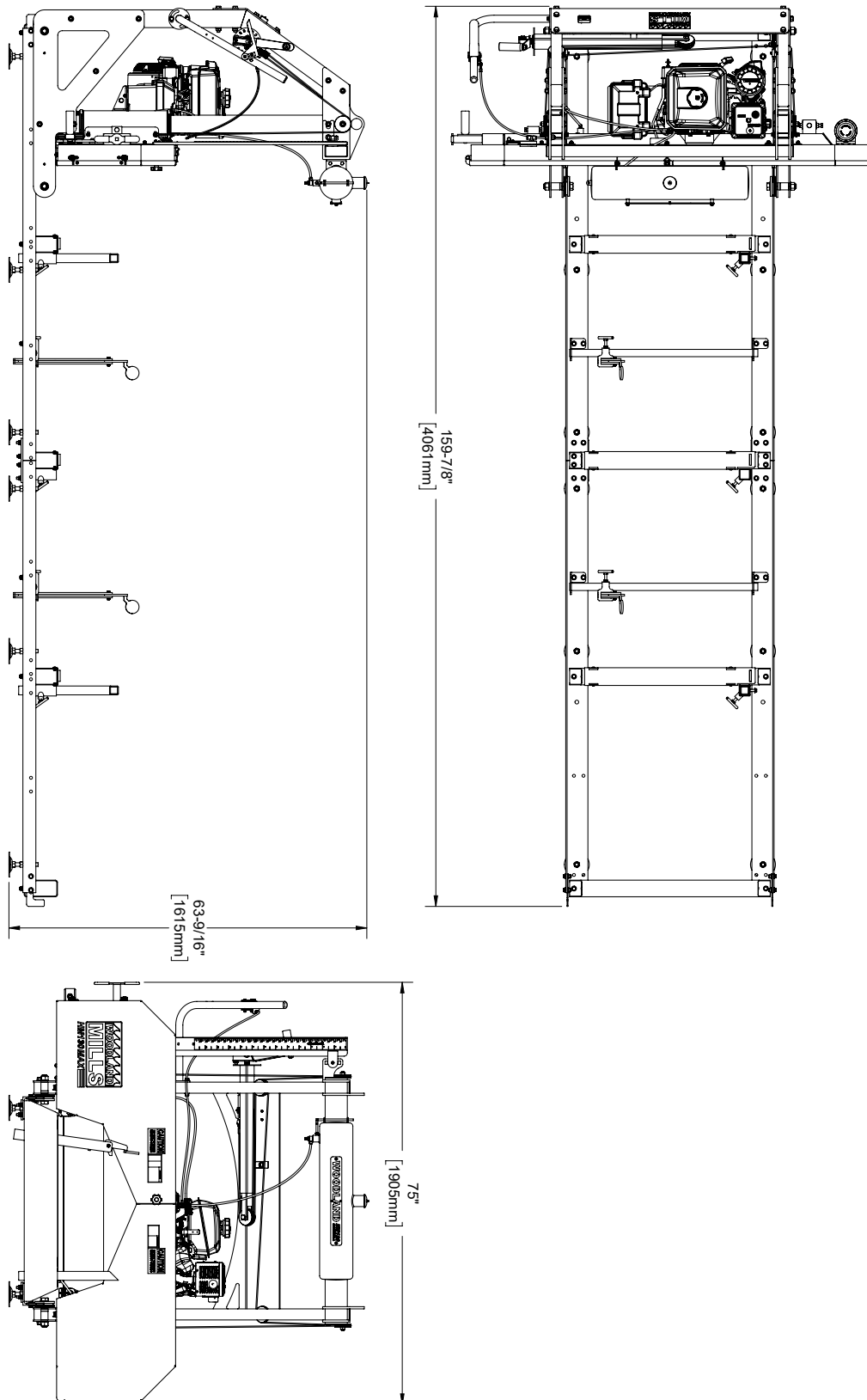
The HM130MAX sawmill comes with a 14 horsepower electric-start engine.

Item	HM130MAX Specification
Gasoline Engine	14 hp Kohler Command Pro
Max Log Diameter	30 in [762 mm]
Max Board Width	30 in [762 mm]
Max Board Thickness	7 in [178 mm]
Blade Size	1-¼ x 158 in [32 mm x 4013 mm]
Track Length	153-½ in [3900 mm]
Track Width	37 in [940 mm]
Track Height Adjustability (top of bunk)	7-⅞ to 10-⅝ in [200 to 270 mm]
Product Weight	858 lb [390 kg]
Shipping Weight	1054 lb [478 kg]





OVERALL DIMENSIONS



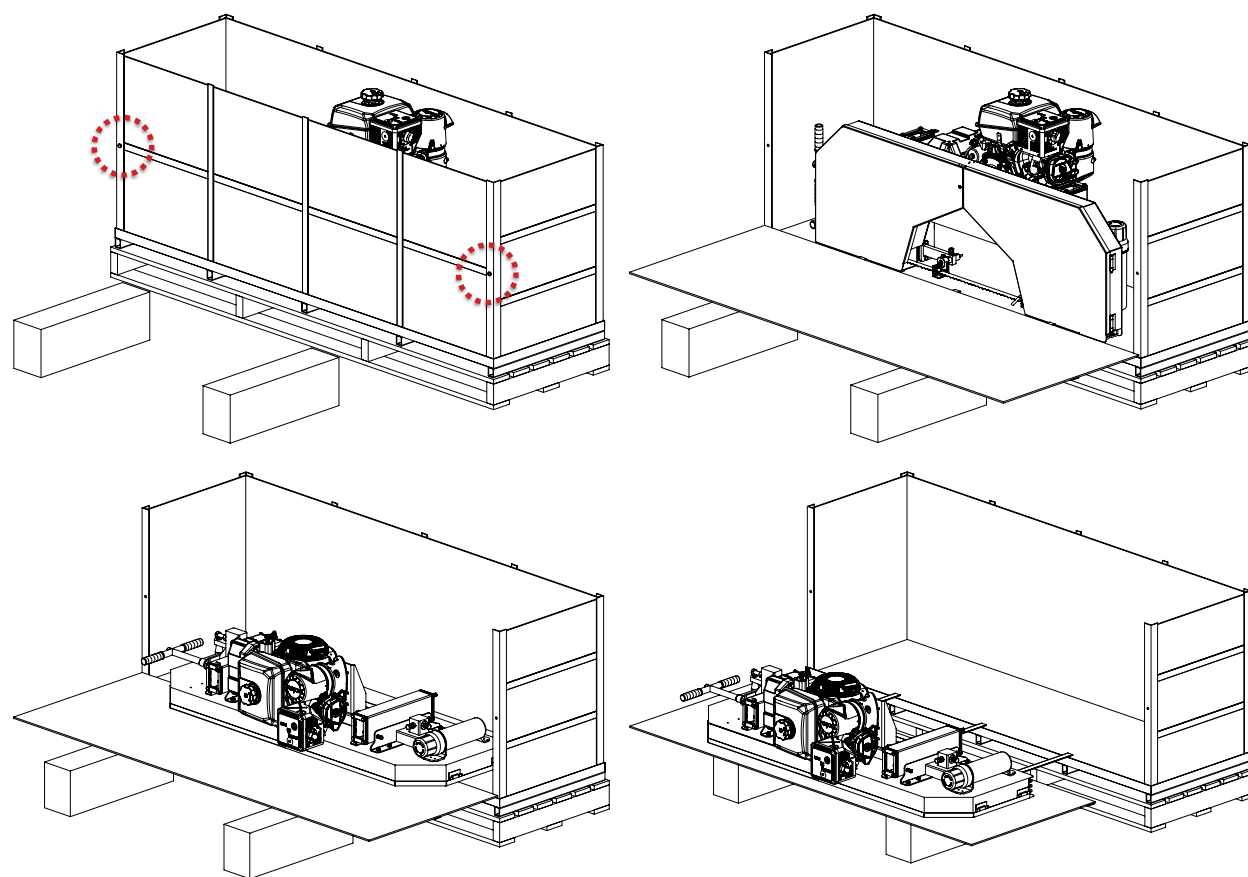


UNPACKING

Unpack the contents of the crate except for the sawhead and the two long boxes in the bottom that contain the sections of track.

Unfasten the two (2) M8 bolts/nuts on the front of the crate using a socket/wrench. Place two (2) 6-8 in [150-200 mm] tall support blocks in front of the crate, bend the front of the crate down, and then lay the cardboard wall over it.

Carefully rotate the sawhead down onto the cardboard and support blocks and slide it out of the crate as shown below.

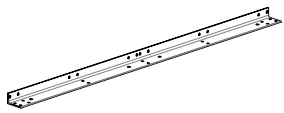
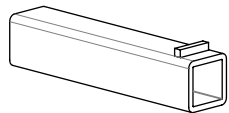
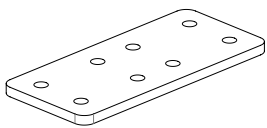
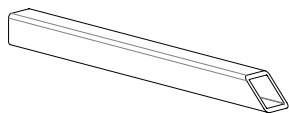
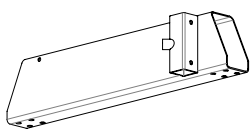
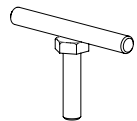
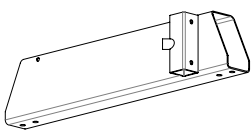
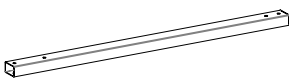
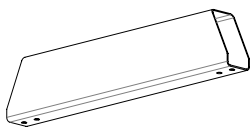
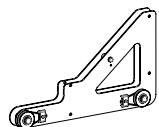
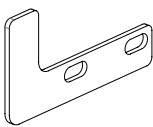
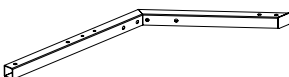
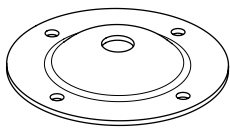
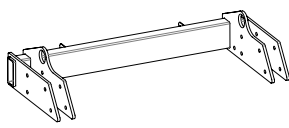
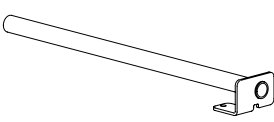
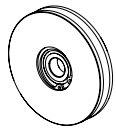
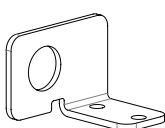
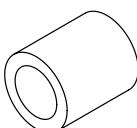
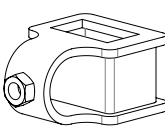
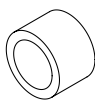


The two long track boxes can now be removed and the crate discarded.


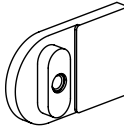
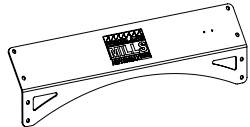
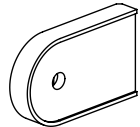

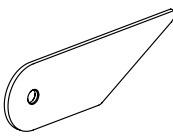
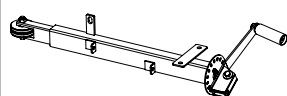
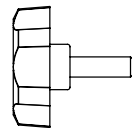
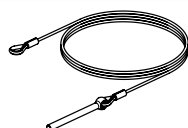
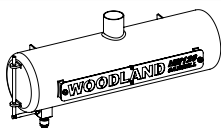

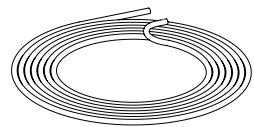


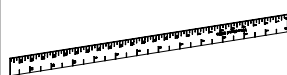
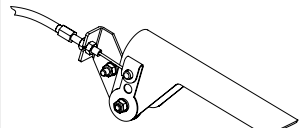
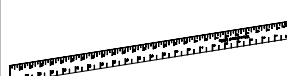
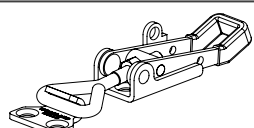
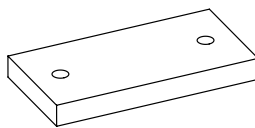
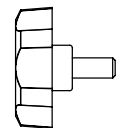
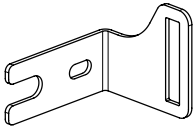
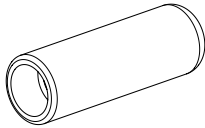


COMPONENT LISTS

Verify all component and hardware quantities are correct prior to assembling the sawmill.

4x	Track Rail [0001073]		2x	Key Stop Log Support [0001465]	
2x	Reinforcement Plate [0001072]		2x	Bevelled Log Support [0001056]	
1x	Centre Bunk [0002886]		3x	T-Bolt M10 X 40 mm [0001059]	
2x	Mid Bunk [0002887]		2x	Front Post [0001416]	
2x	End Bunk [0002885]		2x	Carriage Leg Assembly	
4x	Carriage Stop [0001055]		2x	Back Post [0002668]	
12x	Levelling Foot Base [0001071]		1x	Cross Beam [0002889]	
2x	Log Clamp Shaft/Bracket Weldment [0002904]		5x	Pulley [0001099]	
2x	Log Clamp Shaft Bracket [0001069]		2x	Spacer (20.5 mm Lg) [0003251]	
2x	Log Clamp Receiver [0001061]		2x	Spacer (12 mm Lg) [0002812]	



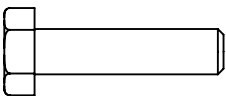
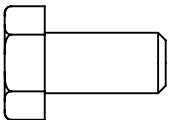
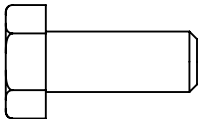

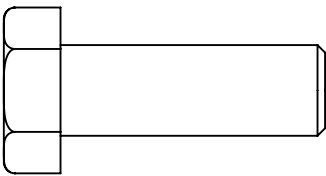
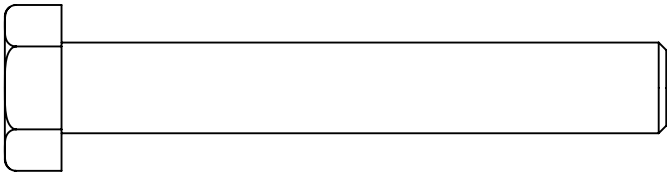
2x	Spacer (5 mm Lg) [0002813]		1x	Scale Indicator Bracket [Rear] [0002097]	
1x	Dashboard [0002066]		1x	Scale Indicator Bracket [Frnt] [0002098]	
1x	Hour Meter [0002671]		1x	Scale Indicator Arrow [0002099]	
1x	Lift Mechanism Assembly		1x	Knob M8 X 25 mm [0002764]	
1x	Lift Cable A (Right Side) [0003026]		1x	Lubrication Tank Assembly	
1x	Lift Cable B (Left Side) [0003025]		2x	Tubing [0002744 & 0002745]	
1x	Scale Support [0002040]		1x	Push Handle [0002068]	
1x	Magnetic Scale (White) [0003235]		1x	Throttle Handle Assembly	
1x	Magnetic Scale (Yellow) [0003233]		2x	Latch [0002248]	
1x	Scale Support Spacer Plate [0001038]		1x	Knob M8 X 17 mm [0001659]	
1x	Log Scale Mounting Bracket [0002096]		1x	Handle Grip [0004199]	



TO-SCALE HARDWARE

BOLTS & SCREWS

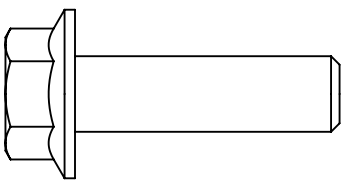
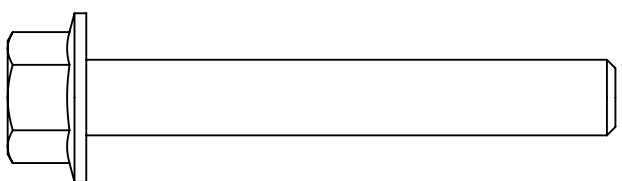
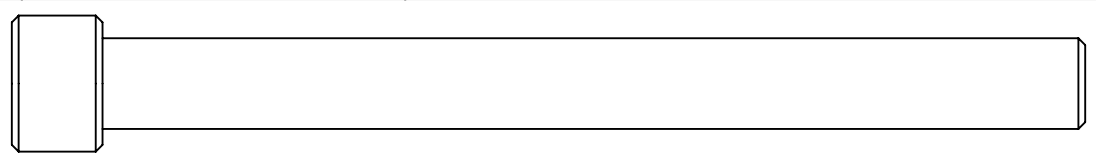
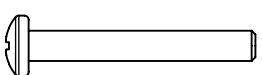

Hardware graphics are printed at 1:1 scale for ease of identification. Simply place the hardware over the image in the tables to verify it is the correct size.

2x	HHB-MBE080FCJ	M6 X 1 X 25 mm HEX BOLT	
4x	HHB-MBJ071FCJ	M8 X 1.25 X 16 mm HEX BOLT	
2x	HHB-MBJ075FCJ	M8 X 1.25 X 20 mm HEX BOLT	
1x	HHB-MBM080FCJ	M10 X 1.5 X 25 mm HEX BOLT	
1x	HHB-MBR090FCJ	M12 X 1.75 X 35 mm HEX BOLT	
8x	HHB-MBR135PCJ	M12 X 1.75 X 80 mm HEX BOLT	



6x	HHB-MBR145PCJ	M12 X 1.75 X 90 mm HEX BOLT
8x	HHB-MBR165PCJ	M12 X 1.75 X 110 mm HEX BOLT
1x	HHB-MBR185PCJ	M12 X 1.75 X 130 mm HEX BOLT
1x	HHB-MBR205PCJ	M12 X 1.75 X 150 mm HEX BOLT
12x	HHB-MCA175FCJ	M16 X 2 X 120 mm HEX BOLT
38x	FHH-MBM080FCM	M10 X 1.5 X 25 mm FLANGED HEX BOLT



16x	FHH-MBM090PCM	M10 X 1.5 X 35 mm FLANGED HEX BOLT
		
2x	FHH-MBM125PCJ	M10 X 1.5 X 70 mm FLANGED HEX BOLT
		
1x	SHC-MBR185FCP	M12 X 1.75 X 130 mm SOCKET HEAD CAP SCREW
		
2x	PPH-MAW085FCE	M4 X 0.7 X 30 mm PHILLIPS PAN HEAD SCREW
		
8x	PFH-MAW059FCM	M4 X 0.7 X 10 mm PHILLIPS FLAT HEAD SCREW
		

SCALES

Ruler scales are also provided below to double-check bolt and screw lengths when necessary.




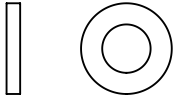
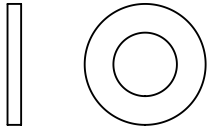
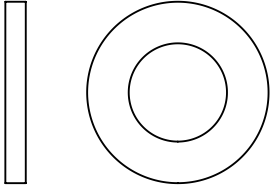
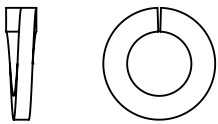
CENTIMETRES / MILLIMETRES



INCHES

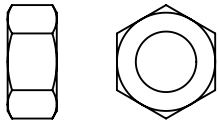
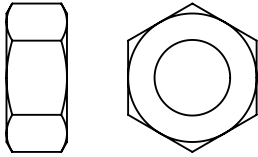
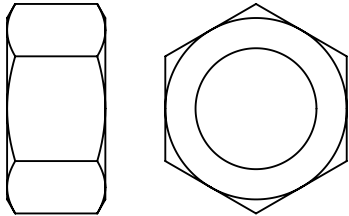

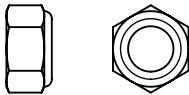
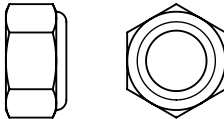
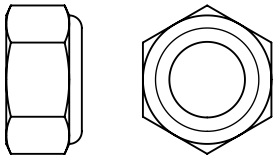
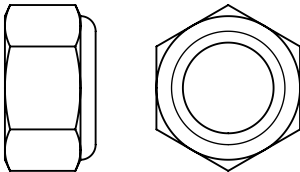
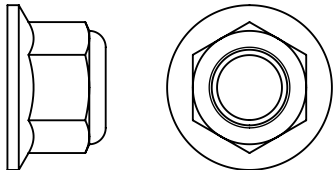


WASHERS

4x	FTW-MAW000AJ M4 FLAT WASHER	2x	FTW-MBE000AJ M6 FLAT WASHER
			
4x	FTW-MBJ000AJ M8 FLAT WASHER	52x	FTW-MBR000AJ M12 FLAT WASHER
			
2x	SLW-MBJAJ M8 SPLIT LOCK WASHER		
			



NUTS

2x	HXN-MBJCH M8 X 1.25 HEX NUT	
6x	HXN-MBMCH M10 X 1.5 HEX NUT	
36x	HXN-MCACH M16 X 2 HEX NUT	
6x	HLN-MAWCH M4 X 0.7 LOCK NUT	
2x	HLN-MBECH M6 X 1 LOCK NUT	
4x	HLN-MBJCH M8 X 1.25 LOCK NUT	
1x	HLN-MBMCH M10 X 1.5 LOCK NUT	
26x	HLN-MBRCH M12 X 1.75 LOCK NUT	
50x	FLN-MBMCL M10 X 1.5 FLANGED LOCK NUT	



ASSEMBLY

1. TOOLS REQUIRED

Tool	Specification
Wrench/Socket	7 mm (2X)
Wrench/Socket	10 mm (2X)
Wrench/Socket	13 mm (2X)
Wrench/Socket	14 mm (2X)
Wrench/Socket	15 mm (2X)
Wrench/Socket	16 mm (2X)
Wrench/Socket	17 mm (2X)
Wrench/Socket	18 mm (2X)
Wrench/Socket	19 mm (2X)
Wrench	24 mm or Adjustable Wrench (2X)
Wrench	30 mm or Adjustable Wrench (2X)
Hex Key	3 mm
Hex Key	4 mm
Phillips Head Screwdriver	No. 2
Tape Measure	Standard Inch/Metric Tape Measure

During several of the assembly steps, more than one socket or wrench of the same size may be required to assemble the hardware. A socket or box wrench in combination with an adjustable wrench can be utilized if multiple same size tools are in limited supply.



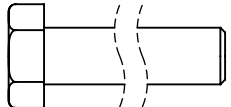
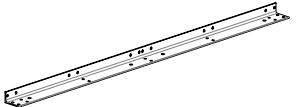
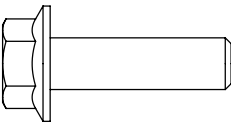
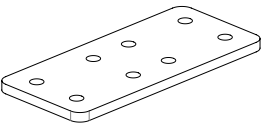
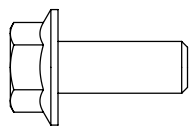
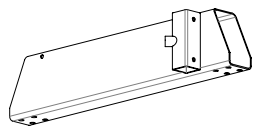
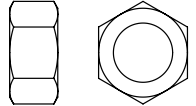
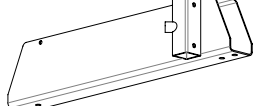
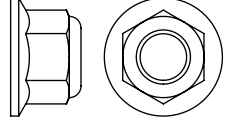
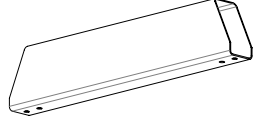
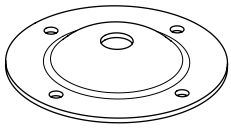
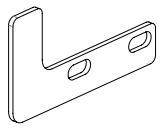
BOLT TORQUE WARNING!

When assembling the sawmill, do not torque the bolts to hardware Class/Grade specifications. Snug the hardware, then tighten a further $\frac{1}{4}$ — $\frac{1}{2}$ turn. Tightening bolts to torque spec can crush metal tubing, ruining the components.



2. TRACK

Assemble the track with the provided components and hardware listed in the table below. It is important to assemble and level the track on a firm foundation before tightening all of the hardware and should ideally be 3-½—4 in [90—100 mm] off the ground. This will allow for easy cleanup of sawdust and log support height adjustments.

12x	M16 X 120 mm Hex Bolt		4x	Track Rail	
16x	M10 X 35 mm Flanged Hex Bolt		2x	Reinforcement Plate	
24x	M10 X 25 mm Flanged Hex Bolt		1x	Centre Bunk*	
36x	M16 Hex Nut		2x	Mid Bunk	
40x	M10 Flanged Lock Nut		2x	End Bunk	
12x	Levelling Foot Base		4x	Carriage Stop	

* Centre bunk incorporates four (4) mounting holes at each end

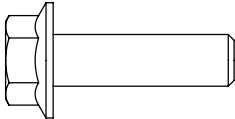
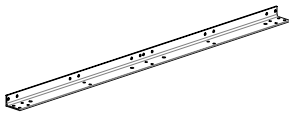
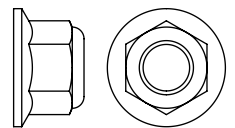
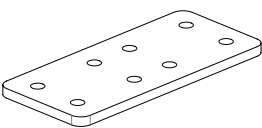
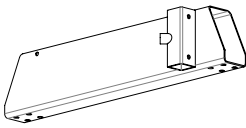


If a Woodland Mills sawmill trailer was purchased with this sawmill, skip this track assembly section and follow the track assembly instructions in those manuals.



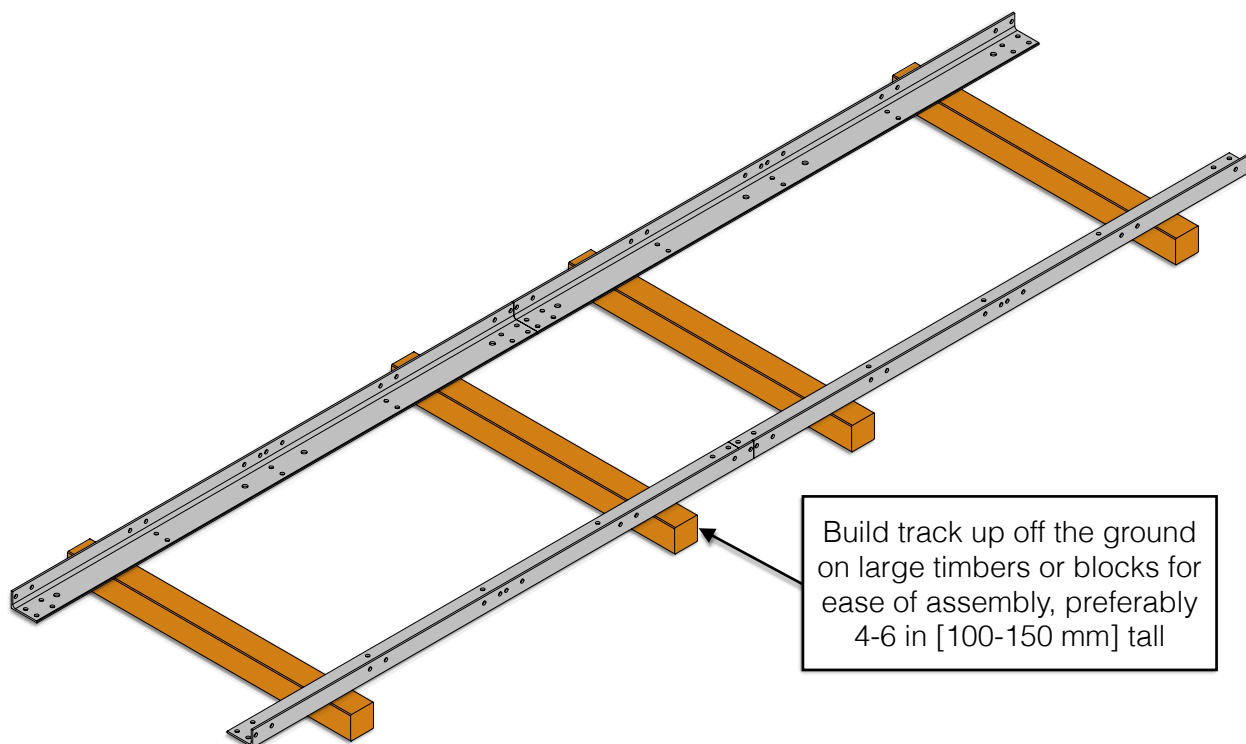
RAILS & CENTRE BUNK

Assemble the centre bunk over the joint between both pairs of track rails using the components and hardware listed in the table below.

16x	M10 X 35 mm Flanged Hex Bolt		4x	Track Rail	
16x	M10 Flanged Lock Nut		2x	Reinforcement Plate	
			1x	Centre Bunk*	

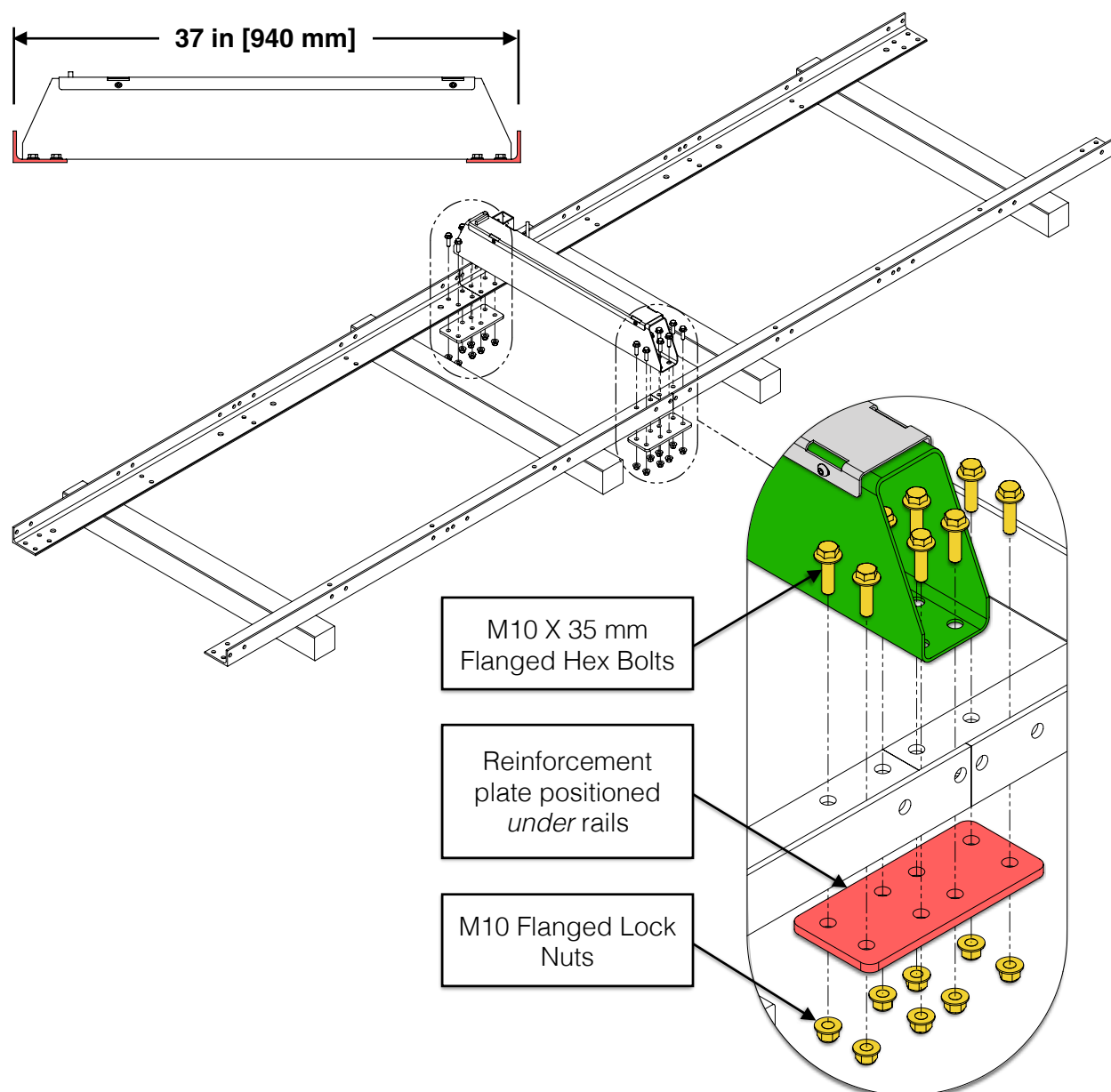
* Centre bunk incorporates four (4) mounting holes at each end.

First, set the four (4) track rails on top of four pieces of lumber of equal height. It is ideal to keep the rails at least 4-6 in [100-150 mm] off the ground for ease of assembly..



Next, assemble the centre bunk over the rail joints with a reinforcement plate *under* the rails on both the left and right sides. Use eight (8) M10 X 35 mm flanged hex bolts and M10 flanged lock nuts per side.

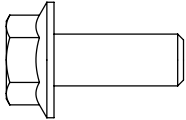
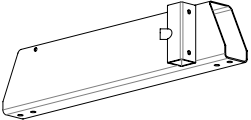
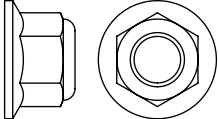
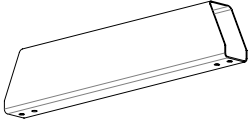
Keep the outer faces of the rails 37 in [940 mm] apart but do not fully tighten the hardware. Snug the bolts enough so that minor adjustments to the track width can be made once all the bunks are assembled to the rails.



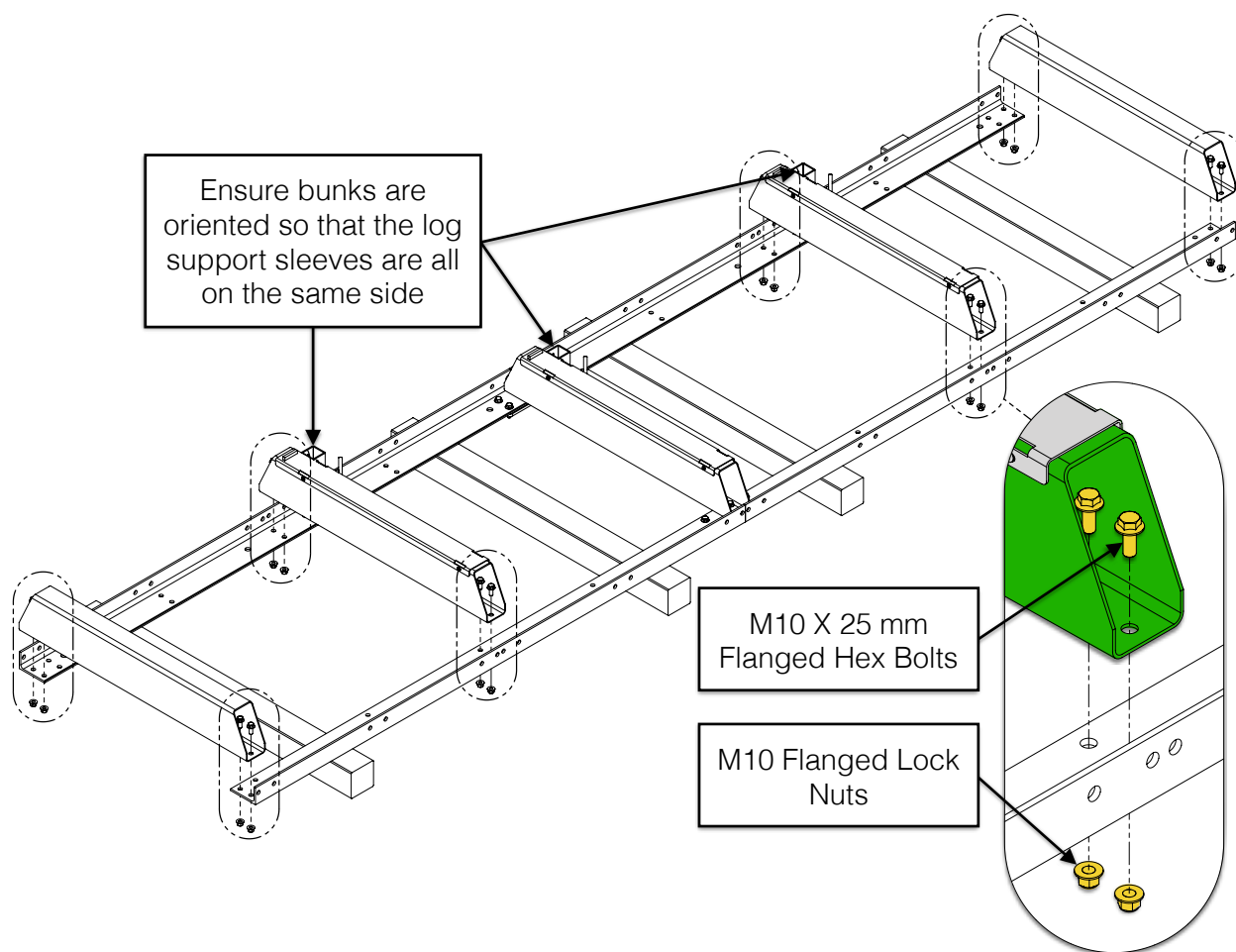


MID & END BUNKS

Assemble the mid and end bunks in the locations shown using the components and hardware listed in the table below.

16x	M10 X 25 mm Flanged Hex Bolt		2x	Mid Bunk	
16x	M10 Flanged Lock Nut		2x	End Bunk	

Use sixteen (16) M10 X 25 mm flanged hex bolts and M10 flanged lock nuts (4 per bunk) at all end & mid bunk locations. Snug the hardware in the same manner as the centre bunk.

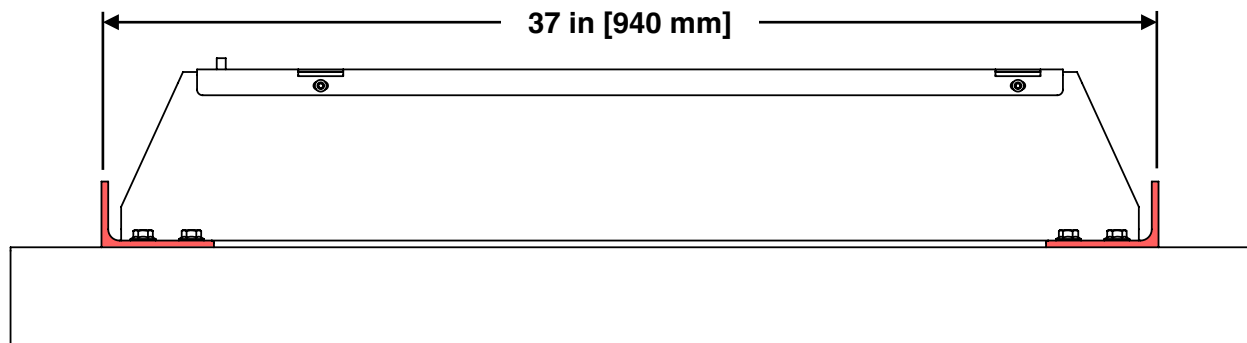




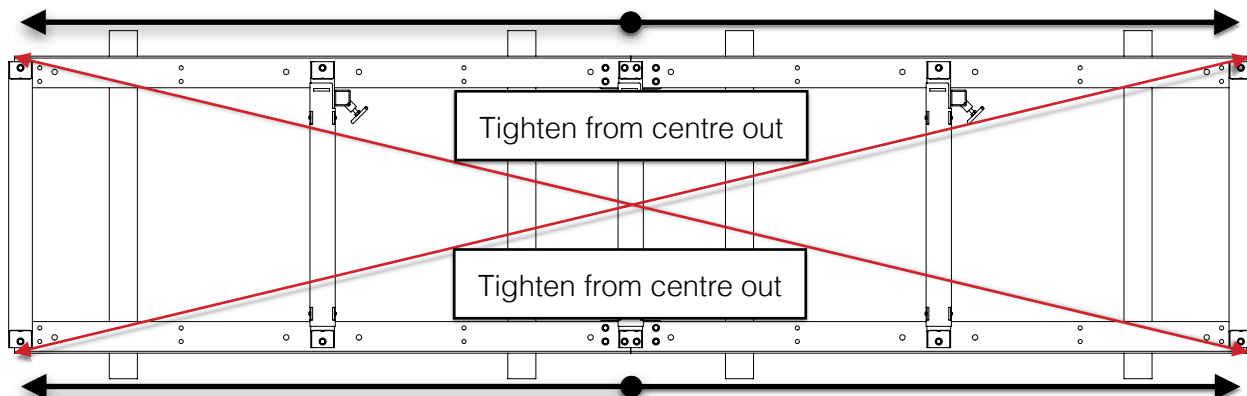
SQUARING THE TRACK AND SETTING THE WIDTH

The assembled track measures 37 in [940 mm] wide when measuring from the outside faces of the rails.

With the bunk hardware connections only snug-tight, the rails can be moved in or out as needed until the proper width is achieved along the entire length of the track.



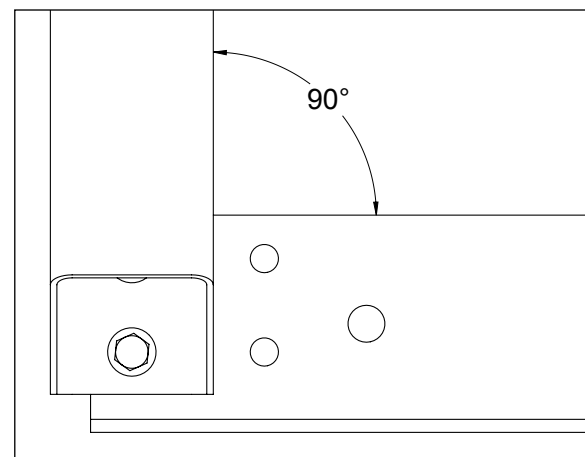
When the width is uniform along the full track length, check it for square by measuring diagonally from rail tip-to-rail tip as shown with the **red arrows** below.



Ensure the end bunks are square to the rails.

Once the width is correct and the track square, tighten all sixteen (16) M10 X 25 mm and sixteen (16) M10 X 35 mm flanged hex bolts and their nuts ***working from the centre out towards the ends*** as shown with the **black arrows** above.

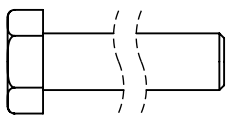
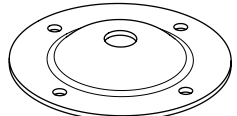
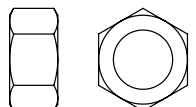
Double-check the track width and squareness after tightening. Readjust if necessary.



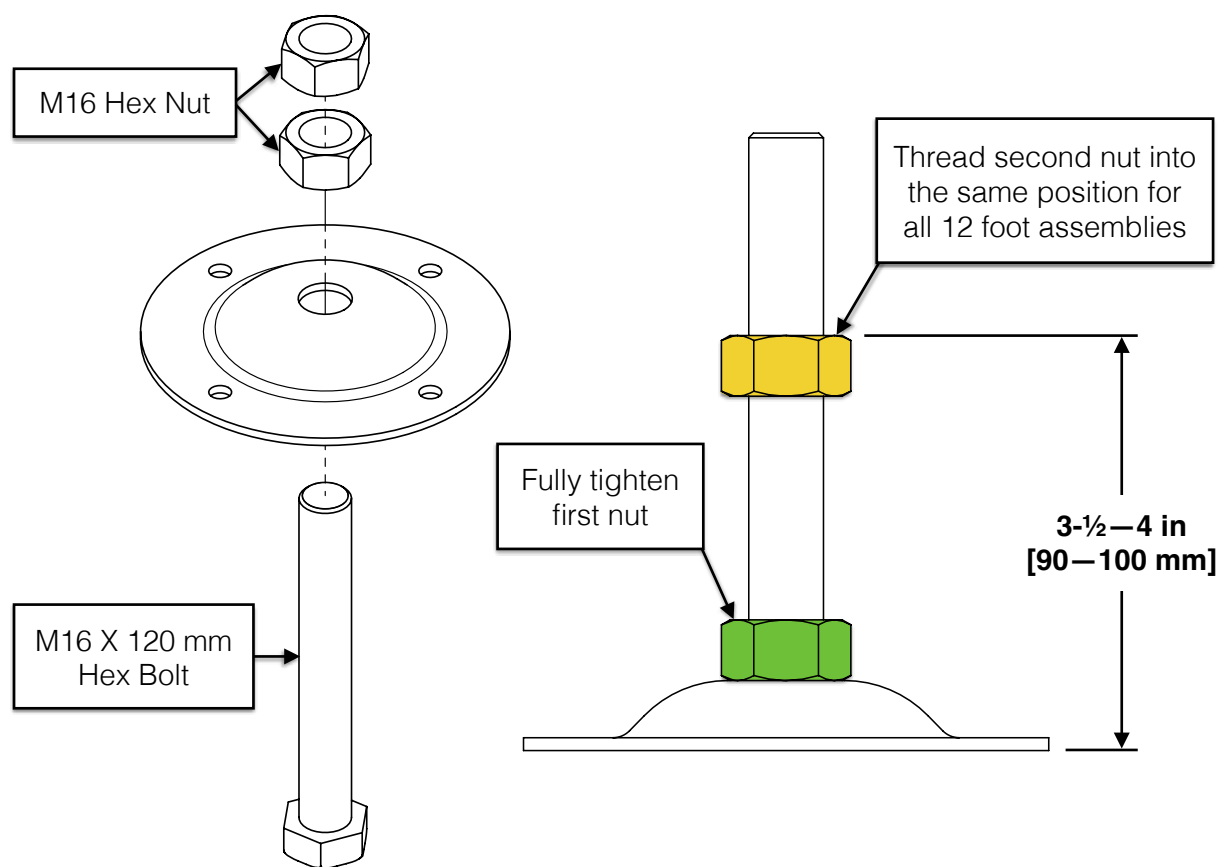
END BUNKS SQUARE TO RAILS

LEVELLING FEET

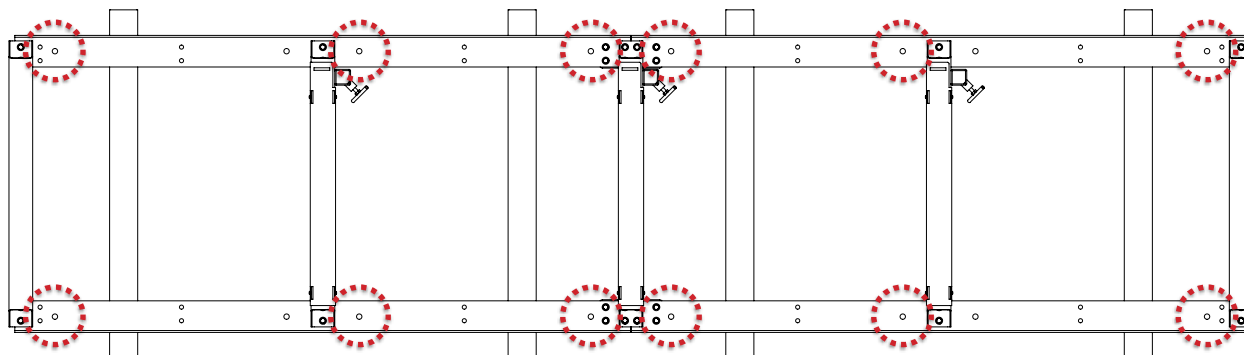
Assemble the levelling feet using the components and hardware listed in the table below.

12x	M16 X 120 mm Hex Bolt		12x	Levelling Foot Base	
36x	M16 Hex Nut				

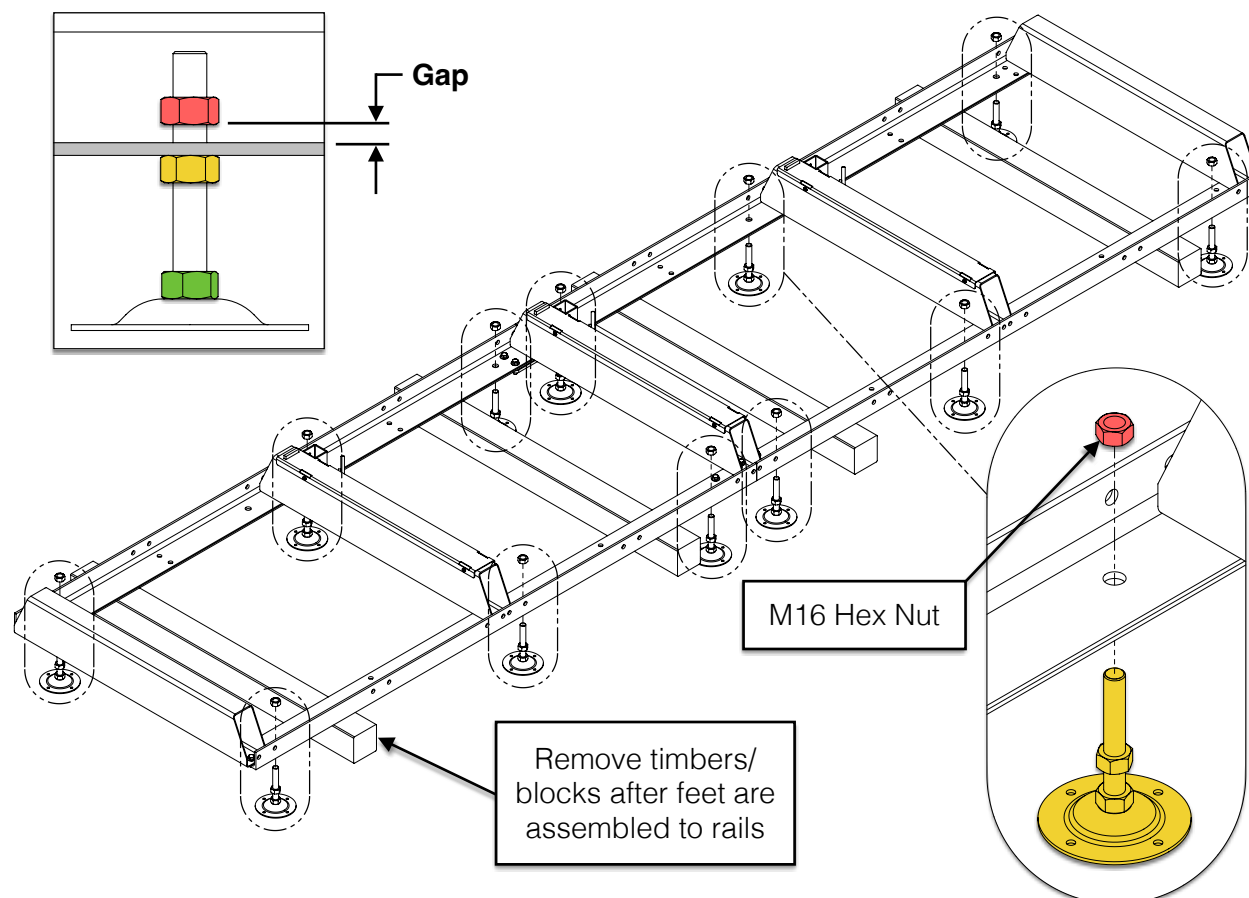
Assemble twelve (12) sets of levelling feet, each one with a levelling foot base, an M16 X 120 mm hex bolt, and two (2) M16 hex nuts. A third hex nut will secure the foot assembly to the rail on the next page.



Fully tighten the bottom nut and position the second nut roughly 3-½—4 in [90—100 mm] from the bottom of the foot base. Ensure the position of the second nut is the same for all twelve (12) levelling foot assemblies.



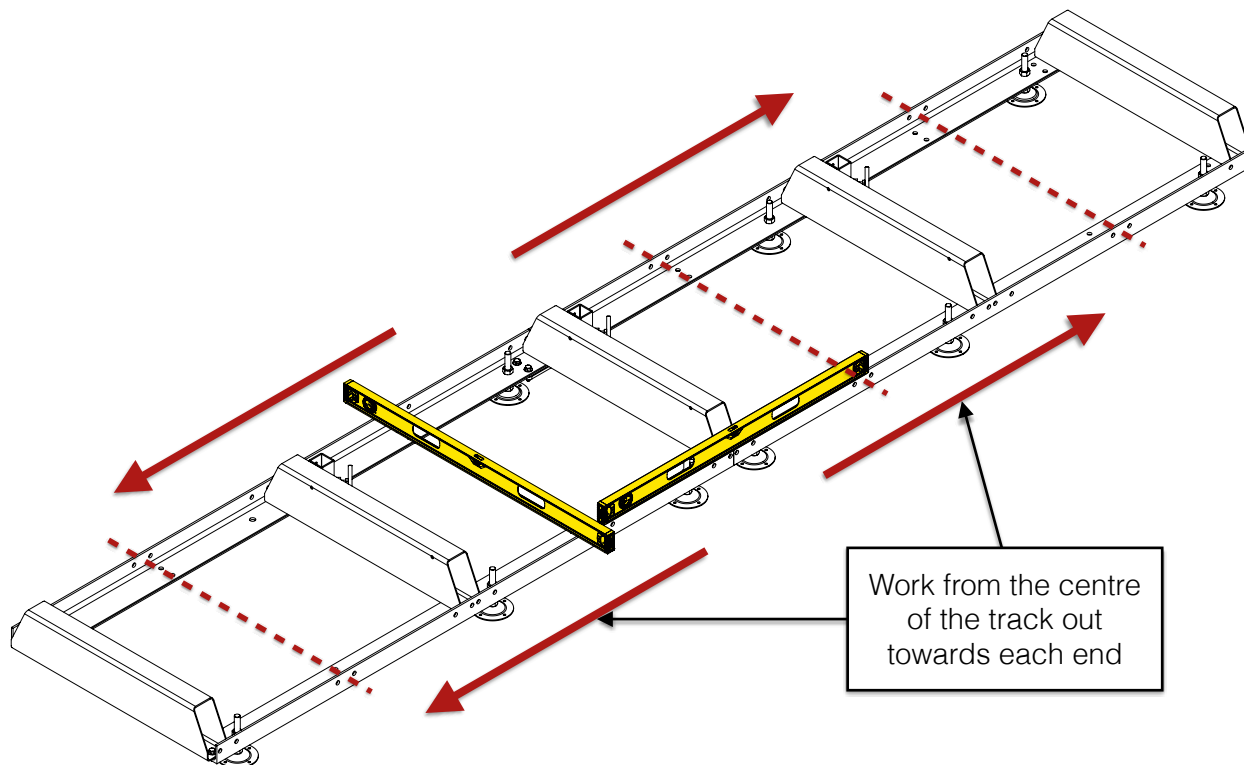
Attach the twelve (12) levelling feet assemblies to the rails at the locations shown below. Assemble the levelling feet up through the bottom of the rails and thread an M16 hex nut onto each of the M16 X 120 mm hex bolts. Do not tighten the nut. Leave it loose enough so a noticeable gap exists between the nut and the rail to allow for track levelling in a later step.



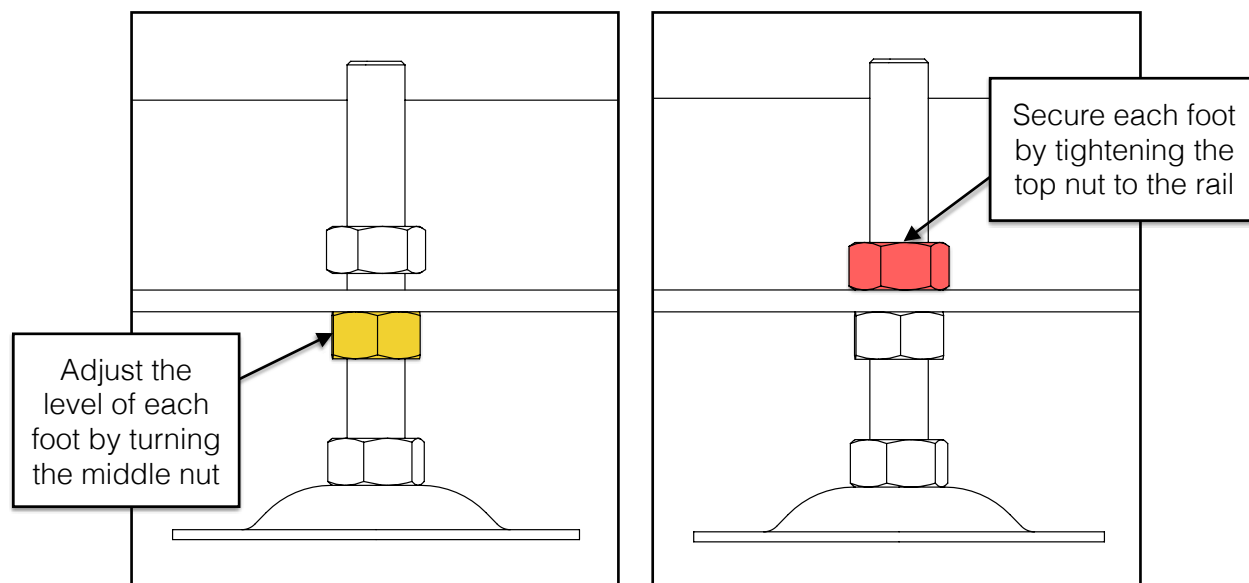
With the feet loosely assembled to the rails, remove the timber/block supports so the full weight of the track is resting on middle nuts of the levelling feet.

LEVELLING THE TRACK

Working from the middle of the track out towards each end, check the rails for level lengthwise *along* the rails and widthwise *across* the rails.

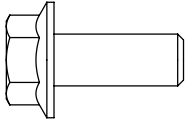
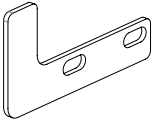
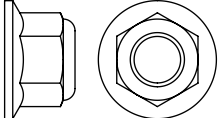


Turn the middle nut on each foot to fine-tune the level. Once level, secure each foot to the rail by tightening the M16 top nut.

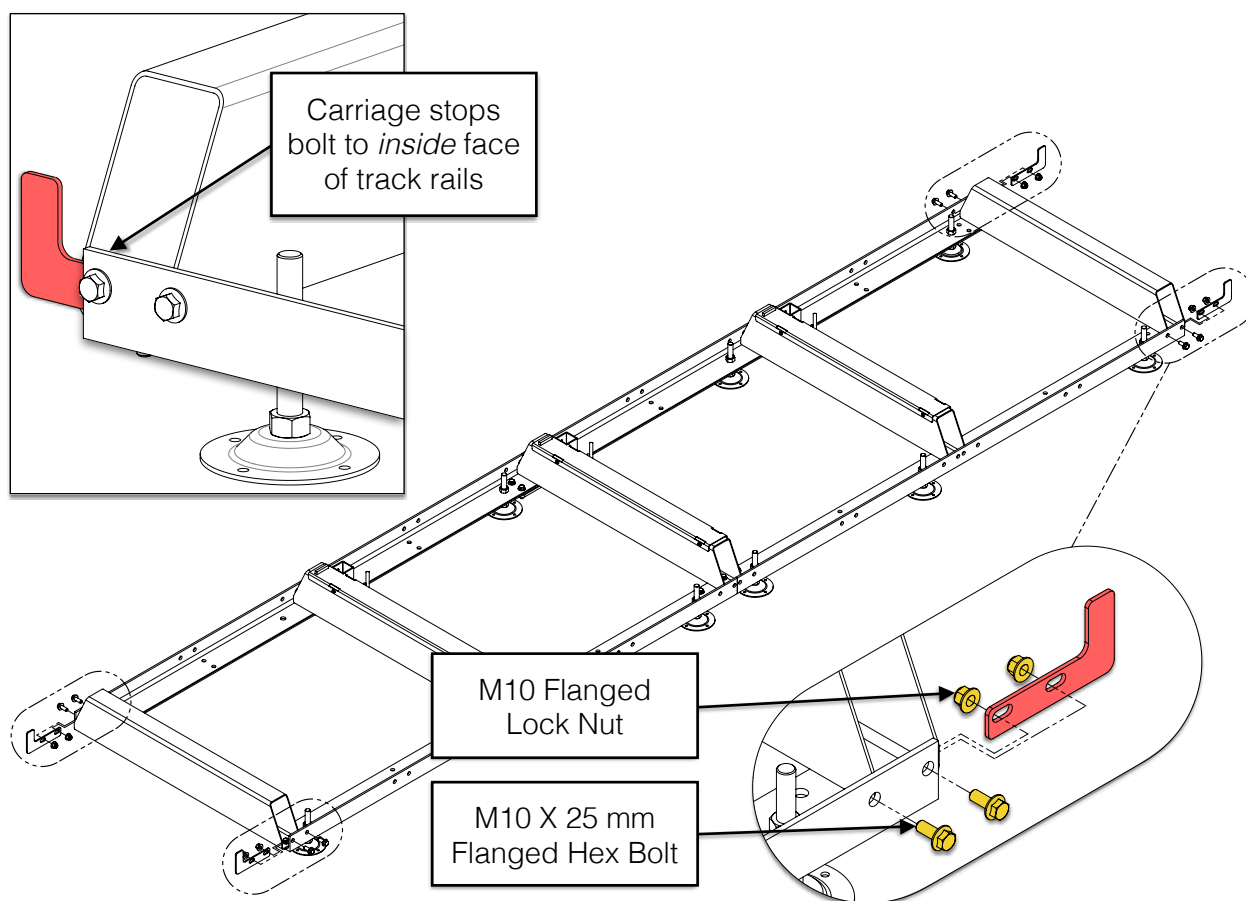


CARRIAGE STOPS

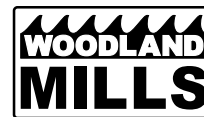
Assemble the carriage stops to the *inside* face of the rails using the components and hardware listed in the table below.

8x	M10 X 25 mm Flanged Hex Bolt		4x	Carriage Stop	
8x	M10 Flanged Lock Nut				

Use two (2) M10 X 25 mm flanged hex bolts and M10 flanged lock nuts to assemble each carriage stop to the *insides* of the track rails.

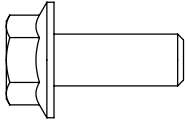
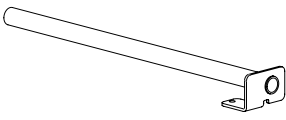
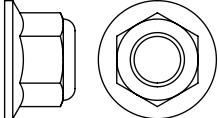
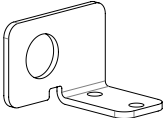
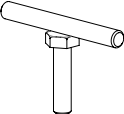
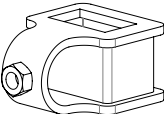


Leave the carriage stops off one end if the sawmill head will be manually lifted onto the track. See section PLACING THE HEAD ON THE TRACK (METHOD 2).

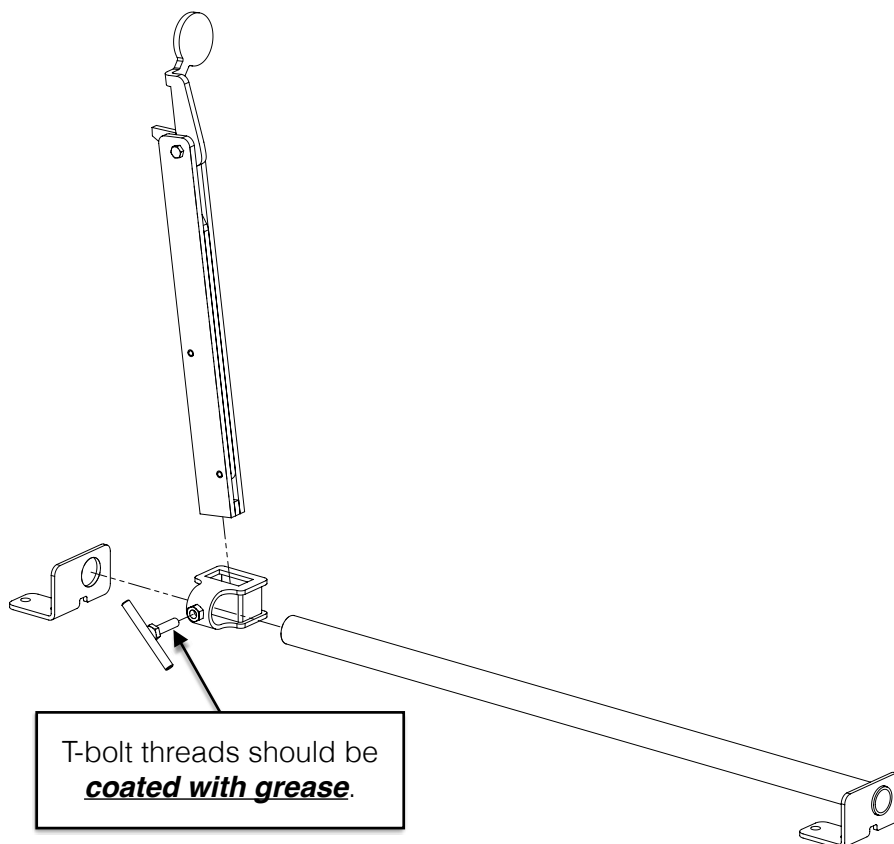


LOG CLAMPS

Assemble the log clamps using the components and hardware listed in the table below. The HM130MAX comes with two (2) log clamp assemblies.

8x	M10 X 25 mm Flanged Hex Bolt		2x	Log Clamp Shaft/Bracket Weldment	
8x	M10 Flanged Lock Nut		2x	Log Clamp Shaft Bracket	
2x	M10 X 40 mm T-Bolt		2x	Log Clamp Receiver	

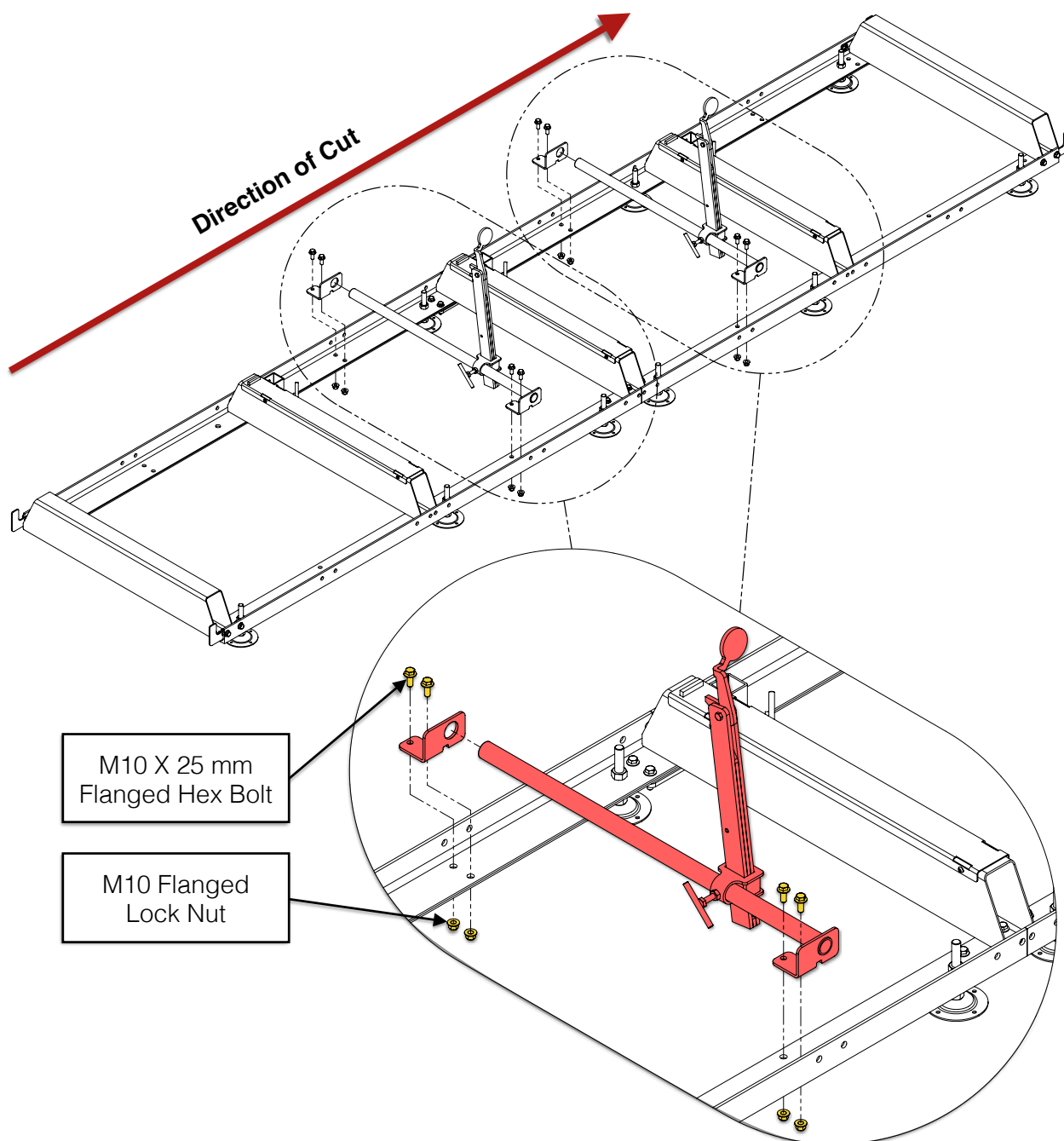
Slide the log clamp receiver with T-bolt over the shaft. Slide the log clamp into the receiver so that it angles away from the shaft weldment. Slide the shaft bracket over the end of the shaft.

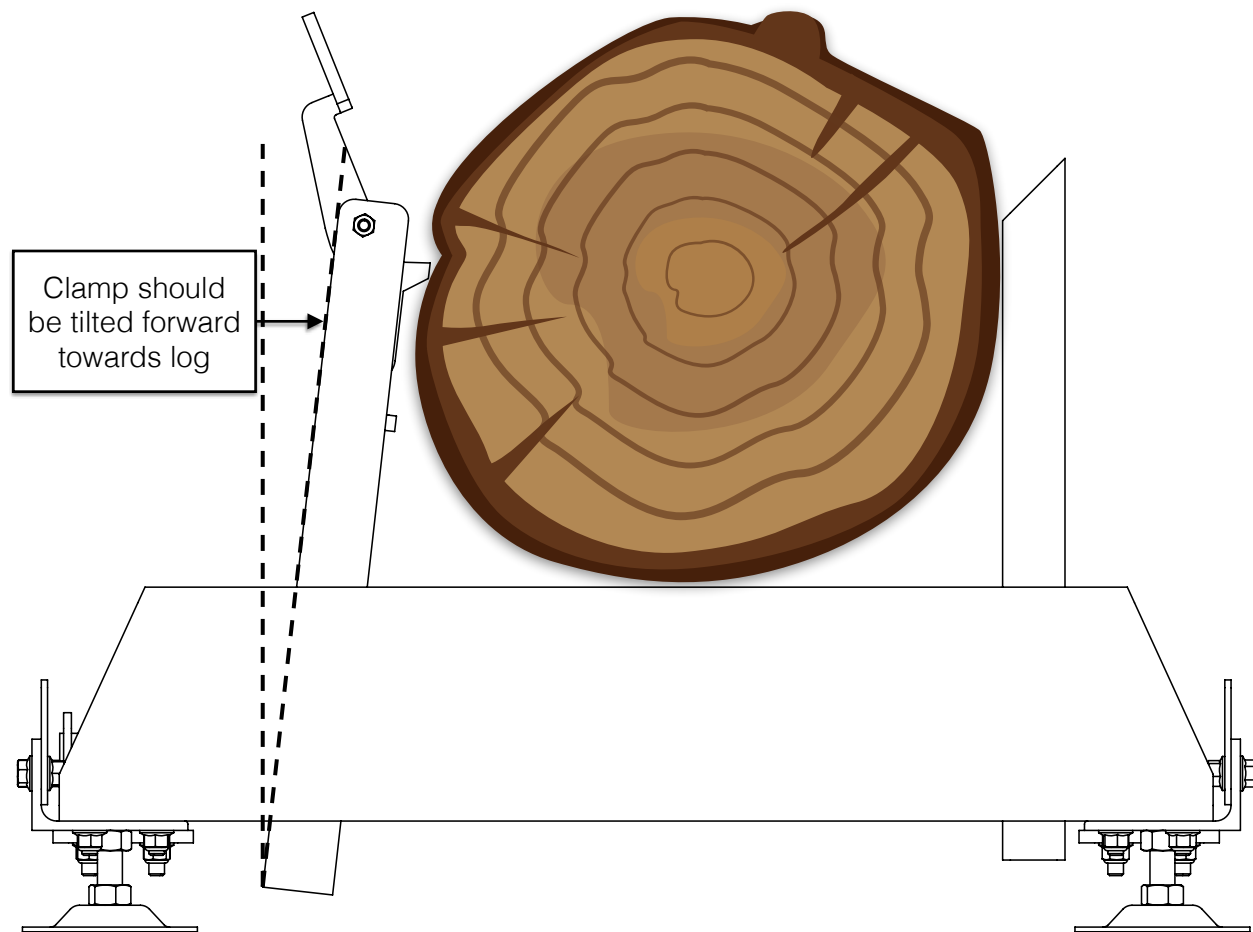




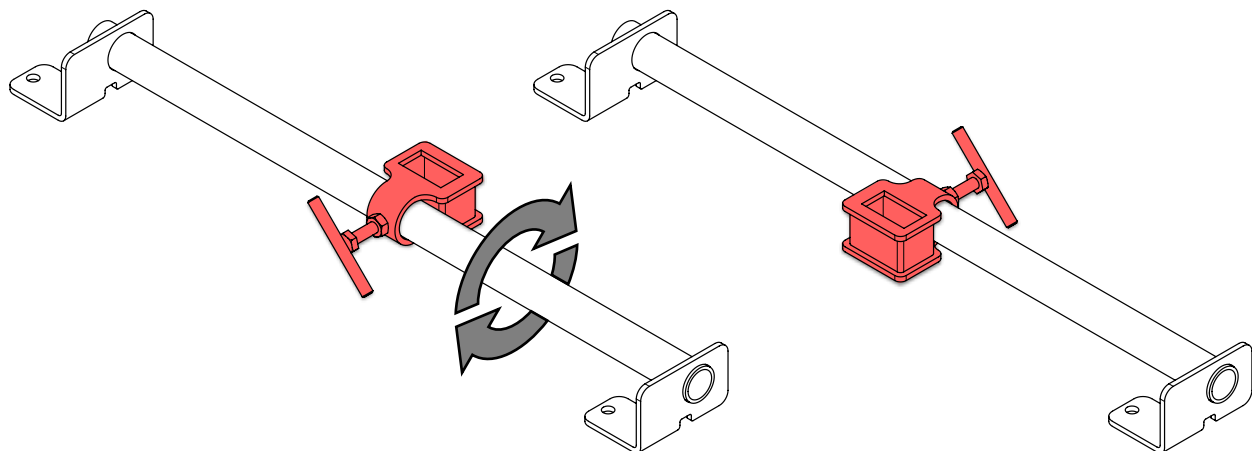
Attach each log clamp assembly to the rails as shown below using four (4) M10 X 25 mm flanged hex bolts and M10 flanged lock nuts.

Note that there are multiple locations along the track where the log clamps can be bolted. Depending on how many track sections are being used, select a log clamp position that will secure the log firmly against a minimum of two log supports.



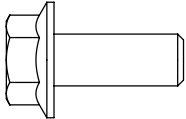
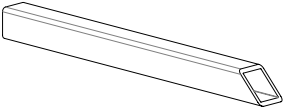
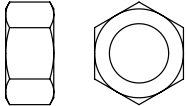
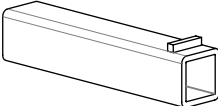


Ensure the log clamp tilts *towards* the log when clamping. If it tilts *away* from the log, remove the log clamp from the receiver, loosen the T-bolt, reverse the receiver on the shaft by rotating it 180°, and retighten the T-bolt. Insert the log clamp back into the receiver.

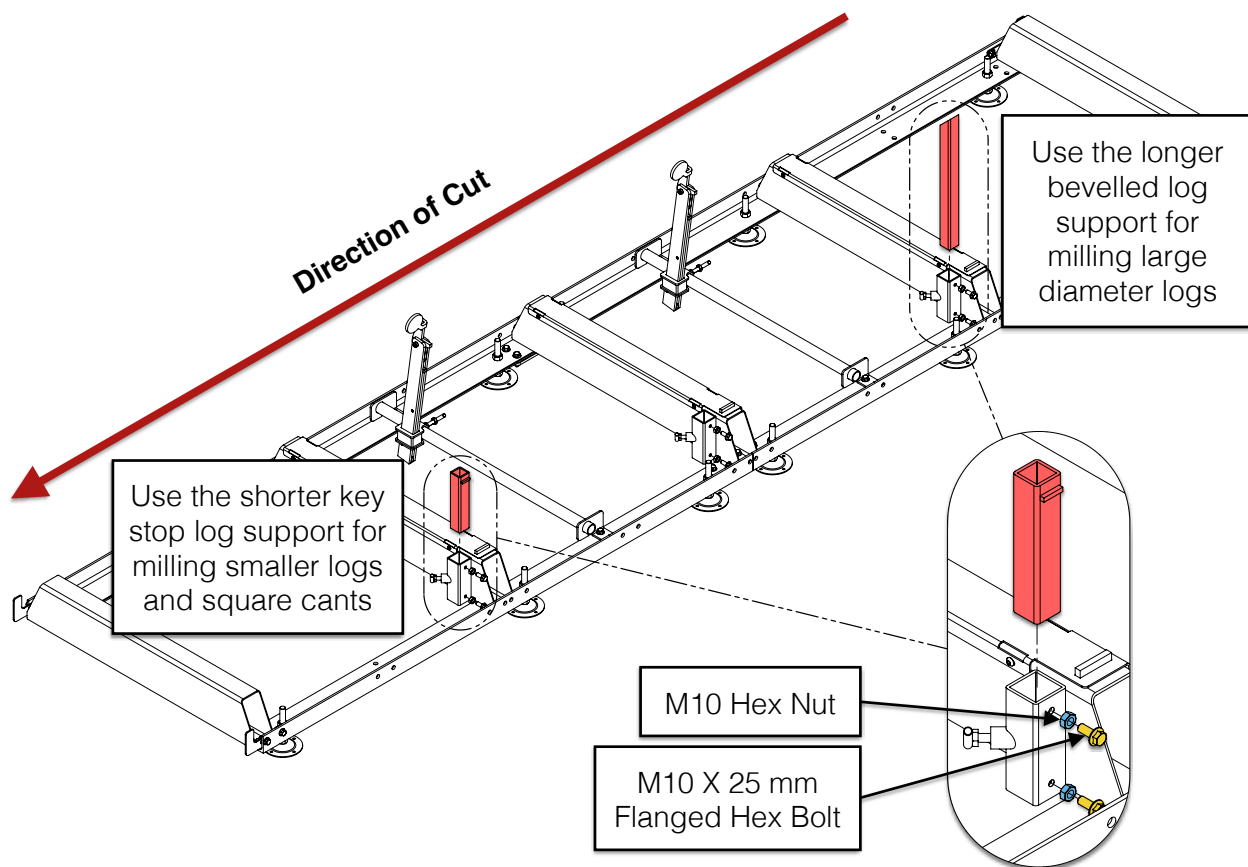


LOG SUPPORTS

Assemble the log supports to the centre and mid bunks using the components and hardware listed in the table below.

6x	M10 X 25 mm Flanged Hex Bolt		2x	Bevelled Log Support	
6x	M10 Hex Nut		2x	Key Stop Log Support	

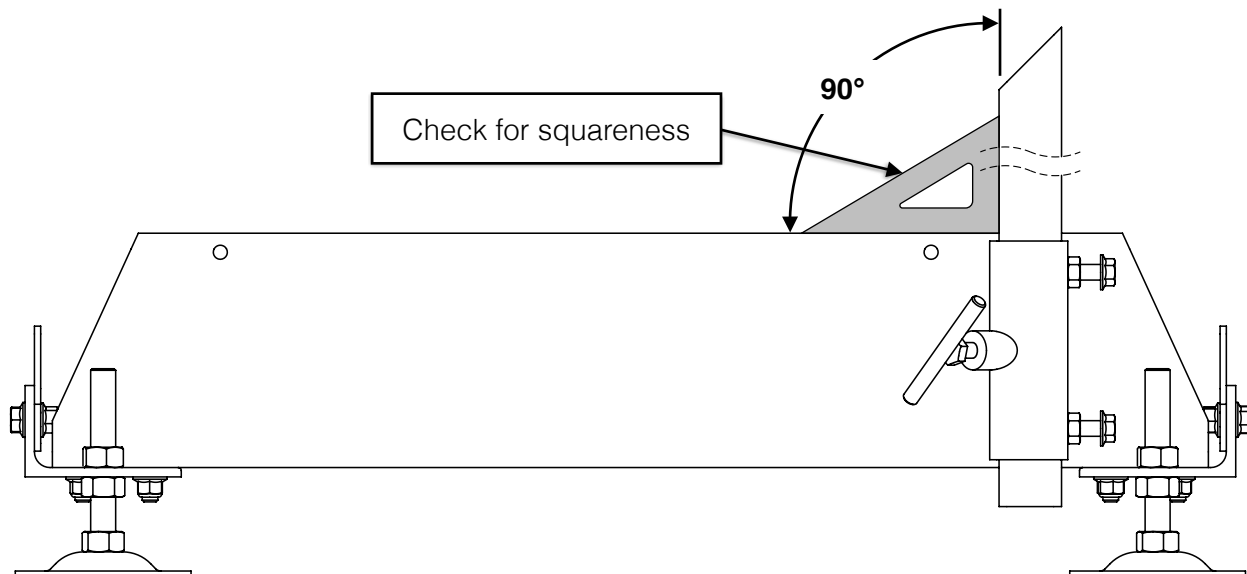
Assemble six (6) M10 X 25 mm flanged hex bolts and six (6) M10 hex jam nuts (2 each per bunk) into the threaded holes in the sleeves on the centre bunk and both mid bunks. These bolts are not used to secure the log supports—they help square the log support to the top face of the bunk if necessary. See next page for directions.



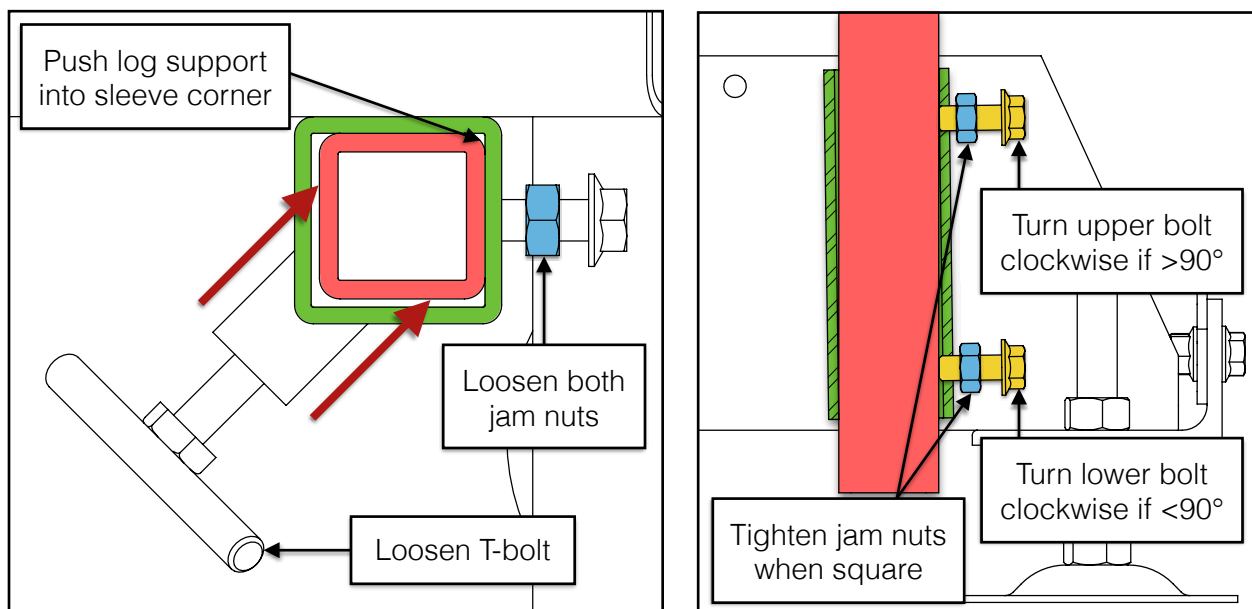
The log supports can be installed into any of the sleeves on the centre or mid bunks.



If the log support is not square (90°) to the top surface of the bunk when the T-bolt is tightened, the two (2) M10 X 25 mm flanged hex bolts can adjust the angle.



Loosen the T-bolt and push the log support into the corner of the bunk sleeve **making sure neither bolt protrudes into the sleeve**. Check for squareness. If the angle is less than 90° , turn the bottom bolt clockwise until the support is square with the bunk. If the angle is greater than 90° , turn the top bolt clockwise until the support is square with the bunk.

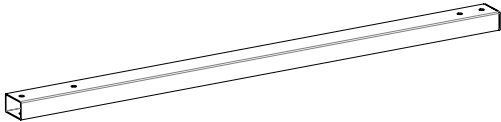


Once the log support is square with the top of the bunk, tighten both jam nuts. Secure the log support with the T-bolt. Repeat the process for the centre and mid bunks as necessary.

3. SAWMILL HEAD ASSEMBLY

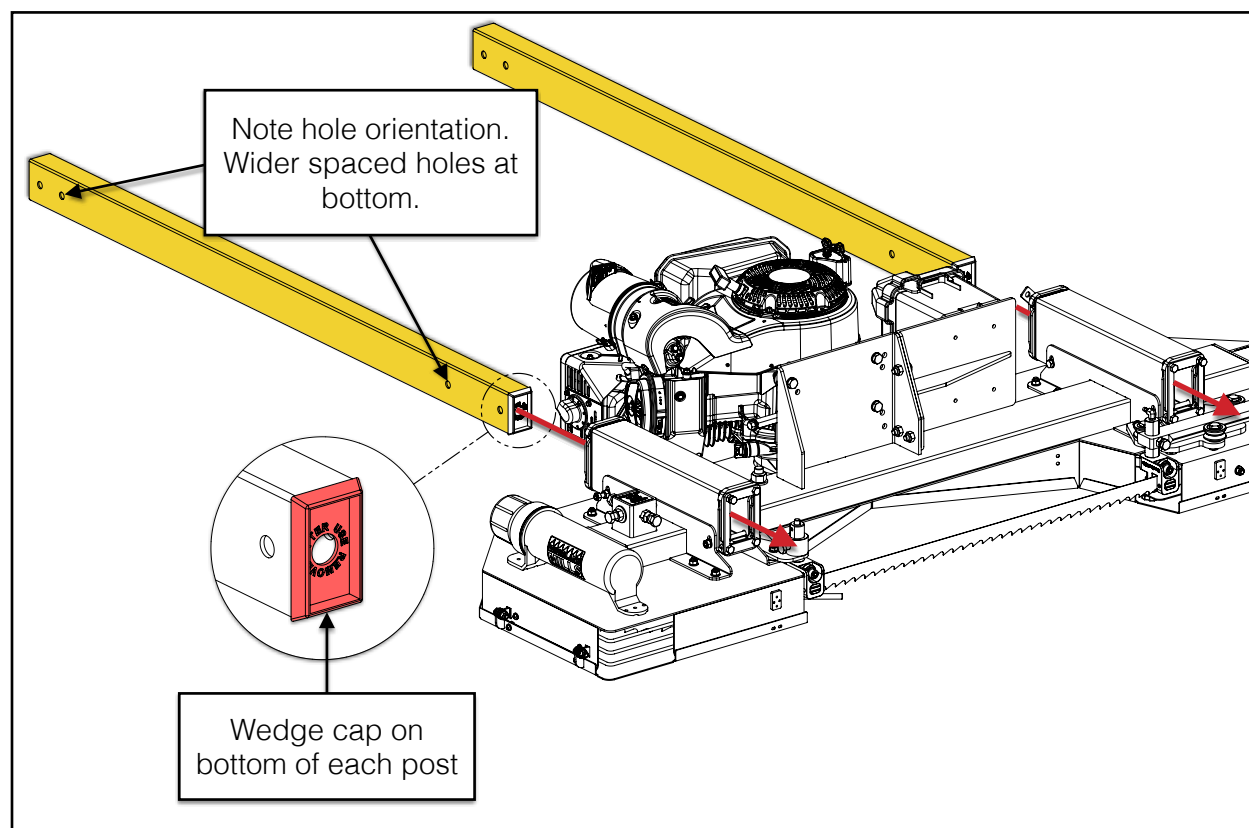
The sawmill head assembly is built in multiple steps. Follow the sub-sections below using the parts table at the top of each sub-section to gather the necessary components for each step.

FRONT POSTS

2x	Front Post	
----	------------	---

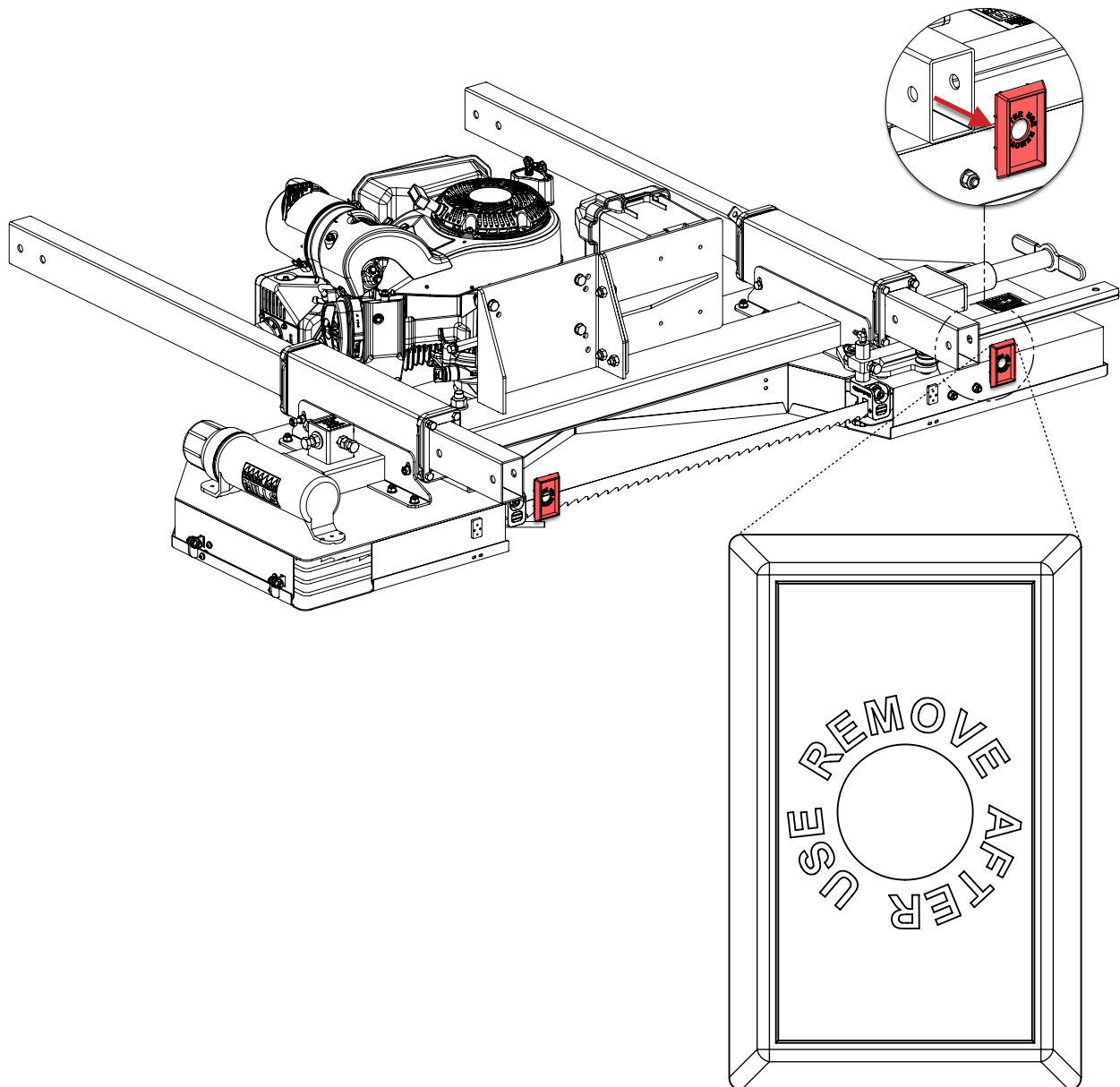
With the sawhead resting approximately 6 in [150 mm] above the ground, slide the two (2) front posts through the top of the post sleeves—do not assemble them from the bottom.

There are wedge-shaped caps on the bottom of each post to help aid the assembly of the posts through the nylon post sleeve bushings.





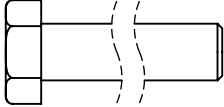
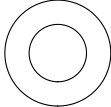
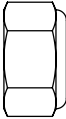
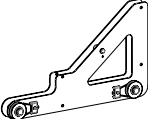
Remove the wedge-shaped caps from the bottom of both posts. They are only required for front post assembly.



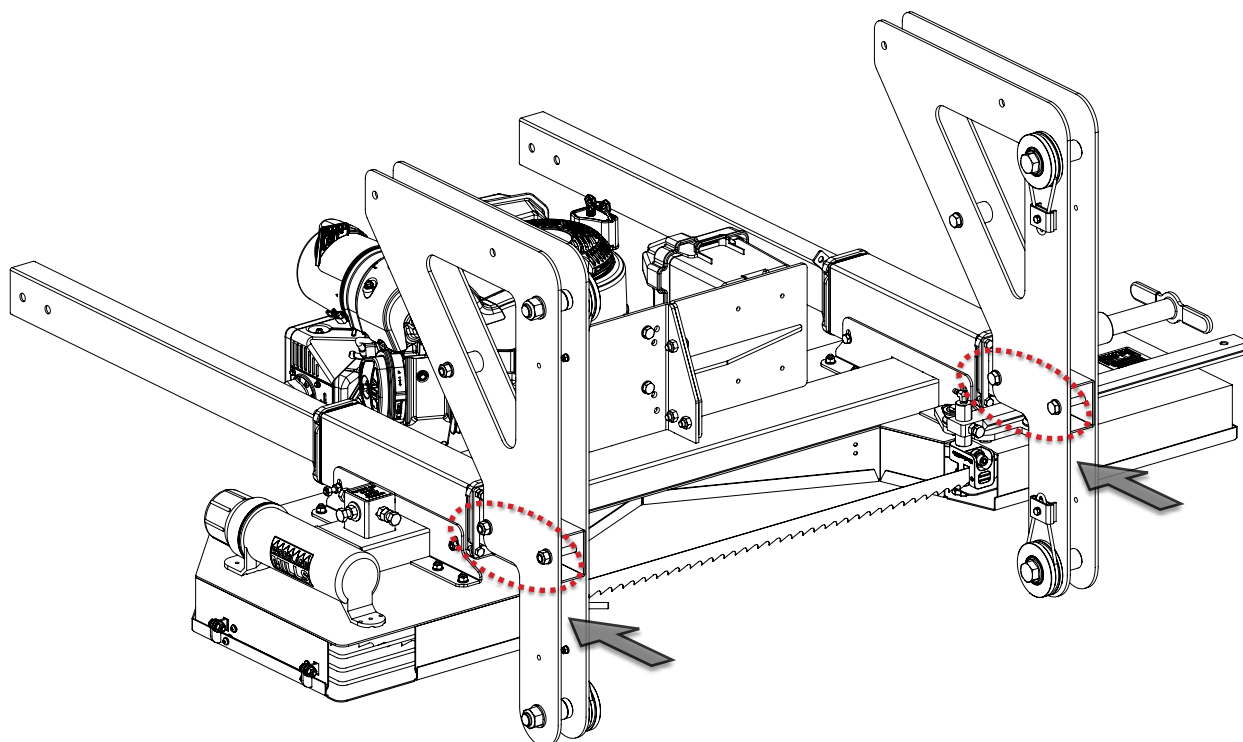


CARRIAGE LEGS

The carriage leg sub-assemblies come loosely assembled from the factory. Final tightening of these bolts will be done in a later step. See the ***CARRIAGE LEG, WHEEL, AND SWEEPER*** exploded view for a more detailed part breakdown.

4x	M12 X 80 mm Hex Bolt		8x	M12 Flat Washer	
4x	M12 Lock Nut		2x	Carriage Leg Sub-Assembly	

Attach the two (2) carriage leg sub-assemblies to the front posts with four (4) M12 X 80 mm bolts, lock nuts, and eight (8) flat washers. Be sure the bolts point outward and the carriage wheels are positioned on the inside of the legs. Snug these four (4) M12 bolts just enough so that the plates are flush to the posts but do not fully tighten them. Push the posts all the way up until the carriage leg plates contact the post sleeves.





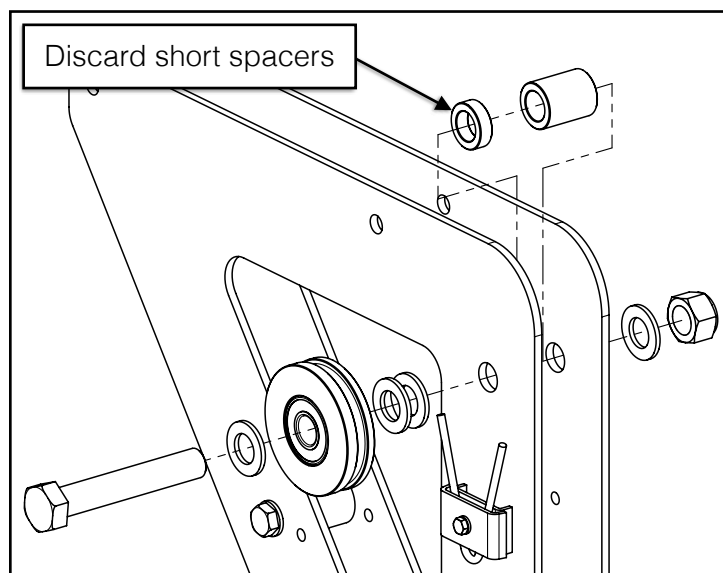
HEAD LOCK-DOWN PLATES

****Woodland Mills sawmill trailer owners only. If a sawmill trailer was not purchased, proceed to the next step.****

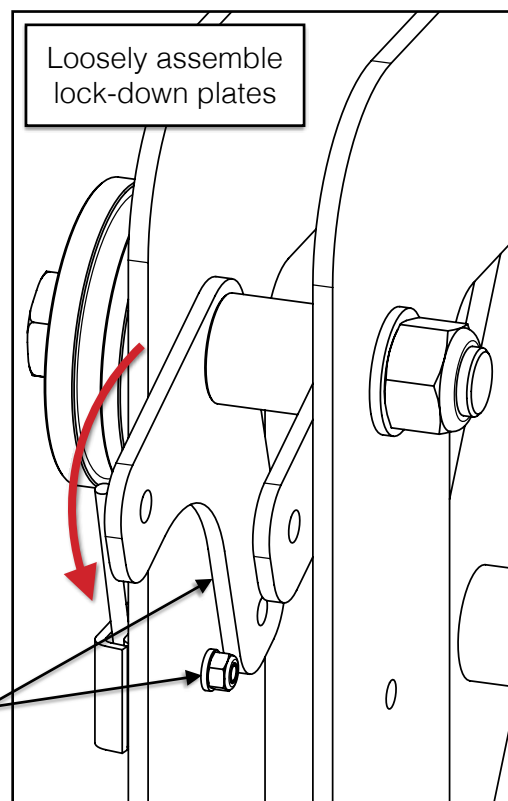
If a Woodland Mills sawmill trailer was purchased with this sawmill, the head lock-down plates can be loosely installed prior to standing the sawhead upright. The lock-down plates come with the sawmill trailers and are not included with the sawmill.

8x	Head Lock-Down Plate	
----	----------------------	--

Disassemble each carriage wheel and discard the short spacers as they are no longer necessary. Assemble one (1) lock-down plate on each side of the long spacers—between the carriage legs—and then reassemble the carriage wheels. Do not fully tighten the carriage wheel bolts.



Ensure the longer lock-down plate leg will sit above the wheel sweeper nut when the sawhead is stood upright. This lets the lock-down plates swivel up inside the carriage legs avoiding possible damage until the sawhead is ready to be set on the track.



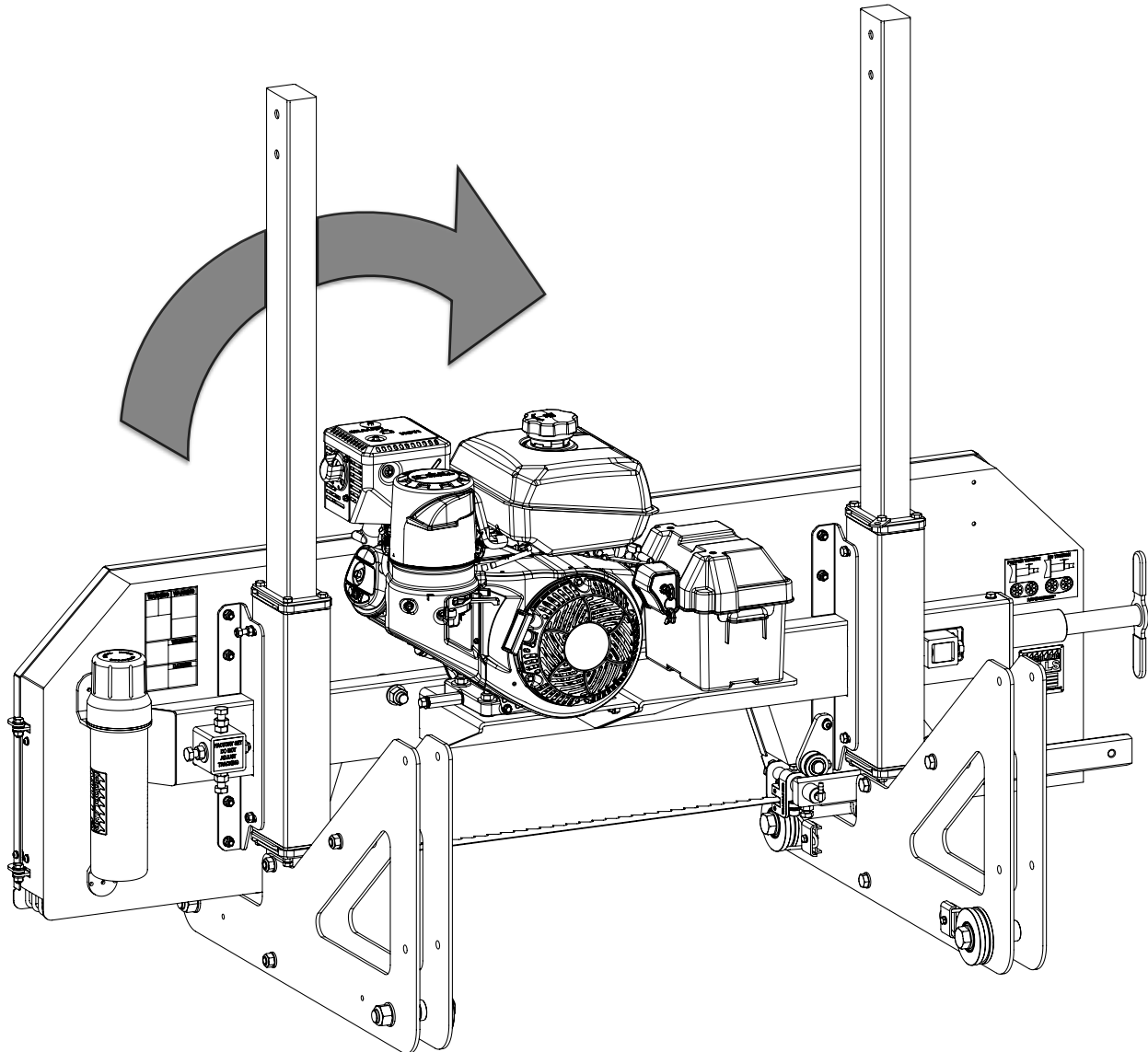
See section, **HEAD LOCK-DOWN PLATES**, in the sawmill trailer Operator Manual to complete the lock-down plate installation once the sawmill is on the trailer.



STANDING THE SAWHEAD UPRIGHT



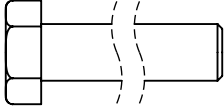
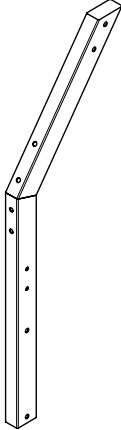
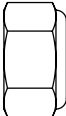
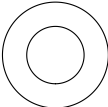
With the help of another person, stand the sawhead upright by rotating it around the rounded profiles at the front of the carriage legs. Do not set the sawhead on the track until instructed to do so later in the assembly process.

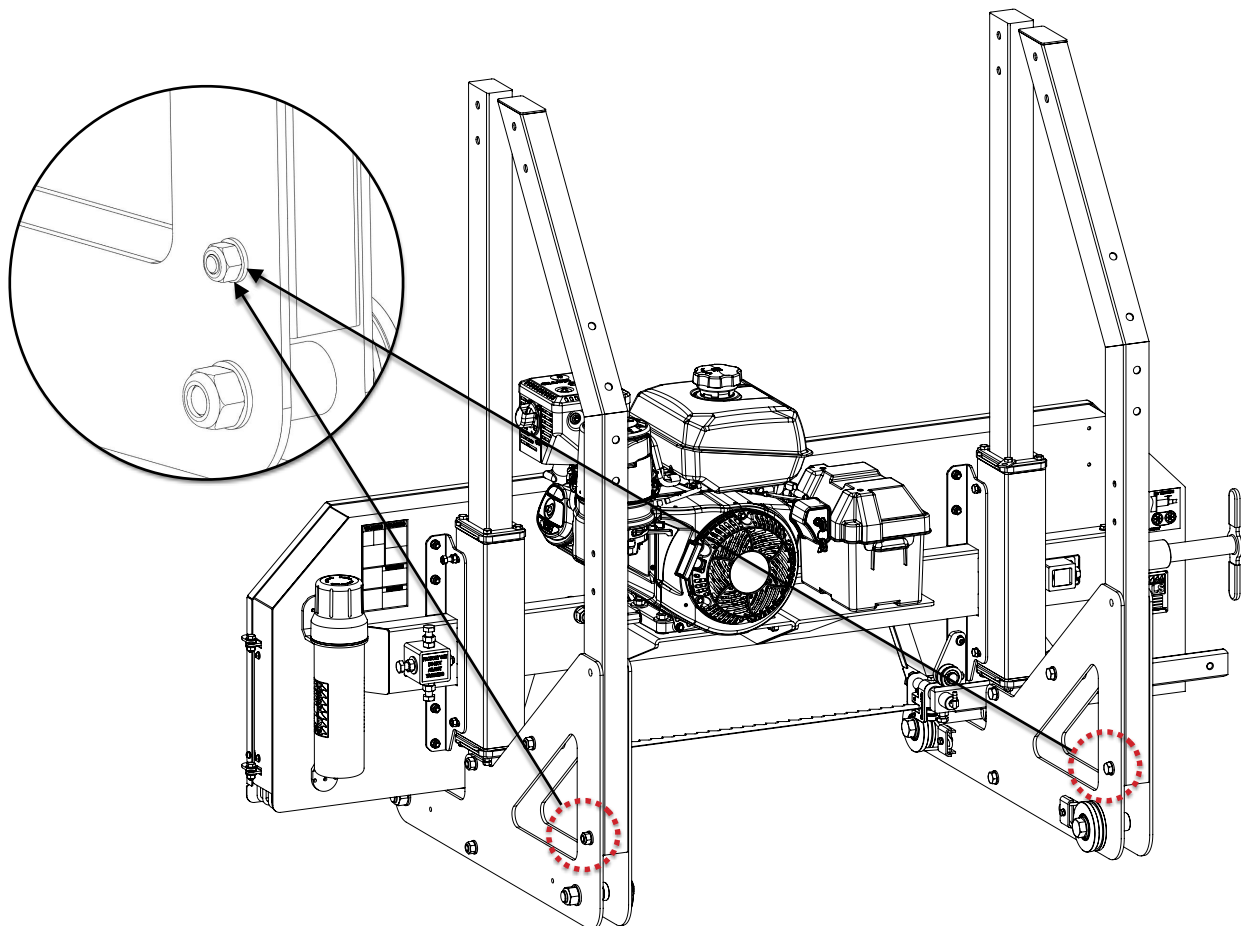




REAR POSTS

Using the hardware listed below, attach the rear posts between the carriage leg plates using one (1) M12 X 80 mm bolt, lock nut, and two (2) flat washers per post.

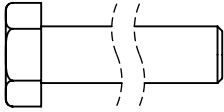
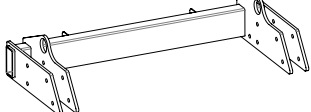
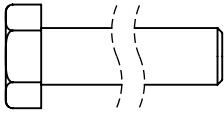
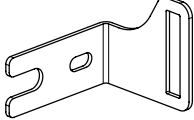
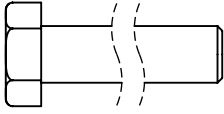
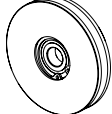
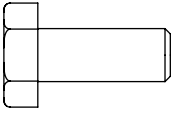
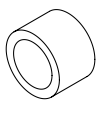
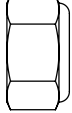
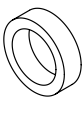
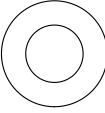
2x	M12 X 80 mm Hex Bolt		2x	Rear Post	
2x	M12 Lock Nut				
4x	M12 Flat Washer				





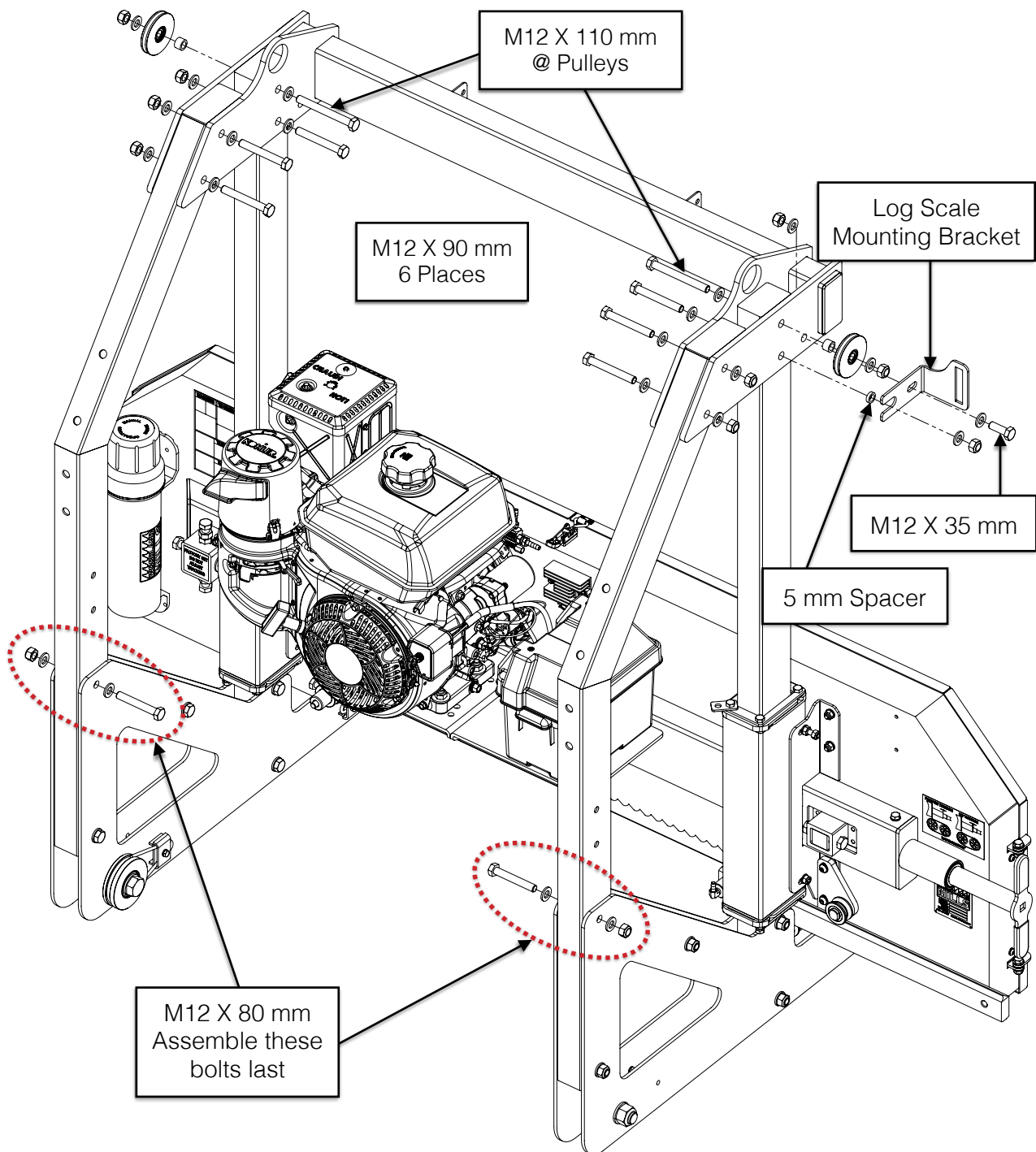
CROSS BEAM

With the hardware listed below, assemble the cross beam to the carriage posts.

2x	M12 X 110 mm Hex Bolt		1x	Cross Beam	
6x	M12 X 90 mm Hex Bolt		1x	Log Scale Mounting Bracket	
2x	M12 X 80 mm Hex Bolt		2x	Pulley	
1x	M12 X 35 mm Hex Bolt		2x	Spacer [12 mm Lg]	
11x	M12 Lock Nut		1x	Spacer [5 mm Lg]	
22x	M12 Flat Washer				

With the help of a second person, slide the cross beam over the carriage posts. Use six (6) M12 X 90 mm bolts and two (2) M12 X 110 mm bolts (with pulleys and 12 mm spacers) to fasten it in place. Be sure to install the log scale mounting bracket on the right-side below the pulley with the 5 mm spacer in the open slot. Use an M12 flat washer under every bolt head and lock nut.

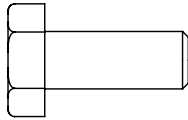
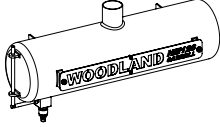
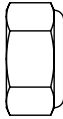
Finally, install two (2) M12 X 80 mm bolts at the top of each carriage leg. Do *not* fully tighten these bolts at this time.



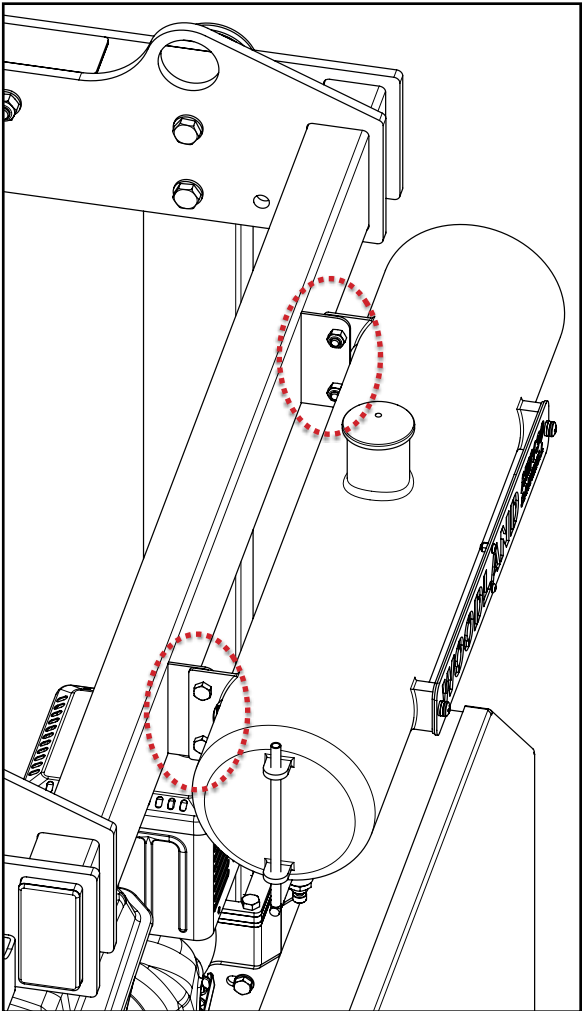
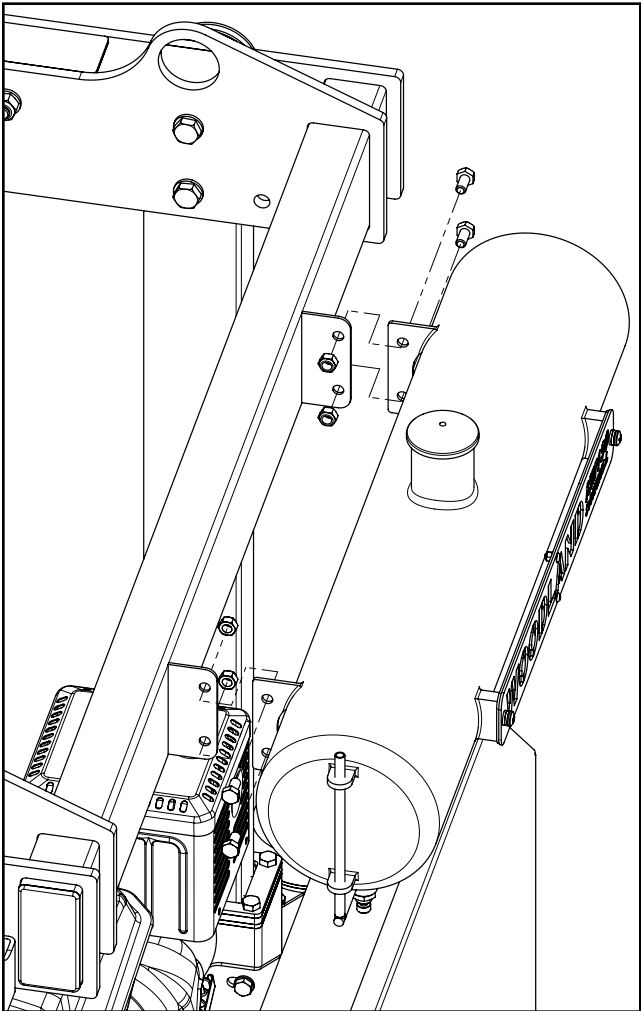


LUBRICATION TANK

With the hardware listed below, assemble the lubrication tank to the front of the cross beam.

4x	M8 X 16 mm Hex Bolt		1x	Lubrication Tank	
4x	M8 Lock Nut				

Assemble the lubrication tank to the cross beam with four (4) M8 X 16 mm bolts and lock nuts. Ensure the bolts point inward.

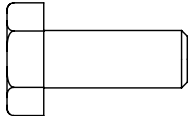
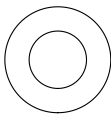
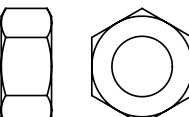
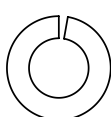




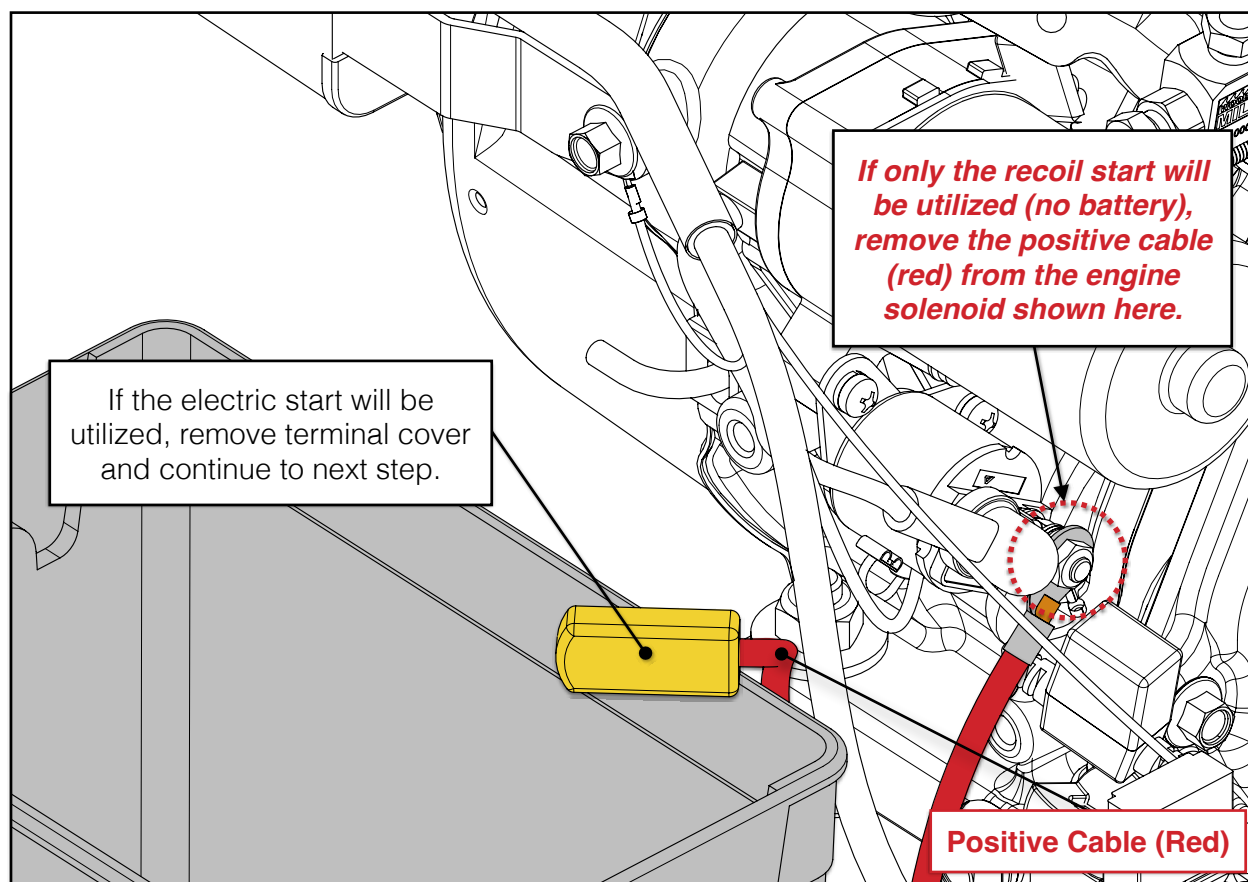
BATTERY CONNECTIONS



With the hardware listed below, connect the battery cables to a battery.

2x	M8 X 20 mm Hex Bolt		4x	M8 Flat Washer	
2x	M8 Hex Nut		2x	M8 Lock Washer	

The sawmill ships with one end of the positive (red) battery cable connected to the engine. The other end is capped with a terminal cover and routed inside the battery box.





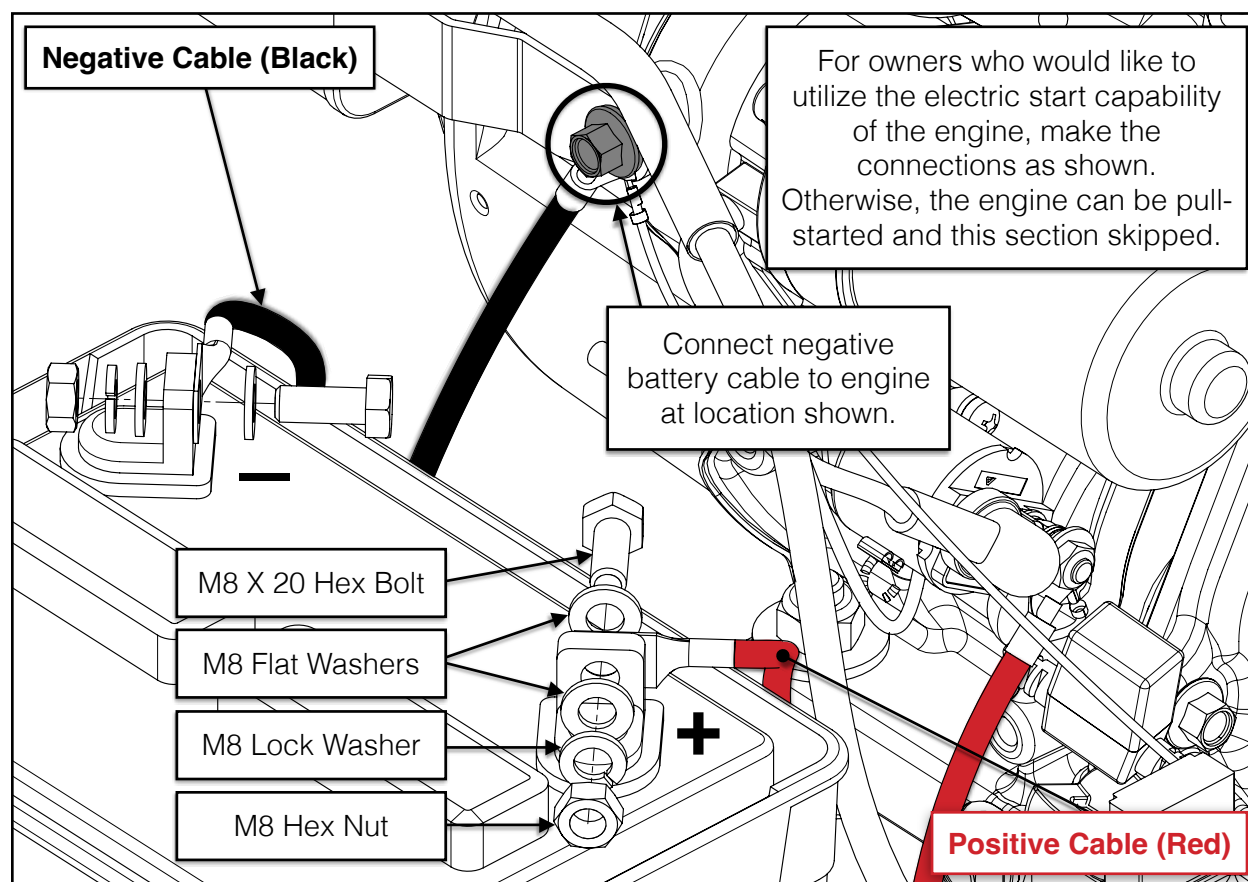
The customer is required to purchase their own battery that meets the following specifications:



Size	Voltage	Cold Cranking Amps
U1 (20 L x 13 W x 18 H cm) (7-7/8 L x 5-1/8 W x 7-1/8 H in)	12 V	250 Min (300+ Recommended)

Connect the black battery cable to the negative battery terminal and the red battery cable to the positive battery terminal using M8 X 20 bolts, flat washers, split-lock washers, and hex nuts.

****Double-check the *battery terminal positions* as the negative and positive terminals may be the reverse of what is shown in the example below. The connection points on the engine are the same regardless of the battery's orientation.****



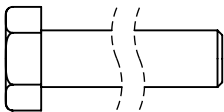
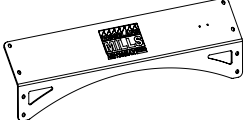
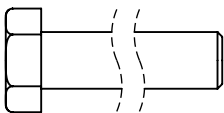
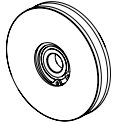
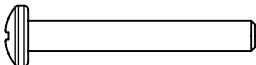
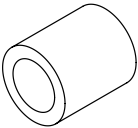
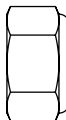


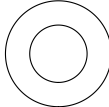

Once the connections are made, set the battery box lid on top ensuring the battery cables route down and out the openings in the side. Use the included strap to secure the top and bottom halves of the battery box.



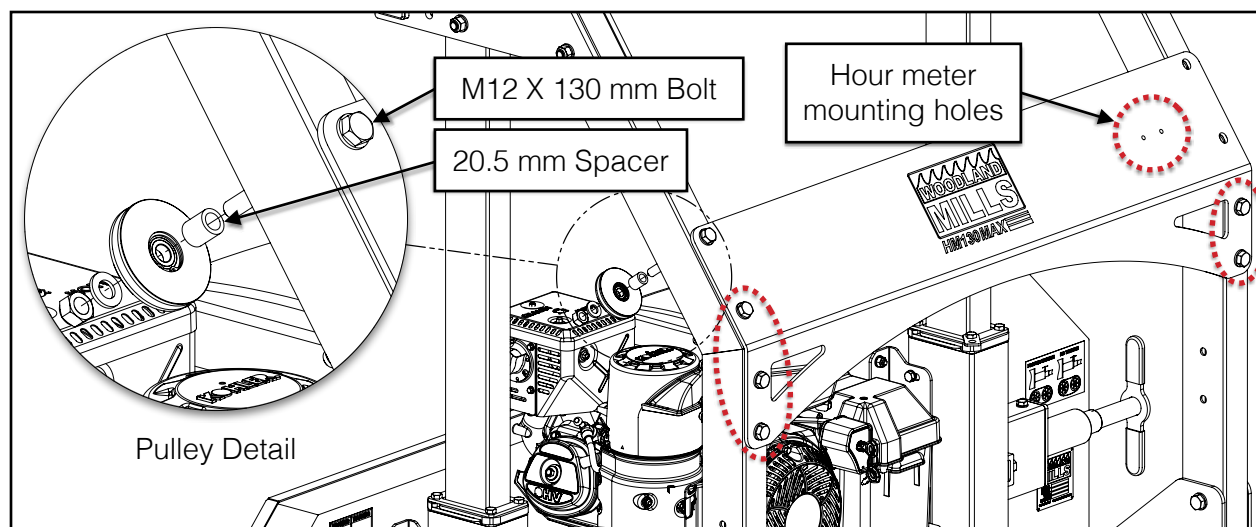
DASHBOARD & HOUR METER



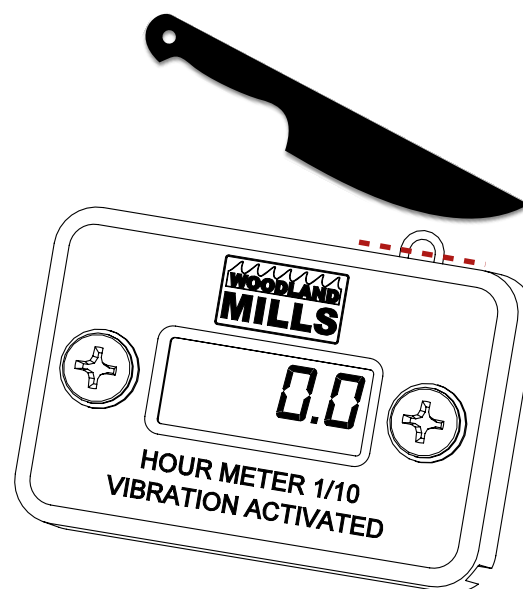
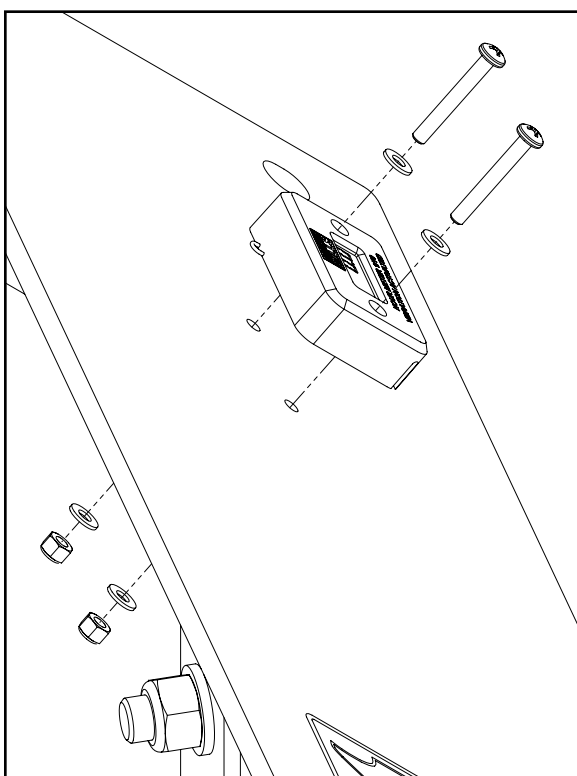
With the hardware listed below, assemble the dashboard to the rear carriage posts.

1x	M12 X 130 mm Hex Bolt		1x	Dashboard	
5x	M12 X 110 mm Hex Bolt		1x	Pulley	
2x	M4 X 30 mm Pan Head Screw		1x	Spacer [20.5 mm Lg]	
6x	M12 Lock Nut		1x	Hour Meter	
2x	M4 Lock Nut				
12x	M12 Flat Washer				
4x	M4 Flat Washer				

Assemble the dashboard to the rear carriage posts with five (5) M12 X 110 mm bolts and one (1) M12 X 130 mm bolt (with pulley and spacer) as illustrated on the next page. Use an M12 flat washer under every bolt head and lock nut. Do *not* fully tighten these bolts at this time.



Assemble the hour meter to the right-side of the dashboard through the two (2) small holes. Use two (2) M4 X 30 mm pan head screws, four (4) flat washers (2 per screw), and two (2) lock nuts. Once the entire sawmill has been assembled, snip the wire loop at the top of the meter with either a razor or sharp knife. This will activate the meter to start measuring the vibration of the machine, recording the hours of use on the engine.

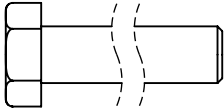
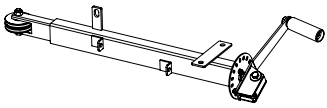
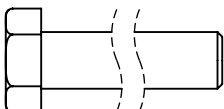
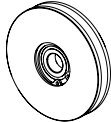
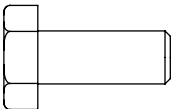
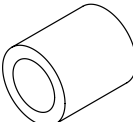
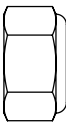

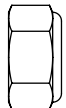
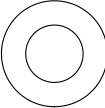


Cut wire loop on hour meter after sawmill is assembled



LIFT MECHANISM

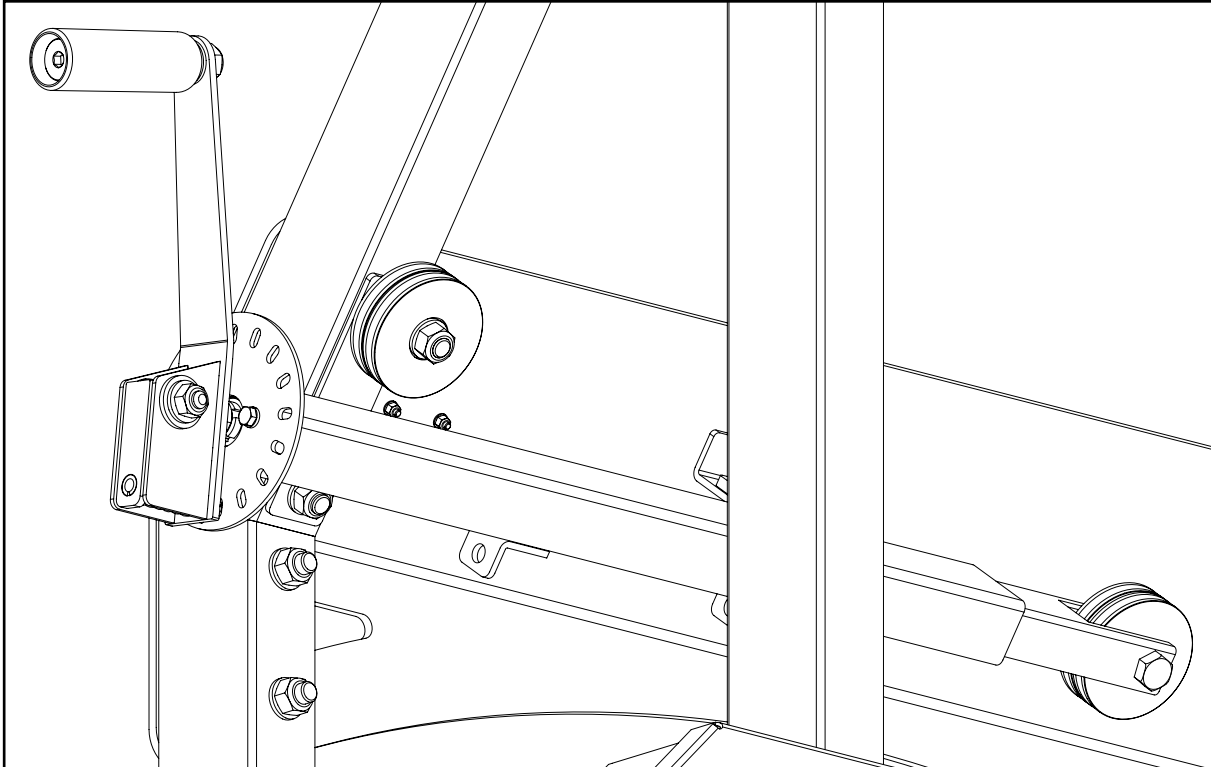
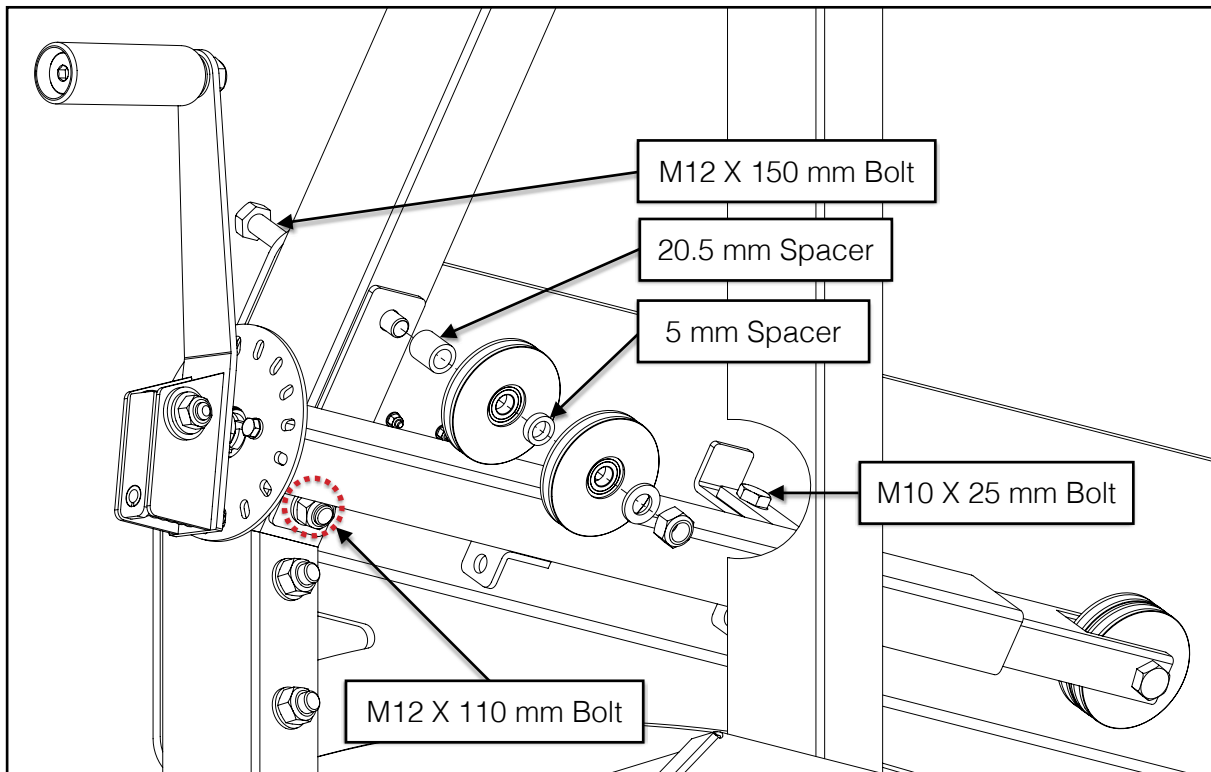
With the hardware listed below, assemble the lift mechanism to the carriage.

1x	M12 X 150 mm Hex Bolt		1x	Lift Mechanism Sub-Assembly	
1x	M12 X 110 mm Hex Bolt		2x	Pulley	
1x	M10 X 25 mm Hex Bolt		1x	Spacer [20.5 mm Lg]	
2x	M12 Lock Nut		1x	Spacer [5 mm Lg]	
1x	M10 Lock Nut				
4x	M12 Flat Washer				

Attach the lift mechanism assembly to the underside of the right-rear carriage post as shown on the next page.

Use one (1) M12 X 150 mm bolt (including the pulleys and 2 spacers—5 mm spacer *between* pulleys) and one (1) M12 X 110 mm bolt. Use an M12 flat washer under each bolt head and lock nut. Fasten the centre tab to the inside of the dashboard using an M10 X 25 mm bolt and nut.

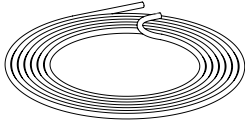
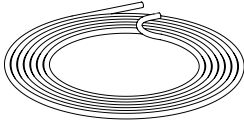
Do *not* fully tighten these bolts at this time.





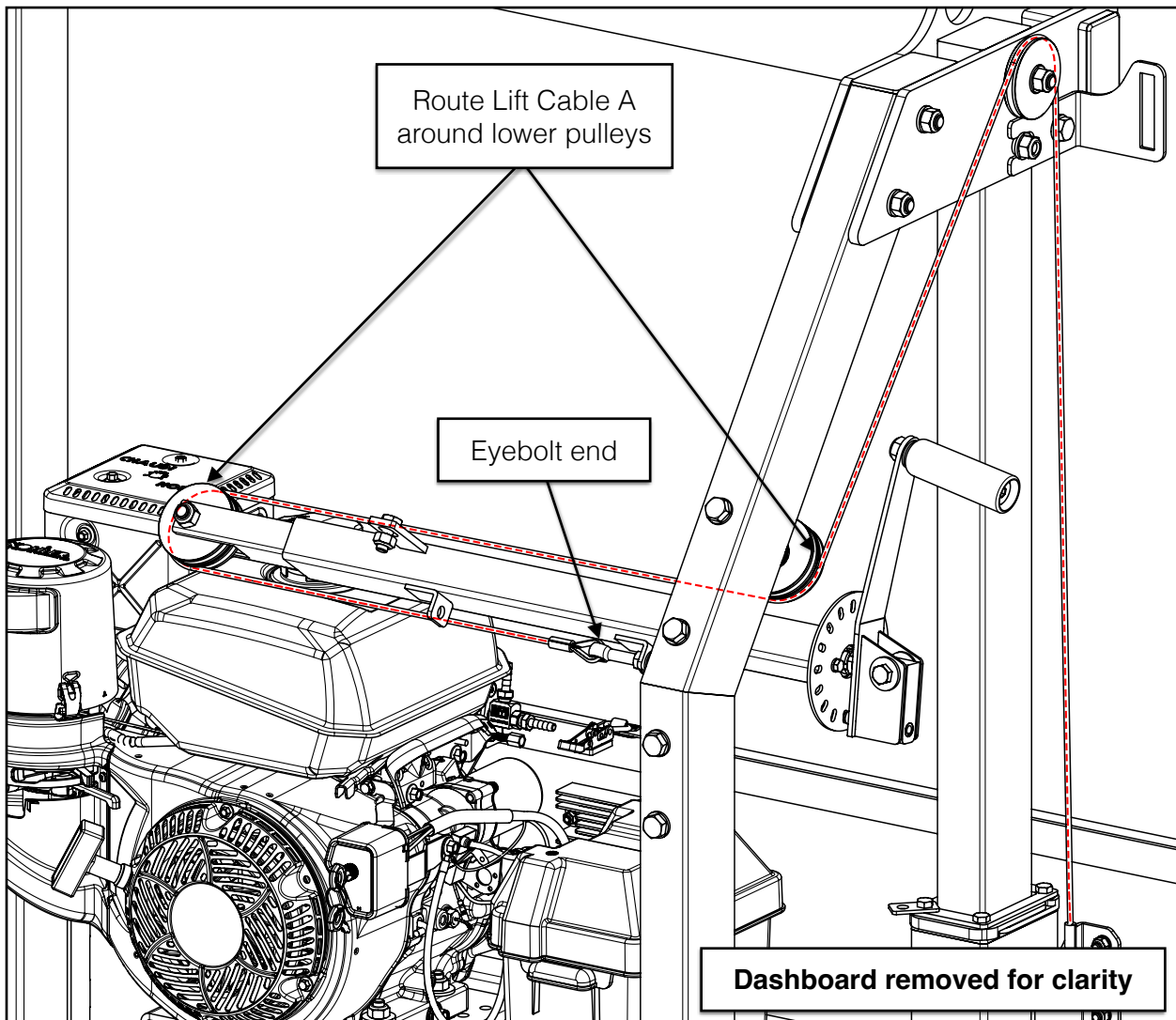
LIFT CABLE ROUTING

Route the lift cables listed below.

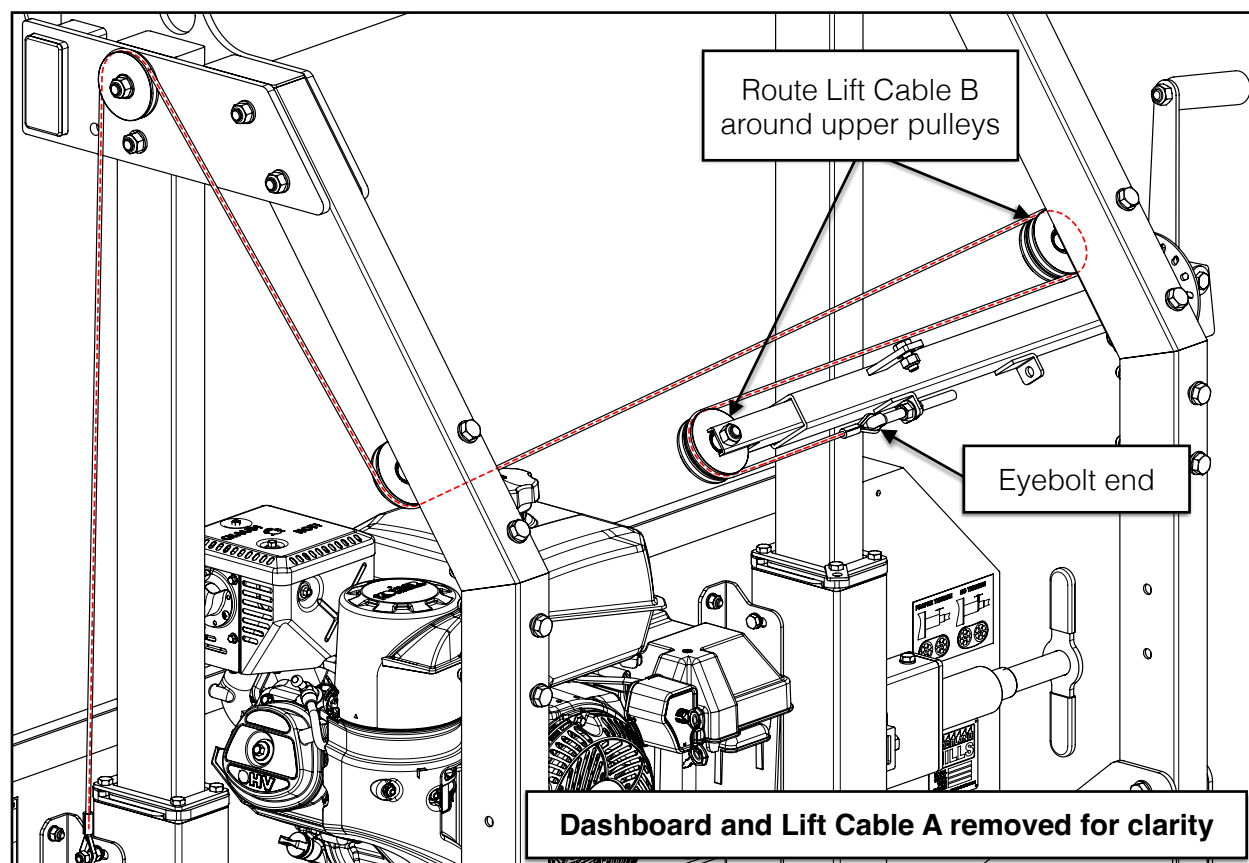
1x	Lift Cable A [Right Side]		1x	Lift Cable B [Left Side]	
----	------------------------------	---	----	-----------------------------	---

Each wire rope lift cable comes connected to the back beam at one end and a threaded eyebolt with two (2) M10 flange nuts at the other end. The cable lengths are unique to each side so do not swap them.

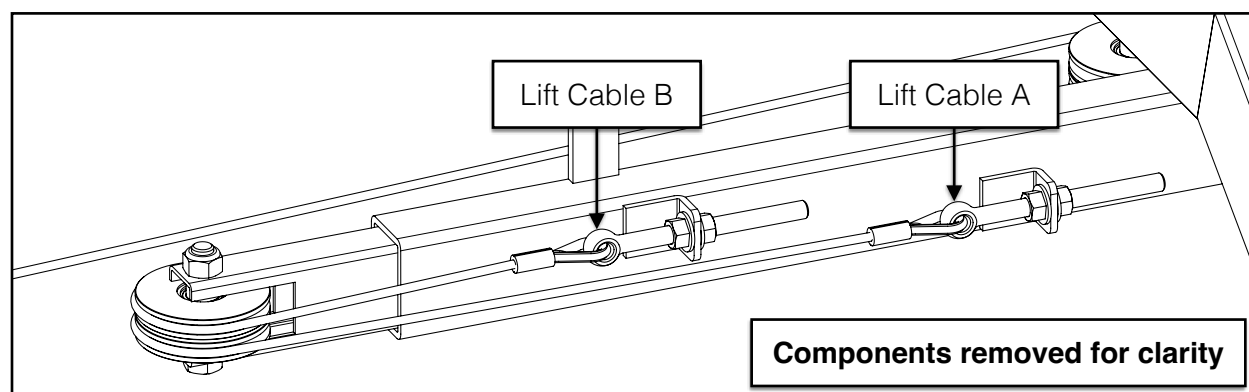
Route lift cable A (right side) as shown below.



Route lift cable B (left side) as shown below.



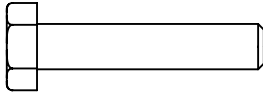
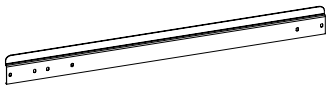

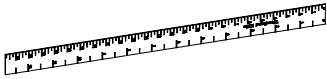
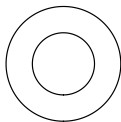
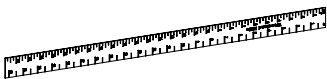
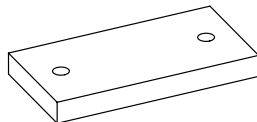
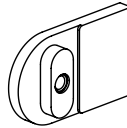
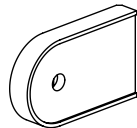
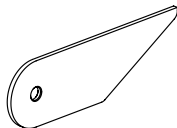
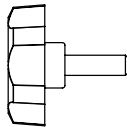
Unthread one (1) M10 flanged nut from each eyebolt, then insert the eyebolt into the bracket on the bottom side of the lift mechanism housing. Secure the eyebolt to the bracket with the M10 flange nut that was removed, sandwiching the bracket between both flange nuts. Repeat the process for the other lift cable. Do not fully tighten this hardware.



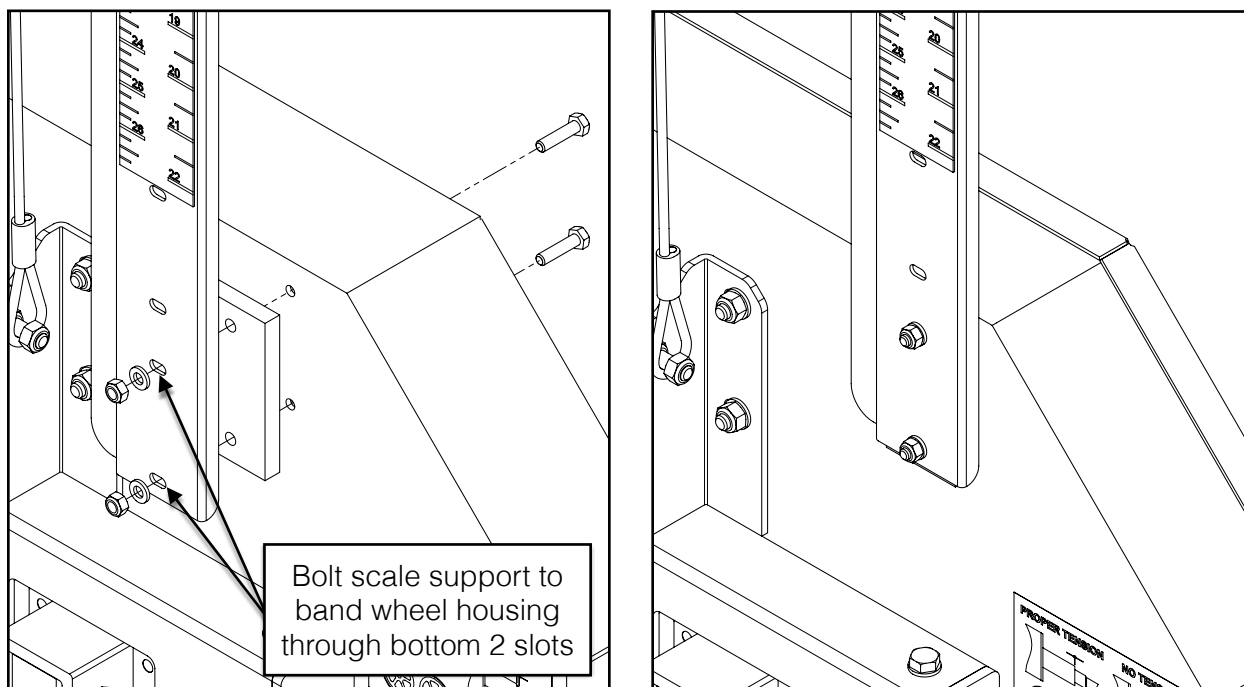


LOG SCALE

With the hardware listed below, assemble the log scale components.

2x	M6 X 25 mm Hex Bolt		1x	Scale Support	
2x	M6 Lock Nut		1x	Magnetic Scale [White]	
2x	M6 Flat Washer		1x	Magnetic Scale [Yellow]	
			1x	Scale Support Spacer Plate	
			1x	Scale Indicator Arrow Bracket [Rear]	
			1x	Scale Indicator Arrow Bracket [Front]	
			1x	Scale Indicator Arrow	
			1x	M8 X 25 mm Knob	

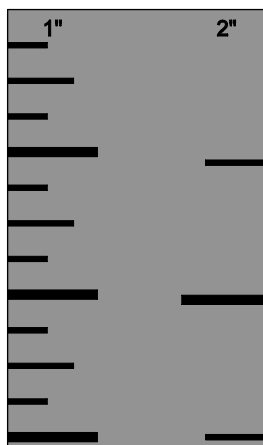
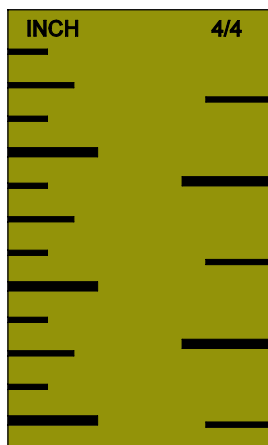
Bolt the scale support and spacer plate to the band wheel housing through the bottom two slots using two (2) M6 X 25 mm bolts, flat washers, and lock nuts as shown below.



Note: the sawmill comes with two (2) different magnetic scales: one yellow, one white. Each with two different graduations down the left and right sides.

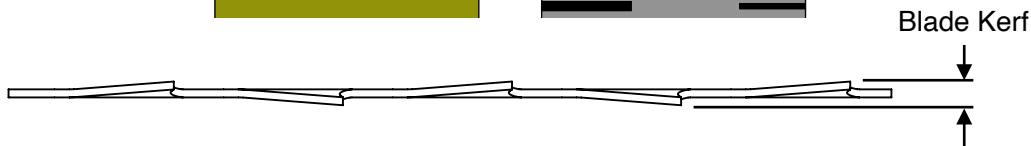
Yellow Scale

The left side is an inch scale, with the large graduations spaced at 1 in. The right side is “four quarter” (4/4) which mills the lumber $\frac{1}{8}$ in oversize to allow for finish planing on each side after drying.



White Scale

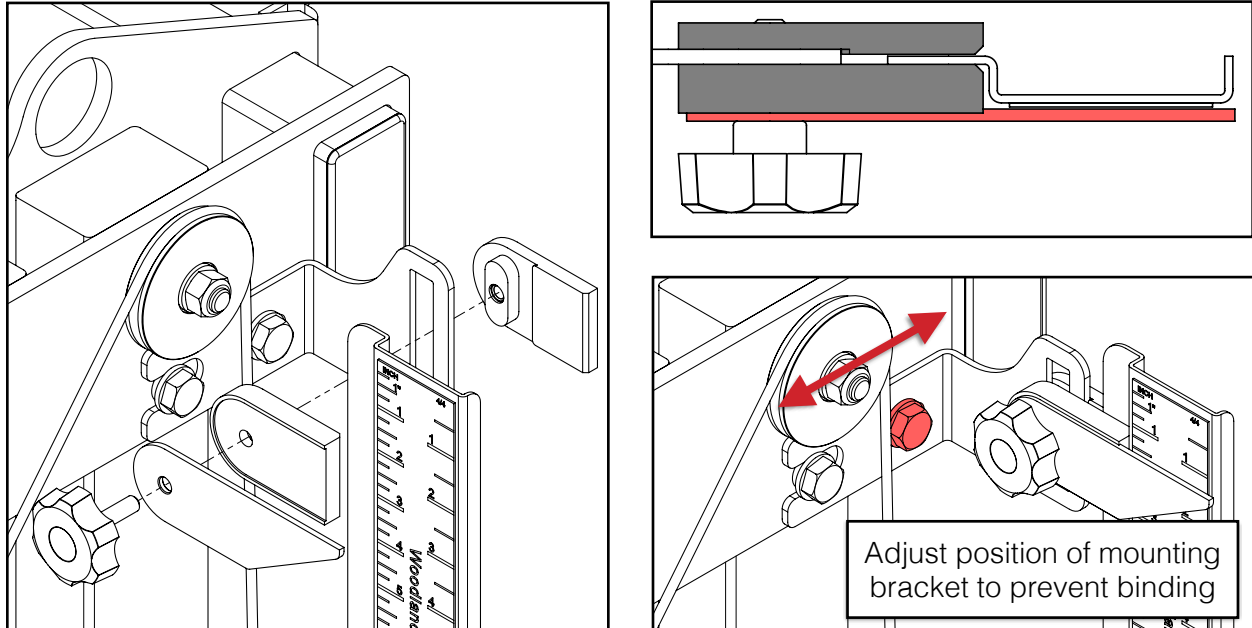
The left side is an inch scale, with the large graduations spaced at 1 in + blade kerf. The right side is also an inch scale, except the large graduations are spaced at 2 in + blade kerf.



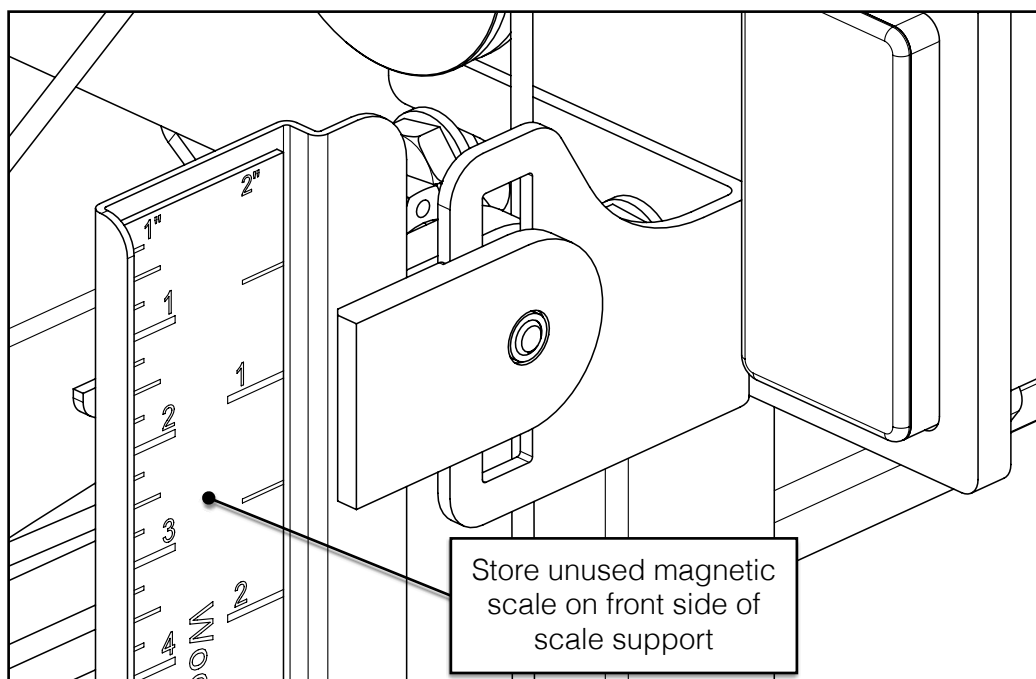
The graduations on the white magnetic scale make allowances for the blade kerf. On the yellow magnetic scale the kerf is not accounted for in the measurements.



Assemble the indicator arrow brackets and arrow to the log scale mounting bracket using the M8 threaded knob. Adjust the position of the mounting bracket forwards or backwards if the arrow locking plates bind on the log scale bracket as the sawhead is raised and lowered.



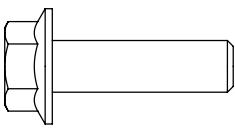
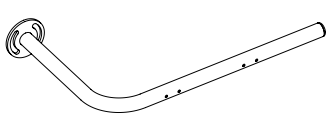
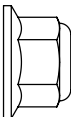
Store the other magnetic scale on the front side of the scale support when not in use.



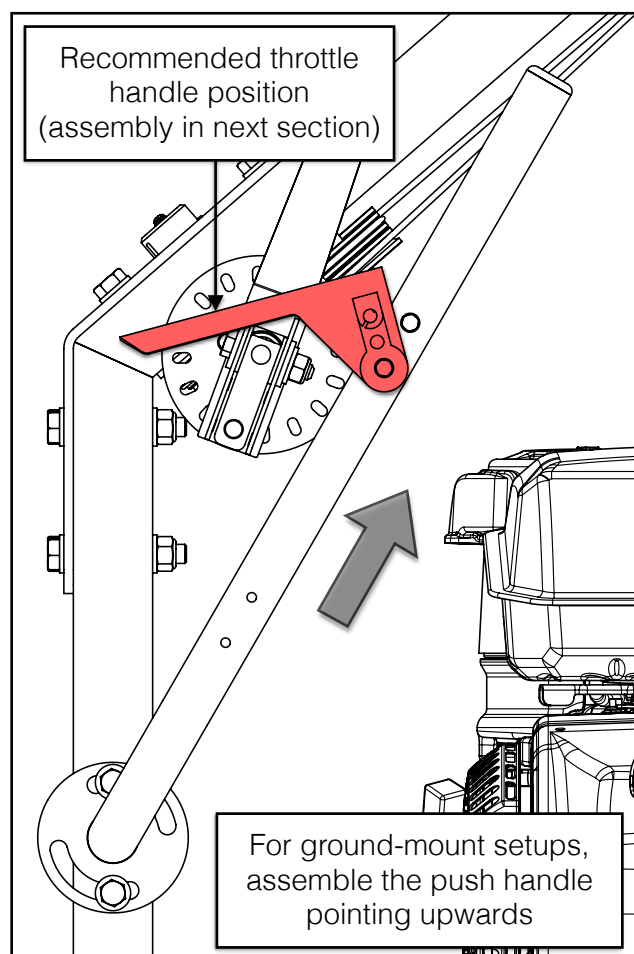
PUSH HANDLE



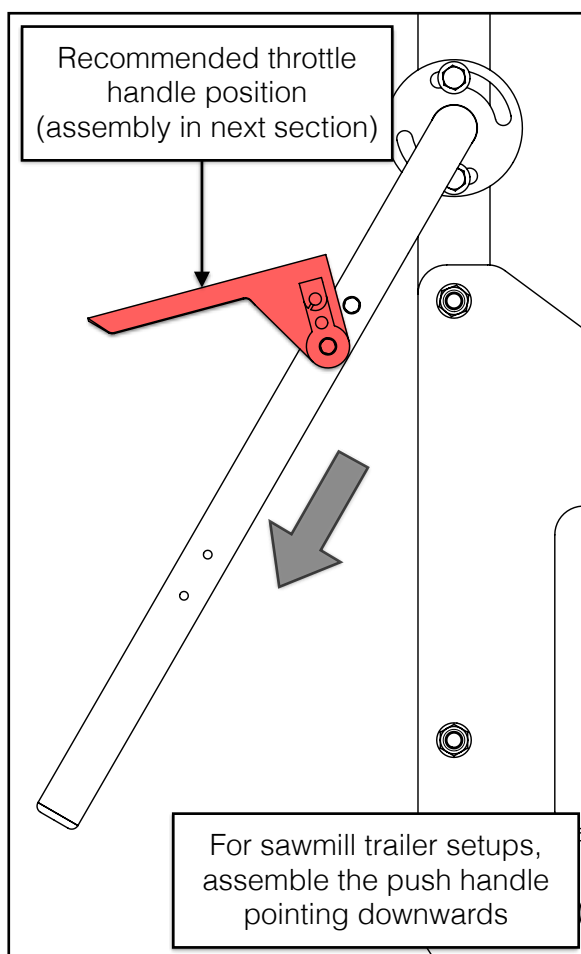
With the hardware listed below, assemble the push handle to the right rear carriage leg.

2x	M10 X 70 mm Flanged Hex Bolt		1x	Push Handle	
2x	M10 Lock Nut				

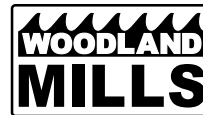
The push handle is installed in an upward position when the sawmill is ground-mounted (**below-left**). Or it can be rotated 180° if the sawmill is high above the ground on a sawmill trailer or on a purpose-built stand (**below-right**).



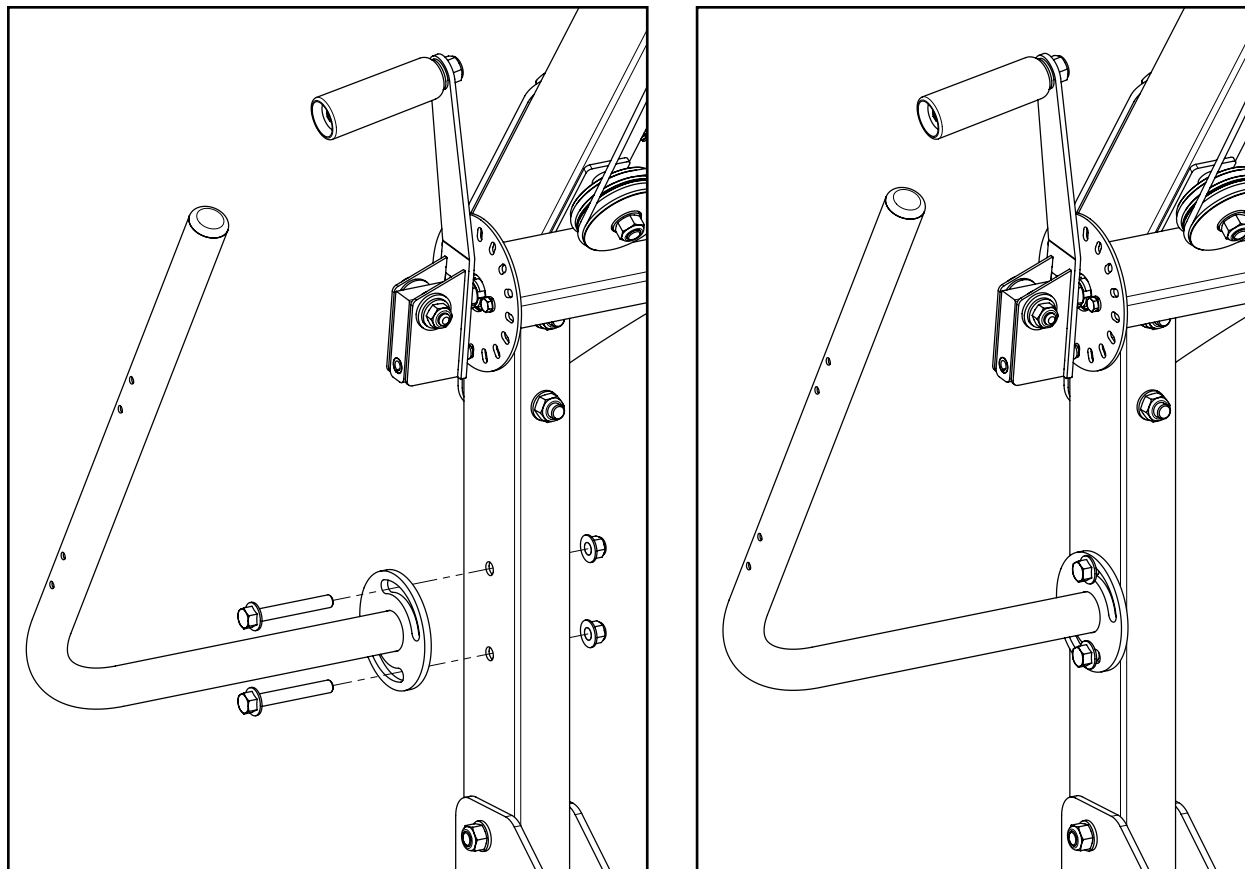
Ground-Mount Push Handle and Throttle Handle Recommended Position



Sawmill Trailer Push Handle and Throttle Handle Recommended Position



When a desired push handle orientation has been decided upon, attach the push handle to the side of the post using two (2) M10 X 70 mm bolts and M10 flanged lock nuts as shown below. Fully tighten these bolts.

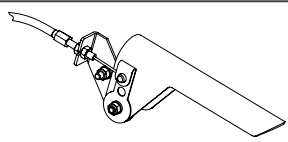


The push handle can be adjusted/rotated forwards or backwards to suit the ergonomics of the operator in either ground-mount or sawmill trailer configurations.

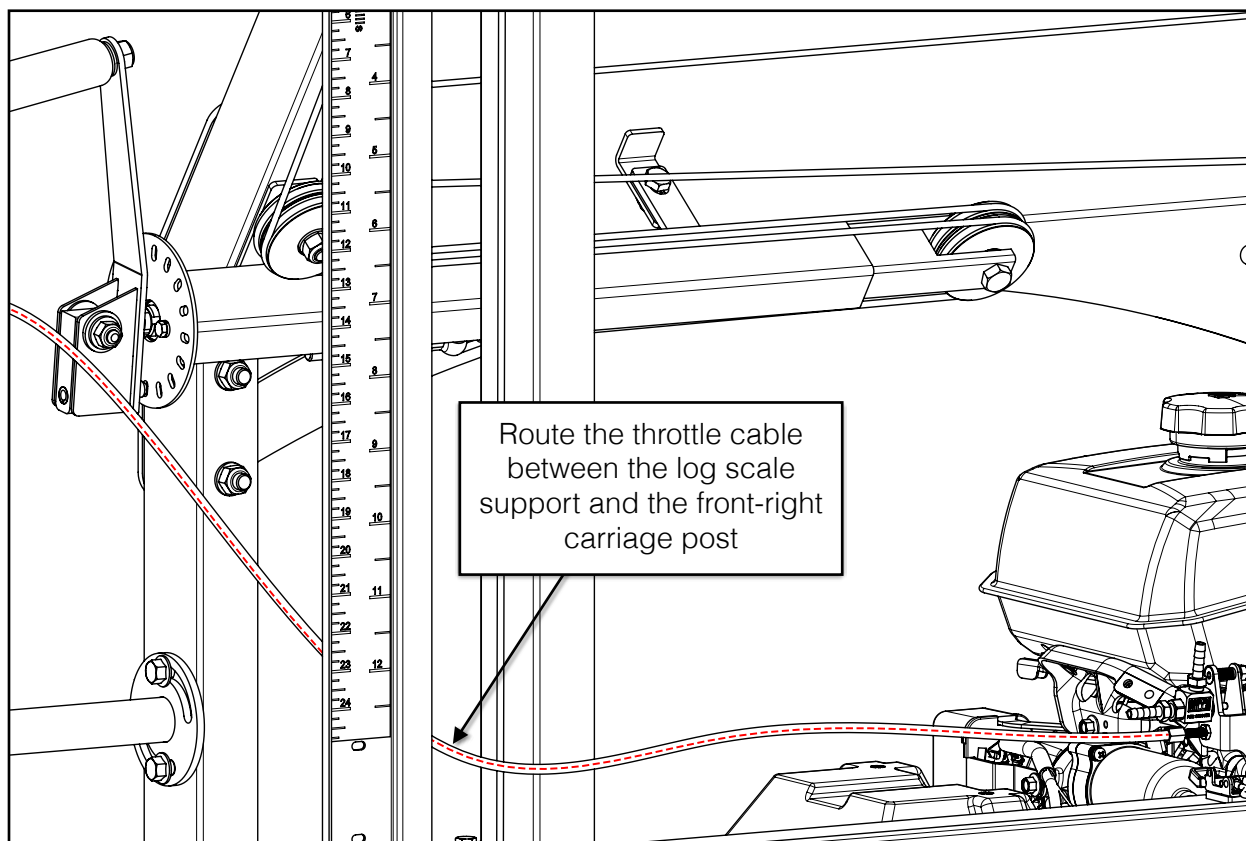
THROTTLE HANDLE AND CABLE



The throttle handle and its mounting hardware come loosely assembled. The throttle cable is already connected between the handle and throttle lever on the engine.

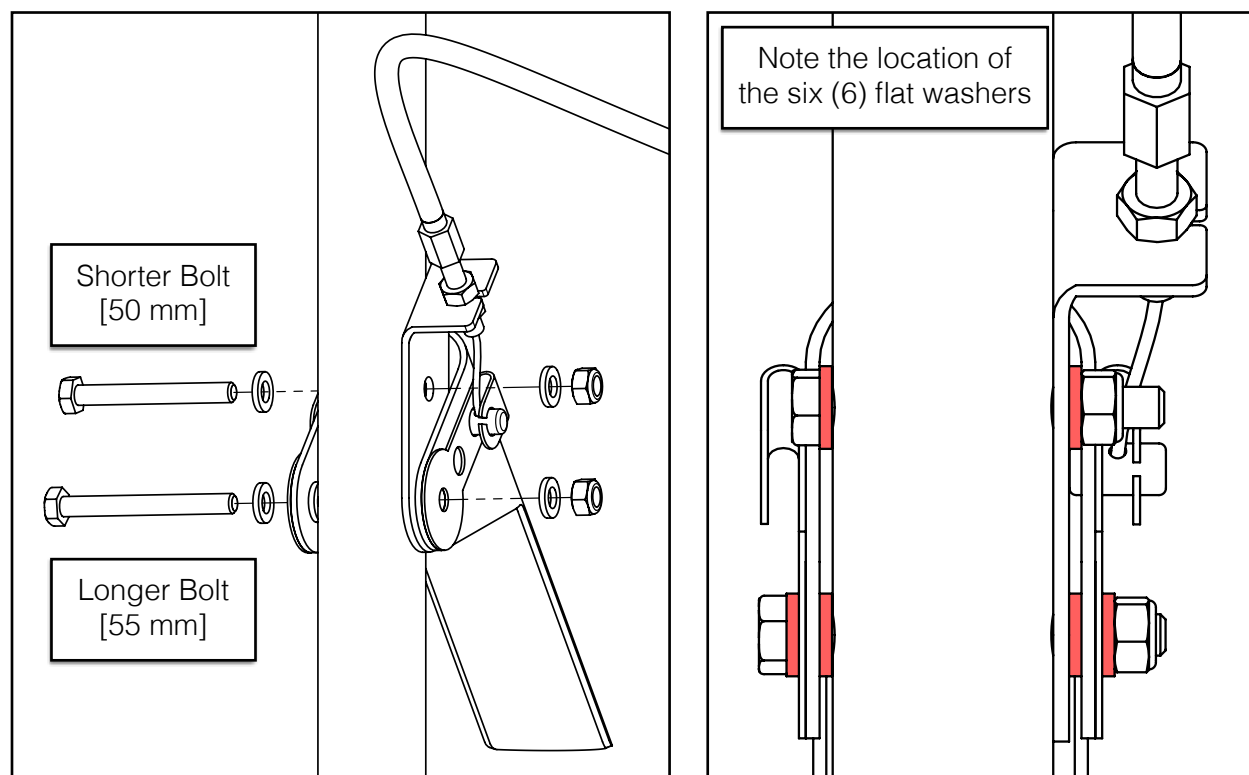
1x	Throttle Handle Assembly	
----	--------------------------	---

Before assembling the throttle handle to the push handle, ensure the throttle cable routes from the engine and then between the log scale support and the front-right carriage post as shown below.



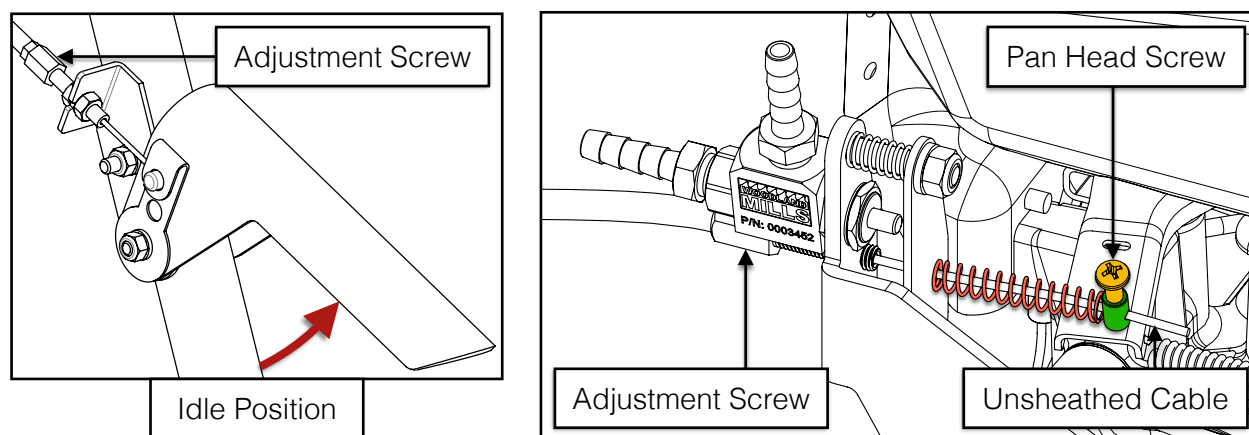
The hardware needs to be unthreaded from the throttle handle prior to assembly. There are two (2) M6 hex bolts, two (2) lock nuts, and six (6) flat washers.

Assemble the throttle handle to the uppermost pair of holes in the push handle as shown. Fully tighten all the hardware.



To take the slack out of the throttle cable, first loosen the M4 Phillips pan head screw where the unsheathed portion of the cable is attached to the engine. Pull the throttle handle all the way up until it stops (Idle Position). Ensure each end of the throttle cable is fully nested into both adjustment screws. Then use pliers to pull the unsheathed end of the cable until it is tight.


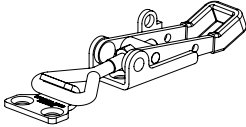

Tighten the Phillips pan head screw while the cable is being pulled tight to secure it.



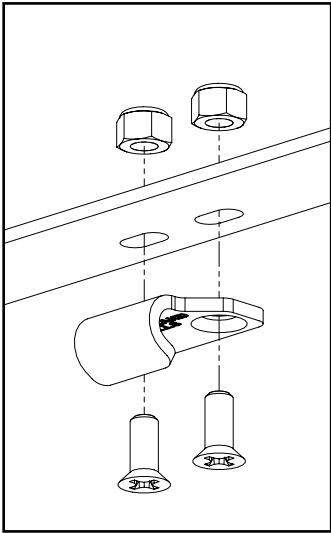
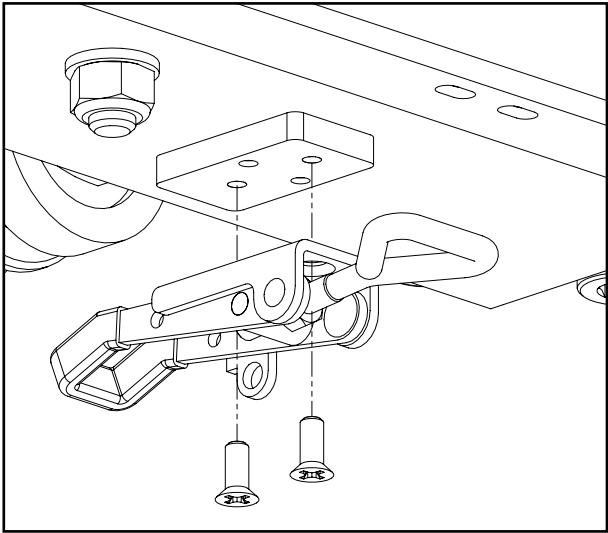
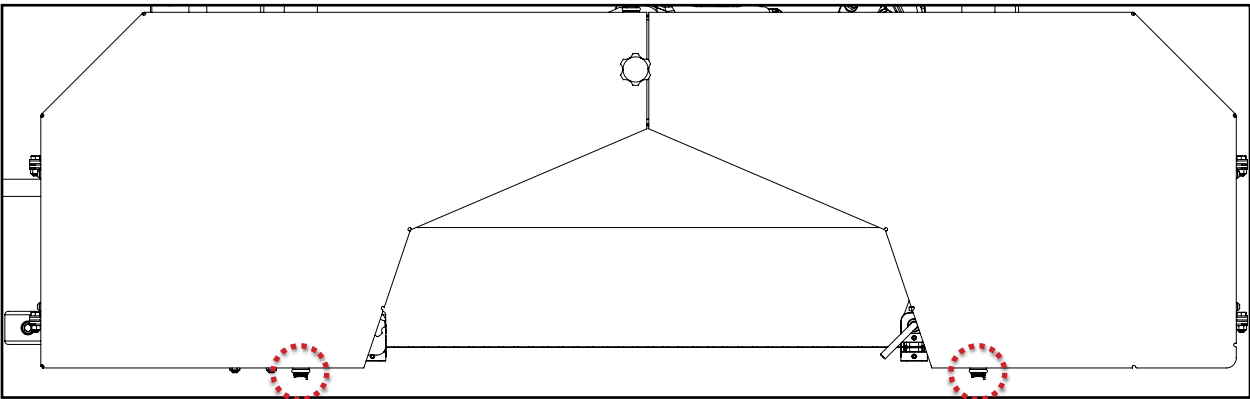


BAND WHEEL DOOR LATCHES

Using the hardware listed below, assemble the two (2) bottom band wheel door latches.

8x	M4 X 10 mm Phillips Flat Head Screw		2x	Latch	
4x	M4 Lock Nut				

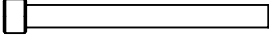


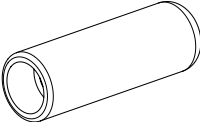
Use two (2) M4 X 10 mm flat head screws per latch. Assemble the latches to the pre-installed spacers on the bottom of the band wheel housing. On each band wheel door, install the hook-shaped catch using two (2) M4 X 10 mm flat head screws with lock nuts.



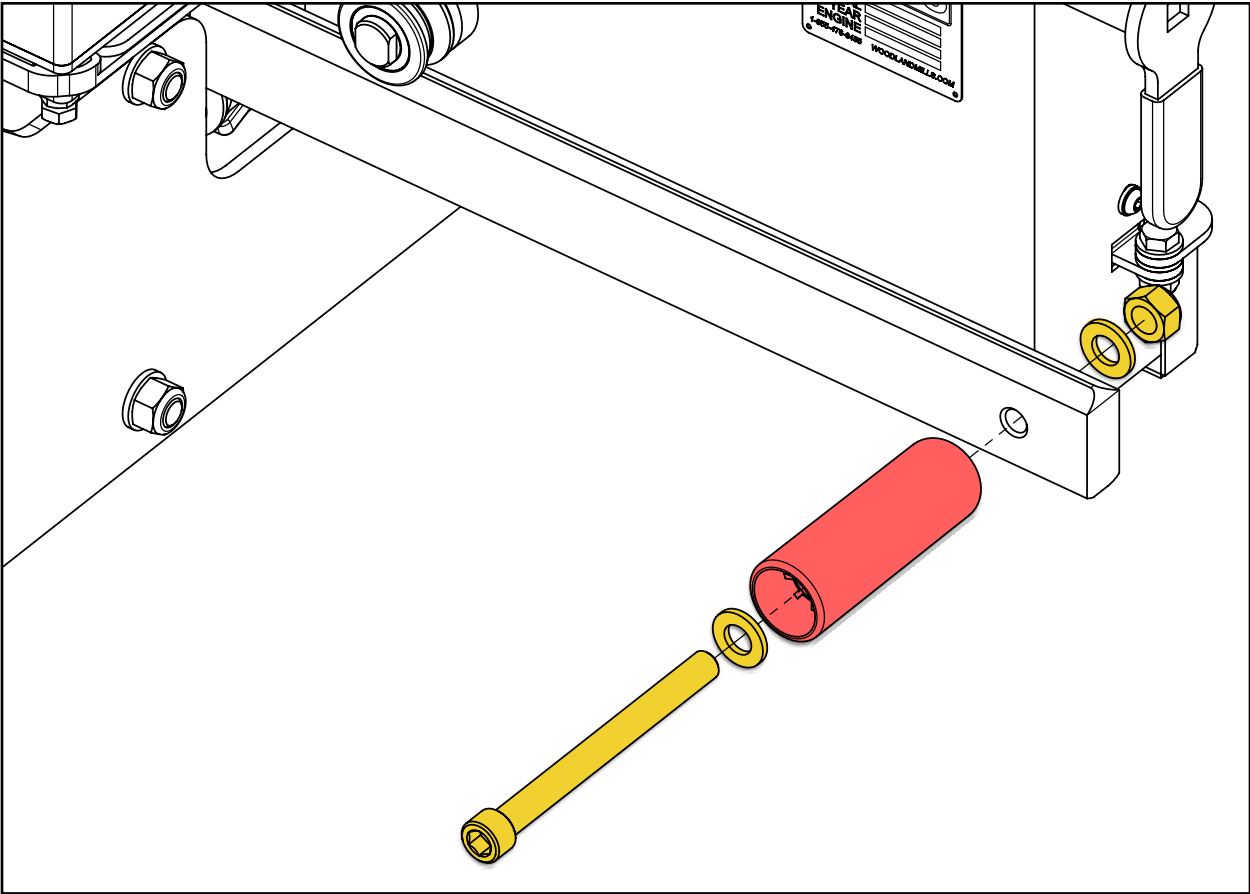


ADJUSTABLE BLADE GUIDE HANDLE

Using the hardware listed below, assemble the handle to the aluminum adjustable blade guide arm.

1x	M12 X 130 mm Socket Head Cap Screw		2x	M12 Flat Washer	
1x	M12 Lock Nut		1x	Handle Grip	

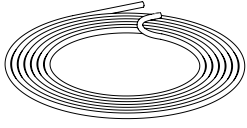
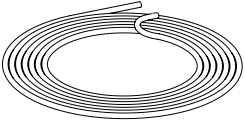
Assemble the handle by passing the M12 X 130 mm socket head cap screw through one (1) M12 flat washer and the handle, and thread it into the aluminum blade guide arm. Then secure it on the back side of the arm using the other M12 flat washer and M12 lock nut.



LUBRICATION TUBING

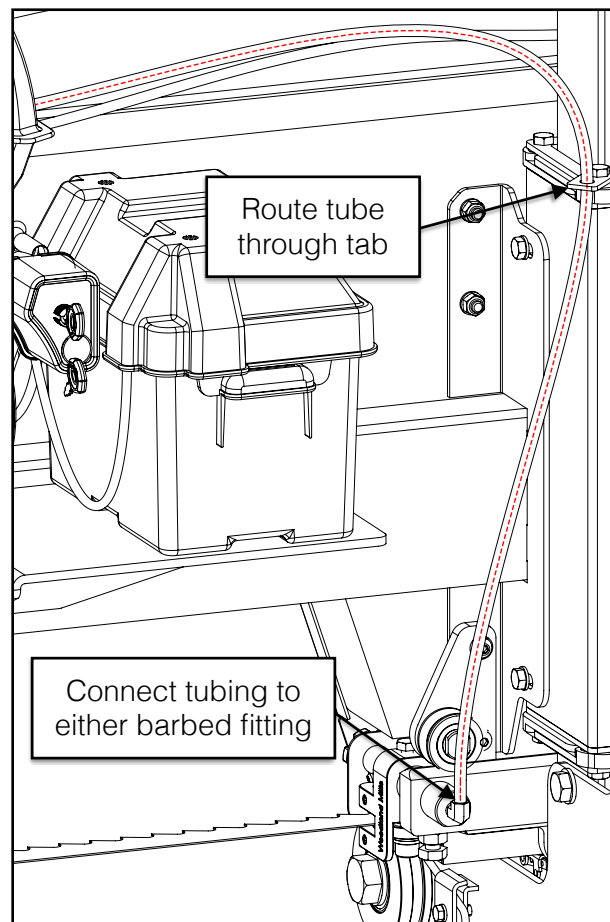
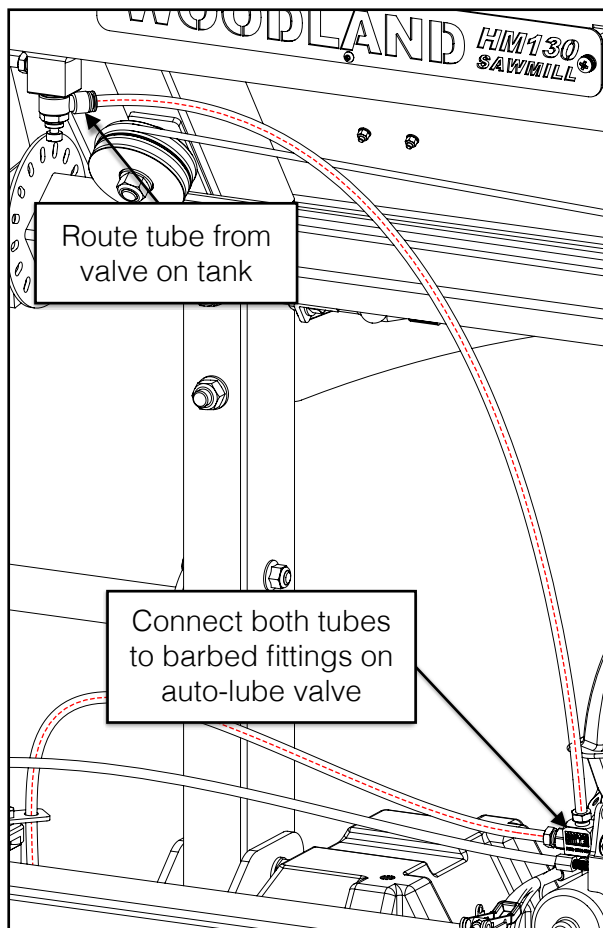


Use the tubing listed in the table below to complete the routing for the lubrication system.

1x	Tubing: Tank-to-Valve		1x	Tubing: Valve-to-Guide Block	
----	-----------------------	---	----	------------------------------	---

Route the *tank-to-valve* tubing from the blue ring fitting on the tank to the vertical barbed fitting on the auto-lube valve. Push-in the blue ring, insert the tube, then release the ring to secure the tube to the tank fitting.

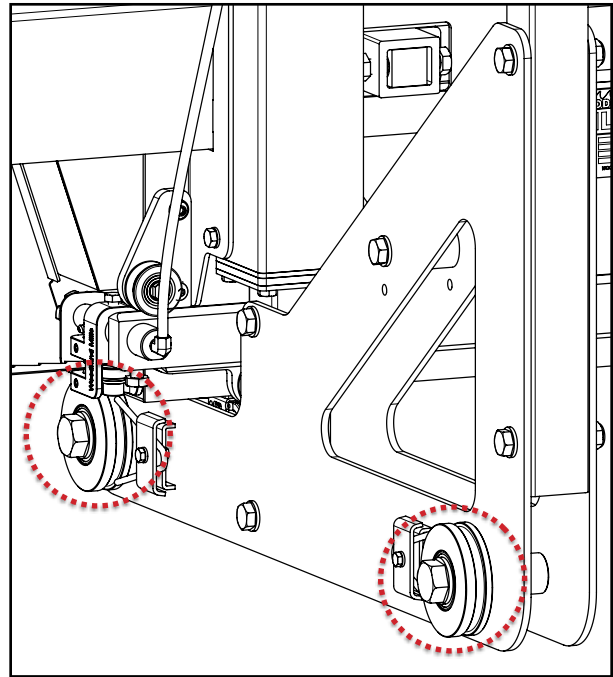
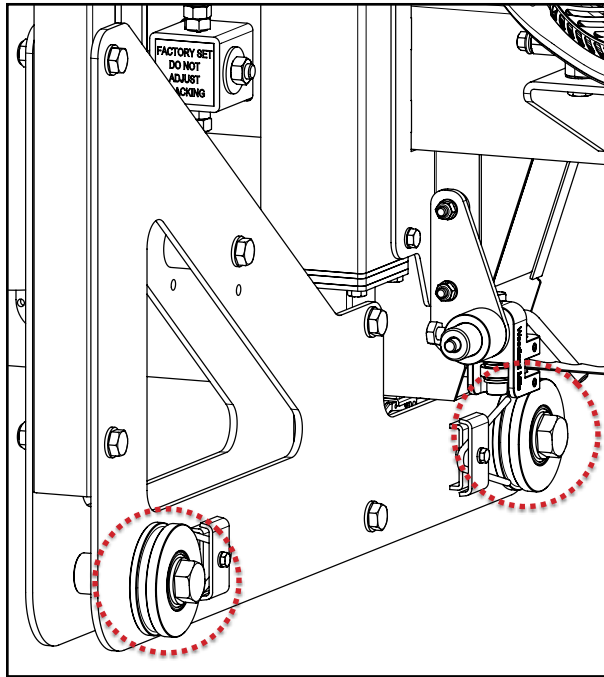
Route the *valve-to-guide block* tubing from the horizontal barbed fitting on the auto-lube valve, through the tab on the post sleeve, then down to the barbed fitting on the guide block holder shaft.





TIGHTEN CARRIAGE WHEEL BOLTS

Tighten the four (4) M20 X 120 mm bolts that fasten the carriage wheels to the carriage side plates.





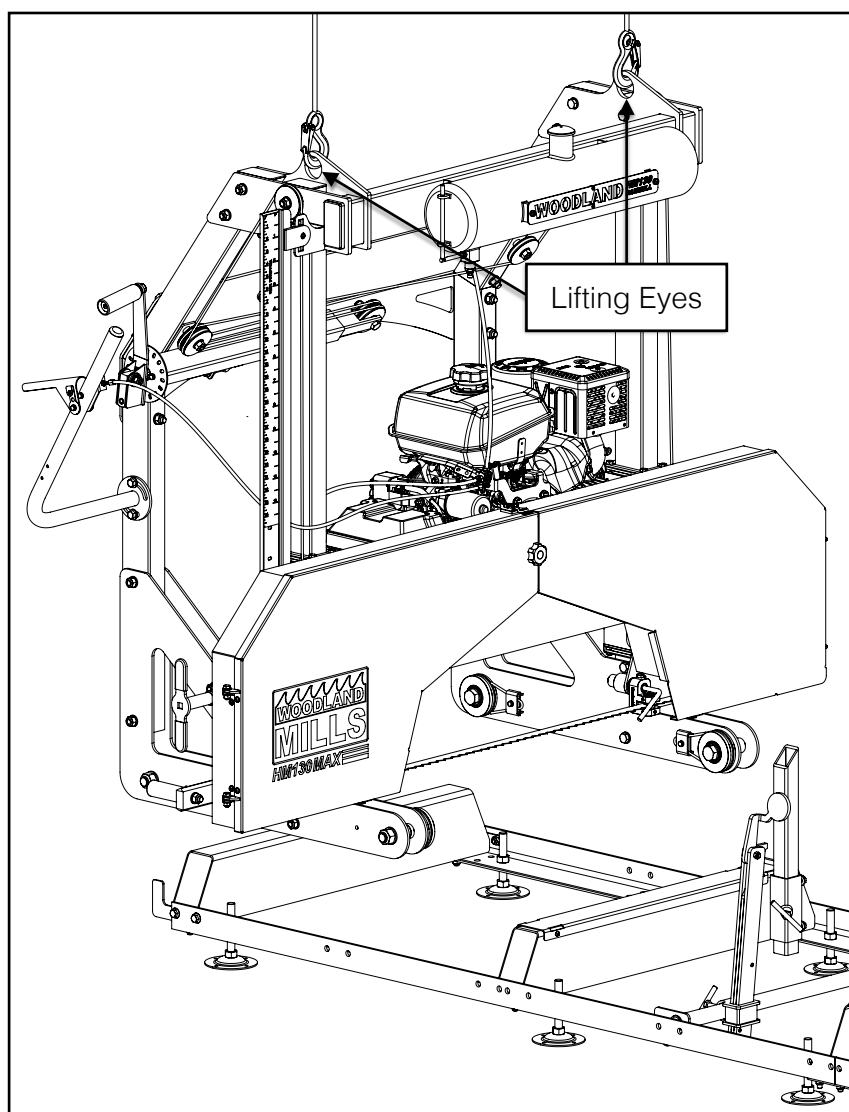
4. PLACING THE HEAD ON THE TRACK



At this point, most of the sawmill head bolts should only be hand tight. They will be fully tightened when the head is on the track and has settled in to a true and square state. There are two methods in which the sawmill head can be lifted onto the track assembly:

METHOD 1

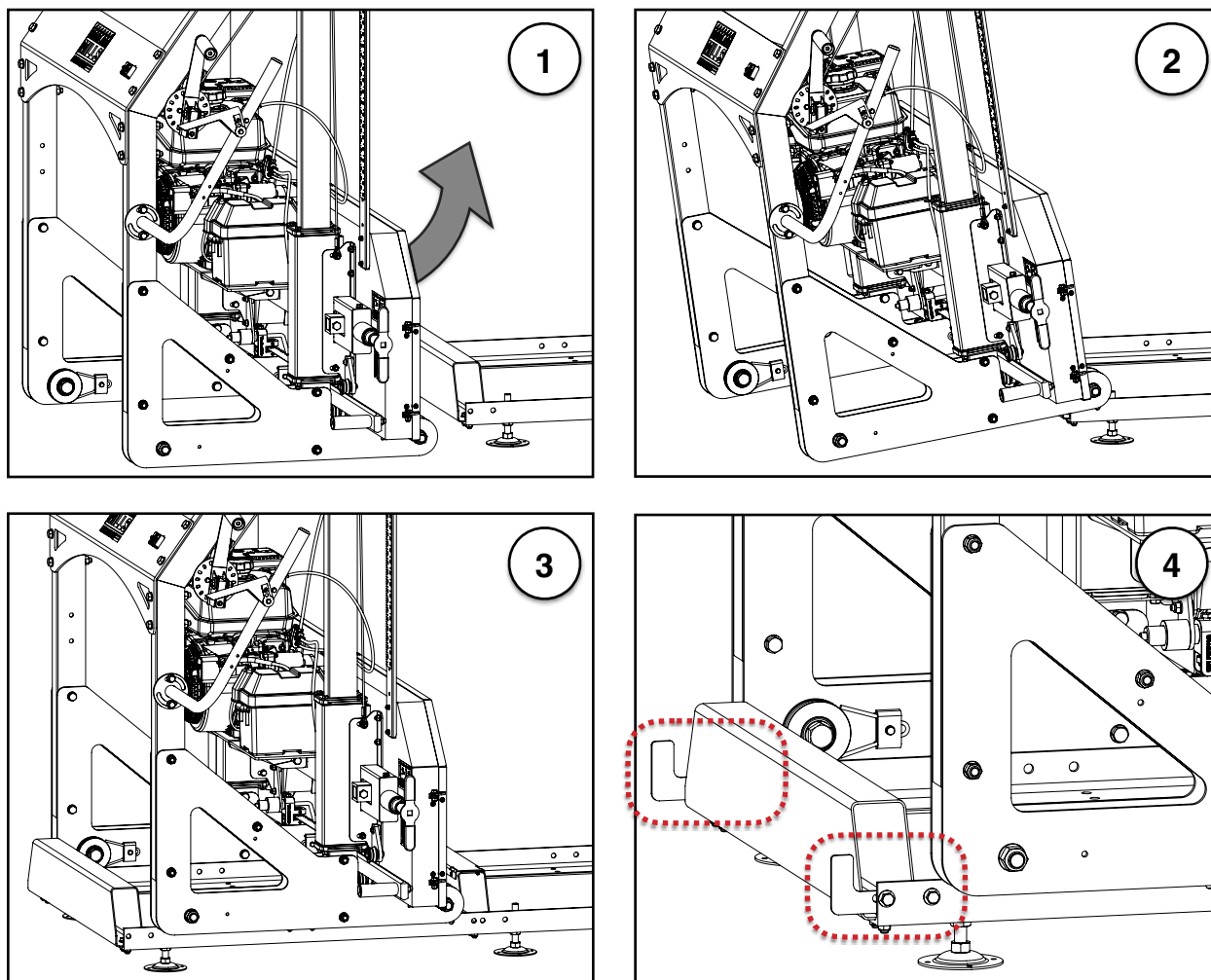
If a tractor or forklift is available, the head can be lifted onto the track with a lifting strap or chain with a minimum rating of 1000 lb. [450 kg]. Attach the lifting strap/chain to the lifting eyes, raise the head up, and rest it on the track so that the grooves in the carriage wheels fit around the track rails. Two people are recommended for this procedure.



METHOD 2

At least two people are required for this step. Start by removing the two (2) carriage stops from one end of the track. The head can be walked over to the track until positioned behind it (**Figure 1**). Once in this position, tilt the head backwards so that the front two wheels are off the ground. Walk the head forward while the grooves in the two front carriage wheels ride along the track rails (**Figure 2**). Next, using at least two people, lift up the back end of the sawmill head and walk it forward until both rear carriage wheels are seated on the track (**Figure 3**).

Finally, reattach the two (2) carriage stops to the inner faces of the track rails (**Figure 4**).



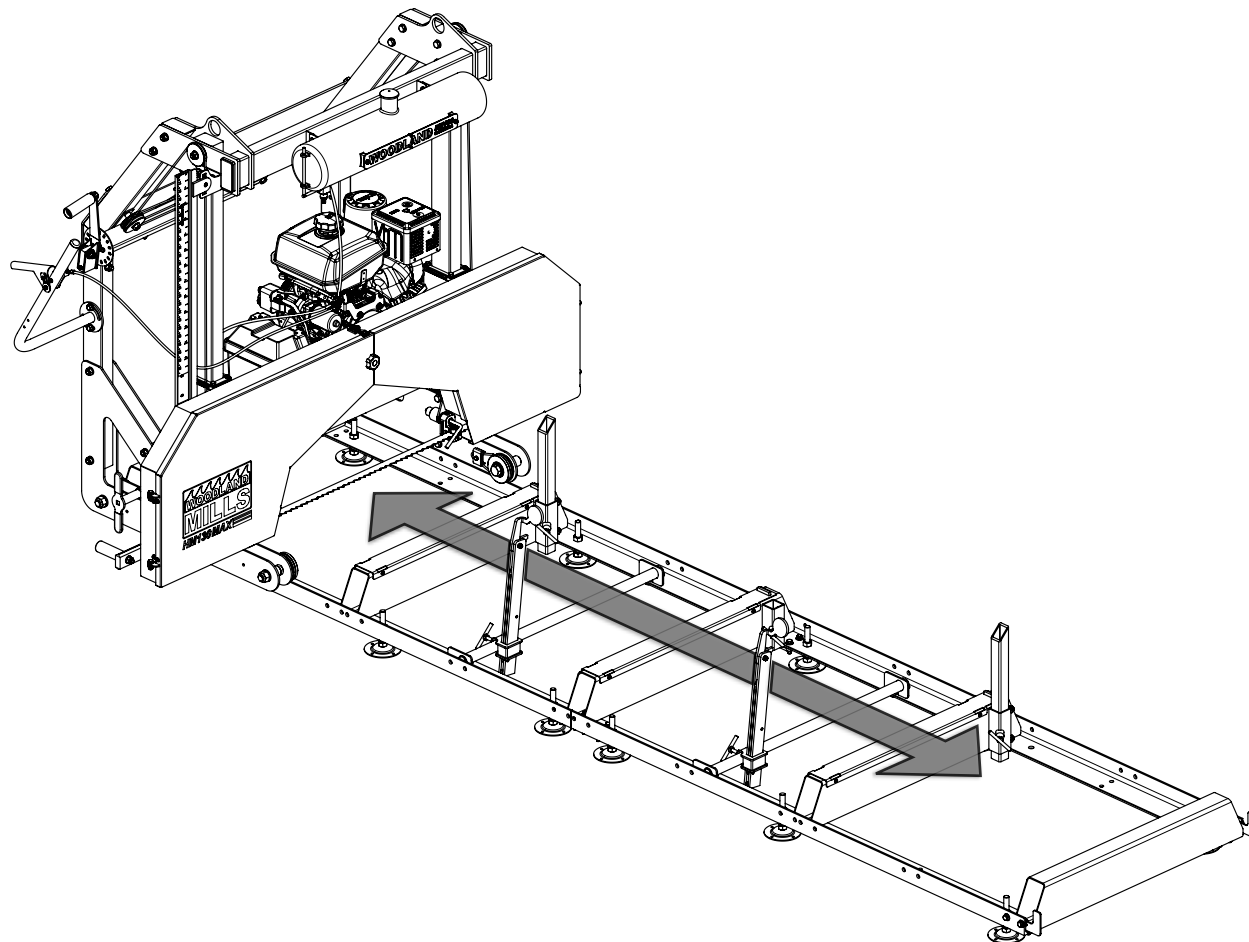
With the sawmill head assembly now resting on the track, grab hold of the one side of the cross beam and perform a shake-down of the head. Shaking the head will help settle the components into their proper position that may have become misaligned either due to tolerances during the assembly process or when the saw head was set on the track.

Afterwards, tighten all of the saw head bolts, post and cross beam hardware.



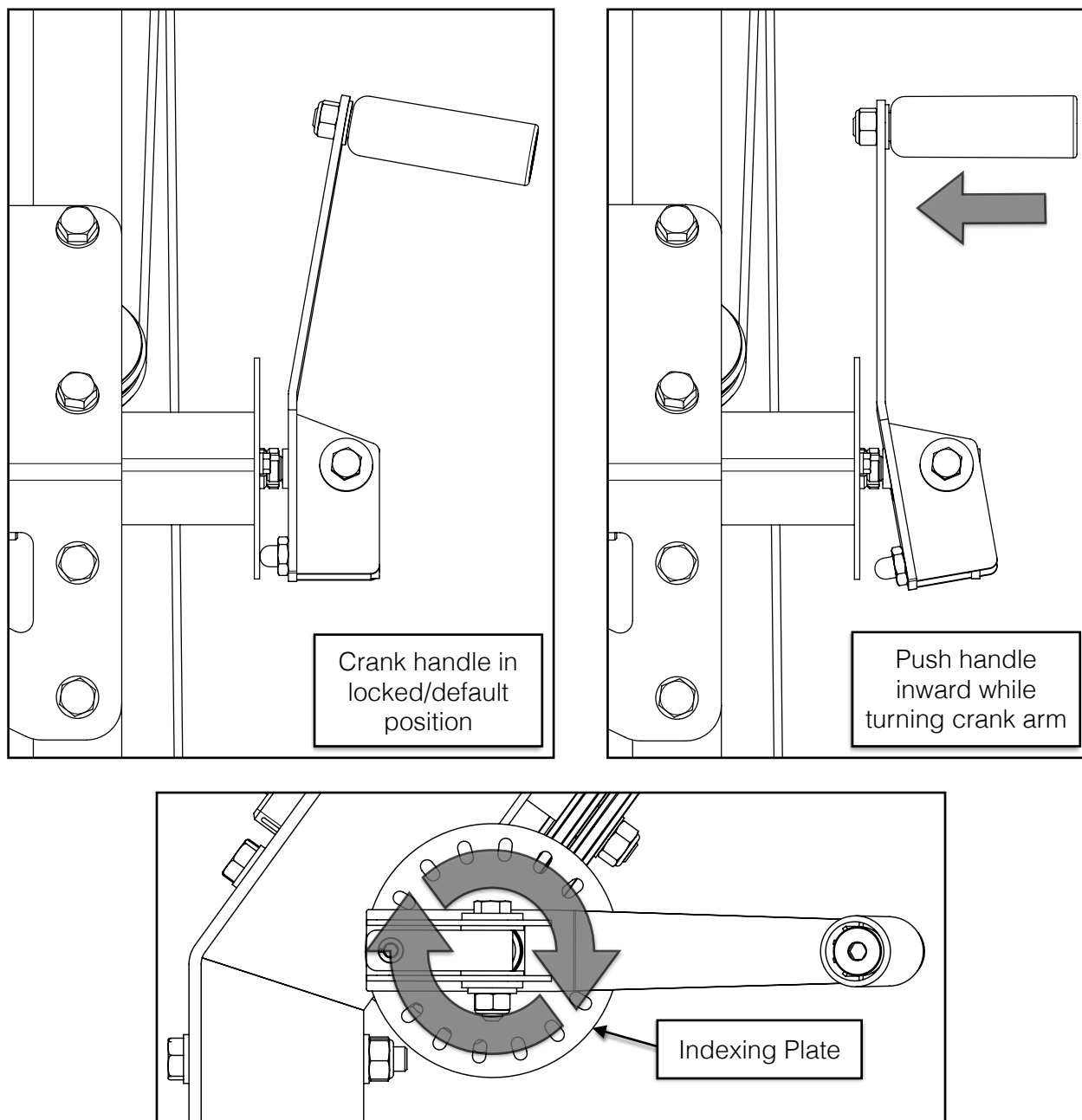
ROLLING THE SAWMILL HEAD ASSEMBLY

Roll the sawmill head assembly along the full length of the track to ensure it moves freely. If it binds or is difficult to push it is likely the track is not square, straight, and/or level. Make the necessary adjustments to the track and roll the head assembly again. Repeat the track adjustments until the head rolls freely.



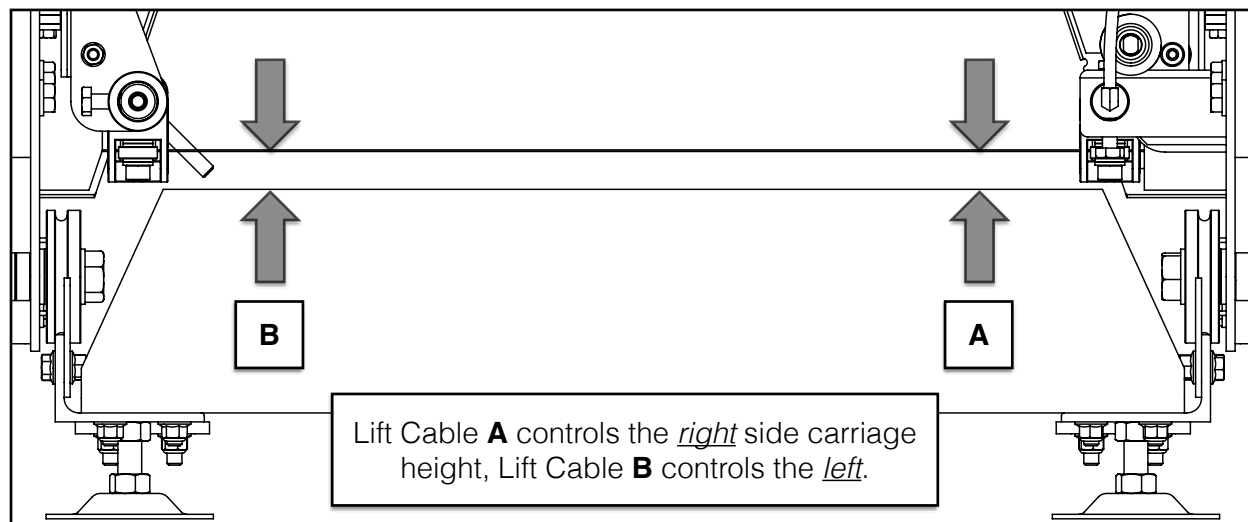
RAISING & LOWERING THE SAWHEAD

The lift mechanism is equipped with a self-locking, spring-loaded crank arm that prevents the head from lowering during cuts. When winding the head up or down, the operator pushes the handle towards the mill as the crank arm is turned. When the desired cut depth is reached, releasing the handle will lock the arm into one of the slots in the indexing plate.



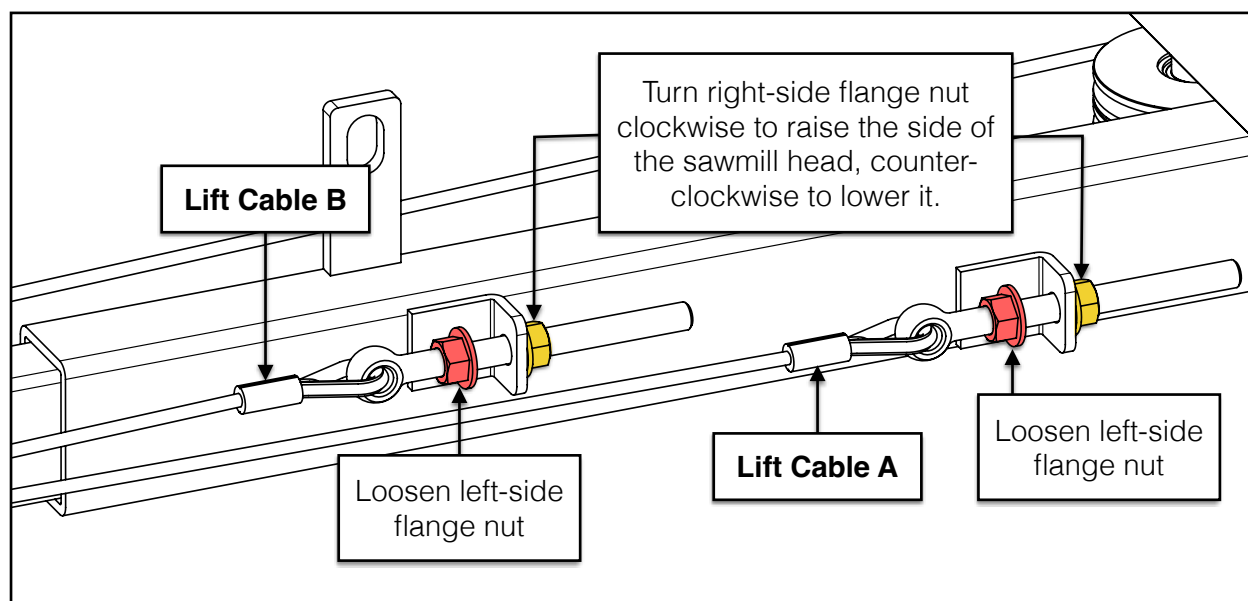
LEVELLING THE SAWMILL HEAD ASSEMBLY

Using a tape measure, measure the distance from the blade to the top of the log bunk on both the left and right side. The distance should be equal. If the measurements are not equal, adjust the lift cable ends under the lift mechanism sub-assembly to either raise or lower one side.



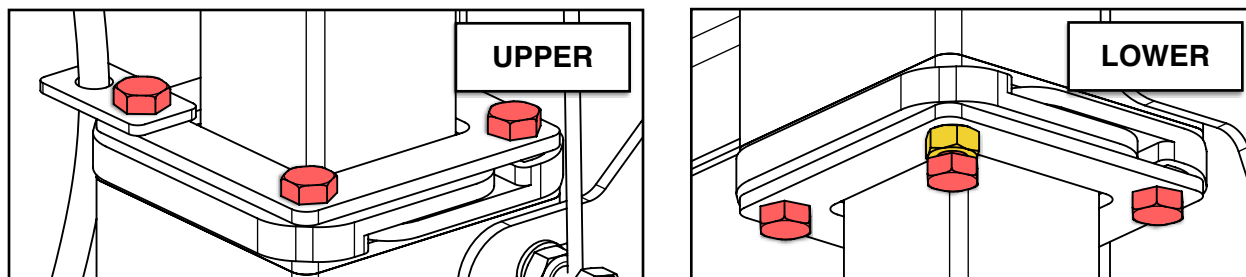
Loosen the left-side flange nuts on the lift cable eyebolts first. Turn the right-side flange nuts clockwise to raise one side of the sawmill head assembly, or counter-clockwise to lower it. Double-check the blade height as discussed in the previous step.

Once the measurements on both sides are equal and the sawmill head is level, tighten the left-side flange nuts securely against lift mechanism brackets.



ADJUST THE POST SLEEVE BUSHINGS

Once the sawmill head assembly is level, loosen the eight (8) hex bolts (4 top, 4 bottom) just enough so the bushings can be pushed forwards and backwards. Do this for both sides of the sawhead.

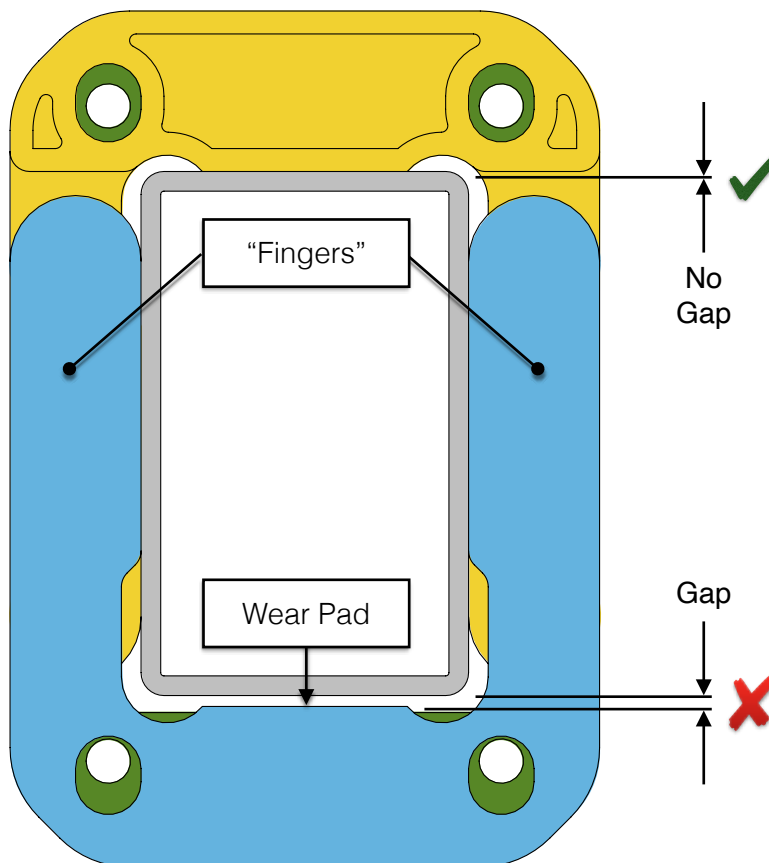


Push the bushings together (front-to-rear) so that there is no gap between the bushing wear pads and the front/rear faces of the post as shown below.

The bushing side “fingers” naturally push inwards so as they wear, continuous pressure is applied to each side of the carriage post.

However, the front & rear wear pads on the bushings do not self-adjust. As a gap appears over time due to wear, simply loosen two (2) bolts on one side and push the bushing towards the post until they are flush again.

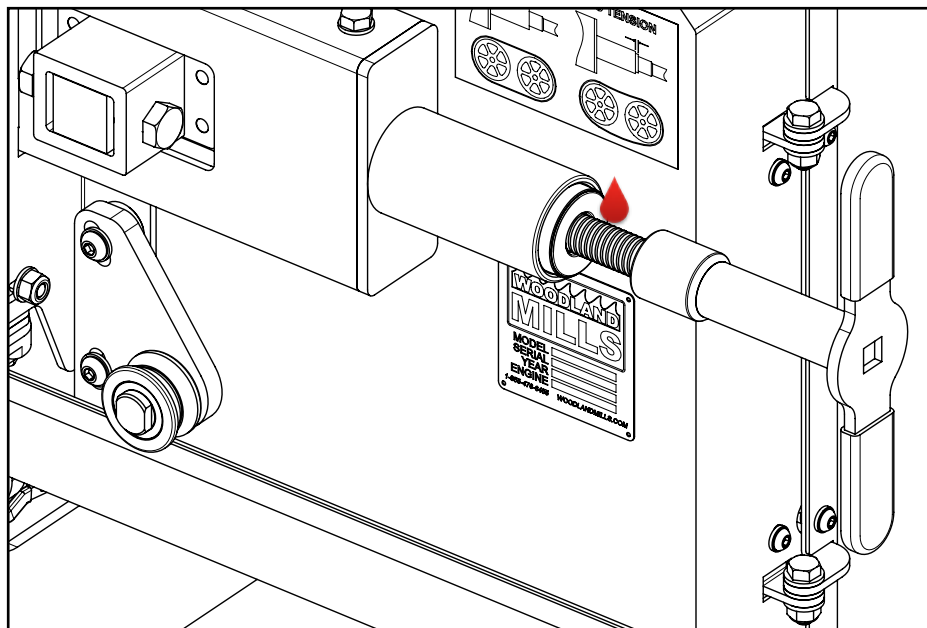
The bushing holes are slotted to allow for this future adjustment.



With the wear pads flush with the posts, tighten all the hex bolts and spray the posts with a water resistant silicone lubricant such as **“WD-40 Water Resistant Silicone Spray”** or **“3-in-One Silicone Spray Lubricant.”**

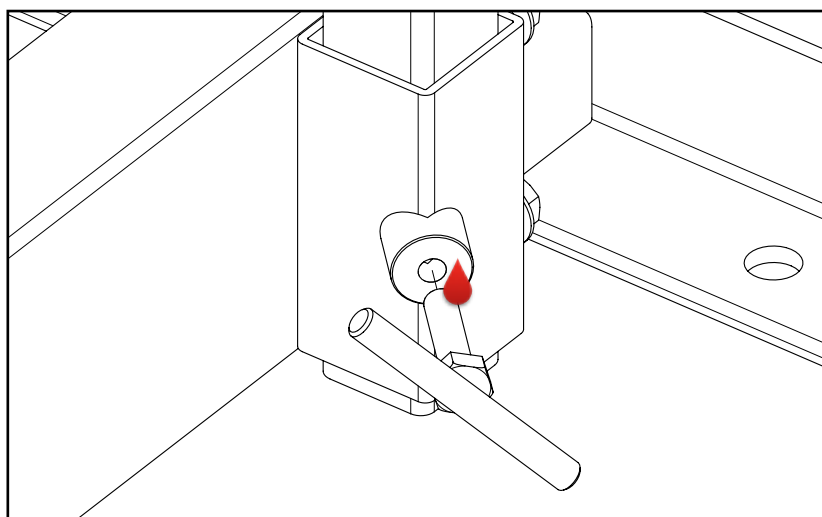
GREASING THREADS

Add waterproof grease to the threads of the blade tension T-handle and to the mating bearing face prior to use.



****Note: It is very important to take the tension off the blade by turning the T-handle in the counter-clockwise direction when the sawmill is not in use. Failure to do so will result in flat spots on the rubber belts. These flat spots will cause the mill to vibrate excessively during subsequent uses.****

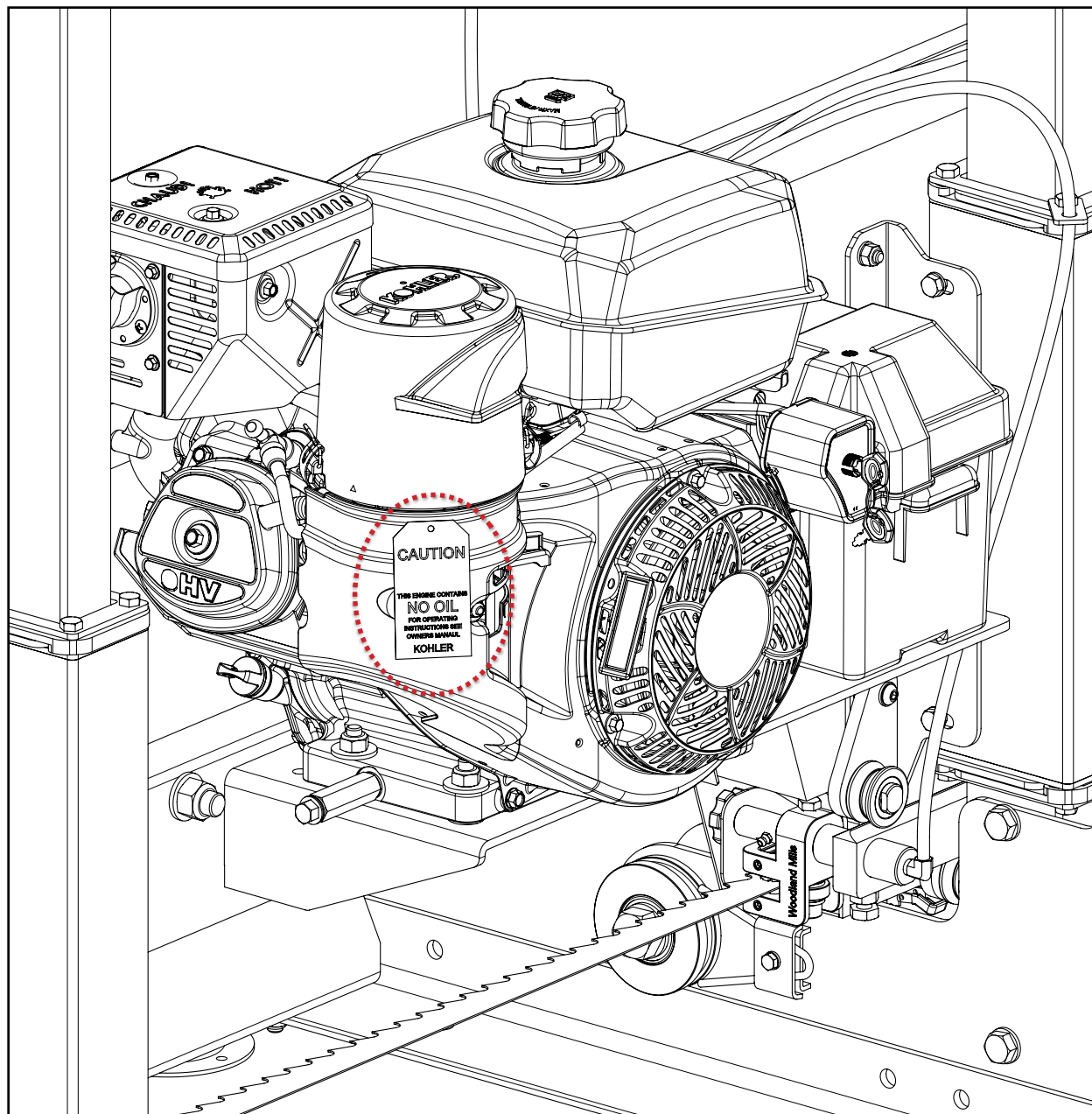
Add grease to all T-bolt threads on the sawmill track: three (3) on the bunks and one (1) on the log clamp assembly.



ENGINE OIL

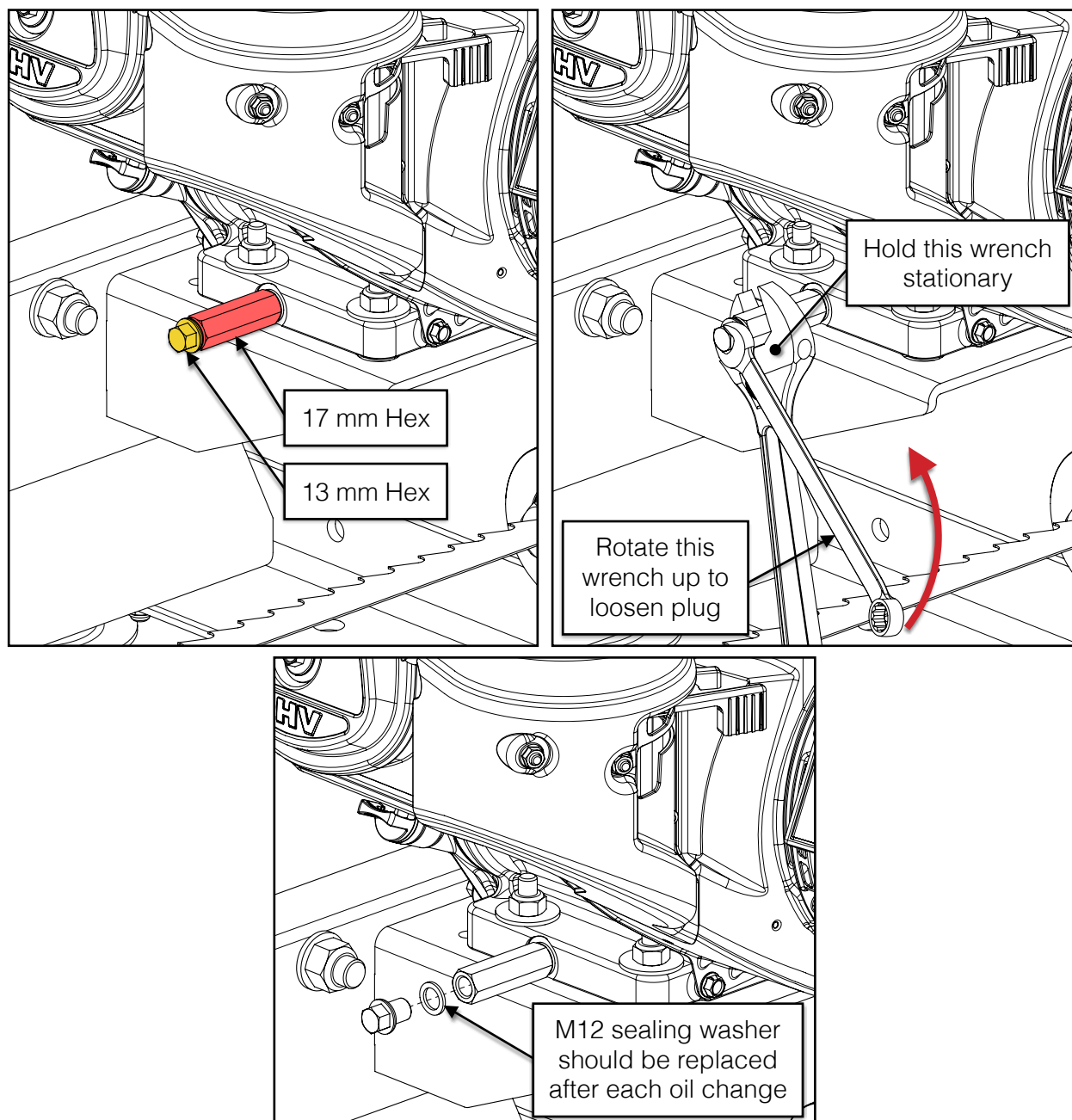


Refer to the engine manual before using your sawmill. Please note that the engine does not contain any gasoline or engine oil when it is shipped. Furthermore, the engine is equipped with an oil alert system, meaning that if the crankcase oil level is low or empty, the power is cut to the spark plug and it will not start.



When changing the engine oil, follow the instructions on the next page.

The engine comes with a brass oil drain extension to make oil changes easier. When removing the drain plug, use a wrench to hold the brass extension stationary while a second wrench loosens the plug. Failure to follow this procedure could damage the threads in the aluminum engine block and void the warranty.



Repeat the process in reverse to re-install the drain plug. Remember to hold the brass extension stationary with a second wrench when tightening the plug.

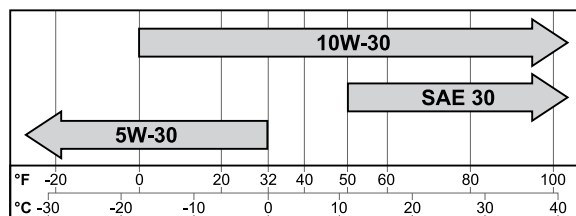
PRE START-UP CHECKLIST



1. Fill the engine with high octane (low ethanol) premium gas only. Never run low grade gasoline in the sawmill.
2. Fill the engine with oil using the table below based on your engine model and operating air temperatures:



Engine	Model	Horsepower	Capacity	
			US Quarts (qt)	Litres (L)
Kohler	CH270	7 hp	0.63	0.6
Kohler	CH395	9.5 hp	1.16	1.1
➔ Kohler	CH440	14 hp	1.16	1.1



****Note: Engines are not equipped with a clutch reduction system, therefore, reference to this in the Kohler manual can be ignored. The engine is also equipped with an oil alert system that will prevent the engine from starting if the oil level is low.****

3. **Do not run lubricant for the initial 30 minutes of milling.** Run the blade dry to break-in the belts. After the belts have been broken-in, the below lubricant can be used:



34°F (1°C) and warmer: Water with 1 tsp (5 mL) of liquid dish soap per tank.
32°F (0°C) and colder: Winter windshield washer fluid.

****Never use diesel fuel or other chemicals as they will prematurely deteriorate the rubber belts and can stain the wood.****



4. Test the **blade tracking** to ensure the blade band is centred on both band wheels.



5. Check blade tension to ensure it is **fully tensioned**. Refer to the label on the back of the blade guard near the blade tensioning T-handle.



6. Ensure the wire loop on the dashboard hour meter has been cut so it will record the hours of use on the machine.



7. To start the engine and begin milling: turn the choke and gas on. Pull the engine cord or turn key (electric-start engine models only). Once the engine starts, turn the choke off slowly and let the engine warm up for 1 minute. ***Always mill at full throttle.***

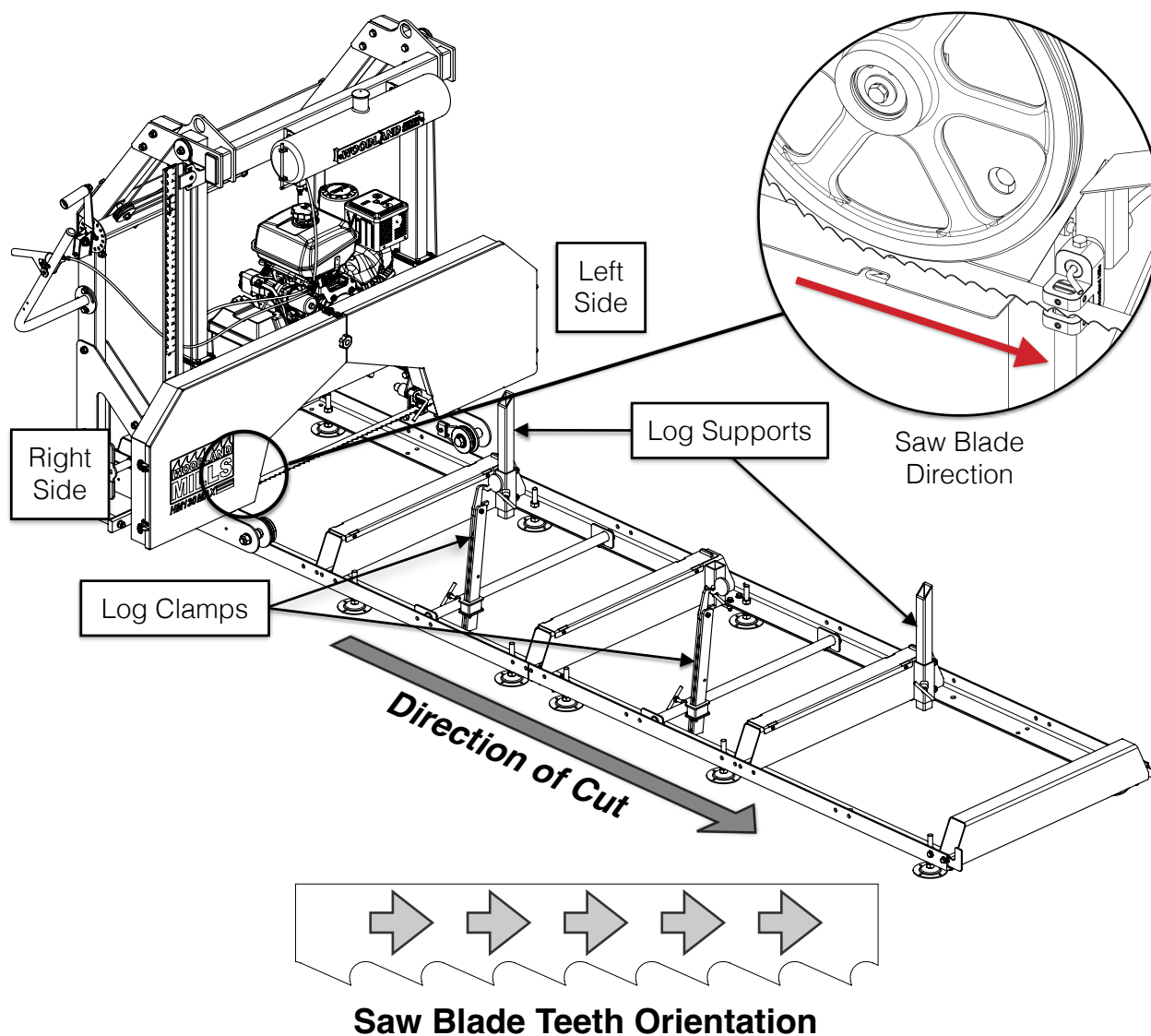


8. After the first hour of use, inspect the drive belt tension and adjust if required. Refer to the operator's manual for detailed tensioning instructions.

SAWMILL SET-UP PROCEDURES

DIRECTION OF CUT

Always cut in the direction shown below. The log clamps are located to the right side of the log with the log supports on the left. Failure to cut in this direction can cause the log to come loose and possibly cause damage or injury.



Always ensure the saw blade teeth are orientated such that they are cutting *into* the wood and not being dragged backwards across it. Some blade manufacturers ship their saw blades inside out (backwards) due to manufacturing processes and they must be flipped prior to installation.

****Please follow the instructions throughout the SAWMILL SET-UP PROCEDURES section. Failure to do so may result in poor sawing performance, damage or injury.****



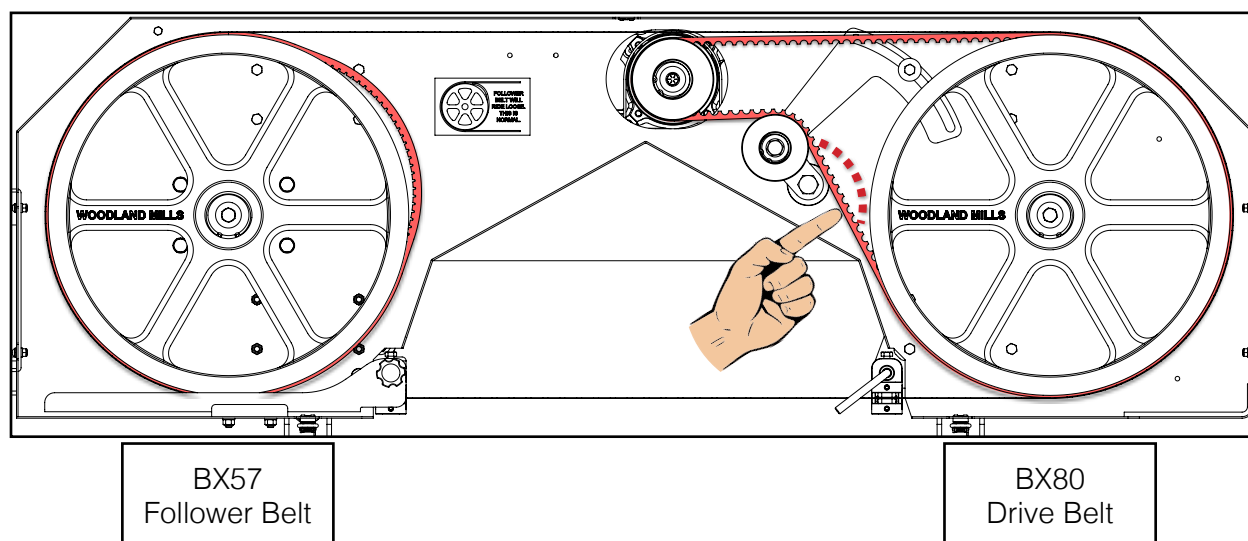
DRIVE BELT TENSION



Make sure the blade is under proper tension when setting the drive belt tension. This ensures the belt is fully seated into the pulley grooves when the deflection is checked. See section, BLADE TENSION, for more information.



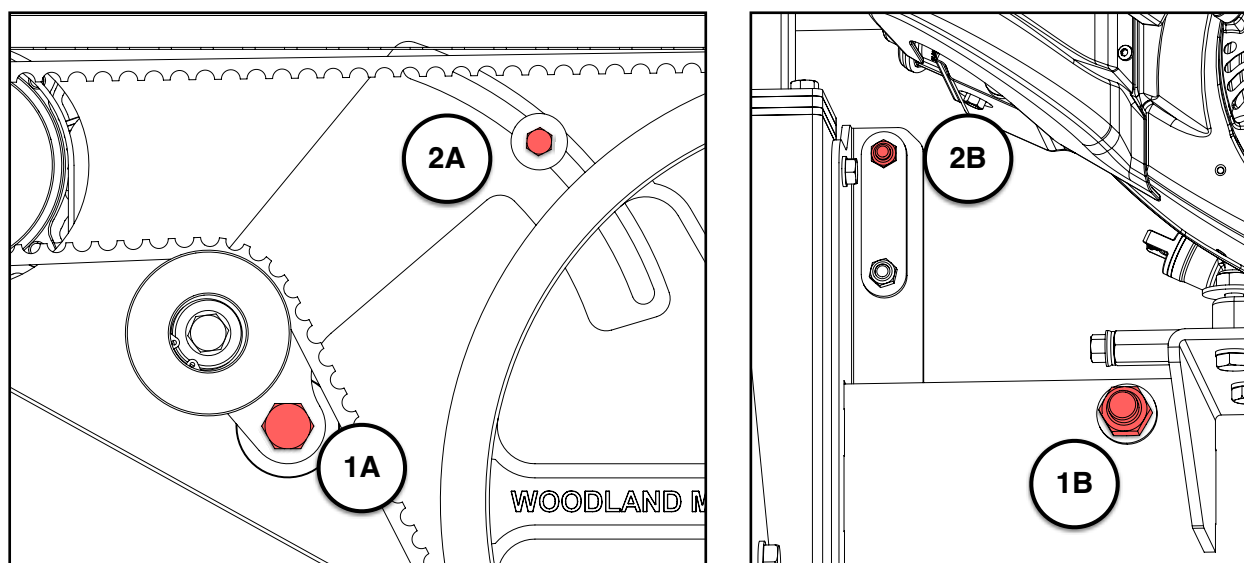
To check the drive belt tension, push against it firmly and measure the deflection. There should be no more than ¼ in [6 mm] of movement. If the belt deflection exceeds this amount it will need to be tightened as described below.



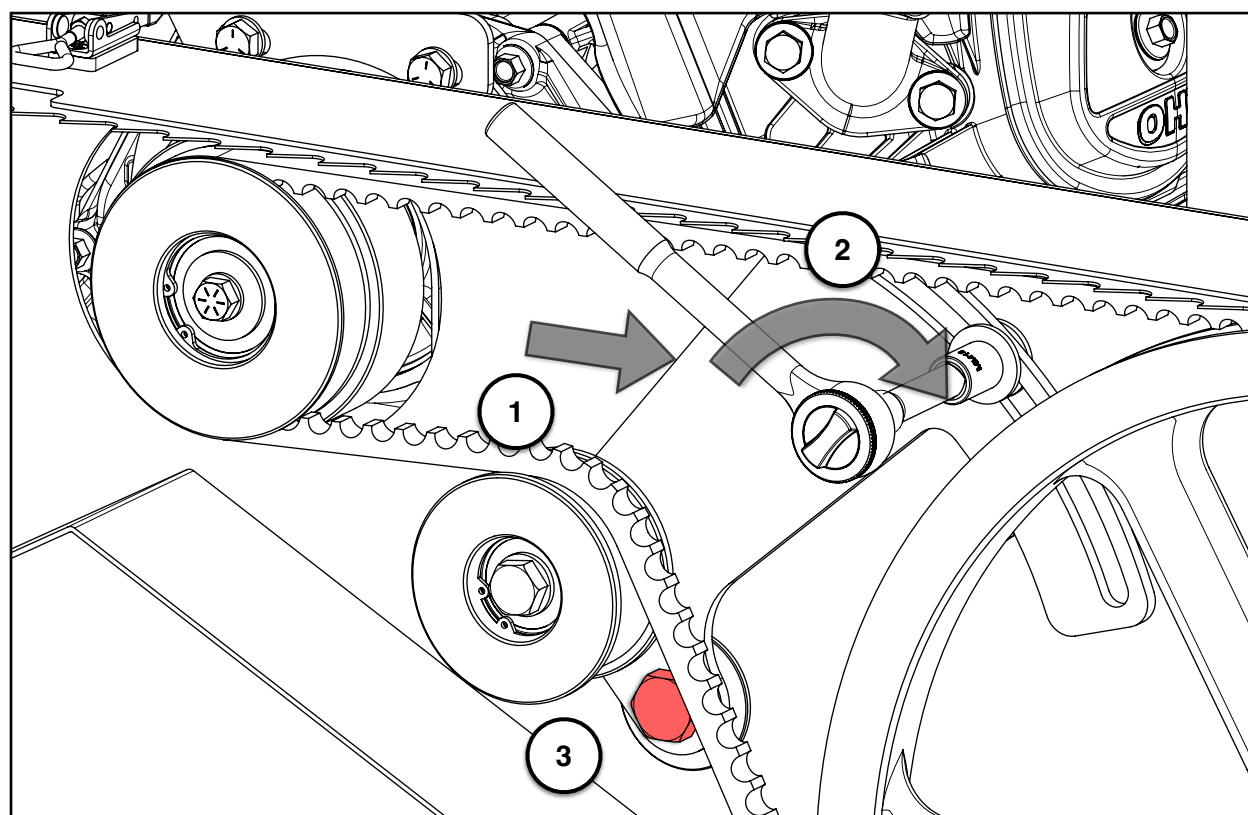
****Never attempt to adjust the belt tension with the engine running. As a safety precaution, remove the spark plug cap.****

Start by loosening the M16 hex bolt (1A) and lock nut (1B) that secure the belt tensioner mechanism to the sawhead. Then loosen the M8 bolt (2A) in the curved slot—its nut (2B) is secured in place by an anti-rotation device and does not require a second wrench or socket.

****Only loosen the bolts approx. one turn—do not remove them.****



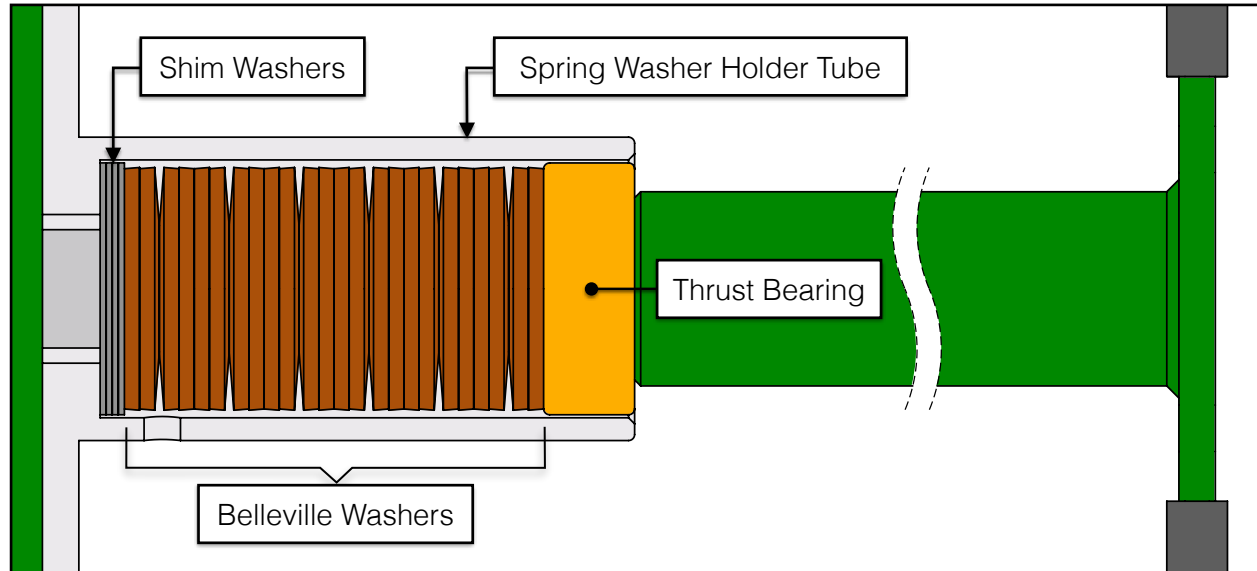
Once both bolts are loose, firmly push the belt tensioner towards the band wheel until the belt is tight (#1), then tighten the upper bolt in the curved slot in a clockwise direction using a 13 mm socket (#2). Re-check the belt tension to ensure a maximum of $\frac{1}{4}$ in [6 mm] deflection and then tighten the M16 bolt and lock nut when the deflection is correct (#3).





BLADE TENSION

The 2020 and newer Woodland Mills sawmills use an ACME threaded rod for blade tensioning mounted within an assembled stack of Belleville washers for blade cushioning. This combined assembly allows for predictable and repeatable tensioning throughout all temperature ranges with minimal wear and maintenance.



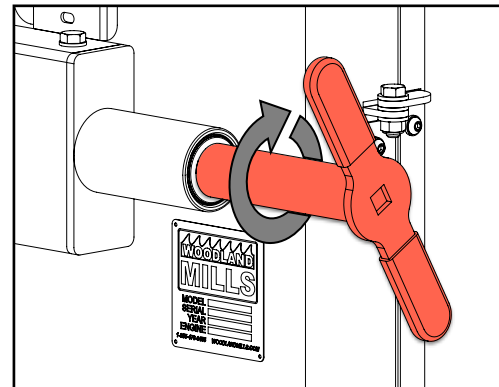
Below is a table comparing the positive and negative effects of low and high blade tension.

Low Tension 2→2-½ Turns	Recommended Tension 2-½→3 Turns	High Tension 3→3-½+ Turns
<ul style="list-style-type: none"> Unpredictable tracking 	<ul style="list-style-type: none"> Holds tracking properly 	<ul style="list-style-type: none"> Accelerated belt wear
<ul style="list-style-type: none"> Wavy cuts 	<ul style="list-style-type: none"> Cuts accurately. Optimal blade life 	<ul style="list-style-type: none"> Unpredictable tracking
<ul style="list-style-type: none"> Blades rely more on guides 	<ul style="list-style-type: none"> Optimal bearing life 	<ul style="list-style-type: none"> Overheated blades. Blade breakage
	<ul style="list-style-type: none"> Optimal belt life 	<ul style="list-style-type: none"> Accelerated bearing wear

TENSIONING METHOD

Count Turns: Spin the tension handle to remove slack in the blade and snug the handle up to the thrust bearing. From this point, 2-½ to 3 full turns will put the blade tension within the recommended range.

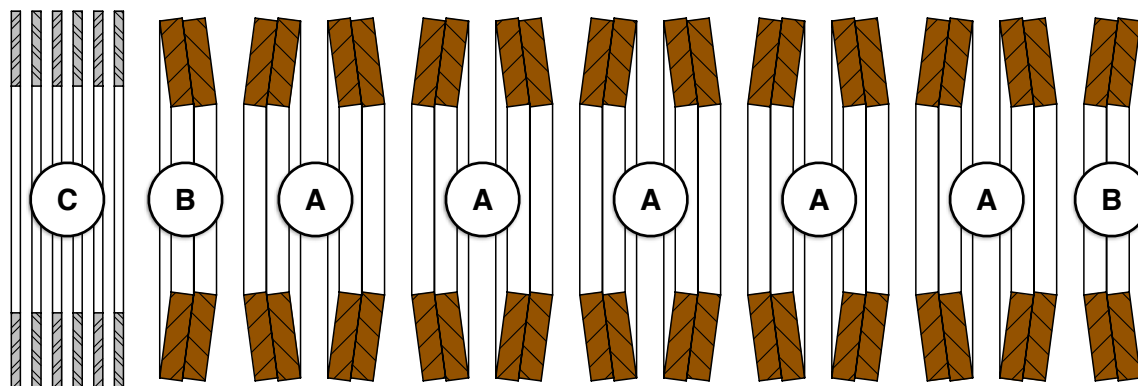
This will account for wear and settlement without any future calibration.





BELLEVILLE WASHER STACK

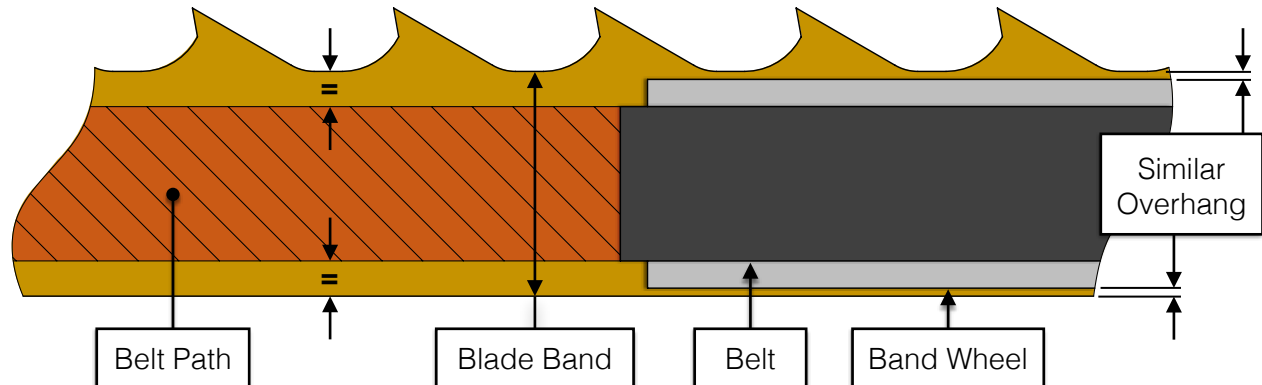
If the spring washer holder is removed for maintenance (e.g. greasing or replacement), ensure the twenty-four (24) Belleville washers inside are oriented and installed as shown below. There are five (5) groups of four washers (4)—each containing two (2) opposing nested pairs **A**—with a single nested pair **B** at each end. There may also be up to six (6) shims **C** installed on the left (inner) end of the stack.



BLADE TRACKING

Blade tracking is the fine-tuning of the band wheel angles to “hold” the blade during cutting. This “hold” position maintains the blade’s location during most sawing conditions, with the guide bearings and blocks acting as occasional supports. A properly tracked sawmill will hold the band portion of the blade centred on the belts without any guides in contact with the blade.

This image shows the “ideal position” with the blade band centred on the belts & band wheels.



Precise measurements are not required to centre the blade band with the belts & band wheels. Visually confirming the front and back of the blade overhang a similar amount is adequate.

What Happens when Tracking is “Off?”

- ▶ Excessive blade guide bearing wear
- ▶ Wavy cuts caused by uneven tension within the blade
- ▶ Overheating blades / blade breakage
- ▶ Excessive belt wear
- ▶ Blade will not stay on the belts

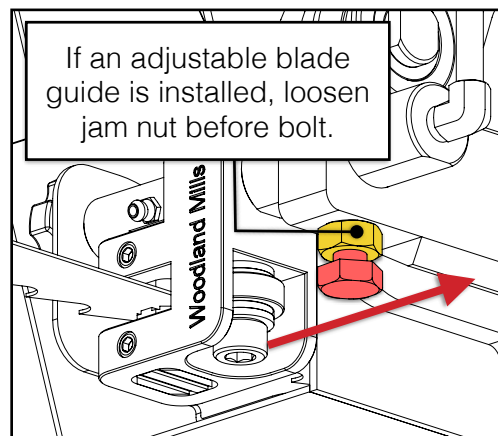
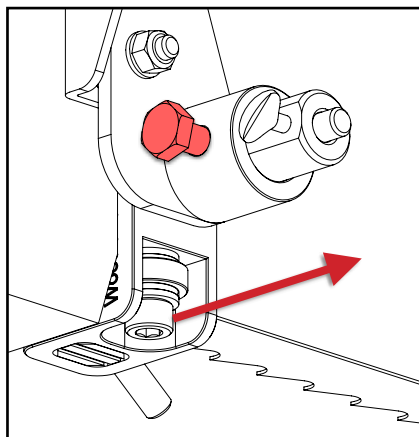
Important Points:

- ▶ Tracking testing can only be made with a blade installed.
- ▶ Tracking testing is done under full blade tension. A fully tensioned blade is when the tension handle is snugged to the thrust bearing and then rotated a further 2-½ to 3 full turns.
- ▶ Tracking *adjustments* are made at three (3) turns off full blade tension.
- ▶ The blade should run in the same location on both the follower and drive-side belts.
- ▶ Guide assemblies should *always* be pushed all the way back, clear of the back of the blade. Nothing should ever be in contact with the blade when testing or making tracking adjustments.
- ▶ The following test and adjustments should only be attempted with drive and follower belts that are in good repair and keeping the blade up off the cast iron band wheels.
- ▶ Tuning the blade tracking is a process of testing and adjusting—re-testing and adjusting—re-testing and adjusting. The number of cycles is determined by how far off the tracking was at the start of the process.
- ▶ Please see the following pages for testing and adjustment procedures.



TEST PROCEDURE

1. Always wear safety gloves and eyewear. Never attempt to adjust the blade tracking with the engine running. Remove the spark plug cap as a safety precaution.
2. Loosen the blade guide assemblies, push them back as far as possible, and secure. This will ensure the guide blocks and bearings will not touch the blade during the test.

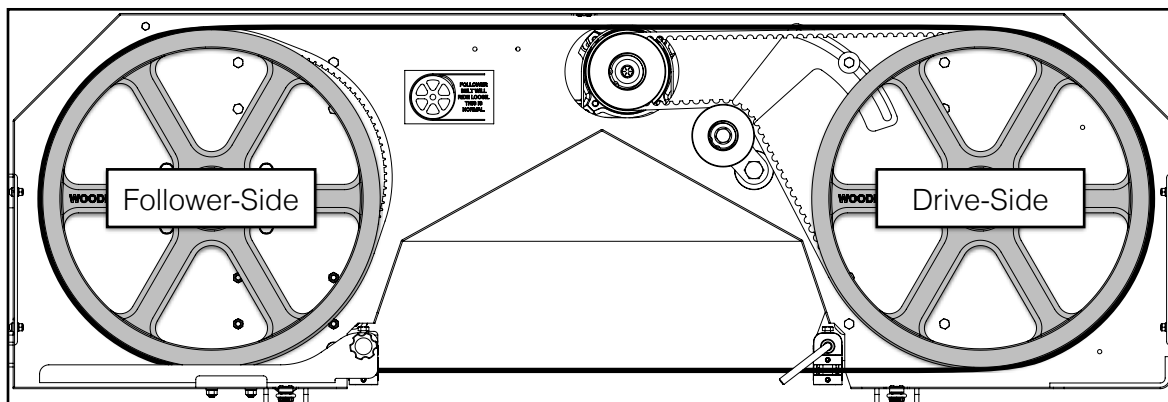


3. Install a blade if one is not already installed.
4. Fully tension the blade by snugging the tension handle to the thrust bearing and rotate it a further 2-½ to 3 full turns.
5. Start rotating the band wheels by hand in the direction of cut observing how the blade moves *forward* or *rearward* on the belts to find its “hold” position.

****If the blade looks as if it is going to come off during hand rotations—STOP—and proceed to the Follower-Side or Drive-Side Adjustment as required.****

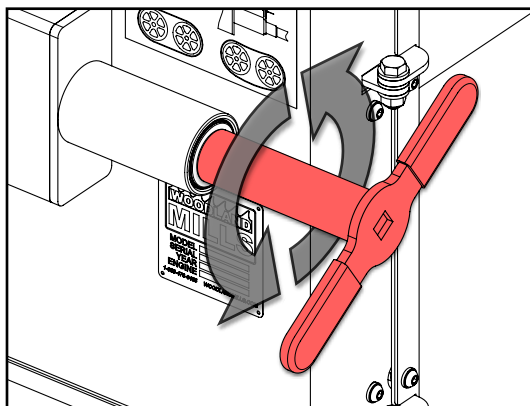
Important Points Before Making Adjustments:

- ▶ Start adjusting the side that is furthest out of spec first.
- ▶ Since adjustments made to one side can affect the other side, always adjust one side first, rerun this test procedure, then adjust the other side if needed.
- ▶ Because ¼ turn adjustment increments are recommended, it is common to run this test a few times between multiple adjustments before correct tracking is achieved.



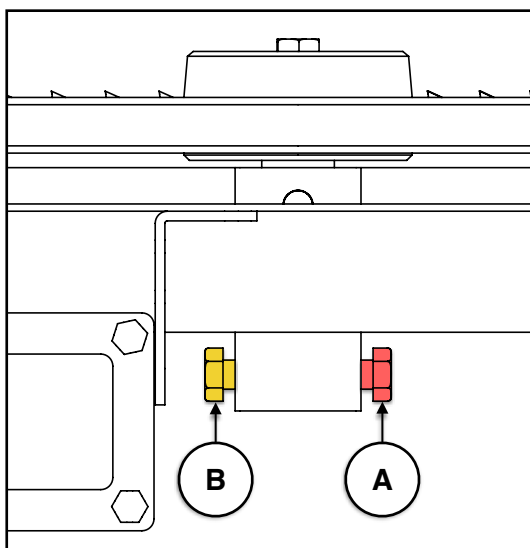


FOLLOWER-SIDE ADJUSTMENT



1. Back off the blade from full tension by three (3) full turns of the tension handle.

****Ensure blade guides are still pushed back and clear of the blade.****



2. Adjust the blade position:

FORWARD

To move the blade *forward* on the belt:

- i. Loosen the right-side bolt (A) ¼ turn.
- ii. Tighten the left-side bolt (B) to clamp the follower shaft back in place.

—OR—

REARWARD

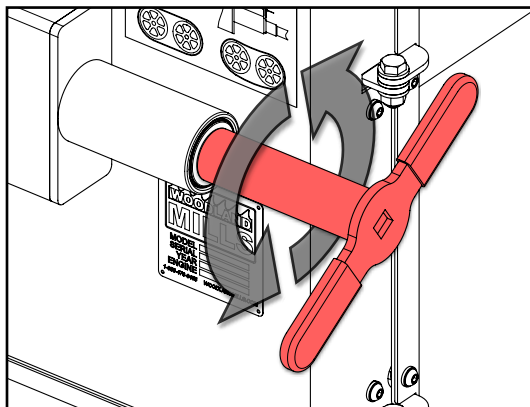
To move the blade *rearward* on the belt:

- i. Loosen the left-side bolt (B) ¼ turn.
- ii. Tighten the right-side bolt (A) to clamp the follower shaft back in place.

3. Repeat the **Test Procedure** to see if further adjustment is needed.
4. Repeat the follower-side adjustment steps and test procedure as many times as necessary until the blade is tracking properly.

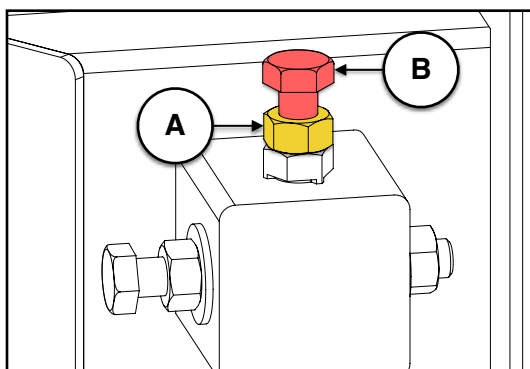


DRIVE-SIDE ADJUSTMENT

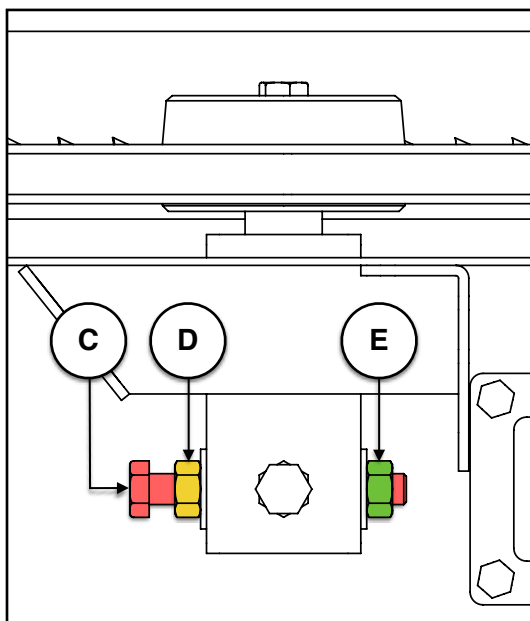


1. Back off the blade from full tension by three (3) full turns of the tension handle.

****Ensure blade guides are still pushed back and clear of the blade.****



2. Loosen the jam nut (A) on the upper bolt.
3. Loosen the upper bolt (B) ½ turn.



4. Adjust the blade position:

FORWARD

To move the blade *forward* on the belt:

- i. Hold the horizontal bolt (C) stationary with a wrench.
- ii. Loosen the right-side nut (E) ¼ turn.
- iii. tighten the left-side nut (D).

—OR—

REARWARD

To move the blade *rearward* on the belt:

- i. Hold the horizontal bolt (C) stationary with a wrench.
- ii. Loosen the left-side nut (D) ¼ turn.
- iii. tighten the right-side nut (E).

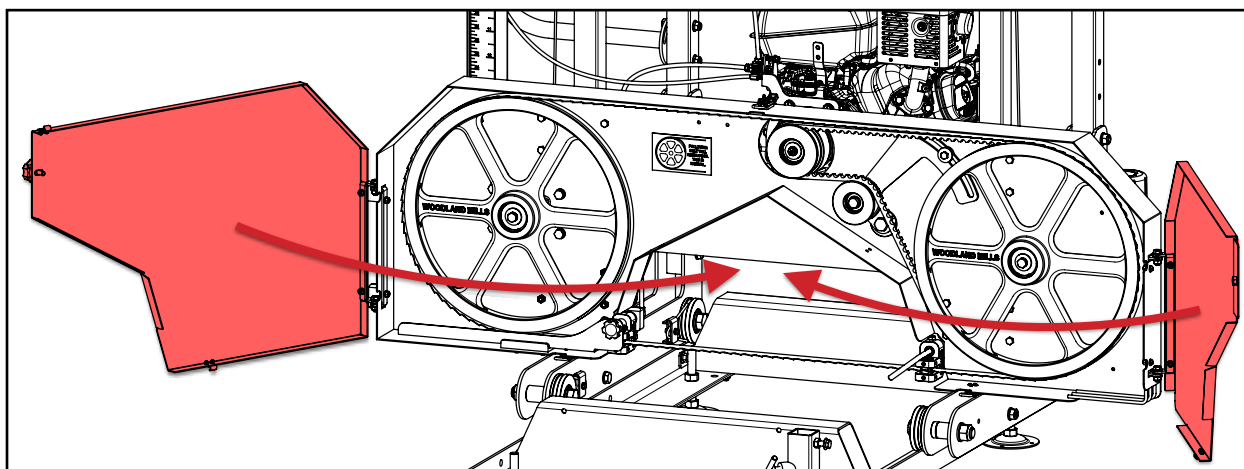
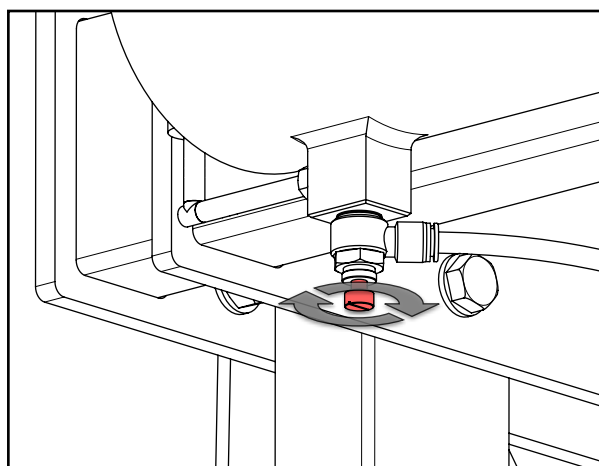
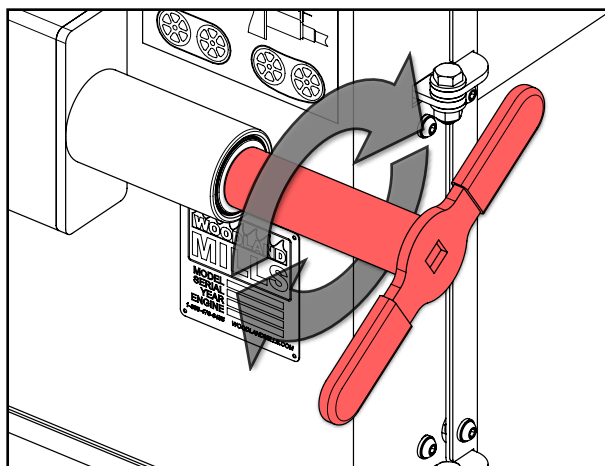
5. Re-tighten the upper bolt (B) followed by the upper jam nut (A).
6. Repeat the **Test Procedure** to see if further adjustment is needed.
7. Repeat the drive-side adjustment steps and test procedure as many times as necessary until the blade is tracking properly.



TRACKING RUN-IN

Once the band wheel angles have been tuned and the blade's "hold" position is correct as per the test procedure:

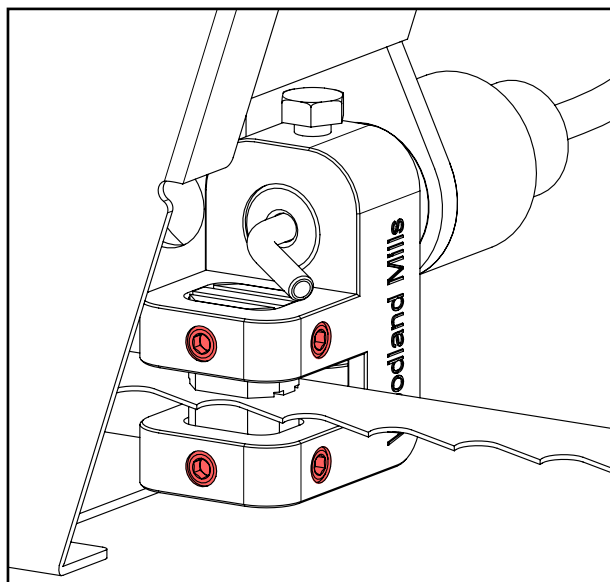
1. Fully tension the blade by snugging the tension handle to the thrust bearing and rotate it a further 2-½ to 3 full turns.
2. Disable lubrication by closing the valve on the tank.
3. Close and latch the band wheel housing doors.
4. Start the engine.
5. Take the engine slowly up to half throttle for fifteen (15) seconds, then full throttle for an additional fifteen (15) seconds, and then turn the engine off and wait for the blade to stop spinning.
6. Open the band wheel housing doors and confirm the tracking settings have held.
7. Bring the guides forward into place and set as per the following section, **BLADE GUIDE ADJUSTMENT**.



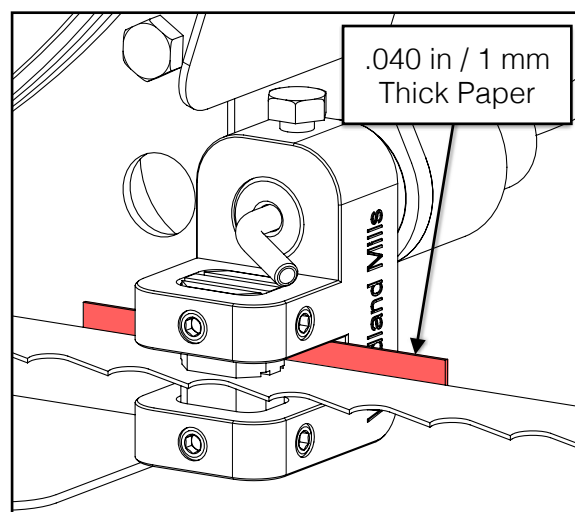
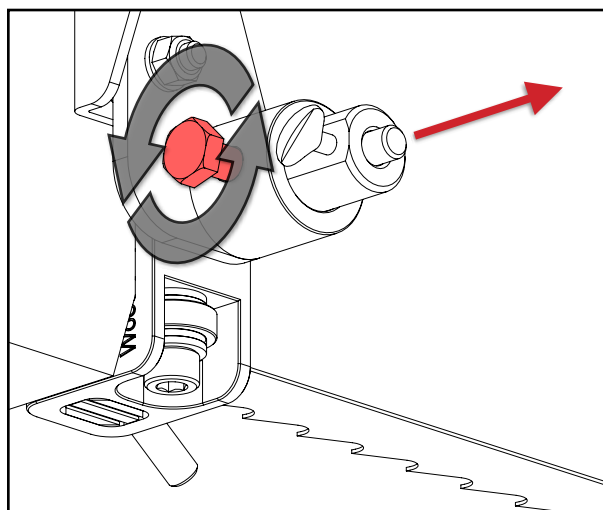


BLADE GUIDE ADJUSTMENT

Never attempt to adjust the guide blocks or the guide bearing with the engine running. As a safety precaution, remove the spark plug cap. It is also advised to confirm that the blade is tracking properly before performing the steps below. Blade tracking is covered in the **BLADE TRACKING** section. Using a 4 mm hex key, loosen the blade guide blocks on both the left and right sides. They should be free to slide up and down.

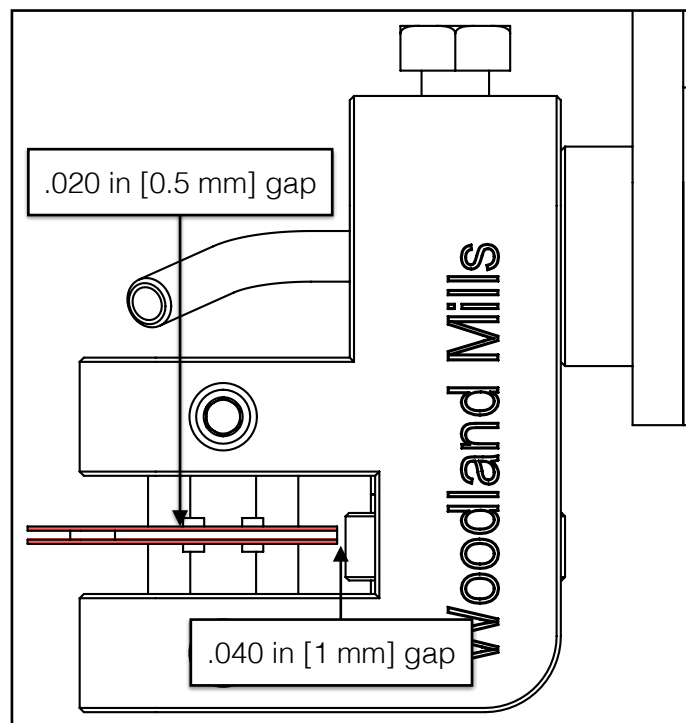
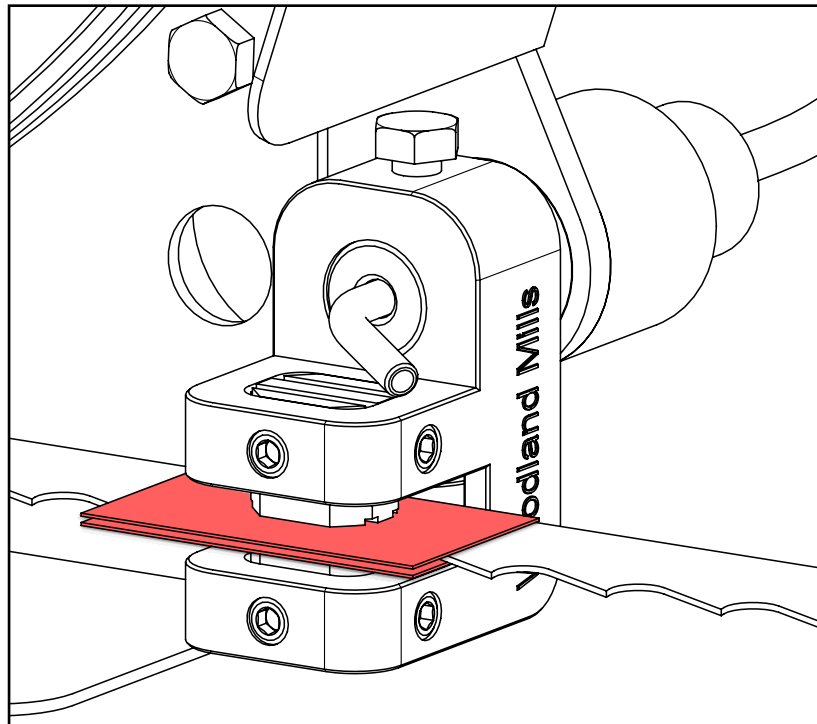


Loosen the blade guide assembly bolts on both guide block holders so that the round shaft is free to slide back and forth. Position it so that there is a thick paper-sized gap (.040 in or 1 mm) between the bearing and the back of blade. Re-tighten the bolt against the flat on the shaft to secure the assembly into position.



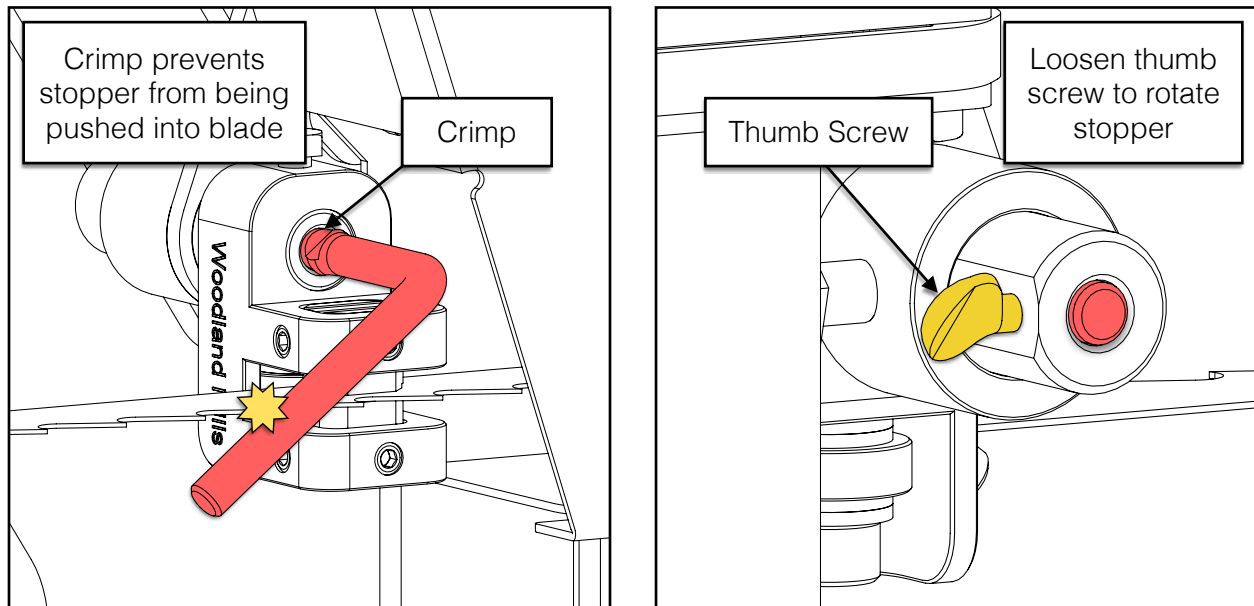


Using a feeler gauge or thick piece of paper (.020 in / 0.5 mm), place it between the blade and both guide blocks and then tighten the set screws.

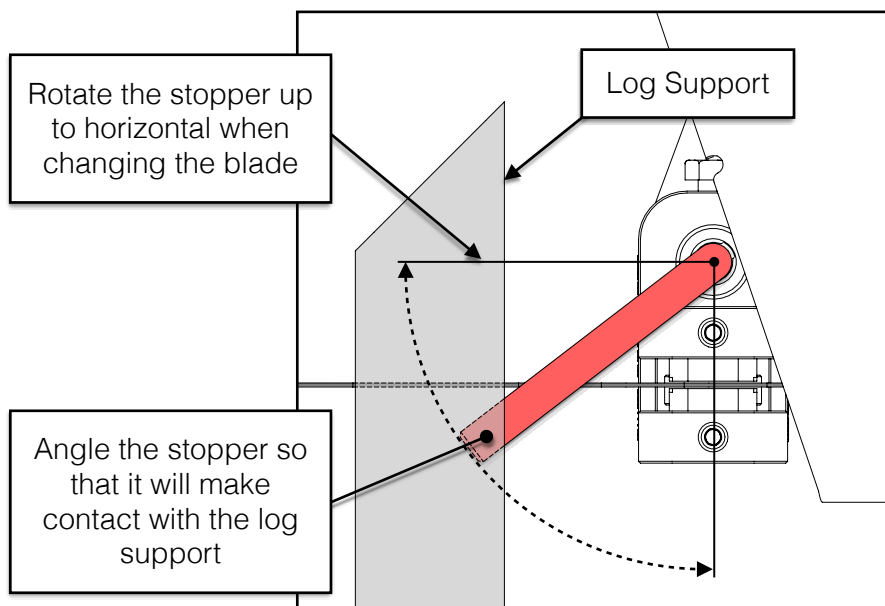


BLADE STOPPER ADJUSTMENT

The drive-side guide block holder is equipped with a blade stopper. The stopper prevents the blade from running into the log supports during a cut. There is a crimp on the stopper shaft that also prohibits it from being pushed backwards into the blade. The angle of the stopper is adjusted by loosening the thumb screw located at the rear of the guide block holder shaft.



Angle the stopper so that it will make contact with the log support as shown below. The sawhead may have to be *lowered*—or the log support *raised*—to verify contact between the two prior to making cuts. Note: rotate the stopper up to horizontal when changing the blade.



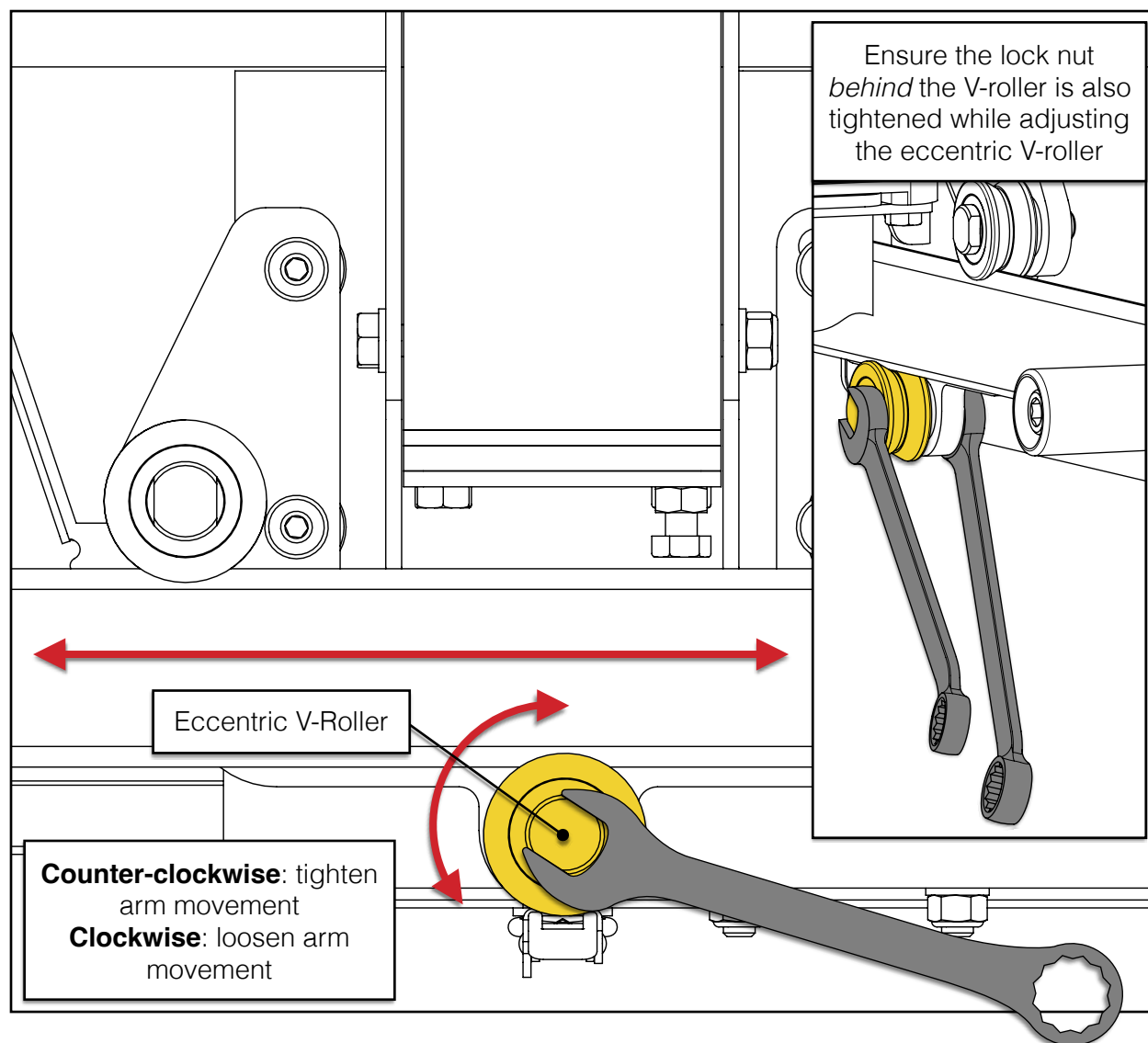
Steps:

1. Loosen the thumb screw.
2. Set the stopper angle.
3. Tighten the thumb screw.

ADJUSTABLE BLADE GUIDE CALIBRATION

ECCENTRIC V-ROLLER ADJUSTMENT

Slide the adjustable blade guide (ABG) arm in and out to check that it moves smoothly between the V-rollers. If it feels too loose or too tight, adjust the bottom eccentric roller using a wrench. Turning it counter-clockwise will tighten the arm movement; turning it clockwise will loosen the movement.

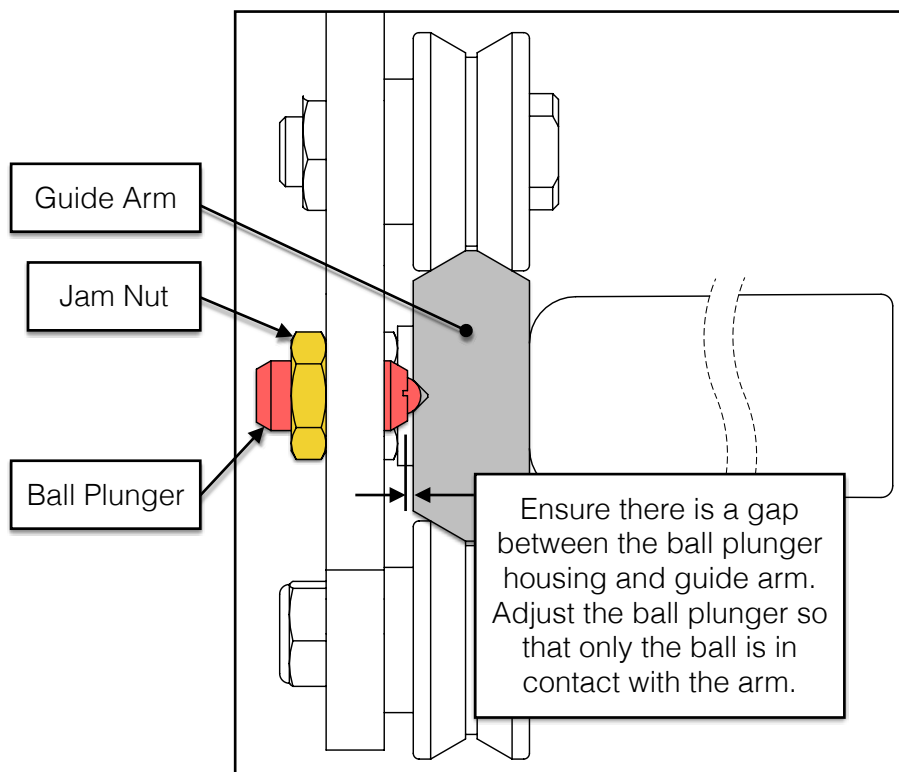
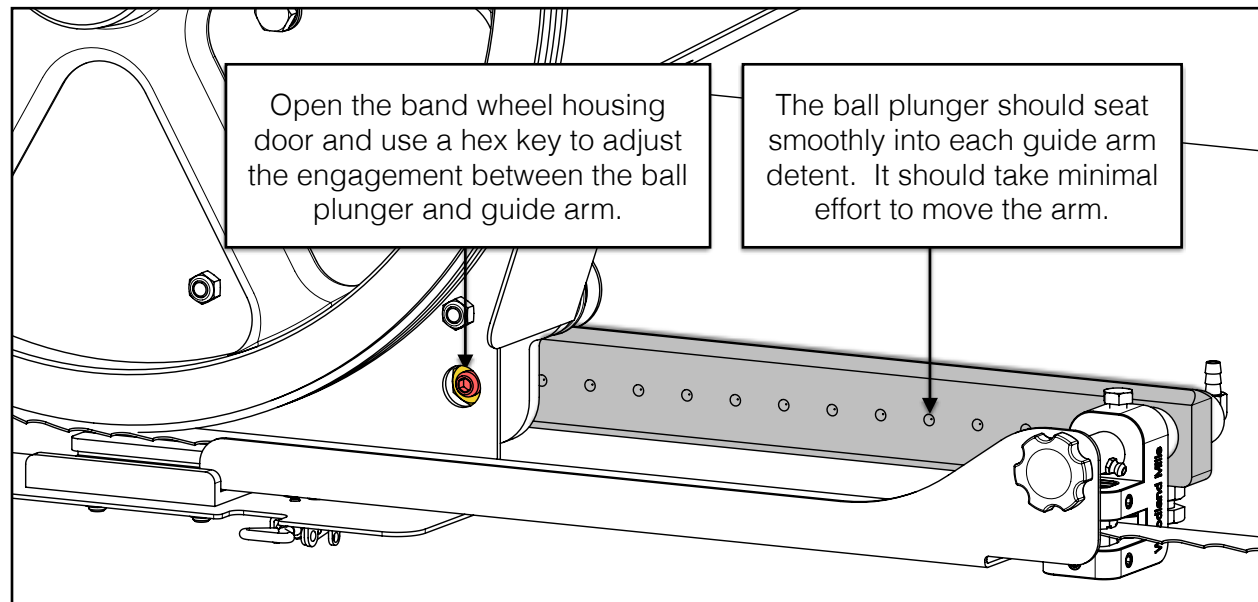


****Some components removed for clarity.****



BALL PLUNGER ADJUSTMENT

If extending and retracting the guide arm is still difficult after adjusting the eccentric V-roller, the ball plunger may require adjustment. Slide a wrench between the band wheel housing and ABG carriage and loosen the ball plunger jam nut.

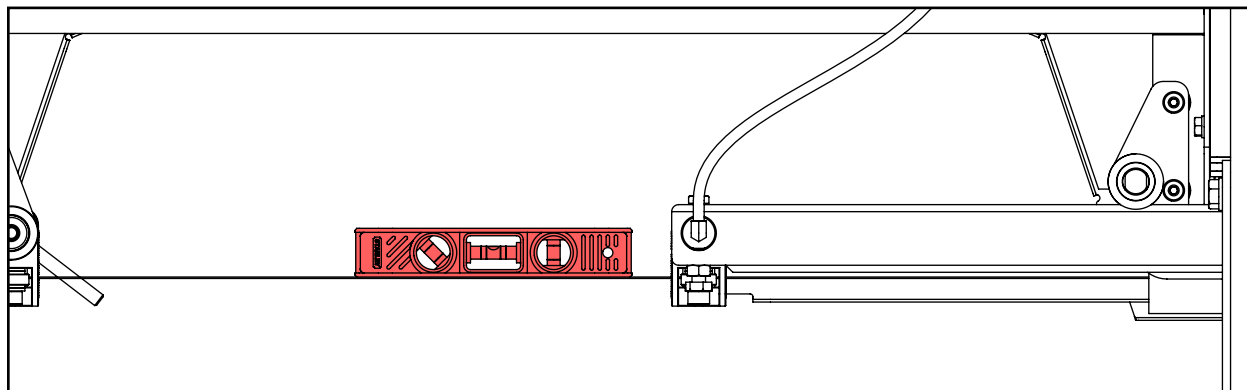


After adjusting the ball plunger, slide the guide arm in and out a few times to verify the movement feels smooth and that there is positive engagement between the ball plunger and guide arm detents. If not, adjust the ball plunger with the hex key again and repeat the process until satisfied.

Once the guide arm is moving well, tighten the ball plunger jam nut.

CARRIAGE & GUIDE ARM ADJUSTMENT

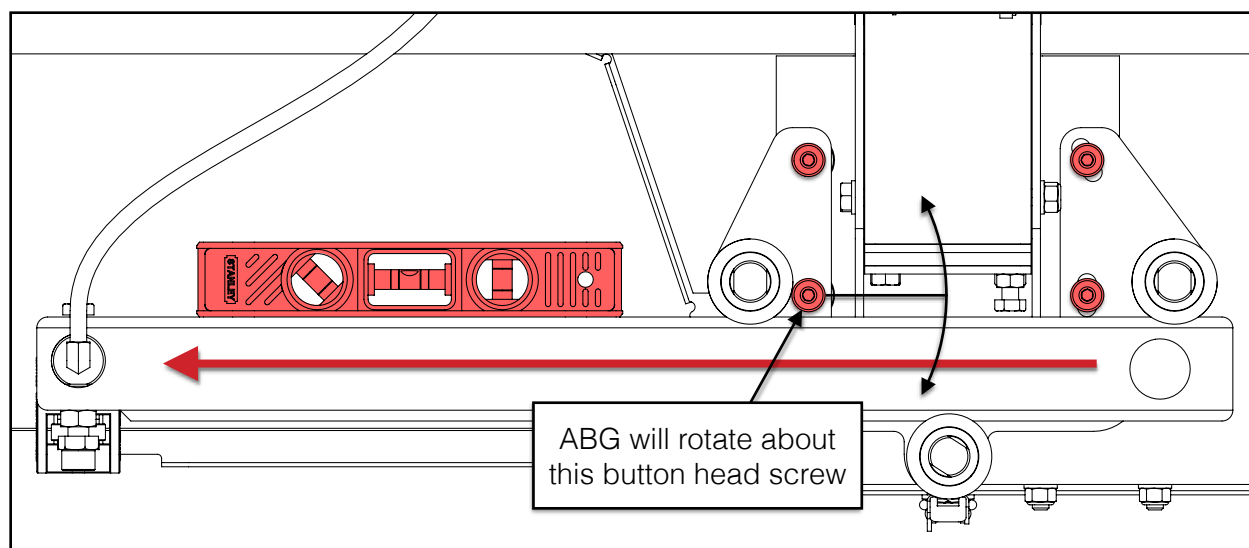
If the guide arm does not extend parallel with the blade, apply full tension to the blade and place a spirit level on the blade to check its level.



Loosen the four (4) button head screws just enough to the carriage can rotate. The carriage will rotate about the lower-left screw as shown below.

Fully extend the guide arm and set the level on top of the arm.

Rotate the ABG carriage and guide arm until it matches the blade level so both are parallel. Slide the guide arm in-and-out to verify that the gaps between the guide blocks and the blade are uniform. See previous section, **BLADE GUIDE ADJUSTMENT**, for more information.



Once the ABG is properly adjusted, fully tighten the four (4) button head screws on the carriage.



SAWMILL MAINTENANCE

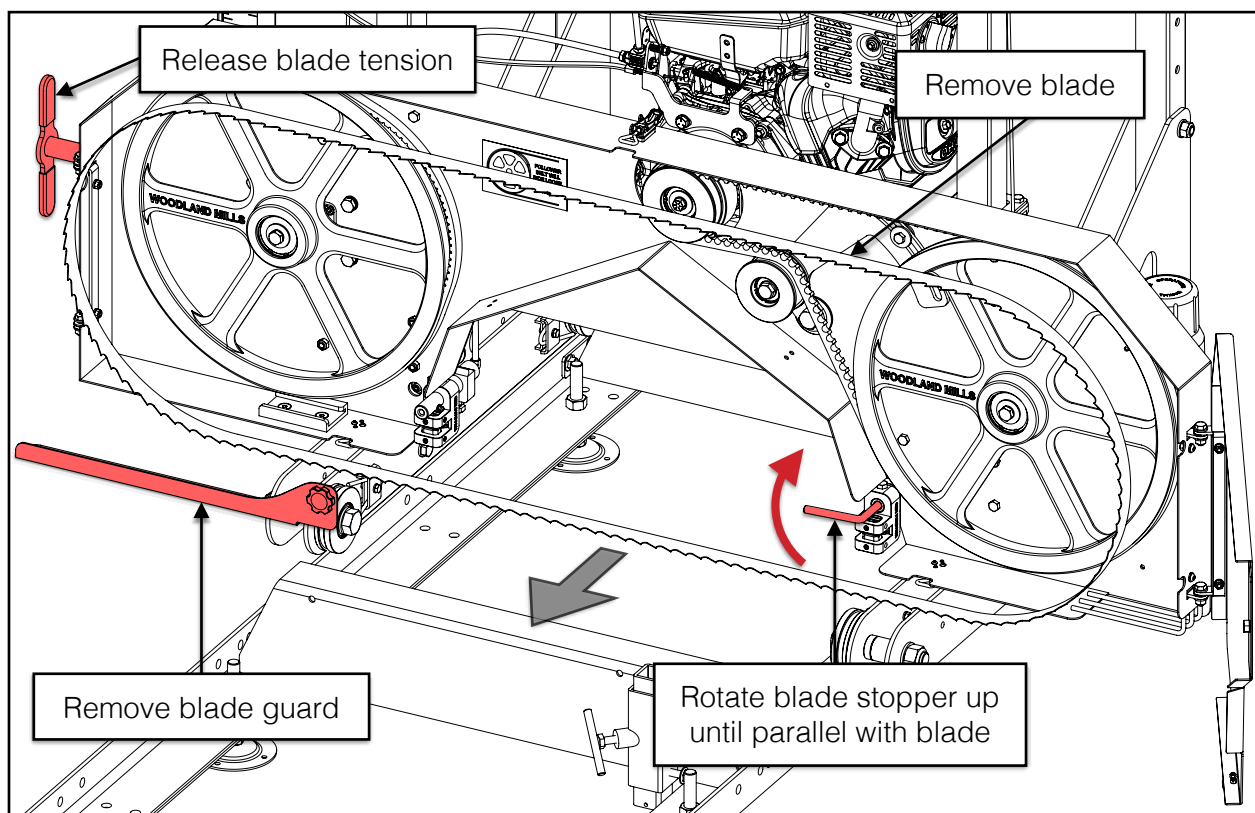
CHANGING THE BLADE

Never attempt to change the blade with the engine running. As a safety precaution, remove the spark plug cap. Gloves and safety glasses must be worn when changing the blade.

Follow these steps to remove an old/worn blade from the sawmill:

1. Turn the belt tension handle counter-clockwise to release the tension from the blade until it is loose.
2. Open the band wheel housing doors.
3. Remove the yellow blade guard.
4. Rotate the blade stopper up on the drive-side guide block holder.

The blade is now sufficiently loose and can be easily pulled straight out the front.



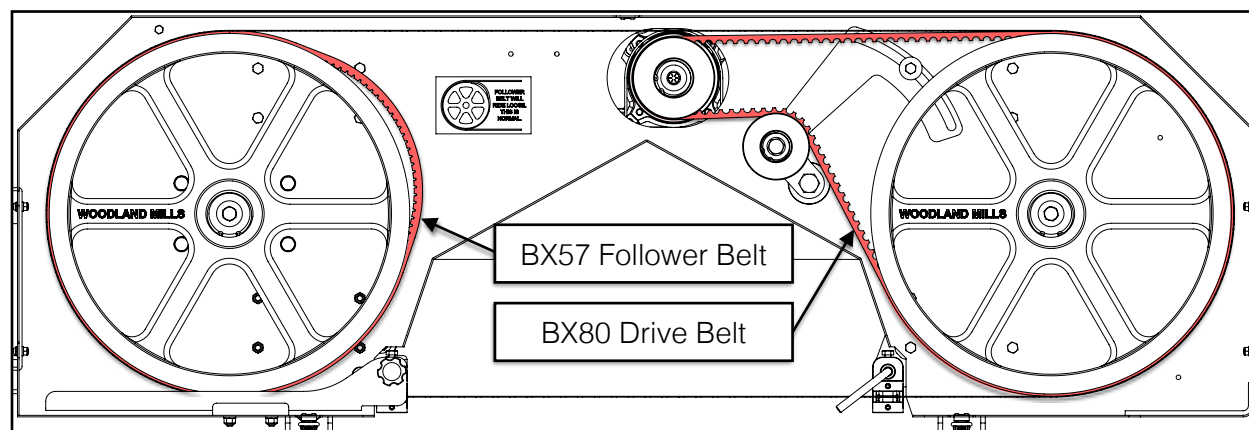
Install a new blade following the reverse order of steps and then set the proper blade tension. The tracking should not have to be adjusted after changing blades. See section, **ADJUSTING THE FOLLOWER SIDE TRACKING**, for more information.



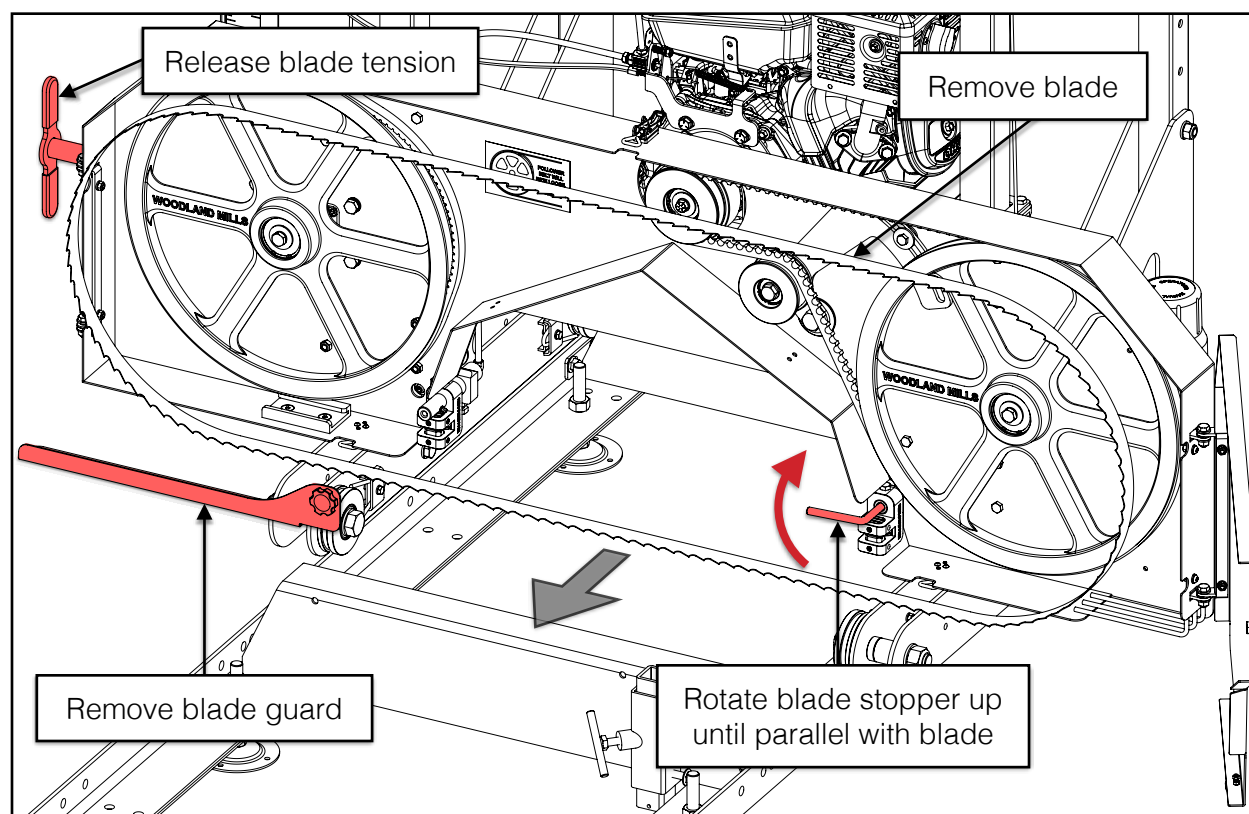
REPLACING BELTS



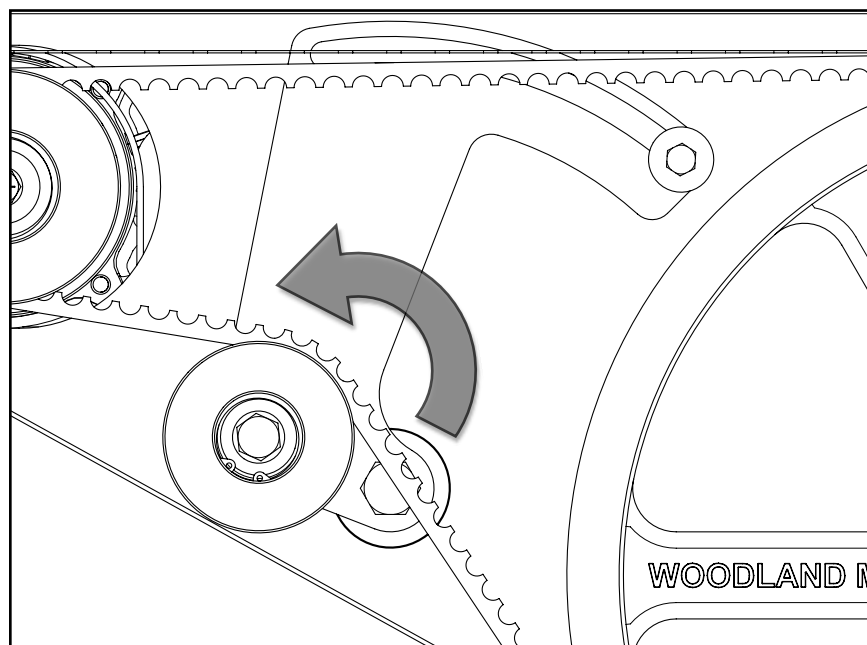
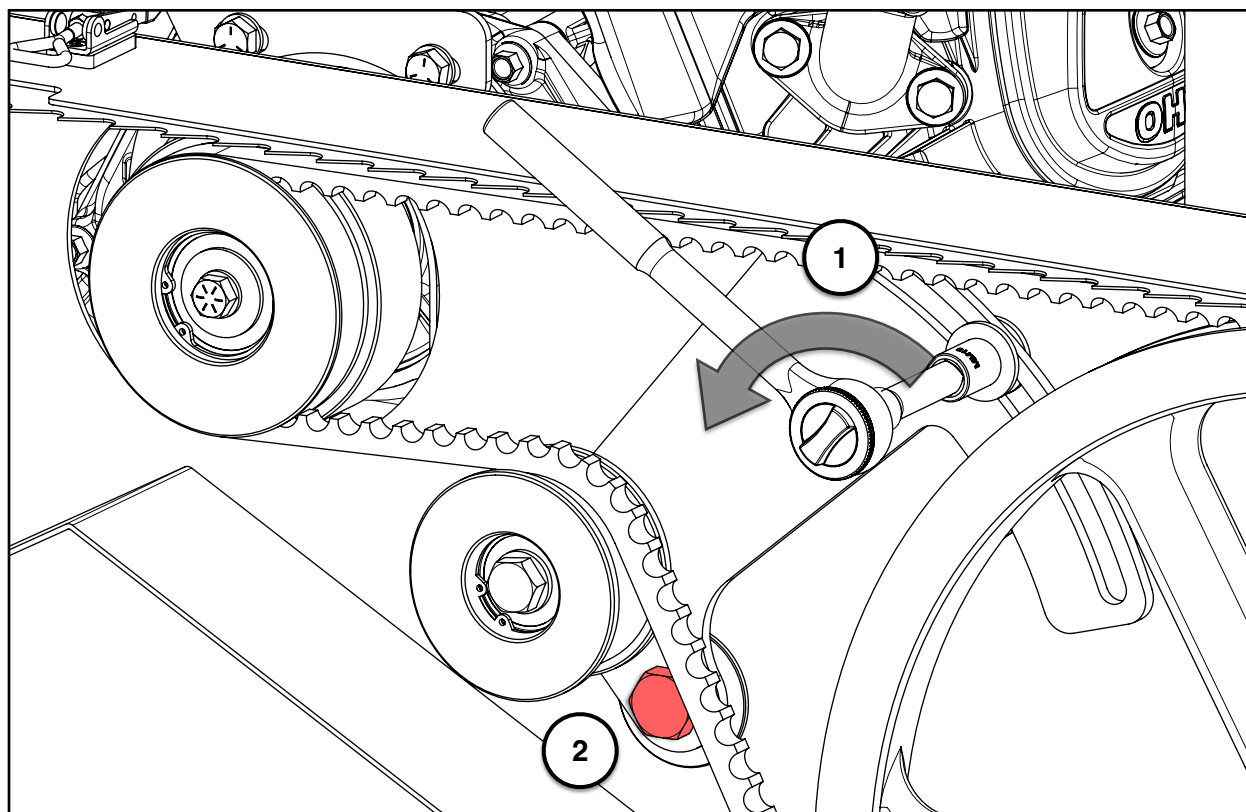
Never attempt to replace the belts with the engine running. As a safety precaution, remove the spark plug cap. Gloves and safety glasses must be worn when replacing the belts. There are two V-belts on the sawmill: a BX80 cogged belt on the drive side and a BX57 cogged belt on the follower side. The BX57 belt fits *loose* on the follower band wheel—this is normal.



First, remove the blade following the procedure outlined in section, **CHANGING THE BLADE**.



Next, remove the tension from the drive belt by loosening the M8 hex bolt (#1) and the M16 hex bolt (#2) by approximately one (1) turn—do not remove the bolts.

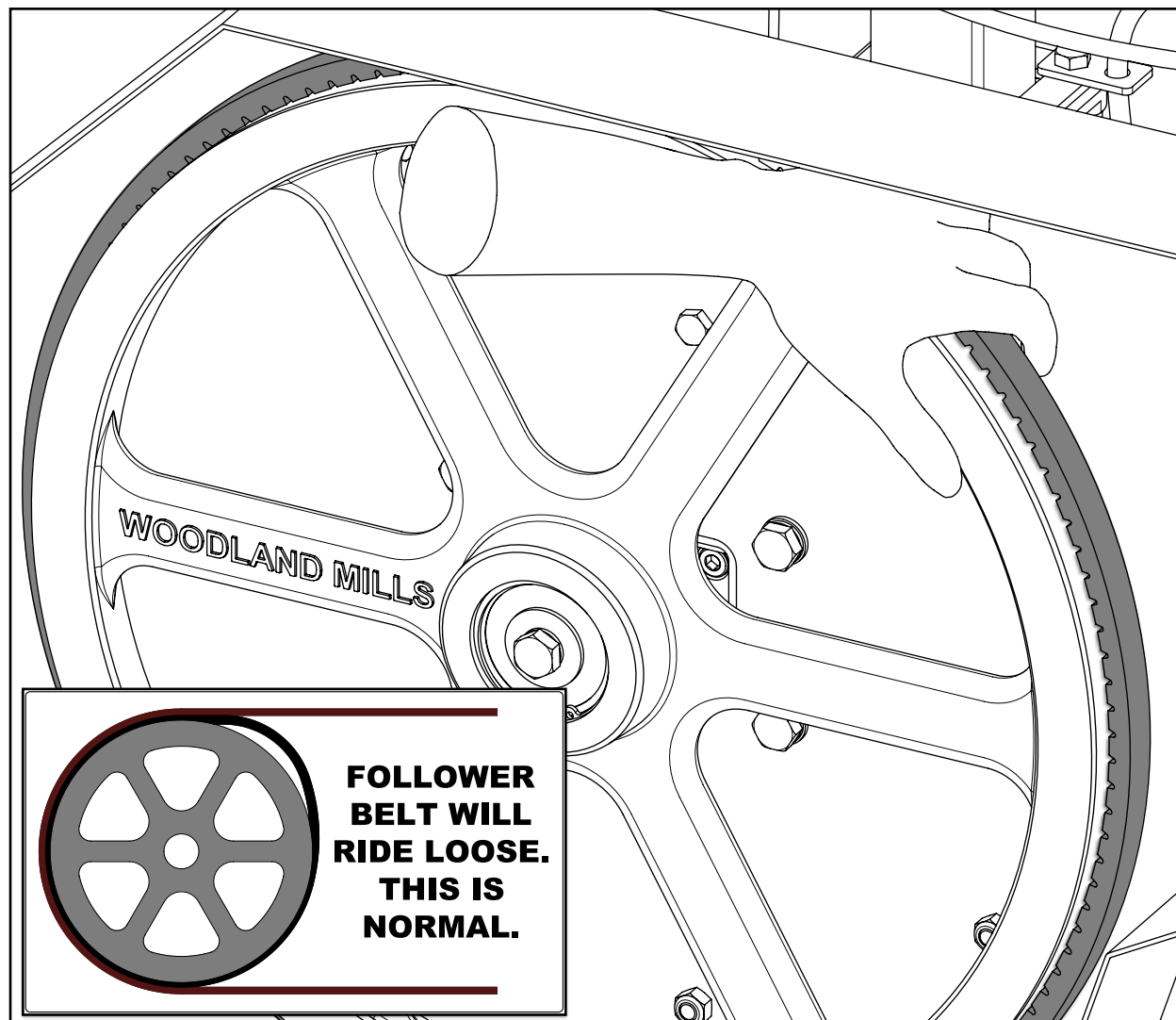


Once both bolts are loose, the belt tensioner will rotate counter-clockwise until the idler pulley comes to rest on the band wheel housing. The belt can now easily be removed by hand and a new belt installed.

Tension the belt following the same procedure as outlined in section, **DRIVE BELT TENSION**.



The BX57 follower belt is replaced simply by pulling it off and installing a new one by hand. The belt fits loose enough on the band wheel to allow for this. There is no need to remove the band wheel from the shaft.



With the follower belt replaced, the blade can now be re-installed, band wheel housing doors closed, and proper blade tension set.

****Note that blade tracking should not have changed after replacing the belts. The RapidChange™ blade system maintains the band wheel pitch angle while the blade is removed. Refer to section, BLADE TRACKING, for more information.****



TROUBLESHOOTING

Problem/Issue	Possible Causes	Resolution Options
Producing wavy cuts	<ol style="list-style-type: none"> 1. Inadequate blade tension. 2. Improper blade guide set up. 3. Improper blade tracking. 4. Sap build up on blade. 5. Dull blade. 6. Pushing mill too quickly. 	<ol style="list-style-type: none"> 1. Tighten blade. Refer to page 78. 2. Gap between guide blocks and blade are incorrect. Refer to page 85. 3. Adjust blade tracking. Refer to page 80. 4. Install new blade. Refer to page 91. Always use blade lubricant. 5. Install new blade. Refer to page 91. 6. Slow feed rate down and push head slower through log.
Last board is tapered or narrow in middle	<ol style="list-style-type: none"> 1. Track is not level. 	<ol style="list-style-type: none"> 1. Track needs to be checked for level and adjusted so it is square. Track should also be set up on a firm, sturdy base so deflection does not occur from heavy logs or the sawmill head.
Blade dulls quickly	<ol style="list-style-type: none"> 1. Logs are not clean. 2. Foreign objects in log. 	<ol style="list-style-type: none"> 1. Logs may contain dirt/sand causing blades to wear prematurely. 2. Tree may contain nails, staples, old fencing etc.
Blade comes off band wheels	<ol style="list-style-type: none"> 1. Inadequate blade tension. 2. Improper blade guide set up. 3. Improper blade tracking. 4. Belts are worn. 5. Dull blade. 6. Pushing mill too quickly. 7. Too much water on blade. 8. New belts not dressed. 9. Belt tensioner idler pulley not adjusted properly. 	<ol style="list-style-type: none"> 1. Tighten blade. Refer to page 78. 2. Gap between guide blocks and blade are incorrect. Refer to page 85. 3. Adjust blade tracking. Refer to page 80. 4. Install new belts. Refer to page 92. 5. Install new blade. Refer to page 91. 6. Slow feed rate down and push head slower through log. 7. Valve on water tank is letting out too much water. Reduce flow by turning dial on valve. 8. Run the sawmill without lubrication for 30 minutes in order to dress new belts sufficiently before adding water for lubrication. Refer to page 74 (#3). 9. Call Woodland Mills Technical Support.
Blades are breaking	<ol style="list-style-type: none"> 1. Too many blade sharpenings. 2. Inadequate blade tension. 3. Improper blade guide set up. 4. Improper blade tracking. 5. Pushing mill too quickly. 	<ol style="list-style-type: none"> 1. Replace blade. Refer to page 91. 2. Binding between guide blocks when blade is too loose. Tighten blade. Refer to page 78. 3. Gap between guide blocks and blade are incorrect. Refer to page 85. 4. Adjust blade tracking. Refer to page 80. 5. Slow feed rate down and push head slower through log.
Blade is slowing down or stopping when milling	<ol style="list-style-type: none"> 1. Inadequate blade tension. 2. Improper drive belt tension. 3. Pushing mill too quickly. 	<ol style="list-style-type: none"> 1. Tighten blade. Refer to page 78. 2. Belts are worn or too loose. Replace. Refer to page 91. 3. Slow feed rate down and push head slower through log.
Mill is not cutting or cutting very slowly	<ol style="list-style-type: none"> 1. Dull blade. 2. Blade is on backwards. 	<ol style="list-style-type: none"> 1. Install new blade. Refer to page 91. 2. Remove blade and flip it inside out. The teeth should be facing in the direction of the log supports.

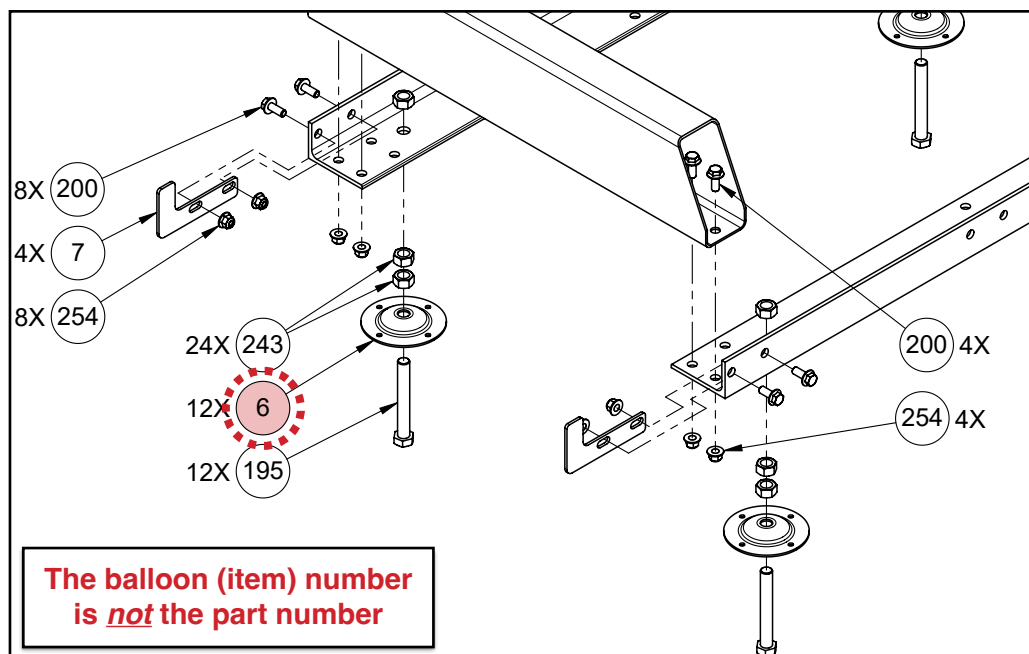


Problem/Issue	Possible Causes	Resolution Options
Mill is vibrating excessively	<ol style="list-style-type: none"> 1. Log is not clamped securely. 2. Belts are deformed. 3. Band wheel bearing issue. 4. Pushing mill too quickly. 5. Loose bolts. 6. Post sleeve bushings worn. 	<ol style="list-style-type: none"> 1. Ensure log is clamped firmly resting on log bunks and against log supports. 2. Belts may have flats in them from leaving blade tension tight when not in use. Replace them. Refer to page 92. 3. Inspect and replace the band wheel bearings if worn. 4. Slow feed rate down when milling. 5. Check all bolts to ensure they are tight. 6. Adjust the post sleeve bushings or replace them. Refer to page 70.
Adjustable blade guide arm is difficult to move or too loose	<ol style="list-style-type: none"> 1. Eccentric V-roller not adjusted properly. 2. Ball plunger over-engaged or not enough engagement. 3. Guide arm is not parallel with blade. 	<ol style="list-style-type: none"> 1. Adjust the bottom eccentric V-roller clockwise to loosen the guide arm or counter-clockwise to tighten the guide arm movement. Refer to page 88. 2. Adjust the ball plunger. Refer to page 89. 3. Rotate the adjustable blade guide carriage until parallel with the blade. Refer to page 90.
Sawhead difficult to raise or lower	<ol style="list-style-type: none"> 1. Sawhead not level. 2. Front posts not lubricated. 	<ol style="list-style-type: none"> 1. Level the sawhead by adjusting the lift cable ends under the lift mechanism. Refer to page 69. 2. Spray front posts with water resistant silicone lubricant.



REPLACEMENT PARTS ORDERING

When ordering replacement parts, first locate the balloon number(s) from the appropriate **exploded assembly view** as shown in the example below:



Next, turn to the **Parts List** section and locate the balloon number in the “**Item**” column:

PARTS LIST

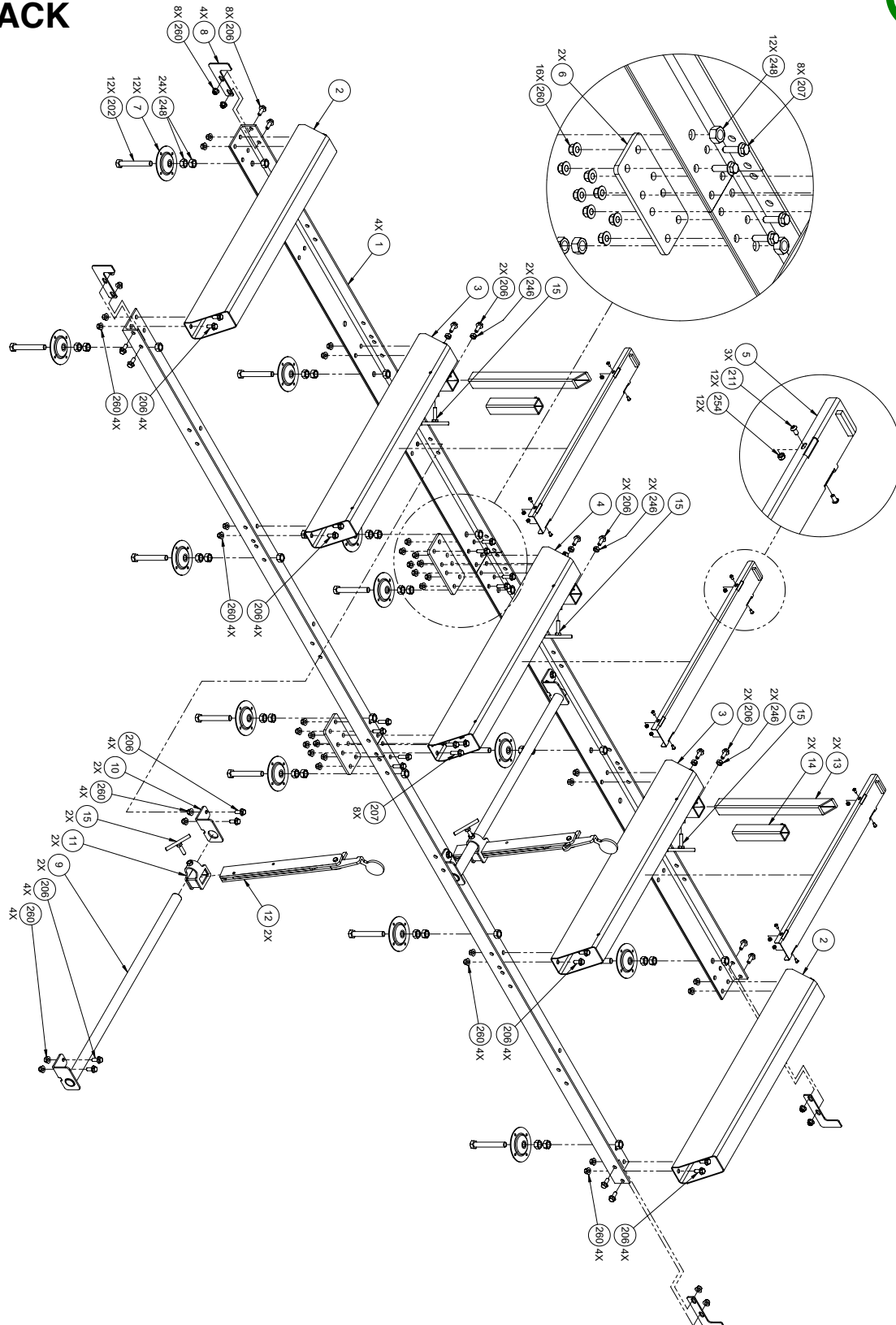
Item	Quantity		Part No.	Description
	14 hp	9.5 hp		
1	4	4	0001073	TRACK RAIL, 58.5 mm TALL
2	2	2	0001075	LOG BUNK, END
3	2	2	0001080	LOG BUNK, MID
4	1	1	0001084	LOG BUNK, CENTER
5	2	2	0001072	REINFORCEMENT PLATE, 90 X 200 mm
6	12	12	0001071	LEVELLING FOOT BASE
7	4	4	0001055	CARRIAGE STOP
8	1	1	0001062	LOG CLAMP SHAFT AND BRACKET WELDMENT

Record the part number (e.g. 0001071, HHB-MBM080FCJ, etc.) from the “**Part No.**” column.

Contact Woodland Mills through the website or via phone/email. If possible, include the invoice or sales number from the purchased product so an associated account can be located. If the account has multiple addresses on file, please indicate to which address the replacement part(s) will be shipped.

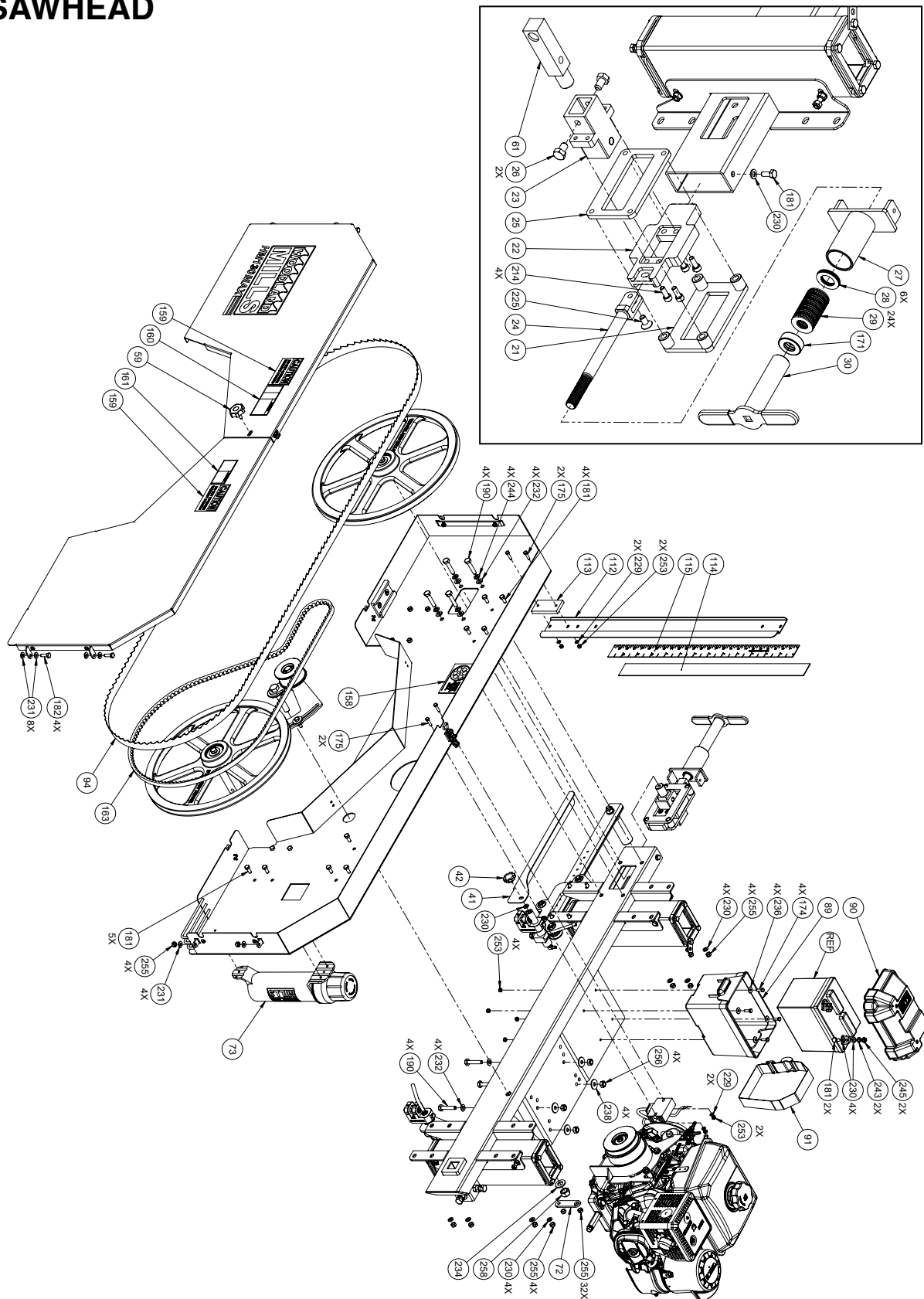


EXPLODED ASSEMBLY VIEWS



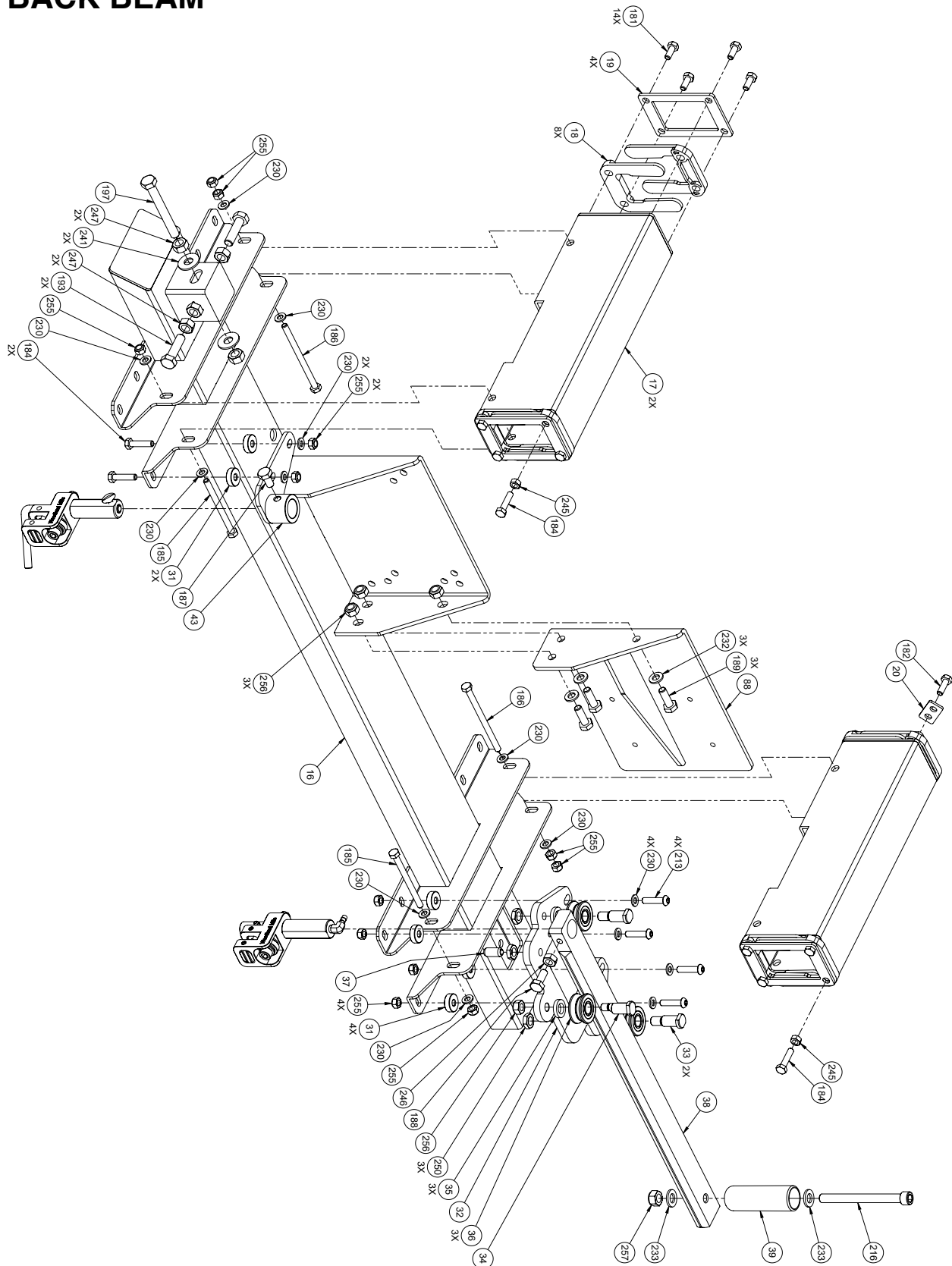


SAWHEAD



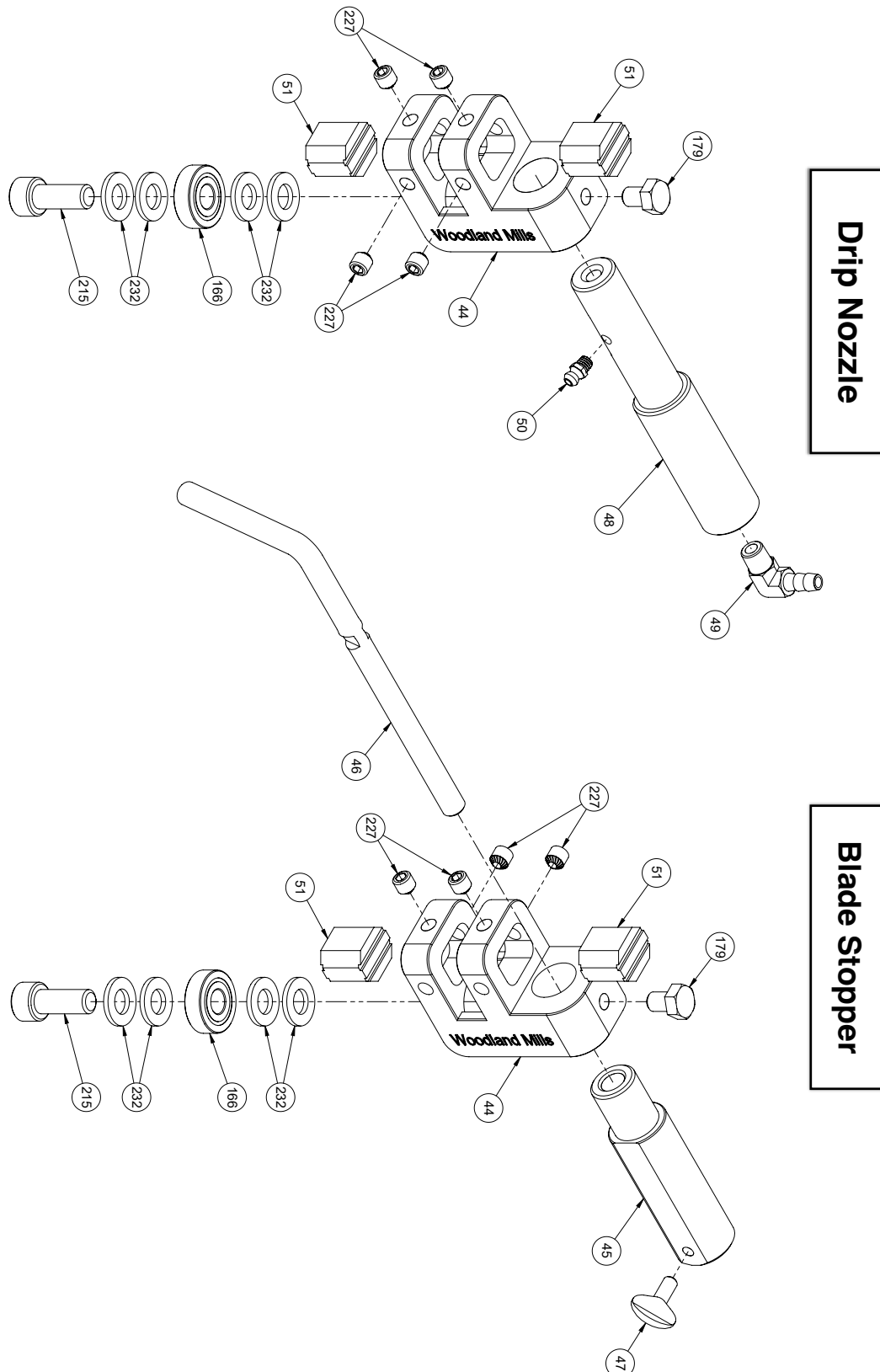


BACK BEAM



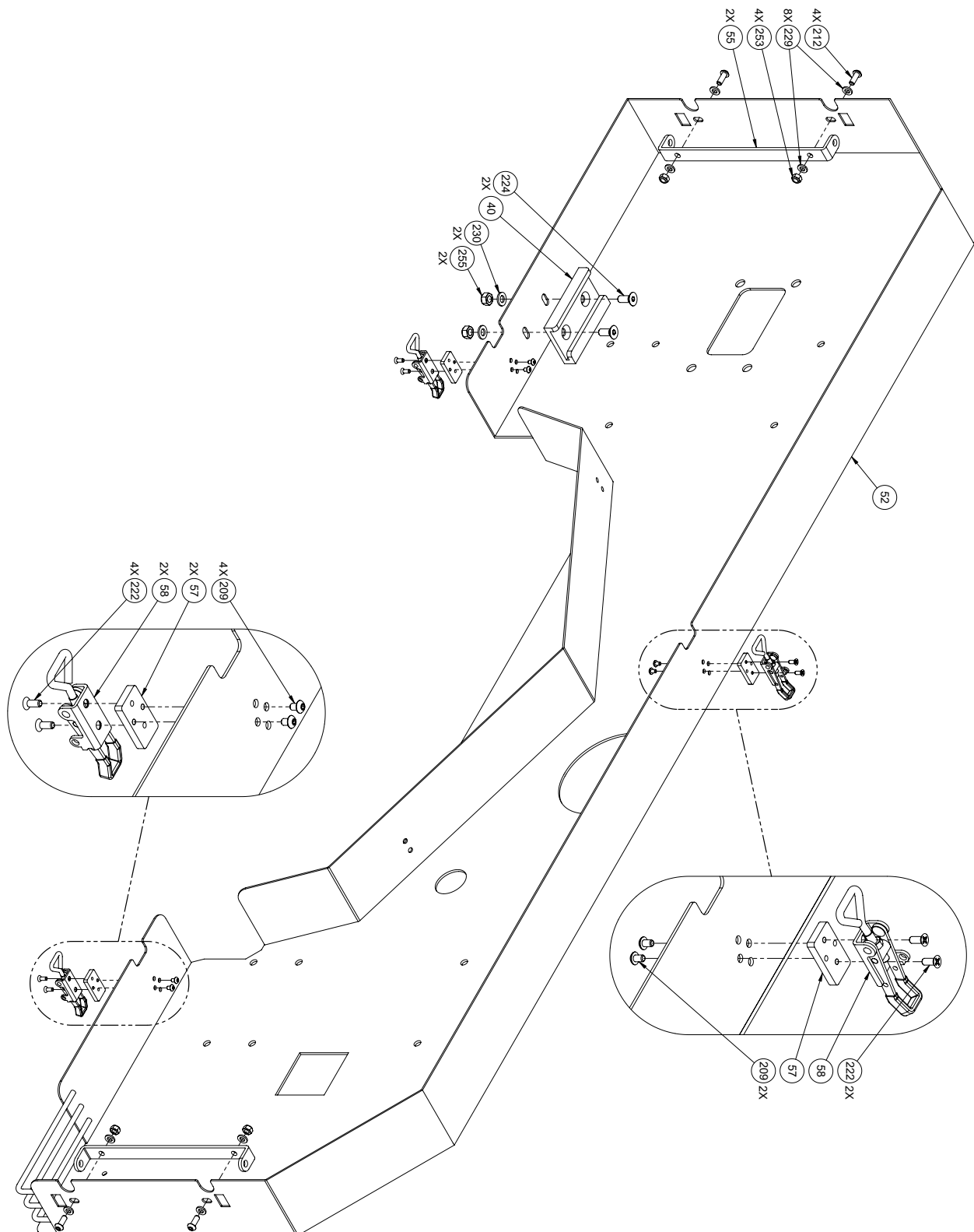


GUIDE BLOCK HOLDERS



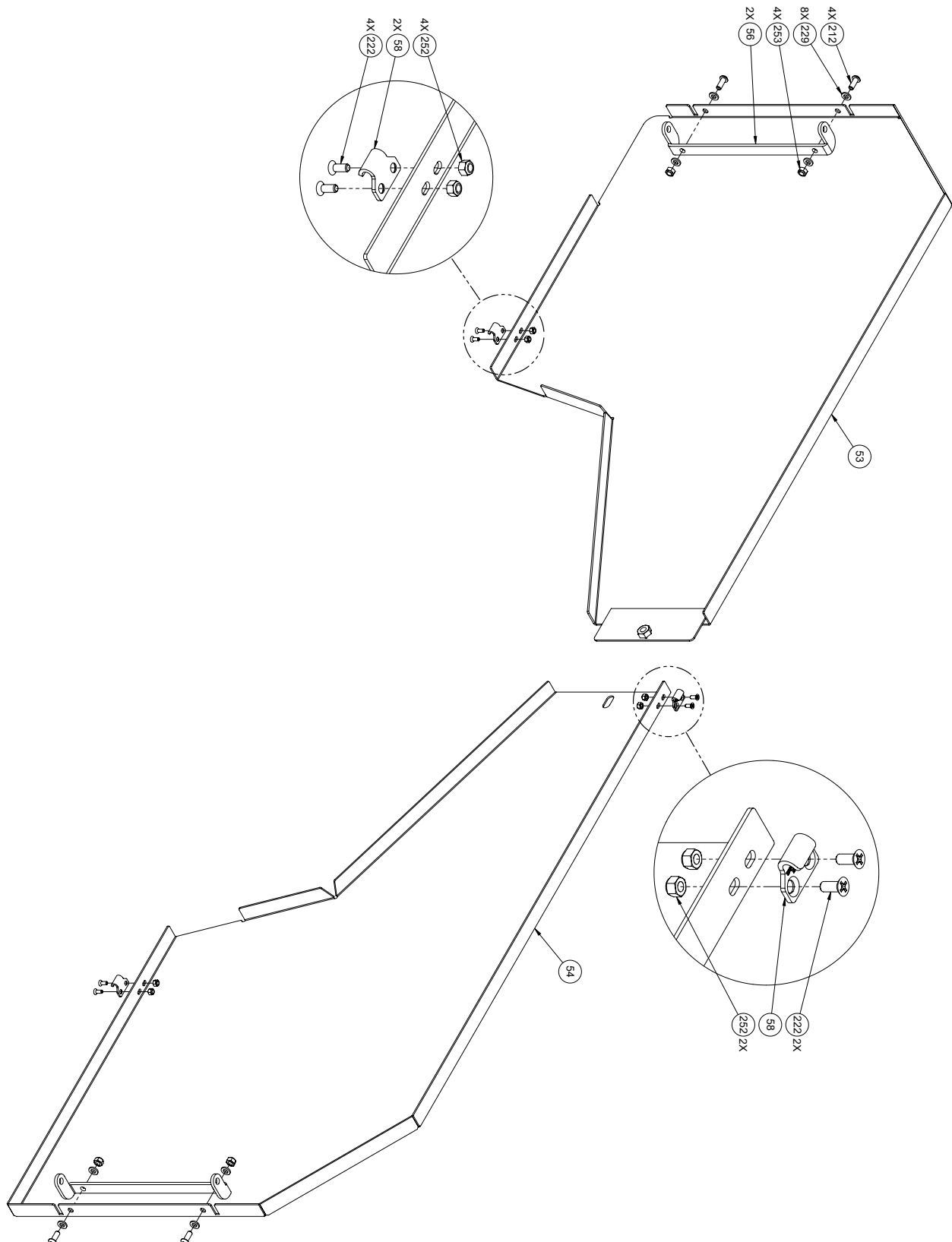


BAND WHEEL HOUSING



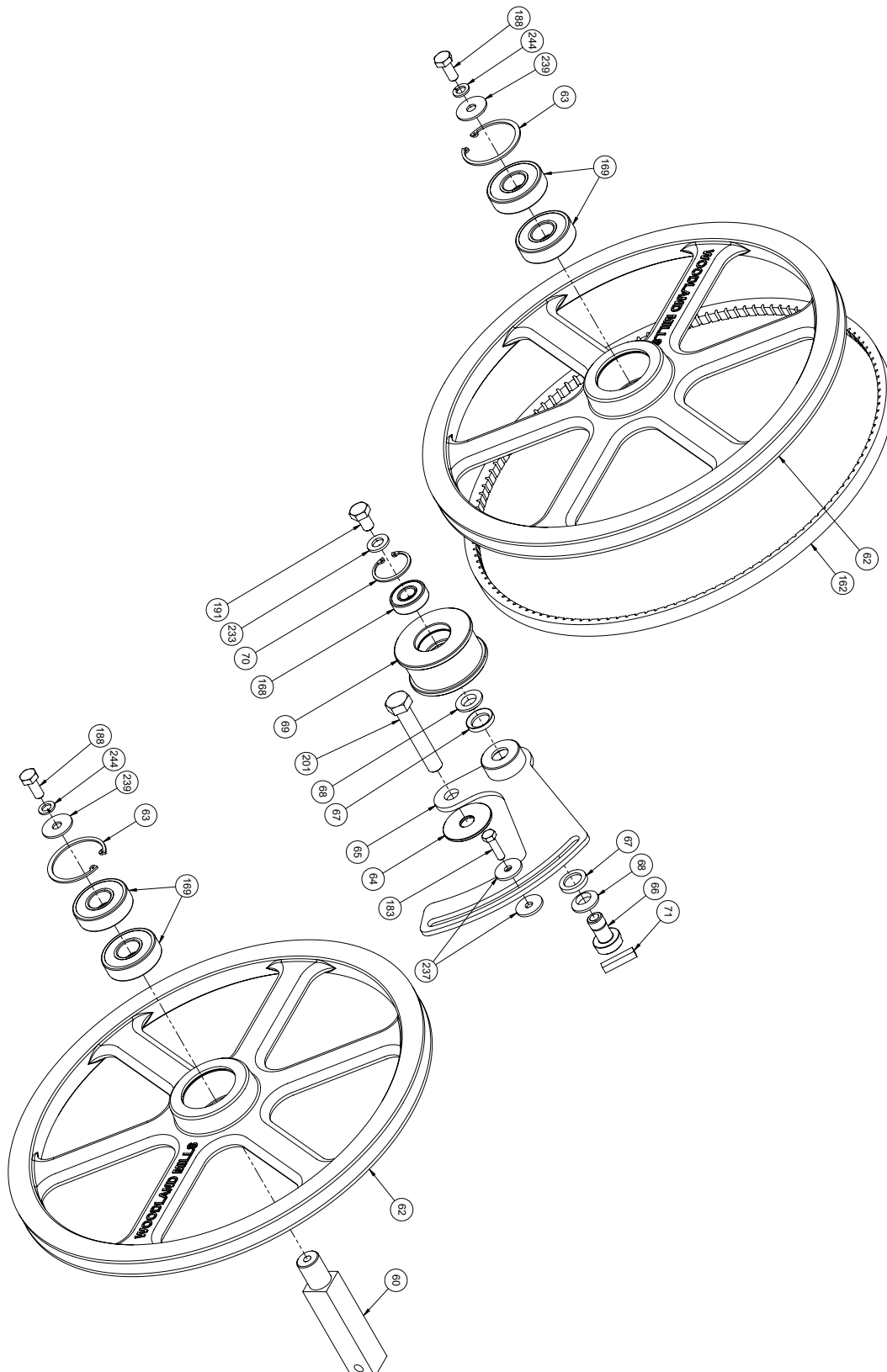


BAND WHEEL HOUSING DOORS



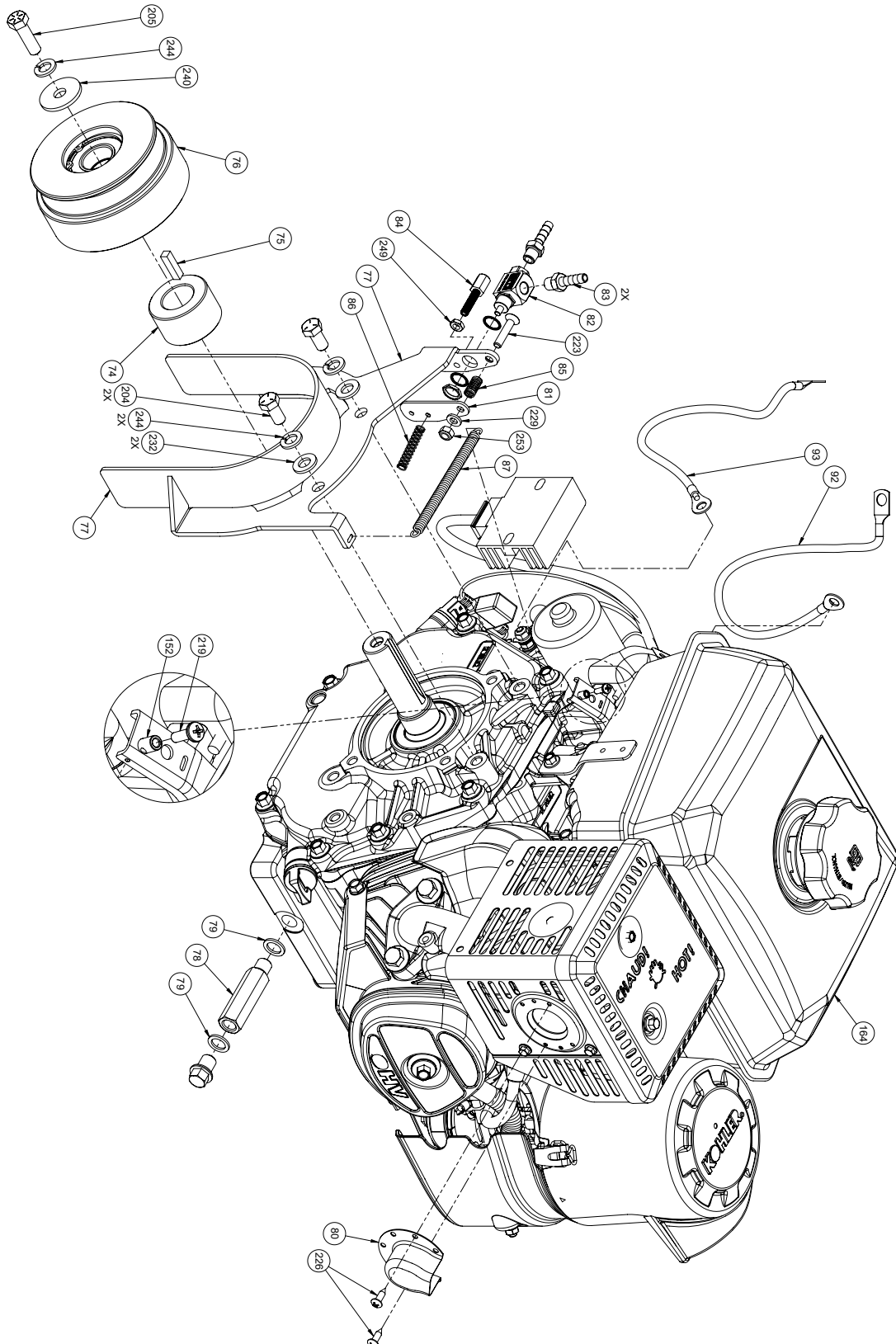


BAND WHEELS AND BELT TENSIONER



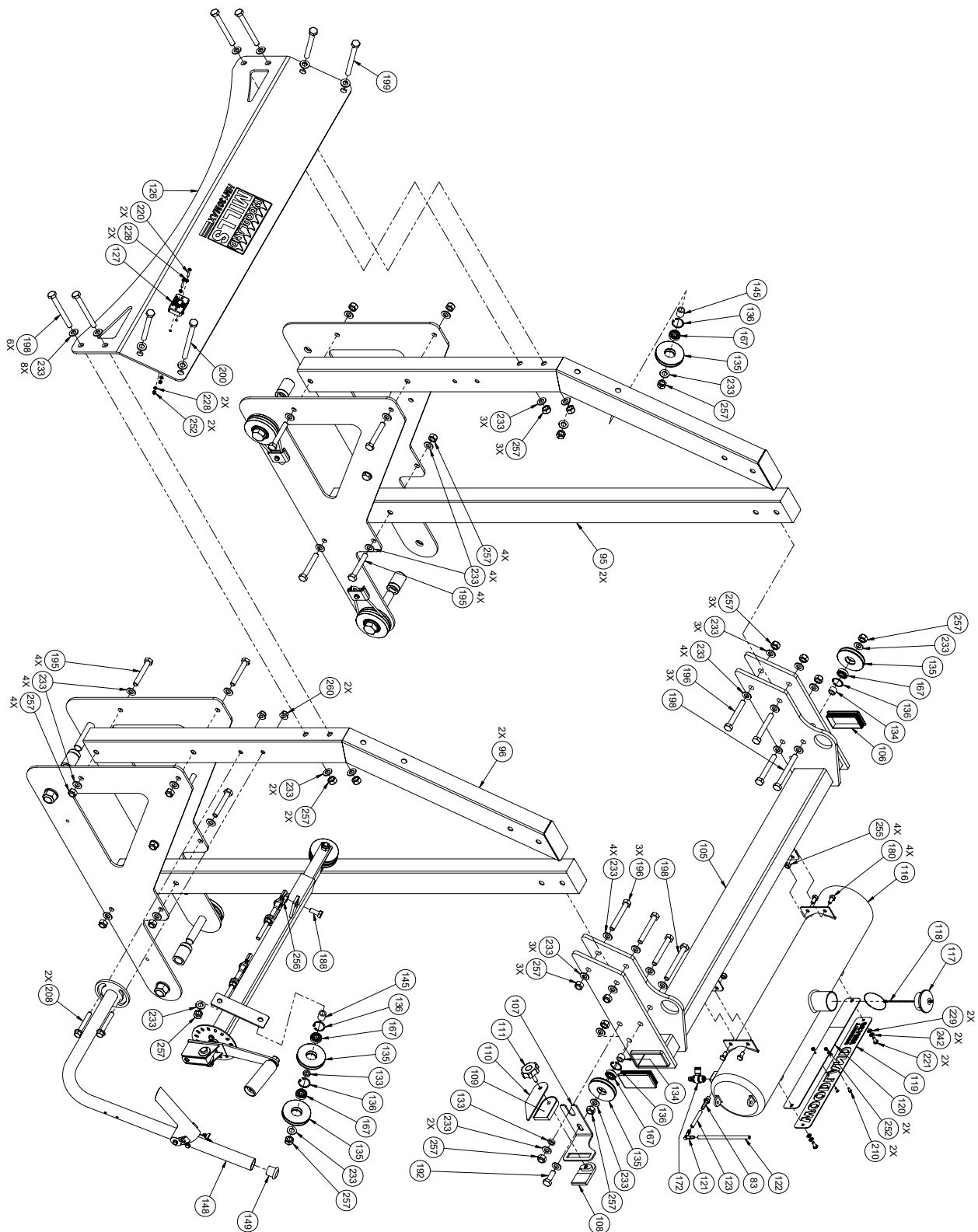


ENGINE COMPONENTS



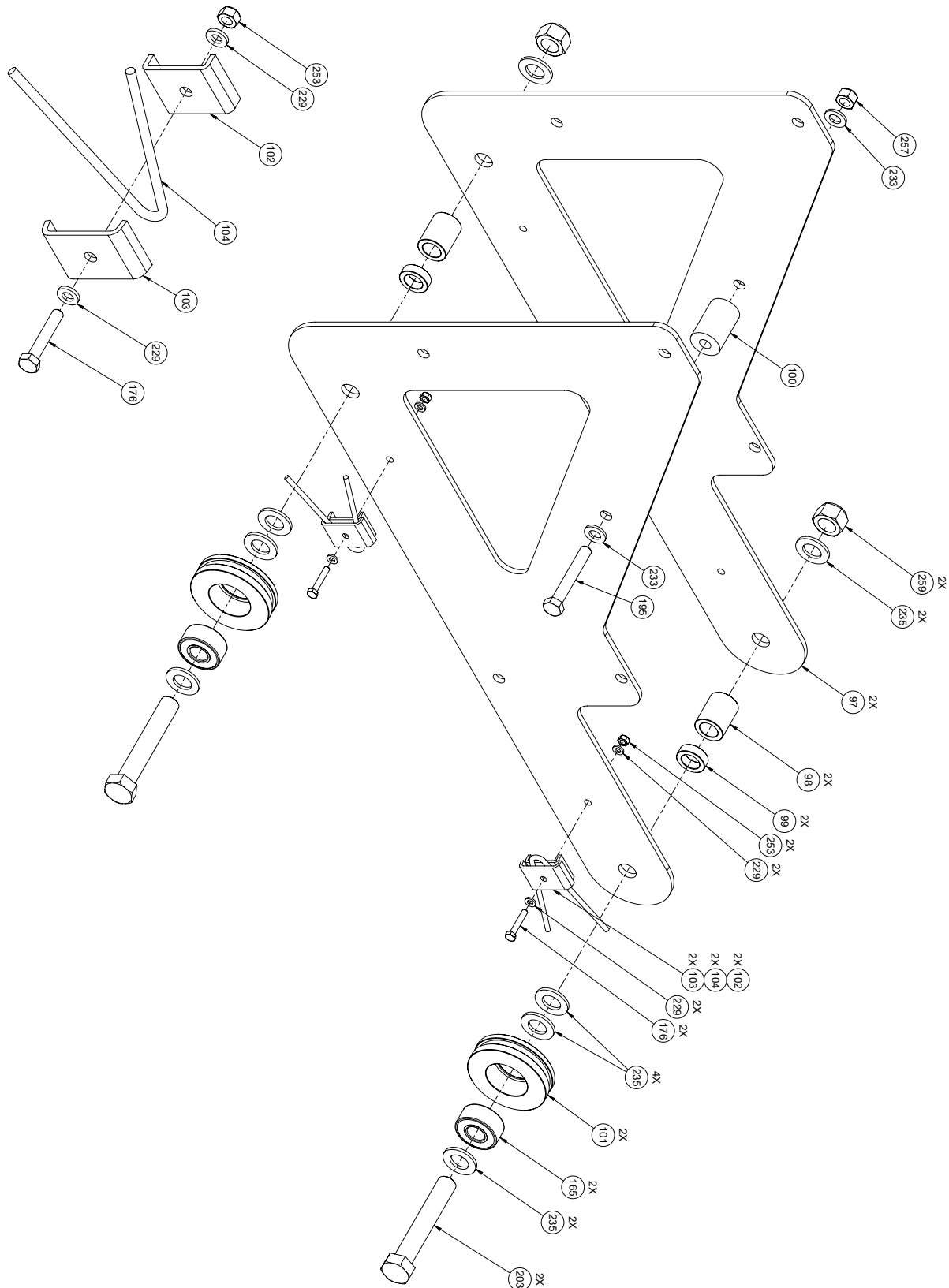


CARRIAGE



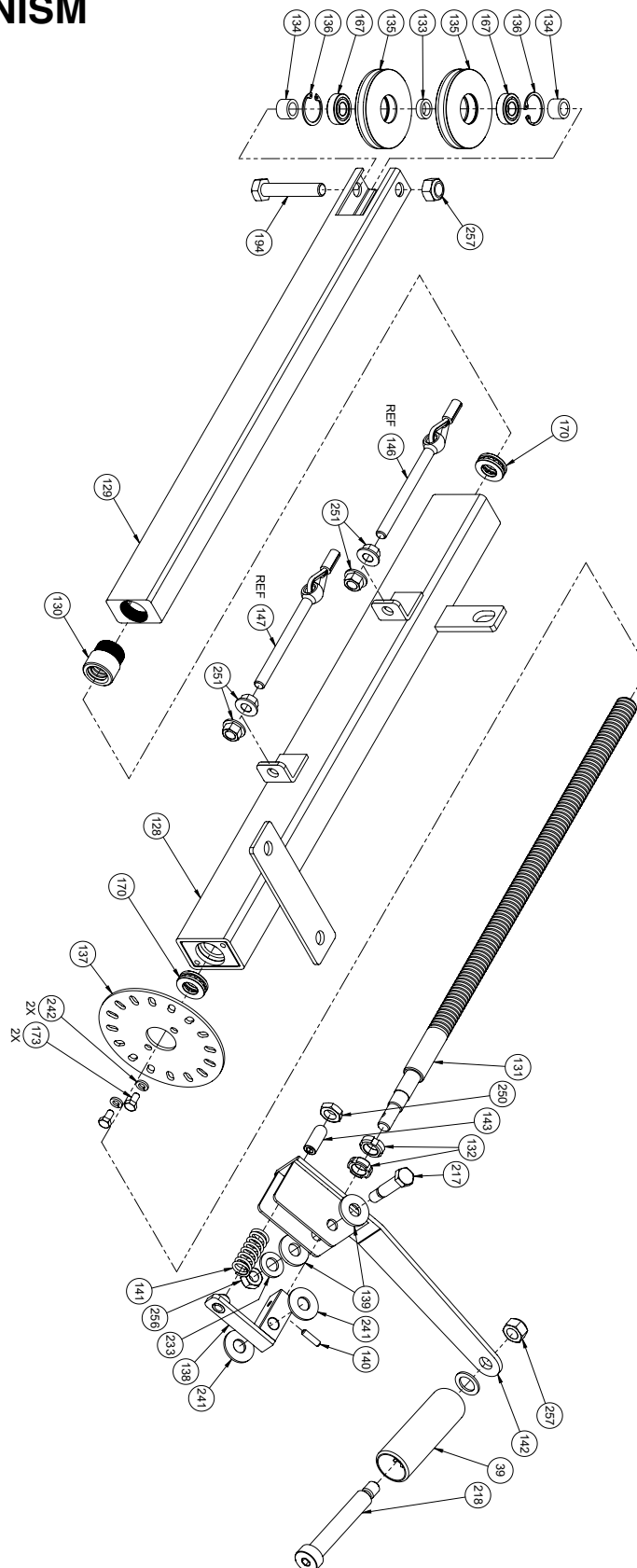


CARRIAGE LEG, WHEEL, AND SWEEPER



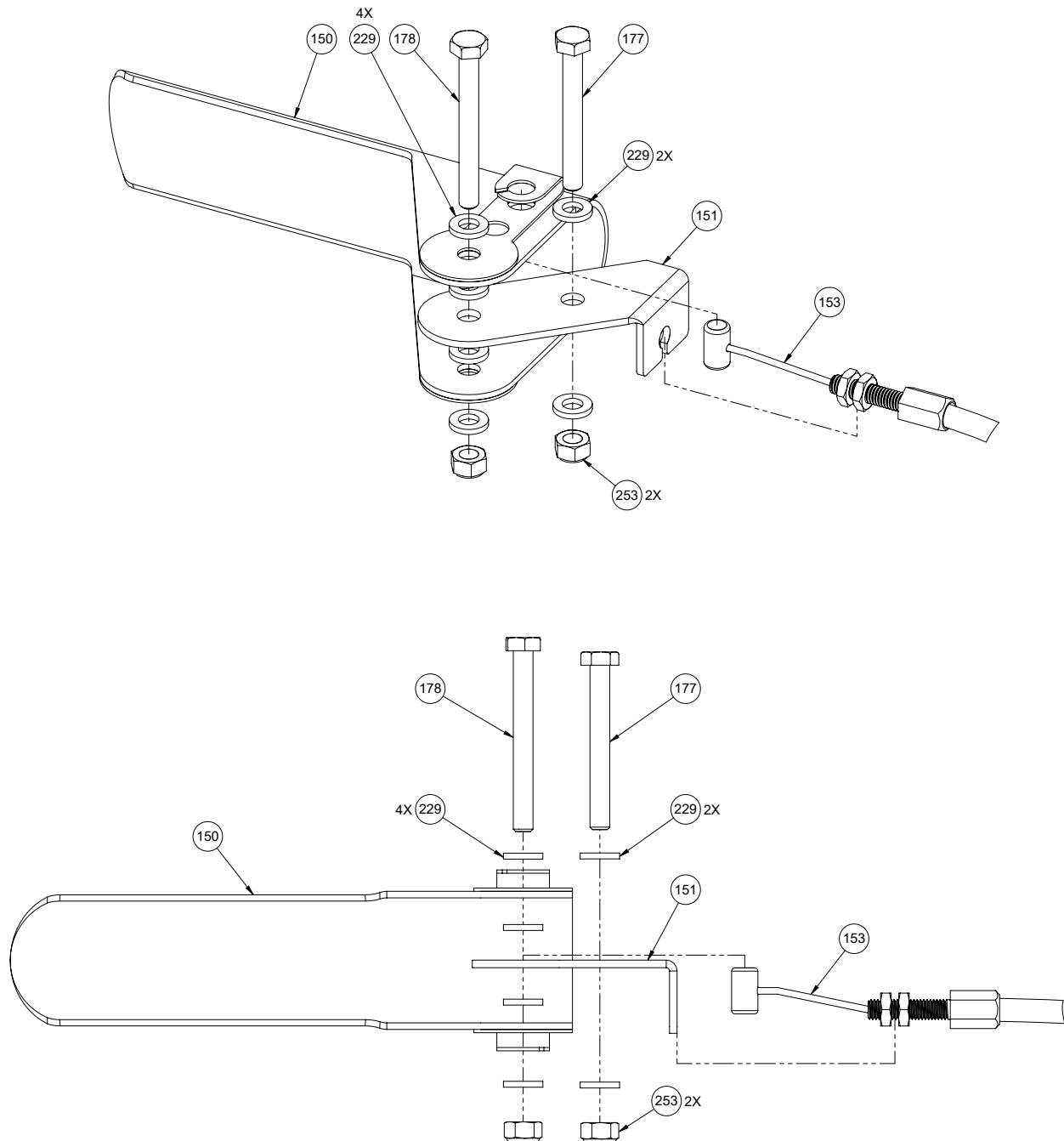


LIFT MECHANISM



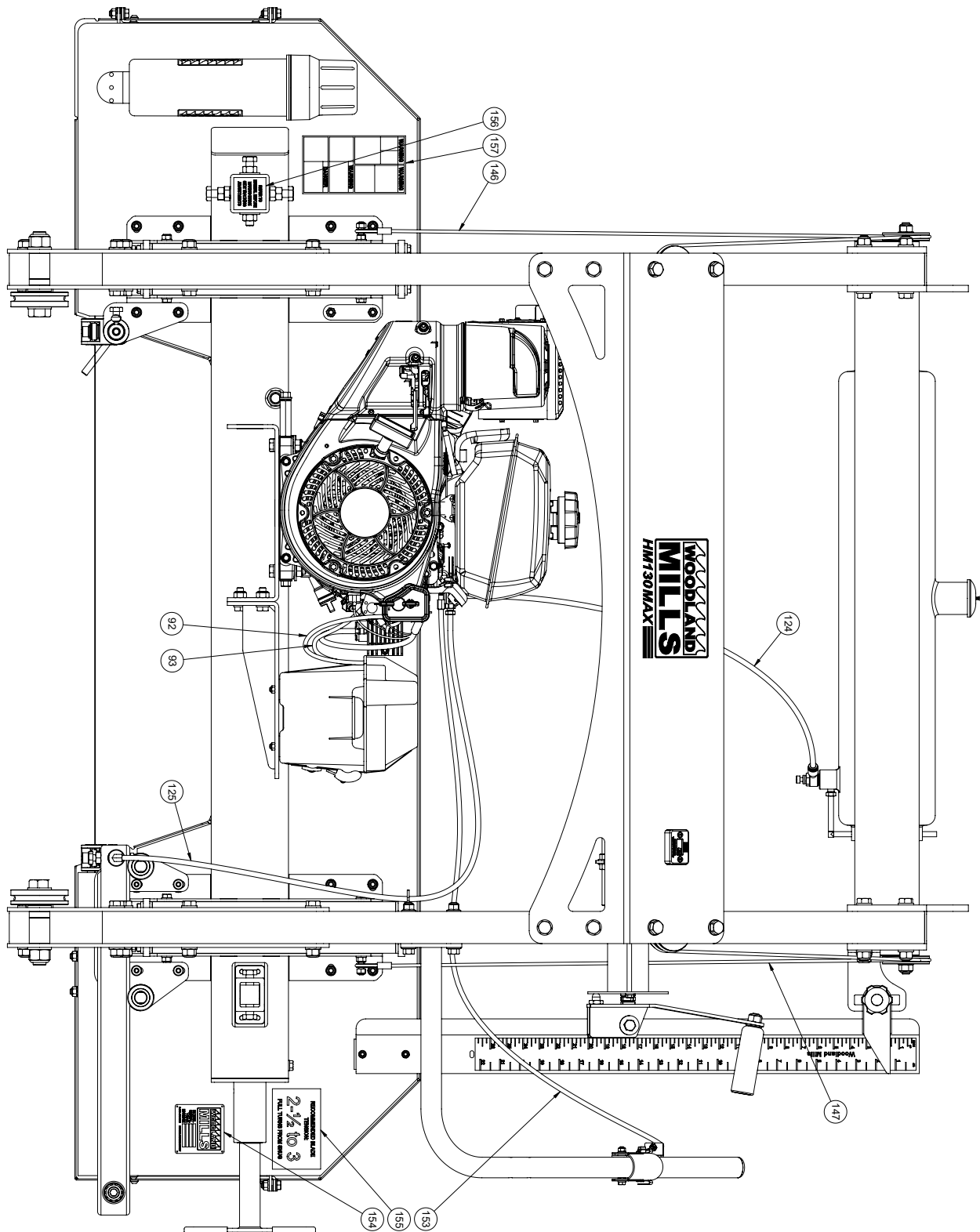


THROTTLE HANDLE





CABLES, TUBING & LABELS





PARTS LIST

Item	Qty	Part No.	Description
1	4	0001073	TRACK RAIL, 100 X 58.5 mm, 1950 mm LG
2	2	0002885	LOG BUNK, END
3	2	0002887	LOG BUNK, MID
4	1	0002886	LOG BUNK, CENTER
5	3	0002888	LOG BUNK CAP
6	2	0001072	REINFORCEMENT PLATE, 90 X 200 mm
7	12	0001071	LEVELLING FOOT BASE
8	4	0001055	CARRIAGE STOP
9	2	0002904	SHAFT WELDMENT, QUICK-LOCK LOG CLAMP
10	2	0001069	MOUNTING BRACKET, QUICK-LOCK LOG CLAMP
11	2	0001061	RECEIVER, QUICK-LOCK LOG CLAMP
12	2	0001211	QUICK-LOCK LOG CLAMP
13	2	0001056	LOG SUPPORT, BEVELLED, 450 mm LG
14	2	0001465	LOG SUPPORT, KEY STOP, 190 mm LG
15	5	0001059	T-BOLT, M10 X 1.5, 40 mm LG
16	1	0002908	BACK BEAM
17	2	0002672	POST SLEEVE
18	8	0004234	POST SLEEVE BUSHING, U-SHAPED, 50 X 80 mm POST
19	4	0001410	POST SLEEVE LOCKING PLATE, 50 X 80 mm POST
20	1	0001020	LUBRICATION TUBING BRACKET, FLAT
21	1	0002052	RAPIDCHANGE MOUNTING PLATE, 160 X 100 mm
22	1	0002053	RAPIDCHANGE TENSION BLOCK, 160 X 100 mm
23	1	0002054	RAPIDCHANGE SHAFT SLEEVE
24	1	0005457	TENSION ROD, RAPIDCHANGE, TR18X3 THD, 220 mm LG
25	1	0002056	RAPIDCHANGE BACK PLATE, 160 X 100 mm
26	2	0002350	HEX BOLT, M12 X 1.25, 20 mm LG, 2.5 mm CHAMFER
27	1	0003116	SPRING WASHER HOLDER, RAPIDCHANGE, 120 X 50 mm
28	6	0002637	SPRING WASHER SHIM, 25 ID X 41.5 OD X 1 mm THK
29	24	0006088	BELLEVILLE WASHER, 20.4 ID, 40 OD, 2.5 THK, 3.45 mm TALL, 2111 lb WORKING LOAD
30	1	0005452	TENSION HANDLE, RATCHET MOUNT, OFFSET THD, 139 mm LG
31	6	0002023	SPACER, ADJUSTABLE BLADE GUIDE
32	1	0003529	ADJUSTABLE BLADE GUIDE ROLLER CARRIAGE, 41 mm X 120° ROLLERS
33	2	0003525	TRACK ROLLER SHAFT W/ HEAD, CONCENTRIC, M12 X 1.75 THD
34	1	0003527	TRACK ROLLER SHAFT W/ HEAD, ECCENTRIC, M10 X 1.5 THD
35	3	0003528	TRACK ROLLER SHAFT SPACER, 15 ID X 23 OD X 5 mm THK
36	3	0002657	TRACK ROLLER, V-GROOVE, 120°, 41 mm DIA X 20 mm WD
37	1	0002661	BALL-NOSE SPRING PLUNGER, HEX DRIVE, NON-LOCKING, M12 X 1.75, 26 mm LG
38	1	0002660	ADJUSTABLE BLADE GUIDE ARM, 120° TRACK ROLLERS, 575 mm LG
39	2	0004199	HANDLE, STRAIGHT, 35 mm DIA, 105 mm LG, M16 THRU
40	1	0002666	BLADE GUARD GUIDE, ADJUSTABLE BLADE GUIDE
41	1	0002665	BLADE GUARD, ADJUSTABLE BLADE GUIDE
42	1	0002667	KNOB, MULTI-LOBE, 38 mm OD, M8 X 1.25, 12 mm LG
43	1	0002022	GUIDE BLOCK HOLDER BRACKET, LEFT
44	2	0001093	GUIDE BLOCK HOLDER



Item	Qty	Part No.	Description
45	1	0001096	GUIDE BLOCK HOLDER SHAFT, BLADE STOPPER
46	1	0002759	SAW BLADE STOPPER, CRIMPED, 82.5 mm LG
47	1	0006891	THUMB SCREW, SPADE-HEAD, SST, M6 X 1, 10 mm LG
48	1	0002663	GUIDE BLOCK HOLDER SHAFT, DRIP NOZZLE, GUARD MOUNT
49	1	0005116	FITTING, ELBOW, 90°, BARBED, 1/8 in NPT, 1/4 in HOSE
50	1	0002664	GREASE FITTING, STRAIGHT, 14 mm LG, M6 TPR THD, MODIFIED
51	4	0001090	GUIDE BLOCK
52	1	0002892	BAND WHEEL HOUSING
53	1	0002893	BAND WHEEL DOOR, LEFT
54	1	0002895	BAND WHEEL DOOR, RIGHT
55	2	0001954	BAND WHEEL HOUSING INNER HINGE BRACKET
56	2	0001955	BAND WHEEL HOUSING OUTER HINGE BRACKET
57	3	0003161	LATCH SPACER
58	3	0002248	ADJUSTABLE DRAW LATCH
59	1	0001659	KNOB, MULTI-LOBE, 48 mm OD, M8 X 1.25, 17 mm LG
60	1	0001104	DRIVE SHAFT, 30 mm SQ, 125 mm LG, 25 mm DIA
61	1	0001993	FOLLOWER SHAFT, RAPIDCHANGE, 30 mm SQ, 108.5 mm LG, 25 mm DIA
62	2	0001105	BAND WHEEL, 19 in
63	2	0004820	RETAINING RING, INTERNAL, 62 mm BORE (65 mm GROOVE)
64	1	0002017	BELT TENSIONER SHAFT SPACER
65	1	0002643	BELT TENSIONER ARM
66	1	0002644	BELT TENSIONER IDLER SHAFT
67	2	0005282	LEVELLING WASHER, FEMALE, M16
68	2	0005283	LEVELLING WASHER, MALE, M16
69	1	0002645	IDLER PULLEY, SPHERICAL ALIGNMENT, 33 mm WD, 80 mm DIA
70	1	0004816	RETAINING RING, INTERNAL, 40 mm BORE (42.5 mm GROOVE)
71	1	0002646	PARALLEL KEY, 8 X 8 mm, 37 mm LG
72	1	0002019	NUT LOCKING PLATE
73	1	0001655	MANUAL TUBE
74	1	0001217	CLUTCH SPACER, 27 ID X 50.5 OD X 30 mm LG
75	1	0001137	PARALLEL KEY, 1/4 X 1/4 in, 1 in LG
76	1	0003930	CLUTCH ASSEMBLY, HEAVY-DUTY, 1 in [25.4 mm] SHAFT, 108 mm DIA PULLEY
77	1	0007082	VALVE MOUNT BRACKET, 9.5 & 14 hp
78	1	0002079	OIL DRAIN EXTENSION, 56 mm LG, M12 X 1.5 THD
79	2	0006224	SEALING WASHER, M12
80	1	0001136	EXHAUST REDIRECT, 9.5 & 14 hp KOHLER ENGINES
81	1	0006978	VALVE ACTUATION TAB, 9.5 & 14 hp
82	1	0003452	STEM VALVE, 1/8 in NPT FEMALE, 1/8 in STEM TRAVEL
83	3	0005127	FITTING, ADAPTER, BARBED, 1/8 in NPT MALE TO 1/4 in HOSE
84	1	0001985	CABLE ADJUSTMENT SCREW, 2 mm CABLE, M6 X 1, 25 mm LG
85	1	0004982	COMPRESSION SPRING, CLOSED GROUND ENDS, 8.5 mm OD, 0.9 mm DIA WIRE, 27 mm LG
86	1	0005578	COMPRESSION SPRING, CLOSED GROUND ENDS, 7.49 mm OD, 0.81 mm WIRE DIA, 40 mm LG, 0.21 lb/mm
87	1	0005103	EXTENSION SPRING, HOOK ENDS, 8.5 mm OD, 1.5 mm DIA WIRE, 100 mm LG
88	1	0001957	BATTERY SUPPORT, REMOVABLE
89	1	0005558	BATTERY BOX BASE, U1 BATTERY SIZE, WM LOGO
90	1	0005559	BATTERY BOX LID, U1 BATTERY SIZE, WM LOGO
91	1	0005734	BATTERY BOX STRAP, 38 mm WD, 1050 mm LG



Item	Qty	Part No.	Description
92	1	0001650	BATTERY CABLE, NEGATIVE (BLACK), 6 AWG, 12 in LG
93	1	0001651	BATTERY CABLE, POSITIVE (RED), 6 AWG, 12 in LG
94	1	0002929	SAW BLADE, 7/8 in PITCH, 181 TEETH, 1-1/4 WD X 158 LG X .042 in THK
95	2	0001416	FRONT POST, 50 X 80 mm, 1425 mm LG
96	2	0002668	BACK POST, 50 X 80 mm
97	4	0001417	CARRIAGE SIDE PLATE
98	4	0001966	SPACER, 20.5 ID X 32 OD X 40 mm LG
99	4	0001967	SPACER, 20.5 ID X 32 OD X 10 mm LG
100	2	0001102	SPACER, 13 ID X 33.5 OD X 50 mm LG
101	4	0001037	CARRIAGE WHEEL
102	4	0001019	WHEEL SWEEPER INNER BRACKET
103	4	0001017	WHEEL SWEEPER OUTER BRACKET
104	4	0001018	WHEEL SWEEPER CABLE
105	1	0002889	CROSS BEAM
106	2	0001661	PLASTIC END CAP, RECT, 100 X 50 mm
107	1	0002096	LOG SCALE MOUNTING BRACKET
108	1	0002097	SCALE INDICATOR ARROW BRACKET, REAR
109	1	0002098	SCALE INDICATOR ARROW BRACKET, FRONT
110	1	0002099	SCALE INDICATOR ARROW
111	1	0002764	KNOB, MULTI-LOBE, 48 mm OD, M8 X 1.25, 25 mm LG
112	1	0002040	SCALE SUPPORT
113	1	0001038	SCALE SUPPORT SPACER PLATE
114	1	0003233	MAGNETIC SCALE, 27 in, YELLOW
115	1	0003235	MAGNETIC SCALE, 27 in, WHITE
116	1	0002035	LUBRICANT TANK, 13 L [3.4 gal], MANOMETER/NAMEPLATE MOUNT
117	1	0001132	TANK CAP
118	1	0005221	BEAD CHAIN, 3 mm BEAD, 140 mm LG
119	1	0002107	NAMEPLATE, HM130
120	1	0002038	NAMEPLATE BACKING
121	1	0005117	FITTING, ELBOW, 90°, BARBED, 6 mm ID TUBE, WHITE
122	1	0002809	SIGHT LEVEL TUBING, LUBRICATION TANK
123	1	0002691	LUBRICATION TUBING, TANK-TO-ELBOW, 2-3/16 in [55 mm] LG
124	1	0002744	LUBRICATION TUBING, TANK-TO-VALVE, 8 mm OD, 33 in [838 mm] LG
125	1	0002745	LUBRICATION TUBING, VALVE-TO-BLADE, 8 mm OD, 41 in [1042 mm] LG
126	1	0002890	DASHBOARD
127	1	0002671	HOUR METER
128	1	0002919	LIFT MECHANISM HOUSING
129	1	0001422	LIFT MECHANISM EXTENSION ARM
130	1	0001048	BRONZE NUT, LH TR20X4 FEM THD, M27 X 1.5 MALE THD
131	1	0001424	LEAD SCREW, LH TR20X4 X 430 mm LG THD
132	2	0006079	SLOTTED NUT, ROUND, M14 X 1.5
133	3	0002813	SPACER, 12 ID X 18 OD X 5 mm LG
134	4	0002812	SPACER, 12 ID X 18 OD X 12 mm LG
135	7	0001099	WIRE ROPE PULLEY, 6001-2RS BEARING, 73 mm DIA
136	7	0004813	RETAINING RING, INTERNAL, 28 mm BORE (29.4 mm GROOVE)
137	1	0002520	CRANK HANDLE INDEX PLATE, 125 mm DIA, SST
138	1	0002632	SELF-LOCKING CRANK HANDLE ARM LUG
139	2	0002675	SPACER, 12.5 ID X 30 OD X 3.3 mm LG
140	1	0004777	SPRING PIN, SLOTTED, 5 mm DIA, 20 mm LG



Item	Qty	Part No.	Description
141	1	0004975	COMPRESSION SPRING, CLOSED GROUND ENDS, 0.720 in OD, 0.096 in DIA WIRE, 1.750 in LG, 86 lb/in RATE
142	1	0002633	SELF-LOCKING CRANK HANDLE ARM
143	1	0006040	SET SCREW, FULL ROUND, M12 X 1.75, 30 mm LG
144	1	0004214	SPACER, 16.5 ID X 25 OD X 2 mm LG, NYLON
145	2	0003251	SPACER, 12 ID X 18 OD X 20.5 mm LG
146	1	0003025	WIRE ROPE LIFT CABLE W/ EYEBOLT, LEFT, 4 mm DIA, 139.2 in [3535 mm] LG
147	1	0003026	WIRE ROPE LIFT CABLE W/ EYEBOLT, RIGHT, 4 mm DIA, 103.2 in [2620 mm] LG
148	1	0002068	PUSH HANDLE, ADJUSTABLE
149	1	0001662	PLASTIC END CAP, ROUND, 32 mm OD
150	1	0001021	THROTTLE HANDLE
151	1	0001024	THROTTLE HANDLE CABLE MOUNT, LEFT
152	1	0001112	THROTTLE CABLE BARREL CLAMP
153	1	0002743	THROTTLE CABLE, 74 in [1880 mm] LG CABLE, 65 in [1650 mm] LG SHEATH
154	1	0001839	LABEL, SERIAL NUMBER
155	1	0006993	LABEL, RECOMMENDED BLADE TENSION BY TURNS
156	1	0005688	LABEL, DRIVE-SIDE TRACKING
157	1	0002769	LABEL, DANGER/WARNING COLLAGE
158	1	0004646	LABEL, FOLLOWER BELT
159	2	0002766	LABEL, CAUTION: DO NOT OPERATE WITHOUT GUARDS
160	1	0002770	LABEL, DANGER: MOVING PARTS CUT/CRUSH
161	1	0002771	LABEL, DANGER: BANDSAW BLADE WILL CUT
162	1	BX57	V-BELT, COGGED, BX57
163	1	BX80	V-BELT, COGGED, BX80
164	1	CH440-3275	ENGINE, KOHLER COMMAND PRO HORIZONTAL, 14 hp, ELECTRIC START
165	4	5204-2RS	BALL BEARING, SEALED, ANG-CONT, DOUBLE ROW, 20 mm SFT, 47 mm HSG, 20.6 mm WD
166	2	6000-2RS	BALL BEARING, SEALED, 10 mm SFT, 26 mm HSG, 8 mm WD
167	7	6001-2RS	BALL BEARING, SEALED, 12 mm SFT, 28 mm HSG, 8 mm WD
168	1	6203-2RS	BALL BEARING, SEALED, 17 mm SFT, 40 mm HSG, 12 mm WD
169	4	6305-2RS	BALL BEARING, SEALED, 25 mm SFT, 62 mm HSG, 17 mm WD
170	2	51102	THRUST BEARING, SINGLE DIR, 15 mm SFT, 28 mm HSG, 9 mm WD
171	1	51204	THRUST BEARING, SINGLE DIR, W/ HSG, 20 mm SFT, 40 mm HSG, 14 mm WD
172	1	SLS-03-08	FLOW CONTROL VALVE, RA, 3/8 NPT, 8 mm QUICK-CONNECT TUBE
173	2	HHB-MBE063FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 12 mm LG, FULL
174	4	HHB-MBE075FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 20 mm LG, FULL
175	4	HHB-MBE080FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 25 mm LG, FULL
176	4	HHB-MBE090FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 35 mm LG, FULL
177	1	HHB-MBE105FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 50 mm LG, FULL
178	1	HHB-MBE110PCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 55 mm LG, 18 mm LG THD
179	2	HHB-MBJ063FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 12 mm LG, FULL
180	4	HHB-MBJ071FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 16 mm LG, FULL
181	25	HHB-MBJ075FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 20 mm LG, FULL
182	5	HHB-MBJ080FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 25 mm LG, FULL
183	1	HHB-MBJ085FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 30 mm LG, FULL
184	4	HHB-MBJ090FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 35 mm LG, FULL
185	2	HHB-MBJ165PCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 110 mm LG, 22 mm LG THD
186	2	HHB-MBJ175FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 120 mm LG, FULL
187	1	HHB-MBM075FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 20 mm LG, FULL



Item	Qty	Part No.	Description
188	4	HHB-MBM080FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 25 mm LG, FULL
189	3	HHB-MBM085FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 30 mm LG, FULL
190	8	HHB-MBM105FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 50 mm LG, FULL
191	1	HHB-MBR075FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 20 mm LG, FULL
192	1	HHB-MBR090FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 35 mm LG, FULL
193	2	HHB-MBR100FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 45 mm LG, FULL
194	1	HHB-MBR120PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 65 mm LG, 30 mm LG THD
195	10	HHB-MBR135PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 80 mm LG, 30 mm LG THD
196	6	HHB-MBR145PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 90 mm LG, 30 mm LG THD
197	1	HHB-MBR155FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 100 mm LG, FULL
198	8	HHB-MBR165PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 110 mm LG, 30 mm LG THD
199	1	HHB-MBR185PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 130 mm LG, 30 mm LG THD
200	1	HHB-MBR205PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 150 mm LG, 36 mm LG THD
201	1	HHB-MCA145PCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 90 mm LG, 38 mm LG THD
202	12	HHB-MCA175FCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 120 mm LG, FULL
203	4	HHB-MCF175PCJ	HEX HEAD BOLT, CLS 8.8, M20 X 2.5, 120 mm LG, 46 mm LG THD
204	2	HHB-UBU017FGE	HEX HEAD BOLT, GR 5, 3/8-16, 3/4 in LG, FULL
205	1	HHB-UBV025FGJ	HEX HEAD BOLT, GR 8, 3/8-24, 1-1/4 in LG, FULL
206	38	FHH-MBM080FCM	HEX BOLT, FLANGED, CLS 10.9, M10 X 1.5, 25 mm LG, FULL
207	16	FHH-MBM090PCM	HEX BOLT, FLANGED, CLS 10.9, M10 X 1.5, 35 mm LG, 26 mm LG THD
208	2	FHH-MBM125PCJ	HEX BOLT, FLANGED, CLS 8.8, M10 X 1.5, 70 mm LG, 26 mm LG THD
209	6	BHS-MAW051FTA	BUTTON HEAD SCREW, CLS 10.9, M4 X 0.7, 6 mm LG, FULL
210	2	BHS-MAW059FCM	BUTTON HEAD SCREW, CLS 10.9, M4 X 0.7, 10 mm LG, FULL
211	12	BHS-MBE063FTA	BUTTON HEAD SCREW, SST, M6 X 1, 12 mm LG, FULL
212	8	BHS-MBE071FCM	BUTTON HEAD SCREW, CLS 10.9, M6 X 1, 16 mm LG, FULL
213	4	BHS-MBJ090FCM	BUTTON HEAD SCREW, CLS 10.9, M8 X 1.25, 35 mm LG, FULL
214	4	SHC-MBJ075FCP	SHCS, CLS 12.9, M8 X 1.25, 20 mm LG, FULL
215	2	SHC-MBM080FCP	SHCS, CLS 12.9, M10 X 1.5, 25 mm LG, FULL
216	1	SHC-MBR185FCP	SHCS, CLS 12.9, M12 X 1.75, 130 mm LG, FULL
217	1	HHS-MBM057090AJ	SHLDR SCREW, HEX HEAD, ALLOY, 11 X 35 mm LG SHLDR, M10 X 1.5 X 18 mm LG THD
218	1	SHS-MBR063145CP	SHLDR SCREW, SH, CLS 12.9, 16 X 90 mm LG SHLDR, M12 X 1.75 X 18 mm LG THD
219	1	PPH-MAW063FTA	SCREW, PPH, SST, M4 X 0.7, 12 mm LG, FULL
220	2	PPH-MAW085FCE	SCREW, PPH, CLS 4.8, M4 X 0.7, 30 mm LG, FULL
221	2	PPH-MBE067FCE	SCREW, PPH, CLS 4.8, M6 X 1, 14 mm LG, FULL
222	12	PFH-MAW059FCM	SCREW, PFH, CLS 10.9, M4 X 0.7, 10 mm LG, FULL
223	1	HFH-MBE085PCM	SCREW, HFH, CLS 10.9, M6 X 1, 30 mm LG, 18 mm LG THD
224	2	HFH-MBJ075FCM	SCREW, HFH, CLS 10.9, M8 X 1.25, 20 mm LG, FULL
225	1	HFH-MBM075FCM	SCREW, HFH, CLS 10.9, M10 X 1.5, 20 mm LG, FULL
226	2	PST-UBC015FAJ	SCREW, PPH, ST, NO. 10, 5/8 in LG
227	8	KCS-MBJ055TA	SET SCREW, KNURLED CUP POINT, SST, M8 X 1.25, 8 mm LG
228	4	FTW-MAW000AJ	FLAT WASHER, M4
229	37	FTW-MBE000AJ	FLAT WASHER, M6
230	30	FTW-MBJ000AJ	FLAT WASHER, M8
231	12	FTW-MBJ000NA	FLAT WASHER, M8, NYLON
232	21	FTW-MBM000AJ	FLAT WASHER, M10
233	58	FTW-MBR000AJ	FLAT WASHER, M12
234	1	FTW-MCA000AJ	FLAT WASHER, M16
235	16	FTW-MCF000AJ	FLAT WASHER, M20



Item	Qty	Part No.	Description
236	4	FDW-MBE065000AJ	FENDER WASHER, M6, 18 mm OD
237	2	FDW-MBJ079000AJ	FENDER WASHER, M8, 30 mm OD
238	4	FDW-MBM079000AJ	FENDER WASHER, M10, 30 mm OD
239	2	FDW-MBM083000AJ	FENDER WASHER, M10, 34 mm OD
240	1	FDW-MBM084000AJ	FENDER WASHER, M10, 35 mm OD
241	4	FDW-MBR080000AJ	FENDER WASHER, M12, 31 mm OD
242	4	SLW-MBEAJ	SPLIT LOCK WASHER, M6
243	2	SLW-MBJAJ	SPLIT LOCK WASHER, M8
244	9	SLW-MBMAJ	SPLIT LOCK WASHER, M10
245	4	HXN-MBJCH	HEX NUT, CLS 8, M8 X 1.25
246	7	HXN-MBMCH	HEX NUT, CLS 8, M10 X 1.5
247	4	HXN-MBRCH	HEX NUT, CLS 8, M12 X 1.75
248	36	HXN-MCACH	HEX NUT, CLS 8, M16 X 2
249	1	THN-MBECC	HEX NUT, THIN, CLS 4, M6 X 1
250	4	THN-MBRCC	HEX NUT, THIN, CLS 4, M12 X 1.75
251	4	FHN-MBMCH	HEX NUT, FLANGED, CLS 8, M10 X 1.5
252	10	HLN-MAWCH	LOCK NUT, CLS 8, M4 X 0.7
253	23	HLN-MBECH	LOCK NUT, CLS 8, M6 X 1
254	12	HLN-MBETA	LOCK NUT, SST, M6 X 1
255	32	HLN-MBJCH	LOCK NUT, CLS 8, M8 X 1.25
256	10	HLN-MBMCH	LOCK NUT, CLS 8, M10 X 1.5
257	30	HLN-MBRCH	LOCK NUT, CLS 8, M12 X 1.75
258	1	HLN-MCACH	LOCK NUT, CLS 8, M16 X 2
259	4	HLN-MCFCH	LOCK NUT, CLS 8, M20 X 2.5
260	50	FLN-MBMCL	LOCK NUT, FLANGED, CLS 10, M10 X 1.5

[illegible]

[illegible]



Lined area for notes or additional information, consisting of multiple horizontal lines.



Lined area for notes or additional information, consisting of 20 horizontal lines.

This page intentionally left blank.



DISCOVER THE WOODLAND™